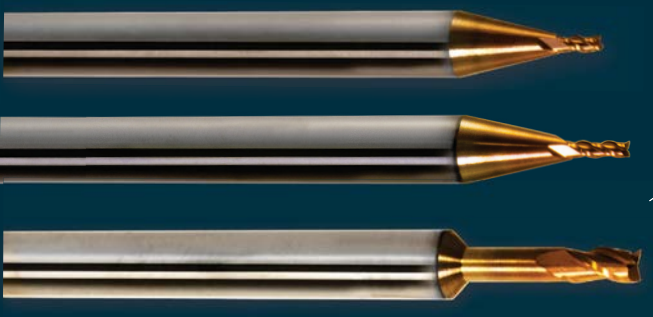
ARCH®
Cutting Tools

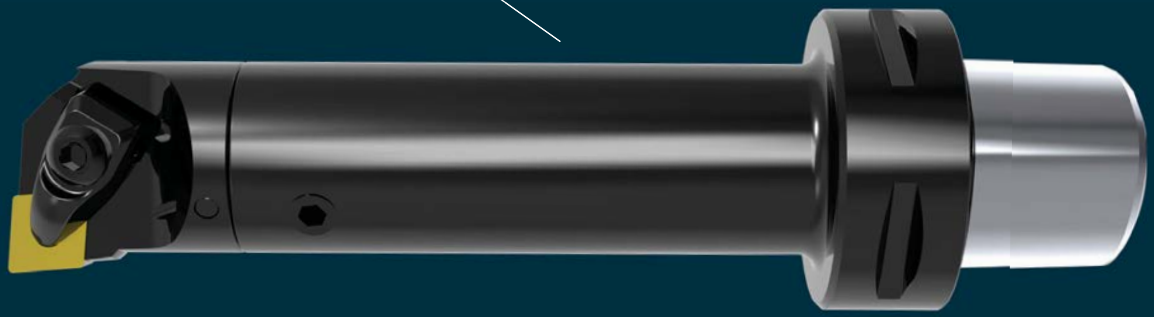
SPT SUNCOAST INC. PRECISION TOOLS
ESTABLISHED 1963

PATRIOT HP® 966 Shrink-Fit Tool Holder



REVERE® 977 Quarter Horse End Mill

ULTRA-DEX® 944 PSC Connection



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MANUFACTURED IN THE USA

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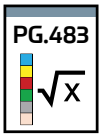


CHAPTER 1

ROTATING

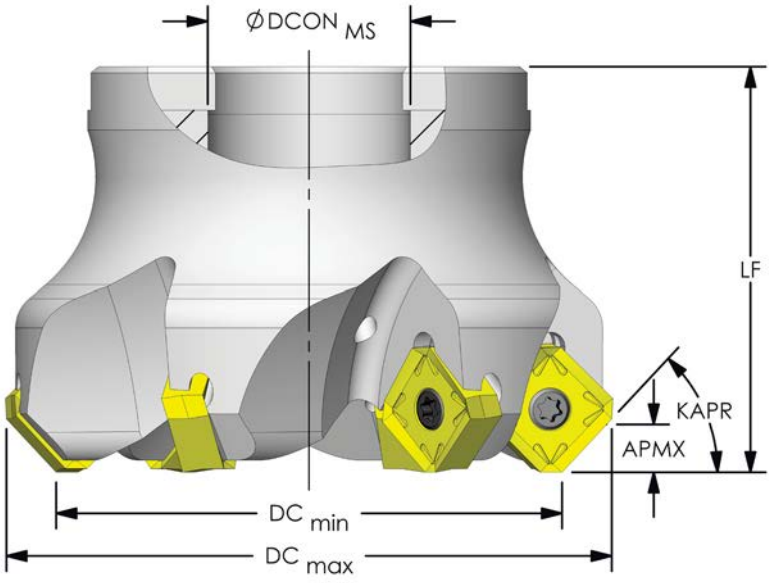
INDEXABLE MILLING

ARCH®
Cutting Tools

PATRIOT HP®

PM1

- First choice for face and chamfer milling
- Well balanced radial and axial cutting forces
- Not prone to vibration in long overhang applications
- Positive geometry double side insert with 8 cutting edges
- Directed through coolant for longer tool life



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KAPR: 45°

Product #	Designation	DCmax [in.]	DCmin [in.]	APMX [in.]	ZC	LF [in.]	DCONMS [in.]	KAPR [°]	Insert	Insert Screw
970-000-092	PM1-1.25-3-.500-12	1.738	1.250	0.236	3	1.750	0.500	45.0	PM1 1205	PM1-4
970-000-093	PM1-1.50-4-.500-12	1.988	1.500	0.236	4	1.750	0.500	45.0	PM1 1205	PM1-4
970-000-094	PM1-2.00-5-.750-12	2.488	2.000	0.236	5	1.750	0.750	45.0	PM1 1205	PM1-4
970-000-095	PM1-2.50-6-1.00-12	2.988	2.500	0.236	6	2.000	1.000	45.0	PM1 1205	PM1-4
970-000-096	PM1-3.00-8-1.00-12	3.488	3.000	0.236	8	2.000	1.000	45.0	PM1 1205	PM1-4
970-000-097	PM1-4.00-10-1.25-12	4.488	4.000	0.236	10	2.000	1.250	45.0	PM1 1205	PM1-4

PATRIOT HP®

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

HCX

SCX

Product #	Designation	HP470	HM470	HS470	HS480	HK430	HN432
914-000-104	PM1 1205-HCX	●					
914-000-105	PM1 1205-HCX					●	
914-000-106	PM1 1205-SCX		●				
914-000-107	PM1 1205-SCX			●			

PACKAGE SIZE OF 10

PART #	Insert Screw
968-000-119	PM1-4
968-000-120	PM2-3
968-000-121	PM2-4
968-000-122	PM3-35
968-000-123	PM4-4

PACKAGE SIZE OF 5

Chipbreaker:

HCX : Medium to roughing applications in steel and cast iron

SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

ISO	MATERIAL	HARDNESS	Chipbreaker	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	300-800	.005 - .020
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.003 - .018
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.003 - .0015
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.003 - .015
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 1100	.005 - .022
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			350 - 850	.005 - .016
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	80-280	.004 - .011
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 250	.003 - .009
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 300	.004 - .012

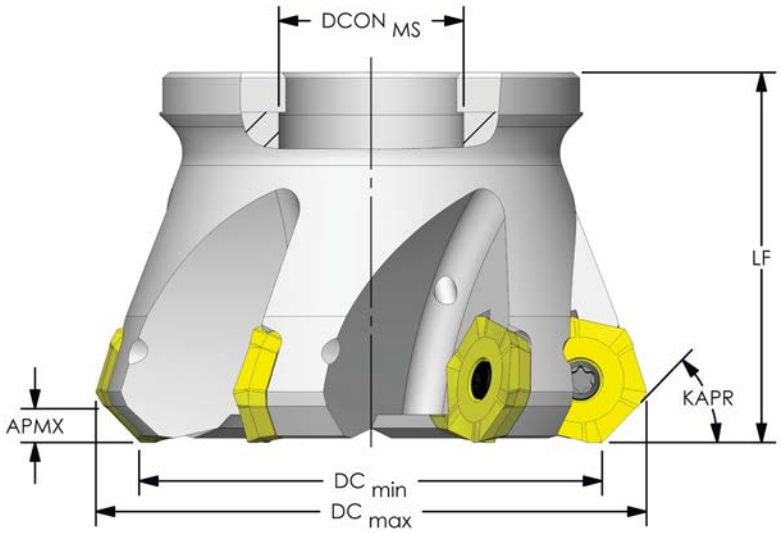
***LOWER Vc AND Fz = MED.- HEAVY Ap / Ae** ***HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae**

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

PATRIOT HP®

PM4

- First choice for face and chamfer milling in low-powered machines
- Well balanced radial and axial cutting forces
- Not prone to vibration in long overhang applications
- True 45° entry angle
- Positive geometry insert with 6 cutting edges for cost efficiency
- Directed through coolant for longer tool life



PG.486

KAPR: 45°

Product #	Designation	DCmax [in.]	DCmin [in.]	APMX [in.]	ZC	LF [in.]	DCONMS [in.]	KAPR [°]	Insert	Insert Screw
970-000-110	PM4-1.50-4-.500-06	1.980	1.500	0.177	4	1.750	0.500	45.0	PM4 0604	PM4-4
970-000-111	PM4-2.00-5-.750-06	2.480	2.000	0.177	5	1.750	0.750	45.0		
970-000-112	PM4-2.50-6-1.00-06	2.980	2.500	0.177	6	2.000	1.000	45.0		
970-000-113	PM4-3.00-7-1.00-06	3.480	3.000	0.177	7	2.000	1.000	45.0		
970-000-114	PM4-4.00-9-1.25-06	4.480	4.000	0.177	9	2.000	1.250	45.0		

PATRIOT HP®

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

HCX

SCX

LCX

Product #	Designation	HP470	HM470	HS470	HS480	HK430	HN432
914-000-125	PM4 0604-HCX	•					
914-000-124						•	
914-000-127	PM4 0604-SCX		•				
914-000-128				•			
914-000-126	PM4 0604-LCX						•

PACKAGE SIZE OF 10

Part #	Insert Screw
968-000-119	PM1-4
968-000-120	PM2-3
968-000-121	PM2-4
968-000-122	PM3-35
968-000-123	PM4-4

PACKAGE SIZE OF 5

Chipbreaker:
HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons
SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys
LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

ISO	MATERIAL	HARDNESS	Chipbreaker	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	300-800	.005 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.005 - .016
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.003 - .012
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.003 - .014
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 950	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			350 - 800	.005 - .016
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	LCX	HK430	400 - 1100	.007 - .020
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	80-250	.004 - .011
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 200	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC				.003 - .010

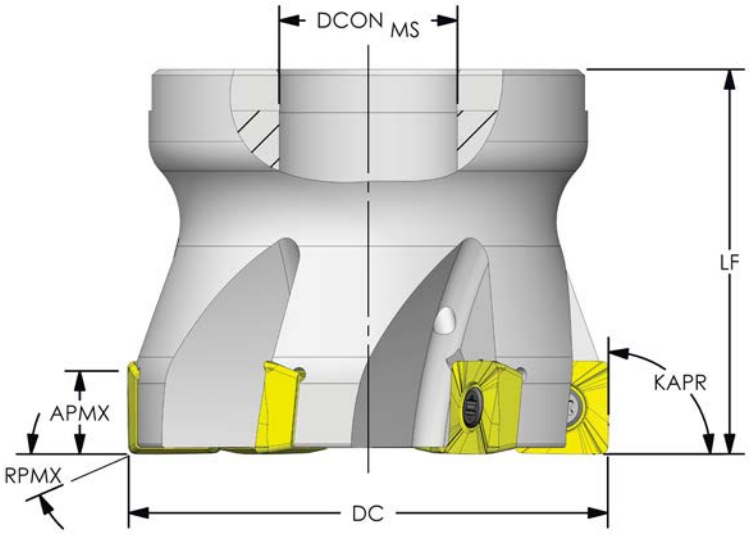
***LOWER Vc AND Fz = MED.- HEAVY Ap / Ae** ***HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae**

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

PATRIOT HP®

PM2

- First choice for shoulder and slot milling
- Excellent surface finish
- High machine utilization of low-powered machines
- Precise insert location providing a true 90° shoulder
- Positive geometry with 4 cutting edges
- Directed through coolant for longer tool life and chip evacuation



PG.487

KAPR: 90°

Product #	Designation	DC [in.]	APMX [in.]	ZC	LF [in.]	DCONMS [in.]	RPMX [°]	KAPR [°]	Insert	Insert Screw
970-000-098	PM2-1.25-4-.500-09	1.250	0.314	4	1.750	0.500	2.20°	90.0	PM2 09T308	PM2-3
970-000-100	PM2-1.50-5-.500-09	1.500	0.314	5	1.750	0.500	0.75°	90.0		
970-000-102	PM2-2.00-6-.750-09	2.000	0.314	6	1.750	0.750	0.50°	90.0		
970-000-104	PM2-2.50-7-1.00-09	2.500	0.314	7	2.000	1.000	0.35°	90.0		
970-000-106	PM2-3.00-9-1.00-09	3.000	0.314	9	2.000	1.000	0.25°	90.0		
970-000-099	PM2-1.50-4-.500-12	1.500	0.394	4	1.750	0.500	0.75°	90.0	PM2 120508	PM2-4
970-000-101	PM2-2.00-5-.750-12	2.000	0.394	5	1.750	0.750	0.40°	90.0		
970-000-103	PM2-2.50-6-1.00-12	2.500	0.394	6	2.000	1.000	0.30°	90.0		
970-000-105	PM2-3.00-7-1.00-12	3.000	0.394	7	2.000	1.000	0.25°	90.0		

PATRIOT HP®

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

HCX

SCX

LCX

CCX

Product #	Designation	HP470	HM470	HS470	HS480	HK430	HN432
914-000-109	PM2 09T308-HCX	●					
914-000-111	PM2 09T308-SCX		●				
914-000-112				●			
914-000-113					●		
914-000-108	PM2 09T308-CCX					●	
914-000-110	PM2 09T308-LCX						●
914-000-115	PM2 120508-HCX	●					
914-000-116	PM2 120508-SCX		●				
914-000-117				●			
914-000-118					●		
914-000-114	PM2 120508-CCX					●	

PACKAGE SIZE OF 10

Part #	Insert Screw
968-000-119	PM1-4
968-000-120	PM2-3
968-000-121	PM2-4
968-000-122	PM3-35
968-000-123	PM4-4

PACKAGE SIZE OF 5

Chipbreaker:
HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons
SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys
CCX : Strong cutting edge for cast iron applications
LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

ISO	MATERIAL	HARDNESS	Chipbreaker	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	230-800	.003 - .010
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			230-700	.003 - .008
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	200-600	.003 - .009
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			200-600	.003 - .009
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	CCX / HCX	HK430	400 - 950	.004 - .015
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			300 - 700	.003 - .011
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	LCX	HK430	400 - 1000	.006 - .018
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX / HCX	HS470	80-250	.003 - .009
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 200	.0025 - .007
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 350	.003 - .010

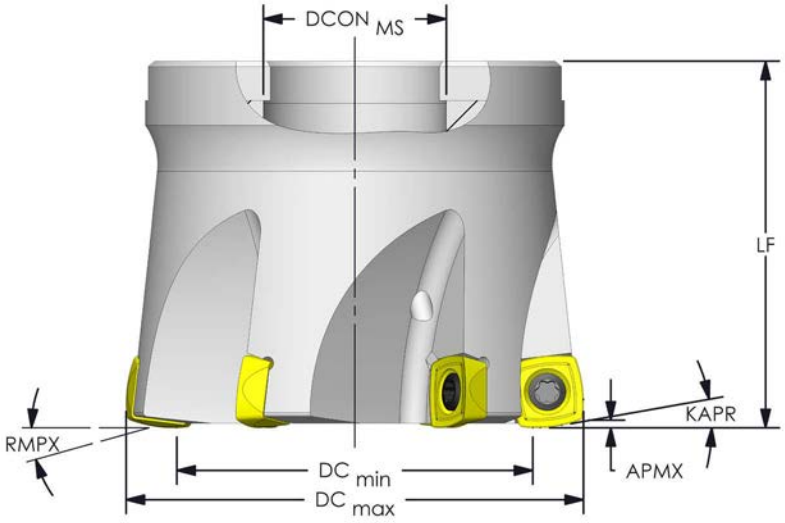
***LOWER Vc AND Fz = MED.- HEAVY Ap / Ae** ***HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae**

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

PATRIOT HP®

PM3

- First choice for high feed and plunge milling or face milling with long overhang
- Helical interpolation and ramping capabilities
- Low radial cutting forces allow for aggressive feed rates
- Excels in ISO M and S materials
- High metal removal rates
- Positive insert geometry with 4 cutting edges
- Directed through coolant for longer tool life and chip evacuation



PG.488

KAPR: 10°

Product #	Designation	DCXmax [in.]	DCmin [in.]	APMX [in.]	ZC	LF [in.]	DCONMS [in.]	RPMX [in.]	KAPR [°]	Insert	Insert Screw
970-000-107	PM3-1.50-4-.500-10	1.500	1.035	0.039	4	1.750	0.500	1.2°	10.0	PM3 10T308	PM3-35
970-000-108	PM3-2.00-5-.750-10	2.000	1.535	0.039	5	1.750	0.750	0.9°	10.0		
970-000-109	PM3-2.50-6-1.00-10	2.500	2.035	0.039	6	2.000	1.000	0.8°	10.0		

PATRIOT HP®

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, ae, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

HCX

SCX

Product #	Designation	HP470	HM470	HS470	HS480	HK430	HN432
914-000-119	PM3 10T308-HCX					●	
914-000-120		●					
914-000-121	PM3 10T308-SCX		●				
914-000-122				●			
914-000-123					●		

PACKAGE SIZE OF 10

PART #	Insert Screw
968-000-119	PM1-4
968-000-120	PM2-3
968-000-121	PM2-4
968-000-122	PM3-35
968-000-123	PM4-4

PACKAGE SIZE OF 5

Chipbreaker:

HCX : Strong cutting edge for general steels, cast irons, and hard conditions in milling application

SCX : Sharp cutting edge for general stainless steels and super alloy applications

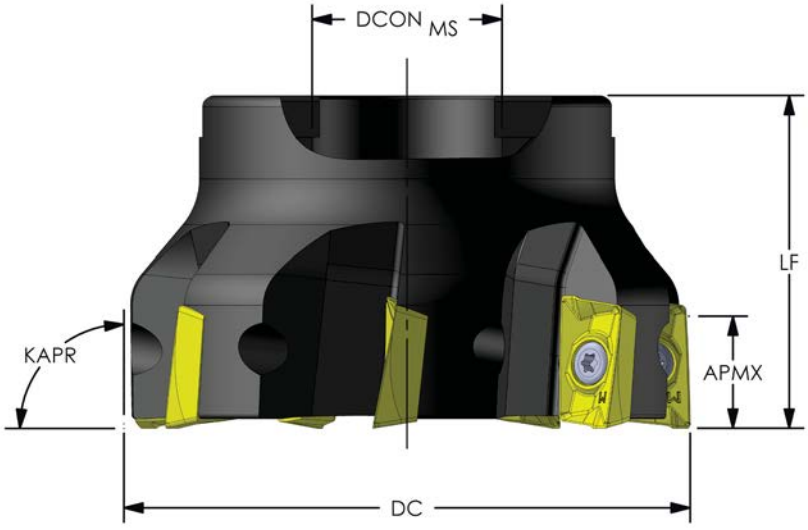
ISO	MATERIAL	HARDNESS	Chipbreaker	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	220 - 820	.009 - .075
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.009 - .065
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.009 - .045
	STAINLESS STEELS (DIFFICULT) 304, 304L,316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.009 - .045
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 900	.009 - .063
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			300 - 850	.009 - .055
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	100-350	.009 - .040
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 220	.007 - .035
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 400	.008 - .050

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

ULTRA-DEX®

F90AP

- Shoulder and slot milling in ISO P, M, K, N, H and S material
- Ramping and helical interpolation capabilities
- Max depth of cut 0.472” (12mm)
- Excellent surface finish
- High machine utilization of low-powered machines
- Positive geometry insert
- Arbor mount connection with no through coolant

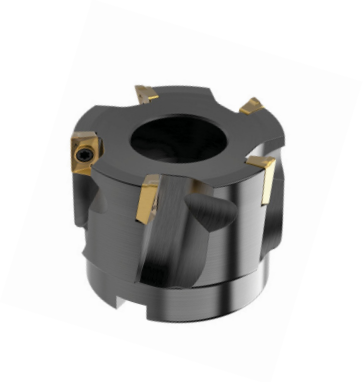


PG.489

KAPR: 95°

Product #	Designation	DC [in.]	ZC	LF [in.]	APMX [in.]	DCONMS [in.]	KAPR [°]	Insert	Insert Screw
946-000-032	F90AP D2.00-5-.750-11	2.000	5	1.570	0.315	0.750	95.0	APKT 11T308	SR34505L
946-000-035	F90AP D2.50-7-1.00-11	2.500	7	1.750	0.315	1.000	95.0		SR34505L
946-000-038	F90AP D3.00-8-1.00-11	3.000	8	1.750	0.315	1.000	95.0		SR34505L
946-000-033	F90AP D2.00-5-.750-16	2.000	5	1.570	0.472	0.750	95.0	APKT 160408	SR14544
946-000-034	F90AP D2.50-5-1.00-16	2.500	5	1.750	0.472	1.000	95.0		SR14544
946-000-036	F90AP D3.00-5-1.00-16	3.000	5	1.750	0.472	1.000	95.0		SR14544
946-000-037	F90AP D3.00-7-1.00-16	3.000	7	1.750	0.472	1.000	95.0		SR14544
946-000-039	F90AP D4.00-7-1.25-16	4.000	7	2.000	0.472	1.250	95.0		SR14544

ULTRA-DEX®



Product #	DESIGNATION	RADIUS	UD1	UD204	UD404	UD602
913-000-029	APKT 11T304-PF	0.015		•		
913-000-030					•	
913-000-031						•
913-000-039	APKT 11T308-PF	0.031		•		
913-000-040					•	
913-000-046	APKT 11T316-PF	0.062		•		
913-000-047					•	
913-000-051	APKT 160408-PF	0.031			•	
913-000-052						•
913-000-032	APKT 11T304-PM	0.015		•		
913-000-033					•	
913-000-034						•
913-000-041	APKT 11T308-PM	0.031		•		
913-000-042					•	
913-000-043						•
913-000-045	APKT 11T312-PM	0.046			•	
913-000-048	APKT 11T316-PM	0.062		•		
913-000-049					•	
913-000-053	APKT 160408-PM	0.031		•		
913-000-054					•	
913-000-055						•
913-000-035	APKT 11T304-PR	0.015		•		
913-000-036					•	
913-000-037						•
913-000-028	APKT 11T304-AL	0.015	•			
913-000-038	APKT 11T308-AL	0.031	•			
913-000-050	APKT 160408-AL	0.031	•			

PACKAGE SIZE OF 10

Product #	Insert Screw
968-000-134	SR34505
968-000-133	SR14544
968-000-135	SR34505L

PACKAGE SIZE OF 5

APKT 11T308

FEED PER TOOTH (INCH)

AP (inch)	Light	Medium	Heavy
0.315	0.0028	0.0031	0.0039
0.236	0.0039	0.0047	0.0059
0.157	0.0047	0.0059	0.0079

f/t

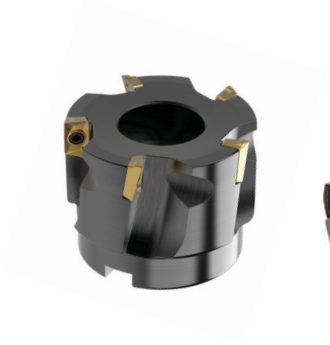
APKT 160408

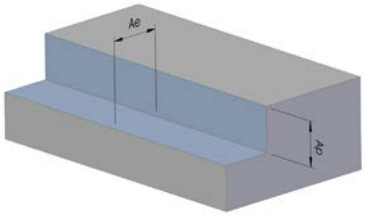
FEED PER TOOTH (INCH)

AP (inch)	Light	Medium	Heavy
0.472	0.0028	0.0031	0.0039
0.315	0.0039	0.0047	0.0059
0.197	0.0047	0.0059	0.0079

f/t

ULTRA-DEX®

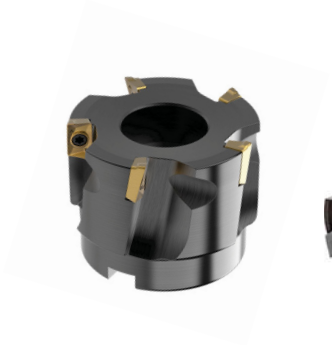


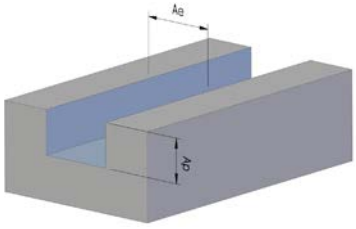


				Square SHOULDER MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.010	0.004 - 0.012	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.012	0.004 - 0.012	0.315	0.472
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.014	0.004 - 0.016	0.315	0.472
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.007	0.003 - 0.009	0.315	0.472
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.0085	0.003 - 0.010	0.315	0.472

**Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ULTRA-DEX®





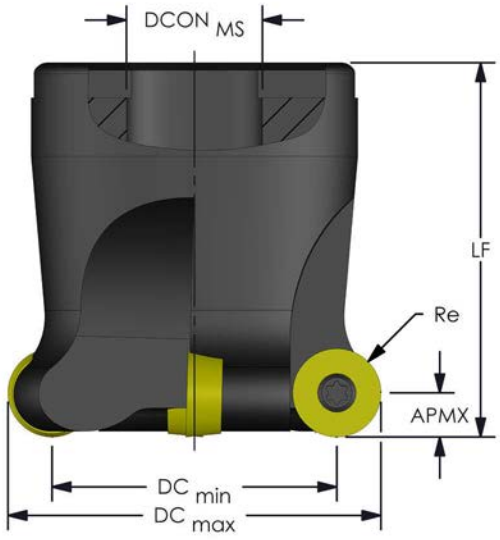
				Square SLOT MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.006	0.003 - 0.010	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.006	0.003 - 0.0085	0.315	0.472
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.007	0.003 - 0.010	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.006	0.003 - 0.010	0.315	0.472
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.008	0.004 - 0.010	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.008	0.004 - 0.010	0.315	0.472
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.011	0.004 - 0.014	0.315	0.472
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.006	0.003 - 0.007	0.315	0.472
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.006	0.003 - 0.008	0.315	0.472

**Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ULTRA-DEX®

FR ARBOR MOUNT

- Designed for profiling, contouring, and slot milling in ISO P, M, K, N, H and S materials
- Ramping and helical interpolation capabilities
- High feed milling capabilities
- Excellent surface finish
- High machine utilization of low-powered machines
- Positive geometry insert
- Arbor mount connection without through coolant



PG.491

Product #	Designation	DCMAX [in.]	DCMIN [in.]	RE [in.]	LF [in.]	DCONMS [in.]	APMX [in.]	ZC	Insert	Insert Screw
946-000-041	FR-D2.00-4-.750-12	2.000	1.528	0.236 (6mm)	2.000	0.750	0.236 (6mm)	4	RCKT 1204	MTS-35
946-000-042	FR-D2.00-4-.750-4	2.000	1.500	0.250	2.000	0.750	0.250	4	RCMT 43	MTS-4
946-000-040	FR-D2.00-3-.750-16	2.000	1.370	0.315	2.000	0.750	0.315	3	RCKT 1606	MTS-4
946-000-044	FR-D3.00-5-1.00-4	3.000	2.500	0.250	1.750	1.000	0.250	5	RCMT 43	MTS-4
946-000-043	FR-D3.00-5-1.00-16	3.000	2.370	0.315	1.750	1.000	0.315	5	RCKT 1606	MTS-4
946-000-046	FR-D4.00-6-1.25-4	4.000	3.500	0.250	1.750	1.250	0.250	6	RCMT 43	MTS-4
946-000-045	FR-D4.00-6-1.25-16	4.000	3.370	0.315	1.750	1.250	0.315	6	RCKT 1606	MTS-4

Recommendations:

- Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.
- It is recommended to use precision holders i.e. hydraulic, shrink fit.

Product #	Insert Screw
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-082	MTS 25-DR
968-000-084	MTS 3-DR
968-000-083	MTS 35-DR
968-000-085	MTS 4-DR

PACKAGE SIZE OF 5

Product #	Designation	UD1	UD404	UD602
913-000-360	RDKW 0803		•	
913-000-361				•
913-000-337	RCKT 10T3	•		
913-000-338			•	
913-000-339				•
913-000-340	RCKT 1204	•		
913-000-341			•	
913-000-342				•
913-000-343	RCKT 1606		•	
913-000-344				•

PACKAGE SIZE OF 10

Product #	Designation	UD51	UD52	UD2	UD21	UD22
913-000-348	RCMT 21.5	•				
913-000-349			•			
913-000-345				•		
913-000-346					•	
913-000-347						•
913-000-353	RCMT 32.5	•				
913-000-354			•			
913-000-350				•		
913-000-351					•	
913-000-352						•
913-000-358	RCMT 43	•				
913-000-359			•			
913-000-355				•		
913-000-356					•	
913-000-357						•

PACKAGE SIZE OF 10

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)* at 50% insert I.C. APMX**
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51 UD52 UD404 UD602	300-850	.006 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-700	.005 - .015
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	200-650	.003 - .010
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.003 - .012
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	250-900	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		200-700	.005 - .015
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD1 UD2	400-975	.006 - .020
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	UD32 UD404	80-400	.004 - .012
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	UD32 UD52 UD404	40-250	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		100-550	.003 - .010

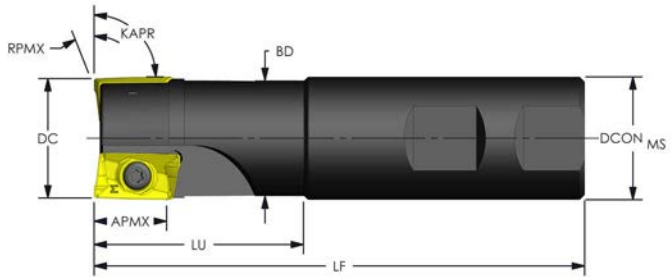
Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

**** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., Increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.**

ULTRA-DEX®

E90AP

- Shoulder and slot milling in ISO P, M, K, N, H and S material
- Ramping and helical interpolation capabilities
- Max depth of cut 0.472” (12mm)
- Excellent surface finish
- High machine utilization of low-powered machines
- Positive geometry insert
- Weldon shank connection with directed through coolant for longer tool life and chip evacuation



PG.489

KAPR: 90°

No Coolant

Product #	Designation	DC [in.]	LF [in.]	LU [in.]	APMX [in.]	DCONMS [in.]	BD [in.]	RPMX [°]	ZC	KAPR [°]	Insert	Insert Screw
946-000-001	E90AP D.500-1-W.500-11	0.500	3.375	0.975	0.315	0.500	0.455	10.0	1	90.0	APKT 11T308	SR34505
946-000-002	E90AP D.625-2-W.625-11	0.625	3.375	0.975	0.315	0.625	0.580	10.0	2	90.0		SR34505
946-000-003	E90AP D.750-2-W.750-11	0.750	3.375	0.975	0.315	0.750	0.705	5.0	2	90.0		SR34505L
946-000-005	E90AP D.750-3-W.750-11	0.750	3.375	0.975	0.315	0.750	0.705	5.0	3	90.0		SR34505L
946-000-007	E90AP D.750-3-W.750-6-11	0.750	6.000	3.000	0.315	0.750	0.705	5.0	3	90.0		SR34505L
946-000-010	E90AP D1.00-3-W.750-11	1.000	4.000	1.500	0.315	0.750	0.955	5.0	3	90.0		SR34505L
946-000-011	E90AP D1.00-3-W1.00-11	1.000	4.000	1.500	0.315	1.000	0.955	4.5	3	90.0		SR34505L
946-000-013	E90AP D1.00-3-W1.00-6-11	1.000	6.000	3.000	0.315	1.000	0.955	4.5	3	90.0		SR34505L
946-000-015	E90AP D1.250-3-W.750-11	1.250	4.000	1.500	0.315	0.750	1.205	3.0	3	90.0		SR34505L
946-000-016	E90AP D1.250-3-W1.00-11	1.250	4.000	1.500	0.315	1.000	1.205	3.0	3	90.0		SR34505L
946-000-021	E90AP D1.500-5-W1.00-11	1.500	4.000	1.500	0.315	1.000	1.475	2.0	5	90.0		SR34505L
946-000-008	E90AP D1.00-2-W1.00-16	1.000	4.000	1.750	0.472	1.000	0.940	6.0	2	90.0	APKT 160408	SR14544
946-000-009	E90AP D1.00-2-W1.00-6-16	1.000	6.000	4.000	0.472	1.000	0.940	6.0	2	90.0		SR14544
946-000-014	E90AP D1.250-2-W1.00-16	1.250	4.000	1.500	0.472	1.000	1.190	4.5	2	90.0		SR14544
946-000-017	E90AP D1.250-3-W1.00-16	1.250	4.000	1.500	0.472	1.000	1.190	4.5	3	90.0		SR14544
946-000-019	E90AP D1.500-3-W1.00-16	1.500	4.000	1.500	0.472	1.000	1.425	2.5	3	90.0		SR14544

Coolant Thru

Product #	Designation	DC [in.]	LF [in.]	LU [in.]	APMX [in.]	DCONMS [in.]	BD [in.]	RMPX [°]	ZC	KAPR [°]	Insert	Insert Screw
946-000-004	E90AP D.750-2-W.750-11-C	0.750	3.375	0.975	0.315	0.750	0.705	5.0	2	90.0	APKT 11T308	SR34505L
946-000-006	E90AP D.750-3-W.750-11-C	0.750	3.375	0.975	0.315	0.750	0.705	5.0	3	90.0		SR34505L
946-000-012	E90AP D1.00-3-W1.00-11-C	1.000	4.000	1.500	0.315	1.000	0.955	4.5	3	90.0		SR34505L
946-000-018	E90AP D1.250-3-W1.00-16-C	1.250	4.000	1.500	0.472	1.000	1.190	4.5	3	90.0	APKT 160408	SR14544
946-000-020	E90AP D1.500-3-W1.00-16-C	1.500	4.000	1.500	0.472	1.000	1.425	2.5	3	90.0		SR14544

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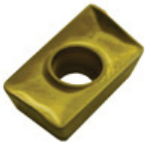


Product #	DESIGNATION	RADIUS	UD1	UD204	UD404	UD602
913-000-029	APKT 11T304-PF	0.015		•		
913-000-030					•	
913-000-031						•
913-000-039	APKT 11T308-PF	0.031		•		
913-000-040					•	
913-000-046	APKT 11T316-PF	0.062		•		
913-000-047					•	
913-000-051	APKT 160408-PF	0.031			•	
913-000-052						•
913-000-032	APKT 11T304-PM	0.015		•		
913-000-033					•	
913-000-034						•
913-000-041	APKT 11T308-PM	0.031		•		
913-000-042					•	
913-000-043						•
913-000-045	APKT 11T312-PM	0.046			•	
913-000-048	APKT 11T316-PM	0.062		•		
913-000-049					•	
913-000-053	APKT 160408-PM	0.031		•		
913-000-054					•	
913-000-055						•
913-000-035	APKT 11T304-PR	0.015		•		
913-000-036					•	
913-000-037						•
913-000-028	APKT 11T304-AL	0.015	•			
913-000-038	APKT 11T308-AL	0.031	•			
913-000-050	APKT 160408-AL	0.031	•			

PACKAGE SIZE OF 10

Product #	Insert Screw
968-000-134	SR34505
968-000-133	SR14544
968-000-135	SR34505L

PACKAGE SIZE OF 5

APKT 11T308

Feed Per Tooth (inch)

AP (inch)	Light	Medium	Heavy
0.315	0.0028	0.0031	0.0039
0.236	0.0039	0.0047	0.0059
0.157	0.0047	0.0059	0.0079

f/t

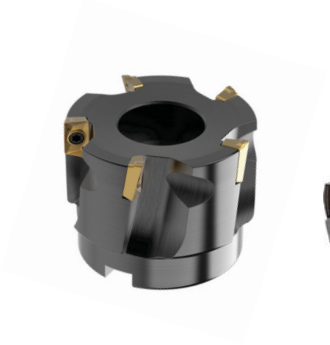
APKT 160408

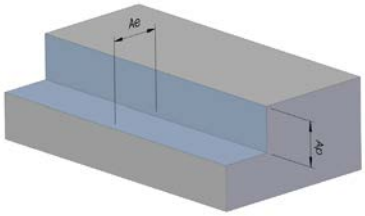
Feed Per Tooth (inch)

AP (inch)	Light	Medium	Heavy
0.472	0.0028	0.0031	0.0039
0.315	.0039	0.0047	0.0059
0.197	0.0047	0.0059	0.0079

f/t

ULTRA-DEX®

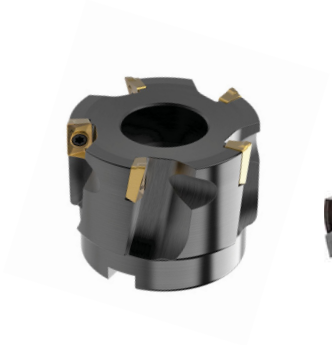


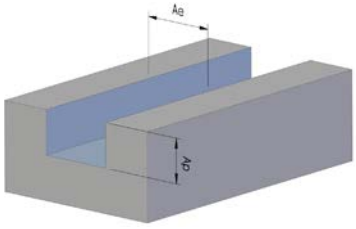


				Square SHOULDER MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.010	0.004 - 0.012	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.012	0.004 - 0.012	0.315	0.472
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.014	0.004 - 0.016	0.315	0.472
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.007	0.003 - 0.009	0.315	0.472
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.0085	0.003 - 0.010	0.315	0.472

**Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ULTRA-DEX®





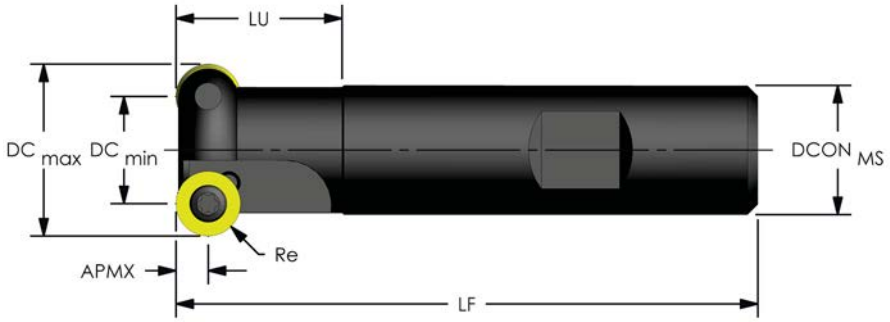
				Square SLOT MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.006	0.003 - 0.010	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.006	0.003 - 0.0085	0.315	0.472
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.007	0.003 - 0.010	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.006	0.003 - 0.010	0.315	0.472
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.008	0.004 - 0.010	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.008	0.004 - 0.010	0.315	0.472
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.011	0.004 - 0.014	0.315	0.472
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.006	0.003 - 0.007	0.315	0.472
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.006	0.003 - 0.008	0.315	0.472

**Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ULTRA-DEX®

ER WELDON SHANK

- Designed for profiling, contouring, and slot milling in ISO P, M, K, N, H and S materials
- Ramping and helical interpolation capabilities
- High feed milling capabilities
- Excellent surface finish
- High machine utilization of low-powered machines
- Positive geometry insert
- Weldon shank connection with directed through coolant for longer tool life and chip evacuation



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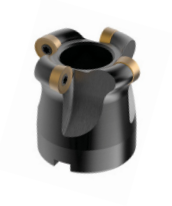
Product #	Designation	DCmax [in.]	DCmin [in.]	RE [in.]	LF [in.]	LU [in.]	DCONMS [in.]	ZC	APMX [in.]	Insert	Insert Screw
946-000-022	ER-D.750-2-.750-08	0.750	0.436	0.157 / 4mm	3.380	0.975	0.750	2	0.1570 / 4mm	RDKW 0803	MTS-3-DR
946-000-023	ER-D.750-2-.750-2	0.750	0.500	0.125	3.380	0.975	0.750	2	0.1250	RCMT 21.5	MTS-2.5L
946-000-025	ER-D1.00-2-.750-10	1.000	0.606	0.197 / 5mm	3.380	1.500	0.750	2	0.1970 / 5mm	RCKT 10T3	MTS-35
946-000-027	ER-D1.00-2-.750-3	1.000	0.625	0.188	3.380	1.500	0.750	2	0.1880	RCMT 32.5	MTS-4-DR
946-000-024	ER-D1.00-2-.750-08	1.000	0.686	0.157 / 4mm	3.380	1.500	0.750	2	0.157 / 4mm	RDKW 0803	MTS-3-DR
946-000-026	ER-D1.00-2-.750-2	1.000	0.750	0.125	3.380	1.500	0.750	2	0.1250	RCMT 21.5	MTS-2.5L
946-000-029	ER-D1.25-3-1.00-10	1.250	0.856	0.197 / 5mm	4.000	1.500	1.000	3	0.197 / 5mm	RCKT 10T3	MTS-35
946-000-028	ER-D1.25-2-1.00-3	1.250	0.875	0.188	4.000	1.500	1.000	2	0.1880	RCMT 32.5	MTS-4-DR
946-000-031	ER-D1.50-3-1.00-4	1.500	1.000	0.250	4.000	1.500	1.000	3	0.2500	RCMT 43	MTS-4
946-000-030	ER-D1.50-3-1.00-12	1.500	1.028	0.236 / 6mm	4.000	1.500	1.000	3	0.2360 / 6mm	RCKT 1204	MTS-35

Recommendations:

- Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.
- It is recommended to use precision holders i.e. hydraulic, shrink fit.



Product #	Insert Screw
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-082	MTS 25-DR
968-000-084	MTS 3-DR
968-000-083	MTS 35-DR
968-000-085	MTS 4-DR

PACKAGE SIZE OF 5

Product #	Designation	UD1	UD404	UD602
913-000-360	RDKW 0803		•	
913-000-361				•
913-000-337	RCKT 10T3	•		
913-000-338			•	
913-000-339				•
913-000-340	RCKT 1204	•		
913-000-341			•	
913-000-342				•
913-000-343	RCKT 1606		•	
913-000-344				•

PACKAGE SIZE OF 10

Product #	Designation	UD51	UD52	UD2	UD21	UD22
913-000-348	RCMT 21.5	•				
913-000-349			•			
913-000-345				•		
913-000-346					•	
913-000-347						•
913-000-353	RCMT 32.5	•				
913-000-354			•			
913-000-350				•		
913-000-351					•	
913-000-352						•
913-000-358	RCMT 43	•				
913-000-359			•			
913-000-355				•		
913-000-356					•	
913-000-357						•

PACKAGE SIZE OF 10

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)* at 50% insert I.C. APMX**
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	**UD51 UD52 UD404 UD602**	300-850	.006 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-700	.005 - .015
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	**UD32**	200-650	.003 - .010
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.003 - .012
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	**UD21**	250-900	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		200-700	.005 - .015
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	**UD1 UD2**	400-975	.006 - .020
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	**UD32 UD404**	80-400	.004 - .012
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	**UD32 UD52 UD404**	40-250	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		100-550	.003 - .010

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

**** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., Increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.**

SOLID MILLING

ARCH®
Cutting Tools

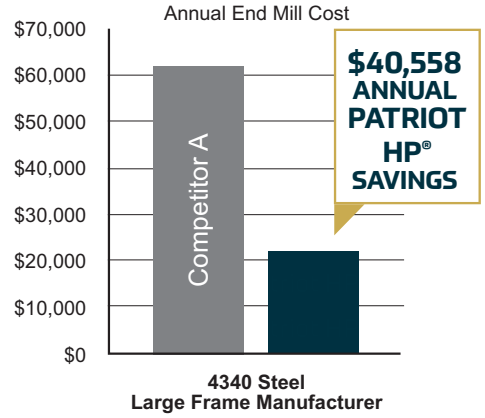
PATRIOT HP®

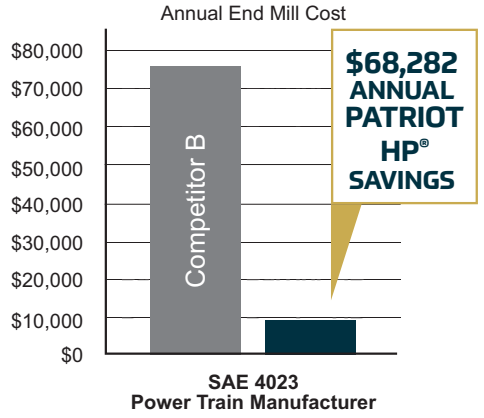
Originally optimized to tackle difficult to machine applications such as in Titanium & pre-hardened steels, this High-Performance End Mill has excelled in a wide array of exotic, alloyed and ferrous part materials. The Patriot family of high-performance end mills is designed with advanced proprietary geometry. There is a thin film coating that consistently delivers increased tool life, superior part finish and aggressive metal removal rates. This is all accomplished within a machining environment that generates extreme working temperatures.

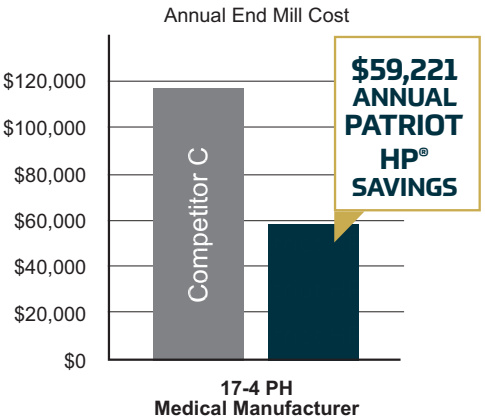
Specifications

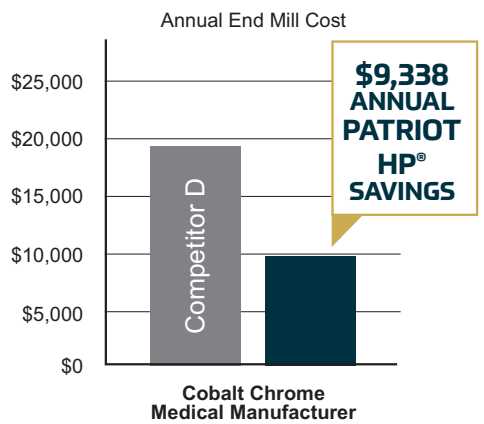
Diameter	0.125 to 1.000”
Radius	Square, Corner, Ball Nose
Flute count	4, 5, 7
Overall length	Standard, Stub, Long, Extra Long

P M K H S





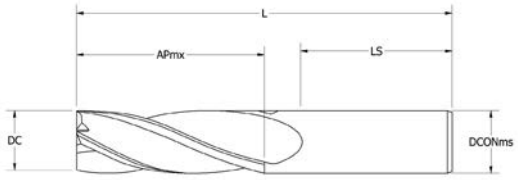




Proprietary to ARCH Cutting Tools

PATRIOT HP®

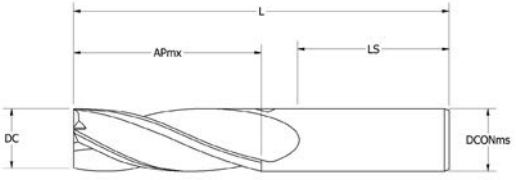
VARIABLE HELIX



PG.492

4-FLUTE - STUB LENGTH - SQUARE END

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.2500	0.8750	1.5000	976-000-001
0.1875	0.1875	0.3750	1.2500	2.0000	976-000-002
0.2500	0.2500	0.5000	1.1250	2.0000	976-000-003
0.3125	0.3125	0.5000	1.1250	2.0000	976-000-004
0.3750	0.3750	0.6250	1.0000	2.0000	976-000-005
0.4375	0.4375	0.6250	1.5000	2.5000	976-000-006
0.5000	0.5000	0.7500	1.3750	2.5000	976-000-007
0.6250	0.6250	0.7500	1.8750	3.0000	976-000-008
0.7500	0.7500	1.0000	1.6250	3.0000	976-000-009

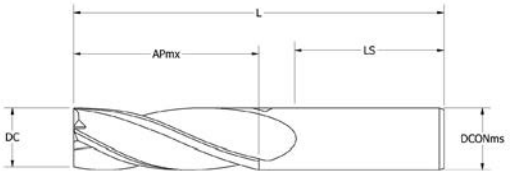


PG.492

4-FLUTE - STANDARD LENGTH - SQUARE END

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.5000	0.6250	1.5000	976-000-010
0.1875	0.1875	0.6250	1.0000	2.0000	976-000-011
0.2500	0.2500	0.7500	1.3750	2.5000	976-000-012
0.2500	0.2500	1.0000	1.1250	2.5000	976-000-013
0.2500	0.2500	1.2500	0.8750	2.5000	976-000-014
0.3125	0.3125	0.8125	1.3125	2.5000	976-000-015
0.3750	0.3750	0.8750	1.2500	2.5000	976-000-016
0.3750	0.3750	1.0000	1.1250	2.5000	976-000-017
0.3750	0.3750	1.2500	0.8750	2.5000	976-000-018
0.4375	0.4375	1.0000	1.3750	2.7500	976-000-019
0.5000	0.5000	1.0000	1.6250	3.0000	976-000-020
0.5000	0.5000	1.2500	1.3750	3.0000	976-000-021
0.5000	0.5000	1.5000	1.1250	3.0000	976-000-022
0.5000	0.5000	1.5000	1.6250	3.5000	976-000-023
0.5000	0.5000	1.7500	1.3750	3.5000	976-000-024
0.6250	0.6250	1.5000	1.6250	3.5000	976-000-025
0.6250	0.6250	1.7500	1.3750	3.5000	976-000-026
0.7500	0.7500	1.7500	1.8750	4.0000	976-000-027
1.0000	1.0000	1.7500	1.8750	4.0000	976-000-028

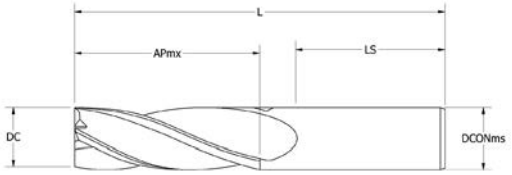
VARIABLE HELIX



PG.492

4-FLUTE - LONG LENGTH - SQUARE END

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.7500	1.3750	2.5000	976-000-029
0.1875	0.1875	0.7500	1.3750	2.5000	976-000-030
0.2500	0.2500	1.1250	1.5000	3.0000	976-000-031
0.3125	0.3125	1.1250	1.5000	3.0000	976-000-032
0.3750	0.3750	1.2500	1.3750	3.0000	976-000-033
0.4375	0.4375	2.0000	1.6250	4.0000	976-000-034
0.5000	0.5000	2.0000	1.6250	4.0000	976-000-035
0.6250	0.6250	2.2500	2.3750	5.0000	976-000-036
0.7500	0.7500	2.2500	2.3750	5.0000	976-000-037
1.0000	1.0000	2.2500	2.3750	5.0000	976-000-038



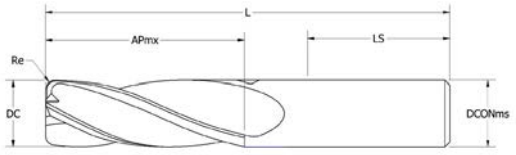
PG.492

4-FLUTE - X LONG LENGTH - SQUARE END

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	1.0000	1.6250	3.0000	976-000-039
0.1875	0.1875	1.1250	1.5000	3.0000	976-000-040
0.2500	0.2500	1.5000	2.1250	4.0000	976-000-041
0.3125	0.3125	1.6250	2.0000	4.0000	976-000-042
0.3750	0.3750	2.0000	1.6250	4.0000	976-000-043
0.4375	0.4375	3.0000	2.6250	6.0000	976-000-044
0.5000	0.5000	3.0000	2.6250	6.0000	976-000-045
0.6250	0.6250	3.0000	2.6250	6.0000	976-000-046
0.7500	0.7500	3.0000	2.6250	6.0000	976-000-047
1.0000	1.0000	3.0000	2.6250	6.0000	976-000-048

PATRIOT HP®

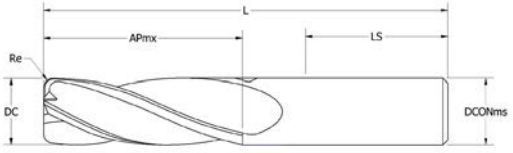
VARIABLE HELIX



PG.492

4-FLUTE - STUB LENGTH - CORNER RADIUS

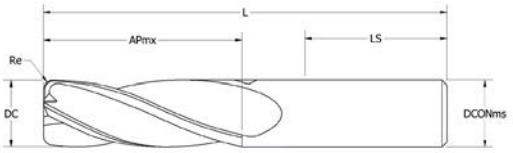
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0100	0.2500	0.8750	1.5000	976-000-128
0.1875	0.1875	0.0100	0.3750	1.2500	2.0000	976-000-129
0.2500	0.2500	0.0200	0.5000	1.1250	2.0000	976-000-130
0.3125	0.3125	0.0200	0.5000	1.1250	2.0000	976-000-131
0.3750	0.3750	0.0200	0.6250	1.0000	2.0000	976-000-132
0.4375	0.4375	0.0300	0.6250	1.5000	2.5000	976-000-133
0.5000	0.5000	0.0300	0.7500	1.3750	2.5000	976-000-134
0.6250	0.6250	0.0400	0.7500	1.8750	3.0000	976-000-135
0.7500	0.7500	0.0400	1.0000	1.6250	3.0000	976-000-136



PG.492

4-FLUTE - STANDARD LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0100	0.5000	0.6250	1.5000	976-000-137
0.1250	0.1250	0.0150	0.5000	0.6250	1.5000	976-000-138
0.1250	0.1250	0.0200	0.5000	0.6250	1.5000	976-000-139
0.1875	0.1875	0.0100	0.6250	1.0000	2.0000	976-000-140
0.1875	0.1875	0.0150	0.6250	1.0000	2.0000	976-000-141
0.1875	0.1875	0.0200	0.6250	1.0000	2.0000	976-000-142
0.1875	0.1875	0.0300	0.6250	1.0000	2.0000	976-000-143
0.2500	0.2500	0.0100	0.7500	1.3750	2.5000	976-000-144
0.2500	0.2500	0.0150	0.7500	1.3750	2.5000	976-000-145
0.2500	0.2500	0.0200	0.7500	1.3750	2.5000	976-000-146
0.2500	0.2500	0.0300	0.7500	1.3750	2.5000	976-000-147
0.2500	0.2500	0.0600	0.7500	1.3750	2.5000	976-000-148
0.2500	0.2500	0.0100	1.0000	1.1250	2.5000	976-000-149
0.2500	0.2500	0.0150	1.0000	1.1250	2.5000	976-000-150
0.2500	0.2500	0.0200	1.0000	1.1250	2.5000	976-000-151
0.2500	0.2500	0.0300	1.0000	1.1250	2.5000	976-000-152
0.2500	0.2500	0.0600	1.0000	1.1250	2.5000	976-000-153
0.2500	0.2500	0.0100	1.2500	0.8750	2.5000	976-000-154
0.2500	0.2500	0.0150	1.2500	0.8750	2.5000	976-000-155
0.2500	0.2500	0.0200	1.2500	0.8750	2.5000	976-000-156
0.2500	0.2500	0.0300	1.2500	0.8750	2.5000	976-000-157
0.2500	0.2500	0.0600	1.2500	0.8750	2.5000	976-000-158
0.3125	0.3125	0.0100	0.8125	1.3125	2.5000	976-000-159
0.3125	0.3125	0.0150	0.8125	1.3125	2.5000	976-000-160
0.3125	0.3125	0.0200	0.8125	1.3125	2.5000	976-000-161

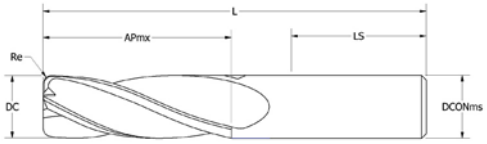


PG.492

4-FLUTE - STANDARD LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.3125	0.3125	0.0300	0.8125	1.3125	2.5000	976-000-162
0.3125	0.3125	0.0600	0.8125	1.3125	2.5000	976-000-163
0.3750	0.3750	0.0100	0.8750	1.2500	2.5000	976-000-164
0.3750	0.3750	0.0150	0.8750	1.2500	2.5000	976-000-165
0.3750	0.3750	0.0200	0.8750	1.2500	2.5000	976-000-166
0.3750	0.3750	0.0300	0.8750	1.2500	2.5000	976-000-167
0.3750	0.3750	0.0600	0.8750	1.2500	2.5000	976-000-168
0.3750	0.3750	0.0100	1.0000	1.1250	2.5000	976-000-169
0.3750	0.3750	0.0150	1.0000	1.1250	2.5000	976-000-170
0.3750	0.3750	0.0200	1.0000	1.1250	2.5000	976-000-171
0.3750	0.3750	0.0300	1.0000	1.1250	2.5000	976-000-172
0.3750	0.3750	0.0600	1.0000	1.1250	2.5000	976-000-173
0.3750	0.3750	0.0100	1.2500	0.8750	2.5000	976-000-174
0.3750	0.3750	0.0150	1.2500	0.8750	2.5000	976-000-175
0.3750	0.3750	0.0200	1.2500	0.8750	2.5000	976-000-176
0.3750	0.3750	0.0300	1.2500	0.8750	2.5000	976-000-177
0.3750	0.3750	0.0600	1.2500	0.8750	2.5000	976-000-178
0.4375	0.4375	0.0150	1.0000	1.3750	2.7500	976-000-179
0.4375	0.4375	0.0200	1.0000	1.3750	2.7500	976-000-180
0.4375	0.4375	0.0300	1.0000	1.3750	2.7500	976-000-181
0.4375	0.4375	0.0600	1.0000	1.3750	2.7500	976-000-182
0.5000	0.5000	0.0100	1.0000	1.6250	3.0000	976-000-183
0.5000	0.5000	0.0150	1.0000	1.6250	3.0000	976-000-184
0.5000	0.5000	0.0300	1.0000	1.6250	3.0000	976-000-185
0.5000	0.5000	0.0600	1.0000	1.6250	3.0000	976-000-186
0.5000	0.5000	0.0900	1.0000	1.6250	3.0000	976-000-187
0.5000	0.5000	0.1200	1.0000	1.6250	3.0000	976-000-188
0.5000	0.5000	0.0100	1.2500	1.3750	3.0000	976-000-189
0.5000	0.5000	0.0150	1.2500	1.3750	3.0000	976-000-190
0.5000	0.5000	0.0300	1.2500	1.3750	3.0000	976-000-191
0.5000	0.5000	0.0600	1.2500	1.3750	3.0000	976-000-192
0.5000	0.5000	0.0900	1.2500	1.3750	3.0000	976-000-193
0.5000	0.5000	0.1200	1.2500	1.3750	3.0000	976-000-194
0.5000	0.5000	0.0100	1.5000	1.1250	3.0000	976-000-195
0.5000	0.5000	0.0150	1.5000	1.1250	3.0000	976-000-196
0.5000	0.5000	0.0300	1.5000	1.1250	3.0000	976-000-197
0.5000	0.5000	0.0600	1.5000	1.1250	3.0000	976-000-198
0.5000	0.5000	0.0900	1.5000	1.1250	3.0000	976-000-199
0.5000	0.5000	0.1200	1.5000	1.1250	3.0000	976-000-200
0.5000	0.5000	0.0100	1.5000	1.6250	3.5000	976-000-201
0.5000	0.5000	0.0150	1.5000	1.6250	3.5000	976-000-202
0.5000	0.5000	0.0300	1.5000	1.6250	3.5000	976-000-203
0.5000	0.5000	0.0600	1.5000	1.6250	3.5000	976-000-204
0.5000	0.5000	0.0900	1.5000	1.6250	3.5000	976-000-205
0.5000	0.5000	0.1200	1.5000	1.6250	3.5000	976-000-206
0.5000	0.5000	0.0100	1.7500	1.3750	3.5000	976-000-207
0.5000	0.5000	0.0150	1.7500	1.3750	3.5000	976-000-208

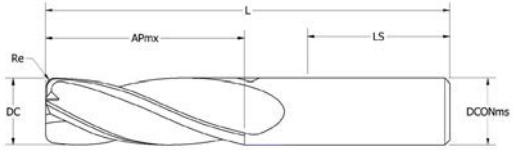
PATRIOT HP®



PG.492

4-FLUTE - STANDARD LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.5000	0.5000	0.0300	1.7500	1.3750	3.5000	976-000-209
0.5000	0.5000	0.0600	1.7500	1.3750	3.5000	976-000-210
0.5000	0.5000	0.0900	1.7500	1.3750	3.5000	976-000-211
0.5000	0.5000	0.1200	1.7500	1.3750	3.5000	976-000-212
0.6250	0.6250	0.0300	1.5000	1.6250	3.5000	976-000-213
0.6250	0.6250	0.0400	1.5000	1.6250	3.5000	976-000-214
0.6250	0.6250	0.0600	1.5000	1.6250	3.5000	976-000-215
0.6250	0.6250	0.0900	1.5000	1.6250	3.5000	976-000-216
0.6250	0.6250	0.1200	1.5000	1.6250	3.5000	976-000-217
0.6250	0.6250	0.0300	1.7500	1.3750	3.5000	976-000-218
0.6250	0.6250	0.0400	1.7500	1.3750	3.5000	976-000-219
0.6250	0.6250	0.0600	1.7500	1.3750	3.5000	976-000-220
0.6250	0.6250	0.0900	1.7500	1.3750	3.5000	976-000-221
0.6250	0.6250	0.1200	1.7500	1.3750	3.5000	976-000-222
0.7500	0.7500	0.0300	1.7500	1.8750	4.0000	976-000-223
0.7500	0.7500	0.0400	1.7500	1.8750	4.0000	976-000-224
0.7500	0.7500	0.0600	1.7500	1.8750	4.0000	976-000-225
0.7500	0.7500	0.0900	1.7500	1.8750	4.0000	976-000-226
0.7500	0.7500	0.1200	1.7500	1.8750	4.0000	976-000-227
1.0000	1.0000	0.0300	1.7500	1.8750	4.0000	976-000-228
1.0000	1.0000	0.0400	1.7500	1.8750	4.0000	976-000-229
1.0000	1.0000	0.0600	1.7500	1.8750	4.0000	976-000-230
1.0000	1.0000	0.0900	1.7500	1.8750	4.0000	976-000-231
1.0000	1.0000	0.1200	1.7500	1.8750	4.0000	976-000-232



PG.492

4-FLUTE - STANDARD LENGTH - ROUGHING/CHIP BREAKER CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.2500	0.2500	0.0200	0.7500	1.3750	2.5000	976-000-529
0.3750	0.3750	0.0200	0.8750	1.2500	2.5000	976-000-530
0.5000	0.5000	0.0300	1.0000	1.6250	3.0000	976-000-531
0.6250	0.6250	0.0400	1.5000	1.6250	3.5000	976-000-532
0.7500	0.7500	0.0400	1.7500	1.8750	4.0000	976-000-533
1.0000	1.0000	0.0400	1.7500	1.8750	4.0000	976-000-534

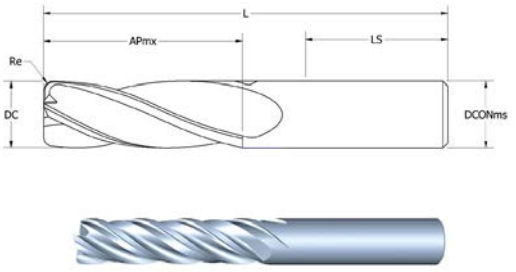
CARBIDE

PATRIOT HP®

PG.492

4-FLUTE - LONG LENGTH - CORNER RADIUS

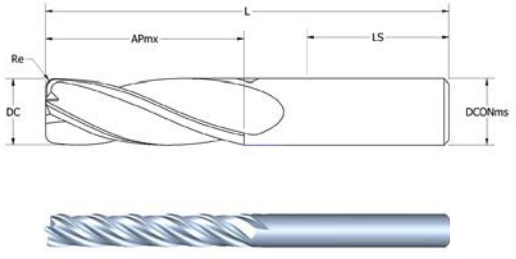
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0150	0.7500	1.3750	2.5000	976-000-233
0.1250	0.1250	0.0300	0.7500	1.3750	2.5000	976-000-234
0.1875	0.1875	0.0150	0.7500	1.3750	2.5000	976-000-235
0.1875	0.1875	0.0300	0.7500	1.3750	2.5000	976-000-236
0.2500	0.2500	0.0150	1.1250	1.5000	3.0000	976-000-237
0.2500	0.2500	0.0300	1.1250	1.5000	3.0000	976-000-238
0.3125	0.3125	0.0150	1.1250	1.5000	3.0000	976-000-239
0.3125	0.3125	0.0300	1.1250	1.5000	3.0000	976-000-240
0.3750	0.3750	0.0300	1.2500	1.3750	3.0000	976-000-241
0.3750	0.3750	0.0600	1.2500	1.3750	3.0000	976-000-242
0.4375	0.4375	0.0300	2.0000	1.6250	4.0000	976-000-243
0.4375	0.4375	0.0600	2.0000	1.6250	4.0000	976-000-244
0.5000	0.5000	0.0300	2.0000	1.6250	4.0000	976-000-245
0.5000	0.5000	0.0600	2.0000	1.6250	4.0000	976-000-246
0.6250	0.6250	0.0300	2.2500	2.3750	5.0000	976-000-247
0.6250	0.6250	0.0600	2.2500	2.3750	5.0000	976-000-248
0.7500	0.7500	0.0300	2.2500	2.3750	5.0000	976-000-249
0.7500	0.7500	0.0600	2.2500	2.3750	5.0000	976-000-250
1.0000	1.0000	0.0300	2.2500	2.3750	5.0000	976-000-251
1.0000	1.0000	0.0600	2.2500	2.3750	5.0000	976-000-252



PG.492

4-FLUTE - X LONG LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0150	1.0000	1.6250	3.0000	976-000-253
0.1250	0.1250	0.0300	1.0000	1.6250	3.0000	976-000-255
0.1875	0.1875	0.0150	1.1250	1.5000	3.0000	976-000-256
0.1875	0.1875	0.0300	1.1250	1.5000	3.0000	976-000-257
0.2500	0.2500	0.0150	1.5000	2.1250	4.0000	976-000-258
0.2500	0.2500	0.0300	1.5000	2.1250	4.0000	976-000-259
0.3125	0.3125	0.0300	1.6250	2.0000	4.0000	976-000-260
0.3125	0.3125	0.0600	1.6250	2.0000	4.0000	976-000-262
0.3750	0.3750	0.0300	2.0000	1.6250	4.0000	976-000-263
0.3750	0.3750	0.0600	2.0000	1.6250	4.0000	976-000-264
0.4375	0.4375	0.0300	3.0000	2.6250	6.0000	976-000-265
0.4375	0.4375	0.0600	3.0000	2.6250	6.0000	976-000-267
0.5000	0.5000	0.0300	3.0000	2.6250	6.0000	976-000-268
0.5000	0.5000	0.0600	3.0000	2.6250	6.0000	976-000-269
0.6250	0.6250	0.0300	3.0000	2.6250	6.0000	976-000-270
0.6250	0.6250	0.0600	3.0000	2.6250	6.0000	976-000-271
0.7500	0.7500	0.0300	3.0000	2.6250	6.0000	976-000-272
0.7500	0.7500	0.0600	3.0000	2.6250	6.0000	976-000-273
1.0000	1.0000	0.0300	3.0000	2.6250	6.0000	976-000-274
1.0000	1.0000	0.0600	3.0000	2.6250	6.0000	976-000-275



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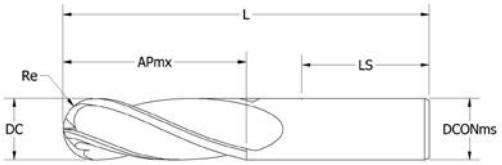
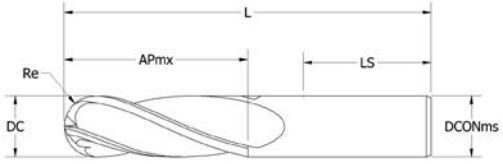


PG.492

4-FLUTE - STUB LENGTH - BALL END

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0625	0.2500	0.8750	1.5000	976-000-488
0.1875	0.1875	0.0938	0.3750	1.2500	2.0000	976-000-489
0.2500	0.2500	0.1250	0.5000	1.1250	2.0000	976-000-490
0.3125	0.3125	0.1563	0.5000	1.1250	2.0000	976-000-491
0.3750	0.3750	0.1875	0.6250	1.0000	2.0000	976-000-492
0.4375	0.4375	0.2188	0.6250	1.5000	2.5000	976-000-493
0.5000	0.5000	0.2500	0.7500	1.3750	2.5000	976-000-494
0.6250	0.6250	0.3125	0.7500	1.8750	3.0000	976-000-495
0.7500	0.7500	0.3750	1.0000	1.6250	3.0000	976-000-496



PG.492

4-FLUTE - STANDARD LENGTH - BALL END

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0625	0.5000	0.6250	1.5000	976-000-497
0.1875	0.1875	0.0938	0.6250	1.0000	2.0000	976-000-498
0.2500	0.2500	0.1250	0.7500	1.3750	2.5000	976-000-499
0.3125	0.3125	0.1563	0.8125	1.3125	2.5000	976-000-500
0.3750	0.3750	0.1875	0.8750	1.2500	2.5000	976-000-501
0.3750	0.3750	0.1875	1.0000	1.1250	2.5000	976-000-502
0.4375	0.4375	0.2188	1.0000	1.3750	2.7500	976-000-503
0.5000	0.5000	0.2500	1.0000	1.6250	3.0000	976-000-504
0.5000	0.5000	0.2500	1.2500	1.3750	3.0000	976-000-505
0.6250	0.6250	0.3125	1.5000	1.6250	3.5000	976-000-506
0.7500	0.7500	0.3750	1.7500	1.8750	4.0000	976-000-507
1.0000	1.0000	0.5000	1.7500	1.8750	4.0000	976-000-508

VARIABLE HELIX

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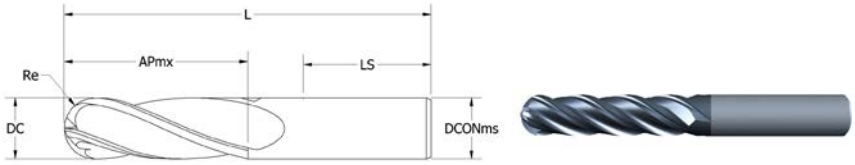
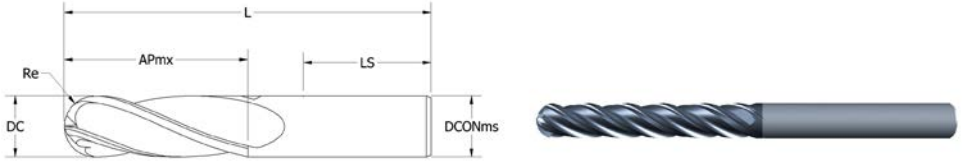


PG.492

4-FLUTE - LONG LENGTH - BALL END

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0625	0.7500	1.3750	2.5000	976-000-509
0.1875	0.1875	0.0938	0.7500	1.3750	2.5000	976-000-510
0.2500	0.2500	0.1250	1.1250	1.5000	3.0000	976-000-511
0.3125	0.3125	0.1563	1.1250	1.5000	3.0000	976-000-512
0.3750	0.3750	0.1875	1.2500	1.3750	3.0000	976-000-513
0.4375	0.4375	0.2188	2.0000	1.6250	4.0000	976-000-514
0.5000	0.5000	0.2500	2.0000	1.6250	4.0000	976-000-515
0.6250	0.6250	0.3125	2.2500	2.3750	5.0000	976-000-516
0.7500	0.7500	0.3750	2.2500	2.3750	5.0000	976-000-517
1.0000	1.0000	0.5000	2.2500	2.3750	5.0000	976-000-518



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4-FLUTE - X LONG LENGTH - BALL END

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0625	1.0000	1.6250	3.0000	976-000-519
0.1875	0.1875	0.0938	1.1250	1.5000	3.0000	976-000-520
0.2500	0.2500	0.1250	1.5000	2.1250	4.0000	976-000-521
0.3125	0.3125	0.1563	1.6250	2.0000	4.0000	976-000-522
0.3750	0.3750	0.1875	1.7500	1.8750	4.0000	976-000-523
0.4375	0.4375	0.2188	3.0000	2.6250	6.0000	976-000-524
0.5000	0.5000	0.2500	3.0000	2.6250	6.0000	976-000-525
0.6250	0.6250	0.3125	3.0000	2.6250	6.0000	976-000-526
0.7500	0.7500	0.3750	3.0000	2.6250	6.0000	976-000-527
1.0000	1.0000	0.5000	3.0000	2.6250	6.0000	976-000-528

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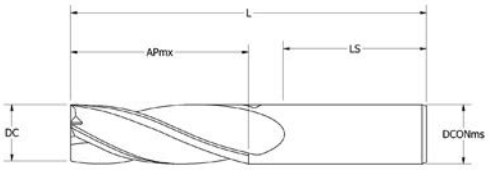
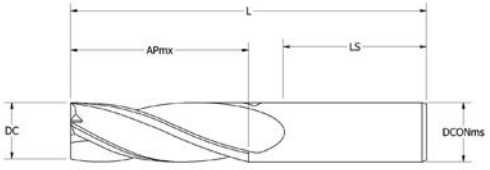


PG.492

5-FLUTE - STUB LENGTH - SQUARE END

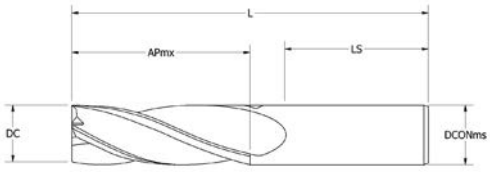
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.2500	0.8750	1.5000	976-000-049
0.1875	0.1875	0.3750	1.2500	2.0000	976-000-050
0.2500	0.2500	0.5000	1.1250	2.0000	976-000-051
0.3125	0.3125	0.5000	1.1250	2.0000	976-000-052
0.3750	0.3750	0.6250	1.0000	2.0000	976-000-053
0.4375	0.4375	0.6250	1.5000	2.5000	976-000-054
0.5000	0.5000	0.7500	1.3750	2.5000	976-000-055
0.6250	0.6250	0.7500	1.8750	3.0000	976-000-056
0.7500	0.7500	1.0000	1.6250	3.0000	976-000-057



PG.492

5-FLUTE - STANDARD LENGTH - SQUARE END

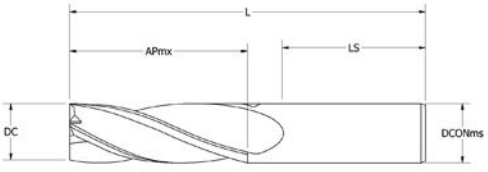
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.5000	0.6250	1.5000	976-000-058
0.1875	0.1875	0.6250	1.0000	2.0000	976-000-059
0.2500	0.2500	0.7500	1.3750	2.5000	976-000-060
0.2500	0.2500	1.0000	1.1250	2.5000	976-000-061
0.2500	0.2500	1.2500	0.8750	2.5000	976-000-062
0.3125	0.3125	0.8125	1.3125	2.5000	976-000-063
0.3750	0.3750	0.8750	1.2500	2.5000	976-000-064
0.3750	0.3750	1.0000	1.1250	2.5000	976-000-065
0.3750	0.3750	1.2500	0.8750	2.5000	976-000-066
0.4375	0.4375	1.0000	1.3750	2.7500	976-000-067
0.5000	0.5000	1.0000	1.6250	3.0000	976-000-068
0.5000	0.5000	1.2500	1.3750	3.0000	976-000-069
0.5000	0.5000	1.5000	1.1250	3.0000	976-000-070
0.5000	0.5000	1.5000	1.6250	3.5000	976-000-071
0.5000	0.5000	1.7500	1.3750	3.5000	976-000-072
0.6250	0.6250	1.5000	1.6250	3.5000	976-000-073
0.6250	0.6250	1.7500	1.3750	3.5000	976-000-074
0.7500	0.7500	1.7500	1.8750	4.0000	976-000-075
1.0000	1.0000	1.7500	1.8750	4.0000	976-000-076



PG.492

5-FLUTE - LONG LENGTH - SQUARE END

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.7500	1.3750	2.5000	976-000-077
0.1875	0.1875	0.7500	1.3750	2.5000	976-000-078
0.2500	0.2500	1.1250	1.5000	3.0000	976-000-079
0.3125	0.3125	1.1250	1.5000	3.0000	976-000-080
0.3750	0.3750	1.2500	1.3750	3.0000	976-000-081
0.4375	0.4375	2.0000	1.6250	4.0000	976-000-082
0.5000	0.5000	2.0000	1.6250	4.0000	976-000-083
0.6250	0.6250	2.2500	2.3750	5.0000	976-000-084
0.7500	0.7500	2.2500	2.3750	5.0000	976-000-085
1.0000	1.0000	2.2500	2.3750	5.0000	976-000-086



PG.492

5-FLUTE - X LONG LENGTH - SQUARE END

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	1.0000	1.6250	3.0000	976-000-087
0.1875	0.1875	1.1250	1.5000	3.0000	976-000-088
0.2500	0.2500	1.5000	2.1250	4.0000	976-000-089
0.3125	0.3125	1.6250	2.0000	4.0000	976-000-090
0.3750	0.3750	2.0000	1.6250	4.0000	976-000-091
0.4375	0.4375	3.0000	2.6250	6.0000	976-000-092
0.5000	0.5000	3.0000	2.6250	6.0000	976-000-093
0.6250	0.6250	3.0000	2.6250	6.0000	976-000-094
0.7500	0.7500	3.0000	2.6250	6.0000	976-000-095
1.0000	1.0000	3.0000	2.6250	6.0000	976-000-096

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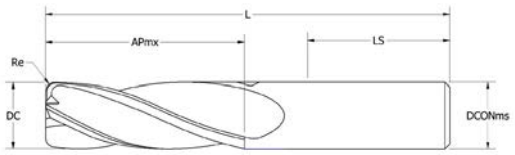
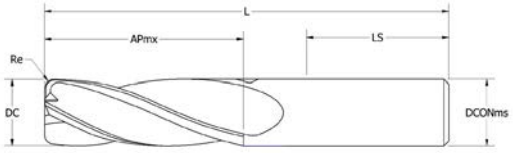


PG.492

5-FLUTE - STUB LENGTH - CORNER RADIUS

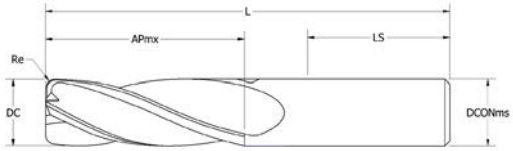
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0100	0.2500	0.8750	1.5000	976-000-276
0.1875	0.1875	0.0100	0.3750	1.2500	2.0000	976-000-277
0.2500	0.2500	0.0200	0.5000	1.1250	2.0000	976-000-278
0.3125	0.3125	0.0200	0.5000	1.1250	2.0000	976-000-279
0.3750	0.3750	0.0200	0.6250	1.0000	2.0000	976-000-280
0.4375	0.4375	0.0300	0.6250	1.5000	2.5000	976-000-281
0.5000	0.5000	0.0300	0.7500	1.3750	2.5000	976-000-282
0.6250	0.6250	0.0400	0.7500	1.8750	3.0000	976-000-283
0.7500	0.7500	0.0400	1.0000	1.6250	3.0000	976-000-284



PG.492

5-FLUTE - STANDARD LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0100	0.5000	0.6250	1.5000	976-000-285
0.1250	0.1250	0.0150	0.5000	0.6250	1.5000	976-000-286
0.1250	0.1250	0.0200	0.5000	0.6250	1.5000	976-000-287
0.1875	0.1875	0.0100	0.6250	1.0000	2.0000	976-000-288
0.1875	0.1875	0.0150	0.6250	1.0000	2.0000	976-000-289
0.1875	0.1875	0.0200	0.6250	1.0000	2.0000	976-000-290
0.1875	0.1875	0.0300	0.6250	1.0000	2.0000	976-000-291
0.2500	0.2500	0.0100	0.7500	1.3750	2.5000	976-000-292
0.2500	0.2500	0.0150	0.7500	1.3750	2.5000	976-000-293
0.2500	0.2500	0.0200	0.7500	1.3750	2.5000	976-000-294
0.2500	0.2500	0.0300	0.7500	1.3750	2.5000	976-000-295
0.2500	0.2500	0.0600	0.7500	1.3750	2.5000	976-000-296
0.2500	0.2500	0.0100	1.0000	1.1250	2.5000	976-000-297
0.2500	0.2500	0.0150	1.0000	1.1250	2.5000	976-000-298
0.2500	0.2500	0.0200	1.0000	1.1250	2.5000	976-000-299
0.2500	0.2500	0.0300	1.0000	1.1250	2.5000	976-000-300
0.2500	0.2500	0.0600	1.0000	1.1250	2.5000	976-000-301
0.2500	0.2500	0.0100	1.2500	0.8750	2.5000	976-000-302
0.2500	0.2500	0.0150	1.2500	0.8750	2.5000	976-000-303
0.2500	0.2500	0.0200	1.2500	0.8750	2.5000	976-000-304
0.2500	0.2500	0.0300	1.2500	0.8750	2.5000	976-000-305
0.2500	0.2500	0.0600	1.2500	0.8750	2.5000	976-000-306



PG.492

5-FLUTE - STANDARD LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.3125	0.3125	0.0100	0.8125	1.3125	2.5000	976-000-307
0.3125	0.3125	0.0150	0.8125	1.3125	2.5000	976-000-308
0.3125	0.3125	0.0200	0.8125	1.3125	2.5000	976-000-309
0.3125	0.3125	0.0300	0.8125	1.3125	2.5000	976-000-310
0.3125	0.3125	0.0600	0.8125	1.3125	2.5000	976-000-311
0.3750	0.3750	0.0100	0.8750	1.2500	2.5000	976-000-312
0.3750	0.3750	0.0150	0.8750	1.2500	2.5000	976-000-313
0.3750	0.3750	0.0200	0.8750	1.2500	2.5000	976-000-314
0.3750	0.3750	0.0300	0.8750	1.2500	2.5000	976-000-315
0.3750	0.3750	0.0600	0.8750	1.2500	2.5000	976-000-316
0.3750	0.3750	0.0100	1.0000	1.1250	2.5000	976-000-317
0.3750	0.3750	0.0150	1.0000	1.1250	2.5000	976-000-318
0.3750	0.3750	0.0200	1.0000	1.1250	2.5000	976-000-319
0.3750	0.3750	0.0300	1.0000	1.1250	2.5000	976-000-320
0.3750	0.3750	0.0600	1.0000	1.1250	2.5000	976-000-321
0.3750	0.3750	0.0100	1.2500	0.8750	2.5000	976-000-322
0.3750	0.3750	0.0150	1.2500	0.8750	2.5000	976-000-323
0.3750	0.3750	0.0200	1.2500	0.8750	2.5000	976-000-324
0.3750	0.3750	0.0300	1.2500	0.8750	2.5000	976-000-325
0.3750	0.3750	0.0600	1.2500	0.8750	2.5000	976-000-326
0.4375	0.4375	0.0150	1.0000	1.3750	2.7500	976-000-327
0.4375	0.4375	0.0200	1.0000	1.3750	2.7500	976-000-328
0.4375	0.4375	0.0300	1.0000	1.3750	2.7500	976-000-329
0.4375	0.4375	0.0600	1.0000	1.3750	2.7500	976-000-330
0.5000	0.5000	0.0100	1.0000	1.6250	3.0000	976-000-331
0.5000	0.5000	0.0150	1.0000	1.6250	3.0000	976-000-332
0.5000	0.5000	0.0300	1.0000	1.6250	3.0000	976-000-333
0.5000	0.5000	0.0600	1.0000	1.6250	3.0000	976-000-334
0.5000	0.5000	0.0900	1.0000	1.6250	3.0000	976-000-335
0.5000	0.5000	0.1200	1.0000	1.6250	3.0000	976-000-336
0.5000	0.5000	0.0100	1.2500	1.3750	3.0000	976-000-337
0.5000	0.5000	0.0150	1.2500	1.3750	3.0000	976-000-338
0.5000	0.5000	0.0300	1.2500	1.3750	3.0000	976-000-339
0.5000	0.5000	0.0600	1.2500	1.3750	3.0000	976-000-340
0.5000	0.5000	0.0900	1.2500	1.3750	3.0000	976-000-341
0.5000	0.5000	0.1200	1.2500	1.3750	3.0000	976-000-342
0.5000	0.5000	0.0100	1.5000	1.1250	3.0000	976-000-343
0.5000	0.5000	0.0150	1.5000	1.1250	3.0000	976-000-344
0.5000	0.5000	0.0300	1.5000	1.1250	3.0000	976-000-345
0.5000	0.5000	0.0600	1.5000	1.1250	3.0000	976-000-346
0.5000	0.5000	0.0900	1.5000	1.1250	3.0000	976-000-347
0.5000	0.5000	0.1200	1.5000	1.1250	3.0000	976-000-348

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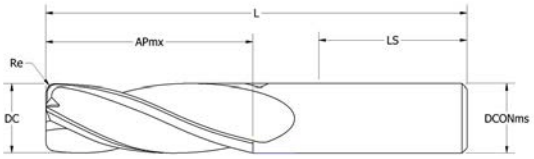
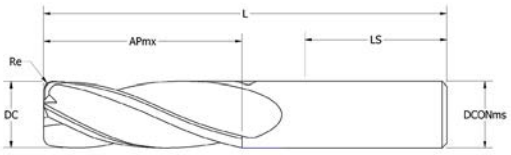


PG.492

5-FLUTE - STANDARD LENGTH - CORNER RADIUS

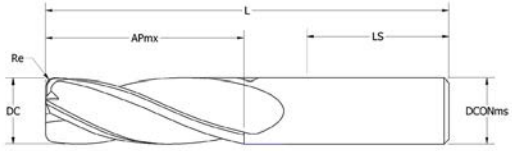
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.5000	0.5000	0.0100	1.5000	1.6250	3.5000	976-000-349
0.5000	0.5000	0.0150	1.5000	1.6250	3.5000	976-000-350
0.5000	0.5000	0.0300	1.5000	1.6250	3.5000	976-000-351
0.5000	0.5000	0.0600	1.5000	1.6250	3.5000	976-000-352
0.5000	0.5000	0.0900	1.5000	1.6250	3.5000	976-000-353
0.5000	0.5000	0.1200	1.5000	1.6250	3.5000	976-000-354
0.5000	0.5000	0.0100	1.7500	1.3750	3.5000	976-000-355
0.5000	0.5000	0.0150	1.7500	1.3750	3.5000	976-000-356
0.5000	0.5000	0.0300	1.7500	1.3750	3.5000	976-000-357
0.5000	0.5000	0.0600	1.7500	1.3750	3.5000	976-000-358
0.5000	0.5000	0.0900	1.7500	1.3750	3.5000	976-000-359
0.5000	0.5000	0.1200	1.7500	1.3750	3.5000	976-000-360
0.6250	0.6250	0.0300	1.5000	1.6250	3.5000	976-000-361
0.6250	0.6250	0.0400	1.5000	1.6250	3.5000	976-000-362
0.6250	0.6250	0.0600	1.5000	1.6250	3.5000	976-000-363
0.6250	0.6250	0.0900	1.5000	1.6250	3.5000	976-000-364
0.6250	0.6250	0.1200	1.5000	1.6250	3.5000	976-000-365
0.6250	0.6250	0.0300	1.7500	1.8750	4.0000	976-000-366
0.6250	0.6250	0.0400	1.7500	1.8750	4.0000	976-000-367
0.6250	0.6250	0.0600	1.7500	1.8750	4.0000	976-000-368
0.6250	0.6250	0.0900	1.7500	1.8750	4.0000	976-000-369
0.6250	0.6250	0.1200	1.7500	1.8750	4.0000	976-000-370
0.7500	0.7500	0.0300	1.7500	1.8750	4.0000	976-000-371
0.7500	0.7500	0.0400	1.7500	1.8750	4.0000	976-000-372
0.7500	0.7500	0.0600	1.7500	1.8750	4.0000	976-000-373
0.7500	0.7500	0.0900	1.7500	1.8750	4.0000	976-000-374
0.7500	0.7500	0.1200	1.7500	1.8750	4.0000	976-000-375
1.0000	1.0000	0.0300	1.7500	1.8750	4.0000	976-000-376
1.0000	1.0000	0.0400	1.7500	1.8750	4.0000	976-000-377
1.0000	1.0000	0.0600	1.7500	1.8750	4.0000	976-000-378
1.0000	1.0000	0.0900	1.7500	1.8750	4.0000	976-000-379
1.0000	1.0000	0.1200	1.7500	1.8750	4.0000	976-000-380



PG.492

5-FLUTE - LONG LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0150	0.7500	1.3750	2.5000	976-000-381
0.1250	0.1250	0.0300	0.7500	1.3750	2.5000	976-000-382
0.1875	0.1875	0.0150	0.7500	1.3750	2.5000	976-000-383
0.1875	0.1875	0.0300	0.7500	1.3750	2.5000	976-000-384
0.2500	0.2500	0.0150	1.1250	1.5000	3.0000	976-000-385
0.2500	0.2500	0.0300	1.1250	1.5000	3.0000	976-000-386
0.3125	0.3125	0.0150	1.1250	1.5000	3.0000	976-000-387
0.3125	0.3125	0.0300	1.1250	1.5000	3.0000	976-000-388
0.3750	0.3750	0.0300	1.2500	1.3750	3.0000	976-000-389
0.3750	0.3750	0.0600	1.2500	1.3750	3.0000	976-000-390
0.4375	0.4375	0.0300	2.0000	1.6250	4.0000	976-000-391
0.4375	0.4375	0.0600	2.0000	1.6250	4.0000	976-000-392
0.5000	0.5000	0.0300	2.0000	1.6250	4.0000	976-000-393
0.5000	0.5000	0.0600	2.0000	1.6250	4.0000	976-000-394
0.6250	0.6250	0.0300	2.2500	2.3750	5.0000	976-000-395
0.6250	0.6250	0.0600	2.2500	2.3750	5.0000	976-000-396
0.7500	0.7500	0.0300	2.2500	2.3750	5.0000	976-000-397
0.7500	0.7500	0.0600	2.2500	2.3750	5.0000	976-000-398
1.0000	1.0000	0.0300	2.2500	2.3750	5.0000	976-000-399
1.0000	1.0000	0.0600	2.2500	2.3750	5.0000	976-000-400



PG.492

5-FLUTE - X - LONG LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1250	0.1250	0.0150	1.0000	1.3750	3.0000	976-000-401
0.1250	0.1250	0.0300	1.0000	1.3750	3.0000	976-000-403
0.1875	0.1875	0.0150	1.1250	1.3750	3.0000	976-000-404
0.1875	0.1875	0.0300	1.1250	1.3750	3.0000	976-000-405
0.2500	0.2500	0.0150	1.5000	1.5000	4.0000	976-000-406
0.2500	0.2500	0.0300	1.5000	1.5000	4.0000	976-000-407
0.3125	0.3125	0.0300	1.6250	1.5000	4.0000	976-000-408
0.3125	0.3125	0.0600	1.6250	1.5000	4.0000	976-000-410
0.3750	0.3750	0.0300	2.0000	1.3750	6.0000	976-000-411
0.3750	0.3750	0.0600	2.0000	1.3750	6.0000	976-000-412
0.4375	0.4375	0.0300	3.0000	1.6250	6.0000	976-000-413
0.4375	0.4375	0.0600	3.0000	1.6250	6.0000	976-000-415
0.5000	0.5000	0.0300	3.0000	1.6250	6.0000	976-000-416
0.5000	0.5000	0.0600	3.0000	1.6250	6.0000	976-000-417
0.6250	0.6250	0.0300	3.0000	2.3750	6.0000	976-000-418
0.6250	0.6250	0.0600	3.0000	2.3750	6.0000	976-000-419
0.7500	0.7500	0.0300	3.0000	2.3750	6.0000	976-000-420
0.7500	0.7500	0.0600	3.0000	2.3750	6.0000	976-000-421
1.0000	1.0000	0.0300	3.0000	2.3750	6.0000	976-000-422
1.0000	1.0000	0.0600	3.0000	2.3750	6.0000	976-000-423

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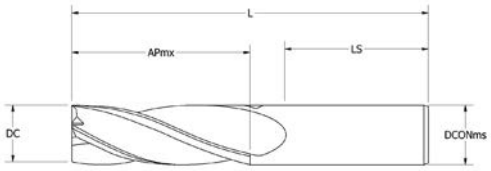
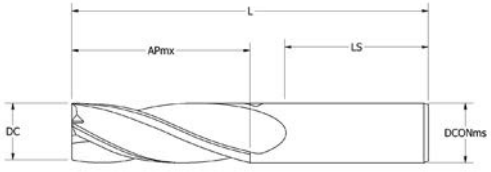


PG.492

7-FLUTE - STUB LENGTH - SQUARE END

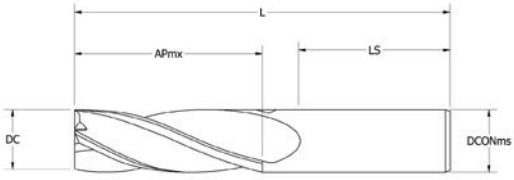
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1875	0.1875	0.3750	2.1250	2.0000	976-000-097
0.2500	0.2500	0.5000	1.1250	2.0000	976-000-098
0.3125	0.3125	0.5000	1.1250	2.0000	976-000-099
0.3750	0.3750	0.6250	1.0000	2.0000	976-000-100
0.4375	0.4375	0.6250	1.5000	2.5000	976-000-101
0.5000	0.5000	0.7500	1.3750	2.5000	976-000-102
0.6250	0.6250	0.7500	1.8750	3.0000	976-000-103
0.7500	0.7500	1.0000	1.6250	3.0000	976-000-104



PG.492

7-FLUTE - STANDARD LENGTH - SQUARE END

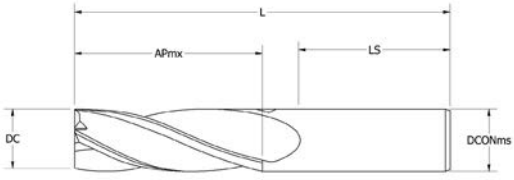
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1875	0.1875	0.6250	1.0000	2.0000	976-000-105
0.2500	0.2500	0.7500	1.3750	2.5000	976-000-106
0.2500	0.2500	1.0000	1.1250	2.5000	976-000-107
0.3125	0.3125	0.8125	1.3125	2.5000	976-000-108
0.3750	0.3750	0.8750	1.2500	2.5000	976-000-109
0.3750	0.3750	1.0000	1.1250	2.5000	976-000-110
0.4375	0.4375	1.0000	1.3750	2.7500	976-000-111
0.5000	0.5000	1.0000	1.6250	3.0000	976-000-112
0.5000	0.5000	1.2500	1.3750	3.0000	976-000-113
0.5000	0.5000	1.5000	1.6250	3.5000	976-000-114
0.5000	0.5000	1.7500	1.3750	3.5000	976-000-115
0.6250	0.6250	1.5000	1.6250	3.5000	976-000-116
0.7500	0.7500	1.7500	1.8750	4.0000	976-000-117
1.0000	1.0000	1.7500	1.8750	4.0000	976-000-118



PG.492

7-FLUTE - LONG LENGTH - SQUARE END

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1875	0.1875	0.7500	1.3750	2.5000	976-000-119
0.2500	0.2500	1.1250	1.5000	3.0000	976-000-120
0.3125	0.3125	1.1250	1.5000	3.0000	976-000-121
0.3750	0.3750	1.2500	1.3750	3.0000	976-000-122
0.4375	0.4375	2.0000	1.6250	4.0000	976-000-123
0.5000	0.5000	2.0000	1.6250	4.0000	976-000-124
0.6250	0.6250	2.2500	2.3750	5.0000	976-000-125
0.7500	0.7500	2.2500	2.3750	5.0000	976-000-126
1.0000	1.0000	2.2500	2.3750	5.0000	976-000-127

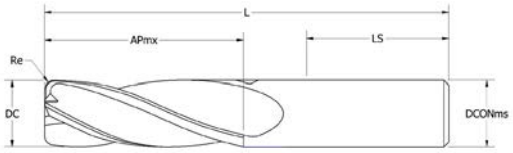


PG.492

7-FLUTE - STUB LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1875	0.1875	0.0100	0.3750	1.2500	2.0000	976-000-424
0.2500	0.2500	0.0200	0.5000	1.1250	2.0000	976-000-425
0.3125	0.3125	0.0200	0.5000	1.1250	2.0000	976-000-426
0.3750	0.3750	0.0200	0.6250	1.0000	2.0000	976-000-427
0.4375	0.4375	0.0300	0.6250	1.5000	2.5000	976-000-428
0.5000	0.5000	0.0300	0.7500	1.3750	2.5000	976-000-429
0.6250	0.6250	0.0400	0.7500	1.8750	3.0000	976-000-430
0.7500	0.7500	0.0400	1.0000	1.6250	3.0000	976-000-431

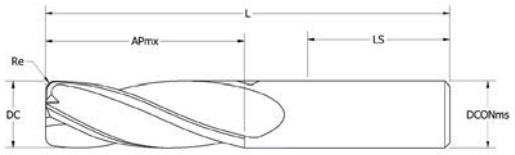
PATRIOT HP®



PG.492

7-FLUTE - STANDARD LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1875	0.1875	0.0150	0.6250	1.0000	2.0000	976-000-432
0.1875	0.1875	0.0300	0.6250	1.0000	2.0000	976-000-433
0.2500	0.2500	0.0150	0.7500	1.3750	2.5000	976-000-434
0.2500	0.2500	0.0300	0.7500	1.3750	2.5000	976-000-435
0.2500	0.2500	0.0150	1.0000	1.1250	2.5000	976-000-436
0.2500	0.2500	0.0300	1.0000	1.1250	2.5000	976-000-437
0.3125	0.3125	0.0150	0.8125	1.3125	2.5000	976-000-438
0.3125	0.3125	0.0300	0.8125	1.3125	2.5000	976-000-439
0.3750	0.3750	0.0150	0.8750	1.2500	2.5000	976-000-440
0.3750	0.3750	0.0300	0.8750	1.2500	2.5000	976-000-441
0.3750	0.3750	0.0600	0.8750	1.2500	2.5000	976-000-442
0.3750	0.3750	0.0150	1.0000	1.1250	2.5000	976-000-443
0.3750	0.3750	0.0300	1.0000	1.1250	2.5000	976-000-444
0.3750	0.3750	0.0600	1.0000	1.1250	2.5000	976-000-445
0.4375	0.4375	0.0150	1.0000	1.3750	2.7500	976-000-446
0.4375	0.4375	0.0300	1.0000	1.3750	2.7500	976-000-447
0.4375	0.4375	0.0600	1.0000	1.3750	2.7500	976-000-448
0.5000	0.5000	0.0150	1.0000	1.6250	3.0000	976-000-449
0.5000	0.5000	0.0300	1.0000	1.6250	3.0000	976-000-450
0.5000	0.5000	0.0600	1.0000	1.6250	3.0000	976-000-451
0.5000	0.5000	0.0150	1.2500	1.3750	3.0000	976-000-452
0.5000	0.5000	0.0300	1.2500	1.3750	3.0000	976-000-453
0.5000	0.5000	0.0600	1.2500	1.3750	3.0000	976-000-454
0.5000	0.5000	0.0150	1.5000	1.1250	3.0000	976-000-455
0.5000	0.5000	0.0300	1.5000	1.1250	3.0000	976-000-456
0.5000	0.5000	0.0600	1.5000	1.1250	3.0000	976-000-457
0.5000	0.5000	0.0150	1.7500	1.3750	3.5000	976-000-458
0.5000	0.5000	0.0300	1.7500	1.3750	3.5000	976-000-459
0.5000	0.5000	0.0600	1.7500	1.3750	3.5000	976-000-460
0.6250	0.6250	0.0300	1.5000	1.6250	3.5000	976-000-461
0.6250	0.6250	0.0600	1.5000	1.6250	3.5000	976-000-462
0.6250	0.6250	0.0900	1.5000	1.6250	3.5000	976-000-463
0.7500	0.7500	0.0300	1.7500	1.8750	4.0000	976-000-464
0.7500	0.7500	0.0600	1.7500	1.8750	4.0000	976-000-465
0.7500	0.7500	0.0900	1.7500	1.8750	4.0000	976-000-466
1.0000	1.0000	0.0300	1.7500	1.8750	4.0000	976-000-467
1.0000	1.0000	0.0600	1.7500	1.8750	4.0000	976-000-468
1.0000	1.0000	0.0900	1.7500	1.8750	4.0000	976-000-469



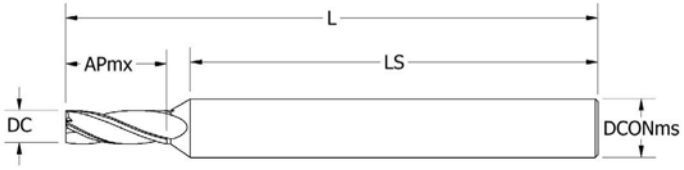
PG.492

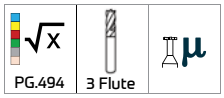
7-FLUTE - LONG LENGTH - CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Product #
0.1875	0.1875	0.0150	0.7500	1.3750	2.5000	976-000-470
0.1875	0.1875	0.0300	0.7500	1.3750	2.5000	976-000-471
0.2500	0.2500	0.0150	1.1250	1.5000	3.0000	976-000-472
0.2500	0.2500	0.0300	1.1250	1.5000	3.0000	976-000-473
0.3125	0.3125	0.0150	1.1250	1.5000	3.0000	976-000-474
0.3125	0.3125	0.0300	1.1250	1.5000	3.0000	976-000-475
0.3750	0.3750	0.0300	1.2500	1.3750	3.0000	976-000-476
0.3750	0.3750	0.0600	1.2500	1.3750	3.0000	976-000-477
0.4375	0.4375	0.0300	2.0000	1.6250	4.0000	976-000-478
0.4375	0.4375	0.0600	2.0000	1.6250	4.0000	976-000-479
0.5000	0.5000	0.0300	2.0000	1.6250	4.0000	976-000-480
0.5000	0.5000	0.0600	2.0000	1.6250	4.0000	976-000-481
0.6250	0.6250	0.0300	2.2500	2.3750	5.0000	976-000-482
0.6250	0.6250	0.0600	2.2500	2.3750	5.0000	976-000-483
0.7500	0.7500	0.0300	2.2500	2.3750	5.0000	976-000-484
0.7500	0.7500	0.0600	2.2500	2.3750	5.0000	976-000-485
1.0000	1.0000	0.0300	2.2500	2.3750	5.0000	976-000-486
1.0000	1.0000	0.0600	2.2500	2.3750	5.0000	976-000-487

REVERE®

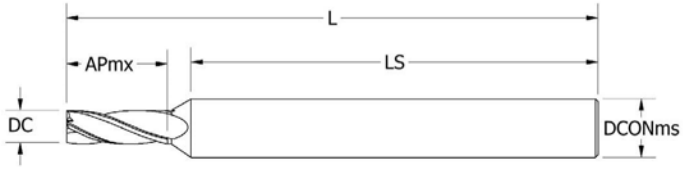
IMPERIAL, SQUARE END, STUB

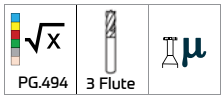




Size	DC [in.]	DCONms [in.]	L [in.]	LS [in.]	APmx [in.]	Uncoated	AlTiN Coated	AX2 Coated
						3 FLUTE	3 FLUTE	3 FLUTE
1/32	0.0312	0.2500	2.5000	1.8749	0.0625	977-000-133	977-000-135	977-000-134
3/64	0.0469	0.2500	2.5000	1.8838	0.0938	977-000-136	977-000-138	977-000-137
1/16	0.0625	0.2500	2.5000	1.8771	0.1406	977-000-139	977-000-141	977-000-140
5/64	0.0781	0.2500	2.5000	1.9172	0.1406	977-000-142	977-000-144	977-000-143
3/32	0.0938	0.2500	2.5000	1.9107	0.1875	977-000-145	977-000-147	977-000-146
7/64	0.1094	0.2500	2.5000	1.9508	0.1875	977-000-148	977-000-150	977-000-149
1/8	0.1250	0.2500	2.5000	1.9285	0.2500	977-000-151	977-000-153	977-000-152
5/32	0.1562	0.2500	2.5000	1.8840	0.3750	977-000-154	977-000-156	977-000-155
3/16	0.1875	0.2500	2.5000	1.9642	0.3750	977-000-157	977-000-159	977-000-158
7/32	0.2188	0.2500	2.5000	2.0447	0.3750	977-000-160	977-000-162	977-000-161
1/4	0.2500	0.2500	2.5000	1.6250	0.5000	977-000-163	977-000-165	977-000-164

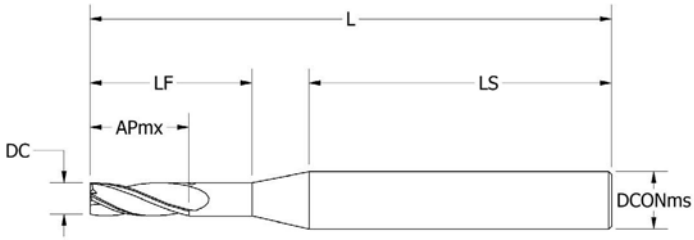
IMPERIAL, SQUARE END, STANDARD





Size	DC [in.]	DCONms [in.]	L [in.]	LS [in.]	APmx [in.]	Uncoated	AlTiN Coated	AX2 Coated
						3 FLUTE	3 FLUTE	3 FLUTE
1/32	0.0312	0.2500	2.5000	1.8436	0.0938	977-000-166	977-000-168	977-000-167
3/64	0.0469	0.2500	2.5000	1.8370	0.1406	977-000-169	977-000-171	977-000-170
1/16	0.0625	0.2500	2.5000	1.8302	0.1875	977-000-172	977-000-174	977-000-173
5/64	0.0781	0.2500	2.5000	1.8234	0.2344	977-000-175	977-000-177	977-000-176
3/32	0.0938	0.2500	2.5000	1.7232	0.3750	977-000-178	977-000-180	977-000-179
7/64	0.1094	0.2500	2.5000	1.7008	0.4380	977-000-181	977-000-183	977-000-182
1/8	0.1250	0.2500	2.5000	1.6785	0.5000	977-000-184	977-000-186	977-000-185
5/32	0.1562	0.2500	2.5000	1.6965	0.5630	977-000-187	977-000-189	977-000-188
3/16	0.1875	0.2500	2.5000	1.7142	0.6250	977-000-190	977-000-192	977-000-191
7/32	0.2188	0.2500	2.5000	1.7947	0.6250	977-000-193	977-000-195	977-000-194
1/4	0.2500	0.2500	2.5000	1.3750	0.7500	977-000-196	977-000-198	977-000-197

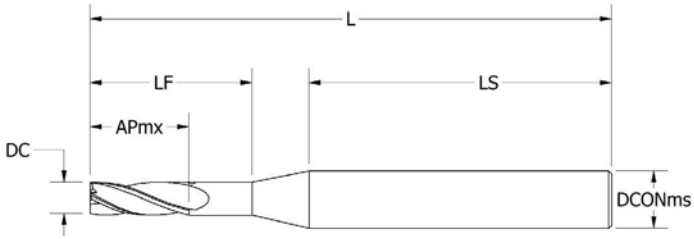
IMPERIAL, SQUARE END, STUB EXTENDED REACH, 5xD



PG.494 3 Flute

Size	DC [in.]	DCONms [in.]	L [in.]	LF [in.]	LS [in.]	APmx [in.]	Uncoated	AlTiN Coated	AX2 Coated
							3 FLUTE	3 FLUTE	3 FLUTE
1/32	0.0312	0.2500	2.5000	0.1550	2.2347	0.0625	977-000-199	977-000-201	977-000-200
3/64	0.0469	0.2500	2.5000	0.2300	2.1675	0.0938	977-000-202	977-000-204	977-000-203
1/16	0.0625	0.2500	2.5000	0.3120	2.0933	0.1406	977-000-205	977-000-207	977-000-206
5/64	0.0781	0.2500	2.5000	0.3900	2.0231	0.1406	977-000-208	977-000-210	977-000-209
3/32	0.0938	0.2500	2.5000	0.4650	1.9559	0.1875	977-000-211	977-000-213	977-000-212
7/64	0.1094	0.2500	2.5000	0.5450	1.8837	0.1875	977-000-214	977-000-216	977-000-215
1/8	0.1250	0.2500	2.5000	0.6250	1.8115	0.2500	977-000-217	977-000-219	977-000-218
5/32	0.1562	0.2500	2.5000	0.7810	1.6712	0.3750	977-000-220	977-000-222	977-000-221
3/16	0.1875	0.2500	2.5000	0.9380	1.5298	0.3750	977-000-223	977-000-225	977-000-224
7/32	0.2188	0.2500	2.5000	1.0930	1.3904	0.3750	977-000-226	977-000-228	977-000-227
1/4	0.2500	0.2500	2.5000	1.2500	1.2500	0.5000	977-000-229	977-000-231	977-000-230

IMPERIAL, SQUARE END, STUB EXTENDED REACH 8xD

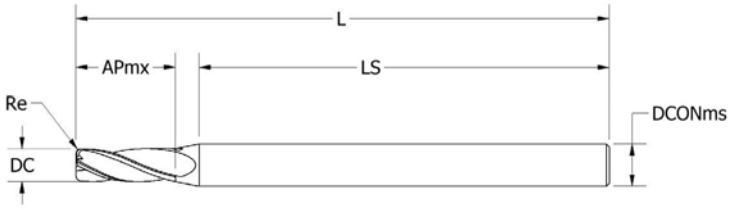


PG.494 3 Flute

Size	DC [in.]	DCONms [in.]	L [in.]	LF [in.]	LS [in.]	APmx [in.]	Uncoated	AlTiN Coated	AX2 Coated
							3 FLUTE	3 FLUTE	3 FLUTE
1/32	0.0312	0.2500	2.5000	0.2500	2.1397	0.0625	977-000-232	977-000-234	977-000-233
3/64	0.0469	0.2500	2.5000	0.3750	2.0225	0.0938	977-000-235	977-000-237	977-000-236
1/16	0.0625	0.2500	2.5000	0.5000	1.9053	0.1406	977-000-238	977-000-240	977-000-239
5/64	0.0781	0.2500	2.5000	0.6250	1.7881	0.1406	977-000-241	977-000-243	977-000-242
3/32	0.0938	0.2500	2.5000	0.7500	1.6709	0.1875	977-000-244	977-000-246	977-000-245
7/64	0.1094	0.2500	2.5000	0.8750	1.5537	0.1875	977-000-247	977-000-249	977-000-248
1/8	0.1250	0.2500	2.5000	1.0000	1.4365	0.2500	977-000-250	977-000-252	977-000-251
5/32	0.1562	0.2500	2.5000	1.2500	1.2022	0.3750	977-000-253	977-000-255	977-000-254
3/16	0.1875	0.2500	2.5000	1.3750	1.0928	0.3750	977-000-256	977-000-258	977-000-257
7/32	0.2188	0.2500	3.0000	1.7500	1.2334	0.3750	977-000-259	977-000-261	977-000-260
1/4	0.2500	0.2500	3.0000	1.7500	1.2500	0.5000	977-000-262	977-000-264	977-000-263

REVERE®

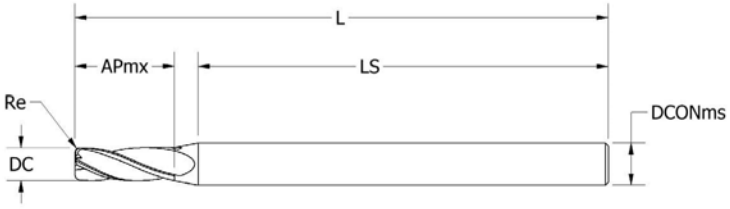
IMPERIAL, CORNER RADIUS, STUB



PG.494 3 Flute

Size	DC [in.]	DCONms [in.]	L [in.]	LS [in.]	APmx [in.]	Re [in.]	Uncoated	AlTiN Coated	AX2 Coated
							3 FLUTE	3 FLUTE	3 FLUTE
1/32	0.0312	0.2500	2.5000	1.8744	0.0625	0.0060	977-000-001	977-000-003	977-000-002
3/64	0.0469	0.2500	2.5000	1.8836	0.0938	0.0100	977-000-004	977-000-006	977-000-005
1/16	0.0625	0.2500	2.5000	1.8771	0.1406	0.0100	977-000-007	977-000-009	977-000-008
5/64	0.0781	0.2500	2.5000	1.9172	0.1406	0.0100	977-000-010	977-000-012	977-000-011
3/32	0.0938	0.2500	2.5000	1.9102	0.1875	0.0100	977-000-013	977-000-015	977-000-014
7/64	0.1094	0.2500	2.5000	1.9503	0.1875	0.0100	977-000-016	977-000-018	977-000-017
1/8	0.1250	0.2500	2.5000	1.9285	0.2500	0.0150	977-000-019	977-000-021	977-000-020
5/32	0.1562	0.2500	2.5000	1.8840	0.3750	0.0150	977-000-022	977-000-024	977-000-023
3/16	0.1875	0.2500	2.5000	1.9642	0.3750	0.0150	977-000-025	977-000-027	977-000-026
7/32	0.2188	0.2500	2.5000	2.0447	0.3750	0.0150	977-000-028	977-000-030	977-000-029
1/4	0.2500	0.2500	2.5000	1.6250	0.5000	0.0150	977-000-031	977-000-033	977-000-032

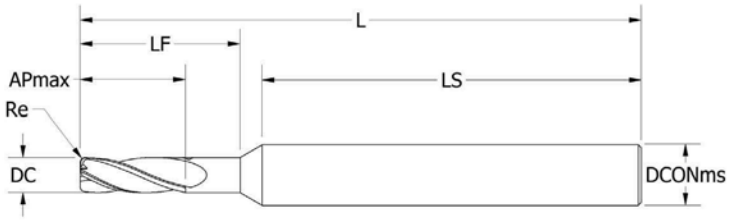
IMPERIAL, CORNER RADIUS, STANDARD

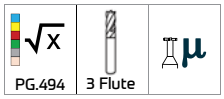


PG.494 3 Flute

Size	DC [in.]	DCONms [in.]	L [in.]	LS [in.]	APmx [in.]	Re [in.]	Uncoated	AlTiN Coated	AX2 Coated
							3 FLUTE	3 FLUTE	3 FLUTE
1/32	0.0312	0.2500	2.5000	1.8434	0.0938	0.0060	977-000-034	977-000-036	977-000-035
3/64	0.0469	0.2500	2.5000	1.8370	0.1406	0.0100	977-000-037	977-000-039	977-000-038
1/16	0.0625	0.2500	2.5000	1.8302	0.1875	0.0100	977-000-040	977-000-042	977-000-041
5/64	0.0781	0.2500	2.5000	1.8234	0.2344	0.0100	977-000-043	977-000-045	977-000-044
3/32	0.0938	0.2500	2.5000	1.7232	0.3750	0.0100	977-000-046	977-000-048	977-000-047
7/64	0.1094	0.2500	2.5000	1.7008	0.4380	0.0100	977-000-049	977-000-051	977-000-050
1/8	0.1250	0.2500	2.5000	1.6785	0.5000	0.0150	977-000-052	977-000-054	977-000-053
5/32	0.1562	0.2500	2.5000	1.6965	0.5630	0.0150	977-000-055	977-000-057	977-000-056
3/16	0.1875	0.2500	2.5000	1.7142	0.6250	0.0150	977-000-058	977-000-060	977-000-059
7/32	0.2188	0.2500	2.5000	1.7947	0.6250	0.0150	977-000-061	977-000-063	977-000-062
1/4	0.2500	0.2500	2.5000	1.3750	0.7500	0.0150	977-000-064	977-000-066	977-000-065

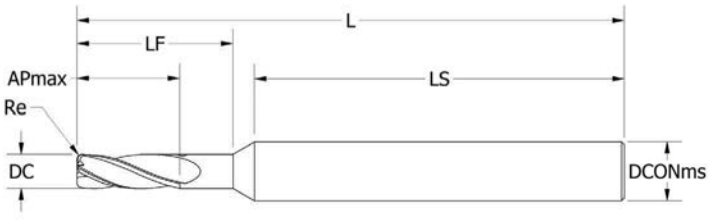
IMPERIAL, CORNER RADIUS, STANDARD EXTENDED REACH, 5xD

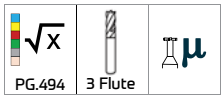




Size	DC [in.]	DCONms [in.]	L [in.]	LF [in.]	LS [in.]	APmx [in.]	Re [in.]	Uncoated	AlTiN Coated	AX2 Coated
								3 FLUTE	3 FLUTE	3 FLUTE
1/32	0.0312	0.2500	2.5000	0.1550	2.2347	0.0938	0.0060	977-000-067	977-000-069	977-000-068
3/64	0.0469	0.2500	2.5000	0.2300	2.1675	0.1406	0.0100	977-000-070	977-000-072	977-000-071
1/16	0.0625	0.2500	2.5000	0.3120	2.0933	0.1875	0.0100	977-000-073	977-000-075	977-000-074
5/64	0.0781	0.2500	2.5000	0.3900	2.0231	0.2344	0.0100	977-000-076	977-000-078	977-000-077
3/32	0.0938	0.2500	2.5000	0.4650	1.9559	0.3750	0.0100	977-000-079	977-000-081	977-000-080
7/64	0.1094	0.2500	2.5000	0.5450	1.8837	0.4380	0.0100	977-000-082	977-000-084	977-000-083
1/8	0.1250	0.2500	2.5000	0.6250	1.8115	0.5000	0.0150	977-000-085	977-000-087	977-000-086
5/32	0.1562	0.2500	2.5000	0.7810	1.6712	0.5630	0.0150	977-000-088	977-000-090	977-000-089
3/16	0.1875	0.2500	2.5000	0.9380	1.5298	0.6250	0.0150	977-000-091	977-000-093	977-000-092
7/32	0.2188	0.2500	2.5000	1.0930	1.3904	0.6250	0.0150	977-000-094	977-000-096	977-000-095
1/4	0.2500	0.2500	2.5000	1.2500	1.2500	0.7500	0.0150	977-000-097	977-000-099	977-000-098

IMPERIAL, CORNER RADIUS, STANDARD EXTENDED REACH, 8xD

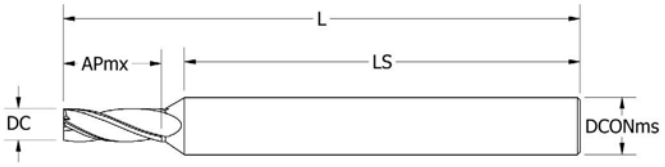




Size	DC [in.]	DCONms [in.]	L [in.]	LF [in.]	LS [in.]	APmx [in.]	Re [in.]	Uncoated	AlTiN Coated	AX2 Coated
								3 FLUTE	3 FLUTE	3 FLUTE
1/32	0.0312	0.2500	2.5000	0.2500	2.1397	0.0625	0.0060	977-000-100	977-000-102	977-000-101
3/64	0.0469	0.2500	2.5000	0.3750	2.0225	0.0938	0.0100	977-000-103	977-000-105	977-000-104
1/16	0.0625	0.2500	2.5000	0.5000	1.9053	0.1406	0.0100	977-000-106	977-000-108	977-000-107
5/64	0.0781	0.2500	2.5000	0.6250	1.7881	0.1406	0.0100	977-000-109	977-000-111	977-000-110
3/32	0.0938	0.2500	2.5000	0.7500	1.6709	0.1875	0.0100	977-000-112	977-000-114	977-000-113
7/64	0.1094	0.2500	2.5000	0.8750	1.5537	0.1875	0.0100	977-000-115	977-000-117	977-000-116
1/8	0.1250	0.2500	2.5000	1.0000	1.4365	0.2500	0.0150	977-000-118	977-000-120	977-000-119
5/32	0.1562	0.2500	2.5000	1.2500	1.2022	0.3750	0.0150	977-000-121	977-000-123	977-000-122
3/16	0.1875	0.2500	2.5000	1.3750	1.0928	0.3750	0.0150	977-000-124	977-000-126	977-000-125
7/32	0.2188	0.2500	3.0000	1.7500	1.2334	0.3750	0.0150	977-000-127	977-000-129	977-000-128
1/4	0.2500	0.2500	3.0000	1.7500	1.2500	0.5000	0.0150	977-000-130	977-000-132	977-000-131

REVERE

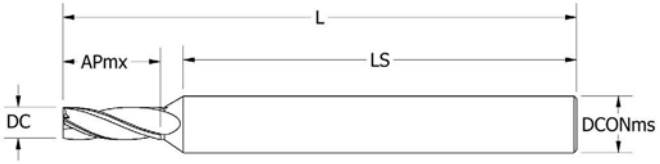
METRIC, SQUARE END, STUB



PG.494 | 3 Flute

DC [mm]	DCONms [mm]	L [mm]	LS [mm]	APmx [mm]	Uncoated	AlTiN Coated	AX2 Coated
					3 FLUTE	3 FLUTE	3 FLUTE
1.00	6.00	63.50	49.14	1.50	977-000-607	977-000-609	977-000-608
1.50	6.00	63.50	49.42	2.50	977-000-610	977-000-612	977-000-611
2.00	6.00	63.50	50.21	3.00	977-000-613	977-000-615	977-000-614
2.50	6.00	63.50	50.50	4.00	977-000-616	977-000-618	977-000-617
3.00	6.00	63.50	50.78	5.00	977-000-619	977-000-621	977-000-620
4.00	6.00	63.50	52.36	6.00	977-000-622	977-000-624	977-000-623
5.00	6.00	63.50	52.93	8.00	977-000-625	977-000-627	977-000-626
6.00	6.00	63.50	44.50	9.00	977-000-628	977-000-630	977-000-629

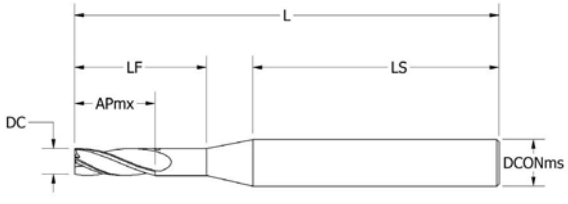
METRIC, SQUARE END, STANDARD



PG.494 | 3 Flute

DC [mm]	DCONms [mm]	L [mm]	LS [mm]	APmx [mm]	Uncoated	AlTiN Coated	AX2 Coated
					3 FLUTE	3 FLUTE	3 FLUTE
1.00	6.00	63.50	47.64	3.00	977-000-634	977-000-636	977-000-635
1.50	6.00	63.50	47.42	4.50	977-000-637	977-000-639	977-000-638
2.00	6.00	63.50	47.21	6.00	977-000-640	977-000-642	977-000-641
2.50	6.00	63.50	47.00	7.50	977-000-643	977-000-645	977-000-644
3.00	6.00	63.50	46.78	9.00	977-000-646	977-000-648	977-000-647
4.00	6.00	63.50	46.36	12.00	977-000-649	977-000-651	977-000-650
5.00	6.00	63.50	45.93	15.00	977-000-652	977-000-654	977-000-653
6.00	6.00	63.50	35.50	18.00	977-000-655	977-000-657	977-000-656

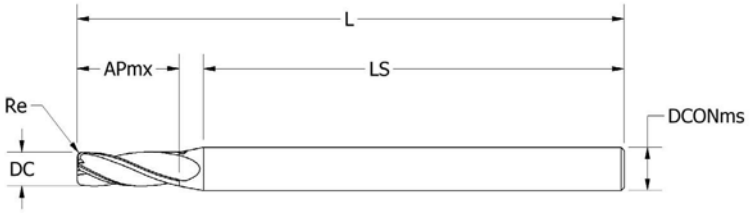
METRIC, SQUARE END, STANDARD EXTENDED REACH 8xD



PG.494 | 3 Flute

DC [mm]	DCONms [mm]	L [mm]	LF [mm]	LS [mm]	APmx [mm]	Uncoated	AlTiN Coated	AX2 Coated
						3 FLUTE	3 FLUTE	3 FLUTE
1.00	6.00	75.00	10.00	62.50	3.00	977-000-661	977-000-663	977-000-662
1.50	6.00	75.00	15.00	57.75	4.50	977-000-664	977-000-666	977-000-665
2.00	6.00	75.00	20.00	53.00	6.00	977-000-667	977-000-669	977-000-668
2.50	6.00	75.00	25.00	48.25	7.50	977-000-670	977-000-672	977-000-671
3.00	6.00	75.00	30.00	43.50	9.00	977-000-673	977-000-675	977-000-674
4.00	6.00	75.00	30.00	44.00	12.00	977-000-676	977-000-678	977-000-677
5.00	6.00	75.00	40.00	34.50	15.00	977-000-679	977-000-681	977-000-680
6.00	6.00	75.00	45.00	30.00	18.00	977-000-682	977-000-684	977-000-683

METRIC, CORNER RADIUS, STUB

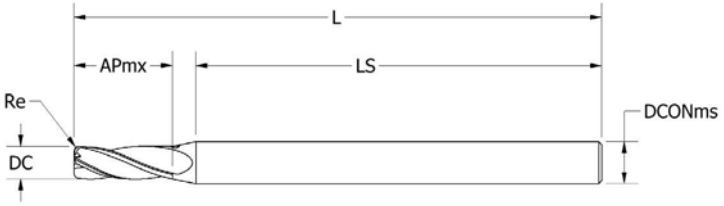


PG.494 3 Flute

DC [mm]	DCONms [mm]	L [mm]	LS [mm]	APmx [mm]	Re [mm]	Uncoated	AlTiN Coated	AX2 Coated
						3 FLUTE	3 FLUTE	3 FLUTE
1.00	6.00	63.50	49.14	1.50	0.10	977-000-265	977-000-267	977-000-266
1.00	6.00	63.50	49.14	1.50	0.20	977-000-268	977-000-270	977-000-269
1.00	6.00	63.50	49.14	1.50	0.30	977-000-271	977-000-273	977-000-272
1.50	6.00	63.50	49.42	2.50	0.10	977-000-274	977-000-276	977-000-275
1.50	6.00	63.50	49.42	2.50	0.20	977-000-277	977-000-279	977-000-278
1.50	6.00	63.50	49.42	2.50	0.30	977-000-280	977-000-282	977-000-281
1.50	6.00	63.50	49.42	2.50	0.50	977-000-283	977-000-285	977-000-284
2.00	6.00	63.50	50.21	3.00	0.20	977-000-286	977-000-288	977-000-287
2.00	6.00	63.50	50.21	3.00	0.30	977-000-289	977-000-291	977-000-290
2.00	6.00	63.50	50.21	3.00	0.50	977-000-292	977-000-294	977-000-293
2.50	6.00	63.50	50.50	4.00	0.20	977-000-295	977-000-297	977-000-296
2.50	6.00	63.50	50.50	4.00	0.30	977-000-298	977-000-300	977-000-299
2.50	6.00	63.50	50.50	4.00	0.50	977-000-301	977-000-303	977-000-302
3.00	6.00	63.50	50.78	5.00	0.20	977-000-304	977-000-306	977-000-305
3.00	6.00	63.50	50.78	5.00	0.30	977-000-307	977-000-309	977-000-308
3.00	6.00	63.50	50.78	5.00	0.50	977-000-310	977-000-312	977-000-311
3.00	6.00	63.50	50.78	5.00	1.00	977-000-313	977-000-315	977-000-314
4.00	6.00	63.50	52.36	6.00	0.20	977-000-316	977-000-318	977-000-317
4.00	6.00	63.50	52.36	6.00	0.30	977-000-319	977-000-321	977-000-320
4.00	6.00	63.50	52.36	6.00	0.50	977-000-322	977-000-324	977-000-323
4.00	6.00	63.50	52.36	6.00	1.00	977-000-325	977-000-327	977-000-326
5.00	6.00	63.50	52.93	8.00	0.20	977-000-328	977-000-330	977-000-329
5.00	6.00	63.50	52.93	8.00	0.30	977-000-331	977-000-333	977-000-332
5.00	6.00	63.50	52.93	8.00	0.50	977-000-334	977-000-336	977-000-335
5.00	6.00	63.50	52.93	8.00	1.00	977-000-337	977-000-339	977-000-338
5.00	6.00	63.50	52.93	8.00	1.50	977-000-340	977-000-342	977-000-341
6.00	6.00	63.50	54.50	9.00	0.20	977-000-343	977-000-345	977-000-344
6.00	6.00	63.50	54.50	9.00	0.30	977-000-346	977-000-348	977-000-347
6.00	6.00	63.50	54.50	9.00	0.50	977-000-349	977-000-351	977-000-350
6.00	6.00	63.50	54.50	9.00	1.00	977-000-352	977-000-354	977-000-353
6.00	6.00	63.50	54.50	9.00	1.50	977-000-355	977-000-357	977-000-356
6.00	6.00	63.50	54.50	9.00	2.00	977-000-358	977-000-360	977-000-359

REVERE®

METRIC, CORNER RADIUS, STANDARD

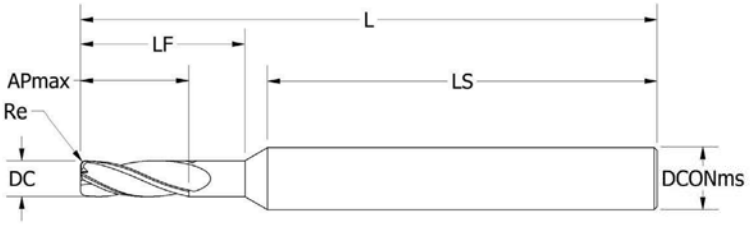


PG.494 3 Flute

DC [mm]	DCONms [mm]	L [mm]	LS [mm]	APmx [mm]	Re [mm]	Uncoated	AlTiN Coated	AX2 Coated
						3 FLUTE	3 FLUTE	3 FLUTE
1.00	6.00	63.50	47.64	3.00	0.10	977-000-379	977-000-381	977-000-380
1.00	6.00	63.50	47.64	3.00	0.20	977-000-382	977-000-384	977-000-383
1.00	6.00	63.50	47.64	3.00	0.30	977-000-385	977-000-387	977-000-386
1.50	6.00	63.50	47.42	4.50	0.10	977-000-388	977-000-390	977-000-389
1.50	6.00	63.50	47.42	4.50	0.20	977-000-391	977-000-393	977-000-392
1.50	6.00	63.50	47.42	4.50	0.30	977-000-394	977-000-396	977-000-395
1.50	6.00	63.50	47.42	4.50	0.50	977-000-397	977-000-399	977-000-398
2.00	6.00	63.50	47.21	6.00	0.20	977-000-400	977-000-402	977-000-401
2.00	6.00	63.50	47.21	6.00	0.30	977-000-403	977-000-405	977-000-404
2.00	6.00	63.50	47.21	6.00	0.50	977-000-406	977-000-408	977-000-407
2.50	6.00	63.50	47.00	7.50	0.20	977-000-409	977-000-411	977-000-410
2.50	6.00	63.50	47.00	7.50	0.30	977-000-412	977-000-414	977-000-413
2.50	6.00	63.50	47.00	7.50	0.50	977-000-415	977-000-417	977-000-416
3.00	6.00	63.50	46.78	9.00	0.20	977-000-418	977-000-420	977-000-419
3.00	6.00	63.50	46.78	9.00	0.30	977-000-421	977-000-423	977-000-422
3.00	6.00	63.50	46.78	9.00	0.50	977-000-424	977-000-426	977-000-425
3.00	6.00	63.50	46.78	9.00	1.00	977-000-427	977-000-429	977-000-428
4.00	6.00	63.50	46.36	12.00	0.20	977-000-430	977-000-432	977-000-431
4.00	6.00	63.50	46.36	12.00	0.30	977-000-433	977-000-435	977-000-434
4.00	6.00	63.50	46.36	12.00	0.50	977-000-436	977-000-438	977-000-437
4.00	6.00	63.50	46.36	12.00	1.00	977-000-439	977-000-441	977-000-440
5.00	6.00	63.50	45.93	15.00	0.20	977-000-442	977-000-444	977-000-443
5.00	6.00	63.50	45.93	15.00	0.30	977-000-445	977-000-447	977-000-446
5.00	6.00	63.50	45.93	15.00	0.50	977-000-448	977-000-450	977-000-449
5.00	6.00	63.50	45.93	15.00	1.00	977-000-451	977-000-453	977-000-452
5.00	6.00	63.50	45.93	15.00	1.50	977-000-454	977-000-456	977-000-455
6.00	6.00	63.50	45.50	18.00	0.20	977-000-457	977-000-459	977-000-458
6.00	6.00	63.50	45.50	18.00	0.30	977-000-460	977-000-462	977-000-461
6.00	6.00	63.50	45.50	18.00	0.50	977-000-463	977-000-465	977-000-464
6.00	6.00	63.50	45.50	18.00	1.00	977-000-466	977-000-468	977-000-467
6.00	6.00	63.50	45.50	18.00	1.50	977-000-469	977-000-471	977-000-470
6.00	6.00	63.50	45.50	18.00	2.00	977-000-472	977-000-474	977-000-473

REVERE®

METRIC, CORNER RADIUS, STANDARD EXTENDED REACH, 8xD

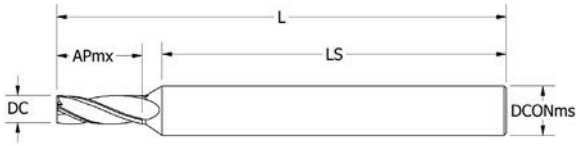


PG.494 3 Flute

DC [mm]	DCONms [mm]	L [mm]	LF [mm]	LS [mm]	APmx [mm]	Re [mm]	Uncoated	AlTiN Coated	AX2 Coated
							3 FLUTE	3 FLUTE	3 FLUTE
1.00	6.00	75.00	10.00	62.50	3.00	0.10	977-000-493	977-000-495	977-000-494
1.00	6.00	75.00	10.00	62.50	3.00	0.20	977-000-496	977-000-498	977-000-497
1.50	6.00	75.00	10.00	62.50	3.00	0.30	977-000-499	977-000-501	977-000-500
1.50	6.00	75.00	15.00	57.75	4.50	0.10	977-000-502	977-000-504	977-000-503
1.50	6.00	75.00	15.00	57.75	4.50	0.20	977-000-505	977-000-507	977-000-506
1.50	6.00	75.00	15.00	57.75	4.50	0.30	977-000-508	977-000-510	977-000-509
2.00	6.00	75.00	15.00	57.75	4.50	0.50	977-000-511	977-000-513	977-000-512
2.00	6.00	75.00	20.00	53.00	6.00	0.20	977-000-514	977-000-516	977-000-515
2.00	6.00	75.00	20.00	53.00	6.00	0.30	977-000-517	977-000-519	977-000-518
2.50	6.00	75.00	20.00	53.00	6.00	0.50	977-000-520	977-000-522	977-000-521
2.50	6.00	75.00	25.00	48.25	7.50	0.20	977-000-523	977-000-525	977-000-524
2.50	6.00	75.00	25.00	48.25	7.50	0.30	977-000-526	977-000-528	977-000-527
3.00	6.00	75.00	25.00	48.25	7.50	0.50	977-000-529	977-000-531	977-000-530
3.00	6.00	75.00	30.00	43.50	9.00	0.20	977-000-532	977-000-534	977-000-533
3.00	6.00	75.00	30.00	43.50	9.00	0.30	977-000-535	977-000-537	977-000-536
3.00	6.00	75.00	30.00	43.50	9.00	0.50	977-000-538	977-000-540	977-000-539
4.00	6.00	75.00	30.00	43.50	9.00	1.00	977-000-541	977-000-543	977-000-542
4.00	6.00	75.00	30.00	44.00	12.00	0.20	977-000-544	977-000-546	977-000-545
4.00	6.00	75.00	30.00	44.00	12.00	0.30	977-000-547	977-000-549	977-000-548
4.00	6.00	75.00	30.00	44.00	12.00	0.50	977-000-550	977-000-552	977-000-551
5.00	6.00	75.00	30.00	44.00	12.00	1.00	977-000-553	977-000-555	977-000-554
5.00	6.00	75.00	40.00	34.50	15.00	0.20	977-000-556	977-000-558	977-000-557
5.00	6.00	75.00	40.00	34.50	15.00	0.30	977-000-559	977-000-561	977-000-560
5.00	6.00	75.00	40.00	34.50	15.00	0.50	977-000-562	977-000-564	977-000-563
5.00	6.00	75.00	40.00	34.50	15.00	1.00	977-000-565	977-000-567	977-000-566
6.00	6.00	75.00	40.00	34.50	15.00	1.50	977-000-568	977-000-570	977-000-569
6.00	6.00	75.00	45.00	30.00	18.00	0.20	977-000-571	977-000-573	977-000-572
6.00	6.00	75.00	45.00	30.00	18.00	0.30	977-000-574	977-000-576	977-000-575
6.00	6.00	75.00	45.00	30.00	18.00	0.50	977-000-577	977-000-579	977-000-578
6.00	6.00	75.00	45.00	30.00	18.00	1.00	977-000-580	977-000-582	977-000-581
6.00	6.00	75.00	45.00	30.00	18.00	1.50	977-000-583	977-000-585	977-000-584
6.00	6.00	75.00	45.00	30.00	18.00	2.00	977-000-586	977-000-588	977-000-587

KEO

Ø .005"- .045"



PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated		AlTiN Coated	
					2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0050	0.1250	0.0150	1.1342	1.5000	930-000-243	N/A	930-000-527	N/A
0.0060	0.1250	0.0180	1.1342	1.5000	930-000-245	N/A	930-000-528	N/A
0.0070	0.1250	0.0210	1.1342	1.5000	930-000-246	N/A	930-000-529	N/A
0.0080	0.1250	0.0240	1.1342	1.5000	930-000-247	N/A	930-000-530	N/A
0.0090	0.1250	0.0270	1.1342	1.5000	930-000-248	N/A	930-000-531	N/A
0.0100	0.1250	0.0300	1.1742	1.5000	930-000-249	930-000-635	930-000-532	930-001-031
0.0110	0.1250	0.0330	1.1738	1.5000	930-000-251	930-000-637	930-000-533	930-001-032
0.0120	0.1250	0.0360	1.1733	1.5000	930-000-252	930-000-638	930-000-534	930-001-033
0.0130	0.1250	0.0390	1.1729	1.5000	930-000-253	930-000-639	930-000-535	930-001-034
0.0140	0.1250	0.0420	1.1725	1.5000	930-000-254	930-000-640	930-000-536	930-001-035
0.0150	0.1250	0.0450	1.1720	1.5000	930-000-255	930-000-641	930-000-537	930-001-036
0.0156	0.1250	0.0468	1.1718	1.5000	930-000-362	930-000-748	930-003-933	930-004-042
0.0160	0.1250	0.0480	1.1716	1.5000	930-000-257	930-000-643	930-000-538	930-001-037
0.0170	0.1250	0.0510	1.1712	1.5000	930-000-258	930-000-644	930-000-539	930-001-038
0.0180	0.1250	0.0540	1.1708	1.5000	930-000-259	930-000-645	930-000-540	930-001-039
0.0190	0.1250	0.0570	1.1703	1.5000	930-000-260	930-000-646	930-000-541	930-001-040
0.0197	0.1250	0.0591	1.1700	1.5000	930-000-343	930-000-729	930-003-924	930-004-033
0.0200	0.1250	0.0600	1.1699	1.5000	930-000-261	930-000-647	930-000-542	930-001-041
0.0210	0.1250	0.0630	1.1695	1.5000	930-000-263	930-000-649	930-000-543	930-001-042
0.0220	0.1250	0.0660	1.1691	1.5000	930-000-264	930-000-650	930-000-544	930-001-043
0.0230	0.1250	0.0690	1.1686	1.5000	930-000-265	930-000-651	930-000-545	930-001-044
0.0240	0.1250	0.0720	1.1682	1.5000	930-000-266	930-000-652	930-000-546	930-001-045
0.0250	0.1250	0.0750	1.1678	1.5000	930-000-267	930-000-653	930-000-547	930-001-046
0.0260	0.1250	0.0780	1.1673	1.5000	930-000-269	930-000-655	930-000-548	930-001-047
0.0270	0.1250	0.0810	1.1669	1.5000	930-000-270	930-000-656	930-000-549	930-001-048
0.0280	0.1250	0.0840	1.1665	1.5000	930-000-271	930-000-657	930-000-550	930-001-049
0.0290	0.1250	0.0870	1.1661	1.5000	930-000-272	930-000-658	930-000-551	930-001-050
0.0300	0.1250	0.0900	1.1656	1.5000	930-000-273	930-000-659	930-000-552	930-001-051
0.0310	0.1250	0.0930	1.1652	1.5000	930-000-275	930-000-661	930-000-553	930-001-052
0.0320	0.1250	0.0960	1.1648	1.5000	930-000-276	930-000-662	930-000-554	930-001-053
0.0330	0.1250	0.0990	1.1644	1.5000	930-000-277	930-000-663	930-000-555	930-001-054
0.0340	0.1250	0.1020	1.1639	1.5000	930-000-278	930-000-664	930-000-556	930-001-055
0.0350	0.1250	0.1050	1.1635	1.5000	930-000-279	930-000-665	930-000-557	930-001-056
0.0360	0.1250	0.1080	1.1631	1.5000	930-000-281	930-000-667	930-000-558	930-001-057
0.0370	0.1250	0.1110	1.1626	1.5000	930-000-282	930-000-668	930-000-559	930-001-058
0.0380	0.1250	0.1140	1.1622	1.5000	930-000-283	930-000-669	930-000-560	930-001-059
0.0390	0.1250	0.1170	1.1618	1.5000	930-000-284	930-000-670	930-000-561	930-001-060
0.0394	0.1250	0.1182	1.1616	1.5000	930-000-350	930-000-736	930-000-601	930-001-103
0.0400	0.1250	0.1200	1.1614	1.5000	930-000-285	930-000-671	930-000-562	930-001-061
0.0410	0.1250	0.1230	1.1609	1.5000	930-000-287	930-000-673	930-000-563	930-001-062
0.0420	0.1250	0.1260	1.1605	1.5000	930-000-288	930-000-674	930-000-564	930-001-063
0.0430	0.1250	0.1290	1.1601	1.5000	930-000-289	930-000-675	930-000-565	930-001-064
0.0440	0.1250	0.1320	1.1596	1.5000	930-000-290	930-000-676	930-000-566	930-001-065
0.0450	0.1250	0.1350	1.1592	1.5000	930-000-291	930-000-677	930-000-567	930-001-066

Ø .046"- .1772"

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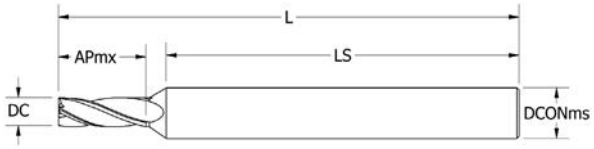
MICRO



DC [in.]	DCONMS [in.]	APMX [in.]	L [in.]	LS [in.]	Uncoated		AlTiN Coated	
					2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0460	0.1250	0.1380	1.5000	1.1588	930-000-293	930-000-679	930-000-568	930-001-067
0.0470	0.1250	0.1410	1.5000	1.1584	930-000-294	930-000-680	930-000-569	930-001-068
0.0480	0.1250	0.1440	1.5000	1.1579	930-000-295	930-000-681	930-000-570	930-001-069
0.0490	0.1250	0.1470	1.5000	1.1575	930-000-296	930-000-682	930-000-571	930-001-070
0.0492	0.1250	0.1476	1.5000	1.1574	930-000-351	930-000-737	930-000-602	930-004-034
0.0500	0.1250	0.1500	1.5000	1.1571	930-000-297	930-000-683	930-000-572	930-001-071
0.0510	0.1250	0.1530	1.5000	1.1567	930-000-299	930-000-685	930-000-573	930-001-072
0.0520	0.1250	0.1560	1.5000	1.1562	930-000-300	930-000-686	930-000-574	930-001-073
0.0530	0.1250	0.1590	1.5000	1.1558	930-000-301	930-000-687	930-000-575	930-001-074
0.0540	0.1250	0.1620	1.5000	1.1554	930-000-302	930-000-688	930-000-576	930-001-075
0.0550	0.1250	0.1650	1.5000	1.1549	930-000-303	930-000-689	930-000-577	930-001-076
0.0560	0.1250	0.1680	1.5000	1.1545	930-000-305	930-000-691	930-000-578	930-001-077
0.0570	0.1250	0.1710	1.5000	1.1541	930-000-306	930-000-692	930-000-579	930-001-078
0.0580	0.1250	0.1740	1.5000	1.1537	930-000-307	930-000-693	930-000-580	930-001-079
0.0590	0.1250	0.1770	1.5000	1.1532	930-000-308	930-000-694	930-000-581	930-001-080
0.0591	0.1250	0.1773	1.5000	1.1532	930-000-353	930-000-739	930-000-603	930-001-105
0.0600	0.1250	0.1800	1.5000	1.1528	930-000-309	930-000-695	930-000-582	930-001-081
0.0620	0.1250	0.1860	1.5000	1.1519	930-000-311	930-000-697	930-000-583	930-001-082
0.0630	0.1250	0.1890	1.5000	1.1515	930-000-354	930-000-740	930-003-927	930-004-035
0.0640	0.1250	0.1920	1.5000	1.1511	930-000-312	930-000-698	930-004-121	930-004-405
0.0650	0.1250	0.1950	1.5000	1.1507	930-000-313	930-000-699	930-000-584	930-001-083
0.0700	0.1250	0.2100	1.5000	1.1485	930-000-315	930-000-701	930-000-585	930-001-084
0.0709	0.1250	0.2127	1.5000	1.1481	930-000-355	930-000-741	930-003-928	930-004-036
0.0750	0.1250	0.2250	1.5000	1.1464	930-000-317	930-000-703	930-000-586	930-001-085
0.0780	0.1250	0.2340	1.5000	1.1451	930-000-318	930-000-704	930-000-587	930-001-086
0.0787	0.1250	0.2361	1.5000	1.1448	930-000-356	930-000-742	930-003-929	930-004-037
0.0800	0.1250	0.2400	1.5000	1.1442	930-000-319	930-000-705	930-000-588	930-001-087
0.0850	0.1250	0.2550	1.5000	1.1421	930-000-321	930-000-707	930-000-589	930-001-088
0.0866	0.1250	0.2598	1.5000	1.1414	930-000-357	930-000-743	930-003-930	930-004-038
0.0900	0.1250	0.2700	1.5000	1.1400	930-000-322	930-000-708	930-000-590	930-001-089
0.0930	0.1250	0.2790	1.5000	1.1387	930-000-324	930-000-710	930-000-591	930-001-090
0.0950	0.1250	0.2850	1.5000	1.1378	930-000-325	930-000-711	930-000-592	930-001-091
0.0984	0.1250	0.2952	1.5000	1.1364	930-000-358	930-000-744	930-003-931	930-004-039
0.1000	0.1250	0.3000	1.5000	1.1357	930-000-326	930-000-712	930-000-593	930-001-092
0.1030	0.1250	0.3090	1.5000	1.1344	930-000-328	930-000-714	930-004-122	930-004-040
0.1050	0.1250	0.3150	1.5000	1.1336	930-000-329	930-000-715	930-000-594	930-001-093
0.1102	0.1250	0.3306	1.5000	1.1313	930-000-359	930-000-745	930-000-604	930-001-106
0.1150	0.1250	0.3450	1.5000	1.1293	930-000-330	930-000-716	930-000-595	930-001-094
0.1181	0.1250	0.3543	1.5000	1.1280	930-000-360	930-000-746	930-000-605	930-001-107
0.1200	0.1250	0.3600	1.5000	1.1271	930-000-331	930-000-717	930-000-596	930-001-095
0.1378	0.1875	0.4134	2.0000	1.4588	930-000-361	930-000-747	930-003-932	930-004-041
0.1772	0.1875	0.5316	2.0000	1.4419	930-000-363	930-000-749	930-003-934	930-003-916

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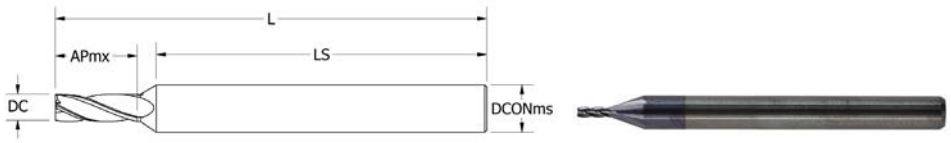
Ø .005"- .045"



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MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	L [in.]	LS [in.]	Amorphous Diamond Coated	
					2 FLUTE	4 FLUTE
0.0050	0.1250	0.0150	1.5000	1.1342	930-000-364	N/A
0.0060	0.1250	0.0180	1.5000	1.1342	930-000-365	N/A
0.0070	0.1250	0.0210	1.5000	1.1342	930-000-366	N/A
0.0080	0.1250	0.0240	1.5000	1.1342	930-000-367	N/A
0.0090	0.1250	0.0270	1.5000	1.1342	930-000-368	N/A
0.0100	0.1250	0.0300	1.5000	1.1742	930-000-369	930-000-750
0.0110	0.1250	0.0330	1.5000	1.1738	930-000-370	930-000-751
0.0120	0.1250	0.0360	1.5000	1.1733	930-000-371	930-000-752
0.0130	0.1250	0.0390	1.5000	1.1729	930-000-372	930-000-753
0.0140	0.1250	0.0420	1.5000	1.1725	930-000-373	930-000-754
0.0150	0.1250	0.0450	1.5000	1.1720	930-000-374	930-000-755
0.0160	0.1250	0.0480	1.5000	1.1716	930-000-375	930-000-756
0.0170	0.1250	0.0510	1.5000	1.1712	930-000-376	930-000-757
0.0180	0.1250	0.0540	1.5000	1.1708	930-000-377	930-000-758
0.0190	0.1250	0.0570	1.5000	1.1703	930-000-378	930-000-759
0.0200	0.1250	0.0600	1.5000	1.1699	930-000-379	930-000-760
0.0210	0.1250	0.0630	1.5000	1.1695	930-000-380	930-000-761
0.0220	0.1250	0.0660	1.5000	1.1691	930-000-381	930-000-762
0.0230	0.1250	0.0690	1.5000	1.1686	930-000-382	930-000-763
0.0240	0.1250	0.0720	1.5000	1.1682	930-000-383	930-000-764
0.0250	0.1250	0.0750	1.5000	1.1678	930-000-384	930-000-765
0.0260	0.1250	0.0780	1.5000	1.1673	930-000-385	930-000-766
0.0270	0.1250	0.0810	1.5000	1.1669	930-000-386	930-000-767
0.0280	0.1250	0.0840	1.5000	1.1665	930-000-387	930-000-768
0.0290	0.1250	0.0870	1.5000	1.1661	930-000-388	930-000-769
0.0300	0.1250	0.0900	1.5000	1.1656	930-000-389	930-000-770
0.0310	0.1250	0.0930	1.5000	1.1652	930-000-390	930-000-771
0.0320	0.1250	0.0960	1.5000	1.1648	930-000-391	930-000-772
0.0330	0.1250	0.0990	1.5000	1.1644	930-000-392	930-000-773
0.0340	0.1250	0.1020	1.5000	1.1639	930-000-393	930-000-774
0.0350	0.1250	0.1050	1.5000	1.1635	930-000-394	930-000-775
0.0360	0.1250	0.1080	1.5000	1.1631	930-000-395	930-000-776
0.0370	0.1250	0.1110	1.5000	1.1626	930-000-396	930-000-777
0.0380	0.1250	0.1140	1.5000	1.1622	930-000-397	930-000-778
0.0390	0.1250	0.1170	1.5000	1.1618	930-000-398	930-000-779
0.0394	0.1250	0.1182	1.5000	1.1616	930-000-434	930-000-816
0.0400	0.1250	0.1200	1.5000	1.1614	930-000-399	930-000-780
0.0410	0.1250	0.1230	1.5000	1.1609	930-000-400	930-000-781
0.0420	0.1250	0.1260	1.5000	1.1605	930-000-401	930-000-782
0.0430	0.1250	0.1290	1.5000	1.1601	930-000-402	930-000-783
0.0440	0.1250	0.1320	1.5000	1.1596	930-000-403	930-000-784
0.0450	0.1250	0.1350	1.5000	1.1592	930-000-404	930-000-785

Ø .046"- .1772"

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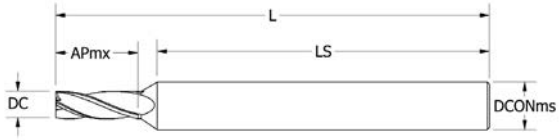

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MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	L [in.]	LS [in.]	Amorphous Diamond Coated	
					2 FLUTE	4 FLUTE
0.0460	0.1250	0.1380	1.5000	1.1588	930-000-405	930-000-786
0.0470	0.1250	0.1410	1.5000	1.1584	930-000-406	930-000-787
0.0480	0.1250	0.1440	1.5000	1.1579	930-000-407	930-000-788
0.0490	0.1250	0.1470	1.5000	1.1575	930-000-408	930-000-789
0.0492	0.1250	0.1476	1.5000	1.1574	930-000-435	930-004-413
0.0500	0.1250	0.1500	1.5000	1.1571	930-000-409	930-000-790
0.0510	0.1250	0.1530	1.5000	1.1567	930-000-410	930-000-791
0.0520	0.1250	0.1560	1.5000	1.1562	930-000-411	930-000-792
0.0530	0.1250	0.1590	1.5000	1.1558	930-000-412	930-000-793
0.0540	0.1250	0.1620	1.5000	1.1554	930-000-413	930-000-794
0.0550	0.1250	0.1650	1.5000	1.1549	930-000-414	930-000-795
0.0560	0.1250	0.1680	1.5000	1.1545	930-000-415	930-000-796
0.0570	0.1250	0.1710	1.5000	1.1541	930-000-416	930-000-797
0.0580	0.1250	0.1740	1.5000	1.1537	930-000-417	930-000-798
0.0590	0.1250	0.1770	1.5000	1.1532	930-000-418	930-000-799
0.0591	0.1250	0.1773	1.5000	1.1532	930-000-436	930-000-817
0.0600	0.1250	0.1800	1.5000	1.1528	930-000-419	930-000-800
0.0620	0.1250	0.1860	1.5000	1.1519	930-000-420	930-000-801
0.0650	0.1250	0.1950	1.5000	1.1507	930-000-421	930-000-802
0.0700	0.1250	0.2100	1.5000	1.1485	930-000-422	930-000-803
0.0750	0.1250	0.2250	1.5000	1.1464	930-000-423	930-000-804
0.0780	0.1250	0.2340	1.5000	1.1451	930-000-424	930-000-805
0.0800	0.1250	0.2400	1.5000	1.1442	930-000-425	930-000-806
0.0850	0.1250	0.2550	1.5000	1.1421	930-000-426	930-000-807
0.0900	0.1250	0.2700	1.5000	1.1400	930-000-427	930-000-808
0.0930	0.1250	0.2790	1.5000	1.1387	930-000-428	930-000-809
0.0950	0.1250	0.2850	1.5000	1.1378	930-000-429	930-000-810
0.1000	0.1250	0.3000	1.5000	1.1357	930-000-430	930-000-811
0.1050	0.1250	0.3150	1.5000	1.1336	930-000-431	930-000-812
0.1102	0.1250	0.3306	1.5000	1.1313	930-000-437	930-000-818
0.1150	0.1250	0.3450	1.5000	1.1293	930-000-432	930-000-813
0.1181	0.1250	0.3543	1.5000	1.1280	930-000-438	930-000-814
0.1200	0.1250	0.3600	1.5000	1.1271	930-000-433	930-000-815

KEO®

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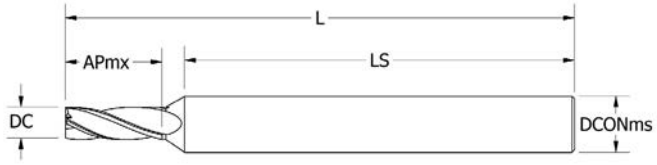

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DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0100	0.1250	0.0150	1.1892	1.5000	930-001-622	930-004-043
0.0110	0.1250	0.0165	1.1903	1.5000	930-001-623	930-004-044
0.0120	0.1250	0.0180	1.1913	1.5000	930-001-624	930-004-045
0.0130	0.1250	0.0195	1.1924	1.5000	930-001-625	930-004-046
0.0140	0.1250	0.0210	1.1935	1.5000	930-001-626	930-004-047
0.0150	0.1250	0.0225	1.1945	1.5000	930-001-627	930-004-048
0.0156	0.1250	0.0234	1.1952	1.5000	930-001-685	930-004-049
0.0160	0.1250	0.0240	1.1956	1.5000	930-001-628	930-004-050
0.0170	0.1250	0.0255	1.1967	1.5000	930-001-629	930-004-051
0.0180	0.1250	0.0270	1.1978	1.5000	930-001-630	930-004-052
0.0190	0.1250	0.0285	1.1988	1.5000	930-001-631	930-004-053
0.0197	0.1250	0.0296	1.1996	1.5000	930-001-673	930-004-054
0.0200	0.1250	0.0300	1.1999	1.5000	930-001-632	930-004-055
0.0210	0.1250	0.0315	1.2010	1.5000	930-001-633	930-004-056
0.0220	0.1250	0.0330	1.2021	1.5000	930-001-634	930-004-057
0.0230	0.1250	0.0345	1.2031	1.5000	930-001-635	930-004-058
0.0240	0.1250	0.0360	1.2042	1.5000	930-001-636	930-004-059
0.0250	0.1250	0.0375	1.2053	1.5000	930-001-637	930-004-060
0.0260	0.1250	0.0390	1.2063	1.5000	930-001-638	930-004-061
0.0270	0.1250	0.0405	1.2074	1.5000	930-001-639	930-004-062
0.0280	0.1250	0.0420	1.2085	1.5000	930-001-640	930-004-063
0.0290	0.1250	0.0435	1.2096	1.5000	930-001-641	930-004-064
0.0300	0.1250	0.0450	1.2106	1.5000	930-001-642	930-004-065
0.0310	0.1250	0.0465	1.2117	1.5000	930-001-643	930-004-066
0.0320	0.1250	0.0480	1.2128	1.5000	930-001-644	930-004-067
0.0330	0.1250	0.0495	1.2139	1.5000	930-001-645	930-004-068
0.0340	0.1250	0.0510	1.2149	1.5000	930-001-646	930-004-069
0.0350	0.1250	0.0525	1.2160	1.5000	930-001-647	930-004-070
0.0360	0.1250	0.0540	1.2171	1.5000	930-001-648	930-004-071

Ø .0370"- .1378"

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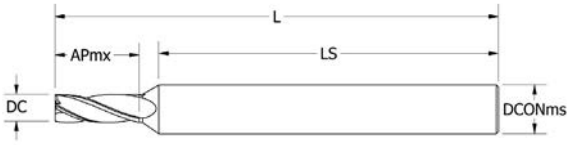


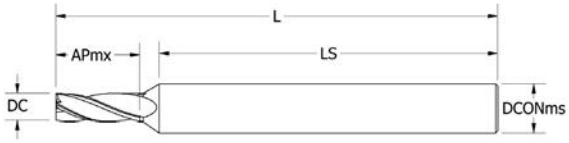
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0370	0.1250	0.0555	1.2181	1.5000	930-001-649	930-004-072
0.0380	0.1250	0.0570	1.2192	1.5000	930-001-650	930-004-073
0.0390	0.1250	0.0585	1.2203	1.5000	930-001-651	930-004-074
0.0394	0.1250	0.0591	1.2207	1.5000	930-001-674	930-004-075
0.0400	0.1250	0.0600	1.2214	1.5000	930-001-652	930-004-076
0.0450	0.1250	0.0675	1.2267	1.5000	930-001-653	930-004-077
0.0470	0.1250	0.0705	1.2289	1.5000	930-001-654	930-004-078
0.0492	0.1250	0.0738	1.2312	1.5000	930-001-675	930-004-079
0.0500	0.1250	0.0750	1.2321	1.5000	930-001-655	930-004-080
0.0550	0.1250	0.0825	1.2374	1.5000	930-001-656	930-004-081
0.0591	0.1250	0.0887	1.2418	1.5000	930-001-676	930-004-082
0.0600	0.1250	0.0900	1.2428	1.5000	930-001-657	930-004-083
0.0620	0.1250	0.0930	1.2449	1.5000	930-001-658	930-004-084
0.0630	0.1250	0.0945	1.2460	1.5000	930-001-677	930-004-085
0.0650	0.1250	0.0975	1.2482	1.5000	930-001-659	930-004-086
0.0700	0.1250	0.1050	1.2535	1.5000	930-001-660	930-004-087
0.0709	0.1250	0.1064	1.2545	1.5000	930-001-678	930-004-088
0.0740	0.1250	0.1110	1.2578	1.5000	930-001-661	930-004-089
0.0750	0.1250	0.1125	1.2589	1.5000	930-001-662	930-004-090
0.0780	0.1250	0.1170	1.2621	1.5000	930-001-663	930-004-091
0.0787	0.1250	0.1181	1.2629	1.5000	930-001-679	930-004-092
0.0800	0.1250	0.1200	1.2642	1.5000	930-001-664	930-004-093
0.0850	0.1250	0.1275	1.2696	1.5000	930-001-665	930-004-094
0.0866	0.1250	0.1299	1.2713	1.5000	930-001-680	930-004-095
0.0900	0.1250	0.1350	1.2750	1.5000	930-001-666	930-004-096
0.0930	0.1250	0.1395	1.2782	1.5000	930-001-667	930-004-097
0.0950	0.1250	0.1425	1.2803	1.5000	930-001-668	930-004-098
0.0984	0.1250	0.1476	1.2840	1.5000	930-001-681	930-004-099
0.1000	0.1250	0.1500	1.2857	1.5000	930-001-669	930-004-100
0.1050	0.1250	0.1575	1.2911	1.5000	930-001-670	930-004-101
0.1102	0.1250	0.1653	1.2966	1.5000	930-001-682	930-004-102
0.1150	0.1250	0.1725	1.3018	1.5000	930-001-671	930-004-103
0.1181	0.1250	0.1772	1.3051	1.5000	930-001-683	930-004-104
0.1200	0.1250	0.1800	1.3071	1.5000	930-001-672	930-004-105
0.1378	0.1875	0.2067	1.6655	2.0000	930-001-684	930-004-106

KEO®

Ø .010"- .0360"



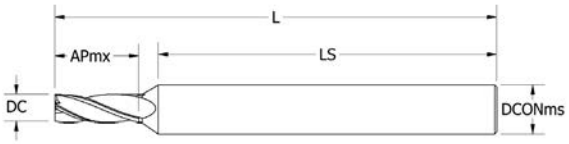
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Amorphous Diamond 4 FLUTE
0.0100	0.1250	0.0150	1.1892	1.5000	930-001-686
0.0110	0.1250	0.0165	1.1903	1.5000	930-001-687
0.0120	0.1250	0.0180	1.1913	1.5000	930-001-688
0.0130	0.1250	0.0195	1.1924	1.5000	930-001-689
0.0140	0.1250	0.0210	1.1935	1.5000	930-001-690
0.0150	0.1250	0.0225	1.1945	1.5000	930-001-691
0.0160	0.1250	0.0240	1.1956	1.5000	930-001-692
0.0170	0.1250	0.0255	1.1967	1.5000	930-001-693
0.0180	0.1250	0.0270	1.1978	1.5000	930-001-694
0.0190	0.1250	0.0285	1.1988	1.5000	930-001-695
0.0200	0.1250	0.0300	1.1999	1.5000	930-001-696
0.0210	0.1250	0.0315	1.2010	1.5000	930-001-697
0.0220	0.1250	0.0330	1.2021	1.5000	930-001-698
0.0230	0.1250	0.0345	1.2031	1.5000	930-001-699
0.0240	0.1250	0.0360	1.2042	1.5000	930-001-700
0.0250	0.1250	0.0375	1.2053	1.5000	930-001-701
0.0260	0.1250	0.0390	1.2063	1.5000	930-001-702
0.0270	0.1250	0.0405	1.2074	1.5000	930-001-703
0.0280	0.1250	0.0420	1.2085	1.5000	930-001-704
0.0290	0.1250	0.0435	1.2096	1.5000	930-001-705
0.0300	0.1250	0.0450	1.2106	1.5000	930-001-706
0.0310	0.1250	0.0465	1.2117	1.5000	930-001-707
0.0320	0.1250	0.0480	1.2128	1.5000	930-001-708
0.0330	0.1250	0.0495	1.2139	1.5000	930-001-709
0.0340	0.1250	0.0510	1.2149	1.5000	930-001-710
0.0350	0.1250	0.0525	1.2160	1.5000	930-001-711
0.0360	0.1250	0.0540	1.2171	1.5000	930-001-712

Ø .0370"- .1200"

KEO



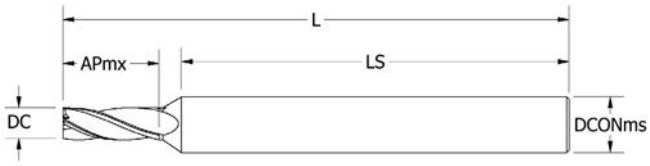
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Amorphous Diamond 4 FLUTE
0.0376	0.1250	0.0564	1.2188	1.5000	930-001-713
0.0380	0.1250	0.0570	1.2192	1.5000	930-001-714
0.0390	0.1250	0.0585	1.2203	1.5000	930-001-715
0.0400	0.1250	0.0600	1.2214	1.5000	930-001-716
0.0450	0.1250	0.0675	1.2267	1.5000	930-001-717
0.0470	0.1250	0.0705	1.2289	1.5000	930-001-718
0.0500	0.1250	0.0750	1.2321	1.5000	930-001-719
0.0550	0.1250	0.0825	1.2374	1.5000	930-001-720
0.0600	0.1250	0.0900	1.2428	1.5000	930-001-721
0.0620	0.1250	0.0930	1.2449	1.5000	930-001-722
0.0650	0.1250	0.0975	1.2482	1.5000	930-001-723
0.0700	0.1250	0.1050	1.2535	1.5000	930-001-724
0.0750	0.1250	0.1125	1.2589	1.5000	930-001-725
0.0780	0.1250	0.1170	1.2621	1.5000	930-001-726
0.0800	0.1250	0.1200	1.2642	1.5000	930-001-727
0.0850	0.1250	0.1275	1.2696	1.5000	930-001-728
0.0900	0.1250	0.1350	1.2750	1.5000	930-001-729
0.0930	0.1250	0.1395	1.2782	1.5000	930-001-730
0.1000	0.1250	0.1500	1.2857	1.5000	930-001-731
0.1050	0.1250	0.1575	1.2911	1.5000	930-001-732
0.1150	0.1250	0.1725	1.3018	1.5000	930-001-733
0.1181	0.1250	0.1772	1.3051	1.5000	930-001-735
0.1200	0.1250	0.1800	1.3071	1.5000	930-001-734

KEO

Ø .010"- .250"



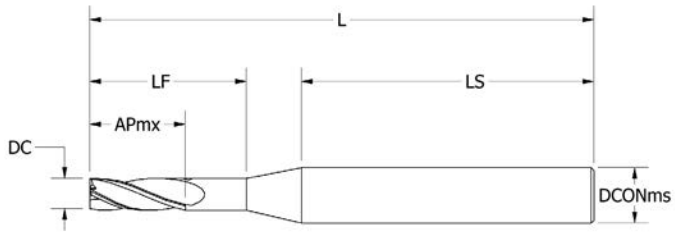
PG.493

MICRO

DC	DCONMS	APMX	LS	L	Uncoated	AlTiN Coated	Amorphous Diamond
					3 FLUTE	3 FLUTE	3 FLUTE
0.0100	0.1250	0.0150	2.1892	2.5000	930-003-004	930-003-569	930-003-032
0.0150	0.1250	0.0225	2.1945	2.5000	930-003-005	930-003-570	930-003-033
0.0200	0.1250	0.0300	2.1999	2.5000	930-003-006	930-003-571	930-003-034
0.0250	0.1250	0.0375	2.2053	2.5000	930-003-007	930-003-572	930-003-035
0.0300	0.1250	0.0450	2.2106	2.5000	930-003-008	930-003-573	930-003-036
0.0310	0.1250	0.0465	2.2117	2.5000	930-003-009	930-003-574	930-003-037
0.0350	0.1250	0.0525	2.2160	2.5000	930-003-010	930-003-575	930-003-038
0.0390	0.1250	0.0585	2.2203	2.5000	930-003-011	930-003-576	930-003-039
0.0400	0.1250	0.0600	2.2214	2.5000	930-003-012	930-003-577	930-003-040
0.0450	0.1250	0.0675	2.2267	2.5000	930-003-013	930-003-578	930-003-041
0.0470	0.1250	0.0705	2.2289	2.5000	930-003-014	930-003-579	930-003-042
0.0500	0.1250	0.0750	2.2321	2.5000	930-003-015	930-003-580	930-003-043
0.0550	0.1250	0.0825	2.2374	2.5000	930-003-016	930-003-581	930-003-044
0.0600	0.1250	0.0900	2.2428	2.5000	930-003-017	930-003-582	930-003-045
0.0620	0.1250	0.0930	2.2449	2.5000	930-003-018	930-003-583	930-003-046
0.0650	0.1250	0.0975	2.2482	2.5000	930-003-019	930-003-584	930-003-047
0.0700	0.1250	0.1050	2.2535	2.5000	930-003-020	930-003-585	930-003-048
0.0750	0.1250	0.1125	2.2589	2.5000	930-003-021	930-003-586	930-003-049
0.0780	0.1250	0.1170	2.2621	2.5000	930-003-022	930-003-587	930-003-050
0.0800	0.1250	0.1200	2.2642	2.5000	930-003-023	930-003-588	930-003-051
0.0850	0.1250	0.1275	2.2696	2.5000	930-003-024	930-003-589	930-003-052
0.0900	0.1250	0.1350	2.2750	2.5000	930-003-025	930-003-590	930-003-053
0.0930	0.1250	0.1395	2.2782	2.5000	930-003-026	930-003-591	930-003-054
0.0950	0.1250	0.1425	2.2803	2.5000	930-003-027	930-003-592	930-003-055
0.1000	0.1250	0.1500	2.2857	2.5000	930-003-028	930-003-593	930-003-056
0.1250	0.1250	0.1875	1.9375	2.5000	930-003-029	931-000-380	931-000-345
0.1875	0.1875	0.2813	2.3438	3.0000	930-003-030	931-000-381	931-000-346
0.2500	0.2500	0.3750	3.2500	4.0000	930-003-031	931-000-382	931-000-347

Ø .010"- .035"

KEO



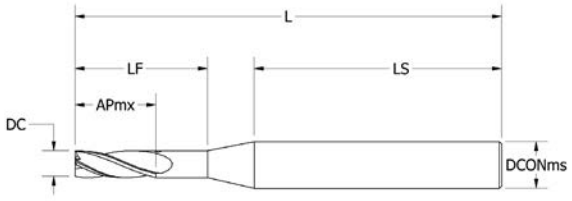
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	LF [in.]	L [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE	Amorphous Diamond 3 FLUTE
0.0100	0.1250	0.0150	2.3925	0.0500	2.5000	930-003-794	930-003-658	930-003-114
0.0100	0.1250	0.0150	2.3625	0.0800	2.5000	930-003-821	930-003-685	930-003-138
0.0100	0.1250	0.0150	2.3175	0.1250	2.5000	930-003-730	930-003-594	930-003-057
0.0100	0.1250	0.0150	2.2925	0.1500	2.5000	930-003-757	930-003-621	930-003-081
0.0150	0.1250	0.0225	2.4000	0.0450	2.5000	930-003-788	930-003-652	930-003-108
0.0150	0.1250	0.0225	2.3670	0.0780	2.5000	930-003-795	930-003-659	930-003-115
0.0150	0.1250	0.0225	2.3200	0.1250	2.5000	930-003-822	930-003-686	930-003-139
0.0150	0.1250	0.0225	2.2575	0.1875	2.5000	930-003-731	930-003-595	930-003-058
0.0150	0.1250	0.0225	2.2200	0.2250	2.5000	930-003-758	930-003-622	930-003-082
0.0150	0.1250	0.0225	2.1450	0.3000	2.5000	930-003-776	930-003-640	930-003-097
0.0200	0.1250	0.0300	2.3475	0.1000	2.5000	930-003-796	930-003-660	930-003-116
0.0200	0.1250	0.0300	2.2875	0.1600	2.5000	930-003-823	930-003-687	930-003-140
0.0200	0.1250	0.0300	2.1975	0.2500	2.5000	930-003-732	930-003-596	930-003-059
0.0200	0.1250	0.0300	2.1475	0.3000	2.5000	930-003-759	930-003-623	930-003-083
0.0200	0.1250	0.0300	2.0475	0.4000	2.5000	930-003-777	930-003-642	930-003-098
0.0250	0.1250	0.0375	2.3250	0.1250	2.5000	930-003-797	930-003-661	930-003-117
0.0250	0.1250	0.0375	2.2500	0.2000	2.5000	930-003-824	930-003-688	930-003-141
0.0250	0.1250	0.0375	2.1375	0.3125	2.5000	930-003-733	930-003-597	930-003-060
0.0250	0.1250	0.0375	2.0750	0.3750	2.5000	930-003-760	930-003-624	930-003-084
0.0250	0.1250	0.0375	1.9500	0.5000	2.5000	930-003-778	930-003-642	930-003-099
0.0300	0.1250	0.0450	2.3025	0.1500	2.5000	930-003-798	930-003-662	930-003-118
0.0300	0.1250	0.0450	2.2025	0.2500	2.5000	930-003-825	930-003-689	930-003-142
0.0300	0.1250	0.0450	2.0775	0.3750	2.5000	930-003-734	930-003-598	930-003-061
0.0300	0.1250	0.0450	2.0025	0.4500	2.5000	930-003-761	930-003-625	930-003-085
0.0310	0.1250	0.0465	2.3600	0.0930	2.5000	930-003-789	930-003-653	930-003-109
0.0310	0.1250	0.0465	2.2980	0.1550	2.5000	930-003-799	930-003-663	930-003-119
0.0310	0.1250	0.0465	2.2030	0.2500	2.5000	930-003-826	930-003-690	930-003-143
0.0310	0.1250	0.0465	2.0780	0.3750	2.5000	930-003-735	930-003-599	930-003-062
0.0310	0.1250	0.0465	1.9830	0.4700	2.5000	930-003-762	930-003-626	930-003-086
0.0310	0.1250	0.0465	1.8280	0.6250	2.5000	930-003-779	930-003-643	930-003-100
0.0350	0.1250	0.0525	2.2680	0.1870	2.5000	930-003-800	930-003-664	930-003-120
0.0350	0.1250	0.0525	2.1750	0.2800	2.5000	930-003-827	930-003-691	930-003-144
0.0350	0.1250	0.0525	2.0300	0.4250	2.5000	930-003-736	930-003-600	930-003-063
0.0350	0.1250	0.0525	1.9300	0.5250	2.5000	930-003-763	930-003-627	930-003-087
0.0350	0.1250	0.0525	1.7550	0.7000	2.5000	930-003-780	930-003-644	930-003-101

KEO®

Ø.040"- .075"



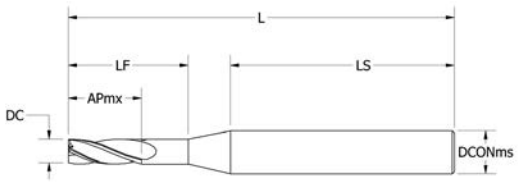
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE	Amorphous Diamond 3 FLUTE
0.0400	0.1250	0.0600	2.2575	2.5000	0.2000	930-003-801	930-003-665	930-003-121
0.0400	0.1250	0.0600	2.1325	2.5000	0.3250	930-003-692	930-003-692	930-003-145
0.0400	0.1250	0.0600	1.9775	2.5000	0.4800	930-003-737	930-003-601	930-003-064
0.0400	0.1250	0.0600	1.8575	2.5000	0.6000	930-003-764	930-003-628	930-003-088
0.0400	0.1250	0.0600	1.6575	2.5000	0.8000	930-003-781	930-003-645	930-003-102
0.0450	0.1250	0.0675	2.2350	2.5000	0.2250	930-003-802	930-003-666	930-003-122
0.0450	0.1250	0.0675	2.0850	2.5000	0.3750	930-003-829	930-003-693	930-003-146
0.0450	0.1250	0.0675	1.9100	2.5000	0.5500	930-003-738	930-003-602	930-003-065
0.0450	0.1250	0.0675	1.7800	2.5000	0.6800	930-003-765	930-003-629	930-003-089
0.0450	0.1250	0.0675	1.5600	2.5000	0.9000	930-003-782	930-003-646	930-003-103
0.0470	0.1250	0.0705	2.3200	2.5000	0.1410	930-003-790	930-003-654	930-003-110
0.0470	0.1250	0.0705	2.2110	2.5000	0.2500	930-003-803	930-003-667	930-003-123
0.0470	0.1250	0.0705	2.0860	2.5000	0.3750	930-003-830	930-003-694	930-003-147
0.0470	0.1250	0.0705	1.8910	2.5000	0.5700	930-003-739	930-003-603	930-003-066
0.0470	0.1250	0.0705	1.7510	2.5000	0.7100	930-003-766	930-003-630	930-003-090
0.0470	0.1250	0.0705	1.5110	2.5000	0.9500	930-003-783	930-003-647	930-003-104
0.0500	0.1250	0.0750	2.2125	2.5000	0.2500	930-003-804	930-003-668	930-003-124
0.0500	0.1250	0.0750	2.0625	2.5000	0.4000	930-003-831	930-003-695	930-003-148
0.0500	0.1250	0.0750	1.8625	2.5000	0.6000	930-003-740	930-003-604	930-003-067
0.0500	0.1250	0.0750	1.7125	2.5000	0.7500	930-003-767	930-003-631	930-003-091
0.0550	0.1250	0.0825	2.1900	2.5000	0.2750	930-003-805	930-003-669	930-003-125
0.0550	0.1250	0.0825	2.0150	2.5000	0.4500	930-003-832	930-003-696	930-003-149
0.0550	0.1250	0.0825	1.8050	2.5000	0.6600	930-003-741	930-003-605	930-003-068
0.0550	0.1250	0.0825	1.6400	2.5000	0.8250	930-003-768	930-003-632	930-003-092
0.0600	0.1250	0.0900	2.1555	2.5000	0.3120	930-003-806	930-003-670	930-003-126
0.0600	0.1250	0.0900	1.9675	2.5000	0.5000	930-003-833	930-003-697	930-003-150
0.0600	0.1250	0.0900	1.7475	2.5000	0.7200	930-003-742	930-003-606	930-003-069
0.0600	0.1250	0.0900	1.5675	2.5000	0.9000	930-003-769	930-003-633	930-003-093
0.0620	0.1250	0.0930	2.2825	2.5000	0.1860	930-003-791	930-003-655	930-003-111
0.0620	0.1250	0.0930	2.1565	2.5000	0.3120	930-003-807	930-003-671	930-003-127
0.0620	0.1250	0.0930	1.9685	2.5000	0.5000	930-003-834	930-003-698	930-003-151
0.0620	0.1250	0.0930	1.7185	2.5000	0.7500	930-003-743	930-003-607	930-003-070
0.0620	0.1250	0.0930	1.5185	2.5000	0.9500	930-003-770	930-003-634	930-003-094
0.0620	0.1250	0.0930	1.2185	2.5000	1.2500	930-003-784	930-003-648	930-003-105
0.0650	0.1250	0.0975	2.1450	2.5000	0.3250	930-003-808	930-003-672	930-003-128
0.0650	0.1250	0.0975	1.9450	2.5000	0.5250	930-003-835	930-003-699	930-003-152
0.0650	0.1250	0.0975	1.6700	2.5000	0.8000	930-003-744	930-003-608	930-003-071
0.0700	0.1250	0.1050	2.0975	2.5000	0.3750	930-003-809	930-003-673	930-003-129
0.0700	0.1250	0.1050	1.9025	2.5000	0.5700	930-003-836	930-003-700	930-003-153
0.0700	0.1250	0.1050	1.6225	2.5000	0.8500	930-003-745	930-003-609	930-003-072
0.0750	0.1250	0.1125	2.1000	2.5000	0.3750	930-003-810	930-003-674	930-003-130
0.0750	0.1250	0.1125	1.8500	2.5000	0.6250	930-003-837	930-003-701	930-003-154
0.0750	0.1250	0.1125	1.5750	2.5000	0.9000	930-003-746	930-003-610	930-003-073

Ø .078"- .250"

KEO



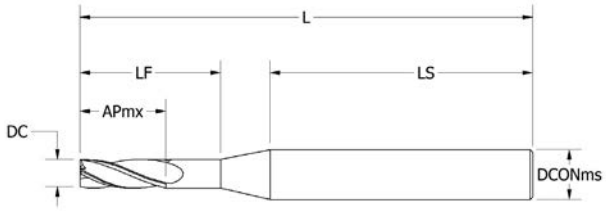
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE	Amorphous Diamond 3 FLUTE
0.0780	0.1250	0.1170	2.2425	2.5000	0.2340	930-003-792	930-003-656	930-003-112
0.0780	0.1250	0.1170	2.0765	2.5000	0.4000	930-003-811	930-003-675	930-003-131
0.0780	0.1250	0.1170	1.8515	2.5000	0.6250	930-003-838	930-003-702	930-003-155
0.0780	0.1250	0.1170	1.5365	2.5000	0.9400	930-003-747	930-003-611	930-003-074
0.0780	0.1250	0.1170	1.2895	2.5000	1.1870	930-003-771	930-003-635	930-003-095
0.0780	0.1250	0.1170	1.4145	3.0000	1.5620	930-003-785	930-003-649	930-003-106
0.0800	0.1250	0.1200	2.0775	2.5000	0.4000	930-003-812	930-003-676	930-003-132
0.0800	0.1250	0.1200	1.8275	2.5000	0.6500	930-003-839	930-003-703	930-003-156
0.0800	0.1250	0.1200	1.5175	2.5000	0.9600	930-003-748	930-003-612	930-003-075
0.0850	0.1250	0.1275	2.0550	2.5000	0.4250	930-003-813	930-003-677	930-003-133
0.0850	0.1250	0.1275	1.7800	2.5000	0.7000	930-003-840	930-003-704	930-003-157
0.0850	0.1250	0.1275	1.4600	2.5000	1.0200	930-003-749	930-003-613	930-003-076
0.0900	0.1250	0.1350	2.0325	2.5000	0.4500	930-003-814	930-003-678	930-003-134
0.0900	0.1250	0.1350	1.7325	2.5000	0.7500	930-003-841	930-003-705	930-003-158
0.0900	0.1250	0.1350	1.4025	2.5000	1.0800	930-003-750	930-003-614	930-003-077
0.0930	0.1250	0.1395	2.2140	2.5000	0.2700	930-003-793	930-003-657	930-003-113
0.0930	0.1250	0.1395	1.9840	2.5000	0.5000	930-003-815	930-003-679	930-003-135
0.0930	0.1250	0.1395	1.7340	2.5000	0.7500	930-003-842	930-003-706	930-003-159
0.0930	0.1250	0.1395	1.3590	2.5000	1.1250	930-003-751	930-003-615	930-003-078
0.0930	0.1250	0.1395	1.5840	3.0000	1.4000	930-003-772	930-003-636	930-003-096
0.0930	0.1250	0.1395	2.1090	4.0000	1.8750	930-003-786	930-003-650	930-003-107
0.0950	0.1250	0.1425	1.9850	2.5000	0.5000	930-003-816	930-003-680	930-003-136
0.0950	0.1250	0.1425	1.7350	2.5000	0.7500	930-003-843	930-003-707	930-003-160
0.0950	0.1250	0.1425	1.3350	2.5000	1.1500	930-003-752	930-003-616	930-003-079
0.1000	0.1250	0.1500	1.9875	2.5000	0.5000	930-003-817	930-003-681	930-003-137
0.1000	0.1250	0.1500	1.6875	2.5000	0.8000	930-003-844	930-003-708	930-003-161
0.1000	0.1250	0.1500	1.2875	2.5000	1.2000	930-003-753	930-003-617	930-003-080
0.1250	0.1250	0.1875	1.8750	2.5000	0.6250	930-003-818	930-003-682	931-000-355
0.1250	0.1250	0.1875	1.5000	2.5000	1.0000	930-003-845	930-003-709	931-000-358
0.1250	0.1250	0.1875	1.5000	3.0000	1.5000	930-003-754	930-003-618	931-000-348
0.1250	0.1250	0.1875	1.1250	3.0000	1.8750	930-003-773	930-003-637	931-000-351
0.1250	0.1250	0.1875	1.5000	4.0000	2.5000	930-003-787	930-003-651	931-000-354
0.1875	0.1875	0.2813	2.0000	3.0000	1.0000	930-003-819	930-003-683	931-000-356
0.1875	0.1875	0.2813	1.5000	3.0000	1.5000	930-003-846	930-003-710	931-000-359
0.1875	0.1875	0.2813	1.7500	4.0000	2.2500	930-003-755	930-003-619	931-000-349
0.1875	0.1875	0.2813	1.1880	4.0000	2.8120	930-003-774	930-003-638	931-000-352
0.2500	0.2500	0.3750	2.7500	4.0000	1.2500	930-003-820	930-003-684	931-000-357
0.2500	0.2500	0.3750	2.0000	4.0000	2.0000	930-003-847	930-003-711	931-000-360
0.2500	0.2500	0.3750	0.3750	6.0000	3.0000	930-003-756	930-003-620	931-000-350
0.2500	0.2500	0.3750	2.2500	6.0000	3.7500	930-003-775	930-003-639	931-000-353

KEO®

Ø .005"- .100"

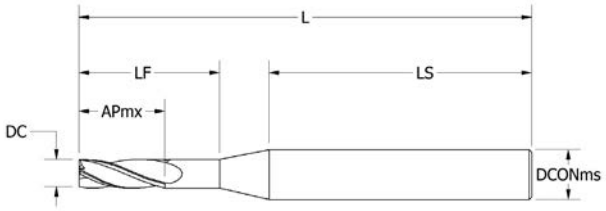


PG.493

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated		AlTiN Coated	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0050	0.1250	0.0150	1.1342	1.5000	0.0470	930-000-244	N/A	930-004-187	N/A
0.0100	0.1250	0.0300	1.3625	1.5000	0.0800	930-000-620	930-001-140	930-004-188	930-004-233
0.0100	0.1250	0.0300	1.3488	1.5000	0.0937	930-000-250	930-000-636	930-004-189	930-004-234
0.0150	0.1250	0.0450	1.3200	1.5000	0.1250	930-000-256	930-000-642	930-004-190	930-004-235
0.0200	0.1250	0.0600	1.2775	1.5000	0.1700	930-000-621	930-001-141	930-004-191	930-004-236
0.0200	0.1250	0.0600	1.2600	1.5000	0.1875	930-000-262	930-000-648	930-004-192	930-004-237
0.0250	0.1250	0.0750	1.2370	1.5000	0.2130	930-000-622	930-001-142	930-004-193	930-004-238
0.0250	0.1250	0.0750	1.2000	1.5000	0.2500	930-000-268	930-000-654	930-004-194	930-004-239
0.0300	0.1250	0.0900	1.2025	1.5000	0.2500	930-000-274	930-000-660	930-004-195	930-004-240
0.0300	0.1250	0.0900	1.1825	1.5000	0.2700	930-000-623	930-001-143	930-004-196	930-004-241
0.0310	0.1250	0.0930	1.1740	1.5000	0.2790	930-000-624	930-001-144	930-004-197	930-004-242
0.0350	0.1250	0.1050	1.2050	1.5000	0.2500	930-000-280	930-000-666	930-004-198	930-004-243
0.0350	0.1250	0.1050	1.1400	1.5000	0.3150	930-000-625	930-001-145	930-004-199	930-004-244
0.0400	0.1250	0.1200	1.2075	1.5000	0.2500	930-000-286	930-000-672	930-004-200	930-004-245
0.0400	0.1250	0.1200	1.0975	1.5000	0.3600	930-000-626	930-001-146	930-004-201	930-004-246
0.0450	0.1250	0.1350	1.0550	1.5000	0.4050	930-000-627	930-001-147	930-004-202	930-004-247
0.0450	0.1250	0.1350	0.9600	1.5000	0.5000	930-000-292	930-000-678	930-004-203	930-004-248
0.0470	0.1250	0.1410	1.0380	1.5000	0.4230	930-000-628	930-001-148	930-004-204	930-004-249
0.0500	0.1250	0.1500	0.9625	1.5000	0.5000	930-000-298	930-000-684	930-004-205	930-004-250
0.0550	0.1250	0.1650	0.9650	1.5000	0.5000	930-000-304	930-000-690	930-004-206	930-004-251
0.0600	0.1250	0.1800	0.9675	1.5000	0.5000	930-000-310	930-000-696	930-004-207	930-004-252
0.0620	0.1250	0.1860	0.9685	1.5000	0.5000	930-000-629	930-001-149	930-004-208	930-004-253
0.0650	0.1250	0.1950	0.9700	1.5000	0.5000	930-000-314	930-000-700	930-004-209	930-004-254
0.0700	0.1250	0.2100	0.9725	1.5000	0.5000	930-000-316	930-000-702	930-004-210	930-004-255
0.0780	0.1250	0.2340	0.9765	1.5000	0.5000	930-000-630	930-001-150	930-004-211	930-004-256
0.0800	0.1250	0.2400	0.9775	1.5000	0.5000	930-000-320	930-000-706	930-004-212	930-004-257
0.0900	0.1250	0.2700	0.9825	1.5000	0.5000	930-000-323	930-000-709	930-004-213	930-004-258
0.0900	0.1250	0.2700	0.8575	1.5000	0.6250	930-000-631	930-001-151	930-004-214	930-004-259
0.0930	0.1250	0.2790	0.8590	1.5000	0.6250	930-000-632	930-001-152	930-004-215	930-004-260
0.0950	0.1250	0.2850	0.8600	1.5000	0.6250	930-000-633	930-001-153	930-004-216	930-004-261
0.1000	0.1250	0.3000	0.9875	1.5000	0.5000	930-000-327	930-000-713	930-004-217	930-004-262
0.1000	0.1250	0.3000	0.8625	1.5000	0.6250	930-000-634	930-001-154	930-004-218	930-004-263

Ø .010"- .250"

KEO



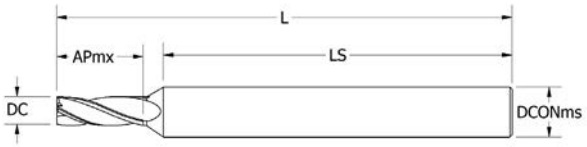
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE	Amorphous Diamond 3 FLUTE
0.0100	0.1250	0.0500	2.3425	2.5000	0.1000	930-002-966	930-004-401	930-002-797
0.0150	0.1250	0.0750	2.2950	2.5000	0.1500	930-002-967	930-004-402	930-002-798
0.0200	0.1250	0.1000	2.2475	2.5000	0.2000	930-002-968	930-002-933	930-002-799
0.0250	0.1250	0.1250	2.2000	2.5000	0.2500	930-002-969	930-002-934	930-002-800
0.0300	0.1250	0.1500	2.1525	2.5000	0.3000	930-002-970	930-002-935	930-002-801
0.0310	0.1250	0.1550	2.1530	2.5000	0.3000	930-002-971	930-002-936	930-002-802
0.0350	0.1250	0.1750	2.1050	2.5000	0.3500	930-002-972	930-002-937	930-002-803
0.0400	0.1250	0.2000	2.0575	2.5000	0.4000	930-002-973	930-002-938	930-002-804
0.0450	0.1250	0.2250	2.0100	2.5000	0.4500	930-002-974	930-002-939	930-002-805
0.0470	0.1250	0.2500	1.9610	2.5000	0.5000	930-002-975	930-002-940	930-002-806
0.0500	0.1250	0.3000	1.8625	2.5000	0.6000	930-002-976	930-002-941	930-002-807
0.0550	0.1250	0.3850	1.6950	2.5000	0.7700	930-002-977	930-002-942	930-002-808
0.0600	0.1250	0.5000	1.4675	2.5000	1.0000	930-002-978	930-002-943	930-002-809
0.0620	0.1250	0.5000	1.4685	2.5000	1.0000	930-002-979	930-004-403	930-002-810
0.0650	0.1250	0.5000	1.4700	2.5000	1.0000	930-002-980	930-002-944	930-002-811
0.0700	0.1250	0.5000	1.4725	2.5000	1.0000	930-002-981	930-002-945	930-002-812
0.0750	0.1250	0.5000	1.4750	2.5000	1.0000	930-002-982	930-002-946	930-002-813
0.0780	0.1250	0.5000	1.4765	2.5000	1.0000	930-002-983	930-002-947	930-002-814
0.0800	0.1250	0.7500	1.2275	2.5000	1.2500	930-002-984	930-002-948	930-002-815
0.0850	0.1250	0.7500	1.2300	2.5000	1.2500	930-002-985	930-002-949	930-002-816
0.0900	0.1250	0.7500	1.2325	2.5000	1.2500	930-002-986	930-002-950	930-002-817
0.0930	0.1250	0.7500	1.2340	2.5000	1.2500	930-002-987	930-002-951	930-002-818
0.0950	0.1250	0.7500	1.2350	2.5000	1.2500	930-002-988	930-002-952	930-002-819
0.1000	0.1250	0.7500	1.2375	2.5000	1.2500	930-002-989	930-002-953	930-002-820
0.1250	0.1250	1.0000	2.5000	2.5000	N/A	930-002-990	930-002-954	931-000-333
0.1875	0.1875	1.1250	3.0000	3.0000	N/A	930-002-991	930-002-955	931-000-334
0.2500	0.2500	1.5000	2.0000	4.0000	N/A	930-002-992	930-004-404	931-000-335

KEO®

Ø .031"- .125"



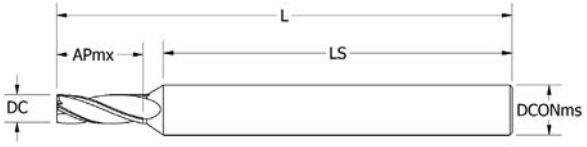
PG.493

MICRO

12X FLUTE LENGTH

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE	Amorphous Diamond 3 FLUTE
0.0310	0.1250	0.3750	1.8832	2.5000	930-002-993	930-002-956	930-002-821
0.0470	0.1250	0.5700	1.7294	2.5000	930-002-994	930-002-957	930-002-822
0.0620	0.1250	0.7500	1.5879	2.5000	930-002-995	930-002-958	930-002-823
0.0780	0.1250	0.9400	1.4391	2.5000	930-002-996	930-002-959	930-002-824
0.0930	0.1250	1.1250	1.2927	2.5000	930-002-997	930-002-960	930-002-825
0.1250	0.1250	1.5000	1.1250	3.0000	930-002-998	930-002-961	930-002-826

Ø .062" - .125"



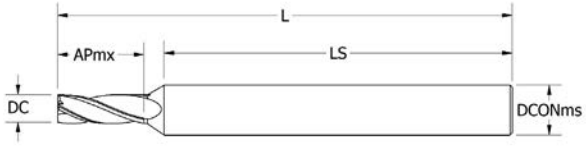
PG.493

MICRO

15X FLUTE LENGTH

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE	Amorphous Diamond 3 FLUTE
0.0620	0.1250	0.9500	1.3879	2.5000	930-002-999	930-002-962	930-002-827
0.0780	0.1250	1.1870	1.1921	2.5000	930-003-001	930-002-963	930-002-828
0.0930	0.1250	1.4000	1.5177	3.0000	930-003-002	930-002-964	930-002-829
0.1250	0.1250	1.8750	0.7500	3.0000	930-003-003	930-002-965	931-000-336

Ø .156"- .250"



PG.493

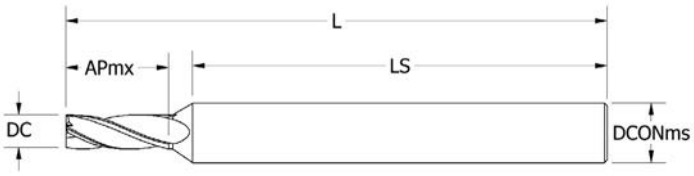
MICRO

12X FLUTE LENGTH

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE	Amorphous Diamond 4 FLUTE
0.1563	0.1875	1.8750	2.0446	4.0000	930-001-170	930-001-161	931-000-256
0.1875	0.1875	2.2500	1.3750	4.0000	930-001-171	930-001-162	931-000-257
0.2500	0.2500	3.0000	2.6250	6.0000	930-001-172	930-001-163	931-000-258

KEO

Ø .0310"- .100"



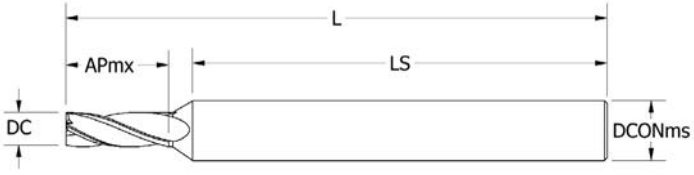
PG.493

MICRO

MULTI - FLUTE

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 5 FLUTE	AlTiN Coated 5 FLUTE
0.0310	0.1250	0.0930	1.1652	1.5000	930-003-848	930-003-867
0.0400	0.1250	0.1200	1.1614	1.5000	930-003-849	930-003-868
0.0470	0.1250	0.1410	1.1584	1.5000	930-003-850	930-003-869
0.0500	0.1250	0.1500	1.1571	1.5000	930-003-851	930-003-870
0.0600	0.1250	0.1800	1.1528	1.5000	930-003-852	930-003-871
0.0620	0.1250	0.1860	1.1519	1.5000	930-003-853	930-003-872
0.0700	0.1250	0.2100	1.1485	1.5000	930-003-854	930-003-873
0.0780	0.1250	0.2340	1.1451	1.5000	930-003-855	930-003-874
0.0800	0.1250	0.2400	1.1442	1.5000	930-003-856	930-003-875
0.0930	0.1250	0.2790	1.1387	1.5000	930-003-857	930-003-876
0.1000	0.1250	0.3000	1.1357	1.5000	930-003-858	930-003-877

Ø .0150"- .0930"



PG.493

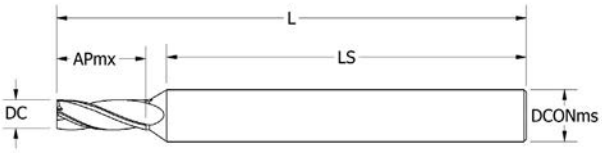
MICRO

HIGH HELIX

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0150	0.1250	0.0450	1.1720	1.5000	930-000-606	930-004-219
0.0310	0.1250	0.0930	1.1652	1.5000	930-000-607	930-004-220
0.0470	0.1250	0.1410	1.1584	1.5000	930-000-608	930-004-221
0.0620	0.1250	0.1860	1.1519	1.5000	930-000-609	930-004-222
0.0780	0.1250	0.2340	1.1451	1.5000	930-000-610	930-004-223
0.0930	0.1250	0.2790	1.1387	1.5000	930-000-611	930-004-224

KEO

Ø .015"- .093"

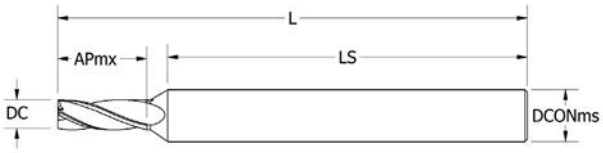


PG.493

MICRO

4

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	CVD Coated 4 FLUTE
0.0150	0.1250	0.0450	1.1720	1.5000	930-000-641	930-001-025
0.0200	0.1250	0.0600	1.1699	1.5000	930-000-647	930-001-026
0.0310	0.1250	0.0930	1.1652	1.5000	930-000-661	930-001-027
0.0470	0.1250	0.1410	1.1584	1.5000	930-000-680	930-001-028
0.0620	0.1250	0.1860	1.1519	1.5000	930-000-697	930-001-029
0.0930	0.1250	0.2790	1.1387	1.5000	930-000-710	930-001-030



PG.493

MICRO

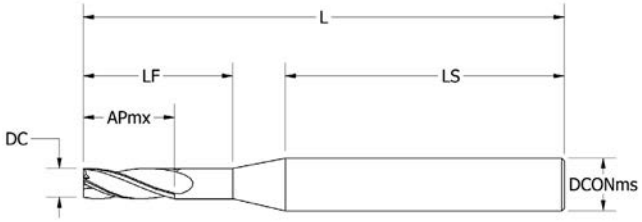
LONG SHANK, STUB

3

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 3 FLUTE	CVD Coated 3 FLUTE
0.0150	0.1250	0.0225	2.1945	2.5000	930-003-005	930-003-563
0.0200	0.1250	0.0300	2.1999	2.5000	930-003-006	930-003-564
0.0310	0.1250	0.0465	2.2117	2.5000	930-003-009	930-003-565
0.0470	0.1250	0.0705	2.2289	2.5000	930-003-014	930-003-566
0.0620	0.1250	0.0930	2.2449	2.5000	930-003-018	930-003-567
0.0930	0.1250	0.1395	2.2782	2.5000	930-003-026	930-003-568

Ø .015"- .093"

KEO

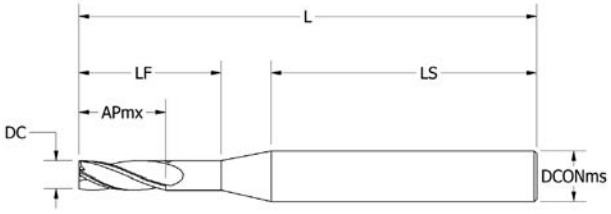


PG.493

MICRO

LONG REACH, STUB

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	CVD Coated 3 FLUTE
0.0150	0.1250	0.0225	2.3670	2.5000	0.0780	930-003-718
0.0150	0.1250	0.0225	2.3200	2.5000	0.1250	930-003-724
0.0150	0.1250	0.0225	2.2575	2.5000	0.1875	930-003-712
0.0200	0.1250	0.0300	2.3475	2.5000	0.1000	930-003-719
0.0200	0.1250	0.0300	2.2875	2.5000	0.1600	930-003-725
0.0200	0.1250	0.0300	2.1975	2.5000	0.2500	930-003-713
0.0310	0.1250	0.0465	2.2980	2.5000	0.1550	930-003-720
0.0310	0.1250	0.0465	2.2030	2.5000	0.2500	930-003-726
0.0310	0.1250	0.0465	2.0780	2.5000	0.3750	930-003-714
0.0470	0.1250	0.0705	2.2110	2.5000	0.2500	930-003-721
0.0470	0.1250	0.0705	2.0860	2.5000	0.3750	930-003-727
0.0470	0.1250	0.0705	1.8910	2.5000	0.5700	930-003-715
0.0620	0.1250	0.0930	2.1565	2.5000	0.3120	930-003-722
0.0620	0.1250	0.0930	1.9685	2.5000	0.5000	930-003-728
0.0620	0.1250	0.0930	1.7185	2.5000	0.7500	930-003-716
0.0930	0.1250	0.1395	1.9840	2.5000	0.5000	930-003-723
0.0930	0.1250	0.1395	1.7340	2.5000	0.7500	930-003-729
0.0930	0.1250	0.1395	1.3590	2.5000	1.1250	930-003-717



PG.493

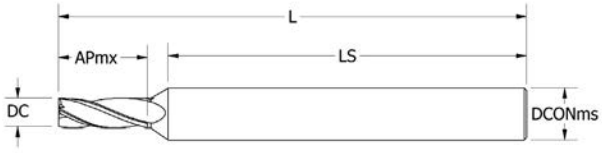
MICRO

5X FLUTE, 10X REACH

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	CVD Coated 4 FLUTE
0.0150	0.1250	0.0750	2.2890	2.5000	0.1560	930-001-164
0.0310	0.1250	0.1550	2.1410	2.5000	0.3120	930-001-165
0.0470	0.1250	0.2350	1.9810	2.5000	0.4800	930-001-166
0.0620	0.1250	0.3120	1.8435	2.5000	0.6250	930-001-167
0.0780	0.1250	0.3900	1.6765	2.5000	0.8000	930-001-168
0.0930	0.1250	0.4650	1.5340	2.5000	0.9500	930-001-169

KEO®

Ø .0313"- .50"

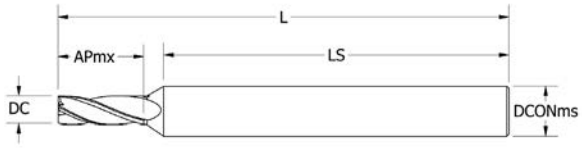


PG.493

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated		AlTiN Coated		Amorphous Diamond	
					2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0313	0.1250	0.0938	1.1651	1.5000	930-000-332	930-000-718	930-003-917	930-004-027	931-000-386	931-000-412
0.0469	0.1250	0.1406	1.1584	1.5000	930-000-333	930-000-719	930-003-918	930-004-028	931-000-388	931-000-414
0.0625	0.1250	0.1875	1.1517	1.5000	930-000-334	930-000-720	930-003-919	930-004-029	931-000-390	931-000-416
0.0781	0.1250	0.2344	1.1450	1.5000	930-000-335	930-000-721	930-003-920	930-004-030	931-000-392	931-000-418
0.0938	0.1250	0.2813	1.1384	1.5000	930-000-336	930-000-722	930-003-921	930-004-031	931-000-394	931-000-420
0.1094	0.1250	0.3281	1.1317	1.5000	930-000-337	930-000-723	930-003-922	930-004-032	931-000-396	931-000-422
0.1250	0.1250	0.5000	0.6250	1.5000	930-000-338	930-000-724	930-000-597	931-000-252	931-000-398	931-000-424
0.1406	0.1875	0.4219	1.4575	2.0000	930-000-339	930-000-725	931-000-247	930-001-096	931-000-400	931-000-429
0.1563	0.1875	0.4688	1.4509	2.0000	930-000-340	930-000-726	930-000-598	930-001-097	931-000-402	931-000-431
0.1719	0.1875	0.5156	1.4442	2.0000	930-000-341	930-000-727	930-003-923	930-001-098	N/A	N/A
0.1875	0.1875	0.6250	1.0000	2.0000	930-000-342	930-000-728	930-000-599	930-001-099	931-000-404	931-000-433
0.2031	0.2500	0.6094	1.7700	2.5000	930-000-344	930-000-730	930-003-925	930-001-100	N/A	N/A
0.2188	0.2500	0.6563	1.7634	2.5000	930-000-345	930-000-731	931-000-248	930-001-101	N/A	N/A
0.2344	0.2500	0.7031	1.7567	2.5000	930-000-346	930-000-732	930-003-926	930-001-102	N/A	N/A
0.2500	0.2500	0.7500	1.3750	2.5000	930-000-347	930-000-733	930-000-600	931-000-253	931-000-406	931-000-438
0.3125	0.3125	0.8125	1.3125	2.5000	930-000-348	930-000-734	931-000-249	931-000-254	N/A	N/A
0.3750	0.3750	1.0000	1.1250	2.5000	930-000-349	930-000-735	931-000-250	931-000-255	931-000-408	931-000-445
0.5000	0.5000	1.0000	1.6250	3.0000	930-000-352	930-000-738	931-000-251	930-001-104	931-000-410	931-000-449

Ø .0313"- .250"

KEO



PG.493

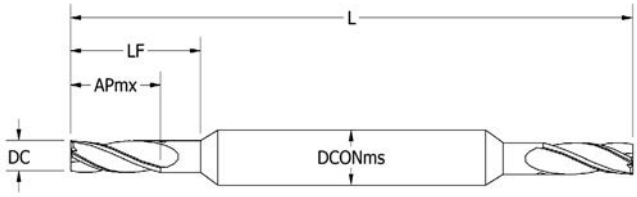
MICRO

STUB

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0313	0.1250	0.0625	1.1963	1.5000	931-000-265	931-000-528
0.0469	0.1250	0.0625	1.2365	1.5000	931-000-266	931-000-529
0.0625	0.1250	0.1250	1.2142	1.5000	931-000-267	931-000-530
0.0938	0.1250	0.1875	1.2321	1.5000	931-000-268	931-000-531
0.1250	0.1250	0.2500	0.8750	1.5000	931-000-269	931-000-532
0.1563	0.1875	0.3750	1.5446	2.0000	931-000-270	931-000-533
0.1875	0.1875	0.3750	1.2500	2.0000	931-000-271	931-000-534
0.2500	0.2500	0.5000	1.1250	2.0000	931-000-272	931-000-535

KEO®

Ø .0313"- .375"



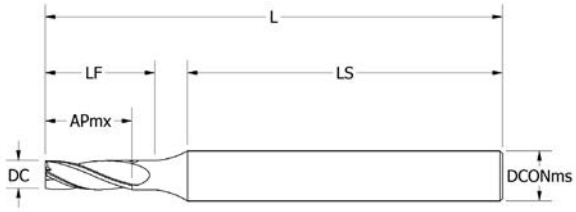
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated		AlTiN Coated	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0313	0.1250	0.0625	0.7500	1.5000	0.0625	931-000-217	931-000-232	931-000-536	931-000-551
0.0469	0.1250	0.0625	0.7500	1.5000	0.0625	931-000-218	931-000-233	931-000-537	931-000-552
0.0625	0.1250	0.1250	0.7500	1.5000	0.1250	931-000-219	931-000-234	931-000-538	931-000-553
0.0781	0.1250	0.1250	0.7500	1.5000	0.1250	931-000-220	931-000-235	931-000-539	931-000-554
0.0938	0.1250	0.1875	0.7500	1.5000	0.1875	931-000-221	931-000-236	931-000-540	931-000-555
0.1094	0.1250	0.2500	0.7500	1.5000	0.2500	931-000-222	931-000-237	931-000-541	931-000-556
0.1250	0.1250	0.2500	0.7500	1.5000	N/A	931-000-223	931-000-238	931-000-542	931-000-557
0.1406	0.1875	0.3125	1.0000	2.0000	0.3125	931-000-224	931-000-239	931-000-543	931-000-558
0.1563	0.1875	0.3125	1.0000	2.0000	0.3125	931-000-225	931-000-240	931-000-544	931-000-559
0.1719	0.1875	0.3750	1.0000	2.0000	0.3750	931-000-226	931-000-241	931-000-545	931-000-560
0.1875	0.1875	0.3750	1.0000	2.0000	N/A	931-000-227	931-000-242	931-000-546	931-000-561
0.2188	0.2500	0.5000	1.2500	2.5000	0.5000	931-000-228	931-000-243	931-000-547	931-000-562
0.2500	0.2500	0.5000	1.2500	2.5000	N/A	931-000-229	931-000-244	931-000-548	931-000-563
0.3125	0.3125	0.5000	1.2500	2.5000	N/A	931-000-230	931-000-245	931-000-549	931-000-564
0.3750	0.3125	0.5000	1.2500	2.5000	N/A	931-000-231	931-000-246	931-000-550	931-000-565

Ø .0313"- .0938"

KEO

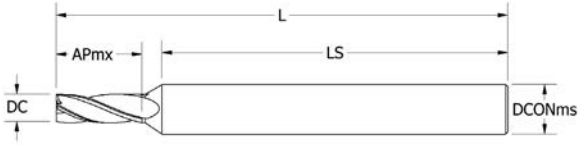


MICRO

STUB

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated	Amorphous Diamond
						3 FLUTE	3 FLUTE
0.0313	0.1250	0.0625	2.2031	2.5000	0.2500	931-000-198	931-000-464
0.0625	0.1250	0.1250	1.9688	2.5000	0.5000	931-000-204	931-000-482
0.0938	0.1250	0.1875	1.7344	2.5000	0.7500	931-000-212	931-000-500

Ø .0156"-.125"



PG.493

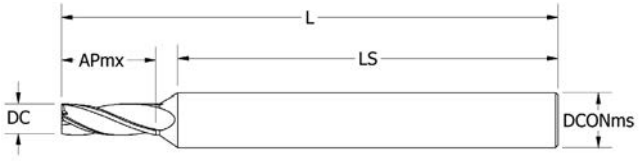
MICRO

G MILLS

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated	Amorphous Diamond
					3 FLUTE	3 FLUTE	3 FLUTE
0.0156	0.1250	0.0781	2.1405	2.5000	931-000-193	930-000-126	931-000-456
0.0313	0.1250	0.1563	2.1026	2.5000	931-000-195	930-000-127	931-000-462
0.0469	0.1250	0.2500	2.0490	2.5000	931-000-200	930-000-129	931-000-474
0.0625	0.1250	0.5000	1.8392	2.5000	931-000-202	930-000-131	931-000-480
0.0781	0.1250	0.5000	1.8794	2.5000	931-000-206	930-000-132	931-000-492
0.0938	0.1250	0.7500	1.6696	2.5000	931-000-209	930-000-133	931-000-498
0.1250	0.1250	1.0000	1.6250	3.0000	931-000-214	930-000-134	931-000-510

KEO

Ø .0156"- .125"



PG.493

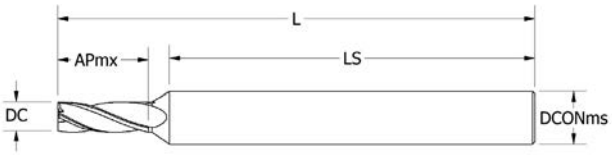
MICRO

35° HELIX

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 5 FLUTE	AlTiN Coated 5 FLUTE
0.0313	0.1250	0.0938	1.1651	1.5000	930-003-859	931-000-566
0.0469	0.1250	0.1406	1.1584	1.5000	930-003-860	931-000-567
0.0625	0.1250	0.1875	1.1517	1.5000	930-003-861	931-000-568
0.0781	0.1250	0.1875	1.1919	1.5000	930-003-862	931-000-569
0.0938	0.1250	0.3750	1.0446	1.5000	930-003-863	931-000-570
0.1250	0.1250	0.5000	0.6250	1.5000	930-003-864	931-000-383
0.1875	0.1875	0.6250	1.0000	2.0000	930-003-865	931-000-384
0.2500	0.2500	0.7500	1.3750	2.5000	930-003-866	931-000-385

Ø .0313"- .250"

KEO



PG.493

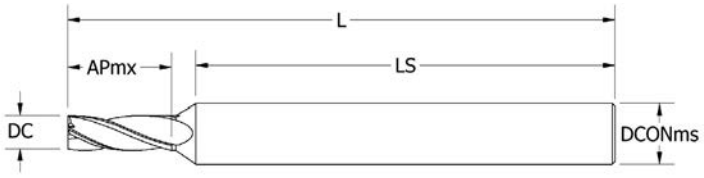
MICRO

45° HELIX

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0313	0.1250	0.0938	1.1651	1.5000	930-000-612	930-004-225
0.0469	0.1250	0.1406	1.1584	1.5000	930-000-613	930-004-226
0.0625	0.1250	0.1875	1.1517	1.5000	930-000-614	930-004-227
0.0781	0.1250	0.1875	1.1919	1.5000	930-000-615	930-004-228
0.0938	0.1250	0.3750	1.0446	1.5000	930-000-616	930-004-229
0.1250	0.1250	0.3750	0.7500	1.5000	930-000-617	930-004-230
0.1875	0.1875	0.6250	1.0000	2.0000	930-000-618	930-004-231
0.2500	0.2500	0.7500	1.3750	2.5000	930-000-619	930-004-232

KEO®

Ø .5 mm - 12 mm



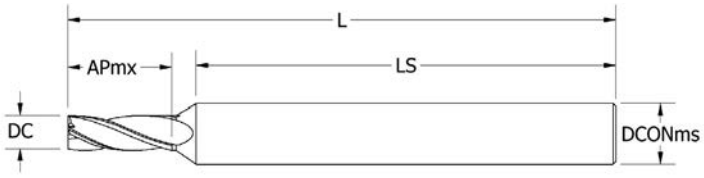
PG.493

MICRO

DC [mm]	DCONMS [mm]	APMX [mm]	LS [mm]	L [mm]	Uncoated	
					2 FLUTE	4 FLUTE
0.50	3.00	1.50	30.07	38.00	930-000-001	930-000-033
1.00	3.00	3.00	29.86	38.00	930-000-002	930-000-034
1.50	3.00	4.50	29.64	38.00	930-000-003	930-000-035
3.00	3.00	6.00	29.43	38.00	930-000-004	930-000-036
2.50	3.00	8.00	28.71	38.00	930-000-005	930-000-037
3.00	3.00	10.00	18.00	38.00	930-000-006	930-000-038
3.50	4.00	12.00	36.71	50.00	930-000-007	930-000-039
4.00	4.00	12.00	28.00	50.00	930-000-008	930-000-040
4.50	5.00	14.00	34.71	50.00	930-000-009	930-000-041
5.00	5.00	15.00	25.00	50.00	930-000-010	930-000-042
6.00	6.00	18.00	35.00	63.00	930-000-011	930-000-043
7.00	8.00	20.00	40.43	63.00	930-000-012	930-000-044
8.00	8.00	20.00	33.00	63.00	930-000-013	930-000-045
9.00	10.00	22.00	38.43	63.00	930-000-014	930-000-046
10.00	10.00	22.00	31.00	63.00	930-000-015	930-000-047
12.00	12.00	25.00	40.00	75.00	930-000-016	930-000-048

Ø .5 mm - 12 mm

KEO



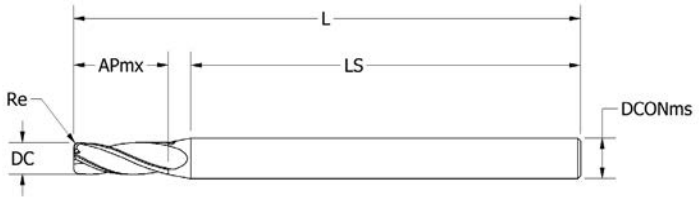
PG.493

MICRO

DC [mm]	DCONMS [mm]	APMX [mm]	LS [mm]	L [mm]	AlTiN Coated	
					2 FLUTE	4 FLUTE
0.50	3.00	1.50	30.07	38.00	930-004-123	930-004-139
1.00	3.00	3.00	29.86	38.00	930-004-124	930-004-140
1.50	3.00	4.50	29.64	38.00	930-004-125	930-004-141
3.00	3.00	6.00	29.43	38.00	930-004-126	930-004-142
2.50	3.00	8.00	28.71	38.00	930-004-127	930-004-143
3.00	3.00	10.00	18.00	38.00	930-004-128	930-004-144
3.50	4.00	12.00	36.71	50.00	930-004-129	930-004-145
4.00	4.00	12.00	28.00	50.00	930-004-130	930-004-146
4.50	5.00	14.00	34.71	50.00	930-004-131	930-004-147
5.00	5.00	15.00	25.00	50.00	930-004-132	930-004-148
6.00	6.00	18.00	35.00	63.00	930-004-133	930-004-149
7.00	8.00	20.00	40.43	63.00	930-004-134	930-004-150
8.00	8.00	20.00	33.00	63.00	930-004-135	930-004-151
9.00	10.00	22.00	38.43	63.00	930-004-136	930-004-152
10.00	10.00	22.00	31.00	63.00	930-004-137	930-004-153
12.00	12.00	25.00	40.00	75.00	930-004-138	930-004-154

KEO®

Ø .020" - .0650"

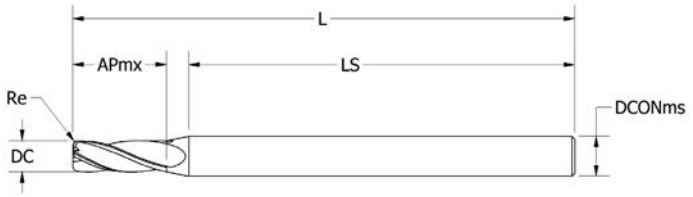


PG.493

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated	Amorphous Diamond
						4 FLUTE	4 FLUTE	4 FLUTE
0.0200	0.1250	0.0050	0.0600	1.1699	1.5000	930-001-003	930-001-125	930-000-858
0.0250	0.1250	0.0050	0.0750	1.1678	1.5000	930-001-004	930-001-126	930-000-859
0.0300	0.1250	0.0050	0.0900	1.1656	1.5000	930-001-005	930-001-127	930-000-860
0.0300	0.1250	0.0100	0.0900	1.1656	1.5000	930-000-963	930-004-406	930-000-819
0.0310	0.1250	0.0050	0.0930	1.1652	1.5000	930-001-006	930-001-128	930-000-861
0.0310	0.1250	0.0100	0.0930	1.1652	1.5000	930-000-964	930-004-271	930-000-820
0.0350	0.1250	0.0050	0.1050	1.1635	1.5000	930-001-007	930-001-129	930-000-862
0.0350	0.1250	0.0100	0.1050	1.1635	1.5000	930-000-965	930-004-272	930-000-821
0.0400	0.1250	0.0050	0.1200	1.1614	1.5000	930-001-008	930-001-130	930-000-863
0.0400	0.1250	0.0100	0.1200	1.1614	1.5000	930-000-966	930-001-108	930-000-822
0.0450	0.1250	0.0050	0.1350	1.1592	1.5000	930-001-009	930-001-131	930-000-864
0.0450	0.1250	0.0100	0.1350	1.1592	1.5000	930-000-967	930-001-109	930-000-823
0.0450	0.1250	0.0150	0.1350	1.1592	1.5000	930-000-983	930-001-109	930-000-839
0.0470	0.1250	0.0050	0.1410	1.1584	1.5000	930-001-010	930-001-132	930-000-865
0.0470	0.1250	0.0100	0.1410	1.1584	1.5000	930-000-968	930-001-110	930-000-824
0.0470	0.1250	0.0150	0.1410	1.1584	1.5000	930-000-984	930-001-117	930-000-840
0.0500	0.1250	0.0050	0.1500	1.1571	1.5000	930-001-011	930-001-133	930-000-866
0.0500	0.1250	0.0100	0.1500	1.1571	1.5000	930-000-969	930-001-111	930-000-825
0.0500	0.1250	0.0150	0.1500	1.1571	1.5000	930-000-985	930-001-118	930-000-841
0.0550	0.1250	0.0050	0.1650	1.1549	1.5000	930-001-012	930-001-134	930-000-867
0.0550	0.1250	0.0100	0.1650	1.1549	1.5000	930-000-970	930-004-273	930-000-826
0.0550	0.1250	0.0150	0.1650	1.1549	1.5000	930-000-986	930-004-280	930-000-842
0.0600	0.1250	0.0050	0.1800	1.1528	1.5000	930-001-013	930-001-135	930-000-868
0.0600	0.1250	0.0100	0.1800	1.1528	1.5000	930-000-971	930-001-112	930-000-827
0.0600	0.1250	0.0150	0.1800	1.1528	1.5000	930-000-987	930-001-119	930-000-843
0.0620	0.1250	0.0050	0.1860	1.1519	1.5000	930-001-014	930-004-264	930-000-869
0.0620	0.1250	0.0100	0.1860	1.1519	1.5000	930-000-972	930-004-274	930-000-828
0.0620	0.1250	0.0150	0.1860	1.1519	1.5000	930-000-988	930-001-120	930-000-844
0.0620	0.1250	0.0200	0.1860	1.1519	1.5000	930-000-999	930-004-287	930-000-855
0.0650	0.1250	0.0050	0.1950	1.1507	1.5000	930-001-015	930-004-265	930-000-870
0.0650	0.1250	0.0100	0.1950	1.1507	1.5000	930-000-973	930-004-275	930-000-829
0.0650	0.1250	0.0150	0.1950	1.1507	1.5000	930-000-989	930-004-281	930-000-845

Ø .070" - .100"

KEO



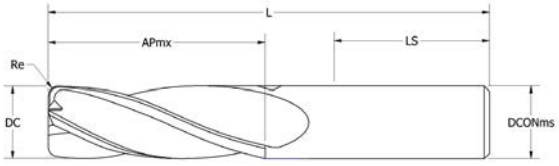
PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated	Amorphous Diamond
						4 FLUTE	4 FLUTE	4 FLUTE
0.0700	0.1250	0.0050	0.2100	1.1485	1.5000	930-001-016	930-001-136	930-000-871
0.0700	0.1250	0.0100	0.2100	1.1485	1.5000	930-000-974	930-001-113	930-000-830
0.0700	0.1250	0.0150	0.2100	1.1485	1.5000	930-000-990	930-001-121	930-000-846
0.0750	0.1250	0.0050	0.2250	1.1464	1.5000	930-001-017	930-004-266	930-000-872
0.0750	0.1250	0.0100	0.2250	1.1464	1.5000	930-000-975	930-004-276	930-000-831
0.0750	0.1250	0.0150	0.2250	1.1464	1.5000	930-000-991	930-004-282	930-000-847
0.0780	0.1250	0.0050	0.2340	1.1451	1.5000	930-001-018	930-004-267	930-000-873
0.0780	0.1250	0.0100	0.2340	1.1451	1.5000	930-000-976	930-004-277	930-000-832
0.0780	0.1250	0.0150	0.2340	1.1451	1.5000	930-000-992	930-004-283	930-000-848
0.0780	0.1250	0.0200	0.2340	1.1451	1.5000	930-001-001	930-004-288	930-000-856
0.0800	0.1250	0.0050	0.2400	1.1442	1.5000	930-001-019	930-001-137	930-000-874
0.0800	0.1250	0.0100	0.2400	1.1442	1.5000	930-000-977	930-001-114	930-000-833
0.0800	0.1250	0.0150	0.2400	1.1442	1.5000	930-000-993	930-001-122	930-000-849
0.0850	0.1250	0.0050	0.2550	1.1421	1.5000	930-001-020	930-001-020	930-000-875
0.0850	0.1250	0.0100	0.2550	1.1421	1.5000	930-000-978	930-000-978	930-000-834
0.0850	0.1250	0.0150	0.2550	1.1421	1.5000	930-000-994	930-000-994	930-000-850
0.0900	0.1250	0.0050	0.2700	1.1400	1.5000	930-001-021	930-001-138	930-000-876
0.0900	0.1250	0.0100	0.2700	1.1400	1.5000	930-000-979	930-001-115	930-000-835
0.0900	0.1250	0.0150	0.2700	1.1400	1.5000	930-000-995	930-001-123	930-000-851
0.0930	0.1250	0.0050	0.2790	1.1387	1.5000	930-001-022	930-001-022	930-000-877
0.0930	0.1250	0.0100	0.2790	1.1387	1.5000	930-000-980	930-003-903	930-000-836
0.0930	0.1250	0.0150	0.2790	1.1387	1.5000	930-000-996	930-000-996	930-000-852
0.0930	0.1250	0.0200	0.2790	1.1387	1.5000	930-001-002	930-001-002	930-000-857
0.0950	0.1250	0.0050	0.2850	1.1378	1.5000	930-001-023	930-001-023	930-000-878
0.0950	0.1250	0.0100	0.2850	1.1378	1.5000	930-000-981	930-000-981	930-000-837
0.0950	0.1250	0.0150	0.2850	1.1378	1.5000	930-000-997	930-000-997	930-000-853
0.1000	0.1250	0.0050	0.3000	1.1357	1.5000	930-001-024	930-001-139	930-000-879
0.1000	0.1250	0.0100	0.3000	1.1357	1.5000	930-000-982	930-001-116	930-000-838
0.1000	0.1250	0.0150	0.3000	1.1357	1.5000	930-000-998	930-001-124	930-000-854

KEO®

Ø .125" - .375"



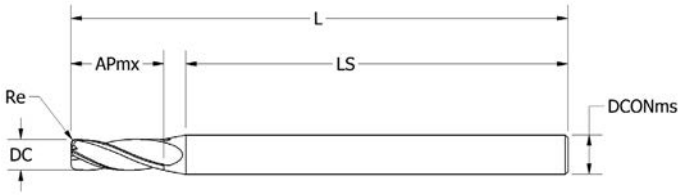
PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated	Amorphous Diamond
						4 FLUTE	4 FLUTE	4 FLUTE
0.1250	0.1250	0.0100	0.5000	0.6250	1.5000	931-000-147	931-000-150	931-000-426
0.1250	0.1250	0.0150	0.5000	0.6250	1.5000	931-000-148	931-000-151	931-000-427
0.1250	0.1250	0.0200	0.5000	0.6250	1.5000	931-000-149	931-000-152	931-000-428
0.1875	0.1875	0.0100	0.6250	1.0000	2.0000	931-000-153	931-000-156	931-000-435
0.1875	0.1875	0.0150	0.6250	1.0000	2.0000	931-000-154	931-000-157	931-000-436
0.1875	0.1875	0.0300	0.6250	1.0000	2.0000	931-000-155	931-000-158	931-000-437
0.2500	0.2500	0.0150	0.7500	1.3750	2.5000	931-000-159	931-000-164	931-000-440
0.2500	0.2500	0.0200	0.7500	1.3750	2.5000	931-000-160	931-000-165	931-000-441
0.2500	0.2500	0.0300	0.7500	1.3750	2.5000	931-000-161	931-000-166	931-000-442
0.2500	0.2500	0.0450	0.7500	1.3750	2.5000	931-000-162	931-000-167	931-000-443
0.2500	0.2500	0.0600	0.7500	1.3750	2.5000	931-000-163	931-000-168	931-000-444
0.3125	0.3125	0.0150	0.8125	1.3125	2.5000	931-000-169	931-000-571	N/A
0.3125	0.3125	0.0200	0.8125	1.3125	2.5000	931-000-170	931-000-572	N/A
0.3125	0.3125	0.0300	0.8125	1.3125	2.5000	931-000-171	931-000-174	N/A
0.3125	0.3125	0.0450	0.8125	1.3125	2.5000	931-000-172	931-000-175	N/A
0.3125	0.3125	0.0600	0.8125	1.3125	2.5000	931-000-173	931-000-176	N/A
0.3750	0.3750	0.0150	1.0000	1.1250	2.5000	931-000-177	931-000-573	N/A
0.3750	0.3750	0.0300	1.0000	1.1250	2.5000	931-000-178	931-000-181	931-000-447
0.3750	0.3750	0.0450	1.0000	1.1250	2.5000	931-000-179	931-000-182	N/A
0.3750	0.3750	0.0600	1.0000	1.1250	2.5000	931-000-180	931-000-183	931-000-448

Ø .020" - .093"

KEO



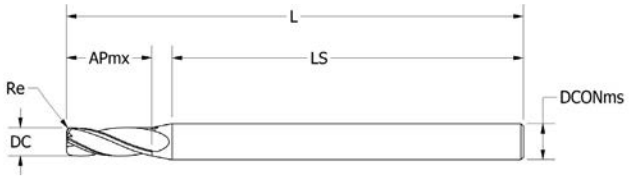
PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated	Amorphous Diamond
						4 FLUTE	4 FLUTE	4 FLUTE
0.0200	0.1250	0.0050	0.0300	1.1999	1.5000	930-001-802	930-004-107	930-001-743
0.0250	0.1250	0.0050	0.0375	1.2053	1.5000	930-001-803	930-004-108	930-001-744
0.0310	0.1250	0.0050	0.0465	1.2117	1.5000	930-001-804	930-004-109	930-001-745
0.0470	0.1250	0.0050	0.0705	1.2289	1.5000	930-001-805	930-004-110	930-001-746
0.0470	0.1250	0.0100	0.0705	1.2289	1.5000	930-001-795	930-004-114	930-001-736
0.0620	0.1250	0.0050	0.0930	1.2449	1.5000	930-001-806	930-004-111	930-001-747
0.0620	0.1250	0.0100	0.0930	1.2449	1.5000	930-001-796	930-004-115	930-001-737
0.0620	0.1250	0.0150	0.0930	1.2449	1.5000	930-001-799	930-004-118	930-001-740
0.0780	0.1250	0.0050	0.1170	1.2621	1.5000	930-001-807	930-004-112	930-001-748
0.0780	0.1250	0.0100	0.1170	1.2621	1.5000	930-001-797	930-004-116	930-001-738
0.0780	0.1250	0.0150	0.1170	1.2621	1.5000	930-001-800	930-004-119	930-001-741
0.0930	0.1250	0.0050	0.1395	1.2782	1.5000	930-001-808	930-004-113	930-001-749
0.0930	0.1250	0.0100	0.1395	1.2782	1.5000	930-001-798	930-004-117	930-001-739
0.0930	0.1250	0.0150	0.1395	1.2782	1.5000	930-001-801	930-004-120	930-001-742

KEO®

Ø .015" - .093"

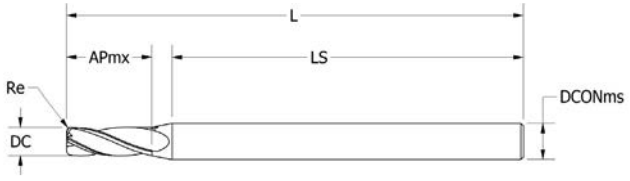


PG.493 MICRO

HARD MILL

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Hard Mill Coated 4 FLUTE
0.0150	0.1250	0.0020	0.0225	1.1945	1.5000	930-001-809
0.0310	0.1250	0.0030	0.0465	1.2117	1.5000	930-001-810
0.0470	0.1250	0.0050	0.0705	1.2289	1.5000	930-001-811
0.0620	0.1250	0.0060	0.0930	1.2449	1.5000	930-001-812
0.0780	0.1250	0.0080	0.1170	1.2621	1.5000	930-001-813
0.0930	0.1250	0.0090	0.1395	1.2782	1.5000	930-001-814

Ø .0313" - .25"



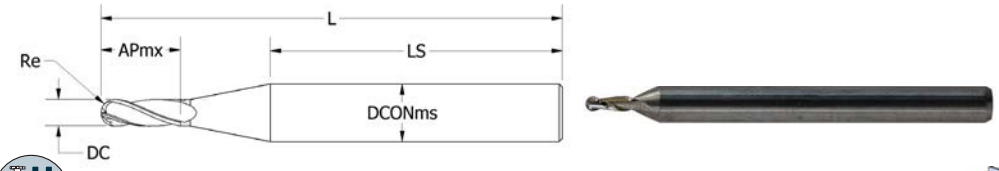
PG.493 MICRO

HARD MILL, STUB

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Hard Mill Coated 4 FLUTE
0.0313	0.1250	0.0030	0.0625	1.1963	1.5000	931-000-278
0.0469	0.1250	0.0050	0.0625	1.2365	1.5000	931-000-279
0.0625	0.1250	0.0060	0.1250	1.2142	1.5000	931-000-280
0.0781	0.1250	0.0080	0.1250	1.2544	1.5000	931-000-281
0.0938	0.1250	0.0090	0.1875	1.2321	1.5000	931-000-282
0.1250	0.1250	0.0130	0.2500	0.8750	1.5000	931-000-283
0.1875	0.1875	0.0190	0.3750	1.2500	2.0000	931-000-284
0.2500	0.2500	0.0250	0.5000	1.6250	2.5000	931-000-285

Ø .005" - .044"

KEO



PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	
						2 FLUTE	4 FLUTE
0.0050	0.1250	0.0025	0.0150	1.1342	1.5000	930-001-965	N/A
0.0060	0.1250	0.0030	0.0180	1.1342	1.5000	930-001-967	N/A
0.0070	0.1250	0.0035	0.0210	1.1342	1.5000	930-001-968	N/A
0.0080	0.1250	0.0040	0.0240	1.1342	1.5000	930-001-969	N/A
0.0090	0.1250	0.0045	0.0270	1.1342	1.5000	930-001-970	N/A
0.0100	0.1250	0.0050	0.0300	1.1742	1.5000	930-001-971	930-002-341
0.0110	0.1250	0.0055	0.0330	1.1738	1.5000	930-001-973	930-002-343
0.0120	0.1250	0.0060	0.0360	1.1733	1.5000	930-001-974	930-002-344
0.0130	0.1250	0.0065	0.0390	1.1729	1.5000	930-001-975	930-002-345
0.0140	0.1250	0.0070	0.0420	1.1725	1.5000	930-001-976	930-002-346
0.0150	0.1250	0.0075	0.0450	1.1720	1.5000	930-001-977	930-002-347
0.0156	0.1250	0.0078	0.0468	1.1718	1.5000	930-002-084	930-002-453
0.0160	0.1250	0.0080	0.0480	1.1716	1.5000	930-001-979	930-002-349
0.0170	0.1250	0.0085	0.0510	1.1712	1.5000	930-001-980	930-002-350
0.0180	0.1250	0.0090	0.0540	1.1708	1.5000	930-001-981	930-002-351
0.0190	0.1250	0.0095	0.0570	1.1703	1.5000	930-001-982	930-002-352
0.0197	0.1250	0.0099	0.0591	1.1700	1.5000	930-002-065	930-002-434
0.0200	0.1250	0.0100	0.0600	1.1699	1.5000	930-001-983	930-002-353
0.0210	0.1250	0.0105	0.0630	1.1695	1.5000	930-001-985	930-002-355
0.0220	0.1250	0.0110	0.0660	1.1691	1.5000	930-001-986	930-002-356
0.0230	0.1250	0.0115	0.0690	1.1686	1.5000	930-001-987	930-002-357
0.0240	0.1250	0.0120	0.0720	1.1682	1.5000	930-001-988	930-002-358
0.0250	0.1250	0.0125	0.0750	1.1678	1.5000	930-001-989	930-002-359
0.0260	0.1250	0.0130	0.0780	1.1673	1.5000	930-001-991	930-002-361
0.0270	0.1250	0.0135	0.0810	1.1669	1.5000	930-001-992	930-002-362
0.0280	0.1250	0.0140	0.0840	1.1665	1.5000	930-001-993	930-002-363
0.0290	0.1250	0.0145	0.0870	1.1661	1.5000	930-001-994	930-002-364
0.0300	0.1250	0.0150	0.0900	1.1656	1.5000	930-001-995	930-002-365
0.0312	0.1250	0.0156	0.0936	1.1651	1.5000	930-001-997	930-002-367
0.0320	0.1250	0.0160	0.0960	1.1648	1.5000	930-001-998	930-002-368
0.0330	0.1250	0.0165	0.0990	1.1644	1.5000	930-001-999	930-002-369
0.0340	0.1250	0.0170	0.1020	1.1639	1.5000	930-002-001	930-002-370
0.0350	0.1250	0.0175	0.1050	1.1635	1.5000	930-002-002	930-002-371
0.0360	0.1250	0.0180	0.1080	1.1631	1.5000	930-002-004	930-002-373
0.0370	0.1250	0.0185	0.1110	1.1626	1.5000	930-002-005	930-002-374
0.0380	0.1250	0.0190	0.1140	1.1622	1.5000	930-002-006	930-002-375
0.0390	0.1250	0.0195	0.1170	1.1618	1.5000	930-002-007	930-002-376
0.0394	0.1250	0.0197	0.1182	1.1616	1.5000	930-002-072	930-002-441
0.0400	0.1250	0.0200	0.1200	1.1614	1.5000	930-002-008	930-002-377
0.0410	0.1250	0.0205	0.1230	1.1609	1.5000	930-002-010	930-002-379
0.0420	0.1250	0.0210	0.1260	1.1605	1.5000	930-002-011	930-002-380
0.0430	0.1250	0.0215	0.1290	1.1601	1.5000	930-002-012	930-002-381
0.0440	0.1250	0.0220	0.1320	1.1596	1.5000	930-002-013	930-002-382

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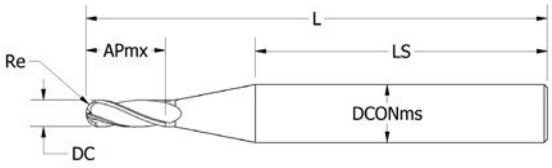

PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	AlTiN Coated	
						2 FLUTE	4 FLUTE
0.0050	0.1250	0.0025	0.0150	1.1342	1.5000	930-002-249	N/A
0.0060	0.1250	0.0030	0.0180	1.1342	1.5000	930-002-250	N/A
0.0070	0.1250	0.0035	0.0210	1.1342	1.5000	930-002-251	N/A
0.0080	0.1250	0.0040	0.0240	1.1342	1.5000	930-002-252	N/A
0.0090	0.1250	0.0045	0.0270	1.1342	1.5000	930-002-253	N/A
0.0100	0.1250	0.0050	0.0300	1.1742	1.5000	930-002-254	930-003-947
0.0110	0.1250	0.0055	0.0330	1.1738	1.5000	930-002-255	930-003-948
0.0120	0.1250	0.0060	0.0360	1.1733	1.5000	930-002-256	930-003-949
0.0130	0.1250	0.0065	0.0390	1.1729	1.5000	930-002-257	930-003-950
0.0140	0.1250	0.0070	0.0420	1.1725	1.5000	930-002-258	930-003-951
0.0150	0.1250	0.0075	0.0450	1.1720	1.5000	930-002-259	930-003-952
0.0156	0.1250	0.0078	0.0468	1.1718	1.5000	930-003-935	930-003-953
0.0160	0.1250	0.0080	0.0480	1.1716	1.5000	930-002-260	930-003-954
0.0170	0.1250	0.0085	0.0510	1.1712	1.5000	930-002-261	930-003-955
0.0180	0.1250	0.0090	0.0540	1.1708	1.5000	930-002-262	930-003-956
0.0190	0.1250	0.0095	0.0570	1.1703	1.5000	930-002-263	930-003-957
0.0197	0.1250	0.0099	0.0591	1.1700	1.5000	930-003-936	930-003-958
0.0200	0.1250	0.0100	0.0600	1.1699	1.5000	930-002-264	930-003-959
0.0210	0.1250	0.0105	0.0630	1.1695	1.5000	930-002-265	930-003-960
0.0220	0.1250	0.0110	0.0660	1.1691	1.5000	930-002-266	930-003-961
0.0230	0.1250	0.0115	0.0690	1.1686	1.5000	930-002-267	930-003-962
0.0240	0.1250	0.0120	0.0720	1.1682	1.5000	930-002-268	930-003-963
0.0250	0.1250	0.0125	0.0750	1.1678	1.5000	930-002-269	930-003-964
0.0260	0.1250	0.0130	0.0780	1.1673	1.5000	930-002-270	930-003-965
0.0270	0.1250	0.0135	0.0810	1.1669	1.5000	930-002-271	930-003-966
0.0280	0.1250	0.0140	0.0840	1.1665	1.5000	930-002-272	930-003-967
0.0290	0.1250	0.0145	0.0870	1.1661	1.5000	930-002-273	930-003-968
0.0300	0.1250	0.0150	0.0900	1.1656	1.5000	930-002-274	930-003-969
0.0312	0.1250	0.0156	0.0936	1.1651	1.5000	930-002-275	930-003-970
0.0320	0.1250	0.0160	0.0960	1.1648	1.5000	930-002-276	930-003-971
0.0330	0.1250	0.0165	0.0990	1.1644	1.5000	930-002-277	930-003-972
0.0340	0.1250	0.0170	0.1020	1.1639	1.5000	930-002-278	930-003-973
0.0350	0.1250	0.0175	0.1050	1.1635	1.5000	930-002-279	930-003-974
0.0360	0.1250	0.0180	0.1080	1.1631	1.5000	930-002-280	930-003-975
0.0370	0.1250	0.0185	0.1110	1.1626	1.5000	930-002-281	930-003-976
0.0380	0.1250	0.0190	0.1140	1.1622	1.5000	930-002-282	930-003-977
0.0390	0.1250	0.0195	0.1170	1.1618	1.5000	930-002-283	930-003-978
0.0394	0.1250	0.0197	0.1182	1.1616	1.5000	930-002-321	930-003-979
0.0400	0.1250	0.0200	0.1200	1.1614	1.5000	930-002-284	930-003-980
0.0410	0.1250	0.0205	0.1230	1.1609	1.5000	930-002-285	930-003-981
0.0420	0.1250	0.0210	0.1260	1.1605	1.5000	930-002-286	930-003-982
0.0430	0.1250	0.0215	0.1290	1.1601	1.5000	930-002-287	930-003-983
0.0440	0.1250	0.0220	0.1320	1.1596	1.5000	930-002-288	930-003-984

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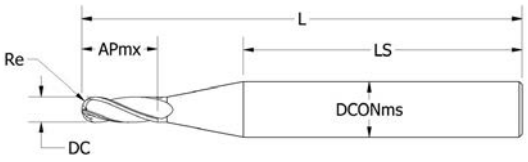

PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Amorphous Diamond	
						2 FLUTE	4 FLUTE
0.0050	0.1250	0.0025	0.0150	1.1342	1.5000	930-002-086	N/A
0.0060	0.1250	0.0030	0.0180	1.1342	1.5000	930-002-087	N/A
0.0070	0.1250	0.0035	0.0210	1.1342	1.5000	930-002-088	N/A
0.0080	0.1250	0.0040	0.0240	1.1342	1.5000	930-002-089	N/A
0.0090	0.1250	0.0045	0.0270	1.1342	1.5000	930-002-090	N/A
0.0100	0.1250	0.0050	0.0300	1.1742	1.5000	930-002-091	930-002-455
0.0110	0.1250	0.0055	0.0330	1.1738	1.5000	930-002-092	930-002-456
0.0120	0.1250	0.0060	0.0360	1.1733	1.5000	930-002-093	930-002-457
0.0130	0.1250	0.0065	0.0390	1.1729	1.5000	930-002-094	930-002-458
0.0140	0.1250	0.0070	0.0420	1.1725	1.5000	930-002-095	930-002-459
0.0150	0.1250	0.0075	0.0450	1.1720	1.5000	930-002-096	930-002-460
0.0160	0.1250	0.0080	0.0480	1.1716	1.5000	930-002-097	930-002-461
0.0170	0.1250	0.0085	0.0510	1.1712	1.5000	930-002-098	930-002-462
0.0180	0.1250	0.0090	0.0540	1.1708	1.5000	930-002-099	930-002-463
0.0190	0.1250	0.0095	0.0570	1.1703	1.5000	930-002-100	930-002-464
0.0200	0.1250	0.0100	0.0600	1.1699	1.5000	930-002-101	930-002-465
0.0210	0.1250	0.0105	0.0630	1.1695	1.5000	930-002-102	930-002-466
0.0220	0.1250	0.0110	0.0660	1.1691	1.5000	930-002-103	930-002-467
0.0230	0.1250	0.0115	0.0690	1.1686	1.5000	930-002-104	930-002-468
0.0240	0.1250	0.0120	0.0720	1.1682	1.5000	930-002-105	930-002-469
0.0250	0.1250	0.0125	0.0750	1.1678	1.5000	930-002-106	930-002-470
0.0260	0.1250	0.0130	0.0780	1.1673	1.5000	930-002-107	930-002-471
0.0270	0.1250	0.0135	0.0810	1.1669	1.5000	930-002-108	930-002-472
0.0280	0.1250	0.0140	0.0840	1.1665	1.5000	930-002-109	930-002-473
0.0290	0.1250	0.0145	0.0870	1.1661	1.5000	930-002-110	930-002-474
0.0300	0.1250	0.0150	0.0900	1.1656	1.5000	930-002-111	930-002-475
0.0310	0.1250	0.0155	0.0930	1.1652	1.5000	930-002-112	930-002-476
0.0320	0.1250	0.0160	0.0960	1.1648	1.5000	930-002-113	930-002-477
0.0330	0.1250	0.0165	0.0990	1.1644	1.5000	930-002-114	930-002-478
0.0340	0.1250	0.0170	0.1020	1.1639	1.5000	930-002-115	930-002-479
0.0350	0.1250	0.0175	0.1050	1.1635	1.5000	930-002-116	930-002-480
0.0360	0.1250	0.0180	0.1080	1.1631	1.5000	930-002-117	930-002-481
0.0370	0.1250	0.0185	0.1110	1.1626	1.5000	930-002-118	930-002-482
0.0380	0.1250	0.0190	0.1140	1.1622	1.5000	930-002-119	930-002-483
0.0390	0.1250	0.0195	0.1170	1.1618	1.5000	930-002-120	930-002-484
0.0394	0.1250	0.0197	0.1182	1.1616	1.5000	930-002-156	930-002-518
0.0400	0.1250	0.0200	0.1200	1.1614	1.5000	930-002-121	930-002-485
0.0410	0.1250	0.0205	0.1230	1.1609	1.5000	930-002-122	930-002-486
0.0420	0.1250	0.0210	0.1260	1.1605	1.5000	930-002-123	930-002-487
0.0430	0.1250	0.0215	0.1290	1.1601	1.5000	930-002-124	930-002-488
0.0440	0.1250	0.0220	0.1320	1.1596	1.5000	930-002-125	930-002-489

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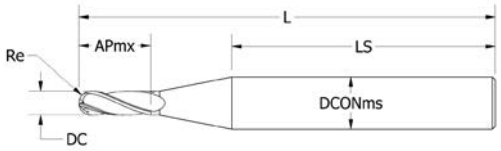

PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	
						2 FLUTE	4 FLUTE
0.0450	0.1250	0.0225	0.1350	1.1592	1.5000	930-002-014	930-002-383
0.0460	0.1250	0.0230	0.1380	1.1588	1.5000	930-002-016	930-002-385
0.0468	0.1250	0.0234	0.1404	1.1584	1.5000	930-002-017	930-002-386
0.0480	0.1250	0.0240	0.1440	1.1579	1.5000	930-002-018	930-002-387
0.0490	0.1250	0.0245	0.1470	1.1575	1.5000	930-002-019	930-002-388
0.0492	0.1250	0.0246	0.1476	1.1574	1.5000	930-002-073	930-002-442
0.0500	0.1250	0.0250	0.1500	1.1571	1.5000	930-002-020	930-002-389
0.0510	0.1250	0.0255	0.1530	1.1567	1.5000	930-002-022	930-002-391
0.0520	0.1250	0.0260	0.1560	1.1562	1.5000	930-002-023	930-002-392
0.0530	0.1250	0.0265	0.1590	1.1558	1.5000	930-002-024	930-002-393
0.0540	0.1250	0.0270	0.1620	1.1554	1.5000	930-002-025	930-002-394
0.0550	0.1250	0.0275	0.1650	1.1549	1.5000	930-002-026	930-002-395
0.0560	0.1250	0.0280	0.1680	1.1545	1.5000	930-002-028	930-002-397
0.0570	0.1250	0.0285	0.1710	1.1541	1.5000	930-002-029	930-002-398
0.0580	0.1250	0.0290	0.1740	1.1537	1.5000	930-002-030	930-002-399
0.0590	0.1250	0.0295	0.1770	1.1532	1.5000	930-002-031	930-002-400
0.0591	0.1250	0.0296	0.1773	1.1532	1.5000	930-002-075	930-002-444
0.0600	0.1250	0.0300	0.1800	1.1528	1.5000	930-002-032	930-002-401
0.0620	0.1250	0.0310	0.1860	1.1519	1.5000	930-002-034	930-002-403
0.0630	0.1250	0.0315	0.1890	1.1515	1.5000	930-002-076	930-002-445
0.0640	0.1250	0.0320	0.1920	1.1511	1.5000	930-002-035	930-002-404
0.0650	0.1250	0.0325	0.1950	1.1507	1.5000	930-002-036	930-002-405
0.0700	0.1250	0.0350	0.2100	1.1485	1.5000	930-002-038	930-002-407
0.0709	0.1250	0.0355	0.2127	1.1481	1.5000	930-002-077	930-002-446
0.0750	0.1250	0.0375	0.2250	1.1464	1.5000	930-002-040	930-002-409
0.0781	0.1250	0.0391	0.2343	1.1451	1.5000	930-002-041	930-002-410
0.0787	0.1250	0.0394	0.2361	1.1448	1.5000	930-002-078	930-002-447
0.0800	0.1250	0.0400	0.2400	1.1442	1.5000	930-002-042	930-002-411
0.0850	0.1250	0.0425	0.2550	1.1421	1.5000	930-002-044	930-002-413
0.0866	0.1250	0.0433	0.2598	1.1414	1.5000	930-002-079	930-002-448
0.0900	0.1250	0.0450	0.2700	1.1400	1.5000	930-002-045	930-002-414
0.0938	0.1250	0.0469	0.2814	1.1383	1.5000	930-002-047	930-002-416
0.0950	0.1250	0.0475	0.2850	1.1378	1.5000	930-002-048	930-002-417
0.0984	0.1250	0.0492	0.2952	1.1364	1.5000	930-002-080	930-002-449
0.1000	0.1250	0.0500	0.3000	1.1357	1.5000	930-002-049	930-002-418
0.1050	0.1250	0.0525	0.3150	1.1336	1.5000	930-002-051	930-002-420
0.1102	0.1250	0.0551	0.3306	1.1313	1.5000	930-002-081	930-002-450
0.1150	0.1250	0.0575	0.3450	1.1293	1.5000	930-002-052	930-002-421
0.1181	0.1250	0.0591	0.3543	1.1280	1.5000	930-002-082	930-002-451
0.1200	0.1250	0.0600	0.3600	1.1271	1.5000	930-002-053	930-002-422
0.1378	0.1875	0.0689	0.4134	1.4588	2.0000	930-002-083	930-002-452
0.1772	0.1875	0.0886	0.5316	1.4419	2.0000	930-002-085	930-002-454

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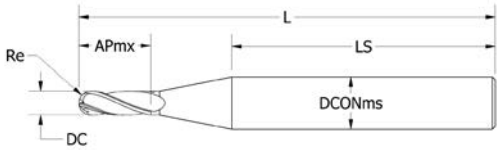

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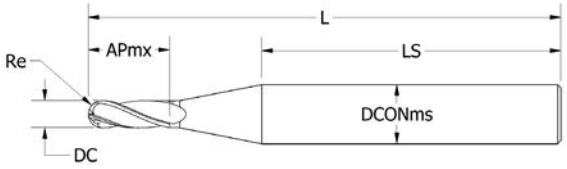
MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	AlTiN Coated	
						2 FLUTE	4 FLUTE
0.0450	0.1250	0.0225	0.1350	1.1592	1.5000	930-002-289	930-003-985
0.0460	0.1250	0.0230	0.1380	1.1588	1.5000	930-002-290	930-003-986
0.0468	0.1250	0.0234	0.1404	1.1584	1.5000	930-002-291	930-003-987
0.0480	0.1250	0.0240	0.1440	1.1579	1.5000	930-002-292	930-003-988
0.0490	0.1250	0.0245	0.1470	1.1575	1.5000	930-002-293	930-003-989
0.0492	0.1250	0.0246	0.1476	1.1574	1.5000	930-003-878	930-003-990
0.0500	0.1250	0.0250	0.1500	1.1571	1.5000	930-002-294	930-003-992
0.0510	0.1250	0.0255	0.1530	1.1567	1.5000	930-002-295	930-003-991
0.0520	0.1250	0.0260	0.1560	1.1562	1.5000	930-002-296	930-003-993
0.0530	0.1250	0.0265	0.1590	1.1558	1.5000	930-002-297	930-003-994
0.0540	0.1250	0.0270	0.1620	1.1554	1.5000	930-002-298	930-003-995
0.0550	0.1250	0.0275	0.1650	1.1549	1.5000	930-002-299	930-003-996
0.0560	0.1250	0.0280	0.1680	1.1545	1.5000	930-002-300	930-003-997
0.0570	0.1250	0.0285	0.1710	1.1541	1.5000	930-002-301	930-003-998
0.0580	0.1250	0.0290	0.1740	1.1537	1.5000	930-002-302	930-003-999
0.0590	0.1250	0.0295	0.1770	1.1532	1.5000	930-002-303	930-004-000
0.0591	0.1250	0.0296	0.1773	1.1532	1.5000	930-002-322	930-004-001
0.0600	0.1250	0.0300	0.1800	1.1528	1.5000	930-002-304	930-004-002
0.0620	0.1250	0.0310	0.1860	1.1519	1.5000	930-002-305	930-004-003
0.0630	0.1250	0.0315	0.1890	1.1515	1.5000	930-003-937	930-004-004
0.0640	0.1250	0.0320	0.1920	1.1511	1.5000	930-003-938	930-004-005
0.0650	0.1250	0.0325	0.1950	1.1507	1.5000	930-002-306	930-004-006
0.0700	0.1250	0.0350	0.2100	1.1485	1.5000	930-002-307	930-004-007
0.0709	0.1250	0.0355	0.2127	1.1481	1.5000	930-003-939	930-004-008
0.0750	0.1250	0.0375	0.2250	1.1464	1.5000	930-002-308	930-004-009
0.0781	0.1250	0.0391	0.2343	1.1451	1.5000	930-002-309	930-004-010
0.0787	0.1250	0.0394	0.2361	1.1448	1.5000	930-003-940	930-004-011
0.0800	0.1250	0.0400	0.2400	1.1442	1.5000	930-002-310	930-004-012
0.0850	0.1250	0.0425	0.2550	1.1421	1.5000	930-002-311	930-004-013
0.0866	0.1250	0.0433	0.2598	1.1414	1.5000	930-003-941	930-004-014
0.0900	0.1250	0.0450	0.2700	1.1400	1.5000	930-002-312	930-004-015
0.0938	0.1250	0.0469	0.2814	1.1383	1.5000	930-002-313	930-004-016
0.0950	0.1250	0.0475	0.2850	1.1378	1.5000	930-002-314	930-004-017
0.0984	0.1250	0.0492	0.2952	1.1364	1.5000	930-003-942	930-004-018
0.1000	0.1250	0.0500	0.3000	1.1357	1.5000	930-002-315	930-004-019
0.1050	0.1250	0.0525	0.3150	1.1336	1.5000	930-002-316	930-004-020
0.1102	0.1250	0.0551	0.3306	1.1313	1.5000	930-002-323	930-004-021
0.1150	0.1250	0.0575	0.3450	1.1293	1.5000	930-002-317	930-004-022
0.1181	0.1250	0.0591	0.3543	1.1280	1.5000	930-002-324	930-004-023
0.1200	0.1250	0.0600	0.3600	1.1271	1.5000	930-002-318	930-004-024
0.1378	0.1875	0.0689	0.4134	1.4588	2.0000	930-003-943	930-004-025
0.1772	0.1875	0.0886	0.5316	1.4419	2.0000	930-003-944	930-004-026

KEO

Ø .045" - .1200"



PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Amorphous Diamond 2 FLUTE	Amorphous Diamond 4 FLUTE
0.0450	0.1250	0.0225	0.1350	1.1592	1.5000	930-002-126	930-002-490
0.0460	0.1250	0.0230	0.1380	1.1588	1.5000	930-002-127	930-002-491
0.0470	0.1250	0.0235	0.1410	1.1584	1.5000	930-002-128	930-002-492
0.0480	0.1250	0.0240	0.1440	1.1579	1.5000	930-002-129	930-002-493
0.0490	0.1250	0.0245	0.1470	1.1575	1.5000	930-002-130	930-002-494
0.0492	0.1250	0.0246	0.1476	1.1574	1.5000	930-002-157	930-002-519
0.0500	0.1250	0.0250	0.1500	1.1571	1.5000	930-002-131	930-002-495
0.0510	0.1250	0.0255	0.1530	1.1567	1.5000	930-002-132	930-002-496
0.0520	0.1250	0.0260	0.1560	1.1562	1.5000	930-002-133	930-002-497
0.0530	0.1250	0.0265	0.1590	1.1558	1.5000	930-002-134	930-002-498
0.0540	0.1250	0.0270	0.1620	1.1554	1.5000	930-002-135	930-002-499
0.0550	0.1250	0.0275	0.1650	1.1549	1.5000	930-002-136	930-002-500
0.0560	0.1250	0.0280	0.1680	1.1545	1.5000	930-002-137	930-002-501
0.0570	0.1250	0.0285	0.1710	1.1541	1.5000	930-002-138	930-002-502
0.0580	0.1250	0.0290	0.1740	1.1537	1.5000	930-002-139	930-002-503
0.0590	0.1250	0.0295	0.1770	1.1532	1.5000	930-002-140	930-002-504
0.0591	0.1250	0.0296	0.1773	1.1532	1.5000	930-002-158	930-002-520
0.0600	0.1250	0.0300	0.1800	1.1528	1.5000	930-002-141	930-002-505
0.0620	0.1250	0.0310	0.1860	1.1519	1.5000	930-002-142	930-002-506
0.0630	0.1250	0.0315	0.1890	1.1515	1.5000	930-003-937	930-004-004
0.0650	0.1250	0.0325	0.1950	1.1507	1.5000	930-002-143	930-002-507
0.0700	0.1250	0.0350	0.2100	1.1485	1.5000	930-002-144	930-002-508
0.0750	0.1250	0.0375	0.2250	1.1464	1.5000	930-002-145	930-002-509
0.0781	0.1250	0.0391	0.2343	1.1451	1.5000	930-002-146	930-002-510
0.0800	0.1250	0.0400	0.2400	1.1442	1.5000	930-002-147	930-002-511
0.0850	0.1250	0.0425	0.2550	1.1421	1.5000	930-002-148	930-002-512
0.0900	0.1250	0.0450	0.2700	1.1400	1.5000	930-002-149	930-002-513
0.0938	0.1250	0.0469	0.2814	1.1383	1.5000	930-002-150	930-002-514
0.0950	0.1250	0.0475	0.2850	1.1378	1.5000	930-002-151	930-002-515
0.1000	0.1250	0.0500	0.3000	1.1357	1.5000	930-002-152	930-002-516
0.1102	0.1250	0.0551	0.3306	1.1313	1.5000	930-002-159	930-002-521
0.1181	0.1250	0.0591	0.3543	1.1280	1.5000	930-002-160	930-002-522
0.1200	0.1250	0.0600	0.3600	1.1271	1.5000	930-002-155	930-002-517

Ø .005"-.100"

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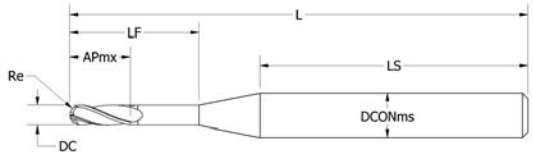


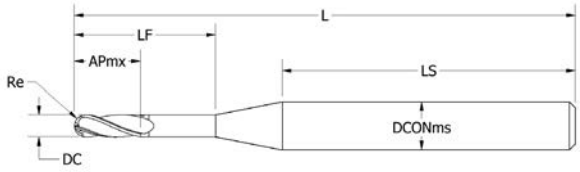
PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	LF [in.]	L [in.]	Uncoated		AlTiN Coated	
							2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0050	0.1250	0.0025	0.0150	1.3930	0.0470	1.5000	930-001-966	N/A	930-004-290	N/A
0.0100	0.1250	0.0050	0.0300	1.3625	0.0800	1.5000	930-002-326	930-002-624	930-004-291	930-004-332
0.0100	0.1250	0.0050	0.0300	1.3488	0.0937	1.5000	930-001-972	930-002-342	930-004-292	930-004-333
0.0150	0.1250	0.0075	0.0450	1.3200	0.1250	1.5000	930-001-978	930-002-348	930-004-293	930-004-334
0.0200	0.1250	0.0100	0.0600	1.2775	0.1700	1.5000	930-002-327	930-002-625	930-004-294	930-004-335
0.0200	0.1250	0.0100	0.0600	1.2600	0.1875	1.5000	930-001-984	930-002-354	930-004-295	930-004-336
0.0250	0.1250	0.0125	0.0750	1.2370	0.2130	1.5000	930-002-328	930-002-626	930-004-296	930-004-337
0.0250	0.1250	0.0125	0.0750	1.2000	0.2500	1.5000	930-001-990	930-002-360	930-004-297	930-004-338
0.0300	0.1250	0.0150	0.0900	1.2025	0.2500	1.5000	930-001-996	930-002-366	930-004-298	930-004-339
0.0300	0.1250	0.0150	0.0900	1.1825	0.2700	1.5000	930-002-329	930-002-627	930-004-299	930-004-340
0.0310	0.1250	0.0155	0.0930	1.1740	0.2790	1.5000	930-002-330	930-002-628	930-004-300	930-004-341
0.0350	0.1250	0.0175	0.1050	1.2050	0.2500	1.5000	930-002-003	930-002-372	930-004-301	930-004-342
0.0350	0.1250	0.0175	0.1050	1.1400	0.3150	1.5000	930-002-331	930-002-629	930-004-302	930-004-343
0.0400	0.1250	0.0200	0.1200	1.2075	0.2500	1.5000	930-002-009	930-002-378	930-004-303	930-004-344
0.0400	0.1250	0.0200	0.1200	1.0975	0.3600	1.5000	930-002-332	930-002-630	930-004-304	930-004-345
0.0450	0.1250	0.0225	0.1350	1.0550	0.4050	1.5000	930-002-333	930-002-631	930-004-305	930-004-346
0.0450	0.1250	0.0225	0.1350	0.9600	0.5000	1.5000	930-002-015	930-002-384	930-004-306	930-004-347
0.0470	0.1250	0.0235	0.1410	1.0380	0.4230	1.5000	930-002-334	930-002-632	930-004-307	930-004-348
0.0500	0.1250	0.0250	0.1500	0.9625	0.5000	1.5000	930-002-021	930-002-390	930-004-308	930-004-349
0.0550	0.1250	0.0275	0.1650	0.9650	0.5000	1.5000	930-002-027	930-002-396	930-004-309	930-004-350
0.0600	0.1250	0.0300	0.1800	0.9675	0.5000	1.5000	930-002-033	930-002-402	930-004-310	930-004-351
0.0620	0.1250	0.0310	0.1860	0.9685	0.5000	1.5000	930-002-335	930-002-633	930-004-311	930-004-352
0.0650	0.1250	0.0325	0.1950	0.9700	0.5000	1.5000	930-002-037	930-002-406	930-004-312	930-004-353
0.0700	0.1250	0.0350	0.2100	0.9725	0.5000	1.5000	930-002-039	930-002-408	930-004-313	930-004-354
0.0780	0.1250	0.0390	0.2340	0.9765	0.5000	1.5000	930-002-336	930-002-634	930-004-314	930-004-355
0.0800	0.1250	0.0400	0.2400	0.9775	0.5000	1.5000	930-002-043	930-002-412	930-004-315	930-004-356
0.0900	0.1250	0.0450	0.2700	0.9825	0.5000	1.5000	930-002-046	930-002-415	930-004-316	930-004-357
0.0900	0.1250	0.0450	0.2700	0.8575	0.6250	1.5000	930-002-337	930-002-635	930-004-317	930-004-358
0.0930	0.1250	0.0465	0.2790	0.8590	0.6250	1.5000	930-002-338	930-002-636	930-004-318	930-004-359
0.0950	0.1250	0.0475	0.2850	0.8600	0.6250	1.5000	930-002-339	930-002-637	930-004-319	930-004-360
0.1000	0.1250	0.0500	0.3000	0.9875	0.5000	1.5000	930-002-050	930-002-419	930-004-320	930-004-362
0.1000	0.1250	0.0500	0.3000	0.8625	0.6250	1.5000	930-002-340	930-002-638	930-004-321	930-004-361

KEO®

Ø .010"-.250"



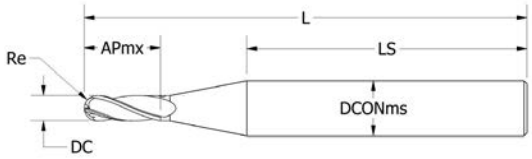
PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated	AlTiN Coated	Amorphous Diamond
							3 FLUTE	3 FLUTE	3 FLUTE
0.0100	0.1250	0.0050	0.0500	2.3425	2.5000	0.1000	930-002-896	930-002-862	930-002-830
0.0150	0.1250	0.0075	0.0750	2.2950	2.5000	0.1500	930-002-897	930-002-863	930-002-831
0.0200	0.1250	0.0100	0.1000	2.2475	2.5000	0.2000	930-002-898	930-002-864	930-002-832
0.0250	0.1250	0.0125	0.1250	2.2000	2.5000	0.2500	930-002-899	930-002-865	930-002-833
0.0300	0.1250	0.0150	0.1500	2.1525	2.5000	0.3000	930-002-900	930-002-866	930-002-834
0.0310	0.1250	0.0155	0.1550	2.1530	2.5000	0.3000	930-002-901	930-002-867	930-002-835
0.0350	0.1250	0.0175	0.1750	2.1050	2.5000	0.3500	930-002-902	930-002-868	930-002-836
0.0400	0.1250	0.0200	0.2000	2.0575	2.5000	0.4000	930-002-903	930-002-869	930-002-837
0.0450	0.1250	0.0225	0.2250	2.0100	2.5000	0.4500	930-002-904	930-002-870	930-002-838
0.0470	0.1250	0.0235	0.2500	1.9610	2.5000	0.5000	930-002-905	930-002-871	930-002-839
0.0500	0.1250	0.0250	0.3000	1.8625	2.5000	0.6000	930-002-906	930-002-872	930-002-840
0.0550	0.1250	0.0275	0.3850	1.6950	2.5000	0.7700	930-002-907	930-002-873	930-002-841
0.0600	0.1250	0.0300	0.5000	1.4675	2.5000	1.0000	930-002-908	930-002-874	930-002-842
0.0620	0.1250	0.0310	0.5000	1.4685	2.5000	1.0000	930-002-909	930-002-875	930-002-843
0.0650	0.1250	0.0325	0.5000	1.4700	2.5000	1.0000	930-002-910	930-002-876	930-002-844
0.0700	0.1250	0.0350	0.5000	1.4725	2.5000	1.0000	930-002-911	930-002-877	930-002-845
0.0750	0.1250	0.0375	0.5000	1.4750	2.5000	1.0000	930-002-912	930-002-878	930-002-846
0.0780	0.1250	0.0390	0.5000	1.4765	2.5000	1.0000	930-002-913	930-002-879	930-002-847
0.0800	0.1250	0.0400	0.7500	1.2275	2.5000	1.2500	930-002-914	930-002-880	930-002-848
0.0850	0.1250	0.0425	0.7500	1.2300	2.5000	1.2500	930-002-915	930-002-881	930-002-849
0.0900	0.1250	0.0450	0.7500	1.2325	2.5000	1.2500	930-002-916	930-002-882	930-002-850
0.0930	0.1250	0.0465	0.7500	1.2340	2.5000	1.2500	930-002-917	930-002-883	930-002-851
0.0950	0.1250	0.0475	0.7500	1.2350	2.5000	1.2500	930-002-918	930-002-884	930-002-852
0.1000	0.1250	0.0500	0.7500	1.2375	2.5000	1.2500	930-002-919	930-002-885	930-002-853
0.1250	0.1250	0.0625	1.0000	1.0000	2.5000	1.5000	930-002-920	930-002-886	931-000-337
0.1875	0.1875	0.0938	1.1250	1.3750	3.0000	1.6250	930-002-921	931-000-342	931-000-338
0.2500	0.2500	0.1250	1.5000	2.0000	4.0000	2.0000	930-002-922	931-000-343	931-000-339

Ø .031"- .125"

KEO

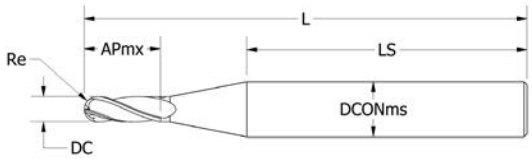


PG.493 MICRO

12X FLUTE LENGTH

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE	Amorphous Diamond 3 FLUTE
0.0310	0.1250	0.0155	0.3750	1.8832	2.5000	930-002-923	930-002-887	930-002-854
0.0470	0.1250	0.0235	0.5700	1.7294	2.5000	930-002-924	930-002-888	930-002-855
0.0620	0.1250	0.0310	0.7500	1.5879	2.5000	930-002-925	930-002-889	930-002-856
0.0780	0.1250	0.0390	0.9400	1.4391	2.5000	930-002-926	930-002-890	930-002-857
0.0930	0.1250	0.0465	1.1250	1.2927	2.5000	930-002-927	930-002-891	930-002-858
0.1250	0.1250	0.0625	1.5000	1.1250	3.0000	930-002-928	930-002-892	931-000-340

Ø .062"- .125"



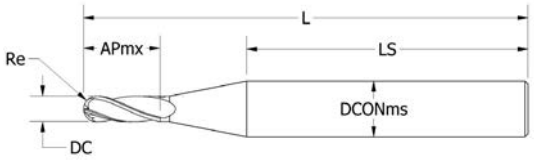
PG.493 MICRO

15X FLUTE LENGTH

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE	Amorphous Diamond 3 FLUTE
0.0620	0.1250	0.0310	0.9500	1.3879	2.5000	930-002-929	930-002-893	930-002-859
0.0780	0.1250	0.0390	1.1870	1.1921	2.5000	930-002-930	930-002-894	930-002-860
0.0930	0.1250	0.0465	1.4000	1.5177	3.0000	930-002-931	930-002-895	930-002-861
0.1250	0.1250	0.0625	1.8750	0.7500	3.0000	930-002-932	931-000-344	931-000-341

KEO®

Ø .015"-.093"



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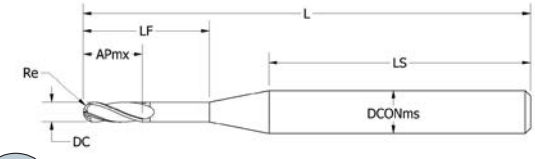
MICRO

STANDARD

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	CVD Coated 4 FLUTE
0.0150	0.1250	0.0075	0.0450	1.1720	1.5000	930-002-606
0.0200	0.1250	0.0100	0.0600	1.1699	1.5000	930-002-607
0.0310	0.1250	0.0155	0.0930	1.1652	1.5000	930-002-608
0.0470	0.1250	0.0235	0.1410	1.1584	1.5000	930-002-609
0.0620	0.1250	0.0310	0.1860	1.1519	1.5000	930-002-610
0.0930	0.1250	0.0465	0.2790	1.1387	1.5000	930-002-611

Ø .015"-.093"



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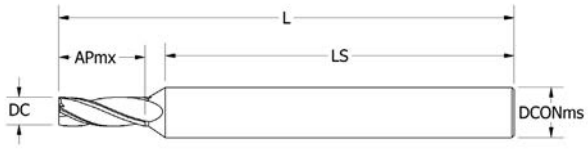
MICRO

5X FLUTE, 10X REACH

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	CVD Coated 4 FLUTE
0.0150	0.1250	0.0075	0.0750	2.2890	2.5000	0.1560	930-001-155
0.0310	0.1250	0.0155	0.1550	2.1410	2.5000	0.3120	930-001-156
0.0470	0.1250	0.0235	0.2350	1.9810	2.5000	0.4800	930-001-157
0.0620	0.1250	0.0310	0.3125	1.8435	2.5000	0.6250	930-001-158
0.0780	0.1250	0.0390	0.3900	1.6765	2.5000	0.8000	930-001-159
0.0930	0.1250	0.0465	0.4650	1.5340	2.5000	0.9500	930-001-160

Ø .0313"-.25"

KEO



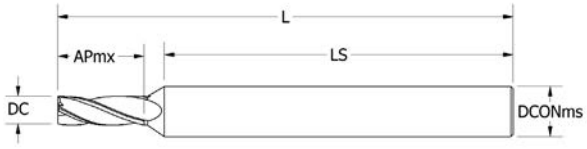
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated
					3 FLUTE	3 FLUTE
0.0313	0.2500	0.0938	1.8436	2.5000	930-002-667	930-004-390
0.0469	0.2500	0.1406	1.8369	2.5000	930-002-668	930-004-391
0.0625	0.2500	0.1875	1.8302	2.5000	930-002-669	930-004-392
0.0781	0.2500	0.1875	1.8704	2.5000	930-002-670	930-004-393
0.0938	0.2500	0.3750	1.7231	2.5000	930-002-671	930-004-394
0.1094	0.2500	0.4375	1.7008	2.5000	930-002-672	930-004-395
0.1250	0.2500	0.5000	1.6785	2.5000	930-002-673	930-004-396
0.1563	0.2500	0.5625	1.6963	2.5000	930-002-674	930-004-397
0.1875	0.2500	0.6250	1.7142	2.5000	930-002-675	930-004-398
0.2188	0.2500	0.6250	1.7946	2.5000	930-002-676	930-004-399
0.2500	0.2500	0.7500	1.3750	2.5000	930-002-677	930-004-400

KEO

Ø .0313"-.25"



PG.493

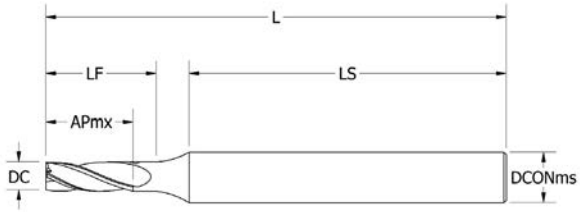
MICRO

STUB

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated
					3 FLUTE	3 FLUTE
0.0313	0.2500	0.0625	1.8748	2.5000	930-002-639	930-004-368
0.0469	0.2500	0.0938	1.8838	2.5000	930-002-641	930-004-369
0.0625	0.2500	0.1250	1.8927	2.5000	930-002-643	930-004-370
0.0781	0.2500	0.1250	1.9329	2.5000	930-002-645	930-004-371
0.0938	0.2500	0.1875	1.9106	2.5000	930-002-647	930-004-372
0.1094	0.2500	0.1875	1.9508	2.5000	930-002-649	930-004-373
0.1250	0.2500	0.2500	1.9285	2.5000	930-002-651	930-004-374
0.1563	0.2500	0.3750	1.8838	2.5000	930-002-653	930-004-375
0.1875	0.2500	0.3750	1.9642	2.5000	930-002-655	930-004-376
0.2188	0.2500	0.3750	2.0446	2.5000	930-002-657	930-004-377
0.2500	0.2500	0.5000	1.6250	2.5000	930-002-659	930-004-378

Ø .0313"-.25"

KEO



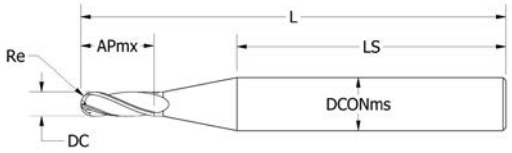
PG.493

MICRO

STUB, REACHED

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE
0.0313	0.2500	0.0625	2.2356	0.1550	2.5000	930-002-640	930-004-379
0.0469	0.2500	0.0938	2.1684	0.2300	2.5000	930-002-642	930-004-380
0.0625	0.2500	0.1250	2.0943	0.3120	2.5000	930-002-644	930-004-381
0.0781	0.2500	0.1563	2.0241	0.3900	2.5000	930-002-646	930-004-382
0.0938	0.2500	0.1875	1.9569	0.4650	2.5000	930-002-648	930-004-383
0.1094	0.2500	0.2188	1.8847	0.5450	2.5000	930-002-650	930-004-384
0.1250	0.2500	0.2500	1.8125	0.6250	2.5000	930-002-652	930-004-385
0.1563	0.2500	0.3750	1.6731	0.7800	2.5000	930-002-654	930-004-386
0.1875	0.2500	0.3750	1.5313	0.9375	2.5000	930-002-656	930-004-387
0.2188	0.2500	0.3750	1.3914	1.0930	2.5000	930-002-658	930-004-388
0.2500	0.2500	0.5000	1.2500	1.2500	2.5000	930-002-660	930-004-389

Ø .0313"-.25"



PG.493

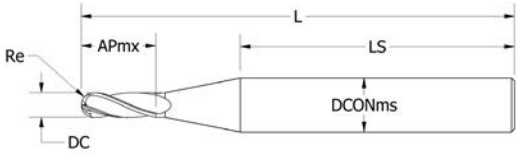
MICRO

BALL, STANDARD

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 3 FLUTE	AlTiN Coated 3 FLUTE
0.0313	0.0156	0.2500	0.0938	1.8436	2.5000	930-002-661	930-004-407
0.0625	0.0313	0.2500	0.1875	1.8302	2.5000	930-002-662	930-004-408
0.0938	0.0469	0.2500	0.3750	1.7231	2.5000	930-002-663	930-004-409
0.1250	0.0625	0.2500	0.5000	1.6785	2.5000	930-002-664	930-004-410
0.1875	0.0938	0.2500	0.6250	1.7142	2.5000	930-002-665	930-004-411
0.2500	0.1250	0.2500	0.7500	1.3750	2.5000	930-002-666	930-004-412

KEO®

Ø .0313"-.500"

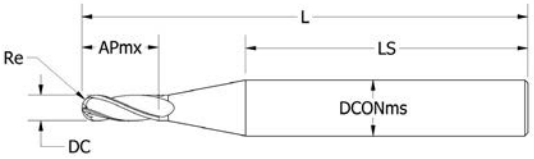


PG.493

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated		AlTiN Coated	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0313	0.1250	0.0156	0.0938	1.1651	1.5000	930-002-054	930-002-423	930-004-322	930-002-612
0.0469	0.1250	0.0234	0.1406	1.1584	1.5000	930-002-055	930-002-424	930-004-323	930-002-613
0.0625	0.1250	0.0313	0.1875	1.1517	1.5000	930-002-056	930-002-425	930-004-324	930-002-614
0.0781	0.1250	0.0391	0.1875	1.1919	1.5000	930-002-057	930-002-426	930-003-946	930-002-615
0.0938	0.1250	0.0469	0.3750	1.0446	1.5000	930-002-058	930-002-427	930-003-945	930-002-616
0.1094	0.1250	0.0547	0.4375	1.0223	1.5000	930-002-059	930-002-428	930-004-325	930-002-617
0.1250	0.1250	0.0625	0.5000	0.6250	1.5000	930-002-060	930-002-429	931-000-289	930-002-618
0.1406	0.1875	0.0703	0.5000	1.3794	2.0000	930-002-061	930-002-430	930-002-319	930-002-619
0.1563	0.1875	0.0781	0.5625	1.3571	2.0000	930-002-062	930-002-431	931-000-290	930-002-620
0.1719	0.1875	0.0859	0.6250	1.3348	2.0000	930-002-063	930-002-432	930-004-326	930-004-363
0.1875	0.1875	0.0938	0.6250	1.0000	2.0000	930-002-064	930-002-433	931-000-291	930-002-621
0.2031	0.2500	0.1016	0.6250	1.7544	2.5000	930-002-066	930-002-435	930-004-327	930-004-364
0.2188	0.2500	0.1094	0.6250	1.7946	2.5000	930-002-067	930-002-436	930-002-320	930-002-622
0.2344	0.2500	0.1172	0.6250	1.8348	2.5000	930-002-068	930-002-437	930-004-328	930-004-365
0.2500	0.2500	0.1250	0.7500	1.3750	2.5000	930-002-069	930-002-438	931-000-292	930-002-623
0.3125	0.3125	0.1563	0.8125	1.3125	2.5000	930-002-070	930-002-439	930-004-329	930-004-366
0.3750	0.3750	0.1875	1.0000	1.1250	2.5000	930-002-071	930-002-440	930-004-330	930-004-367
0.5000	0.5000	0.2500	1.0000	1.6250	3.0000	930-002-074	930-002-443	930-004-331	931-000-293

Ø .0313"-.500"

KEO



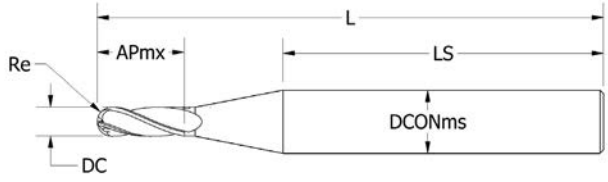
PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Amorphous Diamond	
						2 FLUTE	4 FLUTE
0.0313	0.1250	0.0156	0.0938	1.1651	1.5000	931-000-387	931-000-413
0.0469	0.1250	0.0234	0.1406	1.1584	1.5000	931-000-389	931-000-415
0.0625	0.1250	0.0313	0.1875	1.1517	1.5000	931-000-391	931-000-417
0.0781	0.1250	0.0391	0.1875	1.1919	1.5000	931-000-393	931-000-419
0.0938	0.1250	0.0469	0.3750	1.0446	1.5000	931-000-395	931-000-421
0.1094	0.1250	0.0547	0.4375	1.0223	1.5000	931-000-397	931-000-423
0.1250	0.1250	0.0625	0.5000	0.6250	1.5000	931-000-399	931-000-425
0.1406	0.1875	0.0703	0.5000	1.3794	2.0000	931-000-401	931-000-430
0.1563	0.1875	0.0781	0.5625	1.3571	2.0000	931-000-403	931-000-432
0.1875	0.1875	0.0938	0.6250	1.0000	2.0000	931-000-405	931-000-434
0.2500	0.2500	0.1250	0.7500	1.3750	2.5000	931-000-407	931-000-439
0.3750	0.3750	0.1875	1.0000	1.1250	2.5000	931-000-409	931-000-446
0.5000	0.5000	0.2500	1.0000	1.6250	3.0000	931-000-411	931-000-450

KEO®

Ø .0156"-.1250"



PG.493

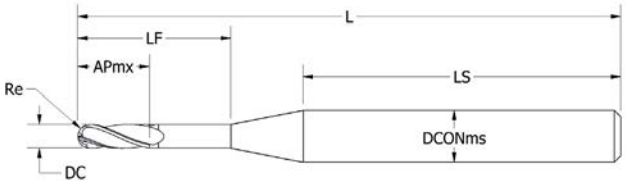
MICRO

G MILLS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated	Amorphous Diamond
						3 FLUTE	3 FLUTE	3 FLUTE
0.0156	0.1250	0.0078	0.0780	2.1407	2.5000	931-000-194	930-000-125	931-000-457
0.0313	0.1250	0.0156	0.1560	2.1028	2.5000	931-000-196	931-000-197	931-000-463
0.0469	0.1250	0.0234	0.2500	2.0490	2.5000	931-000-201	930-000-128	931-000-475
0.0625	0.1250	0.0313	0.5000	1.8392	2.5000	931-000-203	930-000-130	931-000-481
0.0781	0.1250	0.0391	0.5000	1.8794	2.5000	931-000-207	931-000-208	931-000-493
0.0938	0.1250	0.0469	0.7500	1.6696	2.5000	931-000-210	931-000-211	931-000-499
0.1250	0.1250	0.0625	1.0000	1.6250	3.0000	931-000-215	931-000-216	931-000-511

Ø .0313"-.0938"

KEO



PG.493

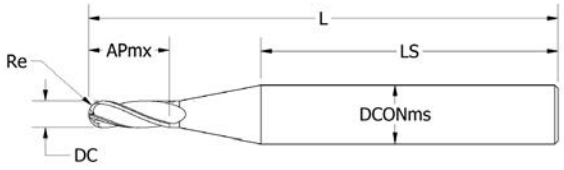
MICRO

STUB, LONG REACH

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated	Amorphous Diamond
							3 FLUTE	3 FLUTE
0.0313	0.1250	0.0156	0.0625	2.2031	2.5000	0.2500	931-000-199	931-000-465
0.0625	0.1250	0.0313	0.1250	1.9688	2.5000	0.5000	931-000-205	931-000-483
0.0938	0.1250	0.0469	0.1875	1.7344	2.5000	0.7500	931-000-213	931-000-501

KEO®

Ø .5 mm-12 mm

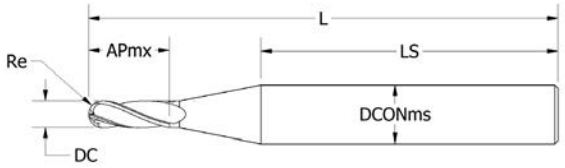


PG.493

DC [mm]	DCONMS [mm]	RE [mm]	APMX [mm]	LS [mm]	L [mm]	Uncoated	
						2 FLUTE	4 FLUTE
0.50	3.00	0.25	1.50	30.07	38.00	930-000-017	930-000-049
1.00	3.00	0.50	3.00	29.86	38.00	930-000-018	930-000-050
1.50	3.00	0.75	4.50	29.64	38.00	930-000-019	930-000-051
2.00	3.00	1.00	6.00	29.43	38.00	930-000-020	930-000-052
2.50	3.00	1.25	8.00	28.71	38.00	930-000-021	930-000-053
3.00	3.00	1.50	10.00	18.00	38.00	930-000-022	930-000-054
3.50	4.00	1.75	12.00	36.71	50.00	930-000-023	930-000-055
4.00	4.00	2.00	12.00	28.00	50.00	930-000-024	930-000-056
4.50	5.00	2.25	14.00	34.71	50.00	930-000-025	930-000-057
5.00	5.00	2.50	15.00	25.00	50.00	930-000-026	930-000-058
6.00	6.00	3.00	18.00	35.00	63.00	930-000-027	930-000-059
7.00	8.00	3.50	20.00	40.43	63.00	930-000-028	930-000-060
8.00	4.00	4.00	20.00	33.00	63.00	930-000-029	930-000-061
9.00	10.00	4.50	22.00	38.43	63.00	930-000-030	930-000-062
10.00	10.00	5.00	22.00	31.00	63.00	930-000-031	930-000-063
12.00	12.00	6.00	25.00	40.00	75.00	930-000-032	930-000-064

Ø .5 mm-12 mm

KEO



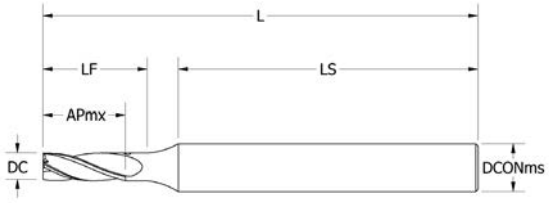
PG.493

MICRO

DC [mm]	DCONMS [mm]	RE [mm]	APMX [mm]	LS [mm]	L [mm]	AlTiN Coated	
						2 FLUTE	4 FLUTE
0.50	3.00	0.25	1.50	30.07	38.00	930-004-155	930-004-171
1.00	3.00	0.50	3.00	29.86	38.00	930-004-156	930-004-172
1.50	3.00	0.75	4.50	29.64	38.00	930-004-157	930-004-173
2.00	3.00	1.00	6.00	29.43	38.00	930-004-158	930-004-174
2.50	3.00	1.25	8.00	28.71	38.00	930-004-159	930-004-175
3.00	3.00	1.50	10.00	18.00	38.00	930-004-160	930-004-176
3.50	4.00	1.75	12.00	36.71	50.00	930-004-161	930-004-177
4.00	4.00	2.00	12.00	28.00	50.00	930-004-162	930-004-178
4.50	5.00	2.25	14.00	34.71	50.00	930-004-163	930-004-179
5.00	5.00	2.50	15.00	25.00	50.00	930-004-164	930-004-180
6.00	6.00	3.00	18.00	35.00	63.00	930-004-165	930-004-181
7.00	8.00	3.50	20.00	40.43	63.00	930-004-166	930-004-182
8.00	4.00	4.00	20.00	33.00	63.00	930-004-167	930-004-183
9.00	10.00	4.50	22.00	38.43	63.00	930-004-168	930-004-184
10.00	10.00	5.00	22.00	31.00	63.00	930-004-169	930-004-185
12.00	12.00	6.00	25.00	40.00	75.00	930-004-170	930-004-186

KEO®

Ø.005"-.1378"



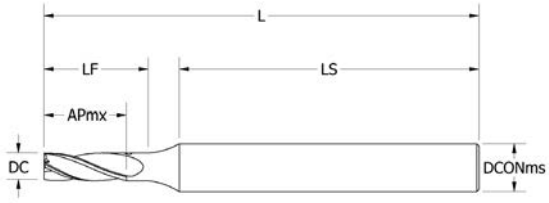
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated 2 FLUTE
0.0050	0.1250	0.0150	1.2815	1.5000	0.0160	934-000-109
0.0100	0.1250	0.0300	1.2705	1.5000	0.0310	934-000-110
0.0150	0.1250	0.0450	1.2595	1.5000	0.0475	934-000-111
0.0156	0.1250	0.0468	1.2582	1.5000	0.0493	934-000-138
0.0197	0.1250	0.0591	1.2493	1.5000	0.0621	934-000-141
0.0200	0.1250	0.0600	1.2486	1.5000	0.0630	934-000-112
0.0250	0.1250	0.0750	1.2379	1.5000	0.0780	934-000-113
0.0300	0.1250	0.0900	1.2273	1.5000	0.0930	934-000-114
0.0350	0.1875	0.1050	1.1683	1.5000	0.1100	934-000-115
0.0394	0.1875	0.1182	1.1581	1.5000	0.1232	934-000-142
0.0400	0.1875	0.1200	1.1567	1.5000	0.1250	934-000-116
0.0450	0.1875	0.1350	1.1451	1.5000	0.1400	934-000-117
0.0492	0.1875	0.1476	1.1354	1.5000	0.1526	934-000-143
0.0500	0.1875	0.1500	1.1336	1.5000	0.1550	934-000-118
0.0550	0.1875	0.1650	1.1222	1.5000	0.1700	934-000-119
0.0591	0.1875	0.1773	1.1129	1.5000	0.1823	934-000-144
0.0600	0.1875	0.1800	1.1108	1.5000	0.1850	934-000-120
0.0630	0.1875	0.1890	1.1041	1.5000	0.1940	934-000-145
0.0650	0.1875	0.1950	1.0996	1.5000	0.2000	934-000-121
0.0700	0.1875	0.2100	1.0885	1.5000	0.2150	934-000-122
0.0709	0.1875	0.2127	1.0865	1.5000	0.2177	934-000-146
0.0750	0.1875	0.2250	1.0775	1.5000	0.2300	934-000-123
0.0787	0.1875	0.2361	1.0694	1.5000	0.2411	934-000-147
0.0800	0.1875	0.2400	1.0665	1.5000	0.2450	934-000-124
0.0850	0.1875	0.2550	1.0558	1.5000	0.2600	934-000-125
0.0866	0.1875	0.2598	1.0523	1.5000	0.2648	934-000-148
0.0900	0.1875	0.2700	1.0451	1.5000	0.2750	934-000-126
0.0950	0.1875	0.2850	1.0346	1.5000	0.2900	934-000-127
0.0984	0.1875	0.2952	1.0275	1.5000	0.3002	934-000-149
0.1000	0.1875	0.3000	1.0242	1.5000	0.3050	934-000-128
0.1102	0.1875	0.3306	1.0036	1.5000	0.3356	934-000-150
0.1181	0.1875	0.3543	0.9882	1.5000	0.3593	934-000-151
0.1200	0.1875	0.3600	0.9845	1.5000	0.3650	934-000-129
0.1378	0.1875	0.4134	0.9524	1.5000	0.4184	934-000-152

Ø.005"-.1378"

KEO



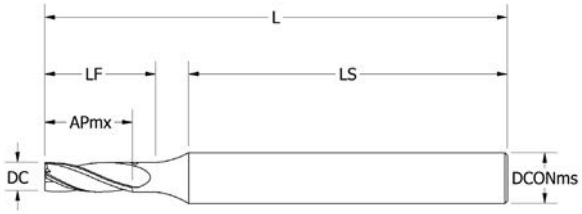
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	AlTiN Coated 2 FLUTE
0.0050	0.1250	0.0150	1.2815	1.5000	0.0160	934-000-431
0.0100	0.1250	0.0300	1.2705	1.5000	0.0310	934-000-432
0.0150	0.1250	0.0450	1.2595	1.5000	0.0475	934-000-433
0.0156	0.1250	0.0468	1.2582	1.5000	0.0493	934-000-473
0.0197	0.1250	0.0591	1.2493	1.5000	0.0621	934-000-435
0.0200	0.1250	0.0600	1.2486	1.5000	0.0630	934-000-436
0.0250	0.1250	0.0750	1.2379	1.5000	0.0780	934-000-437
0.0300	0.1250	0.0900	1.2273	1.5000	0.0930	934-000-438
0.0350	0.1875	0.1050	1.1683	1.5000	0.1100	934-000-439
0.0394	0.1875	0.1182	1.1581	1.5000	0.1232	934-000-440
0.0400	0.1875	0.1200	1.1567	1.5000	0.1250	934-000-441
0.0450	0.1875	0.1350	1.1451	1.5000	0.1400	934-000-442
0.0492	0.1875	0.1476	1.1354	1.5000	0.1526	934-000-443
0.0500	0.1875	0.1500	1.1336	1.5000	0.1550	934-000-444
0.0550	0.1875	0.1650	1.1222	1.5000	0.1700	934-000-445
0.0591	0.1875	0.1773	1.1129	1.5000	0.1823	934-000-446
0.0600	0.1875	0.1800	1.1108	1.5000	0.1850	934-000-447
0.0630	0.1875	0.1890	1.1041	1.5000	0.1940	934-000-448
0.0650	0.1875	0.1950	1.0996	1.5000	0.2000	934-000-449
0.0700	0.1875	0.2100	1.0885	1.5000	0.2150	934-000-450
0.0709	0.1875	0.2127	1.0865	1.5000	0.2177	934-000-451
0.0750	0.1875	0.2250	1.0775	1.5000	0.2300	934-000-452
0.0787	0.1875	0.2361	1.0694	1.5000	0.2411	934-000-453
0.0800	0.1875	0.2400	1.0665	1.5000	0.2450	934-000-454
0.0850	0.1875	0.2550	1.0558	1.5000	0.2600	934-000-455
0.0866	0.1875	0.2598	1.0523	1.5000	0.2648	934-000-456
0.0900	0.1875	0.2700	1.0451	1.5000	0.2750	934-000-457
0.0950	0.1875	0.2850	1.0346	1.5000	0.2900	934-000-458
0.0984	0.1875	0.2952	1.0275	1.5000	0.3002	934-000-459
0.1000	0.1875	0.3000	1.0242	1.5000	0.3050	934-000-460
0.1102	0.1875	0.3306	1.0036	1.5000	0.3356	934-000-461
0.1181	0.1875	0.3543	0.9882	1.5000	0.3593	934-000-462
0.1200	0.1875	0.3600	0.9845	1.5000	0.3650	934-000-463
0.1378	0.1875	0.4134	0.9524	1.5000	0.4184	934-000-464

KEO

Ø .0156"- .1875"



PG.493

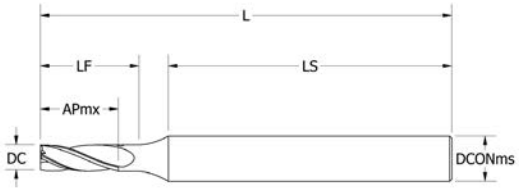
MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Zc	Uncoated	AlTiN Coated
0.0156	0.1250	0.0468	1.2582	1.5000	0.0493	2	934-000-153	934-000-434
0.0313	0.1875	0.0938	1.1771	1.5000	0.0988	2	934-000-130	934-000-465
0.0469	0.1875	0.1406	1.1408	1.5000	0.1456	2	934-000-131	934-000-466
0.0625	0.1875	0.1875	1.1052	1.5000	0.1925	2	934-000-132	934-000-467
0.0781	0.1875	0.2344	1.0706	1.5000	0.2394	2	934-000-133	934-000-468
0.0938	0.1875	0.2813	1.0372	1.5000	0.2863	2	934-000-134	934-000-469
0.1094	0.1875	0.3281	1.0052	1.5000	0.3331	2	934-000-135	934-000-470
0.1250	0.1875	0.3750	0.9751	1.5000	0.3800	2	934-000-136	934-000-471
0.1406	0.1875	0.4063	0.9633	1.5000	0.4113	2	934-000-137	934-000-472
0.1563	0.1875	0.4375	0.9554	1.5000	0.4425	2	934-000-138	934-000-473
0.1719	0.1875	0.5000	0.9239	1.5000	0.5050	2	934-000-139	934-000-474
0.1875	0.1875	0.5000	0.6250	1.5000	N/A	2	934-000-140	934-000-475
0.0313	0.1875	0.0938	1.1771	1.5000	0.0988	4	934-000-173	934-000-476
0.0469	0.1875	0.1406	1.1408	1.5000	0.1456	4	934-000-174	934-000-477
0.0625	0.1875	0.1875	1.1052	1.5000	0.1925	4	934-000-175	934-000-478
0.0781	0.1875	0.2344	1.0706	1.5000	0.2394	4	934-000-176	934-000-479
0.0938	0.1875	0.2813	1.0372	1.5000	0.2863	4	934-000-177	934-000-480
0.1094	0.1875	0.3281	1.0052	1.5000	0.3331	4	934-000-178	934-000-481
0.1250	0.1875	0.3750	0.9751	1.5000	0.3800	4	934-000-179	934-000-482
0.1406	0.1875	0.4063	0.9633	1.5000	0.4113	4	934-000-180	934-000-483
0.1563	0.1875	0.4375	0.9554	1.5000	0.4425	4	934-000-181	934-000-484
0.1719	0.1875	0.5000	0.9239	1.5000	0.5050	4	934-000-182	934-000-485
0.1875	0.1875	0.5000	0.6250	1.5000	N/A	4	934-000-183	934-000-486

Ø .005"- .1378"

KEO

HSS



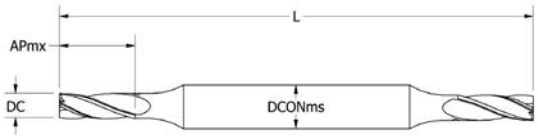
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated	AlTiN Coated
						2 FLUTE	2 FLUTE
0.0050	0.1250	0.0075	1.3300	1.5000	N/A	934-000-190	934-000-487
0.0100	0.1250	0.0150	1.2855	1.5000	0.0150	934-000-191	934-000-488
0.0150	0.1250	0.0225	1.2820	1.5000	0.0225	934-000-192	934-000-489
0.0156	0.1250	0.0234	1.2816	1.5000	0.0234	934-000-223	934-000-490
0.0197	0.1250	0.0296	1.2788	1.5000	0.0296	934-000-211	934-000-491
0.0200	0.1250	0.0300	1.2786	1.5000	0.0300	934-000-193	934-000-492
0.0250	0.1250	0.0375	1.2754	1.5000	0.0375	934-000-194	934-000-493
0.0300	0.1250	0.0450	1.2723	1.5000	0.0450	934-000-195	934-000-494
0.0350	0.1875	0.0525	1.2208	1.5000	0.0525	934-000-196	934-000-495
0.0394	0.1875	0.0591	1.2172	1.5000	0.0591	934-000-212	934-000-496
0.0400	0.1875	0.0600	1.2167	1.5000	0.0600	934-000-197	934-000-497
0.0450	0.1875	0.0675	1.2126	1.5000	0.0675	934-000-198	934-000-498
0.0492	0.1875	0.0738	1.2092	1.5000	0.0738	934-000-213	934-000-499
0.0500	0.1875	0.0750	1.2086	1.5000	0.0750	934-000-199	934-000-500
0.0550	0.1875	0.0825	1.2047	1.5000	0.0825	934-000-200	934-000-501
0.0591	0.1875	0.0887	1.2015	1.5000	0.0887	934-000-214	934-000-502
0.0600	0.1875	0.0900	1.2008	1.5000	0.0900	934-000-201	934-000-503
0.0630	0.1875	0.0945	1.1986	1.5000	0.0945	934-000-215	934-000-504
0.0650	0.1875	0.0975	1.1971	1.5000	0.0975	934-000-202	934-000-505
0.0700	0.1875	0.1050	1.1935	1.5000	0.1050	934-000-203	934-000-506
0.0709	0.1875	0.1064	1.1928	1.5000	0.1064	934-000-216	934-000-507
0.0750	0.1875	0.1125	1.1900	1.5000	0.1125	934-000-204	934-000-508
0.0787	0.1875	0.1181	1.1874	1.5000	0.1181	934-000-217	934-000-509
0.0800	0.1875	0.1200	1.1865	1.5000	0.1200	934-000-205	934-000-510
0.0850	0.1875	0.1275	1.1833	1.5000	0.1275	934-000-206	934-000-511
0.0866	0.1875	0.1299	1.1822	1.5000	0.1299	934-000-218	934-000-512
0.0900	0.1875	0.1350	1.1801	1.5000	0.1350	934-000-207	934-000-513
0.0950	0.1875	0.1425	1.1771	1.5000	0.1425	934-000-208	934-000-514
0.0984	0.1875	0.1476	1.1751	1.5000	0.1476	934-000-219	934-000-515
0.1000	0.1875	0.1500	1.1742	1.5000	0.1500	934-000-209	934-000-516
0.1102	0.1875	0.1653	1.1689	1.5000	0.1653	934-000-220	934-000-517
0.1181	0.1875	0.1772	1.1653	1.5000	0.1772	934-000-221	934-000-518
0.1200	0.1875	0.1800	1.1645	1.5000	0.1800	934-000-210	934-000-519
0.1378	0.1875	0.2067	1.1591	1.5000	0.2067	934-000-222	934-000-520

KEO

Ø .0313"- .1875"



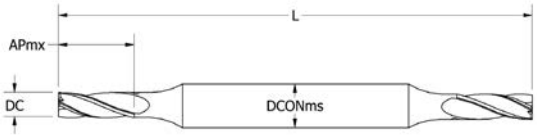
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated	AlTiN Coated
					2 FLUTE	2 FLUTE
0.0313	0.1875	0.0938	1.1250	2.2500	934-000-001	934-000-322
0.0469	0.1875	0.1406	1.1250	2.2500	934-000-002	934-000-323
0.0625	0.1875	0.1875	1.1250	2.2500	934-000-003	934-000-324
0.0781	0.1875	0.2344	1.1250	2.2500	934-000-004	934-000-325
0.0938	0.1875	0.2813	1.1250	2.2500	934-000-005	934-000-326
0.1094	0.1875	0.3281	1.1250	2.2500	934-000-006	934-000-327
0.1250	0.1875	0.3750	1.1250	2.2500	934-000-007	934-000-328
0.1406	0.1875	0.4063	1.1250	2.2500	934-000-008	934-000-329
0.1563	0.1875	0.4375	1.1250	2.2500	934-000-009	934-000-331
0.1719	0.1875	0.5025	1.1250	2.2500	934-000-010	934-000-332
0.1875	0.1875	0.5000	1.2500	2.2500	934-000-011	934-000-333

Ø .0313"- .1875"

KEO



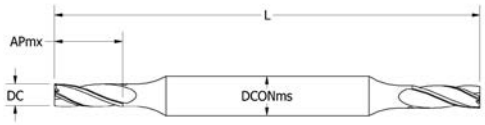
PG.493

MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0313	0.1875	0.0938	1.1250	2.2500	934-000-055	934-000-377
0.0469	0.1875	0.1406	1.1250	2.2500	934-000-056	934-000-378
0.0625	0.1875	0.1875	1.1250	2.2500	934-000-057	934-000-379
0.0781	0.1875	0.2344	1.1250	2.2500	934-000-058	934-000-380
0.0938	0.1875	0.2813	1.1250	2.2500	934-000-059	934-000-381
0.1094	0.1875	0.3281	1.1250	2.2500	934-000-060	934-000-382
0.1250	0.1875	0.3750	1.1250	2.2500	934-000-061	934-000-383
0.1406	0.1875	0.4063	1.1250	2.2500	934-000-062	934-000-384
0.1563	0.1875	0.4375	1.1250	2.2500	934-000-063	934-000-385
0.1719	0.1875	0.5000	1.1250	2.2500	934-000-064	934-000-386
0.1875	0.1875	0.5000	1.1250	2.2500	934-000-065	934-000-387

KEO

Ø .0313"- .1875"

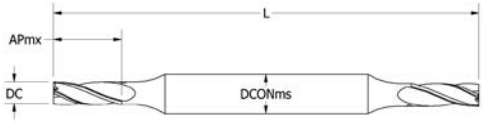


PG.493

MICRO

2

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0313	0.1875	0.0469	1.0000	2.0000	934-000-023	934-000-345
0.0469	0.1875	0.0625	1.0000	2.0000	934-000-024	934-000-346
0.0625	0.1875	0.0938	1.0000	2.0000	934-000-025	934-000-347
0.0781	0.1875	0.1250	1.0000	2.0000	934-000-026	934-000-348
0.0938	0.1875	0.1406	1.0000	2.0000	934-000-027	934-000-349
0.1094	0.1875	0.1563	1.0000	2.0000	934-000-028	934-000-350
0.1250	0.1875	0.1875	1.0000	2.0000	934-000-029	934-000-351
0.1406	0.1875	0.2188	1.0000	2.0000	934-000-030	934-000-352
0.1563	0.1875	0.2344	1.0000	2.0000	934-000-031	934-000-353
0.1719	0.1875	0.2500	1.0000	2.0000	934-000-032	934-000-354
0.1875	0.1875	0.2813	1.0000	2.0000	934-000-033	934-000-355



PG.493

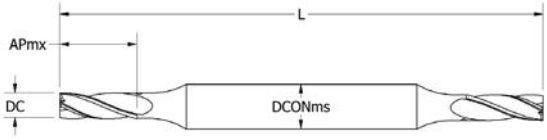
MICRO

4

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0313	0.1875	0.0469	1.0000	2.0000	934-000-077	934-000-399
0.0469	0.1875	0.0625	1.0000	2.0000	934-000-078	934-000-400
0.0625	0.1875	0.0938	1.0000	2.0000	934-000-079	934-000-401
0.0781	0.1875	0.1250	1.0000	2.0000	934-000-080	934-000-402
0.0938	0.1875	0.1406	1.0000	2.0000	934-000-081	934-000-403
0.1094	0.1875	0.1563	1.0000	2.0000	934-000-082	934-000-404
0.1250	0.1875	0.1875	1.0000	2.0000	934-000-083	934-000-405
0.1406	0.1875	0.2188	1.0000	2.0000	934-000-084	934-000-406
0.1563	0.1875	0.2344	1.0000	2.0000	934-000-085	934-000-407
0.1719	0.1875	0.2500	1.0000	2.0000	934-000-086	934-000-408
0.1875	0.1875	0.2813	1.0000	2.0000	934-000-087	934-000-409

Ø .0625"-.1875"

KEO

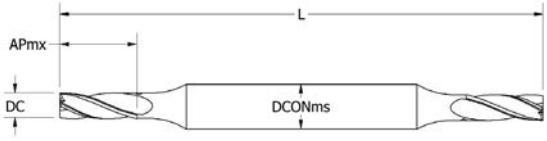


PG.493

MICRO

2

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0625	0.1875	0.2188	1.2500	2.5000	934-000-045	934-000-367
0.0938	0.1875	0.2813	1.3125	2.6250	934-000-046	934-000-368
0.1250	0.1875	0.7500	1.5625	3.1250	934-000-047	934-000-369
0.1563	0.1875	0.8750	1.6250	3.2500	934-000-048	934-000-370
0.1875	0.1875	1.0000	1.6875	3.3750	934-000-049	934-000-371



PG.493

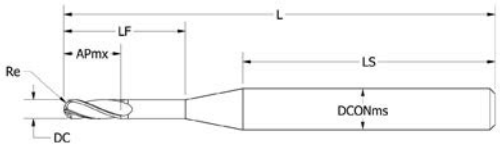
MICRO

4

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0625	0.1875	0.2188	1.2500	2.5000	934-000-099	934-000-421
0.0938	0.1875	0.2813	1.3125	2.6250	934-000-100	934-000-422
0.1250	0.1875	0.7500	1.5625	3.1250	934-000-101	934-000-423
0.1563	0.1875	0.8750	1.6250	3.2500	934-000-102	934-000-424
0.1875	0.1875	1.0000	1.6875	3.3750	934-000-103	934-000-425

KEO

Ø .005"- .1378"



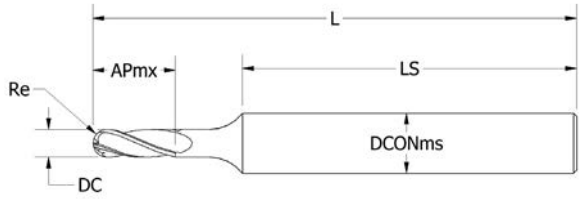
PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	LF [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0050	0.0025	0.1250	0.0150	1.3225	0.0160	1.5000	934-000-258	934-000-555
0.0100	0.0050	0.1250	0.0300	1.2705	0.0310	1.5000	934-000-259	934-000-556
0.0150	0.0075	0.1250	0.0450	1.2595	0.0475	1.5000	934-000-260	934-000-557
0.0156	0.0078	0.1250	0.0468	1.2582	0.0493	1.5000	934-000-302	934-000-558
0.0197	0.0099	0.1250	0.0591	1.2493	0.0621	1.5000	934-000-290	934-000-559
0.0200	0.0100	0.1250	0.0600	1.2486	0.0630	1.5000	934-000-261	934-000-560
0.0250	0.0125	0.1250	0.0750	1.2379	0.0780	1.5000	934-000-262	934-000-561
0.0300	0.0150	0.1250	0.0900	1.2273	0.0930	1.5000	934-000-263	934-000-562
0.0350	0.0175	0.1875	0.1050	1.1683	0.1100	1.5000	934-000-264	934-000-563
0.0394	0.0197	0.1875	0.1182	1.1581	0.1232	1.5000	934-000-291	934-000-564
0.0400	0.0200	0.1875	0.1200	1.1567	0.1250	1.5000	934-000-265	934-000-565
0.0450	0.0225	0.1875	0.1350	1.1451	0.1400	1.5000	934-000-266	934-000-566
0.0492	0.0246	0.1875	0.1476	1.1354	0.1526	1.5000	934-000-292	934-000-567
0.0500	0.0250	0.1875	0.1500	1.1336	0.1550	1.5000	934-000-267	934-000-568
0.0550	0.0275	0.1875	0.1650	1.1222	0.1700	1.5000	934-000-268	934-000-569
0.0591	0.0296	0.1875	0.1773	1.1129	0.1823	1.5000	934-000-293	934-000-570
0.0600	0.0300	0.1875	0.1800	1.1108	0.1850	1.5000	934-000-269	934-000-571
0.0630	0.0315	0.1875	0.1890	1.1041	0.1940	1.5000	934-000-294	934-000-572
0.0650	0.0325	0.1875	0.1950	1.0996	0.2000	1.5000	934-000-270	934-000-573
0.0700	0.0350	0.1875	0.2100	1.0885	0.2150	1.5000	934-000-271	934-000-574
0.0709	0.0355	0.1875	0.2127	1.0865	0.2177	1.5000	934-000-295	934-000-575
0.0750	0.0375	0.1875	0.2250	1.0775	0.2300	1.5000	934-000-272	934-000-576
0.0787	0.0394	0.1875	0.2361	1.0694	0.2411	1.5000	934-000-296	934-000-577
0.0800	0.0400	0.1875	0.2400	1.0665	0.2450	1.5000	934-000-273	934-000-578
0.0850	0.0425	0.1875	0.2550	1.0558	0.2600	1.5000	934-000-274	934-000-579
0.0866	0.0433	0.1875	0.2598	1.0523	0.2648	1.5000	934-000-297	934-000-580
0.0900	0.0450	0.1875	0.2700	1.0451	0.2750	1.5000	934-000-275	934-000-581
0.0950	0.0475	0.1875	0.2850	1.0346	0.2900	1.5000	934-000-276	934-000-582
0.0984	0.0492	0.1875	0.2952	1.0275	0.3002	1.5000	934-000-298	934-000-583
0.1000	0.0500	0.1875	0.3000	1.0242	0.3050	1.5000	934-000-277	934-000-584
0.1102	0.0551	0.1875	0.3306	1.0036	0.3356	1.5000	934-000-299	934-000-585
0.1181	0.0591	0.1875	0.3543	0.9882	0.3593	1.5000	934-000-300	934-000-586
0.1200	0.0600	0.1875	0.3600	0.9845	0.3650	1.5000	934-000-278	934-000-587
0.1378	0.0689	0.1875	0.4134	0.9524	0.4184	1.5000	934-000-301	934-000-588

Ø .0313"- .1875"

KEO



PG.493

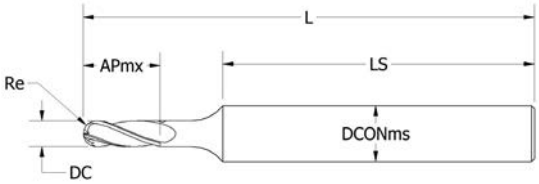
MICRO

1.50 Length

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	LF [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0313	0.1875	0.0156	0.0938	1.1771	0.0988	1.5000	934-000-279	934-000-589
0.0469	0.1875	0.0234	0.1406	1.1408	0.1456	1.5000	934-000-280	934-000-590
0.0625	0.1875	0.0313	0.1875	1.1052	0.1925	1.5000	934-000-281	934-000-591
0.0781	0.1875	0.0391	0.2344	1.0706	0.2394	1.5000	934-000-282	934-000-592
0.0938	0.1875	0.0469	0.2188	1.0997	0.2238	1.5000	934-000-283	934-000-593
0.1094	0.1875	0.0547	0.3281	1.0052	0.3331	1.5000	934-000-284	934-000-594
0.1250	0.1875	0.0625	0.3750	0.6001	0.3800	1.5000	934-000-285	934-000-595
0.1406	0.1875	0.0703	0.4063	0.9633	0.4113	1.5000	934-000-286	934-000-596
0.1563	0.1875	0.0781	0.4375	0.9554	0.4425	1.5000	934-000-287	934-000-597
0.1719	0.1875	0.0859	0.5000	0.9239	0.5050	1.5000	934-000-288	934-000-598
0.1875	0.1875	0.0938	0.5000	0.6250	N/A	1.5000	934-000-289	934-000-599

KEO

Ø .005"- .1378"



HSS

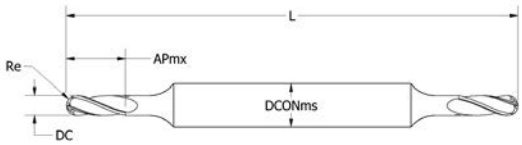
PG.493

MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0050	0.1250	0.0025	0.0075	1.3300	1.5000	N/A	934-000-224	934-000-521
0.0100	0.1250	0.0050	0.0150	1.2855	1.5000	0.0150	934-000-225	934-000-522
0.0150	0.1250	0.0075	0.0225	1.2820	1.5000	0.0225	934-000-226	934-000-523
0.0156	0.1250	0.0078	0.0234	1.2816	1.5000	0.0234	934-000-257	934-000-524
0.0197	0.1875	0.0099	0.0296	1.2340	1.5000	0.0296	934-000-245	934-000-525
0.0200	0.1250	0.0100	0.0300	1.2786	1.5000	0.0300	934-000-227	934-000-526
0.0250	0.1250	0.0125	0.0375	1.2754	1.5000	0.0375	934-000-228	934-000-527
0.0300	0.1250	0.0150	0.0450	1.2723	1.5000	0.0450	934-000-229	934-000-528
0.0350	0.1875	0.0175	0.0525	1.2208	1.5000	0.0525	934-000-230	934-000-529
0.0394	0.1875	0.0197	0.0591	1.2172	1.5000	0.0591	934-000-246	934-000-530
0.0400	0.1875	0.0200	0.0600	1.2167	1.5000	0.0600	934-000-231	934-000-531
0.0450	0.1875	0.0225	0.0675	1.2126	1.5000	0.0675	934-000-232	934-000-532
0.0492	0.1875	0.0246	0.0738	1.2092	1.5000	0.0738	934-000-247	934-000-533
0.0500	0.1875	0.0250	0.0750	1.2086	1.5000	0.0750	934-000-233	934-000-534
0.0550	0.1875	0.0275	0.0825	1.2047	1.5000	0.0825	934-000-234	934-000-535
0.0591	0.1875	0.0296	0.0887	1.2015	1.5000	0.0887	934-000-248	934-000-536
0.0600	0.1875	0.0300	0.0900	1.2008	1.5000	0.0900	934-000-235	934-000-537
0.0630	0.1875	0.0315	0.0945	1.1986	1.5000	0.0945	934-000-249	934-000-538
0.0650	0.1875	0.0325	0.0975	1.1971	1.5000	0.0975	934-000-236	934-000-539
0.0700	0.1875	0.0350	0.1050	1.1935	1.5000	0.1050	934-000-237	934-000-540
0.0709	0.1875	0.0355	0.1064	1.1928	1.5000	0.1064	934-000-250	934-000-541
0.0750	0.1875	0.0375	0.1125	1.1900	1.5000	0.1125	934-000-238	934-000-542
0.0787	0.1875	0.0394	0.1181	1.1874	1.5000	0.1181	934-000-251	934-000-543
0.0800	0.1875	0.0400	0.1200	1.1865	1.5000	0.1200	934-000-239	934-000-544
0.0850	0.1875	0.0425	0.1275	1.1833	1.5000	0.1275	934-000-240	934-000-545
0.0866	0.1875	0.0433	0.1299	1.1822	1.5000	0.1299	934-000-252	934-000-546
0.0900	0.1875	0.0450	0.1350	1.1801	1.5000	0.1350	934-000-241	934-000-547
0.0950	0.1875	0.0475	0.1425	1.1771	1.5000	0.1425	934-000-242	934-000-548
0.0984	0.1875	0.0492	0.1476	1.1751	1.5000	0.1476	934-000-253	934-000-549
0.1000	0.1875	0.0500	0.1500	1.1742	1.5000	0.1500	934-000-243	934-000-550
0.1102	0.1875	0.0551	0.1653	1.1689	1.5000	0.1653	934-000-254	934-000-551
0.1181	0.1875	0.0591	0.1772	1.1653	1.5000	0.1772	934-000-255	934-000-552
0.1200	0.1875	0.0600	0.1800	1.1645	1.5000	0.1800	934-000-244	934-000-553
0.1378	0.1875	0.0689	0.2067	1.1591	1.5000	0.2067	934-000-256	934-000-554

Ø .0313"-.1875"

KEO



PG.493

MICRO

2

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0313	0.1875	0.0156	0.0938	1.1250	2.2500	934-000-012	934-000-334
0.0469	0.1875	0.0234	0.1406	1.1250	2.2500	934-000-013	934-000-335
0.0625	0.1875	0.0313	0.1875	1.1250	2.2500	934-000-014	934-000-336
0.0781	0.1875	0.0391	0.2344	1.1250	2.2500	934-000-015	934-000-337
0.0938	0.1875	0.0469	0.2813	1.1250	2.2500	934-000-016	934-000-338
0.1094	0.1875	0.0547	0.3281	1.1250	2.2500	934-000-017	934-000-339
0.1250	0.1875	0.0625	0.3750	1.1250	2.2500	934-000-018	934-000-340
0.1406	0.1875	0.0703	0.4063	1.1250	2.2500	934-000-019	934-000-341
0.1563	0.1875	0.0781	0.4375	1.1250	2.2500	934-000-020	934-000-342
0.1719	0.1875	0.0859	0.5000	1.1250	2.2500	934-000-021	934-000-343
0.1875*	0.1875	0.0938	0.5000	1.1250	2.2500	934-000-022	934-000-344

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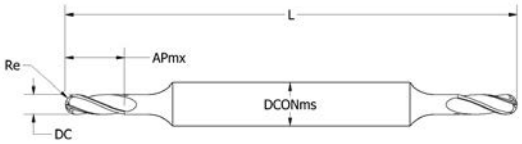


PG.493

MICRO

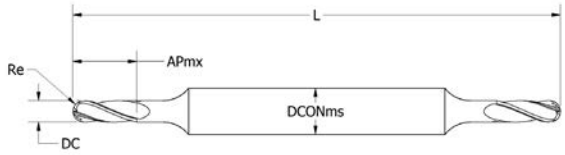
4

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0313	0.1875	0.0156	0.0938	1.1250	2.2500	934-000-066	934-000-388
0.0469	0.1875	0.0234	0.1406	1.1250	2.2500	934-000-067	934-000-389
0.0625	0.1875	0.0313	0.1875	1.1250	2.2500	934-000-068	934-000-390
0.0781	0.1875	0.0391	0.2344	1.1250	2.2500	934-000-069	934-000-391
0.0938	0.1875	0.0469	0.2188	1.1250	2.2500	934-000-070	934-000-392
0.1094	0.1875	0.0547	0.3281	1.1250	2.2500	934-000-071	934-000-393
0.1250	0.1875	0.0625	0.3750	1.1250	2.2500	934-000-072	934-000-394
0.1406	0.1875	0.0703	0.4063	1.1250	2.2500	934-000-073	934-000-395
0.1563	0.1875	0.0781	0.4375	1.1250	2.2500	934-000-074	934-000-396
0.1719	0.1875	0.0859	0.5000	1.1250	2.2500	934-000-075	934-000-397
0.1875*	0.1875	0.0938	0.5000	1.1250	2.2500	934-000-076	934-000-398

3/16": +000/.0025

KEO

Ø .0313"- .1875"



PG.493

MICRO

2

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0313	0.1875	0.0156	0.0469	1.0000	2.0000	934-000-034	934-000-356
0.0469	0.1875	0.0234	0.0625	1.0000	2.0000	934-000-035	934-000-357
0.0625	0.1875	0.0313	0.0938	1.0000	2.0000	934-000-036	934-000-358
0.0781	0.1875	0.0391	0.1250	1.0000	2.0000	934-000-037	934-000-359
0.0938	0.1875	0.0469	0.1406	1.0000	2.0000	934-000-038	934-000-360
0.1094	0.1875	0.0547	0.1563	1.0000	2.0000	934-000-039	934-000-361
0.1250	0.1875	0.0625	0.1875	1.0000	2.0000	934-000-040	934-000-362
0.1406	0.1875	0.0703	0.2188	1.0000	2.0000	934-000-041	934-000-363
0.1563	0.1875	0.0781	0.2344	1.0000	2.0000	934-000-042	934-000-364
0.1719	0.1875	0.0859	0.2500	1.0000	2.0000	934-000-043	934-000-365
0.1875*	0.1875	0.0938	0.2813	1.0000	2.0000	934-000-044	934-000-366

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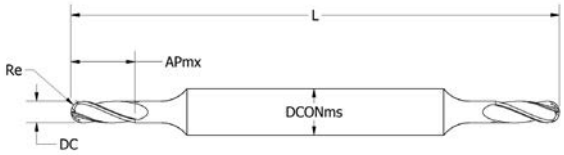


PG.493

MICRO

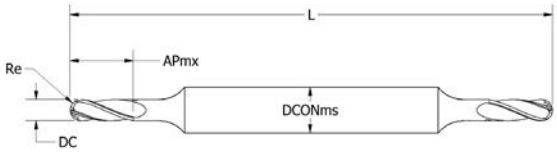
4

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0313	0.1875	0.0156	0.0469	1.0000	2.0000	934-000-088	934-000-410
0.0469	0.1875	0.0234	0.0625	1.0000	2.0000	934-000-089	934-000-411
0.0625	0.1875	0.0313	0.0938	1.0000	2.0000	934-000-090	934-000-412
0.0781	0.1875	0.0391	0.1250	1.0000	2.0000	934-000-091	934-000-413
0.0938	0.1875	0.0469	0.1406	1.0000	2.0000	934-000-092	934-000-414
0.1094	0.1875	0.0547	0.1563	1.0000	2.0000	934-000-093	934-000-415
0.1250	0.1875	0.0625	0.1875	1.0000	2.0000	934-000-094	934-000-416
0.1406	0.1875	0.0703	0.2188	1.0000	2.0000	934-000-095	934-000-417
0.1563	0.1875	0.0781	0.2344	1.0000	2.0000	934-000-096	934-000-418
0.1719	0.1875	0.0859	0.2500	1.0000	2.0000	934-000-097	934-000-419
0.1875*	0.1875	0.0938	0.2813	1.0000	2.0000	934-000-098	934-000-420

3/16": +000/.0025

Ø .0625"-.1875"

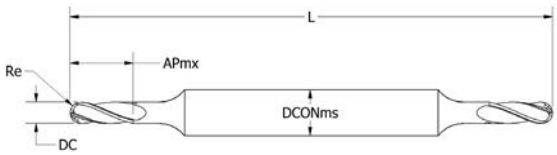
KEO



PG.493 MICRO

COBALT

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0625	0.1875	0.0313	0.2188	1.2500	2.5000	934-000-050	934-000-372
0.0938	0.1875	0.0469	0.2813	1.3125	2.6250	934-000-051	934-000-373
0.1250	0.1875	0.0625	0.7500	1.5625	3.1250	934-000-052	934-000-374
0.1563	0.1875	0.0781	0.8750	1.6250	3.2500	934-000-053	934-000-375
0.1875	0.1875	0.0938	1.0000	1.6875	3.3750	934-000-054	934-000-376

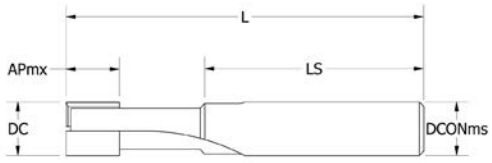


PG.493 MICRO

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0625	0.1875	0.0313	0.2188	1.2500	2.5000	934-000-104	934-000-426
0.0938	0.1875	0.0469	0.2813	1.3125	2.6250	934-000-105	934-000-427
0.1250	0.1875	0.0625	0.7500	1.5625	3.1250	934-000-106	934-000-428
0.1563	0.1875	0.0781	0.8750	1.6250	3.2500	934-000-107	934-000-429
0.1875	0.1875	0.0938	1.0000	1.6875	3.3750	934-000-108	934-000-430

KEO

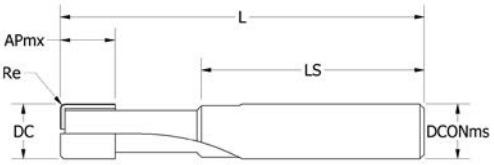
Ø.0938"- 0.75"



PG.493 MICRO

DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PCD Brazed	
					1 FLUTE	2 FLUTE
0.0938	0.1250	0.1875	1.1250	1.5000	935-000-001	N/A
0.1250	0.1250	0.2500	1.0000	1.5000	935-000-002	N/A
0.1875	0.1875	0.2500	1.3750	2.0000	N/A	935-000-003
0.2500	0.2500	0.2500	1.7500	2.5000	N/A	935-000-004
0.3750	0.3750	0.2500	1.5625	2.5000	N/A	935-000-005
0.5000	0.5000	0.0250	2.0000	3.0000	N/A	935-000-006
0.6250	0.6250	0.3750	2.5000	3.5000	N/A	935-000-007
0.7500	0.7500	0.3750	2.8750	4.0000	N/A	935-000-008

Ø .0938"-.50"



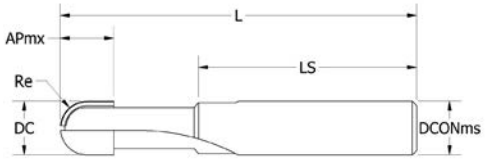
PG.493 MICRO

CORNER RADIUS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PCD Brazed	
						1 FLUTE	2 FLUTE
0.0938	0.1250	0.0100	0.1875	1.1250	1.5000	935-000-009	N/A
0.1250	0.1250	0.0150	0.2500	1.0000	1.5000	935-000-010	N/A
0.1875	0.1875	0.0150	0.2500	1.3750	2.0000	N/A	935-000-011
0.2500	0.2500	0.0300	0.2500	1.7500	2.5000	N/A	935-000-012
0.3750	0.3750	0.0300	0.2500	1.5625	2.5000	N/A	935-000-013
0.5000	0.5000	0.0300	0.2500	2.0000	3.0000	N/A	935-000-014

Ø .0938"-.50"

KEO



PG.493

MICRO

BALL END

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PCD Brazed	
						1 FLUTE	2 FLUTE
0.0938	0.1250	0.0469	0.1875	1.1250	1.5000	935-000-015	N/A
0.1250	0.1250	0.0625	0.2500	1.0000	1.5000	935-000-016	N/A
0.1875	0.1875	0.0938	0.2500	1.3750	2.0000	N/A	935-000-017
0.2500	0.2500	0.1250	0.3125	1.7500	2.5000	N/A	935-000-018
0.3750	0.3750	0.1875	0.4375	1.5625	2.5000	N/A	935-000-019
0.5000	0.5000	0.2500	0.5000	2.0000	3.0000	N/A	935-000-020

INDEXABLE DRILLS

ARCH®
Cutting Tools

PATRIOT HP®

970 PD1 Indexable Drill

The Patriot HP® 970 PD1 Indexable Drill is the first choice for indexable drilling in all ISO class materials, however, it also excels in high-performance facing, boring, and entering slanted workpieces. The PD1 is available in diameters from 0.5625” (15mm) to 2.125” (54mm), and can be paired with our proprietary Patriot HP 914 Positive Geometry, Single-Sided Insert with 4 Cutting Edges and Directed Coolant Thru for longer tool life and increased chip evacuation.

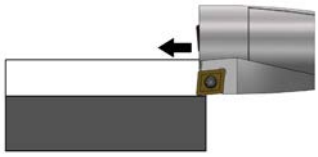
Application Area

- Facing
- Boring
- OD turning
- ID turning
- Most industry segments that focus on hole quality:
  - General engineering
  - Die and mold
  - Automotive
  - Aerospace and defense

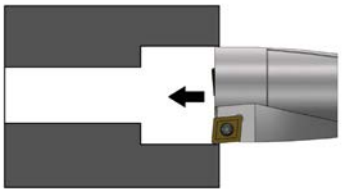
Specifications

Diameter	0.5625” to 2.125”
Length of diameter	2xD, 3xD, 4xD
Size	Standard & Metric

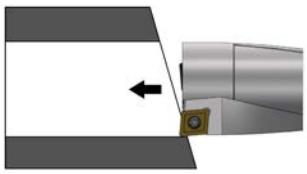
P M K N H S



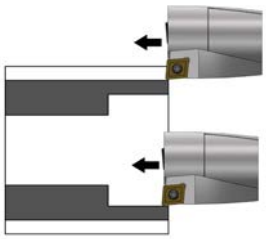
Half Cylindrical



Pre-Drilling



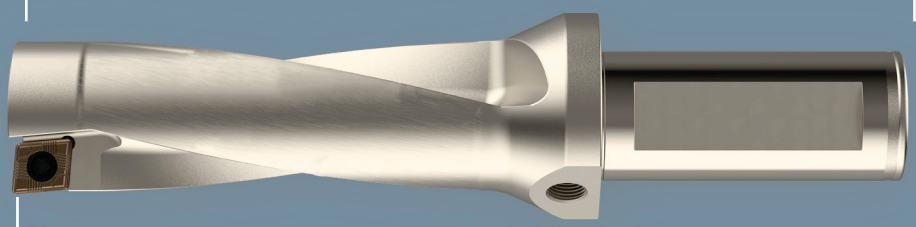
Slanted Surface



ID & OD Boring

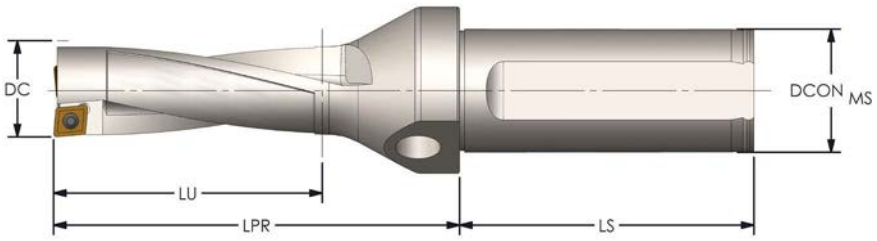
Radial offset capability to adjust diameter size in non-rotating applications

High quality steel body for rigidity and wear resistance



Economical 4-edge insert design provides excellent chip formation

PATRIOT HP®



PG.496

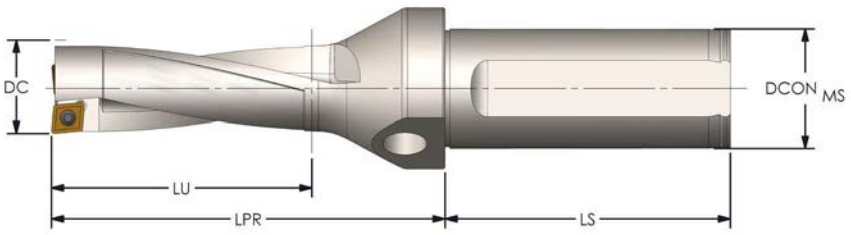
2xD

Product #	Designation	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Insert Screw	Wrench
970-000-034	PD1-0562-2D-075	0.562	0.750	1.900	2.042	1.242	PD1 042004	PD1-16	T-6-S
970-000-038	PD1-0625-2D-075	0.625	0.750	1.900	2.168	1.368	PD1 052804	PD1-2	
970-000-042	PD1-0687-2D-075	0.687	0.750	1.900	2.292	1.492			
970-000-047	PD1-0750-2D-100	0.750	1.000	2.400	2.561	1.618	PD1 063306	PD1-22	T-7-S
970-000-051	PD1-0812-2D-100	0.812	1.000	2.400	2.686	1.743			
970-000-055	PD1-0875-2D-100	0.875	1.000	2.400	2.811	1.868			
970-000-058	PD1-0937-2D-125	0.937	1.250	2.900	2.936	1.993	PD1 074006	PD1-25	
970-000-062	PD1-1000-2D-125	1.000	1.250	2.900	3.061	2.118			
970-000-066	PD1-1125-2D-125	1.125	1.250	2.900	3.311	2.368			
970-000-070	PD1-1250-2D-125	1.250	1.250	2.900	3.600	2.657	PD1 094508	PD1-35	T-15-S
970-000-074	PD1-1375-2D-125	1.375	1.250	2.900	3.850	2.907			
970-000-078	PD1-1500-2D-150	1.500	1.500	2.900	4.100	3.157	PD1 125812	PD1-5	T-20-S
970-000-081	PD1-1625-2D-150	1.625	1.500	2.900	4.390	3.447			
970-000-084	PD1-1750-2D-150	1.750	1.500	2.900	4.600	3.657			
970-000-088	PD1-2000-2D-150	2.000	1.500	2.900	5.100	4.157	PD1 156812	PD1-6	T-25-S
970-000-131	PD1-2125-2D-150	2.125	1.500	2.900	5.390	4.407			

Product #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5

PATRIOT HP®



PG.496

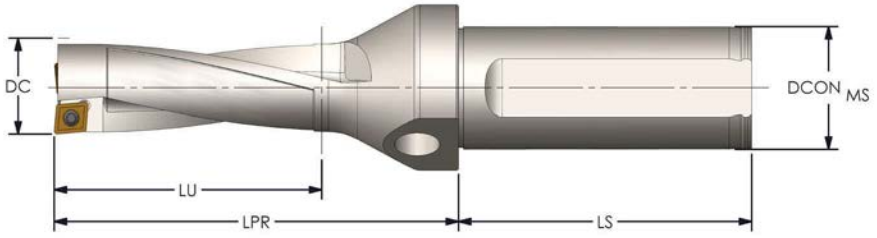
3xD IMPERIAL

Product #	Designation	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Insert Screw	Wrench
970-000-035	PD1-0562-3D-075	0.562	0.750	1.900	2.747	1.804	PD1 042004	PD1-16	T-6-S
970-000-036	PD1-0594-3D-075	0.594	0.750	1.900	2.843	1.900			
970-000-037	PD1-0609-3D-075	0.609	0.750	1.900	2.888	1.945			
970-000-039	PD1-0625-3D-075	0.625	0.750	1.900	2.936	1.993	PD1 052804	PD1-2	
970-000-041	PD1-0669-3D-075	0.669 (17mm)	0.750	1.900	3.069	2.126			
970-000-043	PD1-0687-3D-075	0.687	0.750	1.900	3.122	2.179			
970-000-045	PD1-0709-3D-075	0.709	0.750	1.900	3.187	2.244			
970-000-046	PD1-0734-3D-100	0.734	1.000	2.400	3.263	2.320	PD1 063306	PD1-22	T-7-S
970-000-048	PD1-0750-3D-100	0.750	1.000	2.400	3.311	2.368			
970-000-050	PD1-0787-3D-100	0.787 (20mm)	1.000	2.400	3.422	2.479			
970-000-052	PD1-0812-3D-100	0.812	1.000	2.400	3.499	2.556			
970-000-054	PD1-0844-3D-100	0.844	1.000	2.400	3.637	2.694			
970-000-056	PD1-0875-3D-100	0.875	1.000	2.400	3.686	2.743			
970-000-059	PD1-0937-3D-125	0.937	1.250	2.900	3.874	2.931	PD1 074006	PD1-25	
970-000-061	PD1-0984-3D-125	0.984 (25mm)	1.250	2.900	4.014	3.071			
970-000-063	PD1-1000-3D-125	1.000	1.250	2.900	4.061	3.118			
970-000-065	PD1-1062-3D-125	1.062	1.250	2.900	4.249	3.306			
970-000-067	PD1-1125-3D-125	1.125	1.250	2.900	4.436	3.493			
970-000-069	PD1-1181-3D-125	1.181 (30mm)	1.250	2.900	4.645	3.702	PD1 094508	PD1-35	T-15-S
970-000-071	PD1-1250-3D-125	1.250	1.250	2.900	4.850	3.907			
970-000-073	PD1-1312-3D-125	1.312	1.250	2.900	5.039	4.095			
970-000-075	PD1-1375-3D-125	1.375	1.250	2.900	5.225	4.282			
970-000-077	PD1-1437-3D-125	1.437	1.250	2.900	5.413	4.470			
970-000-079	PD1-1500-3D-150	1.500	1.500	2.900	5.640	4.697	PD1 125812	PD1-5	T-20-S
970-000-082	PD1-1625-3D-150	1.625	1.500	2.900	6.015	5.072			
970-000-085	PD1-1750-3D-150	1.750	1.500	2.900	6.390	5.447			
970-000-087	PD1-1875-3D-150	1.875	1.500	2.900	6.825	5.882	PD1 156812	PD1-6	T-25-S
970-000-089	PD1-2000-3D-150	2.000	1.500	2.900	7.140	6.197			
970-000-091	PD1-2125-3D-150	2.125	1.500	2.900	7.515	6.572			

3xD METRIC SHANK

Product #	Designation	DC [mm]	DCONMS [mm]	LS [mm]	LPR [mm]	LU [mm]	Insert	Insert Screw	Wrench
970-000-115	PD1-0170-3D-20MM	17.00	20.00	44.00	74.00	54.00	PD1 052804	PD1-2	T-6-S
970-000-116	PD1-0180-3D-25MM	18.00	25.00	56.00	81.00	57.00	PD1 063306	PD1-22	T-7-S
970-000-117	PD1-0190-3D-25MM	19.00	25.00	56.00	84.00	60.00			
970-000-118	PD1-0200-3D-25MM	20.00	25.00	56.00	87.00	63.00			
970-000-119	PD1-0210-3D-25MM	21.00	25.00	56.00	90.00	66.00			
970-000-120	PD1-0220-3D-25MM	22.00	25.00	56.00	93.00	69.00			
970-000-121	PD1-0230-3D-25MM	23.00	25.00	56.00	96.00	72.00	PD1 074006	PD1-25	
970-000-122	PD1-0240-3D-25MM	24.00	25.00	56.00	98.00	75.00			
970-000-123	PD1-0250-3D-25MM	25.00	25.00	56.00	102.00	78.00			
970-000-124	PD1-0260-3D-32MM	26.00	32.00	60.00	105.00	81.00			
970-000-125	PD1-0270-3D-32MM	27.00	32.00	60.00	108.00	84.00			
970-000-126	PD1-0280-3D-32MM	28.00	32.00	60.00	111.00	87.00			
970-000-127	PD1-0290-3D-32MM	29.00	32.00	60.00	115.00	91.00			
970-000-128	PD1-0300-3D-32MM	30.00	32.00	60.00	118.00	94.00	PD1 094508	PD1-35	T-15-S

PATRIOT HP®



PG.496

4xD

Product #	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Insert Screw	Wrench
970-000-129	PD1-0562-4D-075	0.562	0.750	1.900	3.166	2.366	PD1 042004	PD1-16	T-6-S
970-000-040	PD1-0625-4D-075	0.625	0.750	1.900	3.418	2.618	PD1 052804	PD1-2	T-6-S
970-000-044	PD1-0687-4D-075	0.687	0.750	1.900	3.667	2.867			
970-000-049	PD1-0750-4D-100	0.750	1.000	2.400	4.061	3.118	PD1 063306	PD1-22	T-7-S
970-000-053	PD1-0812-4D-100	0.812	1.000	2.400	4.312	3.369			
970-000-057	PD1-0875-4D-100	0.875	1.000	2.400	4.561	3.618			
970-000-060	PD1-0937-4D-125	0.937	1.250	2.900	4.812	3.869	PD1 074006	PD1-25	
970-000-064	PD1-1000-4D-125	1.000	1.250	2.900	5.061	4.118			
970-000-068	PD1-1125-4D-125	1.125	1.250	2.900	5.561	4.618			
970-000-072	PD1-1250-4D-125	1.250	1.250	2.900	6.100	5.157	PD1 094508	PD1-35	T-15-S
970-000-076	PD1-1375-4D-125	1.375	1.250	2.900	6.600	5.627			
970-000-080	PD1-1500-4D-150	1.500	1.500	2.900	7.140	6.197	PD1 125812	PD1-5	T-20-S
970-000-083	PD1-1625-4D-150	1.625	1.500	2.900	7.640	6.697			
970-000-086	PD1-1750-4D-150	1.750	1.500	2.900	8.140	7.197			
970-000-090	PD1-2000-4D-150	2.000	1.500	2.900	9.140	8.197	PD1 156812	PD1-6	T-25-S
970-000-130	PD1-2125-4D-150	2.125	1.500	2.900	9.640	8.697			

PD1

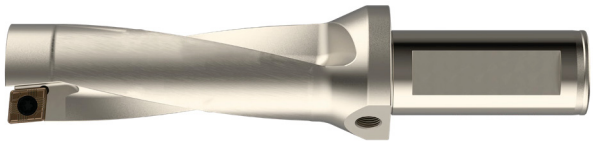
Product #	Designation	HP600	HK356	HN300
914-000-085	PD1 042004	●		
914-000-083			●	
914-000-084				●
914-000-088	PD1 052804	●		
914-000-086			●	
914-000-087				●
914-000-091	PD1 063306	●		
914-000-089			●	
914-000-090				●
914-000-094	PD1 074006	●		
914-000-092			●	
914-000-093				●
914-000-097	PD1 094508	●		
914-000-095			●	
914-000-096				●
914-000-100	PD1 125812	●		
914-000-098			●	
914-000-099				●
914-000-103	PD1 156812	●		
914-000-101			●	
914-000-102				●

PACKAGE SIZE OF 10

Product #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5

PATRIOT HP®



ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.2500"
					Fz = IPR (INCH PER REVOLUTION)*		
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP 600	350-900	.0015-.0060	.0020-.0075	.0030-.0120
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		260-750	.0020-.0070	.0020-.0085	.0030-.0095
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP 600	230-700	.0018-.0040	.0030-.0065	.0030-.0085
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-750	.0018-.0040	.0030-.0065	.0030-.0085
K	**GRAY IRONS** Class 20, 30, 40 ,50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK 356	285-1000	.0025-.0055	.0035-.0070	.0040-.0085
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-740	.0020-.0050	.0028-.0065	.0030-.0070
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	HN 300	600-1150	.0020-.0075	.0030-.0090	.0045-.0115
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	HP 600	80-275	.0018-.0065	.0020-.0075	.0030-.0080
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	HP 600	55-270	.0016-.0032	.0020-.0055	.0025-.0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		95-460	.0019-.0055	.0020-.0065	.0025-.008

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

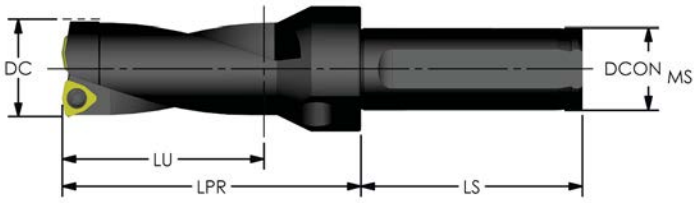
- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ULTRA-DEX®

- Diameter range from 0.625” – 2.375”
- Close bore tolerances up to IT 8 achievable
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore machining
- Universal use – suitable for both rotating and stationary operations
- Come equipped with 1/8-27 NPT side and end entry coolant ports

ULTRA-DEX®

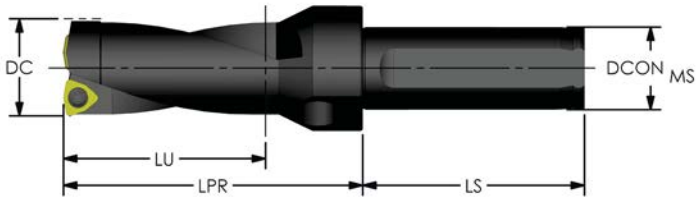


PG.498

2xD

PRODUCT # Ion Nitride	PRODUCT # Black Oxide	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	INSERT	SCREW
926-000-014	926-000-013	UD-0625-2D-063	0.625	0.625	1.687	2.280	1.375	WCMX 1.81.52	MTS-255 T-7-S Wrench
926-000-018	926-000-017	UD-0656-2D-063	0.656				1.406		
926-000-022	926-000-021	UD-0687-2D-063	0.687				1.437		
926-000-026	926-000-025	UD-0719-2D-063	0.719				1.467		
926-000-030	926-000-029	UD-0750-2D-075	0.750	0.750	2.000	2.810	1.748	WCMX 21.52	MTS-25-DR T-8-S Wrench
926-000-034	926-000-033	UD-0781-2D-075	0.781				1.780		
926-000-038	926-000-037	UD-0812-2D-075	0.812				1.811		
926-000-042	926-000-041	UD-0844-2D-075	0.844				1.850		
926-000-046	926-000-045	UD-0875-2D-075	0.875				1.874		
926-000-050	926-000-049	UD-0906-2D-075	0.906				1.910		
926-000-054	926-000-053	UD-0937-2D-075	0.937				1.935		
926-000-058	926-000-057	UD-0968-2D-075	0.968				1.970		
926-000-062	926-000-061	UD-1000-2D-100	1.000	1.000	2.375	3.235	2.345	WCMX 2.522	MTS-3-DR T-9-S Wrench
926-000-066	926-000-065	UD-1031-2D-100	1.031				2.375		
926-000-070	926-000-069	UD-1062-2D-100	1.062				2.406		
926-000-074	926-000-073	UD-1094-2D-100	1.094				2.438		
926-000-078	926-000-077	UD-1125-2D-100	1.125				2.469		
926-000-082	926-000-081	UD-1156-2D-100	1.156				2.500		
926-000-086	926-000-085	UD-1187-2D-100	1.187				2.532		
926-000-090	926-000-089	UD-1219-2D-100	1.219				2.564		
926-000-094	926-000-093	UD-1250-2D-125	1.250	1.250	2.619	3.886	2.710	WCMX 32.52	MTS-35-DR T-10-S Wrench
926-000-098	926-000-097	UD-1312-2D-125	1.312				2.771		
926-000-102	926-000-101	UD-1343-2D-125	1.343				2.802		
926-000-104	926-000-103	UD-1375-2D-125	1.375				2.833		
926-000-108	926-000-107	UD-1437-2D-125	1.437				2.896		
926-000-112	926-000-111	UD-1500-2D-125	1.500			4.426	3.250		
926-000-116	926-000-115	UD-1562-2D-125	1.562				3.312		
926-000-120	926-000-119	UD-1625-2D-125	1.625				3.375		
926-000-124	926-000-123	UD-1687-2D-125	1.687				3.437		
926-000-128	926-000-127	UD-1750-2D-150	1.750	1.500	2.875	5.025	3.850	WCMX 433	MTS-4-DR T-15-S Wrench
926-000-132	926-000-131	UD-1812-2D-150	1.812				3.912		
926-000-136	926-000-135	UD-1875-2D-150	1.875				3.975		
926-000-140	926-000-139	UD-1937-2D-150	1.937				4.036		
926-000-144	926-000-143	UD-2000-2D-150	2.000			5.687	4.469		
926-000-148	926-000-147	UD-2125-2D-150	2.125				4.593		
926-000-152	926-000-151	UD-2250-2D-150	2.250				4.717		
926-000-156	926-000-155	UD-2375-2D-150	2.375				4.840		

ULTRA-DEX®



PG.498

2.5xD

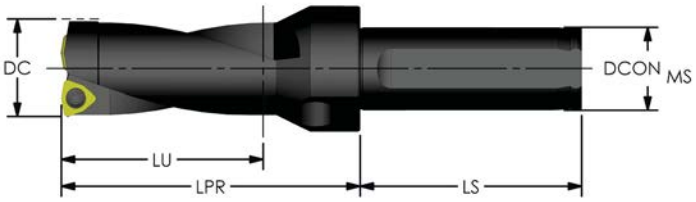
PRODUCT # Ion Nitride	PRODUCT # Black Oxide	Designation	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Screw
926-000-002	926-000-001	UD-0437-2D-063	0.437	0.625	1.687	2.280	1.280	WCMT 1.211	MTS-184 (Screw) T-6-S (Wrench)
926-000-004	926-000-003	UD-0468-2D-063	0.468				1.310		
926-000-006	926-000-005	UD-0500-2D-063	0.500				1.340		
926-000-008	926-000-007	UD-0531-2D-063	0.531				1.370	WCMT 1.51.51	MTS-2 (Screw) T-6-S (Wrench)
926-000-010	926-000-009	UD-0562-2D-063	0.562				1.400		
926-000-012	926-000-011	UD-0593-2D-063	0.593				1.430		

PG.498

4xD

PRODUCT # Ion Nitride	PRODUCT # Black Oxide	Designation	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Screw
926-000-016	926-000-015	UD-0625-4D-063	0.625	0.625	1.687	3.720	2.815	WCMX 1.81.52	MTS-255 (Screw) T-7-S (Wrench)
926-000-020	926-000-019	UD-0656-4D-063	0.656				2.847		
926-000-024	926-000-023	UD-0687-4D-063	0.687				2.878		
926-000-028	926-000-027	UD-0719-4D-063	0.719				2.911		
926-000-032	926-000-031	UD-0750-4D-075	0.750	0.750	2.000	4.763	3.698	WCMX 21.52	MTS-25-DR (Screw) T-8-S (Wrench)
926-000-036	926-000-035	UD-0781-4D-075	0.781				3.729		
926-000-040	926-000-039	UD-0812-4D-075	0.812				3.761		
926-000-044	926-000-043	UD-0844-4D-075	0.844				3.792		
926-000-048	926-000-047	UD-0875-4D-075	0.875				3.824		
926-000-052	926-000-051	UD-0906-4D-075	0.906				3.855		
926-000-056	926-000-055	UD-0937-4D-075	0.937				3.885		
926-000-060	926-000-059	UD-0968-4D-075	0.968				3.918		
926-000-064	926-000-063	UD-1000-4D-100	1.000	1.000	2.375	5.685	4.635	WCMX 2.522	MTS-3-DR (Screw) T-9-S (Wrench)
926-000-068	926-000-067	UD-1031-4D-100	1.031				4.666		
926-000-072	926-000-071	UD-1062-4D-100	1.062				4.696		
926-000-076	926-000-075	UD-1094-4D-100	1.094				4.728		
926-000-080	926-000-079	UD-1125-4D-100	1.125				4.760		
926-000-084	926-000-083	UD-1156-4D-100	1.156				4.792		
926-000-088	926-000-087	UD-1187-4D-100	1.187				4.822		
926-000-092	926-000-091	UD-1219-4D-100	1.219				4.864		

ULTRA-DEX®



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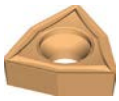
4xD

PRODUCT # Ion Nitride	PRODUCT # Black Oxide	Designation	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Screw
926-000-096	926-000-095	UD-1250-4D-125	1.250	1.250	2.619	6.760	5.585	WCMX 32.52	MTS-35-DR (Screw) T-10-S (Wrench)
926-000-100	926-000-099	UD-1312-4D-125	1.312				5.646		
926-000-106	926-000-105	UD-1375-4D-125	1.375				5.708		
926-000-110	926-000-109	UD-1437-4D-125	1.437				5.771		
926-000-114	926-000-113	UD-1500-4D-125	1.500			7.800	6.632		
926-000-118	926-000-117	UD-1562-4D-125	1.562				6.695		
926-000-122	926-000-121	UD-1625-4D-125	1.625				6.757		
926-000-126	926-000-125	UD-1687-4D-125	1.687				6.820		
926-000-130	926-000-129	UD-1750-4D-150	1.750	1.500	2.875	8.900	7.724	WCMX 433	MTS-4-DR (Screw) T-15-S (Wrench)
926-000-134	926-000-133	UD-1812-4D-150	1.812				7.786		
926-000-138	926-000-137	UD-1875-4D-150	1.875				7.849		
926-000-142	926-000-141	UD-1937-4D-150	1.937				7.911		
926-000-146	926-000-145	UD-2000-4D-150	2.000			10.347	9.263		
926-000-150	926-000-149	UD-2125-4D-150	2.125				9.387		
926-000-154	926-000-153	UD-2250-4D-150	2.250				9.512		
926-000-158	926-000-157	UD-2375-4D-150	2.375				9.637		



Product #	Designation	UD51	UD52	UD2	UD21	UD32
913-000-567	WCMT 1.211-ZX3	•				
913-000-568			•			
913-000-566					•	
913-000-565				•		
913-000-575	WCMT 1.51.51-ZX3	•				
913-000-576			•			
913-000-574					•	
913-000-573				•		
913-000-596	WCMX 1.81.52	•				
913-000-597			•			
913-000-593				•		
913-000-594					•	
913-000-595						•
913-000-606	WCMX 21.52	•				
913-000-607			•			
913-000-603				•		
913-000-604					•	
913-000-605						•
913-000-601	WCMX 2.522	•				
913-000-602			•			
913-000-598				•		
913-000-599					•	
913-000-600						•

PACKAGE SIZE OF 10

Product #	Designation	UD51	UD52	UD2	UD21	UD32
913-000-611	WCMX 32.52	•				
913-000-612			•			
913-000-608				•		
913-000-609					•	
913-000-610						•
913-000-616	WCMX 433	•				
913-000-617			•			
913-000-613				•		
913-000-614					•	
913-000-615						•

PACKAGE SIZE OF 10

Product #	Insert Screw
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-082	MTS-25-DR
968-000-084	MTS-3-DR
968-000-083	MTS-35-DR
968-000-085	MTS-4-DR

PACKAGE SIZE OF 5

ULTRA-DEX®

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.3750"
					Fz = IPR (INCH PER REVOLUTION)*		
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51 /UD52	300-800	.0015-.0060	.0025-.0080	.0030-.009
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		250-700	.0020-.0070	.0025-.0070	.0030-.0080
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	230-650	.0018-.0040	.0025-.0065	.0030-.0070
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.0018-.0040	.0023-.0055	.0030-.0065
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	285-900	.0025-.0055	.0035-.0070	.0040-.0080
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-700	.0020-.0050	.0028-.0055	.0030-.0060
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD2	400-975	.0020-.0075	.0030-.0070	.0045-.0100
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	UD32	75-200	.0018-.0065	.0020-.0065	.0030-.0070
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	UD32 /UD52	40-200	.0016-.0032	.0020-.0050	.0020-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC		90-350	.0019-.0055	.0020-.0050	.0020-.0065

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

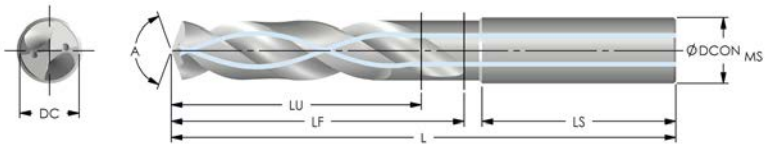
**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

SOLID DRILLS

ARCH®
Cutting Tools

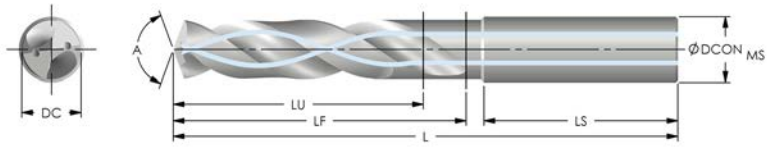
PATRIOT HP®

PG.499



Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
#67	0.0320	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-002
#67	0.0320	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-240
#67	0.0320	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-478
#66	0.0330	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-003
#66	0.0330	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-241
#66	0.0330	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-479
#65	0.0350	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-004
#65	0.0350	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-242
#65	0.0350	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-480
#64	0.0360	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-006
#64	0.0360	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-244
#64	0.0360	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-482
#63	0.0370	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-007
#63	0.0370	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-245
#63	0.0370	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-483
#62	0.0380	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-008
#62	0.0380	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-246
#62	0.0380	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-484
#61	0.0390	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-009
#61	0.0390	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-247
#61	0.0390	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-485
#60	0.0400	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-011
#60	0.0400	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-249
#60	0.0400	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-487
#59	0.0410	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-012
#59	0.0410	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-250
#59	0.0410	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-488
#58	0.0420	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-013
#58	0.0420	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-251
#58	0.0420	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-489
#57	0.0430	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-014
#57	0.0430	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-252
#57	0.0430	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-490
#56	0.0465	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-017
#56	0.0465	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-255
#56	0.0465	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-493
3/64	0.0469	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-018
3/64	0.0469	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-256
3/64	0.0469	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-494
#55	0.0520	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-023
#55	0.0520	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-261
#55	0.0520	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-499
#54	0.0550	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-025
#54	0.0550	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-263
#54	0.0550	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-501

PG.499



Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
#53	0.0595	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-028
#53	0.0595	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-266
#53	0.0595	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-504
1/16	0.0625	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-030
1/16	0.0625	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-268
1/16	0.0625	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-506
#52	0.0635	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-032
#52	0.0635	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-270
#52	0.0635	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-508
#51	0.0670	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-033
#51	0.0670	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-271
#51	0.0670	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-509
#50	0.0700	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-034
#50	0.0700	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-272
#50	0.0700	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-510
#49	0.0730	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-035
#49	0.0730	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-273
#49	0.0730	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-511
#48	0.0760	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-036
#48	0.0760	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-274
#48	0.0760	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-512
5/64	0.0781	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-037
5/64	0.0781	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-275
5/64	0.0781	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-513
#47	0.0785	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-038
#47	0.0785	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-276
#47	0.0785	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-514
#46	0.0810	0.1575	140.0	0.3543	0.5118	1.1024	2.2835	3XD	928-000-040
#46	0.0810	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-278
#46	0.0810	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-516
#45	0.0820	0.1575	140.0	0.3543	0.5118	1.1024	2.2835	3XD	928-000-041
#45	0.0820	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-279
#45	0.0820	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-517
#44	0.0860	0.1575	140.0	0.3543	0.5118	1.1024	2.2835	3XD	928-000-042
#44	0.0860	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-280
#44	0.0860	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-518
#43	0.0890	0.1575	140.0	0.3543	0.5118	1.1024	2.2835	3XD	928-000-043
#43	0.0890	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-281
#43	0.0890	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-519
#42	0.0935	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-044
#42	0.0935	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-282
#42	0.0935	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-520
3/32	0.0938	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-045
3/32	0.0938	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-283
3/32	0.0938	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-521

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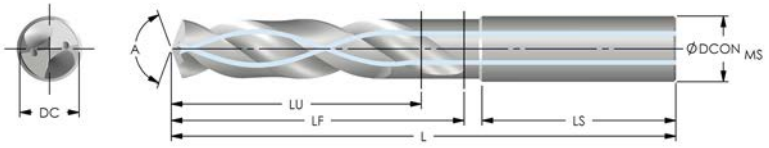

Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
#41	0.0960	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-046
#41	0.0960	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-284
#41	0.0960	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-522
#40	0.0980	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-047
#40	0.0980	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-285
#40	0.0980	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-523
#39	0.0995	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-049
#39	0.0995	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-287
#39	0.0995	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-525
#38	0.1015	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-050
#38	0.1015	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-288
#38	0.1015	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-526
#37	0.1040	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-051
#37	0.1040	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-289
#37	0.1040	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-527
#36	0.1065	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-052
#36	0.1065	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-290
#36	0.1065	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-528
7/64	0.1094	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-053
7/64	0.1094	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-291
7/64	0.1094	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-529
#35	0.1100	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-054
#35	0.1100	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-292
#35	0.1100	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-530
#34	0.1110	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-055
#34	0.1110	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-293
#34	0.1110	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-531
#33	0.1130	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-056
#33	0.1130	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-294
#33	0.1130	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-532
#32	0.1160	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-057
#32	0.1160	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-295
#32	0.1160	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-533
#31	0.1200	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-059
#31	0.1200	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-297
#31	0.1200	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-535
1/8	0.1250	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-060
1/8	0.1250	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-298
1/8	0.1250	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-536
#30	0.1285	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-062
#30	0.1285	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-300
#30	0.1285	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-538
#29	0.1360	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-063
#29	0.1360	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-301
#29	0.1360	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-539

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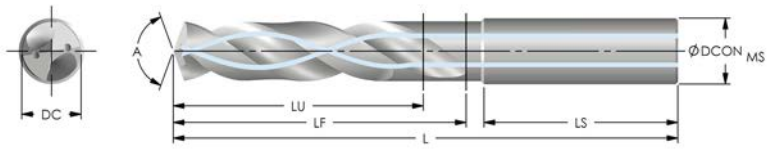

Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
#28	0.1405	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-065
#28	0.1405	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-303
#28	0.1405	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-541
9/64	0.1406	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-066
9/64	0.1406	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-304
9/64	0.1406	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-542
#27	0.1440	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-068
#27	0.1440	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-306
#27	0.1440	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-544
#26	0.1470	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-069
#26	0.1470	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-307
#26	0.1470	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-545
#25	0.1495	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-070
#25	0.1495	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-308
#25	0.1495	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-546
#24	0.1520	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-071
#24	0.1520	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-309
#24	0.1520	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-547
#23	0.1540	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-073
#23	0.1540	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-311
#23	0.1540	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-549
5/32	0.1562	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-074
5/32	0.1562	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-312
5/32	0.1562	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-550
#22	0.1570	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-075
#22	0.1570	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-313
#22	0.1570	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-551
#21	0.1590	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-077
#21	0.1590	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-315
#21	0.1590	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-553
#20	0.1610	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-078
#20	0.1610	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-316
#20	0.1610	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-554
#19	0.1660	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-080
#19	0.1660	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-318
#19	0.1660	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-556
#18	0.1695	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-081
#18	0.1695	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-319
#18	0.1695	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-557
11/64	0.1719	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-082
11/64	0.1719	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-320
11/64	0.1719	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-558
#17	0.1730	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-083
#17	0.1730	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-321
#17	0.1730	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-559

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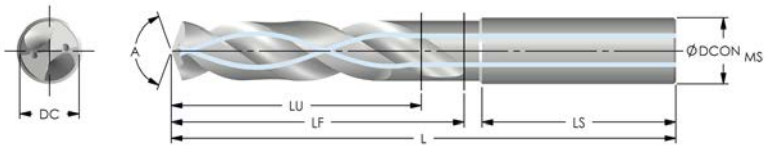

Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
#16	0.1770	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-085
#16	0.1770	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-323
#16	0.1770	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-561
#15	0.1800	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-087
#15	0.1800	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-325
#15	0.1800	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-563
#14	0.1820	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-089
#14	0.1820	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-327
#14	0.1820	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-565
3/16	0.1875	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-091
3/16	0.1875	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-329
3/16	0.1875	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-567
#11	0.1910	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-093
#11	0.1910	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-331
#11	0.1910	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-569
#10	0.1935	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-095
#10	0.1935	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-333
#10	0.1935	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-571
#9	0.1960	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-096
#9	0.1960	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-334
#9	0.1960	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-572
#8	0.1990	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-098
#8	0.1990	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-336
#8	0.1990	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-574
#7	0.2010	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-100
#7	0.2010	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-338
#7	0.2010	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-576
13/64	0.2031	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-101
13/64	0.2031	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-339
13/64	0.2031	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-577
#6	0.2040	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-102
#6	0.2040	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-340
#6	0.2040	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-578
#5	0.2055	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-104
#5	0.2055	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-342
#5	0.2055	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-580
#4	0.2090	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-106
#4	0.2090	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-344
#4	0.2090	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-582
#3	0.2130	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-108
#3	0.2130	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-346
#3	0.2130	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-584
7/32	0.2188	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-110
7/32	0.2188	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-348
7/32	0.2188	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-586

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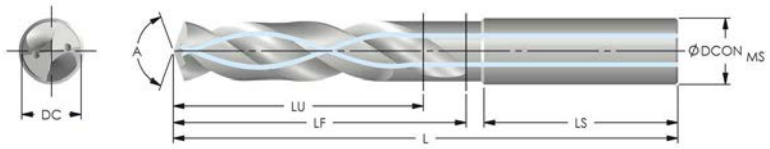

Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
#2	0.2210	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-112
#2	0.2210	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-350
#2	0.2210	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-588
#1	0.2280	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-114
#1	0.2280	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-352
#1	0.2280	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-590
A	0.2340	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-117
A	0.2340	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-355
A	0.2340	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-593
15/64	0.2344	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-118
15/64	0.2344	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-356
15/64	0.2344	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-594
B	0.2380	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-120
B	0.2380	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-358
B	0.2380	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-596
C	0.2420	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-122
C	0.2420	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-360
C	0.2420	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-598
D	0.2460	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-124
D	0.2460	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-362
D	0.2460	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-600
E(1/4)	0.2500	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-126
E(1/4)	0.2500	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-364
E(1/4)	0.2500	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-602
F	0.2570	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-129
F	0.2570	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-367
F	0.2570	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-605
G	0.2610	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-131
G	0.2610	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-369
G	0.2610	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-607
17/64	0.2656	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-133
17/64	0.2656	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-371
17/64	0.2656	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-609
H	0.2660	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-134
H	0.2660	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-372
H	0.2660	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-610
I	0.2720	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-137
I	0.2720	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-375
I	0.2720	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-613
J	0.2770	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-139
J	0.2770	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-377
J	0.2770	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-615
K	0.2810	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-141
K	0.2810	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-379
K	0.2810	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-617
9/32	0.2812	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-142
9/32	0.2812	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-380
9/32	0.2812	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-618

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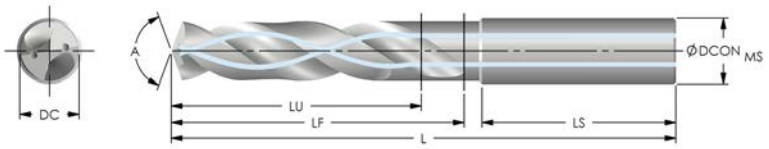

Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
L	0.2900	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-145
L	0.2900	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-383
L	0.2900	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-621
M	0.2950	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-147
M	0.2950	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-385
M	0.2950	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-623
19/64	0.2969	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-149
19/64	0.2969	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-387
19/64	0.2969	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-625
N	0.3020	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-151
N	0.3020	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-389
N	0.3020	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-627
5/16	0.3125	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-155
5/16	0.3125	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-393
5/16	0.3125	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-631
O	0.3160	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-157
O	0.3160	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-395
O	0.3160	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-633
P	0.3230	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-160
P	0.3230	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-398
P	0.3230	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-636
21/64	0.3281	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-162
21/64	0.3281	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-400
21/64	0.3281	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-638
Q	0.3320	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-164
Q	0.3320	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-402
Q	0.3320	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-640
R	0.3390	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-167
R	0.3390	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-405
R	0.3390	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-643
11/32	0.3438	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-169
11/32	0.3438	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-407
11/32	0.3438	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-645
S	0.3480	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-171
S	0.3480	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-409
S	0.3480	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-647
T	0.3580	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-174
T	0.3580	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-412
T	0.3580	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-650
23/64	0.3594	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-176
23/64	0.3594	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-414
23/64	0.3594	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-652
U	0.3680	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-179
U	0.3680	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-417
U	0.3680	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-655

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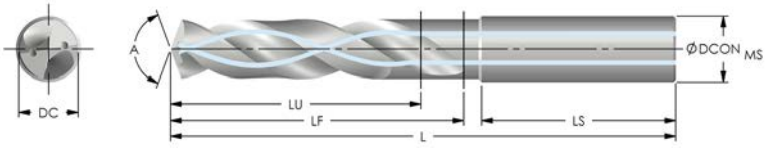

Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
3/8	0.3750	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-182
3/8	0.3750	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-420
3/8	0.3750	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-658
V	0.3770	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-183
V	0.3770	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-421
V	0.3770	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-659
W	0.3860	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-187
W	0.3860	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-425
W	0.3860	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-663
25/64	0.3906	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-189
25/64	0.3906	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-427
25/64	0.3906	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-665
X	0.3970	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-191
X	0.3970	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-429
X	0.3970	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-667
Y	0.4040	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-192
Y	0.4040	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-430
Y	0.4040	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-668
13/32	0.4062	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-193
13/32	0.4062	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-431
13/32	0.4062	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-669
Z	0.4130	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-194
Z	0.4130	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-432
Z	0.4130	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-670
27/64	0.4219	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-196
27/64	0.4219	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-434
27/64	0.4219	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-672
7/16	0.4375	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-198
7/16	0.4375	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-436
7/16	0.4375	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-674
29/64	0.4531	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-200
29/64	0.4531	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-438
29/64	0.4531	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-676
15/32	0.4688	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-201
15/32	0.4688	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-439
15/32	0.4688	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-677
31/64	0.4844	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-203
31/64	0.4844	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-441
31/64	0.4844	0.5512	140.0	4.3307	5.3150	1.7717	7.1654	8XD	928-000-679
1/2	0.5000	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-205
1/2	0.5000	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-443
1/2	0.5000	0.5512	140.0	4.3307	5.315	1.7717	7.1654	8XD	928-000-681
33/64	0.5156	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-207
33/64	0.5156	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-445
33/64	0.5156	0.5512	140.0	4.3307	5.3150	1.7717	7.1654	8XD	928-000-683

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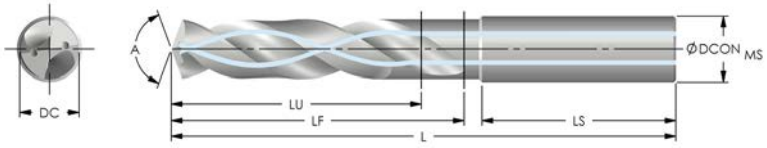

Size	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	Product #
17/32	0.5312	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-208
17/32	0.5312	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-446
17/32	0.5312	0.5512	140.0	4.3307	5.315	1.7717	7.1654	8XD	928-000-684
35/64	0.5469	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-210
35/64	0.5469	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-448
35/64	0.5469	0.5512	140.0	4.3307	5.315	1.7717	7.1654	8XD	928-000-686
9/16	0.5625	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-212
9/16	0.5625	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-450
9/16	0.5625	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-688
37/64	0.5781	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-214
37/64	0.5781	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-452
37/64	0.5781	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-690
19/32	0.5938	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-216
19/32	0.5938	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-454
19/32	0.5938	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-692
39/64	0.6094	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-217
39/64	0.6094	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-455
39/64	0.6094	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-693
5/8	0.6250	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-219
5/8	0.6250	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-457
5/8	0.6250	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-695
41/64	0.6406	0.7087	140.0	2.0079	2.8740	1.8898	4.8425	3XD	928-000-221
41/64	0.6406	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-459
41/64	0.6406	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-697
21/32	0.6562	0.7087	140.0	2.0079	2.8740	1.8898	4.8425	3XD	928-000-223
21/32	0.6562	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-461
21/32	0.6562	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-699
43/64	0.6719	0.7087	140.0	2.0079	2.874	1.8898	4.8425	3XD	928-000-225
43/64	0.6719	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-463
43/64	0.6719	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-701
11/16	0.6875	0.7087	140.0	2.0079	2.8740	1.8898	4.8425	3XD	928-000-226
11/16	0.6875	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-464
11/16	0.6875	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-702
45/64	0.7031	0.7087	140.0	2.0079	2.8740	1.8898	4.8425	3XD	928-000-228
45/64	0.7031	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-466
45/64	0.7031	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-704
23/32	0.7188	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-230
23/32	0.7188	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-468
23/32	0.7188	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-706
47/64	0.7344	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-232
47/64	0.7344	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-470
47/64	0.7344	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-708
3/4	0.7500	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-234
3/4	0.7500	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-472
3/4	0.7500	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-710
49/64	0.7656	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-235
49/64	0.7656	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-473
49/64	0.7656	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-711
25/32	0.7812	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-237
25/32	0.7812	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-475
25/32	0.7812	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-713

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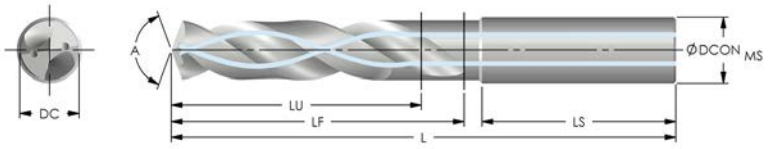

DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	Product #
0.80	0.0315	4.00	140.0	3.00	5.00	28.00	58.00	3XD	928-000-001
0.80	0.0315	4.00	140.0	5.00	7.00	28.00	58.00	5XD	928-000-239
0.80	0.0315	4.00	140.0	7.00	9.00	28.00	58.00	8XD	928-000-477
0.90	0.0354	4.00	140.0	3.00	5.00	28.00	58.00	3XD	928-000-005
0.90	0.0354	4.00	140.0	5.00	7.00	28.00	58.00	5XD	928-000-243
0.90	0.0354	4.00	140.0	7.00	9.00	28.00	58.00	8XD	928-000-481
1.00	0.0394	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-010
1.00	0.0394	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-248
1.00	0.0394	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-486
1.10	0.0433	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-015
1.10	0.0433	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-253
1.10	0.0433	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-491
1.12	0.0441	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-016
1.12	0.0441	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-254
1.12	0.0441	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-492
1.20	0.0472	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-019
1.20	0.0472	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-257
1.20	0.0472	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-495
1.25	0.0492	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-020
1.25	0.0492	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-258
1.25	0.0492	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-496
1.27	0.0500	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-021
1.27	0.0500	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-259
1.27	0.0500	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-497
1.30	0.0512	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-022
1.30	0.0512	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-260
1.30	0.0512	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-498
1.35	0.0531	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-024
1.35	0.0531	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-262
1.35	0.0531	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-500
1.45	0.0571	4.00	140.0	6.00	9.00	28.00	58.00	3XD	928-000-026
1.45	0.0571	4.00	140.0	9.00	12.00	28.00	58.00	5XD	928-000-264
1.45	0.0571	4.00	140.0	15.00	18.00	28.00	58.00	8XD	928-000-502
1.50	0.0590	4.00	140.0	6.00	9.00	28.00	58.00	3XD	928-000-027
1.50	0.0590	4.00	140.0	9.00	12.00	28.00	58.00	5XD	928-000-265
1.50	0.0590	4.00	140.0	15.00	18.00	28.00	58.00	8XD	928-000-503
1.55	0.0610	4.00	140.0	6.00	9.00	28.00	58.00	3XD	928-000-029
1.55	0.0610	4.00	140.0	9.00	12.00	28.00	58.00	5XD	928-000-267
1.55	0.0610	4.00	140.0	15.00	18.00	28.00	58.00	8XD	928-000-505
1.60	0.0630	4.00	140.0	6.00	9.00	28.00	58.00	3XD	928-000-031
1.60	0.0630	4.00	140.0	9.00	12.00	28.00	58.00	5XD	928-000-269
1.60	0.0630	4.00	140.0	15.00	18.00	28.00	58.00	8XD	928-000-507
2.00	0.0787	4.00	140.0	9.00	13.00	28.00	58.00	3XD	928-000-039
2.00	0.0787	4.00	140.0	14.00	18.00	28.00	58.00	5XD	928-000-277
2.00	0.0787	4.00	140.0	22.00	26.00	28.00	66.00	8XD	928-000-515

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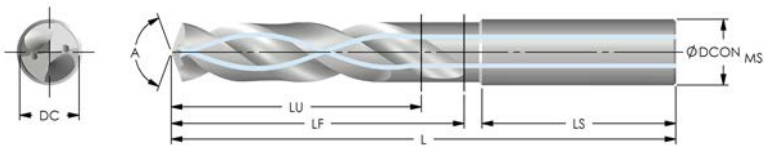

DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	Product #
2.50	0.0984	4.00	140.0.0	12.00	17.00	28.00	58.00	3XD	928-000-048
2.50	0.0984	4.00	140.0	17.00	22.00	28.00	58.00	5XD	928-000-286
2.50	0.0984	4.00	140.0	25.00	30.00	28.00	66.00	8XD	928-000-524
3.00	0.1181	6.00	140.0	14.00	20.00	36.00	62.00	3XD	928-000-058
3.00	0.1181	6.00	140.0	23.00	28.00	36.00	66.00	5XD	928-000-296
3.00	0.1181	6.00	140.0	33.00	40.00	36.00	78.00	8XD	928-000-534
3.20	0.1259	6.00	140.0	14.00	20.00	36.00	62.00	3XD	928-000-061
3.20	0.1259	6.00	140.0	23.00	28.00	36.00	66.00	5XD	928-000-299
3.20	0.1259	6.00	140.0	33.00	40.00	36.00	78.00	8XD	928-000-537
3.50	0.1378	6.00	140.0	14.00	20.00	36.00	62.00	3XD	928-000-064
3.50	0.1378	6.00	140.0	23.00	28.00	36.00	66.00	5XD	928-000-302
3.50	0.1378	6.00	140.0	33.00	40.00	36.00	78.00	8XD	928-000-540
3.60	0.1417	6.00	140.0	14.00	20.00	36.00	62.00	3XD	928-000-067
3.60	0.1417	6.00	140.0	23.00	28.00	36.00	66.00	5XD	928-000-305
3.60	0.1417	6.00	140.0	33.00	40.00	36.00	78.00	8XD	928-000-543
3.90	0.1535	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-072
3.90	0.1535	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-310
3.90	0.1535	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-548
4.00	0.1574	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-076
4.00	0.1574	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-314
4.00	0.1574	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-552
4.10	0.1614	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-079
4.10	0.1614	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-317
4.10	0.1614	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-555
4.40	0.1732	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-084
4.40	0.1732	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-322
4.40	0.1732	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-560
4.50	0.1771	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-086
4.50	0.1771	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-324
4.50	0.1771	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-562
4.60	0.1811	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-088
4.60	0.1811	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-326
4.60	0.1811	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-564
4.70	0.1850	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-090
4.70	0.1850	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-328
4.70	0.1850	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-566
4.80	0.1889	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-092
4.80	0.1889	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-330
4.80	0.1889	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-568
4.90	0.1929	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-094
4.90	0.1929	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-332
4.90	0.1929	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-570
5.00	0.1968	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-097
5.00	0.1968	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-335
5.00	0.1968	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-573

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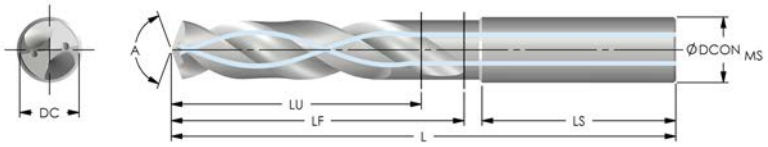

DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	Product #
5.10	0.2008	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-099
5.10	0.2008	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-337
5.10	0.2008	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-575
5.20	0.2047	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-103
5.20	0.2047	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-341
5.20	0.2047	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-579
5.30	0.2087	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-105
5.30	0.2087	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-343
5.30	0.2087	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-581
5.40	0.2126	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-107
5.40	0.2126	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-345
5.40	0.2126	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-583
5.50	0.2165	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-109
5.50	0.2165	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-347
5.50	0.2165	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-585
5.60	0.2205	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-111
5.60	0.2205	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-349
5.60	0.2205	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-587
5.70	0.2244	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-113
5.70	0.2244	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-351
5.70	0.2244	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-589
5.80	0.2283	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-115
5.80	0.2283	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-353
5.80	0.2283	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-591
5.90	0.2323	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-116
5.90	0.2323	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-354
5.90	0.2323	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-592
6.00	0.2362	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-119
6.00	0.2362	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-357
6.00	0.2362	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-595
6.10	0.2402	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-121
6.10	0.2402	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-359
6.10	0.2402	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-597
6.20	0.2441	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-123
6.20	0.2441	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-361
6.20	0.2441	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-599
6.30	0.2480	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-125
6.30	0.2480	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-363
6.30	0.2480	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-601
6.40	0.2520	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-127
6.40	0.2520	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-365
6.40	0.2520	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-603
6.50	0.2559	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-128
6.50	0.2559	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-366
6.50	0.2559	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-604

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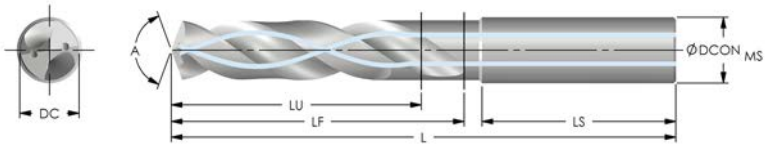

DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	Product #
6.60	0.2598	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-130
6.60	0.2598	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-368
6.60	0.2598	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-606
6.70	0.2638	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-132
6.70	0.2638	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-370
6.70	0.2638	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-608
6.80	0.2677	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-135
6.80	0.2677	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-373
6.80	0.2677	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-611
6.90	0.2716	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-136
6.90	0.2716	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-374
6.90	0.2716	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-612
7.00	0.2756	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-138
7.00	0.2756	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-376
7.00	0.2756	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-614
7.10	0.2795	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-140
7.10	0.2795	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-378
7.10	0.2795	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-616
7.20	0.2835	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-143
7.20	0.2835	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-381
7.20	0.2835	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-619
7.30	0.2874	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-144
7.30	0.2874	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-382
7.30	0.2874	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-620
7.40	0.2913	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-146
7.40	0.2913	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-384
7.40	0.2913	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-622
7.50	0.2953	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-148
7.50	0.2953	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-386
7.50	0.2953	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-624
7.60	0.2992	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-150
7.60	0.2992	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-388
7.60	0.2992	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-626
7.70	0.3031	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-152
7.70	0.3031	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-390
7.70	0.3031	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-628
7.80	0.3071	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-153
7.80	0.3071	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-391
7.80	0.3071	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-629
7.90	0.3110	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-154
7.90	0.3110	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-392
7.90	0.3110	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-630
8.00	0.3150	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-156
8.00	0.3150	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-394
8.00	0.3150	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-632
8.10	0.3189	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-158
8.10	0.3189	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-396
8.10	0.3189	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-634

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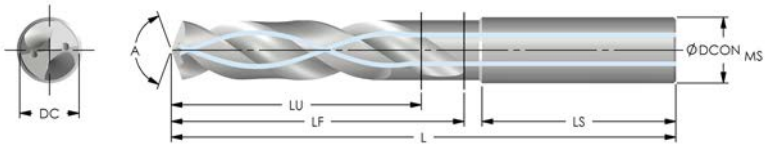

DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	Product #
8.20	0.3228	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-159
8.20	0.3228	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-397
8.20	0.3228	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-635
8.30	0.3268	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-161
8.30	0.3268	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-399
8.30	0.3268	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-637
8.40	0.3307	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-163
8.40	0.3307	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-401
8.40	0.3307	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-639
8.50	0.3346	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-165
8.50	0.3346	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-403
8.50	0.3346	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-641
8.60	0.3386	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-166
8.60	0.3386	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-404
8.60	0.3386	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-642
8.70	0.3425	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-168
8.70	0.3425	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-406
8.70	0.3425	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-644
8.80	0.3465	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-170
8.80	0.3465	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-408
8.80	0.3465	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-646
8.90	0.3504	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-172
8.90	0.3504	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-410
8.90	0.3504	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-648
9.00	0.3543	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-173
9.00	0.3543	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-411
9.00	0.3543	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-649
9.10	0.3583	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-175
9.10	0.3583	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-413
9.10	0.3583	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-651
9.20	0.3622	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-177
9.20	0.3622	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-415
9.20	0.3622	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-653
9.30	0.3661	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-178
9.30	0.3661	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-416
9.30	0.3661	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-654
9.40	0.3701	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-180
9.40	0.3701	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-418
9.40	0.3701	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-656
9.50	0.3740	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-181
9.50	0.3740	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-419
9.50	0.3740	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-657
9.60	0.3780	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-184
9.60	0.3780	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-422
9.60	0.3780	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-660

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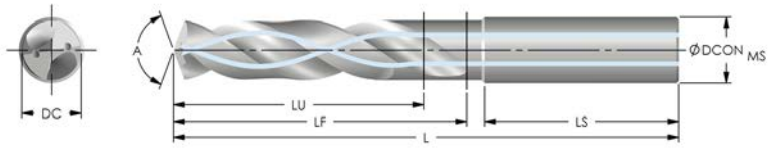
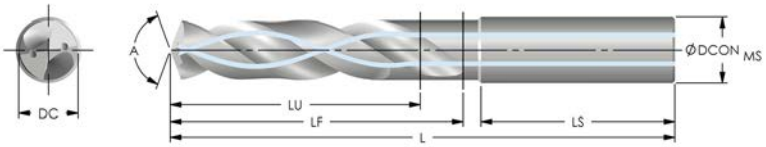


DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	Product #
9.70	0.3819	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-185
9.70	0.3819	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-423
9.70	0.3819	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-661
9.80	0.3858	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-186
9.80	0.3858	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-424
9.80	0.3858	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-662
9.90	0.3898	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-188
9.90	0.3898	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-426
9.90	0.3898	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-664
10.00	0.3937	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-190
10.00	0.3937	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-428
10.00	0.3937	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-666
10.50	0.4134	12.00	140.0	40.00	55.00	45.00	102.00	3XD	928-000-195
10.50	0.4134	12.00	140.0	56.00	71.00	45.00	118.00	5XD	928-000-433
10.50	0.4134	12.00	140.0	92.00	108.00	45.00	155.00	8XD	928-000-671
11.00	0.4331	12.00	140.0	40.00	55.00	45.00	102.00	3XD	928-000-197
11.00	0.4331	12.00	140.0	56.00	71.00	45.00	118.00	5XD	928-000-435
11.00	0.4331	12.00	140.0	92.00	108.00	45.00	155.00	8XD	928-000-673
11.50	0.4528	12.00	140.0	40.00	55.00	45.00	102.00	3XD	928-000-199
11.50	0.4528	12.00	140.0	56.00	71.00	45.00	118.00	5XD	928-000-437
11.50	0.4528	12.00	140.0	92.00	108.00	45.00	155.00	8XD	928-000-675
12.00	0.4724	12.00	140.0	40.00	55.00	45.00	102.00	3XD	928-000-202
12.00	0.4724	12.00	140.0	56.00	71.00	45.00	118.00	5XD	928-000-440
12.00	0.4724	12.00	140.0	92.00	108.00	45.00	155.00	8XD	928-000-678
12.50	0.4921	14.00	140.0	43.00	60.00	45.00	107.00	3XD	928-000-204
12.50	0.4921	14.00	140.0	60.00	77.00	45.00	124.00	5XD	928-000-442
12.50	0.4921	14.00	140.0	110.00	135.00	45.00	182.00	8XD	928-000-680
13.00	0.5118	14.00	140.0	43.00	60.00	45.00	107.00	3XD	928-000-206
13.00	0.5118	14.00	140.0	60.00	77.00	45.00	124.00	5XD	928-000-444
13.00	0.5118	14.00	140.0	110.00	135.00	45.00	182.00	8XD	928-000-682
13.50	0.5315	14.00	140.0	43.00	60.00	45.00	107.00	3XD	928-000-209
13.50	0.5315	14.00	140.0	60.00	77.00	45.00	124.00	5XD	928-000-447
13.50	0.5315	14.00	140.0	110.00	135.00	45.00	182.00	8XD	928-000-685
14.00	0.5512	14.00	140.0	43.00	60.00	45.00	107.00	3XD	928-000-211
14.00	0.5512	14.00	140.0	60.00	77.00	45.00	124.00	5XD	928-000-449
14.00	0.5512	14.00	140.0	110.00	135.00	45.00	182.00	8XD	928-000-687
14.50	0.5709	16.00	140.0	45.00	65.00	48.00	115.00	3XD	928-000-213
14.50	0.5709	16.00	140.0	63.00	83.00	48.00	133.00	5XD	928-000-451
14.50	0.5709	16.00	140.0	128.00	155.00	48.00	204.00	8XD	928-000-689
15.00	0.5906	16.00	140.0	45.00	65.00	48.00	115.00	3XD	928-000-215
15.00	0.5906	16.00	140.0	63.00	83.00	48.00	133.00	5XD	928-000-453
15.00	0.5906	16.00	140.0	128.00	155.00	48.00	204.00	8XD	928-000-691
15.50	0.6102	16.00	140.0	45.00	65.00	48.00	115.00	3XD	928-000-218
15.50	0.6102	16.00	140.0	63.00	83.00	48.00	133.00	5XD	928-000-456
15.50	0.6102	16.00	140.0	128.00	155.00	48.00	204.00	8XD	928-000-694

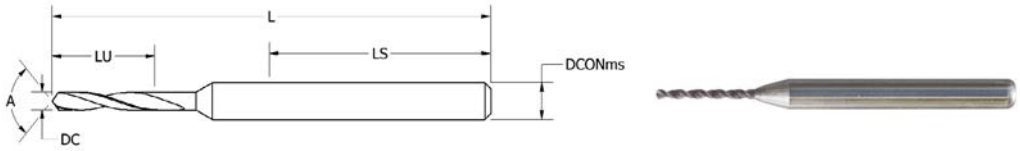


PG.499

DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	Product #
16.00	0.6299	16.00	140.0	45.00	65.00	48.00	115.00	3XD	928-000-220
16.00	0.6299	16.00	140.0	63.00	83.00	48.00	133.00	5XD	928-000-458
16.00	0.6299	16.00	140.0	128.00	155.00	48.00	204.00	8XD	928-000-696
16.50	0.6496	18.00	140.0	51.00	73.00	48.00	123.00	3XD	928-000-222
16.50	0.6496	18.00	140.0	71.00	93.00	48.00	143.00	5XD	928-000-460
16.50	0.6496	18.00	140.0	144.00	170.00	48.00	223.00	8XD	928-000-698
17.00	0.6693	18.00	140.0	51.00	73.00	48.00	123.00	3XD	928-000-224
17.00	0.6693	18.00	140.0	71.00	93.00	48.00	143.00	5XD	928-000-462
17.00	0.6693	18.00	140.0	144.00	170.00	48.00	223.00	8XD	928-000-700
17.50	0.6890	18.00	140.0	51.00	73.00	48.00	123.00	3XD	928-000-227
17.50	0.6890	18.00	140.0	71.00	93.00	48.00	143.00	5XD	928-000-465
17.50	0.6890	18.00	140.0	144.00	170.00	48.00	223.00	8XD	928-000-703
18.00	0.7087	18.00	140.0	51.00	73.00	48.00	123.00	3XD	928-000-229
18.00	0.7087	18.00	140.0	71.00	93.00	48.00	143.00	5XD	928-000-467
18.00	0.7087	18.00	140.0	144.00	170.00	48.00	223.00	8XD	928-000-705
18.50	0.7283	20.00	140.0	55.00	79.00	50.00	132.00	3XD	928-000-231
18.50	0.7283	20.00	140.0	77.00	101.00	50.00	154.00	5XD	928-000-469
18.50	0.7283	20.00	140.0	160.00	185.00	50.00	245.00	8XD	928-000-707
19.00	0.7480	20.00	140.0	55.00	79.00	50.00	132.00	3XD	928-000-233
19.00	0.7480	20.00	140.0	77.00	101.00	50.00	154.00	5XD	928-000-471
19.00	0.7480	20.00	140.0	160.00	185.00	50.00	245.00	8XD	928-000-709
19.50	0.7677	20.00	140.0	55.00	79.00	50.00	132.00	3XD	928-000-236
19.50	0.7677	20.00	140.0	77.00	101.00	50.00	154.00	5XD	928-000-474
19.50	0.7677	20.00	140.0	160.00	185.00	50.00	245.00	8XD	928-000-712
20.00	0.7874	20.00	140.0	55.00	79.00	50.00	132.00	3XD	928-000-238
20.00	0.7874	20.00	140.0	77.00	101.00	50.00	154.00	5XD	928-000-476
20.00	0.7874	20.00	140.0	160.00	185.00	50.00	245.00	8XD	928-000-714

KEO

Ø .004"-.025" (.10MM - .64MM)



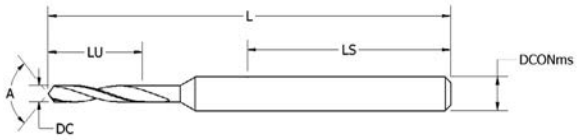
PG.500

MICRO

Size	DC [in.]	DC [mm]	DCONMS [in.]	LU [in.]	A [°]	LS [in.]	L [in.]	Uncoated
								2 FLUTE
# 102	0.0040	0.10	0.1250	0.0700	118.0	0.7500	1.5000	925-000-001
# 99	0.0050	0.13	0.1250	0.0700	118.0	0.7500	1.5000	925-000-002
# 97	0.0059	0.15	0.1250	0.1200	118.0	0.7500	1.5000	925-000-003
# 96	0.0063	0.16	0.1250	0.1200	118.0	0.7500	1.5000	925-000-004
# 95	0.0067	0.17	0.1250	0.1200	118.0	0.7500	1.5000	925-000-005
# 94	0.0071	0.18	0.1250	0.1500	118.0	0.7500	1.5000	925-000-006
# 93	0.0075	0.19	0.1250	0.1500	118.0	0.7500	1.5000	925-000-007
# 92	0.0079	0.20	0.1250	0.1500	118.0	0.7500	1.5000	925-000-008
# 91	0.0083	0.21	0.1250	0.1500	118.0	0.7500	1.5000	925-000-009
# 90	0.0087	0.22	0.1250	0.1500	118.0	0.7500	1.5000	925-000-010
# 89	0.0091	0.23	0.1250	0.2200	118.0	0.7500	1.5000	925-000-011
# 88	0.0095	0.24	0.1250	0.2200	118.0	0.7500	1.5000	925-000-012
.25mm	0.0098	0.25	0.1250	0.2200	118.0	0.7500	1.5000	925-000-013
# 87	0.0100	0.25	0.1250	0.2200	118.0	0.7500	1.5000	925-000-014
# 86	0.0105	0.27	0.1250	0.2200	118.0	0.7500	1.5000	925-000-015
# 85	0.0110	0.28	0.1250	0.2200	118.0	0.7500	1.5000	925-000-016
# 84	0.0115	0.29	0.1250	0.2200	118.0	0.7500	1.5000	925-000-017
.30mm	0.0118	0.30	0.1250	0.2800	118.0	0.7500	1.5000	925-000-018
# 83	0.0120	0.305	0.1250	0.2800	118.0	0.7500	1.5000	925-000-019
# 82	0.0125	0.32	0.1250	0.2800	118.0	0.7500	1.5000	925-000-020
# 81	0.0130	0.33	0.1250	0.2800	130.0	0.7500	1.5000	925-000-021
# 80	0.0135	0.34	0.1250	0.2800	130.0	0.7500	1.5000	925-000-022
.35mm	0.0138	0.35	0.1250	0.2800	130.0	0.7500	1.5000	925-000-023
# 79	0.0145	0.37	0.1250	0.2800	130.0	0.7500	1.5000	925-000-024
1/64"	0.0156	0.396	0.1250	0.2950	130.0	0.7500	1.5000	925-000-025
.40mm	0.0157	0.40	0.1250	0.2950	130.0	0.7500	1.5000	925-000-026
# 78	0.0160	0.41	0.1250	0.2950	130.0	0.7500	1.5000	925-000-027
.45mm	0.0177	0.45	0.1250	0.2950	130.0	0.7500	1.5000	925-000-028
# 77	0.0180	0.46	0.1250	0.2950	130.0	0.7500	1.5000	925-000-029
.50mm	0.0197	0.50	0.1250	0.3100	130.0	0.7500	1.5000	925-000-030
# 76	0.0200	0.51	0.1250	0.3100	130.0	0.7500	1.5000	925-000-031
# 75	0.0210	0.53	0.1250	0.3100	130.0	0.7500	1.5000	925-000-032
.55mm	0.0217	0.55	0.1250	0.3400	130.0	0.7500	1.5000	925-000-033
# 74	0.0225	0.57	0.1250	0.3400	130.0	0.7500	1.5000	925-000-034
.60mm	0.0236	0.60	0.1250	0.3400	130.0	0.7500	1.5000	925-000-035
# 73	0.0240	0.61	0.1250	0.3400	130.0	0.7500	1.5000	925-000-036
# 72	0.0250	0.64	0.1250	0.3400	130.0	0.7500	1.5000	925-000-037

Ø .0256"-.0571" (.65MM - 1.45MM)

KEO



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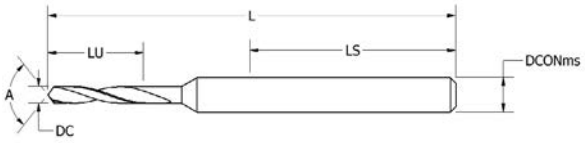
MICRO

2

Size	DC [in.]	DC [mm]	DCONMS [in.]	LU [in.]	A [°]	LS [in.]	L [in.]	Uncoated 2 FLUTE
.65mm	0.0256	0.65	0.1250	0.3400	130.0	0.7500	1.5000	925-000-038
# 71	0.0260	0.66	0.1250	0.3400	130.0	0.7500	1.5000	925-000-039
.70mm	0.0276	0.70	0.1250	0.4000	130.0	0.7500	1.5000	925-000-040
# 70	0.0280	0.71	0.1250	0.4000	130.0	0.7500	1.5000	925-000-041
# 69	0.0292	0.74	0.1250	0.4000	130.0	0.7500	1.5000	925-000-042
.75mm	0.0295	0.75	0.1250	0.4000	130.0	0.7500	1.5000	925-000-043
# 68	0.0310	0.787	0.1250	0.4000	130.0	0.7500	1.5000	925-000-044
1/32"	0.0312	0.79	0.1250	0.4000	130.0	0.7500	1.5000	925-000-045
.80mm	0.0315	0.80	0.1250	0.4000	130.0	0.7500	1.5000	925-000-046
# 67	0.0320	0.81	0.1250	0.4000	130.0	0.7500	1.5000	925-000-047
# 66	0.0330	0.84	0.1250	0.4000	130.0	0.7500	1.5000	925-000-048
.85mm	0.0335	0.85	0.1250	0.4000	130.0	0.7500	1.5000	925-000-049
# 65	0.0350	0.89	0.1250	0.4000	130.0	0.7500	1.5000	925-000-050
.90mm	0.0354	0.90	0.1250	0.4000	130.0	0.7500	1.5000	925-000-051
# 64	0.0360	0.91	0.1250	0.4000	130.0	0.7500	1.5000	925-000-052
# 63	0.0370	0.94	0.1250	0.4000	130.0	0.7500	1.5000	925-000-053
.95mm	0.0374	0.95	0.1250	0.4000	130.0	0.7500	1.5000	925-000-054
# 62	0.0380	0.97	0.1250	0.4000	130.0	0.7500	1.5000	925-000-055
# 61	0.0390	0.99	0.1250	0.4000	130.0	0.7500	1.5000	925-000-056
1.0mm	0.0394	1.00	0.1250	0.4000	130.0	0.7500	1.5000	925-000-057
# 60	0.0400	1.02	0.1250	0.4000	130.0	0.7500	1.5000	925-000-058
# 59	0.0410	1.04	0.1250	0.4000	130.0	0.7500	1.5000	925-000-059
1.05mm	0.0413	1.05	0.1250	0.4000	130.0	0.7500	1.5000	925-000-060
# 58	0.0420	1.07	0.1250	0.4000	130.0	0.7500	1.5000	925-000-061
# 57	0.0420	1.09	0.1250	0.4000	130.0	0.7500	1.5000	925-000-062
1.10mm	0.0433	1.10	0.1250	0.4000	130.0	0.7500	1.5000	925-000-063
1.12mm	0.0440	1.12	0.1250	0.4000	130.0	0.7500	1.5000	925-000-064
1.15mm	0.0453	1.15	0.1250	0.4000	130.0	0.7500	1.5000	925-000-065
# 56	0.0465	1.18	0.1250	0.4000	130.0	0.7500	1.5000	925-000-066
3/64"	0.0469	1.19	0.1250	0.4000	130.0	0.7500	1.5000	925-000-067
1.20mm	0.0472	1.20	0.1250	0.4000	130.0	0.7500	1.5000	925-000-068
1.25mm	0.0492	1.25	0.1250	0.4000	130.0	0.7500	1.5000	925-000-069
1.30mm	0.0512	1.30	0.1250	0.4000	130.0	0.7500	1.5000	925-000-070
# 55	0.0520	1.32	0.1250	0.4000	130.0	0.7500	1.5000	925-000-071
1.35mm	0.0531	1.35	0.1250	0.4000	130.0	0.7500	1.5000	925-000-072
# 54	0.0550	1.397	0.1250	0.4000	130.0	0.7500	1.5000	925-000-073
1.40mm	0.0551	1.40	0.1250	0.4000	130.0	0.7500	1.5000	925-000-074
1.45mm	0.0571	1.45	0.1250	0.4000	130.0	0.7500	1.5000	925-000-075

KEO

Ø .0591"-.0925" (1.50MM -2.35MM)



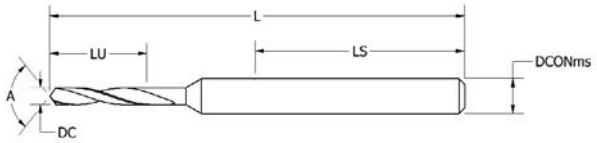
PG.500

MICRO

Size	DC [in.]	DC [mm]	DCONMS [in.]	LU [in.]	A [°]	LS [in.]	L [in.]	Uncoated
								2 FLUTE
1.50mm	0.0591	1.50	0.1250	0.4000	130.0	0.7500	1.5000	925-000-076
# 53	0.0595	1.51	0.1250	0.4000	130.0	0.7500	1.5000	925-000-077
1.55mm	0.0610	1.55	0.1250	0.4000	130.0	0.7500	1.5000	925-000-078
1/16"	0.0625	1.59	0.1250	0.4000	130.0	0.7500	1.5000	925-000-079
1.60mm	0.0630	1.60	0.1250	0.4000	130.0	0.7500	1.5000	925-000-080
# 52	0.0635	1.61	0.1250	0.4000	130.0	0.7500	1.5000	925-000-081
1.65mm	0.0650	1.65	0.1250	0.4000	130.0	0.7500	1.5000	925-000-082
1.70mm	0.0669	1.699	0.1250	0.4000	130.0	0.7500	1.5000	925-000-083
# 51	0.0670	1.70	0.1250	0.4000	130.0	0.7500	1.5000	925-000-084
1.75mm	0.0689	1.75	0.1250	0.4000	130.0	0.7500	1.5000	925-000-085
# 50	0.0700	1.78	0.1250	0.4000	130.0	0.7500	1.5000	925-000-086
1.80mm	0.0709	1.80	0.1250	0.4000	130.0	0.7500	1.5000	925-000-087
1.85mm	0.0728	1.85	0.1250	0.4000	130.0	0.7500	1.5000	925-000-088
# 49	0.0730	1.85	0.1250	0.4000	130.0	0.7500	1.5000	925-000-089
1.90mm	0.0748	1.90	0.1250	0.4000	130.0	0.7500	1.5000	925-000-090
# 48	0.0760	1.93	0.1250	0.4000	130.0	0.7500	1.5000	925-000-091
1.95mm	0.0768	1.95	0.1250	0.4000	130.0	0.7500	1.5000	925-000-092
5/64"	0.0781	1.98	0.1250	0.4000	130.0	0.7500	1.5000	925-000-093
# 47	0.0785	1.99	0.1250	0.4000	130.0	0.7500	1.5000	925-000-094
2.0mm	0.0787	2.00	0.1250	0.4000	130.0	0.7500	1.5000	925-000-095
2.05mm	0.0807	2.05	0.1250	0.4000	130.0	0.7500	1.5000	925-000-096
# 46	0.0810	2.06	0.1250	0.4000	130.0	0.7500	1.5000	925-000-097
# 45	0.0820	2.08	0.1250	0.4000	130.0	0.7500	1.5000	925-000-098
2.10mm	0.0827	2.10	0.1250	0.4000	130.0	0.7500	1.5000	925-000-099
2.15mm	0.0846	2.15	0.1250	0.4000	130.0	0.7500	1.5000	925-000-100
# 44	0.0860	2.18	0.1250	0.4000	130.0	0.7500	1.5000	925-000-101
2.20mm	0.0866	2.20	0.1250	0.4000	130.0	0.7500	1.5000	925-000-102
2.25mm	0.0886	2.25	0.1250	0.4000	130.0	0.7500	1.5000	925-000-103
# 43	0.0890	2.26	0.1250	0.4000	130.0	0.7500	1.5000	925-000-104
2.30mm	0.0906	2.30	0.1250	0.4000	130.0	0.7500	1.5000	925-000-105
2.35mm	0.0925	2.35	0.1250	0.4000	130.0	0.7500	1.5000	925-000-106

Ø .0935"-.1250" (2.37MM - 3.18MM)

KEO



PG.500

MICRO

Size	DC [in.]	DC [mm]	DCONMS [in.]	LU [in.]	A [°]	LS [in.]	L [in.]	Uncoated
								2 FLUTE
# 42	0.0935	2.37	0.1250	0.4000	130.0	0.7500	1.5000	925-000-107
3/32"	0.0938	2.38	0.1250	0.4000	130.0	0.7500	1.5000	925-000-108
2.40mm	0.0945	2.4	0.1250	0.4000	130.0	0.7500	1.5000	925-000-109
# 41	0.0960	2.44	0.1250	0.4000	130.0	0.7500	1.5000	925-000-110
2.45mm	0.0965	2.45	0.1250	0.4000	130.0	0.7500	1.5000	925-000-111
# 40	0.0980	2.49	0.1250	0.4000	130.0	0.7500	1.5000	925-000-112
2.50mm	0.0984	2.50	0.1250	0.4000	130.0	0.7500	1.5000	925-000-113
# 39	0.0995	2.53	0.1250	0.4000	130.0	0.7500	1.5000	925-000-114
2.55mm	0.1004	2.55	0.1250	0.4000	130.0	0.7500	1.5000	925-000-115
# 38	0.1015	2.58	0.1250	0.4000	130.0	0.7500	1.5000	925-000-116
2.60mm	0.1024	2.60	0.1250	0.4000	130.0	0.7500	1.5000	925-000-117
# 37	0.1040	2.64	0.1250	0.4000	130.0	0.7500	1.5000	925-000-118
2.65mm	0.1043	2.65	0.1250	0.4000	130.0	0.7500	1.5000	925-000-119
2.70mm	0.1063	2.70	0.1250	0.4000	130.0	0.7500	1.5000	925-000-120
# 36	0.1065	2.71	0.1250	0.4000	130.0	0.7500	1.5000	925-000-121
2.75mm	0.1083	2.75	0.1250	0.4000	130.0	0.7500	1.5000	925-000-122
7/64"	0.1094	2.78	0.1250	0.4000	130.0	0.7500	1.5000	925-000-123
# 35	0.1100	2.79	0.1250	0.4000	130.0	0.7500	1.5000	925-000-124
2.80mm	0.1102	2.80	0.1250	0.4000	130.0	0.7500	1.5000	925-000-125
# 34	0.1110	2.82	0.1250	0.4000	130.0	0.7500	1.5000	925-000-126
2.85mm	0.1122	2.85	0.1250	0.4000	130.0	0.7500	1.5000	925-000-127
# 33	0.1130	2.87	0.1250	0.4000	130.0	0.7500	1.5000	925-000-128
2.90mm	0.1142	2.90	0.1250	0.4000	130.0	0.7500	1.5000	925-000-129
# 32	0.1160	2.946	0.1250	0.4000	130.0	0.7500	1.5000	925-000-130
2.95mm	0.1161	2.95	0.1250	0.4000	130.0	0.7500	1.5000	925-000-131
3.00mm	0.1181	3.00	0.1250	0.4000	130.0	0.7500	1.5000	925-000-132
# 31	0.1200	3.05	0.1250	0.4000	130.0	0.7500	1.5000	925-000-133
3.05mm	0.1201	3.05	0.1250	0.4000	130.0	0.7500	1.5000	925-000-134
3.10mm	0.1220	3.10	0.1250	0.4000	130.0	0.7500	1.5000	925-000-135
3.15mm	0.1240	3.15	0.1250	0.4000	130.0	0.7500	1.5000	925-000-136
1/8"	0.1250	3.18	0.1250	0.4000	130.0	0.7500	1.5000	925-000-137

SPOTTING DRILLS

ARCH®
Cutting Tools

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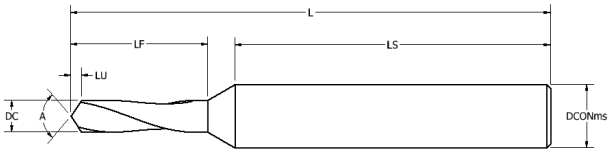

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MICRO

2

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	Uncoated	AlTiN Coated
							2 FLUTE	2 FLUTE
0.0300	0.1250	1.1656	1.5000	0.0900	0.0161	82.0	956-000-262	956-000-329
0.0600	0.1250	1.1528	1.5000	0.1800	0.0334	82.0	956-000-286	956-000-347
0.1250	0.1250	1.1250	1.5000	0.3750	0.0702	82.0	956-000-308	956-000-369
0.0050	0.1250	1.1663	1.5000	0.0250	0.0015	90.0	956-000-238	956-000-311
0.0100	0.1250	1.1692	1.5000	0.0350	0.0040	90.0	956-000-242	956-000-315
0.0150	0.1250	1.1720	1.5000	0.0450	0.0065	90.0	956-000-248	956-000-319
0.0200	0.1250	1.1799	1.5000	0.0500	0.0090	90.0	956-000-254	956-000-323
0.0250	0.1250	1.1678	1.5000	0.0750	0.0115	90.0	956-000-255	956-000-324
0.0300	0.1250	1.1656	1.5000	0.0900	0.0140	90.0	956-000-263	956-000-330
0.0312	0.1250	1.1687	1.5000	0.0900	0.0146	90.0	956-000-267	956-000-334
0.0400	0.1250	1.1614	1.5000	0.1200	0.0190	90.0	956-000-272	956-000-335
0.0450	0.1250	1.1592	1.5000	0.1350	0.0215	90.0	956-000-275	956-000-338
0.0470	0.1250	1.1584	1.5000	0.1410	0.0225	90.0	956-000-278	956-000-341
0.0500	0.1250	1.1571	1.5000	0.1500	0.0240	90.0	956-000-279	956-000-342
0.0600	0.1250	1.1528	1.5000	0.1800	0.0290	90.0	956-000-287	956-000-348
0.0625	0.1250	1.1392	1.5000	0.2000	0.0303	90.0	956-000-291	956-000-352
0.0780	0.1250	1.1451	1.5000	0.2340	0.0375	90.0	956-000-294	956-000-355
0.0900	0.1250	1.1400	1.5000	0.2700	0.0435	90.0	956-000-297	956-000-358
0.0938	0.1250	1.1407	1.5000	0.2790	0.0454	90.0	956-000-300	956-000-361
0.1000	0.1250	1.1357	1.5000	0.3000	0.0485	90.0	956-000-302	956-000-363
0.1180	0.1250	1.1280	1.5000	0.3540	0.0575	90.0	956-000-303	956-000-364
0.1250	0.1250	1.1250	1.5000	0.3750	0.0610	90.0	956-000-309	956-000-370
0.0300	0.1250	1.1656	1.5000	0.0900	0.0117	100.0	956-000-258	956-000-325
0.0600	0.1250	1.1528	1.5000	0.1800	0.0243	100.0	956-000-282	956-000-343
0.1250	0.1250	1.1250	1.5000	0.3750	0.0512	100.0	956-000-304	956-000-365

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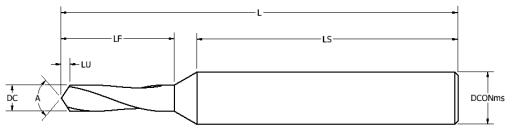

TYPE 1 VIEW

PG.500

MICRO

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	Uncoated	AlTiN Coated
							2 FLUTE	2 FLUTE
0.0100	0.1250	1.1742	1.5000	0.0300	0.0023	120.0	956-000-239	956-000-312
0.0150	0.1250	1.1720	1.5000	0.0450	0.0038	120.0	956-000-245	956-000-316
0.0200	0.1250	1.1799	1.5000	0.0500	0.0052	120.0	956-000-251	956-000-320
0.0300	0.1250	1.1656	1.5000	0.0900	0.0081	120.0	956-000-259	956-000-326
0.0312	0.1250	1.1687	1.5000	0.0900	0.0084	120.0	956-000-264	956-000-331
0.0450	0.1250	1.1592	1.5000	0.1350	0.0124	120.0	956-000-273	956-000-336
0.0470	0.1250	1.1584	1.5000	0.1410	0.0130	120.0	956-000-276	956-000-339
0.0600	0.1250	1.1528	1.5000	0.1800	0.0167	120.0	956-000-283	956-000-344
0.0625	0.1250	1.1532	1.5000	0.1860	0.0175	120.0	956-000-288	956-000-349
0.0780	0.1250	1.1451	1.5000	0.2340	0.0217	120.0	956-000-292	956-000-353
0.0900	0.1250	1.1400	1.5000	0.2700	0.0251	120.0	956-000-295	956-000-356
0.0938	0.1250	1.1407	1.5000	0.2790	0.0262	120.0	956-000-298	956-000-359
0.1250	0.1250	1.1250	1.5000	0.3750	0.0352	120.0	956-000-305	956-000-366
0.0050	0.1250	1.1663	1.5000	0.0250	0.0007	130.0	956-000-237	956-000-310
0.0100	0.1250	1.1692	1.5000	0.0350	0.0019	130.0	956-000-240	956-000-313
0.0150	0.1250	1.1720	1.5000	0.0450	0.0030	130.0	956-000-246	956-000-317
0.0200	0.1250	1.1799	1.5000	0.0500	0.0042	130.0	956-000-252	956-000-321
0.0312	0.1250	1.1687	1.5000	0.0900	0.0068	130.0	956-000-265	956-000-332
0.0625	0.1250	1.1392	1.5000	0.2000	0.0141	130.0	956-000-289	956-000-350
0.0938	0.1250	1.1407	1.5000	0.2790	0.0212	130.0	956-000-301	956-000-362
0.0100	0.1250	1.1742	1.5000	0.0300	0.0015	140.0	956-000-241	956-000-314
0.0150	0.1250	1.1720	1.5000	0.0450	0.0024	140.0	956-000-247	956-000-318
0.0200	0.1250	1.1799	1.5000	0.0500	0.0033	140.0	956-000-253	956-000-322
0.0300	0.1250	1.1656	1.5000	0.0900	0.0051	140.0	956-000-260	956-000-327
0.0312	0.1250	1.1687	1.5000	0.0900	0.0053	140.0	956-000-266	956-000-333
0.0450	0.1250	1.1592	1.5000	0.1350	0.0078	140.0	956-000-274	956-000-337
0.0470	0.1250	1.1584	1.5000	0.1410	0.0082	140.0	956-000-277	956-000-340
0.0600	0.1250	1.1528	1.5000	0.1800	0.0106	140.0	956-000-284	956-000-345
0.0625	0.1250	1.1532	1.5000	0.1860	0.0110	140.0	956-000-290	956-000-351
0.0780	0.1250	1.1451	1.5000	0.2340	0.0136	140.0	956-000-293	956-000-354
0.0900	0.1250	1.1400	1.5000	0.2700	0.0158	140.0	956-000-296	956-000-357
0.0938	0.1250	1.1407	1.5000	0.2790	0.0165	140.0	956-000-299	956-000-360
0.1250	0.1250	1.1250	1.5000	0.3750	0.0222	140.0	956-000-306	956-000-367
0.0300	0.1250	1.1656	1.5000	0.0900	0.0038	150.0	956-000-261	956-000-328
0.0600	0.1250	1.1528	1.5000	0.1800	0.0078	150.0	956-000-285	956-000-346
0.1250	0.1250	1.1250	1.5000	0.3750	0.0163	150.0	956-000-307	956-000-368

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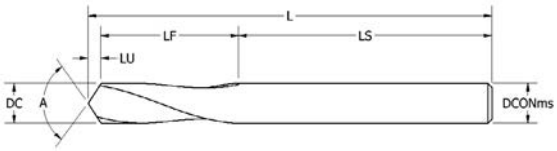

TYPE 2 VIEW

PG.500

Size	DC/DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	BMC	Uncoated	TiN Coated	AlTiN Coated
1/8x1-1/2x82°	0.1250	1.1250	1.5000	0.3146	0.0604	82.0	Carbide	956-000-125	956-000-617	956-000-913
1/8x1-1/2x90°	0.1250	1.1250	1.5000	0.3225	0.0525	90.0	Carbide	956-000-121	956-000-122	956-000-924
1/8x1-1/2x120°	0.1250	1.1250	1.5000	0.3447	0.0303	120.0	Carbide	956-000-123	956-000-124	956-000-936
1/8x1-1/2x142°	0.1250	1.1250	1.5000	0.3569	0.0181	142.0	Carbide	956-000-126	956-000-620	956-000-944
3/16x2x82°	0.1875	1.4375	2.0000	0.4736	0.0889	82.0	Carbide	956-000-127	956-000-623	956-000-914
3/16x2x90°	0.1875	1.4375	2.0000	0.4853	0.0773	90.0	Carbide	956-000-128	956-000-129	956-000-925
3/16x2x120°	0.1875	1.4375	2.0000	0.5179	0.0446	120.0	Carbide	956-000-130	956-000-131	956-000-937
3/16x2x142°	0.1875	1.4375	2.0000	0.5359	0.0266	142.0	Carbide	956-000-132	956-000-630	956-000-945
1/4x2-1/2x82°	0.2500	1.7500	2.5000	0.6309	0.1191	82.0	Carbide	956-000-120	956-000-610	956-000-912
1/4x2-1/2x90°	0.2500	1.7500	2.5000	0.6465	0.1035	90.0	Carbide	956-000-115	956-000-116	956-000-923
1/4x2-1/2x120°	0.2500	1.7500	2.5000	0.6902	0.0598	120.0	Carbide	956-000-117	956-000-118	956-000-935
1/4x2-1/2x142°	0.2500	1.7500	2.5000	0.7144	0.0356	142.0	Carbide	956-000-119	956-000-607	956-000-943
1/4x2-1/2x120°	0.2500	1.6862	2.5638	0.8138	0.0638	120.0	HSS	956-000-073	956-000-074	956-001-049
1/4x2-1/2x120°	0.2500	1.6862	2.5638	0.8138	0.0638	120.0	HSS-Co	956-000-077	956-000-537	956-001-048
1/4x2-1/2x90°	0.2500	1.6395	2.6105	0.8605	0.1105	90.0	HSS	956-000-019	956-000-020	956-001-082
1/4x2-1/2x90°	0.2500	1.6395	2.6105	0.8605	0.1105	90.0	HSS-Co	956-000-023	956-000-447	956-001-081
1/4x2-1/2x82°	0.2500	1.6229	2.6271	0.8771	0.1271	82.0	HSS	956-000-213	956-000-841	956-000-971
1/4x2-1/2x82°	0.2500	1.6229	2.6271	0.8771	0.1271	82.0	HSS-Co	956-000-214	956-000-844	956-000-970
1/4x4x120°	0.2500	3.1862	4.0638	0.8138	0.0638	120.0	HSS	956-000-075	956-000-076	956-000-932
1/4x4x120°	0.2500	3.1862	4.0638	0.8138	0.0638	120.0	HSS-Co	956-000-080	956-000-542	956-001-046
1/4x4x90°	0.2500	3.1395	4.1105	0.8605	0.1105	90.0	HSS	956-000-021	956-000-022	956-000-920
1/4x4x90°	0.2500	3.1395	4.1105	0.8605	0.1105	90.0	HSS-Co	956-000-026	956-000-452	956-001-079
1/4x4x82°	0.2500	3.1229	4.1271	0.8771	0.1271	82.0	HSS	956-000-215	956-000-847	956-000-969
1/4x4x82°	0.2500	3.1229	4.1271	0.8771	0.1271	82.0	HSS-Co	956-000-216	956-000-850	956-000-968
1/4x6x120°	0.2500	5.1862	6.0638	0.8138	0.0638	120.0	HSS	956-000-078	956-000-079	956-001-047
1/4x6x120°	0.2500	5.1862	6.0638	0.8138	0.0638	120.0	HSS-Co	956-000-081	956-000-545	956-001-045
1/4x6x90°	0.2500	5.1395	6.1105	0.8605	0.1105	90.0	HSS	956-000-024	956-000-025	956-001-080
1/4x6x90°	0.2500	5.1395	6.1105	0.8605	0.1105	90.0	HSS-Co	956-000-027	956-000-455	956-001-078
1/4x6x82°	0.2500	5.1229	6.1271	0.8771	0.1271	82.0	HSS	956-000-217	956-000-853	956-000-967
1/4x6x82°	0.2500	5.1229	6.1271	0.8771	0.1271	82.0	HSS-Co	956-000-218	956-000-856	956-000-966
5/16x2-1/2x82°	0.3125	1.7500	2.5000	0.5990	0.1510	82.0	Carbide	956-000-138	956-000-640	956-000-915
5/16x2-1/2x90°	0.3125	1.7500	2.5000	0.6188	0.1313	90.0	Carbide	956-000-133	956-000-134	956-000-926
5/16x2-1/2x120°	0.3125	1.7500	2.5000	0.6742	0.0758	120.0	Carbide	956-000-135	956-000-136	956-000-938
5/16x2-1/2x142°	0.3125	1.7500	2.5000	0.7048	0.0452	142.0	Carbide	956-000-137	956-000-637	956-000-946
3/8x2-1/2x82°	0.3750	1.7500	2.5000	0.5700	0.1800	82.0	Carbide	956-000-150	956-000-660	956-000-917
3/8x2-1/2x90°	0.3750	1.7500	2.5000	0.5935	0.1565	90.0	Carbide	956-000-145	956-000-146	956-000-928
3/8x2-1/2x120°	0.3750	1.7500	2.5000	0.6596	0.0904	120.0	Carbide	956-000-147	956-000-148	956-000-940
3/8x2-1/2x142°	0.3750	1.7500	2.5000	0.6961	0.0539	142.0	Carbide	956-000-149	956-000-657	956-000-948
3/8x3-1/8x120°	0.3750	1.9047	3.2203	1.2203	0.0953	120.0	HSS	956-000-091	956-000-092	956-001-038
3/8x3-1/8x120°	0.3750	1.9047	3.2203	1.2203	0.0953	120.0	HSS-Co	956-000-095	956-000-567	956-001-037
3/8x3-1/8x90°	0.3750	1.8350	3.2900	1.2900	0.1650	90.0	HSS	956-000-037	956-000-038	956-001-071
3/8x3-1/8x90°	0.3750	1.8350	3.2900	1.2900	0.1650	90.0	HSS-Co	956-000-041	956-000-477	956-001-070
3/8x3-1/8x82°	0.3750	1.8102	3.3148	1.3148	0.1898	82.0	HSS	956-000-225	956-000-877	956-000-959
3/8x3-1/8x82°	0.3750	1.8102	3.3148	1.3148	0.1898	82.0	HSS-Co	956-000-226	956-000-880	956-000-958

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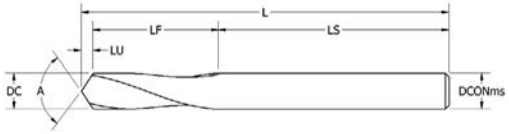

PG.500

Size	DC/DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	BMC	Uncoated	TiN Coated	AlTiN Coated
3/8x5x120°	0.3750	3.7797	5.0953	1.2203	0.0953	120.0	HSS	956-000-093	956-000-094	956-000-933
3/8x5x120°	0.3750	3.7797	5.0953	1.2203	0.0953	120.0	HSS-Co	956-000-098	956-000-572	956-001-035
3/8 x 5x90°	0.3750	3.7100	5.1650	1.2900	0.1650	90.0	HSS	956-000-039	956-000-040	956-000-921
3/8x5x90°	0.3750	3.7100	5.1650	1.2900	0.1650	90.0	HSS-Co	956-000-044	956-000-482	956-001-068
3/8x5x82°	0.3750	3.6852	5.1898	1.3148	0.1898	82.0	HSS	956-000-227	956-000-883	956-000-957
3/8x5x82°	0.3750	3.6852	5.1898	1.3148	0.1898	82.0	HSS-Co	956-000-228	956-000-886	956-000-956
3/8x7x120°	0.3750	5.7797	7.0953	1.2203	0.0953	120.0	HSS	956-000-096	956-000-097	956-001-036
3/8x7x120°	0.3750	5.7797	7.0953	1.2203	0.0953	120.0	HSS-Co	956-000-099	956-000-575	956-001-034
3/8x7x90°	0.3750	5.7100	7.1650	1.2900	0.1650	90.0	HSS	956-000-042	956-000-043	956-001-069
3/8x7x90°	0.3750	5.7100	7.1650	1.2900	0.1650	90.0	HSS-Co	956-000-045	956-000-485	956-001-067
3/8x7x82°	0.3750	5.6852	7.1898	1.3148	0.1898	82.0	HSS	956-000-229	956-000-889	956-000-955
3/8x7x82°	0.3750	5.6852	7.1898	1.3148	0.1898	82.0	HSS-Co	956-000-230	956-000-892	956-000-954
1/2x3x82°	0.5000	2.0000	3.0000	0.7584	0.2416	82.0	Carbide	956-000-114	956-000-600	956-000-911
1/2x3x90°	0.5000	2.0000	3.0000	0.7900	0.2100	90.0	Carbide	956-000-109	956-000-110	956-000-922
1/2x3x120°	0.5000	2.0000	3.0000	0.8788	0.1212	120.0	Carbide	956-000-111	956-000-112	956-000-934
1/2x3x142°	0.5000	2.0000	3.0000	0.9277	0.0723	142.0	Carbide	956-000-113	956-000-597	956-000-942
1/2x3-3/4x120°	0.5000	2.2468	3.8782	1.5032	0.1282	120.0	HSS	956-000-064	956-000-065	956-000-931
1/2x3-3/4x120°	0.5000	2.2468	3.8782	1.5032	0.1282	120.0	HSS-Co	956-000-068	956-000-522	956-001-053
1/2x3-3/4x90°	0.5000	2.1530	3.9720	1.5970	0.2220	90.0	HSS	956-000-010	956-000-011	956-000-919
1/2x3-3/4x90°	0.5000	2.1530	3.9720	1.5970	0.2220	90.0	HSS-Co	956-000-014	956-000-432	956-001-086
1/2x3-3/4x82°	0.5000	2.1196	4.0054	1.6304	0.2554	82.0	HSS	956-000-207	956-000-823	956-000-977
1/2x3-3/4x82°	0.5000	2.1196	4.0054	1.6304	0.2554	82.0	HSS-Co	956-000-208	956-000-826	956-000-976
1/2x6x120°	0.5000	4.4968	6.1282	1.5032	0.1282	120.0	HSS	956-000-066	956-000-067	956-001-054
1/2x6x120°	0.5000	4.4968	6.1282	1.5032	0.1282	120.0	HSS-Co	956-000-071	956-000-527	956-001-051
1/2x6x90°	0.5000	4.4030	6.2220	1.5970	0.2220	90.0	HSS	956-000-012	956-000-013	956-001-087
1/2x6x90°	0.5000	4.4030	6.2220	1.5970	0.2220	90.0	HSS-Co	956-000-017	956-000-437	956-001-084
1/2x6x82°	0.5000	4.3696	6.2554	1.6304	0.2554	82.0	HSS	956-000-209	956-000-829	956-000-975
1/2x6x82°	0.5000	4.3696	6.2554	1.6304	0.2554	82.0	HSS-Co	956-000-210	956-000-832	956-000-974
1/2x8x120°	0.5000	6.4968	8.1282	1.5032	0.1282	120.0	HSS	956-000-069	956-000-070	956-001-052
1/2x8x120°	0.5000	6.4968	8.1282	1.5032	0.1282	120.0	HSS-Co	956-000-072	956-000-530	956-001-050
1/2x8x90°	0.5000	6.4030	8.2220	1.5970	0.2220	90.0	HSS	956-000-015	956-000-016	956-001-085
1/2x8x90°	0.5000	6.4030	8.2220	1.5970	0.2220	90.0	HSS-Co	956-000-018	956-000-440	956-001-083
1/2x8x82°	0.5000	6.3696	8.2554	1.6304	0.2554	82.0	HSS	956-000-211	956-000-835	956-000-973
1/2x8x82°	0.5000	6.3696	8.2554	1.6304	0.2554	82.0	HSS-Co	956-000-212	956-000-838	956-000-972
5/8x3-1/2x82°	0.6250	2.5000	3.5000	0.7067	0.2933	82.0	Carbide	956-000-156	956-000-670	956-000-918
5/8x3-1/2x90°	0.6250	2.5000	3.5000	0.7450	0.2550	90.0	Carbide	956-000-151	956-000-152	956-000-929
5/8x3-1/2x120°	0.6250	2.5000	3.5000	0.8528	0.1472	120.0	Carbide	956-000-153	956-000-154	956-000-941
5/8x3-1/2x142°	0.6250	2.5000	3.5000	0.9122	0.0878	142.0	Carbide	956-000-155	956-000-667	956-000-949
5/8x4-3/8x82°	0.6250	2.0977	4.3750	1.9511	0.3261	82.0	HSS	956-000-231	956-000-895	956-001-094
5/8x4-3/8x82°	0.6250	2.0977	4.3750	1.9511	0.3261	82.0	HSS-Co	956-000-232	956-000-898	956-000-930
5/8x4-3/8x90°	0.6250	2.1830	4.3750	1.9085	0.2835	90.0	HSS	956-000-046	956-000-047	956-001-066
5/8x4-3/8x90°	0.6250	2.1830	4.3750	1.9085	0.2835	90.0	HSS-Co	956-000-050	956-000-492	956-001-064
5/8x4-3/8x120°	0.6250	2.4226	4.3750	1.7887	0.1637	120.0	HSS	956-000-100	956-000-101	956-001-033
5/8x4-3/8x120°	0.6250	2.4226	4.3750	1.7887	0.1637	120.0	HSS-Co	956-000-104	956-000-582	956-001-031

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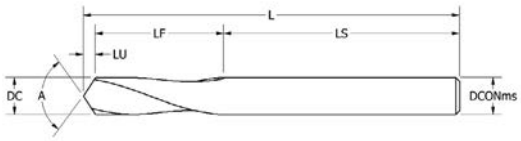

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Size	DC/DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	BMC	Uncoated	TiN Coated	AlTiN Coated
5/8x7x120°	0.6250	5.2113	7.1637	1.7887	0.1637	120.0	HSS-Co	956-000-107	956-000-587	956-001-029
5/8x7x90°	0.6250	5.0915	7.2835	1.9085	0.2835	90.0	HSS	956-000-048	956-000-049	956-001-065
5/8x7x90°	0.6250	5.0915	7.2835	1.9085	0.2835	90.0	HSS-Co	956-000-053	956-000-497	956-001-062
5/8x7x82°	0.6250	5.0489	7.3261	1.9511	0.3261	82.0	HSS	956-000-233	956-000-901	956-000-953
5/8x7x82°	0.6250	5.0489	7.3261	1.9511	0.3261	82.0	HSS-Co	956-000-234	956-000-904	956-000-952
5/8x9x120°	0.6250	7.2113	9.1637	1.7887	0.1637	120.0	HSS	956-000-105	956-000-106	956-001-030
5/8x9x120°	0.6250	7.2113	9.1637	1.7887	0.1637	120.0	HSS-Co	956-000-108	956-000-590	956-001-028
5/8x9x90°	0.6250	7.0915	9.2835	1.9085	0.2835	90.0	HSS	956-000-051	956-000-052	956-001-063
5/8x9x90°	0.6250	7.0915	9.2835	1.9085	0.2835	90.0	HSS-Co	956-000-054	956-000-500	956-001-061
5/8x9x82°	0.6250	7.0489	9.3261	1.9511	0.3261	82.0	HSS	956-000-235	956-000-907	956-000-951
5/8x9x82°	0.6250	7.0489	9.3261	1.9511	0.3261	82.0	HSS-Co	956-000-236	956-000-910	956-000-950
3/4x4x82°	0.7500	2.8750	4.0000	0.7713	0.3537	82.0	Carbide	956-000-144	956-000-650	956-000-916
3/4x1x4x90°	0.7500	2.8750	4.0000	0.8175	0.3075	90.0	Carbide	956-000-139	956-000-140	956-000-927
3/4x4x120°	0.7500	2.8750	4.0000	0.9475	0.1775	120.0	Carbide	956-000-141	956-000-142	956-000-939
3/4x4x142°	0.7500	2.8750	4.0000	1.0191	0.1059	142.0	Carbide	956-000-143	956-000-647	956-000-947
3/4x5x120°	0.7500	2.9258	5.1992	2.0742	0.1992	120.0	HSS	956-000-082	956-000-083	956-001-044
3/4x5x90°	0.7500	2.7800	5.3450	2.2200	0.3450	90.0	HSS	956-000-028	956-000-029	956-001-077
3/4x5x90°	0.7500	2.7800	5.3450	2.2200	0.3450	90.0	HSS-Co	956-000-032	956-000-462	956-001-075
3/4x5x82°	0.7500	2.7281	5.3969	2.2719	0.3969	82.0	HSS	956-000-219	956-000-859	956-000-965
3/4x5x82°	0.7500	2.7281	5.3969	2.2719	0.3969	82.0	HSS-Co	956-000-220	956-000-862	956-000-964
3/4x5x120°	0.7500	3.9258	6.1992	2.0742	0.1992	120.0	HSS-Co	956-000-086	956-000-552	956-001-042
3/4x8x120°	0.7500	5.9258	8.1992	2.0742	0.1992	120.0	HSS	956-000-084	956-000-085	956-001-043
3/4x8x120°	0.7500	5.9258	8.1992	2.0742	0.1992	120.0	HSS-Co	956-000-089	956-000-557	956-001-040
3/4x8x90°	0.7500	5.7800	8.3450	2.2200	0.3450	90.0	HSS	956-000-030	956-000-031	956-001-076
3/4x8x90°	0.7500	5.7800	8.3450	2.2200	0.3450	90.0	HSS-Co	956-000-035	956-000-467	956-001-073
3/4x8x82°	0.7500	5.7281	8.3969	2.2719	0.3969	82.0	HSS	956-000-221	956-000-865	956-000-963
3/4x8x82°	0.7500	5.7281	8.3969	2.2719	0.3969	82.0	HSS-Co	956-000-222	956-000-868	956-000-962
3/4x10x120°	0.7500	7.9258	10.1992	2.0742	0.1992	120.0	HSS	956-000-087	956-000-088	956-001-041
3/4x10x120°	0.7500	7.9258	10.1992	2.0742	0.1992	120.0	HSS-Co	956-000-090	956-000-560	956-001-039
3/4x10x90°	0.7500	7.7800	10.3450	2.2200	0.3450	90.0	HSS	956-000-033	956-000-034	956-001-074
3/4x10x90°	0.7500	7.7800	10.3450	2.2200	0.3450	90.0	HSS-Co	956-000-036	956-000-470	956-001-072
3/4x10x82°	0.7500	7.7281	10.3969	2.2719	0.3969	82.0	HSS	956-000-223	956-000-871	956-000-961
3/4x10x82°	0.7500	7.7281	10.3969	2.2719	0.3969	82.0	HSS-Co	956-000-224	956-000-874	956-000-960
1x6x120°	1.0000	3.4801	6.2699	2.5199	0.2699	120.0	HSS	956-000-055	956-000-056	956-001-060
1x6x120°	1.0000	3.4801	6.2699	2.5199	0.2699	120.0	HSS-Co	956-000-059	956-000-507	956-001-058
1x6x90°	1.0000	3.2825	6.4675	2.7175	0.4675	90.0	HSS	956-000-001	956-000-002	956-001-093
1x6x90°	1.0000	3.2825	6.4675	2.7175	0.4675	90.0	HSS-Co	956-000-005	956-000-417	956-001-091
1x6x82°	1.0000	3.2122	6.5378	2.7878	0.5378	82.0	HSS	956-000-201	956-000-805	956-000-983
1x6x82°	1.0000	3.2122	6.5378	2.7878	0.5378	82.0	HSS-Co	956-000-202	956-000-808	956-000-982
1x8x120°	1.0000	5.4801	8.2699	2.5199	0.2699	120.0	HSS	956-000-057	956-000-058	956-001-059
1x8x120°	1.0000	5.4801	8.2699	2.5199	0.2699	120.0	HSS-Co	956-000-062	956-000-512	956-001-056
1x8x90°	1.0000	5.2825	8.4675	2.7175	0.4675	90.0	HSS	956-000-003	956-000-004	956-001-092
1x8x90°	1.0000	5.2825	8.4675	2.7175	0.4675	90.0	HSS-Co	956-000-008	956-000-422	956-001-089
1x8x82°	1.0000	5.2122	8.5378	2.7878	0.5378	82.0	HSS	956-000-203	956-000-811	956-000-981
1x8x82°	1.0000	5.2122	8.5378	2.7878	0.5378	82.0	HSS-Co	956-000-204	956-000-814	956-000-980
1x10x120°	1.0000	7.4801	10.2699	2.5199	0.2699	120.0	HSS	956-000-060	956-000-061	956-001-057
1x10x120°	1.0000	7.4801	10.2699	2.5199	0.2699	120.0	HSS-Co	956-000-063	956-000-515	956-001-055
1x10x90°	1.0000	7.2825	10.4675	2.7175	0.4675	90.0	HSS	956-000-006	956-000-007	956-001-090
1x10x90°	1.0000	7.2825	10.4675	2.7175	0.4675	90.0	HSS-Co	956-000-009	956-000-425	956-001-088
1x10x82°	1.0000	7.2122	10.5378	2.7878	0.5378	82.0	HSS	956-000-205	956-000-817	956-000-979
1x10x82°	1.0000	7.2122	10.5378	2.7878	0.5378	82.0	HSS-Co	956-000-206	956-000-820	956-000-978

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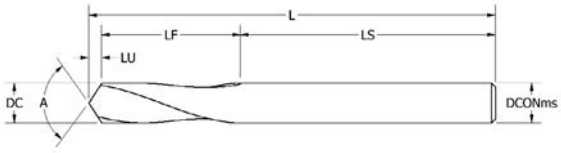

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METRIC

SIZE	DCONMS [mm]	LS [mm]	L [mm]	LF [mm]	LU [mm]	A [°]	BMC	Uncoated	TiN Coated	AlTiN Coated
2mm x 49mm x 120°	2.00	41.00	49.00	7.51	0.49	120.0	HSS-Co	956-000-170	956-000-712	956-001-014
2mm x 49mm x 90°	2.00	41.00	49.00	7.15	0.85	90.0	HSS-Co	956-000-157	956-000-673	956-001-027
3mm x 50mm x 120°	3.00	40.00	50.00	9.24	0.76	120.0	HSS-Co	956-000-171	956-000-715	956-001-013
3mm x 50mm x 90°	3.00	40.00	50.00	8.68	1.32	90.0	HSS-Co	956-000-158	956-000-676	956-001-026
3mm x 80mm x 120°	3.00	70.00	80.00	9.24	0.76	120.0	HSS-Co	956-000-192	956-000-778	956-000-992
3mm x 80mm x 90°	3.00	70.00	80.00	8.68	1.32	90.0	HSS-Co	956-000-183	956-000-751	956-001-001
4mm x 52mm x 120°	4.00	40.00	52.00	10.97	1.03	120.0	HSS-Co	956-000-172	956-000-718	956-001-012
4mm x 52mm x 90°	4.00	40.00	52.00	10.22	1.78	90.0	HSS-Co	956-000-159	956-000-679	956-001-025
4mm x 100mm x 120°	4.00	88.00	100.00	10.97	1.03	120.0	HSS-Co	956-000-193	956-000-781	956-000-991
4mm x 100mm x 90°	4.00	88.00	100.00	10.22	1.78	90.0	HSS-Co	956-000-184	956-000-754	956-001-000
5mm x 60mm x 120°	5.00	45.00	60.00	13.72	1.28	120.0	HSS-Co	956-000-173	956-000-721	956-001-011
5mm x 60mm x 90°	5.00	45.00	60.00	12.78	2.22	90.0	HSS-Co	956-000-160	956-000-682	956-001-024
5mm x 120mm x 120°	5.00	105.00	120.00	13.72	1.28	120.0	HSS-Co	956-000-194	956-000-784	956-000-990
5mm x 120mm x 90°	5.00	105.00	120.00	12.78	2.22	90.0	HSS-Co	956-000-185	956-000-757	956-000-999
6mm x 66mm x 120°	6.00	46.00	66.00	18.49	1.51	120.0	HSS-Co	956-000-174	956-000-724	956-001-010
6mm x 66mm x 90°	6.00	46.00	66.00	17.38	2.62	90.0	HSS-Co	956-000-161	956-000-685	956-001-023
6mm x 140mm x 120°	6.00	120.00	140.00	18.49	1.51	120.0	HSS-Co	956-000-195	956-000-787	956-000-989
6mm x 140mm x 90°	6.00	120.00	140.00	17.38	2.62	90.0	HSS-Co	956-000-186	956-000-760	956-000-998
8mm x 79mm x 120°	8.00	54.00	79.00	22.97	2.03	120.0	HSS-Co	956-000-175	956-000-727	956-001-009
8mm x 79mm x 90°	8.00	54.00	79.00	21.48	3.52	90.0	HSS-Co	956-000-162	956-000-688	956-001-022
8mm x 140mm x 120°	8.00	115.00	140.00	22.97	2.03	120.0	HSS-Co	956-000-196	956-000-790	956-000-988
8mm x 140mm x 90°	8.00	115.00	140.00	21.48	3.52	90.0	HSS-Co	956-000-187	956-000-763	956-000-997
10mm x 89mm x 120°	10.00	64.00	89.00	22.40	2.60	120.0	HSS-Co	956-000-176	956-000-730	956-001-008
10mm x 89mm x 90°	10.00	64.00	89.00	20.50	4.50	90.0	HSS-Co	956-000-163	956-000-691	956-001-021
10mm x 170mm x 120°	10.00	145.00	170.00	22.40	2.60	120.0	HSS-Co	956-000-197	956-000-793	956-000-987
10mm x 170mm x 90°	10.00	145.00	170.00	20.50	4.50	90.0	HSS-Co	956-000-188	956-000-766	956-000-996
12mm x 102mm x 120°	12.00	72.00	102.00	26.95	3.05	120.0	HSS-Co	956-000-177	956-000-733	956-001-007
12mm x 102mm x 90°	12.00	72.00	102.00	24.71	5.29	90.0	HSS-Co	956-000-164	956-000-694	956-001-020
12mm x 170mm x 120°	12.00	140.00	170.00	26.95	3.05	120.0	HSS-Co	956-000-198	956-000-796	956-000-986
12mm x 170mm x 90°	12.00	140.00	170.00	24.71	5.29	90.0	HSS-Co	956-000-189	956-000-769	956-000-995
14mm x 115mm x 120°	14.00	80.00	115.00	31.37	3.63	120.0	HSS-Co	956-000-178	956-000-736	956-001-006
14mm x 115mm x 90°	14.00	80.00	115.00	28.71	6.29	90.0	HSS-Co	956-000-165	956-000-697	956-001-019
16mm x 115mm x 120°	16.00	80.00	115.00	30.79	4.21	120.0	HSS-Co	956-000-179	956-000-739	956-001-005
16mm x 115mm x 90°	16.00	80.00	115.00	27.71	7.29	90.0	HSS-Co	956-000-166	956-000-700	956-001-018
16mm x 200mm x 120°	16.00	165.00	200.00	30.79	4.21	120.0	HSS-Co	956-000-199	956-000-799	956-000-985
16mm x 200mm x 90°	16.00	165.00	200.00	27.71	7.29	90.0	HSS-Co	956-000-190	956-000-772	956-000-994
18mm x 130mm x 120°	18.00	90.00	130.00	35.24	4.76	120.0	HSS-Co	956-000-180	956-000-742	956-001-004
18mm x 130mm x 90°	18.00	90.00	130.00	31.76	8.24	90.0	HSS-Co	956-000-167	956-000-703	956-001-017
20mm x 131mm x 120°	20.00	91.00	131.00	34.67	5.33	120.0	HSS-Co	956-000-181	956-000-745	956-001-003
20mm x 131mm x 90°	20.00	91.00	131.00	30.76	9.24	90.0	HSS-Co	956-000-168	956-000-706	956-001-016
20mm x 200mm x 120°	20.00	160.00	200.00	34.67	5.33	120.0	HSS-Co	956-000-200	956-000-802	956-000-984
20mm x 200mm x 90°	20.00	160.00	200.00	30.76	9.24	90.0	HSS-Co	956-000-191	956-000-775	956-000-993
25mm x 138mm x 120°	25.00	93.00	138.00	38.31	6.69	120.0	HSS-Co	956-000-182	956-000-748	956-001-002
25mm x 138mm x 90°	25.00	93.00	138.00	33.41	11.59	90.0	HSS-Co	956-000-169	956-000-709	956-001-015

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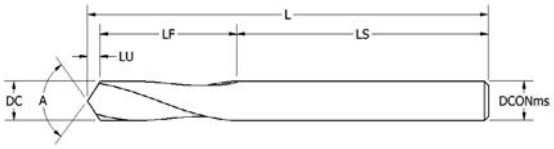

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HSS

Size	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	Hand	Uncoated	TiN Coated	AlTiN Coated
1/8x90° RH	0.1250	0.8750	1.2500	0.3185	0.0565	90.0	R	955-000-009	955-000-010	955-000-343
1/8x90° LH	0.1250	0.8750	1.2500	0.3185	0.0565	90.0	L	955-000-012	955-000-118	955-000-341
3/16x90° RH	0.1875	0.8750	1.3750	0.4148	0.0853	90.0	R	955-000-015	955-000-016	955-000-339
3/16x90° LH	0.1875	0.8750	1.3750	0.4148	0.0853	90.0	L	955-000-018	955-000-132	955-000-337
1/4x90° RH	0.2500	0.8750	1.5000	0.5120	0.1130	90.0	R	955-000-021	955-000-022	955-000-335
1/4x90° LH	0.2500	0.8750	1.5000	0.5120	0.1130	90.0	L	955-000-024	955-000-146	955-000-333
5/16x90° RH	0.3125	0.8750	1.5000	0.4843	0.1408	90.0	R	955-000-027	955-000-028	955-000-331
5/16x90° LH	0.3125	0.8750	1.5000	0.4843	0.1408	90.0	L	955-000-030	955-000-160	955-000-329
3/8x90° RH	0.3750	1.0000	2.0000	0.8305	0.1695	90.0	R	955-000-039	955-000-040	955-000-323
3/8x90° LH	0.3750	1.0000	2.0000	0.8305	0.1695	90.0	L	955-000-042	955-000-188	955-000-321
7/16x90° RH	0.4375	1.0000	2.0000	0.8003	0.1998	90.0	R	955-000-051	955-000-052	955-000-315
7/16x90° LH	0.4375	1.0000	2.0000	0.8003	0.1998	90.0	L	955-000-054	955-000-216	955-000-313
1/2x90° RH	0.5000	1.0000	2.0000	0.7720	0.2280	90.0	R	955-000-003	955-000-004	955-000-347
1/2x90° LH	0.5000	1.0000	2.0000	0.7720	0.2280	90.0	L	955-000-006	955-000-104	955-000-345
9/16x90° RH	0.5625	1.0000	2.0000	0.7433	0.2568	90.0	R	955-000-063	955-000-064	955-000-307
9/16x90° LH	0.5625	1.0000	2.0000	0.7433	0.2568	90.0	L	955-000-066	955-000-244	955-000-305
5/8x90° RH	0.6250	1.1250	2.2500	0.8375	0.2875	90.0	R	955-000-045	955-000-046	955-000-319
5/8x90° LH	0.6250	1.1250	2.2500	0.8375	0.2875	90.0	L	955-000-048	955-000-202	955-000-317
3/4x90° RH	0.7500	1.1250	2.2500	0.7755	0.3495	90.0	R	955-000-033	955-000-034	955-000-327
3/4x90° LH	0.7500	1.1250	2.2500	0.7755	0.3495	90.0	L	955-000-036	955-000-174	955-000-325
7/8x90° RH	0.8750	1.2500	2.5000	0.8425	0.4075	90.0	R	955-000-057	955-000-058	955-000-311
7/8x90° LH	0.8750	1.2500	2.5000	0.8425	0.4075	90.0	L	955-000-060	955-000-230	955-000-309
1x90° RH	1.0000	1.2500	2.5000	0.7830	0.4670	90.0	R	955-000-069	955-000-070	955-000-303
1x90° LH	1.0000	1.2500	2.5000	0.7830	0.4670	90.0	L	955-000-072	955-000-258	955-000-301
1-1/4x90° RH	1.2500	2.0000	4.0000	1.4155	0.5845	90.0	R	955-000-081	955-000-082	955-000-295
1-1/4x90° LH	1.2500	2.0000	4.0000	1.4155	0.5845	90.0	L	955-000-084	955-000-278	955-000-293
1-1/2x90° RH	1.5000	2.5000	5.0000	1.8005	0.6995	90.0	R	955-000-075	955-000-076	955-000-299
1-1/2x90° LH	1.5000	2.5000	5.0000	1.8005	0.6995	90.0	L	955-000-078	955-000-268	955-000-297
1-3/4x90° RH	1.7500	2.7500	5.5000	1.9330	0.8170	90.0	R	955-000-087	955-000-088	955-000-291
1-3/4x90° LH	1.7500	2.7500	5.5000	1.9330	0.8170	90.0	L	955-000-090	955-000-288	955-000-289
1/8x118° RH	0.1250	0.8750	1.2500	0.3411	0.0339	118.0	R	955-000-007	955-000-008	955-000-344
1/8x118° LH	0.1250	0.8750	1.2500	0.3411	0.0339	118.0	L	955-000-011	955-000-114	955-000-342
3/16x118° RH	0.1875	0.8750	1.3750	0.4488	0.0512	118.0	R	955-000-013	955-000-014	955-000-340
3/16x118° LH	0.1875	0.8750	1.3750	0.4488	0.0512	118.0	L	955-000-017	955-000-128	955-000-338
1/4x118° RH	0.2500	0.8750	1.5000	0.5571	0.0679	118.0	R	955-000-019	955-000-020	955-000-336
1/4x118° LH	0.2500	0.8750	1.5000	0.5571	0.0679	118.0	L	955-000-023	955-000-142	955-000-334
5/16x118° RH	0.3125	0.8750	1.5000	0.5404	0.0846	118.0	R	955-000-025	955-000-026	955-000-332
5/16x118° LH	0.3125	0.8750	1.5000	0.5404	0.0846	118.0	L	955-000-029	955-000-156	955-000-330
3/8x118° RH	0.3750	1.0000	2.0000	0.8982	0.1018	118.0	R	955-000-037	955-000-038	955-000-324
3/8x118° LH	0.3750	1.0000	2.0000	0.8982	0.1018	118.0	L	955-000-041	955-000-184	955-000-322
7/16x118° RH	0.4375	1.0000	2.0000	0.8800	0.1200	118.0	R	955-000-049	955-000-050	955-000-316
7/16x118° LH	0.4375	1.0000	2.0000	0.8800	0.1200	118.0	L	955-000-053	955-000-212	955-000-314
1/2x118° RH	0.5000	1.0000	2.0000	0.8630	0.1370	118.0	R	955-000-001	955-000-002	955-000-348
1/2x118° LH	0.5000	1.0000	2.0000	0.8630	0.1370	118.0	L	955-000-005	955-000-100	955-000-346
9/16x118° RH	0.5625	1.0000	2.0000	0.8457	0.1543	118.0	R	955-000-061	955-000-062	955-000-308
9/16x118° LH	0.5625	1.0000	2.0000	0.8457	0.1543	118.0	L	955-000-065	955-000-240	955-000-306
5/8x118° RH	0.6250	1.1250	2.2500	0.9523	0.1727	118.0	R	955-000-043	955-000-044	955-000-320
5/8x118° LH	0.6250	1.1250	2.2500	0.9523	0.1727	118.0	L	955-000-047	955-000-198	955-000-318
3/4x118° RH	0.7500	1.1250	2.2500	0.9150	0.2100	118.0	R	955-000-031	955-000-032	955-000-328
3/4x118° LH	0.7500	1.1250	2.2500	0.9150	0.2100	118.0	L	955-000-035	955-000-170	955-000-326
7/8x118° RH	0.8750	1.2500	2.5000	1.0051	0.2449	118.0	R	955-000-055	955-000-056	955-000-312
7/8x118° LH	0.8750	1.2500	2.5000	1.0051	0.2449	118.0	L	955-000-059	955-000-226	955-000-310
1x118° RH	1.0000	1.2500	2.5000	0.9694	0.2806	118.0	R	955-000-067	955-000-068	955-000-304
1x118° LH	1.0000	1.2500	2.5000	0.9694	0.2806	118.0	L	955-000-071	955-000-254	955-000-302
1-1/4x118° RH	1.2500	2.0000	4.0000	1.6488	0.3512	118.0	R	955-000-079	955-000-080	955-000-296
1-1/4x118° LH	1.2500	2.0000	4.0000	1.6488	0.3512	118.0	L	955-000-083	955-000-275	955-000-294
1-1/2x118° RH	1.5000	2.5000	5.0000	2.0797	0.4203	118.0	R	955-000-073	955-000-074	955-000-300
1-1/2x118° LH	1.5000	2.5000	5.0000	2.0797	0.4203	118.0	L	955-000-077	955-000-265	955-000-298
1-3/4x118° RH	1.7500	2.7500	5.5000	2.2591	0.4909	118.0	R	955-000-085	955-000-086	955-000-292
1-3/4x118° LH	1.7500	2.7500	5.5000	2.2591	0.4909	118.0	L	955-000-089	955-000-285	955-000-290

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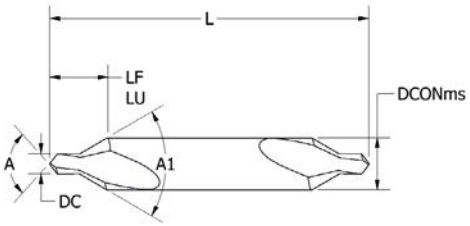

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Size	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	BMC	Hand of Cut	Uncoated 2 FLUTE	TiN Coated 2 FLUTE	AlTiN Coated 2 FLUTE
#3-0 - 3/32	0.0200	0.0938	1.1250	0.0888	118.0	60.0	HSS	R	906-000-590	N/A	906-000-454
#2-0 - 3/32	0.0250	0.0938	1.1250	0.0907	118.0	60.0	HSS	R	906-000-591	N/A	906-000-455
#0 - 3/32	0.0310	0.0938	1.1250	0.0930	118.0	60.0	HSS	R	906-000-592	N/A	906-000-456
#5-0	0.0100	0.1250	1.5000	0.1121	118.0	60.0	Carbide	R	906-000-409	906-001-568	906-000-511
#5-0 x 82°	0.0100	0.1250	1.5000	0.0786	118.0	82.0	Carbide	R	906-000-410	906-001-571	906-000-534
#5-0 x 90°	0.0100	0.1250	1.5000	0.0700	118.0	90.0	Carbide	R	906-000-411	906-001-574	906-000-557
#5-0	0.0100	0.1250	1.2500	0.1121	118.0	60.0	HSS	R	906-000-005	906-000-006	906-002-002
#5-0	0.0100	0.1250	1.2500	0.1121	118.0	60.0	HSS	L	906-000-009	906-000-610	906-001-999
#5-0 x 82°	0.0100	0.1250	1.2500	0.0786	118.0	82.0	HSS	R	906-000-044	906-000-045	906-001-976
#5-0 x 90°	0.0100	0.1250	1.2500	0.0700	118.0	90.0	HSS	R	906-000-010	906-000-011	906-001-998
#5-0	0.0100	0.1250	1.2500	0.1121	118.0	60.0	HSS-Co	R	906-000-008	906-000-606	906-002-000
#5-0	0.0100	0.1250	1.2500	0.1121	118.0	60.0	T-15	R	906-000-007	906-000-602	906-002-001
#4-0	0.0150	0.1250	1.5000	0.1140	118.0	60.0	Carbide	R	906-000-412	906-001-577	906-000-512
#4-0 x 82°	0.0150	0.1250	1.5000	0.0820	118.0	82.0	Carbide	R	906-000-413	906-001-580	906-000-535
#4-0 x 90°	0.0150	0.1250	1.5000	0.0737	118.0	90.0	Carbide	R	906-000-414	906-001-583	906-000-558
#4-0	0.0150	0.1250	1.2500	0.1140	118.0	60.0	HSS	R	906-000-012	906-000-013	906-001-997
#4-0	0.0150	0.1250	1.2500	0.1140	118.0	60.0	HSS	L	906-000-016	906-000-628	906-001-994
#4-0 x 82°	0.0150	0.1250	1.2500	0.0820	118.0	82.0	HSS	R	906-000-046	906-000-047	906-001-975
#4-0 x 90°	0.0150	0.1250	1.2500	0.0737	118.0	90.0	HSS	R	906-000-017	906-000-018	906-001-993
#4-0	0.0150	0.1250	1.2500	0.1140	118.0	60.0	HSS-Co	R	906-000-015	906-000-624	906-001-995
#4-0	0.0150	0.1250	1.2500	0.1140	118.0	60.0	T-15	R	906-000-014	906-000-620	906-001-996
#3-0	0.0200	0.1250	1.5000	0.1159	118.0	60.0	Carbide	R	906-000-415	906-001-586	906-000-513
#3-0 x 82°	0.0200	0.1250	1.5000	0.0854	118.0	82.0	Carbide	R	906-000-416	906-001-589	906-000-536
#3-0 x 90°	0.0200	0.1250	1.5000	0.0775	118.0	90.0	Carbide	R	906-000-417	906-001-592	906-000-559
#3-0	0.0200	0.1250	1.2500	0.1159	118.0	60.0	HSS	R	906-000-019	906-000-020	906-001-992
#3-0	0.0200	0.1250	1.2500	0.1159	118.0	60.0	HSS	L	906-000-023	906-000-646	906-001-989
#3-0 x 82°	0.0200	0.1250	1.2500	0.0854	118.0	82.0	HSS	R	906-000-048	906-000-049	906-001-974
#3-0 x 90°	0.0200	0.1250	1.2500	0.0775	118.0	90.0	HSS	R	906-000-024	906-000-025	906-001-988
#3-0	0.0200	0.1250	1.2500	0.1159	118.0	60.0	HSS-Co	R	906-000-022	906-000-642	906-001-990
#3-0	0.0200	0.1250	1.2500	0.1159	118.0	60.0	T-15	R	906-000-021	906-000-638	906-001-991
#2-0	0.0250	0.1250	1.5000	0.1178	118.0	60.0	Carbide	R	906-000-418	906-001-595	906-000-514
#2-0 x 82°	0.0250	0.1250	1.5000	0.0887	118.0	82.0	Carbide	R	906-000-419	906-001-598	906-000-537
#2-0 x 90°	0.0250	0.1250	1.5000	0.0812	118.0	90.0	Carbide	R	906-000-420	906-001-601	906-000-560
#2-0 x 4	0.0250	0.1250	4.0000	0.1178	118.0	60.0	Carbide	R	907-000-185	907-000-655	907-000-724
#2-0 x 6	0.0250	0.1250	6.0000	0.1178	118.0	60.0	Carbide	R	907-000-186	907-000-658	907-000-723
#2-0	0.0250	0.1250	1.2500	0.1178	118.0	60.0	HSS	R	906-000-026	906-000-027	906-001-987
#2-0	0.0250	0.1250	1.2500	0.1178	118.0	60.0	HSS	L	906-000-030	906-000-664	906-001-985
#2-0 x 82°	0.0250	0.1250	1.2500	0.0887	118.0	82.0	HSS	R	906-000-031	906-000-032	906-001-984
#2-0 x 90°	0.0250	0.1250	1.2500	0.0812	118.0	90.0	HSS	R	906-000-033	906-000-034	906-001-983
#2-0	0.0250	0.1250	1.2500	0.1178	118.0	60.0	HSS-Co	R	906-000-029	906-000-660	906-001-703
#2-0	0.0250	0.1250	1.2500	0.1178	118.0	60.0	T-15	R	906-000-028	906-000-656	906-001-986
#0	0.0313	0.1250	1.5000	0.1202	118.0	60.0	Carbide	R	906-000-421	906-001-604	906-000-515
#0 x 82°	0.0313	0.1250	1.5000	0.0929	118.0	82.0	Carbide	R	906-000-422	906-001-607	906-000-538
#0 x 90°	0.0313	0.1250	1.5000	0.0859	118.0	90.0	Carbide	R	906-000-423	906-001-610	906-000-561
#0 x 4	0.0313	0.1250	4.0000	0.1202	118.0	60.0	Carbide	R	907-000-187	907-000-661	907-000-722
#0 x 6	0.0313	0.1250	6.0000	0.1202	118.0	60.0	Carbide	R	907-000-188	907-000-664	907-000-721
#0	0.0313	0.1250	1.2500	0.1202	118.0	60.0	HSS	R	906-000-035	906-000-036	906-001-982
#0	0.0313	0.1250	1.2500	0.1202	118.0	60.0	HSS	L	906-000-039	906-000-685	906-001-979
#0 x 82°	0.0313	0.1250	1.2500	0.0929	118.0	82.0	HSS	R	906-000-040	906-000-041	906-001-978
#0 x 90°	0.0313	0.1250	1.2500	0.0859	118.0	90.0	HSS	R	906-000-042	906-000-043	906-001-977
#0	0.0313	0.1250	1.2500	0.1202	118.0	60.0	HSS-Co	R	906-000-038	906-000-681	906-001-980
#0	0.0313	0.1250	1.2500	0.1202	118.0	60.0	T-15	R	906-000-037	906-000-677	906-001-981
#1	0.0469	0.1250	1.5000	0.1262	118.0	60.0	Carbide	R	906-000-424	906-001-613	906-000-506
#1 x 82°	0.0469	0.1250	1.5000	0.1034	118.0	82.0	Carbide	R	906-000-425	906-001-616	906-000-529
#1 x 90°	0.0469	0.1250	1.5000	0.0976	118.0	90.0	Carbide	R	906-000-426	906-001-619	906-000-552
#1 x 4	0.0469	0.1250	4.0000	0.1262	118.0	60.0	Carbide	R	907-000-189	907-000-668	907-000-665
#1 x 6	0.0469	0.1250	6.0000	0.1262	118.0	60.0	Carbide	R	907-000-190	907-000-671	907-000-720

KEO

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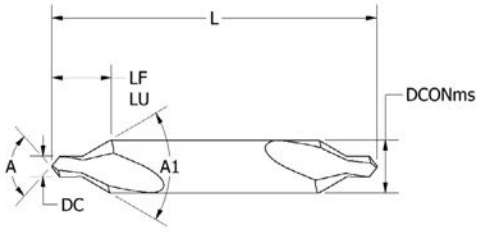
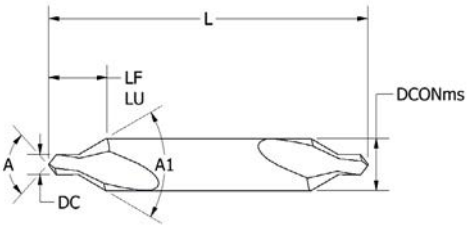


Size	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	BMC	Hand of Cut	Uncoated 2 FLUTE	TiN Coated 2 FLUTE	AlTiN Coated 2 FLUTE
#1	0.0469	0.1250	1.2500	0.1262	118.0	60.0	HSS	R	906-000-060	906-000-061	906-001-968
#1	0.0469	0.1250	1.2500	0.1262	118.0	60.0	HSS	L	906-000-070	906-000-739	906-001-962
#1 x 82°	0.0469	0.1250	1.2500	0.1034	118.0	82.0	HSS	R	906-000-071	906-000-072	906-001-961
#1 x 90°	0.0469	0.1250	1.2500	0.0976	118.0	90.0	HSS	R	906-000-073	906-000-074	906-001-960
#1 x 3	0.0469	0.1250	3.0000	0.1262	118.0	60.0	HSS	R	907-000-041	907-000-042	907-000-323
#1 x 3 x 82°	0.0469	0.1250	3.0000	0.1034	118.0	82.0	HSS	R	907-000-044	907-000-331	907-000-835
#1 x 3 x 90°	0.0469	0.1250	3.0000	0.0976	118.0	90.0	HSS	R	907-000-045	907-000-334	907-000-834
#1 x 4	0.0469	0.1250	4.0000	0.1262	118.0	60.0	HSS	R	907-000-046	907-000-047	907-000-833
#1 x 4 x 82°	0.0469	0.1250	4.0000	0.1034	118.0	82.0	HSS	R	907-000-049	907-000-342	907-000-831
#1 x 4 x 90°	0.0469	0.1250	4.0000	0.0976	118.0	90.0	HSS	R	907-000-050	907-000-345	907-000-830
#1 x 5	0.0469	0.1250	5.0000	0.1262	118.0	60.0	HSS	R	907-000-051	907-000-052	907-000-829
#1 x 5 x 82°	0.0469	0.1250	5.0000	0.1034	118.0	82.0	HSS	R	907-000-054	907-000-353	907-000-827
#1 x 5 x 90°	0.0469	0.1250	5.0000	0.0976	118.0	90.0	HSS	R	907-000-055	907-000-356	907-000-826
#1 x 6	0.0469	0.1250	6.0000	0.1262	118.0	60.0	HSS	R	907-000-056	907-000-057	907-000-825
#1 x 6 x 82°	0.0469	0.1250	6.0000	0.1034	118.0	82.0	HSS	R	907-000-059	907-000-364	907-000-823
#1 x 6 x 90°	0.0469	0.1250	6.0000	0.0976	118.0	90.0	HSS	R	907-000-060	907-000-367	907-000-822
#1 x 8	0.0469	0.1250	8.0000	0.1262	118.0	60.0	HSS	R	907-000-061	907-000-370	907-000-821
#1	0.0469	0.1250	1.2500	0.1262	118.0	60.0	HSS-Co	R	906-000-069	906-000-735	906-001-963
#1 x 3	0.0469	0.1250	3.0000	0.1262	118.0	60.0	HSS-Co	R	907-000-043	907-000-328	907-000-836
#1 x 4	0.0469	0.1250	4.0000	0.1262	118.0	60.0	HSS-Co	R	907-000-048	907-000-339	907-000-832
#1 x 5	0.0469	0.1250	5.0000	0.1262	118.0	60.0	HSS-Co	R	907-000-053	907-000-350	907-000-828
#1 x 6	0.0469	0.1250	6.0000	0.1262	118.0	60.0	HSS-Co	R	907-000-058	907-000-361	907-000-824
#1	0.0469	0.1250	1.2500	0.1262	118.0	60.0	T-15	R	906-000-064	906-000-725	906-001-966
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	Carbide	R	906-000-433	906-001-640	906-000-507
#2 x 82°	0.0781	0.1875	1.8750	0.1604	118.0	82.0	Carbide	R	906-000-434	906-001-643	906-000-530
#2 x 90°	0.0781	0.1875	1.8750	0.1522	118.0	90.0	Carbide	R	906-000-435	906-001-646	906-000-553
#2 x 4	0.0781	0.1875	4.0000	0.1922	118.0	60.0	Carbide	R	907-000-191	907-000-675	907-000-672
#2 x 6	0.0781	0.1875	6.0000	0.1922	118.0	60.0	Carbide	R	907-000-192	907-000-678	907-000-719
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	HSS	R	906-000-075	906-000-076	906-001-959
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	HSS	L	906-000-085	906-000-769	906-001-953
#2 x 82°	0.0781	0.1875	1.8750	0.1604	118.0	82.0	HSS	R	906-000-086	906-000-087	906-001-952
#2 x 90°	0.0781	0.1875	1.8750	0.1522	118.0	90.0	HSS	R	906-000-088	906-000-089	906-001-951
#2 x 3	0.0781	0.1875	3.0000	0.1922	118.0	60.0	HSS	R	907-000-062	907-000-063	907-000-371
#2 x 3 x 82°	0.0781	0.1875	3.0000	0.1604	118.0	82.0	HSS	R	907-000-065	907-000-379	907-000-819
#2 x 3 x 90°	0.0781	0.1875	3.0000	0.1522	118.0	90.0	HSS	R	907-000-066	907-000-382	907-000-818
#2 x 4	0.0781	0.1875	4.0000	0.1922	118.0	60.0	HSS	R	907-000-067	907-000-068	907-000-817
#2 x 4 x 82°	0.0781	0.1875	4.0000	0.1604	118.0	82.0	HSS	R	907-000-070	907-000-391	907-000-815
#2 x 4 x 90°	0.0781	0.1875	4.0000	0.1522	118.0	90.0	HSS	R	907-000-071	907-000-394	907-000-814
#2 x 5	0.0781	0.1875	5.0000	0.1922	118.0	60.0	HSS	R	907-000-072	907-000-073	907-000-813
#2 x 5 x 82°	0.0781	0.1875	5.0000	0.1604	118.0	82.0	HSS	R	907-000-075	907-000-402	907-000-811
#2 x 5 x 90°	0.0781	0.1875	5.0000	0.1522	118.0	90.0	HSS	R	907-000-076	907-000-405	907-000-810
#2 x 6	0.0781	0.1875	6.0000	0.1922	118.0	60.0	HSS	R	907-000-077	907-000-078	907-000-809
#2 x 6 x 82°	0.0781	0.1875	6.0000	0.1604	118.0	82.0	HSS	R	907-000-080	907-000-413	907-000-807
#2 x 6 x 90°	0.0781	0.1875	6.0000	0.1522	118.0	90.0	HSS	R	907-000-081	907-000-416	907-000-806
#2 x 8	0.0781	0.1875	8.0000	0.1922	118.0	60.0	HSS	R	907-000-082	907-000-419	907-000-805
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	HSS-Co	R	906-000-084	906-000-765	906-001-954
#2 x 3	0.0781	0.1875	3.0000	0.1922	118.0	60.0	HSS-Co	R	907-000-064	907-000-376	907-000-820
#2 x 4	0.0781	0.1875	4.0000	0.1922	118.0	60.0	HSS-Co	R	907-000-069	907-000-388	907-000-816
#2 x 5	0.0781	0.1875	5.0000	0.1922	118.0	60.0	HSS-Co	R	907-000-074	907-000-399	907-000-812
#2 x 6	0.0781	0.1875	6.0000	0.1922	118.0	60.0	HSS-Co	R	907-000-079	907-000-410	907-000-808
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	T-15	R	906-000-079	906-000-755	906-001-957
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	Carbide	R	906-000-436	906-001-650	906-001-647
#3 x 82°	0.1094	0.2500	2.0000	0.2174	118.0	82.0	Carbide	R	906-000-437	906-001-653	906-000-531
#3 x 90°	0.1094	0.2500	2.0000	0.2068	118.0	90.0	Carbide	R	906-000-438	906-001-656	906-000-554



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Size	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	BMC	Hand of Cut	Uncoated 2 FLUTE	TiN Coated 2 FLUTE	AlTiN Coated 2 FLUTE
#3 x 4	0.1094	0.2500	4.0000	0.2583	118.0	60.0	Carbide	R	907-000-193	907-000-682	907-000-679
#3 x 6	0.1094	0.2500	6.0000	0.2583	118.0	60.0	Carbide	R	907-000-194	907-000-685	907-000-718
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	HSS	R	906-000-090	906-000-091	906-001-950
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	HSS	L	906-000-100	906-000-799	906-001-944
#3 x 82°	0.1094	0.2500	2.0000	0.2174	118.0	82.0	HSS	R	906-000-101	906-000-102	906-001-943
#3 x 90°	0.1094	0.2500	2.0000	0.2068	118.0	90.0	HSS	R	906-000-103	906-000-104	906-001-942
#3 x 3	0.1094	0.2500	3.0000	0.2583	118.0	60.0	HSS	R	907-000-083	907-000-084	907-000-420
#3 x 3 x 82°	0.1094	0.2500	3.0000	0.2174	118.0	82.0	HSS	R	907-000-086	907-000-428	907-000-803
#3 x 3 x 90°	0.1094	0.2500	3.0000	0.2068	118.0	90.0	HSS	R	907-000-087	907-000-431	907-000-802
#3 x 4	0.1094	0.2500	4.0000	0.2583	118.0	60.0	HSS	R	907-000-088	907-000-089	907-000-801
#3 x 4 x 82°	0.1094	0.2500	4.0000	0.2174	118.0	82.0	HSS	R	907-000-091	907-000-439	907-000-799
#3 x 4 x 90°	0.1094	0.2500	4.0000	0.2068	118.0	90.0	HSS	R	907-000-092	907-000-442	907-000-798
#3 x 5	0.1094	0.2500	5.0000	0.2583	118.0	60.0	HSS	R	907-000-093	907-000-094	907-000-797
#3 x 5 x 82°	0.1094	0.2500	5.0000	0.2174	118.0	82.0	HSS	R	907-000-096	907-000-450	907-000-795
#3 x 5 x 90°	0.1094	0.2500	5.0000	0.2068	118.0	90.0	HSS	R	907-000-097	907-000-453	907-000-794
#3 x 6	0.1094	0.2500	6.0000	0.2583	118.0	60.0	HSS	R	907-000-098	907-000-099	907-000-793
#3 x 6 x 82°	0.1094	0.2500	6.0000	0.2174	118.0	82.0	HSS	R	907-000-101	907-000-461	907-000-791
#3 x 6 x 90°	0.1094	0.2500	6.0000	0.2068	118.0	90.0	HSS	R	907-000-102	907-000-464	907-000-790
#3 x 8	0.1094	0.2500	8.0000	0.2583	118.0	60.0	HSS	R	907-000-103	907-000-467	907-000-789
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	HSS-Co	R	906-000-099	906-000-795	906-001-945
#3 x 3	0.1094	0.2500	3.0000	0.2583	118.0	60.0	HSS-Co	R	907-000-085	907-000-425	907-000-804
#3 x 4	0.1094	0.2500	4.0000	0.2583	118.0	60.0	HSS-Co	R	907-000-090	907-000-436	907-000-800
#3 x 5	0.1094	0.2500	5.0000	0.2583	118.0	60.0	HSS-Co	R	907-000-095	907-000-447	907-000-796
#3 x 6	0.1094	0.2500	6.0000	0.2583	118.0	60.0	HSS-Co	R	907-000-100	907-000-458	907-000-792
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	T-15	R	906-000-094	906-000-785	906-001-948
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	Carbide	R	906-000-439	906-001-659	906-000-509
#4 x 82°	0.1250	0.3125	2.1250	0.2638	118.0	82.0	Carbide	R	906-000-440	906-001-662	906-000-532
#4 x 90°	0.1250	0.3125	2.1250	0.2497	118.0	90.0	Carbide	R	906-000-441	906-001-665	906-000-555
#4 x 4	0.1250	0.3125	4.0000	0.3184	118.0	60.0	Carbide	R	907-000-195	907-000-689	907-000-686
#4 x 6	0.1250	0.3125	6.0000	0.3184	118.0	60.0	Carbide	R	907-000-196	907-000-692	907-000-717
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	HSS	R	906-000-105	906-000-106	906-001-704
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	HSS	L	906-000-115	906-000-829	906-001-936
#4 x 82°	0.1250	0.3125	2.1250	0.2638	118.0	82.0	HSS	R	906-000-116	906-000-117	906-001-935
#4 x 90°	0.1250	0.3125	2.1250	0.2497	118.0	90.0	HSS	R	906-000-118	906-000-119	906-001-705
#4 x 3	0.1250	0.3125	3.0000	0.3184	118.0	60.0	HSS	R	907-000-104	907-000-105	907-000-468
#4 x 3 x 82°	0.1250	0.3125	3.0000	0.2638	118.0	82.0	HSS	R	907-000-107	907-000-476	907-000-787
#4 x 3 x 90°	0.1250	0.3125	3.0000	0.2497	118.0	90.0	HSS	R	907-000-108	907-000-479	907-000-786
#4 x 4	0.1250	0.3125	4.0000	0.3184	118.0	60.0	HSS	R	907-000-109	907-000-110	907-000-785
#4 x 4 x 82°	0.1250	0.3125	4.0000	0.2638	118.0	82.0	HSS	R	907-000-112	907-000-487	907-000-783
#4 x 4 x 90°	0.1250	0.3125	4.0000	0.2497	118.0	90.0	HSS	R	907-000-113	907-000-490	907-000-782
#4 x 5	0.1250	0.3125	5.0000	0.3184	118.0	60.0	HSS	R	907-000-114	907-000-115	907-000-781
#4 x 5 x 82°	0.1250	0.3125	5.0000	0.2638	118.0	82.0	HSS	R	907-000-117	907-000-498	907-000-779
#4 x 5 x 90°	0.1250	0.3125	5.0000	0.2497	118.0	90.0	HSS	R	907-000-118	907-000-501	907-000-778
#4 x 6	0.1250	0.3125	6.0000	0.3184	118.0	60.0	HSS	R	907-000-119	907-000-120	907-000-777
#4 x 6 x 82°	0.1250	0.3125	6.0000	0.2638	118.0	82.0	HSS	R	907-000-122	907-000-509	907-000-775
#4 x 6 x 90°	0.1250	0.3125	6.0000	0.2497	118.0	90.0	HSS	R	907-000-123	907-000-512	907-000-774
#4 x 8	0.1250	0.3125	8.0000	0.3184	118.0	60.0	HSS	R	907-000-124	907-000-515	907-000-773
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	HSS-Co	R	906-000-114	906-000-825	906-001-937
#4 x 3	0.1250	0.3125	3.0000	0.3184	118.0	60.0	HSS-Co	R	907-000-106	907-000-473	907-000-788
#4 x 4	0.1250	0.3125	4.0000	0.3184	118.0	60.0	HSS-Co	R	907-000-111	907-000-484	907-000-784
#4 x 5	0.1250	0.3125	5.0000	0.3184	118.0	60.0	HSS-Co	R	907-000-116	907-000-495	907-000-780
#4 x 6	0.1250	0.3125	6.0000	0.3184	118.0	60.0	HSS-Co	R	907-000-121	907-000-506	907-000-776
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	T-15	R	906-000-109	906-000-815	906-001-940
#4½	0.1406	0.3750	2.5000	0.3785	118.0	60.0	HSS	R	906-000-309	906-000-310	906-001-711

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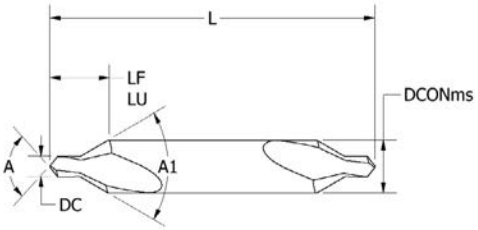

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Size	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	BMC	Hand of Cut	Uncoated 2 FLUTE	TiN Coated 2 FLUTE	AlTiN Coated 2 FLUTE
#4½	0.1406	0.3750	2.5000	0.3785	118.0	60.0	HSS	L	906-000-315	906-001-267	906-001-817
#4½ x 82°	0.1406	0.3750	2.5000	0.3103	118.0	82.0	HSS	R	906-000-316	906-000-317	906-001-816
#4½ x 90°	0.1406	0.3750	2.5000	0.2927	118.0	90.0	HSS	R	906-000-318	906-000-319	906-001-815
#4½ x 4	0.1406	0.3750	4.0000	0.3785	118.0	60.0	HSS	R	907-000-125	907-000-126	907-000-772
#4½ x 4 x 82°	0.1406	0.3750	4.0000	0.3103	118.0	82.0	HSS	R	907-000-128	907-000-523	907-000-770
#4½ x 4 x 90°	0.1406	0.3750	4.0000	0.2927	118.0	90.0	HSS	R	907-000-129	907-000-526	907-000-769
#4½ x 5	0.1406	0.3750	5.0000	0.3785	118.0	60.0	HSS	R	907-000-130	907-000-131	907-000-768
#4½ x 5 x 82°	0.1406	0.3750	5.0000	0.3103	118.0	82.0	HSS	R	907-000-133	907-000-534	907-000-766
#4½ x 5 x 90°	0.1406	0.3750	5.0000	0.2927	118.0	90.0	HSS	R	907-000-134	907-000-537	907-000-765
#4½ x 6	0.1406	0.3750	6.0000	0.3785	118.0	60.0	HSS	R	907-000-135	907-000-136	907-000-764
#4½ x 6 x 82°	0.1406	0.3750	6.0000	0.3103	118.0	82.0	HSS	R	907-000-138	907-000-545	907-000-762
#4½ x 6 x 90°	0.1406	0.3750	6.0000	0.2927	118.0	90.0	HSS	R	907-000-139	907-000-548	907-000-761
#4½ x 8	0.1406	0.3750	8.0000	0.3785	118.0	60.0	HSS	R	907-000-140	907-000-551	907-000-760
#4½	0.1406	0.3750	2.5000	0.3785	118.0	60.0	HSS-Co	R	906-000-314	906-001-263	906-001-818
#4½ x 4	0.1406	0.3750	4.0000	0.3785	118.0	60.0	HSS-Co	R	907-000-127	907-000-520	907-000-771
#4½ x 5	0.1406	0.3750	5.0000	0.3785	118.0	60.0	HSS-Co	R	907-000-132	907-000-531	907-000-767
#4½ x 6	0.1406	0.3750	6.0000	0.3785	118.0	60.0	HSS-Co	R	907-000-137	907-000-542	907-000-763
#4½	0.1406	0.3750	2.5000	0.3785	118.0	60.0	T-15	R	906-000-313	906-001-256	906-001-820
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	Carbide	R	906-000-442	906-001-668	906-000-510
#5 x 82°	0.1875	0.4375	2.7500	0.3778	118.0	82.0	Carbide	R	906-000-443	906-001-671	906-000-533
#5 x 90°	0.1875	0.4375	2.7500	0.3590	118.0	90.0	Carbide	R	906-000-444	906-001-674	906-000-556
#5 x 4	0.1875	0.4375	4.0000	0.4505	118.0	60.0	Carbide	R	907-000-197	907-000-696	907-000-693
#5 x 6	0.1875	0.4375	6.0000	0.4505	118.0	60.0	Carbide	R	907-000-198	907-000-699	907-000-716
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	HSS	R	906-000-120	906-000-121	906-000-837
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	HSS	L	906-000-130	906-000-860	906-001-929
#5 x 82°	0.1875	0.4375	2.7500	0.3778	118.0	82.0	HSS	R	906-000-131	906-000-132	906-001-928
#5 x 90°	0.1875	0.4375	2.7500	0.3590	118.0	90.0	HSS	R	906-000-133	906-000-134	906-001-927
#5 x 4	0.1875	0.4375	4.0000	0.4505	118.0	60.0	HSS	R	907-000-141	907-000-142	907-000-552
#5 x 4 x 82°	0.1875	0.4375	4.0000	0.3778	118.0	82.0	HSS	R	907-000-144	907-000-560	907-000-758
#5 x 4 x 90°	0.1875	0.4375	4.0000	0.3590	118.0	90.0	HSS	R	907-000-145	907-000-563	907-000-757
#5 x 5	0.1875	0.4375	5.0000	0.4505	118.0	60.0	HSS	R	907-000-146	907-000-147	907-000-756
#5 x 5 x 82°	0.1875	0.4375	5.0000	0.3778	118.0	82.0	HSS	R	907-000-149	907-000-571	907-000-754
#5 x 5 x 90°	0.1875	0.4375	5.0000	0.3590	118.0	90.0	HSS	R	907-000-150	907-000-574	907-000-753
#5 x 6	0.1875	0.4375	6.0000	0.4505	118.0	60.0	HSS	R	907-000-151	907-000-152	907-000-752
#5 x 6 x 82°	0.1875	0.4375	6.0000	0.3778	118.0	82.0	HSS	R	907-000-154	907-000-582	907-000-750
#5 x 6 x 90°	0.1875	0.4375	6.0000	0.3590	118.0	90.0	HSS	R	907-000-155	907-000-585	907-000-749
#5 x 8	0.1875	0.4375	8.0000	0.4505	118.0	60.0	HSS	R	907-000-156	907-000-588	907-000-748
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	HSS-Co	R	906-000-129	906-000-856	906-001-930
#5 x 4	0.1875	0.4375	4.0000	0.4505	118.0	60.0	HSS-Co	R	907-000-143	907-000-557	907-000-759
#5 x 5	0.1875	0.4375	5.0000	0.4505	118.0	60.0	HSS-Co	R	907-000-148	907-000-568	907-000-755
#5 x 6	0.1875	0.4375	6.0000	0.4505	118.0	60.0	HSS-Co	R	907-000-153	907-000-579	907-000-751
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	T-15	R	906-000-124	906-000-846	906-001-933
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	Carbide	R	906-000-445	906-001-677	906-001-719
#6 x 82°	0.2188	0.5000	3.0000	0.4347	118.0	82.0	Carbide	R	906-000-446	906-001-680	906-001-718
#6 x 90°	0.2188	0.5000	3.0000	0.4136	118.0	90.0	Carbide	R	906-000-447	906-001-683	906-001-717
#6 x 4	0.2188	0.5000	4.0000	0.5165	118.0	60.0	Carbide	R	907-000-199	907-000-702	907-000-715
#6 x 6	0.2188	0.5000	6.0000	0.5165	118.0	60.0	Carbide	R	907-000-200	907-000-705	907-000-714
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	HSS	R	906-000-135	906-000-136	906-001-926
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	HSS	L	906-000-145	906-000-890	906-001-920
#6 x 82°	0.2188	0.5000	3.0000	0.4347	118.0	82.0	HSS	R	906-000-146	906-000-147	906-001-919
#6 x 90°	0.2188	0.5000	3.0000	0.4136	118.0	90.0	HSS	R	906-000-148	906-000-149	906-001-918
#6 x 4	0.2188	0.5000	4.0000	0.5165	118.0	60.0	HSS	R	907-000-157	907-000-158	907-000-747
#6 x 4 x 82°	0.2188	0.5000	4.0000	0.4347	118.0	82.0	HSS	R	907-000-160	907-000-596	907-000-745
#6 x 4 x 90°	0.2188	0.5000	4.0000	0.4136	118.0	90.0	HSS	R	907-000-161	907-000-599	907-000-744

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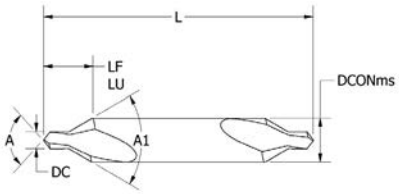

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Size	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	BMC	Hand of Cut	Uncoated	TiN Coated	AlTiN Coated
									2 FLUTE	2 FLUTE	2 FLUTE
#6 x 5	0.2188	0.5000	5.0000	0.5165	118.0	60.0	HSS	R	907-000-162	907-000-163	907-000-743
#6 x 5 x 82°	0.2188	0.5000	5.0000	0.4347	118.0	82.0	HSS	R	907-000-165	907-000-607	907-000-741
#6 x 5 x 90°	0.2188	0.5000	5.0000	0.4136	118.0	90.0	HSS	R	907-000-166	907-000-610	907-000-740
#6 x 6	0.2188	0.5000	6.0000	0.5165	118.0	60.0	HSS	R	907-000-167	907-000-168	907-000-739
#6 x 6 x 82°	0.2188	0.5000	6.0000	0.4347	118.0	82.0	HSS	R	907-000-170	907-000-618	907-000-737
#6 x 6 x 90°	0.2188	0.5000	6.0000	0.4136	118.0	90.0	HSS	R	907-000-171	907-000-621	907-000-736
#6 x 8	0.2188	0.5000	8.0000	0.5165	118.0	60.0	HSS	R	907-000-172	907-000-624	907-000-735
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	HSS-Co	R	906-000-144	906-000-886	906-001-921
#6 x 4	0.2188	0.5000	4.0000	0.5165	118.0	60.0	HSS-Co	R	907-000-159	907-000-593	907-000-746
#6 x 5	0.2188	0.5000	5.0000	0.5165	118.0	60.0	HSS-Co	R	907-000-164	907-000-604	907-000-742
#6 x 6	0.2188	0.5000	6.0000	0.5165	118.0	60.0	HSS-Co	R	907-000-169	907-000-615	907-000-738
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	T-15	R	906-000-139	906-000-876	906-001-924
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	Carbide	R	906-000-448	906-001-686	906-001-716
#7 x 82°	0.2500	0.6250	3.7500	0.5277	118.0	82.0	Carbide	R	906-000-449	906-001-690	906-001-687
#7 x 90°	0.2500	0.6250	3.7500	0.4995	118.0	90.0	Carbide	R	906-000-450	906-001-693	906-001-715
#7 x 6	0.2500	0.6250	6.0000	0.6367	118.0	60.0	Carbide	R	907-000-201	907-000-708	907-000-713
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	HSS	R	906-000-150	906-000-151	906-001-917
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	HSS	L	906-000-160	906-000-920	906-001-911
#7 x 82°	0.2500	0.6250	3.2500	0.5277	118.0	82.0	HSS	R	906-000-161	906-000-162	906-001-910
#7 x 90°	0.2500	0.6250	3.2500	0.4995	118.0	90.0	HSS	R	906-000-163	906-000-164	906-001-909
#7 x 6	0.2500	0.6250	6.0000	0.6367	118.0	60.0	HSS	R	907-000-173	907-000-174	907-000-734
#7 x 6 x 82°	0.2500	0.6250	6.0000	0.5277	118.0	82.0	HSS	R	907-000-176	907-000-632	907-000-732
#7 x 6 x 90°	0.2500	0.6250	6.0000	0.4995	118.0	90.0	HSS	R	907-000-177	907-000-635	907-000-731
#7 x 8	0.2500	0.6250	8.0000	0.6367	118.0	60.0	HSS	R	907-000-178	907-000-638	907-000-730
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	HSS-Co	R	906-000-159	906-000-916	906-001-912
#7 x 6	0.2500	0.6250	6.0000	0.6367	118.0	60.0	HSS-Co	R	907-000-175	907-000-629	907-000-733
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	T-15	R	906-000-154	906-000-906	906-001-915
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	Carbide	R	906-000-451	906-001-696	906-001-714
#8 x 82°	0.3125	0.7500	4.0000	0.6416	118.0	82.0	Carbide	R	906-000-452	906-001-699	906-001-713
#8 x 90°	0.3125	0.7500	4.0000	0.6087	118.0	90.0	Carbide	R	906-000-453	906-001-702	906-001-712
#8 x 6	0.3125	0.7500	6.0000	0.7688	118.0	60.0	Carbide	R	907-000-202	907-000-711	907-000-712
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	HSS	R	906-000-165	906-000-166	906-001-908
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	HSS	L	906-000-175	906-000-950	906-001-902
#8 x 82°	0.3125	0.7500	3.5000	0.6416	118.0	82.0	HSS	R	906-000-176	906-000-177	906-001-901
#8 x 90°	0.3125	0.7500	3.5000	0.6087	118.0	90.0	HSS	R	906-000-178	906-000-179	906-001-900
#8 x 6	0.3125	0.7500	6.0000	0.7688	118.0	60.0	HSS	R	907-000-179	907-000-180	907-000-729
#8 x 6 x 82°	0.3125	0.7500	6.0000	0.6416	118.0	82.0	HSS	R	907-000-182	907-000-646	907-000-727
#8 x 6 x 90°	0.3125	0.7500	6.0000	0.6087	118.0	90.0	HSS	R	907-000-183	907-000-649	907-000-726
#8 x 8	0.3125	0.7500	8.0000	0.7688	118.0	60.0	HSS	R	907-000-184	907-000-652	907-000-725
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	HSS-Co	R	906-000-174	906-000-946	906-001-903
#8 x 6	0.3125	0.7500	6.0000	0.7688	118.0	60.0	HSS-Co	R	907-000-181	907-000-643	907-000-728
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	T-15	R	906-000-169	906-000-936	906-001-906
#9	0.3438	0.8750	3.6250	0.8890	118.0	60.0	HSS	R	906-000-180	906-000-181	906-001-899
#9	0.3438	0.8750	3.6250	0.8890	118.0	60.0	HSS	L	906-000-186	906-000-974	906-001-895
#9 x 82°	0.3438	0.8750	3.6250	0.7345	118.0	82.0	HSS	R	906-000-187	906-000-188	906-001-894
#9 x 90°	0.3438	0.8750	3.6250	0.6946	118.0	90.0	HSS	R	906-000-189	906-000-190	906-001-893
#9	0.3438	0.8750	3.6250	0.8890	118.0	60.0	HSS-Co	R	906-000-185	906-000-970	906-001-896
#9	0.3438	0.8750	3.6250	0.8890	118.0	60.0	T-15	R	906-000-184	906-000-966	906-001-897
#10	0.3750	1.0000	3.7500	1.0092	118.0	60.0	HSS	R	906-000-191	906-000-192	906-002-013
#10	0.3750	1.0000	3.7500	1.0092	118.0	60.0	HSS	L	906-000-197	906-000-998	906-002-025
#10 x 82°	0.3750	1.0000	3.7500	0.8274	118.0	82.0	HSS	R	906-000-198	906-000-199	906-002-028
#10 x 90°	0.3750	1.0000	3.7500	0.7804	118.0	90.0	HSS	R	906-000-200	906-000-201	906-002-031
#10	0.3750	1.0000	3.7500	1.0092	118.0	60.0	HSS-Co	R	906-000-196	906-000-994	906-002-022
#10	0.3750	1.0000	3.7500	1.0092	118.0	60.0	T-15	R	906-000-195	906-000-990	906-002-019

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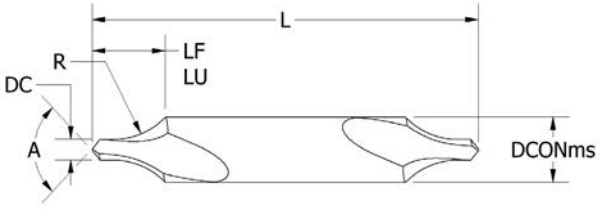
PLAIN TYPE CENTER DRILL & COUNTERSINK SET

C'Drills	PKG QTY.	BMC	Uncoated	TiN Coated	AlTiN Coated
#1, #2, #3, #4, #5,	1	HSS	906-000-001	906-000-002	906-002-003
		COBALT	906-000-003	N/A	N/A
		CARBIDE	906-000-004	906-000-595	906-002-034



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Size	DC [in.]	R [in.]	DCONMS [in.]	L [in.]	LF / LU [in.]	A [°]	BMC	Hand of Cut	Uncoated	TiN Coated	AlTiN Coated
#5-0	0.0100	0.0625	0.1250	1.2500	0.0680	118.0	HSS	R	906-000-050	906-000-051	906-001-973
#4-0	0.0150	0.0781	0.1250	1.2500	0.0830	118.0	HSS	R	906-000-052	906-000-053	906-001-972
#3-0	0.0200	0.0938	0.1250	1.2500	0.0970	118.0	HSS	R	906-000-054	906-000-055	906-001-971
#2-0	0.0250	0.1094	0.1250	1.2500	0.1090	118.0	HSS	R	906-000-056	906-000-057	906-001-970
#0	0.0313	0.1250	0.1250	1.2500	0.1180	118.0	HSS	R	906-000-058	906-000-059	906-001-969
#1	0.0469	0.1563	0.1250	1.2500	0.1320	118.0	HSS	R	906-000-062	906-000-063	906-001-967
#2	0.0781	0.2188	0.1875	1.8750	0.2040	118.0	HSS	R	906-000-077	906-000-078	906-001-958
#3	0.1094	0.2813	0.2500	2.0000	0.2750	118.0	HSS	R	906-000-092	906-000-093	906-001-949
#4	0.1250	0.3750	0.3125	2.1250	0.3438	118.0	HSS	R	906-000-107	906-000-108	906-001-941
#4½	0.1406	0.4375	0.3750	2.5000	0.4063	118.0	HSS	R	906-000-311	906-000-312	906-001-821
#5	0.1875	0.5000	0.4375	2.7500	0.4844	118.0	HSS	R	906-000-122	906-000-123	906-001-934
#6	0.2188	0.5625	0.5000	3.0000	0.5469	118.0	HSS	R	906-000-137	906-000-138	906-001-925
#7	0.2500	0.7031	0.6250	3.2500	0.6719	118.0	HSS	R	906-000-152	906-000-153	906-001-916
#8	0.3125	0.8750	0.7500	3.5000	0.8125	118.0	HSS	R	906-000-167	906-000-168	906-001-907
#9	0.3438	1.0000	0.8750	3.6250	0.9375	118.0	HSS	R	906-000-182	906-000-183	906-001-898
#10	0.3750	1.1094	1.0000	3.7500	1.0625	118.0	HSS	R	906-000-193	906-000-194	906-002-016

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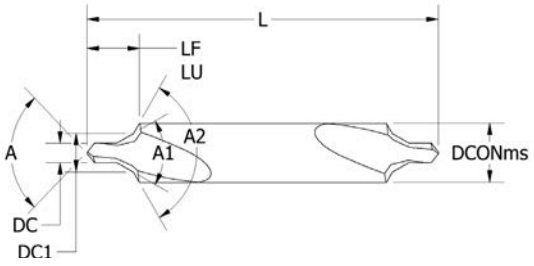

PG.500

Size	DC [in.]	DC1 [in.]	DCONMS [in.]	L [in.]	LF / LU [in.]	A [°]	A1 [°]	A2 [°]	BMC	Hand of Cut	Uncoated	TiN Coated	AlTiN Coated
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	Carbide	R	906-000-427	906-001-622	906-001-725
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	HSS	L	906-000-210	906-001-024	906-001-886
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	HSS	R	906-000-202	906-000-203	906-001-891
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	HSS-E	R	906-000-209	906-001-020	906-001-887
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	T-15	R	906-000-204	906-001-011	906-001-890
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	Carbide	R	906-000-428	906-001-625	906-001-724
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	HSS	L	906-000-219	906-001-045	906-001-880
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	HSS	R	906-000-211	906-000-212	906-001-885
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	HSS-E	R	906-000-218	906-001-041	906-001-881
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	T-15	R	906-000-213	906-001-031	906-001-884
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	Carbide	R	906-000-429	906-001-628	906-001-723
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	HSS	L	906-000-228	906-001-066	906-001-874
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	HSS	R	906-000-220	906-000-221	906-001-879
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	HSS-E	R	906-000-227	906-001-062	906-001-875
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	T-15	R	906-000-222	906-001-052	906-001-878
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	Carbide	R	906-000-430	906-001-631	906-001-722
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	HSS	L	906-000-237	906-001-091	906-001-867
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	HSS	R	906-000-229	906-000-230	906-001-872
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	HSS-E	R	906-000-236	906-001-087	906-001-868
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	T-15	R	906-000-231	906-001-077	906-001-871
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	Carbide	R	906-000-431	906-001-634	906-001-721
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	HSS	L	906-000-246	906-001-112	906-001-861
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	HSS	R	906-000-238	906-000-239	906-001-866
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	HSS-E	R	906-000-245	906-001-108	906-001-862
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	T-15	R	906-000-240	906-001-098	906-001-865
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	Carbide	R	906-000-432	906-001-637	906-001-720
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	HSS	L	906-000-255	906-001-133	906-001-855
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	HSS	R	906-000-247	906-000-248	906-001-860
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	HSS-E	R	906-000-254	906-001-129	906-001-856
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	T-15	R	906-000-249	906-001-119	906-001-859
#17	0.2188	0.5000	0.6250	3.2500	0.5526	118.0	60.0	120.0	HSS	L	906-000-264	906-001-154	906-001-849
#17	0.2188	0.5000	0.6250	3.2500	0.5526	118.0	60.0	120.0	HSS	R	906-000-256	906-000-257	906-001-854
#17	0.2188	0.5000	0.6250	3.2500	0.5526	118.0	60.0	120.0	HSS-E	R	906-000-263	906-001-150	906-001-850
#17	0.2188	0.5000	0.6250	3.2500	0.5526	118.0	60.0	120.0	T-15	R	906-000-258	906-001-140	906-001-853
#18	0.2500	0.6000	0.7500	3.5000	0.6584	118.0	60.0	120.0	HSS	L	906-000-273	906-001-176	906-001-845
#18	0.2500	0.6000	0.7500	3.5000	0.6584	118.0	60.0	120.0	HSS	R	906-000-265	906-000-266	906-001-706
#18	0.2500	0.6000	0.7500	3.5000	0.6584	118.0	60.0	120.0	HSS-E	R	906-000-272	906-001-172	906-001-707
#18	0.2500	0.6000	0.7500	3.5000	0.6584	118.0	60.0	120.0	T-15	R	906-000-267	906-001-161	906-001-848
#19	0.3125	0.7000	0.8750	3.6250	0.7761	118.0	60.0	120.0	HSS	L	906-000-278	906-001-191	906-001-841
#19	0.3125	0.7000	0.8750	3.6250	0.7761	118.0	60.0	120.0	HSS	R	906-000-274	906-000-275	906-001-844
#19	0.3125	0.7000	0.8750	3.6250	0.7761	118.0	60.0	120.0	HSS-E	R	906-000-277	906-001-187	906-001-842
#19	0.3125	0.7000	0.8750	3.6250	0.7761	118.0	60.0	120.0	T-15	R	906-000-276	906-001-183	906-001-843
#20	0.3750	0.8000	1.0000	3.7500	0.8937	118.0	60.0	120.0	HSS	L	906-000-283	906-001-206	906-001-838
#20	0.3750	0.8000	1.0000	3.7500	0.8937	118.0	60.0	120.0	HSS	R	906-000-279	906-000-280	906-001-840
#20	0.3750	0.8000	1.0000	3.7500	0.8937	118.0	60.0	120.0	HSS-E	R	906-000-282	906-001-202	906-001-839
#20	0.3750	0.8000	1.0000	3.7500	0.8937	118.0	60.0	120.0	T-15	R	906-000-281	906-001-198	906-002-012

HSS-E is Cobalt

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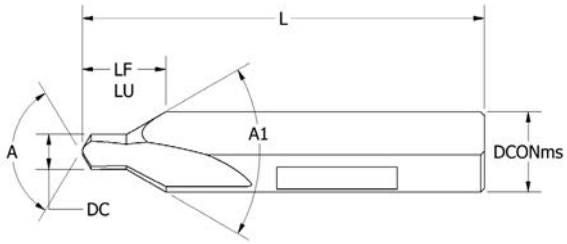
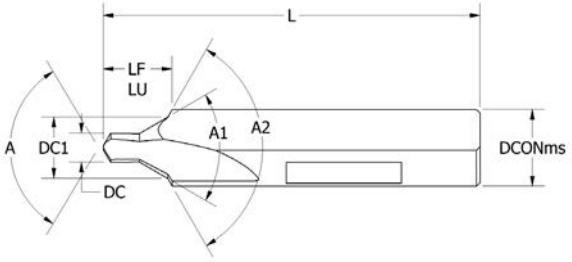
HSS



PG.500

Size	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	Uncoated	TiN Coated	AlTiN Coated
#1	0.0469	0.1250	0.1262	1.2500	0.1262	118.0	60.0	906-000-067	906-000-068	906-001-964
#2	0.0781	0.1875	0.1922	1.8750	0.1922	118.0	60.0	906-000-082	906-000-083	906-001-955
#3	0.1094	0.2500	0.2583	2.0000	0.2583	118.0	60.0	906-000-097	906-000-098	906-001-946
#4	0.1250	0.3125	0.3184	2.1250	0.3184	118.0	60.0	906-000-112	906-000-113	906-001-938
#5	0.1875	0.4375	0.4505	2.7500	0.4505	118.0	60.0	906-000-127	906-000-128	906-001-931
#6	0.2188	0.5000	0.5165	3.0000	0.5165	118.0	60.0	906-000-142	906-000-143	906-001-922
#7	0.2500	0.6250	0.6367	3.2500	0.6367	118.0	60.0	906-000-157	906-000-158	906-001-913
#8	0.3125	0.7500	0.7688	3.5000	0.7688	118.0	60.0	906-000-172	906-000-173	906-001-904



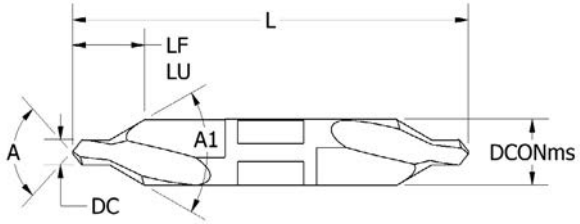
- Bell hey-type single end center drills with a bell tip have flats on their end that accept carbide inserts
- Used on Hey machines for facing a workpiece and creating center holes on it so it can be turned between centers on a lathe
- Have a bell tip with an additional 120° chamfer that bevels the outer edge of the hole to help protect the hole from damage during machining applications
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set Screw flats for locking the center drills into the tool holder

PG.500

Size	DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	A2 [°]	Uncoated	TiN Coated	AlTiN Coated
#11	0.0469	0.1250	0.1000	0.1117	1.2500	0.1117	118.0	60.0	120.0	906-000-207	906-000-208	906-001-888
#12	0.0625	0.1875	0.1500	0.1646	1.8750	0.1646	118.0	60.0	120.0	906-000-216	906-000-217	906-001-882
#13	0.0938	0.2500	0.2000	0.2234	2.0000	0.2234	118.0	60.0	120.0	906-000-225	906-000-226	906-001-876
#14	0.1094	0.3125	0.2500	0.2763	2.1250	0.2763	118.0	60.0	120.0	906-000-234	906-000-235	906-001-869
#15	0.1563	0.4375	0.3500	0.3880	2.7500	0.3880	118.0	60.0	120.0	906-000-243	906-000-244	906-001-863
#16	0.1875	0.5000	0.4000	0.4469	3.0000	0.4469	118.0	60.0	120.0	906-000-252	906-000-253	906-001-857
#17	0.2188	0.6250	0.5000	0.5526	3.2500	0.5526	118.0	60.0	120.0	906-000-261	906-000-262	906-001-851
#18	0.2500	0.7500	0.6000	0.6584	3.5000	0.6584	118.0	60.0	120.0	906-000-270	906-000-271	906-001-846

KEO

- Plain hey-type center drills with a bell tip have flats on their end that accept carbide inserts
- Standard choice for creating center holes in a piece of stock to prepare it for turning between centers on a lathe
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set Screw flats for locking the center drills into the tool holder

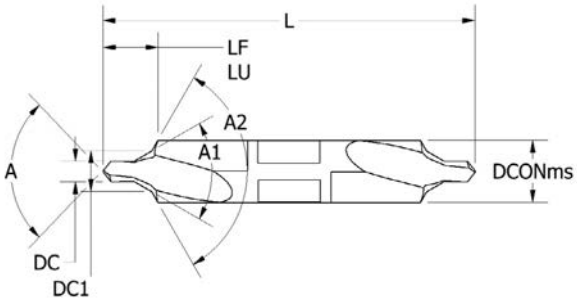


PG.500

Size	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	Uncoated	TiN Coated	AlTiN Coated
#1	0.0469	0.1250	0.1262	1.2500	0.1262	118.0	60.0	906-000-065	906-000-066	906-001-965
#2	0.0781	0.1875	0.1922	1.8750	0.1922	118.0	60.0	906-000-080	906-000-081	906-001-956
#3	0.1094	0.2500	0.2583	2.0000	0.2583	118.0	60.0	906-000-095	906-000-096	906-001-947
#4	0.1250	0.3125	0.3184	2.1250	0.3184	118.0	60.0	906-000-110	906-000-111	906-001-939
#5	0.1875	0.4375	0.4505	2.7500	0.4505	118.0	60.0	906-000-125	906-000-126	906-001-932
#6	0.2188	0.5000	0.5165	3.0000	0.5165	118.0	60.0	906-000-140	906-000-141	906-001-923
#7	0.2500	0.6250	0.6367	3.2500	0.6367	118.0	60.0	906-000-155	906-000-156	906-001-914
#8	0.3125	0.7500	0.7688	3-1/2	0.7688	118.0	60.0	906-000-170	906-000-171	906-001-905

KEO

- Bell hey-type double end center drills with a bell tip have flats on their end that accept carbide inserts
- Used on Hey machines for facing a workpiece and creating center holes on it so it can be turned between centers on a lathe
- Have a bell tip with an additional 120° chamfer that bevels the outer edge of the hole to help protect the hole from damage during machining applications
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set Screw flats for locking the center drills into the tool holder



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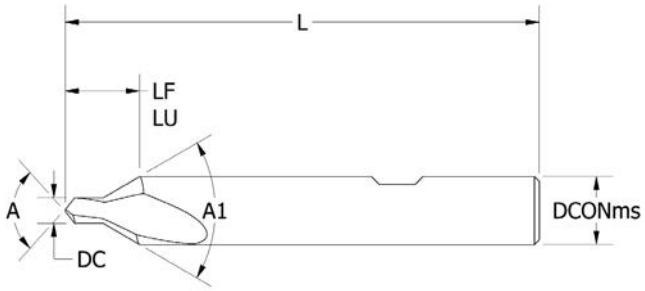
Size	DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	A2 [°]	Uncoated	TiN Coated	AlTiN Coated
#11	0.0469	0.1250	0.1000	0.1117	1.2500	0.1117	118.0	60.0	120.0	906-000-205	906-000-206	906-001-889
#12	0.0625	0.1875	0.1500	0.1646	1.8750	0.1646	118.0	60.0	120.0	906-000-214	906-000-215	906-001-883
#13	0.0938	0.2500	0.2000	0.2234	2.0000	0.2234	118.0	60.0	120.0	906-000-223	906-000-224	906-001-877
#14	0.1094	0.3125	0.2500	0.2763	2.1250	0.2763	118.0	60.0	120.0	906-000-232	906-000-233	906-001-870
#15	0.1563	0.4375	0.3500	0.3880	2.7500	0.3880	118.0	60.0	120.0	906-000-241	906-000-242	906-001-864
#16	0.1875	0.5000	0.4000	0.4469	3.0000	0.4469	118.0	60.0	120.0	906-000-250	906-000-251	906-001-858
#17	0.2188	0.6250	0.5000	0.5526	3.2500	0.5526	118.0	60.0	120.0	906-000-259	906-000-260	906-001-852
#18	0.2500	0.7500	0.600	0.6000	3.5000	0.6000	118.0	60.0	120.0	906-000-268	906-000-269	906-001-847

Jig bore type and countersinks are used for producing center holes in components or workpieces which require machining between centers and are manufactured with a locking set screw flat.



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DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	Uncoated	TiN Coated	AlTiN Coated
0.0625	0.3750	0.3486	3.0000	0.3486	118.0	60.0	906-000-291	906-001-230	906-002-011
0.0938	0.3750	0.3606	3.0000	0.3606	118.0	60.0	906-000-294	906-001-239	906-002-006
0.1250	0.3750	0.3725	3.0000	0.3725	118.0	60.0	906-000-292	906-001-233	906-002-010
0.1563	0.3750	0.3844	3.0000	0.3844	118.0	60.0	906-000-295	906-001-242	906-002-005
0.1875	0.3750	0.3964	3.0000	0.3964	118.0	60.0	906-000-293	906-001-236	906-002-009
0.1250	0.5000	0.4807	3.5000	0.4807	118.0	60.0	906-000-285	906-001-212	906-001-836
0.1875	0.5000	0.5046	3.5000	0.5046	118.0	60.0	906-000-286	906-001-215	906-001-835
0.2188	0.5000	0.5165	3.5000	0.5165	118.0	60.0	906-000-287	906-001-218	906-001-834
0.2500	0.5000	0.5285	3.5000	0.5285	118.0	60.0	906-000-284	906-001-209	906-001-837
0.2813	0.5000	0.5404	3.5000	0.5404	118.0	60.0	906-000-288	906-001-221	906-001-833

JIG BORE CENTER DRILL & COUNTERSINK SET

BODY DIAMETER (DCONMS)	POINT DIAMETER (DC)	Uncoated	TiN Coated	AlTiN Coated
3/8	1/16 3/32 1/8 5/32 3/16	906-000-290	906-001-227	906-001-831
1/2	1/8 3/16 7/32 1/4 9/32	906-000-289	906-001-224	906-001-832

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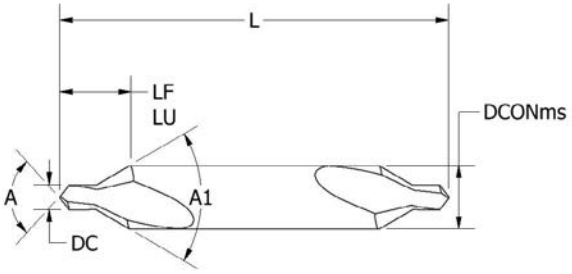

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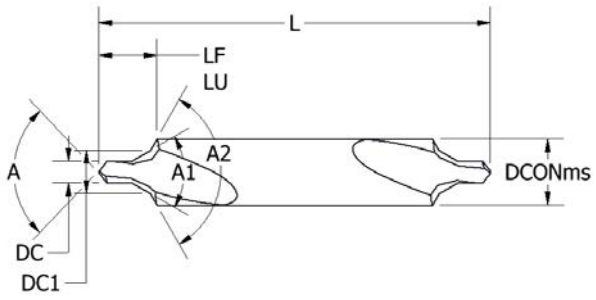
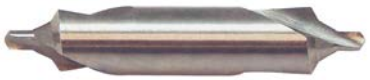
DIN332-A Hole Design	DIN333-A Designation	DC [mm]	DCONMS [mm]	L [mm]	LF / LU [mm]	A [°]	A1 [°]	BMC	Hand of Cut	Uncoated	TiN Coated	AlTiN Coated
0,5 x 1,06	0,5 x 3,15	0.50	3.15	25.00 SE	3.09	118.0	60.0	HSS	R	906-000-320	906-001-277	906-001-814
0,5 x 1,06	0,5 x 3,15	0.50	3.15	25.00 SE	0.37	118.0	60.0	Carbide	R	906-000-348	906-001-373	906-001-786
0,8 x 1,7	0,8 x 3,15	0.80	3.15	25.00 SE	3.14	118.0	60.0	HSS	R	906-000-321	906-001-281	906-001-813
0,8 x 1,7	0,8 x 3,15	0.80	3.15	25.00 SE	0.41	118.0	60.0	Carbide	R	906-000-349	906-001-376	906-001-785
1 x 2,12	1 x 3,15	1.00	3.15	31.50	3.16	118.0	60.0	HSS	R	906-000-322	906-001-285	906-001-812
1 x 2,12	1 x 3,15	1.00	3.15	31.50	3.16	118.0	60.0	Carbide	R	906-000-350	906-001-379	906-001-784
1,25 x 2,65	1,25 x 3,15	1.25	3.15	31.50	3.25	118.0	60.0	HSS	R	906-000-323	906-001-289	906-001-811
1,25 x 2,65	1,25 x 3,15	1.25	3.15	31.50	3.25	118.0	60.0	Carbide	R	906-000-351	906-001-382	906-001-783
1,6 x 3,35	1,6 x 4	1.60	4.00	35.50	4.08	118.0	60.0	HSS	R	906-000-324	906-001-293	906-001-810
1,6 x 3,35	1,6 x 4	1.60	4.00	35.50	4.08	118.0	60.0	Carbide	R	906-000-355	906-001-394	906-001-779
2 x 4,25	2 x 5	2.00	5.00	40.00	5.10	118.0	60.0	HSS	R	906-000-325	906-001-297	906-001-809
2 x 4,25	2 x 5	2.00	5.00	40.00	5.10	118.0	60.0	Carbide	R	906-000-356	906-001-397	906-001-778
2,5 x 5,3	2,5 x 6,3	2.50	6.30	45.00	6.39	118.0	60.0	HSS	R	906-000-326	906-001-301	906-001-808
2,5 x 5,3	2,5 x 6,3	2.50	6.30	45.00	6.39	118.0	60.0	Carbide	R	906-000-357	906-001-400	906-001-777
3,15 x 6,7	3,15 x 8	3.15	8.00	50.00	8.10	118.0	60.0	HSS	R	906-000-327	906-001-305	906-001-807
3,15 x 6,7	3,15 x 8	3.15	8.00	50.00	8.10	118.0	60.0	Carbide	R	906-000-358	906-001-403	906-001-776
4 x 8,5	4 x 10	4.00	10.00	56.00	10.20	118.0	60.0	HSS	R	906-000-328	906-001-309	906-001-806
4 x 8,5	4 x 10	4.00	10.00	56.00	10.20	118.0	60.0	Carbide	R	906-000-352	906-001-385	906-001-782
5 x 10,6	5 x 12,5	5.00	12.50	63.00	12.80	118.0	60.0	HSS	R	906-000-329	906-001-313	906-001-805
5 x 10,6	5 x 12,5	5.00	12.50	63.00	12.80	118.0	60.0	Carbide	R	906-000-353	906-001-388	906-001-781
6,3 x 13,2	6,3 x 16	6.30	16.00	71.00	16.40	118.0	60.0	HSS	R	906-000-330	906-001-317	906-001-804
6,3 x 13,2	6,3 x 16	6.30	16.00	71.00	16.40	118.0	60.0	Carbide	R	906-000-354	906-001-391	906-001-780
8 x 17	8 x 20	8.00	20.00	80.00	20.49	118.0	60.0	HSS	R	906-000-331	906-001-321	906-001-803
10 x 21,2	10 x 25	10.00	25.00	100.00	25.79	118.0	60.0	HSS	R	906-000-332	906-001-325	906-001-802
12,5 x 26,5	12,5 x 31,5	12.50	31.50	125.00	32.95	118.0	60.0	HSS	R	906-000-333	906-001-328	906-001-801

SE denotes single-end





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DIN332-B Hole Design	DIN333-B Designation	DC [mm]	DC1 [mm]	DCONMS [mm]	L [mm]	LF / LU [mm]	A [°]	A1 [°]	A2 [°]	BMC	Hand of Cut	Uncoated	TiN Coated	AlTiN Coated
1 x 2,12	1 x 4	1.00	2.12	4.00	35.50	2.81	118.0	60.0	120.0	HSS	R	906-000-359	906-001-407	906-001-775
1,25 x 2,65	1,25 x 5	1.25	2.65	5.00	40.00	3.49	118.0	60.0	120.0	HSS	R	906-000-360	906-001-411	906-001-774
1,6 x 3,35	1,6 x 6,3	1.60	3.35	6.30	45.00	4.37	118.0	60.0	120.0	HSS	R	906-000-361	906-001-415	906-001-773
2 x 4,25	2 x 8	2.00	4.25	8.00	50.00	5.53	118.0	60.0	120.0	HSS	R	906-000-362	906-001-419	906-001-772
2,5 x 5,3	2,5 x 10	2.50	5.30	10.00	56.00	6.88	118.0	60.0	120.0	HSS	R	906-000-363	906-001-423	906-001-771
3,15 x 6,7	3,15 x 11,2	3.15	6.70	11.20	60.00	8.27	118.0	60.0	120.0	HSS	R	906-000-364	906-001-427	906-001-770
4 x 8,5	4 x 14	4.00	8.50	14.00	67.00	10.48	118.0	60.0	120.0	HSS	R	906-000-365	906-001-431	906-001-769
5 x 10,6	5 x 18	5.00	10.60	18.00	75.00	13.29	118.0	60.0	120.0	HSS	R	906-000-366	906-001-435	906-001-768
6,3 x 13,2	6,3 x 20	6.30	13.20	20.00	80.00	15.94	118.0	60.0	120.0	HSS	R	906-000-367	906-001-439	906-001-767
8 x 17	8 x 25	8.00	17.00	25.00	100.00	20.20	118.0	60.0	120.0	HSS	R	906-000-368	906-001-443	906-001-766
10 x 21,2	10 x 31,5	10.00	21.20	31.50	125.00	25.47	118.0	60.0	120.0	HSS	R	906-000-369	906-001-446	906-001-765

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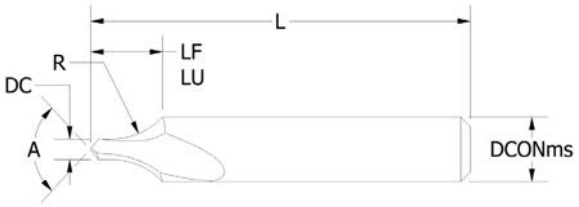

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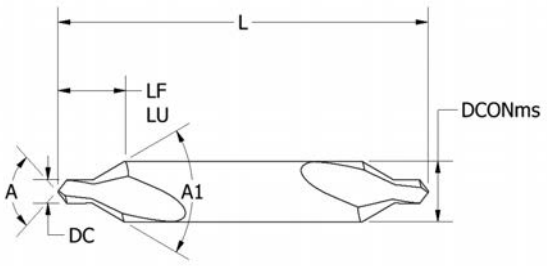
DIN332-R Hole Design.	DIN333-R Designation	DC [mm]	R [mm]	DCONMS [mm]	L [mm]	LF / LU [mm]	A [°]	BMC	Hand of Cut	Uncoated	TiN Coated	AlTiN Coated
0,5 x 1,05	0,5 x 3,15	0.50	1.60	3.15	25.00 SE	2.12	118.0	HSS	R	906-000-381	906-001-483	906-001-753
0,8 x 1,7	0,8 x 3,15	0.80	2.50	3.15	25.00 SE	2.65	118.0	HSS	R	906-000-382	906-001-487	906-001-752
1 x 2,12	1 x 3,15	1.00	3.15	3.15	31.50	3.00	118.0	HSS	R	906-000-383	906-001-490	906-001-751
1,25 x 2,65	1,25 x 3,15	1.25	4.00	3.15	31.50	3.35	118.0	HSS	R	906-000-384	906-001-493	906-001-750
1,6 x 3,35	1,6 x 4	1.60	5.00	4.00	35.50	4.25	118.0	HSS	R	906-000-385	906-001-496	906-001-749
2 x 4,25	2 x 5	2.00	6.30	5.00	40.00	5.30	118.0	HSS	R	906-000-386	906-001-499	906-001-748
2,5 x 5,3	2,5 x 6,3	2.50	8.00	6.30	45.00	6.70	118.0	HSS	R	906-000-387	906-001-502	906-001-747
3,15 x 6,7	3,15 x 8	3.15	10.00	8.00	50.00	8.50	118.0	HSS	R	906-000-388	906-001-505	906-001-746
4 x 8,5	4 x 10	4.00	12.50	10.00	56.00	10.60	118.0	HSS	R	906-000-389	906-001-508	906-001-745
5 x 10,6	5 x 12,5	5.00	16.00	12.50	63.00	13.20	118.0	HSS	R	906-000-390	906-001-511	906-001-744
6,3 x 13,2	6,3 x 16	6.30	20.00	16.00	71.00	17.00	118.0	HSS	R	906-000-391	906-001-514	906-001-743
8 x 17	8 x 20	8.00	25.00	20.00	80.00	21.20	118.0	HSS	R	906-000-392	906-001-517	906-001-742
10 x 21,2	10 x 25	10.00	31.50	25.00	100.00	26.50	118.0	HSS	R	906-000-393	906-001-520	906-001-741
12,5 x 26,5	12,5 x 31,5	12.50	40.00	31.50	125.00	33.50	118.0	HSS	R	906-000-394	906-001-523	906-001-740

SE denotes single-end

KEO



PG.500

DC [mm]	DCONMS [mm]	LU [mm]	L [mm]	LF [mm]	A [°]	A1 [°]	Product #	TiN Coated	AlTiN Coated
0.75	3.50	3.38	60.00	3.38	118.0	60.0	907-000-001	907-000-205	907-000-876
1.00	4.00	3.90	60.00	3.90	118.0	60.0	907-000-002	907-000-208	907-000-875
1.50	5.00	5.03	60.00	5.03	118.0	60.0	907-000-003	907-000-211	907-000-874
2.00	6.00	5.96	80.00	5.96	118.0	60.0	907-000-004	907-000-214	907-000-873
2.50	8.00	7.86	80.00	7.86	118.0	60.0	907-000-005	907-000-217	907-000-872
3.00	8.00	8.23	80.00	8.23	118.0	60.0	907-000-006	907-000-220	907-000-871
1.00	4.00	3.90	100.0	3.90	118.0	60.0	907-000-007	907-000-223	907-000-870
1.50	5.00	5.03	100.0	5.03	118.0	60.0	907-000-008	907-000-226	907-000-869
2.00	6.00	5.96	100.0	5.96	118.0	60.0	907-000-009	907-000-229	907-000-868
2.50	8.00	7.86	100.0	7.86	118.0	60.0	907-000-010	907-000-232	907-000-867
3.00	8.00	8.23	100.0	8.23	118.0	60.0	907-000-011	907-000-235	907-000-866
3.00	10.00	9.96	100.0	9.96	118.0	60.0	907-000-012	907-000-238	907-000-865
4.00	10.00	10.20	100.0	10.20	118.0	60.0	907-000-013	907-000-241	907-000-864
4.00	12.00	11.93	100.0	11.93	118.0	60.0	907-000-014	907-000-244	907-000-863
5.00	12.00	12.36	100.0	12.36	118.0	60.0	907-000-015	907-000-247	907-000-862
0.75	3.50	3.38	120.0	3.38	118.0	60.0	907-000-016	907-000-250	907-000-861
1.00	4.00	3.90	120.0	3.90	118.0	60.0	907-000-017	907-000-253	907-000-860
1.60	5.00	4.94	120.0	4.94	118.0	60.0	907-000-018	907-000-256	907-000-859
2.00	6.00	5.96	120.0	5.96	118.0	60.0	907-000-019	907-000-259	907-000-858
2.50	8.00	7.86	120.0	7.86	118.0	60.0	907-000-020	907-000-262	907-000-857
3.00	8.00	8.23	120.0	8.23	118.0	60.0	907-000-021	907-000-265	907-000-856
3.00	10.00	9.96	120.0	9.96	118.0	60.0	907-000-022	907-000-268	907-000-855
3.15	10.00	9.83	120.0	9.83	118.0	60.0	907-000-023	907-000-271	907-000-854
3.15	10.00	9.83	120.0	9.83	118.0	60.0	907-000-024	907-000-274	907-000-853
4.00	12.00	11.93	120.0	11.93	118.0	60.0	907-000-025	907-000-277	907-000-852
5.00	14.00	14.09	120.0	14.09	118.0	60.0	907-000-026	907-000-280	907-000-851
1.50	5.00	5.03	150.00	5.03	118.0	60.0	907-000-027	907-000-283	907-000-850
1.00	4.00	3.90	150.0	3.90	118.0	60.0	907-000-028	907-000-286	907-000-849
1.50	5.00	5.03	150.0	5.03	118.0	60.0	907-000-029	907-000-289	907-000-848
2.00	6.00	5.96	150.0	5.96	118.0	60.0	907-000-030	907-000-292	907-000-847
2.50	8.00	7.86	150.0	7.86	118.0	60.0	907-000-031	907-000-295	907-000-846
3.00	8.00	8.23	150.0	8.23	118.0	60.0	907-000-032	907-000-298	907-000-845
3.00	10.00	9.96	150.0	9.96	118.0	60.0	907-000-033	907-000-301	907-000-844
4.00	10.00	10.20	150.0	10.20	118.0	60.0	907-000-034	907-000-304	907-000-843
4.00	12.00	11.93	150.0	11.93	118.0	60.0	907-000-035	907-000-307	907-000-842
6.30	16.00	16.40	150.0	16.40	118.0	60.0	907-000-036	907-000-310	907-000-841
2.00	5.00	5.10	200.0	5.10	118.0	60.0	907-000-037	907-000-313	907-000-840
2.50	6.30	6.39	200.0	6.39	118.0	60.0	907-000-038	907-000-316	907-000-839
3.15	8.00	8.10	200.0	8.10	118.0	60.0	907-000-039	907-000-319	907-000-838
4.00	10.00	10.20	200.0	10.20	118.0	60.0	907-000-040	907-000-322	907-000-837

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Our advanced manufacturing facilities can design and ship most solid carbide round tool profiles in 5 days or less for emergency and time-sensitive situations.
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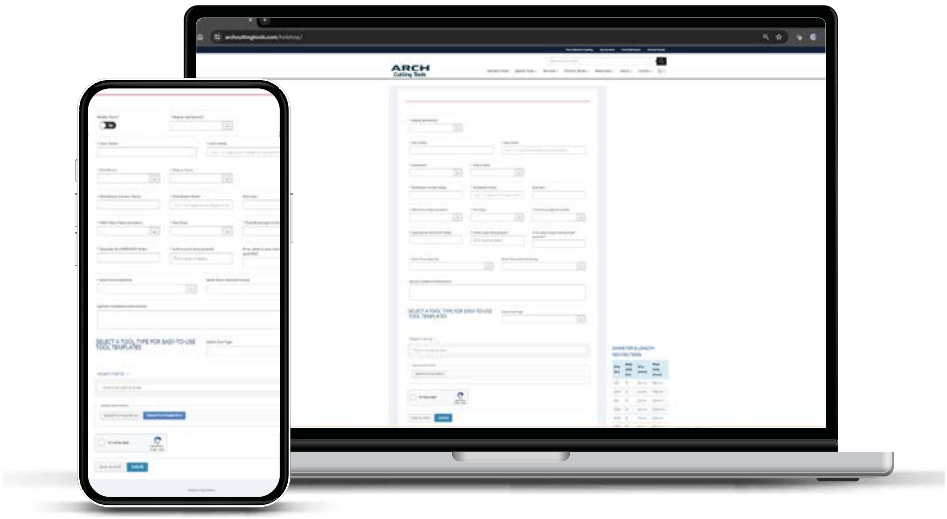

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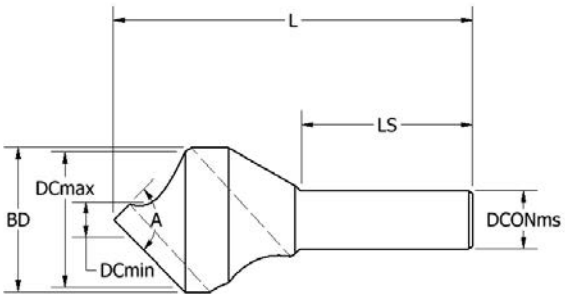
COUNTERSINKS

ARCH®
Cutting Tools

KEO®



BD [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	Uncoated	TiN Coated	AlTiN Coated
0.3125	60.0	0.2500	1.2500	1.8750	0.2813	0.1094	919-000-185	919-000-186	919-002-846
0.3750	60.0	0.2500	1.2500	1.8750	0.3438	0.1563	919-000-187	919-000-188	919-002-845
0.5000	60.0	0.3125	1.2500	2.0000	0.4531	0.1719	919-000-189	919-000-190	919-002-844
0.6250	60.0	0.3750	1.3750	2.5000	0.5781	0.1875	919-000-191	919-000-192	919-002-843
0.7500	60.0	0.3750	1.5000	2.7500	0.7031	0.2500	919-000-193	919-000-194	919-002-842
1.0000	60.0	0.3750	1.2500	3.0000	0.8438	0.2969	919-000-195	919-000-196	919-002-841
1.2500	60.0	0.5000	1.5000	3.5000	1.0313	0.4219	919-000-197	919-000-198	919-002-840
0.3125	82.0	0.2500	1.2500	1.6250	0.2813	0.0938	919-000-202	919-000-203	919-002-837
0.3750	82.0	0.2500	1.2500	1.7500	0.3438	0.1406	919-000-204	919-000-205	919-002-836
0.5000	82.0	0.3125	1.2500	1.7500	0.4531	0.1563	919-000-206	919-000-207	919-002-835
0.6250	82.0	0.3750	1.3750	2.1250	0.5781	0.1719	919-000-208	919-000-209	919-002-834
0.7500	82.0	0.3750	1.5000	2.3750	0.7031	0.2031	919-000-210	919-000-211	919-002-833
1.0000	82.0	0.3750	1.2500	2.6250	0.9219	0.2969	919-000-212	919-000-213	919-002-832
1.2500	82.0	0.5000	1.5000	3.1250	1.0938	0.3594	919-000-214	919-000-215	919-002-831
0.3125	90.0	0.2500	1.2500	1.6250	1.0938	0.3594	919-000-219	919-000-220	919-002-828
0.3750	90.0	0.2500	1.2500	1.7500	0.3438	0.1406	919-000-221	919-000-222	919-002-827
0.5000	90.0	0.3125	1.2500	1.7500	0.4531	0.1563	919-000-223	919-000-224	919-002-826
0.6250	90.0	0.3750	1.3750	2.1250	0.5781	0.1719	919-000-225	919-000-226	919-002-825
0.7500	90.0	0.3750	1.5000	2.3750	0.7031	0.2031	919-000-227	919-000-228	919-002-824
1.0000	90.0	0.3750	1.2500	2.6250	0.9219	0.2969	919-000-229	919-000-230	919-002-823
1.2500	90.0	0.5000	1.5000	3.1250	1.0938	0.3594	919-000-231	919-000-232	919-002-822

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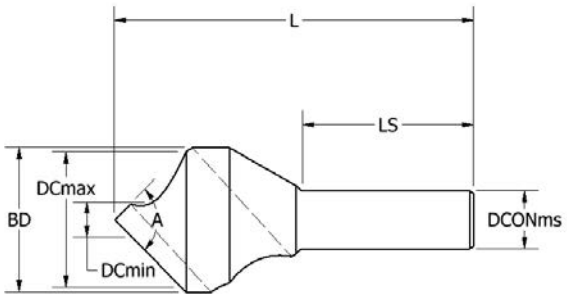

COBALT

BD [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	Uncoated	TiN Coated	AlTiN Coated
0.3125	100.0	0.2500	1.2500	1.6250	0.2813	0.0938	919-000-236	919-000-237	919-002-819
0.3750	100.0	0.2500	1.2500	1.7500	0.3438	0.1406	919-000-238	919-000-239	919-002-818
0.5000	100.0	0.3125	1.2500	1.7500	0.4531	0.1563	919-000-240	919-000-241	919-002-817
0.6250	100.0	0.3750	1.3750	2.1250	0.5781	0.1719	919-000-242	919-000-243	919-002-816
0.7500	100.0	0.3750	1.5000	2.3750	0.7031	0.2031	919-000-244	919-000-245	919-002-815
1.0000	100.0	0.3750	1.2500	2.6250	0.9219	0.2969	919-000-246	919-000-247	919-002-814
1.2500	100.0	0.5000	1.5000	3.1250	1.1250	0.3594	919-000-248	919-000-249	919-002-813

ZERO COUNTERSINK & DEBURRING SET

Countersink Angle	4-PIECE			5-PIECE		
	Uncoated	TiN Coated	AlTiN Coated	Uncoated	TiN Coated	AlTiN Coated
60°	919-000-199	919-001-322	919-002-839	919-000-200	919-000-201	919-002-838
82°	919-000-216	919-001-341	919-002-830	919-000-217	919-000-218	919-002-829
90°	919-000-233	919-001-360	919-002-821	919-000-234	919-000-235	919-002-820
100°	919-000-250	919-001-379	919-002-812	919-000-251	919-000-252	919-002-811
Body Diameters(BD)	5/16, 3/8, 1/2, 5/8			5/16, 3/8, 1/2, 3/4, 1		

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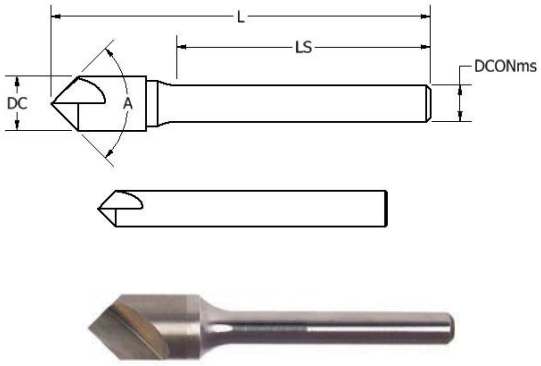
DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	60.0	0.1250	0.7500	1.5000	919-000-909	919-002-954	919-002-296
0.1875	60.0	0.1875	1.0000	2.0000	919-000-911	919-002-955	919-002-298
0.2500	60.0	0.2500	1.0000	2.0000	919-000-913	919-002-956	919-002-300
0.3750	60.0	0.2500	1.7500	2.8750	919-000-915	919-002-957	919-002-302
0.5000	60.0	0.2500	1.6250	2.8750	919-000-917	919-002-958	919-002-304
0.6250	60.0	0.3750	1.6250	3.0000	919-000-919	919-002-959	919-002-306
0.7500	60.0	0.3750	1.5000	3.0000	919-000-921	919-002-960	919-002-308
1.0000	60.0	0.5000	1.5000	3.2500	919-000-923	919-002-961	919-002-310
1.2500	60.0	0.7500	1.5000	3.7500	919-000-925	919-002-962	919-002-312
0.1250	82.0	0.1250	0.7500	1.5000	919-000-929	919-002-963	919-002-314
0.1875	82.0	0.1875	1.0000	2.0000	919-000-931	919-002-964	919-002-316
0.2500	82.0	0.2500	1.0000	2.0000	919-000-933	919-002-965	919-002-318
0.3750	82.0	0.2500	1.7500	2.6250	919-000-935	919-002-966	919-002-320
0.5000	82.0	0.2500	1.6250	2.6250	919-000-937	919-002-967	919-002-322
0.6250	82.0	0.3750	1.6250	2.7500	919-000-939	919-002-968	919-002-324
0.7500	82.0	0.3750	1.5000	2.7500	919-000-941	919-002-328	919-002-326
1.0000	82.0	0.5000	1.5000	3.0000	919-000-943	919-002-969	919-002-329
1.2500	82.0	0.7500	1.5000	3.2500	919-000-945	919-002-970	919-002-331
0.1250	90.0	0.1250	0.7500	1.5000	919-000-949	919-002-971	919-002-333
0.1875	90.0	0.1875	1.0000	2.0000	919-000-951	919-002-972	919-002-335
0.2500	90.0	0.2500	1.0000	2.0000	919-000-953	919-002-973	919-002-337
0.3750	90.0	0.2500	1.7500	2.6250	919-000-955	919-002-974	919-002-339
0.5000	90.0	0.2500	1.6250	2.6250	919-000-957	919-002-975	919-002-341
0.6250	90.0	0.3750	1.6250	2.7500	919-000-959	919-002-976	919-002-343
0.7500	90.0	0.3750	1.5000	2.7500	919-000-961	919-002-977	919-002-345
1.0000	90.0	0.5000	1.5000	3.0000	919-000-963	917-000-750	919-002-347
1.2500	90.0	0.7500	1.5000	3.2500	919-000-965	919-002-978	919-002-349
0.1250	100.0	0.1250	0.7500	1.5000	919-000-969	919-002-979	919-002-351
0.1875	100.0	0.1875	1.0000	2.0000	919-000-971	919-002-980	919-002-353
0.2500	100.0	0.2500	1.0000	2.0000	919-000-973	919-002-981	919-002-355
0.3750	100.0	0.2500	1.7500	2.6250	919-000-975	919-002-982	919-002-357
0.5000	100.0	0.2500	1.6250	2.6250	919-000-977	919-002-983	919-002-359
0.6250	100.0	0.3750	1.6250	2.7500	919-000-979	919-002-984	919-002-361
0.7500	100.0	0.3750	1.5000	2.7500	919-000-981	919-002-985	919-002-363
1.0000	100.0	0.5000	1.5000	3.0000	919-000-983	919-002-986	919-002-365
1.2500	100.0	0.7500	1.5000	3.2500	919-000-985	919-002-987	919-002-367



5-PIECE CARBIDE COUNTERSINK SET

Countersink Angle	Uncoated Single Flute	AlTiN Coated Single Flute	Uncoated 3-Flute	AlTiN Coated 3-Flute	Uncoated 6-Flute	AlTiN Coated 6-Flute	TiN Coated 6-Flute
60°	919-000-927	919-002-462	917-000-319	917-000-829	919-001-010	919-003-025	919-002-998
82°	919-000-947	919-002-461	917-000-339	917-000-828	919-001-032	919-002-454	N/A
90°	919-000-967	919-002-460	917-000-359	917-000-827	919-001-054	919-003-026	N/A
100°	919-000-987	919-002-459	917-000-379	917-000-826	919-001-077	919-002-453	N/A
Body Diameter	1/4, 3/8, 1/2, 5/8 and 3/4"						

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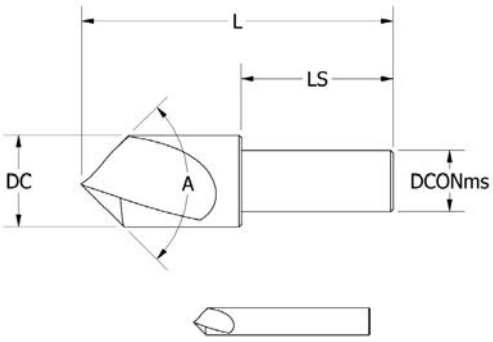
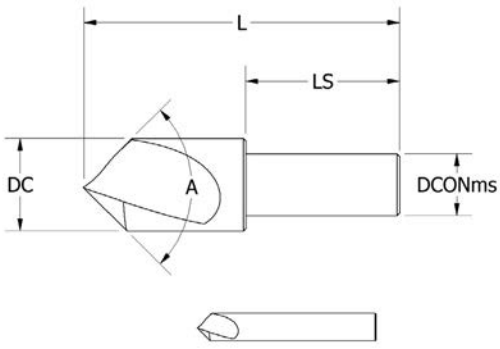


DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	60.0	0.1250	0.6250	1.2500	919-000-107	919-000-108	919-002-887
0.1875	60.0	0.1875	0.6875	1.3750	919-000-095	919-000-096	919-002-893
0.2500	60.0	0.2500	0.7500	1.5000	919-000-083	919-000-084	919-002-899
0.3750	60.0	0.2500	0.8750	1.7500	919-000-167	919-000-168	919-002-855
0.5000	60.0	0.2500	1.0000	2.0000	919-000-071	919-000-072	919-002-905
0.6250	60.0	0.3750	1.0000	2.2500	919-000-259	919-000-260	919-002-807
0.7500	60.0	0.5000	1.2500	2.6250	919-000-155	919-000-156	919-002-861
1.0000	60.0	0.5000	1.2500	2.7500	919-000-059	919-000-060	919-002-911
1.2500	60.0	0.5000	1.2500	3.0000	919-000-143	919-000-144	919-002-868
1.5000	60.0	0.7500	1.2500	3.2500	919-000-131	919-000-132	919-002-875
1.7500	60.0	0.7500	1.2500	3.5000	919-000-179	919-000-180	919-002-849
2.0000	60.0	0.7500	1.2500	3.7500	919-000-119	919-000-120	919-002-881
0.1250	82.0	0.1250	0.6250	1.2500	919-000-109	919-000-110	919-002-886
0.1875	82.0	0.1875	0.6875	1.3750	919-000-097	919-000-098	919-002-892
0.2500	82.0	0.2500	0.7500	1.5000	919-000-085	919-000-086	919-002-898
0.3750	82.0	0.2500	0.8750	1.7500	919-000-169	919-000-170	919-002-854
0.5000	82.0	0.2500	1.0000	2.0000	919-000-073	919-000-074	919-002-904
0.6250	82.0	0.3750	1.0000	2.2500	919-000-261	919-000-262	919-002-806
0.7500	82.0	0.5000	1.2500	2.6250	919-000-157	919-000-158	919-002-860
1.0000	82.0	0.5000	1.2500	2.7500	919-000-061	919-000-062	919-002-910
1.2500	82.0	0.5000	1.2500	2.7500	919-000-145	919-000-146	919-002-866
1.5000	82.0	0.7500	1.2500	2.8750	919-000-133	919-000-134	919-002-873
1.7500	82.0	0.7500	1.2500	3.0000	919-000-181	919-000-182	919-002-848
2.0000	82.0	0.7500	1.2500	3.2500	919-000-121	919-000-122	919-002-880
0.1250	90.0	0.1250	0.6250	1.2500	919-000-111	919-000-112	919-002-885
0.1875	90.0	0.1875	0.6875	1.3750	919-000-099	919-000-100	919-002-891
0.2500	90.0	0.2500	0.7500	1.5000	919-000-087	919-000-088	919-002-897
0.3750	90.0	0.2500	0.8750	1.7500	919-000-171	919-000-172	919-002-853
0.5000	90.0	0.2500	1.0000	2.0000	919-000-075	919-000-076	919-002-903
0.6250	90.0	0.3750	1.0000	2.2500	919-000-263	919-000-264	919-002-805
0.7500	90.0	0.5000	1.2500	2.6250	919-000-159	919-000-160	919-002-859
1.0000	90.0	0.5000	1.2500	2.7500	919-000-063	919-000-064	919-002-909
1.2500	90.0	0.5000	1.2500	2.7500	919-000-147	919-000-148	919-002-865
1.5000	90.0	0.7500	1.2500	2.8750	919-000-135	919-000-136	919-002-872
1.7500	90.0	0.7500	1.2500	3.0000	919-000-183	919-000-184	919-002-847
2.0000	90.0	0.7500	1.2500	3.2500	919-000-123	919-000-124	919-002-879

For set information see **page 192**

KEO



DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	100.0	0.1250	0.6250	1.2500	919-000-101	919-000-102	919-002-890
0.1875	100.0	0.1875	0.6875	1.3750	919-000-089	919-000-090	919-002-896
0.2500	100.0	0.2500	0.7500	1.5000	919-000-077	919-000-078	919-002-902
0.3750	100.0	0.2500	0.8750	1.7500	919-000-161	919-000-162	919-002-858
0.5000	100.0	0.2500	1.0000	2.0000	919-000-065	919-000-066	919-002-908
0.6250	100.0	0.3750	1.0000	2.2500	919-000-253	919-000-254	919-002-810
0.7500	100.0	0.5000	1.2500	2.6250	919-000-149	919-000-150	919-002-864
1.0000	100.0	0.5000	1.2500	2.7500	919-000-053	919-000-054	919-002-914
1.2500	100.0	0.5000	1.2500	2.7500	919-000-137	919-000-138	919-002-871
1.5000	100.0	0.7500	1.2500	2.8750	919-000-125	919-000-126	919-002-878
1.7500	100.0	0.7500	1.2500	3.0000	919-000-173	919-000-174	919-002-852
0.1250	120.0	0.1250	0.6250	1.2500	919-000-105	919-000-106	919-002-888
0.1875	120.0	0.1875	0.6875	1.3750	919-000-093	919-000-094	919-002-894
0.2500	120.0	0.2500	0.7500	1.5000	919-000-081	919-000-082	919-002-900
0.3750	120.0	0.2500	0.8750	1.7500	919-000-165	919-000-166	919-002-856
0.5000	120.0	0.2500	1.0000	2.0000	919-000-069	919-000-070	919-002-906
0.3750	120.0	0.2500	0.8750	1.7500	919-000-165	919-000-166	919-002-856
0.7500	120.0	0.5000	1.2500	2.6250	919-000-153	919-000-154	919-002-862
1.0000	120.0	0.5000	1.2500	2.7500	919-000-057	919-000-058	919-002-912
1.2500	120.0	0.5000	1.2500	2.7500	919-000-141	919-000-142	919-002-869
1.5000	120.0	0.7500	1.2500	2.8750	919-000-129	919-000-130	919-002-876
1.7500	120.0	0.7500	1.2500	3.0000	919-000-177	919-000-178	919-002-850
2.0000	120.0	0.7500	1.2500	3.2500	919-000-117	919-000-118	919-002-882

For set information see **page 192**

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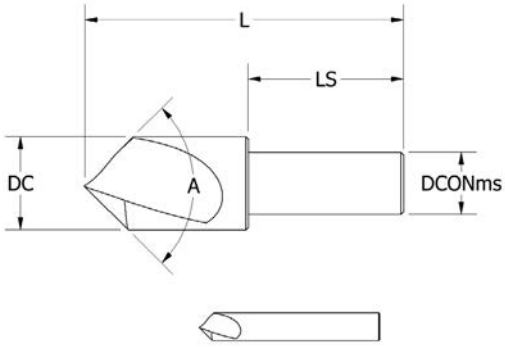

COBALT

DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	60.0	0.1250	0.6250	1.2500	919-000-549	919-000-550	919-002-642
0.1875	60.0	0.1875	0.6875	1.3750	919-000-551	919-000-552	919-002-641
0.2500	60.0	0.2500	0.7500	1.5000	919-000-553	919-000-554	919-002-640
0.3750	60.0	0.2500	0.8750	1.7500	919-000-555	919-000-556	919-002-639
0.5000	60.0	0.2500	1.0000	2.0000	919-000-557	919-000-558	919-002-638
0.6250	60.0	0.3750	1.0000	2.2500	919-000-559	919-000-560	919-002-637
0.7500	60.0	0.5000	1.2500	2.6250	919-000-561	919-000-562	919-002-636
1.0000	60.0	0.5000	1.2500	2.7500	919-000-563	919-000-564	919-002-635
1.2500	60.0	0.5000	1.2500	3.0000	919-000-565	919-000-566	919-002-634
1.5000	60.0	0.7500	1.2500	3.2500	919-000-567	919-000-568	919-002-633
1.7500	60.0	0.7500	1.2500	3.5000	919-000-569	919-000-570	919-002-632
2.0000	60.0	0.7500	1.2500	3.7500	919-000-571	919-000-572	919-002-631
0.1250	82.0	0.1250	0.6250	1.2500	919-000-573	919-000-574	919-002-630
0.1875	82.0	0.1875	0.6875	1.3750	919-000-575	919-000-576	919-002-629
0.2500	82.0	0.2500	0.7500	1.5000	919-000-577	919-000-578	919-002-628
0.3750	82.0	0.2500	0.8750	1.7500	919-000-579	919-000-580	919-002-627
0.5000	82.0	0.2500	1.0000	2.0000	919-000-581	919-000-582	919-002-626
0.6250	82.0	0.3750	1.0000	2.2500	919-000-583	919-000-584	919-002-625
0.7500	82.0	0.5000	1.2500	2.6250	919-000-585	919-000-586	919-002-624
1.0000	82.0	0.5000	1.2500	2.7500	919-000-587	919-000-588	919-002-623
1.2500	82.0	0.5000	1.2500	2.7500	919-000-589	919-000-590	919-002-622
1.5000	82.0	0.7500	1.2500	2.8750	919-000-591	919-000-592	919-002-621
1.7500	82.0	0.7500	1.2500	3.0000	919-000-593	919-000-594	919-002-620
2.0000	82.0	0.7500	1.2500	3.2500	919-000-595	919-000-596	919-002-619
0.1250	90.0	0.1250	0.6250	1.2500	919-000-597	919-000-598	919-002-618
0.1875	90.0	0.1875	0.6875	1.3750	919-000-599	919-000-600	919-002-617
0.2500	90.0	0.2500	0.7500	1.5000	919-000-601	919-000-602	919-002-616
0.3750	90.0	0.2500	0.8750	1.7500	919-000-603	919-000-604	919-002-615
0.5000	90.0	0.2500	1.0000	2.0000	919-000-605	919-000-606	919-002-614
0.6250	90.0	0.3750	1.0000	2.2500	919-000-607	919-000-608	919-002-613
0.7500	90.0	0.5000	1.2500	2.6250	919-000-609	919-000-610	919-002-612
1.0000	90.0	0.5000	1.2500	2.7500	919-000-611	919-000-612	919-002-611
1.2500	90.0	0.5000	1.2500	2.7500	919-000-613	919-000-614	919-002-610
1.5000	90.0	0.7500	1.2500	2.8750	919-000-615	919-000-616	919-002-609
1.7500	90.0	0.7500	1.2500	3.0000	919-000-617	919-000-618	919-002-608
2.0000	90.0	0.7500	1.2500	3.2500	919-000-619	919-000-620	919-002-607

For set information see **page 192**

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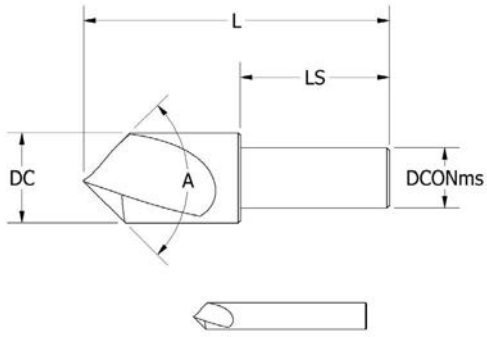

DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	100.0	0.1250	0.6250	1.2500	919-000-621	919-000-622	919-002-606
0.1875	100.0	0.1875	0.6875	1.3750	919-000-623	919-000-624	919-002-605
0.2500	100.0	0.2500	0.7500	1.5000	919-000-625	919-000-626	919-002-604
0.3750	100.0	0.2500	0.8750	1.7500	919-000-627	919-000-628	919-002-603
0.5000	100.0	0.2500	1.0000	2.0000	919-000-629	919-000-630	919-002-602
0.6250	100.0	0.3750	1.0000	2.2500	919-000-631	919-000-632	919-002-601
0.7500	100.0	0.5000	1.2500	2.6250	919-000-633	919-000-634	919-002-600
1.0000	100.0	0.5000	1.2500	2.7500	919-000-635	919-000-636	919-002-599
1.2500	100.0	0.5000	1.2500	2.7500	919-000-637	919-000-638	919-002-598
1.5000	100.0	0.7500	1.2500	2.8750	919-000-639	919-000-640	919-002-597
1.7500	100.0	0.7500	1.2500	3.0000	919-000-641	919-000-642	919-002-596
2.0000	100.0	0.7500	1.2500	3.2500	919-000-643	919-000-644	919-002-595
0.1250	120.0	0.1250	0.6250	1.2500	919-000-669	919-000-670	919-002-582
0.1875	120.0	0.1875	0.6875	1.3750	919-000-671	919-000-672	919-002-581
0.2500	120.0	0.2500	0.7500	1.5000	919-000-673	919-000-674	919-002-580
0.3750	120.0	0.2500	0.8750	1.7500	919-000-675	919-000-676	919-002-579
0.5000	120.0	0.2500	1.0000	2.0000	919-000-677	919-000-678	919-002-578
0.6250	120.0	0.3750	1.0000	2.2500	919-000-679	919-000-680	919-002-577
0.7500	120.0	0.5000	1.2500	2.6250	919-000-681	919-000-682	919-002-576
1.0000	120.0	0.5000	1.2500	2.7500	919-000-683	919-000-684	919-002-575
1.2500	120.0	0.5000	1.2500	2.7500	919-000-685	919-000-686	919-002-574
1.5000	120.0	0.7500	1.2500	2.8750	919-000-687	919-000-688	919-002-573
1.7500	120.0	0.7500	1.2500	3.0000	919-000-689	919-000-690	919-002-572
2.0000	120.0	0.7500	1.2500	3.2500	919-000-691	919-000-692	919-002-571

5-PIECE SINGLE-FLUTE COUNTERSINK SET

Available in HSS & Cobalt

COUNTERSINK ANGLE	HSS Uncoated	COBALT Uncoated
60°	919-000-050	919-000-044
82°	919-000-051	919-000-045
90°	919-000-052	919-000-046
100°	919-000-047	919-000-041
120°	919-000-049	919-000-043
Body Dia.	1", 3/4", 1/2", 3/8", 1/4"	

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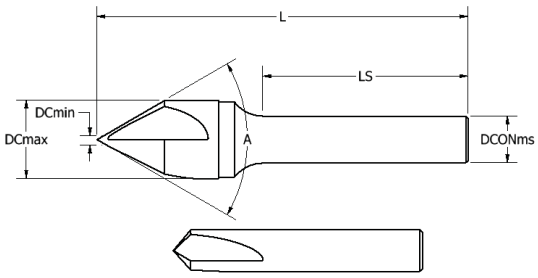
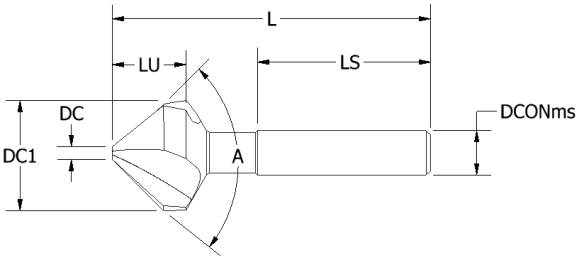


DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	60.0	0.7500	1.5000	0.1250	0.0156	917-000-301	917-001-023	917-000-751
0.1875	60.0	1.0000	2.0000	0.1875	0.0313	917-000-303	917-000-990	917-000-753
0.2500	60.0	1.0000	2.0000	0.2500	0.0625	917-000-305	917-000-991	917-000-755
0.2500	60.0	1.7500	2.8750	0.3750	0.0625	917-000-307	917-000-992	917-000-757
0.2500	60.0	1.6250	2.8750	0.5000	0.0625	917-000-309	917-000-993	917-000-759
0.3750	60.0	1.6250	3.0000	0.6250	0.0625	917-000-311	917-000-994	917-000-761
0.3750	60.0	1.5000	3.0000	0.7500	0.0625	917-000-313	917-000-995	917-000-763
0.5000	60.0	1.5000	3.2500	1.0000	0.1250	917-000-315	917-000-996	917-000-765
0.7500	60.0	1.5000	3.2500	1.2500	0.1875	917-000-317	917-000-997	917-000-767
0.1250	82.0	0.7500	1.5000	0.1250	0.0156	917-000-321	917-000-998	917-000-769
0.1875	82.0	1.0000	2.0000	0.1875	0.0313	917-000-323	917-000-999	917-000-771
0.2500	82.0	1.0000	2.0000	0.2500	0.0625	917-000-325	917-001-001	917-000-773
0.2500	82.0	1.7500	2.6250	0.3750	0.0625	917-000-327	917-001-002	917-000-775
0.2500	82.0	1.6250	2.6250	0.5000	0.0625	917-000-329	917-001-003	917-000-777
0.3750	82.0	1.6250	2.7500	0.6250	0.0625	917-000-331	917-001-004	917-000-779
0.3750	82.0	1.5000	2.7500	0.7500	0.0625	917-000-333	917-001-005	917-000-781
0.5000	82.0	1.5000	3.0000	1.0000	0.0938	917-000-335	917-000-785	917-000-783
0.7500	82.0	1.5000	3.2500	1.2500	0.1250	917-000-337	917-000-788	917-000-786
0.1250	90.0	0.7500	1.5000	0.1250	0.0156	917-000-341	917-001-006	917-000-789
0.1875	90.0	1.0000	2.0000	0.1875	0.0313	917-000-343	917-001-007	917-000-791
0.2500	90.0	1.0000	2.0000	0.2500	0.0625	917-000-345	917-001-008	917-000-793
0.2500	90.0	1.7500	2.6250	0.3750	0.0625	917-000-347	917-001-009	917-000-795
0.2500	90.0	1.6250	2.6250	0.5000	0.0625	917-000-349	917-000-799	917-000-797
0.3750	90.0	1.6250	2.7500	0.6250	0.0625	917-000-351	917-001-010	917-000-800
0.3750	90.0	1.5000	2.7500	0.7500	0.0625	917-000-353	917-001-011	917-000-802
0.5000	90.0	1.5000	3.0000	1.0000	0.0938	917-000-355	917-001-012	917-000-804
0.7500	90.0	1.5000	3.2500	1.2500	0.1250	917-000-357	917-001-013	917-000-806
0.1250	100.0	0.7500	1.5000	0.1250	0.0156	917-000-361	917-001-014	917-000-808
0.1875	100.0	1.0000	2.0000	0.1875	0.0313	917-000-363	917-001-015	917-000-810
0.2500	100.0	1.0000	2.0000	0.2500	0.0625	917-000-365	917-001-016	917-000-812
0.2500	100.0	1.7500	2.6250	0.3750	0.0625	917-000-367	917-001-017	917-000-814
0.2500	100.0	1.6250	2.6250	0.5000	0.0625	917-000-369	917-001-018	917-000-816
0.3750	100.0	1.6250	2.7500	0.6250	0.0625	917-000-371	917-001-019	917-000-818
0.3750	100.0	1.5000	2.7500	0.7500	0.0625	917-000-373	917-001-020	917-000-820
0.5000	100.0	1.5000	3.0000	1.0000	0.0625	917-000-375	917-001-021	917-000-822
0.7500	100.0	1.5000	3.2500	1.2500	0.0938	917-000-377	917-001-022	917-000-824

KEO®



COBALT

DC1 [in.]	A [°]	DCONMS [in.]	DC [in.]	LU [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.2500	60.0	0.2031	0.0590	0.2550	1.2500	1.7500	919-000-265	919-001-405	919-002-804
0.3125	60.0	0.2500	0.0510	0.3360	1.2031	1.7500	919-000-266	919-001-408	919-002-803
0.3750	60.0	0.2500	0.0870	0.4060	1.2031	1.7500	919-000-267	919-001-411	919-002-802
0.5000	60.0	0.2500	0.0980	0.5350	1.2500	1.8750	919-000-268	919-001-414	919-002-801
0.6250	60.0	0.3750	0.1100	0.6490	1.5000	2.2500	919-000-269	919-001-417	919-002-800
0.7500	60.0	0.3750	0.1180	0.7500	1.5000	2.5000	919-000-270	919-001-420	919-002-799
1.0000	60.0	0.3750	0.1260	0.9760	1.5000	2.7500	919-000-271	919-001-423	919-002-798
1.2500	60.0	0.5000	0.1970	1.1620	1.7500	3.2500	919-000-272	919-001-426	919-002-797
0.2500	82.0	0.2031	0.0590	0.2000	1.2500	1.7500	919-000-273	919-001-429	919-002-796
0.3125	82.0	0.2500	0.0510	0.2600	1.2031	1.7500	919-000-274	919-001-432	919-002-795
0.3750	82.0	0.2500	0.0870	0.3220	1.2031	1.7500	919-000-275	919-001-435	919-002-794
0.5000	82.0	0.2500	0.0980	0.4180	1.2500	1.8750	919-000-276	919-001-438	919-002-793
0.6250	82.0	0.3750	0.1100	0.4990	1.5000	2.2500	919-000-277	919-001-441	919-002-792
0.7500	82.0	0.3750	0.1180	0.5670	1.5000	2.5000	919-000-278	919-001-444	919-002-791
1.0000	82.0	0.3750	0.1260	0.7210	1.5000	2.7500	919-000-279	919-001-447	919-002-790
1.2500	82.0	0.5000	0.1970	0.8560	1.7500	3.2500	919-000-280	919-001-450	919-002-789
0.2500	90.0	0.2031	0.0590	0.1850	1.2500	1.7500	919-000-281	919-001-453	919-002-788
0.3125	90.0	0.2500	0.0510	0.2400	1.2031	1.7500	919-000-282	919-001-456	919-002-787
0.3750	90.0	0.2500	0.0870	0.3000	1.2031	1.7500	919-000-283	919-001-459	919-002-785
0.5000	90.0	0.2500	0.0980	0.3880	1.2500	1.8750	919-000-284	919-001-462	919-002-784
0.6250	90.0	0.3750	0.1100	0.4610	1.5000	2.2500	919-000-285	919-001-465	919-002-783
0.7500	90.0	0.3750	0.1180	0.5190	1.5000	2.5000	919-000-286	919-001-468	919-002-782
1.0000	90.0	0.3750	0.1260	0.6560	1.5000	2.7500	919-000-287	919-001-471	919-002-781
1.2500	90.0	0.5000	0.1970	0.7770	1.7500	3.2500	919-000-288	919-001-474	919-002-780
0.2500	100.0	0.2031	0.0590	0.1700	1.2500	1.7500	919-000-289	919-001-477	919-002-779
0.3125	100.0	0.2500	0.0510	0.2190	1.2031	1.7500	919-000-290	919-001-480	919-002-778
0.3750	100.0	0.2500	0.0870	0.2770	1.2031	1.7500	919-000-291	919-001-483	919-002-777
0.5000	100.0	0.2500	0.0980	0.3560	1.2500	1.8750	919-000-292	919-001-486	919-002-776
0.6250	100.0	0.3750	0.1100	0.4190	1.5000	2.2500	919-000-293	919-001-489	919-002-775
0.7500	100.0	0.3750	0.1180	0.4680	1.5000	2.5000	919-000-294	919-001-492	919-002-774
1.0000	100.0	0.3750	0.1260	0.5850	1.5000	2.7500	919-000-295	919-001-495	919-002-773
1.2500	100.0	0.5000	0.1970	0.6920	1.7500	3.2500	919-000-296	919-001-498	919-002-772

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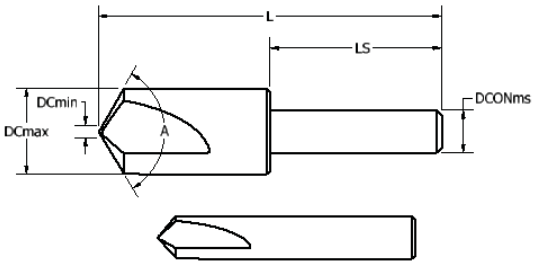

DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	Uncoated	TiN Coated	AlTiN Coated
0.2500	60.0	0.7500	1.5000	0.2500	0.0625	917-000-031	917-000-032	917-000-980
0.2500	60.0	0.8750	1.7500	0.3750	0.0625	917-000-055	917-000-056	917-000-970
0.2500	60.0	1.0000	2.0000	0.5000	0.0938	917-000-019	917-000-020	917-000-986
0.3750	60.0	1.0000	2.2500	0.6250	0.0938	917-000-067	917-000-068	917-000-965
0.5000	60.0	1.2500	2.6250	0.7500	0.1250	917-000-043	917-000-044	917-000-975
0.5000	60.0	1.2500	2.7500	1.0000	0.1250	917-000-079	917-000-080	917-000-941
0.5000	60.0	1.2500	3.0000	1.2500	0.1250	917-000-103	917-000-104	917-000-929
0.7500	60.0	1.2500	3.2500	1.5000	0.1250	917-000-121	917-000-122	917-000-919
0.7500	60.0	1.2500	3.5000	1.7500	0.1250	917-000-133	917-000-134	917-000-913
0.7500	60.0	1.2500	3.7500	2.0000	0.1250	917-000-151	917-000-152	917-000-904
0.2500	82.0	0.7500	1.5000	0.2500	0.0625	917-000-033	917-000-034	917-000-430
0.2500	82.0	0.8750	1.7500	0.3750	0.0625	917-000-057	917-000-058	917-000-468
0.2500	82.0	1.0000	2.0000	0.5000	0.0625	917-000-021	917-000-022	917-000-985
0.3750	82.0	1.0000	2.2500	0.6250	0.0625	917-000-069	917-000-070	917-000-964
0.5000	82.0	1.2500	2.6250	0.7500	0.0938	917-000-045	917-000-046	917-000-449
0.5000	82.0	1.2500	2.7500	1.0000	0.0938	917-000-081	917-000-082	917-000-940
0.5000	82.0	1.2500	2.7500	1.2500	0.0938	917-000-105	917-000-106	917-000-928
0.7500	82.0	1.2500	2.8750	1.5000	0.0938	917-000-123	917-000-124	917-000-918
0.7500	82.0	1.2500	3.0000	1.7500	0.0938	917-000-135	917-000-136	917-000-912
0.7500	82.0	1.2500	3.2500	2.0000	0.0938	917-000-153	917-000-154	917-000-903
0.2500	90.0	0.7500	1.5000	0.2500	0.0625	917-000-035	917-000-036	917-000-979
0.2500	90.0	0.8750	1.7500	0.3750	0.0625	917-000-059	917-000-060	917-000-969
0.2500	90.0	1.0000	2.0000	0.5000	0.0625	917-000-023	917-000-024	917-000-984
0.3750	90.0	1.0000	2.2500	0.6250	0.0625	917-000-071	917-000-072	917-000-963
0.5000	90.0	1.2500	2.6250	0.7500	0.0938	917-000-047	917-000-048	917-000-974
0.5000	90.0	1.2500	2.7500	1.0000	0.0938	917-000-083	917-000-084	917-000-939
0.5000	90.0	1.2500	2.7500	1.2500	0.0938	917-000-107	917-000-108	917-000-926
0.7500	90.0	1.2500	2.8750	1.5000	0.0938	917-000-125	917-000-126	917-000-917
0.7500	90.0	1.2500	3.0000	1.7500	0.0938	917-000-137	917-000-138	917-000-911
0.7500	90.0	1.2500	3.2500	2.0000	0.0938	917-000-155	917-000-156	917-000-902

For set information see **page 198**

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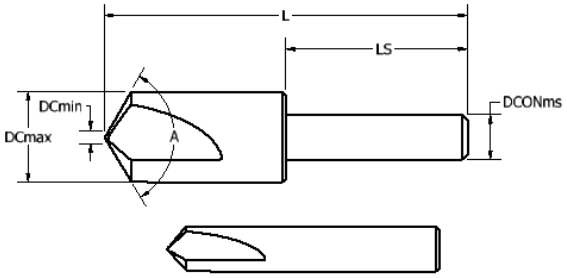

DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	Uncoated	TiN Coated	AlTiN Coated
0.2500	100.0	0.7500	1.5000	0.5000	0.0625	917-000-025	917-000-026	917-000-983
0.2500	100.0	0.8750	1.7500	0.3750	0.0625	917-000-049	917-000-050	917-000-973
0.2500	100.0	1.0000	2.0000	0.5000	0.0625	917-000-013	917-000-014	917-000-989
0.3750	100.0	1.0000	2.2500	0.6250	0.0625	917-000-061	917-000-062	917-000-968
0.5000	100.0	1.2500	2.6250	0.7500	0.0625	917-000-037	917-000-038	917-000-978
0.5000	100.0	1.2500	2.7500	1.0000	0.0625	917-000-073	917-000-074	917-000-944
0.5000	100.0	1.2500	2.7500	1.2500	0.0625	917-000-097	917-000-098	917-000-932
0.7500	100.0	1.2500	2.8750	1.5000	0.0625	917-000-115	917-000-116	917-000-922
0.7500	100.0	1.2500	3.0000	1.7500	0.0625	917-000-127	917-000-128	917-000-916
0.7500	100.0	1.2500	3.2500	2.0000	0.0625	917-000-145	917-000-146	917-000-907
0.2500	120.0	0.7500	1.5000	0.2500	0.0313	917-000-029	917-000-030	917-000-981
0.2500	120.0	0.8750	1.7500	0.3750	0.0313	917-000-053	917-000-054	917-000-971
0.2500	120.0	1.0000	2.0000	0.5000	0.0625	917-000-017	917-000-018	917-000-987
0.3750	120.0	1.0000	2.2500	0.6250	0.0625	917-000-065	917-000-066	917-000-966
0.5000	120.0	1.2500	2.6250	0.7500	0.0625	917-000-041	917-000-042	917-000-976
0.5000	120.0	1.2500	2.7500	1.0000	0.0625	917-000-077	917-000-078	917-000-942
0.5000	120.0	1.2500	2.7500	1.2500	0.0625	917-000-101	917-000-102	917-000-930
0.7500	120.0	1.2500	2.8750	1.5000	0.0625	917-000-119	917-000-120	917-000-920
0.7500	120.0	1.2500	3.0000	1.7500	0.0625	917-000-131	917-000-132	917-000-914
0.7500	120.0	1.2500	3.2500	2.0000	0.0625	917-000-149	917-000-150	917-000-905

For set information see **page 198**

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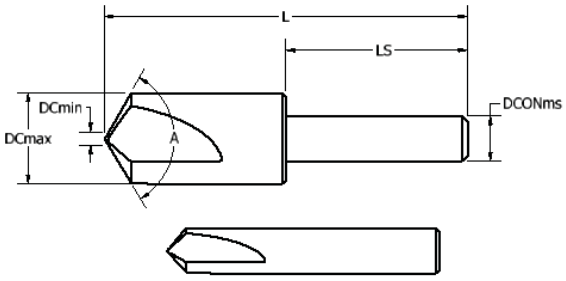

COBALT

DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	Uncoated	TiN Coated	AlTiN Coated
0.2500	60.0	0.7500	1.5000	0.2500	0.0625	917-000-157	917-000-158	917-000-901
0.2500	60.0	0.8750	1.7500	0.3750	0.0625	917-000-159	917-000-160	917-000-900
0.2500	60.0	1.0000	2.0000	0.5000	0.0938	917-000-161	917-000-162	917-000-899
0.3750	60.0	1.0000	2.2500	0.6250	0.0938	917-000-163	917-000-164	917-000-898
0.5000	60.0	1.2500	2.6250	0.7500	0.1250	917-000-165	917-000-166	917-000-897
0.5000	60.0	1.2500	2.7500	1.0000	0.1250	917-000-167	917-000-168	917-000-896
0.5000	60.0	1.2500	3.0000	1.2500	0.1250	917-000-169	917-000-170	917-000-895
0.7500	60.0	1.2500	3.2500	1.5000	0.1250	917-000-171	917-000-172	917-000-894
0.7500	60.0	1.2500	3.5000	1.7500	0.1250	917-000-173	917-000-174	917-000-893
0.7500	60.0	1.2500	3.7500	2.0000	0.1250	917-000-175	917-000-176	917-000-892
0.2500	82.0	0.7500	1.5000	0.2500	0.0625	917-000-177	917-000-178	917-000-891
0.2500	82.0	0.8750	1.7500	0.3750	0.0625	917-000-179	917-000-180	917-000-890
0.2500	82.0	1.0000	2.0000	0.5000	0.0625	917-000-181	917-000-182	917-000-889
0.3750	82.0	1.0000	2.2500	0.6250	0.0625	917-000-183	917-000-184	917-000-888
0.5000	82.0	1.2500	2.7500	0.7500	0.0938	917-000-185	917-000-186	917-000-887
0.5000	82.0	1.2500	2.7500	1.0000	0.0938	917-000-187	917-000-188	917-000-886
0.5000	82.0	2.7500	3.0000	1.2500	0.0938	917-000-189	917-000-190	917-000-885
0.7500	82.0	1.2500	2.8750	1.5000	0.0938	917-000-191	917-000-192	917-000-884
0.7500	82.0	1.2500	3.0000	1.7500	0.0938	917-000-193	917-000-194	917-000-883
0.7500	82.0	1.2500	3.2500	2.0000	0.0938	917-000-195	917-000-196	917-000-882
0.2500	90.0	0.7500	1.5000	0.2500	0.0625	917-000-197	917-000-198	917-000-881
0.2500	90.0	0.8750	1.7500	0.3750	0.0625	917-000-199	917-000-200	917-000-880
0.2500	90.0	1.0000	2.0000	0.5000	0.0625	917-000-201	917-000-202	917-000-879
0.3750	90.0	1.0000	2.2500	0.6250	0.0625	917-000-203	917-000-204	917-000-878
0.5000	90.0	1.2500	2.6250	0.7500	0.0938	917-000-205	917-000-206	917-000-877
0.5000	90.0	1.2500	2.7500	1.0000	0.0938	917-000-207	917-000-208	917-000-876
0.5000	90.0	1.2500	2.7500	1.2500	0.0938	917-000-209	917-000-210	917-000-875
0.7500	90.0	1.2500	2.8750	1.5000	0.0938	917-000-211	917-000-212	917-000-874
0.7500	90.0	1.2500	3.0000	1.7500	0.0938	917-000-213	917-000-214	917-000-873
0.7500	90.0	1.2500	3.2500	2.0000	0.0938	917-000-215	917-000-216	917-000-872

For set information see **page 198**

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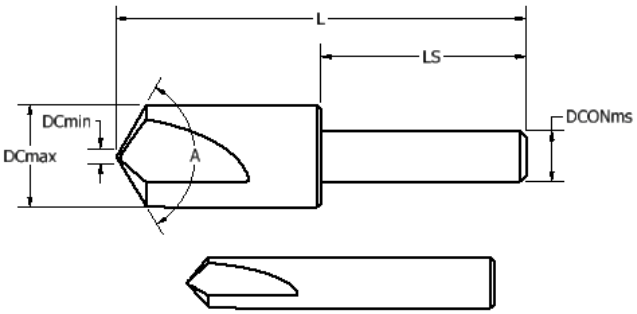

DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	Uncoated	TiN Coated	AlTiN Coated
0.2500	100.0	0.7500	1.5000	0.2500	0.0625	917-000-217	917-000-218	917-000-871
0.2500	100.0	0.8750	1.7500	0.3750	0.0625	917-000-219	917-000-220	917-000-870
0.2500	100.0	1.0000	2.0000	0.5000	0.0625	917-000-221	917-000-222	917-000-869
0.3750	100.0	1.0000	2.2500	0.6250	0.0625	917-000-223	917-000-224	917-000-868
0.5000	100.0	1.2500	2.6250	0.7500	0.0625	917-000-225	917-000-226	917-000-867
0.5000	100.0	1.2500	2.7500	1.0000	0.0625	917-000-227	917-000-228	917-000-866
0.5000	100.0	1.2500	2.7500	1.2500	0.0625	917-000-229	917-000-230	917-000-865
0.7500	100.0	1.2500	2.8750	1.5000	0.0625	917-000-231	917-000-232	917-000-864
0.7500	100.0	1.2500	3.0000	1.7500	0.0625	917-000-233	917-000-234	917-000-863
0.7500	100.0	1.2500	3.2500	2.0000	0.0625	917-000-235	917-000-236	917-000-862
0.2500	120.0	0.7500	1.5000	0.2500	0.0313	917-000-257	917-000-258	917-000-851
0.2500	120.0	0.8750	1.7500	0.3750	0.0313	917-000-259	917-000-260	917-000-850
0.2500	120.0	1.0000	2.0000	0.5000	0.0625	917-000-261	917-000-262	917-000-849
0.3750	120.0	1.0000	2.2500	0.6250	0.0625	917-000-263	917-000-264	917-000-848
0.5000	120.0	1.2500	2.6250	0.7500	0.0625	917-000-265	917-000-266	917-000-847
0.5000	120.0	1.2500	2.7500	1.0000	0.0625	917-000-267	917-000-268	917-000-846
0.5000	120.0	1.2500	2.7500	1.2500	0.0625	917-000-269	917-000-270	917-000-845
0.7500	120.0	1.2500	2.8750	1.5000	0.0625	917-000-271	917-000-272	917-000-844
0.7500	120.0	1.2500	3.0000	1.7500	0.0625	917-000-273	917-000-274	917-000-843
0.7500	120.0	1.2500	3.2500	2.0000	0.0625	917-000-275	917-000-276	917-000-842

5-PIECE 3-FLUTE CENTER REAMER SET

Available in HSS & Cobalt

COUNTERSINK ANGLE	BMC	Uncoated	TiN Coated	AlTiN Coated
60°	HSS	917-000-004	917-000-392	917-000-959
82°	HSS	917-000-005	917-000-395	917-000-958
90°	HSS	917-000-006	917-000-398	917-000-957
100°	HSS	917-000-001	917-000-383	917-000-962
120°	HSS	917-000-003	917-000-389	917-000-960
60°	HSS-E	917-000-010	917-000-949	917-000-950
82°	HSS-E	917-000-011	917-000-947	917-000-948
90°	HSS-E	917-000-012	917-000-945	917-000-946
100°	HSS-E	917-000-007	917-000-955	917-000-956
120°	HSS-E	917-000-009	917-000-951	917-000-952
Body Dia.	1", 3/4", 1/2", 3/8", 1/4"			

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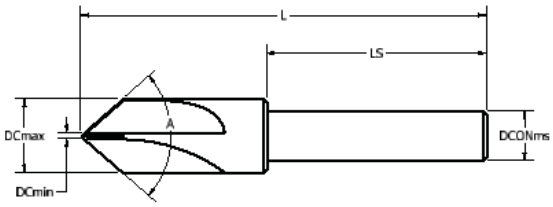

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	BMC	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.5000	60.0	0.1094	0.5000	HSS	2.2500	3.8750	919-000-001	919-000-002	919-002-952
0.5000	60.0	0.1094	0.5000	HSS-E	2.2500	3.8750	919-000-519	919-000-520	919-002-657
0.5000	82.0	0.1094	0.5000	HSS	2.2500	3.8750	919-000-003	919-000-004	919-002-951
0.5000	82.0	0.1094	0.5000	HSS-E	2.2500	3.8750	919-000-529	919-000-530	919-002-652
0.5000	90.0	0.1094	0.5000	HSS	2.2500	3.8750	919-000-005	919-000-006	919-002-950
0.5000	90.0	0.1094	0.5000	HSS-E	2.2500	3.8750	919-000-539	919-000-540	919-002-647
0.6250	60.0	0.1563	0.5000	HSS	2.2500	4.0000	919-000-013	919-000-014	919-002-946
0.6250	60.0	0.1563	0.5000	HSS-E	2.2500	4.0000	919-000-521	919-000-522	919-002-656
0.6250	82.0	0.1250	0.5000	HSS	2.2500	4.0000	919-000-015	919-000-016	919-002-945
0.6250	82.0	0.1250	0.5000	HSS-E	2.2500	4.0000	919-000-531	919-000-532	919-002-651
0.6250	90.0	0.1250	0.5000	HSS	2.2500	4.0000	919-000-017	919-000-018	919-002-944
0.6250	90.0	0.1250	0.5000	HSS-E	2.2500	4.0000	919-000-541	919-000-542	919-002-646
0.7500	60.0	0.2031	0.5000	HSS	2.2500	4.1250	919-000-007	919-000-008	919-002-949
0.7500	60.0	0.2031	0.5000	HSS-E	2.2500	4.1250	919-000-523	919-000-524	919-002-655
0.7500	82.0	0.1406	0.5000	HSS	2.2500	4.1250	919-000-009	919-000-010	919-002-948
0.7500	82.0	0.1406	0.5000	HSS-E	2.2500	4.1250	919-000-533	919-000-534	919-002-650
0.7500	90.0	0.1406	0.5000	HSS	2.2500	4.1250	919-000-011	919-000-012	919-002-947
0.7500	90.0	0.1406	0.5000	HSS-E	2.2500	4.1250	919-000-543	919-000-544	919-002-645
0.8750	60.0	0.2031	0.5000	HSS	2.2500	4.2500	919-000-019	919-000-020	919-002-943
0.8750	60.0	0.2031	0.5000	HSS-E	2.2500	4.2500	919-000-525	919-000-526	919-002-654
0.8750	82.0	0.1563	0.5000	HSS	2.2500	4.2500	919-000-021	919-000-022	919-002-942
0.8750	82.0	0.1563	0.5000	HSS-E	2.2500	4.2500	919-000-535	919-000-536	919-002-649
0.8750	90.0	0.1563	0.5000	HSS	2.2500	4.2500	919-000-023	919-000-024	919-002-941
0.8750	90.0	0.1563	0.5000	HSS-E	2.2500	4.2500	919-000-545	919-000-546	919-002-644
1.0000	60.0	0.2031	0.5000	HSS	2.2500	4.3750	919-000-025	919-000-026	919-002-940
1.0000	60.0	0.2031	0.5000	HSS-E	2.2500	4.3750	919-000-527	919-000-528	919-002-653
1.0000	82.0	0.1719	0.5000	HSS	2.2500	4.3750	919-000-027	919-000-028	919-002-939
1.0000	82.0	0.1719	0.5000	HSS-E	2.2500	4.3750	919-000-537	919-000-538	919-002-648
1.0000	90.0	0.1719	0.5000	HSS	2.2500	4.3750	919-000-029	919-000-030	919-002-938
1.0000	90.0	0.1719	0.5000	HSS-E	2.2500	4.3750	919-000-547	919-000-548	919-002-643

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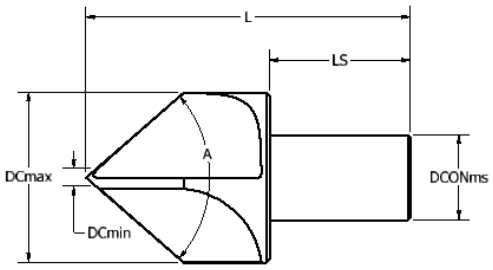

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	BMC	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
1.2500	60.0	0.4375	0.5000	HSS	1.2500	3.0000	917-000-091	917-000-092	917-000-935
1.2500	60.0	0.4375	0.5000	HSS-E	1.2500	3.0000	917-000-277	917-000-278	917-000-841
1.2500	82.0	0.3750	0.5000	HSS	1.2500	2.7500	917-000-093	917-000-094	917-000-934
1.2500	82.0	0.3750	0.5000	HSS-E	1.2500	2.7500	917-000-285	917-000-286	917-000-837
1.2500	90.0	0.3594	0.5000	HSS	1.2500	2.7500	917-000-095	917-000-096	917-000-933
1.2500	90.0	0.3594	0.5000	HSS-E	1.2500	2.7500	917-000-293	917-000-294	917-000-833
1.5000	60.0	0.5625	0.7500	HSS	1.2500	3.2500	917-000-085	917-000-086	917-000-938
1.5000	60.0	0.5625	0.7500	HSS-E	1.2500	3.2500	917-000-279	917-000-280	917-000-840
1.5000	82.0	0.5156	0.7500	HSS	1.2500	2.8750	917-000-087	917-000-088	917-000-937
1.5000	82.0	0.5156	0.7500	HSS-E	1.2500	2.8750	917-000-287	917-000-288	917-000-836
1.5000	90.0	0.5000	0.7500	HSS	1.2500	2.8750	917-000-089	917-000-090	917-000-936
1.5000	90.0	0.5000	0.7500	HSS-E	1.2500	2.8750	917-000-295	917-000-296	917-000-832
1.7500	60.0	0.5625	0.7500	HSS	1.2500	3.5000	917-000-109	917-000-110	917-000-925
1.7500	60.0	0.5625	0.7500	HSS-E	1.2500	3.5000	917-000-281	917-000-282	917-000-839
1.7500	82.0	0.5156	0.7500	HSS	1.2500	3.0000	917-000-111	917-000-112	917-000-924
1.7500	82.0	0.5156	0.7500	HSS-E	1.2500	3.0000	917-000-289	917-000-290	917-000-835
1.7500	90.0	0.5000	0.7500	HSS	1.2500	3.0000	917-000-113	917-000-114	917-000-923
1.7500	90.0	0.5000	0.7500	HSS-E	1.2500	3.0000	917-000-297	917-000-298	917-000-831
2.0000	60.0	0.5625	0.7500	HSS	1.2500	3.7500	917-000-139	917-000-140	917-000-910
2.0000	60.0	0.5625	0.7500	HSS-E	1.2500	3.7500	917-000-283	917-000-284	917-000-838
2.0000	82.0	0.5313	0.7500	HSS	1.2500	3.2500	917-000-141	917-000-142	917-000-909
2.0000	82.0	0.5313	0.7500	HSS-E	1.2500	3.2500	917-000-291	917-000-292	917-000-834
2.0000	90.0	0.5000	0.7500	HSS	1.2500	3.2500	917-000-143	917-000-144	917-000-908
2.0000	90.0	0.5000	0.7500	HSS-E	1.2500	3.2500	917-000-299	917-000-300	917-000-830

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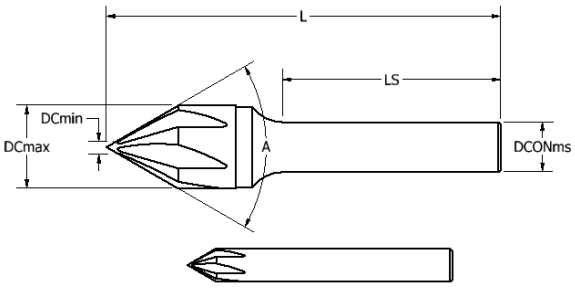

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	60.0	0.0469	0.1250	0.7500	1.5000	919-000-989	919-002-988	919-002-369
0.1875	60.0	0.0469	0.1875	1.0000	2.0000	919-000-991	919-002-989	919-002-371
0.2500	60.0	0.0625	0.2500	1.0000	2.0000	919-000-993	919-002-990	919-002-373
0.3750	60.0	0.0781	0.2500	1.7500	2.7500	919-000-995	919-002-991	919-002-375
0.5000	60.0	0.0938	0.2500	1.6250	2.7500	919-000-997	919-002-992	919-002-377
0.6250	60.0	0.1094	0.3750	1.6250	2.8750	919-000-999	919-002-993	919-002-379
0.7500	60.0	0.1094	0.3750	1.5000	3.0000	919-001-002	919-002-994	919-002-381
1.0000	60.0	0.1563	0.5000	1.5000	3.2500	919-001-004	919-002-995	919-002-383
1.2500	60.0	0.1563	0.7500	1.5000	3.7500	919-001-006	919-002-996	919-002-385
1.5000	60.0	0.1875	0.7500	1.5000	3.7500	919-001-008	919-002-997	919-002-387
0.1250	82.0	0.0469	0.1250	0.7500	1.5000	919-001-012	919-002-999	919-002-389
0.1875	82.0	0.0625	0.1875	1.0000	2.0000	919-001-014	919-003-000	919-002-391
0.2500	82.0	0.0781	0.2500	1.0000	2.0000	919-001-016	919-003-001	919-002-393
0.3750	82.0	0.1094	0.2500	1.7500	2.6250	919-001-018	919-003-002	919-002-395
0.5000	82.0	0.1250	0.2500	1.6250	2.6250	919-001-020	919-003-003	919-002-397
0.6250	82.0	0.1406	0.3750	1.6250	2.7500	919-001-022	919-003-004	919-002-399
0.7500	82.0	0.1563	0.3750	1.5000	2.7500	919-001-024	919-003-005	919-002-401
1.0000	82.0	0.1719	0.5000	1.5000	3.0000	919-001-026	919-003-006	919-002-403
1.2500	82.0	0.1719	0.7500	1.5000	3.2500	919-001-028	919-003-007	919-002-405
1.5000	82.0	0.1875	0.7500	1.5000	3.2500	919-001-030	919-003-008	919-002-407
0.1250	90.0	0.0469	0.1250	0.7500	1.5000	919-001-034	919-003-010	919-002-409
0.1875	90.0	0.0625	0.1875	1.0000	2.0000	919-001-036	919-003-011	919-002-411
0.2500	90.0	0.0781	0.2500	1.0000	2.0000	919-001-038	919-002-415	919-002-413
0.3750	90.0	0.1094	0.2500	1.7500	2.6250	919-001-040	919-003-012	919-002-416
0.5000	90.0	0.1250	0.2500	1.6250	2.6250	919-001-042	919-003-013	919-002-418
0.6250	90.0	0.1406	0.3750	1.6250	2.7500	919-001-044	919-003-014	919-002-420
0.7500	90.0	0.1563	0.3750	1.5000	2.7500	919-001-046	919-002-424	919-002-422
1.0000	90.0	0.1719	0.5000	1.5000	3.0000	919-001-048	919-003-015	919-002-425
1.2500	90.0	0.1719	0.7500	1.5000	3.2500	919-001-050	919-003-016	919-002-427
1.5000	90.0	0.1875	0.7500	1.5000	3.2500	919-001-052	919-003-017	919-002-429
0.1250	100.0	0.0625	0.1250	0.7500	1.5000	919-001-056	919-002-433	919-002-431
0.1875	100.0	0.0781	0.1875	1.0000	2.0000	919-001-058	919-003-019	919-002-434
0.2500	100.0	0.0781	0.2500	1.0000	2.0000	919-001-060	919-002-455	919-002-436
0.3750	100.0	0.1094	0.2500	1.7500	2.6250	919-001-062	919-003-020	919-002-438
0.5000	100.0	0.1250	0.2500	1.6250	2.6250	919-001-064	919-003-021	919-002-440
0.6250	100.0	0.1563	0.3750	1.6250	2.7500	919-001-066	919-003-022	919-002-442
0.7500	100.0	0.1719	0.3750	1.5000	2.7500	919-001-068	919-001-070	919-002-444
1.0000	100.0	0.1875	0.5000	1.5000	3.0000	919-001-071	919-003-023	919-002-446
1.2500	100.0	0.1875	0.7500	1.5000	3.2500	919-001-073	919-002-450	919-002-448
1.5000	100.0	0.2188	0.7500	1.5000	3.2500	919-001-075	919-003-024	919-002-451

For set information see **page 207**

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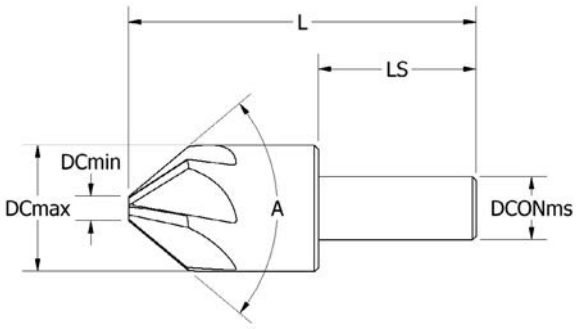

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	60.0	0.0469	0.1250	0.6250	1.2500	919-000-297	919-000-298	919-002-771
0.1875	60.0	0.0625	0.1875	0.6875	1.3750	919-000-299	919-000-300	919-002-770
0.2500	60.0	0.0781	0.2500	0.7500	1.5000	919-000-301	919-000-302	919-002-769
0.3125	60.0	0.0938	0.2500	0.8750	1.7500	919-000-303	919-000-304	919-002-768
0.3750	60.0	0.1250	0.2500	0.8750	1.7500	919-000-305	919-000-306	919-002-767
0.5000	60.0	0.1563	0.2500	1.0000	2.0000	919-000-307	919-000-308	919-002-766
0.5000	60.0	0.1563	0.3750	1.0000	2.0000	919-000-309	919-000-310	919-002-765
0.6250	60.0	0.2031	0.2500	1.0000	2.2500	919-000-311	919-000-312	919-002-764
0.6250	60.0	0.2031	0.3750	1.0000	2.2500	919-000-313	919-000-314	919-002-763
0.7500	60.0	0.2500	0.5000	1.2500	2.6250	919-000-315	919-000-316	919-002-762
0.8750	60.0	0.2813	0.5000	1.2500	2.7500	919-000-317	919-000-318	919-002-761
1.0000	60.0	0.3281	0.5000	1.2500	2.7500	919-000-319	919-000-320	919-002-760
1.2500	60.0	0.4063	0.5000	1.2500	3.0000	919-000-321	919-000-322	919-002-759
1.5000	60.0	0.5000	0.7500	1.2500	3.2500	919-000-323	919-000-324	919-002-758
1.7500	60.0	0.5781	0.7500	1.2500	3.5000	919-000-325	919-000-326	919-002-757
2.0000	60.0	0.6563	0.7500	1.2500	3.7500	919-000-327	919-000-328	919-002-756
0.1250	82.0	0.0250	0.1250	0.6250	1.2500	919-000-334	919-000-335	919-002-752
0.1875	82.0	0.0313	0.1875	0.6875	1.3750	919-000-336	919-000-337	919-002-751
0.2500	82.0	0.0469	0.2500	0.7500	1.5000	919-000-338	919-000-339	919-002-750
0.3125	82.0	0.0625	0.2500	0.8750	1.7500	919-000-340	919-000-341	919-002-749
0.3750	82.0	0.0781	0.2500	0.8750	1.7500	919-000-342	919-000-343	919-002-748
0.5000	82.0	0.1094	0.2500	1.0000	2.0000	919-000-344	919-000-345	919-002-747
0.5000	82.0	0.1094	0.3750	1.0000	2.0000	919-000-346	919-000-347	919-002-746
0.6250	82.0	0.1250	0.2500	1.0000	2.2500	919-000-348	919-000-349	919-002-745
0.6250	82.0	0.1250	0.3750	1.0000	2.2500	919-000-350	919-000-351	919-002-744
0.7500	82.0	0.1563	0.5000	1.2500	2.6250	919-000-352	919-000-353	919-002-743
0.8750	82.0	0.1719	0.5000	1.2500	2.7500	919-000-354	919-000-355	919-002-742
1.0000	82.0	0.2031	0.5000	1.2500	2.7500	919-000-356	919-000-357	919-002-741
1.2500	82.0	0.2500	0.5000	1.2500	2.7500	919-000-358	919-000-359	919-002-740
1.5000	82.0	0.3125	0.7500	1.2500	2.8750	919-000-360	919-000-361	919-002-739
1.7500	82.0	0.3594	0.7500	1.2500	3.0000	919-000-362	919-000-363	919-002-738
2.0000	82.0	0.4063	0.7500	1.2500	3.2500	919-000-364	919-000-365	919-002-737

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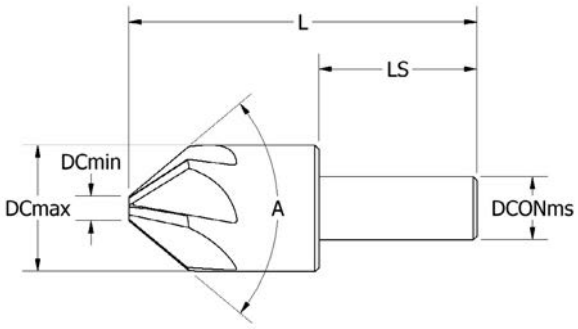

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	90.0	0.0250	0.1250	0.6250	1.2500	919-000-371	919-000-372	919-002-733
0.1875	90.0	0.0313	0.1875	0.6875	1.3750	919-000-373	919-000-374	919-002-732
0.2500	90.0	0.0469	0.2500	0.7500	1.5000	919-000-375	919-000-376	919-002-731
0.3125	90.0	0.0625	0.2500	0.8750	1.7500	919-000-377	919-000-378	919-002-730
0.3750	90.0	0.0781	0.2500	0.8750	1.7500	919-000-379	919-000-380	919-002-729
0.5000	90.0	0.1094	0.2500	1.0000	2.0000	919-000-381	919-000-382	919-002-728
0.5000	90.0	0.1094	0.3750	1.0000	2.0000	919-000-383	919-000-384	919-002-727
0.6250	90.0	0.1250	0.2500	1.0000	2.2500	919-000-385	919-000-386	919-002-726
0.6250	90.0	0.1250	0.3750	1.0000	2.2500	919-000-387	919-000-388	919-002-725
0.7500	90.0	0.1563	0.5000	1.2500	2.6250	919-000-389	919-000-390	919-002-724
0.8750	90.0	0.1719	0.5000	1.2500	2.7500	919-000-391	919-000-392	919-002-723
1.0000	90.0	0.2031	0.5000	1.2500	2.7500	919-000-393	919-000-394	919-002-722
1.2500	90.0	0.2500	0.5000	1.2500	2.7500	919-000-395	919-000-396	919-002-721
1.5000	90.0	0.3125	0.7500	1.2500	2.8750	919-000-397	919-000-398	919-002-720
1.7500	90.0	0.3594	0.7500	1.2500	3.0000	919-000-399	919-000-400	919-002-719
2.0000	90.0	0.4063	0.7500	1.2500	3.2500	919-000-401	919-000-402	919-002-718
0.1250	100.0	0.0250	0.1250	0.6250	1.2500	919-000-408	919-000-409	919-002-714
0.1875	100.0	0.0313	0.1875	0.6875	1.3750	919-000-410	919-000-411	919-002-713
0.2500	100.0	0.0469	0.2500	0.7500	1.5000	919-000-412	919-000-413	919-002-712
0.3125	100.0	0.0625	0.2500	0.8750	1.7500	919-000-414	919-000-415	919-002-711
0.3750	100.0	0.0781	0.2500	0.8750	1.7500	919-000-416	919-000-417	919-002-710
0.5000	100.0	0.1094	0.2500	1.0000	2.0000	919-000-418	919-000-419	919-002-709
0.5000	100.0	0.1094	0.3750	1.0000	2.0000	919-000-420	919-000-421	919-002-708
0.6250	100.0	0.1250	0.2500	1.0000	2.2500	919-000-422	919-000-423	919-002-707
0.6250	100.0	0.1250	0.3750	1.0000	2.2500	919-000-424	919-000-425	919-002-706
0.7500	100.0	0.1563	0.5000	1.2500	2.6250	919-000-426	919-000-427	919-002-705
0.8750	100.0	0.1719	0.5000	1.2500	2.7500	919-000-428	919-000-429	919-002-704
1.0000	100.0	0.2031	0.5000	1.2500	2.7500	919-000-430	919-000-431	919-002-703
1.2500	100.0	0.2500	0.5000	1.2500	2.7500	919-000-432	919-000-433	919-002-702
1.5000	100.0	0.3125	0.7500	1.2500	2.8750	919-000-434	919-000-435	919-002-701
1.7500	100.0	0.3594	0.7500	1.2500	3.0000	919-000-436	919-000-437	919-002-700
2.0000	100.0	0.4063	0.7500	1.2500	3.2500	919-000-438	919-000-439	919-002-699

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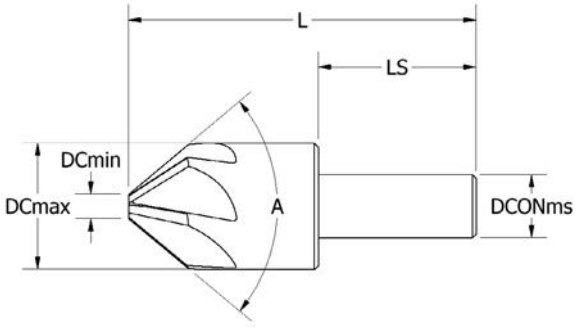

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	120.0	0.0200	0.1250	0.6250	1.2500	919-000-482	919-000-483	919-002-676
0.1875	120.0	0.0313	0.1875	0.6875	1.3750	919-000-484	919-000-485	919-002-675
0.2500	120.0	0.0469	0.2500	0.7500	1.5000	919-000-486	919-000-487	919-002-674
0.3125	120.0	0.0469	0.2500	0.8750	1.7500	919-000-488	919-000-489	919-002-673
0.3750	120.0	0.0625	0.2500	0.8750	1.7500	919-000-490	919-000-491	919-002-672
0.5000	120.0	0.0781	0.2500	1.0000	2.0000	919-000-492	919-000-493	919-002-671
0.5000	120.0	0.0781	0.3750	1.0000	2.0000	919-000-494	919-000-495	919-002-670
0.6250	120.0	0.1094	0.2500	1.0000	2.2500	919-000-496	919-000-497	919-002-669
0.6250	120.0	0.1094	0.3750	1.0000	2.2500	919-000-498	919-000-499	919-002-668
0.7500	120.0	0.1250	0.5000	1.2500	2.6250	919-000-500	919-000-501	919-002-667
0.8750	120.0	0.1406	0.5000	1.2500	2.7500	919-000-502	919-000-503	919-002-666
1.0000	120.0	0.1719	0.5000	1.2500	2.7500	919-000-504	919-000-505	919-002-665
1.2500	120.0	0.2188	0.5000	1.2500	2.7500	919-000-506	919-000-507	919-002-664
1.5000	120.0	0.2500	0.7500	1.2500	2.8750	919-000-508	919-000-509	919-002-663
1.7500	120.0	0.2969	0.7500	1.2500	3.0000	919-000-510	919-000-511	919-002-662
2.0000	120.0	0.3438	0.7500	1.2500	3.2500	919-000-512	919-000-513	919-002-661

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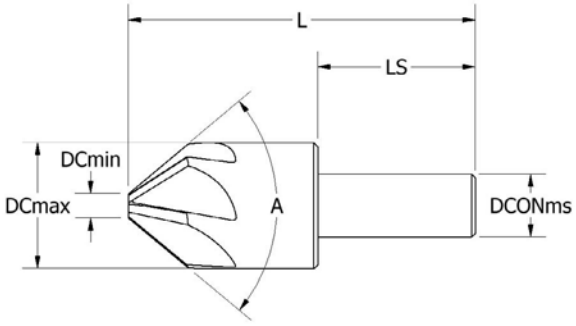
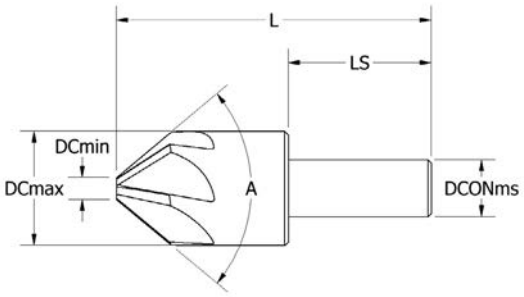


DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	60.0	0.0469	0.1250	0.6250	1.2500	919-000-693	919-000-694	919-002-570
0.1875	60.0	0.0625	0.1875	0.6875	1.3750	919-000-695	919-000-696	919-002-569
0.2500	60.0	0.0781	0.2500	0.7500	1.5000	919-000-697	919-000-698	919-002-568
0.3125	60.0	0.0938	0.2500	0.8750	1.7500	919-000-699	919-000-700	919-002-567
0.3750	60.0	0.1250	0.2500	0.8750	1.7500	919-000-701	919-000-702	919-002-566
0.5000	60.0	0.1563	0.2500	1.0000	2.0000	919-000-703	919-000-704	919-002-565
0.5000	60.0	0.1563	0.3750	1.0000	2.0000	919-000-705	919-000-706	919-002-564
0.6250	60.0	0.2031	0.2500	1.0000	2.2500	919-000-707	919-000-708	919-002-563
0.6250	60.0	0.2031	0.3750	1.0000	2.2500	919-000-709	919-000-710	919-002-562
0.7500	60.0	0.2500	0.5000	1.2500	2.6250	919-000-711	919-000-712	919-002-561
0.8750	60.0	0.2813	0.5000	1.2500	2.7500	919-000-713	919-000-714	919-002-560
1.0000	60.0	0.3281	0.5000	1.2500	2.7500	919-000-715	919-000-716	919-002-559
1.2500	60.0	0.4063	0.5000	1.2500	3.0000	919-000-717	919-000-718	919-002-558
1.5000	60.0	0.5000	0.7500	1.2500	3.2500	919-000-719	919-000-720	919-002-557
1.7500	60.0	0.5781	0.7500	1.2500	3.5000	919-000-721	919-000-722	919-002-556
2.0000	60.0	0.6563	0.7500	1.2500	3.7500	919-000-723	919-000-724	919-002-555
0.1250	82.0	0.0250	0.1250	0.6250	1.2500	919-000-729	919-000-730	919-002-552
0.1875	82.0	0.0313	0.1875	0.6875	1.3750	919-000-731	919-000-732	919-002-551
0.2500	82.0	0.0469	0.2500	0.7500	1.5000	919-000-733	919-000-734	919-002-550
0.3125	82.0	0.0625	0.2500	0.8750	1.7500	919-000-735	919-000-736	919-002-549
0.3750	82.0	0.0781	0.2500	0.8750	1.7500	919-000-737	919-000-738	919-002-548
0.5000	82.0	0.1094	0.2500	1.0000	2.0000	919-000-739	919-000-740	919-002-547
0.5000	82.0	0.1094	0.3750	1.0000	2.0000	919-000-741	919-000-742	919-002-546
0.6250	82.0	0.1250	0.2500	1.0000	2.2500	919-000-743	919-000-744	919-002-545
0.6250	82.0	0.1250	0.3750	1.0000	2.2500	919-000-745	919-000-746	919-002-544
0.7500	82.0	0.1563	0.5000	1.2500	2.6250	919-000-747	919-000-748	919-002-543
0.8750	82.0	0.1719	0.5000	1.2500	2.7500	919-000-749	919-000-750	919-002-542
1.0000	82.0	0.2031	0.5000	1.2500	2.7500	919-000-751	919-000-752	919-002-541
1.2500	82.0	0.2500	0.5000	1.2500	2.7500	919-000-753	919-000-754	919-002-540
1.5000	82.0	0.3125	0.7500	1.2500	2.8750	919-000-755	919-000-756	919-002-539
1.7500	82.0	0.3594	0.7500	1.2500	3.0000	919-000-757	919-000-758	919-002-538
2.0000	82.0	0.4063	0.7500	1.2500	3.2500	919-000-759	919-000-760	919-002-537

KEO®



DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	90.0	0.0250	0.1250	0.6250	1.2500	919-000-765	919-000-766	919-002-534
0.1875	90.0	0.0313	0.1875	0.6875	1.3750	919-000-767	919-000-768	919-002-533
0.2500	90.0	0.0469	0.2500	0.7500	1.5000	919-000-769	919-000-770	919-002-532
0.3125	90.0	0.0625	0.2500	0.8750	1.7500	919-000-771	919-000-772	919-002-531
0.3750	90.0	0.0781	0.2500	0.8750	1.7500	919-000-773	919-000-774	919-002-530
0.5000	90.0	0.1094	0.2500	1.0000	2.0000	919-000-775	919-000-776	919-002-529
0.5000	90.0	0.1094	0.3750	1.0000	2.0000	919-000-777	919-000-778	919-002-528
0.6250	90.0	0.1250	0.2500	1.0000	2.2500	919-000-779	919-000-780	919-002-527
0.6250	90.0	0.1250	0.3750	1.0000	2.2500	919-000-781	919-000-782	919-002-526
0.7500	90.0	0.1563	0.5000	1.2500	2.6250	919-000-783	919-000-784	919-002-525
0.8750	90.0	0.1719	0.5000	1.2500	2.7500	919-000-785	919-000-786	919-002-524
1.0000	90.0	0.2031	0.5000	1.2500	2.7500	919-000-787	919-000-788	919-002-523
1.2500	90.0	0.2500	0.5000	1.2500	2.7500	919-000-789	919-000-790	919-002-522
1.5000	90.0	0.3125	0.7500	1.2500	2.8750	919-000-791	919-000-792	919-002-521
1.7500	90.0	0.3594	0.7500	1.2500	3.0000	919-000-793	919-000-794	919-002-520
2.0000	90.0	0.4063	0.7500	1.2500	3.2500	919-000-795	919-000-796	919-002-519
0.1250	100.0	0.0250	0.1250	0.6250	1.2500	919-000-801	919-000-802	919-002-516
0.1875	100.0	0.0313	0.1875	0.6875	1.3750	919-000-803	919-000-804	919-002-515
0.2500	100.0	0.0469	0.2500	0.7500	1.5000	919-000-805	919-000-806	919-002-514
0.3125	100.0	0.0625	0.2500	0.8750	1.7500	919-000-807	919-000-808	919-002-513
0.3750	100.0	0.0781	0.2500	0.8750	1.7500	919-000-809	919-000-810	919-002-512
0.5000	100.0	0.1094	0.2500	1.0000	2.0000	919-000-811	919-000-812	919-002-511
0.5000	100.0	0.1094	0.3750	1.0000	2.0000	919-000-813	919-000-814	919-002-510
0.6250	100.0	0.1250	0.2500	1.0000	2.2500	919-000-815	919-000-816	919-002-509
0.6250	100.0	0.1250	0.3750	1.0000	2.2500	919-000-817	919-000-818	919-002-508
0.7500	100.0	0.1563	0.5000	1.2500	2.6250	919-000-819	919-000-820	919-002-507
0.8750	100.0	0.1719	0.5000	1.2500	2.7500	919-000-821	919-000-822	919-002-506
1.0000	100.0	0.2031	0.5000	1.2500	2.7500	919-000-823	919-000-824	919-002-505
1.2500	100.0	0.2500	0.5000	1.2500	2.7500	919-000-825	919-000-826	919-002-504
1.5000	100.0	0.3125	0.7500	1.2500	2.8750	919-000-827	919-000-828	919-002-503
1.7500	100.0	0.3594	0.7500	1.2500	3.0000	919-000-829	919-000-830	919-002-502
2.0000	100.0	0.4063	0.7500	1.2500	3.2500	919-000-831	919-000-832	919-002-501

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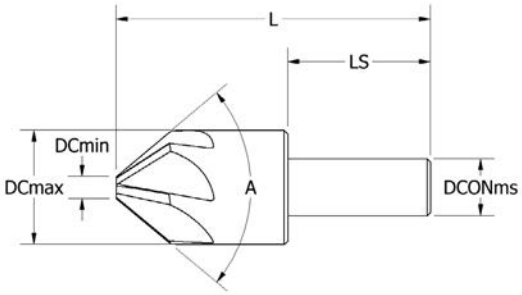


COBALT

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	Uncoated	TiN Coated	AlTiN Coated
0.1250	120.0	0.0200	0.1250	0.6250	1.2500	919-000-873	919-000-874	919-002-480
0.1875	120.0	0.0313	0.1875	0.6875	1.3750	919-000-875	919-000-876	919-002-479
0.2500	120.0	0.0469	0.2500	0.7500	1.5000	919-000-877	919-000-878	919-002-478
0.3125	120.0	0.0469	0.2500	0.8750	1.7500	919-000-879	919-000-880	919-002-477
0.3750	120.0	0.0625	0.2500	0.8750	1.7500	919-000-881	919-000-882	919-002-476
0.5000	120.0	0.0781	0.2500	1.0000	2.0000	919-000-883	919-000-884	919-002-475
0.5000	120.0	0.0781	0.3750	1.0000	2.0000	919-000-885	919-000-886	919-002-474
0.6250	120.0	0.1094	0.2500	1.0000	2.2500	919-000-887	919-000-888	919-002-473
0.6250	120.0	0.1094	0.3750	1.0000	2.2500	919-000-889	919-000-890	919-002-472
0.7500	120.0	0.1250	0.5000	1.2500	2.6250	919-000-891	919-000-892	919-002-471
0.8750	120.0	0.1406	0.5000	1.2500	2.7500	919-000-893	919-000-894	919-002-470
1.0000	120.0	0.1719	0.5000	1.2500	2.7500	919-000-895	919-000-896	919-002-469
1.2500	120.0	0.2188	0.5000	1.2500	2.7500	919-000-897	919-000-898	919-002-468
1.5000	120.0	0.2500	0.7500	1.2500	2.8750	919-000-899	919-000-900	919-002-467
1.7500	120.0	0.2969	0.7500	1.2500	3.0000	919-000-901	919-000-902	919-002-466
2.0000	120.0	0.3438	0.7500	1.2500	3.2500	919-000-903	919-000-904	919-002-465

6-FLUTE COUNTERSINK SET

Available in HSS & Cobalt

COUNTERSINK ANGLE	BMC	Uncoated	TiN Coated	AlTiN Coated
60°	HSS	919-000-333	919-001-548	919-002-753
82°	HSS	919-000-370	919-001-598	919-002-734
90°	HSS	919-000-407	919-001-648	919-002-715
100°	HSS	919-000-444	919-001-698	919-002-696
120°	HSS	919-000-518	919-001-798	919-002-658
60°	HSS-E	919-000-038	919-002-930	919-002-931
82°	HSS-E	919-000-039	919-002-928	919-002-929
90°	HSS-E	919-000-040	919-002-926	919-002-927
100°	HSS-E	919-000-035	919-002-936	919-002-937
120°	HSS-E	919-000-037	919-002-932	919-002-933

COUNTERBORES

ARCH®
Cutting Tools

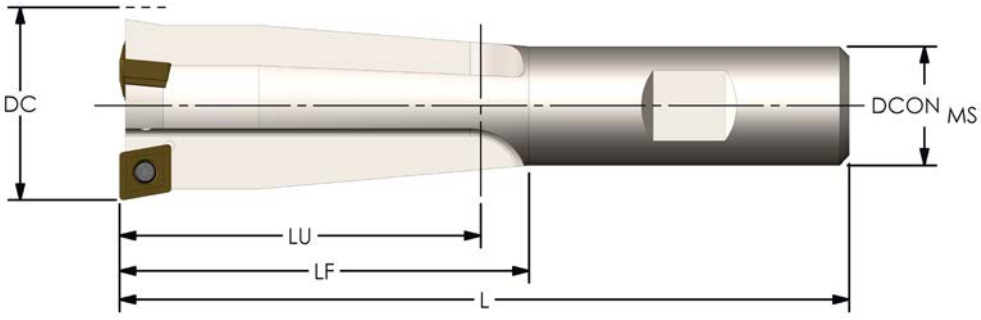
PATRIOT HP®

- Diameter range from 0.562” - 0.750” or 8mm - 20mm socket head cap screw bore
- Single tool to counterbore, dual chamfer all in one setup (PC2 series)
- Back boring Reduces production time by eliminating second operation (PC3 series)
- Achieves a true 90° bottom with all PC Series tool holders
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore process

PATRIOT HP®

PC1

- Socket head cap screw (SHCS) bore diameter range 0.562” - 0.750” or 8mm - 20mm
- Excellent surface finish
- No secondary fine boring operation required to achieve required dimensions
- Achieves a true 90° bottom
- PD1 proprietary insert is an economic choice with 4 cutting edges



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Product #	Designation	Size/ Application	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	Insert	Screw	ZC
970-000-001	PC1-312-2-750-04	5/16"	0.500	0.750	1.000	3.375	1.345	PD1 042004	PD1-16	2
970-000-003	PC1-375-2-750-04	3/8"	0.594	0.750	1.188	3.500	1.470	PD1 042004	PD1-16	2
970-000-005	PC1-437-2-750-05	7/16"	0.687	0.750	1.374	3.625	1.595	PD1 052804	PD1-2	2
970-000-007	PC1-500-2-750-06	1/2"	0.781	0.750	1.562	3.750	1.720	PD1 063306	PD1-22	2
970-000-008	PC1-625-3-750-06	5/8"	1.000	0.750	2.000	4.250	2.220	PD1 063306	PD1-22	3
970-000-010	PC1-750-3-750-07	3/4"	1.188	0.750	2.376	4.625	2.595	PD1 074006	PD1-25	3
970-000-002	PC1-315-2-750-04	M8	0.591	0.750	1.182	3.500	1.470	PD1 042004	PD1-16	2
970-000-004	PC1-394-2-750-05	M10	0.709	0.750	1.418	3.625	1.595	PD1 052804	PD1-2	2
970-000-006	PC1-472-2-750-06	M12	0.787	0.750	1.574	3.750	1.720	PD1 063306	PD1-22	2
970-000-009	PC1-630-3-750-06	M16	1.024	0.750	2.048	4.250	2.220	PD1 063306	PD1-22	3
970-000-011	PC1-787-3-750-07	M20	1.299	0.750	2.598	4.750	2.720	PD1 074006	PD1-25	3

PATRIOT HP®

Recommendations:
Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

Product #	Designation	HP600	HK356	HN300
914-000-085	PD1 042004	•		
914-000-083			•	
914-000-084				•
914-000-088	PD1 052804	•		
914-000-086			•	
914-000-087				•
914-000-091	PD1 063306	•		
914-000-089			•	
914-000-090				•
914-000-094	PD1 074006	•		
914-000-092			•	
914-000-093				•
914-000-097	PD1 094508	•		
914-000-095			•	
914-000-096				•
914-000-100	PD1 125812	•		
914-000-098			•	
914-000-99				•
914-000-103	PD1 156812	•		
914-000-101			•	
914-000-102				•

PACKAGE SIZE OF 10

PD1

Product #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5

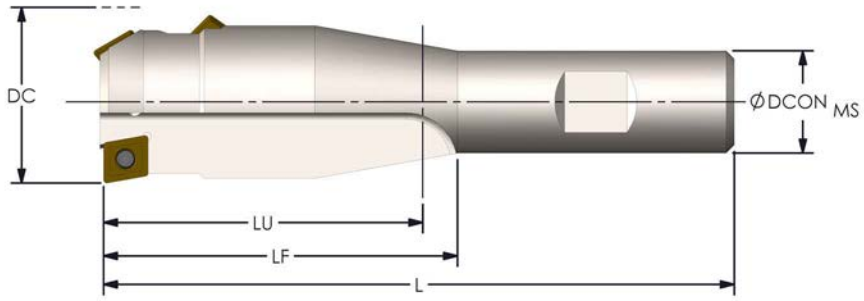
ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	DIAMETER inch (metric) 5/16" - 1/2" Fz (INCH PER TOOTH)*	DIAMETER inch (metric) 1/2" - 3/4" (20mm) Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP600	250-675	.0015-.0040	.0020-.0060
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-550	.0020-.0050	.0020-.0075
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP600	150-450	.0018-.0025	.0025-.0060
	STAINLESS STEELS (DIFFICULT) 304, 304L,316, 316L	≤ 275 BHN or ≤ 28 HRC		100-400	.0018-.0025	.0025-.0060
K	**GRAY IRONS** Class 20,30,40,50,60,G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK365	200-700	.0025-.0045	.0035-.0070
	DUCTILE IRONS D&M series, 250,300,350,400,60-40-18,65-45-12	≤ 260 BHN or ≤ 26 HRC		200-600	.0020-.0045	.0025-.0065
N	NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic"	≤ 271 BHN or ≤ 28 HRC	HN300	300-750	.0020-.0060	.0030-.0090
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	HP600	60-275	.0018-.0055	.0020-.0060
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	HP600	45-200	.0015-.0030	.0017-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC		75-300	.0019-.0045	.0020-.0060

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

PATRIOT HP®

PC2

- Socket head cap screw (SHCS) bore diameter range 0.562” - 0.750” or 8mm - 20mm
- Excellent surface finish
- No secondary fine boring operation required to achieve required dimensions
- Achieves a true 90° bottom
- PD1 proprietary insert is an economic choice with 4 cutting edges
- Counterbored and dual chamfer all in one set up with the PC2



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PRODUCT #	DESIGNATION	Size/ Application	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	INSERT	SCREW	ZC
970-000-012	PC2-312-3-750-04	5/16"	0.500	0.750	1.000	3.375	1.345	PD1 042004	PD1-16	3
970-000-014	PC2-375-3-750-04	3/8"	0.594	0.750	1.188	3.500	1.470	PD1 042004	PD1-16	3
970-000-016	PC2-437-3-750-05	7/16"	0.687	0.750	1.374	3.625	1.595	PD1 052804	PD1-2	3
970-000-018	PC2-500-3-750-06	1/2"	0.781	0.750	1.562	3.750	1.720	PD1 063306	PD1-22	3
970-000-019	PC2-625-3-750-06	5/8"	1.000	0.750	2.000	4.250	2.220	PD1 063306	PD1-22	3
970-000-021	PC2-750-3-750-07	3/4"	1.188	0.750	2.376	4.625	2.595	PD1 074006	PD1-25	3
970-000-013	PC2-315-3-750-04	M8	0.591	0.750	1.182	3.500	1.470	PD1 042004	PD1-16	3
970-000-015	PC2-394-3-750-05	M10	0.709	0.750	1.418	3.625	1.595	PD1 052804	PD1-2	3
970-000-017	PC2-472-3-750-06	M12	0.787	0.750	1.574	3.750	1.720	PD1 063306	PD1-22	3
970-000-020	PC2-630-3-750-06	M16	1.024	0.750	2.048	4.250	2.220	PD1 063306	PD1-22	3
970-000-022	PC2-787-3-750-07	M20	1.299	0.750	2.598	4.750	2.720	PD1 074006	PD1-25	3

Recommendations:
Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

PATRIOT HP®

Product #	Designation	HP600	HK356	HN300
914-000-085	PD1 042004	•		
914-000-083			•	
914-000-084				•
914-000-088	PD1 052804	•		
914-000-086			•	
914-000-087				•
914-000-091	PD1 063306	•		
914-000-089			•	
914-000-090				•
914-000-094	PD1 074006	•		
914-000-092			•	
914-000-093				•
914-000-097	PD1 094508	•		
914-000-095			•	
914-000-096				•
914-000-100	PD1 125812	•		
914-000-098			•	
914-000-99				•
914-000-103	PD1 156812	•		
914-000-101			•	
914-000-102				•

PACKAGE SIZE OF 10

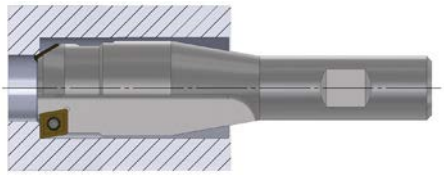
PD1

Product #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5

FIGURE 1

FIGURE 2



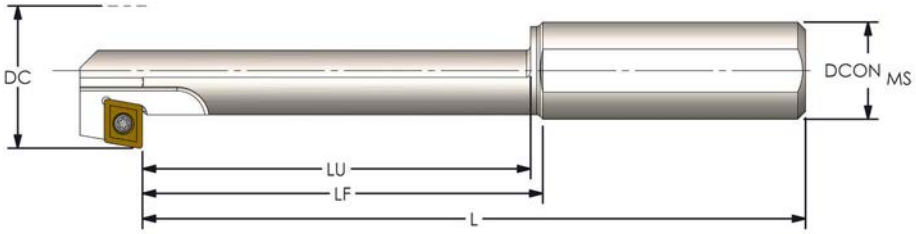
ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	DIAMETER inch (metric) 5/16" - 1/2" Fz (INCH PER TOOTH)*	DIAMETER inch (metric) 1/2" - 3/4" (20mm) Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP600	250-675	.0015-.0040	.0020-.0060
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-550	.0020-.0050	.0020-.0075
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP600	150-450	.0018-.0025	.0025-.0060
	STAINLESS STEELS (DIFFICULT) 304, 304L,316, 316L	≤ 275 BHN or ≤ 28 HRC		100-400	.0018-.0025	.0025-.0060
K	**GRAY IRONS** Class 20,30,40,50,60,G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK365	200-700	.0025-.0045	.0035-.0070
	DUCTILE IRONS D&M series, 250,300,350,400,60-40-18,65-45-12	≤ 260 BHN or ≤ 26 HRC		200-600	.0020-.0045	.0025-.0065
N	NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic"	≤ 271 BHN or ≤ 28 HRC	HN300	300-750	.0020-.0060	.0030-.0090
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	HP600	60-275	.0018-.0055	.0020-.0060
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	HP600	45-200	.0015-.0030	.0017-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC		75-300	.0019-.0045	.0020-.0060

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

PATRIOT HP®

PC3

- Socket head cap screw (SHCS) bore diameter range 0.562” - 0.750” or 8mm - 20mm
- Excellent surface finish
- No secondary fine boring operation required to achieve required dimensions
- Achieves a true 90° bottom
- PD1 proprietary insert is an economic choice with 4 cutting edges
- Reduce cycle time when back boring by eliminating second operation with the PC3



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Product #	DESIGNATION	Size/ Application	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	INSERT	SCREW	ZC
970-000-023	PC3-312-1-750-04	5/16"	0.500	0.750	1.030	3.375	1.345	PD1 042004	PD1-16	1
970-000-025	PC3-375-1-750-04	3/8"	0.594	0.750	1.218	3.500	1.470	PD1 042004	PD1-16	1
970-000-027	PC3-437-1-750-05	7/16"	0.687	0.750	1.748	4.000	1.970	PD1 052804	PD1-2	1
970-000-029	PC3-500-1-750-06	1/2"	0.781	0.750	1.983	4.250	2.220	PD1 063306	PD1-22	1
970-000-030	PC3-625-1-750-06	5/8"	1.000	0.750	2.530	4.750	2.720	PD1 063306	PD1-22	1
970-000-032	PC3-750-1-750-07	3/4"	1.188	0.750	3.000	5.125	3.095	PD1 074006	PD1-25	1
970-000-024	PC3-315-1-750-04	M8	0.591	0.750	1.212	3.500	1.470	PD1 042004	PD1-16	1
970-000-026	PC3-394-1-750-05	M10	0.709	0.750	1.448	3.750	1.720	PD1 052804	PD1-2	1
970-000-028	PC3-472-1-750-06	M12	0.787	0.750	1.998	4.250	2.220	PD1 063306	PD1-22	1
970-000-031	PC3-630-1-750-06	M16	1.024	0.750	2.590	4.750	2.720	PD1 063306	PD1-22	1
970-000-033	PC3-787-1-750-07	M20	1.299	0.750	3.278	5.375	3.345	PD1 074006	PD1-25	1

PATRIOT HP®

Recommendations:
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- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

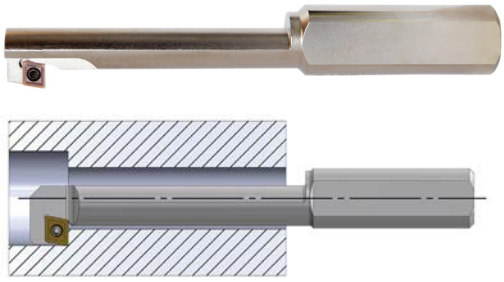
Product #	Designation	HP600	HK356	HN300
914-000-085	PD1 042004	•		
914-000-083			•	
914-000-084				•
914-000-088	PD1 052804	•		
914-000-086			•	
914-000-087				•
914-000-091	PD1 063306	•		
914-000-089			•	
914-000-090				•
914-000-094	PD1 074006	•		
914-000-092			•	
914-000-093				•
914-000-097	PD1 094508	•		
914-000-095			•	
914-000-096				•
914-000-100	PD1 125812	•		
914-000-098			•	
914-000-99				•
914-000-103	PD1 156812	•		
914-000-101			•	
914-000-102				•

PACKAGE SIZE OF 10

PD1

Product #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5



ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	DIAMETER inch (metric) 5/16" - 1/2" Fz (INCH PER TOOTH)*	DIAMETER inch (metric) 1/2" - 3/4" (20mm) Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP600	250-675	.0015-.0040	.0020-.0060
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-550	.0020-.0050	.0020-.0075
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP600	150-450	.0018-.0025	.0025-.0060
	STAINLESS STEELS (DIFFICULT) 304, 304L,316, 316L	≤ 275 BHN or ≤ 28 HRC		100-400	.0018-.0025	.0025-.0060
K	**GRAY IRONS** Class 20,30,40,50,60,G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK365	200-700	.0025-.0045	.0035-.0070
	DUCTILE IRONS D&M series, 250,300,350,400,60-40-18,65-45-12	≤ 260 BHN or ≤ 26 HRC		200-600	.0020-.0045	.0025-.0065
N	NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic"	≤ 271 BHN or ≤ 28 HRC	HN300	300-750	.0020-.0060	.0030-.0090
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	HP600	60-275	.0018-.0055	.0020-.0060
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	HP600	45-200	.0015-.0030	.0017-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC		75-300	.0019-.0045	.0020-.0060

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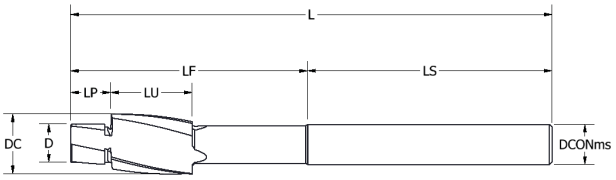
KEO



COBALT

DC [in.]	DCONMS [in.]	D [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	LP [in.]	SIZE/ APPLICATION	Uncoated	TiN Coated	AlTiN Coated
0.1860	0.1563	0.1120	0.5000	1.6250	3.0000	1.3750	0.1875	#4 Nominal	902-000-001	902-000-072	902-000-333
0.2020	0.1563	0.1270	0.5000	1.6250	3.0000	1.3750	0.1875	#4 +1/64 O/S	902-000-002	902-000-075	902-000-332
0.2170	0.1563	0.1430	0.5000	1.6250	3.0000	1.3750	0.1875	#4 +1/32 O/S	902-000-003	902-000-078	902-000-331
0.2050	0.1875	0.1250	0.5000	1.6250	3.0000	1.3750	0.1875	#5 Nominal	902-000-004	902-000-081	902-000-330
0.2210	0.1875	0.1400	0.5000	1.6250	3.0000	1.3750	0.1875	#5 +1/64 O/S	902-000-005	902-000-084	902-000-329
0.2370	0.1875	0.1560	0.5000	1.6250	3.0000	1.3750	0.1875	#5 +1/32 O/S	902-000-006	902-000-087	902-000-328
0.2280	0.2188	0.1380	0.5000	1.6250	3.0000	1.3750	0.2031	#6 Nominal	902-000-007	902-000-090	902-000-327
0.2440	0.2188	0.1530	0.5000	1.6250	3.0000	1.3750	0.2031	#6 +1/64 O/S	902-000-008	902-000-093	902-000-326
0.2600	0.2188	0.1690	0.5000	1.6250	3.0000	1.3750	0.2031	#6 +1/32 O/S	902-000-009	902-000-096	902-000-325
0.2720	0.2500	0.1640	0.5000	1.6250	3.0000	1.3750	0.2500	#8 Nominal	902-000-010	902-000-099	902-000-324
0.2880	0.2500	0.1790	0.5000	1.6250	3.0000	1.3750	0.2500	#8 +1/64 O/S	902-000-011	902-000-102	902-000-323
0.3040	0.2500	0.1950	0.5000	1.6250	3.0000	1.3750	0.2500	#8 +1/32 O/S	902-000-012	902-000-105	902-000-322
0.3140	0.2813	0.1900	0.7813	2.4687	4.5000	2.0313	0.2656	#10 Nominal	902-000-013	902-000-108	902-000-321
0.3300	0.2813	0.2050	0.7813	2.4687	4.5000	2.0313	0.2656	#10 +1/64 O/S	902-000-014	902-000-111	902-000-320
0.3460	0.2813	0.2210	0.7813	2.4687	4.5000	2.0313	0.2656	#10 +1/32 O/S	902-000-015	902-000-114	902-000-319
0.3820	0.3125	0.2500	0.7813	2.4218	4.5000	2.0782	0.3125	1/4" Nominal	902-000-016	902-000-117	902-000-318
0.3980	0.3125	0.2650	0.7813	2.4218	4.5000	2.0782	0.3125	1/4" +1/64 O/S	902-000-017	902-000-120	902-000-317
0.4140	0.3125	0.2810	0.7813	2.4218	4.5000	2.0782	0.3125	1/4" +1/32 O/S	902-000-018	902-000-123	902-000-316
0.4750	0.3750	0.3120	0.7813	2.4218	4.5000	2.0782	0.3594	5/16" Nominal	902-000-019	902-000-126	902-000-315
0.4910	0.3750	0.3280	0.7813	2.4218	4.5000	2.0782	0.3594	5/16" +1/64 O/S	902-000-020	902-000-129	902-000-314
0.5070	0.3750	0.3430	0.7813	2.4218	4.5000	2.0782	0.3594	5/16" +1/32 O/S	902-000-021	902-000-132	902-000-313
0.5720	0.5000	0.3750	0.9063	2.4687	5.0000	2.5313	0.5000	3/8" Nominal	902-000-022	902-000-135	902-000-312
0.5880	0.5000	0.3900	0.9063	2.4687	5.0000	2.5313	0.5000	3/8" +1/64 O/S	902-000-023	902-000-138	902-000-311
0.6040	0.5000	0.4060	0.9063	2.4687	5.0000	2.5313	0.5000	3/8" +1/32 O/S	902-000-024	902-000-141	902-000-310
0.6630	0.5000	0.4370	0.9375	2.5000	5.0000	2.5000	0.5000	7/16" Nominal	902-000-025	902-000-144	902-000-309
0.6790	0.5000	0.4520	0.9375	2.5000	5.0000	2.5000	0.5000	7/16" +1/64 O/S	902-000-026	902-000-147	902-000-308
0.6950	0.5000	0.4680	0.9375	2.5000	5.0000	2.5000	0.5000	7/16" +1/32 O/S	902-000-027	902-000-150	902-000-307
0.7570	0.5000	0.5000	1.0156	3.0468	6.0000	2.9532	0.5000	1/2" Nominal	902-000-028	902-000-153	902-000-306
0.7730	0.5000	0.5150	1.0156	3.0468	6.0000	2.9532	0.5000	1/2" +1/64 O/S	902-000-029	902-000-156	902-000-305
0.7890	0.5000	0.5310	1.0156	3.0468	6.0000	2.9532	0.5000	1/2" +1/32 O/S	902-000-030	902-000-159	902-000-304
0.9450	0.6250	0.6250	1.0156	3.0625	6.0000	2.9375	0.6250	5/8" Nominal	902-000-031	902-000-162	902-000-303
0.9610	0.6250	0.6410	1.0156	3.0625	6.0000	2.9375	0.6250	5/8" +1/64 O/S	902-000-032	902-000-165	902-000-302
0.9770	0.6250	0.6560	1.0156	3.0625	6.0000	2.9375	0.6250	5/8" +1/32 O/S	902-000-033	902-000-168	902-000-301
1.1870	0.7500	0.7660	1.2500	3.0625	7.0000	3.9375	0.7344	3/4" Nominal	902-000-034	902-000-171	902-000-300
1.2030	0.7500	0.7810	1.2500	3.0625	7.0000	3.9375	0.7344	3/4" +1/32 O/S	902-000-035	902-000-174	902-000-299
1.3750	0.8750	0.8910	1.2500	3.0000	7.0000	4.0000	0.8906	7/8" Nominal	902-000-036	902-000-177	902-000-298
1.3910	0.8750	0.9060	1.2500	3.0000	7.0000	4.0000	0.8906	7/8" +1/32 O/S	902-000-037	902-000-180	902-000-297
1.5620	1.0000	1.0160	1.2500	3.0000	7.0000	4.0000	1.0625	1" Nominal	902-000-038	902-000-183	902-000-296
1.5880	1.0000	1.0320	1.2500	3.0000	7.0000	4.0000	1.0625	1" +1/32 O/S	902-000-039	902-000-186	902-000-295

PRECISION CAP SCREW COUNTERBORES SET

COMPLETE 7-PIECE	Uncoated	TiN Coated	AlTiN Coated
#6, #8, #10, 1/4", 5/16", 3/8", 1/2" Nominal	902-000-040	902-000-189	902-000-294
#6, #8, #10, 1/4", 5/16", 3/8", 1/2" +1/64 O/S	902-000-041	902-000-192	902-000-293
#6, #8, #10, 1/4", 5/16", 3/8", 1/2" +1/32 O/S	902-000-042	902-000-195	902-000-292

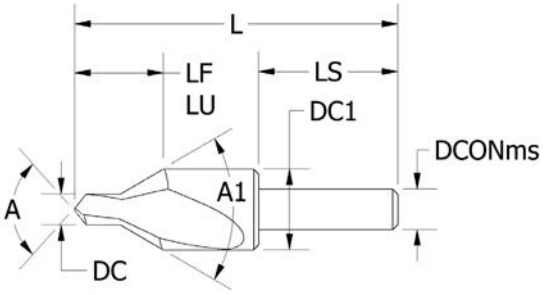
KEO

DC [mm]	DCONMS [mm]	D [mm]	LU [mm]	LS [mm]	L [mm]	LF [mm]	LP [mm]	SIZE/ APPLICATION	Uncoated	TiN Coated	AlTiN Coated
6.00	5.00	2.50	14.00	31.50	71.00	39.50	3.50	M3 - Before Thread	902-000-043	902-000-198	902-000-291
6.00	5.00	3.20	14.00	31.50	71.00	39.50	3.50	M3 - Fine	902-000-044	902-000-201	902-000-290
6.00	5.00	3.40	14.00	31.50	71.00	39.50	3.50	M3 - Medium	902-000-045	902-000-204	902-000-289
6.50	5.00	2.90	14.00	31.50	71.00	39.50	3.50	M3.5 - Before Thread	902-000-046	902-000-207	902-000-288
6.50	5.00	3.70	14.00	31.50	71.00	39.50	3.50	M3.5 - Fine	902-000-047	902-000-210	902-000-287
6.50	5.00	3.90	14.00	31.50	71.00	39.50	4.00	M3.5 - Medium	902-000-048	902-000-213	902-000-286
8.00	5.00	3.30	14.00	31.50	71.00	39.50	4.50	M4 - Before Thread	902-000-049	902-000-216	902-000-285
8.00	5.00	4.30	14.00	31.50	71.00	39.50	4.50	M4 - Fine	902-000-050	902-000-219	902-000-284
8.00	5.00	4.50	14.00	31.50	71.00	39.50	4.50	M4 - Medium	902-000-051	902-000-222	902-000-283
10.00	8.00	4.20	18.00	35.50	80.00	44.50	4.50	M5 - Before Thread	902-000-052	902-000-225	902-000-282
10.00	8.00	5.30	18.00	35.50	80.00	44.50	4.50	M5 - Fine	902-000-053	902-000-228	902-000-281
10.00	8.00	5.50	18.00	35.50	80.00	44.50	4.50	M5 - Medium	902-000-054	902-000-231	902-000-280
11.00	8.00	5.00	18.00	35.50	80.00	44.50	5.50	M6 - Before Thread	902-000-055	902-000-234	902-000-279
11.00	8.00	6.40	18.00	35.50	80.00	44.50	5.50	M6 - Fine	902-000-056	902-000-237	902-000-278
11.00	8.00	6.60	18.00	35.50	80.00	44.50	7.00	M6 - Medium	902-000-057	902-000-240	902-000-277
15.00	12.50	6.80	22.00	40.00	100.00	60.00	7.00	M8 - Before Thread	902-000-058	902-000-243	902-000-276
15.00	12.50	8.40	22.00	40.00	100.00	60.00	9.00	M8 - Fine	902-000-059	902-000-246	902-000-275
15.00	12.50	9.00	22.00	40.00	100.00	60.00	9.00	M8 - Medium	902-000-060	902-000-249	902-000-274
18.00	12.50	8.50	22.00	40.00	100.00	60.00	9.00	M10 - Before Thread	902-000-061	902-000-252	902-000-273
18.00	12.50	10.50	22.00	40.00	100.00	60.00	11.00	M10 - Fine	902-000-062	902-000-255	902-000-272
18.00	12.50	11.00	22.00	40.00	100.00	60.00	11.00	M10 - Medium	902-000-063	902-000-258	902-000-271
20.00	12.50	10.20	22.00	40.00	100.00	60.00	10.50	M12 - Before Thread	902-000-064	902-000-261	902-000-270
20.00	12.50	13.00	22.00	40.00	100.00	60.00	14.00	M12 - Fine	902-000-065	902-000-264	902-000-269
20.00	12.50	14.00	22.00	40.00	100.00	60.00	14.00	M12 - Medium	902-000-066	902-000-267	902-000-268

PRECISION METRIC CAP SCREW COUNTERBORES SET

COMPLETE 6-PIECE TOOL SET	SIZE/ APPLICATION	PRODUCT #
M3, M4, M5, M6, M8, M10	Before Thread	902-000-067
M3, M4, M5, M6, M8, M10	Fine	902-000-068
M3, M4, M5, M6, M8, M10	Medium	902-000-069

KEO



FLAT HEAD SCREWS MACHINE SCREW

SCREW Size	DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	Uncoated	TiN Coated	AlTiN Coated
#5	0.1270	0.2500	0.3125	0.3022	0.8750	1.7500	0.3022	118.0	82.0	906-000-296	906-001-828	906-001-708
#6	0.1400	0.2500	0.3125	0.2979	0.8750	1.7500	0.2979	118.0	82.0	906-000-297	906-001-827	906-001-709
#8	0.1660	0.2500	0.3750	0.4144	0.8750	1.7500	0.4144	118.0	82.0	906-000-298	906-001-826	906-001-710
#10	0.1920	0.2500	0.4375	0.4059	1.0000	2.0000	0.4059	118.0	82.0	906-000-299	906-001-246	906-001-243
#12	0.2200	0.2500	0.4375	0.4280	1.0000	2.0000	0.4280	118.0	82.0	906-000-300	906-000-564	906-001-825
1/4"	0.2520	0.2500	0.5000	0.4488	1.0000	2.0000	0.4488	118.0	82.0	906-000-301	906-000-567	906-001-824
5/16"	0.3150	0.3750	0.6250	0.5531	1.0000	2.2500	0.5531	118.0	82.0	906-000-302	906-000-570	906-001-823
3/8"	0.3780	0.5000	0.7500	0.6575	1.2500	2.6250	0.6575	118.0	82.0	906-000-303	906-000-573	906-001-822

FLAT HEAD SCREWS SELF TAPPING SCREW

SCREW Size	DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	Uncoated	TiN Coated	AlTiN Coated
#6	0.0990	0.2500	0.3125	0.2801	0.8750	1.7500	0.2801	118.0	82.0	906-000-304	906-000-576	906-001-830
#8	0.1160	0.2500	0.3750	0.3214	0.8750	1.7500	0.3214	118.0	82.0	906-000-305	906-000-579	906-001-829
#10	0.1350	0.2500	0.4375	0.3777	1.0000	2.0000	0.3777	118.0	82.0	906-000-306	906-000-582	906-002-008
#12	0.1570	0.2500	0.4375	0.4017	1.0000	2.0000	0.4017	118.0	82.0	906-000-307	906-000-585	906-002-007
1/4"	0.1840	0.2500	0.5000	0.4554	1.0000	2.0000	0.4554	118.0	82.0	906-000-308	906-000-588	906-002-004

DRILL & CHAMFER MILLS

ARCH®
Cutting Tools

ULTRA-DEX®

EC WELDON SHANK

- Cost effective chamfer milling in all ISO materials
- Increase machine utilization when chamfering in process
- Versatile tool for many different weld prep, hole prep, and chamfer operations
- Value add when machining small batches in different material classes
- Easy indexing with three effective cutting edges

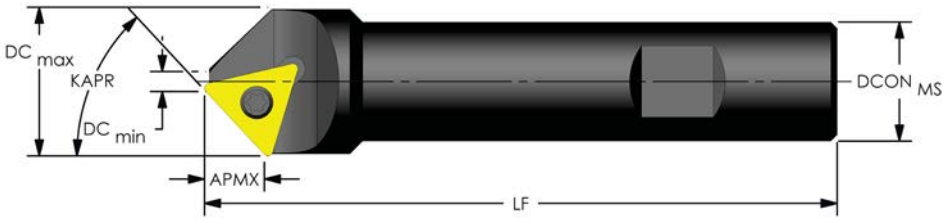


FIGURE 1

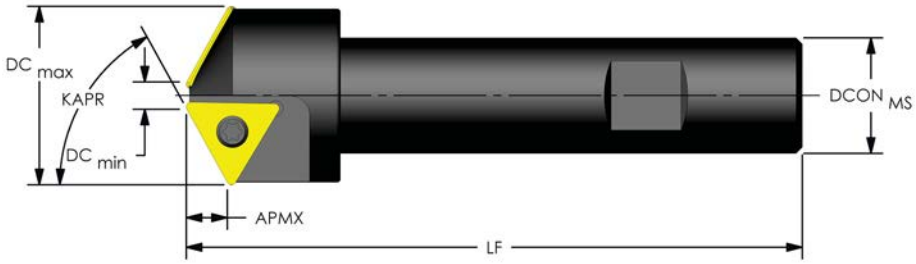


FIGURE 2

PG.502

Product #	Designation	FIGURE	KAPR [°]	DCMAX [in.]	DCMIN [in.]	LF [in.]	DCONMS [in.]	APMX [in.]	Insert	Insert screw
909-000-520	E05C-D.500-1-.750-3	1	5	0.594	0.500	4.000	0.750	0.568	TCMT 32.52	MTS-35
909-000-521	E10C-D.500-1-.750-3	1	10	0.688	0.500	4.000	0.750	0.558		MTS-35
909-000-522	E15C-D.500-1-.750-3	1	15	0.782	0.500	4.000	0.750	0.546		MTS-35
909-000-523	E15C-D1.00-2-.750-3	2	15	1.280	1.000	4.000	0.750	0.546		MTS-35
909-000-524	E20C-D.375-1-.750-3	1	20	0.750	0.375	4.000	0.750	0.527		MTS-35
909-000-525	E30C-D.250-1-.750-3	1	30	0.800	0.250	4.000	0.750	0.484		MTS-35
909-000-526	E30C-D.750-2-.750-3	2	30	1.300	0.750	4.000	0.750	0.484		MTS-35
909-000-527	E41C-D.188-1-.750-3	1	41	0.914	0.188	4.000	0.750	0.418		MTS-35
909-000-528	E41C-D.562-2-.750-3	2	41	1.288	0.562	4.000	0.750	0.418		MTS-35
909-000-529	E45C-D.188-1-.750-3	1	45	0.972	0.188	4.000	0.750	0.390		MTS-35
909-000-530	E45C-D.500-2-.750-3	2	45	1.290	0.500	4.000	0.750	0.390		MTS-35
909-000-531	E60C-D.188-2-.750-3	2	60	1.160	0.188	4.000	0.750	0.266		MTS-35

ULTRA-DEX®

Product #	Designation
913-000-451	TCMT 32.52-ZM1

Product #	Insert Screw
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-082	MTS-25-DR
968-000-084	MTS-3-DR
968-000-083	MTS-35-DR
968-000-085	MTS-4-DR

PACKAGE SIZE OF 5

ISO	MATERIAL	HARDNESS	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	220-650	.0032 - .0080
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	180-500	.0030 - .0065
M	**STAINLESS STEELS** (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	200-450	.0026 - .0065
	STAINLESS STEELS (DIFFICULT) 304, 304L,316, 316L	≤ 275 BHN or ≤ 28 HRC	120-350	.0025 - .0075
K	**GRAY IRONS** Class 20,30,40,50,60,G3000, G3500	≤ 220 BHN or ≤ 19 HRC	250-700	.0030 - .0100
	DUCTILE IRONS D&M series, 250,300,350,400,60-40-18,65-45-12	≤ 260 BHN or ≤ 26 HRC	150-450	.0030 - .0092
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic"	≤ 271 BHN or ≤ 28 HRC	250-950	.0050 - .0130
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	80-250	.0030 - .0065
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	50-160	.0025 - .0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC	90-250	.0025 - .0075

*** HIGHER VC AND FZ APPLY TO LIGHT/FINISHING ENGAGEMENT**

*** LOWER VC AND FZ APPLY TO HEAVY/ROUGHING ENGAGEMENT**

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

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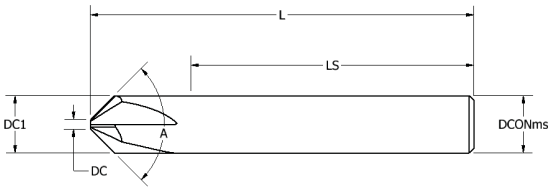

PG.493

DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	Uncoated	AlTiN Coated
						2 FLUTE	2 FLUTE
0.006	0.1250	0.1250	0.7500	1.5000	30.0	909-000-198	909-000-342
0.006	0.1250	0.1250	0.7500	1.5000	40.0	909-000-203	909-000-347
0.006	0.1250	0.1250	0.7500	1.5000	45.0	909-000-207	909-000-351
0.006	0.1250	0.1250	0.7500	1.5000	50.0	909-000-209	909-000-353
0.006	0.1250	0.1250	0.7500	1.5000	60.0	909-000-035	909-000-355
0.006	0.1250	0.1250	0.7500	1.5000	70.0	909-000-214	909-000-360
0.006	0.1250	0.1250	0.7500	1.5000	80.0	909-000-215	909-000-361
0.006	0.1250	0.1250	0.7500	1.5000	82.0	909-000-036	909-000-362
0.006	0.1250	0.1250	0.7500	1.5000	90.0	909-000-037	909-000-367
0.006	0.1250	0.1250	0.7500	1.5000	100.0	909-000-033	909-000-326
0.006	0.1250	0.1250	0.7500	1.5000	110.0	909-000-188	909-000-330
0.006	0.1250	0.1250	0.7500	1.5000	120.0	909-000-034	909-000-331
0.006	0.1250	0.1250	0.7500	1.5000	130.0	909-000-192	909-000-336
0.006	0.1250	0.1250	0.7500	1.5000	140.0	909-000-193	909-000-337
0.006	0.1250	0.1250	0.7500	1.5000	150.0	909-000-194	909-000-338
0.0060	0.1875	0.1875	1.0000	2.0000	30.0	909-000-199	909-000-343
0.0060	0.1875	0.1875	1.0000	2.0000	40.0	909-000-204	909-000-348
0.0060	0.1875	0.1875	1.0000	2.0000	45.0	909-000-208	909-000-352
0.0060	0.1875	0.1875	1.0000	2.0000	50.0	909-000-210	909-000-354
0.0060	0.1875	0.1875	1.0000	2.0000	60.0	909-000-211	909-000-356
0.0060	0.1875	0.1875	1.0000	2.0000	82.0	909-000-216	909-000-363
0.0060	0.1875	0.1875	1.0000	2.0000	90.0	909-000-219	909-000-368
0.0060	0.1875	0.1875	1.0000	2.0000	120.0	909-000-189	909-000-332
0.0060	0.1875	0.1875	1.2500	2.5000	150.0	909-000-195	909-000-339

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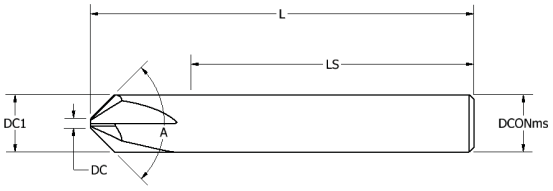
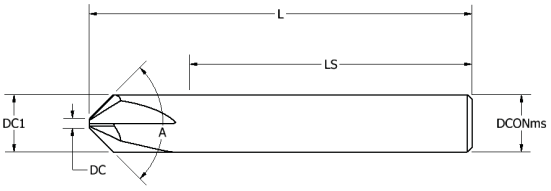


PG.493

DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	Uncoated	AlTiN Coated
						2 FLUTE	2 FLUTE
0.0400	0.2500	0.2500	1.2500	2.5000	30.0	909-000-200	909-000-344
0.0400	0.2500	0.2500	1.2500	2.5000	40.0	909-000-205	909-000-349
0.0400	0.2500	0.2500	1.2500	2.5000	60.0	909-000-046	909-000-357
0.0400	0.2500	0.2500	1.2500	2.5000	82.0	909-000-050	909-000-364
0.0400	0.2500	0.2500	1.2500	2.5000	90.0	909-000-054	909-000-369
0.0400	0.2500	0.2500	1.2500	2.5000	100.0	909-000-038	909-000-327
0.0400	0.2500	0.2500	1.2500	2.5000	120.0	909-000-042	909-000-333
0.0600	0.3750	0.3750	1.2500	2.5000	30.0	909-000-201	909-000-345
0.0600	0.3750	0.3750	1.2500	2.5000	40.0	909-000-206	909-000-350
0.0600	0.3750	0.3750	1.2500	2.5000	60.0	909-000-061	909-000-358
0.0600	0.3750	0.3750	1.2500	2.5000	82.0	909-000-062	909-000-365
0.0600	0.3750	0.3750	1.2500	2.5000	90.0	909-000-063	909-000-370
0.0600	0.3750	0.3750	1.2500	2.5000	100.0	909-000-059	909-000-328
0.0600	0.3750	0.3750	1.2500	2.5000	120.0	909-000-060	909-000-334
0.0600	0.3750	0.3750	1.2500	2.5000	150.0	909-000-196	909-000-340
0.0800	0.5000	0.5000	1.5000	3.0000	30.0	909-000-202	909-000-346
0.0800	0.5000	0.5000	1.5000	3.0000	60.0	909-000-066	909-000-359
0.0800	0.5000	0.5000	1.5000	3.0000	82.0	909-000-067	909-000-366
0.0800	0.5000	0.5000	1.5000	3.0000	90.0	909-000-068	909-000-371
0.0800	0.5000	0.5000	1.5000	3.0000	100.0	909-000-064	909-000-329
0.0800	0.5000	0.5000	1.5000	3.0000	120.0	909-000-065	909-000-335

KEO®



PG.493

DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0250	0.1250	0.1250	0.7500	1.5000	60.0	909-000-071	909-000-599
0.0250	0.1250	0.1250	0.7500	1.5000	82.0	909-000-072	909-000-612
0.0250	0.1250	0.1250	0.7500	1.5000	90.0	909-000-073	909-000-534
0.0250	0.1250	0.1250	0.7500	1.5000	100.0	909-000-069	909-000-601
0.0250	0.1250	0.1250	0.7500	1.5000	120.0	909-000-070	909-000-532
0.0400	0.2500	0.2500	1.2500	2.5000	60.0	909-000-082	909-000-609
0.0400	0.2500	0.2500	1.2500	2.5000	82.0	909-000-086	909-000-607
0.0400	0.2500	0.2500	1.2500	2.5000	90.0	909-000-090	909-000-091
0.0400	0.2500	0.2500	1.2500	2.5000	100.0	909-000-074	909-000-610
0.0400	0.2500	0.2500	1.2500	2.5000	120.0	909-000-078	909-000-533
0.0600	0.3750	0.3750	1.2500	2.5000	60.0	909-000-097	909-000-618
0.0600	0.3750	0.3750	1.2500	2.5000	82.0	909-000-098	909-000-594
0.0600	0.3750	0.3750	1.2500	2.5000	90.0	909-000-099	909-000-535
0.0600	0.3750	0.3750	1.2500	2.5000	100.0	909-000-095	909-000-605
0.0600	0.3750	0.3750	1.2500	2.5000	120.0	909-000-096	909-000-602
0.0800	0.5000	0.5000	1.5000	3.0000	60.0	909-000-108	909-000-586
0.0800	0.5000	0.5000	1.5000	3.0000	82.0	909-000-112	909-000-585
0.0800	0.5000	0.5000	1.5000	3.0000	90.0	909-000-116	919-000-031
0.0800	0.5000	0.5000	1.5000	3.0000	100.0	909-000-100	909-000-590
0.0800	0.5000	0.5000	1.5000	3.0000	120.0	909-000-104	909-000-589

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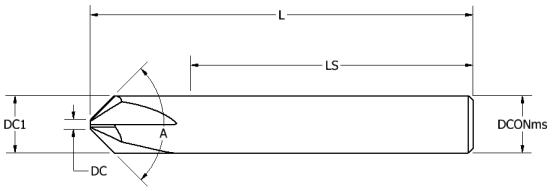
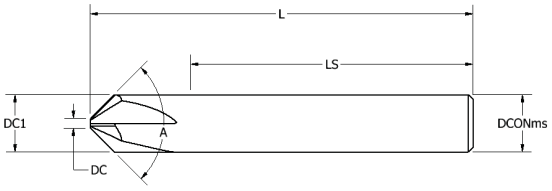


PG.493

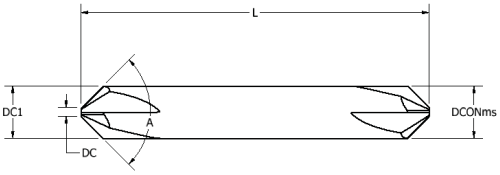
DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	Uncoated	AlTiN Coated
						3 FLUTE	3 FLUTE
0.0600	0.2500	0.2500	1.2500	2.5000	30.0	909-000-404	909-000-376
0.0600	0.3750	0.3750	1.2500	2.5000	30.0	909-000-405	909-000-377
0.0600	0.2500	0.2500	1.2500	2.5000	40.0	909-000-406	909-000-378
0.0600	0.3750	0.3750	1.2500	2.5000	40.0	909-000-407	909-000-379
0.0600	0.2500	0.2500	1.2500	2.5000	45.0	909-000-408	909-000-380
0.0600	0.3750	0.3750	1.2500	2.5000	45.0	909-000-409	909-000-381
0.0600	0.2500	0.2500	1.2500	2.5000	50.0	909-000-410	909-000-382
0.0600	0.3750	0.3750	1.2500	2.5000	50.0	909-000-411	909-000-383
0.0600	0.2500	0.2500	1.2500	2.5000	60.0	909-000-412	909-000-384
0.0600	0.3750	0.3750	1.2500	2.5000	60.0	909-000-413	909-000-385
0.0600	0.2500	0.2500	1.2500	2.5000	82.0	909-000-414	909-000-386
0.0600	0.3750	0.3750	1.2500	2.5000	82.0	909-000-415	909-000-387
0.0600	0.2500	0.2500	1.2500	2.5000	90.0	909-000-416	909-000-388
0.0600	0.3750	0.3750	1.2500	2.5000	90.0	909-000-417	909-000-389
0.0600	0.2500	0.2500	1.2500	2.5000	100.0	909-000-400	909-000-372
0.0600	0.2500	0.2500	1.2500	2.5000	120.0	909-000-401	909-000-373
0.0600	0.3750	0.3750	1.2500	2.5000	120.0	909-000-402	909-000-374
0.0600	0.2500	0.2500	1.2500	2.5000	150.0	909-000-403	909-000-375



PG.493

DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	Uncoated	AlTiN Coated
						4 FLUTE	4 FLUTE
0.0800	0.5000	0.5000	1.5000	3.0000	30.0	909-000-421	909-000-393
0.0800	0.5000	0.5000	1.5000	3.0000	40.0	909-000-422	909-000-394
0.0800	0.5000	0.5000	1.5000	3.0000	45.0	909-000-423	909-000-395
0.0800	0.5000	0.5000	1.5000	3.0000	50.0	909-000-424	909-000-396
0.0800	0.5000	0.5000	1.5000	3.0000	60.0	909-000-425	909-000-397
0.0800	0.5000	0.5000	1.5000	3.0000	82.0	909-000-426	909-000-398
0.0800	0.5000	0.5000	1.5000	3.0000	90.0	909-000-427	909-000-399
0.0800	0.5000	0.5000	1.5000	3.0000	100.0	909-000-418	909-000-390
0.0800	0.5000	0.5000	1.5000	3.0000	120.0	909-000-419	909-000-391
0.0800	0.5000	0.5000	1.5000	3.0000	150.0	909-000-420	909-000-392

KEO



PG.493

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LU [in.]	A [°]	ZC	Uncoated	AlTiN Coated
0.0060	0.1250	0.1250	1.0000	2.0000	60	2	909-000-119	909-000-614
0.0250	0.1250	0.1250	1.0000	2.0000	60	4	909-000-158	909-000-566
0.0060	0.1250	0.1250	1.0000	2.0000	82	2	909-000-120	909-000-613
0.0250	0.1250	0.1250	1.0000	2.0000	82	4	909-000-159	909-000-565
0.0060	0.1250	0.1250	1.0000	2.0000	90	2	909-000-121	909-000-611
0.0250	0.1250	0.1250	1.0000	2.0000	90	4	909-000-160	909-000-564
0.0060	0.1250	0.1250	1.0000	2.0000	100	2	909-000-117	909-000-617
0.0250	0.1250	0.1250	1.0000	2.0000	100	4	909-000-156	909-000-568
0.0060	0.1250	0.1250	1.0000	2.0000	120	2	909-000-118	909-000-615
0.0250	0.1250	0.1250	1.0000	2.0000	120	4	909-000-157	909-000-567
0.0060	0.1875	0.1875	1.2500	2.5000	60	2	909-000-124	909-000-604
0.0400	0.1875	0.1875	1.2500	2.5000	60	4	909-000-163	909-000-561
0.0060	0.1875	0.1875	1.2500	2.5000	82	2	909-000-125	909-000-603
0.0400	0.1875	0.1875	1.2500	2.5000	82	4	909-000-164	909-000-560
0.0060	0.1875	0.1875	1.2500	2.5000	90	2	909-000-126	909-000-616
0.0400	0.1875	0.1875	1.2500	2.5000	90	4	909-000-165	909-000-559
0.0060	0.1875	0.1875	1.2500	2.5000	100	2	909-000-122	909-000-608
0.0400	0.1875	0.1875	1.2500	2.5000	100	4	909-000-161	909-000-563
0.0060	0.1875	0.1875	1.2500	2.5000	120	2	909-000-123	909-000-606
0.0400	0.1875	0.1875	1.2500	2.5000	120	4	909-000-162	909-000-562
0.0400	0.2500	0.2500	1.2500	2.5000	60	2	909-000-135	909-000-591
0.0400	0.2500	0.2500	1.2500	2.5000	60	4	909-000-168	909-000-556
0.0400	0.2500	0.2500	1.2500	2.5000	82	2	909-000-139	909-000-588
0.0400	0.2500	0.2500	1.2500	2.5000	82	4	909-000-169	909-000-555
0.0400	0.2500	0.2500	1.2500	2.5000	90	2	909-000-140	909-000-587
0.0400	0.2500	0.2500	1.2500	2.5000	90	4	909-000-170	909-000-536
0.0400	0.2500	0.2500	1.2500	2.5000	100	2	909-000-127	909-000-597
0.0400	0.2500	0.2500	1.2500	2.5000	100	4	909-000-166	909-000-558
0.0400	0.2500	0.2500	1.2500	2.5000	120	2	909-000-131	909-000-592
0.0400	0.2500	0.2500	1.2500	2.5000	120	4	909-000-167	909-000-557
0.0600	0.3125	0.3125	1.2500	2.5000	60	2	909-000-143	909-000-581
0.0600	0.3125	0.3125	1.2500	2.5000	60	4	909-000-173	909-000-551
0.0600	0.3125	0.3125	1.2500	2.5000	82	2	909-000-144	909-000-580
0.0600	0.3125	0.3125	1.2500	2.5000	82	4	909-000-174	909-000-550
0.0600	0.3125	0.3125	1.2500	2.5000	90	2	909-000-145	909-000-579
0.0600	0.3125	0.3125	1.2500	2.5000	90	4	909-000-175	909-000-549
0.0600	0.3125	0.3125	1.2500	2.5000	100	2	909-000-141	909-000-583
0.0600	0.3125	0.3125	1.2500	2.5000	100	4	909-000-171	909-000-553
0.0600	0.3125	0.3125	1.2500	2.5000	120	2	909-000-142	909-000-582
0.0600	0.3125	0.3125	1.2500	2.5000	120	4	909-000-172	909-000-552
0.0600	0.3750	0.3750	1.2500	2.5000	60	2	909-000-148	909-000-576
0.0600	0.3750	0.3750	1.2500	2.5000	60	4	909-000-178	909-000-545
0.0600	0.3750	0.3750	1.2500	2.5000	82	2	909-000-149	909-000-575
0.0600	0.3750	0.3750	1.2500	2.5000	82	4	909-000-179	909-000-544
0.0600	0.3750	0.3750	1.2500	2.5000	90	2	909-000-150	909-000-574
0.0600	0.3750	0.3750	1.2500	2.5000	90	4	909-000-180	909-000-537
0.0600	0.3750	0.3750	1.2500	2.5000	100	2	909-000-146	909-000-578
0.0600	0.3750	0.3750	1.2500	2.5000	100	4	909-000-176	909-000-548
0.0600	0.3750	0.3750	1.2500	2.5000	120	2	909-000-147	909-000-577
0.0600	0.3750	0.3750	1.2500	2.5000	120	4	909-000-177	909-000-547
0.0800	0.5000	0.5000	1.5000	3.0000	60	2	909-000-153	909-000-571
0.0800	0.5000	0.5000	1.5000	3.0000	60	4	909-000-183	909-000-540
0.0800	0.5000	0.5000	1.5000	3.0000	82	2	909-000-154	909-000-570
0.0800	0.5000	0.5000	1.5000	3.0000	82	4	909-000-184	909-000-539
0.0800	0.5000	0.5000	1.5000	3.0000	90	2	909-000-155	909-000-569
0.0800	0.5000	0.5000	1.5000	3.0000	90	4	909-000-185	909-000-538
0.0800	0.5000	0.5000	1.5000	3.0000	100	2	909-000-151	909-000-573
0.0800	0.5000	0.5000	1.5000	3.0000	100	4	909-000-181	909-000-542
0.0800	0.5000	0.5000	1.5000	3.0000	120	2	909-000-152	909-000-572
0.0800	0.5000	0.5000	1.5000	3.0000	120	4	909-000-182	909-000-541

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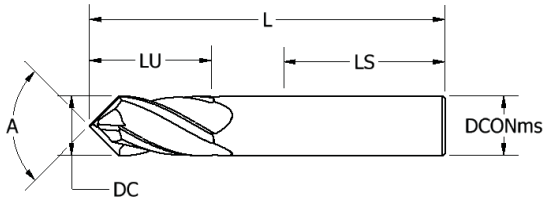

PG.493

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LU [in.]	A [°]	Uncoated	AlTiN Coated
						2 FLUTE	2 FLUTE
0.0313	0.1250	1.1338	1.5000	0.1250	60.0	933-000-001	933-000-066
0.0313	0.1250	1.1338	1.5000	0.1250	90.0	933-000-002	933-000-078
0.0625	0.1250	1.1517	1.5000	0.1875	60.0	933-000-003	933-000-067
0.0625	0.1250	1.1517	1.5000	0.1875	90.0	933-000-004	933-000-079
0.0938	0.1250	1.0446	1.5000	0.3750	60.0	933-000-005	933-000-068
0.0938	0.1250	1.0446	1.5000	0.3750	90.0	933-000-006	933-000-080
0.1250	0.1250	0.6250	1.5000	0.5000	60.0	933-000-007	933-000-069
0.1250	0.1250	0.6250	1.5000	0.5000	90.0	933-000-008	933-000-081
0.1875	0.1875	1.0000	2.0000	0.6250	60.0	933-000-009	933-000-070
0.1875	0.1875	1.0000	2.0000	0.6250	90.0	933-000-010	933-000-082
0.2500	0.2500	1.3750	2.5000	0.7500	60.0	933-000-013	933-000-071
0.2500	0.2500	1.3750	2.5000	0.7500	60.0	933-000-011	933-000-071
0.2500	0.2500	1.3750	2.5000	0.7500	90.0	933-000-014	933-000-083
0.2500	0.2500	1.3750	2.5000	0.7500	90.0	933-000-012	933-000-083
0.3750	0.3750	1.1250	2.5000	1.0000	60.0	933-000-015	933-000-073
0.3750	0.3750	1.1250	2.5000	1.0000	90.0	933-000-016	933-000-085
0.4375	0.4375	1.3750	2.7500	1.0000	60.0	933-000-017	933-000-074
0.4375	0.4375	1.3750	2.7500	1.0000	90.0	933-000-018	933-000-086
0.5000	0.5000	1.6250	3.0000	1.0000	60.0	933-000-019	933-000-075
0.5000	0.5000	1.6250	3.0000	1.0000	90.0	933-000-020	933-000-087
0.6250	0.6250	1.8750	3.5000	1.2500	60.0	933-000-021	933-000-076
0.6250	0.6250	1.8750	3.5000	1.2500	90.0	933-000-022	933-000-088
0.7500	0.7500	2.1250	4.0000	1.5000	60.0	933-000-023	933-000-077
0.7500	0.7500	2.1250	4.0000	1.5000	90.0	933-000-024	933-000-089

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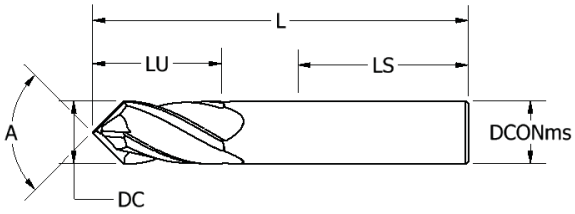


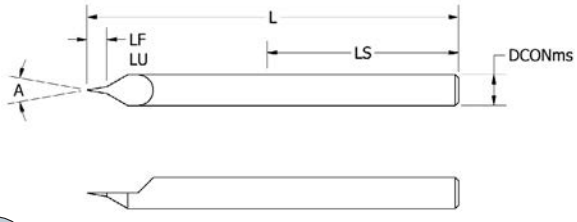
PG.493

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LU [in.]	A [°]	Uncoated	AlTiN Coated
						4 FLUTE	4 FLUTE
0.0313	0.1250	1.1338	1.5000	0.1250	60.0	933-000-025	933-000-104
0.0313	0.1250	1.1338	1.5000	0.1250	90.0	933-000-026	933-000-116
0.0625	0.1250	1.1517	1.5000	0.1875	60.0	933-000-027	933-000-105
0.0625	0.1250	1.1517	1.5000	0.1875	90.0	933-000-028	933-000-117
0.0938	0.1250	1.0446	1.5000	0.3750	60.0	933-000-029	933-000-106
0.0938	0.1250	1.0446	1.5000	0.3750	90.0	933-000-030	933-000-118
0.1250	0.1250	0.6250	1.5000	0.5000	60.0	933-000-031	933-000-107
0.1250	0.1250	0.6250	1.5000	0.5000	90.0	933-000-032	933-000-119
0.1875	0.1875	1.0000	2.0000	0.6250	60.0	933-000-033	933-000-108
0.1875	0.1875	1.0000	2.0000	0.6250	90.0	933-000-034	933-000-120
0.2500	0.2500	1.3750	2.5000	0.7500	60.0	933-000-035	933-000-109
0.2500	0.2500	1.3750	2.5000	0.7500	90.0	933-000-036	933-000-121
0.3125	0.3125	1.3125	2.5000	0.8125	60.0	933-000-040	933-000-110
0.3125	0.3125	1.3125	2.5000	0.8125	90.0	933-000-041	933-000-122
0.3750	0.3750	1.1250	2.5000	1.0000	60.0	933-000-042	933-000-111
0.3750	0.3750	1.1250	2.5000	1.0000	90.0	933-000-043	933-000-123
0.4375	0.4375	1.3750	2.7500	1.0000	60.0	933-000-044	933-000-112
0.4375	0.4375	1.3750	2.7500	1.0000	90.0	933-000-045	933-000-124
0.5000	0.5000	1.6250	3.0000	1.0000	60.0	933-000-046	933-000-113
0.5000	0.5000	1.6250	3.0000	1.0000	90.0	933-000-047	933-000-125
0.6250	0.6250	1.8750	3.5000	1.2500	60.0	933-000-048	933-000-114
0.6250	0.6250	1.8750	3.5000	1.2500	90.0	933-000-049	933-000-126
0.7500	0.7500	2.1250	4.0000	1.5000	60.0	933-000-050	933-000-115
0.7500	0.7500	2.1250	4.0000	1.5000	90.0	933-000-051	933-000-127

ENGRAVING TOOLS

ARCH®
Cutting Tools

KEO



DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	Uncoated	AlTiN Coated	Amorphous Diamond
						1 FLUTE	1 FLUTE	1 FLUTE
0.1250	0.0800	0.7500	1.5000	0.0800	10.0	937-000-002	937-000-135	937-000-050
0.1250	0.0800	0.7500	1.5000	0.0800	15.0	937-000-004	937-000-137	937-000-052
0.1250	0.0800	0.7500	1.5000	0.0800	20.0	937-000-005	937-000-138	937-000-053

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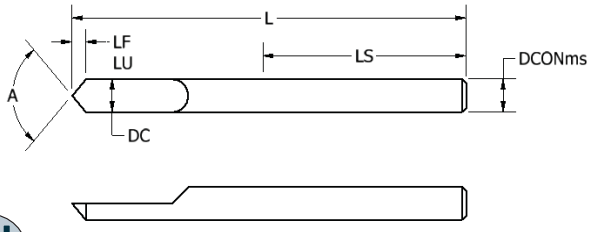

MICRO

DC [in.]	DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	Uncoated	AlTiN Coated	Amorphous Diamond
							1 FLUTE	1 FLUTE	1 FLUTE
0.1250	0.1250	0.2330	0.7500	1.5000	0.2330	30.0	937-000-010	937-000-143	937-000-054
0.1250	0.1250	0.1720	0.7500	1.5000	0.1720	40.0	937-000-020	937-000-153	937-000-055
0.1250	0.1250	0.1510	0.7500	1.5000	0.1510	45.0	937-000-026	937-000-159	937-000-056
0.1250	0.1250	0.1340	0.7500	1.5000	0.1340	50.0	937-000-027	937-000-160	937-000-057
0.1250	0.1250	0.1080	0.7500	1.5000	0.1080	60.0	937-000-032	937-000-165	937-000-058
0.1250	0.1250	0.0720	0.7500	1.5000	0.0720	82..0	937-000-038	937-000-171	937-000-059
0.1250	0.1250	0.0630	0.7500	1.5000	0.0630	90.0	937-000-043	937-000-176	937-000-060
0.1250	0.1250	0.0520	0.7500	1.5000	0.0520	100.0	937-000-001	937-000-134	937-000-049
0.1250	0.1250	0.0360	0.7500	1.5000	0.0360	120.0	937-000-003	937-000-136	937-000-051

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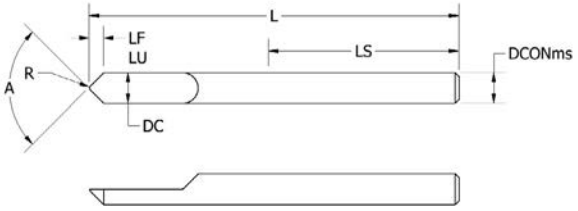
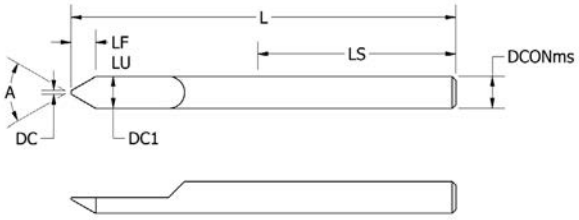


DC [in.]	DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	R [in.]	A [°]	Uncoated	AlTiN Coated
								1 FLUTE	1 FLUTE
0.1250	0.1250	0.2260	0.7500	1.5000	0.2260	0.0025	30.0	937-000-011	937-000-144
0.1250	0.1250	0.1670	0.7500	1.5000	0.1670	0.0025	40.0	937-000-021	937-000-154
0.1250	0.1250	0.1060	0.7500	1.5000	0.1060	0.0025	60.0	937-000-033	937-000-166
0.1250	0.1250	0.0610	0.7500	1.5000	0.0610	0.0025	90.0	937-000-044	937-000-177
0.1250	0.1250	0.2190	0.7500	1.5000	0.2190	0.0050	30.0	937-000-012	937-000-145
0.1250	0.1250	0.1620	0.7500	1.5000	0.1620	0.0050	40.0	937-000-022	937-000-155
0.1250	0.1250	0.1030	0.7500	1.5000	0.1030	0.0050	60.0	937-000-034	937-000-167
0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	0.0050	90.0	937-000-045	937-000-178
0.1250	0.1250	0.2050	0.7500	1.5000	0.2050	0.0100	30.0	937-000-013	937-000-146
0.1250	0.1250	0.1520	0.7500	1.5000	0.1520	0.0100	40.0	937-000-023	937-000-156
0.1250	0.1250	0.0980	0.7500	1.5000	0.0980	0.0100	60.0	937-000-035	937-000-168
0.1250	0.1250	0.0580	0.7500	1.5000	0.0580	0.0100	90.0	937-000-046	937-000-179
0.1250	0.1250	0.1900	0.7500	1.5000	0.1900	0.0150	30.0	937-000-014	937-000-147
0.1250	0.1250	0.1430	0.7500	1.5000	0.1430	0.0150	40.0	937-000-024	937-000-157
0.1250	0.1250	0.0930	0.7500	1.5000	0.0930	0.0150	60.0	937-000-036	937-000-169
0.1250	0.1250	0.0560	0.7500	1.5000	0.0560	0.0150	90.0	937-000-047	937-000-180
0.1250	0.1250	0.1760	0.7500	1.5000	0.1760	0.0200	30.0	937-000-015	937-000-148
0.1250	0.1250	0.1280	0.7500	1.5000	0.1280	0.0200	40.0	937-000-025	937-000-158
0.1250	0.1250	0.0880	0.7500	1.5000	0.0880	0.0200	60.0	937-000-037	937-000-170
0.1250	0.1250	0.0540	0.7500	1.5000	0.0540	0.0200	90.0	937-000-048	937-000-181

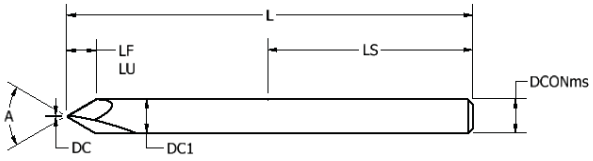
KEO



MICRO

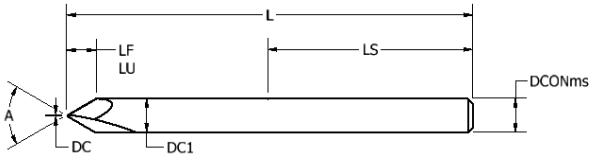
DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	Uncoated	AlTiN Coated
								1 FLUTE	1 FLUTE
0.0050	0.1250	0.1250	0.2240	0.7500	1.5000	0.2240	30.0	937-000-006	937-000-139
0.0050	0.1250	0.1250	0.1650	0.7500	1.5000	0.1650	40.0	937-000-016	937-000-149
0.0050	0.1250	0.1250	0.1040	0.7500	1.5000	0.1040	60.0	937-000-028	937-000-161
0.0050	0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	90.0	937-000-039	937-000-172
0.0100	0.1250	0.1250	0.2150	0.7500	1.5000	0.2150	30.0	937-000-007	937-000-140
0.0100	0.1250	0.1250	0.1580	0.7500	1.5000	0.1580	40.0	937-000-017	937-000-150
0.0100	0.1250	0.1250	0.1000	0.7500	1.5000	0.1000	60.0	937-000-029	937-000-162
0.0100	0.1250	0.1250	0.0580	0.7500	1.5000	0.0580	90.0	937-000-040	937-000-173
0.0150	0.1250	0.1250	0.2050	0.7500	1.5000	0.2050	30.0	937-000-008	937-000-141
0.0150	0.1250	0.1250	0.1510	0.7500	1.5000	0.1510	40.0	937-000-018	937-000-151
0.0150	0.1250	0.1250	0.0950	0.7500	1.5000	0.0950	60.0	937-000-030	937-000-163
0.0150	0.1250	0.1250	0.0550	0.7500	1.5000	0.0550	90.0	937-000-041	937-000-174
0.0200	0.1250	0.1250	0.1960	0.7500	1.5000	0.1960	30.0	937-000-009	937-000-142
0.0200	0.1250	0.1250	0.1440	0.7500	1.5000	0.1440	40.0	937-000-019	937-000-152
0.0200	0.1250	0.1250	0.0910	0.7500	1.5000	0.0910	60.0	937-000-031	937-000-164
0.0200	0.1250	0.1250	0.0530	0.7500	1.5000	0.0530	90.0	937-000-042	937-000-175

KEO®



MICRO

DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	Uncoated	AlTiN Coated
								2 FLUTE	2 FLUTE
0.0050	0.1250	0.1250	0.2240	0.7500	1.5000	0.2240	30.0	947-000-006	947-000-030
0.0050	0.1250	0.1250	0.1650	0.7500	1.5000	0.1650	40.0	947-000-011	947-000-034
0.0050	0.1250	0.1250	0.1040	0.7500	1.5000	0.1040	60.0	947-000-016	947-000-038
0.0050	0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	90.0	947-000-021	947-000-042
0.0050	0.1250	0.1250	0.0350	0.7500	1.5000	0.0350	120.0	947-000-001	947-000-026
0.0100	0.1250	0.1250	0.2150	0.7500	1.5000	0.2150	30.0	947-000-008	947-000-031
0.0100	0.1250	0.1250	0.1580	0.7500	1.5000	0.1580	40.0	947-000-013	947-000-035
0.0100	0.1250	0.1250	0.1000	0.7500	1.5000	0.1000	60.0	947-000-018	947-000-039
0.0100	0.1250	0.1250	0.0580	0.7500	1.5000	0.0580	90.0	947-000-023	947-000-043
0.0100	0.1250	0.1250	0.0330	0.7500	1.5000	0.0330	120.0	947-000-003	947-000-027



MICRO

For Non-Ferrous Applications

DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	Uncoated	DLC Coated
								2 FLUTE	2 FLUTE
0.0050	0.1250	0.1250	0.2240	0.7500	1.5000	0.2240	30.0	947-000-007	937-000-130
0.0050	0.1250	0.1250	0.1650	0.7500	1.5000	0.1650	40.0	947-000-012	937-000-131
0.0050	0.1250	0.1250	0.1040	0.7500	1.5000	0.1040	60.0	947-000-017	937-000-132
0.0050	0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	90.0	947-000-022	937-000-133
0.0050	0.1250	0.1250	0.0350	0.7500	1.5000	0.0350	120.0	947-000-002	937-000-129

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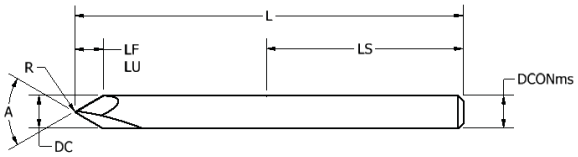


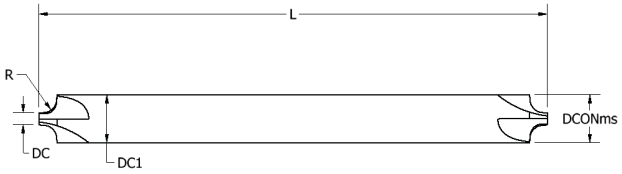
MICRO

DC [in.]	DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	R [in.]	A [°]	Uncoated	AlTiN Coated
								2 FLUTE	2 FLUTE
0.1250	0.1250	0.2180	0.7500	1.5000	0.2180	0.0050	30.0	947-000-009	947-000-032
0.1250	0.1250	0.1600	0.7500	1.5000	0.1600	0.0050	40.0	947-000-014	947-000-036
0.1250	0.1250	0.1030	0.7500	1.5000	0.1030	0.0050	60.0	947-000-019	947-000-040
0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	0.0050	90.0	947-000-024	947-000-044
0.1250	0.1250	0.0350	0.7500	1.5000	0.0350	0.0050	120.0	947-000-004	947-000-028
0.1250	0.1250	0.2040	0.7500	1.5000	0.2040	0.0100	30.0	947-000-010	947-000-033
0.1250	0.1250	0.1500	0.7500	1.5000	0.1500	0.0100	40.0	947-000-015	947-000-037
0.1250	0.1250	0.0980	0.7500	1.5000	0.0980	0.0100	60.0	947-000-020	947-000-041
0.1250	0.1250	0.0580	0.7500	1.5000	0.0580	0.0100	90.0	947-000-025	947-000-045
0.1250	0.1250	0.0340	0.7500	1.5000	0.0340	0.0100	120.0	947-000-005	947-000-029

CORNER ROUNDING

ARCH® Cutting Tools

KEO



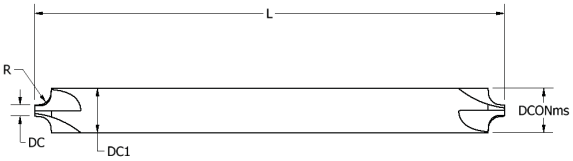
Small pilots for narrow spaces

PG.503

MICRO

DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0080	0.1250	0.1250	1.5000	0.0050	932-000-634	932-000-745
0.0200	0.1250	0.1250	1.5000	0.0050	932-000-635	932-000-746
0.0460	0.1250	0.1250	1.5000	0.0050	932-000-636	932-000-747
0.0460	0.1875	0.1875	4.0000	0.0050	932-000-856	932-000-874
0.0200	0.1250	0.1250	1.5000	0.0060	932-000-637	932-000-748
0.0460	0.1250	0.1250	1.5000	0.0060	932-000-638	932-000-749
0.0200	0.1250	0.1250	1.5000	0.0070	932-000-639	932-000-750
0.0460	0.1250	0.1250	1.5000	0.0070	932-000-640	932-000-751
0.0080	0.1250	0.1250	1.5000	0.0080	932-000-641	932-000-752
0.0200	0.1250	0.1250	1.5000	0.0080	932-000-642	932-000-753
0.0460	0.1250	0.1250	1.5000	0.0080	932-000-643	932-000-754
0.0460	0.1875	0.1875	4.0000	0.0080	932-000-857	932-000-875
0.0200	0.1250	0.1250	1.5000	0.0090	932-000-644	932-000-755
0.0460	0.1250	0.1250	1.5000	0.0090	932-000-645	932-000-756
0.0080	0.1250	0.1250	1.5000	0.0100	932-000-646	932-000-757
0.0200	0.1250	0.1250	1.5000	0.0100	932-000-647	932-000-758
0.0460	0.1250	0.1250	1.5000	0.0100	932-000-648	932-000-759
0.0460	0.1875	0.1875	4.0000	0.0100	932-000-858	932-000-876
0.0200	0.1250	0.1250	1.5000	0.0110	932-000-649	932-000-760
0.0460	0.1250	0.1250	1.5000	0.0110	932-000-650	932-000-761
0.0200	0.1250	0.1250	1.5000	0.0120	932-000-651	932-000-762
0.0460	0.1250	0.1250	1.5000	0.0120	932-000-652	932-000-763
0.0200	0.1250	0.1250	1.5000	0.0130	932-000-653	932-000-764
0.0460	0.1250	0.1250	1.5000	0.0130	932-000-654	932-000-765
0.0200	0.1250	0.1250	1.5000	0.0140	932-000-655	932-000-766
0.0460	0.1250	0.1250	1.5000	0.0140	932-000-656	932-000-767
0.0080	0.1250	0.1250	1.5000	0.0150	932-000-657	932-000-768
0.0200	0.1250	0.1250	1.5000	0.0150	932-000-658	932-000-769
0.0460	0.1250	0.1250	1.5000	0.0150	932-000-659	932-000-770
0.0460	0.1875	0.1875	4.0000	0.0150	932-000-859	932-000-877
0.0460	0.1250	0.1250	1.5000	0.0180	932-000-660	932-000-771
0.0080	0.1250	0.1250	1.5000	0.0200	932-000-661	932-000-772
0.0200	0.1250	0.1250	1.5000	0.0200	932-000-662	932-000-773
0.0460	0.1250	0.1250	1.5000	0.0200	932-000-663	932-000-774
0.0460	0.1875	0.1875	4.0000	0.0200	932-000-860	932-000-878
0.0460	0.1250	0.1250	1.5000	0.0220	932-000-664	932-000-775
0.0200	0.1250	0.1250	1.5000	0.0250	932-000-665	932-000-776
0.0460	0.1250	0.1250	1.5000	0.0250	932-000-666	932-000-777
0.0460	0.1875	0.1875	4.0000	0.0250	932-000-861	932-000-879
0.0460	0.1250	0.1250	1.5000	0.0270	932-000-667	932-000-778
0.0200	0.1250	0.1250	1.5000	0.0300	932-000-668	932-000-779
0.0460	0.1250	0.1250	1.5000	0.0300	932-000-669	932-000-780
0.0460	0.1875	0.1875	4.0000	0.0300	932-000-862	932-000-880

KEO

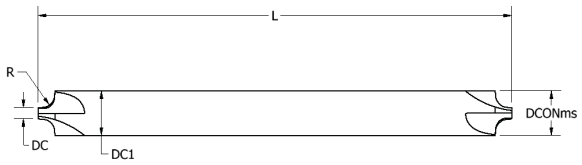


PG.503

MICRO

DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	Uncoated 2 FLUTE	AlTiN Coated 2 FLUTE
0.0200	0.1250	0.1250	1.5000	0.0310	932-000-670	932-000-781
0.0460	0.1250	0.1250	1.5000	0.0310	932-000-671	932-000-782
0.0460	0.1875	0.1875	4.0000	0.0310	932-000-863	932-000-881
0.0460	0.1250	0.1250	1.5000	0.0320	932-000-672	932-000-783
0.0200	0.1250	0.1250	1.5000	0.0350	932-000-673	932-000-784
0.0460	0.1250	0.1250	1.5000	0.0350	932-000-674	932-000-785
0.0460	0.1875	0.1875	4.0000	0.0350	932-000-864	932-000-882
0.0200	0.1250	0.1250	1.5000	0.0390	932-000-675	932-000-786
0.0460	0.1250	0.1250	1.5000	0.0390	932-000-676	932-000-787
0.0460	0.1875	0.1875	4.0000	0.0390	932-000-865	932-000-883
0.1000	0.1875	0.1875	2.0000	0.0390	932-000-677	932-000-788
0.0460	0.1875	0.1875	2.0000	0.0430	932-000-678	932-000-789
0.0200	0.1250	0.1250	1.5000	0.0470	932-000-679	932-000-790
0.0460	0.1875	0.1875	2.0000	0.0470	932-000-680	932-000-791
0.0460	0.1875	0.1875	4.0000	0.0470	932-000-866	932-000-884
0.1250	0.2500	0.2500	2.0000	0.0470	932-000-681	932-000-792
0.0200	0.1250	0.1250	1.5000	0.0500	932-000-682	932-000-793
0.0460	0.1875	0.1875	2.0000	0.0500	932-000-683	932-000-794
0.0460	0.2500	0.2500	4.0000	0.0500	932-000-867	932-000-885
0.1250	0.2500	0.2500	2.0000	0.0500	932-000-684	932-000-795
0.0460	0.1875	0.1875	2.0000	0.0550	932-000-685	932-000-796
0.0200	0.1875	0.1875	2.0000	0.0600	932-000-686	932-000-797
0.0460	0.1875	0.1875	2.0000	0.0600	932-000-687	932-000-798
0.0460	0.2500	0.2500	4.0000	0.0600	932-000-868	932-000-886
0.1250	0.2500	0.2500	2.0000	0.0600	932-000-688	932-000-799
0.0200	0.1875	0.1875	2.0000	0.0620	932-000-689	932-000-800
0.0460	0.1875	0.1875	2.0000	0.0620	932-000-690	932-000-801
0.0460	0.2500	0.2500	4.0000	0.0620	932-000-869	932-000-887
0.1250	0.2500	0.2500	2.0000	0.0620	932-000-691	932-000-802
0.0460	0.2500	0.2500	2.0000	0.0720	932-000-692	932-000-803
0.0460	0.2500	0.2500	2.0000	0.0780	932-000-693	932-000-804
0.0460	0.2500	0.2500	4.0000	0.0780	932-000-870	932-000-888
0.0450	0.2500	0.2500	2.0000	0.0890	932-000-694	932-000-805
0.0450	0.2500	0.2500	2.0000	0.0930	932-000-695	932-000-806
0.0450	0.3125	0.3125	4.0000	0.0930	932-000-871	932-000-889
0.0450	0.2500	0.2500	2.0000	0.1000	932-000-696	932-000-807
0.0450	0.3125	0.3125	4.0000	0.1000	932-000-872	932-000-890
0.0580	0.3125	0.3125	2.5000	0.1090	932-000-697	932-000-808
0.0580	0.3125	0.3125	2.5000	0.1180	932-000-698	932-000-809
0.0580	0.3125	0.3125	2.5000	0.1250	932-000-699	932-000-810
0.0580	0.3750	0.3750	4.0000	0.1250	932-000-873	932-000-891
0.0580	0.3750	0.3750	2.5000	0.1400	932-000-700	932-000-811
0.0580	0.3750	0.3750	2.5000	0.1560	932-000-701	932-000-812

KEO



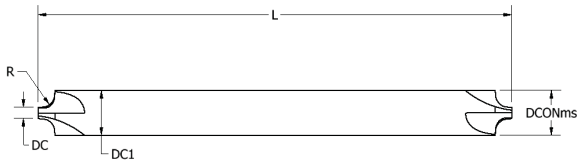
Large pilots for profiling
And increased durability

PG.503

MICRO

DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	Uncoated 4 FLUTE	AlTiN Coated 4 FLUTE
0.0580	0.1250	0.1250	1.5000	0.0050	932-000-702	932-000-813
0.2490	0.3750	0.3750	2.5000	0.0050	932-000-703	932-000-814
0.0580	0.1250	0.1250	1.5000	0.0080	932-000-704	932-000-815
0.2490	0.3750	0.3750	2.5000	0.0080	932-000-705	932-000-816
0.0580	0.1250	0.1250	1.5000	0.0100	932-000-706	932-000-817
0.2490	0.3750	0.3750	2.5000	0.0100	932-000-707	932-000-818
0.0580	0.1250	0.1250	1.5000	0.0150	932-000-708	932-000-819
0.1070	0.1875	0.1875	2.0000	0.0150	932-000-709	932-000-820
0.2490	0.3750	0.3750	2.5000	0.0150	932-000-710	932-000-821
0.0580	0.1250	0.1250	1.5000	0.0200	932-000-711	932-000-822
0.1070	0.1875	0.1875	2.0000	0.0200	932-000-712	932-000-823
0.2490	0.3750	0.3750	2.5000	0.0200	932-000-713	932-000-824
0.0580	0.1250	0.1250	1.5000	0.0250	932-000-714	932-000-825
0.1070	0.1875	0.1875	2.0000	0.0250	932-000-715	932-000-826
0.2490	0.3750	0.3750	2.5000	0.0250	932-000-716	932-000-827
0.0580	0.1250	0.1250	1.5000	0.0300	932-000-717	932-000-828
0.1070	0.1875	0.1875	2.0000	0.0300	932-000-718	932-000-829
0.2490	0.3750	0.3750	2.5000	0.0300	932-000-719	932-000-830
0.0580	0.1250	0.1250	1.5000	0.0310	932-000-720	932-000-831
0.1070	0.1875	0.1875	2.0000	0.0310	932-000-721	932-000-832
0.2490	0.3750	0.3750	2.5000	0.0310	932-000-722	932-000-833
0.2490	0.3750	0.3750	2.5000	0.0320	932-000-723	932-000-834
0.2490	0.3750	0.3750	2.5000	0.0350	932-000-724	932-000-835
0.0580	0.1875	0.1875	2.0000	0.0390	932-000-725	932-000-836
0.2490	0.3750	0.3750	2.5000	0.0390	932-000-726	932-000-837
0.2490	0.3750	0.3750	2.5000	0.0430	932-000-727	932-000-838
0.0580	0.1875	0.1875	2.0000	0.0470	932-000-728	932-000-839
0.1070	0.2500	0.2500	2.0000	0.0470	932-000-729	932-000-840
0.2490	0.3750	0.3750	2.5000	0.0470	932-000-730	932-000-841
0.0580	0.1875	0.1875	2.0000	0.0500	932-000-731	932-000-842
0.1070	0.2500	0.2500	2.0000	0.0500	932-000-732	932-000-843
0.2490	0.3750	0.3750	2.5000	0.0500	932-000-733	932-000-844
0.0580	0.1875	0.1875	2.0000	0.0600	932-000-734	932-000-845
0.1070	0.2500	0.2500	2.0000	0.0600	932-000-735	932-000-846
0.0580	0.1875	0.1875	2.0000	0.0620	932-000-736	932-000-847
0.1070	0.2500	0.2500	2.0000	0.0620	932-000-737	932-000-848
0.0580	0.2500	0.2500	2.0000	0.0780	932-000-738	932-000-849
0.1070	0.3125	0.3125	2.5000	0.0780	932-000-739	932-000-850
0.0580	0.2500	0.2500	2.0000	0.0930	932-000-740	932-000-851
0.1070	0.3125	0.3125	2.5000	0.0930	932-000-741	932-000-852
0.1070	0.3125	0.3125	2.5000	0.1000	932-000-742	932-000-853
0.1070	0.3750	0.3750	2.5000	0.1180	932-000-743	932-000-854
0.1070	0.3750	0.3750	2.5000	0.1250	932-000-744	932-000-855

KEO®

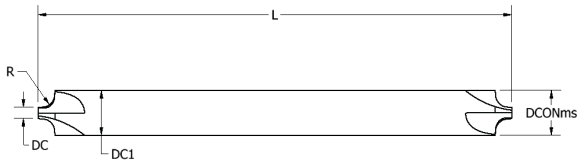


PG.503

MICRO

DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	Uncoated 2 FLUTE	TiN Coated 2 FLUTE	AlTiN Coated 2 FLUTE	Amorphous Diamond 2 FLUTE
0.0470	0.1250	0.1250	1.5000	0.0050	932-000-337	932-000-892	932-000-592	932-000-379
0.0470	0.1250	0.1250	1.5000	0.0080	932-000-338	932-000-893	932-000-593	932-000-380
0.0470	0.1250	0.1250	1.5000	0.0100	932-000-339	932-000-894	932-000-594	932-000-381
0.0470	0.1250	0.1250	1.5000	0.0120	932-000-340	932-000-895	932-000-595	932-000-382
0.0470	0.1250	0.1250	1.5000	0.0150	932-000-341	932-000-896	932-000-596	932-000-383
0.0470	0.1250	0.1250	1.5000	0.0180	932-000-342	932-000-897	932-000-597	932-000-384
0.0470	0.1250	0.1250	1.5000	0.0200	932-000-343	932-000-898	932-000-598	932-000-385
0.0470	0.1250	0.1250	1.5000	0.0220	932-000-344	932-000-899	932-000-599	932-000-386
0.0470	0.1250	0.1250	1.5000	0.0250	932-000-345	932-000-900	932-000-600	932-000-387
0.0470	0.1250	0.1250	1.5000	0.0270	932-000-346	932-000-901	932-000-601	932-000-388
0.0470	0.1250	0.1250	1.5000	0.0300	932-000-347	932-000-902	932-000-602	932-000-389
0.0470	0.1250	0.1250	1.5000	0.0310	932-000-348	932-000-903	932-000-603	932-000-390
0.0470	0.1250	0.1250	1.5000	0.0320	932-000-349	932-000-904	932-000-604	932-000-391
0.0470	0.1250	0.1250	1.5000	0.0350	932-000-350	932-000-905	932-000-605	932-000-392
0.0470	0.1250	0.1250	1.5000	0.0390	932-000-351	932-000-906	932-000-606	932-000-393
0.0470	0.1875	0.1875	2.0000	0.0430	932-000-352	932-000-907	932-000-607	932-000-394
0.0470	0.1875	0.1875	2.0000	0.0470	932-000-353	932-000-908	932-000-608	932-000-395
0.0470	0.1875	0.1875	2.0000	0.0500	932-000-354	932-000-909	932-000-609	932-000-396
0.0470	0.1875	0.1875	2.0000	0.0550	932-000-355	932-000-910	932-000-610	932-000-397
0.0470	0.1875	0.1875	2.0000	0.0600	932-000-356	932-000-911	932-000-611	932-000-398
0.0470	0.1875	0.1875	2.0000	0.0620	932-000-357	932-000-912	932-000-612	932-000-399
0.0470	0.1875	0.1875	2.0000	0.0670	932-000-358	932-000-913	932-000-613	932-000-400
0.0470	0.2500	0.2500	2.0000	0.0720	932-000-359	932-000-914	932-000-614	932-000-401
0.0470	0.2500	0.2500	2.0000	0.0780	932-000-360	932-000-915	932-000-615	932-000-402
0.0470	0.2500	0.2500	2.0000	0.0890	932-000-361	932-000-916	932-000-616	932-000-403
0.0470	0.2500	0.2500	2.0000	0.0930	932-000-362	932-000-917	932-000-617	932-000-404
0.0470	0.2500	0.2500	2.0000	0.1000	932-000-363	932-000-918	932-000-618	932-000-405
0.0600	0.3125	0.3125	2.5000	0.1040	932-000-364	932-000-919	932-000-619	932-000-406
0.0600	0.3125	0.3125	2.5000	0.1090	932-000-365	932-000-920	932-000-620	932-000-407
0.0600	0.3125	0.3125	2.5000	0.1180	932-000-366	932-000-921	932-000-621	932-000-408
0.0600	0.3125	0.3125	2.5000	0.1250	932-000-367	932-000-922	932-000-622	932-000-409
0.0600	0.3750	0.3750	2.5000	0.1400	932-000-368	932-000-923	932-000-623	932-000-410
0.0600	0.3750	0.3750	2.5000	0.1560	932-000-369	932-000-924	932-000-624	932-000-411

KEO



PG.503

MICRO

DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	Uncoated 4 FLUTE	TiN Coated 4 FLUTE	AlTiN Coated 4 FLUTE	Amorphous Diamond 4 FLUTE
0.2500	0.3750	0.3750	2.5000	0.0100	932-000-370	932-000-925	932-000-625	932-000-412
0.2500	0.3750	0.3750	2.5000	0.0150	932-000-371	932-000-926	932-000-626	932-000-413
0.2500	0.3750	0.3750	2.5000	0.0200	932-000-372	932-000-927	932-000-627	932-000-414
0.2500	0.3750	0.3750	2.5000	0.0250	932-000-373	932-000-928	932-000-628	932-000-415
0.2500	0.3750	0.3750	2.5000	0.0300	932-000-374	932-000-929	932-000-629	932-000-416
0.2500	0.3750	0.3750	2.5000	0.0310	932-000-375	932-000-930	932-000-630	932-000-417
0.2500	0.3750	0.3750	2.5000	0.0390	932-000-376	932-000-931	932-000-631	932-000-418
0.2500	0.3750	0.3750	2.5000	0.0470	932-000-377	932-000-932	932-000-632	932-000-419
0.2500	0.3750	0.3750	2.5000	0.0500	932-000-378	932-000-933	932-000-633	932-000-420

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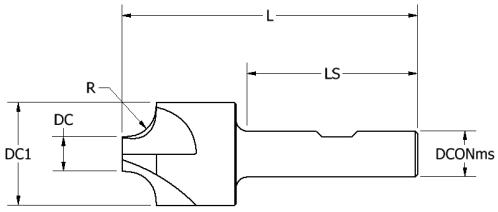
METRIC RADIUS



PG.503

CRM125 HSS

DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	R [in.]	Uncoated	TiN Coated	AlTiN Coated
0.2270	0.3750	0.4375	1.6880	2.5000	0.0394(1mm)	932-000-133	932-000-136	N/A
0.2500	0.3750	0.4375	1.6880	2.5000	0.0591(1.5mm)	932-000-137	932-000-140	932-000-958
0.2730	0.3750	0.5000	1.6880	2.5000	0.0787(2mm)	932-000-141	932-000-144	932-000-959
0.2330	0.3750	0.5000	1.6880	2.5000	0.0984(2.5mm)	932-000-145	932-000-148	932-000-960
0.2570	0.5000	0.6250	2.0000	3.0000	0.1181(3mm)	932-000-149	932-000-152	932-000-961
0.2790	0.5000	0.7500	2.0000	3.0000	0.1378(3.5mm)	932-000-153	932-000-156	932-000-962
0.3030	0.5000	0.7500	2.0000	3.0000	0.1575(4mm)	932-000-157	932-000-160	932-000-963
0.3890	0.5000	0.8750	2.0000	3.0000	0.1772(4.5mm)	932-000-161	932-000-164	932-000-964
0.3490	0.5000	0.8750	2.0000	3.0000	0.1969(5mm)	932-000-165	932-000-168	932-000-965
0.3950	0.7500	1.0000	2.2500	3.2500	0.2362(6mm)	932-000-169	932-000-172	932-000-966
0.3790	0.7500	1.0000	2.2500	3.2500	0.2756(7mm)	932-000-173	932-000-176	932-000-967
0.3630	0.7500	1.1250	2.2500	3.2500	0.3150(8mm)	932-000-177	932-000-180	932-000-968
0.3460	0.7500	1.1250	2.2500	3.2500	0.3543(9mm)	932-000-181	932-000-184	932-000-969
0.3920	0.7500	1.3750	2.2500	3.7500	0.3937(10mm)	932-000-185	932-000-188	932-000-970
0.3760	1.0000	1.3750	2.5000	3.7500	0.4331(11mm)	932-000-189	932-000-192	932-000-971
0.4220	1.0000	1.5000	2.5000	4.1250	0.4724(12mm)	932-000-193	932-000-196	932-000-972
0.3430	1.0000	1.5000	2.5000	4.1250	0.5118(13mm)	932-000-197	932-000-200	932-000-973
0.4520	1.0000	1.6250	2.5000	4.1250	0.5512(14mm)	932-000-201	932-000-204	932-000-974
0.4980	1.0000	1.8750	2.5000	4.2500	0.5906(15mm)	932-000-205	932-000-208	932-000-975
0.5440	1.0000	2.0000	2.5000	4.2500	0.6299(16mm)	932-000-209	932-000-212	932-000-976
0.5280	1.0000	2.1250	2.5000	4.2500	0.6693(17mm)	932-000-213	932-000-216	932-000-977
0.6410	1.0000	2.2500	2.5000	4.2500	0.7087(18mm)	932-000-217	932-000-220	932-000-978
0.6200	1.0000	2.2500	2.5000	4.2500	0.7480(19mm)	932-000-221	932-000-224	932-000-979
0.6040	1.0000	2.3125	2.5000	4.2500	0.7874(20mm)	932-000-225	932-000-228	932-000-980

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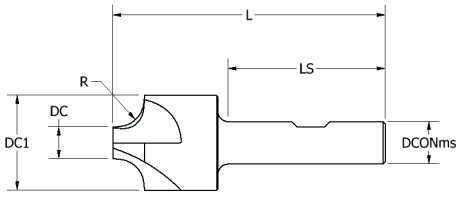
IMPERIAL RADIUS



PG.503

CRCO126 Cobalt Steel

DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	R [in.]	Uncoated	TiN Coated	AlTiN Coated
0.2430	0.3750	0.4375	1.6880	2.5000	0.0313	932-000-001	932-000-004	932-000-981
0.2430	0.3750	0.4375	1.6880	2.5000	0.0625	932-000-005	932-000-008	932-000-982
0.2430	0.3750	0.5000	1.6880	2.5000	0.0938	932-000-009	932-000-012	932-000-983
0.2430	0.5000	0.6250	1.9370	3.0000	0.1250	932-000-013	932-000-016	932-000-984
0.3050	0.5000	0.7500	2.0000	3.0000	0.1563	932-000-017	932-000-020	932-000-985
0.3680	0.7500	0.8750	2.2500	3.1250	0.1875	932-000-021	932-000-024	932-000-986
0.3680	0.7500	1.0000	2.2500	3.2500	0.2500	932-000-025	932-000-028	932-000-987
0.3680	0.8750	1.1250	2.1870	3.5000	0.3125	932-000-029	932-000-032	932-000-988
0.3670	0.8750	1.2500	2.2500	3.7500	0.3750	932-000-033	932-000-036	932-000-989
0.3670	1.0000	1.5000	2.5000	4.1250	0.5000	932-000-037	932-000-040	932-000-990

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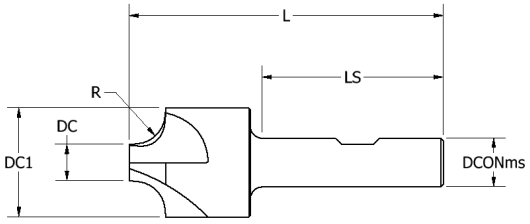
IMPERIAL RADIUS



PG.503

CRE124

DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	R [in.]	Uncoated	TiN Coated	AlTiN Coated
0.2430	0.3750	0.4375	1.6880	2.5000	0.0313	932-000-041	932-000-044	932-000-934
0.2430	0.3750	0.4375	1.6880	2.5000	0.0625	932-000-045	932-000-048	932-000-935
0.2430	0.3750	0.5000	1.6880	2.5000	0.0938	932-000-049	932-000-052	932-000-936
0.2430	0.5000	0.6250	1.9370	3.0000	0.1250	932-000-053	932-000-056	932-000-937
0.3050	0.5000	0.7500	2.0000	3.0000	0.1563	932-000-057	932-000-060	932-000-938
0.3680	0.5000	0.8750	1.9380	2.9375	0.1875	932-000-065	932-000-068	932-000-939
0.3680	0.7500	0.8750	2.2500	3.1250	0.1875	932-000-061	932-000-064	932-000-940
0.3680	0.5000	1.0000	1.9370	3.0000	0.2500	932-000-073	932-000-076	932-000-942
0.3680	0.7500	1.0000	2.2500	3.2500	0.2500	932-000-069	932-000-072	932-000-941
0.3680	0.5000	1.1250	1.9370	3.2500	0.3125	932-000-081	932-000-084	932-000-944
0.3680	0.7500	1.1250	2.1870	3.5000	0.3125	932-000-077	932-000-080	932-000-943
0.3670	0.5000	1.2500	2.0000	3.5000	0.3750	932-000-089	932-000-092	932-000-946
0.3670	0.8750	1.2500	2.2500	3.7500	0.3750	932-000-085	932-000-088	932-000-945
0.3670	0.7500	1.3750	2.1870	3.7500	0.4375	932-000-097	932-000-100	932-000-948
0.3670	1.0000	1.3750	2.4370	4.0000	0.4375	932-000-093	932-000-096	932-000-947
0.3670	0.7500	1.5000	2.3120	3.8750	0.5000	932-000-105	932-000-108	932-000-949
0.3670	1.0000	1.5000	2.5000	4.1250	0.5000	932-000-101	932-000-104	932-000-950
0.5540	0.7500	1.9375	2.2500	4.0000	0.6250	932-000-113	932-000-116	932-000-951
0.5540	1.0000	1.9375	2.5000	4.2500	0.6250	932-000-109	932-000-112	932-000-952
0.6160	0.7500	2.2500	2.2500	4.1250	0.7500	932-000-121	932-000-124	932-000-953
0.6160	1.0000	2.2500	2.4380	4.3125	0.7500	932-000-117	932-000-120	932-000-954
0.6160	0.7500	2.7500	2.2500	4.5000	1.0000	932-000-129	932-000-132	932-000-955
0.6160	1.0000	2.7500	2.5000	4.7500	1.0000	932-000-125	932-000-128	932-000-956

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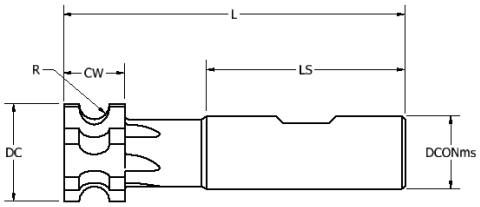
HSS

CONCAVE

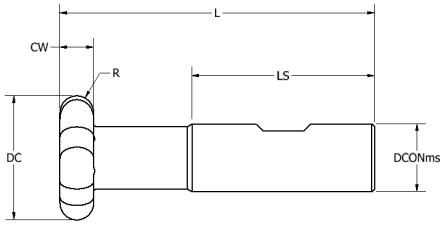


PG.503

CCS150

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CW [in.]	R [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
0.7500	0.5000	2.1250	3.0000	0.3750	0.0313	6	905-000-008	905-000-035	905-000-037
0.7500	0.5000	2.1250	3.0000	0.3750	0.0625	6	905-000-007	905-000-034	905-000-038
0.7500	0.5000	2.1250	3.0000	0.3750	0.1250	6	905-000-009	905-000-036	905-000-039
1.0000	0.7500	2.2500	3.5000	0.6250	0.1250	6	905-000-004	905-000-031	905-000-040
1.0000	0.7500	2.2500	3.5000	0.6250	0.1563	6	905-000-006	905-000-033	905-000-041
1.0000	0.7500	2.2500	3.5000	0.6250	0.1563	6	905-000-005	905-000-032	905-000-042
1.2500	0.7500	2.2500	4.0000	1.0000	0.2500	4	905-000-003	905-000-030	905-000-043
1.2500	0.7500	2.2500	4.0000	1.0000	0.3125	4	905-000-002	905-000-029	905-000-044
1.5000	0.7500	2.2500	4.1875	1.0000	0.3750	4	905-000-001	905-000-028	905-000-045

CONVEX



PG.503

CVS130

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CW [in.]	R [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
0.7500	0.5000	2.4375	3.0000	0.0625	0.0313	6	922-000-001	922-000-004	922-000-037
0.7500	0.5000	2.2500	3.0000	0.1250	0.0625	6	922-000-005	922-000-008	922-000-038
0.8750	0.5000	2.1875	3.0000	0.1875	0.0938	6	922-000-009	922-000-012	922-000-039
1.2500	0.7500	2.6250	3.5000	0.2500	0.1250	6	922-000-013	922-000-016	922-000-040
1.3125	0.7500	2.5625	3.5000	0.3125	0.1563	6	922-000-017	922-000-020	922-000-041
1.3750	0.7500	2.5000	3.5000	0.3750	0.1875	6	922-000-021	922-000-024	922-000-042
1.5000	0.7500	2.8750	4.0000	0.5000	0.2500	6	922-000-025	922-000-028	922-000-043
1.6250	0.7500	2.7500	4.0000	0.6250	0.3125	6	922-000-029	922-000-032	922-000-044
1.7500	0.7500	2.6250	4.0000	0.7500	0.3750	6	922-000-033	922-000-036	922-000-045

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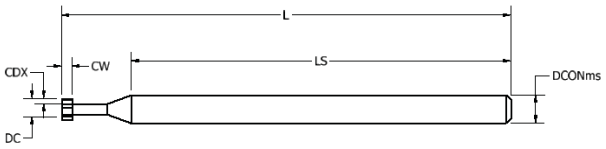

PG.504

4 6 8

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	AlTiN Coated
0.1250	0.2500	1.4744	2.0000	0.0310	0.0156	4	943-000-378	943-002-856
0.1250	0.2500	1.4588	2.0000	0.0310	0.0313	4	943-000-379	943-002-855
0.1250	0.2500	1.4507	2.0000	0.0310	0.0394	4	943-000-380	943-002-854
0.1250	0.2500	1.4432	2.0000	0.0310	0.0469	4	943-000-381	943-002-853
0.1250	0.2500	1.4275	2.0000	0.0310	0.0625	4	943-000-382	943-002-852
0.1875	0.2500	1.4393	2.0000	0.0468	0.0156	6	943-000-383	943-002-851
0.1875	0.2500	1.4236	2.0000	0.0468	0.0313	6	943-000-384	943-002-850
0.1875	0.2500	1.4155	2.0000	0.0468	0.0394	6	943-000-385	943-002-849
0.1875	0.2500	1.4080	2.0000	0.0468	0.0469	6	943-000-386	943-002-848
0.1875	0.2500	1.3924	2.0000	0.0468	0.0625	6	943-000-387	943-002-847
0.2500	0.2500	1.4971	2.0000	0.0625	0.0156	8	943-000-388	943-000-971
0.2500	0.2500	1.4815	2.0000	0.0625	0.0313	8	943-000-389	943-000-972
0.2500	0.2500	1.4734	2.0000	0.0625	0.0394	8	943-000-390	943-000-973
0.2500	0.2500	1.4659	2.0000	0.0625	0.0469	8	943-000-391	943-000-974
0.2500	0.2500	1.4502	2.0000	0.0625	0.0625	8	943-000-392	943-000-975
0.3125	0.3750	1.3236	2.0000	0.0778	0.0156	8	943-000-393	943-000-979
0.3125	0.3750	1.3079	2.0000	0.0778	0.0313	8	943-000-394	943-000-980
0.3125	0.3750	1.2998	2.0000	0.0778	0.0394	8	943-000-395	943-000-981
0.3125	0.3750	1.2923	2.0000	0.0778	0.0469	8	943-000-396	943-000-982
0.3125	0.3750	1.2767	2.0000	0.0778	0.0625	8	943-000-397	943-000-983
0.3125	0.3750	1.2604	2.0000	0.0778	0.0787	8	943-000-398	943-000-984
0.3125	0.3750	1.2454	2.0000	0.0778	0.0938	8	943-000-399	943-000-985
0.3750	0.3750	1.3814	2.0000	0.0935	0.0156	8	943-000-400	943-000-986
0.3750	0.3750	1.3658	2.0000	0.0935	0.0313	8	943-000-401	943-000-987
0.3750	0.3750	1.3577	2.0000	0.0935	0.0394	8	943-000-402	943-000-988
0.3750	0.3750	1.3502	2.0000	0.0935	0.0469	8	943-000-403	943-000-989
0.3750	0.3750	1.3345	2.0000	0.0935	0.0625	8	943-000-404	943-000-990
0.3750	0.3750	1.3183	2.0000	0.0935	0.0787	8	943-000-405	943-000-991
0.3750	0.3750	1.3033	2.0000	0.0935	0.0938	8	943-000-406	943-000-992
0.3750	0.3750	1.2720	2.0000	0.0935	0.1250	8	943-000-407	943-000-993

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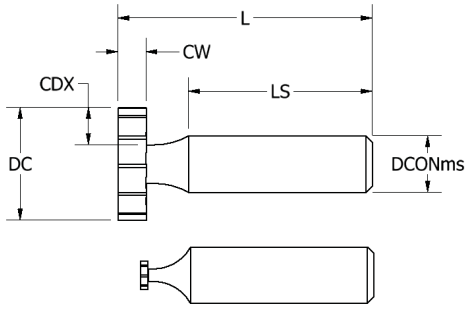

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CARBIDE HEAD/STEEL SHANK

American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
204	0.5100	0.5000	1.6250	2.0625	0.1460	0.0625	10	943-000-343	943-001-038	943-002-888
304	0.5100	0.5000	1.6250	2.0938	0.1460	0.0938	10	943-000-344	943-001-041	943-002-887
404	0.5100	0.5000	1.6250	2.1250	0.1460	0.1250	10	943-000-345	943-001-045	943-001-042
305	0.6350	0.5000	1.6250	2.0938	0.1925	0.0938	10	943-000-346	943-001-048	943-002-886
405	0.6350	0.5000	1.6250	2.1250	0.1925	0.1250	10	943-000-347	943-001-051	943-002-885
505	0.6350	0.5000	1.6250	2.1563	0.1770	0.1563	10	943-000-348	943-001-054	943-002-884
605	0.6350	0.5000	1.6250	2.1875	0.1770	0.1875	10	943-000-349	943-001-057	943-002-883
406	0.7600	0.5000	1.6250	2.1250	0.2550	0.1250	10	943-000-350	943-001-060	943-002-882
506	0.7600	0.5000	1.6250	2.1563	0.2550	0.1563	10	943-000-351	943-001-063	943-002-881
606	0.7600	0.5000	1.6250	2.1875	0.2395	0.1875	10	943-000-352	943-001-066	943-002-880
806	0.7600	0.5000	1.6250	2.2500	0.2395	0.2500	10	943-000-353	943-001-069	943-002-879
507	0.8970	0.5000	1.6250	2.1563	0.3080	0.1563	12	943-000-354	943-001-073	943-001-070
607	0.8970	0.5000	1.6250	2.1875	0.3080	0.1875	12	943-000-355	943-001-076	943-002-878
707	0.8970	0.5000	1.6250	2.2188	0.2925	0.2188	12	943-000-356	943-001-079	943-002-877
807	0.8970	0.5000	1.6250	2.2500	0.2925	0.2500	12	943-000-357	943-001-082	943-001-234
608	1.0120	0.5000	1.6250	2.1875	0.3500	0.1875	12	943-000-358	943-001-085	943-002-876
708	1.0120	0.5000	1.6250	2.2188	0.3500	0.2188	12	943-000-359	943-001-088	943-002-875
808	1.0120	0.5000	1.6250	2.2500	0.3500	0.2500	12	943-000-360	943-001-091	943-002-874
1008	1.0120	0.5000	1.6250	2.3125	0.3345	0.3125	12	943-000-361	943-001-094	943-002-873
1208	1.0120	0.5000	1.6250	2.3750	0.3345	0.3750	12	943-000-362	943-001-097	943-002-872

PG.504

SOLID CARBIDE

American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
609	1.1370	0.5000	1.6250	2.1875	0.3970	0.1875	12	943-000-363	943-001-100	943-002-871
709	1.1370	0.5000	1.6250	2.2188	0.3970	0.2188	12	943-000-364	943-001-103	943-002-870
809	1.1370	0.5000	1.6250	2.2500	0.3810	0.2500	12	943-000-365	943-001-106	943-002-869
1009	1.1370	0.5000	1.6250	2.3125	0.3810	0.3125	12	943-000-366	943-001-109	943-002-868
610	1.2650	0.5000	1.6250	2.1875	0.4610	0.1875	14	943-000-367	943-001-112	943-002-867
710	1.2650	0.5000	1.6250	2.2188	0.4610	0.2188	14	943-000-368	943-001-115	943-002-866
810	1.2650	0.5000	1.6250	2.2500	0.4450	0.2500	14	943-000-369	943-001-118	943-002-865
1010	1.2650	0.5000	1.6250	2.3125	0.4140	0.3125	14	943-000-370	943-001-121	943-002-864
1210	1.2650	0.5000	1.6250	2.3750	0.3985	0.3750	14	943-000-371	943-001-124	943-002-863
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	14	943-000-372	943-001-127	943-002-862
1011	1.3900	0.5000	1.6250	2.3125	0.4610	0.3125	14	943-000-373	943-001-130	943-002-861
1211	1.3900	0.5000	1.6250	2.3750	0.4610	0.3750	14	943-000-374	943-001-133	943-002-860
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	14	943-000-375	943-001-136	943-002-859
1012	1.5150	0.5000	1.6250	2.3125	0.5235	0.3125	14	943-000-376	943-001-139	943-002-858
1212	1.5150	0.5000	1.6250	2.3750	0.5235	0.3750	14	943-000-377	943-001-142	943-002-857

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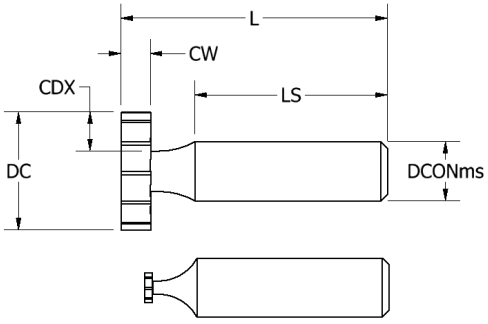

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CARBIDE TIPPED

American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Straight Tooth	Straight Tooth AlTiN Coated	Stagger Tooth	Stagger Tooth AlTiN Coated
204	0.5100	0.5000	1.6250	2.0625	0.1875	0.0625	6	943-000-640	943-002-468	943-000-641	943-002-469
304	0.5100	0.5000	1.6250	2.0938	0.1750	0.0938	6	943-000-645	943-002-473	943-000-646	943-002-474
404	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	6	943-000-650	943-002-478	943-000-651	943-002-479
305	0.6350	0.5000	1.6250	2.0938	0.2220	0.0938	6	943-000-655	943-002-483	943-000-656	943-002-484
405	0.6350	0.5000	1.6250	2.1250	0.2060	0.1250	6	943-000-660	943-002-488	943-000-661	943-002-489
505	0.6350	0.5000	1.6250	2.1563	0.1910	0.1563	6	943-000-665	943-002-493	943-000-666	943-002-494
605	0.6350	0.5000	1.6250	2.1875	0.1910	0.1875	6	943-000-670	943-002-498	943-000-671	943-002-499
406	0.7600	0.5000	1.6250	2.1250	0.2715	0.1250	6	943-000-675	943-002-503	943-000-676	943-002-504
506	0.7600	0.5000	1.6250	2.1563	0.2565	0.1563	6	943-000-680	943-002-508	943-000-681	943-002-509
606	0.7600	0.5000	1.6250	2.1875	0.2405	0.1875	6	943-000-685	943-002-513	943-000-686	943-002-514
806	0.7600	0.5000	1.6250	2.2500	0.2405	0.2500	6	943-000-690	943-002-518	943-000-691	943-002-519
507	0.8970	0.5000	1.6250	2.1563	0.3250	0.1563	6	943-000-695	943-002-523	943-000-696	943-002-524
607	0.8970	0.5000	1.6250	2.1875	0.3090	0.1875	6	943-000-700	943-002-528	943-000-701	943-002-529
707	0.8970	0.5000	1.6250	2.2188	0.3090	0.2188	6	943-000-705	943-002-533	943-000-706	943-002-534
807	0.8970	0.5000	1.6250	2.2500	0.2775	0.2500	6	943-000-710	943-002-538	943-000-711	943-002-539
608	1.0120	0.5000	1.6250	2.1875	0.3665	0.1875	8	943-000-715	943-002-543	943-000-716	943-002-544
708	1.0120	0.5000	1.6250	2.2188	0.3665	0.2188	8	943-000-720	943-002-548	943-000-721	943-002-549
808	1.0120	0.5000	1.6250	2.2500	0.3350	0.2500	8	943-000-725	943-002-553	943-000-726	943-002-554
1008	1.0120	0.5000	1.6250	2.3125	0.3055	0.3125	8	943-000-730	943-002-558	943-000-731	943-002-559
1208	1.0120	0.5000	1.6250	2.3750	0.3055	0.3750	8	943-000-735	943-002-563	943-000-736	943-002-564
609	1.1370	0.5000	1.6250	2.1875	0.4125	0.1875	8	943-000-740	943-002-568	943-000-741	943-002-569
709	1.1370	0.5000	1.6250	2.2188	0.4125	0.2188	8	943-000-745	943-002-573	943-000-746	943-002-574
809	1.1370	0.5000	1.6250	2.2500	0.3820	0.2500	8	943-000-750	943-002-577	943-000-751	943-002-578
1009	1.1370	0.5000	1.6250	2.3125	0.3510	0.3125	8	943-000-755	943-002-582	943-000-756	943-002-583
610	1.2650	0.5000	1.6250	2.1875	0.4460	0.1875	8	943-000-760	943-002-587	943-000-761	943-002-588
710	1.2650	0.5000	1.6250	2.2188	0.4460	0.2188	8	943-000-765	943-002-592	943-000-766	943-002-593
810	1.2650	0.5000	1.6250	2.2500	0.4460	0.2500	8	943-000-770	943-002-597	943-000-771	943-002-598
1010	1.2650	0.5000	1.6250	2.3125	0.4150	0.3125	8	943-000-775	943-002-602	943-000-776	943-002-603
1210	1.2650	0.5000	1.6250	2.3750	0.3990	0.3750	8	943-000-780	943-002-607	943-000-781	943-002-608
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	8	943-000-785	943-002-612	943-000-786	943-002-613
1011	1.3900	0.5000	1.6250	2.3125	0.4615	0.3125	8	943-000-790	943-002-617	943-000-791	943-002-618
1211	1.3900	0.5000	1.6250	2.3750	0.4615	0.3750	8	943-000-795	943-002-622	943-000-796	943-002-623
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	8	943-000-800	943-002-627	943-000-801	943-002-628
1012	1.5150	0.5000	1.6250	2.3125	0.5240	0.3125	8	943-000-805	943-002-632	943-000-806	943-002-633
1212	1.5150	0.5000	1.6250	2.3750	0.5240	0.3750	8	943-000-809	943-002-636	943-000-810	943-002-637

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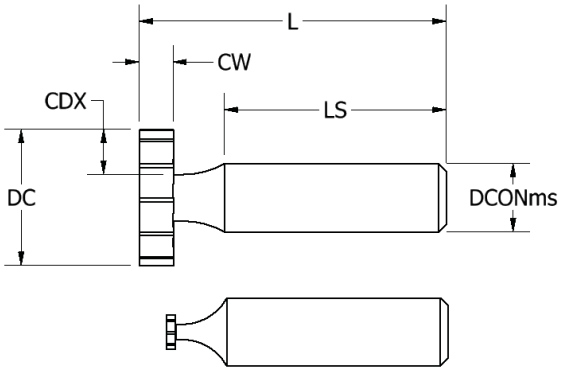

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American Standard #	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc		Straight Tooth			Staggered Tooth		
							Straight	Staggered	Uncoated	TiN Coated	AlTiN Coated	Uncoated	TiN Coated	AlTiN Coated
202	0.2600	0.5000	1.6250	2.0625	0.0750	0.0625	8	6	943-000-001	943-000-004	943-002-846	943-000-005	943-000-008	943-002-845
202 1/2	0.3225	0.5000	1.6250	2.0625	0.1063	0.0625	8	6	943-000-009	943-000-012	943-002-844	943-000-013	943-000-016	943-002-843
302 1/2	0.3225	0.5000	1.6250	2.0938	0.1063	0.0938	8	6	943-000-017	943-000-020	943-002-830	943-000-021	943-000-024	943-002-829
203	0.3850	0.5000	1.6250	2.0625	0.1375	0.0625	8	6	943-000-025	943-000-028	943-002-842	943-000-029	943-000-032	943-002-841
303	0.3850	0.5000	1.6250	2.0938	0.1375	0.0938	8	6	943-000-033	943-000-036	943-002-828	943-000-037	943-000-040	943-002-827
403	0.3850	0.5000	1.6250	2.1250	0.1275	0.1250	8	6	943-000-041	943-000-044	943-002-822	943-000-045	943-000-048	943-002-821
204	0.5100	0.5000	1.6250	2.0625	0.1900	0.0625	10	8	943-000-049	943-000-052	943-002-840	943-000-053	943-000-056	943-002-839
304	0.5100	0.5000	1.6250	2.0938	0.1750	0.0938	10	8	943-000-057	943-000-060	943-002-826	943-000-061	943-000-064	943-002-825
404	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	10	8	943-000-065	943-000-068	943-002-820	943-000-069	943-000-072	943-002-819
305	0.6350	0.5000	1.6250	2.0938	0.2220	0.0938	10	8	943-000-073	943-000-076	943-002-824	943-000-077	943-000-080	943-002-823
405	0.6350	0.5000	1.6250	2.1250	0.2060	0.1250	10	8	943-000-081	943-000-084	943-002-818	943-000-085	943-000-088	943-002-817
505	0.6350	0.5000	1.6250	2.1563	0.1910	0.1563	10	8	943-000-089	943-000-092	943-002-814	943-000-093	943-000-096	943-002-813
605	0.6350	0.5000	1.6250	2.1875	0.1910	0.1875	10	8	943-000-097	943-000-100	943-002-808	943-000-101	943-000-104	943-002-807
406	0.7600	0.5000	1.6250	2.1250	0.2685	0.1250	10	8	943-000-105	943-000-108	943-002-816	943-000-109	943-000-112	943-002-815
506	0.7600	0.5000	1.6250	2.1563	0.2535	0.1563	10	8	943-000-113	943-000-116	943-002-812	943-000-117	943-000-120	943-002-811
606	0.7600	0.5000	1.6250	2.1875	0.2405	0.1875	10	8	943-000-121	943-000-124	943-002-806	943-000-125	943-000-128	943-002-805
806	0.7600	0.5000	1.6250	2.2500	0.2405	0.2500	10	8	943-000-129	943-000-132	943-002-788	943-000-133	943-000-136	943-002-787

DC(Cutter Diameter)		
1/4" up to and including 3/4"	+0.010"	+0.015"
7/8" up to and including 1-1/8"	+0.012"	+0.017"
1-1/4" up to and including 1-1/2"	+0.015"	+0.020"
DCONMS(Shank Diameter)		
-0.0001"		-0.0005"

CW(Width)		
1/16" up to and including 5/32"	+0.0000"	-0.0005"
3/16" up to and including 7/32"	-0.0002"	-0.0007"
1/4"	-0.0003"	-0.0008"
5/16"	-0.0004"	-0.0009"
3/8"	-0.0005"	-0.0010"

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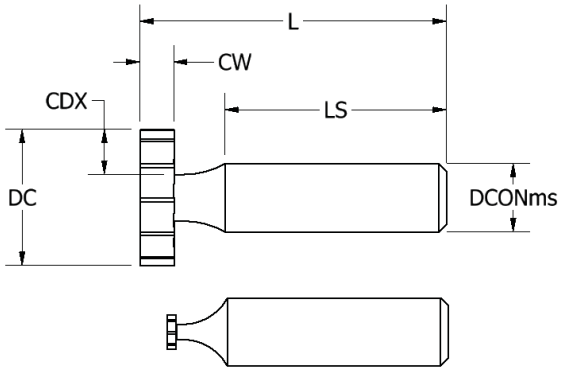

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American Standard #	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc		Straight Tooth			Staggered Tooth		
							Straight	Staggered	Uncoated	TiN Coated	AlTiN Coated	Uncoated	TiN Coated	AlTiN Coated
507	0.8970	0.5000	1.6250	2.1563	0.3250	0.1563	12	10	943-000-137	943-000-140	943-002-810	943-000-141	943-000-144	943-002-809
607	0.8970	0.5000	1.6250	2.1875	0.3090	0.1875	12	10	943-000-145	943-000-148	943-002-804	943-000-149	943-000-152	943-002-803
707	0.8970	0.5000	1.6250	2.2188	0.3090	0.2188	12	10	943-000-153	943-000-156	943-002-796	943-000-157	943-000-160	943-002-795
807	0.8970	0.5000	1.6250	2.2500	0.2775	0.2500	12	10	943-000-161	943-000-164	943-002-786	943-000-165	943-000-168	943-002-785
608	1.0120	0.5000	1.6250	2.1875	0.3665	0.1875	12	10	943-000-169	943-000-172	943-002-802	943-000-173	943-000-176	943-002-801
708	1.0120	0.5000	1.6250	2.2188	0.3350	0.2188	12	10	943-000-177	943-000-180	943-002-794	943-000-181	943-000-184	943-002-793
808	1.0120	0.5000	1.6250	2.2500	0.3350	0.2500	12	10	943-000-185	943-000-188	943-002-784	943-000-189	943-000-192	943-002-783
1008	1.0120	0.5000	1.6250	2.3125	0.3055	0.3125	12	10	943-000-193	943-000-196	943-002-898	943-000-197	943-000-200	943-002-897
1208	1.0120	0.5000	1.6250	2.3750	0.3055	0.3750	12	10	943-000-201	943-000-204	943-002-838	943-000-205	943-000-208	943-002-837
609	1.1370	0.5000	1.6250	2.1875	0.4125	0.1875	12	10	943-000-209	943-000-212	943-002-800	943-000-213	943-000-216	943-002-799
709	1.1370	0.5000	1.6250	2.2188	0.4125	0.2188	12	10	943-000-217	943-000-220	943-002-792	943-000-221	943-000-224	943-002-791
809	1.1370	0.5000	1.6250	2.2500	0.3810	0.2500	12	10	943-000-225	943-000-228	943-002-782	943-000-229	943-000-232	943-002-781
1009	1.1370	0.5000	1.6250	2.3125	0.3510	0.3125	12	10	943-000-233	943-000-236	943-002-896	943-000-237	943-000-240	943-002-895
610	1.2650	0.5000	1.6250	2.1875	0.4765	0.1875	14	12	943-000-241	943-000-244	943-002-798	943-000-245	943-000-248	943-002-797
710	1.2650	0.5000	1.6250	2.2188	0.4450	0.2188	14	12	943-000-249	943-000-252	943-002-790	943-000-253	943-000-256	943-002-789
810	1.2650	0.5000	1.6250	2.2500	0.4450	0.2500	14	12	943-000-257	943-000-260	943-002-780	943-000-261	943-000-264	943-002-779
1010	1.2650	0.5000	1.6250	2.6250	0.4150	0.3125	14	12	943-000-265	943-000-268	943-002-990	943-000-269	943-000-272	943-002-899
1210	1.2650	0.5000	1.6250	2.3750	0.3990	0.3750	14	12	943-000-273	943-000-276	943-002-836	943-000-277	943-000-280	943-002-835
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	14	12	943-000-281	943-000-284	943-002-778	943-000-285	943-000-288	943-002-777
1011	1.3900	0.5000	1.6250	2.3125	0.4615	0.3125	14	12	943-000-289	943-000-292	943-002-892	943-000-293	943-000-296	943-002-891
1211	1.3900	0.5000	1.6250	2.3750	0.4615	0.3750	14	12	943-000-297	943-000-300	943-002-834	943-000-301	943-000-304	943-002-833
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	16	14	943-000-305	943-000-308	943-002-776	943-000-309	943-000-312	943-002-775
1012	1.5150	0.5000	1.6250	2.3125	0.5240	0.3125	16	14	943-000-313	943-000-316	943-002-890	943-000-317	943-000-320	943-002-889
1212	1.5150	0.5000	1.6250	2.3750	0.5240	0.3750	16	14	943-000-321	943-000-324	943-002-832	943-000-325	943-000-328	943-002-831

DC(Cutter Diameter)		
1/4" up to and including 3/4"	+0.010"	+0.015"
7/8" up to and including 1-1/8"	+0.012"	+0.017"
1-1/4" up to and including 1-1/2"	+0.015"	+0.020"
DCONMS(Shank Diameter)		
-0.0001"		-0.0005"

CW(Width)		
1/16" up to and including 5/32"	+0.0000"	-0.0005"
3/16" up to and including 7/32"	-0.0002"	-0.0007"
1/4"	-0.0003"	-0.0008"
5/16"	-0.0004"	-0.0009"
3/8"	-0.0005"	-0.0010"

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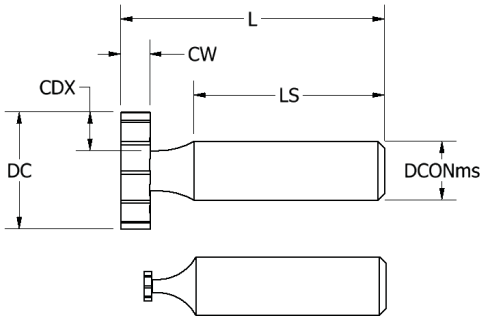

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LEFT HAND

American Standard #	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
202	0.2600	0.5000	1.6250	2.0625	0.0750	0.0625	8	943-000-618	943-001-867	943-002-446
202 1/2	0.3225	0.5000	1.6250	2.0625	0.1063	0.0625	8	943-000-621	943-001-876	943-002-449
302 1/2	0.3225	0.5000	1.6250	2.0938	0.1063	0.0938	8	943-000-624	943-001-885	943-002-452
203	0.3850	0.5000	1.6250	2.0625	0.1375	0.0625	8	943-000-627	943-001-894	943-002-455
303	0.3850	0.5000	1.6250	2.0938	0.1375	0.0938	8	943-000-630	943-001-903	943-002-458
403	0.3850	0.5000	1.6250	2.1250	0.1275	0.1250	8	943-000-633	943-001-912	943-002-461
204	0.5100	0.5000	1.6250	2.0625	0.1900	0.0625	10	943-000-636	943-001-921	943-002-464
304	0.5100	0.5000	1.6250	2.0938	0.1750	0.0938	10	943-000-639	943-001-930	943-002-467
404	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	10	943-000-649	943-001-960	943-002-477
305	0.6350	0.5000	1.6250	2.0938	0.2220	0.0938	10	943-000-644	943-001-945	943-002-472
405	0.6350	0.5000	1.6250	2.1250	0.2060	0.1250	10	943-000-654	943-001-975	943-002-482
505	0.6350	0.5000	1.6250	2.1563	0.1910	0.1563	10	943-000-664	943-002-005	943-002-492
605	0.6350	0.5000	1.6250	2.1875	0.1910	0.1875	10	943-000-669	943-002-020	943-002-497
406	0.7600	0.5000	1.6250	2.1250	0.2685	0.1250	10	943-000-659	943-001-990	943-002-487
506	0.7600	0.5000	1.6250	2.1563	0.2535	0.1563	10	943-000-674	943-002-035	943-002-502
606	0.7600	0.5000	1.6250	2.1875	0.2405	0.1875	10	943-000-689	943-002-080	943-002-517
806	0.7600	0.5000	1.6250	2.2500	0.2405	0.2500	10	943-000-679	943-002-050	943-002-507
507	0.8970	0.5000	1.6250	2.1563	0.3250	0.1563	12	943-000-684	943-002-065	943-002-512
607	0.8970	0.5000	1.6250	2.1875	0.3090	0.1875	12	943-000-694	943-002-095	943-002-522
707	0.8970	0.5000	1.6250	2.2188	0.3090	0.2188	12	943-000-699	943-002-110	943-002-527
807	0.8970	0.5000	1.6250	2.2500	0.2775	0.2500	12	943-000-724	943-002-185	943-002-552

For set information see **page 256**

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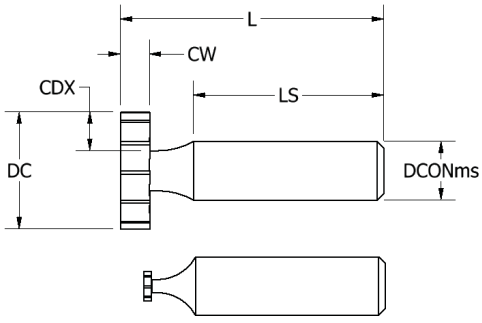

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LEFT HAND

American Standard #	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
608	1.0120	0.5000	1.6250	2.1875	0.3665	0.1875	12	943-000-704	943-002-125	943-002-532
708	1.0120	0.5000	1.6250	2.2188	0.3350	0.2188	12	943-000-709	943-002-140	943-002-537
808	1.0120	0.5000	1.6250	2.2500	0.3350	0.2500	12	943-000-729	943-002-200	943-002-557
1008	1.0120	0.5000	1.6250	2.3125	0.3055	0.3125	12	943-000-769	943-002-321	943-002-596
1208	1.0120	0.5000	1.6250	2.3750	0.3055	0.3750	12	943-000-714	943-002-155	943-002-542
609	1.1370	0.5000	1.6250	2.1875	0.4125	0.1875	12	943-000-719	943-002-170	943-002-547
709	1.1370	0.5000	1.6250	2.2188	0.4125	0.2188	12	943-000-734	943-002-215	943-002-562
809	1.1370	0.5000	1.6250	2.2500	0.3810	0.2500	12	943-000-739	943-002-230	943-002-567
1009	1.1370	0.5000	1.6250	2.3125	0.3510	0.3125	12	943-000-774	943-002-336	943-002-601
610	1.2650	0.5000	1.6250	2.1875	0.4765	0.1875	14	943-000-744	943-002-245	943-002-572
710	1.2650	0.5000	1.6250	2.2188	0.4450	0.2188	14	943-000-749	943-002-261	943-002-576
810	1.2650	0.5000	1.6250	2.2500	0.4450	0.2500	14	943-000-754	943-002-276	943-002-581
1010	1.2650	0.5000	1.6250	2.3125	0.4150	0.3125	14	943-000-779	943-002-351	943-002-606
1210	1.2650	0.5000	1.6250	2.3750	0.3990	0.3750	14	943-000-794	943-002-396	943-002-621
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	14	943-000-759	943-002-291	943-002-586
1011	1.3900	0.5000	1.6250	2.3125	0.4615	0.3125	14	943-000-784	943-002-366	943-002-611
1211	1.3900	0.5000	1.6250	2.3750	0.4615	0.3750	14	943-000-799	943-002-412	943-002-626
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	16	943-000-764	943-002-306	943-002-591
1012	1.5150	0.5000	1.6250	2.3125	0.5240	0.3125	16	943-000-789	943-002-381	943-002-616
1212	1.5150	0.5000	1.6250	2.3750	0.5240	0.3750	16	943-000-804	943-002-427	943-002-631

For set information see **page 256**

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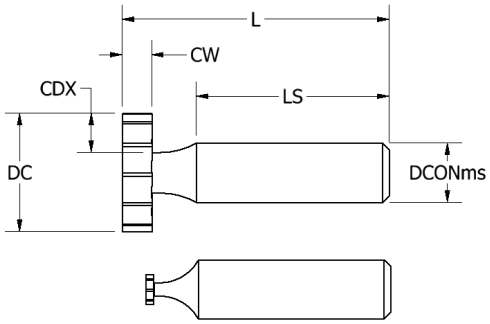

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American Standard #	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc		Straight Tooth			Staggered Tooth		
							Straight	Staggered	Uncoated	TiN Coated	AlTiN Coated	Uncoated	TiN Coated	AlTiN Coated
202	0.2600	0.5000	1.6250	2.0625	0.0750	0.0625	8	6	943-000-619	943-001-870	943-002-447	943-000-620	943-001-873	943-002-448
202 1/2	0.3225	0.5000	1.6250	2.0625	0.1063	0.0625	8	6	943-000-622	943-001-879	943-002-450	943-000-623	943-001-882	943-002-451
302 1/2	0.3225	0.5000	1.6250	2.0938	0.1063	0.0938	8	6	943-000-625	943-001-888	943-002-453	943-000-626	943-001-891	943-002-454
203	0.3850	0.5000	1.6250	2.0625	0.1375	0.0625	8	6	943-000-628	943-001-897	943-002-456	943-000-629	943-001-900	943-002-457
303	0.3850	0.5000	1.6250	2.0938	0.1375	0.0938	8	6	943-000-631	943-001-906	943-002-459	943-000-632	943-001-909	943-002-460
403	0.3850	0.5000	1.6250	2.1250	0.1275	0.1250	8	6	943-000-634	943-001-915	943-002-462	943-000-635	943-001-918	943-002-463
204	0.5100	0.5000	1.6250	2.0625	0.1900	0.0625	10	8	943-000-637	943-001-924	943-002-465	943-000-638	943-001-927	943-002-466
304	0.5100	0.5000	1.6250	2.0938	0.1750	0.0938	10	8	943-000-642	943-001-939	943-002-470	943-000-643	943-001-942	943-002-471
404	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	10	8	943-000-652	943-001-969	943-002-480	943-000-653	943-001-972	943-002-481
305	0.6350	0.5000	1.6250	2.0938	0.2220	0.0938	10	8	943-000-647	943-001-954	943-002-475	943-000-648	943-001-957	943-002-476
405	0.6350	0.5000	1.6250	2.1250	0.2060	0.1250	10	8	943-000-657	943-001-984	943-002-485	943-000-658	943-001-987	943-002-486
505	0.6350	0.5000	1.6250	2.1563	0.1910	0.1563	10	8	943-000-667	943-002-014	943-002-495	943-000-668	943-002-017	943-002-496
605	0.6350	0.5000	1.6250	2.1875	0.1910	0.1875	10	8	943-000-672	943-002-029	943-002-500	943-000-673	943-002-032	943-002-501
406	0.7600	0.5000	1.6250	2.1250	0.2685	0.1250	10	8	943-000-662	943-001-999	943-002-490	943-000-663	943-002-002	943-002-491
506	0.7600	0.5000	1.6250	2.1563	0.2535	0.1563	10	8	943-000-677	943-002-044	943-002-505	943-000-678	943-002-047	943-002-506
606	0.7600	0.5000	1.6250	2.1875	0.2405	0.1875	10	8	943-000-692	943-002-089	943-002-520	943-000-693	943-002-092	943-002-521
806	0.7600	0.5000	1.6250	2.2500	0.2405	0.2500	10	8	943-000-682	943-002-059	943-002-510	943-000-683	943-002-062	943-002-511
507	0.8970	0.5000	1.6250	2.1563	0.3250	0.1563	12	10	943-000-687	943-002-074	943-002-515	943-000-688	943-002-077	943-002-516
607	0.8970	0.5000	1.6250	2.1875	0.3090	0.1875	12	10	943-000-697	943-002-104	943-002-525	943-000-698	943-002-107	943-002-526
707	0.8970	0.5000	1.6250	2.2188	0.3090	0.2188	12	10	943-000-702	943-002-119	943-002-530	943-000-703	943-002-122	943-002-531

For set information see **page 256**

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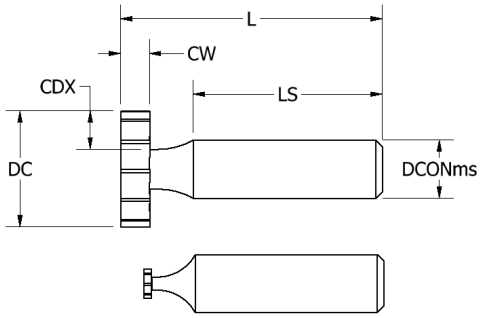

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American Standard #	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc		Straight Tooth			Staggered Tooth		
							Straight	Staggered	Uncoated	TiN Coated	AlTiN Coated	Uncoated	TiN Coated	AlTiN Coated
608	1.0120	0.5000	1.6250	2.1875	0.3665	0.1875	12	10	943-000-707	943-002-134	943-002-535	943-000-708	943-002-137	943-002-536
708	1.0120	0.5000	1.6250	2.2188	0.3350	0.2188	12	10	943-000-712	943-002-149	943-002-540	943-000-713	943-002-152	943-002-541
808	1.0120	0.5000	1.6250	2.2500	0.3350	0.2500	12	10	943-000-732	943-002-209	943-002-560	943-000-733	943-002-212	943-002-561
1008	1.0120	0.5000	1.6250	2.3125	0.3055	0.3125	12	10	943-000-772	943-002-330	943-002-599	943-000-773	943-002-333	943-002-600
1208	1.0120	0.5000	1.6250	2.3750	0.3055	0.3750	12	10	943-000-717	943-002-164	943-002-545	943-000-718	943-002-167	943-002-546
609	1.1370	0.5000	1.6250	2.1875	0.4125	0.1875	12	10	943-000-722	943-002-179	943-002-550	943-000-723	943-002-182	943-002-551
709	1.1370	0.5000	1.6250	2.2188	0.4125	0.2188	12	10	943-000-737	943-002-224	943-002-565	943-000-738	943-002-227	943-002-566
809	1.1370	0.5000	1.6250	2.2500	0.3810	0.2500	12	10	943-000-742	943-002-239	943-002-570	943-000-743	943-002-242	943-002-571
1009	1.1370	0.5000	1.6250	2.3125	0.3510	0.3125	12	10	943-000-777	943-002-345	943-002-604	943-000-778	943-002-348	943-002-605
610	1.2650	0.5000	1.6250	2.1875	0.4765	0.1875	14	12	943-000-747	943-002-254	943-002-575	943-000-748	943-002-258	943-002-255
710	1.2650	0.5000	1.6250	2.2188	0.4450	0.2188	14	12	943-000-752	943-002-270	943-002-579	943-000-753	943-002-273	943-002-580
810	1.2650	0.5000	1.6250	2.2500	0.4450	0.2500	14	12	943-000-757	943-002-285	943-002-584	943-000-758	943-002-288	943-002-585
1010	1.2650	0.5000	1.6250	2.3125	0.4150	0.3125	14	12	943-000-782	943-002-360	943-002-609	943-000-783	943-002-363	943-002-610
1210	1.2650	0.5000	1.6250	2.3750	0.3990	0.3750	14	12	943-000-797	943-002-405	943-002-624	943-000-798	943-002-409	943-002-406
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	14	12	943-000-762	943-002-300	943-002-589	943-000-763	943-002-303	943-002-590
1011	1.3900	0.5000	1.6250	2.3125	0.4615	0.3125	14	12	943-000-787	943-002-375	943-002-614	943-000-788	943-002-378	943-002-615
1211	1.3900	0.5000	1.6250	2.3750	0.4615	0.3750	14	12	943-000-802	943-002-421	943-002-629	943-000-803	943-002-424	943-002-630
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	16	14	943-000-767	943-002-315	943-002-594	943-000-768	943-002-318	943-002-595
1012	1.5150	0.5000	1.6250	2.3125	0.5240	0.3125	16	14	943-000-792	943-002-390	943-002-619	943-000-793	943-002-393	943-002-620
1212	1.5150	0.5000	1.6250	2.3750	0.5240	0.3750	16	14	943-000-807	943-002-436	943-002-634	943-000-808	943-002-439	943-002-635

For set information see **page 256**

KEO®

10-PIECE WOODRUFF KEYSEAT CUTTER SET

TEETH SET	Uncoated	TiN Coated	AlTiN Coated
STRAIGHT	943-000-337	943-001-020	943-002-894
STAGGERED	943-000-338	943-001-023	943-002-893

AMERICAN STANDARD SIZES	
403	406
204	606
404	806
305	608
505	808

Many tools are available with additional coatings. Please call for quote.

41-PIECE WOODRUFF KEYSEAT CUTTER SET

TEETH SET	Uncoated	TiN Coated	AlTiN Coated
STRAIGHT	943-000-329	943-000-996	943-002-992
STAGGERED	943-000-330	943-000-999	943-002-991

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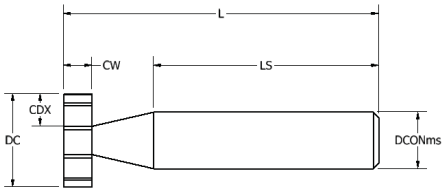

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HSS

Tolerance	h12	h8	[+2/-0]	[js18]		e8					
DIN850* Designation	DC [mm]	DCONMS [mm]	LS [mm]	L [mm]	CDX [mm]	CW [mm]	Zc	Hand of Cut	Uncoated	TiN Coated	AlTiN Coated
A 4,5 x 1	4.50	6.00	36.00	50.00	1.35	1.00	6	R	943-000-480	943-001-452	943-002-774
B 4,5 x 1	4.50	6.00	36.00	50.00	1.35	1.00	4	R	943-000-481	943-001-455	943-002-773
A 7,5 x 1,5	7.50	6.00	36.00	50.00	2.35	1.50	8	R	943-000-482	943-001-458	943-002-772
B 7,5 x 1,5	7.50	6.00	36.00	50.00	2.35	1.50	6	R	943-000-483	943-001-461	943-002-771
A 7,5 x 2	7.50	6.00	36.00	50.00	2.15	2.00	8	R	943-000-484	943-001-464	943-002-770
B 7,5 x 2	7.50	6.00	36.00	50.00	2.15	2.00	6	R	943-000-485	943-001-467	943-002-769
A 10,5 x 2	10.50	6.00	36.00	50.00	3.25	2.00	8	R	943-000-486	943-001-470	943-002-768
B 10,5 x 2	10.00	6.00	36.00	50.00	3.00	2.00	6	R	943-000-487	943-001-473	943-002-767
A 10,5 x 2,5	10.50	6.00	36.00	50.00	3.25	2.50	8	R	943-000-488	943-001-476	943-002-766
B 10,5 x 2,5	10.50	6.00	36.00	50.00	3.25	2.50	6	R	943-000-489	943-001-479	943-002-765
A 10,5 x 3	10.50	6.00	36.00	50.00	3.15	3.00	8	R	943-000-490	943-001-482	943-002-764
B 10,5 x 3	10.50	6.00	36.00	50.00	3.15	3.00	6	R	943-000-491	943-001-485	943-002-763
A 13,5 x 3	13.50	10.00	40.00	56.00	4.45	3.00	10	R	943-000-492	943-001-488	943-002-762
B 13,5 x 3	13.50	10.00	40.00	56.00	4.45	3.00	8	R	943-000-493	943-001-491	943-002-761
A 13,5 x 4	13.50	10.00	40.00	56.00	4.45	4.00	10	R	943-000-494	943-001-494	943-002-760
B 13,5 x 4	13.50	10.00	40.00	56.00	4.45	4.00	8	R	943-000-495	943-001-497	943-002-759
A 16,5 x 3	16.50	10.00	40.00	56.00	5.95	3.00	10	R	943-000-496	943-001-500	943-002-758
B 16,5 x 3	16.50	10.00	40.00	56.00	5.95	3.00	8	R	943-000-497	943-001-503	943-002-757
A 16,5 x 4	16.50	10.00	40.00	56.00	5.95	4.00	10	R	943-000-498	943-001-506	943-002-756
B 16,5 x 4	16.50	10.00	40.00	56.00	5.95	4.00	8	R	943-000-499	943-001-509	943-002-755
A 16,5 x 5	16.50	10.00	40.00	56.00	5.75	5.00	10	R	943-000-500	943-001-512	943-002-754
B 16,5 x 5	16.50	10.00	40.00	56.00	5.75	5.00	8	R	943-000-501	943-001-515	943-002-753
A 19,5 x 4	19.50	10.00	40.00	63.00	6.95	4.00	10	R	943-000-502	943-001-518	943-002-752
B 19,5 x 4	19.50	10.00	40.00	63.00	6.95	4.00	8	R	943-000-503	943-001-521	943-002-751
A 19,5 x 5	19.50	10.00	40.00	63.00	6.75	5.00	10	R	943-000-504	943-001-524	943-002-750
B 19,5 x 5	19.50	10.00	40.00	63.00	6.75	5.00	8	R	943-000-505	943-001-527	943-002-749
A 19,5 x 6	19.50	10.00	40.00	63.00	6.50	6.00	10	R	943-000-506	943-001-530	943-002-748
B 19,5 x 6	19.50	10.00	40.00	63.00	6.50	6.00	8	R	943-000-507	943-001-533	943-002-747
A 22,5 x 5	22.50	10.00	40.00	63.00	8.25	5.00	12	R	943-000-508	943-001-536	943-002-746
B 22,5 x 5	22.50	10.00	40.00	63.00	8.25	5.00	10	R	943-000-509	943-001-539	943-002-745
A 22,5 x 6	22.50	10.00	40.00	63.00	8.25	6.00	12	R	943-000-510	943-001-542	943-002-744
B 22,5 x 6	22.50	10.00	40.00	63.00	8.25	6.00	10	R	943-000-511	943-001-545	943-002-743
A 22,5 x 8	22.50	10.00	40.00	63.00	8.00	8.00	12	R	943-000-512	943-001-548	943-002-742
B 22,5 x 8	22.50	10.00	40.00	63.00	8.00	8.00	10	R	943-000-513	943-001-551	943-002-741
A 25,5 x 6	25.50	10.00	40.00	63.00	9.00	6.00	12	R	943-000-514	943-001-554	943-002-740
B 25,5 x 6	25.50	10.00	40.00	63.00	9.00	6.00	10	R	943-000-515	943-001-557	943-002-739
A 28,5 x 6	28.50	10.00	40.00	71.00	10.00	6.00	12	R	943-000-516	943-001-560	943-002-738
B 28,5 x 6	28.50	10.00	40.00	71.00	10.00	6.00	10	R	943-000-517	943-001-563	943-002-737
A 28,5 x 8	28.50	10.00	40.00	71.00	10.00	8.00	12	R	943-000-518	943-001-566	943-002-736
B 28,5 x 8	28.50	10.00	40.00	71.00	10.00	8.00	10	R	943-000-519	943-001-569	943-002-735
A 28,5 x 10	28.50	12.00	45.00	71.00	9.60	10.00	12	R	943-000-520	943-001-572	943-002-734
B 28,5 x 10	28.50	12.00	45.00	71.00	9.60	10.00	10	R	943-000-521	943-001-575	943-002-733
A 32,5 x 7	32.50	12.00	45.00	71.00	12.00	7.00	14	R	943-000-522	943-001-578	943-002-732
B 32,5 x 7	32.50	12.00	45.00	71.00	12.00	7.00	12	R	943-000-523	943-001-581	943-002-731
A 32,5 x 8	32.50	12.00	45.00	71.00	12.00	8.00	14	R	943-000-524	943-001-584	943-002-730
B 32,5 x 8	32.50	12.00	45.00	71.00	12.00	8.00	12	R	943-000-525	943-001-587	943-002-729
A 32,5 x 10	32.50	12.00	45.00	71.00	11.60	10.00	14	R	943-000-526	943-001-590	943-002-728
B 32,5 x 10	32.50	12.00	45.00	71.00	11.60	10.00	12	R	943-000-527	943-001-593	943-002-727
A 45,5 x 10	45.50	12.00	45.00	71.00	16.85	10.00	18	R	943-000-528	943-001-596	943-002-726
B 45,5 x 10	45.50	12.00	45.00	71.00	16.85	10.00	16	R	943-000-529	943-001-599	943-002-725

*DIN 850 - Form A: Straight Shank, Straight Teeth
*DIN 850 - Form B: Straight Shank, Staggered Teeth

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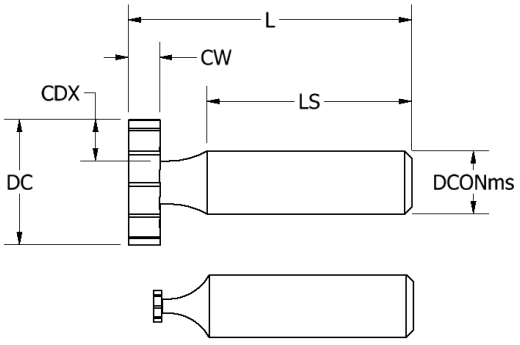

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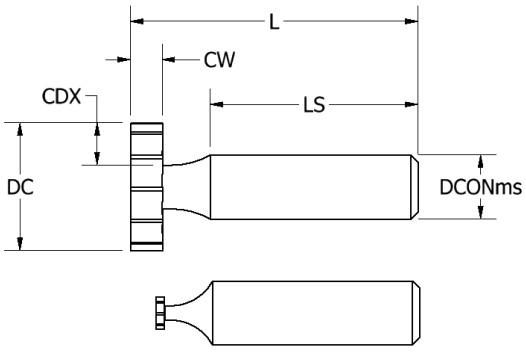
HSS

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
0.2500	0.5000	1.6250	2.0156	0.0700	0.0156	8	943-000-533	943-001-611	943-002-721
0.2500	0.5000	1.6250	2.0200	0.0700	0.0200	8	943-000-530	943-001-602	943-002-724
0.2500	0.5000	1.6250	2.0313	0.0700	0.0313	8	943-000-534	943-001-614	943-002-720
0.2500	0.5000	1.6250	2.0469	0.0700	0.0469	8	943-000-535	943-001-617	943-002-719
0.3125	0.5000	1.6250	2.0156	0.1013	0.0156	8	943-000-536	943-001-620	943-002-718
0.3125	0.5000	1.6250	2.0200	0.1013	0.0200	8	943-000-531	943-001-605	943-002-723
0.3125	0.5000	1.6250	2.0313	0.1013	0.0313	8	943-000-537	943-001-623	943-002-717
0.3125	0.5000	1.6250	2.0469	0.1013	0.0469	8	943-000-538	943-001-626	943-002-716
0.3750	0.5000	1.6250	2.0156	0.1325	0.0156	8	943-000-539	943-001-629	943-002-715
0.3750	0.5000	1.6250	2.0200	0.1325	0.0200	8	943-000-532	943-001-608	943-002-722
0.3750	0.5000	1.6250	2.0313	0.1325	0.0313	8	943-000-540	943-001-632	943-002-714
0.3750	0.5000	1.6250	2.0469	0.1325	0.0469	8	943-000-541	943-001-635	943-002-713
0.5000	0.5000	1.6250	2.0156	0.1850	0.0156	10	943-000-542	943-001-638	943-002-712
0.5000	0.5000	1.6250	2.0200	0.1850	0.0200	10	943-000-543	943-001-641	943-002-711
0.5000	0.5000	1.6250	2.0313	0.1850	0.0313	10	943-000-544	943-001-644	943-002-710
0.5000	0.5000	1.6250	2.0469	0.1850	0.0469	10	943-000-545	943-001-647	943-002-709
0.6250	0.5000	1.6250	2.0200	0.2170	0.0200	10	943-000-546	943-001-650	943-002-708
0.6250	0.5000	1.6250	2.0313	0.2170	0.0313	10	943-000-547	943-001-653	943-002-707
0.6250	0.5000	1.6250	2.0469	0.2170	0.0469	10	943-000-548	943-001-656	943-002-706
0.6250	0.5000	1.6250	2.0625	0.2170	0.0625	10	943-000-549	943-001-659	943-002-705
0.6250	0.5000	1.6250	2.0781	0.2170	0.0781	10	943-000-550	943-001-662	943-002-704
0.7500	0.5000	1.6250	2.0313	0.2635	0.0313	10	943-000-551	943-001-665	943-002-703
0.7500	0.5000	1.6250	2.0469	0.2635	0.0469	10	943-000-552	943-001-668	943-002-702
0.7500	0.5000	1.6250	2.0625	0.2635	0.0625	10	943-000-553	943-001-671	943-002-701
0.7500	0.5000	1.6250	2.0781	0.2635	0.0781	10	943-000-554	943-001-674	943-002-700
0.7500	0.5000	1.6250	2.0938	0.2635	0.0938	10	943-000-555	943-001-678	943-001-675
0.7500	0.5000	1.6250	2.1094	0.2635	0.1094	10	943-000-556	943-001-681	943-002-699
0.8750	0.5000	1.6250	2.0313	0.3140	0.0313	12	943-000-557	943-001-684	943-002-698
0.8750	0.5000	1.6250	2.0469	0.3140	0.0469	12	943-000-558	943-001-687	943-002-697
0.8750	0.5000	1.6250	2.0625	0.3140	0.0625	12	943-000-559	943-001-690	943-002-696
0.8750	0.5000	1.6250	2.0781	0.3140	0.0781	12	943-000-560	943-001-693	943-002-695
0.8750	0.5000	1.6250	2.0938	0.3140	0.0938	12	943-000-561	943-001-696	943-002-694
0.8750	0.5000	1.6250	2.1094	0.3140	0.1094	12	943-000-562	943-001-699	943-002-693
0.8750	0.5000	1.6250	2.1250	0.3140	0.1250	12	943-000-563	943-001-702	943-002-692
0.8750	0.5000	1.6250	2.1406	0.3140	0.1406	12	943-000-564	943-001-705	943-002-691
1.0000	0.5000	1.6250	2.0313	0.3605	0.0313	12	943-000-565	943-001-708	943-002-690
1.0000	0.5000	1.6250	2.0469	0.3605	0.0469	12	943-000-566	943-001-711	943-002-689
1.0000	0.5000	1.6250	2.0625	0.3605	0.0625	12	943-000-567	943-001-714	943-002-688
1.0000	0.5000	1.6250	2.0781	0.3605	0.0781	12	943-000-568	943-001-717	943-002-687
1.0000	0.5000	1.6250	2.0938	0.3605	0.0938	12	943-000-569	943-001-720	943-002-686
1.0000	0.5000	1.6250	2.1094	0.3605	0.1094	12	943-000-570	943-001-723	943-002-685
1.0000	0.5000	1.6250	2.1250	0.3605	0.1250	12	943-000-571	943-001-726	943-002-684
1.0000	0.5000	1.6250	2.1406	0.3605	0.1406	12	943-000-572	943-001-729	943-002-683
1.0000	0.5000	1.6250	2.1563	0.3605	0.1563	12	943-000-573	943-001-732	943-002-682
1.0000	0.5000	1.6250	2.1719	0.3605	0.1719	12	943-000-574	943-001-735	943-002-681



Tolerance		
DC(Cutter Diameter)		
1/4" up to and including 3/4"	+0.010"	+0.015"
7/8" up to and including 1-1/8"	+0.012"	+0.017"
1-1/4" up to and including 1-1/2"	+0.015"	+0.020"
DCONMS(Shank Diameter)		
-0.0001"	-0.0005"	
CW(Width)		
+0.0005"	-0.0005"	

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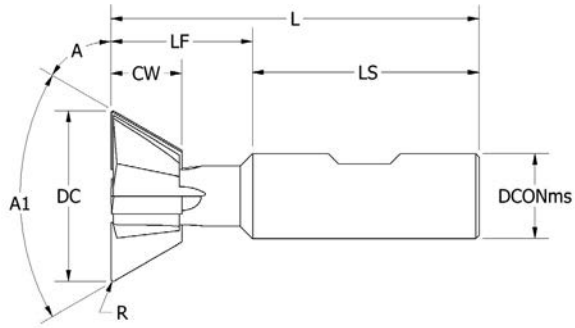
DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
1.1250	0.5000	1.6250	2.0469	0.4065	0.0469	12	943-000-575	943-001-738	943-002-680
1.1250	0.5000	1.6250	2.0625	0.4065	0.0625	12	943-000-576	943-001-741	943-002-679
1.1250	0.5000	1.6250	2.0781	0.4065	0.0781	12	943-000-577	943-001-744	943-002-678
1.1250	0.5000	1.6250	2.0938	0.4065	0.0938	12	943-000-578	943-001-747	943-002-677
1.1250	0.5000	1.6250	2.1094	0.4065	0.1094	12	943-000-579	943-001-750	943-002-676
1.1250	0.5000	1.6250	2.1250	0.4065	0.1250	12	943-000-580	943-001-753	943-002-675
1.1250	0.5000	1.6250	2.1406	0.4065	0.1406	12	943-000-581	943-001-756	943-002-674
1.1250	0.5000	1.6250	2.1563	0.4065	0.1563	12	943-000-582	943-001-759	943-002-673
1.1250	0.5000	1.6250	2.1719	0.4065	0.1719	12	943-000-583	943-001-762	943-002-672
1.2500	0.5000	1.6250	2.0469	0.4690	0.0469	14	943-000-584	943-001-765	943-002-671
1.2500	0.5000	1.6250	2.0625	0.4690	0.0625	14	943-000-585	943-001-768	943-002-670
1.2500	0.5000	1.6250	2.0781	0.4690	0.0781	14	943-000-586	943-001-771	943-002-669
1.2500	0.5000	1.6250	2.0938	0.4690	0.0938	14	943-000-587	943-001-774	943-002-668
1.2500	0.5000	1.6250	2.1094	0.4690	0.1094	14	943-000-588	943-001-777	943-002-667
1.2500	0.5000	1.6250	2.1250	0.4690	0.1250	14	943-000-589	943-001-780	943-002-666
1.2500	0.5000	1.6250	2.1406	0.4690	0.1406	14	943-000-590	943-001-783	943-002-665
1.2500	0.5000	1.6250	2.1563	0.4690	0.1563	14	943-000-591	943-001-786	943-002-664
1.2500	0.5000	1.6250	2.1719	0.4690	0.1719	14	943-000-592	943-001-789	943-002-663
1.3750	0.5000	1.6250	2.0469	0.4870	0.0469	14	943-000-593	943-001-792	943-002-662
1.3750	0.5000	1.6250	2.0625	0.4870	0.0625	14	943-000-594	943-001-795	943-002-661
1.3750	0.5000	1.6250	2.0781	0.4870	0.0781	14	943-000-595	943-001-798	943-002-660
1.3750	0.5000	1.6250	2.0938	0.4870	0.0938	14	943-000-596	943-001-801	943-002-659
1.3750	0.5000	1.6250	2.1094	0.4870	0.1094	14	943-000-597	943-001-804	943-002-658
1.3750	0.5000	1.6250	2.1250	0.4870	0.1250	14	943-000-598	943-001-807	943-002-657
1.3750	0.5000	1.6250	2.1406	0.4870	0.1406	14	943-000-599	943-001-810	943-002-656
1.3750	0.5000	1.6250	2.1563	0.4870	0.1563	14	943-000-600	943-001-813	943-002-655
1.3750	0.5000	1.6250	2.1719	0.4870	0.1719	14	943-000-601	943-001-816	943-002-654
1.3750	0.5000	1.6250	2.1875	0.4870	0.1875	14	943-000-602	943-001-819	943-002-653
1.3750	0.5000	1.6250	2.2031	0.4870	0.2031	14	943-000-603	943-001-822	943-002-652
1.3750	0.5000	1.6250	2.2188	0.4870	0.2188	14	943-000-604	943-001-825	943-002-651
1.5000	0.5000	1.6250	2.0469	0.5325	0.0469	16	943-000-605	943-001-828	943-002-650
1.5000	0.5000	1.6250	2.0625	0.5325	0.0625	16	943-000-606	943-001-831	943-002-649
1.5000	0.5000	1.6250	2.0781	0.5325	0.0781	16	943-000-607	943-001-834	943-002-648
1.5000	0.5000	1.6250	2.0938	0.5325	0.0938	16	943-000-608	943-001-837	943-002-647
1.5000	0.5000	1.6250	2.1094	0.5325	0.1094	16	943-000-609	943-001-840	943-002-646
1.5000	0.5000	1.6250	2.1250	0.5325	0.1250	16	943-000-610	943-001-843	943-002-645
1.5000	0.5000	1.6250	2.1406	0.5325	0.1406	16	943-000-611	943-001-846	943-002-644
1.5000	0.5000	1.6250	2.1563	0.5325	0.1563	16	943-000-612	943-001-849	943-002-643
1.5000	0.5000	1.6250	2.1719	0.5325	0.1719	16	943-000-613	943-001-852	943-002-642
1.5000	0.5000	1.6250	2.1875	0.5325	0.1875	16	943-000-614	943-001-855	943-002-641
1.5000	0.5000	1.6250	2.2031	0.5325	0.2031	16	943-000-615	943-001-858	943-002-640
1.5000	0.5000	1.6250	2.2188	0.5325	0.2188	16	943-000-616	943-001-861	943-002-639
1.5000	0.5000	1.6250	2.2344	0.5325	0.2344	16	943-000-617	943-001-864	943-002-638

DOVETAIL CUTTERS

ARCH®
Cutting Tools

KEO



DC [in]	CW [in]	DCONMS [in]	L [in]	LF [in]	A [°]	A1 [°]	R [in]	Zc	Material	Hand of Cut	Uncoated	TiN Coated	AlTiN Coated
0.3750	0.1250	0.3750	2.1250	0.3750	45.0	90.0	N/A	6	HSS	R	929-000-077	929-000-146	929-000-271
0.3750	0.1250	0.3750	2.1250	0.3750	45.0	90.0	N/A	6	HSS-Co	R	929-000-080	929-000-195	929-000-257
0.3750	0.1875	0.3750	2.1250	0.4375	60.0	60.0	N/A	8	HSS	R	929-000-001	929-000-004	929-000-270
0.3750	0.1875	0.3750	2.1250	0.4375	60.0	60.0	N/A	8	HSS-Co	R	929-000-081	929-000-198	929-000-256
0.5000	0.1250	0.3750	2.1250	0.4375	45.0	90.0	N/A	8	HSS	R	929-000-005	929-000-008	929-000-269
0.5000	0.1250	0.3750	2.1250	0.4375	45.0	90.0	N/A	8	HSS-Co	R	929-000-082	929-000-201	929-000-255
0.5000	0.1563	0.3750	2.1250	0.5625	45.0	90.0	0.0200	3	Carbide Tipped	R	929-000-061	929-000-098	929-000-287
0.5000	0.2188	0.3750	2.1250	0.4375	60.0	60.0	N/A	8	HSS	R	929-000-009	929-000-012	929-000-268
0.5000	0.2188	0.3750	2.1250	0.4375	60.0	60.0	N/A	8	HSS-Co	R	929-000-083	929-000-204	929-000-254
0.5000	0.2188	0.3750	2.1250	0.5625	60.0	60.0	0.0200	3	Carbide Tipped	R	929-000-062	929-000-101	929-000-286
0.7500	0.1875	0.3750	2.1250	0.5625	45.0	90.0	N/A	8	HSS	R	929-000-013	929-000-016	929-000-241
0.7500	0.1875	0.3750	2.1250	0.5625	45.0	90.0	N/A	8	HSS-Co	R	929-000-084	929-000-207	929-000-253
0.7500	0.2500	0.3750	2.2500	0.7031	45.0	90.0	0.0200	3	Carbide Tipped	R	929-000-063	929-000-104	929-000-285
0.7500	0.3125	0.3750	2.1250	0.5625	60.0	60.0	N/A	8	HSS	R	929-000-017	929-000-020	929-000-267
0.7500	0.3125	0.3750	2.1250	0.5625	60.0	60.0	N/A	8	HSS-Co	R	929-000-085	929-000-210	929-000-252
0.7500	0.2500	0.3750	2.2500	0.7188	60.0	60.0	0.0200	3	Carbide Tipped	R	929-000-064	929-000-107	929-000-284
1.0000	0.2500	0.5000	2.5000	0.5625	45.0	90.0	N/A	10	HSS	R	929-000-078	929-000-164	929-000-266
1.0000	0.2500	0.5000	2.5000	0.5625	45.0	90.0	N/A	10	HSS-Co	R	929-000-086	929-000-213	929-000-251
1.0000	0.3125	0.5000	2.5000	0.8125	45.0	90.0	0.0200	4	Carbide Tipped	R	929-000-065	929-000-110	929-000-283
1.0000	0.4375	0.5000	2.5000	0.7500	60.0	60.0	N/A	10	HSS	R	929-000-079	929-000-167	929-000-265
1.0000	0.4375	0.5000	2.5000	0.7500	60.0	60.0	N/A	10	HSS-Co	R	929-000-087	929-000-216	929-000-250
1.0000	0.3750	0.5000	2.5000	0.7500	60.0	60.0	0.0200	4	Carbide Tipped	R	929-000-066	929-000-113	929-000-282
1.2500	0.3125	0.6250	2.7500	0.8750	45.0	90.0	0.0200	4	Carbide Tipped	R	929-000-067	929-000-116	929-000-281
1.2500	0.5000	0.6250	2.7500	0.8750	60.0	60.0	0.0200	4	Carbide Tipped	R	929-000-068	929-000-119	929-000-280
1.3750	0.3750	0.6250	2.8750	0.9688	45.0	90.0	N/A	10	HSS	R	929-000-021	929-000-028	929-000-264
1.3750	0.3750	0.6250	2.8750	0.9688	45.0	90.0	N/A	10	HSS-Co	R	929-000-088	929-000-219	929-000-249
1.3750	0.5625	0.6250	2.8750	0.9688	60.0	60.0	N/A	12	HSS	R	929-000-029	929-000-036	929-000-263
1.3750	0.5625	0.6250	2.8750	0.9688	60.0	60.0	N/A	12	HSS-Co	R	929-000-089	929-000-222	929-000-248
1.5000	0.5000	0.7500	3.2500	1.3125	45.0	90.0	0.0200	4	Carbide Tipped	R	929-000-069	929-000-122	929-000-279
1.5000	0.6250	0.7500	3.2500	1.3125	60.0	60.0	0.0200	4	Carbide Tipped	R	929-000-070	929-000-125	929-000-278
1.8750	0.5000	0.8750	3.2500	1.2188	45.0	90.0	N/A	12	HSS	R	929-000-037	929-000-040	929-000-262
1.8750	0.5000	0.8750	3.2500	1.2188	45.0	90.0	N/A	12	HSS-Co	R	929-000-090	929-000-225	929-000-247
1.8750	0.8125	0.8750	3.2500	1.2188	60.0	60.0	N/A	12	HSS	R	929-000-041	929-000-044	929-000-261
1.8750	0.8125	0.8750	3.2500	1.2188	60.0	60.0	N/A	12	HSS-Co	R	929-000-091	929-000-228	929-000-246
2.0000	0.6250	1.0000	4.2500	2.0000	45.0	90.0	0.0200	6	Carbide Tipped	R	929-000-071	929-000-128	929-000-277
2.0000	0.7500	1.0000	4.2500	2.1250	60.0	60.0	0.0200	6	Carbide Tipped	R	929-000-072	929-000-131	929-000-276
2.2500	1.0625	1.0000	3.7500	1.4688	60.0	60.0	N/A	12	HSS	R	929-000-049	929-000-052	929-000-147
2.2500	1.0625	1.0000	3.7500	1.4688	60.0	60.0	N/A	12	HSS-Co	R	929-000-093	929-000-234	929-000-244
2.5000	0.7500	1.0000	3.7500	1.4688	45.0	90.0	N/A	12	HSS	R	929-000-053	929-000-056	929-000-259
2.5000	0.7500	1.0000	3.7500	1.4688	45.0	90.0	N/A	12	HSS-Co	R	929-000-094	929-000-237	929-000-243
2.5000	0.7500	1.2500	4.3750	2.0625	45.0	90.0	0.0200	6	Carbide Tipped	R	929-000-073	929-000-134	929-000-275
2.5000	1.1250	1.0000	3.7500	1.4688	60.0	60.0	N/A	12	HSS	R	929-000-057	929-000-060	929-000-258
2.5000	1.1250	1.0000	3.7500	1.4688	60.0	60.0	N/A	12	HSS-Co	R	929-000-095	929-000-240	929-000-242
2.5000	0.8750	1.2500	4.3750	2.1875	60.0	60.0	0.0200	6	Carbide Tipped	R	929-000-074	929-000-137	929-000-274
3.0000	1.0000	1.2500	4.5000	2.2500	45.0	90.0	0.0200	6	Carbide Tipped	R	929-000-075	929-000-140	929-000-273
3.0000	1.1250	1.2500	4.5000	2.3750	60.0	60.0	0.0200	6	Carbide Tipped	R	929-000-076	929-000-143	929-000-272

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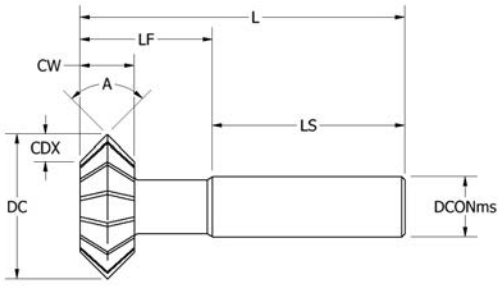
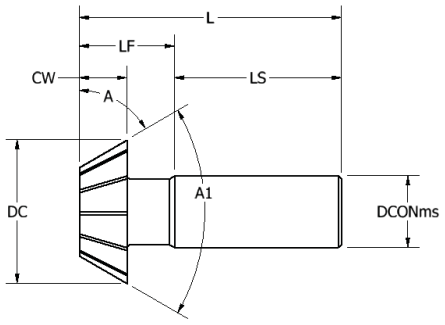
HSS



DA129 DOUBLE ANGLE

DC [in]	DCONMS [in]	LS [in]	L [in]	LF [in]	CDX [in]	CW [in]	A [°]	Zc	Uncoated	TiN Coated
0.7500	0.3750	1.5625	2.3750	0.8125	0.1624	0.1875	60.0	10	924-000-001	924-000-004
1.0000	0.5000	1.7813	2.8438	1.0625	0.2706	0.3125	60.0	12	924-000-005	924-000-008
1.3750	0.6250	1.9063	3.2188	1.3125	0.3789	0.4375	60.0	14	924-000-009	924-000-012
1.5000	0.6250	2.0000	3.3750	1.3750	0.4330	0.5000	60.0	14	924-000-013	924-000-016
1.8750	0.7500	2.0313	3.7813	1.7500	0.5413	0.6250	60.0	16	924-000-017	924-000-020
2.2500	0.8750	2.0313	4.1563	2.1250	0.6495	0.7500	60.0	18	924-000-021	924-000-024
2.2500	0.7500	2.0313	3.1250	1.0938	0.4330	0.5000	60.0	16	924-000-025	924-000-028
0.7500	0.3750	0.7500	0.3750	0.8750	0.1250	0.2500	90.0	10	924-000-029	924-000-032
1.0000	0.5000	1.7813	2.9063	1.1250	0.1875	0.3750	90.0	12	924-000-033	924-000-036
1.3750	0.6250	1.9063	3.2813	1.3750	0.2500	0.5000	90.0	14	924-000-037	924-000-040
1.5000	0.6250	2.0000	3.4375	1.4375	0.2813	0.5625	90.0	14	924-000-041	924-000-044
1.8750	0.7500	2.0313	3.7813	1.7500	0.3125	0.6250	90.0	16	924-000-045	924-000-048
2.2500	0.8750	2.0313	4.1563	2.1250	0.3750	0.7500	90.0	18	924-000-049	924-000-052
2.2500	0.7500	2.0313	3.1250	1.0938	0.2500	0.5000	90.0	16	924-000-053	924-000-056



CH126 SINGLE-ANGLE

DC [in]	DCONMS [in]	LS [in]	L [in]	LF [in]	CW [in]	A [°]	A1 [°]	Zc	Uncoated	TiN Coated
0.5000	0.3750	1.6875	2.1250	0.4375	0.1250	45.0	90.0	8	909-000-001	909-000-004
0.7500	0.3750	1.6250	2.1250	0.1875	0.1875	45.0	90.0	8	909-000-009	909-000-012
1.0000	0.5000	1.8125	2.5000	0.6875	0.3125	45.0	90.0	10	909-000-017	909-000-020
1.5000	0.7500	1.8750	2.7500	0.8750	0.5000	45.0	90.0	12	909-000-025	909-000-028
0.5000	0.3750	1.5938	2.1250	0.5313	0.2188	60.0	60.0	8	909-000-005	909-000-008
0.7500	0.3750	1.5625	2.1250	0.5625	0.3125	60.0	60.0	8	909-000-013	909-000-016
1.0000	0.5000	1.7500	2.5000	0.7500	0.4375	60.0	60.0	10	909-000-021	909-000-024
1.5000	0.7500	1.7500	2.7500	1.0000	0.6250	60.0	60.0	12	909-000-029	909-000-032

T-SLOT CUTTERS

ARCH®
Cutting Tools

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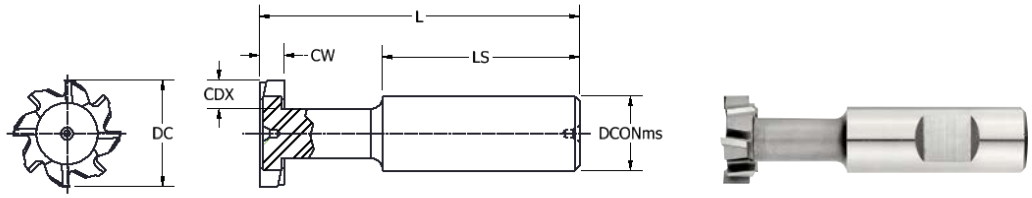

TS109

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
0.5625	0.5000	1.8125	2.5938	0.1484	0.2344	8	964-000-025	964-000-029	964-000-173
0.6563	0.5000	1.8125	2.6875	0.1641	0.2656	8	964-000-030	964-000-034	964-000-170
0.7813	0.7500	2.0625	3.2500	0.1875	0.3281	8	964-000-035	964-000-039	964-000-171
0.9688	0.7500	2.0625	3.4375	0.2188	0.3906	8	964-000-040	964-000-044	964-000-174
1.0000	0.7500	2.0313	3.1250	0.2500	0.0938	8	964-000-045	964-000-048	964-000-181
1.0000	0.7500	2.0000	3.1250	0.2500	0.1250	8	964-000-049	964-000-052	964-000-182
1.0000	0.7500	2.0313	3.1875	0.2500	0.1563	8	964-000-053	964-000-056	964-000-183
1.0000	0.7500	2.0000	3.1875	0.2500	0.1875	8	964-000-057	964-000-060	964-000-184
1.0000	0.7500	2.0000	3.2500	0.2500	0.2500	8	964-000-061	964-000-064	964-000-185
1.0000	0.7500	2.0000	3.3125	0.2500	0.3125	8	964-000-065	964-000-068	964-000-186
1.0000	0.7500	2.0000	3.3750	0.2500	0.3750	8	964-000-069	964-000-072	964-000-187
1.0000	0.7500	2.0000	3.5000	0.2500	0.5000	8	964-000-073	964-000-076	964-000-188
1.2500	1.0000	2.3125	3.9375	0.2969	0.4844	8	964-000-077	964-000-081	964-000-169
1.4688	1.0000	2.3125	4.4375	0.3438	0.6250	8	964-000-082	964-000-086	964-000-172
1.5000	1.0000	2.5313	4.1250	0.3750	0.0938	8	964-000-087	964-000-090	964-000-189
1.5000	1.0000	2.5000	4.1250	0.3750	0.1250	8	964-000-091	964-000-094	964-000-190
1.5000	1.0000	2.5313	4.1875	0.3750	0.1563	8	964-000-095	964-000-098	964-000-191
1.5000	1.0000	2.5000	4.1875	0.3750	0.1875	8	964-000-099	964-000-102	964-000-192
1.5000	1.0000	2.5000	4.2500	0.3750	0.2500	8	964-000-103	964-000-106	964-000-193
2.0000	1.2500	2.6563	4.5000	0.4375	0.0938	8	964-000-107	964-000-110	964-000-194
1.5000	1.0000	2.5000	4.3750	0.3750	0.3750	8	964-000-111	964-000-114	964-000-195
1.5000	1.0000	2.5000	4.5000	0.3750	0.5000	8	964-000-115	964-000-118	964-000-196
1.8438	1.2500	2.3125	4.8125	0.4063	0.8281	12	964-000-119	964-000-123	964-000-168
2.0000	1.2500	2.6563	4.5000	0.4375	0.0938	12	964-000-124	964-000-127	964-000-197
2.0000	1.2500	2.6250	4.5000	0.4375	0.1250	12	964-000-128	964-000-131	964-000-198
2.0000	1.2500	2.6563	4.5625	0.4375	0.1563	12	964-000-132	964-000-135	964-000-199
2.0000	1.2500	2.6250	4.5625	0.4375	0.1875	12	964-000-136	964-000-139	964-000-200
2.0000	1.2500	2.6250	4.6250	0.4375	0.2500	12	964-000-140	964-000-143	964-000-201
2.0000	1.2500	2.6250	4.6875	0.4375	0.3125	12	964-000-144	964-000-147	964-000-202
2.0000	1.2500	2.6250	4.7500	0.4375	0.3750	12	964-000-148	964-000-151	964-000-203
2.0000	1.2500	2.6250	4.8750	0.4375	0.5000	12	964-000-152	964-000-155	964-000-204
2.2188	1.2500	2.2813	5.3750	0.5000	1.0938	12	964-000-156	964-000-160	964-000-166
2.6563	1.2500	2.4375	5.9063	0.5625	1.3438	12	964-000-161	964-000-165	964-000-167

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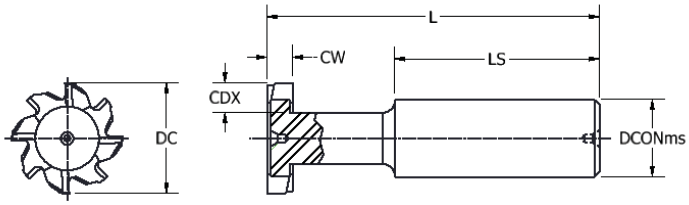
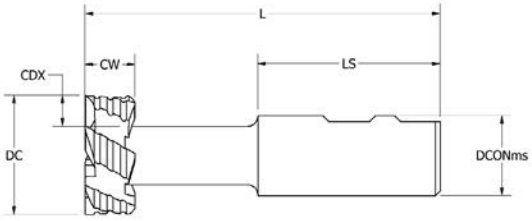


COBALT

TS112 COBALT STEEL

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	AlCrN Coated
0.5625	0.5000	1.8125	2.5938	0.1484	0.2344	8	964-000-026
0.6563	0.5000	1.8125	2.6875	0.1641	0.2656	8	964-000-031
0.7813	0.7500	2.0625	3.2500	0.1875	0.3281	8	964-000-036
0.9688	0.7500	2.0625	3.4375	0.2188	0.3906	8	964-000-041
1.2500	1.0000	2.3125	3.9375	0.2969	0.4844	8	964-000-078
1.4688	1.0000	2.3125	4.4375	0.3438	0.6250	8	964-000-083
1.8438	1.2500	2.3125	4.8125	0.3594	0.8281	12	964-000-120



TS111 ROUGHER/FINISHER

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
0.9688	0.7500	2.0313	3.4375	0.2444	0.3906	5	964-000-006	964-000-024	964-000-175
1.2500	1.0000	2.2813	3.9375	0.3225	0.4844	6	964-000-001	964-000-019	964-000-176
1.4688	1.0000	2.2813	4.4375	0.3694	0.6250	6	964-000-002	964-000-020	964-000-177
1.8438	1.2500	2.2813	4.8125	0.4319	0.8281	6	964-000-003	964-000-021	964-000-178
2.2188	1.2500	2.2813	5.3750	0.4944	1.0938	8	964-000-005	964-000-023	964-000-179
2.6563	1.2500	2.3750	5.9063	0.5881	1.3438	10	964-000-004	964-000-022	964-000-180

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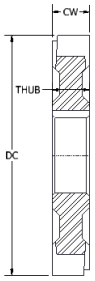

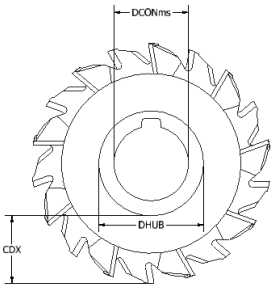

S Style

- General purpose
- Ideal for deep slotting
- Alternate tooth design allows excellent chip removal

PG.505

HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.1250	0.1875	0.7500	0.5313	1.0000	0.1875	14	952-001-237	952-001-240	952-002-684
2.1250	0.2500	0.7500	0.5313	1.0000	0.2500	14	952-001-241	952-001-244	952-002-685
2.1250	0.3125	0.7500	0.5313	1.0000	0.3125	14	952-001-245	952-001-248	952-002-686
2.1250	0.3750	0.7500	0.5313	1.0000	0.3750	14	952-001-249	952-001-252	952-002-687
2.5000	0.2500	0.8750	0.6248	1.1880	0.2500	16	952-001-253	952-001-256	952-002-688
2.5000	0.3125	0.8750	0.6248	1.1880	0.3125	16	952-001-257	952-001-260	952-002-689
2.5000	0.3750	0.8750	0.6248	1.1880	0.3750	16	952-001-261	952-001-264	952-002-690
2.5000	0.5000	0.8750	0.6248	1.1880	0.5000	16	952-001-265	952-001-268	952-002-691
2.7500	0.2500	1.0000	0.6248	1.4380	0.2500	16	952-001-269	952-001-272	952-002-692
2.7500	0.3125	1.0000	0.6248	1.4380	0.3125	16	952-001-273	952-001-276	952-002-693
2.7500	0.3750	1.0000	0.6248	1.4380	0.3750	16	952-001-277	952-001-280	952-002-694
2.7500	0.4375	1.0000	0.6248	1.4380	0.4375	16	952-001-281	952-001-284	952-002-695
2.7500	0.5000	1.0000	0.6248	1.4380	0.5000	16	952-001-285	952-001-288	952-002-696
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	16	952-001-289	952-001-292	952-002-697
3.0000	0.1875	1.2500	0.5938	1.7500	0.1875	18	952-001-293	952-001-296	952-002-698
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	16	952-001-577	952-001-580	952-002-699
3.0000	0.2188	1.2500	0.5938	1.7500	0.2188	18	952-001-581	952-001-584	952-002-700
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	16	952-001-297	952-001-300	952-002-701
3.0000	0.2500	1.2500	0.5938	1.7500	0.2500	18	952-001-301	952-001-304	952-002-702
3.0000	0.2813	1.0000	0.7188	1.5000	0.2813	16	952-001-585	952-001-588	952-002-703
3.0000	0.2813	1.2500	0.5938	1.7500	0.2813	18	952-001-589	952-001-592	952-002-704
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	16	952-001-305	952-001-308	952-002-701
3.0000	0.3125	1.2500	0.5938	1.7500	0.3125	18	952-001-309	952-001-312	952-002-702
3.0000	0.3438	1.0000	0.7188	1.5000	0.3438	16	952-001-593	952-001-596	952-002-707
3.0000	0.3438	1.2500	0.5938	1.7500	0.3438	18	952-001-597	952-001-600	952-002-708
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	16	952-001-313	952-001-316	952-002-709
3.0000	0.3750	1.2500	0.5938	1.7500	0.3750	18	952-001-317	952-001-320	952-002-710
3.0000	0.4063	1.0000	0.7188	1.5000	0.4063	16	952-001-601	952-001-604	952-002-711
3.0000	0.4063	1.2500	0.5938	1.7500	0.4063	18	952-001-605	952-001-608	952-002-712
3.0000	0.4375	1.0000	0.7188	1.5000	0.4375	16	952-001-321	952-001-324	952-002-713
3.0000	0.4375	1.2500	0.5938	1.7500	0.4375	18	952-001-325	952-001-328	952-002-714
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	16	952-001-329	952-001-332	952-002-715
3.0000	0.5000	1.2500	0.5938	1.7500	0.5000	18	952-001-333	952-001-336	952-002-716
3.0000	0.5625	1.0000	0.7188	1.5000	0.5625	16	952-001-337	952-001-340	952-002-717
3.0000	0.5625	1.2500	0.5938	1.7500	0.5625	18	952-001-341	952-001-344	952-002-718
3.0000	0.6250	1.0000	0.7188	1.5000	0.6250	16	952-001-345	952-001-348	952-002-719
3.0000	0.6250	1.2500	0.5938	1.7500	0.6250	18	952-001-349	952-001-352	952-002-720
3.0000	0.6875	1.0000	0.7188	1.5000	0.6875	16	952-001-353	952-001-356	952-002-721
3.0000	0.6875	1.2500	0.5938	1.7500	0.6875	18	952-001-357	952-001-360	952-002-722
3.0000	0.7500	1.0000	0.7188	1.5000	0.7500	16	952-001-361	952-001-364	952-002-723
3.0000	0.7500	1.2500	0.5938	1.7500	0.7500	18	952-001-365	952-001-368	952-002-724
3.0000	0.8125	1.0000	0.7188	1.5000	0.8125	16	952-001-369	952-001-372	952-002-725
3.0000	0.8125	1.2500	0.5938	1.7500	0.8125	18	952-001-373	952-001-376	952-002-726
3.0000	0.8750	1.0000	0.7188	1.5000	0.8750	16	952-001-377	952-001-380	952-002-727
3.0000	0.8750	1.2500	0.5938	1.7500	0.8750	18	952-001-381	952-001-384	952-002-728
3.0000	0.9375	1.0000	0.7188	1.5000	0.9375	16	952-001-385	952-001-388	952-002-729
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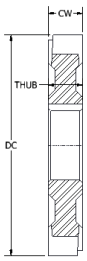

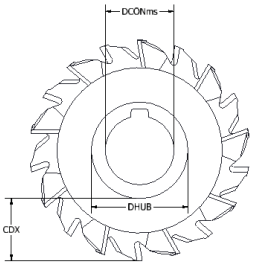

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HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
3.0000	1.0000	1.0000	0.7188	1.5000	1.0000	16	952-001-393	952-001-396	952-002-731
3.0000	1.0000	1.2500	0.5938	1.7500	1.0000	18	952-001-397	952-001-400	952-002-732
3.0000	1.2500	1.0000	0.7188	1.5000	1.2500	16	952-001-401	952-001-404	952-002-733
3.0000	1.2500	1.2500	0.5938	1.7500	1.2500	18	952-001-405	952-001-408	952-002-734
3.2500	0.2500	1.2500	0.7188	1.7500	0.2500	18	952-001-409	952-001-412	952-002-735
3.2500	0.3750	1.2500	0.7188	1.7500	0.3750	18	952-001-413	952-001-416	952-002-736
3.2500	0.5000	1.2500	0.7188	1.7500	0.5000	18	952-001-417	952-001-420	952-002-737
3.2500	0.7500	1.2500	0.7188	1.7500	0.7500	18	952-001-421	952-001-424	952-002-738
3.5000	0.2188	1.0000	0.9688	1.5000	0.2188	18	952-001-529	952-001-532	952-002-739
3.5000	0.2188	1.2500	0.8438	1.7500	0.2188	18	952-001-533	952-001-536	952-002-740
3.5000	0.2500	1.0000	0.9688	1.5000	0.2500	18	952-001-425	952-001-428	952-002-741
3.5000	0.2500	1.2500	0.8438	1.7500	0.2500	18	952-001-429	952-001-432	952-002-742
3.5000	0.2813	1.0000	0.9688	1.5000	0.2813	18	952-001-537	952-001-540	952-002-743
3.5000	0.2813	1.2500	0.8438	1.7500	0.2813	18	952-001-541	952-001-544	952-002-744
3.5000	0.3125	1.0000	0.9688	1.5000	0.3125	18	952-001-433	952-001-436	952-002-745
3.5000	0.3125	1.2500	0.8438	1.7500	0.3125	18	952-001-437	952-001-440	952-002-746
3.5000	0.3438	1.0000	0.9688	1.5000	0.3438	18	952-001-545	952-001-548	952-002-747
3.5000	0.3438	1.2500	0.8438	1.7500	0.3438	18	952-001-549	952-001-552	952-002-748
3.5000	0.3750	1.0000	0.9688	1.5000	0.3750	18	952-001-441	952-001-444	952-002-749
3.5000	0.3750	1.2500	0.8438	1.7500	0.3750	18	952-001-445	952-001-448	952-002-750
3.5000	0.4063	1.0000	0.9688	1.5000	0.4063	18	952-001-553	952-001-556	952-002-751
3.5000	0.4063	1.2500	0.8438	1.7500	0.4063	18	952-001-557	952-001-560	952-002-752
3.5000	0.4375	1.0000	0.9688	1.5000	0.4375	18	952-001-449	952-001-452	952-002-753
3.5000	0.4375	1.2500	0.8438	1.7500	0.4375	18	952-001-453	952-001-456	952-002-754
3.5000	0.5000	1.0000	0.9688	1.5000	0.5000	18	952-001-457	952-001-460	952-002-755
3.5000	0.5000	1.2500	0.8438	1.7500	0.5000	18	952-001-461	952-001-464	952-002-756
3.5000	0.5625	1.0000	0.9688	1.5000	0.5625	18	952-001-465	952-001-468	952-002-757
3.5000	0.5625	1.2500	0.8438	1.7500	0.5625	18	952-001-469	952-001-472	952-002-758
3.5000	0.6250	1.0000	0.9688	1.5000	0.6250	18	952-001-473	952-001-476	952-002-759
3.5000	0.6250	1.2500	0.8438	1.7500	0.6250	18	952-001-477	952-001-480	952-002-760
3.5000	0.6875	1.0000	0.9688	1.5000	0.6875	18	952-001-481	952-001-484	952-002-761
3.5000	0.6875	1.2500	0.8438	1.7500	0.6875	18	952-001-485	952-001-488	952-002-762
3.5000	0.7500	1.0000	0.9688	1.5000	0.7500	18	952-001-489	952-001-492	952-002-763
3.5000	0.7500	1.2500	0.8438	1.7500	0.7500	18	952-001-493	952-001-496	952-002-764
3.5000	0.8125	1.0000	0.9688	1.5000	0.8125	18	952-001-497	952-001-500	952-002-765
3.5000	0.8125	1.2500	0.8438	1.7500	0.8125	18	952-001-501	952-001-504	952-002-766
3.5000	0.8750	1.0000	0.9688	1.5000	0.8750	18	952-001-505	952-001-508	952-002-767
3.5000	0.8750	1.2500	0.8438	1.7500	0.8750	18	952-001-509	952-001-512	952-002-768
3.5000	0.9375	1.0000	0.9688	1.5000	0.9375	18	952-001-513	952-001-516	952-002-769
3.5000	0.9375	1.2500	0.8438	1.7500	0.9375	18	952-001-517	952-001-520	952-002-770
3.5000	1.0000	1.0000	0.9688	1.5000	1.0000	18	952-001-521	952-001-524	952-002-771
3.5000	1.0000	1.2500	0.8438	1.7500	1.0000	18	952-001-525	952-001-528	952-002-772
3.7500	0.2500	1.2500	0.9688	1.7500	0.2500	18	952-001-561	952-001-564	952-002-773
3.7500	0.3750	1.2500	0.9688	1.7500	0.3750	18	952-001-565	952-001-568	952-002-774
3.7500	0.5000	1.2500	0.9688	1.7500	0.5000	18	952-001-569	952-001-572	952-002-775
3.7500	0.7500	1.2500	0.9688	1.7500	0.7500	18	952-001-573	952-001-576	952-002-776
4.0000	0.1875	1.0000	1.1563	1.6250	0.1875	18	952-001-609	952-001-612	952-002-777

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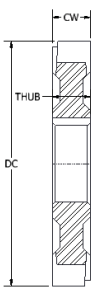

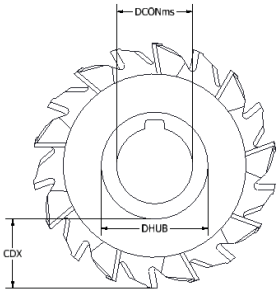

PG.505

HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
4.0000	0.1875	1.2500	1.0938	1.7500	0.1875	18	952-001-613	952-001-616	952-002-778
4.0000	0.2188	1.0000	1.1563	1.6250	0.2188	18	952-001-817	952-001-820	952-002-779
4.0000	0.2188	1.2500	1.0938	1.7500	0.2188	18	952-001-821	952-001-824	952-002-780
4.0000	0.2500	1.0000	1.1563	1.6250	0.2500	18	952-001-617	952-001-620	952-002-781
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	18	952-001-621	952-001-624	952-002-782
4.0000	0.2813	1.0000	1.1563	1.6250	0.2813	18	952-001-825	952-001-828	952-002-783
4.0000	0.2813	1.2500	1.0938	1.7500	0.2813	18	952-001-829	952-001-832	952-002-784
4.0000	0.3125	1.0000	1.1563	1.6250	0.3125	18	952-001-625	952-001-628	952-002-785
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	18	952-001-629	952-001-632	952-002-786
4.0000	0.3438	1.0000	1.1563	1.6250	0.3438	18	952-001-833	952-001-836	952-002-787
4.0000	0.3438	1.2500	1.0938	1.7500	0.3438	18	952-001-837	952-001-840	952-002-788
4.0000	0.3750	1.0000	1.1563	1.6250	0.3750	18	952-001-633	952-001-636	952-002-789
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	18	952-001-637	952-001-640	952-002-790
4.0000	0.4063	1.0000	1.1563	1.6250	0.4063	18	952-001-841	952-001-844	952-002-791
4.0000	0.4063	1.2500	1.0938	1.7500	0.4063	18	952-001-845	952-001-848	952-002-792
4.0000	0.4375	1.0000	1.1563	1.6250	0.4375	18	952-001-641	952-001-644	952-002-793
4.0000	0.4375	1.2500	1.0938	1.7500	0.4375	18	952-001-645	952-001-648	952-002-794
4.0000	0.5000	1.0000	1.1563	1.6250	0.5000	18	952-001-649	952-001-652	952-002-795
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	18	952-001-653	952-001-656	952-002-796
4.0000	0.5625	1.0000	1.1563	1.6250	0.5625	18	952-001-657	952-001-660	952-002-797
4.0000	0.5625	1.2500	1.0938	1.7500	0.5625	18	952-001-661	952-001-664	952-002-798
4.0000	0.6250	1.0000	1.1563	1.6250	0.6250	18	952-001-665	952-001-668	952-002-799
4.0000	0.6250	1.2500	1.0938	1.7500	0.6250	18	952-001-669	952-001-672	952-002-800
4.0000	0.6875	1.0000	1.1563	1.6250	0.6875	18	952-001-673	952-001-676	952-002-801
4.0000	0.6875	1.2500	1.0938	1.7500	0.6875	18	952-001-677	952-001-680	952-002-802
4.0000	0.7500	1.0000	1.1563	1.6250	0.7500	18	952-001-681	952-001-684	952-002-803
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	18	952-001-685	952-001-688	952-002-804
4.0000	0.8125	1.0000	1.1563	1.6250	0.8125	18	952-001-689	952-001-692	952-002-805
4.0000	0.8125	1.2500	1.0938	1.7500	0.8125	18	952-001-693	952-001-696	952-002-806
4.0000	0.8750	1.0000	1.1563	1.6250	0.8750	18	952-001-697	952-001-700	952-002-807
4.0000	0.8750	1.2500	1.0938	1.7500	0.8750	18	952-001-701	952-001-704	952-002-808
4.0000	0.9375	1.0000	1.1563	1.6250	0.9375	18	952-001-705	952-001-708	952-002-809
4.0000	0.9375	1.2500	1.0938	1.7500	0.9375	18	952-001-709	952-001-712	952-002-810
4.0000	1.0000	1.0000	1.1563	1.6250	1.0000	18	952-001-713	952-001-716	952-002-811
4.0000	1.0000	1.2500	1.0938	1.7500	1.0000	18	952-001-717	952-001-720	952-002-812
4.0000	1.1250	1.2500	1.0938	1.7500	1.1250	18	952-001-721	952-001-724	952-002-813
4.0000	1.2500	1.2500	1.0938	1.7500	1.2500	18	952-001-725	952-001-728	952-002-814
4.0000	1.3750	1.2500	1.0938	1.7500	1.3750	18	952-001-745	952-001-748	952-002-815
4.0000	1.5000	1.2500	1.0938	1.7500	1.5000	18	952-001-749	952-001-752	952-002-816
4.2500	0.2500	1.2500	1.2188	1.7500	0.2500	18	952-001-729	952-001-732	952-002-817
4.2500	0.3750	1.2500	1.2188	1.7500	0.3750	18	952-001-733	952-001-736	952-002-818
4.2500	0.5000	1.2500	1.2188	1.7500	0.5000	18	952-001-737	952-001-740	952-002-819
4.2500	0.7500	1.2500	1.2188	1.7500	0.7500	18	952-001-741	952-001-744	952-002-820
4.5000	0.2188	1.0000	1.4063	1.6250	0.2188	18	952-001-809	952-001-812	952-002-821
4.5000	0.2188	1.2500	1.2813	1.8750	0.2188	18	952-001-813	952-001-816	952-002-822
4.5000	0.2500	1.0000	1.4063	1.6250	0.2500	18	952-001-753	952-001-756	952-002-823
4.5000	0.2500	1.2500	1.2813	1.8750	0.2500	18	952-001-757	952-001-760	952-002-824

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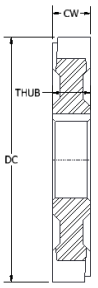

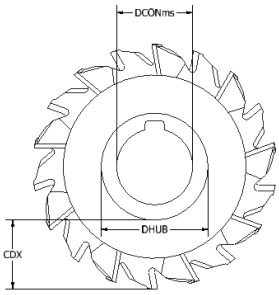

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HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
4.5000	0.3125	1.0000	1.4063	1.6250	0.3125	18	952-001-761	952-001-764	952-002-825
4.5000	0.3125	1.2500	1.2813	1.8750	0.3125	18	952-001-765	952-001-768	952-002-826
4.5000	0.3750	1.0000	1.4063	1.6250	0.3750	18	952-001-769	952-001-772	952-002-827
4.5000	0.3750	1.2500	1.2813	1.8750	0.3750	18	952-001-773	952-001-776	952-002-828
4.5000	0.5000	1.0000	1.4063	1.6250	0.5000	18	952-001-777	952-001-780	952-002-829
4.5000	0.5000	1.2500	1.2813	1.8750	0.5000	18	952-001-781	952-001-784	952-002-830
4.5000	0.6250	1.0000	1.4063	1.6250	0.6250	18	952-001-785	952-001-788	952-002-831
4.5000	0.6250	1.2500	1.2813	1.8750	0.6250	18	952-001-789	952-001-792	952-002-832
4.5000	0.7500	1.0000	1.4063	1.6250	0.7500	18	952-001-793	952-001-796	952-002-833
4.5000	0.7500	1.2500	1.2813	1.8750	0.7500	18	952-001-797	952-001-800	952-002-834
4.5000	1.0000	1.0000	1.4063	1.6250	1.0000	18	952-001-801	952-001-804	952-002-835
4.5000	1.0000	1.2500	1.2813	1.8750	1.0000	18	952-001-805	952-001-808	952-002-836
5.0000	0.1875	1.0000	1.6563	1.6250	0.1875	24	952-001-849	952-001-852	952-002-837
5.0000	0.1875	1.2500	1.5313	1.8750	0.1875	24	952-001-853	952-001-856	952-002-838
5.0000	0.2188	1.0000	1.6563	1.6250	0.2188	24	952-001-945	952-001-948	952-002-839
5.0000	0.2188	1.2500	1.5313	1.8750	0.2188	24	952-001-949	952-001-952	952-002-840
5.0000	0.2500	1.0000	1.6563	1.6250	0.2500	24	952-001-857	952-001-860	952-002-841
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	24	952-001-861	952-001-864	952-002-842
5.0000	0.2813	1.0000	1.6563	1.6250	0.2813	24	952-001-953	952-001-956	952-002-843
5.0000	0.2813	1.2500	1.5313	1.8750	0.2813	24	952-001-957	952-001-960	952-002-844
5.0000	0.3125	1.0000	1.6563	1.6250	0.3125	24	952-001-865	952-001-868	952-002-845
5.0000	0.3125	1.2500	1.5313	1.8750	0.3125	24	952-001-869	952-001-872	952-002-846
5.0000	0.3438	1.0000	1.6563	1.6250	0.3438	24	952-001-961	952-001-964	952-002-847
5.0000	0.3438	1.2500	1.5313	1.8750	0.3438	24	952-001-965	952-001-968	952-002-848
5.0000	0.3750	1.0000	1.6563	1.6250	0.3750	24	952-001-873	952-001-876	952-002-849
5.0000	0.3750	1.2500	1.5313	1.8750	0.3750	24	952-001-877	952-001-880	952-002-850
5.0000	0.4063	1.0000	1.6563	1.6250	0.4063	24	952-001-969	952-001-972	952-002-851
5.0000	0.4063	1.2500	1.5313	1.8750	0.4063	24	952-001-973	952-001-976	952-002-852
5.0000	0.4375	1.0000	1.6563	1.6250	0.4375	24	952-001-881	952-001-884	952-002-853
5.0000	0.4375	1.2500	1.5313	1.8750	0.4375	24	952-001-885	952-001-888	952-002-854
5.0000	0.4688	1.0000	1.6563	1.6250	0.4688	24	952-001-977	952-001-980	952-002-855
5.0000	0.4688	1.2500	1.5313	1.8750	0.4688	24	952-001-981	952-001-984	952-002-856
5.0000	0.5000	1.0000	1.6563	1.6250	0.5000	24	952-001-889	952-001-892	952-002-857
5.0000	0.5000	1.2500	1.5313	1.8750	0.5000	24	952-001-893	952-001-896	952-002-858
5.0000	0.5313	1.2500	1.5313	1.8750	0.5313	24	952-001-985	952-001-988	952-002-859
5.0000	0.5625	1.2500	1.5313	1.8750	0.5625	24	952-001-897	952-001-900	952-002-860
5.0000	0.5938	1.2500	1.5313	1.8750	0.5938	24	952-001-989	952-001-992	952-002-861
5.0000	0.6250	1.2500	1.5313	1.8750	0.6250	24	952-001-901	952-001-904	952-002-862
5.0000	0.6875	1.2500	1.5313	1.8750	0.6875	24	952-001-905	952-001-908	952-002-863
5.0000	0.7500	1.2500	1.5313	1.8750	0.7500	24	952-001-909	952-001-912	952-002-864
5.0000	0.8125	1.2500	1.5313	1.8750	0.8125	24	952-001-913	952-001-916	952-002-865
5.0000	0.8750	1.2500	1.5313	1.8750	0.8750	24	952-001-917	952-001-920	952-002-866
5.0000	0.9375	1.2500	1.5313	1.8750	0.9375	24	952-001-921	952-001-924	952-002-867
5.0000	1.0000	1.2500	1.5313	1.8750	1.0000	24	952-001-925	952-001-928	952-002-868
5.5000	0.2500	1.2500	1.7813	1.8750	0.2500	24	952-001-929	952-001-932	952-002-869
5.5000	0.3750	1.2500	1.7813	1.8750	0.3750	24	952-001-933	952-001-936	952-002-870
5.5000	0.5000	1.2500	1.7813	1.8750	0.5000	24	952-001-937	952-001-940	952-002-871

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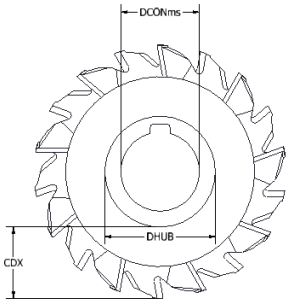

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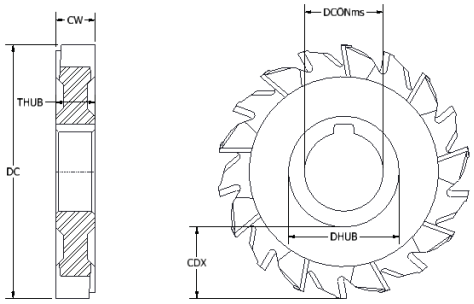
HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
5.5000	0.7500	1.2500	1.7813	1.8750	0.7500	24	952-001-941	952-001-944	952-002-872
6.0000	0.1875	1.0000	2.1563	1.6250	0.1875	24	952-001-993	952-001-996	952-002-873
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	24	952-001-997	952-002-000	952-002-874
6.0000	0.1875	1.5000	1.8438	2.2500	0.1875	28	952-002-001	952-002-004	952-002-875
6.0000	0.2188	1.0000	2.1563	1.6250	0.2188	24	952-002-145	952-002-148	952-002-876
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	24	952-002-149	952-002-152	952-002-877
6.0000	0.2188	1.5000	1.8438	2.2500	0.2188	28	952-002-153	952-002-156	952-002-878
6.0000	0.2500	1.0000	2.1563	1.6250	0.2500	24	952-002-005	952-002-008	952-002-879
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	24	952-002-009	952-002-012	952-002-880
6.0000	0.2500	1.5000	1.8438	2.2500	0.2500	28	952-002-013	952-002-016	952-002-881
6.0000	0.2813	1.0000	2.1563	1.6250	0.2813	24	952-002-157	952-002-160	952-002-882
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	24	952-002-161	952-002-164	952-002-883
6.0000	0.2813	1.5000	1.8438	2.2500	0.2813	28	952-002-165	952-002-168	952-002-884
6.0000	0.3125	1.0000	2.1563	1.6250	0.3125	24	952-002-017	952-002-020	952-002-885
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	24	952-002-021	952-002-024	952-002-886
6.0000	0.3125	1.5000	1.8438	2.2500	0.3125	28	952-002-025	952-002-028	952-002-887
6.0000	0.3438	1.0000	2.1563	1.6250	0.3438	24	952-002-169	952-002-172	952-002-888
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	24	952-002-173	952-002-176	952-002-889
6.0000	0.3438	1.5000	1.8438	2.2500	0.3438	28	952-002-177	952-002-180	952-002-890
6.0000	0.3750	1.0000	2.1563	1.6250	0.3750	24	952-002-029	952-002-032	952-002-891
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	24	952-002-033	952-002-036	952-002-892
6.0000	0.3750	1.5000	1.8438	2.2500	0.3750	28	952-002-037	952-002-040	952-002-893
6.0000	0.4063	1.0000	2.1563	1.6250	0.4063	24	952-002-181	952-002-184	952-002-894
6.0000	0.4063	1.2500	2.0313	1.8750	0.4063	24	952-002-185	952-002-188	952-002-895
6.0000	0.4063	1.5000	1.8438	2.2500	0.4063	28	952-002-189	952-002-192	952-002-896
6.0000	0.4375	1.0000	2.1563	1.6250	0.4375	24	952-002-041	952-002-044	952-002-897
6.0000	0.4375	1.2500	2.0313	1.8750	0.4375	24	952-002-045	952-002-048	952-002-898
6.0000	0.4375	1.5000	1.8438	2.2500	0.4375	28	952-002-049	952-002-052	952-002-899
6.0000	0.4688	1.0000	2.1563	1.6250	0.4688	24	952-002-193	952-002-196	952-002-900
6.0000	0.4688	1.2500	2.0313	1.8750	0.4688	24	952-002-197	952-002-200	952-002-901
6.0000	0.4688	1.5000	1.8438	2.2500	0.4688	28	952-002-201	952-002-204	952-002-902
6.0000	0.5000	1.0000	2.1563	1.6250	0.5000	24	952-002-053	952-002-056	952-002-903
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	24	952-002-057	952-002-060	952-002-904
6.0000	0.5000	1.5000	1.8438	2.2500	0.5000	28	952-002-061	952-002-064	952-002-905
6.0000	0.5313	1.2500	2.0313	1.8750	0.5313	24	952-002-205	952-002-208	952-002-906
6.0000	0.5625	1.2500	2.0313	1.8750	0.5625	24	952-002-065	952-002-068	952-002-907
6.0000	0.5625	1.5000	1.8438	2.2500	0.5625	28	952-002-069	952-002-072	952-002-908
6.0000	0.6250	1.2500	2.0313	1.8750	0.6250	24	952-002-073	952-002-076	952-002-909
6.0000	0.6250	1.5000	1.8438	2.2500	0.6250	28	952-002-077	952-002-080	952-002-910
6.0000	0.6875	1.2500	2.0313	1.8750	0.6875	24	952-002-081	952-002-084	952-002-911
6.0000	0.6875	1.5000	1.8438	2.2500	0.6875	28	952-002-085	952-002-088	952-002-912
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	24	952-002-089	952-002-092	952-002-913
6.0000	0.7500	1.5000	1.8438	2.2500	0.7500	28	952-002-093	952-002-096	952-002-914
6.0000	0.8125	1.2500	2.0313	1.8750	0.8125	24	952-002-097	952-002-100	952-002-915
6.0000	0.8125	1.5000	1.8438	2.2500	0.8125	28	952-002-101	952-002-104	952-002-916
6.0000	0.8750	1.2500	2.0313	1.8750	0.8750	24	952-002-105	952-002-108	952-002-917
6.0000	0.8750	1.5000	1.8438	2.2500	0.8750	28	952-002-109	952-002-112	952-002-918



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DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
6.0000	0.9375	1.2500	2.0313	1.8750	0.9375	24	952-002-113	952-002-116	952-002-919
6.0000	0.9375	1.5000	1.8438	2.2500	0.9375	28	952-002-117	952-002-120	952-002-920
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	24	952-002-121	952-002-124	952-002-921
6.0000	1.0000	1.5000	1.8438	2.2500	1.0000	28	952-002-125	952-002-128	952-002-922
6.0000	1.0625	1.2500	2.0313	1.8750	1.0625	24	952-002-129	952-002-132	952-002-923
6.0000	1.1250	1.2500	2.0313	1.8750	1.1250	24	952-002-133	952-002-136	952-002-924
6.0000	1.1875	1.2500	2.0313	1.8750	1.1875	24	952-002-137	952-002-140	952-002-925
6.0000	1.2500	1.2500	2.0313	1.8750	1.2500	24	952-002-141	952-002-144	952-002-926
7.0000	0.2500	1.2500	2.5313	1.8750	0.2500	24	952-002-209	952-002-212	952-002-927
7.0000	0.2500	1.5000	2.3438	2.2500	0.2500	28	952-002-213	952-002-216	952-002-928
7.0000	0.3125	1.2500	2.5313	1.8750	0.3125	24	952-002-217	952-002-220	952-002-929
7.0000	0.3125	1.5000	2.3438	2.2500	0.3125	28	952-002-221	952-002-224	952-002-930
7.0000	0.3750	1.2500	2.5313	1.8750	0.3750	24	952-002-225	952-002-228	952-002-931
7.0000	0.3750	1.5000	2.3438	2.2500	0.3750	28	952-002-229	952-002-232	952-002-932
7.0000	0.4375	1.2500	2.5313	1.8750	0.4375	24	952-002-233	952-002-236	952-002-933
7.0000	0.4375	1.5000	2.3438	2.2500	0.4375	28	952-002-237	952-002-240	952-002-934
7.0000	0.5000	1.2500	2.5313	1.8750	0.5000	24	952-002-241	952-002-244	952-002-935
7.0000	0.5000	1.5000	2.3438	2.2500	0.5000	28	952-002-245	952-002-248	952-002-936
7.0000	0.5625	1.2500	2.5313	1.8750	0.5625	24	952-002-249	952-002-252	952-002-937
7.0000	0.5625	1.5000	2.3438	2.2500	0.5625	28	952-002-253	952-002-256	952-002-938
7.0000	0.6250	1.2500	2.5313	1.8750	0.6250	24	952-002-257	952-002-260	952-002-939
7.0000	0.6250	1.5000	2.3438	2.2500	0.6250	28	952-002-261	952-002-264	952-002-940
7.0000	0.6875	1.2500	2.5313	1.8750	0.6875	24	952-002-265	952-002-268	952-002-941
7.0000	0.6875	1.5000	2.3438	2.2500	0.6875	28	952-002-269	952-002-272	952-002-942
7.0000	0.7500	1.2500	2.5313	1.8750	0.7500	24	952-002-273	952-002-276	952-002-943
7.0000	0.7500	1.5000	2.3438	2.2500	0.7500	28	952-002-277	952-002-280	952-002-944
7.0000	0.8125	1.2500	2.5313	1.8750	0.8125	24	952-002-281	952-002-284	952-002-945
7.0000	0.8125	1.5000	2.3438	2.2500	0.8125	28	952-002-285	952-002-288	952-002-946
7.0000	0.8750	1.2500	2.5313	1.8750	0.8750	24	952-002-289	952-002-292	952-002-947
7.0000	0.8750	1.5000	2.3438	2.2500	0.8750	28	952-002-293	952-002-296	952-002-948
7.0000	0.9375	1.2500	2.5313	1.8750	0.9375	24	952-002-297	952-002-300	952-002-949
7.0000	0.9375	1.5000	2.3438	2.2500	0.9375	28	952-002-301	952-002-304	952-002-950
7.0000	1.0000	1.2500	2.5313	1.8750	1.0000	24	952-002-305	952-002-308	952-002-951
7.0000	1.0000	1.5000	2.3438	2.2500	1.0000	28	952-002-309	952-002-312	952-002-952
8.0000	0.1875	1.2500	3.0313	1.8750	0.1875	28	952-002-313	952-002-316	952-002-953
8.0000	0.1875	1.5000	2.7188	2.5000	0.1875	28	952-002-317	952-002-320	952-002-954
8.0000	0.2188	1.2500	3.0313	1.8750	0.2188	28	952-002-425	952-002-428	952-002-955
8.0000	0.2188	1.5000	2.7188	2.5000	0.2188	28	952-002-429	952-002-432	952-002-956
8.0000	0.2500	1.2500	3.0313	1.8750	0.2500	28	952-002-321	952-002-324	952-002-957
8.0000	0.2500	1.5000	2.7188	2.5000	0.2500	28	952-002-325	952-002-328	952-002-958
8.0000	0.2813	1.2500	3.0313	1.8750	0.2813	28	952-002-433	952-002-436	952-002-959
8.0000	0.2813	1.5000	2.7188	2.5000	0.2813	28	952-002-437	952-002-440	952-002-960
8.0000	0.3125	1.2500	3.0313	1.8750	0.3125	28	952-002-329	952-002-332	952-002-961
8.0000	0.3125	1.5000	2.7188	2.5000	0.3125	28	952-002-333	952-002-336	952-002-962
8.0000	0.3438	1.2500	3.0313	1.8750	0.3438	28	952-002-441	952-002-444	952-002-963
8.0000	0.3438	1.5000	2.7188	2.5000	0.3438	28	952-002-445	952-002-448	952-002-964
8.0000	0.3750	1.2500	3.0313	1.8750	0.3750	28	952-002-337	952-002-340	952-002-965

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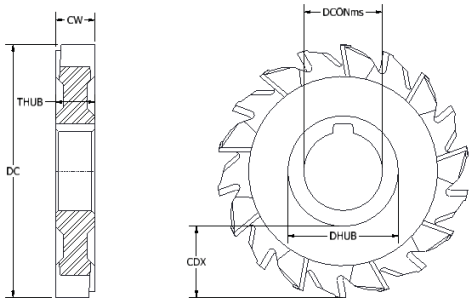

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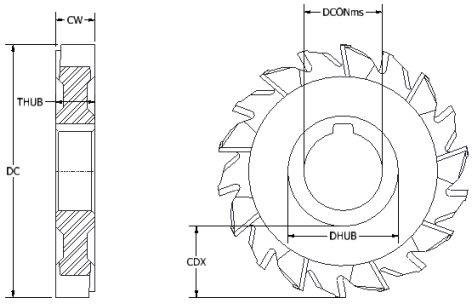
DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
8.0000	0.3750	1.5000	2.8438	2.2500	0.3750	28	952-002-341	952-002-344	952-002-966
8.0000	0.4063	1.2500	3.0313	1.8750	0.4063	28	952-002-449	952-002-452	952-002-967
8.0000	0.4063	1.5000	2.7188	2.5000	0.4063	28	952-002-453	952-002-456	952-002-968
8.0000	0.4375	1.2500	3.0313	1.8750	0.4375	28	952-002-345	952-002-348	952-002-969
8.0000	0.4375	1.5000	2.8438	2.2500	0.4375	28	952-002-349	952-002-352	952-002-970
8.0000	0.4688	1.2500	3.0313	1.8750	0.4688	28	952-002-457	952-002-460	952-002-971
8.0000	0.4688	1.5000	2.7188	2.5000	0.4688	28	952-002-461	952-002-464	952-002-972
8.0000	0.5000	1.2500	3.0313	1.8750	0.5000	28	952-002-353	952-002-356	952-002-973
8.0000	0.5000	1.5000	2.8438	2.2500	0.5000	28	952-002-357	952-002-360	952-002-974
8.0000	0.5313	1.2500	3.0313	1.8750	0.5313	28	952-002-465	952-002-468	952-002-975
8.0000	0.5313	1.5000	2.7188	2.5000	0.5313	28	952-002-469	952-002-472	952-002-976
8.0000	0.5625	1.2500	3.0313	1.8750	0.5625	28	952-002-361	952-002-364	952-002-977
8.0000	0.5625	1.5000	2.7188	2.5000	0.5625	28	952-002-365	952-002-368	952-002-978
8.0000	0.5938	1.2500	3.0313	1.8750	0.5938	28	952-002-473	952-002-476	952-002-979
8.0000	0.5938	1.5000	2.7188	2.5000	0.5938	28	952-002-477	952-002-480	952-002-980
8.0000	0.6250	1.2500	3.0313	1.8750	0.6250	28	952-002-369	952-002-372	952-002-981
8.0000	0.6250	1.5000	2.8438	2.2500	0.6250	28	952-002-373	952-002-376	952-002-982
8.0000	0.6875	1.2500	3.0313	1.8750	0.6875	28	952-002-377	952-002-380	952-002-983
8.0000	0.6875	1.5000	2.7188	2.5000	0.6875	28	952-002-381	952-002-384	952-002-984
8.0000	0.7500	1.2500	3.0313	1.8750	0.7500	28	952-002-385	952-002-388	952-002-985
8.0000	0.7500	1.5000	2.8438	2.2500	0.7500	28	952-002-389	952-002-392	952-002-986
8.0000	0.8125	1.2500	3.0313	1.8750	0.8125	28	952-002-393	952-002-396	952-002-987
8.0000	0.8125	1.5000	2.8438	2.2500	0.8125	28	952-002-397	952-002-400	952-002-988
8.0000	0.8750	1.2500	3.0313	1.8750	0.8750	28	952-002-401	952-002-404	952-002-989
8.0000	0.8750	1.5000	2.8438	2.2500	0.8750	28	952-002-405	952-002-408	952-002-990
8.0000	0.9375	1.2500	3.0313	1.8750	0.9375	28	952-002-409	952-002-412	952-002-991
8.0000	0.9375	1.5000	2.8438	2.2500	0.9375	28	952-002-413	952-002-416	952-002-992
8.0000	1.0000	1.2500	3.0313	1.8750	1.0000	28	952-002-417	952-002-420	952-002-993
8.0000	1.0000	1.5000	2.8438	2.2500	1.0000	28	952-002-421	952-002-424	952-002-994
9.0000	0.2500	1.2500	3.2188	2.5000	0.2500	28	952-002-481	952-002-484	952-002-995
9.0000	0.2500	1.5000	3.2188	2.5000	0.2500	28	952-002-485	952-002-488	952-002-996
9.0000	0.3125	1.2500	3.2188	2.5000	0.3125	28	952-002-489	952-002-492	952-002-997
9.0000	0.3125	1.5000	3.2188	2.5000	0.3125	28	952-002-493	952-002-496	952-002-998
9.0000	0.3750	1.2500	3.2188	2.5000	0.3750	28	952-002-497	952-002-500	952-002-999
9.0000	0.3750	1.5000	3.2188	2.5000	0.3750	28	952-002-501	952-002-504	952-003-000
9.0000	0.4375	1.2500	3.2188	2.5000	0.4375	28	952-002-505	952-002-508	952-003-001
9.0000	0.4375	1.5000	3.2188	2.5000	0.4375	28	952-002-509	952-002-512	952-003-002
9.0000	0.5000	1.2500	3.2188	2.5000	0.5000	28	952-002-513	952-002-516	952-003-003
9.0000	0.5000	1.5000	3.2188	2.5000	0.5000	28	952-002-517	952-002-520	952-003-004



PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
9.0000	0.5625	1.2500	3.2188	2.5000	0.5625	28	952-002-521	952-002-524	952-003-005
9.0000	0.5625	1.5000	3.2188	2.5000	0.5625	28	952-002-525	952-002-528	952-003-006
9.0000	0.6250	1.2500	3.2188	2.5000	0.6250	28	952-002-529	952-002-532	952-003-007
9.0000	0.6250	1.5000	3.2188	2.5000	0.6250	28	952-002-533	952-002-536	952-003-008
9.0000	0.6875	1.2500	3.2188	2.5000	0.6875	28	952-002-537	952-002-540	952-003-009
9.0000	0.6875	1.5000	3.2188	2.5000	0.6875	28	952-002-541	952-002-544	952-003-010
9.0000	0.7500	1.2500	3.2188	2.5000	0.7500	28	952-002-545	952-002-548	952-003-011
9.0000	0.7500	1.5000	3.2188	2.5000	0.7500	28	952-002-549	952-002-552	952-003-012
9.0000	0.8125	1.2500	3.2188	2.5000	0.8125	28	952-002-553	952-002-556	952-003-013
9.0000	0.8125	1.5000	3.2188	2.5000	0.8125	28	952-002-557	952-002-560	952-003-014
9.0000	0.8750	1.2500	3.2188	2.5000	0.8750	28	952-002-561	952-002-564	952-003-015
9.0000	0.8750	1.5000	3.2188	2.5000	0.8750	28	952-002-565	952-002-568	952-003-016
9.0000	0.9375	1.2500	3.2188	2.5000	0.9375	28	952-002-569	952-002-572	952-003-017
9.0000	0.9375	1.5000	3.2188	2.5000	0.9375	28	952-002-573	952-002-576	952-003-018
9.0000	1.0000	1.2500	3.2188	2.5000	1.0000	28	952-002-577	952-002-580	952-003-019
9.0000	1.0000	1.5000	3.2188	2.5000	1.0000	28	952-002-581	952-002-584	952-003-020
10.0000	0.1875	1.5000	3.8438	2.2500	0.1875	32	952-001-157	952-001-160	952-003-021
10.0000	0.2188	1.5000	3.3438	3.2500	0.2188	32	952-001-213	952-001-216	952-003-022
10.0000	0.2500	1.5000	3.8438	2.2500	0.2500	32	952-001-161	952-001-164	952-003-023
10.0000	0.2813	1.5000	3.3438	3.2500	0.2813	32	952-001-217	952-001-220	952-003-024
10.0000	0.3125	1.5000	3.8438	2.2500	0.3125	32	952-001-165	952-001-168	952-003-025
10.0000	0.3438	1.5000	3.3438	3.2500	0.3438	32	952-001-221	952-001-224	952-003-026
10.0000	0.3750	1.5000	3.8438	2.2500	0.3750	32	952-001-169	952-001-172	952-003-027
10.0000	0.4063	1.5000	3.3438	3.2500	0.4063	32	952-001-225	952-001-228	952-003-028
10.0000	0.4375	1.5000	3.8438	2.2500	0.4375	32	952-001-173	952-001-176	952-003-029
10.0000	0.4688	1.5000	3.3438	3.2500	0.4688	32	952-001-229	952-001-232	952-003-030
10.0000	0.5000	1.5000	3.8438	2.2500	0.5000	32	952-001-177	952-001-180	952-003-031
10.0000	0.5313	1.5000	3.3438	3.2500	0.5313	32	952-001-233	952-001-236	952-003-032
10.0000	0.5625	1.5000	3.8438	2.2500	0.5625	32	952-001-181	952-001-184	952-003-033
10.0000	0.6250	1.5000	3.8438	2.2500	0.6250	32	952-001-185	952-001-188	952-003-034
10.0000	0.6875	1.5000	3.8438	2.2500	0.6875	32	952-001-189	952-001-192	952-003-035
10.0000	0.7500	1.5000	3.8438	2.2500	0.7500	32	952-001-193	952-001-196	952-003-036
10.0000	0.8125	1.5000	3.8438	2.2500	0.8125	32	952-001-197	952-001-200	952-003-037
10.0000	0.8750	1.5000	3.8438	2.2500	0.8750	32	952-001-201	952-001-204	952-003-038
10.0000	0.9375	1.5000	3.8438	2.2500	0.9375	32	952-001-205	952-001-208	952-003-039
10.0000	1.0000	1.5000	3.8438	2.2500	1.0000	32	952-001-209	952-001-212	952-003-040

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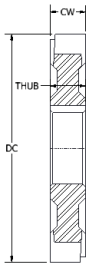

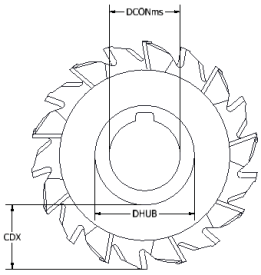

A Style

- Coarse pitch design
- Ground flutes
- Flutes ground on 20° helix with 15° radial rake
- Refer to page 513 for interlocking set information

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
4.0000	0.2188	1.2500	1.0938	1.7500	0.2188	10	952-000-041	952-000-044	952-003-041
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	10	952-000-001	952-000-004	952-003-042
4.0000	0.2813	1.2500	1.0938	1.7500	0.2813	10	952-000-045	952-000-048	952-003-043
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	10	952-000-005	952-000-008	952-003-044
4.0000	0.3438	1.2500	1.0938	1.7500	0.3438	10	952-000-049	952-000-052	952-003-045
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	10	952-000-009	952-000-012	952-003-046
4.0000	0.4375	1.2500	1.0938	1.7500	0.4375	10	952-000-013	952-000-016	952-003-047
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	10	952-000-017	952-000-020	952-003-048
4.0000	0.5625	1.2500	1.0938	1.7500	0.5625	10	952-000-021	952-000-024	952-003-049
4.0000	0.6250	1.2500	1.0938	1.7500	0.6250	10	952-000-025	952-000-028	952-003-050
4.0000	0.6875	1.2500	1.0938	1.7500	0.6875	10	952-000-029	952-000-032	952-003-051
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	10	952-000-033	952-000-036	952-003-052
4.0000	1.0000	1.2500	1.0938	1.7500	1.0000	10	952-000-037	952-000-040	952-003-053
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	16	952-000-093	952-000-096	952-003-054
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	16	952-000-053	952-000-056	952-003-055
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	16	952-000-097	952-000-100	952-003-056
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	16	952-000-057	952-000-060	952-003-057
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	16	952-000-101	952-000-104	952-003-058
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	16	952-000-061	952-000-064	952-003-059
6.0000	0.4375	1.2500	2.0313	1.8750	0.4375	16	952-000-065	952-000-068	952-003-060
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	16	952-000-069	952-000-072	952-003-061
6.0000	0.5625	1.2500	2.0313	1.8750	0.5625	16	952-000-073	952-000-076	952-003-062
6.0000	0.6250	1.2500	2.0313	1.8750	0.6250	16	952-000-077	952-000-080	952-003-063
6.0000	0.6875	1.2500	2.0313	1.8750	0.6875	16	952-000-081	952-000-084	952-003-064
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	16	952-000-085	952-000-088	952-003-065
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	16	952-000-089	952-000-092	952-003-066
8.0000	0.3750	1.2500	2.7188	2.5000	0.3750	20	952-000-105	952-000-108	952-003-067
8.0000	0.5000	1.2500	2.7188	2.5000	0.5000	20	952-000-109	952-000-112	952-003-068
8.0000	0.7500	1.2500	2.7188	2.5000	0.7500	20	952-000-113	952-000-116	952-003-069

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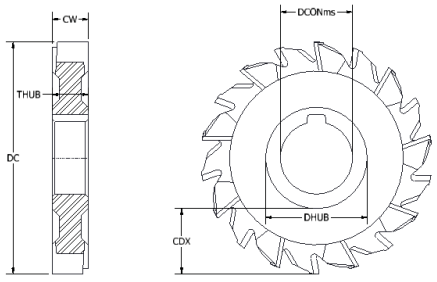

WK Style

- Excellent for milling keys
- Reduced side clearance to maintain width
- Diameters furnished 1/32" oversized for resharpening
- Refer to page 513 for interlocking set information

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.1563	0.1875	0.7500	0.5469	1.0000	0.1875	14	952-002-637	952-002-640	952-003-070
2.1563	0.2500	0.7500	0.5469	1.0000	0.2500	14	952-002-641	952-002-644	952-003-071
2.1563	0.3125	0.7500	0.5469	1.0000	0.3125	14	952-002-585	952-002-588	952-003-072
2.1563	0.3750	0.7500	0.5469	1.0000	0.3750	14	952-002-593	952-002-596	952-003-073
2.7813	0.2500	1.0000	0.6404	1.4380	0.2500	16	952-002-645	952-002-648	952-003-074
2.7813	0.3125	1.0000	0.6404	1.4380	0.3125	16	952-002-589	952-002-592	952-003-075
2.7813	0.3750	1.0000	0.6404	1.4380	0.3750	16	952-002-597	952-002-600	952-003-076
2.7813	0.4375	1.0000	0.6404	1.4380	0.4375	16	952-002-605	952-002-608	952-003-077
2.7813	0.5000	1.0000	0.6404	1.4380	0.5000	16	952-002-613	952-002-616	952-003-078
3.5313	0.3750	1.0000	1.0154	1.4380	0.3750	18	952-002-601	952-002-604	952-003-079
3.5313	0.4375	1.0000	1.0154	1.4380	0.4375	18	952-002-609	952-002-612	952-003-080
3.5313	0.5000	1.0000	0.9844	1.5000	0.5000	18	952-002-617	952-002-620	952-003-081
3.5313	0.5625	1.0000	0.9844	1.5000	0.5625	18	952-002-621	952-002-624	952-003-082
3.5313	0.6250	1.0000	0.9844	1.5000	0.6250	18	952-002-625	952-002-628	952-003-083
3.5313	0.6875	1.0000	0.9844	1.5000	0.6875	18	952-002-629	952-002-632	952-003-084
3.5313	0.7500	1.0000	0.9844	1.5000	0.7500	18	952-002-633	952-002-636	952-003-085

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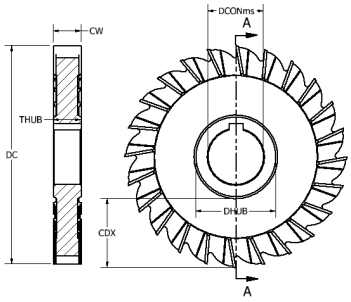
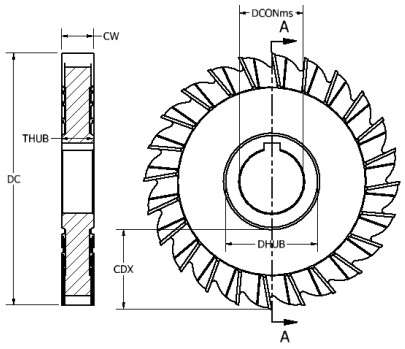


B Style

- Additional teeth for improved finish
- Excellent for thin walled parts, interrupted cuts or finish requirements

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.0000	0.1875	0.5000	0.4998	0.9380	0.1875	14	952-000-169	952-000-172	952-003-086
2.0000	0.1875	0.6250	0.4998	0.9380	0.1875	14	952-000-173	952-000-176	952-003-087
2.0000	0.2500	0.5000	0.4998	0.9380	0.2500	14	952-000-177	952-000-180	952-003-088
2.0000	0.2500	0.6250	0.4998	0.9380	0.2500	14	952-000-181	952-000-184	952-003-089
2.0000	0.3750	0.5000	0.4998	0.9380	0.3750	14	952-000-185	952-000-188	952-003-090
2.0000	0.3750	0.6250	0.4998	0.9380	0.3750	14	952-000-189	952-000-192	952-003-091
2.5000	0.2500	0.8750	0.6248	1.1880	0.2500	16	952-000-193	952-000-196	952-003-092
2.5000	0.3125	0.8750	0.6248	1.1880	0.3125	16	952-000-197	952-000-200	952-003-093
2.5000	0.3750	0.8750	0.6248	1.1880	0.3750	16	952-000-201	952-000-204	952-003-094
2.5000	0.5000	1.0000	0.6248	1.1880	0.5000	16	952-000-205	952-000-208	952-003-095
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	20	952-000-209	952-000-212	952-003-096
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	20	952-000-265	952-000-268	952-003-097
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	20	952-000-213	952-000-216	952-003-098
3.0000	0.2813	1.0000	0.7188	1.5000	0.2813	20	952-000-269	952-000-272	952-003-099
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	20	952-000-217	952-000-220	952-003-100
3.0000	0.3438	1.0000	0.7188	1.5000	0.3438	20	952-000-273	952-000-276	952-003-101
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	20	952-000-221	952-000-224	952-003-102
3.0000	0.4063	1.0000	0.7188	1.5000	0.4063	20	952-000-277	952-000-280	952-003-103
3.0000	0.4375	1.0000	0.7188	1.5000	0.4375	20	952-000-225	952-000-228	952-003-104
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	20	952-000-229	952-000-232	952-003-105
3.0000	0.5625	1.0000	0.7188	1.5000	0.5625	20	952-000-233	952-000-236	952-003-106
3.0000	0.6250	1.0000	0.7188	1.5000	0.6250	20	952-000-237	952-000-240	952-003-107
3.0000	0.6875	1.0000	0.7188	1.5000	0.6875	20	952-000-241	952-000-244	952-003-108
3.0000	0.7500	1.0000	0.7188	1.5000	0.7500	20	952-000-245	952-000-248	952-003-109
3.0000	0.8125	1.0000	0.7188	1.5000	0.8125	20	952-000-249	952-000-252	952-003-110
3.0000	0.8750	1.0000	0.7188	1.5000	0.8750	20	952-000-253	952-000-256	952-003-111
3.0000	0.9375	1.0000	0.7188	1.5000	0.9375	20	952-000-257	952-000-260	952-003-112
3.0000	1.0000	1.0000	0.7188	1.5000	1.0000	20	952-000-261	952-000-264	952-003-113
4.0000	0.2188	1.0000	1.1563	1.6250	0.2188	24	952-000-385	952-000-388	952-003-114
4.0000	0.2188	1.2500	1.0938	1.7500	0.2188	24	952-000-389	952-000-392	952-003-115
4.0000	0.2500	1.0000	1.1563	1.6250	0.2500	24	952-000-281	952-000-284	952-003-116
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	24	952-000-285	952-000-288	952-003-117
4.0000	0.2813	1.0000	1.1563	1.6250	0.2813	24	952-000-393	952-000-396	952-003-118
4.0000	0.2813	1.2500	1.0938	1.7500	0.2813	24	952-000-397	952-000-400	952-003-119
4.0000	0.3125	1.0000	1.1563	1.6250	0.3125	24	952-000-289	952-000-292	952-003-120
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	24	952-000-293	952-000-296	952-003-121
4.0000	0.3438	1.0000	1.1563	1.6250	0.3438	24	952-000-401	952-000-404	952-003-122
4.0000	0.3438	1.2500	1.0938	1.7500	0.3438	24	952-000-405	952-000-408	952-003-123
4.0000	0.3750	1.0000	1.1563	1.6250	0.3750	24	952-000-297	952-000-300	952-003-124
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	24	952-000-301	952-000-304	952-003-125
4.0000	0.4063	1.0000	1.1563	1.6250	0.4063	24	952-000-409	952-000-412	952-003-126
4.0000	0.4063	1.2500	1.0938	1.7500	0.4063	24	952-000-413	952-000-416	952-003-127
4.0000	0.4375	1.0000	1.1563	1.6250	0.4375	24	952-000-305	952-000-308	952-003-128
4.0000	0.4375	1.2500	1.0938	1.7500	0.4375	24	952-000-309	952-000-312	952-003-129
4.0000	0.5000	1.0000	1.1563	1.6250	0.5000	24	952-000-313	952-000-316	952-003-130
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	24	952-000-317	952-000-320	952-003-131



PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
4.0000	0.5625	1.0000	1.1563	1.6250	0.5625	24	952-000-321	952-000-324	952-003-132
4.0000	0.5625	1.2500	1.0938	1.7500	0.5625	24	952-000-325	952-000-328	952-003-133
4.0000	0.6250	1.0000	1.1563	1.6250	0.6250	24	952-000-329	952-000-332	952-003-134
4.0000	0.6250	1.2500	1.0938	1.7500	0.6250	24	952-000-333	952-000-336	952-003-135
4.0000	0.6875	1.0000	1.1563	1.6250	0.6875	24	952-000-337	952-000-340	952-003-136
4.0000	0.6875	1.2500	1.0938	1.7500	0.6875	24	952-000-341	952-000-344	952-003-137
4.0000	0.7500	1.0000	1.1563	1.6250	0.7500	24	952-000-345	952-000-348	952-003-138
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	24	952-000-349	952-000-352	952-003-139
4.0000	0.8125	1.0000	1.1563	1.6250	0.8125	24	952-000-353	952-000-356	952-003-140
4.0000	0.8125	1.2500	1.0938	1.7500	0.8125	24	952-000-357	952-000-360	952-003-141
4.0000	0.8750	1.0000	1.1563	1.6250	0.8750	24	952-000-361	952-000-364	952-003-142
4.0000	0.8750	1.2500	1.0938	1.7500	0.8750	24	952-000-365	952-000-368	952-003-143
4.0000	0.9375	1.0000	1.1563	1.6250	0.9375	24	952-000-369	952-000-372	952-003-144
4.0000	0.9375	1.2500	1.0938	1.7500	0.9375	24	952-000-373	952-000-376	952-003-145
4.0000	1.0000	1.0000	1.1563	1.6250	1.0000	24	952-000-377	952-000-380	952-003-146
4.0000	1.0000	1.2500	1.0938	1.7500	1.0000	24	952-000-381	952-000-384	952-003-147
5.0000	0.2500	1.0000	1.6563	1.6250	0.2500	26	952-000-417	952-000-420	952-003-148
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	26	952-000-421	952-000-424	952-003-149
5.0000	0.2813	1.0000	1.6563	1.6250	0.2813	26	952-000-521	952-000-524	952-003-150
5.0000	0.2813	1.2500	1.5313	1.8750	0.2813	26	952-000-525	952-000-528	952-003-151
5.0000	0.3125	1.0000	1.6563	1.6250	0.3125	26	952-000-425	952-000-428	952-003-152
5.0000	0.3125	1.2500	1.5313	1.8750	0.3125	26	952-000-429	952-000-432	952-003-153
5.0000	0.3438	1.0000	1.6563	1.6250	0.3438	26	952-000-529	952-000-532	952-003-154
5.0000	0.3438	1.2500	1.5313	1.8750	0.3438	26	952-000-533	952-000-536	952-003-155
5.0000	0.3750	1.0000	1.6563	1.6250	0.3750	26	952-000-433	952-000-436	952-003-156
5.0000	0.3750	1.2500	1.5313	1.8750	0.3750	26	952-000-437	952-000-440	952-003-157
5.0000	0.4063	1.0000	1.6563	1.6250	0.4063	26	952-000-537	952-000-540	952-003-158
5.0000	0.4063	1.2500	1.5313	1.8750	0.4063	26	952-000-541	952-000-544	952-003-159
5.0000	0.4375	1.0000	1.6563	1.6250	0.4375	26	952-000-441	952-000-444	952-003-160
5.0000	0.4375	1.2500	1.5313	1.8750	0.4375	26	952-000-445	952-000-448	952-003-161
5.0000	0.5000	1.0000	1.6563	1.6250	0.5000	26	952-000-449	952-000-452	952-003-162
5.0000	0.5000	1.2500	1.5313	1.8750	0.5000	26	952-000-453	952-000-456	952-003-163
5.0000	0.5625	1.0000	1.6563	1.6250	0.5625	26	952-000-457	952-000-460	952-003-164
5.0000	0.5625	1.2500	1.5313	1.8750	0.5625	26	952-000-461	952-000-464	952-003-165
5.0000	0.6250	1.0000	1.6563	1.6250	0.6250	26	952-000-465	952-000-468	952-003-166
5.0000	0.6250	1.2500	1.5313	1.8750	0.6250	26	952-000-469	952-000-472	952-003-167
5.0000	0.6875	1.0000	1.6563	1.6250	0.6875	26	952-000-473	952-000-476	952-003-168
5.0000	0.6875	1.2500	1.5313	1.8750	0.6875	26	952-000-477	952-000-480	952-003-169
5.0000	0.7500	1.0000	1.6563	1.6250	0.7500	26	952-000-481	952-000-484	952-003-170

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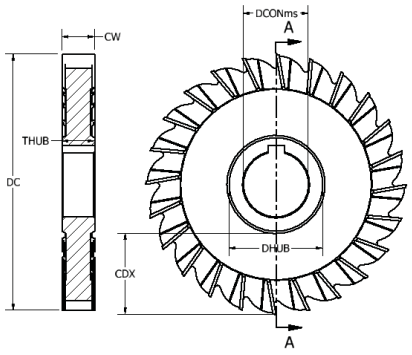

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
5.0000	0.7500	1.2500	1.5313	1.8750	0.7500	26	952-000-485	952-000-488	952-003-171
5.0000	0.8125	1.0000	1.6563	1.6250	0.8125	26	952-000-489	952-000-492	952-003-172
5.0000	0.8125	1.2500	1.5313	1.8750	0.8125	26	952-000-493	952-000-496	952-003-173
5.0000	0.8750	1.0000	1.6563	1.6250	0.8750	26	952-000-497	952-000-500	952-003-174
5.0000	0.8750	1.2500	1.5313	1.8750	0.8750	26	952-000-501	952-000-504	952-003-175
5.0000	0.9375	1.0000	1.6563	1.6250	0.9375	26	952-000-505	952-000-508	952-003-176
5.0000	0.9375	1.2500	1.5313	1.8750	0.9375	26	952-000-509	952-000-512	952-003-177
5.0000	1.0000	1.0000	1.6563	1.6250	1.0000	26	952-000-513	952-000-516	952-003-178
5.0000	1.0000	1.2500	1.5313	1.8750	1.0000	26	952-000-517	952-000-520	952-003-179
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	30	952-000-545	952-000-548	952-003-180
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	30	952-000-605	952-000-608	952-003-181
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	30	952-000-549	952-000-552	952-003-182
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	30	952-000-609	952-000-612	952-003-183
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	30	952-000-553	952-000-556	952-003-184
6.0000	0.4063	1.2500	2.0313	1.8750	0.4063	30	952-000-613	952-000-616	952-003-185
6.0000	0.4375	1.2500	2.0313	1.8750	0.4375	30	952-000-557	952-000-560	952-003-186
6.0000	0.5000	1.0000	2.1563	1.6250	0.5000	30	952-000-561	952-000-564	952-003-187
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	30	952-000-565	952-000-568	952-003-188
6.0000	0.5625	1.2500	2.0313	1.8750	0.5625	30	952-000-569	952-000-572	952-003-189
6.0000	0.6250	1.2500	2.0313	1.8750	0.6250	30	952-000-573	952-000-576	952-003-190
6.0000	0.6875	1.2500	2.0313	1.8750	0.6875	30	952-000-577	952-000-580	952-003-191
6.0000	0.7500	1.0000	2.1563	1.6250	0.7500	30	952-000-581	952-000-584	952-003-192
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	30	952-000-585	952-000-588	952-003-193
6.0000	0.8125	1.2500	2.0313	1.8750	0.8125	30	952-000-589	952-000-592	952-003-194
6.0000	0.8750	1.2500	2.0313	1.8750	0.8750	30	952-000-593	952-000-596	952-003-195
6.0000	0.9375	1.2500	2.0313	1.8750	0.9375	30	952-000-597	952-000-600	952-003-196
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	30	952-000-601	952-000-604	952-003-197
7.0000	0.2500	1.2500	2.5313	1.8750	0.2500	32	952-000-617	952-000-620	952-003-198
7.0000	0.3125	1.2500	2.5313	1.8750	0.3125	32	952-000-621	952-000-624	952-003-199
7.0000	0.3750	1.2500	2.5313	1.8750	0.3750	32	952-000-625	952-000-628	952-003-200
7.0000	0.4375	1.2500	2.5313	1.8750	0.4375	32	952-000-629	952-000-632	952-003-201
7.0000	0.5000	1.2500	2.5313	1.8750	0.5000	32	952-000-633	952-000-636	952-003-202
7.0000	0.5625	1.2500	2.5313	1.8750	0.5625	32	952-000-637	952-000-640	952-003-203
7.0000	0.6250	1.2500	2.5313	1.8750	0.6250	32	952-000-641	952-000-644	952-003-204
7.0000	0.6875	1.2500	2.5313	1.8750	0.6875	32	952-000-645	952-000-648	952-003-205
7.0000	0.7500	1.2500	2.5313	1.8750	0.7500	32	952-000-649	952-000-652	952-003-206
7.0000	0.8125	1.2500	2.5313	1.8750	0.8125	32	952-000-653	952-000-656	952-003-207
7.0000	0.8750	1.2500	2.5313	1.8750	0.8750	32	952-000-657	952-000-660	952-003-208
7.0000	0.9375	1.2500	2.5313	1.8750	0.9375	32	952-000-661	952-000-664	952-003-209
7.0000	1.0000	1.2500	2.5313	1.8750	1.0000	32	952-000-665	952-000-668	952-003-210
8.0000	0.2500	1.2500	3.0313	1.8750	0.2500	34	952-000-669	952-000-672	952-003-211
8.0000	0.3125	1.2500	3.0313	1.8750	0.3125	34	952-000-673	952-000-676	952-003-212
8.0000	0.3750	1.2500	3.0313	1.8750	0.3750	34	952-000-677	952-000-680	952-003-213

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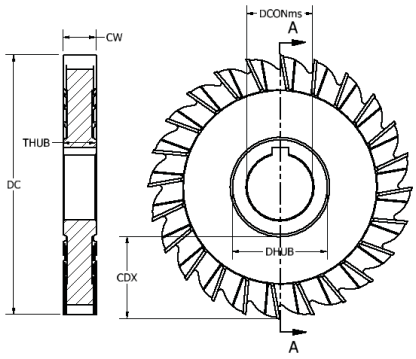

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
8.0000	0.4375	1.2500	3.0313	1.8750	0.4375	34	952-000-681	952-000-684	952-003-214
8.0000	0.5000	1.2500	3.0313	1.8750	0.5000	34	952-000-685	952-000-688	952-003-215
8.0000	0.5625	1.2500	3.0313	1.8750	0.5625	34	952-000-689	952-000-692	952-003-216
8.0000	0.6250	1.2500	3.0313	1.8750	0.6250	34	952-000-693	952-000-696	952-003-217
8.0000	0.6875	1.0000	3.0313	1.8750	0.6875	34	952-000-697	952-000-700	952-003-218
8.0000	0.7500	1.2500	3.0313	1.8750	0.7500	34	952-000-701	952-000-704	952-003-219
8.0000	0.8125	1.2500	3.0313	1.8750	0.8125	34	952-000-705	952-000-708	952-003-220
8.0000	0.8750	1.2500	3.0313	1.8750	0.8750	34	952-000-709	952-000-712	952-003-221
8.0000	0.9375	1.2500	3.0313	1.8750	0.9375	34	952-000-713	952-000-716	952-003-222
8.0000	1.0000	1.2500	3.0313	1.8750	1.0000	34	952-000-717	952-000-720	952-003-223
9.0000	0.2500	1.2500	3.2188	2.5000	0.2500	36	952-000-721	952-000-724	952-003-224
9.0000	0.3125	1.2500	3.2188	2.5000	0.3125	36	952-000-725	952-000-728	952-003-225
9.0000	0.3750	1.2500	3.2188	2.5000	0.3750	36	952-000-729	952-000-732	952-003-226
9.0000	0.4375	1.2500	3.2188	2.5000	0.4375	36	952-000-733	952-000-736	952-003-227
9.0000	0.5000	1.2500	3.2188	2.5000	0.5000	36	952-000-737	952-000-740	952-003-228
9.0000	0.5625	1.2500	3.2188	2.5000	0.5625	36	952-000-741	952-000-744	952-003-229
9.0000	0.6250	1.2500	3.2188	2.5000	0.6250	36	952-000-745	952-000-748	952-003-230
9.0000	0.6875	1.0000	3.2188	2.5000	0.6875	36	952-000-749	952-000-752	952-003-231
9.0000	0.7500	1.2500	3.2188	2.5000	0.7500	36	952-000-753	952-000-756	952-003-232
9.0000	0.8125	1.2500	3.2188	2.5000	0.8125	36	952-000-757	952-000-760	952-003-233
9.0000	0.8750	1.2500	3.2188	2.5000	0.8750	36	952-000-761	952-000-764	952-003-234
9.0000	0.9375	1.2500	3.2188	2.5000	0.9375	36	952-000-765	952-000-768	952-003-235
9.0000	1.0000	1.2500	3.2188	2.5000	1.0000	36	952-000-769	952-000-772	952-003-236
10.0000	0.2500	1.5000	3.3438	3.2500	0.2500	38	952-000-117	952-000-120	952-003-237
10.0000	0.3125	1.5000	3.3438	3.2500	0.3125	38	952-000-121	952-000-124	952-003-238
10.0000	0.3750	1.5000	3.3438	3.2500	0.3750	38	952-000-125	952-000-128	952-003-239
10.0000	0.4375	1.5000	3.3438	3.2500	0.4375	38	952-000-129	952-000-132	952-003-240
10.0000	0.5000	1.5000	3.3438	3.2500	0.5000	38	952-000-133	952-000-136	952-003-241
10.0000	0.5625	1.5000	3.3438	3.2500	0.5625	38	952-000-137	952-000-140	952-003-242
10.0000	0.6250	1.5000	3.3438	3.2500	0.6250	38	952-000-141	952-000-144	952-003-243
10.0000	0.6875	1.5000	3.3438	3.2500	0.6875	38	952-000-145	952-000-148	952-003-244
10.0000	0.7500	1.5000	3.3438	3.2500	0.7500	38	952-000-149	952-000-152	952-003-245
10.0000	0.8125	1.5000	3.3438	3.2500	0.8125	38	952-000-153	952-000-156	952-003-246
10.0000	0.8750	1.5000	3.3438	3.2500	0.8750	38	952-000-157	952-000-160	952-003-247
10.0000	0.9375	1.5000	3.3438	3.2500	0.9375	38	952-000-161	952-000-164	952-003-248
10.0000	1.0000	1.5000	3.3438	3.2500	1.0000	38	952-000-165	952-000-168	952-003-249

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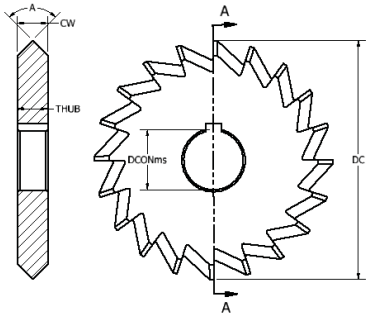
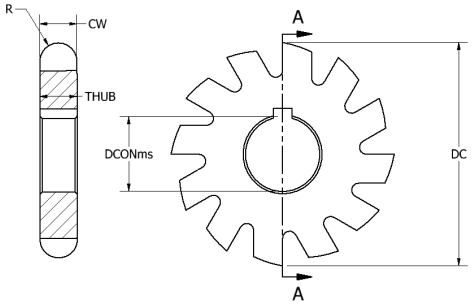


DA Style

- Three standard angles
- Excellent for thin milling notches, chamfers, serrations and angles

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	A [°]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.7500	0.5000	1.0000	1.2500	45.0	20	900-000-001	900-000-004	900-000-277
2.7500	0.5000	1.0000	0.5000	60.0	20	900-000-005	900-000-008	900-000-278
2.7500	0.5000	1.0000	0.5000	90.0	20	900-000-041	900-000-044	900-000-279
4.0000	0.5000	1.2500	0.5000	60.0	20	900-000-009	900-000-012	900-000-280
4.0000	0.5000	1.2500	0.5000	90.0	20	900-000-045	900-000-048	900-000-281
4.0000	0.7500	1.2500	0.7500	60.0	20	900-000-013	900-000-016	900-000-282
4.0000	0.7500	1.2500	0.7500	90.0	20	900-000-049	900-000-052	900-000-283
4.0000	1.0000	1.2500	1.0000	60.0	20	900-000-017	900-000-020	900-000-284
4.0000	1.0000	1.2500	1.0000	90.0	20	900-000-053	900-000-056	900-000-285
5.0000	0.7500	1.2500	0.7500	60.0	24	900-000-021	900-000-024	900-000-286
5.0000	0.7500	1.2500	0.7500	90.0	24	900-000-057	900-000-060	900-000-287
5.0000	1.0000	1.2500	1.0000	60.0	24	900-000-025	900-000-028	900-000-288
5.0000	1.0000	1.2500	1.0000	90.0	24	900-000-061	900-000-064	900-000-289
6.0000	1.0000	1.2500	1.0000	60.0	28	900-000-029	900-000-032	900-000-290
6.0000	1.0000	1.2500	1.0000	90.0	28	900-000-065	900-000-068	900-000-291
6.0000	1.2500	1.2500	1.2500	60.0	28	900-000-033	900-000-036	900-000-292
6.0000	1.0000	1.2500	1.0000	90.0	28	900-000-069	900-000-072	900-000-293
6.0000	1.5000	1.2500	1.5000	60.0	28	900-000-037	900-000-040	900-000-294
6.0000	1.2500	1.2500	1.2500	90.0	28	900-000-073	900-000-076	900-000-295



CVS Style

- Convex Radius

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	R [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.2500	0.1250	1.0000	0.1250	0.0625	16	921-000-001	921-000-004	921-000-109
2.2500	0.1875	1.0000	0.1875	0.0938	16	921-000-005	921-000-008	921-000-110
2.5000	0.2500	1.0000	0.2500	0.1250	14	921-000-009	921-000-012	921-000-111
2.7500	0.3125	1.0000	0.3125	0.1563	14	921-000-013	921-000-016	921-000-112
2.7500	0.3750	1.0000	0.3125	0.1875	12	921-000-017	921-000-020	921-000-113
3.0000	0.4375	1.0000	0.4375	0.2188	12	921-000-021	921-000-024	921-000-114
3.0000	0.5000	1.0000	0.5000	0.2500	12	921-000-025	921-000-028	921-000-115
3.5000	0.6250	1.2500	0.6250	0.3125	12	921-000-029	921-000-032	921-000-116
3.7500	0.7500	1.2500	0.7500	0.3750	12	921-000-033	921-000-036	921-000-117
4.0000	0.8750	1.2500	0.8750	0.4375	12	921-000-037	921-000-040	921-000-118
4.2500	1.0000	1.2500	1.0000	0.5000	10	921-000-041	921-000-044	921-000-119
4.2500	1.1250	1.2500	1.1250	0.5625	10	921-000-045	921-000-048	921-000-120
4.5000	1.2500	1.2500	1.2500	0.6250	10	921-000-049	921-000-052	921-000-121
4.7500	1.3750	1.2500	1.3750	0.6875	10	921-000-053	921-000-056	921-000-122
5.0000	1.5000	1.2500	1.5000	0.7500	10	921-000-057	921-000-060	921-000-123

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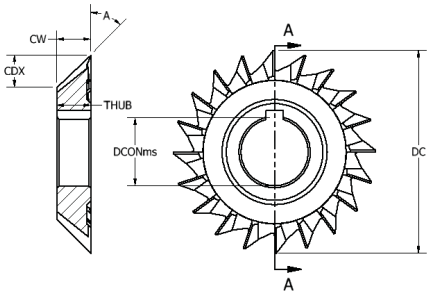
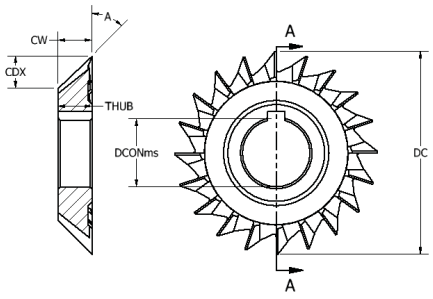


FL Style

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	THUB [in.]	A [°]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.7500	0.5000	1.0000	0.5000	0.5000	45.0	20	900-000-077	900-000-080	900-000-257
2.7500	0.5000	1.0000	0.2887	0.5000	60.0	20	900-000-157	900-000-160	900-000-258
3.0000	0.5000	1.2500	0.5000	0.5000	45.0	20	900-000-085	900-000-088	900-000-259
3.0000	0.5000	1.2500	0.2887	0.5000	60.0	20	900-000-165	900-000-168	900-000-260
4.0000	0.5000	1.2500	0.5000	0.5000	45.0	20	900-000-093	900-000-096	900-000-261
4.0000	0.5000	1.2500	0.2887	0.5000	60.0	20	900-000-173	900-000-176	900-000-262
4.0000	0.7500	1.2500	0.7500	0.7500	45.0	20	900-000-101	900-000-104	900-000-263
4.0000	0.7500	1.2500	0.4330	0.7500	60.0	20	900-000-181	900-000-184	900-000-264
4.0000	1.0000	1.2500	1.0000	1.0000	45.0	20	900-000-109	900-000-112	900-000-265
4.0000	1.0000	1.2500	0.5774	1.0000	60.0	20	900-000-189	900-000-192	900-000-266
5.0000	0.7500	1.2500	0.7500	0.7500	45.0	24	900-000-117	900-000-120	900-000-267
4.0000	0.7500	1.2500	0.4330	0.7500	60.0	24	900-000-197	900-000-200	900-000-268
5.0000	1.0000	1.2500	1.0000	1.0000	45.0	24	900-000-125	900-000-128	900-000-269
5.0000	1.0000	1.2500	0.5774	1.0000	60.0	24	900-000-205	900-000-208	900-000-270
6.0000	0.7500	1.2500	0.7500	0.7500	45.0	28	900-000-133	900-000-136	900-000-271
6.0000	0.7500	1.2500	0.4330	0.7500	60.0	28	900-000-213	900-000-216	900-000-272
6.0000	1.0000	1.2500	1.0000	1.0000	45.0	28	900-000-141	900-000-144	900-000-273
6.0000	1.0000	1.2500	0.5774	1.0000	60.0	28	900-000-221	900-000-224	900-000-274
6.0000	1.2500	1.2500	1.2500	1.2500	45.0	28	900-000-149	900-000-152	900-000-275
6.0000	1.2500	1.2500	0.7217	1.2500	60.0	28	900-000-229	900-000-232	900-000-276



FR Style

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	THUB [in.]	A [°]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.7500	0.5000	1.0000	0.5000	0.5000	45.0	20	900-000-081	900-000-084	900-000-237
2.7500	0.5000	1.0000	0.2887	0.5000	60.0	20	900-000-161	900-000-164	900-000-238
3.0000	0.5000	1.2500	0.5000	0.5000	45.0	20	900-000-089	900-000-092	900-000-239
3.0000	0.5000	1.2500	0.2887	0.5000	60.0	20	900-000-169	900-000-172	900-000-240
4.0000	0.5000	1.2500	0.5000	0.5000	45.0	20	900-000-097	900-000-100	900-000-241
4.0000	0.5000	1.2500	0.2887	0.5000	60.0	20	900-000-177	900-000-180	900-000-242
4.0000	0.7500	1.2500	0.7500	0.7500	45.0	20	900-000-105	900-000-108	900-000-243
4.0000	0.7500	1.2500	0.4330	0.7500	60.0	20	900-000-185	900-000-188	900-000-244
4.0000	1.0000	1.2500	1.0000	1.0000	45.0	20	900-000-113	900-000-116	900-000-245
4.0000	1.0000	1.2500	0.5774	1.0000	60.0	20	900-000-193	900-000-196	900-000-246
5.0000	0.7500	1.2500	0.7500	0.7500	45.0	24	900-000-121	900-000-124	900-000-247
5.0000	0.7500	1.2500	0.4330	0.7500	60.0	24	900-000-201	900-000-204	900-000-248
5.0000	1.0000	1.2500	1.0000	1.0000	45.0	24	900-000-129	900-000-132	900-000-249
5.0000	1.0000	1.2500	0.5774	1.0000	60.0	24	900-000-209	900-000-212	900-000-250
6.0000	0.7500	1.2500	0.7500	0.7500	45.0	28	900-000-137	900-000-140	900-000-251
6.0000	0.7500	1.2500	0.4330	0.7500	60.0	28	900-000-217	900-000-220	900-000-252
6.0000	1.0000	1.2500	1.0000	1.0000	45.0	28	900-000-145	900-000-148	900-000-253
6.0000	1.0000	1.2500	0.5774	1.0000	60.0	28	900-000-225	900-000-228	900-000-254
6.0000	1.2500	1.2500	1.2500	1.2500	45.0	28	900-000-153	900-000-156	900-000-255
6.0000	1.2500	1.2500	0.7217	1.2500	60.0	28	900-000-233	900-000-236	900-000-256

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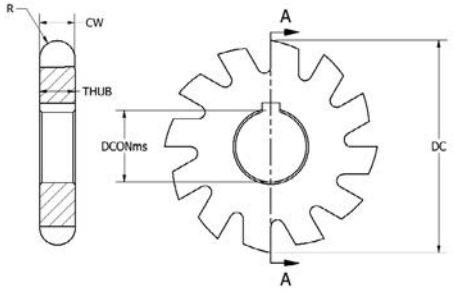
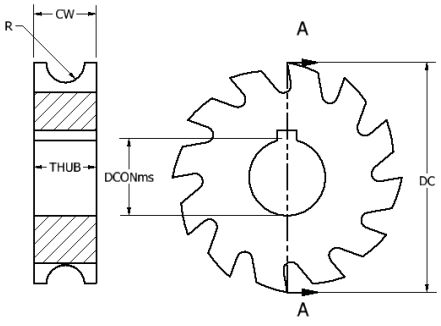


CVL Style
- Convex Radius

PG.505

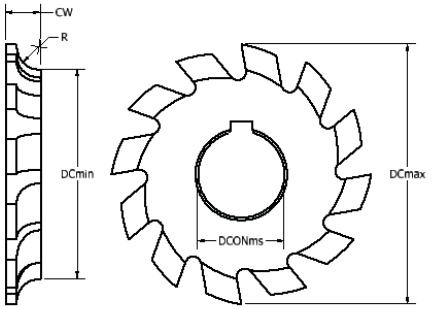
DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	R [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
4.0000	0.1250	1.2500	0.1250	0.0625	22	921-000-061	921-000-064	921-000-124
4.0000	0.1875	1.2500	0.1875	0.0938	22	921-000-065	921-000-068	921-000-125
4.0000	0.2500	1.2500	0.2500	0.1250	22	921-000-069	921-000-072	921-000-126
5.0000	0.3125	1.2500	0.3125	0.1563	18	921-000-073	921-000-076	921-000-127
5.0000	0.3750	1.2500	0.3750	0.1875	18	921-000-077	921-000-080	921-000-128
5.0000	0.4375	1.2500	0.4375	0.2188	18	921-000-081	921-000-084	921-000-129
5.0000	0.5000	1.2500	0.5000	0.2500	18	921-000-085	921-000-088	921-000-130
5.0000	0.6250	1.2500	0.6250	0.3125	18	921-000-089	921-000-092	921-000-131
6.0000	0.7500	1.2500	0.7500	0.3750	14	921-000-093	921-000-096	921-000-132
6.0000	0.8750	1.2500	0.8750	0.4375	14	921-000-097	921-000-100	921-000-133
6.0000	1.0000	1.2500	1.0000	0.5000	14	921-000-101	921-000-104	921-000-134
6.0000	1.2500	1.2500	1.2500	0.6250	14	921-000-105	921-000-108	921-000-135



CC Style
- Concave Radius

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	R [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.2500	0.2500	1.0000	0.2500	0.0625	16	904-000-005	904-000-012	904-000-061
2.2500	0.3750	1.0000	0.3750	0.0938	16	904-000-029	904-000-032	904-000-062
2.5000	0.4375	1.0000	0.4375	0.1250	14	904-000-033	904-000-036	904-000-063
2.7500	0.5625	1.0000	0.5625	0.1563	14	904-000-037	904-000-040	904-000-064
2.7500	0.6250	1.0000	0.6250	0.1875	12	904-000-041	904-000-044	904-000-065
3.0000	0.7500	1.0000	0.7500	0.2188	12	904-000-045	904-000-048	904-000-066
3.0000	0.8125	1.0000	0.8125	0.2500	12	904-000-049	904-000-052	904-000-067
3.5000	1.0000	1.2500	1.0000	0.3125	12	904-000-053	904-000-056	904-000-068
3.7500	1.1875	1.2500	1.1875	0.3750	12	904-000-057	904-000-060	904-000-069
4.0000	1.3750	1.2500	1.3750	0.4375	12	904-000-001	904-000-004	904-000-070
4.2500	1.5625	1.2500	1.5625	0.5000	10	904-000-006	904-000-009	904-000-071
4.2500	1.6875	1.2500	1.6875	0.5625	10	904-000-013	904-000-016	904-000-072
4.5000	1.8750	1.2500	1.8750	0.6250	10	904-000-017	904-000-020	904-000-073
4.7500	2.0625	1.2500	2.0625	0.6875	10	904-000-021	904-000-024	904-000-074
5.0000	2.2500	1.2500	2.2500	0.7500	10	904-000-025	904-000-028	904-000-075

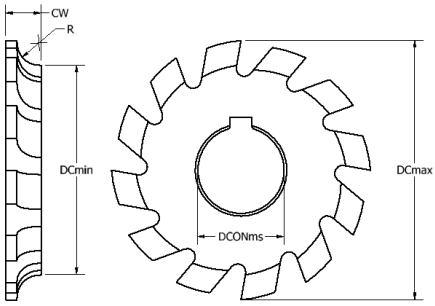


CR Style

- Right hand rotation

PG.505

CW [in.]	DCONMS [in.]	R [in.]	DCmax [in.]	DCmin [in.]	Zc	HAND	Uncoated	TiN Coated	AlTiN Coated
0.2500	1.0000	0.1250	2.5000	2.2500	14	R	918-000-025	918-000-028	918-000-055
0.4063	1.0000	0.2500	3.0000	2.5000	12	R	918-000-029	918-000-032	918-000-056
0.5625	1.2500	0.3750	3.7500	3.0000	12	R	918-000-033	918-000-036	918-000-057
0.7500	1.2500	0.5000	4.2500	3.2500	10	R	918-000-037	918-000-040	918-000-058
0.9375	1.2500	0.6250	4.2500	3.0000	10	R	918-000-041	918-000-044	918-000-059
1.1250	1.2500	0.7500	4.5000	3.0000	10	R	918-000-045	918-000-048	918-000-060



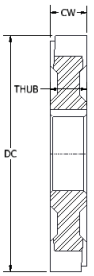
CL Style

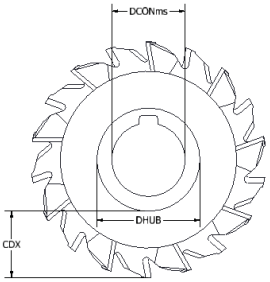
- Left hand rotation

PG.505

CW [in.]	DCONMS [in.]	R [in.]	DCmax [in.]	DCmin [in.]	Zc	HAND	Uncoated	TiN Coated	AlTiN Coated
0.2500	1.0000	0.1250	2.5000	2.2500	14	L	918-000-001	918-000-004	918-000-049
0.4063	1.0000	0.2500	3.0000	2.5000	12	L	918-000-005	918-000-008	918-000-050
0.5625	1.2500	0.3750	3.7500	3.0000	12	L	918-000-009	918-000-012	918-000-051
0.7500	1.2500	0.5000	4.2500	3.2500	10	L	918-000-013	918-000-016	918-000-052
0.9375	1.2500	0.6250	4.2500	3.0000	10	L	918-000-017	918-000-020	918-000-053
1.1250	1.2500	0.7500	4.5000	3.0000	10	L	918-000-021	918-000-024	918-000-054

KEO®





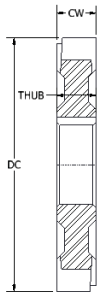
DS Style

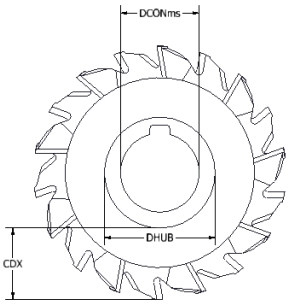
- Free cutting design
- Long tool life
- Refer to page 513 for interlocking set information

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	16	952-000-841	952-000-844	952-002-649
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	16	952-000-845	952-000-848	952-002-650
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	16	952-000-849	952-000-852	952-002-651
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	16	952-000-853	952-000-856	952-002-652
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	16	952-000-857	952-000-860	952-002-653
3.0000	0.5000	1.2500	0.5938	1.7500	0.5000	16	952-000-861	952-000-864	952-002-654
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	18	952-000-865	952-000-868	952-002-655
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	18	952-000-869	952-000-872	952-002-656
4.0000	0.3125	1.0000	1.2188	1.5000	0.3125	18	952-000-873	952-000-876	952-002-657
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	18	952-000-877	952-000-880	952-002-658
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	18	952-000-881	952-000-884	952-002-659
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	18	952-000-885	952-000-888	952-002-660
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	18	952-000-889	952-000-892	952-002-661
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	24	952-000-893	952-000-896	952-002-662
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	24	952-000-897	952-000-900	952-002-663
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	24	952-000-901	952-000-904	952-002-664
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	24	952-000-905	952-000-908	952-002-665
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	24	952-000-909	952-000-912	952-002-666

KEO





T15 SUPREME

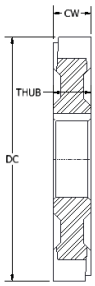
NS Style

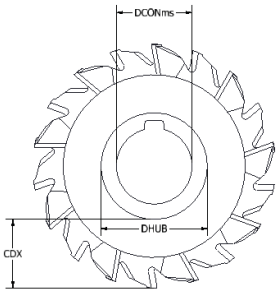
- Resistant to high heat and abrasive wear
- Free cutting design
- Refer to page 513 for interlocking set information

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	18	952-000-913	952-000-916	952-003-250
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	18	952-000-937	952-000-940	952-003-251
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	18	952-000-917	952-000-920	952-003-252
3.0000	0.2813	1.0000	0.7188	1.5000	0.2813	18	952-000-941	952-000-944	952-003-253
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	18	952-000-921	952-000-924	952-003-254
3.0000	0.3438	1.0000	0.7188	1.5000	0.3438	18	952-000-945	952-000-948	952-003-255
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	18	952-000-925	952-000-928	952-003-256
3.0000	0.4063	1.0000	0.7188	1.5000	0.4063	18	952-000-949	952-000-952	952-003-257
3.0000	0.4375	1.0000	0.7188	1.5000	0.4375	18	952-000-929	952-000-932	952-003-258
3.0000	0.4688	1.0000	0.7188	1.5000	0.4688	18	952-000-953	952-000-956	952-003-259
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	18	952-000-933	952-000-936	952-003-260
4.0000	0.2188	1.2500	1.0938	1.7500	0.2188	22	952-000-993	952-000-996	952-003-261
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	22	952-000-957	952-000-960	952-003-262
4.0000	0.2813	1.2500	1.0938	1.7500	0.2813	22	952-000-997	952-001-000	952-003-263
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	22	952-000-961	952-000-964	952-003-264
4.0000	0.3438	1.2500	1.0938	1.7500	0.3438	22	952-001-001	952-001-004	952-003-265
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	22	952-000-965	952-000-968	952-003-266
4.0000	0.4063	1.2500	1.0938	1.7500	0.4063	22	952-001-005	952-001-008	952-003-267
4.0000	0.4375	1.2500	1.0938	1.7500	0.4375	22	952-000-969	952-000-972	952-003-268
4.0000	0.4688	1.2500	1.0938	1.7500	0.4688	22	952-001-009	952-001-012	952-003-269
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	22	952-000-973	952-000-976	952-003-270
4.0000	0.5625	1.2500	1.0938	1.7500	0.5625	22	952-000-977	952-000-980	952-003-271
4.0000	0.6250	1.2500	1.0938	1.7500	0.6250	22	952-000-981	952-000-984	952-003-272
4.0000	0.6875	1.2500	1.0938	1.7500	0.6875	22	952-000-985	952-000-988	952-003-273
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	22	952-000-989	952-000-992	952-003-274
5.0000	0.2188	1.2500	1.5313	1.8750	0.2188	26	952-001-065	952-001-068	952-003-275
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	26	952-001-013	952-001-016	952-003-276
5.0000	0.2813	1.2500	1.5313	1.8750	0.2813	26	952-001-069	952-001-072	952-003-277
5.0000	0.3125	1.2500	1.5313	1.8750	0.3125	26	952-001-017	952-001-020	952-003-278
5.0000	0.3438	1.2500	1.5313	1.8750	0.3438	26	952-001-073	952-001-076	952-003-279
5.0000	0.3750	1.2500	1.5313	1.8750	0.3750	26	952-001-021	952-001-024	952-003-280
5.0000	0.4063	1.2500	1.5313	1.8750	0.4063	26	952-001-077	952-001-080	952-003-281
5.0000	0.4375	1.2500	1.5313	1.8750	0.4375	26	952-001-025	952-001-028	952-003-282
5.0000	0.4688	1.2500	1.5313	1.8750	0.4688	26	952-001-081	952-001-084	952-003-283
5.0000	0.5000	1.2500	1.5313	1.8750	0.5000	26	952-001-029	952-001-032	952-003-284
5.0000	0.5625	1.2500	1.5313	1.8750	0.5625	26	952-001-033	952-001-036	952-003-285
5.0000	0.6250	1.2500	1.5313	1.8750	0.6250	26	952-001-037	952-001-040	952-003-286
5.0000	0.6875	1.2500	1.5313	1.8750	0.6875	26	952-001-041	952-001-044	952-003-287
5.0000	0.7500	1.2500	1.5313	1.8750	0.7500	26	952-001-045	952-001-048	952-003-288

KEO

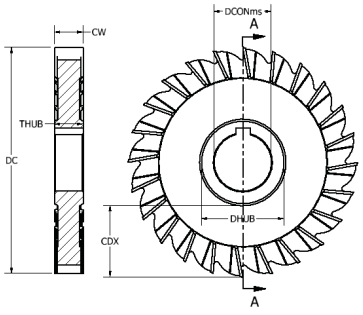




T15 SUPREME

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
5.0000	0.8125	1.2500	1.5313	1.8750	0.8125	26	952-001-049	952-001-052	952-003-289
5.0000	0.8750	1.2500	1.5313	1.8750	0.8750	26	952-001-053	952-001-056	952-003-290
5.0000	0.9375	1.2500	1.5313	1.8750	0.9375	26	952-001-057	952-001-060	952-003-291
5.0000	1.0000	1.2500	1.5313	1.8750	1.0000	26	952-001-061	952-001-064	952-003-292
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	30	952-001-137	952-001-140	952-003-293
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	30	952-001-085	952-001-088	952-003-294
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	30	952-001-141	952-001-144	952-003-295
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	30	952-001-089	952-001-092	952-003-296
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	30	952-001-145	952-001-148	952-003-297
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	30	952-001-093	952-001-096	952-003-298
6.0000	0.4063	1.2500	2.0313	1.8750	0.4063	30	952-001-149	952-001-152	952-003-299
6.0000	0.4375	1.2500	2.0313	1.8750	0.4375	30	952-001-097	952-001-100	952-003-300
6.0000	0.4688	1.2500	2.0313	1.8750	0.4688	30	952-001-153	952-001-156	952-003-301
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	30	952-001-101	952-001-104	952-003-302
6.0000	0.5625	1.2500	2.0313	1.8750	0.5625	30	952-001-105	952-001-108	952-003-303
6.0000	0.6250	1.2500	2.0313	1.8750	0.6250	30	952-001-109	952-001-112	952-003-304
6.0000	0.6875	1.2500	2.0313	1.8750	0.6875	30	952-001-113	952-001-116	952-003-305
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	30	952-001-117	952-001-120	952-003-306
6.0000	0.8125	1.2500	2.0313	1.8750	0.8125	30	952-001-121	952-001-124	952-003-307
6.0000	0.8750	1.2500	2.0313	1.8750	0.8750	30	952-001-125	952-001-128	952-003-308
6.0000	0.9375	1.2500	2.0313	1.8750	0.9375	30	952-001-129	952-001-132	952-003-309
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	30	952-001-133	952-001-136	952-003-310



DB Style

- Additional teeth for fine finishes
- Cobalt

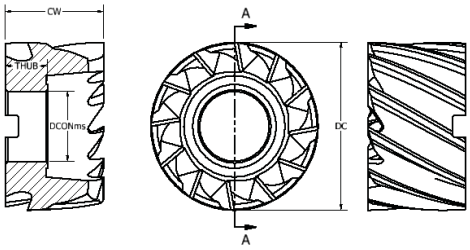
PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	20	952-000-773	952-000-776	952-002-667
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	20	952-000-777	952-000-780	952-002-668
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	20	952-000-781	952-000-784	952-002-669
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	20	952-000-785	952-000-788	952-002-670
4.0000	0.2500	1.0000	1.1563	1.6250	0.2500	24	952-000-789	952-000-792	952-002-671
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	24	952-000-793	952-000-796	952-002-672
4.0000	0.3125	1.0000	1.1563	1.6250	0.3125	24	952-000-797	952-000-800	952-002-673
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	24	952-000-801	952-000-804	952-002-674
4.0000	0.3750	1.0000	1.1563	1.6250	0.3750	24	952-000-805	952-000-808	952-002-675
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	24	952-000-809	952-000-812	952-002-676
4.0000	0.5000	1.0000	1.1563	1.6250	0.5000	24	952-000-813	952-000-816	952-002-677
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	24	952-000-817	952-000-820	952-002-678
4.0000	0.7500	1.0000	1.1563	1.6250	0.7500	24	952-000-821	952-000-824	952-002-679
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	24	952-000-825	952-000-828	952-002-680
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	30	952-000-829	952-000-832	952-002-681
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	30	952-000-833	952-000-836	952-002-682
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	30	952-000-837	952-000-840	952-002-683

PLAIN/SHELL MILLS

ARCH®
Cutting Tools

KEO

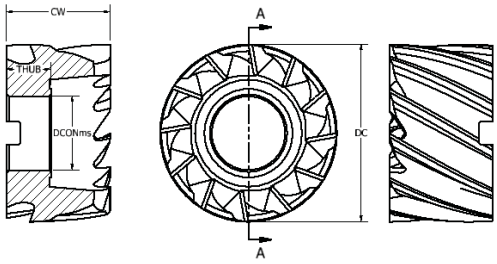


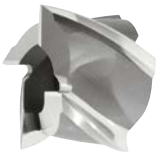
SMGP

- Ground flutes
- Available in right-hand or left-hand by special order

GENERAL PURPOSE

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
1.2500	1.0000	0.5000	0.6250	8	938-000-001	938-000-004	938-000-157
1.5000	1.1250	0.5000	0.6250	8	938-000-005	938-000-008	938-000-158
1.7500	1.2500	0.7500	0.7500	8	938-000-009	938-000-012	938-000-159
2.0000	1.3750	0.7500	0.7500	10	938-000-013	938-000-016	938-000-160
2.2500	1.5000	1.0000	0.7500	10	938-000-017	938-000-020	938-000-161
2.5000	1.6250	1.0000	0.7500	10	938-000-021	938-000-024	938-000-162
2.7500	1.6250	1.0000	0.7500	10	938-000-025	938-000-028	938-000-163
3.0000	1.7500	1.2500	0.7500	12	938-000-029	938-000-032	938-000-164
3.5000	1.8750	1.2500	0.7500	12	938-000-033	938-000-036	938-000-165
4.0000	2.2500	1.5000	1.0000	14	938-000-037	938-000-040	938-000-166
4.5000	2.2500	1.5000	1.0000	14	938-000-041	938-000-044	938-000-167
5.0000	2.2500	1.5000	1.0000	16	938-000-045	938-000-048	938-000-168
6.0000	2.2500	1.5000	1.0000	16	938-000-049	938-000-052	938-000-169



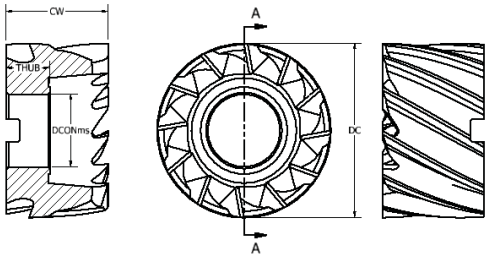


SMAL

- Deep gullet space
- Excellent for non-ferrous materials
- High rake and polished flutes

ALUMINUM CUTTING

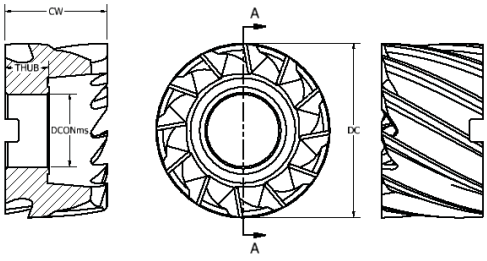
DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
1.2500	1.0000	0.5000	0.6250	4	938-000-053	938-000-056	938-000-170
1.5000	1.1250	0.5000	0.6250	4	938-000-057	938-000-060	938-000-171
2.0000	1.3750	0.7500	0.7500	4	938-000-061	938-000-064	938-000-172
2.5000	1.6250	1.0000	0.7500	4	938-000-065	938-000-068	938-000-173
3.0000	1.7500	1.2500	0.7500	6	938-000-069	938-000-072	938-000-174
5.0000	2.2500	1.5000	1.0000	6	938-000-073	938-000-076	938-000-175
5.0000	2.2500	1.5000	1.0000	8	938-000-077	938-000-080	938-000-176
6.0000	2.2500	1.5000	1.0000	8	938-000-081	938-000-084	938-000-177



SMT15

- Recommended for finishing
- Resistant to high heat and abrasive wear

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
1.2500	1.0000	0.5000	0.6250	8	938-000-133	938-000-136	938-000-190
1.5000	1.1250	0.5000	0.6250	8	938-000-137	938-000-140	938-000-191
2.0000	1.3750	0.7500	0.7500	10	938-000-141	938-000-144	938-000-192
2.5000	1.6250	1.0000	0.7500	10	938-000-145	938-000-148	938-000-193
3.0000	1.7500	1.2500	0.7500	12	938-000-149	938-000-152	938-000-194
4.0000	2.2500	1.5000	1.0000	14	938-000-153	938-000-156	938-000-195

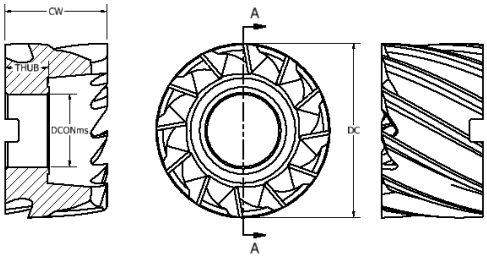


RM750

COARSE-PITCH

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.0000	1.3750	0.7500	0.7500	8	949-000-001	949-000-004	949-000-081
2.2500	1.5000	1.0000	0.7500	8	949-000-005	949-000-008	949-000-082
2.5000	1.6250	1.0000	0.7500	8	949-000-009	949-000-012	949-000-083
2.7500	1.6250	1.0000	0.7500	10	949-000-013	949-000-016	949-000-084
3.0000	2.0000	1.2500	0.7500	10	949-000-017	949-000-020	949-000-085
3.5000	1.8750	1.2500	0.7500	10	949-000-021	949-000-024	949-000-086
4.0000	2.2500	1.5000	1.0000	10	949-000-025	949-000-028	949-000-087
4.5000	2.2500	1.5000	1.0000	12	949-000-029	949-000-032	949-000-088
5.0000	2.2500	1.5000	1.0000	12	949-000-033	949-000-036	949-000-089
6.0000	2.2500	1.5000	1.0000	14	949-000-037	949-000-040	949-000-090

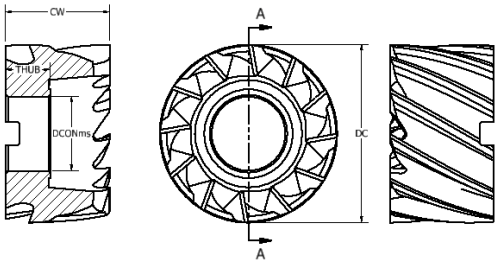
KEO



RP450

FINE-PITCH

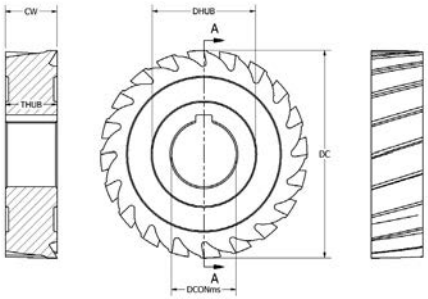
DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.0000	1.3750	0.7500	0.7500	8	949-000-041	949-000-042	949-000-091
2.2500	1.5000	1.0000	0.7500	8	949-000-045	949-000-046	949-000-092
2.5000	1.6250	1.0000	0.7500	8	949-000-049	949-000-050	949-000-093
2.7500	1.6250	1.0000	0.7500	10	949-000-053	949-000-054	949-000-094
3.0000	2.0000	1.2500	0.7500	10	949-000-057	949-000-058	949-000-095
3.5000	1.8750	1.2500	0.7500	10	949-000-061	949-000-062	949-000-096
4.0000	2.2500	1.5000	1.0000	10	949-000-065	949-000-066	949-000-097
4.5000	2.2500	1.5000	1.0000	12	949-000-069	949-000-070	949-000-098
5.0000	2.2500	1.5000	1.0000	12	949-000-073	949-000-074	949-000-099
6.0000	2.2500	1.5000	1.0000	14	949-000-077	949-000-078	949-000-100



SMM42

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
1.2500	1.0000	0.5000	0.6250	8	938-000-085	938-000-088	938-000-178
1.5000	1.1250	0.5000	0.6250	8	938-000-089	938-000-092	938-000-179
1.7500	1.2500	0.7500	0.7500	8	938-000-093	938-000-096	938-000-180
2.0000	1.3750	0.7500	0.7500	10	938-000-097	938-000-100	938-000-185
2.2500	1.5000	1.0000	0.7500	10	938-000-101	938-000-104	938-000-181
2.5000	1.6250	1.0000	0.7500	10	938-000-105	938-000-108	938-000-186
2.7500	1.6250	1.0000	0.7500	10	938-000-109	938-000-112	938-000-182
3.0000	1.7500	1.2500	0.7500	12	938-000-113	938-000-116	938-000-187
3.5000	1.8750	1.2500	0.7500	12	938-000-117	938-000-120	938-000-183
4.0000	2.2500	1.5000	1.0000	14	938-000-121	938-000-124	938-000-188
5.0000	2.2500	1.5000	1.0000	16	938-000-125	938-000-128	938-000-189
6.0000	2.2500	1.5000	1.0000	16	938-000-129	938-000-132	938-000-184

KEO



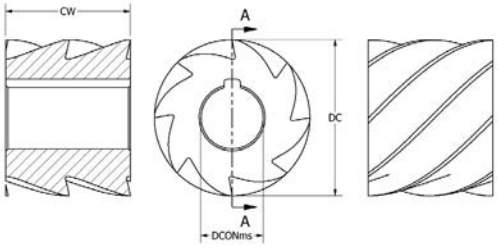
LD Style

- Cutters up to 3/4" face width have straight teeth
- Cutters 3/4" face width and over have 18° left hand helix
- Right-Hand Cut, Left-Hand Helix allows for Rigidity and Improved Surface Finish

LIGHT-DUTY

DC [in.]	CW [in.]	DCONMS [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.5000	0.1875	1.0000	1.5000	0.1875	16	948-000-045	948-000-048	948-000-197
2.5000	0.2500	1.0000	1.5000	0.2500	16	948-000-049	948-000-052	948-000-198
2.5000	0.3125	1.0000	1.5000	0.3125	16	948-000-053	948-000-056	948-000-199
2.5000	0.3750	1.0000	1.5000	0.3750	16	948-000-057	948-000-060	948-000-200
2.5000	0.5000	1.0000	1.5000	0.5000	16	948-000-061	948-000-064	948-000-201
2.5000	0.6250	1.0000	1.5000	0.6250	16	948-000-065	948-000-068	948-000-202
2.5000	0.7500	1.0000	1.5000	0.7500	14	948-000-069	948-000-072	948-000-203
2.5000	1.0000	1.0000	1.5000	1.0000	14	948-000-073	948-000-076	948-000-204
2.5000	1.5000	1.0000	N/A	N/A	14	948-000-077	948-000-080	948-000-205
2.5000	2.0000	1.0000	N/A	N/A	14	948-000-081	948-000-084	948-000-206
2.5000	2.5000	1.0000	N/A	N/A	14	948-000-085	948-000-088	948-000-207
2.5000	3.0000	1.0000	N/A	N/A	14	948-000-089	948-000-092	948-000-208
3.0000	0.1875	1.0000	1.6300	0.1875	18	948-000-093	948-000-096	948-000-209
3.0000	0.2500	1.0000	1.6300	0.2500	18	948-000-097	948-000-100	948-000-210
3.0000	0.3125	1.0000	1.6300	0.3125	18	948-000-101	948-000-104	948-000-211
3.0000	0.3750	1.0000	1.6300	0.3750	18	948-000-105	948-000-108	948-000-212
3.0000	0.3750	1.2500	1.8800	0.3750	18	948-000-109	948-000-112	948-000-213
3.0000	0.5000	1.2500	1.8800	0.5000	18	948-000-113	948-000-116	948-000-214
3.0000	0.6250	1.2500	1.8800	0.6250	18	948-000-117	948-000-120	948-000-215
3.0000	0.7500	1.2500	1.8800	0.7500	16	948-000-121	948-000-124	948-000-216
3.0000	1.0000	1.2500	1.8800	1.0000	16	948-000-125	948-000-128	948-000-217
3.0000	1.2500	1.2500	N/A	N/A	16	948-000-129	948-000-132	948-000-218
3.0000	1.5000	1.2500	N/A	N/A	16	948-000-133	948-000-136	948-000-219
3.0000	2.0000	1.2500	N/A	N/A	16	948-000-137	948-000-140	948-000-220
3.0000	3.0000	1.2500	N/A	N/A	16	948-000-141	948-000-144	948-000-221
4.0000	0.2500	1.0000	1.6300	0.2500	20	948-000-145	948-000-148	948-000-222
4.0000	0.2500	1.2500	2.0000	0.2500	20	948-000-149	948-000-152	948-000-223
4.0000	0.3125	1.0000	1.6300	0.3125	20	948-000-153	948-000-156	948-000-224
4.0000	0.3750	1.0000	1.6300	0.3750	20	948-000-157	948-000-160	948-000-225
4.0000	0.3750	1.2500	2.0000	0.3750	20	948-000-161	948-000-164	948-000-226
4.0000	0.5000	1.2500	2.0000	0.5000	20	948-000-165	948-000-168	948-000-227
4.0000	0.6250	1.2500	2.0000	0.6250	20	948-000-169	948-000-172	948-000-228
4.0000	0.7500	1.2500	2.0000	0.7500	20	948-000-173	948-000-176	948-000-229
4.0000	1.0000	1.2500	2.0000	1.0000	20	948-000-177	948-000-180	948-000-230
4.0000	1.5000	1.2500	N/A	N/A	20	948-000-181	948-000-184	948-000-231
4.0000	2.0000	1.2500	N/A	N/A	20	948-000-185	948-000-188	948-000-232
4.0000	3.0000	1.2500	N/A	N/A	20	948-000-189	948-000-192	948-000-233
4.0000	4.0000	1.2500	N/A	N/A	20	948-000-193	948-000-196	948-000-234

KEO®



HD Style

- 45° Left-hand helix, right-hand cuts
- Fewer teeth than “ld” style making it better suited for heavy stock removal

45° SPIRAL HEAVY-DUTY

DC [in.]	CW [in.]	DCONMS [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.5000	2.0000	1.0000	8	948-000-001	948-000-004	948-000-235
2.5000	4.0000	1.0000	8	948-000-005	948-000-008	948-000-236
3.0000	2.0000	1.2500	8	948-000-009	948-000-012	948-000-237
3.0000	2.5000	1.2500	8	948-000-013	948-000-016	948-000-238
3.0000	3.0000	1.2500	8	948-000-017	948-000-020	948-000-239
3.0000	4.0000	1.2500	8	948-000-021	948-000-024	948-000-240
3.0000	6.0000	1.2500	8	948-000-025	948-000-028	948-000-241
4.0000	2.0000	1.5000	10	948-000-029	948-000-032	948-000-242
4.0000	3.0000	1.5000	10	948-000-033	948-000-036	948-000-243
4.0000	4.0000	1.5000	10	948-000-037	948-000-040	948-000-244
4.0000	6.0000	1.5000	10	948-000-041	948-000-044	948-000-245

SLITTING/JEWELER SAWS

ARCH®
Cutting Tools

KEO

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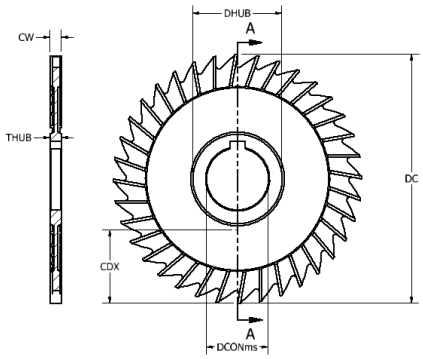

MT Style

- Fully ground surfaces
- Recommended for thin walled parts

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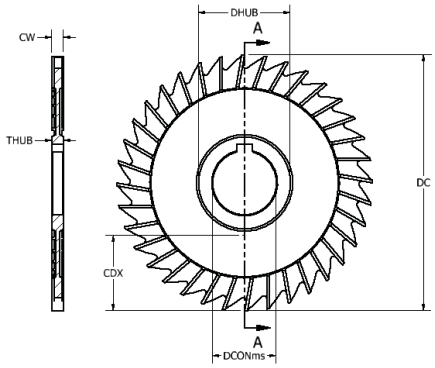
DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.5000	0.0625	0.8750	0.5938	1.2500	0.0625	28	950-001-169	950-001-172	950-001-853
2.5000	0.0938	0.8750	0.5938	1.2500	0.0938	28	950-001-177	950-001-180	950-001-854
2.5000	0.1250	0.8750	0.5938	1.2500	0.1250	28	950-001-173	950-001-176	950-001-855
3.0000	0.0625	1.0000	0.7188	1.5000	0.0625	32	950-001-181	950-001-184	950-001-856
3.0000	0.0781	1.0000	0.7188	1.5000	0.0781	32	950-001-197	950-001-200	950-001-857
3.0000	0.0938	1.0000	0.7188	1.5000	0.0938	32	950-001-209	950-001-212	950-001-858
3.0000	0.1094	1.0000	0.7188	1.5000	0.1094	32	950-001-221	950-001-224	950-001-859
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	32	950-001-185	950-001-188	950-001-860
3.0000	0.1406	1.0000	0.7188	1.5000	0.1406	32	950-001-201	950-001-204	950-001-861
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	32	950-001-213	950-001-216	950-001-862
3.0000	0.1719	1.0000	0.7188	1.5000	0.1719	32	950-001-225	950-001-228	950-001-863
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	32	950-001-189	950-001-192	950-001-864
3.0000	0.2031	1.0000	0.7188	1.5000	0.2031	32	950-001-205	950-001-208	950-001-865
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	32	950-001-217	950-001-220	950-001-866
3.0000	0.2344	1.0000	0.7188	1.5000	0.2344	32	950-001-229	950-001-232	950-001-867
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	32	950-001-193	950-001-196	950-001-868
4.0000	0.0625	1.0000	1.2188	1.5000	0.0625	36	950-001-233	950-001-236	950-001-869
4.0000	0.0625	1.2500	1.0313	1.8750	0.0625	36	950-001-237	950-001-240	950-001-870
4.0000	0.0781	1.0000	1.2188	1.5000	0.0781	36	950-001-265	950-001-268	950-001-871
4.0000	0.0781	1.2500	1.0313	1.8750	0.0781	36	950-001-269	950-001-272	950-001-872
4.0000	0.0938	1.0000	1.2188	1.5000	0.0938	36	950-001-289	950-001-292	950-001-873
4.0000	0.0938	1.2500	1.0313	1.8750	0.0938	36	950-001-293	950-001-296	950-001-874
4.0000	0.1094	1.0000	1.2188	1.5000	0.1094	36	950-001-313	950-001-316	950-001-875
4.0000	0.1094	1.2500	1.0313	1.8750	0.1094	36	950-001-317	950-001-320	950-001-876
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	36	950-001-241	950-001-244	950-001-877
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	36	950-001-245	950-001-248	950-001-878
4.0000	0.1406	1.0000	1.2188	1.5000	0.1406	36	950-001-273	950-001-276	950-001-879
4.0000	0.1406	1.2500	1.0313	1.8750	0.1406	36	950-001-277	950-001-280	950-001-880
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	36	950-001-297	950-001-300	950-001-881
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	36	950-001-301	950-001-304	950-001-882
4.0000	0.1719	1.0000	1.2188	1.5000	0.1719	36	950-001-321	950-001-324	950-001-883
4.0000	0.1719	1.2500	1.0313	1.8750	0.1719	36	950-001-325	950-001-328	950-001-884
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	36	950-001-249	950-001-252	950-001-885
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	36	950-001-253	950-001-256	950-001-886
4.0000	0.2031	1.0000	1.2188	1.5000	0.2031	36	950-001-281	950-001-284	950-001-887
4.0000	0.2031	1.2500	1.0313	1.8750	0.2031	36	950-001-285	950-001-288	950-001-888
4.0000	0.2188	1.0000	1.2188	1.5000	0.2188	36	950-001-305	950-001-308	950-001-889
4.0000	0.2188	1.2500	1.0313	1.8750	0.2188	36	950-001-309	950-001-312	950-001-890
4.0000	0.2344	1.0000	1.2188	1.5000	0.2344	36	950-001-329	950-001-332	950-001-891
4.0000	0.2344	1.2500	1.0313	1.8750	0.2344	36	950-001-333	950-001-336	950-001-892
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	36	950-001-257	950-001-260	950-001-893
4.0000	0.2500	1.2500	1.0313	1.8750	0.2500	36	950-001-261	950-001-264	950-001-894



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MT Style

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DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
5.0000	0.0625	1.0000	1.7188	1.5000	0.0625	40	950-001-337	950-001-340	950-001-895
5.0000	0.0625	1.2500	1.5313	1.8750	0.0625	40	950-001-341	950-001-344	950-001-896
5.0000	0.0938	1.0000	1.7188	1.5000	0.0938	40	950-001-369	950-001-372	950-001-897
5.0000	0.0938	1.2500	1.5313	1.8750	0.0938	40	950-001-373	950-001-376	950-001-898
5.0000	0.1250	1.0000	1.7188	1.5000	0.1250	40	950-001-345	950-001-348	950-001-899
5.0000	0.1250	1.2500	1.5313	1.8750	0.1250	40	950-001-349	950-001-352	950-001-900
5.0000	0.1563	1.0000	1.7188	1.5000	0.1563	40	950-001-377	950-001-380	950-001-901
5.0000	0.1563	1.2500	1.5313	1.8750	0.1563	40	950-001-381	950-001-384	950-001-902
5.0000	0.1875	1.0000	1.7188	1.5000	0.1875	40	950-001-353	950-001-356	950-001-903
5.0000	0.1875	1.2500	1.5313	1.8750	0.1875	40	950-001-357	950-001-360	950-001-904
5.0000	0.2188	1.0000	1.7188	1.5000	0.2188	40	950-001-385	950-001-388	950-001-905
5.0000	0.2188	1.2500	1.5313	1.8750	0.2188	40	950-001-389	950-001-392	950-001-906
5.0000	0.2500	1.0000	1.7188	1.5000	0.2500	40	950-001-361	950-001-364	950-001-907
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	40	950-001-365	950-001-368	950-001-908
6.0000	0.0625	1.0000	2.2188	1.5000	0.0625	42	950-001-393	950-001-396	950-001-909
6.0000	0.0625	1.2500	2.0313	1.8750	0.0625	42	950-001-397	950-001-400	950-001-910
6.0000	0.0781	1.0000	2.2188	1.5000	0.0781	42	950-001-441	950-001-444	950-001-911
6.0000	0.0781	1.2500	2.0313	1.8750	0.0781	42	950-001-445	950-001-448	950-001-912
6.0000	0.0938	1.0000	2.2188	1.5000	0.0938	42	950-001-481	950-001-484	950-001-913
6.0000	0.0938	1.2500	2.0313	1.8750	0.0938	42	950-001-485	950-001-488	950-001-914
6.0000	0.1094	1.0000	2.2188	1.5000	0.1094	42	950-001-521	950-001-524	950-001-915
6.0000	0.1094	1.2500	2.0313	1.8750	0.1094	42	950-001-525	950-001-528	950-001-916
6.0000	0.1250	1.0000	2.2188	1.5000	0.1250	42	950-001-401	950-001-404	950-001-917
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	42	950-001-405	950-001-408	950-001-918
6.0000	0.1406	1.0000	2.2188	1.5000	0.1406	42	950-001-449	950-001-452	950-001-919
6.0000	0.1406	1.2500	2.0313	1.8750	0.1406	42	950-001-453	950-001-456	950-001-920
6.0000	0.1563	1.0000	2.2188	1.5000	0.1563	42	950-001-489	950-001-492	950-001-921
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	42	950-001-493	950-001-496	950-001-922
6.0000	0.1719	1.0000	2.2188	1.5000	0.1719	42	950-001-529	950-001-532	950-001-923
6.0000	0.1719	1.2500	2.0313	1.8750	0.1719	42	950-001-533	950-001-536	950-001-924
6.0000	0.1875	1.0000	2.2188	1.5000	0.1875	42	950-001-409	950-001-412	950-001-925
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	42	950-001-413	950-001-416	950-001-926
6.0000	0.2031	1.0000	2.2188	1.5000	0.2031	42	950-001-457	950-001-460	950-001-927
6.0000	0.2031	1.2500	2.0313	1.8750	0.2031	42	950-001-461	950-001-464	950-001-928
6.0000	0.2188	1.0000	2.2188	1.5000	0.2188	42	950-001-497	950-001-500	950-001-929
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	42	950-001-501	950-001-504	950-001-930
6.0000	0.2344	1.0000	2.2188	1.5000	0.2344	42	950-001-537	950-001-540	950-001-931
6.0000	0.2344	1.2500	2.0313	1.8750	0.2344	42	950-001-541	950-001-544	950-001-932
6.0000	0.2500	1.0000	2.2188	1.5000	0.2500	42	950-001-417	950-001-420	950-001-933
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	42	950-001-421	950-001-424	950-001-934
6.0000	0.2656	1.0000	2.2188	1.5000	0.2656	42	950-001-465	950-001-468	950-001-935
6.0000	0.2656	1.2500	2.0313	1.8750	0.2656	42	950-001-469	950-001-472	950-001-936
6.0000	0.2813	1.0000	2.2188	1.5000	0.2813	42	950-001-505	950-001-508	950-001-937
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	42	950-001-509	950-001-512	950-001-938
6.0000	0.2969	1.0000	2.2188	1.5000	0.2969	42	950-001-545	950-001-548	950-001-939
6.0000	0.2969	1.2500	2.0313	1.8750	0.2969	42	950-001-549	950-001-552	950-001-940
6.0000	0.3125	1.0000	2.2188	1.5000	0.3125	42	950-001-425	950-001-428	950-001-941
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	42	950-001-429	950-001-432	950-001-942
6.0000	0.3281	1.0000	2.2188	1.5000	0.3281	42	950-001-473	950-001-476	950-001-943
6.0000	0.3281	1.2500	2.0313	1.8750	0.3281	42	950-001-477	950-001-480	950-001-944
6.0000	0.3438	1.0000	2.2188	1.5000	0.3438	42	950-001-513	950-001-516	950-001-945
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	42	950-001-517	950-001-520	950-001-946
6.0000	0.3594	1.0000	2.2188	1.5000	0.3594	42	950-001-553	950-001-556	950-001-947

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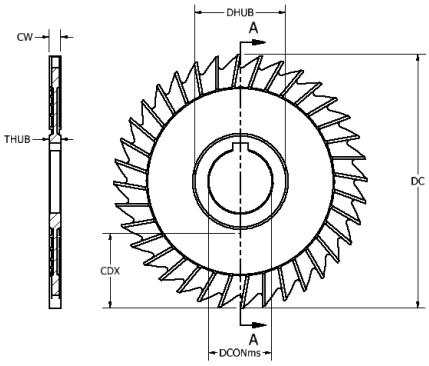

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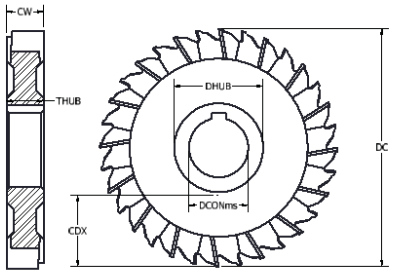
DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
6.0000	0.3594	1.2500	2.0313	1.8750	0.3594	42	950-001-557	950-001-560	950-001-948
6.0000	0.3750	1.0000	2.2188	1.5000	0.3750	42	950-001-433	950-001-436	950-001-949
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	42	950-001-437	950-001-440	950-001-950
7.0000	0.1250	1.0000	2.6563	1.6250	0.1250	48	950-001-561	950-001-564	950-001-951
7.0000	0.1250	1.2500	2.5313	1.8750	0.1250	48	950-001-565	950-001-568	950-001-952
7.0000	0.1875	1.0000	2.6563	1.6250	0.1875	48	950-001-569	950-001-572	950-001-953
7.0000	0.1875	1.2500	2.5313	1.8750	0.1875	48	950-001-573	950-001-576	950-001-954
8.0000	0.1250	1.0000	3.1563	1.6250	0.1250	48	950-001-577	950-001-580	950-001-955
8.0000	0.1250	1.2500	3.0313	1.8750	0.1250	48	950-001-581	950-001-584	950-001-956
8.0000	0.1250	1.5000	3.0313	1.8750	0.1250	48	950-001-585	950-001-588	950-001-957
8.0000	0.1563	1.2500	3.0313	1.8750	0.1563	48	950-001-613	950-001-616	950-001-958
8.0000	0.1563	1.5000	3.0313	1.8750	0.1563	48	950-001-617	950-001-620	950-001-959
8.0000	0.1875	1.2500	3.0313	1.8750	0.1875	48	950-001-589	950-001-592	950-001-960
8.0000	0.1875	1.5000	3.0313	1.8750	0.1875	48	950-001-593	950-001-596	950-001-961
8.0000	0.2188	1.2500	3.0313	1.8750	0.2188	48	950-001-621	950-001-624	950-001-962
8.0000	0.2188	1.5000	3.0313	1.8750	0.2188	48	950-001-625	950-001-628	950-001-963
8.0000	0.2500	1.2500	3.0313	1.8750	0.2500	48	950-001-597	950-001-600	950-001-964
8.0000	0.2500	1.5000	3.0313	1.8750	0.2500	48	950-001-601	950-001-604	950-001-965
8.0000	0.3750	1.2500	3.0313	1.8750	0.3750	48	950-001-605	950-001-608	950-001-966
8.0000	0.3750	1.5000	3.0313	1.8750	0.3750	48	950-001-609	950-001-612	950-001-967
10.0000	0.1875	1.2500	3.4063	3.1250	0.1875	56	950-001-137	950-001-140	950-001-968
10.0000	0.1875	1.5000	3.4063	3.1250	0.1875	56	950-001-141	950-001-144	950-001-969
10.0000	0.2188	1.2500	3.4063	3.1250	0.2188	56	950-001-161	950-001-164	950-001-970
10.0000	0.2188	1.5000	3.4063	3.1250	0.2188	56	950-001-165	950-001-168	950-001-971
10.0000	0.2500	1.2500	3.4063	3.1250	0.2500	56	950-001-145	950-001-148	950-001-972
10.0000	0.2500	1.5000	3.4063	3.1250	0.2500	56	950-001-149	950-001-152	950-001-973
10.0000	0.3750	1.2500	3.4063	3.1250	0.3750	56	950-001-153	950-001-156	950-001-974
10.0000	0.3750	1.5000	3.4063	3.1250	0.3750	56	950-001-157	950-001-160	950-001-975

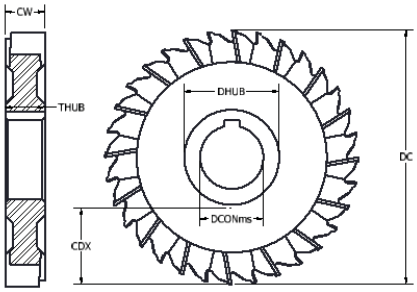


MS Style

- Excellent for deep slotting
- Free cutting

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
3.0000	0.0938	1.0000	0.7188	1.5000	0.0938	28	950-000-917	950-000-920	950-001-948
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	28	950-000-905	950-000-908	950-001-949
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	28	950-000-921	950-000-924	950-001-950
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	28	950-000-909	950-000-912	950-001-951
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	28	950-000-925	950-000-928	950-001-952
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	28	950-000-913	950-000-916	950-001-953
4.0000	0.0938	1.0000	1.2188	1.5000	0.0938	32	950-000-953	950-000-956	950-001-954
4.0000	0.0938	1.2500	1.0313	1.8750	0.0938	32	950-000-957	950-000-960	950-001-955
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	32	950-000-929	950-000-932	950-001-956
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	32	950-000-933	950-000-936	950-001-957
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	32	950-000-961	950-000-964	950-001-958
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	32	950-000-965	950-000-968	950-001-959



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PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	32	950-000-937	950-000-940	950-001-988
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	32	950-000-941	950-000-944	950-001-989
4.0000	0.2188	1.0000	1.2188	1.5000	0.2188	32	950-000-969	950-000-972	950-001-990
4.0000	0.2188	1.2500	1.0313	1.8750	0.2188	32	950-000-973	950-000-976	950-001-991
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	32	950-000-945	950-000-948	950-001-992
4.0000	0.2500	1.2500	1.0313	1.8750	0.2500	32	950-000-949	950-000-952	950-001-993
5.0000	0.0938	1.0000	1.7188	1.5000	0.0938	36	950-001-001	950-001-004	950-001-994
5.0000	0.0938	1.2500	1.5313	1.8750	0.0938	36	950-001-005	950-001-008	950-001-995
5.0000	0.1250	1.0000	1.7188	1.5000	0.1250	36	950-000-977	950-000-980	950-001-996
5.0000	0.1250	1.2500	1.5313	1.8750	0.1250	36	950-000-981	950-000-984	950-001-997
5.0000	0.1563	1.0000	1.7188	1.5000	0.1563	36	950-001-009	950-001-012	950-001-998
5.0000	0.1563	1.2500	1.5313	1.8750	0.1563	36	950-001-013	950-001-016	950-001-999
5.0000	0.1875	1.0000	1.7188	1.5000	0.1875	36	950-000-985	950-000-988	950-002-000
5.0000	0.1875	1.2500	1.5313	1.8750	0.1875	36	950-000-989	950-000-992	950-002-001
5.0000	0.2188	1.0000	1.7188	1.5000	0.2188	36	950-001-017	950-001-020	950-002-002
5.0000	0.2188	1.2500	1.5313	1.8750	0.2188	36	950-001-021	950-001-024	950-002-003
5.0000	0.2500	1.0000	1.7188	1.5000	0.2500	36	950-000-993	950-000-996	950-002-004
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	36	950-000-997	950-001-000	950-002-005
6.0000	0.1250	1.0000	2.2188	1.5000	0.1250	40	950-001-025	950-001-028	950-002-006
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	40	950-001-029	950-001-032	950-002-007
6.0000	0.1563	1.0000	2.2188	1.5000	0.1563	40	950-001-057	950-001-060	950-002-008
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	40	950-001-061	950-001-064	950-002-009
6.0000	0.1875	1.0000	2.2188	1.5000	0.1875	40	950-001-033	950-001-036	950-002-010
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	40	950-001-037	950-001-040	950-002-011
6.0000	0.2188	1.0000	2.2188	1.5000	0.2188	40	950-001-065	950-001-068	950-002-012
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	40	950-001-069	950-001-072	950-002-013
6.0000	0.2500	1.0000	2.2188	1.5000	0.2500	40	950-001-041	950-001-044	950-002-014
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	40	950-001-045	950-001-048	950-002-015
6.0000	0.3750	1.0000	2.2188	1.5000	0.3750	40	950-001-049	950-001-052	950-002-016
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	40	950-001-053	950-001-056	950-002-017
7.0000	0.1250	1.0000	2.7188	1.5000	0.1250	44	950-001-073	950-001-076	950-002-018
7.0000	0.1250	1.2500	2.5313	1.8750	0.1250	44	950-001-077	950-001-080	950-002-019
7.0000	0.1875	1.0000	2.7188	1.5000	0.1875	44	950-001-081	950-001-084	950-002-020
7.0000	0.1875	1.2500	2.5313	1.8750	0.1875	44	950-001-085	950-001-088	950-002-021
8.0000	0.1250	1.2500	3.0313	1.8750	0.1250	48	950-001-089	950-001-092	950-002-022
8.0000	0.1250	1.5000	3.0313	1.8750	0.1250	48	950-001-093	950-001-096	950-002-023
8.0000	0.1563	1.2500	3.0313	1.8750	0.1563	48	950-001-121	950-001-124	950-002-024
8.0000	0.1563	1.5000	3.0313	1.8750	0.1563	48	950-001-125	950-001-128	950-002-025
8.0000	0.1875	1.2500	3.0313	1.8750	0.1875	48	950-001-097	950-001-100	950-002-026
8.0000	0.1875	1.5000	3.0313	1.8750	0.1875	48	950-001-101	950-001-104	950-002-027
8.0000	0.2188	1.2500	3.0313	1.8750	0.2188	48	950-001-129	950-001-132	950-002-028
8.0000	0.2188	1.5000	3.0313	1.8750	0.2188	48	950-001-133	950-001-136	950-002-029
8.0000	0.2500	1.2500	3.0313	1.8750	0.2500	48	950-001-105	950-001-108	950-002-030
8.0000	0.2500	1.5000	3.0313	1.8750	0.2500	48	950-001-109	950-001-112	950-002-031
8.0000	0.3750	1.2500	3.0313	1.8750	0.3750	48	950-001-113	950-001-116	950-002-032
8.0000	0.3750	1.5000	3.0313	1.8750	0.3750	48	950-001-117	950-001-120	950-002-033
10.0000	0.1875	1.2500	3.4063	3.1250	0.1875	56	950-000-873	950-000-876	950-002-034
10.0000	0.1875	1.5000	3.4063	3.1250	0.1875	56	950-000-877	950-000-880	950-002-035
10.0000	0.2188	1.2500	3.4063	3.1250	0.2188	56	950-000-897	950-000-900	950-002-036
10.0000	0.2188	1.5000	3.4063	3.1250	0.2188	56	950-000-901	950-000-904	950-002-037
10.0000	0.2500	1.2500	3.4063	3.1250	0.2500	56	950-000-881	950-000-884	950-002-038
10.0000	0.2500	1.5000	3.4063	3.1250	0.2500	56	950-000-885	950-000-888	950-002-039
10.0000	0.3750	1.2500	3.4063	3.1250	0.3750	56	950-000-889	950-000-892	950-002-040
10.0000	0.3750	1.5000	3.4063	3.1250	0.3750	56	950-000-893	950-000-896	950-002-041

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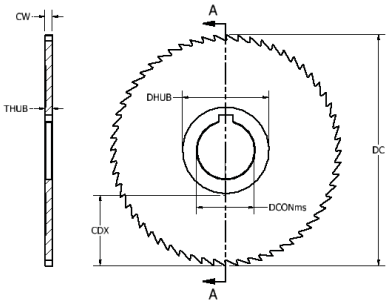

MC Style

- Designed for slitting or cutoff operations
- O.D. Cutting only, no side teeth
- Fully ground surfaces
- Square cornered with side concavity

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.5000	0.0313	0.8750	0.5938	1.2500	0.0313	36	950-000-677	950-000-680	950-002-042
2.5000	0.0469	0.8750	0.5938	1.2500	0.0469	36	950-000-685	950-000-688	950-002-043
2.5000	0.0625	0.8750	0.5938	1.2500	0.0625	36	950-000-669	950-000-672	950-002-044
2.5000	0.0938	0.8750	0.5938	1.2500	0.0938	36	950-000-681	950-000-684	950-002-045
2.5000	0.1250	0.8750	0.5938	1.2500	0.1250	36	950-000-673	950-000-676	950-002-046
3.0000	0.0313	1.0000	0.7188	1.5000	0.0313	36	950-000-697	950-000-700	950-002-047
3.0000	0.0469	1.0000	0.7188	1.5000	0.0469	36	950-000-709	950-000-712	950-002-048
3.0000	0.0625	1.0000	0.7188	1.5000	0.0625	36	950-000-689	950-000-692	950-002-049
3.0000	0.0938	1.0000	0.7188	1.5000	0.0938	36	950-000-701	950-000-704	950-002-050
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	36	950-000-693	950-000-696	950-002-051
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	36	950-000-705	950-000-708	950-002-052
4.0000	0.0313	1.0000	1.2188	1.5000	0.0313	40	950-000-737	950-000-740	950-002-053
4.0000	0.0313	1.2500	1.0313	1.8750	0.0313	40	950-000-741	950-000-744	950-002-054
4.0000	0.0469	1.0000	1.2188	1.5000	0.0469	40	950-000-761	950-000-764	950-002-055
4.0000	0.0469	1.2500	1.0313	1.8750	0.0469	40	950-000-765	950-000-768	950-002-056
4.0000	0.0625	1.0000	1.2188	1.5000	0.0625	40	950-000-713	950-000-716	950-002-057
4.0000	0.0625	1.2500	1.0313	1.8750	0.0625	40	950-000-717	950-000-720	950-002-058
4.0000	0.0938	1.0000	1.2188	1.5000	0.0938	40	950-000-745	950-000-748	950-002-059
4.0000	0.0938	1.2500	1.0313	1.8750	0.0938	40	950-000-749	950-000-752	950-002-060
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	40	950-000-721	950-000-724	950-002-061
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	40	950-000-725	950-000-728	950-002-062
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	40	950-000-753	950-000-756	950-002-063
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	40	950-000-757	950-000-760	950-002-064
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	40	950-000-729	950-000-732	950-002-065
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	40	950-000-733	950-000-736	950-002-066
5.0000	0.0313	1.0000	1.7188	1.5000	0.0313	44	950-000-793	950-000-796	950-002-067
5.0000	0.0313	1.2500	1.5313	1.8750	0.0313	44	950-000-797	950-000-800	950-002-068
5.0000	0.0625	1.0000	1.7188	1.5000	0.0625	44	950-000-769	950-000-772	950-002-069
5.0000	0.0625	1.2500	1.5313	1.8750	0.0625	44	950-000-773	950-000-776	950-002-070
5.0000	0.0938	1.0000	1.7188	1.5000	0.0938	44	950-000-801	950-000-804	950-002-071
5.0000	0.0938	1.2500	1.5313	1.8750	0.0938	44	950-000-805	950-000-808	950-002-072
5.0000	0.1250	1.0000	1.7188	1.5000	0.1250	44	950-000-777	950-000-780	950-002-073
5.0000	0.1250	1.2500	1.5313	1.8750	0.1250	44	950-000-781	950-000-784	950-002-074
5.0000	0.1563	1.0000	1.7188	1.5000	0.1563	44	950-000-809	950-000-812	950-002-075
5.0000	0.1563	1.2500	1.5313	1.8750	0.1563	44	950-000-813	950-000-816	950-002-076
5.0000	0.1875	1.0000	1.7188	1.5000	0.1875	44	950-000-785	950-000-788	950-002-077
5.0000	0.1875	1.2500	1.5313	1.8750	0.1875	44	950-000-789	950-000-792	950-002-078
6.0000	0.0313	1.0000	2.2188	1.5000	0.0313	48	950-000-841	950-000-844	950-002-079
6.0000	0.0313	1.2500	2.0313	1.8750	0.0313	48	950-000-845	950-000-848	950-002-080
6.0000	0.0625	1.0000	2.2188	1.5000	0.0625	48	950-000-817	950-000-820	950-002-081
6.0000	0.0625	1.2500	2.0313	1.8750	0.0625	48	950-000-821	950-000-824	950-002-082
6.0000	0.0938	1.0000	2.2188	1.5000	0.0938	48	950-000-849	950-000-852	950-002-083
6.0000	0.0938	1.2500	2.0313	1.8750	0.0938	48	950-000-853	950-000-856	950-002-084
6.0000	0.1250	1.0000	2.2188	1.5000	0.1250	48	950-000-825	950-000-828	950-002-085
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	48	950-000-829	950-000-832	950-002-086
6.0000	0.1563	1.0000	2.2188	1.5000	0.1563	48	950-000-857	950-000-860	950-002-087
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	48	950-000-861	950-000-864	950-002-088
6.0000	0.1875	1.0000	2.2188	1.5000	0.1875	48	950-000-833	950-000-836	950-002-089
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	48	950-000-837	950-000-840	950-002-090
8.0000	0.1250	1.0000	3.2188	1.5000	0.1250	58	950-000-865	950-000-868	950-002-091
8.0000	0.1250	1.2500	3.0313	1.8750	0.1250	58	950-000-869	950-000-872	950-002-092

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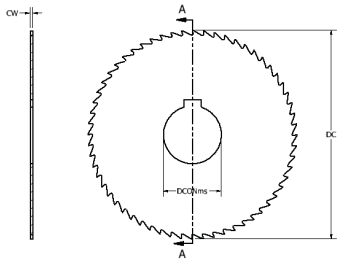

1470

- Fully ground surfaces

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
1.7500	0.0640	0.6250	90	950-001-644	950-001-812	950-002-131
1.7500	0.0570	0.6250	90	950-001-643	950-001-811	950-002-132
1.7500	0.0510	0.6250	90	950-001-642	950-001-810	950-002-133
1.7500	0.0450	0.6250	90	950-001-641	950-001-809	950-002-134
1.7500	0.0400	0.6250	90	950-001-640	950-001-808	950-002-135
1.7500	0.0360	0.6250	90	950-001-639	950-001-807	950-002-136
1.7500	0.0320	0.6250	90	950-001-638	950-001-806	950-002-137
1.7500	0.0280	0.6250	90	950-001-637	950-001-805	950-002-138
1.7500	0.0250	0.6250	90	950-001-636	950-001-804	950-002-139
1.7500	0.0230	0.6250	90	950-001-635	950-001-803	950-002-140
1.7500	0.0200	0.6250	90	950-001-634	950-001-802	950-002-141
1.7500	0.0180	0.6250	90	950-001-633	950-001-801	950-002-142
1.7500	0.0160	0.6250	90	950-001-632	950-001-800	950-002-143
1.7500	0.0140	0.6250	90	950-001-631	950-001-799	950-002-144
1.7500	0.0130	0.6250	90	950-001-630	950-001-798	950-002-145
1.7500	0.0100	0.6250	90	950-001-629	950-001-797	950-002-146
2.2500	0.0720	0.6250	60	950-001-661	950-001-829	950-002-147
2.2500	0.0640	0.6250	60	950-001-660	950-001-828	950-002-148
2.2500	0.0570	0.6250	60	950-001-659	950-001-827	950-002-149
2.2500	0.0510	0.6250	60	950-001-658	950-001-826	950-002-150
2.2500	0.0450	0.6250	60	950-001-657	950-001-825	950-002-151
2.2500	0.0400	0.6250	60	950-001-656	950-001-824	950-002-152
2.2500	0.0360	0.6250	60	950-001-655	950-001-823	950-002-153
2.2500	0.0320	0.6250	60	950-001-654	950-001-822	950-002-154
2.2500	0.0280	0.6250	60	950-001-653	950-001-821	950-002-155
2.2500	0.0250	0.6250	60	950-001-652	950-001-820	950-002-156
2.2500	0.0230	0.6250	60	950-001-651	950-001-819	950-002-157
2.2500	0.0200	0.6250	60	950-001-650	950-001-818	950-002-158
2.2500	0.0180	0.6250	60	950-001-649	950-001-817	950-002-159
2.2500	0.0160	0.6250	60	950-001-648	950-001-816	950-002-160
2.2500	0.0140	0.6250	60	950-001-647	950-001-815	950-002-161
2.2500	0.0130	0.6250	60	950-001-646	950-001-814	950-002-162
2.2500	0.0100	0.6250	60	950-001-645	950-001-813	950-002-163
2.7500	0.1440	1.0000	72	950-001-684	950-001-852	950-002-164
2.7500	0.1280	1.0000	72	950-001-683	950-001-851	950-002-165
2.7500	0.1140	1.0000	72	950-001-682	950-001-850	950-002-166
2.7500	0.1020	1.0000	72	950-001-681	950-001-849	950-002-167
2.7500	0.0910	1.0000	72	950-001-680	950-001-847	950-002-168
2.7500	0.0810	1.0000	72	950-001-679	950-001-847	950-002-169
2.7500	0.0720	1.0000	72	950-001-678	950-001-846	950-002-170
2.7500	0.0640	1.0000	72	950-001-677	950-001-845	950-002-171
2.7500	0.0570	1.0000	72	950-001-676	950-001-844	950-002-172
2.7500	0.0510	1.0000	72	950-001-675	950-001-843	950-002-173
2.7500	0.0450	1.0000	72	950-001-674	950-001-842	950-002-174
2.7500	0.0400	1.0000	72	950-001-673	950-001-841	950-002-175
2.7500	0.0360	1.0000	72	950-001-672	950-001-840	950-002-176
2.7500	0.0320	1.0000	72	950-001-671	950-001-839	950-002-177
2.7500	0.0280	1.0000	72	950-001-670	950-001-838	950-002-178
2.7500	0.0250	1.0000	72	950-001-669	950-001-837	950-002-179
2.7500	0.0230	1.0000	72	950-001-668	950-001-836	950-002-180
2.7500	0.0200	1.0000	72	950-001-667	950-001-835	950-002-181
2.7500	0.0180	1.0000	72	950-001-666	950-001-834	950-002-182
2.7500	0.0160	1.0000	72	950-001-665	950-001-833	950-002-183
2.7500	0.0140	1.0000	72	950-001-664	950-001-832	950-002-184
2.7500	0.0130	1.0000	72	950-001-663	950-001-831	950-002-185
2.7500	0.0100	1.0000	72	950-001-662	950-001-830	950-002-186

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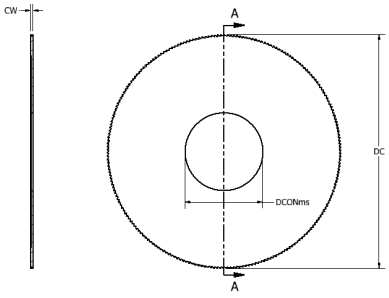

1490

- Fully ground surfaces

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
1.0000	0.0320	0.3750	80	950-000-191	950-000-578	950-002-187
1.0000	0.0280	0.3750	80	950-000-190	950-000-577	950-002-188
1.0000	0.0250	0.3750	80	950-000-189	950-000-576	950-002-189
1.0000	0.0230	0.3750	80	950-000-188	950-000-575	950-002-190
1.0000	0.0200	0.3750	80	950-000-187	950-000-574	950-002-191
1.0000	0.0180	0.3750	80	950-000-186	950-000-573	950-002-192
1.0000	0.0160	0.3750	80	950-000-185	950-000-572	950-002-193
1.0000	0.0140	0.3750	80	950-000-184	950-000-571	950-002-194
1.0000	0.0120	0.3750	100	950-000-183	950-000-570	950-002-195
1.0000	0.0100	0.3750	100	950-000-182	950-000-569	950-002-196
1.2500	0.0320	0.3750	100	950-000-171	950-000-558	950-002-197
1.2500	0.0280	0.3750	100	950-000-170	950-000-557	950-002-198
1.2500	0.0250	0.3750	100	950-000-169	950-000-556	950-002-199
1.2500	0.0230	0.3750	100	950-000-168	950-000-555	950-002-200
1.2500	0.0200	0.3750	100	950-000-167	950-000-554	950-002-201
1.2500	0.0180	0.3750	100	950-000-166	950-000-553	950-002-202
1.2500	0.0160	0.3750	100	950-000-165	950-000-552	950-002-203
1.2500	0.0140	0.3750	100	950-000-164	950-000-551	950-002-204
1.2500	0.0120	0.3750	120	950-000-163	950-000-550	950-002-205
1.2500	0.0100	0.3750	120	950-000-162	950-000-549	950-002-206
1.5000	0.0280	0.5000	110	950-000-161	950-000-548	950-002-207
1.5000	0.0250	0.5000	110	950-000-160	950-000-547	950-002-208
1.5000	0.0230	0.5000	110	950-000-159	950-000-546	950-002-209
1.5000	0.0200	0.5000	110	950-000-158	950-000-545	950-002-210
1.5000	0.0180	0.5000	110	950-000-157	950-000-544	950-002-211
1.5000	0.0160	0.5000	110	950-000-156	950-000-543	950-002-212
1.5000	0.0140	0.5000	110	950-000-155	950-000-542	950-002-213
1.5000	0.0120	0.5000	140	950-000-154	950-000-541	950-002-214
1.5000	0.0100	0.5000	140	950-000-153	950-000-540	950-002-215
1.7500	0.0320	0.5000	130	950-000-181	950-000-568	950-002-216
1.7500	0.0280	0.5000	130	950-000-180	950-000-567	950-002-217
1.7500	0.0250	0.5000	130	950-000-179	950-000-566	950-002-218
1.7500	0.0230	0.5000	130	950-000-178	950-000-565	950-002-219
1.7500	0.0200	0.5000	130	950-000-177	950-000-564	950-002-220
1.7500	0.0180	0.5000	130	950-000-176	950-000-563	950-002-221
1.7500	0.0160	0.5000	130	950-000-175	950-000-562	950-002-222
1.7500	0.0140	0.5000	130	950-000-174	950-000-561	950-002-223
1.7500	0.0120	0.5000	160	950-000-173	950-000-560	950-002-224
1.7500	0.0100	0.5000	160	950-000-172	950-000-559	950-002-225
2.0000	0.0570	0.5000	110	950-000-221	950-000-608	950-002-226
2.0000	0.0510	0.5000	110	950-000-220	950-000-607	950-002-227
2.0000	0.0450	0.5000	110	950-000-219	950-000-606	950-002-228
2.0000	0.0400	0.5000	110	950-000-218	950-000-605	950-002-229
2.0000	0.0350	0.5000	110	950-000-217	950-000-604	950-002-230

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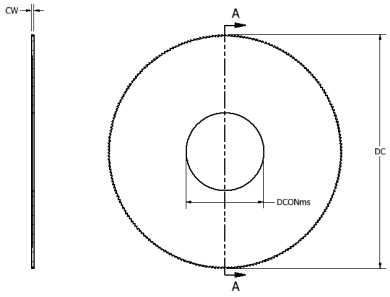

1490

- Fully ground surfaces

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
2.0000	0.0320	0.5000	110	950-000-216	950-000-603	950-002-231
2.0000	0.0280	0.5000	150	950-000-215	950-000-602	950-002-232
2.0000	0.0250	0.5000	150	950-000-214	950-000-601	950-002-233
2.0000	0.0230	0.5000	150	950-000-213	950-000-600	950-002-234
2.0000	0.0200	0.5000	150	950-000-212	950-000-599	950-002-235
2.0000	0.0180	0.5000	150	950-000-211	950-000-598	950-002-236
2.0000	0.0160	0.5000	150	950-000-210	950-000-597	950-002-237
2.0000	0.0140	0.5000	150	950-000-209	950-000-596	950-002-238
2.0000	0.0120	0.5000	190	950-000-208	950-000-595	950-002-239
2.0000	0.0100	0.5000	190	950-000-207	950-000-594	950-002-240
2.5000	0.0570	0.5000	140	950-000-206	950-000-593	950-002-241
2.5000	0.0510	0.5000	140	950-000-205	950-000-592	950-002-242
2.5000	0.0450	0.5000	140	950-000-204	950-000-591	950-002-243
2.5000	0.0400	0.5000	140	950-000-203	950-000-590	950-002-244
2.5000	0.0350	0.5000	140	950-000-202	950-000-589	950-002-245
2.5000	0.0320	0.5000	140	950-000-201	950-000-588	950-002-246
2.5000	0.0280	0.5000	190	950-000-200	950-000-587	950-002-247
2.5000	0.0250	0.5000	190	950-000-199	950-000-586	950-002-248
2.5000	0.0230	0.5000	190	950-000-198	950-000-585	950-002-249
2.5000	0.0200	0.5000	190	950-000-197	950-000-584	950-002-250
2.5000	0.0180	0.5000	190	950-000-196	950-000-583	950-002-251
2.5000	0.0160	0.5000	190	950-000-195	950-000-582	950-002-252
2.5000	0.0140	0.5000	190	950-000-194	950-000-581	950-002-253
2.5000	0.0120	0.5000	240	950-000-193	950-000-580	950-002-254
2.5000	0.0100	0.5000	240	950-000-192	950-000-579	950-002-255
3.0000	0.0570	0.5000	170	950-000-250	950-000-637	950-002-256
3.0000	0.0570	1.0000	170	950-000-251	950-000-638	950-002-257
3.0000	0.0510	0.5000	170	950-000-248	950-000-635	950-002-258
3.0000	0.0510	1.0000	170	950-000-249	950-000-636	950-002-259
3.0000	0.0450	0.5000	170	950-000-246	950-000-633	950-002-260
3.0000	0.0450	1.0000	170	950-000-247	950-000-634	950-002-261
3.0000	0.0400	0.5000	170	950-000-244	950-000-631	950-002-262
3.0000	0.0400	1.0000	170	950-000-245	950-000-632	950-002-263
3.0000	0.0350	0.5000	170	950-000-242	950-000-629	950-002-264
3.0000	0.0350	1.0000	170	950-000-243	950-000-630	950-002-265
3.0000	0.0320	0.5000	170	950-000-240	950-000-627	950-002-266
3.0000	0.0320	1.0000	170	950-000-241	950-000-628	950-002-267
3.0000	0.0280	0.5000	230	950-000-238	950-000-625	950-002-268
3.0000	0.0280	1.0000	230	950-000-239	950-000-626	950-002-269
3.0000	0.0250	0.5000	230	950-000-236	950-000-623	950-002-270
3.0000	0.0250	1.0000	230	950-000-237	950-000-624	950-002-271
3.0000	0.0230	0.5000	230	950-000-234	950-000-621	950-002-272
3.0000	0.0230	1.0000	230	950-000-235	950-000-622	950-002-273
3.0000	0.0200	0.5000	230	950-000-232	950-000-619	950-002-274

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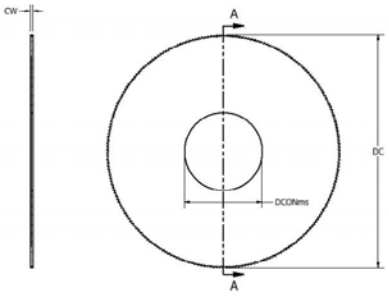

1490

- Fully ground surfaces

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
3.0000	0.0200	1.0000	230	950-000-233	950-000-620	950-002-275
3.0000	0.0180	0.5000	230	950-000-230	950-000-617	950-002-276
3.0000	0.0180	1.0000	230	950-000-231	950-000-618	950-002-277
3.0000	0.0160	0.5000	230	950-000-228	950-000-615	950-002-278
3.0000	0.0160	1.0000	230	950-000-229	950-000-616	950-002-279
3.0000	0.0140	0.5000	230	950-000-226	950-000-613	950-002-280
3.0000	0.0140	1.0000	230	950-000-227	950-000-614	950-002-281
3.0000	0.0120	0.5000	280	950-000-224	950-000-611	950-002-282
3.0000	0.0120	1.0000	280	950-000-225	950-000-612	950-002-283
3.0000	0.0100	0.5000	280	950-000-222	950-000-609	950-002-284
3.0000	0.0100	1.0000	280	950-000-223	950-000-610	950-002-285
4.0000	0.0570	0.5000	220	950-000-280	950-000-667	950-002-286
4.0000	0.0570	1.0000	220	950-000-281	950-000-668	950-002-287
4.0000	0.0510	0.5000	220	950-000-278	950-000-665	950-002-288
4.0000	0.0510	1.0000	220	950-000-279	950-000-666	950-002-289
4.0000	0.0450	0.5000	220	950-000-276	950-000-663	950-002-290
4.0000	0.0450	1.0000	220	950-000-277	950-000-664	950-002-291
4.0000	0.0400	0.5000	220	950-000-274	950-000-661	950-002-292
4.0000	0.0400	1.0000	220	950-000-275	950-000-662	950-002-293
4.0000	0.0350	0.5000	220	950-000-272	950-000-659	950-002-294
4.0000	0.0350	1.0000	220	950-000-273	950-000-660	950-002-295
4.0000	0.0320	0.5000	220	950-000-270	950-000-657	950-002-296
4.0000	0.0320	1.0000	220	950-000-271	950-000-658	950-002-297
4.0000	0.0280	0.5000	300	950-000-268	950-000-655	950-002-298
4.0000	0.0280	1.0000	300	950-000-269	950-000-656	950-002-299
4.0000	0.0250	0.5000	300	950-000-266	950-000-653	950-002-300
4.0000	0.0250	1.0000	300	950-000-267	950-000-654	950-002-301
4.0000	0.0230	0.5000	300	950-000-264	950-000-651	950-002-302
4.0000	0.0230	1.0000	300	950-000-265	950-000-652	950-002-303
4.0000	0.0200	0.5000	300	950-000-262	950-000-649	950-002-304
4.0000	0.0200	1.0000	300	950-000-263	950-000-650	950-002-305
4.0000	0.0180	0.5000	300	950-000-260	950-000-647	950-002-306
4.0000	0.0180	1.0000	300	950-000-261	950-000-648	950-002-307
4.0000	0.0160	0.5000	300	950-000-258	950-000-645	950-002-308
4.0000	0.0160	1.0000	300	950-000-259	950-000-646	950-002-309
4.0000	0.0140	0.5000	300	950-000-256	950-000-643	950-002-310
4.0000	0.0140	1.0000	300	950-000-257	950-000-644	950-002-311
4.0000	0.0120	0.5000	380	950-000-254	950-000-641	950-002-312
4.0000	0.0120	1.0000	380	950-000-255	950-000-642	950-002-313
4.0000	0.0100	0.5000	380	950-000-252	950-000-639	950-002-314
4.0000	0.0100	1.0000	380	950-000-253	950-000-640	950-002-315

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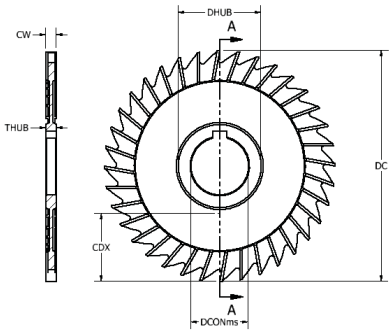
COBALT

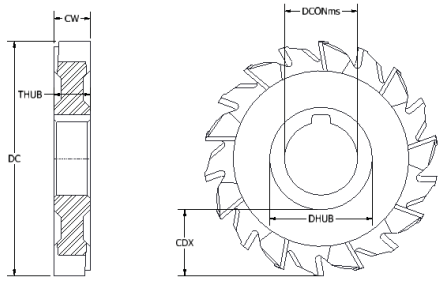


CMT Style - Straight Tooth

- For use in fine finish applications

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
3.0000	0.0625	1.0000	0.7188	1.5000	0.0625	32	950-000-065	950-000-068	950-002-093
3.0000	0.0938	1.0000	0.7188	1.5000	0.0938	32	950-000-081	950-000-084	950-002-094
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	32	950-000-069	950-000-072	950-002-095
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	32	950-000-085	950-000-088	950-002-096
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	32	950-000-073	950-000-076	950-002-097
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	32	950-000-077	950-000-080	950-002-098
4.0000	0.0625	1.0000	1.2188	1.5000	0.0625	36	950-000-089	950-000-092	950-002-099
4.0000	0.0625	1.2500	1.0313	1.8750	0.0625	36	950-000-093	950-000-096	950-002-100
4.0000	0.0938	1.0000	1.2188	1.5000	0.0938	36	950-000-121	950-000-124	950-002-101
4.0000	0.0938	1.2500	1.0313	1.8750	0.0938	36	950-000-125	950-000-128	950-002-102
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	36	950-000-097	950-000-100	950-002-103
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	36	950-000-101	950-000-104	950-002-104
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	36	950-000-129	950-000-132	950-002-105
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	36	950-000-133	950-000-136	950-002-106
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	36	950-000-105	950-000-108	950-002-107
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	36	950-000-109	950-000-112	950-002-108
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	36	950-000-113	950-000-116	950-002-109
4.0000	0.2500	1.2500	1.0313	1.8750	0.2500	36	950-000-117	950-000-120	950-002-110
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	42	950-000-137	950-000-140	950-002-111
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	42	950-000-149	950-000-152	950-002-112
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	42	950-000-141	950-000-144	950-002-113
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	42	950-000-145	950-000-148	950-002-114



CMS Style - Staggered Tooth

- For use in Deep Slotting Applications

PG.505

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	Uncoated	TiN Coated	AlTiN Coated
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	28	950-000-001	950-000-004	950-002-093
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	28	950-000-013	950-000-016	950-002-094
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	28	950-000-005	950-000-008	950-002-095
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	28	950-000-009	950-000-012	950-002-096
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	32	950-000-017	950-000-020	950-002-097
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	32	950-000-021	950-000-024	950-002-098
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	32	950-000-041	950-000-044	950-002-099
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	32	950-000-045	950-000-048	950-002-100
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	32	950-000-025	950-000-028	950-002-101
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	32	950-000-029	950-000-032	950-002-102
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	32	950-000-033	950-000-036	950-002-103
4.0000	0.2500	1.2500	1.0313	1.8750	0.2500	32	950-000-037	950-000-040	950-002-104
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	40	950-000-049	950-000-052	950-002-105
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	40	950-000-061	950-000-064	950-002-106
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	40	950-000-053	950-000-056	950-002-107
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	40	950-000-057	950-000-060	950-002-108

CUSTOM SOLUTIONS

ARCH®
Cutting Tools

YOUR PORTAL TO CREATIVE CUSTOM SOLUTIONS

Custom Solid Carbide & HSS Round Tools in Material Specific Coatings

Solid Milling, Drills, Spotting Drills, Center Drills, Countersinks, Counterbores, Drill & Chamfer Mills, Engraving Tools, Corner Rounding, Keyseat Cutters, Dovetail Cutters, T-Slot Cutters, Milling Cutters, Plain/ Shell Mills, Saws, Form Tools, Reamers, Chamber Reamers, and Micro Tools. Micro tools starting from Ø.004" (.10mm).

Custom Multi-Pocketed Indexable Tooling with any Insert Configuration

Indexable Face Mills, Indexable Shoulder Mills, Indexable High Feed Mills, Indexable Button Mills, Indexable Drills, Indexable Counterbores, Indexable End Mills, Indexable Drills, Indexable Chamfer Mills, Modular Boring Bars, Square Shank Tools, and Boring Bars.

Combination, Complex or Multi-Feature Tooling in Many Substrates & Coatings

Combination tooling can reduce the number of steps required to produce a component, as well as the number of cutting tools needed to do it. Every time a step is taken out of the manufacturing process, the risk of introducing variables and inconsistencies is also reduced.

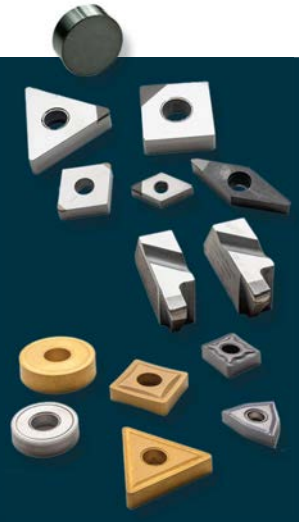
Our advanced manufacturing locations have over 100 years of combined engineering experience. Whether it's one complex tool or a turn-key tooling package, we can engineer a solution to optimize your specific application.

Custom and Complex Polycrystalline Diamond Tooling

ARCH Specials Polycrystalline Diamond (PCD) Tooling is manufactured with a proprietary substrate. Our engineers can design tolerances as tight as .003 mm and provide CNC inspection reports with every PCD tool.

Custom Inserts in Many Geometries and Substrates

Carbide, PCD (Polycrystalline Diamond), CBN (Cubic Boron Nitride), NS3000 Ceramic, Whisker Reinforced Ceramic (Green Ceramic), NYS2000 Ceramic (a premium SiAlON material, also called, Brown Ceramic), and Cermet Inserts.



Standalone and Integrated Shank Tooling Systems

Precision tooling requires high performance tool holding. Optimize the connectivity to your machine and maximize your process security with custom tooling systems designed for your specific tool and application.

Case Studies

Providing the special tools that our customers need to do their unparalleled work is just the beginning of the ARCH Specials story. Our engineers help identify your opportunities to increase value, improve quality and performance, and enhance manufacturing operations.

Improved coolant delivery system

$10,000

Annual cost savings

Improved surface finish

30%

Reduction in scrap

Customized micro step drill

$22,000

Annual cost savings

Advanced tool coating process

$68,000

Annual cost savings

PCD TIPPED INDEXABLE ROUGH BORING BAR WITH EXCHANGEABLE HEAD

Oil/Gas

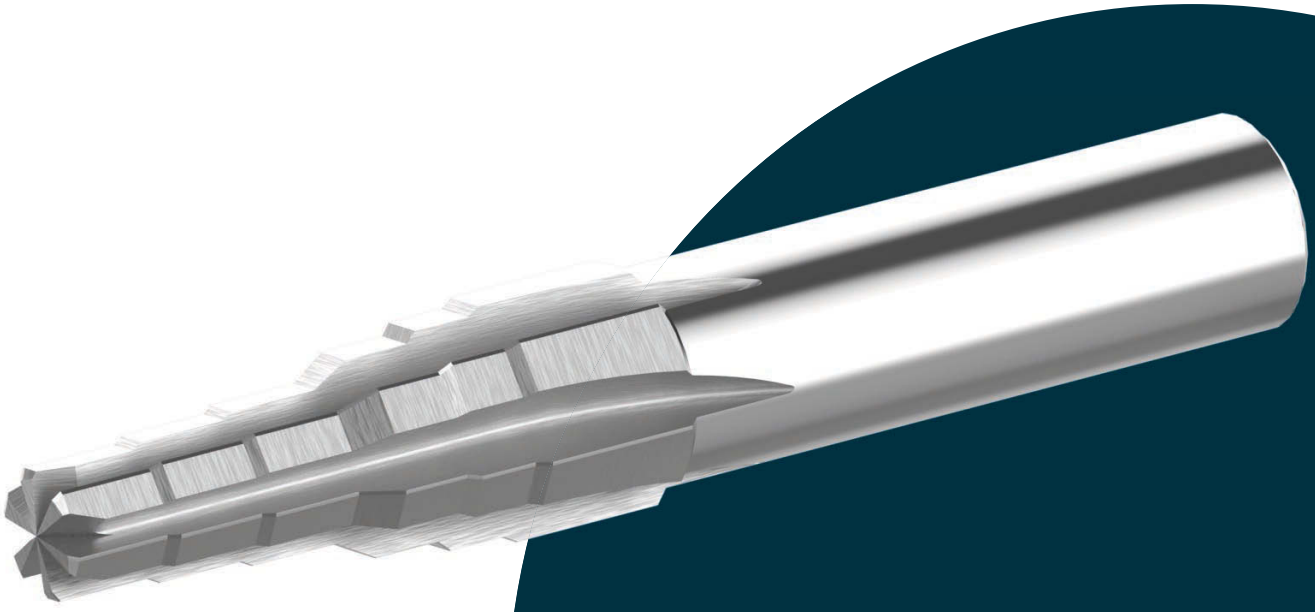
Customer Requirements:

- Combines 3 tools in 1
- 4 flute PCD tipped reamer and chamfer
- Reduce cycle time
- Continued retipping opportunity to reduce cost

This tool started as a four flute PCD tipped ream and chamfer. To save time and eliminate another tool, we added the PCD tipped back mill and indexable rough inserts to the front of the tool.

Our expertise helped reduce the number of steps required to produce a component and improve cycle time by combining three tools into one. The original tool was designed in 2016, and we are still making or retipping this tool today!

STRAIGHT SHANK PLUNGE FORM TOOL



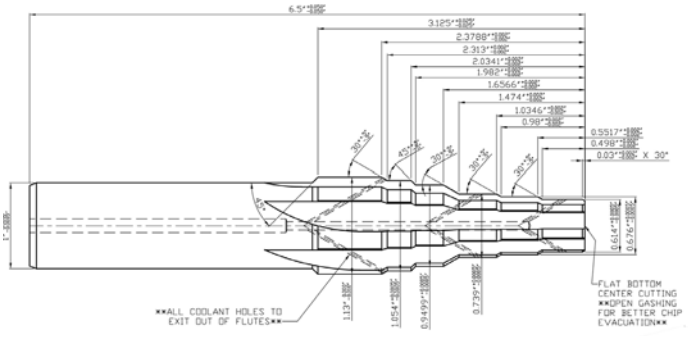
Power Management Technologies

Customer Requirements:

- 3 Processes in 1
- Difficult-to-combine
- Long Tool Life
- Repeatability
- Detailed feature to achieve

This customer threw us a curveball application. They were spot-drilling, drilling, and reaming a specific feature on a part that they machine often.
We believed we could combine all three operations into one tool even after the engineers stated several other tool manufactures were unsuccessful.

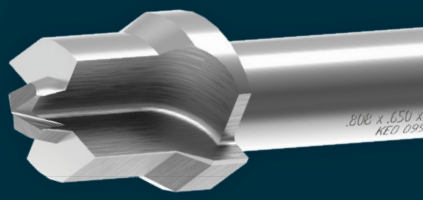
The initial run proved to be a success. The feature was produced well within specifications and machining was perfect. The next step was to test tool life and repeatability, which also proved successful. After this, we were asked to quote and produce almost every form tool they purchased and were brought in to design new tooling for future projects.

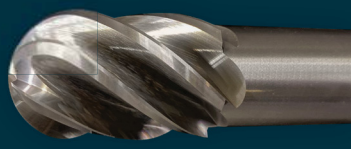


ARCH Cutting Tools

YOUR PORTAL TO CREATIVE CUSTOM SOLUTIONS

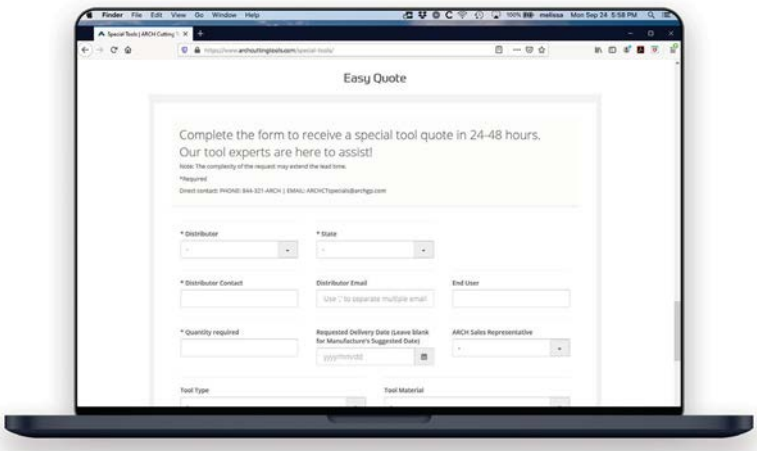
Use Our Quick Quote Solution Today:





Complete the form to receive a special tool quote in 24-48 hours. Our tool experts are here to assist:

- Turnkey projects
- Prototype-to-production projects
- Ongoing process improvement issues
- Excess scrap rates
- CPU challenges
- Production bottlenecks
- Supply chain inefficiencies

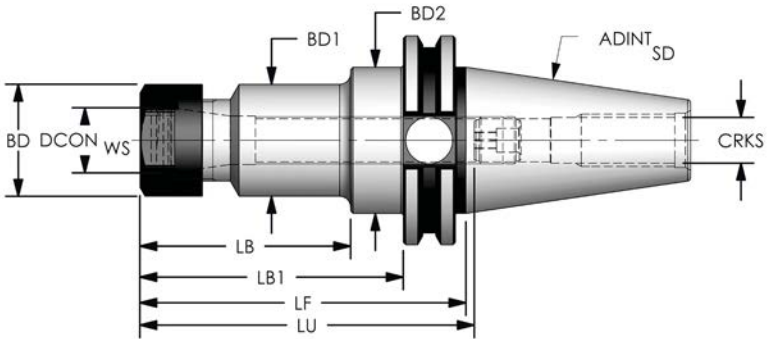


START A QUOTE

TOOL HOLDERS

ARCH®
Cutting Tools

ULTRA-DEX®



Balanced to:
G2.5 (20,000 rpm)

Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Collet Nut	Stop Screw	Wrench
966-000-065	CT40-ER11-250-G2	CAT40	ER11	0.750	N/A	N/A	1.750	N/A	2.500	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-067	CT40-ER11-400-G2	CAT40	ER11	0.750	N/A	1.750	2.620	3.250	4.000	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-069	CT40-ER11-600-G2	CAT40	ER11	0.750	N/A	1.750	4.620	5.250	6.000	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-071	CT40-ER16-250-G2	CAT40	ER16	1.100	N/A	N/A	1.750	N/A	2.500	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-073	CT40-ER16-300-G2	CAT40	ER16	1.100	N/A	N/A	2.250	N/A	3.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-075	CT40-ER16-400-G2	CAT40	ER16	1.100	N/A	N/A	3.250	N/A	4.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-077	CT40-ER16-500-G2	CAT40	ER16	1.100	N/A	1.750	3.620	4.250	5.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-079	CT40-ER16-600-G2	CAT40	ER16	1.100	N/A	1.750	4.620	5.250	6.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-081	CT40-ER20-300-G2	CAT40	ER20	1.340	N/A	N/A	2.250	N/A	3.000	3.500	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-083	CT40-ER20-400-G2	CAT40	ER20	1.340	N/A	1.750	2.620	3.250	4.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-085	CT40-ER20-600-G2	CAT40	ER20	1.340	N/A	1.750	4.620	5.250	6.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-087	CT40-ER20-800-G2	CAT40	ER20	1.340	N/A	1.750	6.620	7.250	8.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-089	CT40-ER25-250-G2	CAT40	ER25	1.660	1.590	N/A	1.750	N/A	2.500	2.800	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-091	CT40-ER25-400-G2	CAT40	ER25	1.660	1.590	1.750	2.620	3.250	4.000	4.300	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-093	CT40-ER25-600-G2	CAT40	ER25	1.660	1.590	1.750	4.620	5.250	6.000	4.400	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-095	CT40-ER32-300-G2	CAT40	ER32	1.980	1.750	N/A	2.250	N/A	3.000	3.450	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-097	CT40-ER32-400-G2	CAT40	ER32	1.980	1.750	N/A	N/A	3.250	4.000	4.300	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-099	CT40-ER32-600-G2	CAT40	ER32	1.980	1.750	N/A	N/A	5.250	6.000	4.600	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-101	CT40-ER32-800-G2	CAT40	ER32	1.980	1.750	N/A	N/A	7.250	8.000	4.600	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-103	CT40-ER40-300-G2	CAT40	ER40	2.250	N/A	N/A	N/A	2.250	3.000	3.300	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-105	CT40-ER40-400-G2	CAT40	ER40	2.250	N/A	N/A	N/A	3.250	4.000	4.000	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-107	CT40-ER40-600-G2	CAT40	ER40	2.250	N/A	N/A	N/A	5.250	6.000	4.500	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-109	CT40-ER40-800-G2	CAT40	ER40	2.250	N/A	N/A	N/A	7.250	8.000	4.50 0	5/8-11	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN

PACKAGE SIZE OF 1

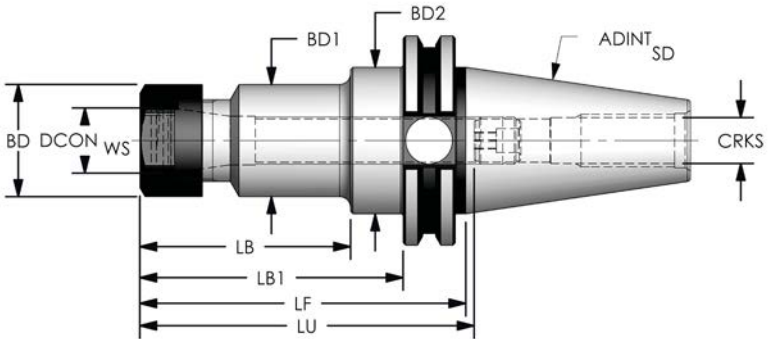
Product #	Adj. Screw
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-189	ER-11W
968-000-037	ER-16W
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINTSD	DCONWS	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Collet Nut	Stop Screw	Wrench
966-000-066	CT40-ER11-250-G6	CAT40	ER11	0.750	N/A	N/A	1.750	N/A	2.500	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-068	CT40-ER11-400-G6	CAT40	ER11	0.750	N/A	1.750	2.620	3.250	4.000	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-070	CT40-ER11-600-G6	CAT40	ER11	0.750	N/A	1.750	4.620	5.250	6.000	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-072	CT40-ER16-250-G6	CAT40	ER16	1.100	N/A	N/A	1.750	N/A	2.500	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-074	CT40-ER16-300-G6	CAT40	ER16	1.100	N/A	N/A	2.250	N/A	3.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-076	CT40-ER16-400-G6	CAT40	ER16	1.100	N/A	N/A	3.250	N/A	4.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-078	CT40-ER16-500-G6	CAT40	ER16	1.100	N/A	1.750	3.620	4.250	5.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-080	CT40-ER16-600-G6	CAT40	ER16	1.100	N/A	1.750	4.620	5.250	6.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-082	CT40-ER20-300-G6	CAT40	ER20	1.340	N/A	N/A	2.250	N/A	3.000	3.500	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-084	CT40-ER20-400-G6	CAT40	ER20	1.340	N/A	1.750	2.620	3.250	4.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-086	CT40-ER20-600-G6	CAT40	ER20	1.340	N/A	1.750	4.620	5.250	6.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-088	CT40-ER20-800-G6	CAT40	ER20	1.340	N/A	1.750	6.620	7.250	8.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-090	CT40-ER25-250-G6	CAT40	ER25	1.660	1.590	N/A	1.750	N/A	2.500	2.800	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-092	CT40-ER25-400-G6	CAT40	ER25	1.660	1.590	1.750	2.620	3.250	4.000	4.300	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-094	CT40-ER25-600-G6	CAT40	ER25	1.660	1.590	1.750	4.620	5.250	6.000	4.400	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-096	CT40-ER32-300-G6	CAT40	ER32	1.980	1.750	N/A	2.250	N/A	3.000	3.450	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-098	CT40-ER32-400-G6	CAT40	ER32	1.980	1.750	N/A	N/A	3.250	4.000	4.300	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-100	CT40-ER32-600-G6	CAT40	ER32	1.980	1.750	N/A	N/A	5.250	6.000	4.600	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-102	CT40-ER32-800-G6	CAT40	ER32	1.980	1.750	N/A	N/A	7.250	8.000	4.600	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-104	CT40-ER40-300-G6	CAT40	ER40	2.250	N/A	N/A	N/A	2.250	3.000	3.300	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-106	CT40-ER40-400-G6	CAT40	ER40	2.250	N/A	N/A	N/A	3.250	4.000	4.000	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-108	CT40-ER40-600-G6	CAT40	ER40	2.250	N/A	N/A	N/A	5.250	6.000	4.500	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-110	CT40-ER40-800-G6	CAT40	ER40	2.250	N/A	N/A	N/A	7.250	8.000	4.500	5/8-11	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN

PACKAGE SIZE OF 1

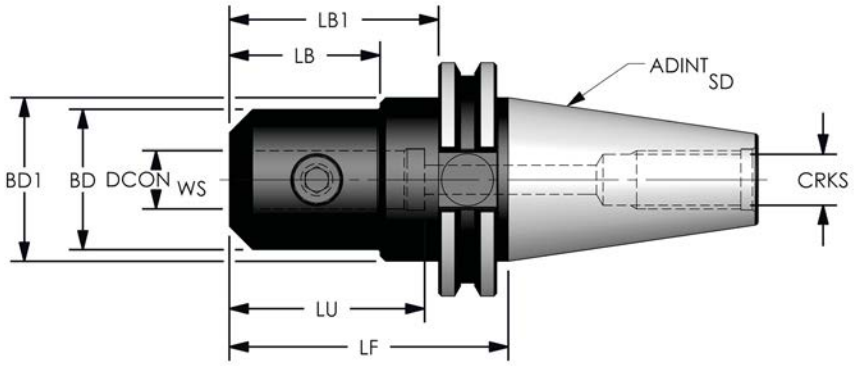
Product #	Adj. Screw
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-189	ER-11W
968-000-037	ER-16W
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX®



Balanced to:
G2.5 (20,000 rpm)

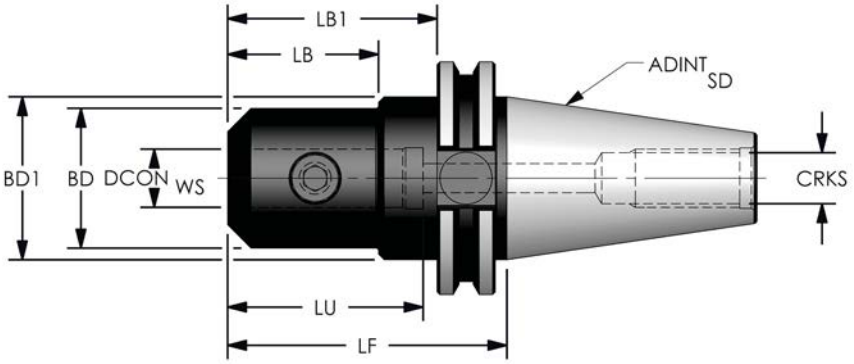
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-001	CT40-EM012-250-G2	CAT40	0.125	0.690	1.750	1.120	1.750	2.500	N/A	5/8-11	SS10-250
966-000-017	CT40-EM188-250-G2	CAT40	0.188	0.750	1.750	1.120	1.750	2.500	N/A	5/8-11	SS10-250
966-000-019	CT40-EM188-400-G2	CAT40	0.188	0.750	1.750	2.620	3.250	4.000	N/A	5/8-11	SS10-250
966-000-021	CT40-EM250-250-G2	CAT40	0.250	0.880	1.750	1.125	1.750	2.500	N/A	5/8-11	SS1/4-250
966-000-023	CT40-EM250-400-G2	CAT40	0.250	0.880	1.750	2.620	3.250	4.000	N/A	5/8-11	SS1/4-250
966-000-025	CT40-EM250-600-G2	CAT40	0.250	0.880	1.750	4.625	5.250	6.000	N/A	5/8-11	SS1/4-250
966-000-027	CT40-EM312-250-G2	CAT40	0.312	0.880	1.750	1.120	1.750	2.500	N/A	5/8-11	SS1/4-250
966-000-029	CT40-EM312-400-G2	CAT40	0.312	0.880	1.750	2.625	3.250	4.000	N/A	5/8-11	SS1/4-250
966-000-031	CT40-EM312-600-G2	CAT40	0.312	0.880	1.750	4.625	5.250	6.000	N/A	5/8-11	SS1/4-250
966-000-033	CT40-EM375-250-G2	CAT40	0.375	1.000	1.750	1.120	1.750	2.500	N/A	5/8-11	SS3/8-375
966-000-035	CT40-EM375-400-G2	CAT40	0.375	1.000	1.750	2.620	3.250	4.000	N/A	5/8-11	SS3/8-375
966-000-037	CT40-EM375-600-G2	CAT40	0.375	1.000	1.750	4.620	5.250	6.000	N/A	5/8-11	SS3/8-375
966-000-039	CT40-EM437-250-G2	CAT40	0.437	1.000	1.750	1.125	1.750	2.500	N/A	5/8-11	SS3/8-375
966-000-041	CT40-EM437-400-G2	CAT40	0.437	1.000	1.750	2.620	3.250	4.000	N/A	5/8-11	SS3/8-375
966-000-043	CT40-EM500-262-G2	CAT40	0.500	1.375	1.750	1.245	1.870	2.620	N/A	5/8-11	SS7/16-500
966-000-045	CT40-EM500-400-G2	CAT40	0.500	1.375	1.750	2.620	3.250	4.000	N/A	5/8-11	SS7/16-500
966-000-047	CT40-EM500-600-G2	CAT40	0.500	1.375	1.750	4.620	5.250	6.000	N/A	5/8-11	SS7/16-500

All Hardware Included

Product #	Set Screws
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

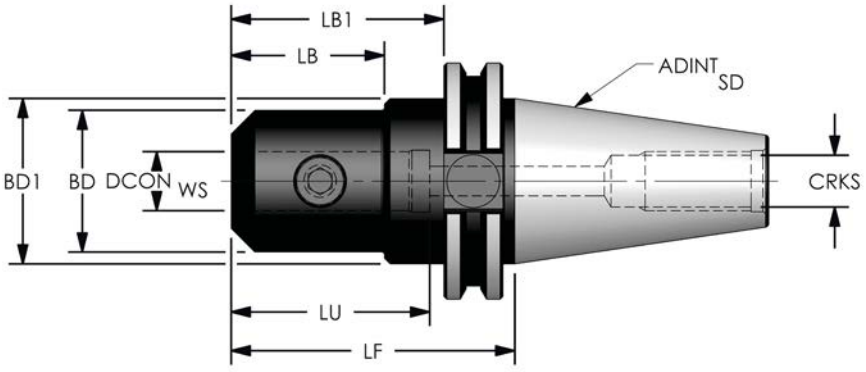
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-002	CT40-EM012-250-G6	CAT40	0.125	0.690	1.750	1.120	1.750	2.500	N/A	5/8-11	SS10-250
966-000-018	CT40-EM188-250-G6	CAT40	0.188	0.750	1.750	1.120	1.750	2.500	N/A	5/8-11	SS10-250
966-000-020	CT40-EM188-400-G6	CAT40	0.188	0.750	1.750	2.620	3.250	4.000	N/A	5/8-11	SS10-250
966-000-022	CT40-EM250-250-G6	CAT40	0.250	0.880	1.750	1.125	1.750	2.500	N/A	5/8-11	SS1/4-250
966-000-024	CT40-EM250-400-G6	CAT40	0.250	0.880	1.750	2.620	3.250	4.000	N/A	5/8-11	SS1/4-250
966-000-026	CT40-EM250-600-G6	CAT40	0.250	0.880	1.750	4.625	5.250	6.000	N/A	5/8-11	SS1/4-250
966-000-028	CT40-EM312-250-G6	CAT40	0.312	0.880	1.750	1.120	1.750	2.500	N/A	5/8-11	SS1/4-250
966-000-030	CT40-EM312-400-G6	CAT40	0.312	0.880	1.750	2.625	3.250	4.000	N/A	5/8-11	SS1/4-250
966-000-032	CT40-EM312-600-G6	CAT40	0.312	0.880	1.750	4.625	5.250	6.000	N/A	5/8-11	SS1/4-250
966-000-034	CT40-EM375-250-G6	CAT40	0.375	1.000	1.750	1.120	1.750	2.500	N/A	5/8-11	SS3/8-375
966-000-036	CT40-EM375-400-G6	CAT40	0.375	1.000	1.750	2.620	3.250	4.000	N/A	5/8-11	SS3/8-375
966-000-038	CT40-EM375-600-G6	CAT40	0.375	1.000	1.750	4.620	5.250	6.000	N/A	5/8-11	SS3/8-375
966-000-040	CT40-EM437-250-G6	CAT40	0.437	1.000	1.750	1.125	1.750	2.500	N/A	5/8-11	SS3/8-375
966-000-042	CT40-EM437-400-G6	CAT40	0.437	1.000	1.750	2.620	3.250	4.000	N/A	5/8-11	SS3/8-375
966-000-044	CT40-EM500-262-G6	CAT40	0.500	1.375	1.750	1.245	1.870	2.620	N/A	5/8-11	SS7/16-500
966-000-046	CT40-EM500-400-G6	CAT40	0.500	1.375	1.750	2.620	3.250	4.000	N/A	5/8-11	SS7/16-500
966-000-048	CT40-EM500-600-G6	CAT40	0.500	1.375	1.750	4.620	5.250	6.000	N/A	5/8-11	SS7/16-500

All Hardware Included

Product #	Set Screws
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G2.5 (20,000 rpm)

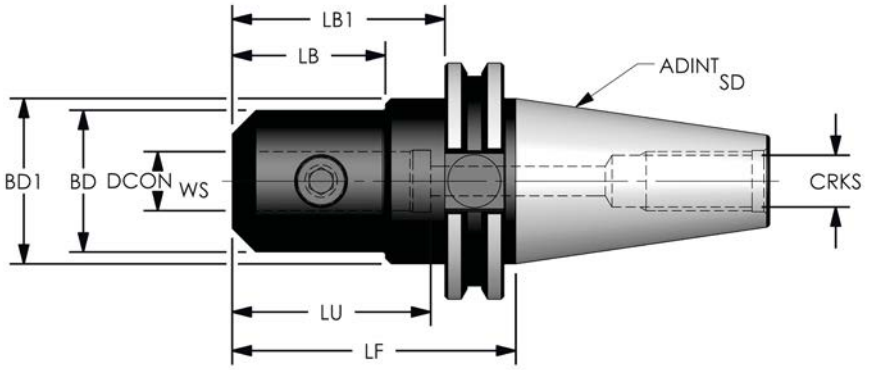
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-049	CT40-EM563-262-G2	CAT40	0.563	1.375	1.750	1.240	1.870	2.620	2.050	5/8-11	SS7/16-500
966-000-051	CT40-EM625-175-G2	CAT40	0.625	1.750	N/A	1.000	N/A	1.750	2.100	5/8-11	SS9/16-500
966-000-053	CT40-EM625-300-G2	CAT40	0.625	1.500	1.750	1.620	2.250	3.000	2.100	5/8-11	SS9/16-500
966-000-055	CT40-EM625-600-G2	CAT40	0.625	1.500	1.750	4.625	5.250	6.000	2.100	5/8-11	SS9/16-500
966-000-057	CT40-EM750-175-G2	CAT40	0.750	1.750	N/A	1.000	N/A	1.750	2.250	5/8-11	SS5/8-500
966-000-059	CT40-EM750-300-G2	CAT40	0.750	1.750	N/A	2.250	N/A	3.000	2.300	5/8-11	SS5/8-500
966-000-061	CT40-EM750-600-G2	CAT40	0.750	1.750	N/A	5.280	N/A	6.000	2.300	5/8-11	SS5/8-500
966-000-063	CT40-EM875-600-G2	CAT40	0.875	2.000	1.750	4.625	5.250	6.000	2.500	5/8-11	SS5/8-500
966-000-003	CT40-EM100-175-G2	CAT40	1.000	1.750	N/A	1.000	N/A	1.750	2.250	5/8-11	SS3/4-375
966-000-005	CT40-EM100-400-G2	CAT40	1.000	2.000	1.750	2.620	3.250	4.000	2.830	5/8-11	SS3/4-500
966-000-007	CT40-EM100-600-G2	CAT40	1.000	2.000	1.750	4.625	5.250	6.000	2.830	5/8-11	SS3/4-500
966-000-009	CT40-EM125-250-G2	CAT40	1.250	2.250	N/A	1.750	N/A	2.500	2.500	5/8-11	SS3/4-500
966-000-011	CT40-EM125-400-G2	CAT40	1.250	2.250	N/A	3.250	N/A	4.000	3.000	5/8-11	(2) SS3/4-500
966-000-013	CT40-EM125-600-G2	CAT40	1.250	2.250	1.750	4.625	5.250	6.000	3.000	5/8-11	(2) SS3/4-500
966-000-015	CT40-EM150-462-G2	CAT40	1.500	2.600	1.750	3.245	3.870	4.620	2.750	5/8-11	(2) SS3/4-500

All Hardware Included

Product #	Set Screws
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



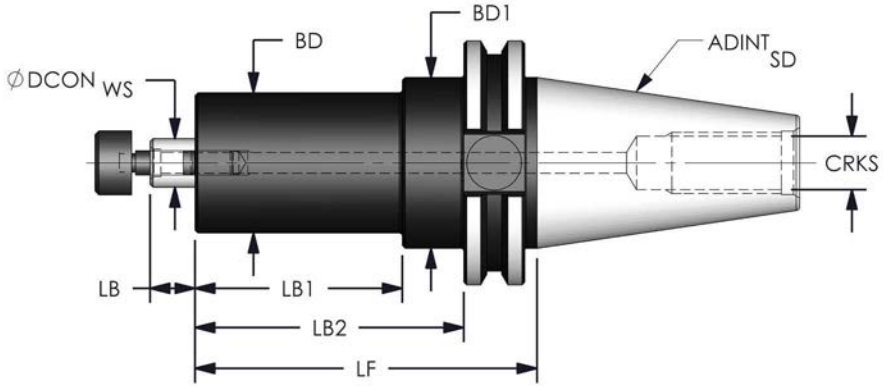
Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-050	CT40-EM563-262-G6	CAT40	0.563	1.375	1.750	1.240	1.870	2.620	2.050	5/8-11	SS7/16-500
966-000-052	CT40-EM625-175-G6	CAT40	0.625	1.750	N/A	1.000	N/A	1.750	2.100	5/8-11	SS9/16-500
966-000-054	CT40-EM625-300-G6	CAT40	0.625	1.500	1.750	1.620	2.250	3.000	2.100	5/8-11	SS9/16-500
966-000-056	CT40-EM625-600-G6	CAT40	0.625	1.500	1.750	4.625	5.250	6.000	2.100	5/8-11	SS9/16-500
966-000-058	CT40-EM750-175-G6	CAT40	0.750	1.750	N/A	1.000	N/A	1.750	2.250	5/8-11	SS5/8-500
966-000-060	CT40-EM750-300-G6	CAT40	0.750	1.750	N/A	2.250	N/A	3.000	2.300	5/8-11	SS5/8-500
966-000-062	CT40-EM750-600-G6	CAT40	0.750	1.750	N/A	5.280	N/A	6.000	2.300	5/8-11	SS5/8-500
966-000-064	CT40-EM875-600-G6	CAT40	0.875	2.000	1.750	4.625	5.250	6.000	2.500	5/8-11	SS5/8-500
966-000-004	CT40-EM100-175-G6	CAT40	1.000	1.750	N/A	1.000	N/A	1.750	2.250	5/8-11	SS3/4-375
966-000-006	CT40-EM100-400-G6	CAT40	1.000	2.000	1.750	2.620	3.250	4.000	2.830	5/8-11	SS3/4-500
966-000-008	CT40-EM100-600-G6	CAT40	1.000	2.000	1.750	4.625	5.250	6.000	2.830	5/8-11	SS3/4-500
966-000-010	CT40-EM125-250-G6	CAT40	1.250	2.250	N/A	1.750	N/A	2.500	2.500	5/8-11	SS3/4-500
966-000-012	CT40-EM125-400-G6	CAT40	1.250	2.250	N/A	3.250	N/A	4.000	3.000	5/8-11	(2) SS3/4-500
966-000-014	CT40-EM125-600-G6	CAT40	1.250	2.250	1.750	4.625	5.250	6.000	3.000	5/8-11	(2) SS3/4-500
966-000-016	CT40-EM150-462-G6	CAT40	1.500	2.600	1.750	3.245	3.870	4.620	2.750	5/8-11	(2) SS3/4-500

Product #	Set Screws
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

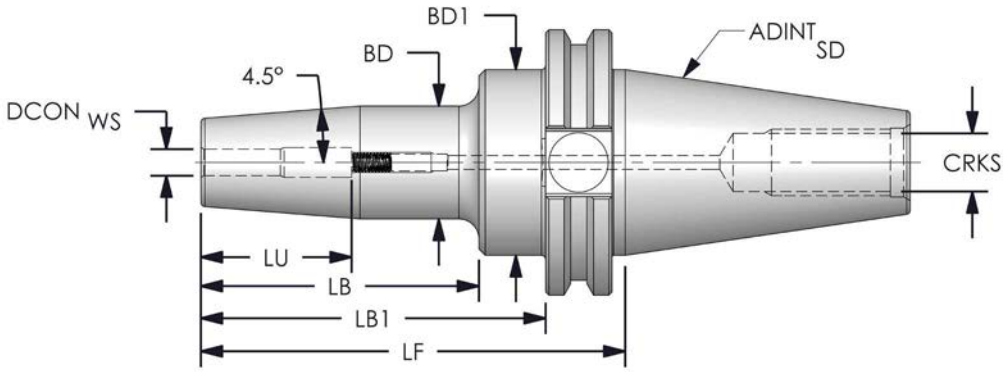
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LB2 [in.]	LF [in.]	CRKS	Drive Key	Lock Screw	Thread
966-000-134	CT40-SM050-138	CAT40	0.500	1.438	N/A	0.460	0.625	N/A	1.380	5/8-11	UDK 250	U5001	1/4-28
966-000-135	CT40-SM050-350	CAT40	0.500	1.438	1.750	0.460	2.580	3.210	3.500	5/8-11	UDK 250	U5001	1/4-28
966-000-136	CT40-SM075-150	CAT40	0.750	1.750	N/A	0.680	1.430	N/A	1.500	5/8-11	UDK 312	U5002	3/8-24
966-000-137	CT40-SM075-400	CAT40	0.750	1.750	N/A	0.680	3.250	N/A	4.000	5/8-11	UDK 312	U5002	3/8-24
966-000-138	CT40-SM075-600	CAT40	0.750	1.750	N/A	0.680	5.250	N/A	6.000	5/8-11	UDK 312	U5002	3/8-24
966-000-139	CT40-SM100-200	CAT40	1.000	2.190	1.750	0.680	0.620	1.250	2.000	5/8-11	UDK 375	U5003	1/2-20
966-000-140	CT40-SM100-400	CAT40	1.000	2.190	1.750	0.680	2.620	3.250	4.000	5/8-11	UDK 375	U5003	1/2-20
966-000-141	CT40-SM100-600	CAT40	1.000	2.190	1.750	0.680	4.620	5.250	6.000	5/8-11	UDK 375	U5003	1/2-20
966-000-142	CT40-SM125-212	CAT40	1.250	2.750	1.750	0.680	0.745	1.375	2.120	5/8-11	UDK 500	U5004	5/8-18
966-000-143	CT40-SM125-400	CAT40	1.250	2.750	1.750	0.680	2.620	3.250	4.000	5/8-11	UDK 500	U5004	5/8-18
966-000-144	CT40-SM150-250	CAT40	1.500	3.380	1.750	0.940	1.120	1.750	2.500	5/8-11	UDK 625	U5005	3/4-16
966-000-145	CT40-SM150-400	CAT40	1.500	3.380	1.750	0.940	2.620	3.250	4.000	5/8-11	UDK 625	U5005	3/4-16

Product #	Arbor Screws
968-000-162	U5001
968-000-163	U5002
968-000-164	U5003
968-000-165	U5004
968-000-166	U5005

PACKAGE SIZE OF 1

Product #	Drive Key
968-000-170	UDK 250
968-000-171	UDK 312
968-000-172	UDK 375
968-000-173	UDK 500
968-000-174	UDK 625
968-000-175	UDK 750

PATRIOT HP®



STANDARD LENGTH

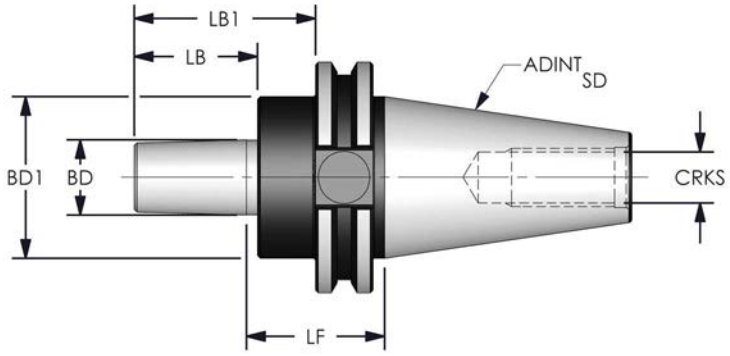
Balanced to: G2.5 (20,000 rpm)

Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Thread
966-000-116	CT40-SF012-400-G2	CAT40	0.125	0.500	1.750	2.620	3.250	4.000	0.790	5/8-11	N/A
966-000-121	CT40-SF188-400-G2	CAT40	0.188	0.500	1.750	2.620	3.250	4.000	0.790	5/8-11	N/A
966-000-123	CT40-SF250-400-G2	CAT40	0.250	0.750	1.750	2.620	3.250	4.000	1.420	5/8-11	10-32
966-000-126	CT40-SF375-400-G2	CAT40	0.375	0.750	1.750	2.620	3.250	4.000	1.530	5/8-11	1/4-28
966-000-128	CT40-SF500-400-G2	CAT40	0.500	1.000	1.750	2.620	3.250	4.000	1.850	5/8-11	7/16-20
966-000-130	CT40-SF625-400-G2	CAT40	0.625	1.000	1.750	2.620	3.250	4.000	1.970	5/8-11	9/16-18
966-000-132	CT40-SF750-400-G2	CAT40	0.750	1.250	1.750	2.620	3.250	4.000	2.040	5/8-11	5/8-18
966-000-118	CT40-SF100-400-G2	CAT40	1.000	2.090	1.750	2.620	3.250	4.000	2.280	5/8-11	3/4-16
966-000-120	CT40-SF125-400-G2	CAT40	1.250	2.090	1.750	2.620	3.250	4.000	2.280	5/8-11	3/4-16

EXTENDED LENGTH

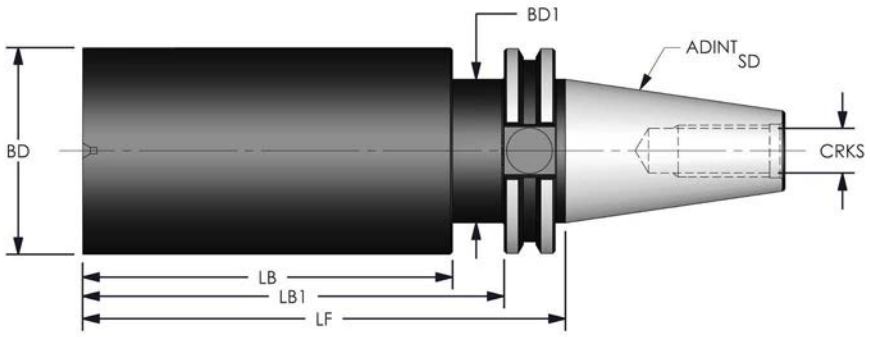
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Thread
966-000-117	CT40-SF012-600-G2	CAT40	0.125	0.750	1.750	4.620	5.250	6.000	0.790	5/8-11	N/A
966-000-122	CT40-SF188-600-G2	CAT40	0.188	0.750	1.750	4.620	5.250	6.000	0.790	5/8-11	N/A
966-000-124	CT40-SF250-600-G2	CAT40	0.250	0.750	1.750	4.620	5.250	6.000	1.420	5/8-11	10-32
966-000-127	CT40-SF375-600-G2	CAT40	0.375	1.000	1.750	4.620	5.250	6.000	1.530	5/8-11	1/4-28
966-000-129	CT40-SF500-600-G2	CAT40	0.500	1.000	1.750	4.620	5.250	6.000	1.850	5/8-11	7/16-20
966-000-131	CT40-SF625-600-G2	CAT40	0.625	1.250	1.750	4.620	5.250	6.000	1.970	5/8-11	9/16-18
966-000-133	CT40-SF750-600-G2	CAT40	0.750	1.250	1.750	4.620	5.250	6.000	2.040	5/8-11	5/8-18
966-000-119	CT40-SF100-600-G2	CAT40	1.000	2.090	1.750	4.620	5.250	6.000	2.280	5/8-11	3/4-16
966-000-125	CT40-SF250-800-G2	CAT40	0.250	1.000	1.750	6.620	7.250	8.000	1.420	5/8-11	10-32

ULTRA-DEX®



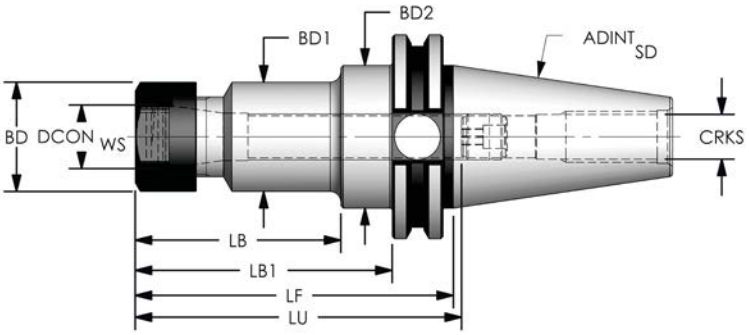
Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINTSD	Taper No.	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	CRKS	Taper Length
966-000-111	CT40-JT02-150	CAT40	2	0.559	1.750	1.025	1.625	1.500	5/8-11	0.875
966-000-112	CT40-JT03-150	CAT40	3	0.811	1.750	1.339	1.969	1.500	5/8-11	1.219
966-000-113	CT40-JT04-150	CAT40	4	1.124	1.750	1.776	2.406	1.500	5/8-11	1.656
966-000-114	CT40-JT06-150	CAT40	6	0.676	1.750	1.120	1.750	1.500	5/8-11	1.000
966-000-115	CT40-JT33-150	CAT40	33	0.624	1.750	1.120	1.750	1.500	5/8-11	1.000



Product #	Designation	ADINTSD	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	CRKS [in.]
967-000-002	CT40-BB64-150	CAT40	2.520/(64mm)	1.750	4.526	5.156	5.910/(150mm)	5/8-11
967-000-003	CT40-BB64-250	CAT40	2.520/(64mm)	1.750	4.526	5.156	9.840/(250mm)	5/8-11
967-000-001	CT40-BB100-150	CAT40	3.940/(100mm)	1.750	8.463	9.093	5.910/(150mm)	5/8-11

ULTRA-DEX®



Balanced to:
G2.5 (15,000 rpm)

Product #	Designation	ADINTSD	DCONWS	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Collet Nut	Stop Screw	Wrench
966-000-216	CT50-ER11-600-G2	CAT50	ER11	0.750	N/A	N/A	N/A	N/A	6.000	1.940	1-8	ER-11HN	ER-11S	ER-11W
966-000-218	CT50-ER16-400-G2	CAT50	ER16	1.100	1.100	2.750	2.620	3.250	4.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-220	CT50-ER16-600-G2	CAT50	ER16	1.100	1.100	2.750	4.620	5.250	6.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-222	CT50-ER16-800-G2	CAT50	ER16	1.100	1.100	2.750	6.620	7.250	8.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-224	CT50-ER20-250-G2	CAT50	ER20	1.340	1.340	1.340	1.750	N/A	2.500	3.380	1-8	ER-20HN	ER-20S	ER-20W
966-000-226	CT50-ER20-400-G2	CAT50	ER20	1.340	1.340	2.750	2.620	3.250	4.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-228	CT50-ER20-600-G2	CAT50	ER20	1.340	1.340	2.750	4.620	5.250	6.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-230	CT50-ER20-800-G2	CAT50	ER20	1.340	1.340	2.750	6.620	7.250	8.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-232	CT50-ER25-250-G2	CAT50	ER25	1.660	1.590	2.750	1.120	1.750	2.500	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-234	CT50-ER25-400-G2	CAT50	ER25	1.660	1.590	2.750	2.620	3.250	4.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-236	CT50-ER25-600-G2	CAT50	ER25	1.660	1.590	2.750	4.620	5.250	6.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-238	CT50-ER25-800-G2	CAT50	ER25	1.660	1.590	2.750	6.620	7.250	8.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-240	CT50-ER32-300-G2	CAT50	ER32	1.980	2.000	2.750	1.620	2.250	3.000	3.500	1-8	ER-32SN	ER-32S	ER-32W
966-000-242	CT50-ER32-400-G2	CAT50	ER32	1.980	2.000	2.750	2.620	3.250	4.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-244	CT50-ER32-500-G2	CAT50	ER32	1.980	2.000	2.750	3.620	4.250	5.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-246	CT50-ER32-600-G2	CAT50	ER32	1.980	2.000	2.750	4.620	5.250	6.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-248	CT50-ER32-800-G2	CAT50	ER32	1.980	2.000	2.750	6.620	7.250	8.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-250	CT50-ER40-300-G2	CAT50	ER40	2.500	2.500	2.750	1.620	2.250	3.000	4.000	1-8	ER-40SN	ER-40S	ER-40W
966-000-252	CT50-ER40-400-G2	CAT50	ER40	2.500	2.500	2.750	2.620	3.250	4.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-254	CT50-ER40-500-G2	CAT50	ER40	2.500	2.500	2.750	3.620	4.250	5.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-256	CT50-ER40-600-G2	CAT50	ER40	2.500	2.500	2.750	4.620	5.250	6.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-258	CT50-ER40-800-G2	CAT50	ER40	2.500	2.500	2.750	6.620	7.250	8.000	4.500	1-8	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN

PACKAGE SIZE OF 1

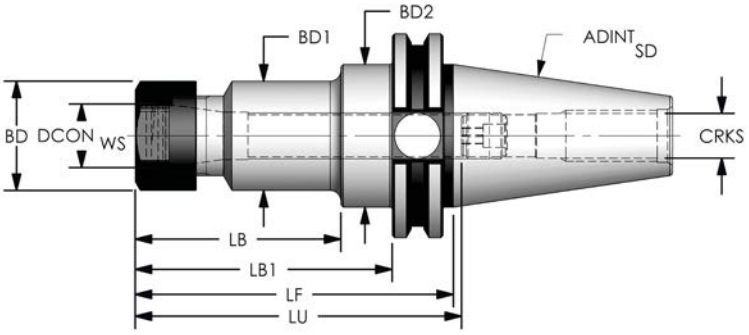
Product #	Adj. Screw
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-189	ER-11W
968-000-037	ER-16W
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINTSD	DCONWS	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Collet Nut	Stop Screw	Wrench
966-000-217	CT50-ER11-600-G6	CAT50	ER11	0.750	N/A	N/A	N/A	N/A	6.000	1.940	1-8	ER-11HN	ER-11S	ER-11W
966-000-219	CT50-ER16-400-G6	CAT50	ER16	1.100	1.100	2.750	2.620	3.250	4.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-221	CT50-ER16-600-G6	CAT50	ER16	1.100	1.100	2.750	4.620	5.250	6.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-223	CT50-ER16-800-G6	CAT50	ER16	1.100	1.100	2.750	6.620	7.250	8.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-225	CT50-ER20-250-G6	CAT50	ER20	1.340	1.340	1.340	1.750	N/A	2.500	3.380	1-8	ER-20HN	ER-20S	ER-20W
966-000-227	CT50-ER20-400-G6	CAT50	ER20	1.340	1.340	2.750	2.620	3.250	4.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-229	CT50-ER20-600-G6	CAT50	ER20	1.340	1.340	2.750	4.620	5.250	6.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-231	CT50-ER20-800-G6	CAT50	ER20	1.340	1.340	2.750	6.620	7.250	8.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-233	CT50-ER25-250-G6	CAT50	ER25	1.660	1.590	2.750	1.120	1.750	2.500	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-235	CT50-ER25-400-G6	CAT50	ER25	1.660	1.590	2.750	2.620	3.250	4.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-237	CT50-ER25-600-G6	CAT50	ER25	1.660	1.590	2.750	4.620	5.250	6.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-239	CT50-ER25-800-G6	CAT50	ER25	1.660	1.590	2.750	6.620	7.250	8.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-241	CT50-ER32-300-G6	CAT50	ER32	1.980	2.000	2.750	1.620	2.250	3.000	3.500	1-8	ER-32SN	ER-32S	ER-32W
966-000-243	CT50-ER32-400-G6	CAT50	ER32	1.980	2.000	2.750	2.620	3.250	4.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-245	CT50-ER32-500-G6	CAT50	ER32	1.980	2.000	2.750	3.620	4.250	5.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-247	CT50-ER32-600-G6	CAT50	ER32	1.980	2.000	2.750	4.620	5.250	6.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-249	CT50-ER32-800-G6	CAT50	ER32	1.980	2.000	2.750	6.620	7.250	8.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-251	CT50-ER40-300-G6	CAT50	ER40	2.500	2.500	2.750	1.620	2.250	3.000	4.000	1-8	ER-40SN	ER-40S	ER-40W
966-000-253	CT50-ER40-400-G6	CAT50	ER40	2.500	2.500	2.750	2.620	3.250	4.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-255	CT50-ER40-500-G6	CAT50	ER40	2.500	2.500	2.750	3.620	4.250	5.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-257	CT50-ER40-600-G6	CAT50	ER40	2.500	2.500	2.750	4.620	5.250	6.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-259	CT50-ER40-800-G6	CAT50	ER40	2.500	2.500	2.750	6.620	7.250	8.000	4.500	1-8	ER-40SN	ER-40S	ER-40W

Product #	Collet Nut
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN

PACKAGE SIZE OF 1

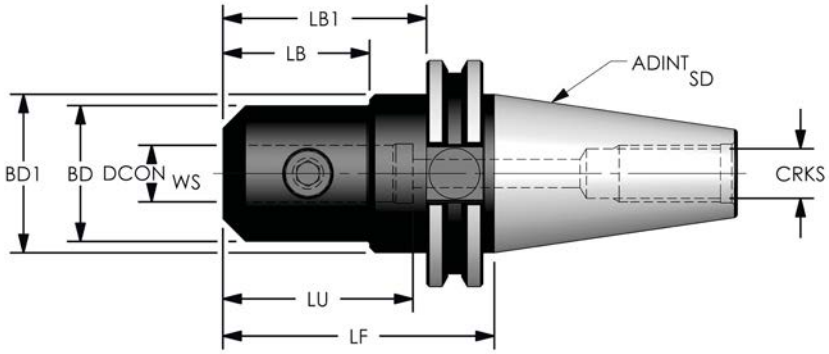
Product #	Adj. Screw
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-189	ER-11W
968-000-037	ER-16W
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX®



Balanced to:
G2.5 (15,000 rpm)

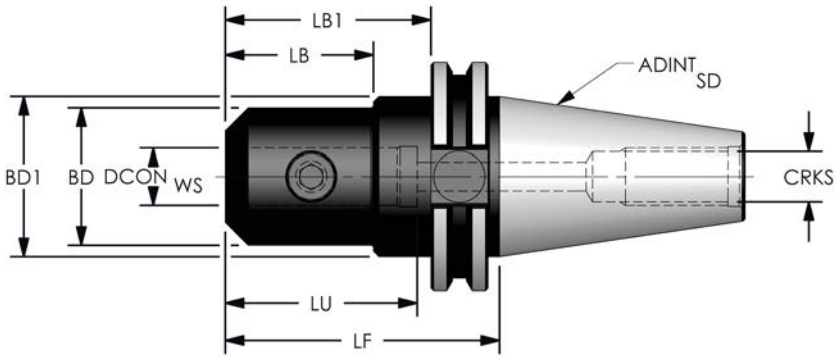
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-162	CT50-EM188-250-G2	CAT50	0.188	0.680	2.750	1.125	1.750	2.500	N/A	1-8	SS10-250
966-000-164	CT50-EM188-400-G2	CAT50	0.188	0.680	2.750	2.625	3.250	4.000	N/A	1-8	SS10-250
966-000-170	CT50-EM250-250-G2	CAT50	0.250	0.880	2.750	1.125	1.750	2.500	N/A	1-8	SS1/4-250
966-000-172	CT50-EM250-400-G2	CAT50	0.250	0.880	2.750	2.625	3.250	4.000	N/A	1-8	SS1/4-250
966-000-174	CT50-EM250-600-G2	CAT50	0.250	0.880	2.750	4.625	5.250	6.000	N/A	1-8	SS1/4-250
966-000-176	CT50-EM312-250-G2	CAT50	0.312	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS1/4-250
966-000-178	CT50-EM312-400-G2	CAT50	0.312	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS1/4-250
966-000-180	CT50-EM312-600-G2	CAT50	0.312	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS1/4-250
966-000-182	CT50-EM375-250-G2	CAT50	0.375	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS3/8-375
966-000-184	CT50-EM375-400-G2	CAT50	0.375	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS3/8-375
966-000-186	CT50-EM375-600-G2	CAT50	0.375	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS3/8-375
966-000-188	CT50-EM437-250-G2	CAT50	0.437	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS3/8-375
966-000-190	CT50-EM437-400-G2	CAT50	0.437	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS3/8-375
966-000-192	CT50-EM437-600-G2	CAT50	0.437	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS3/8-375
966-000-194	CT50-EM500-262-G2	CAT50	0.500	1.375	2.750	1.245	1.870	2.620	N/A	1-8	SS7/16-500
966-000-196	CT50-EM500-400-G2	CAT50	0.500	1.375	2.750	2.620	3.250	4.000	N/A	1-8	SS7/16-500
966-000-198	CT50-EM500-600-G2	CAT50	0.500	1.375	2.750	4.625	5.250	6.000	N/A	1-8	SS7/16-500

All Hardware Included

Product #	Set Screws
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

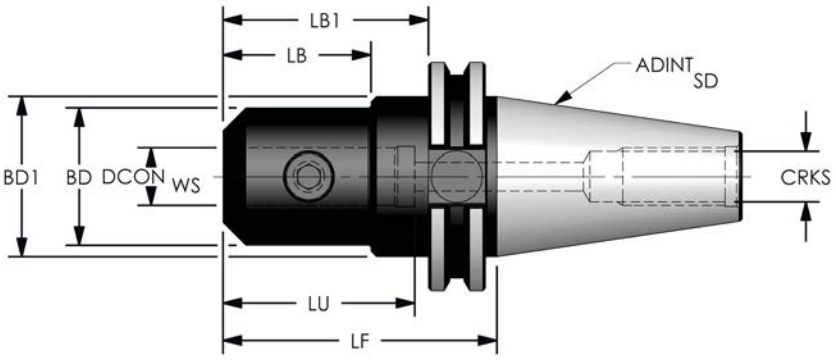
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-163	CT50-EM188-250-G6	CAT50	0.188	0.680	2.750	1.125	1.750	2.500	N/A	1-8	SS10-250
966-000-165	CT50-EM188-400-G6	CAT50	0.188	0.680	2.750	2.625	3.250	4.000	N/A	1-8	SS10-250
966-000-171	CT50-EM250-250-G6	CAT50	0.250	0.880	2.750	1.125	1.750	2.500	N/A	1-8	SS1/4-250
966-000-173	CT50-EM250-400-G6	CAT50	0.250	0.880	2.750	2.625	3.250	4.000	N/A	1-8	SS1/4-250
966-000-175	CT50-EM250-600-G6	CAT50	0.250	0.880	2.750	4.625	5.250	6.000	N/A	1-8	SS1/4-250
966-000-177	CT50-EM312-250-G6	CAT50	0.312	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS1/4-250
966-000-179	CT50-EM312-400-G6	CAT50	0.312	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS1/4-250
966-000-181	CT50-EM312-600-G6	CAT50	0.312	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS1/4-250
966-000-183	CT50-EM375-250-G6	CAT50	0.375	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS3/8-375
966-000-185	CT50-EM375-400-G6	CAT50	0.375	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS3/8-375
966-000-187	CT50-EM375-600-G6	CAT50	0.375	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS3/8-375
966-000-189	CT50-EM437-250-G6	CAT50	0.437	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS3/8-375
966-000-191	CT50-EM437-400-G6	CAT50	0.437	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS3/8-375
966-000-193	CT50-EM437-600-G6	CAT50	0.437	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS3/8-375
966-000-195	CT50-EM500-262-G6	CAT50	0.500	1.375	2.750	1.245	1.870	2.620	N/A	1-8	SS7/16-500
966-000-197	CT50-EM500-400-G6	CAT50	0.500	1.375	2.750	2.620	3.250	4.000	N/A	1-8	SS7/16-500
966-000-199	CT50-EM500-600-G6	CAT50	0.500	1.375	2.750	4.625	5.250	6.000	N/A	1-8	SS7/16-500

All Hardware Included

Product #	Set Screws
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G2.5 (15,000 rpm)

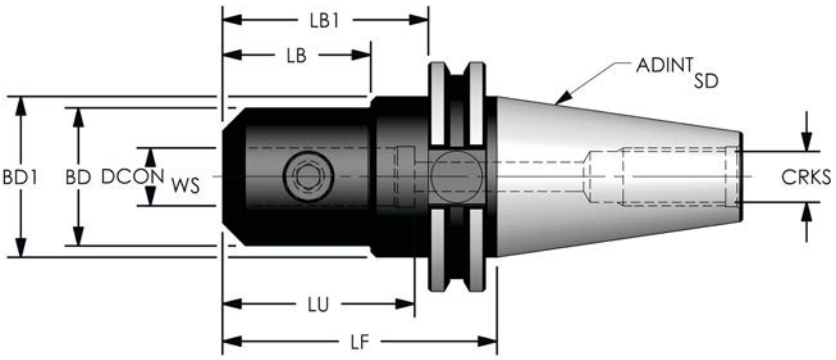
Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-200	CT50-EM625-138-G2	CAT50	0.625	2.750	N/A	0.630	N/A	1.380	N/A	1-8	SS9/16-500
966-000-202	CT50-EM625-300-G2	CAT50	0.625	1.750	2.750	1.625	2.250	3.000	N/A	1-8	SS9/16-500
966-000-204	CT50-EM625-600-G2	CAT50	0.625	1.750	2.750	4.625	5.250	6.000	N/A	1-8	SS9/16-500
966-000-206	CT50-EM750-138-G2	CAT50	0.750	2.750	N/A	0.630	N/A	1.380	N/A	1-8	SS5/8-500
966-000-208	CT50-EM750-300-G2	CAT50	0.750	1.750	2.750	1.625	2.250	3.000	N/A	1-8	SS5/8-500
966-000-210	CT50-EM750-600-G2	CAT50	0.750	1.750	2.750	4.625	5.250	6.000	N/A	1-8	SS5/8-500
966-000-212	CT50-EM875-400-G2	CAT50	0.875	2.000	2.750	2.625	3.250	4.000	2.500	1-8	SS5/8-500
966-000-214	CT50-EM875-600-G2	CAT50	0.875	2.000	1.750	4.625	5.250	6.000	2.500	1-8	SS5/8-500
966-000-146	CT50-EM100-138-G2	CAT50	1.000	2.750	N/A	0.630	N/A	1.380	2.250	1-8	SS3/4-500
966-000-148	CT50-EM100-400-G2	CAT50	1.000	2.000	2.750	2.620	3.250	4.000	2.830	1-8	SS3/4-500
966-000-150	CT50-EM100-600-G2	CAT50	1.000	2.000	2.750	4.620	5.250	6.000	2.830	1-8	SS3/4-500
966-000-152	CT50-EM125-200-G2	CAT50	1.250	2.750	N/A	1.250	N/A	2.000	2.550	1-8	SS3/4-750
966-000-154	CT50-EM125-400-G2	CAT50	1.250	2.750	N/A	3.250	N/A	4.000	3.000	1-8	(2) SS3/4-750
966-000-156	CT50-EM125-600-G2	CAT50	1.250	2.500	2.750	4.620	5.250	6.000	3.000	1-8	(2) SS3/4-750
966-000-158	CT50-EM150-200-G2	CAT50	1.500	2.750	N/A	1.250	N/A	2.000	2.750	1-8	SS3/4-500
966-000-160	CT50-EM150-450-G2	CAT50	1.500	2.500	2.750	3.120	3.750	4.500	2.750	1-8	(2) SS3/4-500
966-000-166	CT50-EM200-500-G2	CAT50	2.000	3.750	2.750	3.620	4.250	5.000	3.500	1-8	(2) SS1-750
966-000-168	CT50-EM200-800-G2	CAT50	2.000	3.750	2.750	6.625	7.250	8.000	3.500	1-8	(2) SS1-750

All Hardware Included

Product #	Set Screws
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

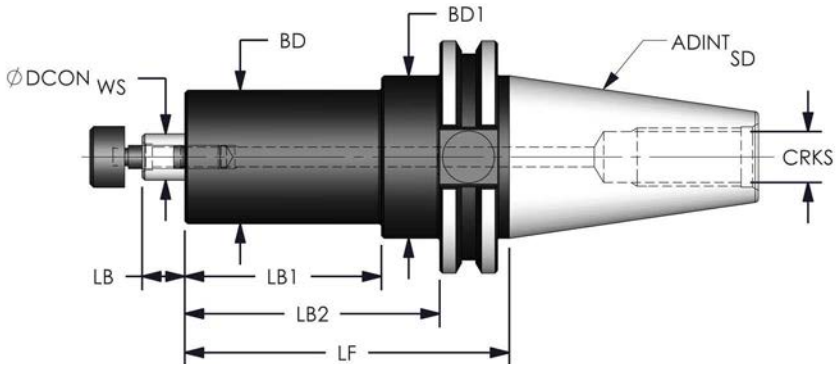
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-201	CT50-EM625-138-G6	CAT50	0.625	2.750	N/A	0.630	N/A	1.380	N/A	1-8	SS9/16-500
966-000-203	CT50-EM625-300-G6	CAT50	0.625	1.750	2.750	1.625	2.250	3.000	N/A	1-8	SS9/16-500
966-000-205	CT50-EM625-600-G6	CAT50	0.625	1.750	2.750	4.625	5.250	6.000	N/A	1-8	SS9/16-500
966-000-207	CT50-EM750-138-G6	CAT50	0.750	2.750	N/A	0.630	N/A	1.380	N/A	1-8	SS5/8-500
966-000-209	CT50-EM750-300-G6	CAT50	0.750	1.750	2.750	1.625	2.250	3.000	N/A	1-8	SS5/8-500
966-000-211	CT50-EM750-600-G6	CAT50	0.750	1.750	2.750	4.625	5.250	6.000	N/A	1-8	SS5/8-500
966-000-213	CT50-EM875-400-G6	CAT50	0.875	2.000	2.750	2.625	3.250	4.000	2.500	1-8	SS5/8-500
966-000-215	CT50-EM875-600-G6	CAT50	0.875	2.000	1.750	4.625	5.250	6.000	2.500	1-8	SS5/8-500
966-000-147	CT50-EM100-138-G6	CAT50	1.000	2.750	N/A	0.630	N/A	1.380	2.250	1-8	SS3/4-500
966-000-149	CT50-EM100-400-G6	CAT50	1.000	2.000	2.750	2.620	3.250	4.000	2.830	1-8	SS3/4-500
966-000-151	CT50-EM100-600-G6	CAT50	1.000	2.000	2.750	4.620	5.250	6.000	2.830	1-8	SS3/4-500
966-000-153	CT50-EM125-200-G6	CAT50	1.250	2.750	N/A	1.250	N/A	2.000	2.550	1-8	SS3/4-750
966-000-155	CT50-EM125-400-G6	CAT50	1.250	2.750	N/A	3.250	N/A	4.000	3.000	1-8	(2) SS3/4-750
966-000-157	CT50-EM125-600-G6	CAT50	1.250	2.500	2.750	4.620	5.250	6.000	3.000	1-8	(2) SS3/4-750
966-000-159	CT50-EM150-200-G6	CAT50	1.500	2.750	N/A	1.250	N/A	2.000	2.750	1-8	SS3/4-500
966-000-161	CT50-EM150-450-G6	CAT50	1.500	2.500	2.750	3.120	3.750	4.500	2.750	1-8	(2) SS3/4-500
966-000-167	CT50-EM200-500-G6	CAT50	2.000	3.750	2.750	3.620	4.250	5.000	3.500	1-8	(2) SS1-750
966-000-169	CT50-EM200-800-G6	CAT50	2.000	3.750	2.750	6.625	7.250	8.000	3.500	1-8	(2) SS1-750

All Hardware Included

Product #	Set Screws
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LB2 [in.]	LF [in.]	CRKS	Drive Key	Lock Screw	Thread
966-000-282	CT50-SM050-200	CAT50	0.500	1.560	2.750	0.460	1.085	1.710	2.000	1-8	UDK 250	U5001	1/4-28
966-000-283	CT50-SM050-400	CAT50	0.500	1.560	2.750	0.460	3.085	3.710	4.000	1-8	UDK 250	U5001	1/4-28
966-000-284	CT50-SM050-600	CAT50	0.500	1.560	2.750	0.460	5.085	5.710	6.000	1-8	UDK 250	U5001	1/4-28
966-000-285	CT50-SM075-150	CAT50	0.750	2.750	N/A	0.680	0.750	N/A	1.500	1-8	UDK 312	U5002	3/8-24
966-000-286	CT50-SM075-400	CAT50	0.750	1.750	2.750	0.680	2.625	3.250	4.000	1-8	UDK 312	U5002	3/8-24
966-000-287	CT50-SM075-600	CAT50	0.750	1.750	2.750	0.680	4.625	5.250	6.000	1-8	UDK 312	U5002	3/8-24
966-000-288	CT50-SM100-150	CAT50	1.000	2.750	N/A	0.680	1.460	N/A	1.500	1-8	UDK 375	U5003	1/2-20
966-000-289	CT50-SM100-400	CAT50	1.000	2.750	2.750	0.680	2.625	3.250	4.000	1-8	UDK 375	U5003	1/2-20
966-000-290	CT50-SM100-600	CAT50	1.000	2.750	2.750	0.680	4.625	5.250	6.000	1-8	UDK 375	U5003	1/2-20
966-000-291	CT50-SM125-150	CAT50	1.250	2.750	N/A	0.680	0.750	N/A	1.500	1-8	UDK 500	U5004	5/8-18
966-000-292	CT50-SM125-400	CAT50	1.250	2.750	N/A	0.680	3.250	N/A	4.000	1-8	UDK 500	U5004	5/8-18
966-000-293	CT50-SM125-600	CAT50	1.250	2.750	N/A	0.680	5.250	N/A	6.000	1-8	UDK 500	U5004	5/8-18
966-000-294	CT50-SM150-250	CAT50	1.500	3.750	2.750	0.940	1.125	1.750	2.500	1-8	UDK 625	U5005	3/4-16
966-000-295	CT50-SM150-400	CAT50	1.500	3.750	2.750	0.940	2.625	3.250	4.000	1-8	UDK 625	U5005	3/4-16
966-000-296	CT50-SM150-600	CAT50	1.500	3.750	2.750	0.940	4.625	5.250	6.000	1-8	UDK 625	U5005	3/4-16
966-000-297	CT50-SM200-250	CAT50	2.000	4.440	2.750	0.940	1.125	1.750	2.500	1-8	UDK 750	U5006	1-14
966-000-298	CT50-SM200-400	CAT50	2.000	4.440	2.750	0.940	2.625	3.250	4.000	1-8	UDK 750	U5006	1-14
966-000-299	CT50-SM200-600	CAT50	2.000	4.440	2.750	0.940	4.625	5.250	6.000	1-8	UDK 750	U5006	1-14
966-000-300	CT50-SM250-250*	CAT50	2.500	4.880	2.750	0.940	1.125	1.750	2.500	1-8	UDK 100	U5007	1-14
966-000-301	CT50-SM250-400*	CAT50	2.500	4.880	2.750	0.940	2.625	3.250	4.000	1-8	UDK 100	U5007	1-14
966-000-302	CT50-SM250-600*	CAT50	2.500	4.880	2.750	0.940	4.625	5.250	6.000	1-8	UDK 100	U5007	1-14

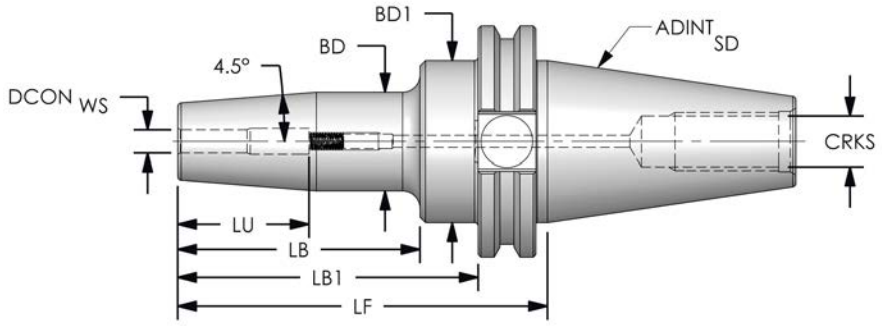
*Features x4 5/8-11 tapped holes on a 4" bolt circle.
All Hardware Included

Product #	Arbor Screws
968-000-162	U5001
968-000-163	U5002
968-000-164	U5003
968-000-165	U5004
968-000-166	U5005
968-000-167	U5006
968-000-168	U5007

PACKAGE SIZE OF 1

Product #	Drive Key
968-000-170	UDK 250
968-000-171	UDK 312
968-000-172	UDK 375
968-000-173	UDK 500
968-000-174	UDK 625
968-000-175	UDK 750

PATRIOT HP®



STANDARD LENGTH

Balanced to: G2.5 (20,000 rpm)

Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	THREAD
966-000-265	CT50-SF012-400-G2	CAT50	0.125	0.787	2.750	2.620	3.250	4.000	0.375	1-8	N/A
966-000-268	CT50-SF188-400-G2	CAT50	0.188	0.750	2.750	2.620	3.250	4.000	0.563	1-8	N/A
966-000-269	CT50-SF250-400-G2	CAT50	0.250	0.750	2.750	2.620	3.250	4.000	1.420	1-8	10-32
966-000-272	CT50-SF375-400-G2	CAT50	0.375	0.750	2.750	2.620	3.250	4.000	1.530	1-8	1/4-28
966-000-275	CT50-SF500-400-G2	CAT50	0.500	1.000	2.750	2.620	3.250	4.000	1.850	1-8	7/16-20
966-000-278	CT50-SF625-400-G2	CAT50	0.625	1.000	2.750	2.620	3.250	4.000	1.970	1-8	9/16-18
966-000-280	CT50-SF750-400-G2	CAT50	0.750	1.250	2.750	2.620	3.250	4.000	2.040	1-8	5/8-18
966-000-266	CT50-SF100-400-G2	CAT50	1.000	2.090	2.750	2.620	3.250	4.000	2.280	1-8	3/4-16
966-000-267	CT50-SF125-400-G2	CAT50	1.250	2.090	2.750	2.620	3.250	4.000	2.280	1-8	3/4-16

EXTENDED LENGTH

Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	THREAD
966-000-270	CT50-SF250-600-G2	CAT50	0.250	0.750	2.750	4.620	5.250	6.000	1.420	1-8	10-32
966-000-273	CT50-SF375-600-G2	CAT50	0.375	1.000	2.750	4.620	5.250	6.000	1.530	1-8	1/4-28
966-000-276	CT50-SF500-600-G2	CAT50	0.500	1.000	2.750	4.620	5.250	6.000	1.850	1-8	7/16-20
966-000-279	CT50-SF625-600-G2	CAT50	0.625	1.250	2.750	4.620	5.250	6.000	1.970	1-8	9/16-18
966-000-281	CT50-SF750-600-G2	CAT50	0.750	1.250	2.750	4.620	5.250	6.000	2.040	1-8	5/8-18
966-000-271	CT50-SF250-800-G2	CAT50	0.250	1.000	2.750	6.620	7.250	8.000	1.420	1-8	10-32
966-000-274	CT50-SF375-800-G2	CAT50	0.375	1.250	2.750	6.620	7.250	8.000	1.530	1-8	1/4-28
966-000-277	CT50-SF500-800-G2	CAT50	0.500	1.250	2.750	6.620	7.250	8.000	1.850	1-8	7/16-20

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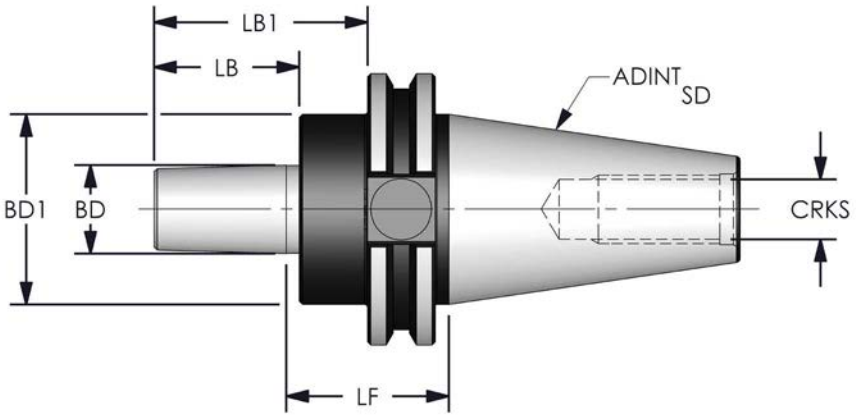
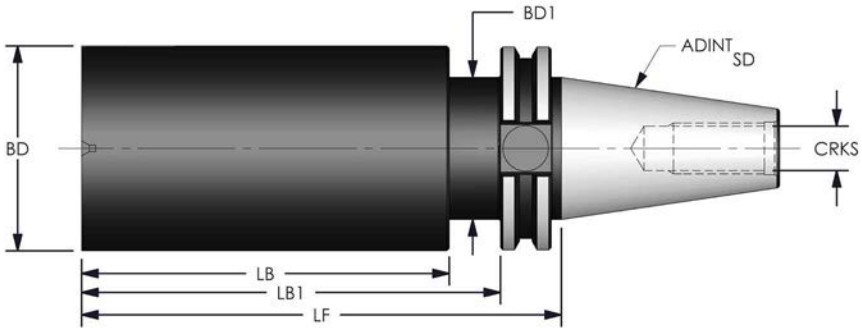


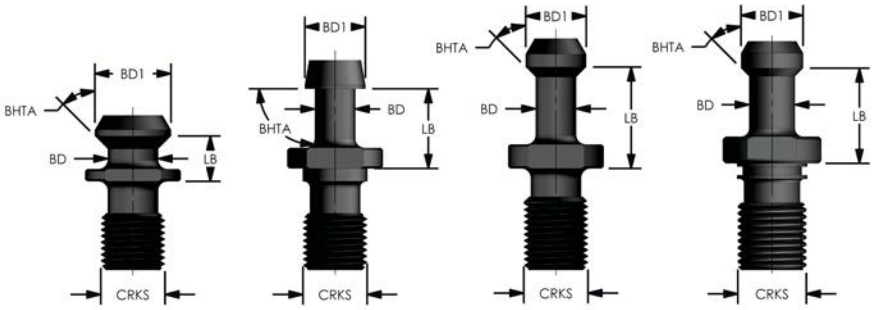
Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINTSD	TAPER NO.	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	CRKS	TAPER LENGTH
966-000-260	CT50-JT02-150	CAT50	2	0.559	2.750	0.995	1.625	1.500	1-8	0.875
966-000-261	CT50-JT03-150	CAT50	3	0.811	2.750	1.339	1.969	1.500	1-8	1.219
966-000-262	CT50-JT04-150	CAT50	4	1.124	2.750	1.776	2.406	1.500	1-8	1.656
966-000-263	CT50-JT06-150	CAT50	6	0.676	2.750	1.120	1.750	1.500	1-8	1.000
966-000-264	CT50-JT33-150	CAT50	33	0.624	2.750	1.120	1.750	1.500	1-8	1.000



Product #	Designation	ADINTSD	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	CRKS
967-000-004	CT50-BB100-150	CAT50	3.940/(100mm)	2.750	4.526	5.156	5.910/(150mm)	1-8
967-000-005	CT50-BB100-250	CAT50	3.940/(100mm)	2.750	8.460	9.090	9.840/(250mm)	1-8
967-000-006	CT50-BB150-150	CAT50	5.910/(150mm)	2.750	4.526	5.156	5.910/(150mm)	1-8

ULTRA-DEX®



CAT40

Product #	Designation	BD [in.]	BD1 [in.]	LB [in.]	BHTA [°]	CRKS	COOLANT THRU	FIGURE
971-000-015	PSC-475	0.490	0.740	0.440	45°	5/8-11	YES	1
971-000-002	PS-475	0.490	0.740	0.440	45°	5/8-11	NO	1
971-000-004	PS-532x15	0.551	0.747	0.791	75°	5/8-11	NO	1
971-000-016	PSC-532x45	0.392	0.591	0.984	45°	5/8-11	YES	2
971-000-005	PS-532x45	0.392	0.591	0.984	45°	5/8-11	NO	2
971-000-006	PS-532x60	0.392	0.591	0.984	60°	5/8-11	NO	2
971-000-007	PS-532x90	0.392	0.591	0.984	90°	5/8-11	NO	2
971-000-003	PS-498	0.392	0.591	0.775	90°	5/8-11	NO	3
971-000-019	PSC-552	0.406	0.594	1.139	45°	5/8-11	YES	2
971-000-012	PS-552	0.406	0.594	1.139	45°	5/8-11	NO	2

CAT50

Product #	Designation	BD [in.]	BD1 [in.]	LB [in.]	BHTA [°]	CRKS	COOLANT THRU	FIGURE
971-000-017	PSC-535x45	0.667	0.904	1.384	45°	1-8	YES	4
971-000-008	PS-535x45	0.667	0.904	1.384	45°	1-8	NO	4
971-000-018	PSC-536x45	0.667	0.904	1.384	45°	1-8	YES	2
971-000-009	PS-536x45	0.667	0.904	1.384	45°	1-8	NO	2
971-000-010	PS-536x60	0.667	0.904	1.384	60°	1-8	NO	2
971-000-011	PS-536x90	0.667	0.904	1.384	90°	1-8	NO	2
971-000-014	PSC-274	0.820	1.140	0.700	45°	1-8	YES	1
971-000-001	PS-274	0.820	1.140	0.700	45°	1-8	NO	1
971-000-013	PSC-271x15	0.826	1.102	1.350	15°	1-8	YES	1

Quick reference Guide - Following page Machine Cross reference
Each CAT taper machine Requires its own style retention knob, on the following page is a general quick reference of the most common manufacturers. Be sure to check which knob your machine Requires to ensure proper fit.

CAT40

- PSC-475 Fits Cincinnati Milacron, Maho, Mazak, Matsura
- PS-475 Fits Acroloc-Bayer, Maho, Mazak
- PSC-532x45 Fits Amura-Seiki, Comet, Daewoo, Dah Lih, Haas, Howa Kogyo, Ikegai, Kearny-Trecker, Kia, Kitamura, Miyano, Okuma Howa, YCI
- PS-532x45 Fits Amura-Seiki, Comet, Daewoo, Dah Lih, Haas, Howa Kogyo, Ikegai, Kearny-Trecker, Kia, Kitamura, Miyano, Okuma Howa, YCI
- PS-532x60 Fits Hitachi-Seiki, Kia, Mitsubishi, Okuma, Matsura, Howa Kogyo, Milltronic
- PS-532x90 Fits Kia, Mori Seiki
- PS-498 Fits Mazak
- PS-552 Fits Cincinnati Milacron
- PSC-552 Fits Cincinnati Milacron

CAT50

- PS-536x45 Fits Dah Lih, Haas, Ikegai, Kitamura,LeBlond Makino, YCI
- PSC-536x45 Fits Haas, LeBlond Makino
- PS-536x60 Fits Mitsubishi, Okuma, Matsura
- PS-536x90 Fits Hitachi-Seiki, Mori Seiki, Mazak
- PS-274 Fits Mazak
- PSC-274 Fits Burgmaster, Devlieg, Excello, Maho, Matsura, Mazak

PLEASE NOTE: retention knobs are available in many different types and sizes. ARCH Cutting Tools has provided a list with common machines that fit each of our knobs. Due to the vast amount of machines, please check each machine to verify that you are ordering the proper knob. retention knob dimensions for each machine can be typically found in the user manual or next to the power supply.

Quick reference Guide
Each CAT taper machine Requires its own style retention knob. Be sure to check which knob your machine Requires to ensure proper fit.

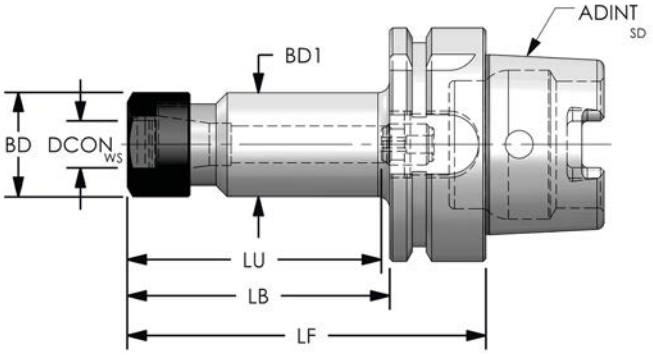
MANUFACTURER	Designation									
	PSC-475	PS-475	PS-532x15	PSC-532x45	PS-532x45	PS-532x60	PS-532x90	PS-498	PSC-552	PS-552
Acroloc-Bayer	•	•								
Atrump				•	•					
Bridgeport	•	•								
Carman	•	•								
Chevalier				•	•					
Chiron	•	•								
Cincinnati	•	•							•	•
Comet				•	•					
Daewoo				•	•					
Dah Lih				•	•					
Doosan			•							
Enshu				•	•	•				
Excel				•	•					
Fadal	•	•								
Haas				•	•					
Hamai				•	•					
Hitachi-Seiki				•	•	•				
Howa Kogyo				•	•					
Hurco	•	•		•						
Ikegai				•	•					
Johnford				•	•					
Kashahara				•	•					
Kearny-Trecker				•	•					
Kia				•	•		•			
Kitamura				•	•					
Kiwa				•	•					
Leblond Makino			•	•	•					
Maho	•	•								
Masco	•	•								
Matsuura			•			•				
Mazak	•	•								
Millport				•	•					
Milltronics	•					•				
Mitsubishi						•				
Miyano				•	•					
Mori Seiki							•			
Nomura						•				
Okuma						•				
Okuma Howa				•	•					
Ooya				•	•					
Osaka Kiko				•	•		•			
Pratt & Whitney	•			•	•					
Roku-Roku				•	•					
Saeilo				•	•					
Sakazaki				•	•	•				
Sharona				•	•					
Sharp	•	•								
Shizuoka				•	•					
Shoda				•	•					
Stama	•	•								
Takisawa				•	•					
Toshiba				•	•					
Toyama				•	•					
Toyo				•	•					
Toyoda				•	•					
Tree	•	•								
Ultramill				•	•					
Urawa				•	•					
Vulcan				•	•					
Yam (Yang)							•			
Yasda				•	•					
Yci				•	•					

Quick Reference Guide
Each CAT taper machine Requires its own style Retention knob. Be sure to check which knob your machine requires to ensure proper fit.

MANUFACTURER	Designation								
	PSC-535x45	PS-535x45	PSC-536x45	PS-536x45	PS-536x60	PS-536x90	PSC-274	PS-274	PSC-271x15
Amura-Seiki	•	•	•	•					
Dah Lih	•	•	•	•					
Enshu					•				
Fadal							•	•	
Haas	•	•	•	•					
Hamai	•	•	•	•					
Hitachi-Seiki					•	•			
Ikegai	•	•	•	•					
Johnford	•	•							
Kitamura	•	•	•	•					
Kuraki	•	•	•	•					
Leblond Makino	•	•	•	•					
Mighty	•	•	•	•					
Milltronics							•	•	
Mitsubishi	•	•	•	•					
Mori-Seiki						•			
Okuma					•				

For more assistance or training, connect with our cutting tool experts

ULTRA-DEX®



Balanced to:
G2.5 (20,000 rpm)

Product #	Designation	ADINT SD	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	Collet Nut	Stop Screw	Wrench
966-000-384	HSK40A-ER11-250-G2	HSK40A	0.750	N/A	N/A	N/A	N/A	2.500	1.500	ER-11HN	ER-11S	ER-11W
966-000-386	HSK40A-ER16-300-G2	HSK40A	1.100	N/A	N/A	N/A	N/A	3.000	1.700	ER-16HN	ER-16S	ER-16W
966-000-388	HSK40A-ER32-300-G2	HSK40A	1.980	N/A	N/A	N/A	N/A	3.000	1.620	ER-32SN	ER-32S	ER-32W
966-000-390	HSK50A-ER16-300-G2	HSK50A	1.100	N/A	N/A	N/A	N/A	3.000	1.610	ER-16HN	ER-16S	ER-16W
966-000-392	HSK50A-ER32-300-G2	HSK50A	1.980	N/A	N/A	N/A	N/A	3.000	1.500	ER-32SN	ER-32S	ER-32W
966-000-422	HSK63A-ER11-600-G2	HSK63A	0.750	0.750	N/A	4.976	N/A	6.000	1.940	ER-11HN	ER-11S	ER-11W
966-000-424	HSK63A-ER16-400-G2	HSK63A	1.100	1.100	N/A	2.976	N/A	4.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-426	HSK63A-ER16-600-G2	HSK63A	1.100	1.100	N/A	4.976	N/A	6.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-428	HSK63A-ER32-400-G2	HSK63A	1.980	1.750	N/A	2.976	N/A	4.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-430	HSK63A-ER32-600-G2	HSK63A	1.980	1.750	N/A	4.976	N/A	6.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-432	HSK63A-ER40-400-G2	HSK63A	2.250	2.366	2.080	2.344	2.976	4.000	4.000	ER-40SN	N/A	ER-40W
966-000-434	HSK63A-ER40-600-G2	HSK63A	2.250	2.366	2.080	4.344	4.976	6.000	4.500	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN

PACKAGE SIZE OF 1

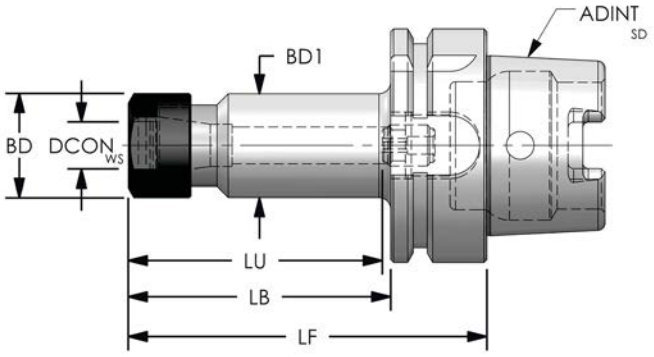
Product #	Adj. Screw
968-000-032	ER-11S
968-000-036	ER-16S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-189	ER-11W
968-000-037	ER-16W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINTSD	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	Collet Nut	Stop Screw	Wrench
966-000-385	HSK40A-ER11-250-G6	HSK40A	0.750	N/A	N/A	N/A	N/A	2.500	1.500	ER-11HN	ER-11S	ER-11W
966-000-387	HSK40A-ER16-300-G6	HSK40A	1.100	N/A	N/A	N/A	N/A	3.000	1.700	ER-16HN	ER-16S	ER-16W
966-000-389	HSK40A-ER32-300-G6	HSK40A	1.980	N/A	N/A	N/A	N/A	3.000	1.620	ER-32SN	ER-32S	ER-32W
966-000-391	HSK50A-ER16-300-G6	HSK50A	1.100	N/A	N/A	N/A	N/A	3.000	1.610	ER-16HN	ER-16S	ER-16W
966-000-393	HSK50A-ER32-300-G6	HSK50A	1.980	N/A	N/A	N/A	N/A	3.000	1.500	ER-32SN	ER-32S	ER-32W
966-000-423	HSK63A-ER11-600-G6	HSK63A	0.750	0.750	N/A	4.976	N/A	6.000	1.940	ER-11HN	ER-11S	ER-11W
966-000-425	HSK63A-ER16-400-G6	HSK63A	1.100	1.100	N/A	2.976	N/A	4.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-427	HSK63A-ER16-600-G6	HSK63A	1.100	1.100	N/A	4.976	N/A	6.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-429	HSK63A-ER32-400-G6	HSK63A	1.980	1.750	N/A	2.976	N/A	4.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-431	HSK63A-ER32-600-G6	HSK63A	1.980	1.750	N/A	4.976	N/A	6.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-433	HSK63A-ER40-400-G6	HSK63A	2.250	2.366	2.080	2.344	2.976	4.000	4.000	ER-40SN	N/A	ER-40W
966-000-435	HSK63A-ER40-600-G6	HSK63A	2.250	2.366	2.080	4.344	4.976	6.000	4.500	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN

PACKAGE SIZE OF 1

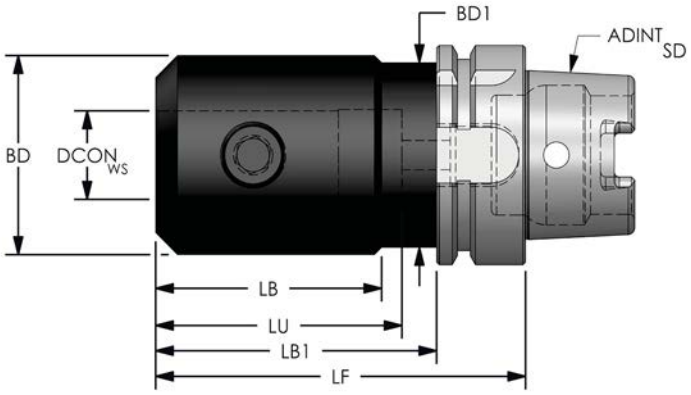
Product #	Adj. Screw
968-000-032	ER-11S
968-000-036	ER-16S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-189	ER-11W
968-000-037	ER-16W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX®



Balanced to:
G2.5 (20,000 rpm)

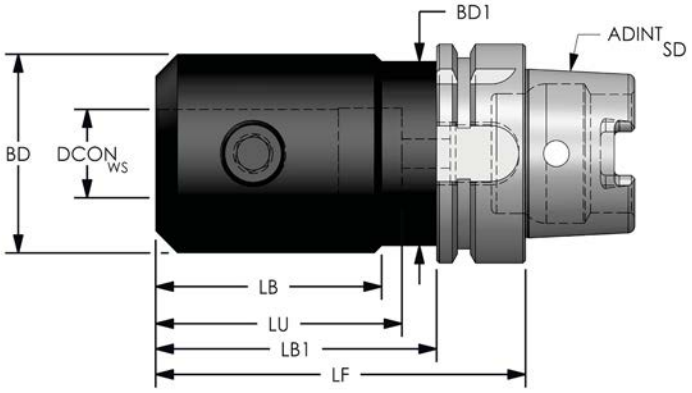
Product #	Designation	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	Set Screw
966-000-402	HSK63A-EM250-300-G2	HSK63A	0.250	0.880	N/A	1.976	N/A	3.000	N/A	SS1/4-250
966-000-404	HSK63A-EM250-600-G2	HSK63A	0.250	0.880	N/A	4.976	N/A	6.000	N/A	SS1/4-250
966-000-406	HSK63A-EM375-300-G2	HSK63A	0.375	1.000	N/A	1.976	N/A	3.000	N/A	SS3/8-375
966-000-408	HSK63A-EM375-600-G2	HSK63A	0.375	1.000	N/A	4.976	N/A	6.000	N/A	SS3/8-375
966-000-410	HSK63A-EM500-300-G2	HSK63A	0.500	1.375	N/A	1.976	N/A	3.000	N/A	SS7/16-500
966-000-412	HSK63A-EM500-600-G2	HSK63A	0.500	1.375	N/A	4.976	N/A	6.000	N/A	SS7/16-500
966-000-414	HSK63A-EM625-300-G2	HSK63A	0.625	1.750	N/A	1.976	N/A	3.000	2.100	SS9/16-500
966-000-416	HSK63A-EM625-600-G2	HSK63A	0.625	1.750	N/A	4.976	N/A	6.000	2.100	SS9/16-500
966-000-418	HSK63A-EM750-300-G2	HSK63A	0.750	1.750	N/A	1.976	N/A	3.000	2.050	SS5/8-500
966-000-420	HSK63A-EM750-600-G2	HSK63A	0.750	1.750	N/A	4.976	N/A	6.000	2.300	SS5/8-500
966-000-394	HSK63A-EM100-425-G2	HSK63A	1.000	2.250	2.087	3.226	2.5940	4.250	2.830	SS3/4-500
966-000-396	HSK63A-EM100-600-G2	HSK63A	1.000	2.250	2.087	4.976	4.3440	6.000	2.830	SS3/4-500
966-000-398	HSK63A-EM125-425-G2	HSK63A	1.250	2.250	2.087	3.226	2.5940	4.250	3.000	(2) SS3/4-500
966-000-400	HSK63A-EM125-600-G2	HSK63A	1.250	2.250	2.087	4.976	4.3440	6.000	3.000	(2) SS3/4-500

All Hardware Included

Product #	Set Screws
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-140	SS3/4-500

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	Set Screw
966-000-403	HSK63A-EM250-300-G6	HSK63A	0.250	0.880	N/A	1.976	N/A	3.000	N/A	SS1/4-250
966-000-405	HSK63A-EM250-600-G6	HSK63A	0.250	0.880	N/A	4.976	N/A	6.000	N/A	SS1/4-250
966-000-407	HSK63A-EM375-300-G6	HSK63A	0.375	1.000	N/A	1.976	N/A	3.000	N/A	SS3/8-375
966-000-409	HSK63A-EM375-600-G6	HSK63A	0.375	1.000	N/A	4.976	N/A	6.000	N/A	SS3/8-375
966-000-411	HSK63A-EM500-300-G6	HSK63A	0.500	1.375	N/A	1.976	N/A	3.000	N/A	SS7/16-500
966-000-413	HSK63A-EM500-600-G6	HSK63A	0.500	1.375	N/A	4.976	N/A	6.000	N/A	SS7/16-500
966-000-415	HSK63A-EM625-300-G6	HSK63A	0.625	1.750	N/A	1.976	N/A	3.000	2.100	SS9/16-500
966-000-417	HSK63A-EM625-600-G6	HSK63A	0.625	1.750	N/A	4.976	N/A	6.000	2.100	SS9/16-500
966-000-419	HSK63A-EM750-300-G6	HSK63A	0.750	1.750	N/A	1.976	N/A	3.000	2.050	SS5/8-500
966-000-421	HSK63A-EM750-600-G6	HSK63A	0.750	1.750	N/A	4.976	N/A	6.000	2.300	SS5/8-500
966-000-395	HSK63A-EM100-425-G6	HSK63A	1.000	2.250	2.087	3.226	2.5940	4.250	2.830	SS3/4-500
966-000-397	HSK63A-EM100-600-G6	HSK63A	1.000	2.250	2.087	4.976	4.3440	6.000	2.830	SS3/4-500
966-000-399	HSK63A-EM125-425-G6	HSK63A	1.250	2.250	2.087	3.226	2.5940	4.250	3.000	(2) SS3/4-500
966-000-401	HSK63A-EM125-600-G6	HSK63A	1.250	2.250	2.087	4.976	4.3440	6.000	3.000	(2) SS3/4-500

All Hardware Included

Product #	Set Screws
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-140	SS3/4-500

PACKAGE SIZE OF 5

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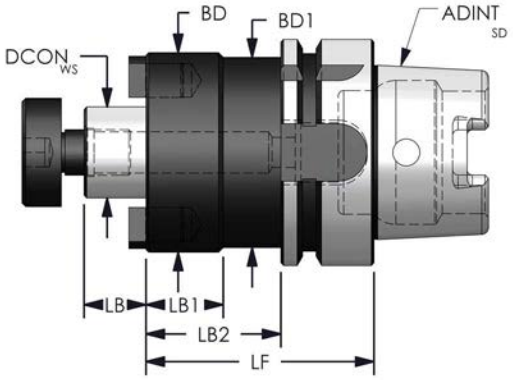
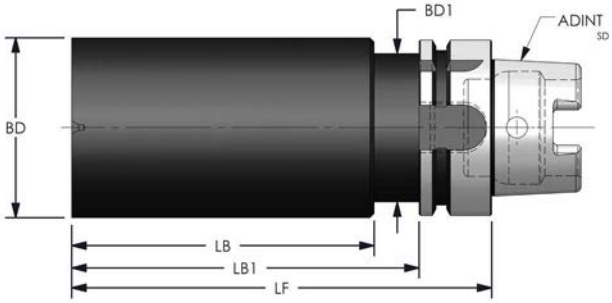


Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LB2 [in.]	LF [in.]	Drive Key	Lock Screw	Thread
966-000-463	HSK63A-SM075-200	HSK63A	0.750	1.750	N/A	0.680	0.976	N/A	2.000	UDK 312	U5002	3/8-24
966-000-464	HSK63A-SM100-250	HSK63A	1.000	2.190	2.087	0.680	0.846	1.476	2.500	UDK 375	U5003	1/2-20
966-000-465	HSK63A-SM125-250	HSK63A	1.250	2.750	2.087	0.680	0.846	1.476	2.500	UDK 500	U5004	5/8-18
966-000-466	HSK63A-SM150-250	HSK63A	1.500	3.380	2.087	0.940	0.846	1.476	2.500	UDK 625	U5005	3/4-16

All Hardware Included



Product #	Designation	ADINT SD	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]
967-000-012	HSK40A-BB50-120	HSK40A	1.970/(50mm)	1.339	3.342	3.935	4.72/(120mm)
967-000-014	HSK50A-BB50-150	HSK50A	1.970/(50mm)	1.654	4.256	4.886	5.91/(150mm)
967-000-015	HSK50A-BB75-200	HSK50A	2.950/(75mm)	1.654	6.216	6.846	7.87/(200mm)
967-000-013	HSK50A-BB100-125	HSK50A	3.940/(100mm)	1.654	3.266	3.896	4.920/(125mm)
967-000-017	HSK63A-BB64-150	HSK63A	2.520/(64mm)	2.078	4.252	4.884	5.91/(150mm)
967-000-018	HSK63A-BB64-250	HSK63A	2.520/(64mm)	2.078	8.189	8.821	9.84/(250mm)
967-000-019	HSK63A-BB89-89	HSK63A	3.500/(89mm)	2.078	1.850	2.482	3.500/(89mm)
967-000-016	HSK63A-BB125-150	HSK63A	4.920/(125mm)	2.078	4.252	4.884	5.91/(150mm)

Product #	Lock Screws
968-000-163	U5002
968-000-164	U5003
968-000-165	U5004
968-000-166	U5005

Product #	Drive Key
968-000-171	UDK 312
968-000-172	UDK 375
968-000-173	UDK 500
968-000-174	UDK 625

PACKAGE SIZE OF 1

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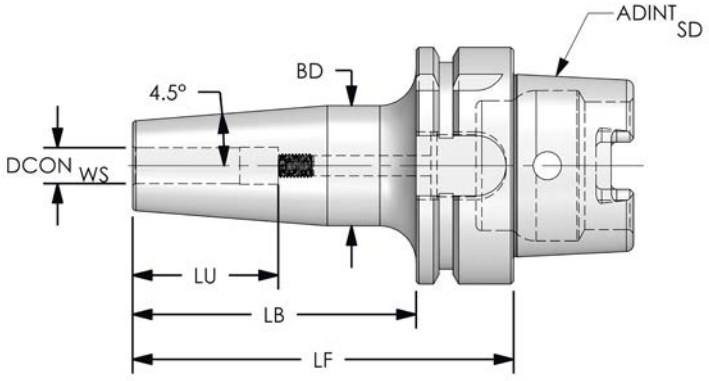

STANDARD LENGTH

Balanced to: G2.5 (20,000 rpm)

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	Thread
966-000-436	HSK63A-SF012-400-G2	HSK63A	0.125	1.063	2.976	4.000	0.790	N/A
966-000-450	HSK63A-SF188-400-G2	HSK63A	0.188	1.063	2.976	4.000	0.790	N/A
966-000-453	HSK63A-SF250-400-G2	HSK63A	0.250	1.063	2.976	4.000	1.420	10-32
966-000-456	HSK63A-SF375-400-G2	HSK63A	0.375	1.260	2.976	4.000	1.530	1/4-28
966-000-458	HSK63A-SF500-400-G2	HSK63A	0.500	1.339	2.976	4.000	1.850	7/16-20
966-000-460	HSK63A-SF625-400-G2	HSK63A	0.625	1.339	2.976	4.000	1.970	9/16-18
966-000-461	HSK63A-SF750-400-G2	HSK63A	0.750	1.654	2.976	4.000	2.040	5/8-18
966-000-441	HSK63A-SF100-500-G2	HSK63A	1.000	2.087	3.976	5.000	2.280	3/4-16
966-000-446	HSK63A-SF125-500-G2	HSK63A	1.250	2.087	3.976	5.000	2.280	3/4-16

EXTENDED LENGTH

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	Thread
966-000-457	HSK63A-SF375-600-G2	HSK63A	0.375	1.260	4.976	6.000	1.530	1/4-28
966-000-459	HSK63A-SF500-600-G2	HSK63A	0.500	1.339	4.976	6.000	1.850	7/16-20
966-000-462	HSK63A-SF750-600-G2	HSK63A	0.750	1.654	4.976	6.000	2.040	5/8-18
966-000-442	HSK63A-SF100-700-G2	HSK63A	1.000	2.087	5.976	7.000	2.280	3/4-16

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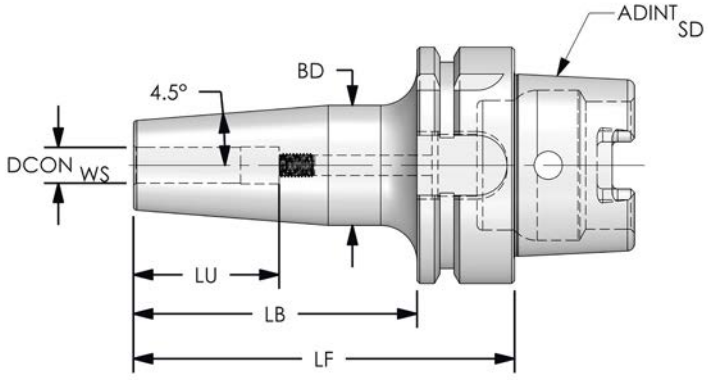


STANDARD LENGTH

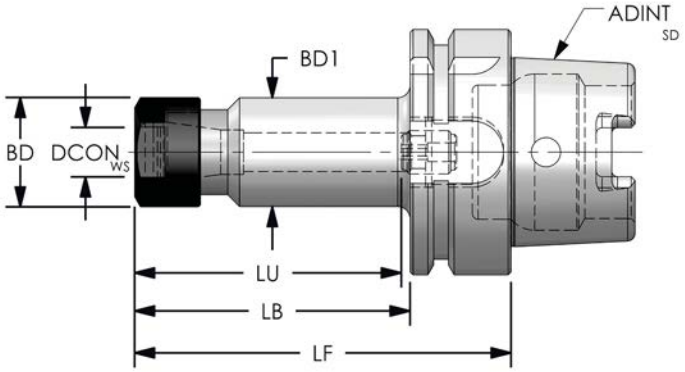
Balanced to: G2.5 (20,000 rpm)

Product #	Designation	ADINT SD	DCONWS [mm]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	Thread
966-000-437	HSK63A-SF06-400-G2	HSK63A	6.00	1.063	2.976	4.000	2.167	10-32
966-000-439	HSK63A-SF08-400-G2	HSK63A	8.00	1.063	2.976	4.000	1.970	1/4-28
966-000-443	HSK63A-SF10-400-G2	HSK63A	10.00	1.260	2.976	4.000	2.207	1/4-28
966-000-445	HSK63A-SF12-400-G2	HSK63A	12.00	1.260	2.976	4.000	2.404	7/16-20
966-000-448	HSK63A-SF16-400-G2	HSK63A	16.00	1.339	2.976	4.000	2.522	9/16-18
966-000-451	HSK63A-SF20-400-G2	HSK63A	20.00	1.654	2.976	4.000	2.600	5/8-18
966-000-454	HSK63A-SF25-500-G2	HSK63A	25.00	2.087	3.976	5.000	2.912	3/4-16

EXTENDED LENGTH

Product #	Designation	ADINT SD	DCONWS [mm]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	Thread
966-000-438	HSK63A-SF06-600-G2	HSK63A	6.00	1.063	4.976	6.000	2.167	10-32
966-000-440	HSK63A-SF08-600-G2	HSK63A	8.00	1.063	4.976	6.000	1.970	1/4-28
966-000-444	HSK63A-SF10-600-G2	HSK63A	10.00	1.260	4.976	6.000	2.207	1/4-28
966-000-447	HSK63A-SF12-600-G2	HSK63A	12.00	1.260	4.976	6.000	2.404	7/16-20
966-000-449	HSK63A-SF16-600-G2	HSK63A	16.00	1.260	4.976	6.000	2.522	9/16-18
966-000-452	HSK63A-SF20-600-G2	HSK63A	20.00	1.654	4.976	6.000	2.600	5/8-18
966-000-455	HSK63A-SF25-700-G2	HSK63A	25.00	2.087	5.976	7.000	2.912	3/4-16

ULTRA-DEX®



Balanced to:
G2.5 (15,000 rpm)

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LF [in.]	LU [in.]	Collet Nut	Stop Screw	Wrench
966-000-467	HSK80A-ER16-400-G2	HSK80A	ER-16	1.100	N/A	N/A	4.000	2.400	ER-16HN	ER-16S	ER-16W
966-000-469	HSK80A-ER32-400-G2	HSK80A	ER-32	1.980	N/A	N/A	4.000	2.050	ER-32SN	ER-32S	ER-32W
966-000-335	HSK100A-ER16-400-G2	HSK100A	ER-16	1.100	1.100	2.8580	4.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-337	HSK100A-ER16-600-G2	HSK100A	ER-16	1.100	1.100	4.8580	6.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-339	HSK100A-ER32-400-G2	HSK100A	ER-32	1.980	1.7500	2.8580	4.000	4.300	ER-32SN	N/A	ER-32W
966-000-341	HSK100A-ER32-600-G2	HSK100A	ER-32	1.980	1.7500	4.8580	6.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-343	HSK100A-ER40-400-G2	HSK100A	ER-40	2.250	2.3660	2.8580	4.000	4.000	ER-40SN	N/A	ER-40W
966-000-345	HSK100A-ER40-600-G2	HSK100A	ER-40	2.250	2.3660	4.8580	6.000	4.500	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-033	ER-16HN
968-000-047	ER-32SN
968-000-050	ER-40SN

PACKAGE SIZE OF 1

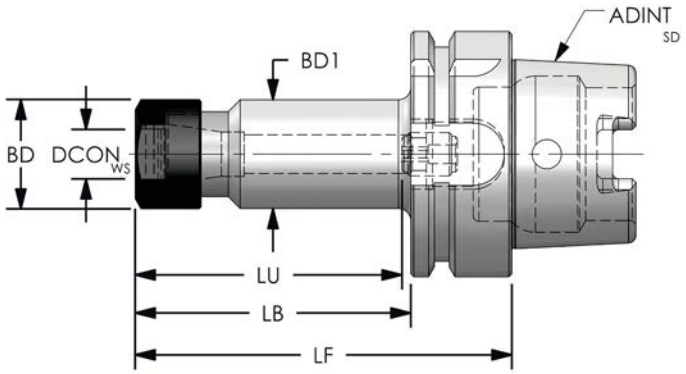
Product #	Adj. Screw
968-000-036	ER-16S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-037	ER-16W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LF [in.]	LU [in.]	Collet Nut	Stop Screw	Wrench
966-000-468	HSK80A-ER16-400-G6	HSK80A	ER-16	1.100	N/A	N/A	4.00	2.400	ER-16N	ER-16S	ER-16W
966-000-470	HSK80A-ER32-400-G6	HSK80A	ER-32	1.980	N/A	N/A	4.00	2.050	ER-32N	ER-32S	ER-32W
966-000-336	HSK100A-ER16-400-G6	HSK100A	ER-16	1.100	N/A	2.8580	4.00	3.000	ER-16HN	ER-16S	ER-16W
966-000-338	HSK100A-ER16-600-G6	HSK100A	ER-16	1.100	N/A	4.8580	6.00	3.000	ER-16HN	ER-16S	ER-16W
966-000-340	HSK100A-ER32-400-G6	HSK100A	ER-32	1.980	N/A	2.8580	4.00	4.300	ER-32SN	N/A	ER-32W
966-000-342	HSK100A-ER32-600-G6	HSK100A	ER-32	1.980	N/A	4.8580	6.00	4.300	ER-32SN	ER-32S	ER-32W
966-000-344	HSK100A-ER40-400-G6	HSK100A	ER-40	2.250	N/A	2.8580	4.00	4.000	ER-40SN	N/A	ER-40W
966-000-346	HSK100A-ER40-600-G6	HSK100A	ER-40	2.250	N/A	4.8580	6.00	4.500	ER-40SN	ER-40S	ER-40W
966-000-382	HSK125A-ER16-500-G6	HSK125A	ER-16	1.100	N/A	5.0000	5.00	3.100	ER-16HN	ER-16S	ER-16W
966-000-383	HSK125A-ER40-500-G6	HSK125A	ER-40	2.250	N/A	5.0000	5.00	2.800	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-033	ER-16HN
968-000-047	ER-32SN
968-000-050	ER-40SN

PACKAGE SIZE OF 1

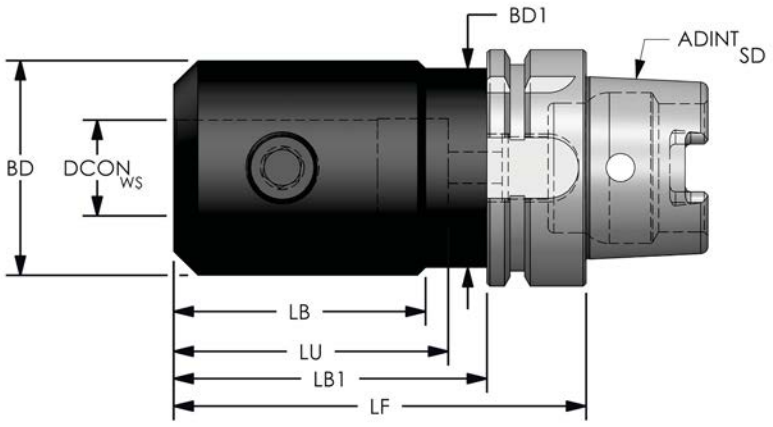
Product #	Adj. Screw
968-000-036	ER-16S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-037	ER-16W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX®



Balanced to:
G2.5 (15,000 rpm)

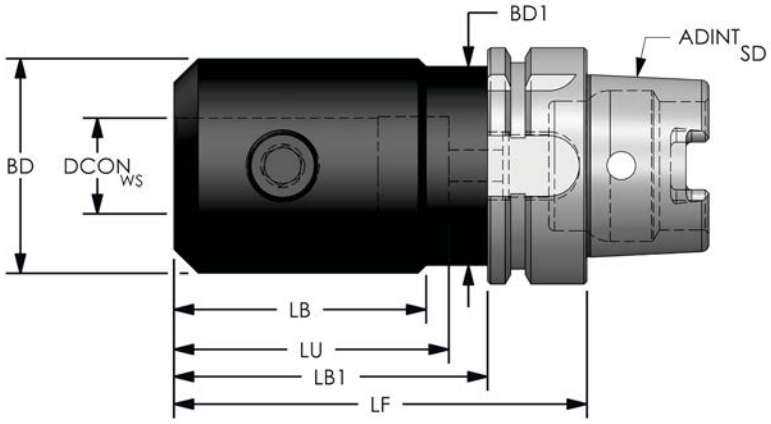
Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	Set Screw
966-000-315	HSK100A-EM250-400-G2	HSK100A	0.250	0.880	N/A	2.858	N/A	4.000	N/A	SS1/4-250
966-000-317	HSK100A-EM250-600-G2	HSK100A	0.250	0.880	N/A	4.858	N/A	6.000	N/A	SS1/4-250
966-000-319	HSK100A-EM375-400-G2	HSK100A	0.375	1.000	N/A	2.858	N/A	4.000	N/A	SS3/8-375
966-000-321	HSK100A-EM375-600-G2	HSK100A	0.375	1.000	N/A	4.858	N/A	6.000	N/A	SS3/8-375
966-000-323	HSK100A-EM500-400-G2	HSK100A	0.500	1.375	N/A	2.858	N/A	4.000	N/A	SS7/16-500
966-000-325	HSK100A-EM500-600-G2	HSK100A	0.500	1.375	N/A	4.858	N/A	6.000	N/A	SS7/16-500
966-000-327	HSK100A-EM625-400-G2	HSK100A	0.625	1.750	N/A	2.858	N/A	4.000	2.100	SS9/16-500
966-000-329	HSK100A-EM625-600-G2	HSK100A	0.625	1.750	N/A	4.858	N/A	6.000	2.100	SS9/16-500
966-000-331	HSK100A-EM750-400-G2	HSK100A	0.750	1.750	N/A	2.858	N/A	4.000	2.500	SS5/8-500
966-000-333	HSK100A-EM750-600-G2	HSK100A	0.750	1.750	N/A	4.858	N/A	6.000	2.500	SS5/8-500
966-000-303	HSK100A-EM100-400-G2	HSK100A	1.000	2.250	N/A	2.858	N/A	4.000	2.830	SS3/4-500
966-000-305	HSK100A-EM100-600-G2	HSK100A	1.000	2.250	N/A	4.858	N/A	6.000	2.830	SS3/4-500
966-000-307	HSK100A-EM125-425-G2	HSK100A	1.250	2.250	N/A	3.108	N/A	4.250	3.000	(2) SS3/4-500
966-000-309	HSK100A-EM125-600-G2	HSK100A	1.250	2.250	N/A	4.858	N/A	6.000	3.000	(2) SS3/4-500
966-000-311	HSK100A-EM150-450-G2	HSK100A	1.500	2.750	N/A	3.358	N/A	4.500	2.750	(2)SS3/4-500
966-000-313	HSK100A-EM200-550-G2	HSK100A	2.000	3.750	3.347	4.358	3.728	5.500	3.500	(2)SS1-750

All Hardware Included

Product #	Set Screws
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

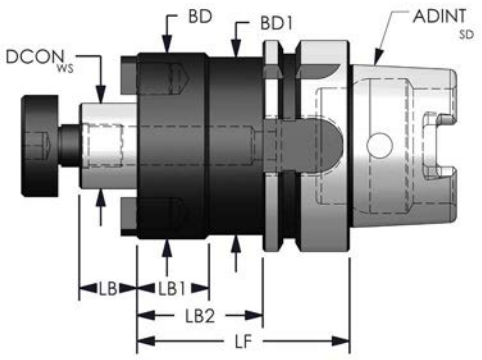
Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	Set Screw
966-000-316	HSK100A-EM250-400-G6	HSK100A	0.250	0.880	N/A	2.858	N/A	4.000	N/A	SS1/4-250
966-000-318	HSK100A-EM250-600-G6	HSK100A	0.250	0.880	N/A	4.858	N/A	6.000	N/A	SS1/4-250
966-000-320	HSK100A-EM375-400-G6	HSK100A	0.375	1.000	N/A	2.858	N/A	4.000	N/A	SS3/8-375
966-000-322	HSK100A-EM375-600-G6	HSK100A	0.375	1.000	N/A	4.858	N/A	6.000	N/A	SS3/8-375
966-000-324	HSK100A-EM500-400-G6	HSK100A	0.500	1.375	N/A	2.858	N/A	4.000	N/A	SS7/16-500
966-000-326	HSK100A-EM500-600-G6	HSK100A	0.500	1.375	N/A	4.858	N/A	6.000	N/A	SS7/16-500
966-000-328	HSK100A-EM625-400-G6	HSK100A	0.625	1.750	N/A	2.858	N/A	4.000	2.100	SS9/16-500
966-000-330	HSK100A-EM625-600-G6	HSK100A	0.625	1.750	N/A	4.858	N/A	6.000	2.100	SS9/16-500
966-000-332	HSK100A-EM750-400-G6	HSK100A	0.750	1.750	N/A	2.858	N/A	4.000	2.500	SS5/8-500
966-000-334	HSK100A-EM750-600-G6	HSK100A	0.750	1.750	N/A	4.858	N/A	6.000	2.500	SS5/8-500
966-000-304	HSK100A-EM100-400-G6	HSK100A	1.000	2.250	N/A	2.858	N/A	4.000	2.830	SS3/4-500
966-000-306	HSK100A-EM100-600-G6	HSK100A	1.000	2.250	N/A	4.858	N/A	6.000	2.830	SS3/4-500
966-000-308	HSK100A-EM125-425-G6	HSK100A	1.250	2.250	N/A	3.108	N/A	4.250	3.000	(2) SS3/4-500
966-000-310	HSK100A-EM125-600-G6	HSK100A	1.250	2.250	N/A	4.858	N/A	6.000	3.000	(2) SS3/4-500
966-000-312	HSK100A-EM150-450-G6	HSK100A	1.500	2.750	N/A	3.358	N/A	4.500	2.750	(2)SS3/4-500
966-000-314	HSK100A-EM200-550-G6	HSK100A	2.000	3.750	3.347	4.358	3.728	5.500	3.500	(2)SS1-750

All Hardware Included

Product #	Set Screws
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

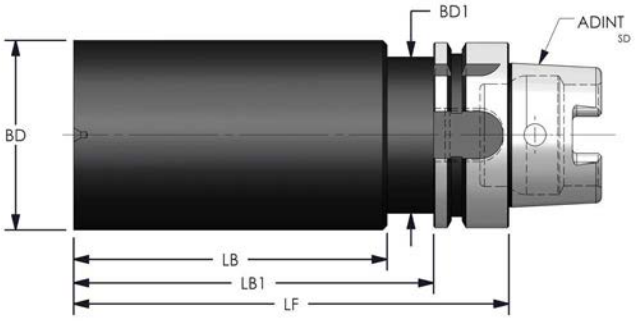
ULTRA-DEX®



Balanced to:
G6.3 (12,000 rpm)

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LB2 [in.]	LF [in.]	Drive Key	Lock Screw	Thread
966-000-377	HSK100A-SM075-200	HSK100A	0.750	1.750	N/A	0.680	0.858	N/A	2.000	UDK 312	U5002	3/8-24
966-000-378	HSK100A-SM100-200	HSK100A	1.000	2.190	N/A	0.680	0.858	N/A	2.000	UDK 375	U5003	1/2-20
966-000-379	HSK100A-SM125-250	HSK100A	1.250	2.750	N/A	0.680	1.358	N/A	2.500	UDK 500	U5004	5/8-18
966-000-380	HSK100A-SM150-250	HSK100A	1.500	3.380	3.347	0.940	1.358	0.728	2.500	UDK 625	U5005	3/4-16
966-000-381	HSK100A-SM200-300	HSK100A	2.000	4.440	3.347	0.940	1.858	1.226	3.000	UDK 750	U5006	1-14

All Hardware Included



Product #	Designation	ADINT SD	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]
967-000-021	HSK80A-BB80-250	HSK80A	3.150/(80mm)	2.677	8.189	8.819	9.840/(250mm)
967-000-020	HSK80A-BB150-200	HSK80A	5.910/(150mm)	2.677	6.220	6.850	7.870/(200mm)
967-000-007	HSK100A-BB100-150	HSK100A	3.940/(100mm)	3.465	4.134	4.764	5.910/(150mm)
967-000-008	HSK100A-BB100-250	HSK100A	3.940/(100mm)	3.465	8.071	8.701	9.840/(250mm)
967-000-009	HSK100A-BB150-250	HSK100A	5.910/(150mm)	3.465	8.071	8.701	9.840/(250mm)
967-000-010	HSK125A-BB125-305	HSK125A	4.920/(125mm)	4.134	10.238	10.868	12.010/(305mm)
967-000-011	HSK125A-BB150-200	HSK125A	5.910/(150mm)	4.134	6.008	6.638	7.870/(200mm)

Product #	Lock Screws
968-000-163	U5002
968-000-164	U5003
968-000-165	U5004
968-000-166	U5005
968-000-167	U5006

Product #	Drive Key
968-000-171	UDK 312
968-000-172	UDK 375
968-000-173	UDK 500
968-000-174	UDK 625
968-000-175	UDK 750

PACKAGE SIZE OF 1

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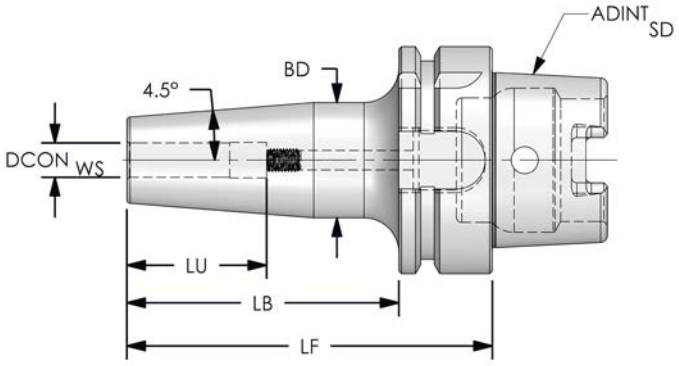

Balanced to:
G2.5 (15,000 rpm)

STANDARD LENGTH

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	LF [in.]	LU [in.]	LB [in.]	Thread
966-000-347	HSK100A-SF012-400-G2	HSK100A	0.125	1.060	4.000	0.790	2.860	N/A
966-000-362	HSK100A-SF188-400-G2	HSK100A	0.188	1.060	4.000	0.790	2.860	N/A
966-000-365	HSK100A-SF250-400-G2	HSK100A	0.250	1.060	4.000	1.420	2.860	10-32
966-000-370	HSK100A-SF375-400-G2	HSK100A	0.375	1.260	4.000	1.530	2.860	1/4-28
966-000-372	HSK100A-SF500-400-G2	HSK100A	0.500	1.340	4.000	1.850	2.860	7/16-20
966-000-374	HSK100A-SF625-400-G2	HSK100A	0.625	1.340	4.000	1.970	2.860	9/16-18
966-000-375	HSK100A-SF750-500-G2	HSK100A	0.750	1.650	5.000	2.040	3.860	5/8-18
966-000-352	HSK100A-SF100-500-G2	HSK100A	1.000	2.090	5.000	2.280	3.860	3/4-16
966-000-357	HSK100A-SF125-500-G2	HSK100A	1.250	2.090	5.000	2.280	3.860	3/4-16

EXTENDED LENGTH

Product #	Designation	ADINT SD	DCONWS [in.]	BD [in.]	LF [in.]	LU [in.]	LB [in.]	Thread
966-000-371	HSK100A-SF375-600-G2	HSK100A	0.375	1.260	6.000	1.530	4.860	1/4-28
966-000-373	HSK100A-SF500-600-G2	HSK100A	0.500	1.340	6.000	1.850	4.860	7/16-20
966-000-376	HSK100A-SF750-700-G2	HSK100A	0.750	1.650	7.000	2.040	5.860	5/8-18
966-000-353	HSK100A-SF100-700-G2	HSK100A	1.000	2.090	7.000	2.280	5.860	3/4-16
966-000-358	HSK100A-SF125-700-G2	HSK100A	1.250	2.090	7.000	2.280	5.860	3/4-16

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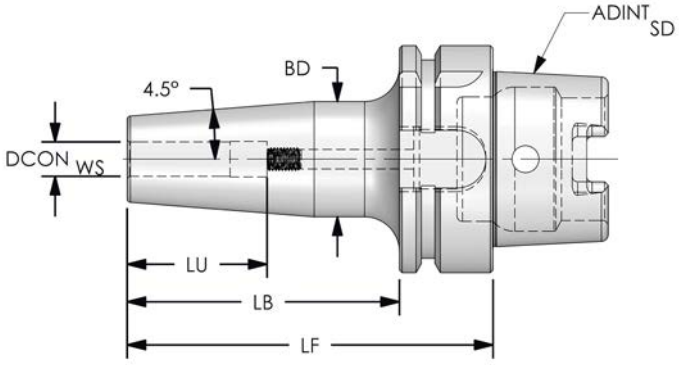


STANDARD LENGTH

Balanced to: G2.5 (15,000 rpm)

Product #	Designation	ADINT SD	DCONWS [mm]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	Thread
966-000-348	HSK100A-SF06-400-G2	HSK100A	6.00	1.063	2.858	4.000	2.167	10-32
966-000-350	HSK100A-SF08-400-G2	HSK100A	8.00	1.063	2.858	4.000	1.970	1/4-28
966-000-354	HSK100A-SF10-400-G2	HSK100A	10.00	1.260	2.858	4.000	2.207	1/4-28
966-000-356	HSK100A-SF12-400-G2	HSK100A	12.00	1.260	2.858	4.000	2.404	7/16-20
966-000-360	HSK100A-SF16-400-G2	HSK100A	16.00	1.339	2.858	4.000	2.522	9/16-18
966-000-363	HSK100A-SF20-500-G2	HSK100A	20.00	1.654	3.858	5.000	2.600	5/8-18
966-000-366	HSK100A-SF25-500-G2	HSK100A	25.00	2.087	3.858	5.000	2.912	3/4-16
966-000-368	HSK100A-SF32-500-G2	HSK100A	32.00	2.087	3.858	5.000	2.912	3/4-16

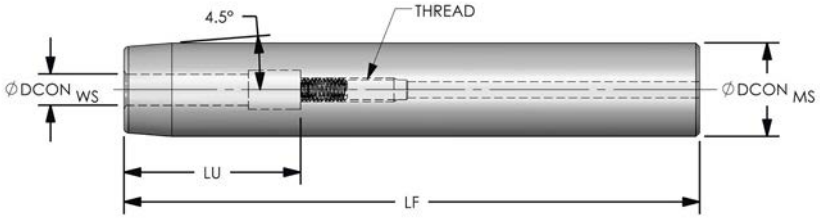
EXTENDED LENGTH

Product #	Designation	ADINT SD	DCONWS [mm]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	Thread
966-000-349	HSK100A-SF06-600-G2	HSK100A	6.00	1.063	4.858	6.000	2.167	10-32
966-000-351	HSK100A-SF08-600-G2	HSK100A	8.00	1.063	4.858	6.000	1.970	1/4-28
966-000-355	HSK100A-SF10-600-G2	HSK100A	10.00	1.260	4.858	6.000	2.207	1/4-28
966-000-359	HSK100A-SF12-600-G2	HSK100A	12.00	1.260	4.858	6.000	2.404	7/16-20
966-000-361	HSK100A-SF16-600-G2	HSK100A	16.00	1.260	4.858	6.000	2.522	9/16-18
966-000-364	HSK100A-SF20-700-G2	HSK100A	20.00	1.654	5.858	7.000	2.600	5/8-18
966-000-367	HSK100A-SF25-700-G2	HSK100A	25.00	2.087	5.858	7.000	2.912	3/4-16
966-000-369	HSK100A-SF32-700-G2	HSK100A	32.00	2.087	5.858	7.000	2.912	3/4-16

PATRIOT HP®

Product #	Designation	Description
969-000-005	HSK40A-CT	HSK40A Coolant Tube
969-000-007	HSK50A-CT	HSK50A Coolant Tube
969-000-009	HSK63A-CT	HSK63A Coolant Tube
969-000-011	HSK80A-CT	HSK80A Coolant Tube
969-000-001	HSK100A-CT	HSK100A Coolant Tube
969-000-003	HSK125A-CT	HSK125A Coolant Tube

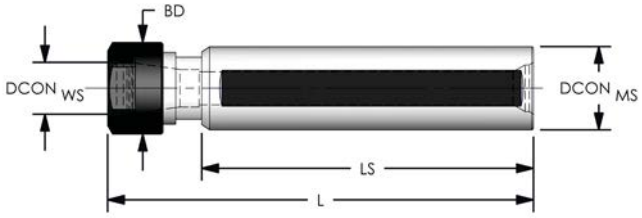
Product #	Designation	Description
969-000-006	HSK40A-S	HSK40A Coolant Tube Socket (3/8" Drive)
969-000-008	HSK50A-S	HSK50A Coolant Tube Socket (3/8" Drive)
969-000-010	HSK63A-S	HSK63A Coolant Tube Socket (3/8" Drive)
969-000-012	HSK80A-S	HSK80A Coolant Tube Socket (3/8" Drive)
969-000-002	HSK100A-S	HSK100A Coolant Tube Socket (1/2" Drive)
969-000-004	HSK125A-S	HSK125A Coolant Tube Socket (1/2" Drive)



Product #	DESIGNATION	DCONWS [in.]	DCONMS [in.]	LF [in.]	LU [in.]	Thread
973-000-001	SS050-SF012-463	0.125	0.500	4.630	0.790	N/A
973-000-003	SS075-SF012-463	0.125	0.750	4.630	0.790	N/A
973-000-004	SS075-SF012-663	0.125	0.750	6.630	0.790	N/A
973-000-010	SS100-SF012-863	0.125	1.000	8.630	0.790	N/A
973-000-002	SS050-SF188-463	0.188	0.500	4.630	0.790	N/A
973-000-005	SS075-SF188-463	0.188	0.750	4.630	0.790	N/A
973-000-006	SS075-SF188-663	0.188	0.750	6.630	0.790	N/A
973-000-011	SS100-SF188-863	0.188	1.000	8.630	0.790	N/A
973-000-007	SS075-SF250-463	0.250	0.750	4.630	1.420	10-32
973-000-008	SS075-SF250-663	0.250	0.750	6.630	1.420	10-32
973-000-012	SS100-SF250-863	0.250	1.000	8.630	1.420	10-32
973-000-009	SS075-SF375-463	0.375	0.750	4.630	1.530	1/4-28
973-000-013	SS100-SF375-663	0.375	1.000	6.630	1.530	1/4-28
973-000-017	SS125-SF375-900	0.375	1.250	9.000	1.530	1/4-28
973-000-014	SS100-SF500-463	0.500	1.000	4.630	1.850	7/16-20
973-000-015	SS100-SF500-663	0.500	1.000	6.630	1.850	7/16-20
973-000-018	SS125-SF500-900	0.500	1.250	9.000	1.850	7/16-20
973-000-016	SS100-SF625-463	0.625	1.000	4.630	1.970	9/16-18
973-000-019	SS125-SF625-700	0.625	1.250	7.000	1.970	9/16-18
973-000-020	SS125-SF750-500	0.750	1.250	5.000	2.040	5/8-18
973-000-021	SS125-SF750-700	0.750	1.250	7.000	1.420	5/8-18

ULTRA-DEX®

- Adjustable Stop Screw Allows Drills to be Pre-Set
- Balanced for Less Vibration & Longer Tool Life
- T.I.R. .0002
- Hardened & Tempered to Prevent Cracking
- Balanced Nuts (G2.5 at 15,000 RPM)
- Special Lengths Available



IMPERIAL

Product #	Designation	DCON WS	Range	BD [in.]	DCONMS [in.]	L [in.]	LS [in.]	Collet Nut	Screw	Collet Wrench
958-000-001	SS075-ER16-250	ER16	0.020" – 0.406" (.5mm - 10mm) 1/32" - 13/32"	1.100	0.750	3.800	2.500	ER-16HN	ER-16S	ER-16W
958-000-002	SS075-ER16-400	ER16		1.100	0.750	5.300	4.000	ER-16HN	ER-16S	ER-16W
958-000-005	SS100-ER16-250	ER16		1.100	1.000	3.800	2.500	ER-16HN	ER-16S	ER-16W
958-000-006	SS100-ER16-400	ER16		1.100	1.000	5.300	4.000	ER-16HN	ER-16S	ER-16W
958-000-007	SS100-ER16-600	ER16		1.100	1.000	7.300	6.000	ER-16HN	ER-16S	ER-16W
958-000-003	SS075-ER20-250	ER20	0.020" – 0.500" (.5mm – 13mm) 1/32" - 1/2"	1.340	0.750	3.600	2.500	ER-20HN	ER-20S	ER-20W
958-000-004	SS075-ER20-400	ER20		1.340	0.750	5.100	4.000	ER-20HN	ER-20S	ER-20W
958-000-008	SS100-ER20-250	ER20		1.340	1.000	3.600	2.500	ER-20HN	ER-20S	ER-20W
958-000-009	SS100-ER20-400	ER20		1.340	1.000	5.100	4.000	ER-20HN	ER-20S	ER-20W
958-000-010	SS100-ER20-600	ER20		1.340	1.000	7.100	6.000	ER-20HN	ER-20S	ER-20W

METRIC

Product #	Designation	DCON WS	Range	BD [in.]	DCONMS [mm]	L [in.]	LS [in.]	Collet Nut	Screw	Collet Wrench
958-000-011	SS22MM-ER16-250	ER16	.020" – .406" (.5mm - 10mm) 1/32" - 13/32"	1.100	22.00	3.800	2.500	ER-16HN	ER-16S	ER-16W
958-000-012	SS22MM-ER20-250	ER20	.020" – 0.500" (.5mm – 13mm) 1/32" - 1/2"	1.340	22.00	3.600	2.500	ER-20HN	ER-20S	ER-20W

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-033	ER-16HN
968-000-038	ER-20HN

PACKAGE SIZE OF 1

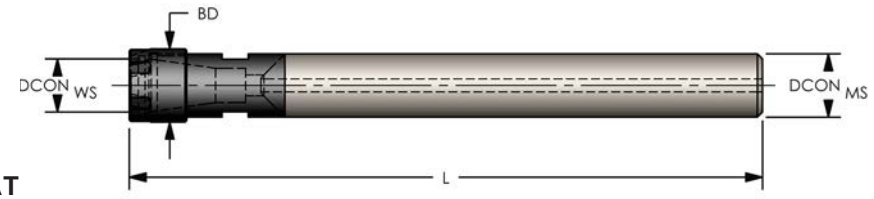
Product #	Adj. Screw
968-000-036	ER-16S
968-000-041	ER-20S

PACKAGE SIZE OF 1

Product #	Wrench
968-000-037	ER-16W
968-000-042	ER-20W

PACKAGE SIZE OF 1

REVERE®



WITH FLAT

Product #	Designation	DCON WS	Range	Collet Nut	L [in.]	DCONMS [in.]	BD [in.]
903-000-011	ST1/2 X 8.000 ER11 C W	ER11	.062 -.250 (1.5mm - 6.4mm) 1/16'' - 1/4"	ER11-MN	8.000	0.500	0.625
903-000-027	ST5/8 X 7.000 ER11 C W	ER11		ER11-MN	7.000	0.625	0.625
903-000-021	ST5/8 X 10.000 ER11 C W	ER11		ER11-MN	10.000	0.625	0.625
903-000-029	ST5/8 X 7.000 ER16 C W	ER16	.062 -.406 (1.5mm - 10.3mm) 1/16'' - 13/32"	ER16-MN	7.000	0.625	0.875
903-000-023	ST5/8 X 10.000 ER16 C W	ER16		ER16-MN	10.000	0.625	0.875
903-000-017	ST3/4 X 7.000 ER16 C W	ER16		ER16-MN	7.000	0.750	0 .875
903-000-013	ST3/4 X 10.000 ER16 C W	ER16		ER16-MN	10.000	0.750	0.875
903-000-006	ST1 X 8.000 ER16 C W	ER16		ER16-MN	8.000	1.000	0.875
903-000-002	ST1 X 12.000 ER16 C W	ER16		ER16-MN	12.000	1.000	0.875
903-000-031	ST5/8 X 7.000 ER20 C W	ER20	.094 -0.500 (2.4mm - 13mm) 3/32'' - 1/2"	ER20-MN	7.000	0.625	1.125
903-000-025	ST5/8 X 10.000 ER20 C W	ER20		ER20-MN	10.000	0.625	1.125
903-000-019	ST3/4 X 7.000 ER20 C W	ER20		ER20-MN	7.000	0.750	1.125
903-000-015	ST3/4 X 10.000 ER20 C W	ER20		ER20-MN	10.000	0.750	1.125
903-000-008	ST1 X 8.000 ER20 C W	ER20		ER20-MN	8.000	1.000	1.125
903-000-004	ST1 X 12.000 ER20 C W	ER20		ER20-MN	12.000	1.000	1.125

WITHOUT FLAT

Product #	Designation	DCON WS	Range	Collet Nut	L [in.]	DCONMS [in.]	BD [in.]
903-000-009	ST1/2 X 5.000 ER11 C	ER11	.062 -.250 (1.5mm - 6.4mm) 1/16'' - 1/4"	ER11-MN	5.000	0.500	0.625
903-000-010	ST1/2 X 8.000 ER11 C	ER11		ER11-MN	8.000	0.500	0.625
903-000-026	ST5/8 X 7.000 ER11 C	ER11		ER11-MN	7.000	0.625	0.625
903-000-020	ST5/8 X 10.000 ER11 C	ER11		ER11-MN	10.000	0.625	0.625
903-000-028	ST5/8 X 7.000 ER16 C	ER16	.062 -.406 (1.5mm - 10.3mm) 1/16'' - 13/32"	ER16-MN	7.000	0.625	0.875
903-000-022	ST5/8 X 10.000 ER16 C	ER16		ER16-MN	10.000	0.625	0.875
903-000-016	ST3/4 X 7.000 ER16 C	ER16		ER16-MN	7.000	0.750	0.875
903-000-012	ST3/4 X 10.000 ER16 C	ER16		ER16-MN	10.000	0.750	0.875
903-000-005	ST1 X 8.000 ER16 C	ER16		ER16-MN	8.000	1.000	0.875
903-000-001	ST1 X 12.000 ER16 C	ER16		ER16-MN	12.000	1.000	0.875
903-000-030	ST5/8 X 7.000 ER20 C	ER20	.094 -0.500 (2.4mm - 13mm) 3/32'' - 1/2"	ER20-MN	7.000	0.625	1.125
903-000-024	ST5/8 X 10.000 ER20 C	ER20		ER20-MN	10.000	0.625	1.125
903-000-018	ST3/4 X 7.000 ER20 C	ER20		ER20-MN	7.000	0.750	1.125
903-000-014	ST3/4 X 10.000 ER20 C	ER20		ER20-MN	10.000	0.750	1.125
903-000-007	ST1 X 8.000 ER20 C	ER20		ER20-MN	8.000	1.000	1.125
903-000-003	ST1 X 12.000 ER20 C	ER20		ER20-MN	12.000	1.000	1.125

All Hardware Included. Wrenches Sold Separately.

Product #	Collet Nut
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

PACKAGE SIZE OF 1

ULTRA-DEX®

	Ø	Product #	Designation
ER16	1/8	916-000-041	ER16C-SS-1250
	5/32	916-000-042	ER16C-SS-1562
	3/16	916-000-043	ER16C-SS-1875
	7/32	916-000-044	ER16C-SS-2187
	1/4	916-000-045	ER16C-SS-2500
	9/32	916-000-046	ER16C-SS-2812
	5/16	916-000-047	ER16C-SS-3125
	11/32	916-000-048	ER16C-SS-3437
	3/8	916-000-049	ER16C-SS-3750
	13/32	916-000-050	ER16C-SS-4062
ER20	1/8	916-000-089	ER20C-SS-1250
	5/32	916-000-092	ER20C-SS-1562
	3/16	916-000-093	ER20C-SS-1875
	7/32	916-000-094	ER20C-SS-2187
	1/4	916-000-095	ER20C-SS-2500
	9/32	916-000-096	ER20C-SS-2812
	5/16	916-000-097	ER20C-SS-3125
	11/32	916-000-098	ER20C-SS-3437
	3/8	916-000-099	ER20C-SS-3750
	13/32	916-000-100	ER20C-SS-4062
	7/16	916-000-101	ER20C-SS-4375
	15/32	916-000-102	ER20C-SS-4687
	1/2	916-000-104	ER20C-SS-5000
ER25	1/8	916-000-147	ER25C-SS-1250
	5/32	916-000-151	ER25C-SS-1562
	3/16	916-000-154	ER25C-SS-1875
	7/32	916-000-155	ER25C-SS-2187
	1/4	916-000-156	ER25C-SS-2500
	9/32	916-000-157	ER25C-SS-2812
	5/16	916-000-158	ER25C-SS-3125
	11/32	916-000-159	ER25C-SS-3437
	3/8	916-000-160	ER25C-SS-3750
	13/32	916-000-161	ER25C-SS-4062
	7/16	916-000-162	ER25C-SS-4375
	15/32	916-000-163	ER25C-SS-4687
	1/2	916-000-165	ER25C-SS-5000
	17/32	916-000-166	ER25C-SS-5312
	9/16	916-000-167	ER25C-SS-5625
	19/32	916-000-168	ER25C-SS-5937
	5/8	916-000-170	ER25C-SS-6250

	Ø	Product #	Designation
ER32	1/8	916-000-220	ER32C-SS-1250
	5/32	916-000-224	ER32C-SS-1562
	3/16	916-000-228	ER32C-SS-1875
	7/32	916-000-232	ER32C-SS-2187
	1/4	916-000-233	ER32C-SS-2500
	9/32	916-000-234	ER32C-SS-2812
	5/16	916-000-235	ER32C-SS-3125
	11/32	916-000-236	ER32C-SS-3437
	3/8	916-000-237	ER32C-SS-3750
	13/32	916-000-238	ER32C-SS-4062
	7/16	916-000-239	ER32C-SS-4375
	15/32	916-000-240	ER32C-SS-4687
	1/2	916-000-242	ER32C-SS-5000
	17/32	916-000-243	ER32C-SS-5312
	9/16	916-000-244	ER32C-SS-5625
	19/32	916-000-245	ER32C-SS-5937
	5/8	916-000-247	ER32C-SS-6250
	21/32	916-000-248	ER32C-SS-6562
	11/16	916-000-249	ER32C-SS-6875
	23/32	916-000-251	ER32C-SS-7187
	3/4	916-000-252	ER32C-SS-7500
ER40	1/8	916-000-309	ER40C-SS-1250
	5/32	916-000-313	ER40C-SS-1562
	3/16	916-000-317	ER40C-SS-1875
	7/32	916-000-321	ER40C-SS-2187
	1/4	916-000-326	ER40C-SS-2500
	9/32	916-000-329	ER40C-SS-2812
	5/16	916-000-330	ER40C-SS-3125
	11/32	916-000-331	ER40C-SS-3437
	3/8	916-000-332	ER40C-SS-3750
	13/32	916-000-333	ER40C-SS-4062
	7/16	916-000-334	ER40C-SS-4375
	15/32	916-000-335	ER40C-SS-4687
	1/2	916-000-336	ER40C-SS-5000
	17/32	916-000-337	ER40C-SS-5312
	9/16	916-000-338	ER40C-SS-5625
	19/32	916-000-339	ER40C-SS-5937
	5/8	916-000-340	ER40C-SS-6250
	21/32	916-000-341	ER40C-SS-6562
	11/16	916-000-342	ER40C-SS-6875
	23/32	916-000-344	ER40C-SS-7187
	3/4	916-000-345	ER40C-SS-7500
	13/16	916-000-347	ER40C-SS-8125
	7/8	916-000-348	ER40C-SS-8750
	1	916-000-306	ER40C-SS-1000

ULTRA-DEX®

	Ø	Product #	Designation
ER16	4mm	916-000-051	ER16C-SS-4MM
	5mm	916-000-052	ER16C-SS-5MM
	6mm	916-000-053	ER16C-SS-6MM
	7mm	916-000-054	ER16C-SS-7MM
	8mm	916-000-055	ER16C-SS-8MM
	9mm	916-000-056	ER16C-SS-9MM
	10mm	916-000-040	ER16C-SS-10MM
ER20	4mm	916-000-103	ER20C-SS-4MM
	5mm	916-000-105	ER20C-SS-5MM
	6mm	916-000-106	ER20C-SS-6MM
	7mm	916-000-107	ER20C-SS-7MM
	8mm	916-000-108	ER20C-SS-8MM
	9mm	916-000-109	ER20C-SS-9MM
	10mm	916-000-087	ER20C-SS-10MM
	11mm	916-000-088	ER20C-SS-11MM
	12mm	916-000-090	ER20C-SS-12MM
	13mm	916-000-091	ER20C-SS-13MM
ER25	4mm	916-000-164	ER25C-SS-4MM
	5mm	916-000-169	ER25C-SS-5MM
	6mm	916-000-171	ER25C-SS-6MM
	7mm	916-000-172	ER25C-SS-7MM
	8mm	916-000-173	ER25C-SS-8MM
	9mm	916-000-174	ER25C-SS-9MM
	10mm	916-000-145	ER25C-SS-10MM
	11mm	916-000-146	ER25C-SS-11MM
	12mm	916-000-148	ER25C-SS-12MM
	13mm	916-000-149	ER25C-SS-13MM
	14mm	916-000-150	ER25C-SS-14MM
	15mm	916-000-152	ER25C-SS-15MM
	16mm	916-000-153	ER25C-SS-16MM

	Ø	Product #	Designation
ER32	4mm	916-000-241	ER32C-SS-4MM
	5mm	916-000-246	ER32C-SS-5MM
	6mm	916-000-250	ER32C-SS-6MM
	7mm	916-000-253	ER32C-SS-7MM
	8mm	916-000-254	ER32C-SS-8MM
	9mm	916-000-255	ER32C-SS-9MM
	10mm	916-000-218	ER32C-SS-10MM
	11mm	916-000-219	ER32C-SS-11MM
	12mm	916-000-221	ER32C-SS-12MM
	13mm	916-000-222	ER32C-SS-13MM
	14mm	916-000-223	ER32C-SS-14MM
	15mm	916-000-225	ER32C-SS-15MM
	16mm	916-000-226	ER32C-SS-16MM
	17mm	916-000-227	ER32C-SS-17MM
	18mm	916-000-229	ER32C-SS-18MM
	19mm	916-000-230	ER32C-SS-19MM
	20mm	916-000-231	ER32C-SS-20MM
ER40	6mm	916-000-343	ER40C-SS-6MM
	7mm	916-000-346	ER40C-SS-7MM
	8mm	916-000-349	ER40C-SS-8MM
	9mm	916-000-350	ER40C-SS-9MM
	10mm	916-000-307	ER40C-SS-10MM
	11mm	916-000-308	ER40C-SS-11MM
	12mm	916-000-310	ER40C-SS-12MM
	13mm	916-000-311	ER40C-SS-13MM
	14mm	916-000-312	ER40C-SS-14MM
	15mm	916-000-314	ER40C-SS-15MM
	16mm	916-000-315	ER40C-SS-16MM
	17mm	916-000-316	ER40C-SS-17MM
	18mm	916-000-318	ER40C-SS-18MM
	19mm	916-000-319	ER40C-SS-19MM
	20mm	916-000-320	ER40C-SS-20MM
	21mm	916-000-322	ER40C-SS-21MM
	22mm	916-000-323	ER40C-SS-22MM
	23mm	916-000-324	ER40C-SS-23MM
	24mm	916-000-325	ER40C-SS-24MM
	25mm	916-000-327	ER40C-SS-25MM
	26mm	916-000-328	ER40C-SS-26MM

ULTRA-DEX®

	Ø	Product #	Designation
ER11	1/16	916-000-001	ER11C-0625*
	3/32	916-000-002	ER11C-0937*
	1/8	916-000-003	ER11C-1250*
	5/32	916-000-004	ER11C-1562*
	3/16	916-000-005	ER11C-1875*
	7/32	916-000-007	ER11C-2187*
	1/4	916-000-008	ER11C-2500*
ER16	1/16	916-000-017	ER16C-0625
	3/32	916-000-018	ER16C-0937*
	1/8	916-000-020	ER16C-1250*
	5/32	916-000-021	ER16C-1562*
	3/16	916-000-022	ER16C-1875*
	7/32	916-000-024	ER16C-2187*
	1/4	916-000-025	ER16C-2500*
	9/32	916-000-026	ER16C-2812*
	5/16	916-000-028	ER16C-3125*
	11/32	916-000-029	ER16C-3437*
	3/8	916-000-030	ER16C-3750*
	13/32	916-000-032	ER16C-4062

	Ø	Product #	Designation
ER20	3/32	916-000-058	ER20C-0937
	1/8	916-000-061	ER20C-1250*
	5/32	916-000-065	ER20C-1562*
	3/16	916-000-066	ER20C-1875*
	7/32	916-000-068	ER20C-2187*
	1/4	916-000-069	ER20C-2500*
	9/32	916-000-070	ER20C-2812*
	5/16	916-000-072	ER20C-3125*
	11/32	916-000-073	ER20C-3437
	3/8	916-000-074	ER20C-3750*
	13/32	916-000-076	ER20C-4062
	7/16	916-000-077	ER20C-4375*
	15/32	916-000-078	ER20C-4687
	1/2	916-000-080	ER20C-5000*
ER25	1/8	916-000-113	ER25C-1250
	5/32	916-000-117	ER25C-1562*
	3/16	916-000-121	ER25C-1875*
	7/32	916-000-122	ER25C-2187*
	1/4	916-000-123	ER25C-2500*
	9/32	916-000-124	ER25C-2812
	5/16	916-000-126	ER25C-3125*
	11/32	916-000-127	ER25C-3437
	3/8	916-000-128	ER25C-3750*
	13/32	916-000-130	ER25C-4062
	7/16	916-000-131	ER25C-4375*
	15/32	916-000-132	ER25C-4687
	1/2	916-000-134	ER25C-5000*
	17/32	916-000-135	ER25C-5312
	9/16	916-000-136	ER25C-5625*
	19/32	916-000-137	ER25C-5937
	5/8	916-000-139	ER25C-6250*

IMPERIAL COLLETS SET

Product #	Designation	Description
916-000-015	ER11CS	7 pcs (items with "*" in ER11 section included)
916-000-039	ER16CS	10 pcs (items with "*" in ER16 section included)
916-000-086	ER20CS	10 pcs (items with "*" in ER20 section included)
916-000-144	ER25CS	10 pcs (items with "*" in ER25 section included)
916-000-217	ER32CS	10 pcs (items with "*" in ER32 section included)
916-000-305	ER40CS	10 pcs (items with "*" in ER40 section included)

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	Ø	Product #	Designation
ER32	3/32	916-000-176	ER32C-0937
	1/8	916-000-179	ER32C-1250*
	5/32	916-000-183	ER32C-1562
	3/16	916-000-187	ER32C-1875*
	7/32	916-000-191	ER32C-2187
	1/4	916-000-193	ER32C-2500*
	9/32	916-000-194	ER32C-2812
	5/16	916-000-195	ER32C-3125*
	11/32	916-000-196	ER32C-3437
	3/8	916-000-197	ER32C-3750*
	13/32	916-000-199	ER32C-4062
	7/16	916-000-200	ER32C-4375*
	15/32	916-000-201	ER32C-4687
	1/2	916-000-203	ER32C-5000*
	17/32	916-000-204	ER32C-5312
	9/16	916-000-205	ER32C-5625*
	19/32	916-000-206	ER32C-5937
	5/8	916-000-208	ER32C-6250*
	21/32	916-000-209	ER32C-6562
	11/16	916-000-210	ER32C-6875
	23/32	916-000-212	ER32C-7187
	3/4	916-000-213	ER32C-7500*

	Ø	Product #	Designation
ER40	1/8	916-000-260	ER40C-1250*
	5/32	916-000-264	ER40C-1562
	3/16	916-000-268	ER40C-1875*
	7/32	916-000-272	ER40C-2187
	1/4	916-000-277	ER40C-2500*
	9/32	916-000-280	ER40C-2812
	5/16	916-000-281	ER40C-3125*
	11/32	916-000-282	ER40C-3437
	3/8	916-000-283	ER40C-3750*
	13/32	916-000-285	ER40C-4062
	7/16	916-000-286	ER40C-4375
	15/32	916-000-287	ER40C-4687
	1/2	916-000-289	ER40C-5000*
	17/32	916-000-290	ER40C-5312
	9/16	916-000-291	ER40C-5625
	19/32	916-000-292	ER40C-5937
	5/8	916-000-294	ER40C-6250*
	21/32	916-000-295	ER40C-6562
	11/16	916-000-296	ER40C-6875
	23/32	916-000-298	ER40C-7187
	3/4	916-000-299	ER40C-7500*
	13/16	916-000-301	ER40C-8125
	7/8	916-000-302	ER40C-8750*
	1	916-000-257	ER40C-1000*

IMPERIAL COLLETS SET

Product #	Designation	Description
916-000-015	ER11CS	7 pcs (items with "*" in ER11 section included)
916-000-039	ER16CS	10 pcs (items with "*" in ER16 section included)
916-000-086	ER20CS	10 pcs (items with "*" in ER20 section included)
916-000-144	ER25CS	10 pcs (items with "*" in ER25 section included)
916-000-217	ER32CS	10 pcs (items with "*" in ER32 section included)
916-000-305	ER40CS	10 pcs (items with "*" in ER40 section included)

ULTRA-DEX®

	Ø	Product #	Designation
ER11	1mm	916-000-006	ER11C-1MM*
	2mm	916-000-009	ER11C-2MM*
	3mm	916-000-010	ER11C-3MM*
	4mm	916-000-011	ER11C-4MM*
	5mm	916-000-012	ER11C-5MM*
	6mm	916-000-013	ER11C-6MM*
	7mm	916-000-014	ER11C-7MM
ER16	1mm	916-000-023	ER16C-1MM*
	2mm	916-000-027	ER16C-2MM*
	3mm	916-000-031	ER16C-3MM*
	4mm	916-000-033	ER16C-4MM*
	5mm	916-000-034	ER16C-5MM*
	6mm	916-000-035	ER16C-6MM*
	7mm	916-000-036	ER16C-7MM
	8mm	916-000-037	ER16C-8MM*
	9mm	916-000-038	ER16C-9MM
	10mm	916-000-019	ER16C-10MM*

	Ø	Product #	Designation
ER20	1mm	916-000-067	ER20C-1MM
	2mm	916-000-071	ER20C-2MM*
	3mm	916-000-075	ER20C-3MM*
	4mm	916-000-079	ER20C-4MM*
	5mm	916-000-081	ER20C-5MM*
	6mm	916-000-082	ER20C-6MM*
	7mm	916-000-083	ER20C-7MM
	8mm	916-000-084	ER20C-8MM*
	9mm	916-000-085	ER20C-9MM
	10mm	916-000-059	ER20C-10MM*
	11mm	916-000-060	ER20C-11MM
	12mm	916-000-062	ER20C-12MM*
	13mm	916-000-063	ER20C-13MM
	14mm	916-000-064	ER20C-14MM*
ER25	2mm	916-000-125	ER25C-2MM*
	3mm	916-000-129	ER25C-3MM*
	4mm	916-000-133	ER25C-4MM*
	5mm	916-000-138	ER25C-5MM*
	6mm	916-000-140	ER25C-6MM*
	7mm	916-000-141	ER25C-7MM
	8mm	916-000-142	ER25C-8MM*
	9mm	916-000-143	ER25C-9MM
	10mm	916-000-111	ER25C-10MM*
	11mm	916-000-112	ER25C-11MM
	12mm	916-000-114	ER25C-12MM*
	13mm	916-000-115	ER25C-13MM
	14mm	916-000-116	ER25C-14MM*
	15mm	916-000-118	ER25C-15MM
	16mm	916-000-119	ER25C-16MM*
	17mm	916-000-120	ER25C-17MM

METRIC COLLETS SET

Product #	Designation	Description
916-000-016	ER11MCS	6 pcs (items with “*” in ER11 section included)
916-000-057	ER16MCS	8 pcs (items with “*” in ER16 section included)
916-000-110	ER20MCS	9 pcs (items with “*” in ER20 section included)
916-000-175	ER25MCS	10 pcs (items with “*” in ER25 section included)
916-000-256	ER32MCS	11 pcs (items with “*” in ER32 section included)
916-000-351	ER40MCS	14 pcs (items with “*” in ER40 section included)

ULTRA-DEX®

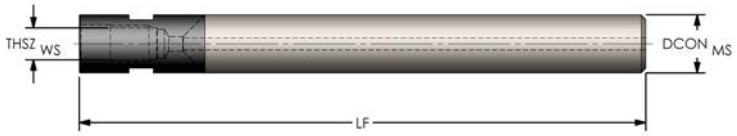
	Ø	Product #	Designation
ER32	3mm	916-000-198	ER32C-3MM*
	4mm	916-000-202	ER32C-4MM*
	5mm	916-000-207	ER32C-5MM*
	6mm	916-000-211	ER32C-6MM*
	7mm	916-000-214	ER32C-7MM
	8mm	916-000-215	ER32C-8MM*
	9mm	916-000-216	ER32C-9MM
	10mm	916-000-177	ER32C-10MM*
	11mm	916-000-178	ER32C-11MM
	12mm	916-000-180	ER32C-12MM*
	13mm	916-000-181	ER32C-13MM
	14mm	916-000-182	ER32C-14MM*
	15mm	916-000-184	ER32C-15MM
	16mm	916-000-185	ER32C-16MM*
	17mm	916-000-186	ER32C-17MM
	18mm	916-000-188	ER32C-18MM*
	19mm	916-000-189	ER32C-19MM
	20mm	916-000-190	ER32C-20MM*
	21mm	916-000-192	ER32C-21MM

	Ø	Product #	Designation
ER40	3mm	916-000-284	ER40C-3MM*
	4mm	916-000-288	ER40C-4MM*
	5mm	916-000-293	ER40C-5MM*
	6mm	916-000-297	ER40C-6MM*
	7mm	916-000-300	ER40C-7MM
	8mm	916-000-303	ER40C-8MM*
	9mm	916-000-304	ER40C-9MM
	10mm	916-000-258	ER40C-10MM*
	11mm	916-000-259	ER40C-11MM
	12mm	916-000-261	ER40C-12MM*
	13mm	916-000-262	ER40C-13MM
	14mm	916-000-263	ER40C-14MM*
	15mm	916-000-265	ER40C-15MM
	16mm	916-000-266	ER40C-16MM*
	17mm	916-000-267	ER40C-17MM
	18mm	916-000-269	ER40C-18MM*
	19mm	916-000-270	ER40C-19MM
	20mm	916-000-271	ER40C-20MM*
	21mm	916-000-273	ER40C-21MM
	22mm	916-000-274	ER40C-22MM*
	23mm	916-000-275	ER40C-23MM
	24mm	916-000-276	ER40C-24MM*
	25mm	916-000-278	ER40C-25MM
	26mm	916-000-279	ER40C-26MM*

METRIC COLLETS SET

Product #	Designation	Description
916-000-016	ER11MCS	6 pcs (items with “*” in ER11 section included)
916-000-057	ER16MCS	8 pcs (items with “*” in ER16 section included)
916-000-110	ER20MCS	9 pcs (items with “*” in ER20 section included)
916-000-175	ER25MCS	10 pcs (items with “*” in ER25 section included)
916-000-256	ER32MCS	11 pcs (items with “*” in ER32 section included)
916-000-351	ER40MCS	14 pcs (items with “*” in ER40 section included)

ULTRA-DEX®

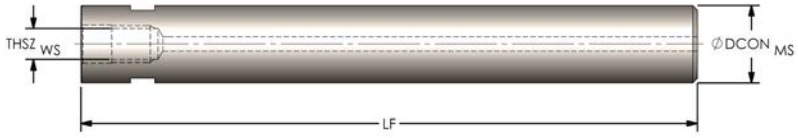


CARBIDE - WITH FLAT

Product #	DESIGNATION	DCONMS [in.]	LF [in.]	THSZWS
942-000-003	CM06 L6.00-W.375*	0.375	6.000	M6
942-000-005	CM08 L5.00-W.500*	0.500	5.000	M8
942-000-007	CM08 L8.00-W.500*	0.500	8.000	M8
942-000-012	CM10 L7.00-W.750	0.750	7.000	M10
942-000-009	CM10 L10.00-W.750	0.750	10.000	M10
942-000-019	CM12 L7.00-W.750	0.750	7.000	M12
942-000-014	CM12 L10.00-W.750	0.750	10.000	M12
942-000-021	CM12 L8.00-W1.00	1.000	8.000	M12
942-000-016	CM12 L12.00-W1.00	1.000	12.000	M12
942-000-023	CM16 L14.00-W1.25*	1.250	14.000	M16
942-000-024	CM16 L14.00-W1.500*	1.500	14.000	M16

WITHOUT FLAT

Product #	DESIGNATION	DCONMS [in.]	LF [in.]	THSZWS
942-000-006	CM08 L8.00-C.500*	0.500	8.000	M8
942-000-011	CM10 L7.00-C.750	0.750	7.000	M10
942-000-008	CM10 L10.00-C.750	0.750	10.000	M10
942-000-018	CM12 L7.00-C.750	0.750	7.000	M12
942-000-013	CM12 L10.00-C.750	0.750	10.000	M12
942-000-020	CM12 L8.00-C1.00	1.000	8.000	M12
942-000-015	CM12 L12.00-C1.00	1.000	12.000	M12
942-000-022	CM16 L14.00-C1.25*	1.250	14.000	M16



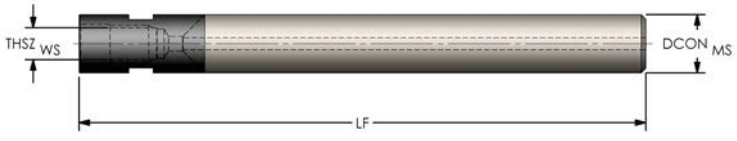
HEAVY METAL - WITH FLAT

Product #	Designation	DCONMS [in.]	LF [in.]	THSZWS
942-000-026	HM06 L6.00-W.375*	0.375	6.000	M6
942-000-028	HM08 L6.00-W.500*	0.500	6.000	M8
942-000-031	HM12 L12.00-W.750*	0.750	12.000	M12
942-000-034	HM12 L8.00-W1.00*	1.000	8.000	M12
942-000-032	HM12 L12.00-W1.00*	1.000	12.000	M12
942-000-036	HM16 L12.00-W1.25*	1.250	12.000	M16
942-000-037	HM16 L12.00-W1.500*	1.500	12.000	M16

WITHOUT FLAT

Product #	Designation	DCONMS [in.]	LF [in.]	THSZWS
942-000-025	HM06 L6.00-C.375*	0.375	6.000	M6
942-000-027	HM08 L6.00-C.500*	0.500	6.000	M8
942-000-029	HM12 L12.00-C.750*	0.750	12.000	M12
942-000-033	HM12 L8.00-C1.00*	1.000	8.000	M12
942-000-030	HM12 L12.00-C1.00*	1.000	12.000	M12
942-000-035	HM16 L12.00-C1.25*	1.250	12.000	M16

* Please allow up to 1 week for processing.



CARBIDE WITHOUT FLAT- METRIC

Product #	Designation	DCON MS [mm]	LF [mm]	THSZWS
942-000-001	CM06 L150MM-C10MM	10.00	150.00	M6
942-000-002	CM06 L180MM-C12MM	12.00	180.00	M6
942-000-004	CM08 L200MM-C16MM	16.00	200.00	M8
942-000-010	CM10 L250MM-C20MM	20.00	250.00	M10
942-000-017	CM12 L300MM-C25MM	25.00	300.00	M12

CHAPTER 2
NON-ROTATING

INSERTS

ARCH®
Cutting Tools

ULTRA-DEX®

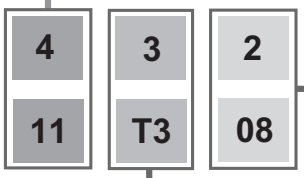
INSCRIBE CIRCLE SIZE

INCH	Diameter of Inscribed Circle (Inch)	METRIC						
		R	W	V	D	C	S	T
1.2 (5)	0.156		02		04	03	03	06
1.28	0.160							07
1.5 (6)	0.187		L3	08	05	04	04	08
1.8 (7)	0.219		03	09	06	05	05	09
2	0.250		04	11	07	06	06	11
2.5	0.313		05	13	09	08	07	13
3	0.375	09	06	16	11	09	09	16
4	0.500	12	08	22	15	12	12	22
5	0.625		10		19	16	15	27
6	0.750	19	13		23	19	19	33
08	8.00mm	08						
10	10.00mm	10						
12	12.00mm	12						
16	16.00mm	16						

Shape	
A	Rectangle
C	80° Diamond
D	55° Diamond
S	Square
T	Triangle
V	35° Diamond
W	80° Trigon
R	Round

*Exact tolerance is determined by the size of the insert

TOLERANCE	
Insert I.C.	Thickness
F = ± .002 to ± .004	± .002
G = ± .001	± .005
H = ± .005	± .001
K = ± .005	± .001
M = ± .002 to ± .007*	± .005



INCH	CORNER RADIUS	METRIC
0	.004	01
0.1	.002	--
0.5	.008	02
1	.015 (1/64)	04
2	.031 (1/32)	08
3	.046 (3/64)	12
4	.062 (1/16)	16

INCH	THICKNESS	METRIC
0.6	0.040	T0
0.75	0.046	-
1	1/16	01
1.2	5/64	T1
1.5	3/32	02
2	1/8	03
2.5	5/32	T3
3	3/16	04
4	1/4	06

CLEARANCE ANGLE	
B	5 ° Positive
C	7 ° Positive
D	15 ° Positive
N	0 ° Negative
P	11 ° Positive

TYPE	
A	With hole, without chipbreaker
B	Countersink on one side, with hole
G	Chipbreaker on both sides, with hole
T	Chipbreaker & ISO countersink one side, with hole
W	ISO Countersink on one side, with hole
X	Special Design

ULTRA-DEX®

INSERT SPEEDS & FEEDS

Material		TURNING		MILLING		DRILLING	
		SFM	Inch/ Rev	SFM	Inch/ Rev	SFM	Inch/ Rev
P	Mild Steel	490-1200	.004-.031	250-800	.003-.015	225-650	.0022-.006
P	Annealed Alloy Steel	490-980		200-725		200-650	
P	Hardened Alloy Steel	180-500		200-600		100-300	
P	Cast Steel	180-650		200-600		150-550	
M	Stainless Steel	280-810	.004-.015	200-600	.003-.015	250-430	.002-.006
K	Low Cast Iron	590-1240	.004-.024	325-600	.004-.016	300-600	.0025-009
K	High Cast Iron	360-700		325-600		300-600	
K	Cast Iron (CBN INSERTS)	400-600	.002-.020				
N	Alum. Alloy Un-heat Treated	850-1980	.004-.018	860-1800	.007-.018	600-1100	.0038-.011
N	Alum. Alloy Heat Treated	550-1650		575-1230		315-790	
N	Cast Alum. & Copper Alloy	360-950		280-930		250-760	
H	Hardened Material (CBN INSERTS)	450-950	.002-.011				
S	Heat Resistant Steels	100-300	.002-.006	100-300	.0024-.008	60-150	.0028-.008

CHIPBREAKER DESIGNATION

ISO	FINISHING	MEDIUM	ROUGHING
P M	CX2, LX6, SP1, SP2, SX1, ZX3 CM1, CM3, CX2, LX6, ZM1	CX1, LX3, ZP1 CM1, CM2, LX3	CP2, LX2 LX2
K	ZX3	ZK1, ZK2 CS1	
N	SX1, ZN1	CN1, LX2, LX3	
S	ZX3	ZK1, ZK2 CS1	

○ Good
◑ Better
● Best

*HIGH PERFORMANCE GRADES

Grade	Description	Steel P	Stainless Steel M	Cast Iron K	Ferrite Materials N	Heat-Resistant S	Steel Hardened Metal H
UD51	General purpose TiN (CVD) coated steel grade - used for roughing and semi-finishing of carbon alloy and stainless steel.	●	○	○		◑	
UD52	Tough general purpose steel grade with multi-layer titanium aluminum nitride coating for alloy steel, aluminum alloys, austenitic stainless and carbon steels, copper alloys and exotic alloys.	●	○			●	
HP230*	Productive steel turning grade under stable conditions.	●	○	◑			
HP250*	Universal steel turning grade-The best in efficiency and productivity.	●	○	◑			
UD21	Multi-layer titanium aluminum nitride grade. Excellent for machining cast iron.		◑	●			
HM240*	Stainless steel turning grade. Finishing to light roughing.	○	●		○		
HM250*	Turning grade for wide application in the stainless steel range. Finishing to roughing.	◑	●			○	
HS220*	Excellent for heat resistance and titanium alloys		○			●	
UD2	Uncoated - Used to cut cast iron, aluminum, non-ferrous alloys, non-metals and most high temp alloys. Provides excellent wear resistance.			○	◑		
HN432*	Ideal grade for aluminum. Low tendency for adhesion.			◑	●		
UD22	TiN coated insert. Suitable for semi-finishing and finishing of high temp alloys. Intended for cast iron machining.			●		◑	
UD32	TiAlN coated insert. Used in high speed medium load applications of stainless steel and finishing to semi-finishing of high temperature alloys.	◑	●	○	○	●	
HK036*	Stability in a wide range of applications with long tool life. First choice for turning cast iron.			●			
UD5C	Uncoated cermet grade for semi-finishing and finishing applications at medium to high cutting speeds on carbon and alloyed steels. Also used on stainless. Normally used without coolant.		○	○			
UD5CT	TiALN coated cermet grade performs extremely well for semi-finish and finish applications in alloyed steels, stainless and high carbon steels.	●	◑	◑			
UD1	Uncoated – Designed with a polished surface and large rake angle, Intended for machining aluminum and other non-ferrous alloys. Also works well for semi machining on cast iron.		◑		●		
HP470*	Suitable for demanding steel milling applications, interrupted cut.	●	◑				
HM470*	Stainless steel milling grade. PVD, TiAlN coating.	◑	●				
HS470*	First choice for milling heat-resistant alloys.		○			●	
HS480*	Extremely heat-resistant tough grade for milling titanium.					●	
HK430*	Milling grade for cast iron.			●			
HP600*	Super tough substrate with PVD coating. Excellent for drilling steel and stainless steel.	●	◑	○	○	○	
HK356*	Stable cutting performance for drilling cast iron. Suitable for aluminum. Recommended for mild structural steel, difficult chip controlled steel.	◑	●	●	◑	◑	
HN300*	Drilling Grade for Aluminum				●		
UD2CBN	A Polycrystalline Cubic Boron Nitride (PCBN) Insert for cat iron, gray cast iron, chilled cast, and powder metal with long tool life. Coolant not recommended for use.			●			◑
UD5CBN	A Polycrystalline Cubic Boron Nitride (PCBN) Insert for precision finishing of hardened steels 50-65 rockwell. Coolant not recommended for use.			◑			●
UD2PCD	Polycrystalline Diamond with Carbide Reinforced Diamond, Sharpness and Low Cutting Pressure allowing tight tolerances. Finishing of all non-ferrous metals and non-metallics.				●		
UD25	Uncoated - Used to cut aluminum, brass, copper, nickel base alloys, titanium and non-ferrous materials.			○	○		
UD204	A PVD TiAlN coated fine grain substrate. Excellent for light to medium feeds on cast iron and semi-finishing to finishing of high temperature alloys. Excellent for high SFM.	◑		●		◑	
UD404	A PVD TiAlN coated tough general purpose grade. Well suited for milling alloy steels, stainless steel, high temperature alloy steels and hardened steels up to 60 Rc.	●	●	◑		●	
UD602	A CVD coating of Ti $A1_2O_3$ & TiN on a tough substrate. It is suitable for light to heavy milling of alloy steel and non alloy steel, even under unfavorable condition.	◑	◑			◑	

ULTRA-DEX®

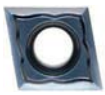
ZX3

CDGW Flat Top

CDHB Flat Top

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
913-000-133	CDGT 1.510.5-ZX3								•								
913-000-134										•							
913-000-132											•						
913-000-131												•					
913-000-135															•		
913-000-136																•	
913-000-139	CDGT 1.511-ZX3								•								
913-000-140										•							
913-000-138											•						
913-000-137												•					
913-000-141															•		
913-000-142																•	
913-000-145	CDGW 1.510								•								
913-000-146										•							
913-000-144											•						
913-000-143												•					
913-000-147															•		
913-000-148																•	
913-000-151	CDGW 1.510.5								•								
913-000-152										•							
913-000-150											•						
913-000-149												•					
913-000-153															•		
913-000-154																•	
913-000-157	CDGW 1.511								•								
913-000-158										•							
913-000-156											•						
913-000-155												•					
913-000-159															•		
913-000-160																•	
913-000-163	CDHB 1.20.60								•								
913-000-164										•							
913-000-162											•						
913-000-161												•					
913-000-165															•		
913-000-166																•	
913-000-169	CDHB 1.20.60.5								•								
913-000-170										•							
913-000-168											•						
913-000-167												•					
913-000-171															•		
913-000-172																•	

PACKAGE SIZE OF 10

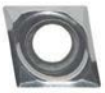

CM1

CN1

CX1

CX2

ZM1


ZN1

ZX3

ULTRA-DEX®

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-001	CCGT 21.50-CM1			●													
914-000-004	CCGT 32.50.5-CM1			●													
914-000-005	CCGT 32.50-CM1			●													
914-000-002	CCGT 21.50-CN1						●										
914-000-003	CCGT 21.51-CN1						●										
914-000-006	CCGT 32.51-CN1						●										
914-000-007	CCGT 32.52-CN1						●										
914-000-010	CCMT 21.51-CX1	●															
914-000-009					●												
914-000-011			●														
914-000-008								●									
914-000-013	CCMT 21.52-CX1		●														
914-000-012					●												
914-000-018	CCMT 32.51-CX1	●															
914-000-019			●														
914-000-017					●												
914-000-016								●									
914-000-022	CCMT 32.52-CX1	●															
914-000-023			●														
914-000-021					●												
914-000-020								●									
914-000-026	CCMT 431-CX1		●														
914-000-025					●												
914-000-024								●									
914-000-028	CCMT 432-CX1		●														
914-000-029					●												
914-000-027								●									
914-000-015	CCMT 32.50.5-CX2		●														
914-000-014					●												
913-000-076	CCMT 21.51-ZM1													●			
913-000-083	CCMT 32.50.5-ZM1													●			
913-000-087	CCMT 32.51-ZM1													●			
913-000-091	CCMT 32.52-ZM1													●			
913-000-095	CCMT 431-ZM1													●			
913-000-099	CCMT 432-ZM1													●			
913-000-072	CCGX 21.50.5-ZN1																●
913-000-073	CCGX 21.51-ZN1																●
913-000-074	CCGX 32.51-ZN1																●
913-000-075	CCGX 32.52-ZN1																●
913-000-078	CCMT 21.51-ZX3								●								
913-000-079										●							
913-000-077											●						
913-000-081	CCMT 21.52-ZX3								●								
913-000-082										●							
913-000-080											●						
913-000-085	CCMT 32.50.5-ZX3								●								
913-000-086										●							
913-000-084											●						
913-000-089	CCMT 32.51-ZX3								●								
913-000-090										●							
913-000-088											●						
913-000-093	CCMT 32.52-ZX3								●								
913-000-094										●							
913-000-092											●						
913-000-097	CCMT 431-ZX3								●								
913-000-098										●							
913-000-096											●						
913-000-101	CCMT 432-ZX3								●								
913-000-102										●							
913-000-100											●						

PACKAGE SIZE OF 10

ULTRA-DEX®

LX6

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
913-000-207	CPMT 1.81.20.5-LX6								•								
913-000-208										•							
913-000-206											•						
913-000-205												•					
913-000-209															•		
913-000-210																•	
913-000-213	CPMT 1.81.21-LX6								•								
913-000-214										•							
913-000-212											•						
913-000-211												•					
913-000-215															•		
913-000-216																•	
913-000-219	CPMT 21.50.5-LX6								•								
913-000-220										•							
913-000-218											•						
913-000-217												•					
913-000-221															•		
913-000-222																•	
913-000-225	CPMT 21.51-LX6								•								
913-000-226										•							
913-000-224											•						
913-000-223												•					
913-000-227															•		
913-000-228																•	
913-000-231	CPMT 21.52-LX6								•								
913-000-232										•							
913-000-230											•						
913-000-229												•					
913-000-233															•		
913-000-234																•	
913-000-237	CPMT 32.51-LX6								•								
913-000-238										•							
913-000-236											•						
913-000-235												•					
913-000-241	CPMT 32.52-LX6								•								
913-000-242										•							
913-000-240											•						
913-000-239												•					

PACKAGE SIZE OF 10

ULTRA-DEX®

CM1

CN1

CX1

CX2

LX6

ZM1

ZN1

ZX3

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-049	DCGT 21.50-CM1			•													
914-000-052	DCGT 32.50-CM1			•													
914-000-050	DCGT 21.50-CN1						•										
914-000-051	DCGT 21.51-CN1						•										
914-000-053	DCGT 32.51-CN1						•										
914-000-054	DCGT 32.52-CN1						•										
914-000-059	DCMT 21.51-CX1		•														
914-000-058					•												
914-000-057								•									
914-000-061	DCMT 21.52-CX1		•														
914-000-060					•												
914-000-066	DCMT 32.51-CX1	•															
914-000-067			•														
914-000-065					•												
914-000-064								•									
914-000-070	DCMT 32.52-CX1	•															
914-000-071			•														
914-000-069					•												
914-000-068								•									
914-000-056	DCMT 21.50.5-CX2		•														
914-000-055					•												
914-000-063	DCMT 32.50.5-CX2		•														
914-000-062					•												
913-000-258	DCMT 21.50.5-LX6								•								
913-000-259										•							
913-000-257											•						
913-000-260	DCMT 21.50.5-ZM1													•			
913-000-261	DCMT 21.51-ZM1													•			
913-000-265	DCMT 32.51-ZM1													•			
913-000-269	DCMT 32.52-ZM1													•			
913-000-253	DCGX 21.50.5-ZN1																•
913-000-254	DCGX 21.51-ZN1																•
913-000-255	DCGX 32.51-ZN1																•
913-000-256	DCGX 32.52-ZN1																•
913-000-263	DCMT 21.51-ZX3								•								
913-000-264										•							
913-000-262											•						
913-000-267	DCMT 32.51-ZX3								•								
913-000-268										•							
913-000-266											•						
913-000-271	DCMT 32.52-ZX3								•								
913-000-272										•							
913-000-270											•						
913-000-302	DPMT 32.51-LX6								•								
913-000-303										•							
913-000-300											•						
913-000-299												•					
913-000-301													•				
913-000-307	DPMT 32.52-LX6								•								
913-000-308										•							
913-000-305											•						
913-000-304												•					
913-000-306													•				

PACKAGE SIZE OF 10

ULTRA-DEX®

CN1

CX1

LX6

ZM1

ZN1

ZX3

SCMW Flat Top

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-130	SCGT 32.51-CN1						●										
914-000-133	SCMT 32.51-CX1		●														
914-000-132					●												
914-000-131								●									
914-000-136	SCMT 32.52-CX1		●														
914-000-135					●												
914-000-134								●									
914-000-138	SCMT 431-CX1		●														
914-000-137					●												
914-000-141	SCMT 432-CX1		●														
914-000-140					●												
914-000-139								●									
913-000-379	SCMT 21.51-LX6								●								
913-000-380										●							
913-000-377											●						
913-000-378													●				
913-000-381	SCMT 32.51-LX6												●				
913-000-385	SCMT 32.52-LX6												●				
913-000-382	SCMT 32.51-ZM1													●			
913-000-386	SCMT 32.52-ZM1													●			
913-000-374	SCGX 32.50.5-ZN1																●
913-000-375	SCGX 32.51-ZN1																●
913-000-376	SCGX 32.52-ZN1																●
913-000-383	SCMT 32.51-ZX3								●								
913-000-384										●							
913-000-387	SCMT 32.52-ZX3								●								
913-000-388										●							
913-000-389	SCMT 431-ZX3								●								
913-000-390										●							
913-000-391	SCMT 432-ZX3								●								
913-000-392										●							
913-000-396	SCMW 21.51								●								
913-000-397										●							
913-000-394											●						
913-000-393												●					
913-000-395													●				

PACKAGE SIZE OF 10

CX1

LX6

ZM1

ZN1

ZX3

ULTRA-DEX®

Product #	Designation	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-151	TCMT 21.51-CX1		•														
914-000-150					•												
914-000-149								•									
914-000-154	TCMT 21.52-CX1		•														
914-000-153					•												
914-000-152								•									
914-000-157	TCMT 32.51-CX1		•														
914-000-156					•												
914-000-155								•									
914-000-160	TCMT 32.52-CX1		•														
914-000-159					•												
914-000-158								•									
913-000-437	TCMT 1.21.20.5-LX6								•								
913-000-438										•							
913-000-436											•						
913-000-439	TCMT 21.51-ZM1													•			
913-000-446	TCMT 32.51-ZM1													•			
913-000-451	TCMT 32.52-ZM1													•			
913-000-431	TCGX 21.50.5-ZN1																•
913-000-432	TCGX 21.51-ZN1																•
913-000-433	TCGX 21.52-ZN1																•
913-000-434	TCGX 32.51-ZN1																•
913-000-435	TCGX 32.52-ZN1																•
913-000-441	TCMT 21.51-ZX3								•								
913-000-442										•							
913-000-440											•						
913-000-444	TCMT 21.52-ZX3								•								
913-000-445										•							
913-000-443											•						
913-000-449	TCMT 32.51-ZX3								•								
913-000-450										•							
913-000-447											•						
913-000-448													•				
913-000-454	TCMT 32.52-ZX3								•								
913-000-455										•							
913-000-452											•						
913-000-453													•				

PACKAGE SIZE OF 10

LX6

Product #	Designation	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
913-000-509	TPMT 21.51-LX6								•								
913-000-510										•							
913-000-508											•						
913-000-507												•					
913-000-513	TPMT 21.52-LX6								•								
913-000-514										•							
913-000-512											•						
913-000-511												•					
913-000-517	TPMT 32.51-LX6								•								
913-000-518										•							
913-000-516											•						
913-000-515												•					
913-000-521	TPMT 32.52-LX6								•								
913-000-522										•							
913-000-520											•						
913-000-519												•					

PACKAGE SIZE OF 10

ULTRA-DEX®

CP1

ZM1

ZX3

Product #	Designation	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-175	VBMT 331-CP1		•														
914-000-176	VBMT 332-CP1		•														
913-000-539	VBMT 331-ZM1													•			
913-000-542	VBMT 332-ZM1													•			
913-000-535	VBMT 21.50.5-ZX3								•								
913-000-536										•							
913-000-537	VBMT 21.51-ZX3								•								
913-000-538										•							
913-000-540	VBMT 331-ZX3								•								
913-000-541										•							
913-000-543	VBMT 332-ZX3								•								
913-000-544										•							

PACKAGE SIZE OF 10

CX1

LX6

ZX3

Product #	Designation	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-185	WCMT 21.51-CX1		•														
914-000-184					•												
914-000-187	WCMT 21.52-CX1		•														
914-000-186					•												
914-000-189	WCMT 32.51-CX1		•														
914-000-188					•												
914-000-191	WCMT 32.52-CX1		•														
914-000-190					•												
913-000-579	WCMT 21.51-LX6								•								
913-000-580										•							
913-000-578											•						
913-000-577												•					
913-000-583	WCMT 21.52-LX6								•								
913-000-584										•							
913-000-582											•						
913-000-581												•					
913-000-587	WCMT 32.51-LX6								•								
913-000-588										•							
913-000-586											•						
913-000-585												•					
913-000-591	WCMT 32.52-LX6								•								
913-000-592										•							
913-000-590											•						
913-000-589												•					
913-000-563	WCMT 1.210.5-ZX3								•								
913-000-564										•							
913-000-562											•						
913-000-561												•					
913-000-567	WCMT 1.211-ZX3								•								
913-000-568										•							
913-000-566											•						
913-000-565												•					
913-000-571	WCMT 1.51.50.5-ZX3								•								
913-000-572										•							
913-000-570											•						
913-000-569												•					
913-000-575	WCMT 1.51.51-ZX3								•								
913-000-576										•							
913-000-574											•						
913-000-573												•					

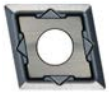
PACKAGE SIZE OF 10

ULTRA-DEX®

CM2

CM3

CP2


CS1

CX1

ZK1

ZM1

ZP1

CNMA Flat Top

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-036	CNMG 321-CM2				●												
914-000-037	CNMG 322-CM2				●												
914-000-038	CNMG 431-CM2				●												
914-000-042	CNMG 432-CM2				●												
914-000-030	CNGP 431-CM3			●													
914-000-031	CNGP 432-CM3			●													
914-000-047	CNMG 543-CP2		●														
914-000-048	CNMG 643-CP2		●														
914-000-039	CNMG 431-CS1					●											
914-000-040	CNMG 431-CX1	●															
914-000-041			●														
914-000-044	CNMG 432-CX1	●															
914-000-045			●														
914-000-043								●									
914-000-046	CNMG 433-CX1							●									
913-000-177	CNMG 321-ZK1										●						
913-000-181	CNMG 322-ZK1										●						
913-000-185	CNMG 431-ZK1										●						
913-000-189	CNMG 432-ZK1										●						
913-000-193	CNMG 542-ZK1										●						
913-000-196	CNMG 543-ZK1										●						
913-000-199	CNMG 642-ZK1										●						
913-000-202	CNMG 643-ZK1										●						
913-000-178	CNMG 321-ZM1													●			
913-000-182	CNMG 322-ZM1													●			
913-000-186	CNMG 431-ZM1													●			
913-000-190	CNMG 432-ZM1													●			
913-000-179	CNMG 321-ZP1								●								
913-000-180										●							
913-000-183	CNMG 322-ZP1								●								
913-000-184										●							
913-000-187	CNMG 431-ZP1								●								
913-000-188										●							
913-000-191	CNMG 432-ZP1								●								
913-000-192										●							
913-000-194	CNMG 542-ZP1								●								
913-000-195										●							
913-000-197	CNMG 543-ZP1								●								
913-000-198										●							
913-000-200	CNMG 642-ZP1								●								
913-000-201										●							
913-000-203	CNMG 643-ZP1								●								
913-000-204										●							
914-000-032	CNMA 432							●									
914-000-033	CNMA 433							●									
914-000-034	CNMA 543							●									
914-000-035	CNMA 643							●									

PACKAGE SIZE OF 10

ULTRA-DEX®

CM2

CM3

CX1

LX2

ZM1

ZP1

ZX2

DNMA Flat Top

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-075	DNMG 331-CM2				•												
914-000-077	DNMG 332-CM2				•												
914-000-079	DNMG 431-CM2				•												
914-000-081	DNMG 432-CM2				•												
914-000-072	DNGP 431-CM3			•													
914-000-076	DNMG 331-CX1		•														
914-000-078	DNMG 332-CX1		•														
914-000-080	DNMG 431-CX1		•														
914-000-082	DNMG 432-CX1		•														
913-000-294	DNMG 542-LX2								•								
913-000-295										•							
913-000-293											•						
913-000-297	DNMG 543-LX2								•								
913-000-298										•							
913-000-296											•						
913-000-277	DNMG 331-ZM1													•			
913-000-281	DNMG 332-ZM1													•			
913-000-285	DNMG 431-ZM1													•			
913-000-289	DNMG 432-ZM1													•			
913-000-278	DNMG 331-ZP1								•								
913-000-279										•							
913-000-282	DNMG 332-ZP1								•								
913-000-283										•							
913-000-286	DNMG 431-ZP1								•								
913-000-287										•							
913-000-290	DNMG 432-ZP1								•								
913-000-291										•							
913-000-280	DNMG 331-ZX2										•						
913-000-284	DNMG 332-ZX2										•						
913-000-288	DNMG 431-ZX2										•						
913-000-292	DNMG 432-ZX2										•						
914-000-073	DNMA 431							•									
914-000-074	DNMA 432							•									

PACKAGE SIZE OF 10

LX2

RNMA Flat Top

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
913-000-363	RNMG 32-LX2								•								
913-000-364										•							
913-000-362											•						
913-000-366	RNMG 43-LX2								•								
913-000-367										•							
913-000-365											•						
913-000-369	RNMG 54-LX2								•								
913-000-370										•							
913-000-368											•						
913-000-372	RNMG 64-LX2								•								
913-000-373										•							
913-000-371											•						
914-000-129	RNMA 43							•									

PACKAGE SIZE OF 10

CP2

CS1

CX1

ZK1

ZM1

ZP1

ZX2

SNMA Flat Top

ULTRA-DEX®

Product #	Designation	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-147	SNMG 543-CP2		•														
914-000-148	SNMG 643-CP2		•														
914-000-144	SNMG 432-CS1					•											
914-000-146	SNMG 432-CX1		•														
914-000-145								•									
913-000-411	SNMG 643-ZK1										•						
913-000-414	SNMG 644-ZK1										•						
913-000-398	SNMG 431-ZM1													•			
913-000-402	SNMG 432-ZM1													•			
913-000-399	SNMG 431-ZP1								•								
913-000-400										•							
913-000-403	SNMG 432-ZP1								•								
913-000-404										•							
913-000-406	SNMG 542-ZP1								•								
913-000-407										•							
913-000-408	SNMG 543-ZP1								•								
913-000-409										•							
913-000-412	SNMG 643-ZP1								•								
913-000-413										•							
913-000-415	SNMG 644-ZP1								•								
913-000-416										•							
913-000-401	SNMG 431-ZX2										•						
913-000-405	SNMG 432-ZX2										•						
913-000-410	SNMG 543-ZX2										•						
914-000-142	SNMA 432							•									
914-000-143	SNMA 543							•									

PACKAGE SIZE OF 10

CM2

CS1

CX1

LX2

ZM1

ZP1

ZX2

TNMA Flat Top

Product #	Designation	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-164	TNMG 331-CM2				•												
914-000-167	TNMG 332-CM2				•												
914-000-168	TNMG 332-CS1					•											
914-000-165	TNMG 331-CX1	•															
914-000-166			•														
914-000-170	TNMG 332-CX1	•															
914-000-171			•														
914-000-169								•									
914-000-172	TNMG 431-CX1		•														
914-000-174	TNMG 432-CX1		•														
914-000-173								•									
913-000-490	TNMG 542-LX2								•								
913-000-491										•							
913-000-489											•						
913-000-493	TNMG 543-LX2								•								
913-000-494										•							
913-000-492											•						
913-000-473	TNMG 331-ZM1											•					
913-000-477	TNMG 332-ZM1											•					
913-000-481	TNMG 431-ZM1											•					
913-000-485	TNMG 432-ZM1											•					
913-000-474	TNMG 331-ZP1								•								
913-000-475										•							
913-000-478	TNMG 332-ZP1								•								
913-000-479										•							
913-000-482	TNMG 431-ZP1								•								
913-000-483										•							
913-000-486	TNMG 432-ZP1								•								
913-000-487										•							
913-000-476	TNMG 331-ZX2										•						
913-000-480	TNMG 332-ZX2										•						
913-000-484	TNMG 431-ZX2										•						
913-000-488	TNMG 432-ZX2										•						
914-000-161	TNMA 332							•									
914-000-162	TNMA 432							•									
914-000-163	TNMA 543							•									

PACKAGE SIZE OF 10

ULTRA-DEX®

CM2

CS1

CX1

LX3

ZM1

ZX2

VNMA Flat Top

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-180	VNMG 332-CM2				•												
914-000-181	VNMG 332-CS1					•											
914-000-178	VNMG 331-CX1	•															
914-000-179			•														
914-000-182	VNMG 332-CX1	•															
914-000-183			•														
913-000-559	VNMG 432-LX3								•								
913-000-560										•							
913-000-558											•						
913-000-557												•					
913-000-549	VNMG 331-ZM1													•			
913-000-553	VNMG 332-ZM1													•			
913-000-551	VNMG 331-ZX2								•								
913-000-552										•							
913-000-550											•						
913-000-555	VNMG 332-ZX2								•								
913-000-556										•							
913-000-554											•						
914-000-177	VNMA 332							•									

PACKAGE SIZE OF 10

CM2

CS1

CX1

ZM1

ZP1

ZX2

WNMA Flat Top

		Grade															
Product #	Designation	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-199	WNMG 432-CM2				•												
914-000-200	WNMG 432-CS1					•											
914-000-193	WNMG 331-CX1	•															
914-000-194			•														
914-000-195	WNMG 332-CX1	•															
914-000-196			•														
914-000-197	WNMG 431-CX1	•															
914-000-198			•														
914-000-202	WNMG 432-CX1	•															
914-000-203			•														
914-000-201								•									
914-000-204	WNMG 433-CX1							•									
913-000-618	WNMG 331-ZM1													•			
913-000-622	WNMG 332-ZM1													•			
913-000-626	WNMG 431-ZM1													•			
913-000-631	WNMG 432-ZM1													•			
913-000-619	WNMG 331-ZP1								•								
913-000-620										•							
913-000-623	WNMG 332-ZP1								•								
913-000-624										•							
913-000-627	WNMG 431-ZP1								•								
913-000-628										•							
913-000-632	WNMG 432-ZP1								•								
913-000-633										•							
913-000-621	WNMG 331-ZX2										•						
913-000-625	WNMG 332-ZX2										•						
913-000-629	WNMG 431-ZX2										•						
913-000-634	WNMG 432-ZX2										•						
914-000-192	WNMA 432							•									

PACKAGE SIZE OF 10

ULTRA-DEX®

Product #	Designation	UD5CBN	UD2CBN	UD2PCD
913-000-062	CCGW 21.51-1	•		
913-000-060			•	
913-000-061				•
913-000-065	CCGW 21.52-1	•		
913-000-063			•	
913-000-064				•
913-000-068	CCGW 32.51-2	•		
913-000-066			•	
913-000-067				•
913-000-071	CCGW 32.52-2	•		
913-000-069			•	
913-000-070				•
913-000-174	CNGA 431-2	•		
913-000-173			•	
913-000-176	CNGA 432-2	•		
913-000-175			•	
913-000-248	DCGW 21.51-1	•		
913-000-246			•	
913-000-247				•
913-000-250	DCGW 32.51-2	•		
913-000-249			•	
913-000-252	DCGW 32.52-2	•		
913-000-251			•	
913-000-274	DNGA 431-2	•		
913-000-273			•	
913-000-276	DNGA 432-2	•		
913-000-275			•	

PACKAGE SIZE OF 1

SP1

Flat Top

SX1

Product #	Designation	UD51	UD25
913-000-460	TDHB 1.280.750.1	•	
913-000-459			•
913-000-462	TDHB 1.280.750.5	•	
913-000-461			•
913-000-464	TDHB 1.280.751	•	
913-000-463			•
913-000-495	TPCB 220.5	•	
913-000-496			•
913-000-498	TPCB 221	•	
913-000-497			•
913-000-500	TPCB 222	•	
913-000-499			•
913-000-501	TPCH 220.5-SP1	•	
913-000-502	TPCH 221-SP1	•	
913-000-456	TD 320.5	•	
913-000-457	TD 321	•	
913-000-458	TD 322	•	
913-000-504	TPGH 321-SX1	•	
913-000-503			•
913-000-506	TPGH 322-SX1	•	
913-000-505			•

PACKAGE SIZE OF 10

TCGW

TNGA

VBGW

VNGA

Product #	Designation	UD5CBN	UD2CBN	UD2PCD
913-000-420	TCGW 21.51-1		•	
913-000-421				•
913-000-424	TCGW 21.52-1	•		
913-000-422			•	
913-000-423				•
913-000-427	TCGW 32.51-1	•		
913-000-425			•	
913-000-426				•
913-000-430	TCGW 32.52-1	•		
913-000-428			•	
913-000-429				•
913-000-466	TNGA 331-1	•		
913-000-465			•	
913-000-468	TNGA 332-1	•		
913-000-467			•	
913-000-531	VBGW 21.51-1			•
913-000-532	VBGW 21.52-1			•
913-000-533	VBGW 331-1			•
913-000-534	VBGW 332-1			•
913-000-546	VNGA 331-2	•		
913-000-545			•	
913-000-548	VNGA 332-2	•		
913-000-547			•	

PACKAGE SIZE OF 1

SP2

Product #	Designation	Grade
913-000-637	WPGT 1.510-SP2	UD51
913-000-636	WPGT 1.510.5-SP2	
913-000-638	WPGT 1.511-SP2	
913-000-640	WPGT 21.50-SP2	
913-000-639	WPGT 21.50.5-SP2	
913-000-641	WPGT 21.51-SP2	
913-000-642	WPMT 32.51-SP2	
913-000-643	WPMT 32.52-SP2	

PACKAGE SIZE OF 10

ULTRA-DEX®

CCGT

DCGT

Product #	Designation	Grade
913-000-056	CCGT 21.51-CB-1 *	UD2PCD
913-000-057	CCGT 21.52-CB-1 *	
913-000-058	CCGT 32.51-CB-1 *	
913-000-059	CCGT 32.52-CB-1 *	
913-000-243	DCGT 21.51-CB-1 *	
913-000-244	DCGT 32.51-CB-1 *	
913-000-245	DCGT 32.52-CB-1 *	

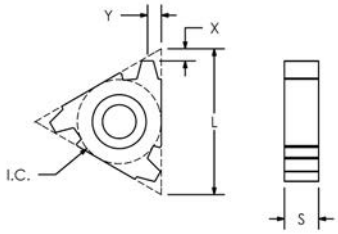
PACKAGE SIZE OF 1

Product #	Designation	Grade
913-000-529	VBGT 331-CB-1 *	UD2PCD
913-000-530	VBGT 332-CB-1 *	

PACKAGE SIZE OF 1

Product #	Designation	Grade
913-000-417	TCGT 21.51-CB-1 *	UD2PCD
913-000-418	TCGT 32.51-CB-1 *	
913-000-419	TCGT 32.52-CB-1 *	

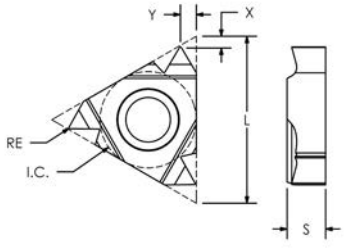
PACKAGE SIZE OF 1



AMERICAN ACME

Product #	Designation Right Hand	Product #	Designation Left Hand	I.C. [in.]	L [in.]	S [in.]	Pitch [tpi]	X [in.]	Y [in.]	Anvil Right	Anvil Left	Grade
913-000-020	3IR16ACME	913-000-008	3IL16ACME	0.375	0.630	0.156	16	0.040	0.040	YI3	YE3	UD51
913-000-019	3IR14ACME	913-000-007	3IL14ACME	0.375	0.630	0.156	14	0.040	0.050	YI3	YE3	
913-000-018	3IR12ACME	913-000-006	3IL12ACME	0.375	0.630	0.156	12	0.050	0.050	YI3	YE3	
913-000-017	3IR10ACME	913-000-005	3IL10ACME	0.375	0.630	0.156	10	0.050	0.050	YI3	YE3	
913-000-021	3IR8ACME	913-000-009	3IL8ACME	0.375	0.630	0.156	8	0.060	0.060	YI3	YE3	

PACKAGE SIZE OF 10

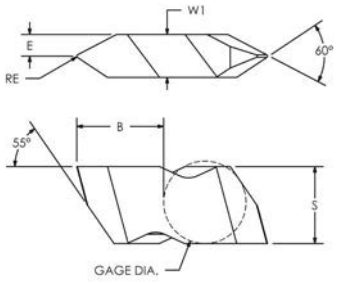


PARTIAL PROFILE 60°

Product #	Designation Right Hand	Product #	Designation Left Hand	I.C. [in.]	L [in.]	S [in.]	Pitch [mm]	Pitch [tpi]	RE [in.]	X [in.]	Y [in.]	Anvil Right	Anvil Left	Grade
913-000-004	2JIRA60	913-000-002	2JILA60	0.250	0.630	0.125	0.7-1.50	36-18	0.004	0.040	0.045	YI3	YE3	UD51
913-000-003	2JIR12UN	913-000-001	2JIL12UN	0.250	0.630	0.125	1.0-2.00	28-12	0.004	0.030	0.035	YI3	YE3	
913-000-022	3IRA60	913-000-010	3ILA60	0.375	0.630	0.156	0.05-1.50	48-16	0.002	0.030	0.040	YI3	YE3	
913-000-023	3IRG60	913-000-011	3ILG60	0.375	0.630	0.156	1.75-3.00	14-8	0.006	0.050	0.070	YI3	YE3	
913-000-024	3IRAG60	913-000-012	3ILAG60	0.375	0.630	0.156	0.05-3.00	48-8	0.002	0.050	0.070	YI3	YE3	
913-000-025	3JIRA60	N/A	N/A	0.375 SCB	0.630	0.156	0.05-1.50	48-16	0.002	0.020	0.030	YI3	N/A	
913-000-026	3JIRG60	N/A	N/A	0.375 SCB	0.630	0.156	1.75-3.00	14-8	0.006	0.040	0.060	YI3	N/A	
913-000-027	3JIRAG60	N/A	N/A	0.375 SCB	0.630	0.156	0.05-3.00	48-8	0.002	0.040	0.060	YI3	N/A	

PACKAGE SIZE OF 10

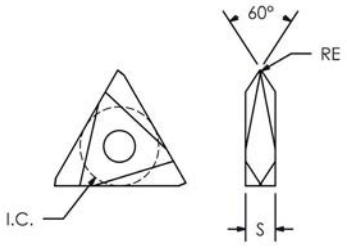
ULTRA-DEX®



NOTCH STYLE THREADING

Product #	Designation Right Hand	Product #	Designation Left Hand	S [in.]	W1 [in.]	E [in.]	RE [in.]	Ext. TPI	Int. TPI	B [in.]	Gage Dia. [in.]	Grade
913-000-332	NTP-2R	913-000-331	NTP-2L	0.219	0.150	0.075	0.0040	8-36	1-20	0.266	0.187	UD51
913-000-334	NTP-3R	913-000-333	NTP-3L	0.344	0.195	0.098	0.0065	6-20	5-12	0.400	0.375	
913-000-336	NTP-4R	913-000-335	NTP-4L	0.453	0.255	0.128	0.0065	4-20	4-12	0.629	0.375	

PACKAGE SIZE OF 1

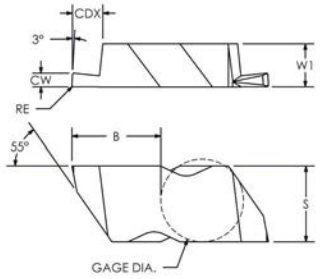


ON EDGE

Product #	Designation Right Hand	I.C. [in.]	S [in.]	RE [in.]	TPI	Grade
913-000-469	TNMA-43NV	0.500	0.187	0.006	5-24	UD51
913-000-470	TNMA-43NV .010	0.500	0.187	0.010	4-20	
913-000-471	TNMC-43NV	0.500	0.187	0.006	5-24	
913-000-472	TNMC-43NV .010	0.500	0.187	0.010	4-20	

PACKAGE SIZE OF 1

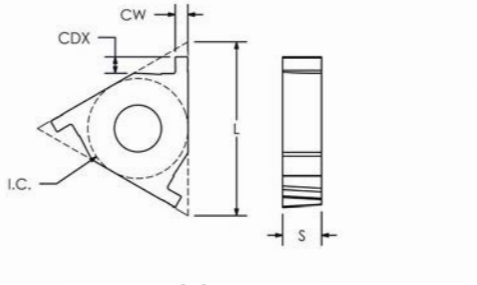
ULTRA-DEX®



NOTCH STYLE GROOVING

Product #	Designation Right Hand	Product #	Designation Left Hand	S [in.]	B [in.]	CDX [in.]	RE [in.]	W1 [in.]	CW [in.]	Gage Dia. [in.]	Grade
913-000-312	NG-2R W.031	913-000-309	NG-2L W.031	0.219	0.270	0.050	0.0035	0.150	0.031	0.187	UD51
913-000-313	NG-2R W.062	913-000-310	NG-2L W.062	0.219	0.270	0.110	0.0075	0.150	0.062	0.187	
913-000-314	NG-2R W.094	913-000-311	NG-2L W.094	0.219	0.270	0.110	0.0075	0.150	0.094	0.187	
913-000-318	NG-3R W.062	913-000-315	NG-3L W.062	0.344	0.405	0.120	0.0075	0.195	0.062	0.375	
913-000-319	NG-3R W.094	913-000-316	NG-3L W.094	0.344	0.405	0.180	0.0075	0.195	0.094	0.375	
913-000-320	NG-3R W.125	913-000-317	NG-3L W.125	0.344	0.405	0.180	0.0075	0.195	0.125	0.375	
913-000-324	NG-4R W.125	913-000-321	NG-4L W.125	0.453	0.636	0.250	0.0225	0.255	0.125	0.375	
913-000-325	NG-4R W.189	913-000-322	NG-4L W.189	0.453	0.636	0.250	0.0225	0.255	0.189	0.375	
913-000-326	NG-4R W.250	913-000-323	NG-4L W.250	0.453	0.636	0.250	0.0225	0.255	0.250	0.375	
913-000-327	NG-6R W.281	913-000-329	NG-6L W.281	0.453	0.636	0.250	0.0325	0.383	0.281	0.375	
913-000-328	NG-6R W.375	913-000-330	NG-6L W.375	0.453	0.636	0.250	0.0325	0.383	0.375	0.375	

PACKAGE SIZE OF 1

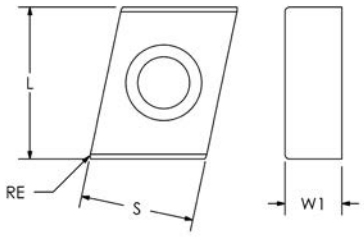


GROOVING

Product #	Designation Right Hand	I.C. [in.]	S [in.]	CW [in.]	CDX [in.]	Anvil Right	Grade
913-000-013	3IR NG W.031	0.375	0.156	0.031	0.050	YI3M-1.5N	UD51
913-000-014	3IR NG W.047	0.375	0.156	0.047	0.070	YI3M-1.5N	
913-000-015	3IR NG W.062	0.375	0.156	0.062	0.080	YI3M-1.5N	
913-000-016	3IR NG W.093	0.375	0.156	0.093	0.070	YI3	

PACKAGE SIZE OF 10

ULTRA-DEX®



Product #	Designation Right Hand	Product #	Designation Left Hand	L [in.]	RE [in.]	S [in.]	W [in.]	UD501	UD502	UD201	UD202	UD207	UD101
913-000-111	CDE-323R02	913-000-103	CDE-323L02	0.500	0.015	0.375	0.1875				•		
913-000-112		913-000-104		0.500	0.015	0.375	0.1875					•	
913-000-113	CDE-323R05	913-000-105	CDE-323L05	0.500	0.031	0.375	0.1875						•
913-000-114		913-000-106		0.500	0.031	0.375	0.1875			•			
913-000-115		913-000-107		0.500	0.031	0.375	0.1875				•		
913-000-116		913-000-108		0.500	0.031	0.375	0.1875					•	
913-000-117		913-000-109		0.500	0.031	0.375	0.1875	•					
913-000-118		913-000-110		0.500	0.031	0.375	0.1875		•				
913-000-124	CDE-8X3R05	913-000-119	CDE-8X3L05	0.875	0.031	0.375	0.230						•
913-000-127		913-000-120		0.875	0.031	0.375	0.230				•		
913-000-128		913-000-121		0.875	0.031	0.375	0.230					•	
913-000-129		913-000-122		0.875	0.031	0.375	0.230	•					
913-000-130		913-000-123		0.875	0.031	0.375	0.230		•				

○ Good
◑ Better
● Best

Grade	Description	Steel P	Stainless Steel M	Cast Iron K	Ferrite Materials N	Heat-Resistant S	Steel Hardened Metal H
UD501	TiN Coated Steel Milling Grade	●	○	○		◑	
UD502	TiAlN Coated Steel Milling Grade	●	○			●	
UD201	TiN Coated Cast Iron Grade		○	●			
UD202	TiALN Coated Cast Iron Grade.		○	●			
UD207	Supreme AlTiN Based Coated For High Wear Resistance		○	●		○	
UD101	Coated Milling Insert for machining Aluminum. Excellent when machining all non-Ferrous Material.				●		

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ARCH®
Cutting Tools

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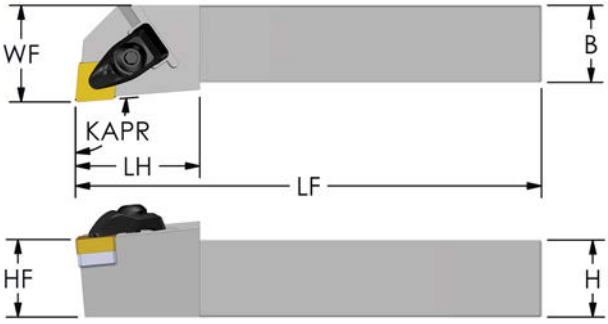
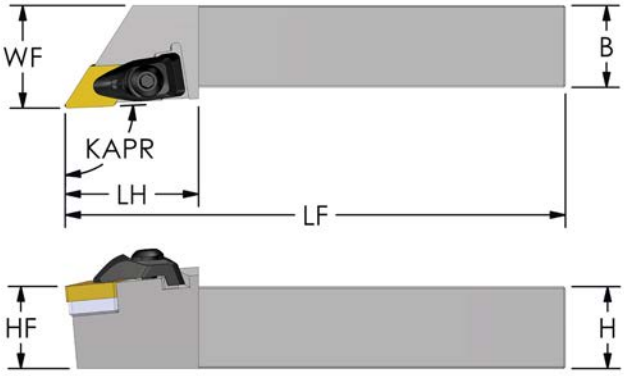


PG.508

NEGATIVE 80° DIAMOND (KAPR: 95°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy
974-000-001	974-000-004	DCLNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
974-000-002	974-000-005	DCLNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
974-000-003	974-000-006	DCLNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA



PG.508

NEGATIVE 55° DIAMOND (KAPR: 93°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy
974-000-007	974-000-010	DDJNR/L 12-4B	0.750	0.750	4.500	1.770	1.000	0.750	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
974-000-008	974-000-011	DDJNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
974-000-009	974-000-012	DDJNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA

Product #	Shim Seat
968-000-053	ICSN-433
968-000-057	IDSN-433

PACKAGE SIZE OF 10

Product #	Shim Screw
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-110	PB4-CA

PACKAGE SIZE OF 1

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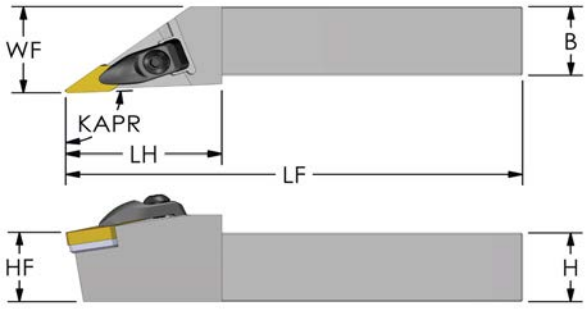
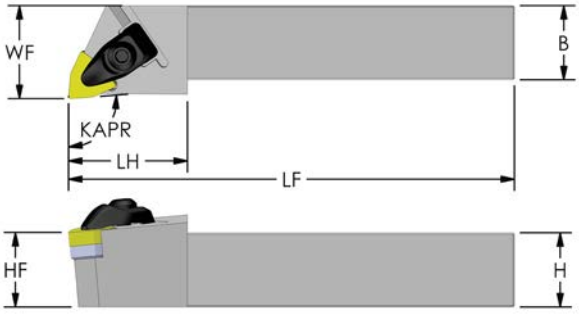


PG.508

NEGATIVE 35° DIAMOND (KAPR: 93°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy
974-000-013	974-000-016	DVJNR/L 12-3B	0.750	0.750	4.500	1.770	1.000	0.750	93.0	VNMG 332	IVSN-322	PB3-SS	PB3L-CA
974-000-014	974-000-017	DVJNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	VNMG 332	IVSN-322	PB3-SS	PB3L-CA
974-000-015	974-000-018	DVJNR/L 20-3D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	VNMG 332	IVSN-322	PB3-SS	PB3L-CA



PG.508

NEGATIVE TRIGON (KAPR: 95°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy
974-000-019	974-000-022	DWLNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA
974-000-020	974-000-023	DWLNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA
974-000-021	974-000-024	DWLNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA

Product #	Shim Seat
968-000-071	IVSN-322
968-000-075	IWSN-433

PACKAGE SIZE OF 10

Product #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-108	PB3L-CA
968-000-110	PB4-CA

PACKAGE SIZE OF 1

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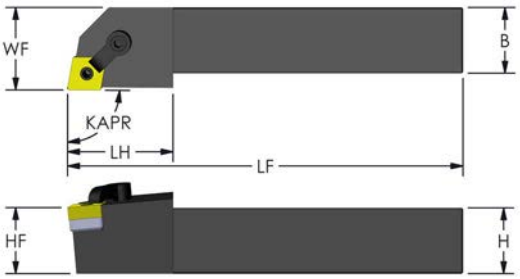
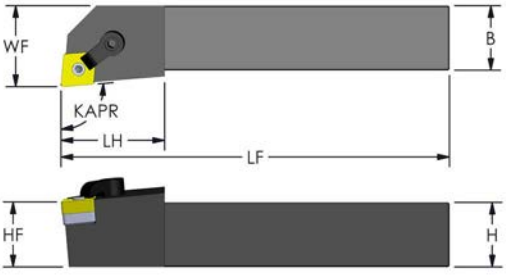


PG.506

NEGATIVE 80° DIAMOND (KAPR: 90°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-029	974-000-038	MCGNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	90.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-030	974-000-039	MCGNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-032	974-000-041	MCGNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-035	974-000-044	MCGNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-031	974-000-040	MCGNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-033	974-000-042	MCGNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-036	974-000-045	MCGNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-034	974-000-043	MCGNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-037	974-000-046	MCGNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510



PG.506

NEGATIVE 80° DIAMOND (KAPR: 95°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-065	974-000-075	MCLNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-066	974-000-076	MCLNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-069	974-000-079	MCLNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	95.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-067	974-000-077	MCLNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-070	974-000-080	MCLNR/L 20-5D	1.250	1.250	6.000	1.600	1.570	1.250	95.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-072	974-000-082	MCLNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	95.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-068	974-000-078	MCLNR/L 16-6D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-071	974-000-081	MCLNR/L 20-6D	1.250	1.250	6.000	1.600	1.570	1.250	95.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-073	974-000-083	MCLNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	95.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-074	974-000-084	MCLNR/L 24-6E	1.500	1.500	7.000	1.600	2.000	1.500	95.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510

Product #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-102	NL-46
968-000-104	NL-58
968-000-105	NL-68

PACKAGE SIZE OF 5

Product #	Clamp
968-000-010	CL-12
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

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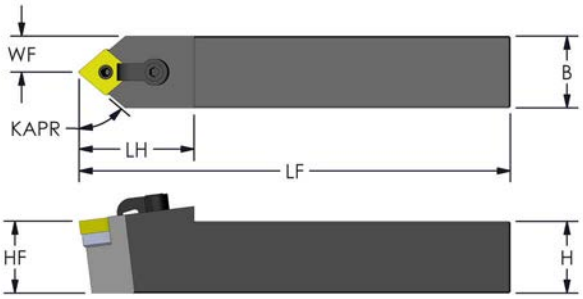
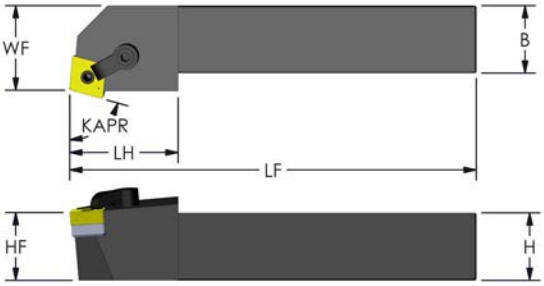


PG.506

NEGATIVE 80° DIAMOND (KAPR: 50°)

Product #	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-085	MCMNN 12-4B	0.750	0.750	4.500	1.300	0.3750	0.750	50.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-086	MCMNN 16-4D	1.000	1.000	6.000	1.600	0.5000	1.000	50.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-088	MCMNN 20-4D	1.250	1.250	6.000	1.600	0.6250	1.250	50.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-087	MCMNN 16-5D	1.000	1.000	6.000	1.600	0.5000	1.000	50.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-089	MCMNN 20-5D	1.250	1.250	6.000	1.600	0.6250	1.250	50.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-090	MCMNN 24-5D	1.500	1.500	6.000	1.600	0.7500	1.500	50.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-091	MCMNN 24-6D	1.500	1.500	6.000	2.050	0.7500	1.500	50.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-092	MCMNN 24-6E	1.500	1.500	7.000	2.050	0.7500	1.500	50.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510



PG.506

NEGATIVE 80° DIAMOND (KAPR: 75°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-093	974-000-103	MCRNR/L 12-4B	0.750	0.750	4.500	1.300	0.750	0.750	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-094	974-000-104	MCRNR/L 16-4C	1.000	1.000	5.000	1.600	1.250	1.000	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-095	974-000-105	MCRNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-098	974-000-108	MCRNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-101	974-000-111	MCRNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-096	974-000-106	MCRNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-099	974-000-109	MCRNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-097	974-000-107	MCRNR/L 16-6D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-100	974-000-110	MCRNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-102	974-000-112	MCRNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510

Product #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-102	NL-46
968-000-104	NL-58
968-000-105	NL-68

PACKAGE SIZE OF 5

Product #	Clamp
968-000-010	CL-12
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

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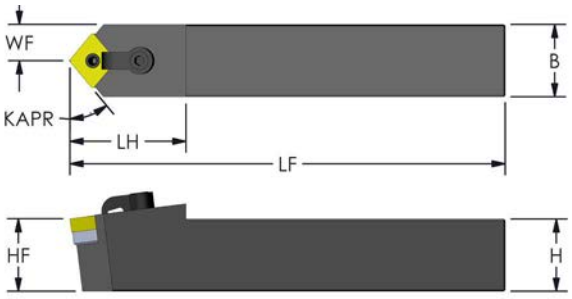
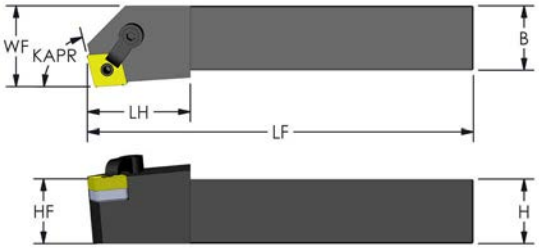


PG.506

NEGATIVE 80° DIAMOND (KAPR: 40°)

Product #	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-113	MCYNN 12-4B	0.750	0.750	4.500	1.300	0.375	0.750	40.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-114	MCYNN 16-4D	1.000	1.000	6.000	1.600	0.500	1.000	40.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-117	MCYNN 20-4D	1.250	1.250	6.000	1.600	0.625	1.250	40.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-115	MCYNN 16-5D	1.000	1.000	6.000	1.600	0.500	1.000	40.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-118	MCYNN 20-5D	1.250	1.250	6.000	1.600	0.625	1.250	40.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-116	MCYNN 16-6D	1.000	1.000	6.000	2.050	0.500	1.000	40.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-119	MCYNN 20-6D	1.250	1.250	6.000	2.050	0.625	1.250	40.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-120	MCYNN 24-6D	1.500	1.500	6.000	2.050	0.750	1.500	40.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510



PG.506

NEGATIVE 80° DIAMOND (KAPR: 75°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-047	974-000-056	MCKNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-048	974-000-057	MCKNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-051	974-000-060	MCKNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-049	974-000-058	MCKNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 543	ICSN-533	NL-58	CL-9	XNS-510
974-000-052	974-000-061	MCKNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 543	ICSN-533	NL-58	CL-9	XNS-510
974-000-050	974-000-059	MCKNR/L 16-6D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-053	974-000-062	MCKNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-054	974-000-063	MCKNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-055	974-000-064	MCKNR/L 24-6E	1.500	1.500	7.000	1.600	2.000	1.500	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510

Product #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-102	NL-46
968-000-104	NL-58
968-000-105	NL-68

PACKAGE SIZE OF 5

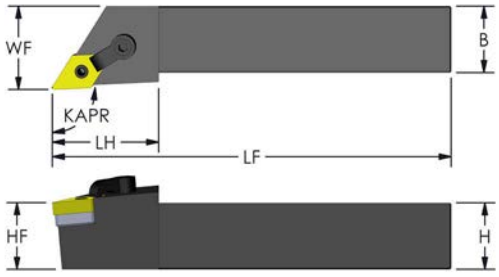
Product #	Clamp
968-000-020	CL-9
968-000-010	CL-12
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

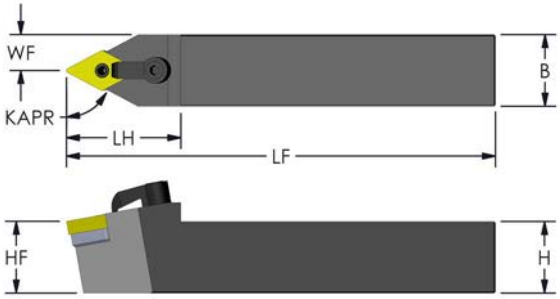
ULTRA-DEX®



PG.506

NEGATIVE 55° DIAMOND (KAPR: 93°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-121	974-000-128	MDJNR/L 12-4B	0.750	0.750	4.500	1.770	1.000	0.750	93.0	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-122	974-000-129	MDJNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-124	974-000-131	MDJNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-126	974-000-133	MDJNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	93.0	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-123	974-000-130	MDJNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-125	974-000-132	MDJNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-127	974-000-134	MDJNR/L 24-5D	1.500	1.500	6.000	2.050	2.000	1.500	93.0	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510



PG.506

NEGATIVE 55° DIAMOND (KAPR: 62.5°)

Product #	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-135	MDPNN 12-4B	0.750	0.750	4.500	1.770	0.3750	0.750	62.5	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-136	MDPNN 16-4D	1.000	1.000	6.000	1.600	0.5000	1.000	62.5	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-138	MDPNN 20-4D	1.250	1.250	6.000	1.600	0.6250	1.250	62.5	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-137	MDPNN 16-5D	1.000	1.000	6.000	2.050	0.5000	1.000	62.5	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-139	MDPNN 20-5D	1.250	1.250	6.000	2.050	0.6250	1.250	62.5	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-140	MDPNN 24-5D	1.500	1.500	6.000	2.050	0.7500	1.500	62.5	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-141	MDPNN 24-5E	1.500	1.500	7.000	2.050	0.7500	1.500	62.5	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510

Product #	Shim Seat
968-000-057	IDSN-433
968-000-058	IDSN-533

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-102	NL-46
968-000-104	NL-58

PACKAGE SIZE OF 5

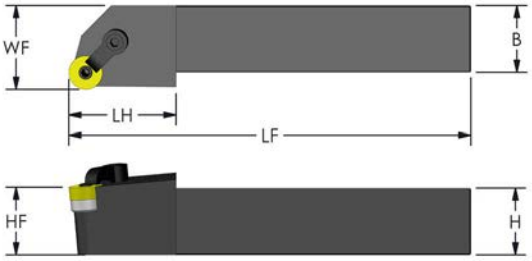
Product #	Clamp
968-000-010	CL-12
968-000-014	CL-22

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

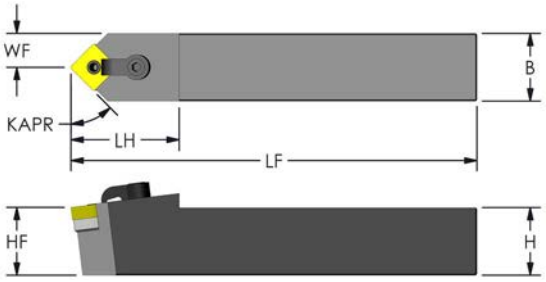
ULTRA-DEX®



PG.506

NEGATIVE ROUND (0° LEAD)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-142	974-000-151	MRGNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	RNMG 32	IRSN-32	NL-34	CL-6	XNS-36
974-000-143	974-000-152	MRGNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	RNMG 43	IRSN-43	NL-46	CL-20	XNS-48
974-000-144	974-000-153	MRGNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	RNMG 43	IRSN-43	NL-46	CL-20	XNS-48
974-000-147	974-000-156	MRGNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	RNMG 43	IRSN-43	NL-46	CL-20	XNS-48
974-000-145	974-000-154	MRGNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	RNMG 54	IRSN-53	NL-58	CL-12	XNS-510
974-000-148	974-000-157	MRGNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	RNMG 54	IRSN-53	NL-58	CL-12	XNS-510
974-000-146	974-000-155	MRGNR/L 16-6D	1.000	1.000	6.000	1.600	1.250	1.000	RNMG 64	IRSN-63	NL-68	CL-12	XNS-510
974-000-149	974-000-158	MRGNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	RNMG 64	IRSN-63	NL-68	CL-12	XNS-510
974-000-150	974-000-159	MRGNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	RNMG 64	IRSN-63	NL-68	CL-12	XNS-510



PG.506

NEGATIVE SQUARE (KAPR: 45°)

Product #	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-160	MSDNN 12-4B	0.750	0.750	4.500	1.300	0.3750	0.750	45.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-161	MSDNN 16-4D	1.000	1.000	6.000	1.600	0.5000	1.000	45.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-162	MSDNN 16-5D	1.000	1.000	6.000	1.600	0.5000	1.000	45.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-164	MSDNN 20-5D	1.250	1.250	6.000	1.600	0.6250	1.250	45.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-163	MSDNN 16-6D	1.000	1.000	6.000	1.600	0.5000	1.000	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-165	MSDNN 20-6D	1.250	1.250	6.000	1.600	0.6250	1.250	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-166	MSDNN 24-6D	1.500	1.500	6.000	1.600	0.7500	1.500	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510

Product #	Shim Seat
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-102	NL-46
968-000-104	NL-58
968-000-105	NL-68

PACKAGE SIZE OF 5

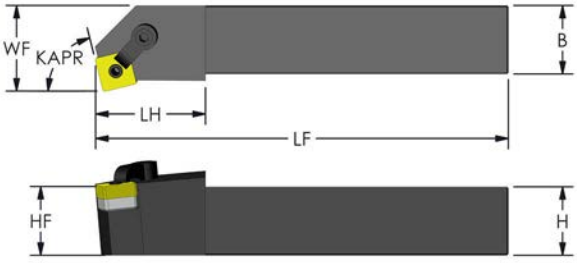
Product #	Clamp
968-000-016	CL-6
968-000-010	CL-12
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

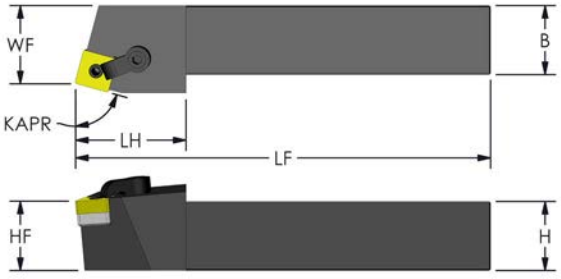
ULTRA-DEX®



PG.506

NEGATIVE SQUARE (KAPR: 75°) END CUTTING

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-167	974-000-173	MSKNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-168	974-000-174	MSKNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-169	974-000-175	MSKNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-170	974-000-176	MSKNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-171	974-000-177	MSKNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-172	974-000-178	MSKNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510



PG.506

NEGATIVE SQUARE (KAPR: 75°) SIDE CUTTING

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-179	974-000-187	MSRNR/L 12-4B	0.750	0.750	4.500	1.300	0.880	0.750	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-180	974-000-188	MSRNR/L 16-4D	1.000	1.000	6.000	1.600	1.130	1.000	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-183	974-000-191	MSRNR/L 20-4D	1.250	1.250	6.000	1.600	1.380	1.250	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-181	974-000-189	MSRNR/L 16-5D	1.000	1.000	6.000	1.600	1.103	1.000	75.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-184	974-000-192	MSRNR/L 20-5D	1.250	1.250	6.000	1.600	1.353	1.250	75.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-182	974-000-190	MSRNR/L 16-6D	1.000	1.000	6.000	1.600	1.071	1.000	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-185	974-000-193	MSRNR/L 20-6D	1.250	1.250	6.000	1.600	1.315	1.250	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-186	974-000-194	MSRNR/L 24-6D	1.500	1.500	6.000	1.600	1.821	1.500	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510

Product #	Shim Seat
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-102	NL-46
968-000-104	NL-58
968-000-105	NL-68

PACKAGE SIZE OF 5

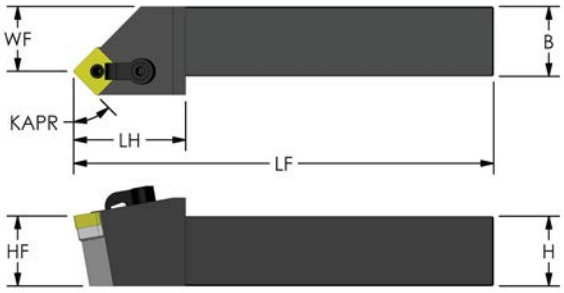
Product #	Clamp
968-000-010	CL-12
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

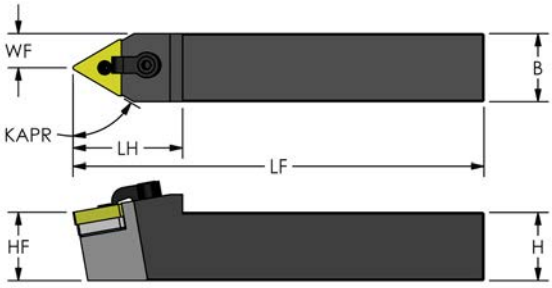
ULTRA-DEX®



PG.508

NEGATIVE SQUARE (KAPR: 45°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-195	974-000-201	MSSNR/L 12-4B	0.750	0.750	4.500	1.300	0.675	0.750	45.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-196	974-000-202	MSSNR/L 16-4D	1.000	1.000	6.000	1.600	0.925	1.000	45.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-197	974-000-203	MSSNR/L 16-5D	1.000	1.000	6.000	1.600	0.847	1.000	45.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-198	974-000-204	MSSNR/L 20-5D	1.250	1.250	6.000	1.600	1.097	1.250	45.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-199	974-000-205	MSSNR/L 20-6D	1.250	1.250	6.000	1.600	1.011	1.250	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-200	974-000-206	MSSNR/L 24-6D	1.500	1.500	6.000	1.600	1.511	1.500	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510



PG.508

NEGATIVE TRIANGLE (KAPR: 60°)

Product #	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-219	MTENN 10-3B	0.625	0.625	4.500	1.120	0.3125	0.625	60.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-220	MTENN 12-3B	0.750	0.750	4.500	1.300	0.3750	0.750	60.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-221	MTENN 12-4B	0.750	0.750	4.500	1.770	0.3750	0.750	60.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-222	MTENN 16-4D	1.000	1.000	6.000	1.600	0.5000	1.000	60.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-223	MTENN 20-5D	1.250	1.250	6.000	1.600	0.6250	1.250	60.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-224	MTENN 24-5D	1.500	1.500	6.000	1.600	0.7500	1.500	60.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510

Product #	Shim Seat
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-067	ITSN-323
968-000-068	ITSN-433
968-000-069	ITSN-533

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-100	NL-34L
968-000-102	NL-46
968-000-104	NL-58

PACKAGE SIZE OF 5

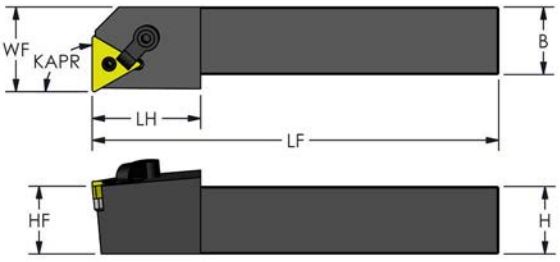
Product #	Clamp
968-000-016	CL-6
968-000-010	CL-12
968-000-012	CL-20
968-000-020	CL-9

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-176	XNS-36
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

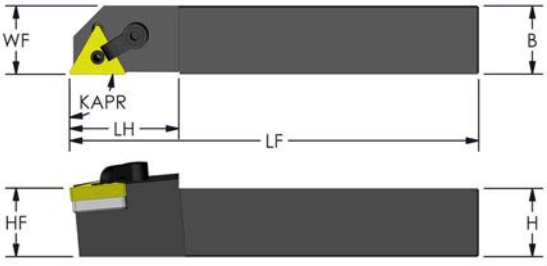
ULTRA-DEX®



PG.506

NEGATIVE TRIANGLE (KAPR: 90°) END CUTTING

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-225	974-000-233	MTFNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-226	974-000-234	MTFNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-227	974-000-235	MTFNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-229	974-000-237	MTFNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-228	974-000-236	MTFNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-230	974-000-238	MTFNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-231	974-000-239	MTFNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-232	974-000-240	MTFNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	TNMG 663	ITSN-636	NL-68L	CL-12	XNS-510



PG.506

NEGATIVE TRIANGLE (KAPR: 90°) SIDE CUTTING

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-207	974-000-213	MTANR/L 12-3B	0.750	0.750	4.500	1.300	0.750	0.750	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-208	974-000-214	MTANR/L 16-3D	1.000	1.000	6.000	1.600	1.000	1.000	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-209	974-000-215	MTANR/L 16-4D	1.000	1.000	6.000	1.600	1.000	1.000	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-210	974-000-216	MTANR/L 20-5D	1.250	1.250	6.000	1.600	1.250	1.250	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-211	974-000-217	MTANR/L 24-5D	1.500	1.500	6.000	1.600	1.500	1.500	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-212	974-000-218	MTANR/L 24-6D	1.500	1.500	6.000	1.600	1.500	1.500	90.0	TNMG 663	ITSN-636	NL-68L	CL-12	XNS-510

Product #	Shim Seat
968-000-067	ITSN-323
968-000-068	ITSN-433
968-000-069	ITSN-533
968-000-070	ITSN-636

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-100	NL-34L
968-000-102	NL-46
968-000-104	NL-58
968-000-106	NL-68L

PACKAGE SIZE OF 5

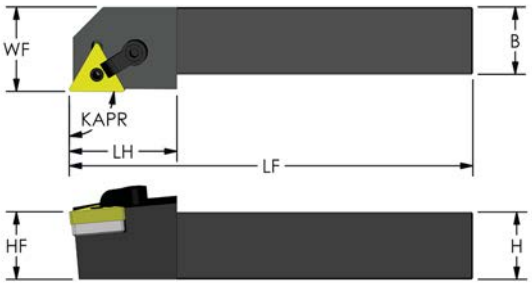
Product #	Clamp
968-000-016	CL-6
968-000-010	CL-12
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-176	XNS-36
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

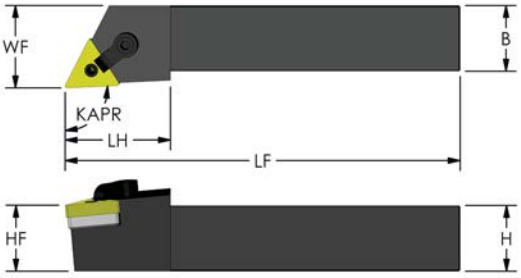
ULTRA-DEX®



PG.508

NEGATIVE TRIANGLE (KAPR: 90°) SIDE CUTTING

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-241	974-000-251	MTGNR/L 10-3B	0.625	0.625	4.500	1.120	0.875	0.625	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-242	974-000-252	MTGNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-243	974-000-253	MTGNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-244	974-000-254	MTGNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-246	974-000-256	MTGNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-248	974-000-258	MTGNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-249	974-000-259	MTGNR/L 24-4E	1.500	1.500	7.000	1.600	2.000	1.500	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-245	974-000-255	MTGNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-247	974-000-257	MTGNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-250	974-000-260	MTGNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510



PG.508

NEGATIVE TRIANGLE (KAPR: 93°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-261	974-000-269	MTJNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	93.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-262	974-000-270	MTJNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-263	974-000-271	MTJNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-265	974-000-273	MTJNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-264	974-000-272	MTJNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-266	974-000-274	MTJNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-267	974-000-275	MTJNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	93.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-268	974-000-276	MTJNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	93.0	TNMG 663	ITSN-636	NL-68L	CL-12	XNS-510

Product #	Shim Seat
968-000-067	ITSN-323
968-000-068	ITSN-433
968-000-069	ITSN-533
968-000-070	ITSN-636

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-100	NL-34L
968-000-102	NL-46
968-000-104	NL-58
968-000-106	NL-68L

PACKAGE SIZE OF 5

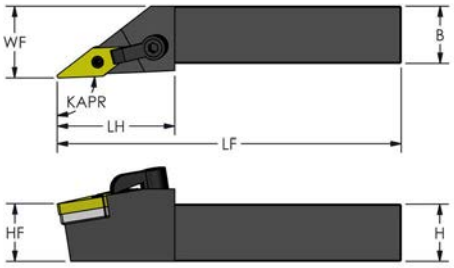
Product #	Clamp
968-000-016	CL-6
968-000-010	CL-12
968-000-012	CL-20
968-000-020	CL-9

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-176	XNS-36
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

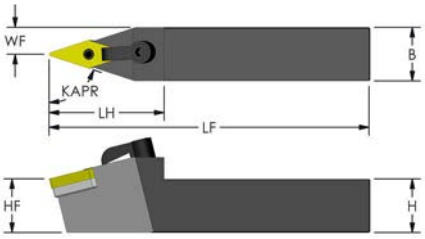
ULTRA-DEX®



PG.506

NEGATIVE 35° DIAMOND (KAPR: 93°)

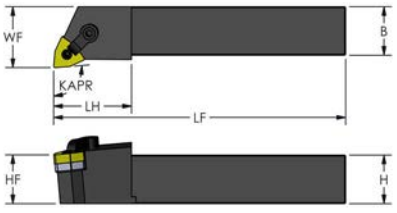
Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-277	974-000-283	MVJNR/L 12-3B	0.750	0.750	4.500	1.770	1.000	0.750	93.0	VNMG 332	IVSN-322	NL-34L	CL-22	XNS-48
974-000-278	974-000-284	MVJNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	VNMG 332	IVSN-322	NL-34L	CL-22	XNS-48
974-000-280	974-000-286	MVJNR/L 20-3D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	VNMG 332	IVSN-322	NL-34L	CL-22	XNS-48
974-000-279	974-000-285	MVJNR/L 16-4D	1.000	1.000	6.000	2.050	1.250	1.000	93.0	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510
974-000-281	974-000-287	MVJNR/L 20-4D	1.250	1.250	6.000	2.050	1.500	1.250	93.0	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510
974-000-282	974-000-288	MVJNR/L 24-4D	1.500	1.500	6.000	2.050	2.000	1.500	93.0	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510



PG.506

NEGATIVE 35° DIAMOND (KAPR: 72.5°)

Product #	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-289	MVVNN 12-3B	0.750	0.750	4.500	1.770	0.3750	0.750	72.5	VNMG 332	IVSN-322	NL-34L	CL-30	XNS-510
974-000-290	MVVNN 16-3D	1.000	1.000	6.000	2.050	0.5000	1.000	72.5	VNMG 332	IVSN-322	NL-34L	CL-30	XNS-510
974-000-292	MVVNN 20-3D	1.250	1.250	6.000	2.050	0.6250	1.250	72.5	VNMG 332	IVSN-322	NL-34L	CL-30	XNS-510
974-000-294	MVVNN 24-3D	1.500	1.500	6.000	2.050	0.7500	1.500	72.5	VNMG 332	IVSN-322	NL-34L	CL-30	XNS-510
974-000-291	MVVNN 16-4D	1.000	1.000	6.000	2.050	0.5000	1.000	72.5	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510
974-000-293	MVVNN 20-4D	1.250	1.250	6.000	2.050	0.6250	1.250	72.5	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510
974-000-295	MVVNN 24-4D	1.500	1.500	6.000	2.050	0.7500	1.500	72.5	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510



PG.506

NEGATIVE TRIGON (KAPR: 95°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim Seat	Lock Pin	Clamp	Clamp Screw
974-000-296	974-000-301	MWLNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	WNMG 332	IWSN-322	NL-34L	CL-6	XNS-36
974-000-297	974-000-302	MWLNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	WNMG 432	IWSN-433	NL-46	CL-20	XNS-48
974-000-298	974-000-303	MWLNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	WNMG 432	IWSN-433	NL-46	CL-20	XNS-48
974-000-299	974-000-304	MWLNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	95.0	WNMG 432	IWSN-433	NL-46	CL-20	XNS-48
974-000-300	974-000-305	MWLNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	95.0	WNMG 432	IWSN-433	NL-46	CL-20	XNS-48

Product #	Shim Seat
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-074	IWSN-322
968-000-075	IWSN-433

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-100	NL-34L
968-000-102	NL-46

PACKAGE SIZE OF 5

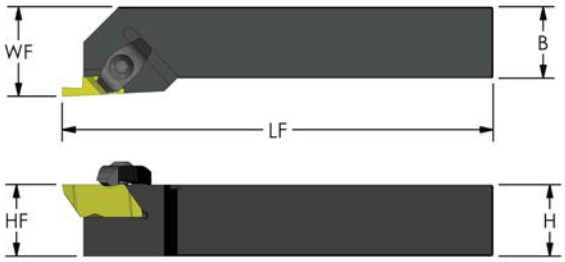
Product #	Clamp
968-000-016	CL-6
968-000-012	CL-20
968-000-014	CL-22
968-000-015	CL-30

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-176	XNS-36
968-000-178	XNS-48
968-000-179	XNS-510

PACKAGE SIZE OF 5

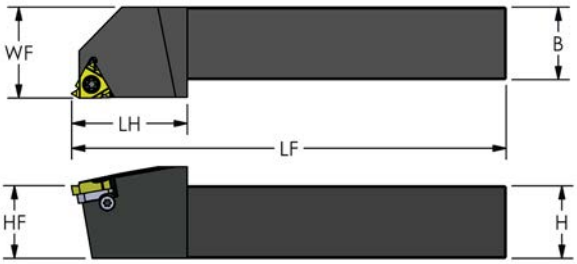
ULTRA-DEX®



PG.508

THREADING/GROOVING, NOTCH STYLE

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	WF [in.]	HF [in.]	Insert	RH Clamp	LH Clamp	Clamp Screw
974-000-306	974-000-310	NSR/L 12-3B	0.750	0.750	4.500	1.000	0.750	NG 3R/3L	CM-72	CM-73	10-32
974-000-307	974-000-311	NSR/L 12-4B	0.750	0.750	4.500	1.000	0.750	NG 4R/4L	CM-72	CM-73	10-32
974-000-308	974-000-312	NSR/L 16-3D	1.000	1.000	6.000	1.250	1.000	NG 3R/3L	CM-72	CM-73	10-32
974-000-309	974-000-313	NSR/L 16-4D	1.000	1.000	6.000	1.250	1.000	NG 4R/4L	CM-72	CM-73	10-32



PG.508

THREADING/GROOVING LAYDOWN

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	Insert	Insert Screw	Anvil Screw	Anvil Right	Anvil Left
974-000-025	974-000-027	LSSR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	3 IL/IR	SA3T	SY3T	YE3	YI3
974-000-026	974-000-028	LSSR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	3 IL/IR	SA3T	SY3T	YE3	YI3

Product #	Clamp Screw
968-000-003	10-32

PACKAGE SIZE OF 5

Product #	Anvil Screw
968-000-146	SY3T

PACKAGE SIZE OF 5

Product #	Insert Screw
968-000-124	SA3T

PACKAGE SIZE OF 5

Product #	Clamp
968-000-025	CM-72
968-000-026	CM-73

PACKAGE SIZE OF 1

Product #	Anvil
968-000-185	YI3
968-000-182	YE3

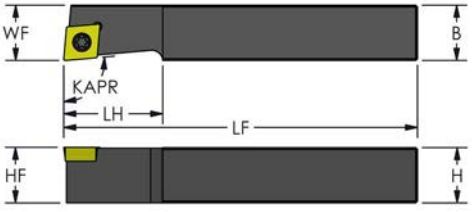
PACKAGE SIZE OF 1

ULTRA-DEX®

PG.506

POSITIVE 35° DIAMOND (KAPR: 117.5°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	WF [in.]	HF [in.]	KAPR	Insert	Insert Screw
974-000-314	974-000-317	SVTBR/L 12-2B	0.750	0.750	4.500	0.935	0.750	117.5	VBMT 21.51	MTS-2.5L
974-000-315	974-000-318	SVTBR/L 12-3B	0.750	0.750	4.500	1.050	0.750	117.5	VBMT 331	MTS-3.5L
974-000-316	974-000-319	SVTBR/L 16-3D	1.000	1.000	6.000	1.300	1.000	117.5	VBMT 331	MTS-3.5L

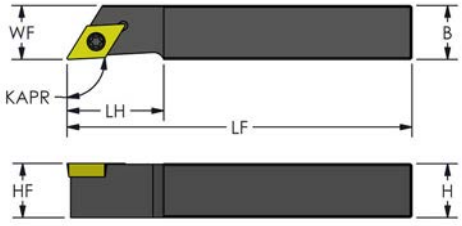


- Proper insert alignment for swiss processes
- Accepts standard ISO inserts
- Specials available upon request

PG.506

POSITIVE 80° DIAMOND (KAPR: 95°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Insert Screw
960-000-003	960-000-007	SCLCR/L 1212-3A	12.00(mm)	12.00(mm)	100.00(mm)	22.00(mm)	12.00(mm)	12.00(mm)	95.0	CCMT 32.51	MTS-35
960-000-004	960-000-008	SCLCR/L 1616-3A	16.00(mm)	16.00(mm)	100.00(mm)	28.00(mm)	16.00(mm)	16.00(mm)	95.0	CCMT 32.51	MTS-35
960-000-001	960-000-005	SCLCR/L 08-3A	0.500	0.500	4.000	0.8650	0.500	0.500	95.0	CCMT 32.51	MTS-35
960-000-002	960-000-006	SCLCR/L 10-3A	0.625	0.625	4.000	1.1200	0.625	0.625	95.0	CCMT 32.51	MTS-35



PG.506

POSITIVE 55° DIAMOND (KAPR: 93°)

Product # Left Hand	Product # Right Hand	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Insert Screw
960-000-011	960-000-015	SDJCR/L 1212-3A	12.00(mm)	12.00(mm)	100.00(mm)	22.00(mm)	12.00(mm)	12.00(mm)	93.0	DCMT 32.51	MTS-35
960-000-012	960-000-016	SDJCR/L 1616-3A	16.00(mm)	16.00(mm)	100.00(mm)	28.00(mm)	16.00(mm)	16.00(mm)	93.0	DCMT 32.51	MTS-35
960-000-009	960-000-013	SDJCR/L 08-3A	0.500	0.500	4.000	0.8650	0.500	0.500	93.0	DCMT 32.51	MTS-35
960-000-010	960-000-014	SDJCR/L 10-3A	0.625	0.625	4.000	1.1200	0.625	0.625	93.0	DCMT 32.51	MTS-35

Product #	Insert Screws
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-093	MTS-3.5L

PACKAGE SIZE OF 5

ID TURNING

ARCH®
Cutting Tools

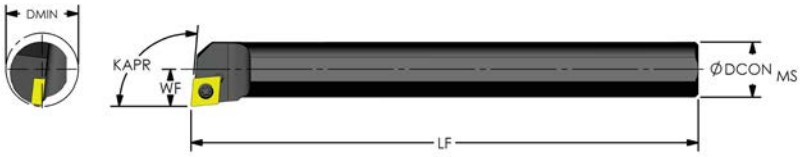
STEEL BORING BAR

The economical choice for general machining

Up to 4:1 Ratio

.156”-2” Diameters

ULTRA-DEX®



PG.507

POSITIVE 80° DIAMOND (KAPR: 95°)

4:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Key
957-000-207	957-000-208	S02.5G SCLDR/L1.2 *	0.156	3.500	0.090	0.175	CDHB 1.20.60	MTS-183	T-6
957-000-211	957-000-212	S03G SCLDR/L1.2 *	0.187	3.500	0.102	0.205	CDHB 1.20.60	MTS-183	T-6
957-000-209	957-000-210	S03.5G SCLDR/L1.5 *	0.218	3.500	0.125	0.245	CDGW 1.510	MTS-184	T-6
957-000-214	957-000-216	S04G SCLDR/L1.5 *	0.250	3.500	0.172	0.312	CDGW 1.510	MTS-184	T-6
957-000-228	957-000-230	S05G SCLPR/L1.8 *	0.312	3.500	0.219	0.395	CPMT 1.81.20.5	MTS-224	T-7
957-000-248	957-000-250	S06K SCLPR/L2	0.375	5.000	0.250	0.460	CPMT 21.51	MTS-255	T-7
957-000-280	957-000-283	S08M SCLPR/L2	0.500	6.000	0.312	0.600	CPMT 21.51	MTS-255	T-7
957-000-317	957-000-319	S10Q SCLPR/L2	0.625	7.000	0.406	0.760	CPMT 21.51	MTS-255	T-7
957-000-282	957-000-285	S08M SCLPR/L3	0.500	6.000	0.344	0.625	CPMT 32.51	MTS-35	T-15
957-000-318	957-000-320	S10Q SCLPR/L3	0.625	7.000	0.406	0.760	CPMT 32.51	MTS-35	T-15
957-000-341	957-000-342	S12Q SCLPR/L3	0.750	7.000	0.500	0.920	CPMT 32.51	MTS-35	T-15
957-000-372	957-000-373	S16R SCLPR/L3	1.000	8.000	0.625	1.185	CPMT 32.51	MTS-35	T-15
957-000-244	957-000-246	S06K SCLCR/L2	0.375	5.000	0.250	0.460	CCMT 21.51	MTS-255	T-7
957-000-274	957-000-277	S08M SCLCR/L2	0.500	6.000	0.312	0.600	CCMT 21.51	MTS-255	T-7
957-000-313	957-000-315	S10Q SCLCR/L2	0.625	7.000	0.406	0.760	CCMT 21.51	MTS-255	T-7
957-000-276	957-000-279	S08M SCLCR/L3	0.500	6.000	0.344	0.625	CCMT 32.51	MTS-35	T-15
957-000-314	957-000-316	S10Q SCLCR/L3	0.625	7.000	0.406	0.760	CCMT 32.51	MTS-35	T-15
957-000-339	957-000-340	S12Q SCLCR/L3	0.750	7.000	0.500	0.920	CCMT 32.51	MTS-35	T-15
N/A	957-000-367	S12S SCLCR3	0.750	10.000	0.500	0.920	CCMT 32.51	MTS-35	T-15
957-000-370	957-000-371	S16R SCLCR/L3	1.000	8.000	0.625	1.185	CCMT 32.51	MTS-35	T-15
N/A	957-000-401	S16T SCLCR3	1.000	12.000	0.625	1.185	CCMT 32.51	MTS-35	T-15
957-000-425	957-000-427	S20U SCLCR/L3	1.250	14.000	0.765	1.465	CCMT 32.51	MTS-35	T-15
957-000-426	957-000-428	S20U SCLCR/L4	1.250	14.000	0.765	1.465	CCMT 432	MTS-4	T-20
957-000-440	957-000-441	S24U SCLCR/L4	1.500	14.000	0.890	1.730	CCMT 432	MTS-4	T-20

MINIMUM CLEARANCE

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Key
957-000-215	957-000-217	S04G SCLDR/L1.5-138 *	0.250	3.500	0.138	0.275	CDGW 1.510	MTS-184	T-6
957-000-229	957-000-231	S05G SCLPR/L1.8-167 *	0.312	3.500	0.167	0.340	CPMT 1.81.20.5	MTS-224	T-7
957-000-249	957-000-251	S06K SCLPR/L2-203	0.375	5.000	0.203	0.410	CPMT 21.51	MTS-255	T-7
957-000-281	957-000-284	S08M SCLPR/L2-281	0.500	6.000	0.281	0.560	CPMT 21.51	MTS-255	T-7
957-000-245	957-000-247	S06K SCLCR/L2-203	0.375	5.000	0.203	0.410	CCMT 21.51	MTS-255	T-7
957-000-275	957-000-278	S08M SCLCR/L2-281	0.500	6.000	0.281	0.560	CCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-095	MTS-4

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX®

PG.507

POSITIVE 80° DIAMOND (KAPR: 95°)

4:1 Ratio

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Key
957-000-001	957-000-003	A04G SCLDR/L1.5 *	0.250	3.500	0.172	0.312	CDGW 1.510	MTS-184	T-6
957-000-009	957-000-011	A05G SCLPR/L1.8 *	0.312	3.500	0.219	0.395	CPMT 1.81.20.5	MTS-224	T-7
957-000-023	957-000-025	A06K SCLPR/L2	0.375	5.000	0.250	0.460	CPMT 21.51	MTS-255	T-7
957-000-053	957-000-056	A08M SCLPR/L2	0.500	6.000	0.312	0.600	CPMT 21.51	MTS-255	T-7
957-000-087	957-000-089	A10Q SCLPR/L2	0.625	7.000	0.406	0.760	CPMT 21.51	MTS-255	T-7
957-000-055	957-000-058	A08M SCLPR/L3	0.500	6.000	0.344	0.625	CPMT 32.51	MTS-35	T-15
957-000-088	957-000-090	A10Q SCLPR/L3	0.625	7.000	0.406	0.760	CPMT 32.51	MTS-35	T-15
957-000-108	957-000-109	A12Q SCLPR/L3	0.750	7.000	0.500	0.920	CPMT 32.51	MTS-35	T-15
957-000-135	957-000-136	A16R SCLPR/L3	1.000	8.000	0.625	1.185	CPMT 32.51	MTS-35	T-15
957-000-019	957-000-021	A06K SCLCR/L2	0.375	5.000	0.250	0.460	CCMT 21.51	MTS-255	T-7
957-000-047	957-000-050	A08M SCLCR/L2	0.500	6.000	0.312	0.600	CCMT 21.51	MTS-255	T-7
957-000-083	957-000-085	A10Q SCLCR/L2	0.625	7.000	0.406	0.760	CCMT 21.51	MTS-255	T-7
957-000-049	957-000-052	A08M SCLCR/L3	0.500	6.000	0.344	0.625	CCMT 32.51	MTS-35	T-15
957-000-084	957-000-086	A10Q SCLCR/L3	0.625	7.000	0.406	0.760	CCMT 32.51	MTS-35	T-15
957-000-106	957-000-107	A12Q SCLCR/L3	0.750	7.000	0.500	0.920	CCMT 32.51	MTS-35	T-15
957-000-133	957-000-134	A16R SCLCR/L3	1.000	8.000	0.625	1.185	CCMT 32.51	MTS-35	T-15
957-000-182	957-000-184	A20U SCLCR/L3	1.250	14.000	0.765	1.465	CCMT 32.51	MTS-35	T-15
957-000-183	957-000-185	A20U SCLCR/L4	1.250	14.000	0.765	1.465	CCMT 432	MTS-4	T-20
957-000-198	957-000-199	A24U SCLCR/L4	1.500	14.000	0.890	1.730	CCMT 432	MTS-4	T-20

MINIMUM CLEARANCE

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Key
957-000-002	957-000-004	A04G SCLDR/L1.5-138 *	0.250	3.500	0.138	0.275	CDGW 1.510	MTS-184	T-6
957-000-010	957-000-012	A05G SCLPR/L1.8-167 *	0.312	3.500	0.167	0.340	CPMT 1.81.20.5	MTS-224	T-7
957-000-024	957-000-026	A06K SCLPR/L2-203	0.375	5.000	0.203	0.410	CPMT 21.51	MTS-255	T-7
957-000-054	957-000-057	A08M SCLPR/L2-281	0.500	6.000	0.281	0.560	CPMT 21.51	MTS-255	T-7
957-000-020	957-000-022	A06K SCLCR/L2-203	0.375	5.000	0.203	0.410	CCMT 21.51	MTS-255	T-7
957-000-048	957-000-051	A08M SCLCR/L2-281	0.500	6.000	0.281	0.560	CCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

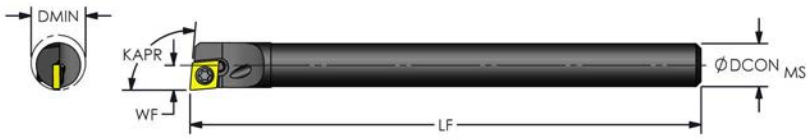
Product #	Insert Screws
968-000-087	MTS-184
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-095	MTS-4

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX®



SERIES "C"

PG.508

POSITIVE 80° DIAMOND (KAPR: 95°)

4:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-016	CSUD-180/187-21/2-5R *	0.187	2.500	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-021	CSUD-187-21/2-5R *	0.187	2.500	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-029	CSUD-250-3-5R *	0.250	3.000	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6

*bars do not have flats

SERIES "C"

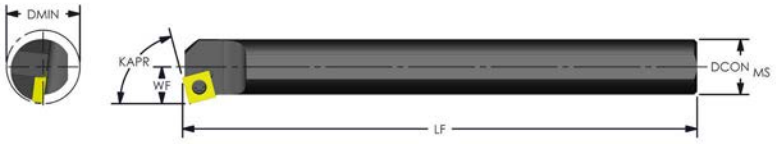
PG.508

POSITIVE 80° DIAMOND (KAPR: 97°)

4:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-015	CSUD-165/187-21/2-7R *	0.187	2.500	0.095	0.180	97.0	CDHB 1.20.60.5	MTS-183	T-6

*bars do not have flats



PG.507

POSITIVE 90° SQUARE (KAPR: 75°)

4:1 Ratio
NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-255	S06K SSKCR2	0.375	5.000	0.250	0.460	75.0	SCMT 21.51	MTS-255	T-7
957-000-292	S08M SSKCR3	0.500	6.000	0.344	0.625	75.0	SCMT 32.51	MTS-35	T-15
957-000-325	S10Q SSKCR3	0.625	7.000	0.406	0.760	75.0	SCMT 32.51	MTS-35	T-15
957-000-350	S12Q SSKCR3	0.750	7.000	0.500	0.920	75.0	SCMT 32.51	MTS-35	T-15
957-000-379	S16R SSKCR4	1.000	8.000	0.625	1.185	75.0	SCMT 432	MTS-4	T-20

Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35
968-000-095	MTS-4

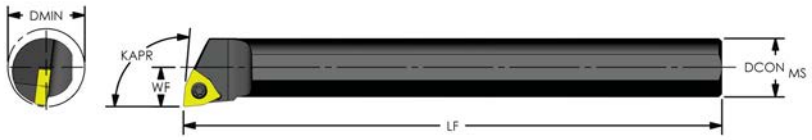
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

STEEL

ULTRA-DEX®



PG.507

POSITIVE TRIGON (95° KAPR)

4:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	957-000-213	S03G SWLCR1.2 *	0.187	3.500	0.102	0.205	95.0	WCMT 1.210.5	MTS-183	T-6
N/A	957-000-226	S04G SWLCR1.2 *	0.250	3.500	0.172	0.312	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	957-000-240	S05G SWLCR1.5 *	0.312	3.500	0.219	0.395	95.0	WCMT 1.51.50.5	MTS-2	T-6
957-000-268	957-000-270	S06K SWLCR/L2	0.375	5.000	0.250	0.460	95.0	WCMT 21.51	MTS-255	T-7
957-000-305	957-000-307	S08M SWLCR/L2	0.500	6.000	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
957-000-333	957-000-335	S10Q SWLCR/L2	0.625	7.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
957-000-334	957-000-336	S10Q SWLCR/L3	0.625	7.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
957-000-359	957-000-360	S12Q SWLCR/L3	0.750	7.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
957-000-386	957-000-387	S16R SWLCR/L3	1.000	8.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	957-000-227	S04G SWLCR1.2-138 *	0.250	3.500	0.138	0.275	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	957-000-241	S05G SWLCR1.5-167 *	0.312	3.500	0.167	0.342	95.0	WCMT 1.51.50.5	MTS-2	T-6
957-000-269	957-000-271	S06K SWLCR/L2-203	0.375	5.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
957-000-306	957-000-308	S08M SWLCR/L2-281	0.500	6.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PG.507

POSITIVE TRIGON (95° KAPR)

4:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-042	957-000-044	A06K SWLCR/L2	0.375	5.000	0.250	0.460	95.0	WCMT 21.51	MTS-255	T-7
957-000-076	957-000-078	A08M SWLCR/L2	0.500	6.000	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
957-000-100	957-000-102	A10Q SWLCR/L2	0.625	7.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
957-000-101	957-000-103	A10Q SWLCR/L3	0.625	7.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
957-000-123	957-000-124	A12Q SWLCR/L3	0.750	7.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
957-000-147	957-000-148	A16R SWLCR/L3	1.000	8.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-043	957-000-045	A06K SWLCR/L2-203	0.375	5.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
957-000-077	957-000-079	A08M SWLCR/L2-281	0.500	6.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35
968-000-088	MTS-2

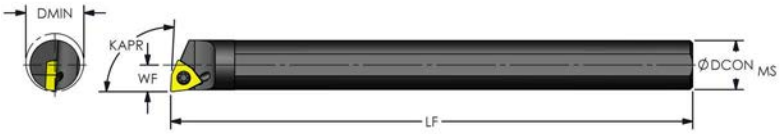
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

STEEL



PG.508

POSITIVE TRIGON (KAPR: 93°) *SERIES "G, Q, S"*

4:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-059	915-000-060	GSUDW-187-4-3R/L	0.187	4.000	0.126	0.260	93.0	WPGT 1.511	MTS-184	T-6
915-000-061	915-000-062	GSUDW-250-4-3R/L	0.250	4.000	0.143	0.285	93.0	WPGT 1.511	MTS-184	T-6
915-000-063	915-000-064	GSUDW-312-4-3R/L	0.312	4.000	0.174	0.347	93.0	WPGT 1.511	MTS-184	T-6
915-000-082	915-000-083	QSUDW-375-5-3R/L	0.375	5.000	0.211	0.415	93.0	WPGT 21.50	MTS-255	T-7
915-000-084	915-000-085	QSUDW-500-6-3R/L	0.500	6.000	0.273	0.540	93.0	WPGT 21.50	MTS-255	T-7
915-000-101	915-000-102	SSUDW-625-7-3R/L	0.625	7.000	0.345	0.675	93.0	WPMT 32.51	MTS-35	T-15
915-000-103	915-000-104	SSUDW-750-8-3R/L	0.750	8.000	0.407	0.800	93.0	WPMT 32.51	MTS-35	T-15

PG.508

POSITIVE TRIANGLE (KAPR: 90°) *SERIES "F, Q, S"*

4:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-047	FSUD-250-4-0R *	0.250	4.000	0.156	0.300	90.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-077	QSUD-375-5-0R *	0.375	5.000	0.221	0.438	90.0	TPCB 220.5	ETS 4-40	T-10
915-000-094	SSUD-500-6-0R *	0.500	6.000	0.339	0.668	90.0	TD 320.5	ETS 4-40	T-10
915-000-097	SSUD-625-7-0R *	0.625	7.000	0.393	0.731	90.0	TD 320.5	ETS 4-40	T-10

*bars do not have flats

PG.508

POSITIVE TRIANGLE (KAPR: 95°) *SERIES "F, Q, S"*

4:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	915-000-040	FSUD-187-31/2-5R *	0.187	3.500	0.123	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
N/A	915-000-048	FSUD-250-4-5R *	0.250	4.000	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
N/A	915-000-052	FSUD-312-4-5R *	0.312	4.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-078	915-000-079	QSUD-375-5-5R/L*	0.375	5.000	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
N/A	915-000-080	QSUD-500-6-5R *	0.500	6.000	0.296	0.563	95.0	TPCB 220.5	ETS 4-40	T-10
N/A	915-000-095	SSUD-500-6-5R *	0.500	6.000	0.339	0.668	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-096	SSUD-625-4-5R *	0.625	4.000	0.393	0.731	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-098	SSUD-625-7-5R *	0.625	7.000	0.393	0.731	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-099	SSUD-750-4-5R *	0.750	4.000	0.460	0.855	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-100	SSUD-750-8-5R *	0.750	8.000	0.460	0.855	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-092	SSUD-1000-10-5R *	1.000	10.000	0.585	1.105	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-093	SSUD-1250-12-5R *	1.250	12.000	0.710	1.355	95.0	TD 320.5	ETS 4-40	T-10

*bars do not have flats

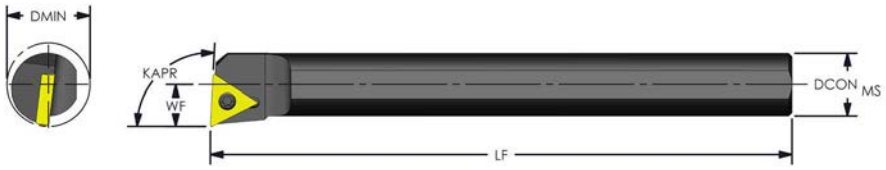
Product #	Insert Screws
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35
968-000-091	MTS-224
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®



PG.507

POSITIVE TRIANGLE (KAPR: 93°)

4:1 Ratio

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-222	957-000-224	S04G STUCR/L1.2 *	0.250	3.500	0.172	0.312	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-236	957-000-238	S05G STUCR/L1.2 *	0.312	3.500	0.219	0.395	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-260	957-000-262	S06K STUCR/L2	0.375	5.000	0.250	0.460	93.0	TCMT 21.51	MTS-255	T-7
957-000-297	957-000-299	S08M STUCR/L2	0.500	6.000	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
957-000-328	957-000-329	S10Q STUCR/L2	0.625	7.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
957-000-353	957-000-354	S12Q STUCR/L3	0.750	7.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
957-000-382	957-000-383	S16R STUCR/L3	1.000	8.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15
957-000-264	957-000-266	S06K STUPR/L2	0.375	5.000	0.250	0.460	93.0	TPMT 21.51	MTS-255	T-7
957-000-301	957-000-303	S08M STUPR/L2	0.500	6.000	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
957-000-330	957-000-331	S10Q STUPR/L2	0.625	7.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
957-000-355	957-000-356	S12Q STUPR/L3	0.750	7.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
957-000-384	957-000-385	S16R STUPR/L3	1.000	8.000	0.625	1.185	93.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-223	957-000-225	S04G STUCR/L1.2-138 *	0.250	3.500	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-237	957-000-239	S05G STUCR/L1.2-167 *	0.312	3.500	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-261	957-000-263	S06K STUCR/L2-203	0.375	5.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
957-000-298	957-000-300	S08M STUCR/L2-281	0.500	6.000	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
957-000-265	957-000-267	S06K STUPR/L2-203	0.375	5.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
957-000-302	957-000-304	S08M STUPR/L2-281	0.500	6.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

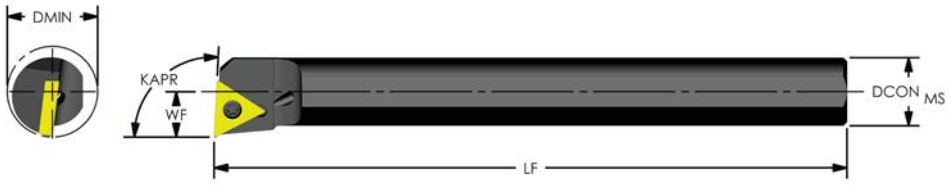
Product #	Insert Screws
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®



PG.507

POSITIVE TRIANGLE (KAPR: 93°)

4:1 Ratio

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-005	957-000-007	A04G STUCR/L1.2 *	0.250	3.500	0.172	0.312	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-013	957-000-015	A05G STUCR/L1.2 *	0.312	3.500	0.219	0.395	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-033	957-000-035	A06K STUCR/L2	0.375	5.000	0.250	0.460	93.0	TCMT 21.51	MTS-255	T-7
957-000-067	957-000-069	A08M STUCR/L2	0.500	6.000	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
957-000-095	957-000-096	A10Q STUCR/L2	0.625	7.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
957-000-118	957-000-119	A12Q STUCR/L3	0.750	7.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
957-000-143	957-000-144	A16R STUCR/L3	1.000	8.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15
957-000-037	957-000-039	A06K STUPR/L2	0.375	5.000	0.250	0.460	93.0	TPMT 21.51	MTS-255	T-7
957-000-071	957-000-073	A08M STUPR/L2	0.500	6.000	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
957-000-097	957-000-098	A10Q STUPR/L2	0.625	7.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
957-000-120	957-000-121	A12Q STUPR/L3	0.750	7.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
957-000-145	957-000-146	A16R STUPR/L3	1.000	8.000	0.625	1.185	93.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-006	957-000-008	A04G STUCR/L1.2-138 *	0.250	3.500	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-014	957-000-016	A05G STUCR/L1.2-167 *	0.312	3.500	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-034	957-000-036	A06K STUCR/L2-203	0.375	5.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
957-000-068	957-000-070	A08M STUCR/L2-281	0.500	6.000	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
957-000-038	957-000-040	A06K STUPR/L2-203	0.375	5.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
957-000-072	957-000-074	A08M STUPR/L2-281	0.500	6.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

Product #	Insert Screws
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35

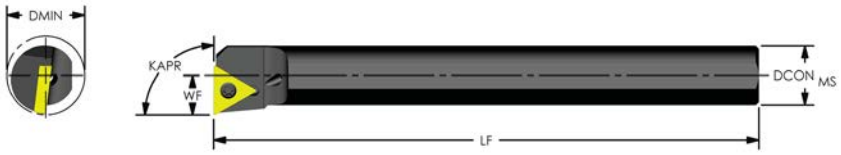
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

STEEL

ULTRA-DEX®



PG.507

POSITIVE TRIANGLE (KAPR: 90°)

4:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-218	957-000-220	S04G STFCR/L1.2 *	0.250	3.500	0.172	0.312	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-232	957-000-234	S05G STFCR/L1.2 *	0.312	3.500	0.219	0.395	90.0	TCMT 1.21.20.5	MTS-184	T-6
N/A	957-000-256	S06K STFCR2	0.375	5.000	0.250	0.460	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-293	S08M STFCR2	0.500	6.000	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-326	S10Q STFCR2	0.625	7.000	0.406	0.760	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-351	S12Q STFCR3	0.750	7.000	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
N/A	957-000-380	S16R STFCR3	1.000	8.000	0.625	1.185	90.0	TCMT 32.51	MTS-35	T-15
N/A	957-000-258	S06K STFPR2	0.375	5.000	0.250	0.460	90.0	TPMT 21.51	MTS-255	T-7
N/A	957-000-295	S08M STFPR2	0.500	6.000	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
N/A	957-000-327	S10Q STFPR2	0.625	7.000	0.406	0.760	90.0	TPMT 21.51	MTS-255	T-7
N/A	957-000-352	S12Q STFPR3	0.750	7.000	0.500	0.920	90.0	TPMT 32.51	MTS-35	T-15
N/A	957-000-381	S16R STFPR3	1.000	8.000	0.625	1.185	90.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-219	957-000-221	S04G STFCR/L1.2-138 *	0.250	3.500	0.138	0.275	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-233	957-000-235	S05G STFCR/L1.2-167 *	0.312	3.500	0.167	0.340	90.0	TCMT 1.21.20.5	MTS-184	T-6
N/A	957-000-257	S06K STFCR2-203	0.375	5.000	0.203	0.410	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-294	S08M STFCR2-281	0.500	6.000	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-259	S06K STFPR2-203	0.375	5.000	0.203	0.410	90.0	TPMT 21.51	MTS-255	T-7
N/A	957-000-296	S08M STFPR2-281	0.500	6.000	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

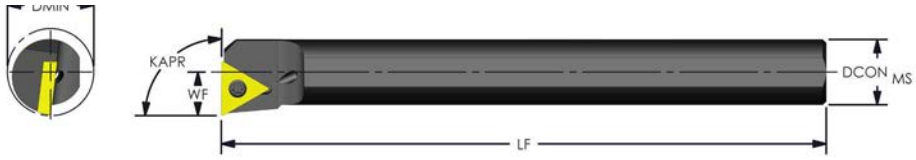
Product #	Insert Screws
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®



PG.507

POSITIVE TRIANGLE (KAPR: 90°)

4:1 Ratio
COOLANT THRU

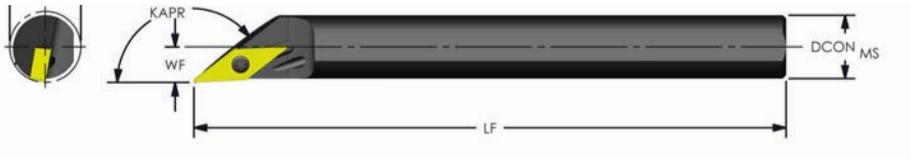
Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-029	A06K STFCR2	0.375	5.000	0.250	0.460	90.0	TCMT 21.51	MTS-255	T-7
957-000-063	A08M STFCR2	0.500	6.000	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
957-000-093	A10Q STFCR2	0.625	7.000	0.406	0.760	90.0	TCMT 21.51	MTS-255	T-7
957-000-116	A12Q STFCR3	0.750	7.000	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
957-000-141	A16R STFCR3	1.000	8.000	0.625	1.185	90.0	TCMT 32.51	MTS-35	T-15
957-000-031	A06K STFPR2	0.375	5.000	0.250	0.460	90.0	TPMT 21.51	MTS-255	T-7
957-000-065	A08M STFPR2	0.500	6.000	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
957-000-094	A10Q STFPR2	0.625	7.000	0.406	0.760	90.0	TPMT 21.51	MTS-255	T-7
957-000-117	A12Q STFPR3	0.750	7.000	0.500	0.920	90.0	TPMT 32.51	MTS-35	T-15
957-000-142	A16R STFPR3	1.000	8.000	0.625	1.185	90.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-030	A06K STFCR2-203	0.375	5.000	0.203	0.410	90.0	TCMT 21.51	MTS-255	T-7
957-000-064	A08M STFCR2-281	0.500	6.000	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7
957-000-032	A06K STFPR2-203	0.375	5.000	0.203	0.410	90.0	TPMT 21.51	MTS-255	T-7
957-000-066	A08M STFPR2-281	0.500	6.000	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats



PG.507

POSITIVE 35° DIAMOND (KAPR: 142°) PROFILING

4:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-041	A06K SVJBR2	0.375	5.000	0.223	0.445	142.0	VBMT 21.51	MTS-2.5	T-7
957-000-075	A08M SVJBR2	0.500	6.000	0.285	0.570	142.0	VBMT 21.51	MTS-2.5L	T-7
957-000-099	A10Q SVJBR2	0.625	7.000	0.348	0.700	142.0	VBMT 21.51	MTS-2.5L	T-7
957-000-122	A12Q SVJBR3	0.750	7.000	0.421	0.840	142.0	VBMT 331	MTS-3.5L	T-15

Product #	Insert Screws
968-000-094	MTS-35
968-000-092	MTS-255
968-000-090	MTS-2.5L
968-000-093	MTS-3.5L

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

PG.507

POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

4:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-253	957-000-254	S06K SDUCR/L2	0.375	5.000	0.375	0.585	93.0	DCMT 21.51	MTS-255	T-7
957-000-288	957-000-289	S08M SDUCR/L2	0.500	6.000	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
957-000-323	957-000-324	S10Q SDUCR/L2	0.625	7.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
957-000-344	957-000-345	S12Q SDUCR/L3	0.750	7.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
957-000-375	957-000-376	S16R SDUCR/L3	1.000	8.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
957-000-346	957-000-347	S12Q SDUPR/L3	0.750	7.000	0.625	1.050	93.0	DPMT 32.51	MTS-35	T-15
957-000-377	957-000-378	S16R SDUPR/L3	1.000	8.000	0.750	1.310	93.0	DPMT 32.51	MTS-35	T-15

PG.507

POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-027	957-000-028	A06K SDUCR/L2	0.375	5.000	0.375	0.585	93.0	DCMT 21.51	MTS-255	T-7
957-000-059	957-000-060	A08M SDUCR/L2	0.500	6.000	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
957-000-091	957-000-092	A10Q SDUCR/L2	0.625	7.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
957-000-110	957-000-111	A12Q SDUCR/L3	0.750	7.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
957-000-137	957-000-138	A16R SDUCR/L3	1.000	8.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
957-000-112	957-000-113	A12Q SDUPR/L3	0.750	7.000	0.625	1.050	93.0	DPMT 32.51	MTS-35	T-15
957-000-139	957-000-140	A16R SDUPR/L3	1.000	8.000	0.750	1.310	93.0	DPMT 32.51	MTS-35	T-15

Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35

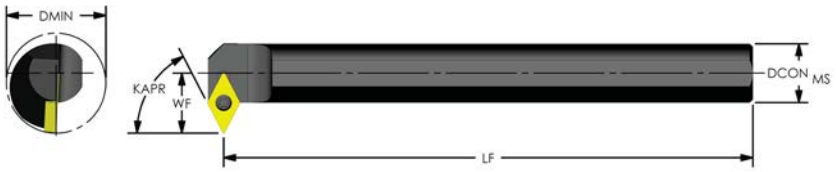
PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

STEEL

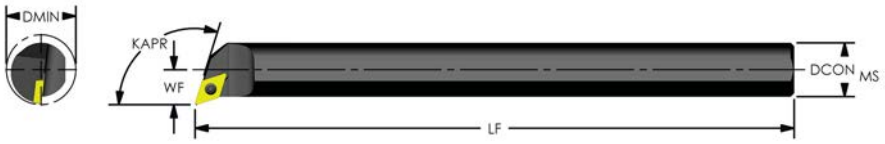


PG.507

POSITIVE 55° DIAMOND (KAPR: 62.5°) PROFILING

4:1 Ratio
NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-286	S08M SDNCR2	0.500	6.000	0.508	0.780	62.5	DCMT 21.51	MTS-255	T-7
957-000-321	S10Q SDNCR2	0.625	6.860	0.562	0.920	62.5	DCMT 21.51	MTS-255	T-7
957-000-343	S12Q SDNCR3	0.750	6.800	0.765	1.190	62.5	DCMT 32.51	MTS-35	T-15
957-000-374	S16R SDNCR3	1.000	7.800	0.890	1.450	62.5	DCMT 32.51	MTS-35	T-15

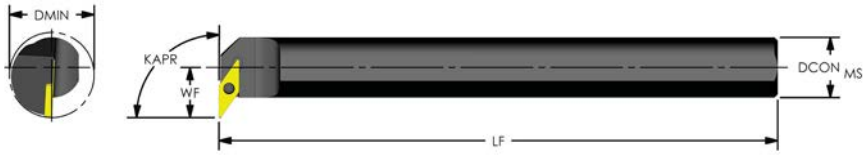


PG.507

POSITIVE 55° DIAMOND (KAPR: 107.5°) PROFILING

4:1 Ratio
NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-252	S06K SDQCR2	0.375	5.000	0.281	0.490	107.5	DCMT 21.51	MTS-255	T-7
957-000-287	S08M SDQCR2	0.500	6.000	0.341	0.620	107.5	DCMT 21.51	MTS-255	T-7
957-000-322	S10Q SDQCR2	0.625	7.000	0.406	0.760	107.5	DCMT 21.51	MTS-255	T-7



PG.507

POSITIVE 35° DIAMOND (KAPR: 90°) PROFILING

4:1 Ratio
NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-332	S10Q SVFBR2	0.625	7.000	0.500	0.850	90.0	VBMT 21.51	MTS-2.5L	T-7
957-000-357	S12Q SVFBR2	0.750	7.000	0.625	1.050	90.0	VBMT 21.51	MTS-2.5L	T-7
957-000-404	S16X SVFBR3	1.000	9.000	0.750	1.310	90.0	VBMT 331	MTS-3.5L	T-15

Product #	Insert Screws
968-000-094	MTS-35
968-000-092	MTS-255
968-000-090	MTS-2.5L
968-000-093	MTS-3.5L

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

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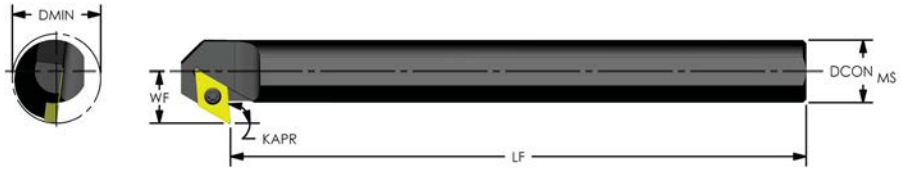


PG.507

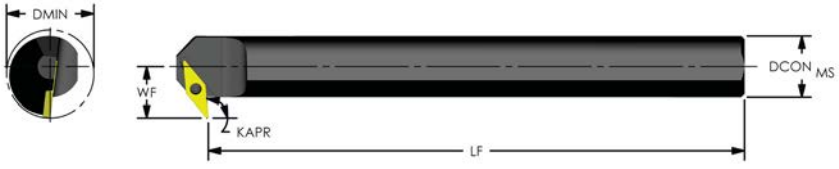
POSITIVE 55° DIAMOND (KAPR: 95°) BACK FACING

4:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-242	957-000-243	S06J SDXCR/L2	0.375	4.500	0.375	0.585	95.0	DCMT 21.51	MTS-255	T-7
957-000-290	957-000-291	S08M SDXCR/L2	0.500	6.000	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
957-000-309	957-000-310	S10M SDXCR/L2	0.625	6.000	0.500	0.850	95.0	DCMT 21.51	MTS-255	T-7
957-000-348	957-000-349	S12Q SDXCR/L3	0.750	7.000	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
957-000-402	957-000-403	S16X SDXCR/L3	1.000	9.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-017	957-000-018	A06J SDXCR/L2	0.375	4.500	0.375	0.585	95.0	DCMT 21.51	MTS-255	T-7
957-000-061	957-000-062	A08M SDXCR/L2	0.500	6.000	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
957-000-080	957-000-081	A10M SDXCR/L2	0.625	6.000	0.500	0.850	95.0	DCMT 21.51	MTS-255	T-7
957-000-114	957-000-115	A12Q SDXCR/L3	0.750	7.000	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
957-000-162	957-000-163	A16X SDXCR/L3	1.000	9.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15



PG.507

POSITIVE 35° DIAMOND (KAPR: 95°) BACK FACING

4:1 Ratio
NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-358	S12Q SVXBR2	0.750	6.600	0.625	1.050	95.0	VBMT 21.51	MTS-2.5L	T-7
957-000-405	S16X SVXBR3	1.000	9.000	0.875	1.435	95.0	VBMT 331	MTS-3.5L	T-15

Product #	Insert Screws
968-000-094	MTS-35
968-000-092	MTS-255
968-000-090	MTS-2.5L
968-000-093	MTS-3.5L

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

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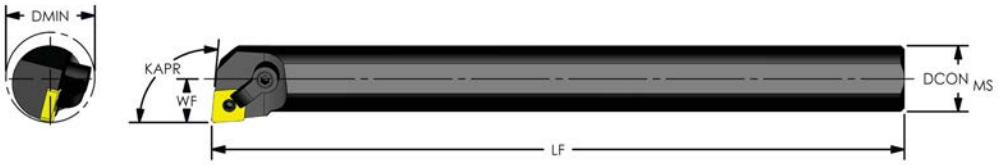
STEEL



PG.507

NEGATIVE 80° DIAMOND (KAPR: 95°)

4:1 Ratio

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-361	957-000-362	S12R MCLNR/L3	0.750	8.000	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
957-000-388	957-000-390	S16S MCLNR/L3	1.000	10.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
957-000-389	957-000-391	S16S MCLNR/L4	1.000	10.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
957-000-406	957-000-407	S20S MCLNR/L4	1.250	10.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-419	957-000-420	S20U MCLNR/L4	1.250	14.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-429	957-000-430	S24U MCLNR/L4	1.500	14.000	.890	1.730	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-442	957-000-443	S32V MCLNR/L4	2.000	16.000	1.281	2.400	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-125	957-000-126	A12R MCLNR/L3	0.750	8.000	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
957-000-151	957-000-153	A16S MCLNR/L3	1.000	10.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
957-000-152	957-000-154	A16S MCLNR/L4	1.000	10.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
957-000-164	957-000-165	A20S MCLNR/L4	1.250	10.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-178	957-000-179	A20U MCLNR/L4	1.250	14.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-189	957-000-190	A24U MCLNR/L4	1.500	14.000	0.890	1.730	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-200	957-000-201	A32V MCLNR/L4	2.000	16.000	1.281	2.400	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46

Product #	Shim Seat
968-000-053	ICSN-433

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-097	NL-33
968-000-101	NL-44
968-000-102	NL-46

PACKAGE SIZE OF 5

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47

PACKAGE SIZE OF 5

Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20

PACKAGE SIZE OF 1

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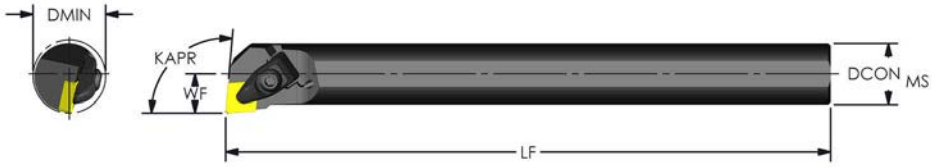
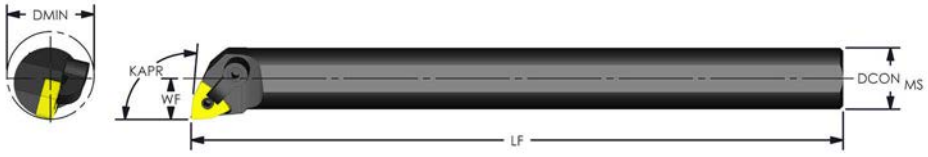


PG.507

NEGATIVE 80° DIAMOND (KAPR: 95°)

4:1 Ratio
COOLANT THRU

Product #	Designation	DCON MS	LF	WF	DMIN	Insert	Shim Seat	Shim Screw	Clamp Assy.
957-000-149	A16S DCLNR4	1.000	10.000	0.640	1.200	CNMG 432	N/A	N/A	PB4-CA
957-000-176	A20U DCLNR4	1.250	14.000	0.765	1.470	CNMG 432	ICSN-433	PB4-SS	PB4-CA
957-000-186	A24U DCLNR4	1.500	14.000	0.890	1.730	CNMG 432	ICSN-433	PB4-SS	PB4-CA



PG.507

NEGATIVE TRIGON (KAPR: 95°)

4:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-365	957-000-366	S12R MWLNR/L3	0.750	8.000	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-397	957-000-399	S16S MWLNR/L3	1.000	10.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-398	957-000-400	S16S MWLNR/L4	1.000	10.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
957-000-410	957-000-411	S20S MWLNR/L4	1.250	10.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-423	957-000-424	S20U MWLNR/L4	1.250	14.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-438	957-000-439	S24U MWLNR/L4	1.500	14.000	0.890	1.730	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-444	957-000-445	S32V MWLNR/L4	2.000	16.000	1.281	2.400	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-129	957-000-130	A12R MWLNR/L3	0.750	8.000	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-158	957-000-160	A16S MWLNR/L3	1.000	10.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-159	957-000-161	A16S MWLNR/L4	1.000	10.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
957-000-166	957-000-167	A20S MWLNR/L4	1.250	10.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-180	957-000-181	A20U MWLNR/L4	1.250	14.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-196	957-000-197	A24U MWLNR/L4	1.500	14.000	0.890	1.730	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-202	957-000-203	A32V MWLNR/L4	2.000	16.000	1.281	2.400	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46

Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47

PACKAGE SIZE OF 5

Product #	Shim Seat
968-000-053	ICSN-433
968-000-075	IWSN-433

PACKAGE SIZE OF 10

Product #	Shim Screw
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-110	PB4-CA

PACKAGE SIZE OF 1

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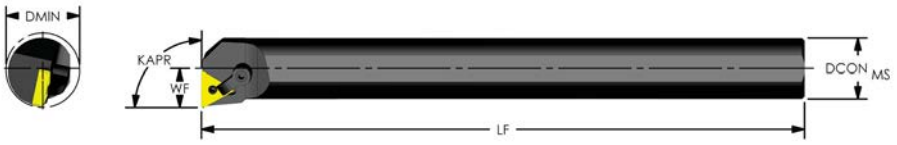
STEEL

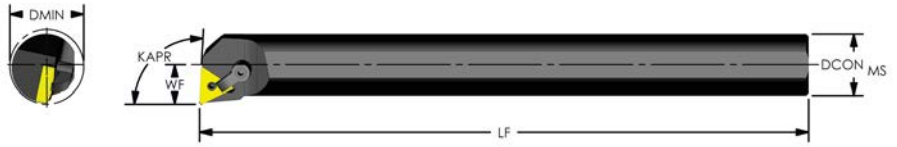


PG.507

NEGATIVE TRIANGLE (KAPR: 90°)

4:1 Ratio
NO COOLANT

Product #	Designation	DCON MS	LF	WF	DMIN	KAPR	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-394	S16S MTFNR3	1.000	10.000	0.640	1.200	90.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-408	S20S MTFNR3	1.250	10.000	0.765	1.470	90.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
957-000-421	S20U MTFNR3	1.250	14.000	0.765	1.470	90.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
957-000-435	S24U MTFNR4	1.500	14.000	0.890	1.730	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46

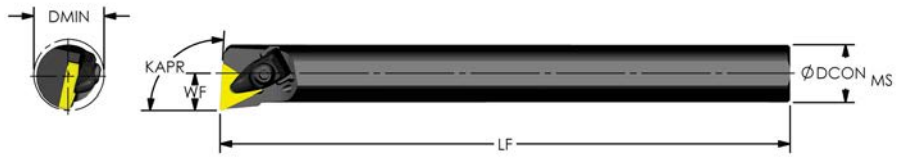


PG.507

NEGATIVE TRIANGLE (KAPR: 93°)

4:1 Ratio
NO COOLANT

Product #	Designation	DCON MS	LF	WF	DMIN	KAPR	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-395	S16S MTUNR3	1.000	10.000	0.640	1.200	93.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-409	S20S MTUNR3	1.250	10.000	0.765	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
957-000-422	S20U MTUNR3	1.250	14.000	0.765	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
957-000-436	S24U MTUNR4	1.500	14.000	0.890	1.730	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46



PG.507

NEGATIVE TRIANGLE (KAPR: 93°)

4:1 Ratio
COOLANT THRU

Product #	Designation	DCON MS	LF	WF	DMIN	KAPR	Insert	Shim Seat	Shim Screw	Clamp Assy.
957-000-150	A16S DTUNR4	1.000	10.000	0.640	1.200	93.0	TNMG 432	N/A	N/A	PB4-CA
957-000-177	A20U DTUNR4	1.250	14.000	0.765	1.470	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA
957-000-188	A24U DTUNR4	1.500	14.000	0.890	1.730	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA

Product #	Shim Seat
968-000-067	ITSN-323
968-000-068	ITSN-433

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-098	NL-33L
968-000-100	NL-34L
968-000-102	NL-46

PACKAGE SIZE OF 5

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47

PACKAGE SIZE OF 5

Product #	Shim Screw
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-110	PB4-CA

PACKAGE SIZE OF 1

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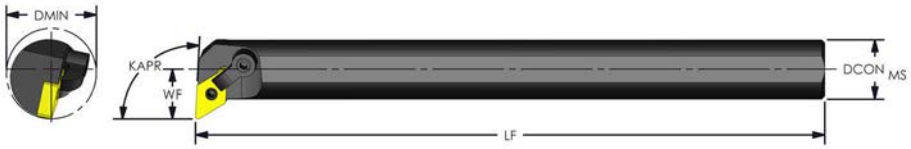


PG.507

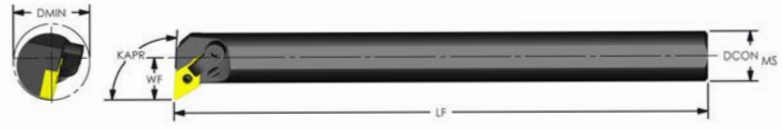
NEGATIVE 55° DIAMOND (KAPR: 93°) PROFILING

4:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-363	957-000-364	S12R MDUNR/L3	0.750	8.000	0.625	1.050	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-392	957-000-393	S16S MDUNR/L3	1.000	10.000	0.750	1.310	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-414	957-000-416	S20T MDUNR/L3	1.250	12.000	1.000	1.700	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
957-000-415	957-000-417	S20T MDUNR/L4	1.250	12.000	1.000	1.700	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
957-000-433	957-000-434	S24U MDUNR/L4	1.500	14.000	1.125	1.960	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-127	957-000-128	A12R MDUNR/L3	0.750	8.000	0.625	1.050	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-155	957-000-156	A16S MDUNR/L3	1.000	10.000	0.750	1.310	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-171	957-000-173	A20T MDUNR/L3	1.250	12.000	1.000	1.700	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
957-000-172	957-000-174	A20T MDUNR/L4	1.250	12.000	1.000	1.700	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
957-000-193	957-000-194	A24U MDUNR/L4	1.500	14.000	1.125	1.960	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46



PG.507

NEGATIVE 55° DIAMOND (KAPR: 93°)

4:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
957-000-168	A20T DDUNR4	1.250	12	1.000	1.700	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
957-000-187	A24U DDUNR4	1.500	14	1.125	1.965	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA

Product #	Shim Seat
968-000-056	IDSN-322
968-000-057	IDSN-433

PACKAGE SIZE OF 10

Product #	Clamp
968-000-017	CL-7
968-000-014	CL-22

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-176	XNS-36
968-000-178	XNS-48

PACKAGE SIZE OF 5

Product #	Shim Screw
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-110	PB4-CA

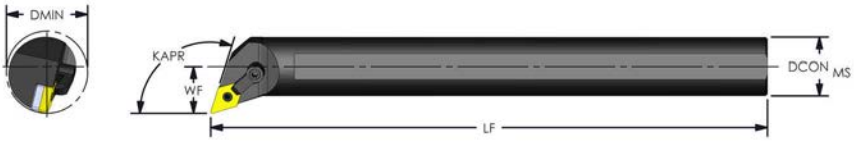
PACKAGE SIZE OF 1

Product #	Lock Pin
968-000-098	NL-33L
968-000-100	NL-34L
968-000-102	NL-46

PACKAGE SIZE OF 5

ULTRA-DEX®

STEEL



PG.507

NEGATIVE 55° DIAMOND (KAPR: 108°) PROFILING

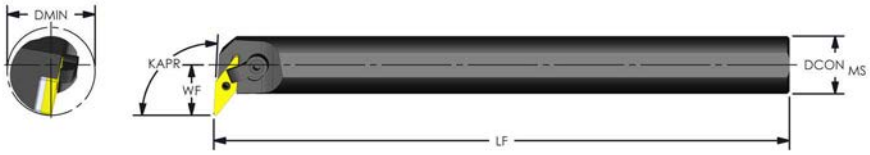
4:1 Ratio

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-412	957-000-413	S20T MDQNR/L4	1.250	12.000	1.000	1.700	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
957-000-431	957-000-432	S24U MDQNR/L4	1.500	14.000	1.125	1.960	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-169	957-000-170	A20T MDQNR/L4	1.250	12.000	1.000	1.700	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
957-000-191	957-000-192	A24U MDQNR/L4	1.500	14.000	1.125	1.960	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46



PG.507

NEGATIVE 35° DIAMOND (KAPR: 93°) PROFILING

4:1 Ratio

NO COOLANT

Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-396	S16S MVUNR3	1.000	10.000	.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
957-000-418	S20T MVUNR3	1.250	12.000	1.000	1.705	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
957-000-437	S24U MVUNR3	1.500	14.000	1.120	1.960	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L

COOLANT THRU

Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-157	A16S MVUNR3	1.000	10.000	0.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
957-000-175	A20T MVUNR3	1.250	12.000	1.000	1.705	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
957-000-195	A24U MVUNR3	1.500	14.000	1.120	1.960	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L

Product #	Shim Seat
968-000-057	IDSN-433
968-000-071	IVSN-322

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-100	NL-34L
968-000-102	NL-46

PACKAGE SIZE OF 5

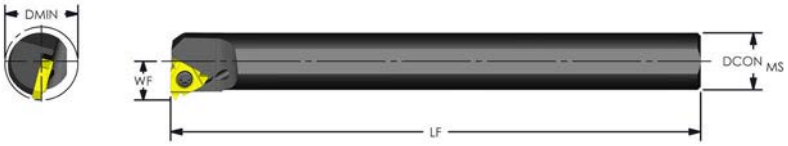
Product #	Clamp Screw
968-000-177	XNS-47
968-000-178	XNS-48

PACKAGE SIZE OF 5

Product #	Clamp
968-000-012	CL-20
968-000-014	CL-22

PACKAGE SIZE OF 1

ULTRA-DEX®



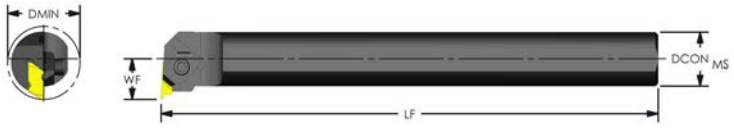
PG.507

THREADING/GROOVING LAYDOWN

4:1 Ratio
COOLANT THRU

Product #	Designation Right Hand	DCONMS [in.]	LF [in.]	WF [in.]	L [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
957-000-046	A08M LSER2	0.500	6.000	0.308	N/A	0.588	2IR	SR34505	N/A	N/A
957-000-082	A10Q LSER2	0.625	7.000	0.371	N/A	0.721	2IR	SR34505	N/A	N/A
957-000-105	A12Q LSER3	0.750	7.000	0.510	N/A	0.935	3IR	MTS-35	N/A	N/A
957-000-132	A16R LSER3	1.000	8.000	0.650	N/A	1.210	3IR	SA3T	SY3T	YI3

Product #	Designation Left Hand	DCONMS [in.]	LF [in.]	WF [in.]	L [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
957-000-104	A12Q LSEL3	0.750	7.000	0.510	N/A	0.935	3IL	MTS-35	N/A	N/A
957-000-131	A16R LSEL3	1.000	8.000	0.650	N/A	1.210	3IL	SA3T	SY3T	YE3



PG.507

THREADING/GROOVING, NOTCH STYLE

4:1 Ratio
NO COOLANT

Product #	Designation Right Hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
957-000-273	S08M NER2	0.500	6.000	0.437	0.730	NG-2L	CM-147	6-32
957-000-312	S10Q NER2	0.625	7.000	0.500	1.000	N/A	CM-75	6-32
957-000-338	S12Q NER2	0.750	7.000	0.562	1.120	N/A	CM-75	6-32
957-000-369	S16R NER3	1.000	8.000	0.688	1.250	NG-3L	CM-73	10-32

Product #	Designation Left Hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
957-000-272	S08M NEL2	0.500	6.000	0.437	0.730	NG-2R	CM-146	6-32
957-000-311	S10Q NEL2	0.625	7.000	0.500	1.000	NG-2R	CM-74	6-32
957-000-337	S12Q NEL2	0.750	7.000	0.562	1.120	NG-2R	CM-74	6-32
957-000-368	S16R NEL3	1.000	8.000	0.688	1.250	NG-3R	CM-72	10-32

Product #	Clamp
968-000-025	CM-72
968-000-026	CM-73
968-000-027	CM-74
968-000-028	CM-75
968-000-023	CM-146
968-000-024	CM-147

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-005	6-32
968-000-003	10-32

PACKAGE SIZE OF 5

Product #	Anvil
968-000-182	YE3

PACKAGE SIZE OF 1

Product #	Insert Screw
968-000-124	SA3T
968-000-094	MTS-35
968-000-134	SR34505

PACKAGE SIZE OF 5

ULTRA-DEX®

957-000-204

COOLANT THRU

(1) A06K SCLCR2 (3/8” Bar)
(1) A08M SCLCR2 (1/2” Bar)
(1) A10Q SCLCR2 (5/8” Bar)
(5) CCMT 21.51 ZX3-UD51

957-000-205

COOLANT THRU

(1) A10Q SCLCR3 (5/8” Bar)
(1) A12Q SCLCR3 (3/4” Bar)
(1) A16R SCLCR3 (1” Bar)
(5) CCMT 32.51 ZX3-UD51

957-000-206

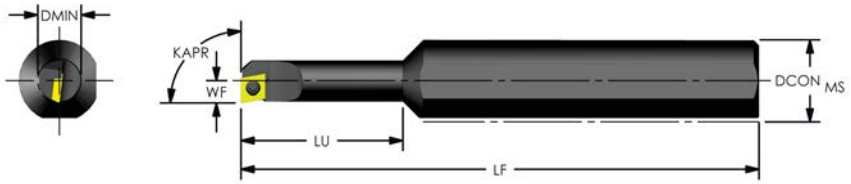
NO COOLANT

(1) S03G SCLDR1.2
(1) S03.5G SCLDR1.5
(1) S04G SCLDR1.5
(1) S05G SCLPR1.8

(2) CDHB 1.20.60 UD51
(2) CDGW 1.510 UD51
(2) CPMT 1.81.20.5 LX6-UD52

Product #	PRODUCT KITS
957-000-204	PDBK-356
957-000-205	PDBK-671
957-000-206	PDBK-MINI

ULTRA-DEX®

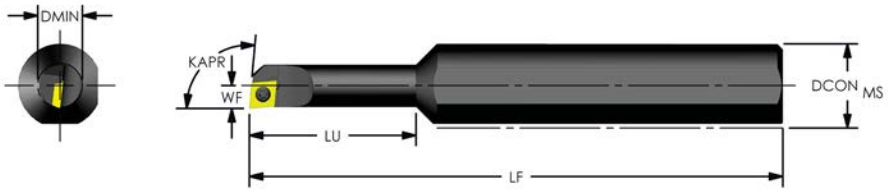


PG.507

POSITIVE 80° DIAMOND (KAPR: 90°) REDUCED NECK

NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-450	SCFDR2-5	0.625	4.000	0.500	0.138	0.276	90.0	CDGW 1.510	MTS-184	T-6
957-000-446	SCFDR2-15	0.625	4.000	1.000	0.138	0.276	90.0	CDGW 1.510	MTS-184	T-6
957-000-447	SCFDR2-25	0.625	4.000	0.750	0.167	0.334	90.0	CDGW 1.510	MTS-184	T-6
957-000-448	SCFDR2-35	0.625	4.000	1.250	0.167	0.334	90.0	CDGW 1.510	MTS-184	T-6
957-000-449	SCFDR2-45	0.625	4.000	1.000	0.203	0.450	90.0	CDGW 1.510	MTS-184	T-6
957-000-451	SCFDR2-55	0.625	4.000	1.500	0.203	0.450	90.0	CDGW 1.510	MTS-184	T-6



PG.507

POSITIVE 80° DIAMOND (KAPR: 95°) REDUCED NECK

NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-456	SCLDR2-5	0.625	4.000	0.500	0.138	0.276	95.0	CDGW 1.510	MTS-184	T-6
957-000-452	SCLDR2-15	0.625	4.000	1.000	0.138	0.276	95.0	CDGW 1.510	MTS-184	T-6
957-000-453	SCLDR2-25	0.625	4.000	0.750	0.167	0.334	95.0	CDGW 1.510	MTS-184	T-6
957-000-454	SCLDR2-35	0.625	4.000	1.250	0.167	0.334	95.0	CDGW 1.510	MTS-184	T-6
957-000-455	SCLDR2-45	0.625	4.000	1.000	0.203	0.450	95.0	CDGW 1.510	MTS-184	T-6
957-000-457	SCLDR2-55	0.625	4.000	1.500	0.203	0.450	95.0	CDGW 1.510	MTS-184	T-6

Product #	Insert Screws
968-000-087	MTS-184

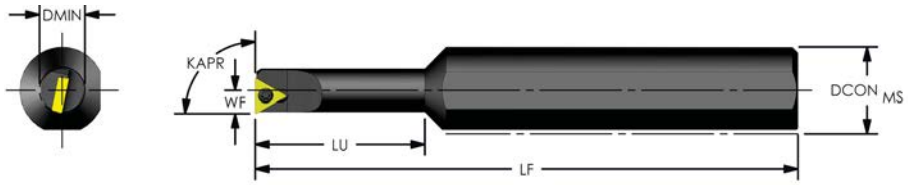
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6

PACKAGE SIZE OF 5

ULTRA-DEX®

STEEL

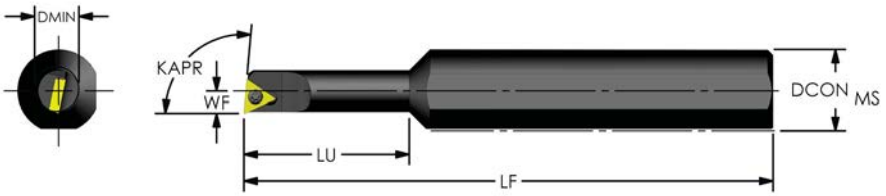


PG.507

POSITIVE TRIANGLE (KAPR: 90°) REDUCED NECK

NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-462	STFCR2-5	0.625	4.000	0.500	0.138	0.276	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-458	STFCR2-15	0.625	4.000	1.000	0.138	0.276	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-459	STFCR2-25	0.625	4.000	0.750	0.167	0.334	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-460	STFCR2-35	0.625	4.000	1.250	0.167	0.334	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-461	STFCR2-45	0.625	4.000	1.000	0.203	0.450	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-463	STFCR2-55	0.625	4.000	1.500	0.203	0.450	90.0	TCMT 1.21.20.5	MTS-184	T-6



PG.507

POSITIVE TRIANGLE (KAPR: 95°) REDUCED NECK

NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-468	STLCR2-5	0.625	4.000	0.500	0.138	0.276	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-464	STLCR2-15	0.625	4.000	1.000	0.138	0.276	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-465	STLCR2-25	0.625	4.000	0.750	0.167	0.334	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-466	STLCR2-35	0.625	4.000	1.250	0.167	0.334	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-467	STLCR2-45	0.625	4.000	1.000	0.203	0.450	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-469	STLCR2-55	0.625	4.000	1.500	0.203	0.450	95.0	TCMT 1.21.20.5	MTS-184	T-6

Product #	Insert Screws
968-000-087	MTS-184

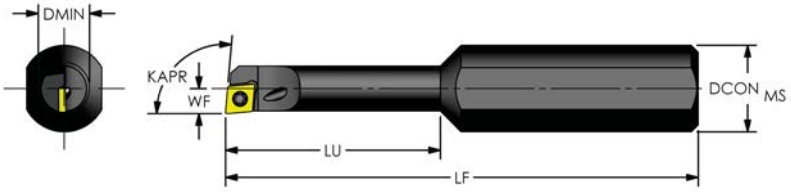
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6

PACKAGE SIZE OF 5

STEEL

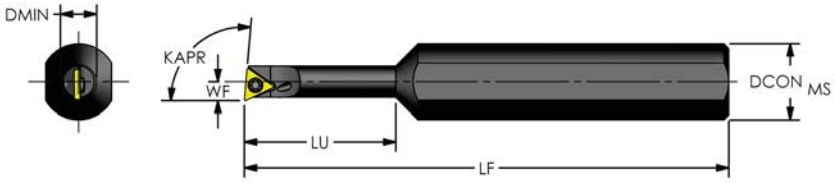
ULTRA-DEX®



PG.508

POSITIVE 80° DIAMOND (KAPR: 95°) REDUCED NECK *SERIES "C"* COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-017	CSUD-180/375-1/2-5R	0.375	2.500	0.500	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-018	CSUD-180/375-1-5R	0.375	2.500	1.000	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-022	CSUD-203/375-1/2-5R	0.375	2.500	0.500	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-023	CSUD-203/375-1-5R	0.375	2.500	1.000	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-026	CSUD-250/375-11/4-5R	0.375	2.500	1.250	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-019	CSUD-180/500-1/2-5R	0.500	2.750	0.500	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-020	CSUD-180/500-1-5R	0.500	2.750	1.000	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-024	CSUD-203/500-1/2-5R	0.500	2.750	0.500	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-025	CSUD-203/500-1-5R	0.500	2.750	1.000	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-028	CSUD-250/500-3/4-5R	0.500	2.750	0.750	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6
915-000-027	CSUD-250/500-11/4-5R	0.500	2.750	1.250	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6



PG.508

POSITIVE TRIANGLE (KAPR: 95°) REDUCED NECK *SERIES "F, Q"* COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-041	FSUD-203/500-1/2-5R	0.500	3.000	0.500	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-042	FSUD-203/500-1-5R	0.500	3.000	1.000	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-044	FSUD-250/500-3/4-5R	0.500	3.000	0.750	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-050	FSUD-312/500-1-5R	0.500	3.000	1.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-049	FSUD-312/500-11/2-5R	0.500	3.000	1.500	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-043	FSUD-203/625-1/2-5R	0.625	4.000	0.500	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-046	FSUD-250/625-3/4-5R	0.625	4.000	0.750	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-045	FSUD-250/625-11/4-5R	0.625	4.000	1.250	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-051	FSUD-312/625-1-5R	0.625	4.000	1.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-072	QSUD-375/500-11/8-5R	0.500	3.750	1.125	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-073	QSUD-375/500-17/8-5R	0.500	3.750	1.875	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-074	QSUD-375/625-11/8-5R	0.625	4.250	1.125	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-075	QSUD-375/625-17/8-5R	0.625	4.250	1.875	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-076	QSUD-375/750-11/2-5R	0.750	4.000	1.500	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-081	QSUD-625/750-21/2-5R	0.750	4.500	2.500	0.353	0.688	95.0	TPCB 220.5	ETS 4-40	T-10

Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-091	MTS-224
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10

PACKAGE SIZE OF 5

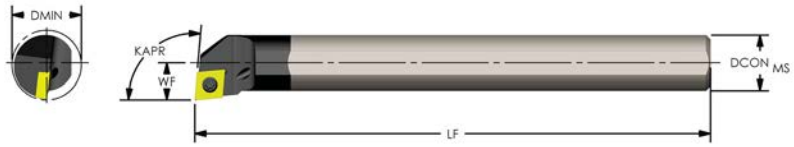
CARBIDE BORING BAR

Maximum rigidity and efficiency for use in tougher applications

Up to 8:1 Ratio

.156”-1.5” Diameters

ULTRA-DEX®



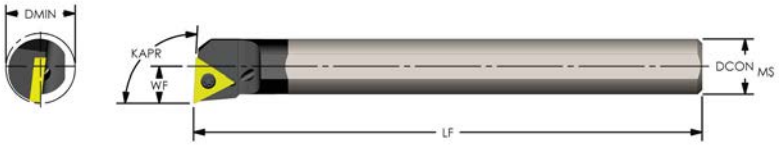
PG.507

POSITIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [mm]	LF [mm]	WF [mm]	DMIN [mm]	KAPR [°]	Insert	Insert Screw	Key
920-000-428	920-000-429	M-E06H SCLDR/L04*	6.00	100.00	3.50	7.00	95.0	CDGW 1.510	MTS-184	T-6
920-000-432	920-000-433	M-E08K SCLCR/L06*	8.00	125.00	6.00	11.00	95.0	CCMT 21.51	MTS-255	T-7
920-000-436	920-000-437	M-E10M SCLCR/L06	10.00	150.00	7.00	13.00	95.0	CCMT 21.51	MTS-255	T-7
920-000-442	920-000-443	M-E12Q SCLCR/L06	12.00	180.00	9.00	16.00	95.0	CCMT 21.51	MTS-255	T-7
920-000-448	920-000-449	M-E16R SCLCR/L09	16.00	200.00	11.00	20.00	95.0	CCMT 32.51	MTS-35	T-15
920-000-454	920-000-455	M-E20S SCLCR/L09	20.00	250.00	13.00	25.00	95.0	CCMT 32.51	MTS-35	T-15
920-000-460	920-000-461	M-E25T SCLCR/L09	25.00	300.00	17.00	32.00	95.0	CCMT 32.51	MTS-35	T-15

*bars 8mm and smaller do not have flats



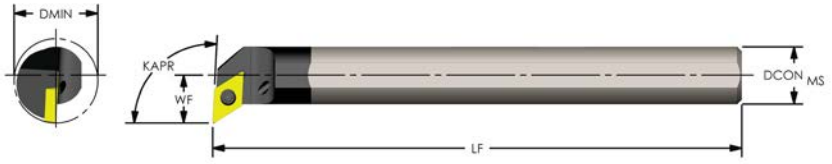
PG.507

POSITIVE TRIANGLE (KAPR: 93°)

8:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [mm]	LF [mm]	WF [mm]	DMIN [mm]	KAPR [°]	Insert	Insert Screw	Key
920-000-430	920-000-431	M-E06H STUCR/L06*	6.00	100.00	3.50	7.00	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-434	920-000-435	M-E08K STUCR/L06*	8.00	125.00	6.00	11.00	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-440	920-000-441	M-E10M STUCR/L11	10.00	150.00	7.00	13.00	93.0	TCMT 21.51	MTS-255	T-7
920-000-446	920-000-447	M-E12Q STUCR/L11	12.00	180.00	9.00	16.00	93.0	TCMT 21.51	MTS-255	T-7
920-000-452	920-000-453	M-E16R STUCR/L11	16.00	200.00	11.00	20.00	93.0	TCMT 21.51	MTS-255	T-7
920-000-458	920-000-459	M-E20S STUCR/L16	20.00	250.00	13.00	25.00	93.0	TCMT 32.51	MTS-35	T-15
920-000-464	920-000-465	M-E25T STUCR/L16	25.00	300.00	17.00	32.00	93.0	TCMT 32.51	MTS-35	T-15

*bars 8mm and smaller do not have flats



PG.507

POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

8:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [mm]	LF [mm]	WF [mm]	DMIN [mm]	KAPR [°]	Insert	Insert Screw	Key
920-000-438	920-000-439	M-E10M SDUCR/L07	10.00	150.00	9.00	15.00	93.0	DCMT 21.51	MTS-255	T-7
920-000-444	920-000-445	M-E12Q SDUCR/L07	12.00	180.00	11.00	18.00	93.0	DCMT 21.51	MTS-255	T-7
920-000-450	920-000-451	M-E16R SDUCR/L07	16.00	200.00	13.00	22.00	93.0	DCMT 21.51	MTS-255	T-7
920-000-456	920-000-457	M-E20S SDUCR/L11	20.00	250.00	15.00	27.00	93.0	DCMT 32.51	MTS-35	T-15
920-000-462	920-000-463	M-E25T SDUCR/L11	25.00	300.00	18.00	33.00	93.0	DCMT 32.51	MTS-35	T-15

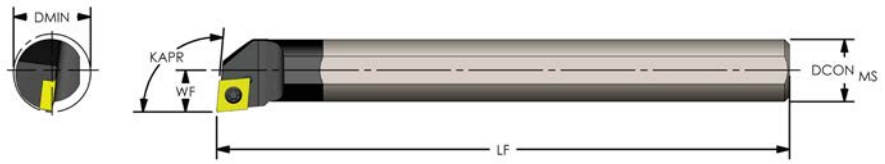
Product #	Insert Screws
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®



PG.507

POSITIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-001	920-000-002	C02.5G SCLDR/L1.2*	0.156	3.500	0.090	0.175	95.0	CDHB 1.20.60	MTS-183	T-6
920-000-005	920-000-006	C03H SCLDR/L1.2*	0.187	4.000	0.102	0.205	95.0	CDHB 1.20.60	MTS-183	T-6
920-000-003	920-000-004	C03.5H SCLDR/L1.5*	0.218	4.000	0.125	0.245	95.0	CDGW 1.510	MTS-184	T-6
920-000-008	920-000-010	C04H SCLDR/L1.5*	0.250	4.000	0.172	0.312	95.0	CDGW 1.510	MTS-184	T-6
920-000-018	920-000-020	C05K SCLPR/L1.8*	0.312	5.000	0.219	0.395	95.0	CPMT 1.81.20.5	MTS-224	T-7
920-000-032	920-000-034	C06M SCLPR/L2	0.375	6.000	0.250	0.460	95.0	CPMT 21.51	MTS-255	T-7
920-000-062	920-000-065	C08J SCLPR/L2	0.500	4.500	0.312	0.600	95.0	CPMT 21.51	MTS-255	T-7
920-000-094	920-000-097	C08R SCLPR/L2	0.500	8.000	0.312	0.600	95.0	CPMT 21.51	MTS-255	T-7
920-000-064	920-000-067	C08J SCLPR/L3	0.500	4.500	0.344	0.625	95.0	CPMT 32.51	MTS-35	T-15
920-000-096	920-000-099	C08R SCLPR/L3	0.500	8.000	0.344	0.625	95.0	CPMT 32.51	MTS-35	T-15
920-000-028	920-000-030	C06M SCLCR/L2	0.375	6.000	0.250	0.460	95.0	CCMT 21.51	MTS-255	T-7
920-000-056	920-000-059	C08J SCLCR/L2	0.500	4.500	0.312	0.600	95.0	CCMT 21.51	MTS-255	T-7
920-000-088	920-000-091	C08R SCLCR/L2	0.500	8.000	0.312	0.600	95.0	CCMT 21.51	MTS-255	T-7
920-000-058	920-000-061	C08J SCLCR/L3	0.500	4.500	0.344	0.625	95.0	CCMT 32.51	MTS-35	T-15
920-000-090	920-000-093	C08R SCLCR/L3	0.500	8.000	0.344	0.625	95.0	CCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-009	920-000-011	C04H SCLDR/L1.5-138 *	0.250	4.000	0.138	0.275	95.0	CDGW 1.510	MTS-184	T-6
920-000-019	920-000-021	C05K SCLPR/L1.8-167 *	0.312	5.000	0.167	0.340	95.0	CPMT 1.81.20.5	MTS-224	T-7
920-000-033	920-000-035	C06M SCLPR/L2-203	0.375	6.000	0.203	0.410	95.0	CPMT 21.51	MTS-255	T-7
920-000-063	920-000-066	C08J SCLPR/L2-281	0.500	4.500	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
920-000-095	920-000-098	C08R SCLPR/L2-281	0.500	8.000	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
920-000-029	920-000-031	C06M SCLCR/L2-203	0.375	6.000	0.203	0.410	95.0	CCMT 21.51	MTS-255	T-7
920-000-057	920-000-060	C08J SCLCR/L2-281	0.500	4.500	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7
920-000-089	920-000-092	C08R SCLCR/L2-281	0.500	8.000	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35

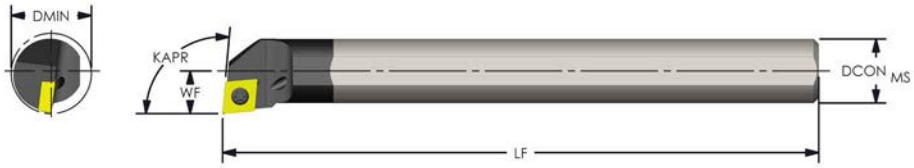
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®



PG.507

POSITIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCON MS	LF	WF	DMIN	KAPR	Insert	Insert Screw	Key
920-000-120	920-000-121	E02.5G SCLDR/L1.2 *	0.156	3.500	0.090	0.175	95.0	CDHB 1.20.60	MTS-183	T-6
920-000-124	920-000-125	E03H SCLDR/L1.2 *	0.187	4.000	0.102	0.205	95.0	CDHB 1.20.60	MTS-183	T-6
920-000-122	920-000-123	E03.5H SCLDR/L1.5 *	0.218	4.000	0.125	0.245	95.0	CDGW 1.510	MTS-184	T-6
920-000-127	920-000-129	E04H SCLDR/L1.5 *	0.250	4.000	0.172	0.312	95.0	CDGW 1.510	MTS-184	T-6
920-000-137	920-000-139	E05K SCLPR/L1.8 *	0.312	5.000	0.219	0.395	95.0	CPMT 1.81.20.5	MTS-224	T-7
920-000-151	920-000-153	E06M SCLPR/L2	0.375	6.000	0.250	0.460	95.0	CPMT 21.51	MTS-255	T-7
920-000-183	920-000-186	E08J SCLPR/L2	0.500	4.500	0.312	0.600	95.0	CPMT 21.51	MTS-255	T-7
920-000-219	920-000-222	E08R SCLPR/L2	0.500	8.000	0.312	0.600	95.0	CPMT 21.51	MTS-255	T-7
920-000-254	920-000-256	E10Q SCLPR/L2	0.625	7.000	0.406	0.770	95.0	CPMT 21.51	MTS-255	T-7
920-000-279	920-000-281	E10S SCLPR/L2	0.625	10.000	0.406	0.770	95.0	CPMT 21.51	MTS-255	T-7
920-000-185	920-000-188	E08J SCLPR/L3	0.500	4.500	0.344	0.625	95.0	CPMT 32.51	MTS-35	T-15
920-000-221	920-000-224	E08R SCLPR/L3	0.500	8.000	0.344	0.625	95.0	CPMT 32.51	MTS-35	T-15
920-000-255	920-000-257	E10Q SCLPR/L3	0.625	7.000	0.406	0.760	95.0	CPMT 32.51	MTS-35	T-15
920-000-280	920-000-282	E10S SCLPR/L3	0.625	10.000	0.406	0.760	95.0	CPMT 32.51	MTS-35	T-15
920-000-308	920-000-309	E12Q SCLPR/L3	0.750	7.000	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
920-000-334	920-000-335	E12S SCLPR/L3	0.750	10.000	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
920-000-364	920-000-365	E16R SCLPR/L3	1.000	8.000	0.625	1.185	95.0	CPMT 32.51	MTS-35	T-15
920-000-394	920-000-395	E16T SCLPR/L3	1.000	12.000	0.625	1.185	95.0	CPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-128	920-000-130	E04H SCLDR/L1.5-138 *	0.250	4.000	0.138	0.275	95.0	CDGW 1.510	MTS-184	T-6
920-000-138	920-000-140	E05K SCLPR/L1.8-167 *	0.312	5.000	0.167	0.340	95.0	CPMT 1.81.20.5	MTS-224	T-7
920-000-152	920-000-154	E06M SCLPR/L2-203	0.375	6.000	0.203	0.410	95.0	CPMT 21.51	MTS-255	T-7
920-000-184	920-000-187	E08J SCLPR/L2-281	0.500	4.500	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
920-000-220	920-000-223	E08R SCLPR/L2-281	0.500	8.000	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

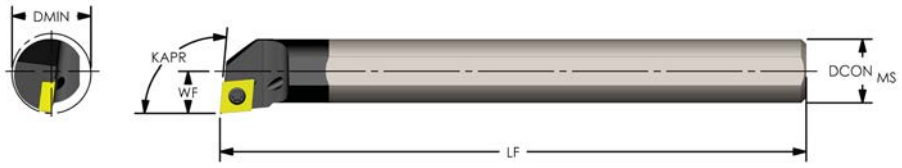
Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®



PG.507

POSITIVE 80° DIAMOND (KAPR: 95°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-147	920-000-149	E06M SCLCR/L2	0.375	6.000	0.250	0.460	95.0	CCMT 21.51	MTS-255	T-7
920-000-177	920-000-180	E08J SCLCR/L2	0.500	4.500	0.312	0.600	95.0	CCMT 21.51	MTS-255	T-7
920-000-213	920-000-216	E08R SCLCR/L2	0.500	8.000	0.312	0.600	95.0	CCMT 21.51	MTS-255	T-7
920-000-250	920-000-252	E10Q SCLCR/L2	0.625	7.000	0.406	0.760	95.0	CCMT 21.51	MTS-255	T-7
920-000-275	920-000-277	E10S SCLCR/L2	0.625	10.00	0.406	0.760	95.0	CCMT 21.51	MTS-255	T-7
920-000-179	920-000-182	E08J SCLCR/L3	0.500	4.500	0.344	0.625	95.0	CCMT 32.51	MTS-35	T-15
920-000-215	920-000-218	E08R SCLCR/L3	0.500	8.000	0.344	0.625	95.0	CCMT 32.51	MTS-35	T-15
920-000-251	920-000-253	E10Q SCLCR/L3	0.625	7.000	0.406	0.760	95.0	CCMT 32.51	MTS-35	T-15
920-000-276	920-000-278	E10S SCLCR/L3	0.625	10.00	0.406	0.760	95.0	CCMT 32.51	MTS-35	T-15
920-000-306	920-000-307	E12Q SCLCR/L3	0.750	7.000	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15
920-000-332	920-000-333	E12S SCLCR/L3	0.750	10.00	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15
920-000-362	920-000-363	E16R SCLCR/L3	1.000	8.000	0.625	1.185	95.0	CCMT 32.51	MTS-35	T-15
920-000-392	920-000-393	E16T SCLCR/L3	1.000	12.00	0.625	1.185	95.0	CCMT 32.51	MTS-35	T-15
920-000-417	920-000-419	E20U SCLCR/L3	1.250	14.00	0.765	1.465	95.0	CCMT 32.51	MTS-35	T-15
920-000-418	920-000-420	E20U SCLCR/L4	1.250	14.00	0.765	1.465	95.0	CCMT 432	MTS-4	T-20
920-000-426	920-000-427	E24U SCLCR/L4	1.500	14.00	0.890	1.730	95.0	CCMT 432	MTS-4	T-20

MINIMUM CLEARANCE

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-148	920-000-150	E06M SCLCR/L2-203	0.375	6.000	0.203	0.410	95.0	CCMT 21.51	MTS-255	T-7
920-000-178	920-000-181	E08J SCLCR/L2-281	0.500	4.500	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7
920-000-214	920-000-217	E08R SCLCR/L2-281	0.500	8.000	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35
968-000-095	MTS-4

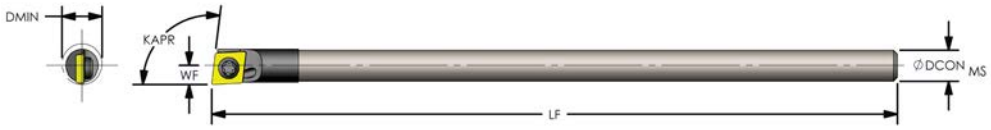
PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®



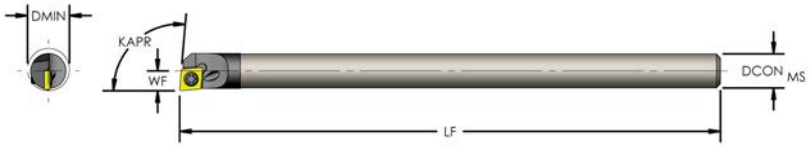
PG.508

POSITIVE 80° DIAMOND (KAPR: 97°) *SERIES "C"*

8:1 Ratio
COOLANT THRU

Product #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-001	CCUD-165/156-6-7R *	0.156	6.000	0.095	0.180	97.0	CDHB 1.20.60.5	MTS-183	T-6

* bars .312 and smaller do not have flats



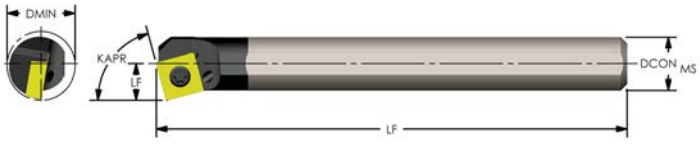
PG.508

POSITIVE 80° DIAMOND (KAPR: 95°) *SERIES "C"*

8:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-002	CCUD-180/187-4-5R *	0.187	4.000	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-003	CCUD-180/187-6-5R *	0.187	6.000	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-006	CCUD-187-4-5R *	0.187	4.000	0.111	0.222	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-007	CCUD-187-6-5R *	0.187	6.000	0.111	0.222	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-011	CCUD-250-4-5R *	0.250	4.000	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6
915-000-013	CCUD-250-6-5R *	0.250	6.000	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6
915-000-014	CCUD-312-5-5R *	0.312	5.000	0.185	0.360	95.0	CDHB 1.20.60.5	MTS-184	T-6
915-000-012	CCUD-250-4-5R-1.5 *	0.250	4.000	0.145	0.285	95.0	CDGW 1.510	MTS-184	T-6

* bars .312 and smaller do not have flats



PG.507

POSITIVE SQUARE (KAPR: 75°)

8:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-230	E08R SSKCR3	0.500	8.000	0.344	0.625	75.0	SCMT 32.51	MTS-35	T-15
920-000-288	E10S SSKCR3	0.625	10.00	0.406	0.760	75.0	SCMT 32.51	MTS-35	T-15

Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-094	MTS-35

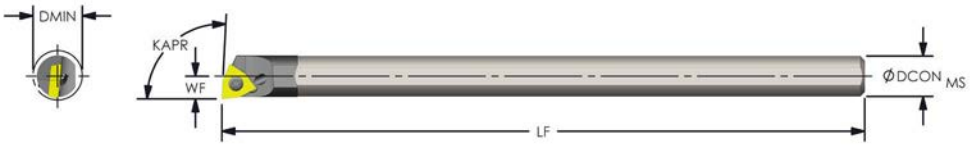
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-151	T-15

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®

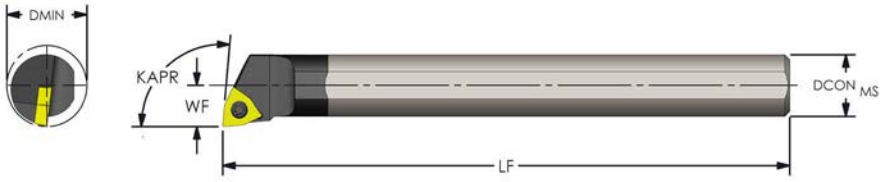


PG.508

POSITIVE TRIGON (KAPR: 93°) *SERIES "G, Q, S"*

8:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-053	915-000-054	GCUDW-187-6-3R/L	0.187	6.000	0.126	0.260	93.0	WPGT 1.511	MTS-184	T-6
915-000-055	915-000-056	GCUDW-250-6-3R/L	0.250	6.000	0.143	0.285	93.0	WPGT 1.511	MTS-184	T-6
915-000-057	915-000-058	GCUDW-312-6-3R/L	0.312	6.000	0.174	0.374	93.0	WPGT 1.511	MTS-184	T-6
915-000-068	915-000-069	QCUDW-375-6-3R/L	0.375	6.000	0.211	0.415	93.0	WPGT 21.50	MTS-255	T-7
915-000-070	915-000-071	QCUDW-500-8-3R/L	0.500	8.000	0.273	0.540	93.0	WPGT 21.50	MTS-255	T-7
N/A	915-000-090	SCUDW-625-10-3R	0.625	10.000	0.345	0.675	93.0	WPMT 32.51	MTS-35	T-15
N/A	915-000-091	SCUDW-750-10-3R	0.750	10.000	0.407	0.800	93.0	WPMT 32.51	MTS-35	T-15



PG.507

POSITIVE TRIGON (KAPR: 95°)

8:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	920-000-007	C03H SWLCR1.2 *	0.187	4.000	0.102	0.205	95.0	WCMT 1.210.5	MTS-183	T-6
N/A	920-000-016	C04H SWLCR1.2 *	0.250	4.000	0.172	0.312	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	920-000-026	C05K SWLCR1.5 *	0.312	5.000	0.219	0.395	95.0	WCMT 1.51.50.5	MTS-2	T-6
920-000-052	920-000-054	C06M SWLCR/L2	0.375	6.000	0.250	0.460	95.0	WCMT 21.51	MTS-255	T-7
920-000-084	920-000-086	C08J SWLCR/L2	0.500	4.500	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
920-000-116	920-000-118	C08R SWLCR/L2	0.500	8.000	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7

MINIMUM CLEARANCE

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	920-000-017	C04H SWLCR1.2-138 *	0.250	4.000	0.138	0.275	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	920-000-027	C05K SWLCR1.5-167 *	0.312	5.000	0.167	0.345	95.0	WCMT 1.51.50.5	MTS-2	T-6
920-000-053	920-000-055	C06M SWLCR/L2-203	0.375	6.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
920-000-085	920-000-087	C08J SWLCR/L2-281	0.500	4.500	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7
920-000-117	920-000-119	C08R SWLCR/L2-281	0.500	8.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-094	MTS-35

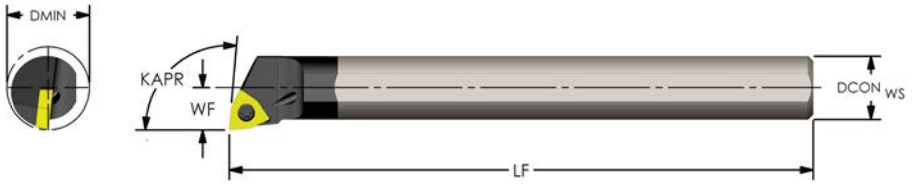
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®



PG.507

POSITIVE TRIGON (KAPR: 95°)

8:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	920-000-126	E03H SWLCR1.2 *	0.187	4.000	0.102	0.205	95.0	WCMT 1.210.5	MTS-183	T-6
N/A	920-000-135	E04H SWLCR1.2 *	0.250	4.000	0.172	0.395	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	920-000-145	E05K SWLCR1.5 *	0.312	5.000	0.219	0.410	95.0	WCMT1.51.50.5	MTS-2	T-6
920-000-173	920-000-175	E06M SWLCR/L2	0.375	6.000	0.250	0.460	95.0	WCMT 21.51	MTS-255	T-7
920-000-205	920-000-207	E08J SWLCR/L2	0.500	4.500	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
920-000-244	920-000-246	E08R SWLCR/L2	0.500	8.000	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
920-000-269	920-000-271	E10Q SWLCR/L2	0.625	7.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
920-000-296	920-000-298	E10S SWLCR/L2	0.625	10.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
920-000-270	920-000-272	E10Q SWLCR/L3	0.625	7.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
920-000-297	920-000-299	E10S SWLCR/L3	0.625	10.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
920-000-322	920-000-323	E12Q SWLCR/L3	0.750	7.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
920-000-350	920-000-351	E12S SWLCR/L3	0.750	10.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
920-000-378	920-000-379	E16R SWLCR/L3	1.000	8.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15
920-000-408	920-000-409	E16T SWLCR/L3	1.000	12.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	920-000-136	E04H SWLCR1.2-138 *	0.250	4.000	0.138	0.275	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	920-000-146	E05K SWLCR1.5-167 *	0.312	5.000	0.167	0.345	95.0	WCMT 1.51.50.5	MTS-2	T-6
920-000-174	920-000-176	E06M SWLCR/L2-203	0.375	6.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
920-000-206	920-000-208	E08J SWLCR/L2-281	0.500	4.500	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7
920-000-245	920-000-247	E08R SWLCR/L2-281	0.500	8.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-094	MTS-35

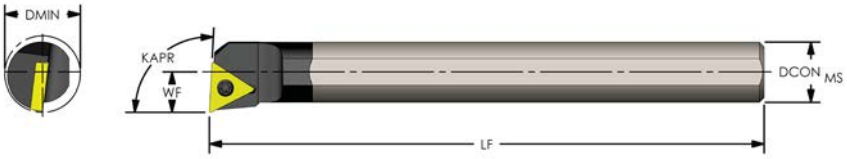
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®



PG.507

POSITIVE TRIANGLE (KAPR: 93°)

8:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-012	920-000-014	C04H STUCR/L1.2 *	0.250	4.000	0.172	0.312	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-022	920-000-024	C05K STUCR/L1.2 *	0.312	5.000	0.219	0.395	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-044	920-000-046	C06M STUCR/L2	0.375	6.000	0.250	0.460	93.0	TCMT 21.51	MTS-255	T-7
920-000-076	920-000-078	C08J STUCR/L2	0.500	4.500	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
920-000-108	920-000-110	C08R STUCR/L2	0.500	8.000	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
920-000-048	920-000-050	C06M STUPR/L2	0.375	6.000	0.250	0.460	93.0	TPMT 21.51	MTS-255	T-7
920-000-080	920-000-082	C08J STUPR/L2	0.500	4.500	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
920-000-112	920-000-114	C08R STUPR/L2	0.500	8.000	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7

MINIMUM CLEARANCE

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-013	920-000-015	C04H STUCR/L1.2-138 *	0.250	4.000	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-023	920-000-025	C05K STUCR/L1.2-167 *	0.312	5.000	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-045	920-000-047	C06M STUCR/L2-203	0.375	6.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
920-000-077	920-000-079	C08J STUCR/L2-281	0.500	4.500	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
920-000-109	920-000-111	C08R STUCR/L2-281	0.500	8.000	0.281	0.570	93.0	TCMT 21.51	MTS-255	T-7
920-000-049	920-000-051	C06M STUPR/L2-203	0.375	6.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
920-000-081	920-000-083	C08J STUPR/L2-281	0.500	4.500	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7
920-000-113	920-000-115	C08R STUPR/L2-281	0.500	8.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

Product #	Insert Screws
968-000-087	MTS-184
968-000-092	MTS-255

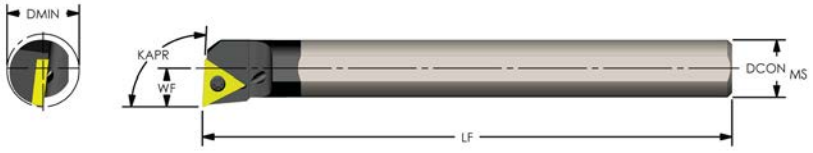
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®



PG.507

POSITIVE TRIANGLE (KAPR: 93°)

8:1 Ratio

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-131	920-000-133	E04H STUCR/L1.2 *	0.250	4.000	0.172	0.312	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-141	920-000-143	E05K STUCR/L1.2 *	0.312	5.000	0.219	0.395	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-164	920-000-166	E06M STUCR/L2	0.375	6.000	0.250	0.460	93.0	TCMT 21.51	MTS-255	T-7
920-000-197	920-000-199	E08J STUCR/L2	0.500	4.500	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
920-000-235	920-000-237	E08R STUCR/L2	0.500	8.000	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
920-000-265	920-000-266	E10Q STUCR/L2	0.625	7.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
920-000-291	920-000-292	E10S STUCR/L2	0.625	10.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
920-000-318	920-000-319	E12Q STUCR/L3	0.750	7.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
920-000-345	920-000-346	E12S STUCR/L3	0.750	10.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
920-000-374	920-000-375	E16R STUCR/L3	1.000	8.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15
920-000-404	920-000-405	E16T STUCR/L3	1.000	12.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15
920-000-168	920-000-170	E06M STUPR/L2	0.375	6.000	0.250	0.460	93.0	TPMT 21.51	MTS-255	T-7
920-000-201	920-000-203	E08J STUPR/L2	0.500	4.500	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
920-000-239	920-000-241	E08R STUPR/L2	0.500	8.000	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
920-000-267	920-000-268	E10Q STUPR/L2	0.625	7.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
920-000-293	920-000-294	E10S STUPR/L2	0.625	10.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
920-000-320	920-000-321	E12Q STUPR/L3	0.750	7.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
920-000-347	920-000-348	E12S STUPR/L3	0.750	10.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
920-000-376	920-000-377	E16R STUPR/L3	1.000	8.000	0.625	1.185	93.0	TPMT 32.51	MTS-35	T-15
920-000-406	920-000-407	E16T STUPR/L3	1.000	12.000	0.625	1.185	93.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-132	920-000-134	E04H STUCR/L1.2-138 *	0.250	4.000	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-142	920-000-144	E05K STUCR/L1.2-167 *	0.312	5.000	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-165	920-000-167	E06M STUCR/L2-203	0.375	6.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
920-000-198	920-000-200	E08J STUCR/L2-281	0.500	4.500	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
920-000-236	920-000-238	E08R STUCR/L2-281	0.500	8.000	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
920-000-169	920-000-171	E06M STUPR/L2-203	0.375	6.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
920-000-202	920-000-204	E08J STUPR/L2-281	0.500	4.500	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7
920-000-240	920-000-242	E08R STUPR/L2-281	0.500	8.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"

* bars .312 and smaller do not have flats

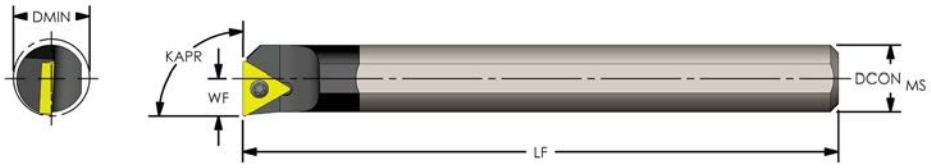
Product #	Insert Screws
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT



PG.507

8:1 Ratio

POSITIVE TRIANGLE (KAPR: 90°) — NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-042	C06M STFPR2	0.375	6.000	0.250	0.460	90.0	TPMT 21.51	MTS-255	T-7
920-000-074	C08J STFPR2	0.500	4.500	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
920-000-106	C08R STFPR2	0.500	8.000	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
920-000-040	C06M STFCR2	.375	6.000	0.250	0.460	90.0	TCMT 21.51	MTS-255	T-7
920-000-072	C08J STFCR2	0.500	4.500	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
920-000-104	C08R STFCR2	0.500	8.000	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7

MINIMUM CLEARANCE — NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-043	C06M STFPR2-203	0.375	6.000	0.203	0.410	90.0	TPMT 21.51	MTS-255	T-7
920-000-075	C08J STFPR2-281	0.500	4.500	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7
920-000-107	C08R STFPR2-281	0.500	8.000	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7
920-000-041	C06M STFCR2-203	0.375	6.000	0.203	0.410	90.0	TCMT 21.51	MTS-255	T-7
920-000-073	C08J STFCR2-281	0.500	4.500	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7
920-000-105	C08R STFCR2-281	0.500	8.000	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015” - .020”

Product #	Insert Screws
968-000-092	MTS-255

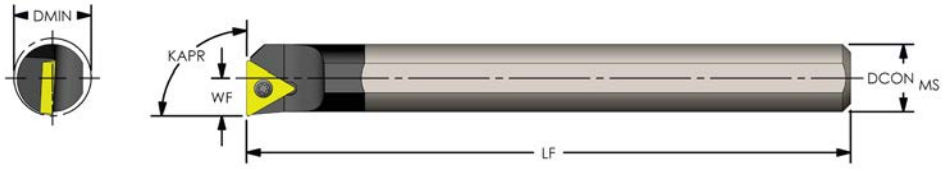
PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®



PG.507

8:1 Ratio

POSITIVE TRIANGLE (KAPR: 90°)

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-162	E06M STFPR2	0.375	6.000	0.250	0.460	90.0	TPMT 21.51	MTS-255	T-7
920-000-195	E08J STFPR2	0.500	4.500	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
920-000-233	E08R STFPR2	0.500	8.000	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
920-000-264	E10Q STFPR2	0.625	7.000	0.406	0.760	90.0	TPMT 21.51	MTS-255	T-7
920-000-290	E10S STFPR2	0.625	10.000	0.406	0.760	90.0	TPMT 21.51	MTS-255	T-7
920-000-317	E12Q STFPR3	0.750	7.000	0.500	0.920	90.0	TPMT 32.51	MTS-35	T-15
920-000-344	E12S STFPR3	0.750	10.000	0.500	0.920	90.0	TPMT 32.51	MTS-35	T-15
920-000-373	E16R STFPR3	1.000	8.000	0.625	1.185	90.0	TPMT 32.51	MTS-35	T-15
920-000-403	E16T STFPR3	1.000	12.000	0.625	1.185	90.0	TPMT 32.51	MTS-35	T-15
920-000-160	E06M STFCR2	0.375	6.000	0.250	0.460	90.0	TCMT 21.51	MTS-255	T-7
920-000-193	E08J STFCR2	0.500	4.500	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
920-000-231	E08R STFCR2	0.500	8.000	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
920-000-263	E10Q STFCR2	0.625	7.000	0.406	0.760	90.0	TCMT 21.51	MTS-255	T-7
920-000-289	E10S STFCR2	0.625	10.000	0.406	0.760	90.0	TCMT 21.51	MTS-255	T-7
920-000-316	E12Q STFCR3	0.750	7.000	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
920-000-343	E12S STFCR3	0.750	10.000	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
920-000-372	E16R STFCR3	1.000	8.000	0.625	1.185	90.0	TCMT 32.51	MTS-35	T-15
920-000-402	E16T STFCR3	1.000	12.000	0.625	1.185	90.0	TCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-163	E06M STFPR2-203	0.375	6.000	0.203	0.410	90.0	TPMT 21.51	MTS-255	T-7
920-000-196	E08J STFPR2-281	0.500	4.500	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7
920-000-234	E08R STFPR2-281	0.500	8.000	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7
920-000-161	E06M STFCR2-203	0.375	6.000	0.203	0.410	90.0	TCMT 21.51	MTS-255	T-7
920-000-194	E08J STFCR2-281	0.500	4.500	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7
920-000-232	E08R STFCR2-281	0.500	8.000	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®

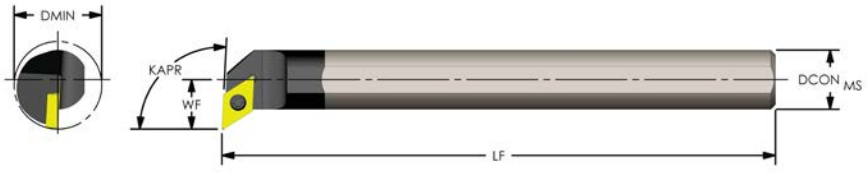
PG.508

POSITIVE TRIANGLE (KAPR: 95°) *SERIES "F, Q, S"*

8:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-030	FCUD-187-4-5R *	0.187	4.000	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-031	FCUD-187-6-5R *	0.187	6.000	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-034	FCUD-250-4-5R *	0.250	4.000	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-035	FCUD-250-6-5R *	0.250	6.000	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-038	FCUD-312-4-5R *	0.312	4.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-039	FCUD-312-6-5R *	0.312	6.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-066	QCUD-375-6-5R	0.375	6.000	0.228	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-065	QCUD-375-10-5R	0.375	10.000	0.228	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-067	QCUD-500-8-5R	0.500	8.000	0.296	0.563	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-088	SCUD-625-6-5R	0.625	6.000	0.393	0.731	95.0	TD 320.5	ETS 4-40	T-10
915-000-087	SCUD-625-10-5R	0.625	10.000	0.393	0.731	95.0	TD 320.5	ETS 4-40	T-10
915-000-089	SCUD-750-10-5R	0.750	10.000	0.460	0.855	95.0	TD 320.5	ETS 4-40	T-10
915-000-086	SCUD-1000-12-5R	1.000	12.000	0.585	1.105	95.0	TD 320.5	ETS 4-40	T-10

*bars .312 and smaller do not have flats



PG.507

POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

8:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-036	920-000-037	C06M SDUCR/L2	0.375	6.000	0.375	0.585	93.0	DCMT 21.51	MTS-255	T-7
920-000-068	920-000-069	C08J SDUCR/L2	0.500	4.500	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
920-000-100	920-000-101	C08R SDUCR/L2	0.500	8.000	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7

Product #	Insert Screws
968-000-091	MTS-224
968-000-092	MTS-255
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-149	T-10

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

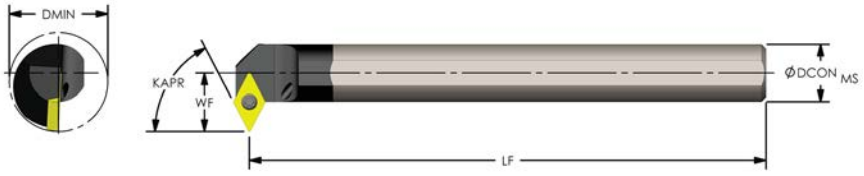
ULTRA-DEX®

PG.507

POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-156	920-000-157	E06M SDUCR/L2	0.375	6.000	0.375	0.585	93.0	DCMT 21.51	MTS-255	T-7
920-000-189	920-000-190	E08J SDUCR/L2	0.500	4.500	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
920-000-226	920-000-227	E08R SDUCR/L2	0.500	8.000	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
920-000-259	920-000-260	E10Q SDUCR/L2	0.625	7.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
920-000-284	920-000-285	E10S SDUCR/L2	0.625	10.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
920-000-310	920-000-311	E12Q SDUCR/L3	0.750	7.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
920-000-337	920-000-338	E12S SDUCR/L3	0.750	10.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
920-000-366	920-000-367	E16R SDUCR/L3	1.000	8.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
920-000-396	920-000-397	E16T SDUCR/L3	1.000	12.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
920-000-312	920-000-313	E12Q SDUPR/L3	0.750	7.000	0.625	1.050	93.0	DPMT 32.51	MTS-35	T-15
920-000-339	920-000-340	E12S SDUPR/L3	0.750	10.000	0.625	1.050	93.0	DPMT 32.51	MTS-35	T-15
920-000-368	920-000-369	E16R SDUPR/L3	1.000	8.000	0.750	1.310	93.0	DPMT 32.51	MTS-35	T-15
920-000-398	920-000-399	E16T SDUPR/L3	1.000	12.000	0.750	1.310	93.0	DPMT 32.51	MTS-35	T-15



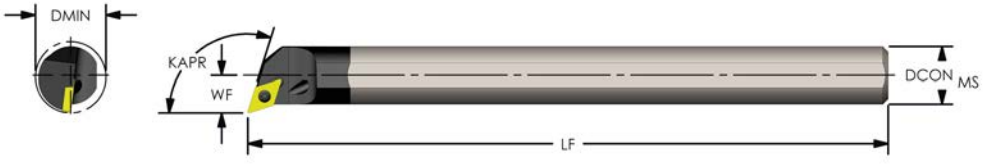
PG.507

POSITIVE 55° DIAMOND (KAPR: 62.5°) PROFILING

8:1 Ratio

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-258	E10Q SDNCR2	0.625	6.86	.562	0.920	62.5	DCMT 21.51	MTS-255	T-7
920-000-336	E12S SDNCR3	0.750	9.80	0.765	1.190	62.5	DCMT 32.51	MTS-35	T-15



PG.507

POSITIVE 55° DIAMOND (KAPR: 107.5°) PROFILING

8:1 Ratio

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-155	E06M SDQCR2	0.375	6.000	0.281	0.490	107.5	DCMT 21.51	MTS-255	T-7
920-000-225	E08R SDQCR2	0.500	8.000	0.341	0.620	107.5	DCMT 21.51	MTS-255	T-7
920-000-283	E10S SDQCR2	0.625	10.000	0.406	0.760	107.5	DCMT 21.51	MTS-255	T-7

Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35

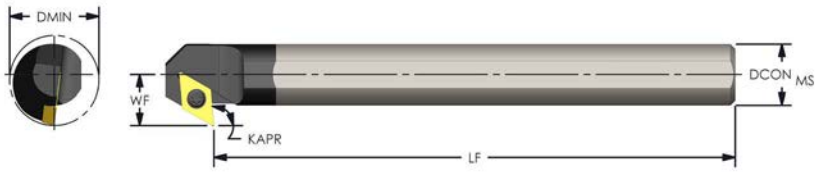
PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®



PG.507

POSITIVE 55° DIAMOND (KAPR: 95°) BACK FACING

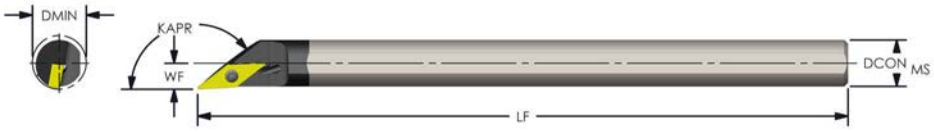
8:1 Ratio

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-038	920-000-039	C06M SDXCR/L2	0.375	6.000	0.375	0.585	95.0	DCMT 21.51	MTS-255	T-7
920-000-070	920-000-071	C08J SDXCR/L2	0.500	4.500	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
920-000-102	920-000-103	C08R SDXCR/L2	0.500	8.000	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-158	920-000-159	E06M SDXCR/L2	0.375	6.000	0.375	0.585	95.0	DCMT 21.51	MTS-255	T-7
920-000-191	920-000-192	E08J SDXCR/L2	0.500	4.500	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
920-000-228	920-000-229	E08R SDXCR/L2	0.500	8.000	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
920-000-261	920-000-262	E10Q SDXCR/L2	0.625	7.000	0.500	0.850	95.0	DCMT 21.51	MTS-255	T-7
920-000-286	920-000-287	E10S SDXCR/L2	0.625	10.000	0.500	0.850	95.0	DCMT 21.51	MTS-255	T-7
920-000-314	920-000-315	E12Q SDXCR/L3	0.750	7.000	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
920-000-341	920-000-342	E12S SDXCR/L3	0.750	10.000	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
920-000-370	920-000-371	E16R SDXCR/L3	1.000	8.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15
920-000-400	920-000-401	E16T SDXCR/L3	1.000	12.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15



PG.507

POSITIVE 35° DIAMOND (KAPR: 142°) PROFILING

8:1 Ratio

COOLANT THRU

Product #	Designation	DCONMS	LF	WF	DMIN	KAPR	Insert	Insert Screw	Key
920-000-172	E06M SVJBR2	0.375	6.000	0.223	0.445	142.0	VBMT 21.51	MTS-2.5	T-7
920-000-243	E08R SVJBR2	0.500	8.000	0.285	0.570	142.0	VBMT 21.51	MTS-2.5L	T-7
920-000-295	E10S SVJBR2	0.625	10.000	0.348	0.700	142.0	VBMT 21.51	MTS-2.5L	T-7
920-000-349	E12S SVJBR3	0.750	10.000	0.421	0.840	142.0	VBMT 331	MTS-3.5L	T-15

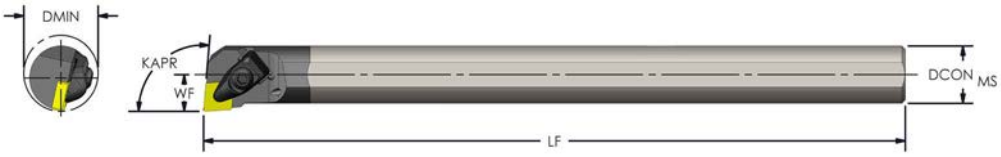
Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-093	MTS-3.5L

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

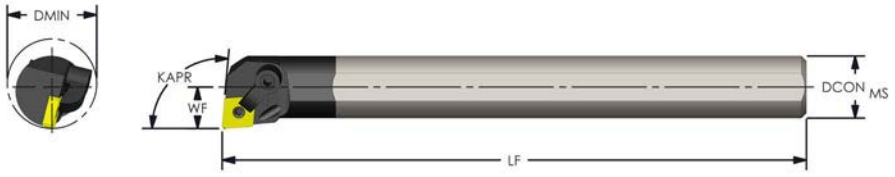


PG.507

NEGATIVE 80° DIAMOND (KAPR: 95°) SHANK

8:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
920-000-380	E16T DCLNR4	1.000	12.000	0.640	1.200	95.0	CNMG 432	N/A	N/A	PB4-CA
920-000-410	E20U DCLNR4	1.250	14.000	0.765	1.470	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA



PG.507

NEGATIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
920-000-302	920-000-303	E12Q MCLNR/L3	0.750	7.000	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
920-000-326	920-000-327	E12S MCLNR/L3	0.750	10.000	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
920-000-354	920-000-356	E16R MCLNR/L3	1.000	8.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
920-000-383	920-000-385	E16T MCLNR/L3	1.000	12.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
920-000-355	920-000-357	E16R MCLNR/L4	1.000	8.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
920-000-384	920-000-386	E16T MCLNR/L4	1.000	12.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
920-000-412	920-000-413	E20U MCLNR/L4	1.250	14.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
920-000-421	920-000-422	E24U MCLNR/L4	1.500	14.000	0.890	1.730	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46

Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Shim Seat
968-000-053	ICSN-433

PACKAGE SIZE OF 10

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47

PACKAGE SIZE OF 5

Product #	Shim Screw
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Lock Pin
968-000-097	NL-33
968-000-101	NL-44
968-000-102	NL-46

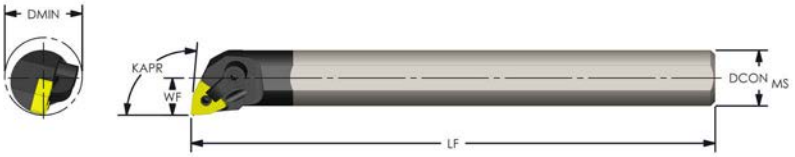
PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-110	PB4-CA

PACKAGE SIZE OF 1

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®

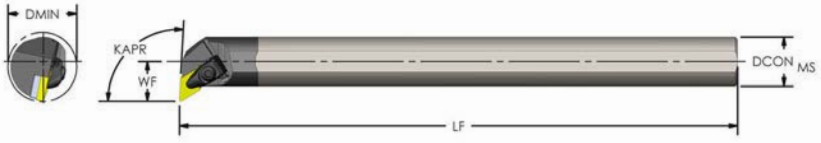


PG.507

NEGATIVE TRIGON (KAPR: 95°)

8:1 Ratio
COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
920-000-304	920-000-305	E12Q MWLNR/L3	0.750	7.000	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
920-000-328	920-000-329	E12S MWLNR/L3	0.750	10.000	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
920-000-358	920-000-360	E16R MWLNR/L3	1.000	8.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
920-000-388	920-000-390	E16T MWLNR/L3	1.000	12.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
920-000-359	920-000-361	E16R MWLNR/L4	1.000	8.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
920-000-389	920-000-391	E16T MWLNR/L4	1.000	12.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
920-000-415	920-000-416	E20U MWLNR/L4	1.250	14.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
920-000-424	920-000-425	E24U MWLNR/L4	1.500	14.000	0.890	1.730	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46

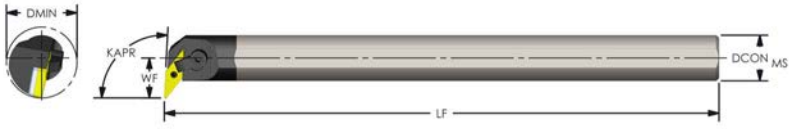


PG.507

NEGATIVE 55° DIAMOND (KAPR: 93°) SHANK

8:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
920-000-411	E20U DDUNR4	1.250	14.000	1.000	1.700	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA



PG.507

NEGATIVE 35° DIAMOND (KAPR: 93°) PROFILING

8:1 Ratio
NO COOLANT

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
920-000-387	E16T MVUNR3	1.000	12.000	0.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
920-000-414	E20U MVUNR3	1.250	14.000	1.000	1.705	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
920-000-423	E24U MVUNR3	1.500	14.000	1.120	1.960	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47

PACKAGE SIZE OF 5

Product #	Shim Seat
968-000-057	IDSN-433
968-000-071	IVSN-322
968-000-075	IWSN-433

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-098	NL-33L
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46

PACKAGE SIZE OF 5

Product #	Shim Screw
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-110	PB4-CA

PACKAGE SIZE OF 1

Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20

PACKAGE SIZE OF 1

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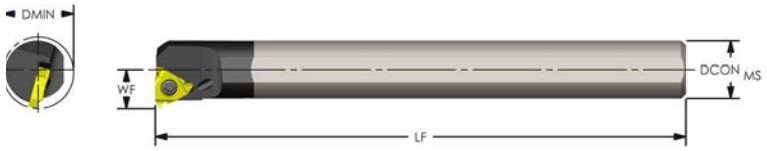


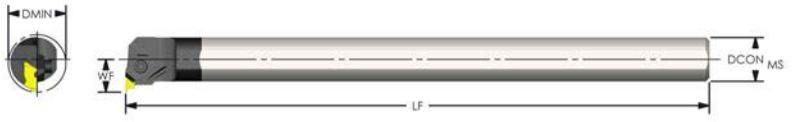
PG.507

THREADING/GROOVING LAYDOWN

8:1 Ratio
COOLANT THRU

Product #	Designation Right Hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
920-000-210	E08R LSER2	0.500	8.000	0.308	0.588	2IR	SR34505L	N/A	N/A
920-000-249	E10Q LSER2	0.625	7.000	0.371	0.721	2IR	SR34505L	N/A	N/A
920-000-301	E12Q LSER3	0.750	7.000	0.510	0.935	3IR	MTS-35	N/A	N/A
920-000-325	E12S LSER3	0.750	10.000	0.510	0.935	3IR	MTS-35	N/A	N/A
920-000-353	E16R LSER3	1.000	8.000	0.650	1.210	3IR	SA3T	SY3T	YI3
920-000-382	E16T LSER3	1.000	12.000	0.650	1.210	3IR	SA3T	SY3T	YI3

Product #	Designation Left Hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
920-000-209	E08R LSEL2	0.500	8.000	0.308	0.588	2IL	SR34505L	N/A	N/A
920-000-248	E10Q LSEL2	0.625	7.000	0.371	0.721	2IL	SR34505L	N/A	N/A
920-000-300	E12Q LSEL3	0.750	7.000	0.510	0.935	3IL	MTS-35	N/A	N/A
920-000-324	E12S LSEL3	0.750	10.000	0.510	0.935	3IL	MTS-35	N/A	N/A
920-000-352	E16R LSEL3	1.000	8.000	0.650	1.210	3IL	SA3T	SY3T	YE3
920-000-381	E16T LSEL3	1.000	12.000	0.650	1.210	3IL	SA3T	SY3T	YE3



PG.507

THREADING/GROOVING, NOTCH STYLE

8:1 Ratio
COOLANT THRU

Product #	Designation Right Hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
920-000-212	E08R NER2	0.500	8.000	0.437	0.730	NG-2L	CM-147	6-32
920-000-274	E10S NER2	0.625	10.000	0.500	1.000	NG-2L	CM-75	6-32
920-000-331	E12S NER2	0.750	10.000	0.562	1.120	NG-2L	CM-75	6-32

Product #	Designation Left Hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
920-000-211	E08R NEL2	0.500	8.000	0.437	0.730	NG-2R	CM-146	6-32
920-000-273	E10S NEL2	0.625	10.000	0.500	1.000	NG-2R	CM-74	6-32
920-000-330	E12S NEL2	0.750	10.000	0.562	1.120	NG-2R	CM-74	6-32

Product #	Clamp
968-000-027	CM-74
968-000-028	CM-75
968-000-023	CM-146
968-000-024	CM-147

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-005	6-32

PACKAGE SIZE OF 5

Product #	Anvil
968-000-182	YE3

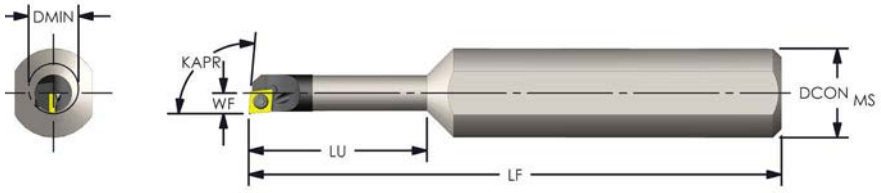
PACKAGE SIZE OF 1

Product #	Insert Screw
968-000-124	SA3T
968-000-094	MTS-35
968-000-134	SR34505

PACKAGE SIZE OF 5

Product #	Anvil Screw
968-000-146	SY3T

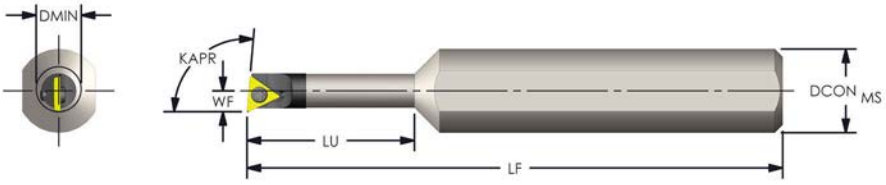
PACKAGE SIZE OF 5



PG.508

POSITIVE 80° DIAMOND (KAPR: 95°) REDUCED NECK *SERIES "C"* COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-004	CCUD-180/500-7/8-5R	0.500	2.380	0.875	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-008	CCUD-203/500-1-5R	0.500	2.500	1.000	0.119	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-005	CCUD-180/625-7/8-5R	0.625	3.000	0.875	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-009	CCUD-203/625-1-5R	0.625	3.500	1.000	0.119	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-010	CCUD-250/625-11/4-5R	0.625	3.000	1.250	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6



PG.508

POSITIVE TRIANGLE (KAPR: 95°) REDUCED NECK *SERIES "F"* COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-032	FCUD-250/500-11/4-5R	0.500	2.750	1.250	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-036	FCUD-312/500-31/8-5R	0.500	4.630	3.125	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-033	FCUD-250/625-11/4-5R	0.625	4.000	1.250	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-037	FCUD-312/625-11/2-5R	0.625	4.000	1.500	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7

Product #	Insert Screws
968-000-086	MTS-183
968-000-091	MTS-224

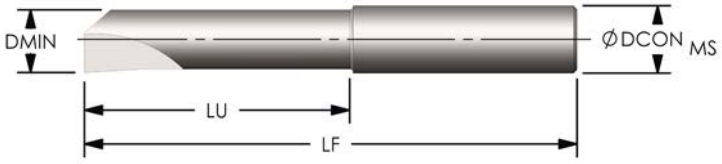
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

ULTRA-DEX®



Coated & Uncoated

POSITIVE 80° DIAMOND

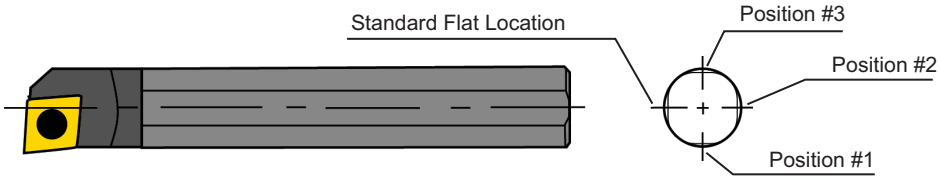
8:1 Ratio
NO COOLANT

Product #	Designation	DMIN [in.]	LU [in.]	DCONMS [in.]	LF [in.]	GRADE
951-000-037	UD125-020-75R	0.020	0.075	0.125	1.500	UD5
951-000-038		0.020	0.075	0.125	1.500	UD51
951-000-039		0.020	0.075	0.125	1.500	UD52
951-000-040	UD125-030-100R	0.030	0.100	0.125	1.500	UD5
951-000-041		0.030	0.100	0.125	1.500	UD51
951-000-042		0.030	0.100	0.125	1.500	UD52
951-000-043	UD125-040-150R	0.040	0.150	0.125	1.500	UD5
951-000-044		0.040	0.150	0.125	1.500	UD51
951-000-045		0.040	0.150	0.125	1.500	UD52
951-000-046	UD125-050-150R	0.050	0.150	0.125	1.500	UD5
951-000-047		0.050	0.150	0.125	1.500	UD51
951-000-048		0.050	0.150	0.125	1.500	UD52
951-000-001	UD125-060-188R	0.060	0.188	0.125	1.500	UD5
951-000-002		0.060	0.188	0.125	1.500	UD51
951-000-003		0.060	0.188	0.125	1.500	UD52
951-000-004	UD125-080-375R	0.080	0.375	0.125	1.500	UD5
951-000-005		0.080	0.375	0.125	1.500	UD51
951-000-006		0.080	0.375	0.125	1.500	UD52
951-000-007	UD125-090-500R	0.090	0.500	0.125	1.500	UD5
951-000-008		0.090	0.500	0.125	1.500	UD51
951-000-009		0.090	0.500	0.125	1.500	UD52
951-000-010	UD125-120-625R	0.120	0.625	0.125	1.500	UD5
951-000-011		0.120	0.625	0.125	1.500	UD51
951-000-012		0.120	0.625	0.125	1.500	UD52
951-000-013	UD188-150-750R	0.150	0.750	.0188	2.000	UD5
951-000-014		0.150	0.750	0.188	2.000	UD51
951-000-015		0.150	0.750	0.188	2.000	UD52
951-000-016	UD188-180-1.00R	0.180	1.000	0.188	2.000	UD5
951-000-017		0.180	1.000	0.188	2.000	UD51
951-000-018		0.180	1.000	0.188	2.000	UD52
951-000-019	UD250-210-1.25R	0.210	1.250	0.250	2.500	UD5
951-000-020		0.210	1.250	0.250	2.500	UD51
951-000-021		0.210	1.250	0.250	2.500	UD52
951-000-022	UD250-240-1.25R	0.240	1.250	0.250	2.500	UD5
951-000-023		0.240	1.250	0.250	2.500	UD51
951-000-024		0.240	1.250	0.250	2.500	UD52
951-000-025	UD312-270-1.25R	0.270	1.250	0.312	2.500	UD5
951-000-026		0.270	1.250	0.312	2.500	UD51
951-000-027		0.270	1.250	0.312	2.500	UD52
951-000-028	UD312-300-1.25R	0.300	1.250	0.312	2.500	UD5
951-000-029		0.300	1.250	0.312	2.500	UD51
951-000-030		0.300	1.250	0.312	2.500	UD52
951-000-031	UD375-330-1.50R	0.330	1.500	0.375	2.500	UD5
951-000-032		0.330	1.500	0.375	2.500	UD51
951-000-033		0.330	1.500	0.375	2.500	UD52
951-000-034	UD375-360-1.50R	0.360	1.500	0.375	2.500	UD5
951-000-035		0.360	1.500	0.375	2.500	UD51
951-000-036		0.360	1.500	0.375	2.500	UD52

ULTRA-DEX®

The following services are for Carbide bars only:

Cut-Off Service	Extra-Flat Service
up to 3/8” diameter	up to 5/16” diameter
1/2” diameter	3/8” - 1/2” diameter
5/8” diameter	5/8” - 3/4” diameter
3/4” diameter	1” - 2” diameter
1” diameter	
1 1/4” diameter	
1 1/2” diameter	
1 3/4” diameter	
2” diameter	



Ordering is easy, Use part # “Cut-Off” and specify the length in the item description
Use part # “Extra-Flat” and specify the location in the item description

Have us braze on a steel coolant adapter to any Carbide Boring Bar 1/2” or larger

Comes with 1/16-27 NPT (or) 1/8-27 NPT
Plastic loc-line NOT included

Item Designations:
Coolant Adapter - 1/16
Coolant Adapter - 1/8

- Designation Depends on the Diameter of the Bar:
- Coolant Adapter-1/16 for 1/2” Diameter Bars
- Coolant Adapter-1/8 for 5/8” Diameter Bars and Larger

HEAVY METAL BORING BAR

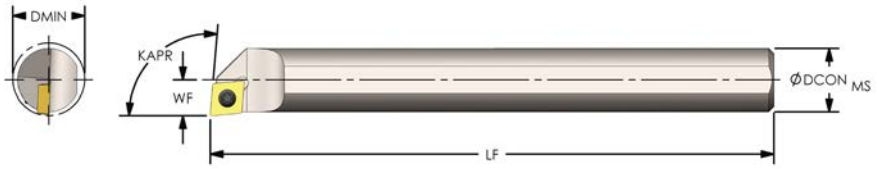
Vibration dampening to help reduce chatter in your application

- Machine deeper bores
- Achieve better precision and finish

Up to 6:1 Ratio

.187”-.750” Diameters

ULTRA-DEX®



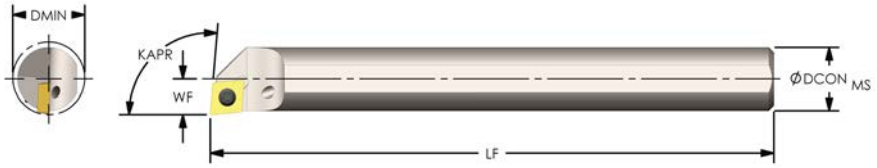
PG.507

POSITIVE 80° DIAMOND (KAPR: 95°)

6:1 Ratio

NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-097	940-000-098	J03F SCLDR/L1.2 *	0.187	3.000	0.102	0.205	95.0	CDHB 1.20.60	MTS-183	T-6
940-000-100	940-000-101	J04F SCLDR/L1.5-138 * ■	0.250	3.000	0.138	0.275	95.0	CDGW 1.510	MTS-184	T-6
940-000-105	940-000-106	J05H SCLPR/L1.8-167 * ■	0.312	4.000	0.167	0.340	95.0	CPMT 1.81.20.5	MTS-224	T-7



PG.507

POSITIVE 80° DIAMOND (KAPR: 95°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-003	940-000-004	HM06J SCLPR/L2-203 ■	0.375	4.500	0.203	0.410	95.0	CPMT 21.51	MTS-255	T-7
940-000-015	940-000-016	HM06Q SCLPR/L2-203 ■	0.375	7.000	0.203	0.410	95.0	CPMT 21.51	MTS-255	T-7
940-000-027	940-000-028	HM08J SCLPR/L2-281 ■	0.500	4.500	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
940-000-037	940-000-038	HM08Q SCLPR/L2-281 ■	0.500	7.000	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
940-000-049	940-000-051	HM10J SCLPR/L2	0.625	4.500	0.406	0.760	95.0	CPMT 21.51	MTS-255	T-7
940-000-065	940-000-067	HM10Q SCLPR/L2	0.625	7.000	0.406	0.760	95.0	CPMT 21.51	MTS-255	T-7
940-000-050	940-000-052	HM10J SCLPR/L3	0.625	4.500	0.406	0.760	95.0	CPMT 32.51	MTS-35	T-15
940-000-066	940-000-068	HM10Q SCLPR/L3	0.625	7.000	0.406	0.760	95.0	CPMT 32.51	MTS-35	T-15
940-000-079	940-000-080	HM12J SCLPR/L3	0.750	4.500	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
940-000-089	940-000-090	HM12Q SCLPR/L3	0.750	7.000	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
940-000-001	940-000-002	HM06J SCLCR/L2-203 ■	0.375	4.500	0.203	0.410	95.0	CCMT 21.51	MTS-255	T-7
940-000-013	940-000-014	HM06Q SCLCR/L2-203 ■	0.375	7.000	0.203	0.410	95.0	CCMT 21.51	MTS-255	T-7
940-000-025	940-000-026	HM08J SCLCR/L2-281 ■	0.500	4.500	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7
940-000-035	940-000-036	HM08Q SCLCR/L2-281 ■	0.500	7.000	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7
940-000-045	940-000-047	HM10J SCLCR/L2	0.625	4.500	0.406	0.760	95.0	CCMT 21.51	MTS-255	T-7
940-000-061	940-000-063	HM10Q SCLCR/L2	0.625	7.000	0.406	0.760	95.0	CCMT 21.51	MTS-255	T-7
940-000-046	940-000-048	HM10J SCLCR/L3	0.625	4.500	0.406	0.760	95.0	CCMT 32.51	MTS-35	T-15
940-000-062	940-000-064	HM10Q SCLCR/L3	0.625	7.000	0.406	0.760	95.0	CCMT 32.51	MTS-35	T-15
940-000-077	940-000-078	HM12J SCLCR/L3	0.750	4.500	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15
940-000-087	940-000-088	HM12Q SCLCR/L3	0.750	7.000	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15

■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

*bars .312 and smaller do not have flats

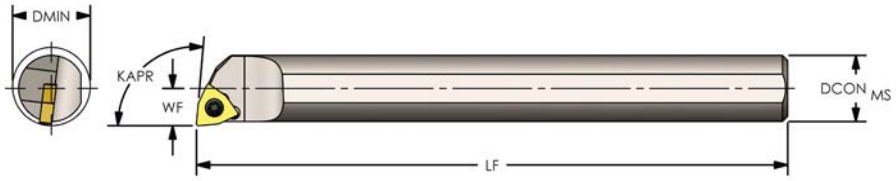
Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

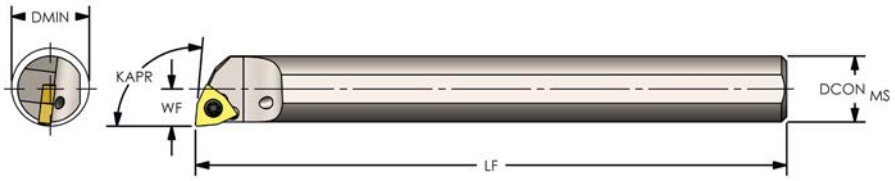


PG.507

POSITIVE TRIGON (KAPR: 95°)

6:1 Ratio
NO COOLANT

Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-099	J03F SWLCR1.2 *	0.187	3.000	0.102	0.205	95.0	WCMT 1.210.5	MTS-183	T-6
940-000-104	J04F SWLCR1.2-138 * ■	0.250	3.000	0.138	0.275	95.0	WCMT 1.210.5	MTS-184	T-6
940-000-109	J05H SWLCR1.5-167 * ■	0.312	4.000	0.167	0.342	95.0	WCMT 1.51.50.5	MTS-2	T-6



PG.507

POSITIVE TRIGON (KAPR: 95°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-011	940-000-012	HM06J SWLCR/L2-203 ■	0.375	4.500	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
940-000-023	940-000-024	HM06Q SWLCR/L2-203 ■	0.375	7.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
940-000-033	940-000-034	HM08J SWLCR/L2-281 ■	0.500	4.500	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7
940-000-043	940-000-044	HM08Q SWLCR/L2-281 ■	0.500	7.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7
940-000-057	940-000-059	HM10J SWLCR/L2	0.625	4.500	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
940-000-073	940-000-075	HM10Q SWLCR/L2	0.625	7.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
940-000-058	940-000-060	HM10J SWLCR/L3	0.625	4.500	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
940-000-074	940-000-076	HM10Q SWLCR/L3	0.625	7.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
940-000-085	940-000-086	HM12J SWLCR/L3	0.750	4.500	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
940-000-095	940-000-096	HM12Q SWLCR/L3	0.750	7.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15

■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

*bars .312 and smaller do not have flats

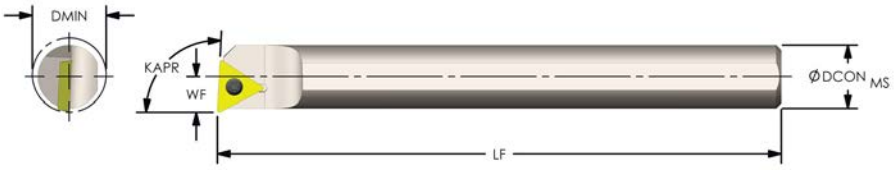
Product #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35
968-000-088	MTS-2

PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

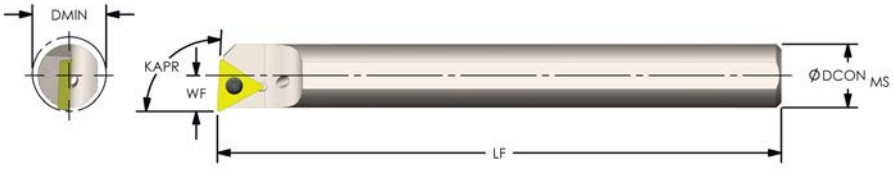


PG.507

POSITIVE TRIANGLE (KAPR: 93°)

6:1 Ratio
NO COOLANT

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-102	940-000-103	J04F STUCR/L1.2-138 * ■	0.250	3.000	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
940-000-107	940-000-108	J05H STUCR/L1.2-167 * ■	0.312	4.000	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6



PG.507

POSITIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-005	940-000-007	HM06J STUCR/L1.2-203 ■	0.375	4.500	0.203	0.410	93.0	TCMT 1.21.20.5	MTS-184	T-6
940-000-017	940-000-019	HM06Q STUCR/L1.2-203 ■	0.375	7.000	0.203	0.410	93.0	TCMT 1.21.20.5	MTS-184	T-6
940-000-009	940-000-010	HM06J STUPR/L2-203 ■	0.375	4.500	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
940-000-021	940-000-022	HM06Q STUPR/L2-203 ■	0.375	7.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
940-000-031	940-000-032	HM08J STUPR/L2-281 ■	0.500	4.500	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7
940-000-041	940-000-042	HM08Q STUPR/L2-281 ■	0.500	7.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7
940-000-055	940-000-056	HM10J STUPR/L2	0.625	4.500	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
940-000-071	940-000-072	HM10Q STUPR/L2	0.625	7.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
940-000-083	940-000-084	HM12J STUPR/L3	0.750	4.500	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
940-000-093	940-000-094	HM12Q STUPR/L3	0.750	7.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
940-000-006	940-000-008	HM06J STUCR/L2-203 ■	0.375	4.500	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
940-000-018	940-000-020	HM06Q STUCR/L2-203 ■	0.375	7.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
940-000-029	940-000-030	HM08J STUCR/L2-281 ■	0.500	4.500	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
940-000-039	940-000-040	HM08Q STUCR/L2-281 ■	0.500	7.000	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
940-000-053	940-000-054	HM10J STUCR/L2	0.625	4.500	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
940-000-069	940-000-070	HM10Q STUCR/L2	0.625	7.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
940-000-081	940-000-082	HM12J STUCR/L3	0.750	4.500	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
940-000-091	940-000-092	HM12Q STUCR/L3	0.750	7.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15

■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

*bars .312 and smaller do not have flats

Product #	Insert Screws
968-000-087	MTS-184
968-000-092	MTS-255
968-000-094	MTS-35

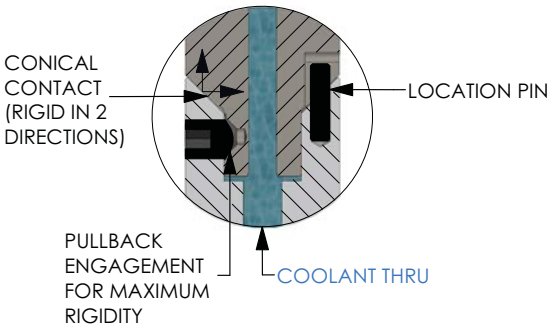
PACKAGE SIZE OF 5

Product #	Key
968-000-156	T-6
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

MODULAR BORING BAR

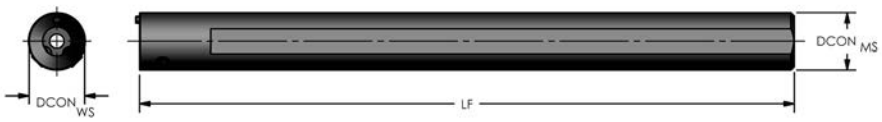
Endless possibilities and the convenience of one bar with 28 different insert style configurations



NEW PRODUCT EXPANSION

PSC Connection Tool Holder

ULTRA-DEX®



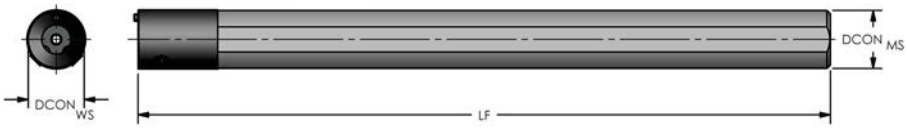
4:1 Ratio

STEEL SHANK

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	DCONWS [in.]	Set Screw
944-000-019	MBS 1295	0.750	9.500	0.750	MH12S
944-000-020	MBS 1612	1.000	11.500	1.000	MH16S
944-000-021	MBS 2014	1.250	14.000	1.250	MH20S
944-000-022	MBS 2414	1.500	14.000	1.500	MH24S
944-000-023	MBS 2816	1.750	16.000	1.750	MH28S
944-000-024	MBS 3210	2.000	10.000	2.000	MH32S
944-000-025	MBS 3220	2.000	20.000	2.000	MH32S
944-000-026	MBS 4012*	2.500	12.000	2.000	MH32S
944-000-027	MBS 4024*	2.500	24.000	2.000	MH32S
944-000-028	MBS 4828*	3.000	28.000	2.000	MH32S

*2.5" and 3" bars take 2" Head



8:1 Ratio

CARBIDE SHANK

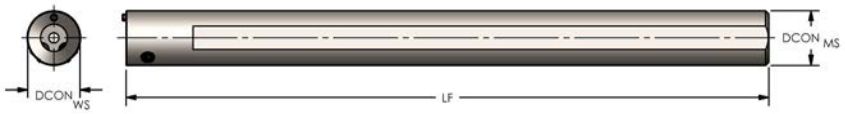
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	DCONWS [in.]	Set Screw
944-000-002	MB 1295	0.750	9.500	0.750	MH12S
944-000-001	MB 1220M	20.00(mm)	241.00(mm)	19.05(mm)	MH12S
944-000-003	MB 1612	1.000	11.500	1.000	MH16S
944-000-004	MB 2014	1.250	14.000	1.250	MH20S
944-000-005	MB 2414	1.500	14.000	1.500	MH24S
944-000-006	MB 2816	1.750	16.000	1.750	MH28S
944-000-007	MB 3220	2.000	20.000	2.000	MH32S

Product #	Set Screws
968-000-076	MH12S
968-000-077	MH16S
968-000-078	MH20S
968-000-079	MH24S
968-000-080	MH28S
968-000-081	MH32S

PACKAGE SIZE OF 2

ULTRA-DEX®



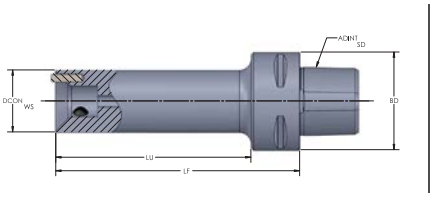
6:1 Ratio

HEAVY METAL SHANK **COOLANT THRU**

Product #	Designation	DCONMS [in.]	LF [in.]	DCONWS [in.]	Set Screw
944-000-008	MBH 1212	0.750	12.000	0.750	MH12S
944-000-009	MBH 1612	1.000	12.000	1.000	MH16S
944-000-010	MBH 2012	1.250	12.000	1.250	MH20S
944-000-011	MBH 2412	1.500	12.000	1.500	MH24S
944-000-012	MBH 2414	1.500	14.000	1.500	MH24S
944-000-013	MBH 2812	1.750	12.000	1.750	MH28S
944-000-014	MBH 2816 *	1.750	16.000	1.750	MH28S
944-000-015	MBH 3212	2.000	12.000	2.000	MH32S
944-000-016	MBH 3218 *	2.000	18.000	2.000	MH32S
944-000-017	MBH 4024 **	2.500	24.000	2.000	MH32S
944-000-018	MBH 4828 **	3.000	28.000	2.000	MH32S

**non-stock item; call for delivery *2.5" and 3" bars take 2" Head*

PRODUCT EXPANSION - PSC CONNECTION TOOL HOLDER



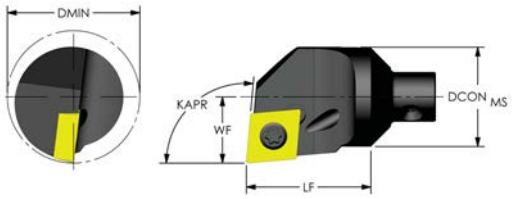
STEEL SHANK **COOLANT THRU**

Product #	Designation	ADINT SD	DCONWS	BD [mm]	LF [mm]	LU [mm]	Set Screw
944-001-100	PSC40-MBS12	PSC40	MH12	40.00	75.00	55.00	MH12S
944-001-101	PSC40-MBS16	PSC40	MH16	40.00	100.00	80.00	MH16S
944-001-102	PSC40-MBS20	PSC40	MH20	40.00	115.00	95.00	MH20S
944-001-103	PSC50-MBS12	PSC50	MH12	50.00	75.00	55.00	MH12S
944-001-104	PSC50-MBS16	PSC50	MH16	50.00	100.00	80.00	MH16S
944-001-105	PSC50-MBS20	PSC50	MH20	50.00	115.00	95.00	MH20S
944-001-106	PSC50-MBS24	PSC50	MH24	50.00	135.00	115.00	MH24S
944-001-107	PSC63-MBS20	PSC63	MH20	63.00	120.00	98.00	MH20S
944-001-108	PSC63-MBS24	PSC63	MH24	63.00	140.00	118.00	MH24S
944-001-109	PSC63-MBS32	PSC63	MH32	63.00	175.00	153.00	MH32S

Product #	Set Screws
968-000-076	MH12S
968-000-077	MH16S
968-000-078	MH20S
968-000-079	MH24S
968-000-080	MH28S
968-000-081	MH32S

PACKAGE SIZE OF 2

ULTRA-DEX®

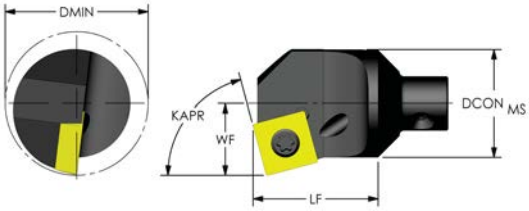


POSITIVE 80° DIAMOND (KAPR: 95°)

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-017	945-000-018	MH12 SCLCR/L3	0.750	0.940	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15
945-000-065	945-000-066	MH16 SCLCR/L3	1.000	1.000	0.625	1.185	95.0	CCMT 32.51	MTS-35	T-15
945-000-019	945-000-020	MH12 SCLPR/L3	0.750	0.940	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
945-000-067	945-000-068	MH16 SCLPR/L3	1.000	1.000	0.625	1.185	95.0	CPMT 32.51	MTS-35	T-15
N/A	945-000-120	MH20 SCLCR4	1.250	1.300	0.765	1.465	95.0	CCMT 432	MTS-4	T-20
N/A	945-000-156	MH24 SCLCR4	1.500	1.520	0.890	1.730	95.0	CCMT 432	MTS-4	T-20
N/A	945-000-190	MH28 SCLCR4	1.750	1.770	1.015	2.000	95.0	CCMT 432	MTS-4	T-20
N/A	945-000-225	MH32 SCLCR4	2.000	2.030	1.281	2.400	95.0	CCMT 432	MTS-4	T-20



POSITIVE SQUARE (KAPR: 75°)

PG.509

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-028	MH12 SSKCR3	0.750	0.875	0.500	0.920	75.0	SCMT 32.51	MTS-35	T-15
945-000-078	MH16 SSKCR4	1.000	0.935	0.625	1.185	75.0	SCMT 432	MTS-4	T-20

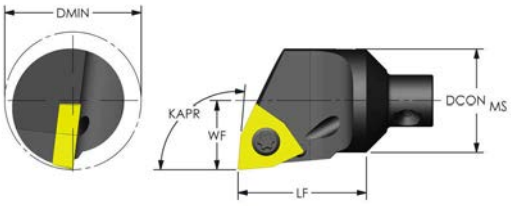
Product #	Insert Screws
968-000-094	MTS-35
968-000-095	MTS-4

PACKAGE SIZE OF 5

Product #	Key
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX®

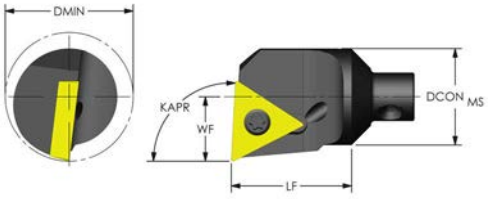


PG.509

POSITIVE TRIGON (KAPR: 95°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-037	945-000-038	MH12 SWLCR/L3	0.750	0.940	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
945-000-087	945-000-088	MH16 SWLCR/L3	1.000	1.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15

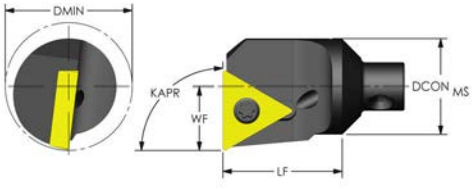


PG.509

POSITIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-031	945-000-032	MH12 STUCR/L3	0.750	0.940	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
945-000-081	945-000-082	MH16 STUCR/L3	1.000	1.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15



PG.509

POSITIVE TRIANGLE (KAPR: 90°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-029	945-000-030	MH12 STFCR/L3	0.750	0.940	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
945-000-079	945-000-080	MH16 STFCR/L3	1.000	1.000	.625	1.185	90.0	TCMT 32.51	MTS-35	T-15

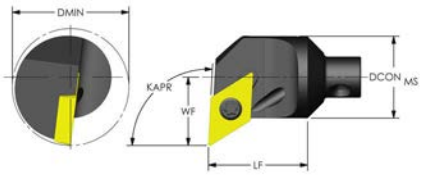
Product #	Insert Screws
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

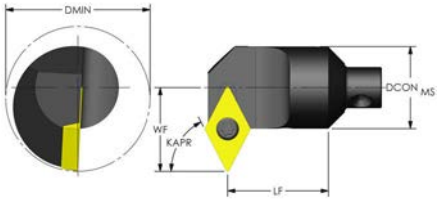


POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-024	945-000-025	MH12 SDUCR/L3	0.750	0.940	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
945-000-072	945-000-073	MH16 SDUCR/L3	1.000	1.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
N/A	945-000-123	MH20 SDUCR3-8	1.250	1.300	0.800	1.500	93.0	DCMT 32.51	MTS-35	T-15
945-000-121	945-000-122	MH20 SDUCR/L3	1.250	1.300	1.000	1.700	93.0	DCMT 32.51	MTS-35	T-15
945-000-157	945-000-158	MH24 SDUCR/L3	1.500	1.520	1.120	1.960	93.0	DCMT 32.51	MTS-35	T-15
945-000-191	945-000-192	MH28 SDUCR/L3	1.750	1.770	1.250	2.230	93.0	DCMT 32.51	MTS-35	T-15
945-000-226	945-000-227	MH32 SDUCR/L3	2.000	2.030	1.375	2.500	93.0	DCMT 32.51	MTS-35	T-15

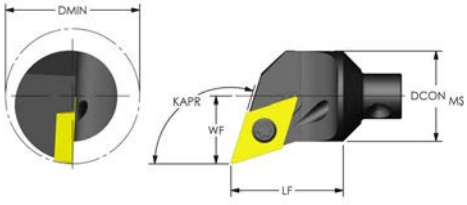


POSITIVE 55° DIAMOND (KAPR: 62.5°) PROFILING

PG.509

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-021	MH12 SDNCR3	0.750	0.940	0.765	1.190	62.5	DCMT 32.51	MTS-35	T-15
945-000-069	MH16 SDNCR3	1.000	1.000	0.890	1.450	62.5	DCMT 32.51	MTS-35	T-15



POSITIVE 55° DIAMOND (KAPR: 107.5°) PROFILING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-022	945-000-023	MH12 SDQCR/L3	0.750	0.940	0.562	1.000	107.5	DCMT 32.51	MTS-35	T-15
945-000-070	945-000-071	MH16 SDQCR/L3	1.000	1.000	0.625	1.185	107.5	DCMT 32.51	MTS-35	T-15

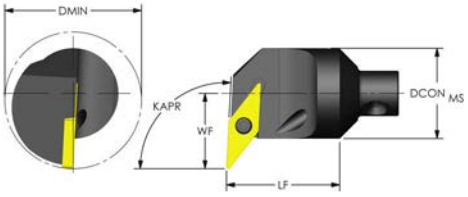
Product #	Insert Screws
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

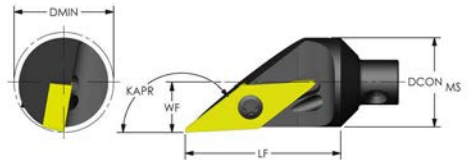


POSITIVE 35° DIAMOND (KAPR: 93°) PROFILING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-035	945-000-036	MH12 SVUBR/L2	0.750	0.940	0.625	1.045	93.0	VBMT 21.51	MTS-2.5L	T-7
945-000-085	945-000-086	MH16 SVUBR/L3	1.000	1.000	0.875	1.435	93.0	VBMT 331	MTS-3.5L	T-15

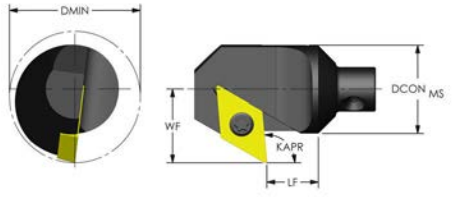


POSITIVE 35° DIAMOND (KAPR: 142°) PROFILING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-033	945-000-034	MH12 SVJBR/L3	0.750	1.315	0.421	0.840	142.0	VBMT 331	MTS-3.5L	T-15
945-000-083	945-000-084	MH16 SVJBR/L3	1.000	1.375	0.546	1.110	142.0	VBMT 331	MTS-3.5L	T-15
945-000-124	945-000-125	MH20 SVJBR/L3	1.250	1.675	0.671	1.700	142.0	VBMT 331	MTS-3.5L	T-15
945-000-161	945-000-162	MH24 SVJBR/L3	1.500	1.895	0.796	1.960	142.0	VBMT 331	MTS-3.5L	T-15
945-000-193	945-000-194	MH28 SVJBR/L3	1.750	2.145	0.921	2.230	142.0	VBMT 331	MTS-3.5L	T-15
945-000-228	945-000-229	MH32 SVJBR/L3	2.000	2.405	1.046	2.500	142.0	VBMT 331	MTS-3.5L	T-15



POSITIVE 55° DIAMOND (KAPR: 95°) BACK FACING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-026	945-000-027	MH12 SDXCR/L3	0.750	0.440	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
945-000-074	945-000-075	MH16 SDXCR/L3	1.000	0.525	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15

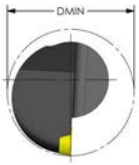
Product #	Insert Screws
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-093	MTS-3.5L

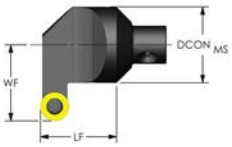
PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®



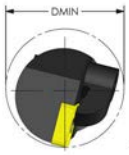


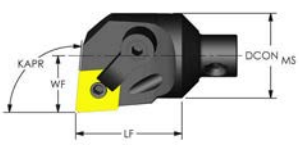
POSITIVE ROUND

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Screw
945-000-076	945-000-077	MH16 SRNCR/L3	1.000	1.000	1.000	1.560	RCMT 32.5	MTS-35
945-000-159	945-000-160	MH24 SRNCR/L4	1.500	1.520	1.250	2.090	RCMT 43	MTS-4



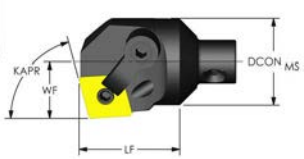


NEGATIVE 80° DIAMOND (KAPR: 95°)

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-005	945-000-006	MH12 MCLNR/L3	0.750	0.940	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
945-000-044	945-000-046	MH16 MCLNR/L3	1.000	1.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
945-000-045	945-000-047	MH16 MCLNR/L4	1.000	1.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
945-000-096	945-000-097	MH20 MCLNR/L4	1.250	1.300	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-133	945-000-134	MH24 MCLNR/L4	1.500	1.520	.890	1.730	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-170	945-000-171	MH28 MCLNR/L4	1.750	1.770	1.015	1.995	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-202	945-000-204	MH32 MCLNR/L4	2.000	2.030	1.281	2.400	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-203	945-000-205	MH32 MCLNR/L5	2.000	2.030	1.281	2.400	95.0	CNMG 543	ICSN-533	CL-12	XNS-510	NL-58



NEGATIVE 80° DIAMOND (KAPR: 75°)

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-003	945-000-004	MH12 MCKNR/L3	0.750	0.875	0.490	0.910	75.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
945-000-042	945-000-043	MH16 MCKNR/L3	1.000	0.935	0.630	1.190	75.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
945-000-094	945-000-095	MH20 MCKNR/L4	1.250	1.210	0.755	1.455	75.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-131	945-000-132	MH24 MCKNR/L4	1.500	1.430	0.880	1.720	75.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-168	945-000-169	MH28 MCKNR/L4	1.750	1.680	1.005	1.985	75.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-200	945-000-201	MH32 MCKNR/L4	2.000	1.940	1.271	2.390	75.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-179	XNS-510

PACKAGE SIZE OF 5

Product #	Lock Pin
968-000-097	NL-33
968-000-101	NL-44
968-000-102	NL-46
968-000-104	NL-58

PACKAGE SIZE OF 5

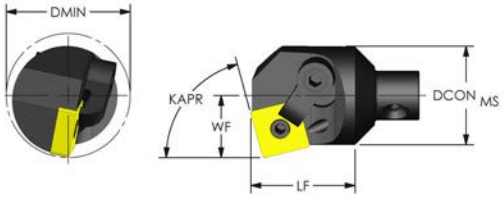
Product #	Clamp
968-000-017	CL-7
968-000-010	CL-12
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533

PACKAGE SIZE OF 10

ULTRA-DEX®

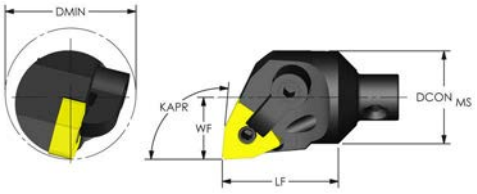


PG.509

NEGATIVE SQUARE (KAPR: 75°)

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-050	MH16 MSKNR4	1.000	1.060	0.630	1.190	75.0	SNMG 432	N/A	CL-20	XNS-47	NL-44
945-000-105	MH20 MSKNR4	1.250	1.210	0.755	1.455	75.0	SNMG 432	ISSN-432	CL-20	XNS-47	NL-46
945-000-141	MH24 MSKNR4	1.500	1.430	0.880	1.720	75.0	SNMG 432	ISSN-432	CL-20	XNS-47	NL-46
945-000-212	MH32 MSKNR4	2.000	1.680	1.271	2.390	75.0	SNMG 432	ISSN-432	CL-20	XNS-47	NL-46

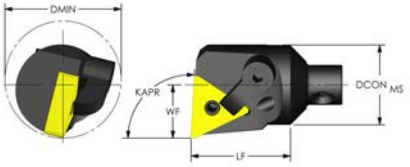


PG.509

NEGATIVE TRIGON (KAPR: 95°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-013	945-000-014	MH12 MWLNR/L3	0.750	0.940	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-057	945-000-059	MH16 MWLNR/L3	1.000	1.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-058	945-000-060	MH16 MWLNR/L4	1.000	1.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
945-000-116	945-000-117	MH20 MWLNR/L4	1.250	1.300	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
945-000-152	945-000-153	MH24 MWLNR/L4	1.500	1.520	.890	1.730	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
945-000-186	945-000-187	MH28 MWLNR/L4	1.750	1.770	1.015	1.995	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
945-000-221	945-000-222	MH32 MWLNR/L4	2.000	2.030	1.281	2.400	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46



PG.509

NEGATIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-011	945-000-012	MH12 MTUNR/L3	0.750	0.940	0.500	0.920	93.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-053	945-000-054	MH16 MTUNR/L3	1.000	1.000	0.640	1.200	93.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-110	945-000-112	MH20 MTUNR/L3	1.250	1.300	0.765	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
945-000-146	945-000-148	MH24 MTUNR/L3	1.500	1.520	0.890	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
945-000-111	945-000-113	MH20 MTUNR/L4	1.250	1.300	0.765	1.730	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-147	945-000-149	MH24 MTUNR/L4	1.500	1.520	0.890	1.730	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-180	945-000-181	MH28 MTUNR/L4	1.750	1.770	1.015	1.995	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-215	945-000-216	MH32 MTUNR/L4	2.000	2.030	1.281	2.400	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47

PACKAGE SIZE OF 5

Product #	Lock Pin
968-000-098	NL-33L
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46

PACKAGE SIZE OF 5

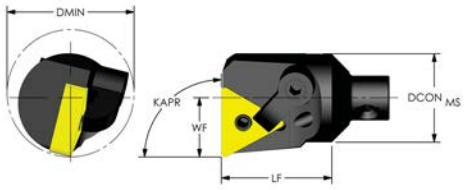
Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Shim Seat
968-000-067	ITSN-323
968-000-068	ITSN-433
968-000-063	ISSN-432
968-000-075	IWSN-433

PACKAGE SIZE OF 10

ULTRA-DEX®

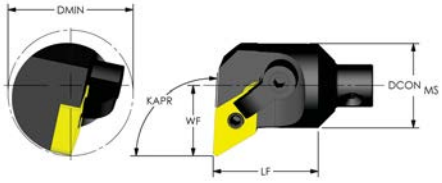


NEGATIVE TRIANGLE (KAPR: 90°)

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-009	945-000-010	MH12 MTFNR/L3	0.750	0.940	0.500	0.920	90.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-051	945-000-052	MH16 MTFNR/L3	1.000	1.000	0.640	1.200	90.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-106	945-000-108	MH20 MTFNR/L3	1.250	1.300	0.765	1.470	90.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
945-000-142	945-000-144	MH24 MTFNR/L3	1.500	1.520	0.890	1.730	90.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
945-000-107	945-000-109	MH20 MTFNR/L4	1.250	1.300	0.765	1.470	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-143	945-000-145	MH24 MTFNR/L4	1.500	1.520	0.890	1.730	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-178	945-000-179	MH28 MTFNR/L4	1.750	1.770	1.015	1.995	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-213	945-000-214	MH32 MTFNR/L4	2.000	2.030	1.281	2.400	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46

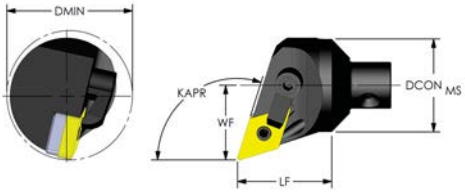


NEGATIVE 55° DIAMOND (KAPR: 93°) PROFILING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-007	945-000-008	MH12 MDUNR/L3	0.750	0.940	0.625	1.050	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-048	945-000-049	MH16 MDUNR/L3	1.000	1.000	0.750	1.310	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
N/A	945-000-102	MH20 MDUNR4-7	1.250	1.300	0.775	1.475	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-100	945-000-101	MH20 MDUNR/L4	1.250	1.300	1.000	1.700	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-137	945-000-138	MH24 MDUNR/L4	1.500	1.520	1.120	1.960	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-174	945-000-175	MH28 MDUNR/L4	1.750	1.770	1.250	2.250	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-208	945-000-209	MH32 MDUNR/L4	2.000	2.030	1.375	2.500	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46



Negative 55° Diamond (KAPR: 107.5°) PROFILING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-098	945-000-099	MH20 MDQNR/L4	1.250	1.300	1.000	1.700	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-135	945-000-136	MH24 MDQNR/L4	1.500	1.520	1.120	1.960	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-172	945-000-173	MH28 MDQNR/L4	1.750	1.770	1.250	2.250	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-206	945-000-207	MH32 MDQNR/L4	2.000	2.030	1.281	2.400	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46

Product #	Shim Seat
968-000-057	IDSN-433
968-000-067	ITSN-323
968-000-068	ITSN-433

PACKAGE SIZE OF 10

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48

PACKAGE SIZE OF 5

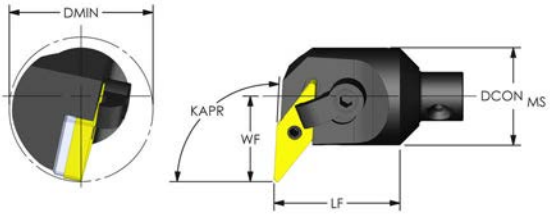
Product #	Lock Pin
968-000-098	NL-33L
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46

PACKAGE SIZE OF 5

Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20
968-000-014	CL-22

PACKAGE SIZE OF 1

ULTRA-DEX®

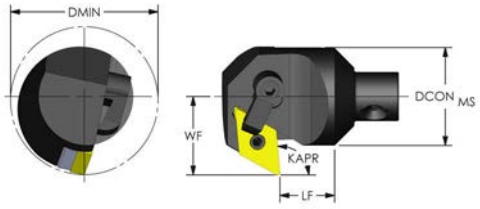


NEGATIVE 35° DIAMOND (KAPR: 93°) PROFILING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-055	945-000-056	MH16 MVUNR/L3	1.000	1.300	0.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL- 34L
945-000-114	945-000-115	MH20 MVUNR/L3	1.250	1.300	1.000	1.700	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL- 34L
945-000-150	945-000-151	MH24 MVUNR/L3	1.500	1.520	1.120	2.000	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL -34L
945-000-182	945-000-184	MH28 MVUNR/L3	1.750	1.770	1.250	2.250	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL -34L
945-000-217	945-000-219	MH32 MVUNR/L3	2.000	2.030	1.375	2.500	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
945-000-183	945-000-185	MH28 MVUNR/L4	1.750	1.770	1.250	2.250	93.0	VNMG 432	IVSN-432	CL-22	XNS-48	NL-46
945-000-218	945-000-220	MH32 MVUNR/L4	2.000	2.030	1.375	2.500	93.0	VNMG 432	IVSN-432	CL-22	XNS-48	NL-46



NEGATIVE 55° DIAMOND (KAPR: 95°) BACK FACING

PG.509

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
945-000-103	945-000-104	MH20 MDXNR/L4	1.250	0.700	1.000	1.700	95.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-139	945-000-140	MH24 MDXNR/L4	1.500	0.650	1.120	1.960	95.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-176	945-000-177	MH28 MDXNR/L4	1.750	0.780	1.250	2.250	95.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-210	945-000-211	MH32 MDXNR/L4	2.000	0.780	1.500	2.620	95.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46

Product #	Clamp Screw
968-000-177	XNS-47
968-000-178	XNS-48

PACKAGE SIZE OF 5

Product #	Lock Pin
968-000-100	NL-34L
968-000-102	NL-46

PACKAGE SIZE OF 5

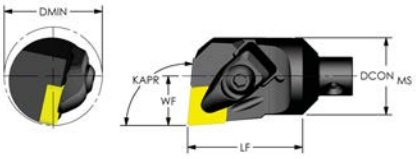
Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20
968-000-014	CL-22

PACKAGE SIZE OF 1

Product #	Shim Seat
968-000-057	IDSN-433
968-000-071	IVSN-322
968-000-072	IVSN-432

PACKAGE SIZE OF 10

ULTRA-DEX®

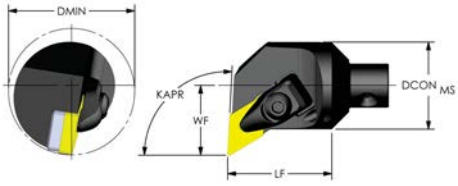


PG.509

PULLBACK CLAMP NEGATIVE 80° DIAMOND (KAPR: 95°)

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
945-000-039	MH16 DCLNR4	1.000	1.500	0.640	1.200	95.0	CNMG 432	N/A	N/A	PB4-CA
945-000-089	MH20 DCLNR4	1.250	1.500	0.765	1.470	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
945-000-126	MH24 DCLNR4	1.500	1.520	.890	1.730	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
945-000-163	MH28 DCLNR4	1.750	1.770	1.015	1.995	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
945-000-195	MH32 DCLNR4	2.000	2.030	1.281	2.400	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA

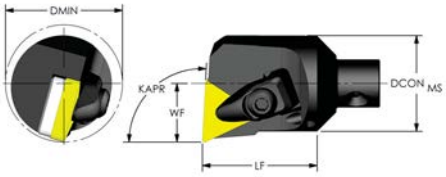


PG.509

PULLBACK CLAMP NEGATIVE 55° DIAMOND (KAPR: 93°)

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
945-000-090	MH20 DDUNR4	1.250	1.500	1.000	1.700	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
945-000-127	MH24 DDUNR4	1.500	1.520	1.120	1.960	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
945-000-164	MH28 DDUNR4	1.750	1.770	1.250	2.250	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
945-000-196	MH32 DDUNR4	2.000	2.030	1.375	2.500	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA



PG.509

PULLBACK CLAMP NEGATIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
945-000-091	MH20 DTUNR4	1.250	1.500	0.765	1.470	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA
945-000-128	MH24 DTUNR4	1.500	1.520	.890	1.730	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA
945-000-165	MH28 DTUNR4	1.750	1.770	1.015	1.995	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA
945-000-197	MH32 DTUNR4	2.000	2.030	1.281	2.400	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA

Product #	Shim Seat
968-000-053	ICSN-433
968-000-057	IDSN-433
968-000-068	ITSN-433

PACKAGE SIZE OF 10

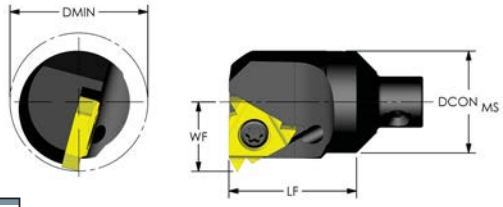
Product #	Shim Screw
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-110	PB4-CA

PACKAGE SIZE OF 1

ULTRA-DEX®



THREADING / GROOVING LAYDOWN

PG.509

COOLANT THRU

Product #	Designation RIGHT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
945-000-002	MH12 LSER3	0.750	0.940	0.510	0.930	3IR	MTS-35	N/A	N/A
945-000-041	MH16 LSER3	1.000	1.000	0.650	1.210	3IR	SA3T	SY3T	YI3
945-000-093	MH20 LSER3	1.250	1.300	0.770	1.470	3IR	SA3T	SY3T	YI3
945-000-130	MH24 LSER3	1.500	1.520	0.900	1.740	3IR	SA3T	SY3T	YI3
945-000-167	MH28 LSER3	1.750	1.770	1.090	2.070	3IR	SA3T	SY3T	YI3
945-000-199	MH32 LSER3	2.000	2.030	1.281	2.400	3IR	SA3T	SY3T	YI3

Product #	Designation LEFT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
945-000-001	MH12 LSEL3	0.750	0.940	0.510	0.930	3IL	MTS-35	N/A	N/A
945-000-040	MH16 LSEL3	1.000	1.000	0.650	1.210	3IL	SA3T	SY3T	YE3
945-000-092	MH20 LSEL3	1.250	1.300	0.770	1.470	3IL	SA3T	SY3T	YE3
945-000-129	MH24 LSEL3	1.500	1.520	0.900	1.740	3IL	SA3T	SY3T	YE3
945-000-166	MH28 LSEL3	1.750	1.770	1.090	2.070	3IL	SA3T	SY3T	YE3
945-000-198	MH32 LSEL3	2.000	2.030	1.281	2.400	3IL	SA3T	SY3T	YE3

Product #	Insert Screw
968-000-124	SA3T
968-000-094	MTS-35

PACKAGE SIZE OF 5

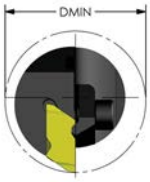
Product #	Anvil Screw
968-000-146	SY3T

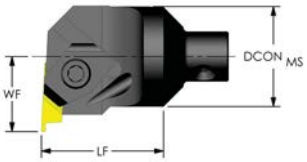
PACKAGE SIZE OF 5

Product #	Anvil
968-000-182	YE3
968-000-185	YI3

PACKAGE SIZE OF 1

ULTRA-DEX®





THREADING / GROOVING, NOTCH STYLE

PG.509

COOLANT THRU

Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
945-000-016	MH12 NER2	0.750	0.920	0.562	1.120	NG 2L	CM-75	6-32
945-000-063	MH16 NER2	1.000	1.180	0.688	1.380	NG 2L	CM-75	6-32
945-000-064	MH16 NER3	1.000	1.180	0.688	1.380	NG 3L	CM-73	10-32
945-000-119	MH20 NER3	1.250	1.300	0.875	1.750	NG 3L	CM-73	10-32
945-000-155	MH24 NER3	1.500	1.520	1.000	2.000	NG 3L	CM-73	10-32
945-000-189	MH28 NER3	1.750	1.770	1.125	2.250	NG 3L	CM-73	10-32
945-000-224	MH32 NER3	2.000	2.030	1.250	2.500	NG 3L	CM-73	10-32

Product # Left Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
945-000-015	MH12 NEL2	0.750	0.920	0.562	1.120	NG 2R	CM-74	6-32
945-000-061	MH16 NEL2	1.000	1.180	0.688	1.380	NG 2R	CM-74	6-32
945-000-062	MH16 NEL3	1.000	1.180	0.688	1.380	NG 3R	CM-72	10-32
945-000-118	MH20 NEL3	1.250	1.300	0.875	1.750	NG 3R	CM-72	10-32
945-000-154	MH24 NEL3	1.500	1.520	1.000	2.000	NG 3R	CM-72	10-32
945-000-188	MH28 NEL3	1.750	1.770	1.125	2.250	NG 3R	CM-72	10-32
945-000-223	MH32 NEL3	2.000	2.030	1.250	2.500	NG 3R	CM-72	10-32

Product #	Clamp
968-000-025	CM-72
968-000-026	CM-73
968-000-027	CM-74
968-000-028	CM-75

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-005	6-32
968-000-003	10-32

PACKAGE SIZE OF 5

STEALTH® ANTI-VIBRATION MODULAR BORING BAR

Tunable Internal Damping Technology

MANUFACTURED IN THE USA

5:1 Up To 14:1 Ratio

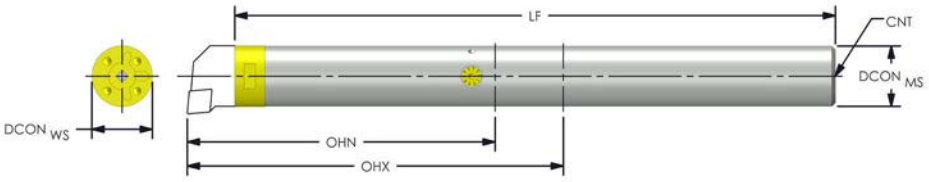
0.500"- 4.00" Diameters

Product Highlights:

Tunable Internal Damping Technology provides optimal dynamic stability yielding significant increases in machining performance. Most importantly, the bars pay for themselves quickly by increasing speed and precision. Additionally, you can leave Stealth Tooling “CFT” in the machine and use it for deep or shallow bore applications, thus reducing changeover and setup time.

- Fully tunable boring bar (arrives pre-tuned)
- Labeled dial for ease of tuning
- Quick setup flat located on connection end of bar
- Solves difficult deep boring applications
- Improved surface finish
- Increase output by more aggressive cutting
- Increase tool life from reduced vibration
- Multiple head configurations

ULTRA-DEX®



STEALTH® MODULAR BAR

COOLANT THRU

5:1 Ratio

Product #	Designation	DCONMS [in.]	DCONWS [in.]	LF [in.]	OHN [in.]	OHX [in.]	Head Bolts	CNT
910-000-013	CFT B1500-9	1.500	1.500	9.000	7.000	7.500	10-24 HB	1/8-27 NPT
910-000-018	CFT B2000-12	2.000	2.000	12.000	7.500	10.000	1/4-20 HB	1/8-27 NPT
910-000-023	CFT B2500-16	2.500	2.500	16.000	8.000	12.500	5/16-18 HB	1/8-27 NPT

7:1 Ratio

910-000-001	CFT B1000-10	1.000	1.000	10.000	5.000	7.000	8-32 HB	1/8-27 NPT
910-000-005	CFT B1250-12	1.250	1.250	12.000	6.250	8.750	10-24 HB	1/8-27 NPT
910-000-009	CFT B1500-15	1.500	1.500	15.000	7.500	10.500	10-24 HB	1/8-27 NPT
910-000-014	CFT B1750-18	1.750	1.750	18.000	8.7500	12.250	1/4-20 HB	1/8-27 NPT
910-000-019	CFT B2000-20	2.000	2.000	20.000	10.000	14.000	1/4-20 HB	1/8-27 NPT
910-000-024	CFT B2500-27	2.500	2.500	27.000	12.500	17.500	5/16-18 HB	1/4-18 NPT
910-000-028	CFT B3000-31	3.000	2.500	31.000	15.000	21.000	5/16-18 HB	1/4-18 NPT

10:1 Ratio

910-000-002	CFT B1000-14	1.000	1.000	14.000	7.000	10.000	8-32 HB	1/8-27 NPT
910-000-006	CFT B1250-16	1.250	1.250	16.000	8.750	12.500	10-24 HB	1/8-27 NPT
910-000-010	CFT B1500-19	1.500	1.500	19.000	10.500	15.000	10-24 HB	1/8-27 NPT
910-000-015	CFT B1750-23	1.750	1.750	23.000	12.250	17.500	1/4-20 HB	1/8-27 NPT
910-000-020	CFT B2000-26	2.000	2.000	26.000	14.000	20.000	1/4-20 HB	1/8-27 NPT
910-000-025	CFT B2500-33	2.500	2.500	33.000	17.500	25.000	5/16-18 HB	1/4-18 NPT
910-000-029	CFT B3000-40	3.000	2.500	40.000	21.000	30.000	5/16-18 HB	1/4-18 NPT
910-000-034	CFT B4000-50	4.000	2.500	50.000	28.000	40.000	5/16-18 HB	1/4-18 NPT

12:1 Ratio

910-000-003	CFT B1000-16	1.000	1.000	16.000	10.875	12.000	8-32 HB	N/A
910-000-007	CFT B1250-18	1.250	1.250	18.000	13.785	15.000	10-24 HB	N/A
910-000-011	CFT B1500-22	1.500	1.500	22.000	16.375	21.000	10-24 HB	N/A
910-000-016	CFT B1750-25	1.750	1.750	25.000	18.060	21.000	1/4-20 HB	N/A
910-000-021	CFT B2000-29	2.000	2.000	29.000	19.375	24.000	1/4-20 HB	N/A

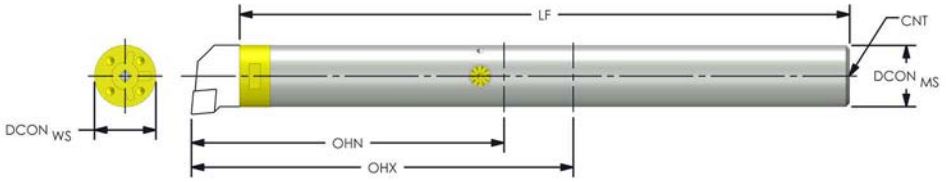
14:1 Ratio

910-000-004	CFT B1000-18	1.000	1.000	18.000	10.875	14.000	8-32 HB	N/A
910-000-008	CFT B1250-21	1.250	1.250	21.000	13.875	17.500	10-24 HB	N/A
910-000-012	CFT B1500-25	1.500	1.500	25.000	16.375	21.000	10-24 HB	N/A
910-000-017	CFT B1750-29	1.750	1.750	29.000	18.060	24.500	1/4-20 HB	N/A
910-000-022	CFT B2000-33	2.000	2.000	33.000	19.375	28.000	1/4-20 HB	N/A

Product #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

PACKAGE SIZE OF 1

ULTRA-DEX®



7:1 Ratio

STEALTH® MODULAR BAR — **COOLANT THRU**

Product #	Designation	DCONMS [mm]	DCONWS [in.]	LF [mm]	OHN [mm]	OHX [mm]	Head Bolts	CNT
910-000-026	CFT B25MM-250	25.00	1.000	250.00	127.00	175.00	8-32 HB	1/8-27 NPT
910-000-030	CFT B32MM-320	32.00	1.250	320.00	159.00	224.00	10-24 HB	1/8-27 NPT
910-000-035	CFT B40MM-400	40.00	1.500	400.00	190.00	280.00	10-24 HB	1/8-27 NPT
910-000-039	CFT B50MM-500	50.00	2.000	500.00	254.00	350.00	1/4-20 HB	1/8-27 NPT
910-000-043	CFT B60MM-600	60.00	2.000	600.00	320.00	420.00	1/4-20 HB	1/8-27 NPT

10:1 Ratio

910-000-027	CFT B25MM-325	25.00	1.000	325.00	178.00	250.00	8-32 HB	1/8-27 NPT
910-000-031	CFT B32MM-416	32.00	1.250	416.00	223.00	320.00	10-24 HB	1/8-27 NPT
910-000-036	CFT B40MM-520	40.00	1.500	520.00	266.00	400.00	10-24 HB	1/8-27 NPT
910-000-040	CFT B50MM-650	50.00	2.000	650.00	356.00	500.00	1/4-20 HB	1/8-27 NPT
910-000-044	CFT B60MM-780	60.00	2.000	780.00	445.00	600.00	1/4-20 HB	1/8-27 NPT

12:1 Ratio

910-000-032	CFT B32MM-480	32.00	1.250	480.00	352.00	384.00	10-24 HB	N/A
910-000-037	CFT B40MM-600	40.00	1.500	600.00	416.00	480.00	10-24 HB	N/A
910-000-041	CFT B50MM-750	50.00	2.000	750.00	492.00	600.00	1/4-20 HB	N/A

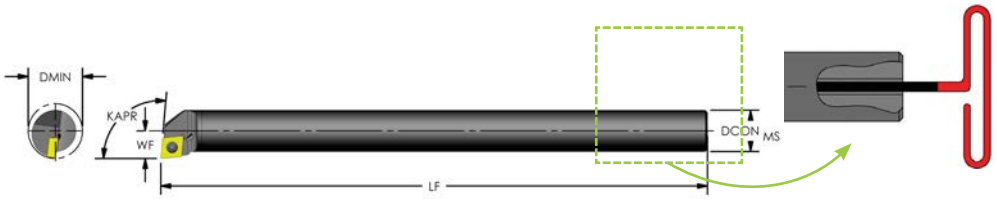
14:1 Ratio

910-000-033	CFT B32MM-544	32.00	1.250	544.00	352.00	448.00	10-24 HB	N/A
910-000-038	CFT B40MM-680	40.00	1.500	680.00	416.00	560.00	10-24 HB	N/A
910-000-042	CFT B50MM-850	50.00	2.000	850.00	492.00	788.00	1/4-20 HB	N/A

Product #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

PACKAGE SIZE OF 1

ULTRA-DEX®

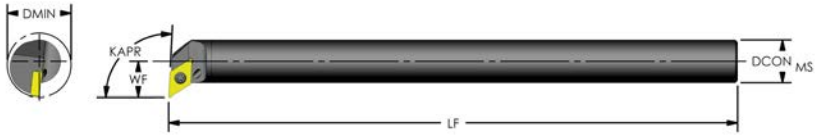


Tuneable from the end with supplied T-Handle Hex Wrench.

SOLID POSITIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
910-000-045	D08R SCLCR2	0.500	8.000	0.281	0.580	95.0	CCMT 21.51	MTS-255	T-7
910-000-047	D10X SCLCR3	0.625	9.000	0.406	0.770	95.0	CCMT 32.51	MTS-35	T-15
910-000-050	D12S SCLCR3	0.750	10.000	0.500	0.930	95.0	CCMT 32.51	MTS-35	T-15

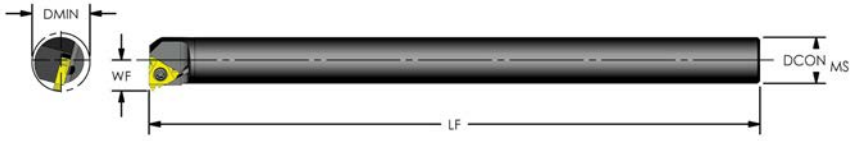


Tuneable from the end with supplied T-Handle Hex Wrench.

SOLID POSITIVE 55° DIAMOND (KAPR: 93°)

8:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
910-000-046	D08R SDUCR2	0.500	8.000	0.437	0.730	93.0	DCMT 21.51	MTS-255	T-7
910-000-048	D10X SDUCR2	0.625	9.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
910-000-051	D12S SDUCR3	0.750	10.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15



Tuneable from the end with supplied T-Handle Hex Wrench.

SOLID THREADING/GROOVING LAYDOWN

8:1 Ratio
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw
910-000-049	D12S LSER3	0.750	10.000	0.510	0.935	3IR	MTS-35

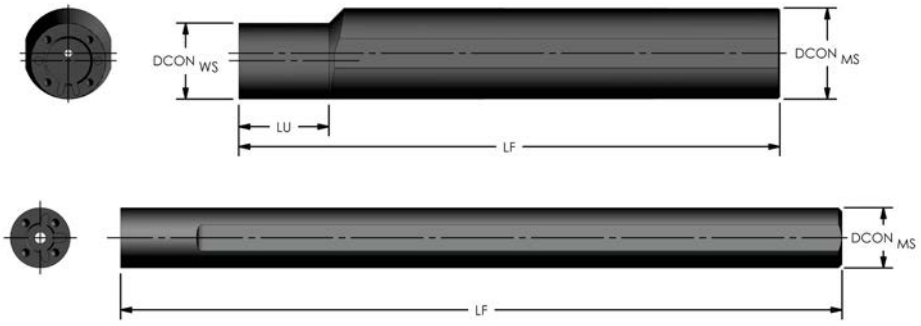
Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®



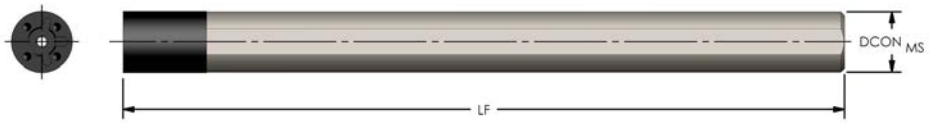
4:1 Ratio

STEEL SHANK

COOLANT THRU

Product #	Designation	DCONMS [in.]	DCONWS [in.]	LU [in.]	LF [in.]	Head Bolts
911-000-001	A1000-12	1.000	N/A	N/A	12.000	8-32
911-000-002	A1250-14	1.250	N/A	N/A	14.000	10-24
911-000-003	A1500-14	1.500	N/A	N/A	14.000	10-24
911-000-004	A1750-16	1.750	N/A	N/A	16.000	1/4-20
911-000-026	A2000-10	2.000	N/A	N/A	10.000	1/4-20
911-000-005	A2000-20	2.000	N/A	N/A	20.000	1/4-20
911-000-006	A2500-12	2.500	N/A	N/A	12.000	5/16-18
911-000-007	A2500-24	2.500	N/A	N/A	24.000	5/16-18
911-000-008	A3000-18 *	3.000	2.000	3.000	18.000	5/16-18

* 3" bar takes 2.5" head



8:1 Ratio

CARBIDE SHANK

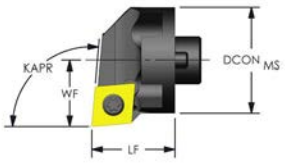
COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	Head Bolts
911-000-016	E1000-12	1.000	12.000	8-32
911-000-017	E1250-14	1.250	14.000	10-24
911-000-018	E1500-14	1.500	14.000	10-24
911-000-019	E1750-16	1.750	16.000	1/4-20
911-000-020	E2000-20	2.000	20.000	1/4-20

Product #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

PACKAGE SIZE OF 1

ULTRA-DEX®

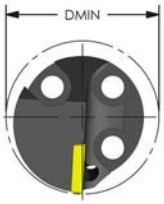


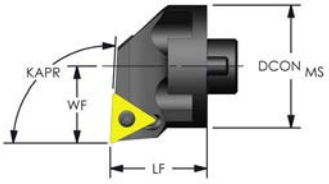
PG.510

POSITIVE 80° DIAMOND (KAPR: 95°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-014	912-000-015	MH16 SCLCR/L3-CFT	1.000	0.790	0.625	1.200	95.0	CCMT 32.51	MTS-35	T-15
912-000-041	912-000-042	MH20 SCLCR/L3-CFT	1.250	1.250	0.765	1.470	95.0	CCMT 32.51	MTS-35	T-15
912-000-074	912-000-075	MH24 SCLCR/L3-CFT	1.500	1.250	0.890	1.760	95.0	CCMT 32.51	MTS-35	T-15
912-000-110	912-000-111	MH28 SCLCR/L3-CFT	1.750	1.250	1.015	2.030	95.0	CCMT 32.51	MTS-35	T-15
N/A	912-000-076	MH24 SCLCR4-CFT	1.500	1.250	0.890	1.760	95.0	CCMT 432	MTS-4	T-20
N/A	912-000-112	MH28 SCLCR4-CFT	1.750	1.250	1.015	2.030	95.0	CCMT 432	MTS-4	T-20
912-000-156	912-000-157	MH32 SCLCR/L4-CFT	2.000	1.625	1.281	2.400	95.0	CCMT 432	MTS-4	T-20
912-000-195	912-000-196	MH40 SCLCR/L4-CFT	2.500	1.625	1.500	2.800	95.0	CCMT 432	MTS-4	T-20





PG.510

POSITIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-020	912-000-021	MH16 STUCR/L2-CFT	1.000	0.790	0.625	1.200	93.0	TCMT 21.51	MTS-255	T-7
912-000-047	912-000-048	MH20 STUCR/L3-CFT	1.250	1.250	0.765	1.470	93.0	TCMT 32.51	MTS-35	T-15
912-000-081	912-000-082	MH24 STUCR/L3-CFT	1.500	1.250	0.890	1.760	93.0	TCMT 32.51	MTS-35	T-15
912-000-117	912-000-118	MH28 STUCR/L3-CFT	1.750	1.250	1.015	2.030	93.0	TCMT 32.51	MTS-35	T-15
912-000-162	912-000-163	MH32 STUCR/L3-CFT	2.000	1.625	1.281	2.400	93.0	TCMT 32.51	MTS-35	T-15
912-000-201	912-000-202	MH40 STUCR/L3-CFT	2.500	1.625	1.500	2.800	93.0	TCMT 32.51	MTS-35	T-15

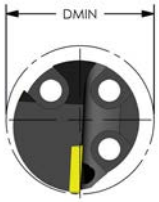
Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35
968-000-095	MTS-4

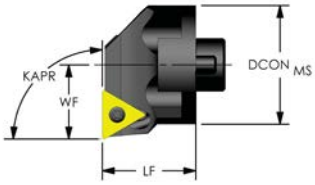
PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX®



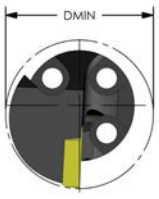


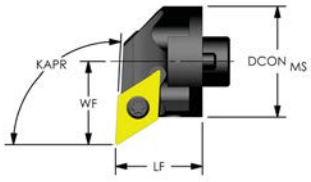
POSITIVE TRIANGLE (KAPR: 90°)

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-018	912-000-019	MH16 STFCR/L2-CFT	1.000	0.790	0.625	1.200	90.0	TCMT 21.51	MTS-255	T-7
912-000-045	912-000-046	MH20 STFCR/L3-CFT	1.250	1.250	0.765	1.470	90.0	TCMT 32.51	MTS-35	T-15
912-000-079	912-000-080	MH24 STFCR/L3-CFT	1.500	1.250	0.890	1.760	90.0	TCMT 32.51	MTS-35	T-15
912-000-115	912-000-116	MH28 STFCR/L3-CFT	1.750	1.250	1.015	2.030	90.0	TCMT 32.51	MTS-35	T-15
912-000-160	912-000-161	MH32 STFCR/L3-CFT	2.000	1.625	1.281	2.400	90.0	TCMT 32.51	MTS-35	T-15
912-000-199	912-000-200	MH40 STFCR/L3-CFT	2.500	1.625	1.500	2.800	90.0	TCMT 32.51	MTS-35	T-15





POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-016	912-000-017	MH16 SDUCR/L3-CFT	1.000	0.790	0.750	1.300	93.0	DCMT 32.51	MTS-35	T-15
912-000-043	912-000-044	MH20 SDUCR/L3-CFT	1.250	1.250	1.000	1.675	93.0	DCMT 32.51	MTS-35	T-15
912-000-077	912-000-078	MH24 SDUCR/L3-CFT	1.500	1.250	1.120	1.920	93.0	DCMT 32.51	MTS-35	T-15
912-000-113	912-000-114	MH28 SDUCR/L3-CFT	1.750	1.250	1.250	2.175	93.0	DCMT 32.51	MTS-35	T-15
912-000-158	912-000-159	MH32 SDUCR/L3-CFT	2.000	1.625	1.375	2.425	93.0	DCMT 32.51	MTS-35	T-15
912-000-197	912-000-198	MH40 SDUCR/L3-CFT	2.500	1.625	1.500	2.800	93.0	DCMT 32.51	MTS-35	T-15

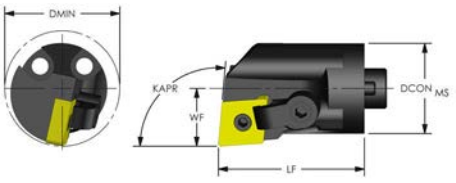
Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

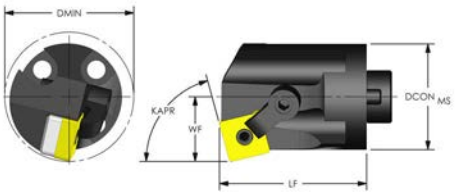


NEGATIVE 80° DIAMOND (KAPR: 95°)

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
912-000-003	912-000-004	MH16 MCLNR/L4-CFT	1.000	1.625	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
912-000-024	912-000-025	MH20 MCLNR/L4-CFT	1.250	1.625	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-053	912-000-055	MH24 MCLNR/L4-CFT	1.500	1.625	0.890	1.760	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-087	912-000-088	MH28 MCLNR/L4-CFT	1.750	1.625	1.015	2.010	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-125	912-000-128	MH32 MCLNR/L4-CFT	2.000	1.625	1.281	2.400	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-166	912-000-169	MH40 MCLNR/L4-CFT	2.500	1.625	1.531	2.980	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-054	912-000-056	MH24 MCLNR/L5-CFT	1.500	1.625	0.890	1.760	95.0	CNMG 543	N/A	CL-20	XNS-47	NL-56
912-000-126	912-000-129	MH32 MCLNR/L5-CFT	2.000	1.625	1.281	2.400	95.0	CNMG 543	ICSN-533	CL-12	XNS-510	NL-58
912-000-167	912-000-170	MH40 MCLNR/L5-CFT	2.500	1.625	1.531	2.980	95.0	CNMG 543	ICSN-533	CL-12	XNS-510	NL-58
912-000-127	912-000-130	MH32 MCLNR/L6-CFT	2.000	1.625	1.281	2.400	95.0	CNMG 643	ICSN-633	CL-12	XNS-59	NL-68
912-000-168	912-000-171	MH40 MCLNR/L6-CFT	2.500	1.625	1.531	3.030	95.0	CNMG 643	ICSN-633	CL-12	XNS-59	NL-68



NEGATIVE SQUARE (KAPR: 75°)

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
912-000-030	912-000-031	MH20 MSKNR/L4-CFT	1.250	1.744	0.765	1.470	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-061	912-000-062	MH24 MSKNR/L4-CFT	1.500	1.744	0.890	1.760	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-093	912-000-094	MH28 MSKNR/L4-CFT	1.750	1.744	1.015	2.010	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-135	912-000-138	MH32 MSKNR/L4-CFT	2.000	1.744	1.281	2.400	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-176	912-000-179	MH40 MSKNR/L4-CFT	2.500	1.804	1.531	3.030	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-136	912-000-139	MH32 MSKNR/L5-CFT	2.000	1.744	1.281	2.400	75.0	SNMG 543	ISSN-533	CL-12	XNS-510	NL-58
912-000-177	912-000-180	MH40 MSKNR/L5-CFT	2.500	1.804	1.531	3.030	75.0	SNMG 543	ISSN-533	CL-12	XNS-510	NL-58
912-000-137	912-000-140	MH32 MSKNR/L6-CFT	2.000	1.744	1.281	2.400	75.0	SNMG 643	ISSN-633	CL-12	XNS-510	NL-68
912-000-178	912-000-181	MH40 MSKNR/L6-CFT	2.500	1.804	1.531	3.030	75.0	SNMG 643	ISSN-633	CL-12	XNS-510	NL-68

Product #	Clamp Screw
968-000-181	XNS-59
968-000-177	XNS-47
968-000-179	XNS-510

PACKAGE SIZE OF 5

Product #	Lock Pin
968-000-101	NL-44
968-000-102	NL-46
968-000-104	NL-58
968-000-105	NL-68

PACKAGE SIZE OF 5

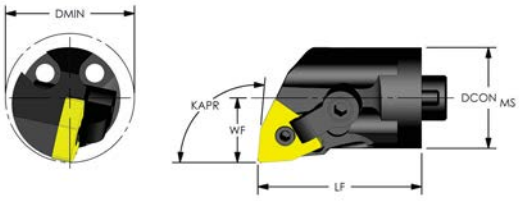
Product #	Clamp
968-000-010	CL-12
968-000-012	CL-20

PACKAGE SIZE OF 1

Product #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633

PACKAGE SIZE OF 10

ULTRA-DEX®

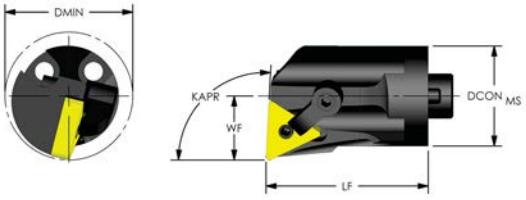


NEGATIVE TRIGON (KAPR: 95°)

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
912-000-012	912-000-013	MH16 MWLNR/L4-CFT	1.000	1.625	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
912-000-037	912-000-038	MH20 MWLNR/L4-CFT	1.250	1.625	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
912-000-070	912-000-071	MH24 MWLNR/L4-CFT	1.500	1.625	0.890	1.760	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
912-000-102	912-000-103	MH28 MWLNR/L4-CFT	1.750	1.625	1.015	2.010	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
912-000-148	912-000-149	MH32 MWLNR/L4-CFT	2.000	1.625	1.281	2.400	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
912-000-189	912-000-190	MH40 MWLNR/L4-CFT	2.500	1.625	1.500	2.980	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46



NEGATIVE TRIANGLE (KAPR: 93°)

PG.510

COOLANT THRU

Product #	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
912-000-007	MH16 MTUNR3-CFT	1.000	1.625	0.640	1.200	93.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
912-000-032	MH20 MTUNR3-CFT	1.250	1.625	0.765	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
912-000-065	MH24 MTUNR4-CFT	1.500	1.625	0.890	1.760	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
912-000-097	MH28 MTUNR4-CFT	1.750	1.625	1.015	2.010	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
912-000-143	MH32 MTUNR4-CFT	2.000	1.625	1.281	2.400	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
912-000-182	MH40 MTUNR4-CFT	2.500	1.625	1.531	2.900	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46

Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47

PACKAGE SIZE OF 5

Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20

PACKAGE SIZE OF 1

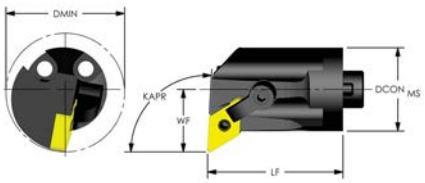
Product #	Shim Seat
968-000-067	ITSN-323
968-000-068	ITSN-433
968-000-075	IWSN-433

PACKAGE SIZE OF 10

Product #	Lock Pin
968-000-098	NL-33L
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46

PACKAGE SIZE OF 5

ULTRA-DEX®

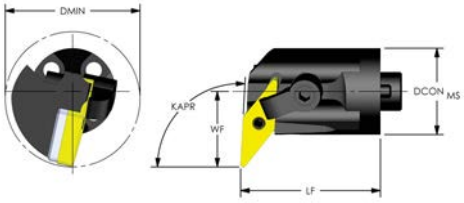


NEGATIVE 55° DIAMOND (KAPR: 93°)

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
912-000-005	912-000-006	MH16 MDUNR/L3-CFT	1.000	1.625	0.750	1.300	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
912-000-026	912-000-028	MH20 MDUNR/L3-CFT	1.250	1.625	1.000	1.705	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-057	912-000-059	MH24 MDUNR/L3-CFT	1.500	1.625	1.125	2.000	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-089	912-000-091	MH28 MDUNR/L3-CFT	1.750	1.625	1.250	2.250	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-131	912-000-133	MH32 MDUNR/L3-CFT	2.000	1.625	1.375	2.500	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-172	912-000-174	MH40 MDUNR/L3-CFT	2.500	1.625	1.500	2.950	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-027	912-000-029	MH20 MDUNR/L4-CFT	1.250	1.625	1.000	1.705	93.0	DNMG 432	IDSN-433	CL-20	XNS-48	NL-46
912-000-058	912-000-060	MH24 MDUNR/L4-CFT	1.500	1.625	1.125	2.000	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
912-000-090	912-000-092	MH28 MDUNR/L4-CFT	1.750	1.625	1.250	2.250	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
912-000-132	912-000-134	MH32 MDUNR/L4-CFT	2.000	1.625	1.375	2.500	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
912-000-173	912-000-175	MH40 MDUNR/L4-CFT	2.500	1.625	1.500	2.950	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46



NEGATIVE 35° DIAMOND (KAPR: 93°)

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
912-000-008	912-000-009	MH16 MVUNR/L3-CFT	1.000	1.625	0.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-033	912-000-034	MH20 MVUNR/L3-CFT	1.250	1.625	1.000	1.705	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-066	912-000-067	MH24 MVUNR/L3-CFT	1.500	1.625	1.125	2.000	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-098	912-000-099	MH28 MVUNR/L3-CFT	1.750	1.625	1.250	2.250	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-144	912-000-145	MH32 MVUNR/L3-CFT	2.000	1.625	1.375	2.500	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-183	912-000-185	MH40 MVUNR/L3-CFT	2.500	1.625	1.750	3.250	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-184	912-000-186	MH40 MVUNR/L4-CFT	2.500	1.625	1.750	3.250	93.0	VNMG 432	IVSN-432	CL-22	XNS-48	NL-46

Product #	Shim Seat
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-071	IVSN-322
968-000-072	IVSN-432

PACKAGE SIZE OF 10

Product #	Clamp
968-000-017	CL-7
968-000-012	CL-20
968-000-014	CL-22

PACKAGE SIZE OF 1

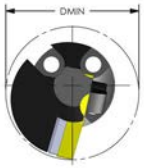
Product #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48

PACKAGE SIZE OF 5

Product #	Lock Pin
968-000-098	NL-33L
968-000-100	NL-34L
968-000-102	NL-46

PACKAGE SIZE OF 5

ULTRA-DEX®



NEGATIVE 35° DIAMOND (KAPR: 95°) BACK FACING

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
912-000-010	912-000-011	MH16 MVXNR/L3-CFT	1.000	0.940	0.875	1.435	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-035	912-000-036	MH20 MVXNR/L3-CFT	1.250	1.000	1.000	1.705	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-068	912-000-069	MH24 MVXNR/L3-CFT	1.500	1.120	1.125	2.000	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-100	912-000-101	MH28 MVXNR/L3-CFT	1.750	1.120	1.250	2.250	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-146	912-000-147	MH32 MVXNR/L3-CFT	2.000	1.120	1.375	2.500	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-187	912-000-188	MH40 MVXNR/L3-CFT	2.500	1.120	1.750	3.250	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L

THREADING / GROOVING LAYDOWN

PG.510

COOLANT THRU

Product #	Designation Right hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
912-000-002	MH16 LSER3-CFT	1.000	1.625	0.650	1.200	3IR	SA3T	SY3T	YI3
912-000-023	MH20 LSER3-CFT	1.250	1.625	0.770	1.450	3IR	SA3T	SY3T	YI3
912-000-051	MH24 LSER3-CFT	1.500	1.625	0.900	1.650	3IR	SA3T	SY3T	YI3
912-000-085	MH28 LSER3-CFT	1.750	1.625	1.090	2.020	3IR	SA3T	SY3T	YI3
912-000-122	MH32 LSER3-CFT	2.000	1.625	1.281	2.400	3IR	SA3T	SY3T	YI3
912-000-052	MH24 LSER4-CFT	1.500	1.625	0.978	1.782	4IR	SA4T	SY4T	YI4
912-000-086	MH28 LSER4-CFT	1.750	1.625	1.090	2.020	4IR	SA4T	SY4T	YI4
912-000-123	MH32 LSER4-CFT	2.000	1.625	1.281	2.400	4IR	SA4T	SY4T	YI4
912-000-124	MH32 LSER5-CFT	2.000	1.625	1.281	2.400	5IR	SA5T	SY5T	YI5
912-000-165	MH40 LSER5-CFT	2.500	1.625	1.530	2.800	5IR	SA5T	SY5T	YI5

Product #	Designation Left hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
912-000-001	MH16 LSEL3-CFT	1.000	1.625	0.650	1.200	3IL	SA3T	SY3T	YE3
912-000-022	MH20 LSEL3-CFT	1.250	1.625	0.770	1.450	3IL	SA3T	SY3T	YE3
912-000-049	MH24 LSEL3-CFT	1.500	1.625	0.900	1.650	3IL	SA3T	SY3T	YE3
912-000-083	MH28 LSEL3-CFT	1.750	1.625	1.090	2.020	3IL	SA3T	SY3T	YE3
912-000-119	MH32 LSEL3-CFT	2.000	1.625	1.281	2.400	3IL	SA3T	SY3T	YE3
912-000-050	MH24 LSEL4-CFT	1.500	1.625	0.978	1.782	4IL	SA4T	SY4T	YE4
912-000-084	MH28 LSEL4-CFT	1.750	1.625	1.090	2.020	4IL	SA4T	SY4T	YE4
912-000-120	MH32 LSEL4-CFT	2.000	1.625	1.281	2.400	4IL	SA4T	SY4T	YE4
912-000-121	MH32 LSEL5-CFT	2.000	1.625	1.281	2.400	5IL	SA5T	SY5T	YE5
912-000-164	MH40 LSEL5-CFT	2.500	1.625	1.530	2.800	5IL	SA5T	SY5T	YE5

Product #	Insert Screw
968-000-124	SA3T
968-000-125	SA4T
968-000-126	SA5T

PACKAGE SIZE OF 5

Product #	Anvil Screw
968-000-146	SY3T
968-000-147	SY4T
968-000-148	SY5T

PACKAGE SIZE OF 5

Product #	Anvil
968-000-185	YI3
968-000-182	YE3
968-000-187	YI4
968-000-183	YE4
968-000-188	YI5
968-000-184	YE5

PACKAGE SIZE OF 1

Product #	Shim Seat
968-000-071	IVSN-322

PACKAGE SIZE OF 10

Product #	Clamp
968-000-012	CL-20

PACKAGE SIZE OF 1

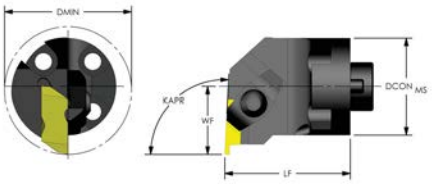
Product #	Clamp Screw
968-000-177	XNS-47

PACKAGE SIZE OF 5

Product #	Lock Pin
968-000-100	NL-34L

PACKAGE SIZE OF 5

ULTRA-DEX®



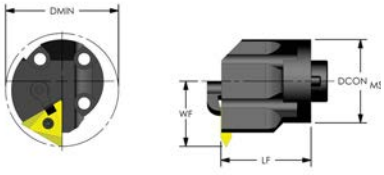
THREADING / GROOVING, NOTCH STYLE

PG.510

COOLANT THRU

Product #	Designation Right Hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
912-000-040	MH20 NER3-CFT	1.250	1.625	0.875	1.750	NG 3L	CM-73	10-32
912-000-073	MH24 NER3-CFT	1.500	1.625	1.000	2.000	NG 3L	CM-73	10-32
912-000-107	MH28 NER3-CFT	1.750	1.625	1.125	2.250	NG 3L	CM-73	10-32
912-000-153	MH32 NER3-CFT	2.000	1.625	1.250	2.410	NG 3L	CM-73	10-32
912-000-108	MH28 NER4-CFT	1.750	1.625	1.250	2.500	NG 4L	CM-73	10-32
912-000-154	MH32 NER4-CFT	2.000	1.625	1.375	2.750	NG 4L	CM-73	10-32
912-000-193	MH40 NER4-CFT	2.500	1.625	1.625	3.250	NG 4L	CM-73	10-32
912-000-109	MH28 NER6-CFT	1.750	1.625	1.250	2.500	NG 6L	CM-121	10-32
912-000-155	MH32 NER6-CFT	2.000	1.625	1.375	2.750	NG 6L	CM-121	10-32
912-000-194	MH40 NER6-CFT	2.500	1.625	1.625	3.250	NG 6L	CM-121	10-32

Product #	Designation Left hand	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
912-000-039	MH20 NEL3-CFT	1.250	1.625	.875	1.750	NG 3R	CM-72	10-32
912-000-072	MH24 NEL3-CFT	1.500	1.625	1.000	2.000	NG 3R	CM-72	10-32
912-000-104	MH28 NEL3-CFT	1.750	1.625	1.125	2.250	NG 3R	CM-72	10-32
912-000-150	MH32 NEL3-CFT	2.000	1.625	1.250	2.410	NG 3R	CM-72	10-32
912-000-105	MH28 NEL4-CFT	1.750	1.625	1.250	2.500	NG 4R	CM-72	10-32
912-000-151	MH32 NEL4-CFT	2.000	1.625	1.375	2.750	NG 4R	CM-72	10-32
912-000-191	MH40 NEL4-CFT	2.500	1.625	1.625	3.250	NG 4R	CM-72	10-32
912-000-106	MH28 NEL6-CFT	1.750	1.625	1.250	2.500	NG 6R	CM-120	10-32
912-000-152	MH32 NEL6-CFT	2.000	1.625	1.375	2.750	NG 6R	CM-120	10-32
912-000-192	MH40 NEL6-CFT	2.500	1.625	1.625	3.250	NG 6R	CM-120	10-32



THREADING / GROOVING ON EDGE

PG.510

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Scew	Lock Pin
912-000-063	912-000-064	MH24 MTHOR/L4-CFT	1.500	1.625	1.173	2.625	TNMA 43	CL-7	XNS-36	NL-44
912-000-095	912-000-096	MH28 MTHOR/L4-CFT	1.750	1.625	1.298	2.750	TNMA 43	CL-7	XNS-36	NL-44
912-000-141	912-000-142	MH32 MTHOR/L4-CFT	2.000	1.625	1.423	2.875	TNMA 43	CL-7	XNS-36	NL-44

Product #	Clamp Screw
968-000-176	XNS-36

PACKAGE SIZE OF 5

Product #	Lock Pin
968-000-101	NL-44

PACKAGE SIZE OF 5

Product #	Clamp
968-000-017	CL-7

PACKAGE SIZE OF 1

Product #	Clamp
968-000-025	CM-72
968-000-026	CM-73
968-000-021	CM-120
968-000-022	CM-121

PACKAGE SIZE OF 1

Product #	Clamp Screw
968-000-003	10-32

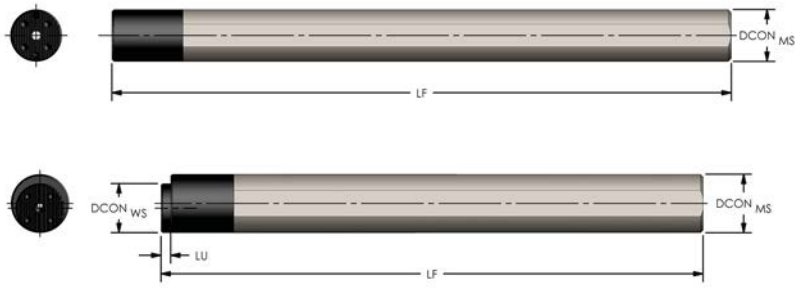
PACKAGE SIZE OF 5

ULTRA-DEX®

4:1 Ratio
COOLANT THRU

STEEL SHANK

Product #	Designation	DCONMS [in.]	DCONWS [mm]	LU [in.]	LF [in.]	Head Bolts
911-000-009	AS1000-12	1.000	25.00	N/A	12.000	8-32
911-000-010	AS1250-14	1.250	32.00	N/A	14.000	10-24
911-000-011	AS1500-14	1.500	32.00	0.250	14.000	10-24
911-000-012	AS1750-16	1.750	40.00	0.250	16.000	1/4-20
911-000-013	AS2000-20	2.000	40.00	0.250	20.000	1/4-20
911-000-014	AS2500-12	2.500	40.00	0.250	12.000	1/4-20
911-000-015	AS2500-24	2.500	40.00	0.250	24.000	1/4-20



8:1 Ratio
COOLANT THRU

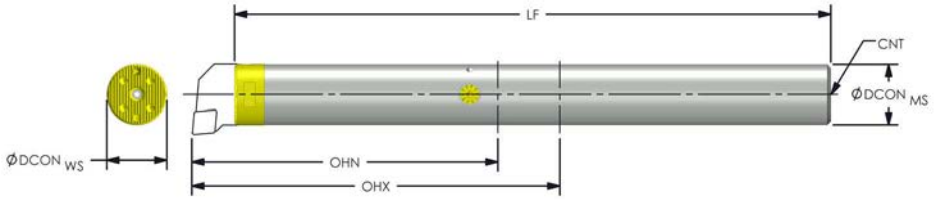
CARBIDE SHANK

Product #	Designation	DCONMS [in.]	DCONWS [mm]	LU [in.]	LF [in.]	Head Bolts
911-000-021	ES1000-12	1.000	25.00	N/A	12.000	8-32
911-000-022	ES1250-14	1.250	32.00	N/A	14.000	10-24
911-000-023	ES1500-14	1.500	32.00	0.250	14.000	10-24
911-000-024	ES1750-16	1.750	40.00	0.250	16.000	1/4-20
911-000-025	ES2000-20	2.000	40.00	0.250	20.000	1/4-20

Product #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

PACKAGE SIZE OF 1

ULTRA-DEX®



MODULAR STEALTH® BAR

COOLANT THRU

5:1 Ratio

Product #	Designation	DCONMS [in.]	DCONWS [mm]	LF [in.]	OHN [in.]	OHX [in.]	Head Bolts	CNT
910-000-064	SCFT B1500-9	1.500	32.00	9.000	7.000	7.500	10-24 HB	1/8-27 NPT
910-000-069	SCFT B2000-12	2.000	40.00	12.000	7.500	10.000	1/4-20 HB	1/8-27 NPT
910-000-074	SCFT B2500-16	2.500	40.00	16.000	8.000	12.500	1/4-20 HB	1/4-18 NPT

7:1 Ratio

910-000-052	SCFT B1000-10	1.000	25.00	10.000	5.000	7.000	8-32 HB	1/8-27 NPT
910-000-056	SCFT B1250-12	1.250	32.00	12.000	6.250	8.750	10-24 HB	1/8-27 NPT
910-000-060	SCFT B1500-15	1.500	32.00	15.000	7.500	10.500	10-24 HB	1/8-27 NPT
910-000-065	SCFT B1750-18	1.750	40.00	18.000	8.7500	12.250	1/4-20 HB	1/8-27 NPT
910-000-070	SCFT B2000-20	2.000	40.00	20.000	10.000	14.000	1/4-20 HB	1/8-27 NPT
910-000-075	SCFT B2500-27	2.500	40.00	27.000	12.500	17.500	1/4-20 HB	1/4-18 NPT

10:1 Ratio

910-000-053	SCFT B1000-14	1.000	25.00	14.000	7.000	10.000	8-32 HB	1/8-27 NPT
910-000-057	SCFT B1250-16	1.250	32.00	16.000	8.750	12.500	10-24 HB	1/8-27 NPT
910-000-061	SCFT B1500-19	1.500	32.00	19.000	10.500	15.000	10-24 HB	1/8-27 NPT
910-000-066	SCFT B1750-23	1.750	40.00	23.000	12.250	17.500	1/4-20 HB	1/8-27 NPT
910-000-071	SCFT B2000-26	2.000	40.00	26.000	14.000	20.000	1/4-20 HB	1/8-27 NPT
910-000-076	SCFT B2500-33	2.500	40.00	33.000	17.500	25.000	1/4-20 HB	1/4-18 NPT

12:1 Ratio

910-000-054	SCFT B1000-16	1.000	25.00	16.000	10.875	12.000	8-32 HB	N/A
910-000-058	SCFT B1250-18	1.250	32.00	18.000	13.785	15.000	10-24 HB	N/A
910-000-062	SCFT B1500-22	1.500	32.00	22.000	16.375	18.000	10-24 HB	N/A
910-000-067	SCFT B1750-25	1.750	40.00	25.000	18.060	21.000	1/4-20 HB	N/A
910-000-072	SCFT B2000-29	2.000	40.00	29.000	19.375	24.000	1/4-20 HB	N/A

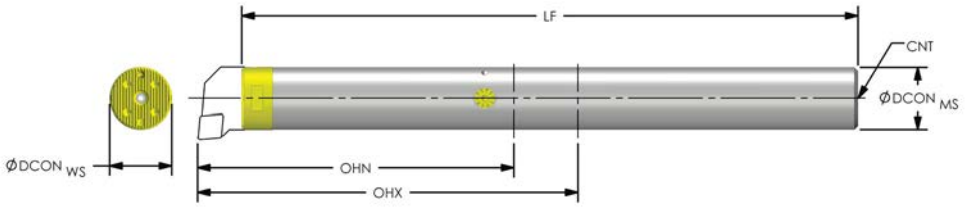
14:1 Ratio

910-000-055	SCFT B1000-18	1.000	25.00	18.000	10.875	12.000	8-32 HB	N/A
910-000-059	SCFT B1250-21	1.250	32.00	21.000	13.875	15.000	10-24 HB	N/A
910-000-063	SCFT B1500-25	1.500	32.00	25.000	16.375	18.000	10-24 HB	N/A
910-000-068	SCFT B1750-29	1.750	40.00	29.000	18.060	21.000	1/4-20 HB	N/A
910-000-073	SCFT B2000-33	2.000	40.00	33.000	19.375	24.000	1/4-20 HB	N/A

Product #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

PACKAGE SIZE OF 1

ULTRA-DEX®



MODULAR STEALTH® BAR

COOLANT THRU

7:1 Ratio

Product #	Designation	DCONMS [mm]	DCONWS [mm]	LF [mm]	OHN [mm]	OHX [mm]	Head Bolts	CNT
910-000-077	SCFT B25MM-250	25.00	25.00	250.00	127.00	175.00	8-32 HB	1/8-27 NPT
910-000-079	SCFT B32MM-320	32.00	32.00	320.00	159.00	224.00	10-24 HB	1/8-27 NPT
910-000-083	SCFT B40MM-400	40.00	40.00	400.00	190.00	280.00	1/4-20 HB	1/8-27 NPT
910-000-087	SCFT B50MM-500	50.00	40.00	500.00	254.00	350.00	1/4-20 HB	1/8-27 NPT
910-000-091	SCFT B60MM-600	60.00	40.00	600.00	320.00	420.00	1/4-20 HB	1/8-27 NPT

10:1 Ratio

910-000-078	SCFT B25MM-325	25.00	25.00	325.00	178.00	250.00	8-32 HB	1/8-27 NPT
910-000-080	SCFT B32MM-416	32.00	32.00	416.00	223.00	320.00	10-24 HB	1/8-27 NPT
910-000-084	SCFT B40MM-520	40.00	40.00	520.00	266.00	400.00	1/4-20 HB	1/8-27 NPT
910-000-088	SCFT B50MM-650	50.00	40.00	650.00	356.00	500.00	1/4-20 HB	1/8-27 NPT
910-000-092	SCFT B60MM-780	60.00	40.00	780.00	445.00	600.00	1/4-20 HB	1/8-27 NPT

12:1 Ratio

910-000-081	SCFT B32MM-480	32.00	32.00	480.00	352.00	384.00	10-24 HB	N/A
910-000-085	SCFT B40MM-600	40.00	40.00	600.00	416.00	480.00	1/4-20 HB	N/A
910-000-089	SCFT B50MM-750	50.00	40.00	750.00	492.00	600.00	1/4-20 HB	N/A

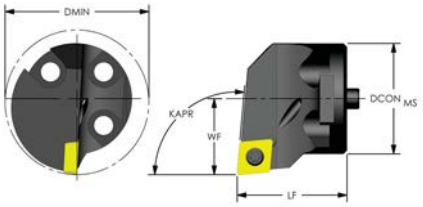
14:1 Ratio

910-000-082	SCFT B32MM-544	32.00	32.00	544.00	352.00	448.00	10-24 HB	N/A
910-000-086	SCFT B40MM-680	40.00	40.00	680.00	416.00	560.00	1/4-20 HB	N/A
910-000-090	SCFT B50MM-850	50.00	40.00	850.00	492.00	788.00	1/4-20 HB	N/A

Product #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

PACKAGE SIZE OF 1

ULTRA-DEX®

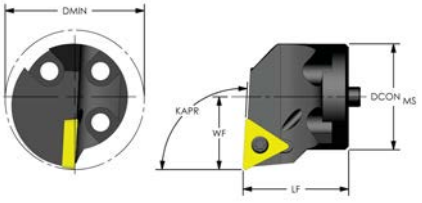


PG.510

POSITIVE 80° DIAMOND (KAPR: 95°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-205	912-000-206	SH16 SCLCR/L3	0.984	25.00	0.787	0.669	1.260	95.0	CCMT 32.52	MTS-35	T-15
912-000-233	912-000-234	SH20 SCLCR/L3	1.260	32.00	1.260	0.866	1.575	95.0	CCMT 32.52	MTS-35	T-15
912-000-263	912-000-264	SH24 SCLCR/L4	1.575	40.00	1.496	1.063	1.968	95.0	CCMT 432	MTS-4	T-20

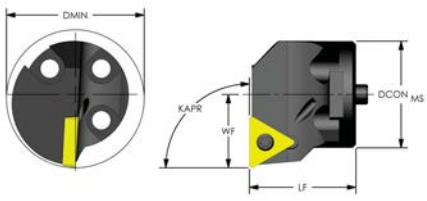


PG.510

POSITIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-215	912-000-216	SH16 STUCR/L2	0.984	25.00	0.787	0.669	1.260	93.0	TCMT 21.51	MTS-255	T-7
912-000-243	912-000-244	SH20 STUCR/L3	1.260	32.00	1.260	0.866	1.575	93.0	TCMT 32.52	MTS-35	T-15
912-000-273	912-000-274	SH24 STUCR/L3	1.575	40.00	1.496	1.063	1.968	93.0	TCMT 32.52	MTS-35	T-15



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POSITIVE TRIANGLE (KAPR: 90°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-213	912-000-214	SH16 STFCR/L2	0.984	25mm	0.787	0.669	1.260	90.0	TCMT 21.51	MTS-255	T-7
912-000-241	912-000-242	SH20 STFCR/L3	1.260	32mm	1.260	0.866	1.575	90.0	TCMT 32.52	MTS-35	T-15
912-000-271	912-000-272	SH24 STFCR/L3	1.575	40mm	1.496	1.063	1.968	90.0	TCMT 32.52	MTS-35	T-15

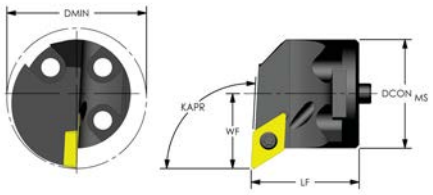
Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35
968-000-095	MTS-4

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX®

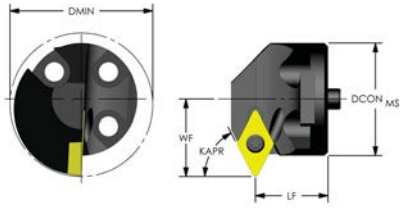


PG.510

POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-209	912-000-210	SH16 SDUCR/L3	0.984	25.00	0.787	0.669	1.260	93.0	DCMT 32.52	MTS-35	T-15
912-000-237	912-000-238	SH20 SDUCR/L3	1.260	32.00	1.260	0.866	1.575	93.0	DCMT 32.52	MTS-35	T-15
912-000-267	912-000-268	SH24 SDUCR/L3	1.575	40.00	1.260	1.063	1.968	93.0	DCMT 32.52	MTS-35	T-15

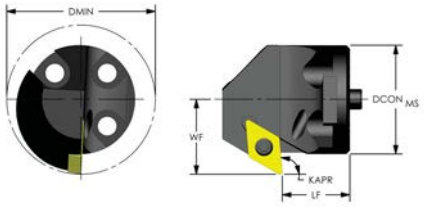


PG.510

POSITIVE 55° DIAMOND (KAPR: 62.5°) PROFILING

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-207	912-000-208	SH16 SDNCR/L2	0.984	25.00	0.591	0.709	1.299	62.5	DCMT 21.51	MTS-255	T-7
912-000-235	912-000-236	SH20 SDNCR/L3	1.260	32.00	0.787	0.866	1.575	62.5	DCMT 32.52	MTS-35	T-15
912-000-265	912-000-266	SH24 SDNCR/L3	1.575	40.00	0.787	1.063	1.968	62.5	DCMT 32.52	MTS-35	T-15



PG.510

POSITIVE 55° DIAMOND (KAPR: 95°) BACK FACING

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-211	912-000-212	SH16 SDXCR/L2	0.984	25.00	0.591	0.709	1.299	95.0	DCMT 21.51	MTS-255	T-7
912-000-239	912-000-240	SH20 SDXCR/L3	1.260	32.00	0.787	0.866	1.575	95.0	DCMT 32.52	MTS-35	T-15
912-000-269	912-000-270	SH24 SDXCR/L3	1.575	40.00	0.787	1.063	1.968	95.0	DCMT 32.52	MTS-35	T-15

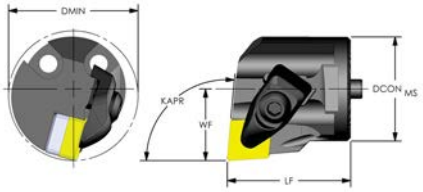
Product #	Insert Screws
968-000-092	MTS-255
968-000-094	MTS-35

PACKAGE SIZE OF 5

Product #	Key
968-000-158	T-7
968-000-151	T-15

PACKAGE SIZE OF 5

ULTRA-DEX®

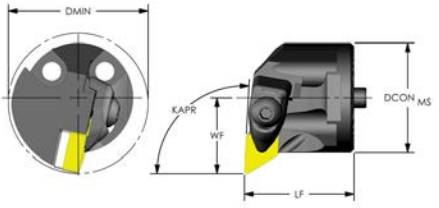


PG.510

PULLBACK CLAMP NEGATIVE 80° DIAMOND (KAPR 95° LEAD)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-217	912-000-218	SH20 DCLNR/L4	1.260	32.00	1.496	0.866	1.575	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
912-000-245	912-000-246	SH24 DCLNR/L4	1.575	40.00	1.496	1.063	1.968	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA

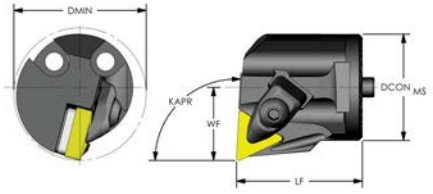


PG.510

PULLBACK CLAMP NEGATIVE 55° DIAMOND (KAPR: 93°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-219	912-000-220	SH20 DDUNR/L3	1.260	32.00	1.260	0.866	1.575	93.0	DNMG 332	IDSN-322	PB3-SS	PB3-CA
912-000-247	912-000-248	SH24 DDUNR/L4	1.575	40.00	1.260	1.063	1.968	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA



PG.510

PULLBACK CLAMP NEGATIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

Product # Left Hand	Product # Right Hand	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-223	912-000-224	SH20 DTUNR/L3	1.260	32.00	1.496	0.866	1.575	93.0	TNMG 332	ITSN-323	PB3-SS	PB3-CA
912-000-251	912-000-252	SH24 DTUNR/L3	1.575	40.00	1.496	1.063	1.968	93.0	TNMG 332	ITSN-323	PB3-SS	PB3-CA

Product #	Shim Seat
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-053	ICSN-433
968-000-067	ITSN-323

PACKAGE SIZE OF 10

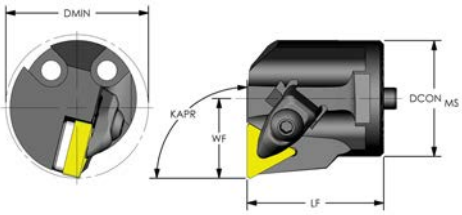
Product #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-107	PB3-CA
968-000-110	PB4-CA

PACKAGE SIZE OF 1

ULTRA-DEX®

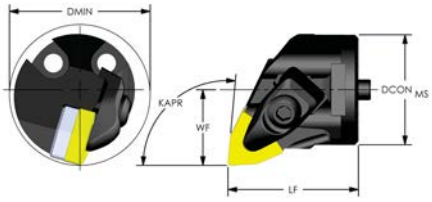


PG.510

PULLBACK CLAMP NEGATIVE TRIANGLE (KAPR: 90°)

COOLANT THRU

Product # LEFT HAND	Product # RIGHT HAND	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-221	912-000-222	SH20 DTFNR/L3	1.260	32.00	1.496	0.866	1.575	90.0	TNMG 332	ITSN-323	PB3-SS	PB3-CA
912-000-249	912-000-250	SH24 DTFNR/L3	1.575	40.00	1.496	1.063	1.968	90.0	TNMG 332	ITSN-323	PB3-SS	PB3-CA



PG.510

PULLBACK CLAMP NEGATIVE TRIGON (KAPR: 95°)

COOLANT THRU

Product # LEFT HAND	Product # RIGHT HAND	Designation	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-225	912-000-226	SH20 DWLNR/L4	1.260	32.00	1.496	0.866	1.575	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA
912-000-253	912-000-254	SH24 DWLNR/L4	1.575	40.00	1.496	1.063	1.968	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA

Product #	Shim Seat
968-000-075	IWSN-433
968-000-067	ITSN-323

PACKAGE SIZE OF 10

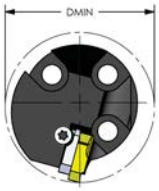
Product #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

Product #	Clamp Assy.
968-000-107	PB3-CA
968-000-110	PB4-CA

PACKAGE SIZE OF 1

ULTRA-DEX®



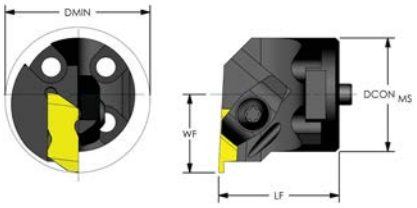
THREADING / GROOVING LAYDOWN

PG.510

COOLANT THRU

Product #	Designation RIGHT HAND	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
912-000-204	SH16 LSER3	0.984	25.00	0.984	0.669	1.260	3IR	SA3T	SY3T	YI3
912-000-229	SH20 LSER3	1.260	32.00	1.260	0.866	1.575	3IR	SA3T	SY3T	YI3
912-000-257	SH24 LSER3	1.575	40.00	1.496	1.063	1.968	3IR	SA3T	SY3T	YI3
912-000-230	SH20 LSER4	1.260	32.00	1.260	0.866	1.575	4IR	SA4T	SY4T	YI4
912-000-258	SH24 LSER4	1.575	40.00	1.496	1.063	1.968	4IR	SA4T	SY4T	YI4

Product #	DESIGNATION LEFT HAND	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
912-000-203	SH16 LSEL3	0.984	25.00	0.984	0.669	1.260	3IL	SA3T	SY3T	YE3
912-000-227	SH20 LSEL3	1.260	32.00	1.260	0.866	1.575	3IL	SA3T	SY3T	YE3
912-000-255	SH24 LSEL3	1.575	40.00	1.496	1.063	1.968	3IL	SA3T	SY3T	YE3
912-000-228	SH20 LSEL4	1.260	32.00	1.260	0.866	1.575	4IL	SA4T	SY4T	YE4
912-000-256	SH24 LSEL4	1.575	40.00	1.496	1.063	1.968	4IL	SA4T	SY4T	YE4



THREADING / GROOVING, NOTCH STYLE

PG.510

COOLANT THRU

Product #	Designation RIGHT HAND	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Screw
912-000-232	SH20 NER3	1.260	32.00	1.575	0.866	1.730	NG 3L	CM-73	10-32
912-000-261	SH24 NER3	1.575	40.00	1.575	1.102	2.210	NG 3L	CM-73	10-32
912-000-262	SH24 NER4	1.575	40.00	1.575	1.102	2.210	NG 4L	CM-73	10-32

Product #	Designation LEFT HAND	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Screw
912-000-231	SH20 NEL3	1.260	32.00	1.575	0.866	1.730	NG 3R	CM-72	10-32
912-000-259	SH24 NEL3	1.575	40.00	1.575	1.102	2.210	NG 3R	CM-72	10-32
912-000-260	SH24 NEL4	1.575	40.00	1.575	1.102	2.210	NG 4R	CM-72	10-32

Product #	Anvil
968-000-185	YI3
968-000-182	YE3
968-000-187	YI4
968-000-183	YE4

PACKAGE SIZE OF 1

Product #	Insert Screw
968-000-124	SA3T
968-000-125	SA4T

PACKAGE SIZE OF 5

Product #	Anvil Screw
968-000-146	SY3T
968-000-147	SY4T

PACKAGE SIZE OF 5

Product #	Clamp Screw
968-000-003	10-32

PACKAGE SIZE OF 5

Product #	Clamp
968-000-025	CM-72
968-000-026	CM-73

PACKAGE SIZE OF 1

ULTRA-DEX®

Choosing the largest possible bar size with the shortest overhang will provide rigidity to minimize vibrations.

Make sure to allow clearance for chips.

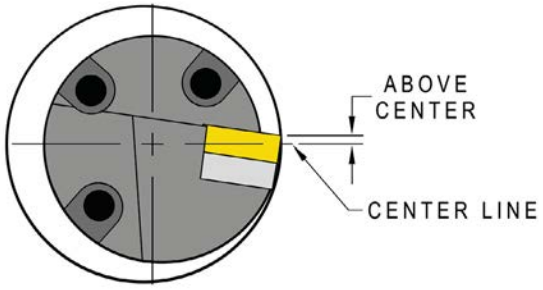
5:1 Stealth bars are recommended for grooving and threading where forces are higher than in turning.

Proper clamping of the bar is crucial to performance.
(set screws should not come in contact with the bar)

Stealth bars Ø1.0," and larger have a flat located on the gold ring to indicate the insert on the centerline.

Overhang is measured from cutting edge to face of boring bar holder.
Bars should not be extended past the specified diameter to length ratio.
The Bars can be modified to reduce overall length .

To compensate for bar deflection due to extended overhangs,rotating the insert above center line will help.



ULTRA-DEX®

Split Collar System

To assure the best rigidity of the boring bar, the Split Collar System is the best holder. This process is achieved by locking the bar 360°on the diameter.

Split Bushing System

If set screws are to be used,a split bushing must be placed on the bar before placing in the machine. Set screws will contact the bushing and tighten around the bar.

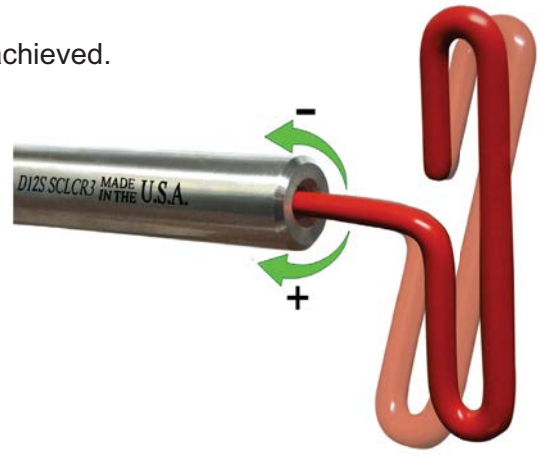
Set Screw Lock System

Do not lock in the boring bar with set screws. This creates very poor rigidity when there is one point of contact.

ULTRA-DEX®

For Bars ø.75" and Smaller

1. Make a test cut with the bar.
2. Insert supplied T-handle wrench into the end of the bar.
3. If the pitch of the chatter was high, tighten the adjust screw 1/16 turn.(+)
4. If the pitch of the chatter was low, loosen the adjust screw 1/16 turn.(-)
5. Make a test cut with the bar.
6. Repeat step 3 until the desired performance is achieved.

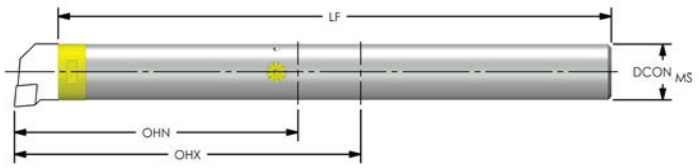


For Bars ø1.0" and Above

1. Make a test cut with the bar.
2. Loosen lock screw two complete turns in the negative direction.
3. If the pitch of the chatter was high, tighten the adjust screw 1/2 digit.(+)
4. If the pitch of the chatter was low, loosen the adjust screw 1/2 digit.(-)
5. Make a test cut with the bar.
6. Repeat step 3 until the desired performance is achieved.
7. Tighten lock screw. Do not over tighten lock screw.

ULTRA-DEX

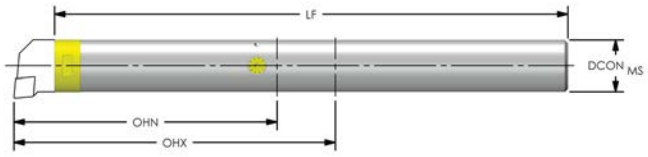
Hangout Specs



	DCONms	OHN	OHX	LF	Weight (LBS)
5:1 Ratio	1.000	5.750	7.50	9.00	4.5
	2.000	6.375	10.00	12.00	10.7
	2.500	6.750	12.50	16.00	22.8
7:1 Ratio	1.000	5.000	7.00	10.00	2.2
	1.250	5.000	8.75	12.00	4.1
	1.500	5.750	10.50	15.00	7.5
	1.750	6.000	12.25	18.00	11.3
	2.000	6.375	14.00	20.00	18.0
	2.500	6.750	17.50	27.00	42.0
	3.000	12.500	21.00	31.00	63.0
10:1 Ratio	1.000	6.000	10.00	14.00	3.1
	1.250	6.750	12.50	16.00	5.7
	1.500	9.000	15.00	19.00	11.0
	1.750	10.625	17.50	23.00	17.0
	2.000	12.375	20.00	26.00	25.0
	2.500	15.875	25.00	33.00	42.0
	3.000	19.375	30.00	40.00	88.0
	4.000	26.375	40.00	50.00	182.0

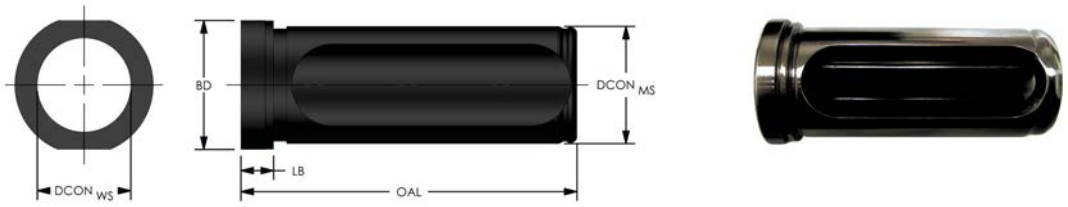
Hangout Specs

Carbide Reinforced



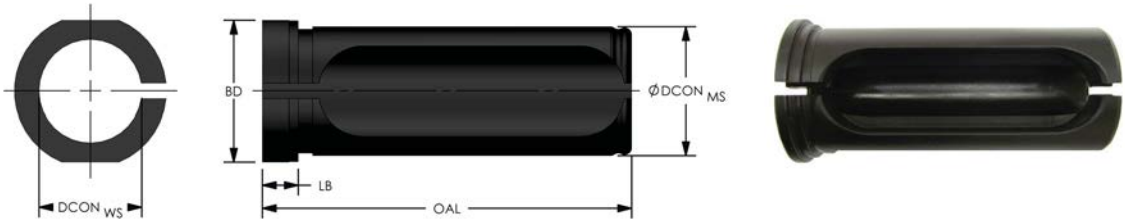
	DCONms	OHN	OHX	LF	Weight (LBS)
12:1 Ratio	1.000	9.250	12.00	16.00	5.9
	1.250	12.160	15.00	18.00	9.0
	1.500	14.750	18.00	22.00	16.4
	1.750	16.435	21.00	25.00	25.4
	2.000	17.750	24.00	29.00	37.7
14:1 Ratio	1.000	9.250	14.00	18.00	6.9
	1.250	12.160	17.50	22.00	10.9
	1.500	14.750	21.00	25.00	18.6
	1.750	16.435	24.50	29.00	31.0
	2.000	17.750	28.00	33.00	44.2

ULTRA-DEX®



C STYLE

Product #	DESIGNATION	DCONMS [in.]	DCONWS [in.]	LB [in.]	OAL [in.]
901-000-001	UT-12C-037	1.250	0.375	0.270	3.500
901-000-002	UT-12C-050	1.250	0.500	0.270	3.500
901-000-003	UT-12C-062	1.250	0.625	0.270	3.500
901-000-004	UT-12C-075	1.250	0.750	0.270	3.500
901-000-005	UT-12C-100	1.250	1.000	0.270	3.500
901-000-011	UT-13C-037	1.500	0.375	0.270	3.600
901-000-012	UT-13C-050	1.500	0.500	0.270	3.600
901-000-013	UT-13C-062	1.500	0.625	0.270	3.600
901-000-014	UT-13C-075	1.500	0.750	0.270	3.600
901-000-015	UT-13C-100	1.500	1.000	0.270	3.600
901-000-016	UT-13C-125	1.500	1.250	0.270	3.600



CX STYLE

Product #	DESIGNATION	DCONMS [in.]	DCONWS [in.]	LB [in.]	OAL [in.]
901-000-006	UT-12CX-037	1.250	0.375	0.270	3.500
901-000-007	UT-12CX-050	1.250	0.500	0.270	3.500
901-000-008	UT-12CX-062	1.250	0.625	0.270	3.500
901-000-009	UT-12CX-075	1.250	0.750	0.270	3.500
901-000-010	UT-12CX-100	1.250	1.000	0.270	3.500
901-000-017	UT-13CX-037	1.500	0.375	0.270	3.600
901-000-018	UT-13CX-050	1.500	0.500	0.270	3.600
901-000-019	UT-13CX-062	1.500	0.625	0.270	3.600
901-000-020	UT-13CX-075	1.500	0.750	0.270	3.600
901-000-021	UT-13CX-100	1.500	1.000	0.270	3.600
901-000-022	UT-13CX-125	1.500	1.250	0.270	3.600

Product #	DESIGNATION	DCONMS [in.]	DCONWS [in.]	LB [in.]	OAL [in.]
901-000-023	UT-73CX-10MM	1.500	0.3937	0.270	3.600
901-000-024	UT-73CX-12MM	1.500	0.4720	0.270	3.600
901-000-025	UT-73CX-16MM	1.500	0.6290	0.270	3.600
901-000-026	UT-73CX-20MM	1.500	0.7874	0.270	3.600
901-000-027	UT-73CX-25MM	1.500	0.9840	0.270	3.600
901-000-028	UT-93CX-10MM	40.00(mm)	10.00(mm)	0.270	3.600
901-000-029	UT-93CX-12MM	40.00(mm)	12.00(mm)	0.270	3.600
901-000-030	UT-93CX-16MM	40.00(mm)	16.00(mm)	0.270	3.600
901-000-031	UT-93CX-20MM	40.00(mm)	20.00(mm)	0.270	3.600
901-000-032	UT-93CX-25MM	40.00(mm)	25.00(mm)	0.270	3.600

TECHNICAL INFORMATION

ARCH® Cutting Tools

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

AX2

AX2 (MULTI-LAYER)

- AlTiN based inner layer brings ductility and toughness
- TiSiN based outer layer provided superior edge protection
- Resistant to oxidation and wear in extreme temperatures
- Excels in difficult-to-cut materials such as titanium, nickel-based alloys, stainless, and hardened steels

AlTiN

(ALUMINUM TITANIUM NITRIDE)

- High performance coating for ferrous materials.
- High heat resistance and hardness
- Best results in dry milling applications
- Excellent at high speeds and feeds
- Thickness: 2 – 4 microns
- Hardness HV .05: 4,500

TIN

(TITANIUM NITRIDE)

- General Purpose coating for machining ferrous materials.
- Thickness: 2 - 5 microns
- Hardness HV .05: 2,300

AMORPHOUS DIAMOND

AD (AMORPHOUS DIAMOND)

- Amorphous Diamond is a smooth, hard, flexible, thin film coating
- Maintains sharper edge than CVD
- Excellent for machining graphite, carbon fiber and non-ferrous materials where machining forms a grit rather than a chip.
- Thickness: .5 - 2 microns
- Hardness HV .05: 5,000

HARD MILL

(HARDMILL)

- Proprietary coating blend designed specifically for extended
- life machining hardened materials
- Hardness HV .05: 3,300

DLC

(DIAMOND LIKE COATING)

- Thin carbon based amorphous coating, best for non-ferrous materials.
- Increases tool life and ensures a more controlled wear process, while being resistant to edge build-up (BUE).
- Hardness HV .05: 2,800

CVD

(CRYSTALLINE DIAMOND)

- Crystalline Diamond grown directly on the cutting tool
- Excellent for machining graphite, carbon fiber, green ceramics and non- ferrous materials where machining forms a grit rather than a chip.
- Up to 50x the tool life as AD
- Thickness: 6 - 10 microns
- Hardness HV .05: 10,000

PCD

PCD (POLYCRYSTALLINE DIAMOND)

- Non-ferrous applications
- Resists abrasion wear and dramatically extends the cutters tool life.
- PCD end mills run faster than conventional carbide end mills and provide better surface finish and longer tool life.
- Hardness HV .05: 10,000

Chipbreaker:
HCX : Medium to roughing applications in steel and cast iron
SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

ISO	MATERIAL	HARDNESS	CHIPBREAKER	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	300-800	.005 - .020
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.003 - .018
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.003 - .015
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.003 - .015
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 1100	.005 - .022
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			350 - 850	.005 - .016
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	80-280	.004 - .011
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 250	.003 - .009
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 300	.004 - .012

***LOWER Vc AND Fz = MED.- HEAVY Ap / Ae** ***HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae**

Recommendations:
- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

Chipbreaker:
HCX : Medium to roughing applications in steels and cast irons
SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys
LCX : Sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

ISO	MATERIAL	HARDNESS	CHIPBREAKER	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	300-800	.005 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.005 - .016
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.003 - .012
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.003 - .014
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 950	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			350 - 800	.005 - .016
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	LCX	HK430	400 - 1100	.007 - .020
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	80-250	.004 - .011
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 200	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 350	.003 - .010

***LOWER Vc AND Fz = MED.- HEAVY Ap / Ae** ***HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae**

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

Chipbreaker:
HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons
SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys
CCX : Strong cutting edge for cast iron applications
LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

ISO	MATERIAL	HARDNESS	CHIPBREAKER	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	230-800	.003 - .010
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			230-700	.003 - .008
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	200-600	.003 - .009
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			200-600	.003 - .009
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	CCX / HCX	HK430	400 - 950	.004 - .015
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			300 - 700	.003 - .011
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	LCX	HK430	400 - 1000	.006 - .018
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX / HCX	HS470	80-250	.003 - .009
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 200	.0025 - .007
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 350	.003 - .010

***LOWER Vc AND Fz = MED.- HEAVY Ap / Ae** ***HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae**

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

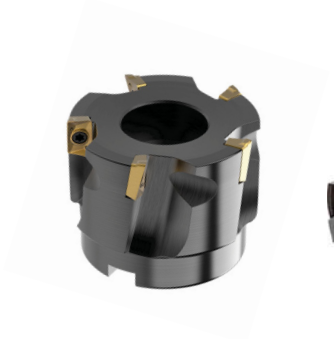
Chipbreaker:
HCX : Strong cutting edge for general steels, cast irons, and hard conditions in milling application
SCX : Sharp cutting edge for general stainless steels and super alloy applications

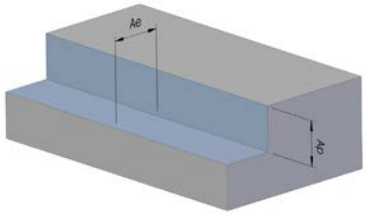
ISO	MATERIAL	HARDNESS	CHIPBREAKER	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	220 - 820	.009 - .075
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.009 - .065
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.009 - .045
	STAINLESS STEELS (DIFFICULT) 304, 304L,316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.009 - .045
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 900	.009 - .063
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			300 - 850	.009 - .055
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	100-350	.009 - .040
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 220	.007 - .035
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 400	.008 - .050

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*





ISO	MATERIAL	HARDNESS	Vc (SFM)*	SQUARE SHOULDER MILLING			
				Fz (INCH PER TOOTH)*		APMX	
				-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.010	0.004 - 0.012	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.012	0.004 - 0.012	0.315	0.472
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.014	0.004 - 0.016	0.315	0.472
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.007	0.003 - 0.009	0.315	0.472
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.0085	0.003 - 0.010	0.315	0.472

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

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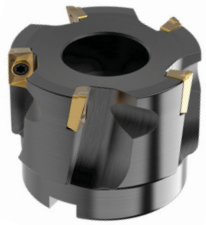
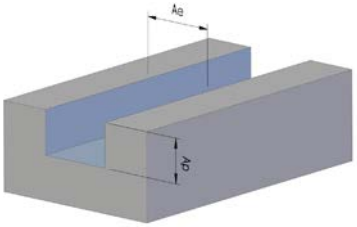
E90AP/F90AP INDEXABLE FACE/SHOULDER MILL SPEED & FEEDS





ISO	MATERIAL	HARDNESS	Vc (SFM)*	SQUARE SLOT MILLING			
				Fz (INCH PER TOOTH)*		APMX	
				-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.006	0.003 - 0.010	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.006	0.003 - 0.0085	0.315	0.472
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.007	0.003 - 0.010	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.006	0.003 - 0.010	0.315	0.472
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.008	0.004 - 0.010	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.008	0.004 - 0.010	0.315	0.472
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.011	0.004 - 0.014	0.315	0.472
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.006	0.003 - 0.007	0.315	0.472
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.006	0.003 - 0.008	0.315	0.472

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)* at 50% insert I.C. APMX**
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51 UD52 UD404 UD602	300-850	.006 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-700	.005 - .015
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	200-650	.003 - .010
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.003 - .012
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	250-900	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		200-700	.005 - .015
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD1 UD2	400-975	.006 - .020
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	UD32 UD404	80-400	.004 - .012
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	UD32 UD52 UD404	40-250	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		100-550	.003 - .010

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

It is recommended to use precision holders i.e. hydraulic, shrink fit

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

**** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.**

PATRIOT HP CARBIDE END MILL SPEEDS & FEEDS

ISO	MATERIAL	HARDNESS	Vc (SFM)*	END MILL DIAMETER									
				1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
				Fz (INCH PER TOOTH)*									
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	320-750	.0009 - .0017	.0011 - .0019	.0020 - .0028	.0024 - .0033	.0025 - .0038	.0025 - .0041	.0027- .0046	.0035 - .0052	.0040 - .0066	.0042 - .0090
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	230-670	.0006 - .0013	.0011 - .0017	.0014 - .0022	.0017 - .0024	.0019 - .0028	.0020 - .0035	.0023 - .0040	.0030 - .0050	.0038 - .0057	.0040 - .0085
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	250-600	.0004 - .0013	.0008 - .0017	.0013 - .0020	.0016 - .0023	.0020 - .0026	.0022 - .0030	.0026 -.0034	.0032 - .0039	.0035 - .0047	.0035 - .0068
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	180-520	.0005 - .0017	.0010 - .0020	.0013 - .0023	.0017 - .0027	.0021 - .0030	.0025 - .0035	.0028 - .0040	.0030 - .0048	.0033 - .0060	.0033 - .0078
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	320-830	.0007 - .0020	.0011 - .0032	.0014 - .0041	.0019 - .0052	.0022 - .0061	.0025 - .0070	.0028 - .0080	.0031 - .0086	.0032 - .0095	.0036 - .0110
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	220-670	.0005 - .0014	.0009 - .0023	.0012 - .0032	.0016 - .0038	.0018 - .0041	.0020 - .0047	.0022 - .0053	.0024 - .0062	.0028 - .0070	.0030 - .0090
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	115-270	.0004 - .0017	.0008 - .0017	.0013 - .0020	.0016 - .0024	.0020 - .0030	.0022 - .0035	.0028 - .0045	.0032 - .0053	.0036 - .0062	.0040 - .0078
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	70-180	.0005 -.0018	.0008 - .0022	.0010 - .0028	.0012 - .0032	.0015 - .0036	.0017 - .0042	.0018 - .0047	.0019 - .0050	.0022 - .0055	.0025 - .0065
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	140-400	.0007 - .0013	.0011 - .0016	.0013 - .0018	.0015 - .0021	.0019 - .0026	.0022 - .0031	.0024 - .0035	.0025 - .0044	.0030 - .0053	.0031 - .0075

***LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT**

***HIGHER Vc AND Fz APPLY TO LIGHT/PROFILING ENGAGEMENT**

Ap = Axial depth of cut
Ae = Radial depth of cut

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

h_{ex}

%Radial Engagement	Thinning Multiplier
100%	1
50%	1
30%	1.091
25%	1.212
20%	1.641
15%	2.1
10%	4.375
5%	6.882

ISO	MATERIAL	HARDNESS	Vc (SFM)*		EFFECTIVE CUTTER DIAMETER (INCH)						
					≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8" - 1/2"	1/2" - 3/4"	3/4" - 1"
			HSS/Cobalt	Carbide	Fz (INCH PER TOOTH)*						
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	80-200	220-650	.0004 - .0009	.0006 - .0015	.0010 - .0028	.0020 - .0030	.0023 - .0040	.0028 - .0060	.0032 - .0080
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	60-120	180-500	.0006 - .0012	.0008 - .0019	.0009 - .0022	.0010 - .0027	.0020 - .0038	.0026 - .0050	.0030 - .0065
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	50-100	200-450	.0004 - .0019	.0008 - .0025	.0012 - .0030	.0016 - .0035	.0019 -.0040	.0023 - .0050	.0026 - .0065
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	30-75	120-350	.0005 - .0013	.0009 - .0017	.0013 - .0021	.0015 - .0040	.0017 - .0048	.0021 - .0060	.0025 - .0075
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	60-150	250-700	.0005 - .0014	.0009 - .0023	.0012 - .0032	.0016 - .0041	.0022 - .0053	.0028 - .0090	.0030 - .0100
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	50-90	150-450	.0003 - .0010	.0006 - .0019	.0010 - .0028	.0014 - .0038	.0020 - .0048	.0025 - .0080	.0030 - .0092
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	100-400	250-950	.0003 - .0010	.0006 - .0021	.0010 - .0028	.0025 - .0040	.0028 - .0065	.0030 - .0080	.0050 - .0130
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	40-65	80-250	.0003 - .0010	.0006 - .0015	.0012 - .0021	.0015 - .0030	.0023 - .0045	.0028 - .0050	.0030 - .0065
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	30-50	50-160	.0003 - .0007	.0005 - .0012	.0008 - .0018	.0012 - .0022	.0018 - .0035	.0020 - .0045	.0025 - .0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	40-65	90-250	.0006 - .0014	.0008 - .0017	.0013 - .0018	.0015 - .0026	.0020 - .0035	.0025 - .0060	.0025 - .0075

*** LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT**

***HIGHER Vc AND Fz APPLY TO LIGHT/PROFILING ENGAGEMENT**

Ap = Axial depth of cut
Ae = Radial depth of cut

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

h_{ex} %Radial Engagement	Thinning Multiplier
100%	1
50%	1
30%	1.091
25%	1.212
20%	1.641
15%	2.1
10%	4.375
5%	6.882

ISO	Material	Material Hardness/ Types	Vc - Cutting Speed (sfm)	Cutting Dia. Dc = (in)	Cutting Dia. Dc = (mm)	Fz - Feed Rate (ipt)		
						Roughing Ap = 1.0 (100%) x Dc Ae = 0.30 (30%) x Dc	Finishing Ap = 1.0 (100%) x Dc Ae = 0.10 (10%) x Dc	Slotting Ap= 0.5 (50%) x Dc Ae = 1.0 (100%) x Dc
P	Carbon Steel <30 HRc	12L14 A36 1018 1028 1050	425 - 525 - 625	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00019 - 0.00038	0.00023 - 0.00046	0.00013 - 0.00026
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00038 - 0.00057	0.00046 - 0.00069	0.00026 - 0.00039
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00057 - 0.00076	0.00069 - 0.00092	0.00039 - 0.00052
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00076 - 0.00095	0.00092 - 0.00115	0.00052 - 0.00065
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00095 - 0.00114	0.00115 - 0.00138	0.00065 - 0.00078
	Alloy Steel 30 - 40 HRc	4130 4140 4150 8620	350 - 400 - 450	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00014 - 0.00028	0.00019 - 0.00038	0.00009 - 0.00018
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00028 - 0.00042	0.00038 - 0.00057	0.00018 - 0.00027
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00042 - 0.00056	0.00057 - 0.00076	0.00027 - 0.00036
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00056 - 0.00070	0.00076 - 0.00095	0.00036 - 0.00045
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00070 - 0.00084	0.00095 - 0.00114	0.00045 - 0.00054
	Hardened Steel	48 HRc - 55HRc	190 - 240 - 290	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00010 - 0.00020	0.00015 - 0.00030	0.00008 - 0.00016
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00020 - 0.00030	0.00030 - 0.00045	0.00016 - 0.00024
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00030 - 0.00040	0.00045 - 0.00060	0.00024 - 0.00032
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00040 - 0.00050	0.00060 - 0.00075	0.00032 - 0.00040
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00050 - 0.00060	0.00075 - 0.00090	0.00040 - 0.00048
	Tool Steel	56HRc - 68HRc	110 - 135 - 160	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00008 - 0.00016	0.00012 - 0.00024	0.00006 - 0.00012
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00016 - 0.00024	0.00024 - 0.00036	0.00012 - 0.00018
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00024 - 0.00032	0.00036 - 0.00048	0.00018 - 0.00024
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00032 - 0.00040	0.00048 - 0.00060	0.00024 - 0.00030
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00040 - 0.00048	0.00060 - 0.00072	0.00030 - 0.00036
M	Stainless Steel	303 304 316 321	240 - 275 - 310	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00014 - 0.00028	0.00019 - 0.00038	0.00009 - 0.00018
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00028 - 0.00042	0.00038 - 0.00057	0.00018 - 0.00027
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00042 - 0.00056	0.00057 - 0.00076	0.00027 - 0.00036
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00056 - 0.00070	0.00076 - 0.00095	0.00036 - 0.00045
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00070 - 0.00084	0.00095 - 0.00114	0.00045 - 0.00054
	Stainless Steel	15-5PH 17-4PH 13-8 400 Series	175 - 200 - 225	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00013 - 0.00026	0.00018 - 0.00036	0.00008 - 0.00016
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00026 - 0.00039	0.00036 - 0.00054	0.00016 - 0.00024
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00039 - 0.00052	0.00054 - 0.00072	0.00024 - 0.00032
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00052 - 0.00065	0.00072 - 0.00090	0.00032 - 0.00040
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00065 - 0.00078	0.00090 - 0.00108	0.00040 - 0.00048
K	Cast Iron	Gray Iron Ductile Iron	350 - 500 - 650	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00019 - 0.00038	0.00023 - 0.00046	0.00013 - 0.00026
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00038 - 0.00057	0.00046 - 0.00069	0.00026 - 0.00039
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00057 - 0.00076	0.00069 - 0.00092	0.00039 - 0.00052
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00076 - 0.00095	0.00092 - 0.00115	0.00052 - 0.00065
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00095 - 0.00114	0.00115 - 0.00138	0.00065 - 0.00078
N	Non-Ferrous	Aluminum	400 - 500 - 600	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00019 - 0.00038	0.00023 - 0.00046	0.00013 - 0.00026
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00038 - 0.00057	0.00046 - 0.00069	0.00026 - 0.00039
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00057 - 0.00076	0.00069 - 0.00092	0.00039 - 0.00052
		Brass or Bronze	380 - 465 - 550	Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00076 - 0.00095	0.00092 - 0.00115	0.00052 - 0.00065
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00095 - 0.00114	0.00115 - 0.00138	0.00065 - 0.00078
H	Heat-Resistant Alloy	Hastelloy Inconel Monel Promet Waspaloy	140 - 170 - 200	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00010 - 0.00020	0.00015 - 0.00030	0.00008 - 0.00016
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00020 - 0.00030	0.00030 - 0.00045	0.00016 - 0.00024
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00030 - 0.00040	0.00045 - 0.00060	0.00024 - 0.00032
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00040 - 0.00050	0.00060 - 0.00075	0.00032 - 0.00040
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00050 - 0.00060	0.00075 - 0.00090	0.00040 - 0.00048
S	Titanium Alloy	6AL-4V, ASTM 1, 2, 3, 6AL-2S	170 - 200 - 230	Ø0.0312 - Ø0.0781	Ø1.00 - Ø2.00	0.00010 - 0.00020	0.00015 - 0.00030	0.00008 - 0.00016
				Ø0.0781 - Ø0.1250	Ø2.00 - Ø3.00	0.00020 - 0.00030	0.00030 - 0.00045	0.00016 - 0.00024
				Ø0.1250 - Ø0.1562	Ø3.00 - Ø4.00	0.00030 - 0.00040	0.00045 - 0.00060	0.00024 - 0.00032
				Ø0.1562 - Ø0.1967	Ø4.00 - Ø5.00	0.00040 - 0.00050	0.00060 - 0.00075	0.00032 - 0.00040
				Ø0.1967 - Ø0.2500	Ø5.00 - Ø6.00	0.00050 - 0.00060	0.00075 - 0.00090	0.00040 - 0.00048

*** LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT.** ***HIGHER Vc AND Fz APPLY TO LIGHT/PROFILING ENGAGEMENT.**

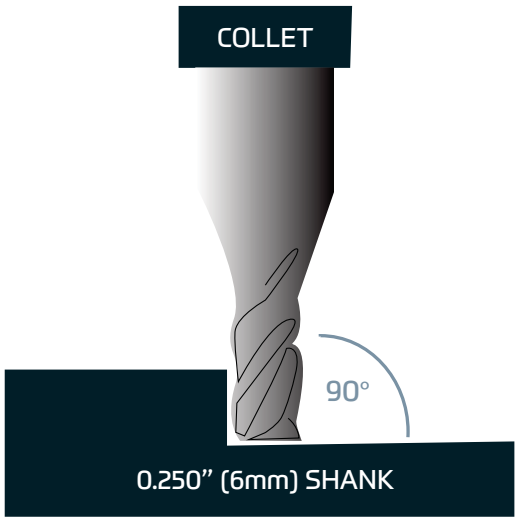
Ap = Axial depth of cut
Ae = Radial depth of cut

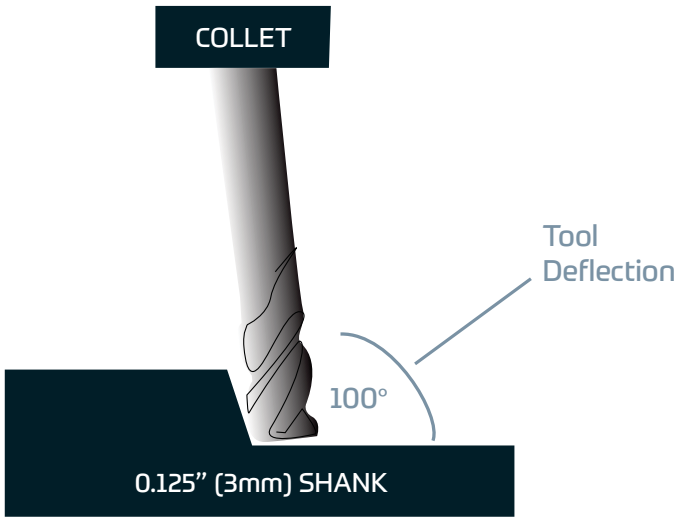
**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

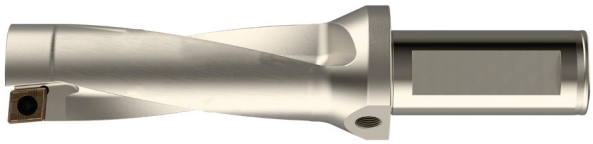
h_{ex} %Radial Engagement	Thinning Multiplier
100%	1
50%	1
30%	1.091
25%	1.212
20%	1.641
15%	2.1
10%	4.375
5%	6.882

Avoid Tool Deflection

The increased shank diameter of the Revere® 977 Series Quarter Horse End Mill maximizes rigidity and eliminates tool deflection when applied under optimum parameters. The result is increased tool life, as well as part repeatablitity, and quality.







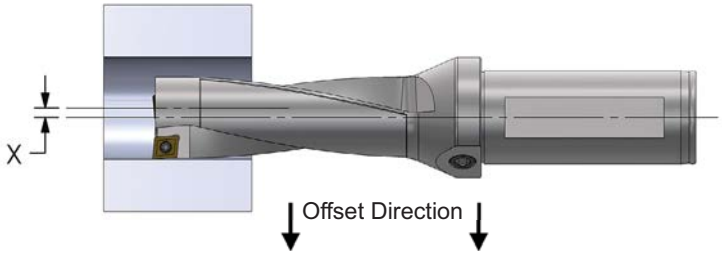
ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.2500"
					Fz = IPR (INCH PER REVOLUTION)*		
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP 600	350-900	.0015-.0060	.0020-.0075	.0030-.0120
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		260-750	.0020-.0070	.0020-.0085	.0030-.0095
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP 600	230-700	.0018-.0040	.0030-.0065	.0030-.0085
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-750	.0018-.0040	.0030-.0065	.0030-.0085
K	**GRAY IRONS** Class 20, 30, 40 ,50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK 356	285-1000	.0025-.0055	.0035-.0070	.0040-.0085
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-740	.0020-.0050	.0028-.0065	.0030-.0070
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	HN 300	600-1150	.0020-.0075	.0030-.0090	.0045-.0115
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	HP 600	80-275	.0018-.0065	.0020-.0075	.0030-.0080
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	HP 600	55-270	.0016-.0032	.0020-.0055	.0025-.0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		95-460	.0019-.0055	.0020-.0065	.0025-.008

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*



Our Drills offer the ability to offset in turning applications to help with tolerance optimization and creation of holes larger than the drill diameter.

PATRIOT HP

Designation	Offset (Max)
PD1-0562-3D-075	.007
PD1-0594-3D-075	.005
PD1-0609-3D-075	.005
PD1-0625-3D-075	.015
PD1-0669-3D-075	.011
PD1-0687-3D-075	.009
PD1-0709-3D-075	.007
PD1-0734-3D-100	.019
PD1-0750-3D-100	.017
PD1-0787-3D-100	.011
PD1-0812-3D-100	.009
PD1-0844-3D-100	.005
PD1-0875-3D-100	.004
PD1-0937-3D-125	.023
PD1-0984-3D-125	.019
PD1-1000-3D-125	.017
PD1-1062-3D-125	.009
PD1-1125-3D-125	.004
PD1-1181-3D-125	.035
PD1-1250-3D-125	.027
PD1-1312-3D-125	.021
PD1-1375-3D-125	.013
PD1-1437-3D-125	.008
PD1-1500-3D-150	.039
PD1-1625-3D-150	.027
PD1-1750-3D-150	.015
PD1-1875-3D-150	.051
PD1-2000-3D-150	.039
PD1-2125-3D-150	.023

ULTRA-DEX*

Designation	Offset (Max)
UD-0437-2D-063	.018
UD-0468-2D-063	.016
UD-0500-2D-063	.014
UD-0531-2D-063	.023
UD-0562-2D-063	.021
UD-0593-2D-063	.019
UD-0625-2D-063	.023
UD-0656-2D-063	.021
UD-0687-2D-063	.019
UD-0719-2D-063	.017
UD-0750-2D-075	.024
UD-0781-2D-075	.022
UD-0812-2D-075	.021
UD-0844-2D-075	.019
UD-0875-2D-075	.017
UD-0906-2D-075	.015
UD-0937-2D-075	.013
UD-0968-2D-075	.011
UD-1000-2D-100	.029
UD-1031-2D-100	.027
UD-1062-2D-100	.025
UD-1094-2D-100	.023

ULTRA-DEX*

Designation	Offset (Max)
UD-1125-2D-100	.021
UD-1156-2D-100	.020
UD-1187-2D-100	.018
UD-1219-2D-100	.016
UD-1250-2D-125	.035
UD-1312-2D-125	.031
UD-1343-2D-125	.029
UD-1375-2D-125	.027
UD-1437-2D-125	.023
UD-1500-2D-125	.019
UD-1562-2D-125	.015
UD-1625-2D-125	.011
UD-1687-2D-125	.008
UD-1750-2D-150	.040
UD-1812-2D-150	.036
UD-1875-2D-150	.032
UD-1937-2D-150	.028
UD-2000-2D-150	.024
UD-2125-2D-150	.017
UD-2250-2D-150	.009
UD-2375-2D-150	.001

*2XD Only

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.3750"
					Fz = IPR (INCH PER REVOLUTION)*		
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51 /UD52	300-800	.0015-.0060	.0025-.0080	.0030-.009
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		250-700	.0020-.0070	.0025-.0070	.0030-.0080
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	230-650	.0018-.0040	.0025-.0065	.0030-.0070
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.0018-.0040	.0023-.0055	.0030-.0065
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	285-900	.0025-.0055	.0035-.0070	.0040-.0080
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-700	.0020-.0050	.0028-.0055	.0030-.0060
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD2	400-975	.0020-.0075	.0030-.0070	.0045-.0100
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	UD32	75-200	.0018-.0065	.0020-.0065	.0030-.0070
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	UD32 /UD52	40-200	.0016-.0032	.0020-.0050	.0020-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC		90-350	.0019-.0055	.0020-.0050	.0020-.0065

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ISO	MATERIAL	HARDNESS	Vc (SFM)*	DRILL DIAMETER (INCH)						
				≤ 1/16"	1/16"-1/8"	1/8"-1/4"	1/4"-3/8"	3/8" - 1/2"	1/2" - 3/4"	3/4" - 1"
				Fz = IPR(INCH PER REVOLUTION)*						
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	210-510	.0008-.0030	.0030-.0055	.0040 - .0085	.0050 - .012	.0070 - .015	.0090 - .0175	.0100 - .0200
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	170-390	.0006-.0025	.0020-.0045	.0030-.0060	.0045 - .0080	.0060-.0120	.0070-.0145	.0080-.0175
M	**STAINLESS STEELS (FREE MACHINING)** 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	95-165	.0005 - .0025	.0020-.0045	.0035-.0060	.0040-.0085	.0055 - .0125	.0070-.0150	.0080-.0170
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	80-140	.0004 - .0018	.0018-.0035	.0022 - .0045	.0033 - .0060	.0055 - .0090	.0060-.0140	.0070 - .0150
K	**GRAY IRONS Class** 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	190-475	.0008 - .0040	.0030 - .0060	.0045-.0080	.0060-.0135	.0070 - .0140	.0010-.0160	.0120-.0200
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	"≤ 260 BHN or ≤ 26 HRC"	160-310	.0006 - .0030	.0028 - .0035	.0040-.0070	.0055-.010	.0070 - .0120	.0090-.0140	.0110-.0170
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	"≤ 271 BHN or ≤ 28 HRC"	350-950	.0010 - .0040	.0030-.0060	.0040-.0070	.0060 - .0115	.0075 - .0135	.0090 - .0150	.0100 - .0210
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	"≤ 375 BHN or ≤ 55 HRC"	55-145	.0008-.0030	.0010-.0040	.0017 - .0055	.0030 - .0073	.0055 - .0095	.0060 - .0100	.0070 - .0115
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	"≤ 275 BHN or ≤ 28 HRC"	95 -215	.0007 - .0020	.00012 - .0025	.0018-.0040	.0027-.0075	.0030 - .0075	.0050-.0090	.0060-.0110
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	"≤ 275 BHN or ≤ 28 HRC"	70-160	.0009 - .0030	.0015 - .0035	.0020-.00550	.0045 - .0100	.0075 - .0120	.0080-.0150	.0095-.0160

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ISO	MATERIAL	HARDNESS	Vc (SFM)*		DRILL DIAMETER (INCH)						
			HSS/ Cobalt	Carbide	≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8" - 1/2"	1/2" - 3/4"	3/4" - 1"
					Fz = IPR (INCH PER REVOLUTION)*						
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	70-200	150-350	.0005 - .0030	.0010 - .0050	.0020 - .0075	.0030 - .0100	.0060 - .0120	.0080 - .0140	.0100 - .0170
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	60-150	100-280	.0007 - .0030	.0012 - .0040	.0020 - .0060	.0040 - .0080	.0060 - .0110	.0070 - .0135	.0070 - .0155
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	60-120	110-190	.0006 - .0025	.0008 - .0030	.0012 - .0060	.0025 - .0085	.0040 - .0110	.0060 - .0140	.0080 - .0170
	STAINLESS STEELS (DIFFICULT) 304, 304L,316, 316L	≤ 275 BHN or ≤ 28 HRC	40-110	90-140	.0004 - .0018	.0006 - .0020	.0009 - .0040	.0010 - .0060	.0030 - .0080	.0040 - .0110	.0050 - .0140
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	60-180	140-400	.0006 - .0025	.0008 - .0030	.0012 - .0060	.0025 - .0085	.0040 - .0110	.0060 - .0140	.0080 - .0190
	DUCTILE IRONS D&M series, 250, 300, 350 ,400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	50-90	110-280	.0006 - .0025	.0008 - .0030	.0012 - .0060	.0025 - .0085	.0040 - .0110	.0060 - .0140	.0080 - .0170
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	90-300	180-500	.0003 - .0010	.0006 - .0021	.0010 - .0030	.0025 - .0040	.0028 - .0065	.0030 - .0090	.0050 - .0150
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	40-80	70-160	.0005 - .0030	.0010 - .0040	.0020 - .0055	.0040 - .0080	.0060 - .0100	.0080 - .0120	.0100 - .0140
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	15-55	50-110	.0007 - .0020	.00012 - .0025	.0018 - .0040	.0025 - .0060	.0030 - .0075	.0040 - .0085	.0050 - .0100
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	30-75	70-160	.0006 - .0025	.0008 - .0035	.0012 - .0060	.0025 - .0085	.0040 - .0100	.0060 - .0120	.0080 - .0140

Factors affecting optimized drill speeds and feeds:

- Depth of Hole
- Machinability of Material
- Coolant delivery method

Drill depths > 4X diameter require 15%-30% reduction in suggested drill feed rates.

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	DIAMETER INCH (METRIC) 5/16" (8mm) - 1/2" (12mm) Fz (INCH PER TOOTH)*	DIAMETER INCH (METRIC) 1/2" (12mm) - 3/4" (20mm) Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP600	250-675	.0015-.0040	.0020-.0060
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-550	.0020-.0050	.0020-.0075
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP600	150-450	.0018-.0025	.0025-.0060
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		100-400	.0018-.0025	.0025-.0060
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK365	200-700	.0025-.0045	.0035-.0070
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		200-600	.0020-.0045	.0025-.0065
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	HN300	300-750	.0020-.0060	.0030-.0090
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	HP600	60-275	.0018-.0055	.0020-.0060
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	HP600	45-200	.0015-.0030	.0017-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC		75-300	.0019-.0045	.0020-.0060

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ISO	MATERIAL	HARDNESS	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	220-650	.0032 - .0080
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	180-500	.0030 - .0065
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	200-450	.0026 - .0065
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	120-350	.0025 - .0075
K	**GRAY IRONS** Class 20, 30, 40, 50, 60 ,G3000, G3500	≤ 220 BHN or ≤ 19 HRC	250-700	.0030 - .0100
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	150-450	.0030 - .0092
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	250-950	.0050 - .0130
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	80-250	.0030 - .0065
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	50-160	.0025 - .0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC	90-250	.0025 - .0075

*** HIGHER Vc AND Fz APPLY TO LIGHT/FINISHING ENGAGEMENT**

*** LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT**

******Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ISO	MATERIAL	HARDNESS	Vc (SFM)*		EFFECTIVE CUTTER DIAMETER (INCH)						
					≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8" - 1/2"	1/2" - 3/4"	3/4" - 1"
			HSS/ Cobalt	Carbide	Fz (INCH PER TOOTH)*						
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	80-200	250-600	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH"	≤ 375 BHN or ≤ 40 HRC	60-150	150-400	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	50-100	130-400	.0002 - .0009	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0006 - .0016	.0009 - .0018	.0010 - .0022
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	30-75	100-300	.0003 - .0008	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0006 - .0016	.0009 - .0018	.0010 - .0020
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	60-180	200-650	.0002 - .0009	.0003 - .0010	.0004 - .0012	.0005 - .0014	.0007 - .0016	.0009 - .0018	.0010 - .0025
	DUCTILE IRONS D&M series, 250 , 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	50-120	150-450	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	70-300	200-700	.0003 - .0009	.0003 - .0011	.0004 - .0013	.0005 - .0015	.0006 - .0017	.0009 - .0020	.0010 - .0035
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	30-65	80-250	.0002 - .0009	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0007 - .0016	.0009 - .0018	.0010 - .0025
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	20-50	50-90	.0002 - .0005	.0003 - .0007	.0004 - .0010	.0005 - .0011	.0006 - .0011	.0007 - .0011	.0007 - .0013
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC	30-65	70-160	.0002 - .0007	.0003 - .0009	.0004 - .0010	.0005 - .0011	.0006 - .0012	.0007 - .0012	.0007 - .0016

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ISO	MATERIAL	HARDNESS	Vc (SFM)*		EFFECTIVE CUTTER DIAMETER (INCH)						
			HSS/ Cobalt	Carbide	≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8" - 1/2"	1/2" - 3/4"	3/4" - 1"
					Fz (INCH PER TOOTH)*						
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	80-200	200-500	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	60-150	150-400	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	50-100	130-400	.0002 - .0009	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0006 - .0016	.0009 - .0018	.0010 - .0022
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	30-75	100-300	.0003 - .0008	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0006 - .0016	.0009 - .0018	.0010 - .0020
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	60-180	200-650	.0002 - .0009	.0003 - .0010	.0004 - .0012	.0005 - .0014	.0007 - .0016	.0009 - .0018	.0010 - .0025
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	50-120	150-450	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	70-300	200-700	.0003 - .0009	.0003 - .0011	.0004 - .0013	.0005 - .0015	.0006 - .0017	.0009 - .0020	.0010 - .0035
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	30-65	80-250	.0002 - .0009	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0007 - .0016	.0009 - .0018	.0010 - .0025
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	20-50	50-90	.0002 - .0005	.0003 - .0007	.0004 - .0010	.0005 - .0011	.0006 - .0011	.0007 - .0011	.0007 - .0013
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	30-65	70-160	.0002 - .0007	.0003 - .0009	.0004 - .0010	.0005 - .0011	.0006 - .0012	.0007 - .0012	.0007 - .0016

Keyseat Cutter Considerations:

- Select a tool with the shortest allowable overall length to ensure the strongest tool setup possible.
- The keyseat cutter's neck diameter greatly affects its performance.
- Choose thickest neck allowable for the most optimized performance.

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

ISO	MATERIAL	HARDNESS	Vc (SFM)*		SAW DIAMETER (INCH)				
			HSS/ Cobalt	Carbide	1.00" - 3.00"	3.01"- 5.00"	5.01"- 8.00"	8.01"- 10.00"	10.01"- 12.00"
					Fz (INCH PER TOOTH)*				
P	**CARBON STEELS** 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	40-95	90-200	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0010 - .0020
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	30-70	60-150	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0007 - .0015
M	**STAINLESS STEELS** (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	60-110	80-190	.0002 - .0008	.0003 - .0008	.0004 - .0010	.0005 - .0012	.0010 - .0022
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	30-75	40-130	.0003 - .0008	.0003 - .0008	.0004 - .0010	.0005 - .0012	.0010 - .0018
K	**GRAY IRONS** Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	45-100	80-150	.0003 - .0009	.0003 - .0010	.0004 - .0012	.0005 - .0014	.0010 - .0020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	20-75	30-90	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0008 - .0016
N	**NON-FERROUS** Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	180-900	450-1200	.0005 - .0009	.0006 - .0011	.0006 - .0013	.0007 - .0015	.0010 - .0030
H	**TOOL STEELS** A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	10-25	30-130	.0002 - .0008	.0003 - .0009	.0004 - .0010	.0005 - .0013	.0007 - .0020
S	**HR SUPER ALLOYS** Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	05-20	30-80	.0002 - .0005	.0003 - .0006	.0004 - .0010	.0005 - .0011	.0006 - .0012
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	10-30	40-180	.0002 - .0007	.0003 - .0010	.0004 - .0012	.0005 - .0016	.0007 - .0020

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

Insert Holding	
M	Clamp and Lock Pin
N	Notch Style Clamp
S	Screw Lock Only
D	PULLBACK Clamp

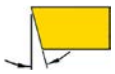
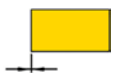
Insert Shape		
C	80° Diamond	
D	55° Diamond	
T	60° Triangle	
S	90° Square	
V	35° Diamond	
W	80° Trigon	
R	Round	

Hand of Tool		
L	Left	
R	Right	
N	Neutral	

Insert Size	
2	1/4” IC
3	3/8” IC
4	1/2” IC
5	5/8” IC
6	3/4” IC

S C L C R 16 - 4 C

Lead Angle		
A 90°	F 90°	L 95°
S 45°	G 90°	M 50°
P 107.5°	V 72.5°	D 45°
J 93°	Y 85°	E 60°
K 75°	R 75°	T 27.5°

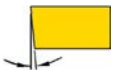
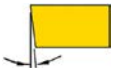
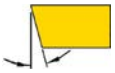
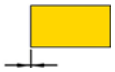
Insert Clearance Angle		
B	5°	
C	7°	
D	15°	
N	0°	
P	11°	

Shank Dimension	
08	0.500”
10	.625”
12	.750”
16	1.000”
20	1.250”
24	1.500”
1212	12mm
1616	16mm

Qualified Surface & Length	
A	4”
B	4.5”
C	5”
D	6”
E	7”

Bar Type	
A	Solid Steel Bar with Coolant
C	Carbide Bar
D	Partriot Stealth Bar with Coolant
E	Carbide Bar with Coolant
HM	Solid Heavy Metal with Coolant
J	Solid Heavy Metal
R	Carbide Reinforced Steel Bar
S	Solid Steel Bar

Bar Length	
F	3”
G	3.5”
H	4”
J	4.5”
K	5”
M	6”
Q	7”
R	8”
X	9”
S	10”
T	12”
U	14”
V	16’’
W	20”

Insert Clearance Angle		
B	5°	
C	7°	
D	15°	
N	0°	
P	11°	

Alternate (WF) Dim.	
138	0.138”
167	0.167”
203	0.203”
281	0.281”

E 10 Q S C L C R 2 -281

Bar Diameter	
02.5	0.156” (5/32”)
03	0.187” (3/16”)
03.5	0.218” (7/32”)
04	0.250” (1/4”)
05	0.312” (5/16”)
06	0.375” (3/8”)
08	0.500” (1/2”)
10	0.625” (5/8”)
12	0.750” (3/4”)
16	1.000” (1”)
20	1.250” (1 1/4”)
24	1.500” (1 1/2”)
28	1.750” (1 3/4”)
32	2.000” (2”)

Insert Holding	
M	Clamp and Lock Pin
N	Notch Style Clamp
S	Screw Lock Only
D	PULLBACK Clamp

Insert Shape		
C	80° Diamond	
D	55° Diamond	
T	60° Triangle	
S	90° Square	
V	35° Diamond	
W	80° Trigon	
R	Round	

Lead Angle (KAPR)		
F	0°	
J	-52°	
K	15°	
L	-5°	
N	27.5°	
Q	-17.5°	
U	-3°	
X	5°	

Insert Size	
1.2	5/32” IC
1.5	3/16” IC
1.8	7/32” IC
2	1/4” IC
2.5	5/16” IC
3	3/8” IC
4	1/2” IC

Hand of Bar	
L	Left
R	Right

Bar Length (LF)	
2.5	2.5”
3	3”
3.5	3.5”
4	4”
5	5”
6	6”
7	7”
8	8”
10	10”
12	12”

Lead Angle (KAPR)		
0	0°	
3	-3°	
5	-5°	
7	-7°	

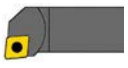
Series
C
F
G
S
Q

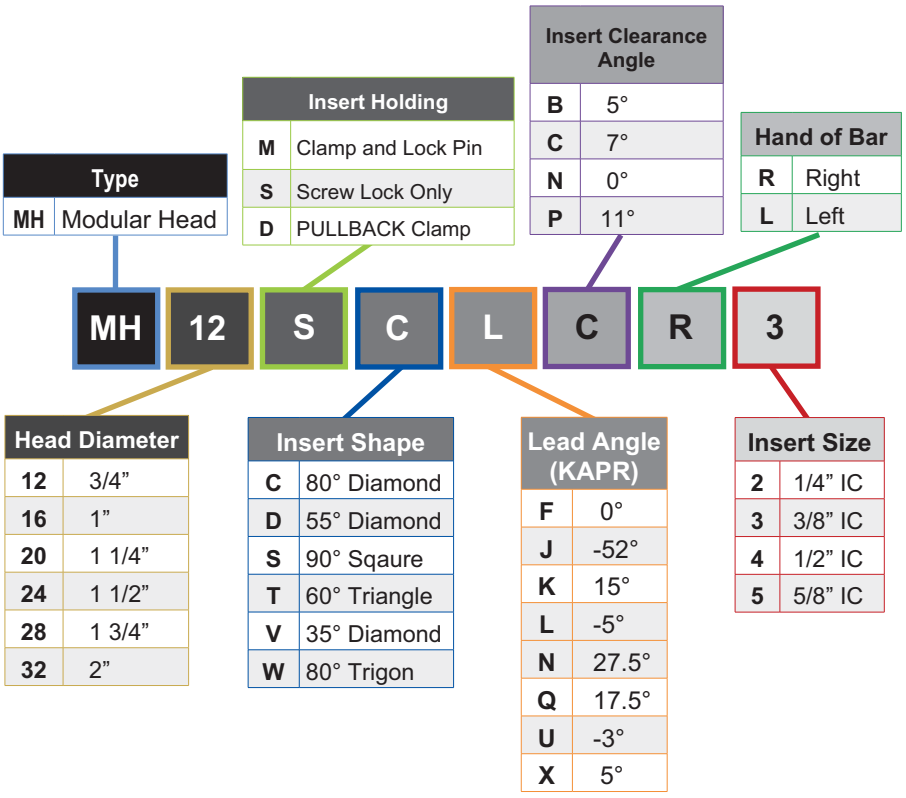
C C UD - 187 - 4 - 5 L

Material	
C	Carbide
S	Steel

ULTRA-DEX

Diameter (DC)	
187	0.187”
250	0.250”
312	0.312”
375	0.375”
500	0.500”
625	0.625”
750	0.750”
1000	1.000”
1250	1.250”

Hand of Bar		
L	Left	
R	Right	



Type	
MH	Modular Head

Insert Holding	
M	Clamp and Lock Pin
S	Screw Lock Only
D	PULLBACK Clamp

Insert Clearance Angle	
B	5°
C	7°
N	0°
P	11°

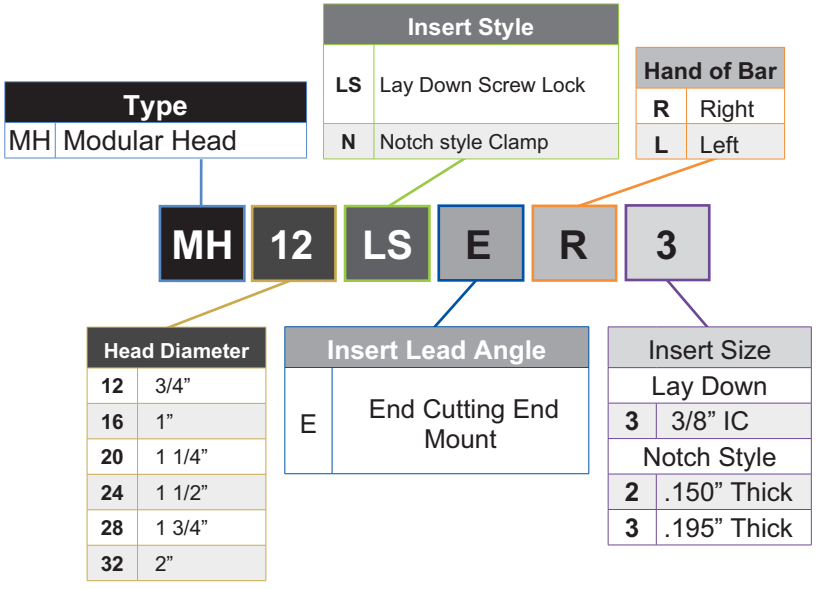
Hand of Bar	
R	Right
L	Left

Head Diameter	
12	3/4”
16	1”
20	1 1/4”
24	1 1/2”
28	1 3/4”
32	2”

Insert Shape	
C	80° Diamond
D	55° Diamond
S	90° Sqaure
T	60° Triangle
V	35° Diamond
W	80° Trigon

Lead Angle (KAPR)	
F	0°
J	-52°
K	15°
L	-5°
N	27.5°
Q	17.5°
U	-3°
X	5°

Insert Size	
2	1/4” IC
3	3/8” IC
4	1/2” IC
5	5/8” IC



Type	
MH	Modular Head

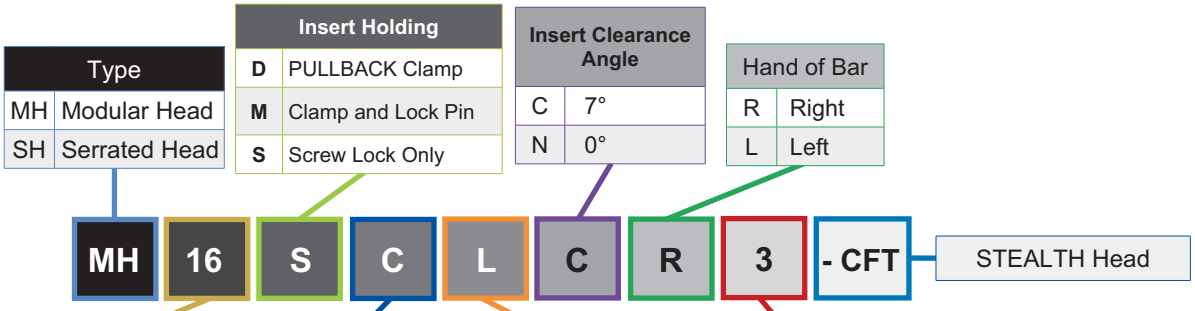
Insert Style	
LS	Lay Down Screw Lock
N	Notch style Clamp

Hand of Bar	
R	Right
L	Left

Head Diameter	
12	3/4”
16	1”
20	1 1/4”
24	1 1/2”
28	1 3/4”
32	2”

Insert Lead Angle	
E	End Cutting End Mount

Insert Size	
Lay Down	
3	3/8” IC
Notch Style	
2	.150” Thick
3	.195” Thick



Type	
MH	Modular Head
SH	Serrated Head

Insert Holding	
D	PULLBACK Clamp
M	Clamp and Lock Pin
S	Screw Lock Only

Insert Clearance Angle	
C	7°
N	0°

Hand of Bar	
R	Right
L	Left

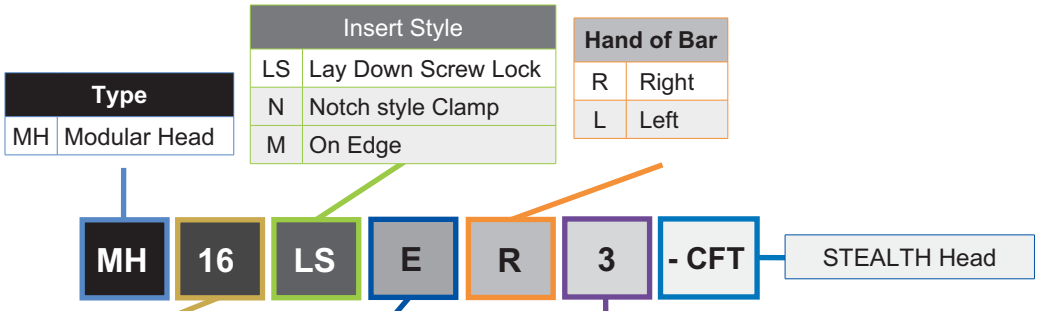
Head Diameter	
16	1”
20	1 1/4”
24	1 1/2”
28	1 3/4”
32	2”
40	2 1/2”

Insert Shape	
C	80° Diamond
D	55° Diamond
S	90° Square
T	60° Triangle
V	35° Diamond
W	80° Trigon

Lead Angle	
L	-5°
U	-3°
K	15°
X	5°
F	0°
N	27.5°

Insert Size	
3	3/8” IC
4	1/2” IC
5	5/8” IC
6	3/4” IC

Threading / Grooving



Type	
MH	Modular Head

Insert Style	
LS	Lay Down Screw Lock
N	Notch style Clamp
M	On Edge

Hand of Bar	
R	Right
L	Left

Head Diameter	
16	1”
20	1 1/4”
24	1 1/2”
28	1 3/4”
32	2”
40	2 1/2”

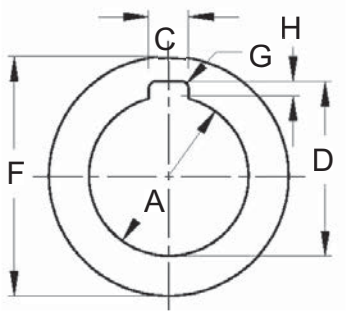
Insert Lead Angle	
E	End Cutting End Mount

Insert Size	
Lay Down	
3	3/8” IC
4	1/2” IC
5	5/8” IC

Notch Style	
2	.150” Thick
3	.195” Thick
4	.255” Thick
6	.383” Thick

Cutting Diameter Tolerances

ARBOR TYPE CUTTERS					
Cutter Type	Specifications	Tolerance			
		Diameter	Width	Angle	Radius
Plain Milling	Up to 1" Width Over 1" – 2" Incl. Over 2"	+.015" -.000" +.015" -.000" +.015" -.000"	±.001" +.010" -.000" +.020" -.000"		
Side Mills	Straight Tooth Staggered Tooth Straight Tooth Saw	+.015" -.000" +.015" -.000" +.015" -.000"	+.002" -.000" ±.001" ±.001"		
Single Angle Double Angle		+.015" -.000" +.015" -.000"	+.015" -.000" +.015" -.000"	±0°10" ±0°10" on half angle	
Keyseat (1/32" oversize on diameters)	3/16" Face 1/4" Face 5/16" Face 3/8" Face and Over	±.002" ±.002" ±.002" ±.002"	-.0002" -.0007" -.0003" -.0008" -.0004" -.0009" -.0005" -.0010"		
Convex Concave Corner Rounding		+.030" -.000" +.030" -.000" +.030" -.000"	±.001" ±.005" ±.005"		±.001" +.002" -.001" +.002" -.001"



Cutter Bore "A" Inches	Nominal Size Key (Square) Inches	Dimensions - Inches						
		C		D		H Nominal	G Corner Radius	F Collar
		Max.	Min.	Max.	Min.			
1/2	3/32	.106	.099	.5678	.5578	3/64	.020	7/8
5/8	1/8	.137	.130	.7085	.6985	1/16	1/32	1
3/4	1/8	.137	.130	.8325	.8225	1/16	1/32	1-1/8
7/8	1/8	.137	.130	.9575	.9475	1/16	1/32	1-1/4
1	1/4	.262	.255	1.1140	1.1040	3/32	3/64	1-1/2
1-1/4	5/16	.325	.318	1.3950	1.3850	1/8	1/16	1-7/8
1-1/2	3/8	.410	.385	1.6760	1.6660	5/32	1/16	2-1/4
1-3/4	7/16	.473	.448	1.9580	1.9480	3/16	1/16	2-1/2
2	1/2	.535	.510	2.2080	2.1980	3/16	1/16	2-3/4
2-1/2	5/8	.660	.635	2.7430	2.7330	7/32	1/16	3-1/2
3	3/4	.785	.760	3.2750	3.2650	1/4	3/32	4
3-1/2	7/8	.910	.885	3.9000	3.8900	3/8	3/32	5
4	1	1.035	1.011	4.4000	4.3900	3/8	3/32	5-1/2
4-1/2	1-1/8	1.160	1.135	4.9630	4.9530	7/16	1/8	6
5	1-1/4	1.285	1.260	5.5250	5.5150	1/2	1/8	6-1/2

Terminology and Ordering Data

KEO® "S" Style Staggered Interlocking Cutter's consist of two pieces, each piece being a Staggered Side Milling Cutter. Unless otherwise specified, diameters of each piece held relative to each other within .001". Refer to Figures 1, 2 and 3

Total Interlocking Width (W)

The total interlocking width (W) is equal to the overall width of an interlocking cutter. The total interlock width (W) is normally equal to the width of the slot to be machined. This width is measured over the two pieces within the interlocking cutter as shown in Figure 1 and Figure 2.
Unless otherwise specified, tolerance on W Dimension is ±.001".
Specify the following information when ordering:

1. Quantity of Interlocking Cutters required.
2. Diameter of Interlocking Cutters (D).
3. Interlock Width (W).
4. Hole size required.

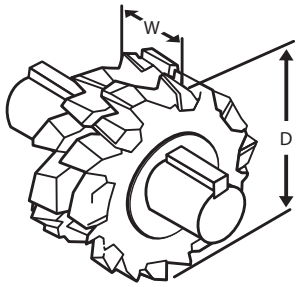


Fig. 1

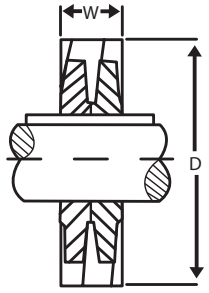


Fig. 2

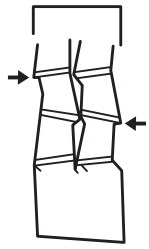


Fig. 3

Interlocking or overlap can be varied from as small as .010" – 3/32" or more depending upon the widths selected. Hubs may be ground in customer's plant, by a local grinding service shop or at the KEO® plants.
When sharpening reduces the total interlock width, shims may be used between hubs to regain the original total interlock width.

INTERLOCK WIDTH RANGE	CUTTER DIAMETER																	
	2-1/8"	2-1/2"	2-3/4"	3"	3-1/4"	3-1/2"	3-3/4"	4"	4-1/4"	4-1/2"	5"	5-1/2"	6"	7"	8"	9"	10"	12"
.345 – .370	X			X		X		X			X		X	X	X		X	
.370 – .401	X			X		X		X			X		X	X	X		X	
.401 – .432	X			X		X		X		X	X		X	X	X		X	
.432 – .464	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
.464 – .495	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
.495 – .526	X	X	X	X		X		X		X	X		X	X	X	X	X	
.526 – .557	X	X	X	X		X		X		X	X		X	X	X	X	X	
.557 – .588	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.588 – .620	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.620 – .651	X	X	X	X		X		X		X	X		X	X	X	X	X	X
.651 – .682	X	X	X	X		X		X		X	X		X	X	X	X	X	X
.682 – .713	X	X	X	X	X	X		X		X	X		X	X	X	X	X	X
.700 – .745	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.731 – .776		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
.763 – .807		X	X	X		X		X		X	X		X	X	X	X	X	X
.794 – .838		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.825 – .870		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.856 – .901		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.888 – .932		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.930 – .995		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.993 – 1.058				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.055 – 1.120				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.118 – 1.182				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.180 – 1.245				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.242 – 1.307				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.305 – 1.370				X		X		X		X	X		X	X	X	X	X	X
1.368 – 1.432				X	X	X		X		X	X		X	X	X	X	X	X
1.430 – 1.495				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.492 – 1.557				X		X	X	X	X	X	X	X	X	X	X	X	X	X
1.555 – 1.620				X		X		X		X	X		X	X	X	X	X	X
1.618 – 1.682				X		X		X		X	X		X	X	X	X	X	X
1.680 – 1.745				X		X		X		X	X		X	X	X	X	X	X
1.743 – 1.807				X		X		X			X		X	X	X	X	X	X
1.805 – 1.870				X		X		X			X		X	X	X	X	X	X
1.868 – 1.932				X		X		X		X	X		X	X	X	X	X	X
1.930 – 1.995 1.990 – 2.055				X				X					X					
2.050 – 2.120				X		X		X		X	X		X	X	X	X	X	X
2.115 – 2.180				X				X					X					
2.175 – 2.245				X				X					X					
2.240 – 2.305								X					X					
2.300 – 2.370								X					X					
2.365 – 2.430				X				X					X					
2.425 – 2.495				X				X					X					

"X" indicates Width Interlock Range that can be priced as standard in diameters listed.
All Staggered Tooth Cutters having the same number of teeth interlock.

MILIMETERS TO INCHES CONVERSION CHART							
MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES
0.1	0.0039	20	0.7872	48	1.8898	76	2.9921
0.2	0.0079	21	0.8268	49	1.9291	77	3.0315
0.3	0.0118	22	0.8661	50	1.9685	78	3.0709
0.4	0.0157	23	0.9055	51	2.0079	79	3.1102
0.5	0.0197	24	0.9449	52	2.0472	80	3.1496
0.6	0.0236	25	0.9843	53	2.0866	81	3.189
0.7	0.0276	26	1.0236	54	2.126	82	3.2284
0.8	0.0315	27	1.063	55	2.1654	83	3.2677
0.9	0.0354	28	1.1024	56	2.2047	84	3.3071
1	0.0394	29	1.1417	57	2.2441	85	3.3465
2	0.0787	30	1.1811	58	2.2835	86	3.3858
3	0.1181	31	1.2205	59	2.3228	87	3.4252
4	0.1575	32	1.2598	60	2.3622	88	3.4646
5	0.1969	33	1.2992	61	2.4016	89	3.5039
6	0.2362	34	1.3386	62	2.441	90	3.5433
7	0.2756	35	1.378	63	2.4803	91	3.5827
8	0.315	36	1.4173	64	2.5197	92	3.6221
9	0.3543	37	1.4567	65	2.5591	93	3.6614
10	0.3937	38	1.4961	66	2.5984	94	3.7008
11	0.4331	39	1.5354	67	2.6378	95	3.7402
12	0.4724	40	1.5748	68	2.6772	96	3.7795
13	0.5118	41	1.6142	69	2.7165	97	3.8189
14	0.5512	42	1.6535	70	2.7559	98	3.8583
15	0.5906	43	1.6929	71	2.7953	99	3.8976
16	0.6299	44	1.7323	72	2.8347	100	3.937
17	0.6693	45	1.7717	73	2.874		
18	0.7087	46	1.811	74	2.9134		
19	0.748	47	1.8504	75	2.9528		

Surface Feet Per Minute

$$SFM = RPM \times D \times .262$$

Revolutions Per Minute

$$RPM = \frac{SFM \times 3.82}{D}$$

Inches Per Minute

$$IPM = RPM \times IPT \times Z$$

Inches Per Tooth

$$IPT = \frac{IPR}{Z}$$

Inches Per Revolution

$$IPR = \frac{IPM}{RPM}$$

Metal Removal Rate (cu. in./min.)

$$MRR = RDOC \times ADOC \times IPM$$

Inches Per Tooth
(Chip Thinning Adjustment)

$$IPT_{adj} = \frac{CT \times D}{2 \times \sqrt{(D \times RDOC) - RDOC}}$$

Feed Rate Adjustment - Inside Arc

$$F_i = \frac{IPM \times (r_i + R)}{r_i}$$

Feed Rate Adjustment - Outside Arc

$$F_0 = \frac{IPM \times (r_0 + R)}{r_0}$$

Chip Thickness

$$CT = \frac{2 \times IPT \times \sqrt{(D \times RDOC) - RDOC}}{D}$$

Ball Nose Velocity Adjustment

$$V_{adj} = \frac{SFM \times 3.82}{D_{eff}}$$

Ball Nose "Effective Diameter"

$$D_{eff} = 2 \times \sqrt{ADOC \times (D - ADOC)}$$

D	Tool Cutting Diameter	r_i	Part Radius (inside arc)	RDOC	Radial Depth of Cut
Z	Number of Flutes	r_o	Part Radius (outside arc)	ADOC	Axial Depth of Cut

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