

Insert NOMENCLATURE / Speed & Feeds

Inscribe Circle Size

INCH	Diameter of Inscribed Circle (Inch)	METRIC							
									
1.2 (5)	.156		02		04	03	03	06	
1.28	.160							07	
1.5 (6)	.187		L3	08	05	04	04	08	
1.8 (7)	.219		03	09	06	05	05	09	
2	.250		04	11	07	06	06	11	
2.5	.313		05	13	09	08	07	13	
3	.375	09	06	16	11	09	09	16	
4	.500	12	08	22	15	12	12	22	
5	.625		10		19	16	15	27	
6	.750	19	13		23	19	19	33	
8.00mm	08	08							
10.00mm	10	10							
12.00mm	12	12							
16.00mm	16	16							

*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

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

INCH (ANSI)

T	N	M	G
---	---	---	---

METRIC (ISO)

T	N	M	G
---	---	---	---

4
11

3
T3

2
08

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

Thickness

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

INCH	Thickness	METRIC
0.6	.040	T0
0.75	.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

Insert Speed & Feed Information

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

*For APKT inserts refer to the chart on pg 201 for cutting conditions.

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

New! HIGH PERFORMANCE GRADES AVAILABLE *

○ Good
◐ Better
● Best



Grade	Description	Material					
		Steel	Stainless Steel	Cast Iron	Ferrite Materials	Heat-Resistant Steel	Hardened Metal
		P	M	K	N	S	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.	◐	●	●	◐	◐	
UD2CBN	A Polycrystalline Cubic Boron Nitride (PCBN) Insert for cast 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 TiAl ₂ O 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.	◐	◐			◐	



Hardware
pg: 204

F

INSERTS

Turning Inserts



ZX3



CDGW Flat Top



CDHB Flat Top

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
CDGT 1.510.5-ZX3	-	-	-	-	-	-	-	\$8.61	\$9.05	\$9.05	\$6.91	-	-	\$8.61	\$9.82	-
CDGT 1.511-ZX3	-	-	-	-	-	-	-	\$8.61	\$9.05	\$9.05	\$7.47	-	-	\$8.61	\$9.82	-
CDGW 1.510	-	-	-	-	-	-	-	\$8.12	\$9.05	\$8.51	\$8.12	-	-	\$8.01	\$9.77	-
CDGW 1.510.5	-	-	-	-	-	-	-	\$8.12	\$9.05	\$8.51	\$8.12	-	-	\$8.01	\$9.77	-
CDGW 1.511	-	-	-	-	-	-	-	\$8.12	\$9.05	\$8.51	\$8.12	-	-	\$8.01	\$9.77	-
CDHB 1.20.60	-	-	-	-	-	-	-	\$7.79	\$8.18	\$8.12	\$6.53	-	-	\$7.30	\$8.88	-
CDHB 1.20.60.5	-	-	-	-	-	-	-	\$7.79	\$8.18	\$8.12	\$6.53	-	-	\$7.30	\$8.88	-

Inserts sold in packs of 10



CM1



CN1



CX1



CX2



ZM1



ZN1



ZX3

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
CCGT 21.50-CM1	-	-	\$13.31	-	-	-	-	-	-	-	-	-	-	-	-	-
CCGT 32.50.5-CM1	-	-	\$14.61	-	-	-	-	-	-	-	-	-	-	-	-	-
CCGT 32.50-CM1	-	-	\$14.61	-	-	-	-	-	-	-	-	-	-	-	-	-
CCGT 21.50-CN1	-	-	-	-	-	\$9.96	-	-	-	-	-	-	-	-	-	-
CCGT 21.51-CN1	-	-	-	-	-	\$9.96	-	-	-	-	-	-	-	-	-	-
CCGT 32.51-CN1	-	-	-	-	-	\$10.58	-	-	-	-	-	-	-	-	-	-
CCGT 32.52-CN1	-	-	-	-	-	\$10.58	-	-	-	-	-	-	-	-	-	-
CCMT 21.51-CX1	\$6.27	\$6.27	-	\$6.27	-	-	-	-	-	-	-	-	-	-	-	-
CCMT 21.52-CX1	-	\$6.27	-	\$6.27	-	-	-	-	-	-	-	-	-	-	-	-
CCMT 32.51-CX1	\$7.54	\$7.54	-	\$7.54	-	-	-	-	-	-	-	-	-	-	-	-
CCMT 32.52-CX1	\$7.54	\$7.54	-	\$7.54	-	-	-	-	-	-	-	-	-	-	-	-
CCMT 431-CX1	-	\$9.78	-	\$9.78	-	-	-	-	-	-	-	-	-	-	-	-
CCMT 432-CX1	-	\$9.78	-	\$9.78	-	-	-	-	-	-	-	-	-	-	-	-
CCMT 32.50-CX2	-	\$7.54	-	\$7.54	-	-	-	-	-	-	-	-	-	-	-	-
CCMT 21.51-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.31	-	-	-
CCMT 32.50.5-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.69	-	-	-
CCMT 32.51-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.69	-	-	-
CCMT 431-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$7.52	-	-	-
CCMT 432-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$7.52	-	-	-
CCGX 21.50.5-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.35
CCGX 21.51-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.35
CCGX 32.51-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.62
CCGX 32.52-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.62
CCMT 21.51-ZX3	-	-	-	-	-	-	-	\$6.31	\$6.31	\$6.31	-	-	-	-	-	-
CCMT 21.52-ZX3	-	-	-	-	-	-	-	\$6.31	\$6.31	\$6.31	-	-	-	-	-	-
CCMT 32.50.5-ZX3	-	-	-	-	-	-	-	\$6.69	\$6.69	\$6.69	-	-	-	-	-	-
CCMT 32.51-ZX3	-	-	-	-	-	-	-	\$6.69	\$6.69	\$6.69	-	-	-	-	-	-
CCMT 32.52-ZX3	-	-	-	-	-	-	-	\$6.69	\$6.69	\$6.69	-	-	-	-	-	-
CCMT 431-ZX3	-	-	-	-	-	-	-	\$7.52	\$7.52	\$7.52	-	-	-	-	-	-
CCMT 432-ZX3	-	-	-	-	-	-	-	\$7.52	\$7.52	\$7.52	-	-	-	-	-	-

Inserts sold in packs of 10

T

INSERTS



LX6



DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
CPMT 1.81.20.5-LX6	-	-	-	-	-	-	-	\$10.21	\$11.74	\$11.41	\$8.88	-	-	\$9.22	\$11.52	-
CPMT 1.81.21-LX6	-	-	-	-	-	-	-	\$10.21	\$11.74	\$11.41	\$8.88	-	-	\$9.22	\$11.52	-
CPMT 21.50.5-LX6	-	-	-	-	-	-	-	\$7.84	\$9.99	\$8.88	\$6.69	-	-	\$9.17	\$10.92	-
CPMT 21.51-LX6	-	-	-	-	-	-	-	\$7.84	\$9.99	\$8.88	\$6.69	-	-	\$9.17	\$10.92	-
CPMT 21.52-LX6	-	-	-	-	-	-	-	\$7.84	\$9.99	\$8.88	\$6.69	-	-	\$9.17	\$10.92	-
CPMT 32.51-LX6	-	-	-	-	-	-	-	\$8.28	\$9.99	\$9.54	\$6.97	-	-	-	-	-
CPMT 32.52-LX6	-	-	-	-	-	-	-	\$8.28	\$9.99	\$9.54	\$6.97	-	-	-	-	-

Inserts sold in packs of 10



CM1



CN1



CX1



CX2



LX6



ZM1



ZN1



ZX3

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
DCGT 21.50-CM1	-	-	\$13.65	-	-	-	-	-	-	-	-	-	-	-	-	-
DCGT 32.50-CM1	-	-	\$15.24	-	-	-	-	-	-	-	-	-	-	-	-	-
DCGT 21.50-CN1	-	-	-	-	-	\$9.96	-	-	-	-	-	-	-	-	-	-
DCGT 21.51-CN1	-	-	-	-	-	\$9.96	-	-	-	-	-	-	-	-	-	-
DCGT 32.51-CN1	-	-	-	-	-	\$11.08	-	-	-	-	-	-	-	-	-	-
DCGT 32.52-CN1	-	-	-	-	-	\$11.08	-	-	-	-	-	-	-	-	-	-
DCMT 21.51-CX1	-	\$6.27	-	\$6.27	-	-	-	-	-	-	-	-	-	-	-	-
DCMT 21.52-CX1	-	\$6.27	-	\$6.27	-	-	-	-	-	-	-	-	-	-	-	-
DCMT 31.51-CX1	\$7.85	\$7.85	-	\$7.85	-	-	-	-	-	-	-	-	-	-	-	-
DCMT 32.52-CX1	\$7.85	\$7.85	-	\$7.85	-	-	-	-	-	-	-	-	-	-	-	-
DCMT 21.50-CX2	-	\$6.27	-	\$6.27	-	-	-	-	-	-	-	-	-	-	-	-
DCMT 32.50-CX2	-	\$7.85	-	\$7.85	-	-	-	-	-	-	-	-	-	-	-	-
DCMT 21.50.5-LX6	-	-	-	-	-	-	-	\$7.47	\$9.10	\$8.12	-	-	-	-	-	-
DCMT 21.50.5-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$5.99	-	-	-
DCMT 21.51-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$5.99	-	-	-
DCMT 32.51-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$7.30	-	-	-
DCMT 32.52-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$7.30	-	-	-
DCGX 21.50.5-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.02
DCGX 21.51-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.02
DCGX 32.51-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.74
DCGX 32.52-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.74
DCMT 21.51-ZX3	-	-	-	-	-	-	-	\$5.99	\$5.99	\$5.99	-	-	-	-	-	-
DCMT 32.51-ZX3	-	-	-	-	-	-	-	\$7.30	\$7.30	\$7.30	-	-	-	-	-	-
DCMT 32.52-ZX3	-	-	-	-	-	-	-	\$7.30	\$7.30	\$7.30	-	-	-	-	-	-
DPMT 32.51-LX6	-	-	-	-	-	-	-	\$9.17	\$10.75	\$10.15	\$7.57	\$9.27	-	-	-	-
DPMT 32.52-LX6	-	-	-	-	-	-	-	\$9.17	\$10.75	\$10.15	\$7.57	\$9.27	-	-	-	-

Inserts sold in packs of 10

Hardware
pg: 204

Turning Inserts



CN1



CX1



LX6



ZM1



ZN1



ZX3



SCMW Flat Top

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
SCGT 32.51-CN1	-	-	-	-	-	\$10.58	-	-	-	-	-	-	-	-	-	-
SCMT 32.51-CX1	-	\$7.54	-	\$7.54	-	-	-	-	-	-	-	-	-	-	-	-
SCMT 32.52-CX1	-	\$7.54	-	\$7.54	-	-	-	-	-	-	-	-	-	-	-	-
SCMT 431-CX1	-	\$9.78	-	\$9.78	-	-	-	-	-	-	-	-	-	-	-	-
SCMT 432-CX1	-	\$9.78	-	\$9.78	-	-	-	-	-	-	-	-	-	-	-	-
SCMT 21.51-LX6	-	-	-	-	-	-	-	\$7.40	\$9.00	\$8.12	-	\$7.13	-	-	-	-
SCMT 32.51-LX6	-	-	-	-	-	-	-	-	-	-	-	\$5.99	-	-	-	-
SCMT 32.52-LX6	-	-	-	-	-	-	-	-	-	-	-	\$5.99	-	-	-	-
SCMT 32.51-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.31	-	-	-
SCMT 32.52-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.31	-	-	-
SCGX 32.50.5-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.84
SCGX 32.51-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.84
SCGX 32.52-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.84
SCMT 32.51-ZX3	-	-	-	-	-	-	-	\$6.31	\$6.31	-	-	-	-	-	-	-
SCMT 32.52-ZX3	-	-	-	-	-	-	-	\$6.31	\$6.31	-	-	-	-	-	-	-
SCMT 431-ZX3	-	-	-	-	-	-	-	\$7.52	\$7.52	-	-	-	-	-	-	-
SCMT 432-ZX3	-	-	-	-	-	-	-	\$7.52	\$7.52	-	-	-	-	-	-	-
SCMW 21.51	-	-	-	-	-	-	-	\$5.82	\$6.31	\$6.31	\$4.61	\$5.82	-	-	-	-

Inserts sold in packs of 10



CX1



LX6



ZM1



ZN1



ZX3

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
TCMT 21.51-CX1	-	\$6.58	-	\$6.58	-	-	-	-	-	-	-	-	-	-	-	-
TCMT 21.52-CX1	-	\$6.58	-	\$6.58	-	-	-	-	-	-	-	-	-	-	-	-
TCMT 32.51-CX1	-	\$8.35	-	\$8.35	-	-	-	-	-	-	-	-	-	-	-	-
TCMT 32.52-CX1	-	\$8.35	-	\$8.35	-	-	-	-	-	-	-	-	-	-	-	-
TCMT 1.21.20.5-LX6	-	-	-	-	-	-	-	\$7.84	\$9.49	\$9.44	-	-	-	-	-	-
TCMT 21.51-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$5.76	-	-	-
TCMT 32.51-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$7.30	-	-	-
TCMT 32.52-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$7.30	-	-	-
TCGX 21.50.5-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.62
TCGX 21.51-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$7.62
TCGX 32.51-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$8.73
TCGX 32.52-ZN1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	\$8.73
TCMT 21.51-ZX3	-	-	-	-	-	-	-	\$5.76	\$5.76	\$5.76	-	-	-	-	-	-
TCMT 21.52-ZX3	-	-	-	-	-	-	-	\$5.76	\$5.76	\$5.76	-	-	-	-	-	-
TCMT 32.51-ZX3	-	-	-	-	-	-	-	\$7.30	\$7.30	\$7.30	-	\$6.86	-	-	-	-
TCMT 32.52-ZX3	-	-	-	-	-	-	-	\$7.30	\$7.30	\$7.30	-	\$6.86	-	-	-	-

Inserts sold in packs of 10

T

INSERTS



LX6



DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
TPMT 21.51-LX6	-	-	-	-	-	-	-	\$7.79	\$9.22	\$8.61	\$6.42	-	-	-	-	-
TPMT 21.52-LX6	-	-	-	-	-	-	-	\$7.79	\$9.22	\$8.61	\$6.42	-	-	-	-	-
TPMT 32.51-LX6	-	-	-	-	-	-	-	\$9.32	\$10.75	\$10.15	\$7.74	-	-	-	-	-
TPMT 32.52-LX6	-	-	-	-	-	-	-	\$9.32	\$10.75	\$10.15	\$7.74	-	-	-	-	-

Inserts sold in packs of 10



CP1



ZM1



ZX3

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
VBMT 331-CP1	-	\$11.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VBMT 332-CP1	-	\$11.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VBMT 331-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$8.23	-	-	-
VBMT 332-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$8.23	-	-	-
VBMT 21.50.5-ZX3	-	-	-	-	-	-	-	\$8.23	\$9.82	-	-	-	-	-	-	-
VBMT 21.51-ZX3	-	-	-	-	-	-	-	\$8.23	\$9.82	-	-	-	-	-	-	-
VBMT 331-ZX3	-	-	-	-	-	-	-	\$8.23	\$9.17	-	-	-	-	-	-	-
VBMT 332-ZX3	-	-	-	-	-	-	-	\$8.23	\$9.17	-	-	-	-	-	-	-

Inserts sold in packs of 10



CX1



LX6



ZX3

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
WCMT 21.51-CX1	-	\$6.89	-	\$6.89	-	-	-	-	-	-	-	-	-	-	-	-
WCMT 21.52-CX1	-	\$6.89	-	\$6.89	-	-	-	-	-	-	-	-	-	-	-	-
WCMT 32.51-CX1	-	\$8.03	-	\$8.03	-	-	-	-	-	-	-	-	-	-	-	-
WCMT 32.52-CX1	-	\$8.03	-	\$8.03	-	-	-	-	-	-	-	-	-	-	-	-
WCMT 21.51-LX6	-	-	-	-	-	-	-	\$8.88	\$9.49	\$10.09	\$6.97	-	-	-	-	-
WCMT 21.52-LX6	-	-	-	-	-	-	-	\$8.88	\$9.49	\$10.09	\$6.97	-	-	-	-	-
WCMT 32.51-LX6	-	-	-	-	-	-	-	\$10.75	\$12.23	\$11.47	\$9.05	-	-	-	-	-
WCMT 32.52-LX6	-	-	-	-	-	-	-	\$10.75	\$12.23	\$11.47	\$9.05	-	-	-	-	-
WCMT 1.210.5-ZX3	-	-	-	-	-	-	-	\$11.69	\$12.57	\$12.57	\$10.91	-	-	-	-	-
WCMT 1.211-ZX3	-	-	-	-	-	-	-	\$11.69	\$12.57	\$12.57	\$10.91	-	-	-	-	-
WCMT 1.51.50.5-ZX3	-	-	-	-	-	-	-	\$11.69	\$12.57	\$12.57	\$10.91	-	-	-	-	-
WCMT 1.51.51-ZX3	-	-	-	-	-	-	-	\$11.69	\$12.57	\$12.57	\$10.91	-	-	-	-	-

Inserts sold in packs of 10



Hardware
pg: 204

Turning Inserts



CM2



CM3



CP2



CS1



CX1



ZK1



ZM1



ZP1



CNMA Flat Top

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
CNMG 321-CM2	-	-	-	\$7.54	-	-	-	-	-	-	-	-	-	-	-	-
CNMG 322-CM2	-	-	-	\$7.54	-	-	-	-	-	-	-	-	-	-	-	-
CNMG 431-CM2	-	-	-	\$9.15	-	-	-	-	-	-	-	-	-	-	-	-
CNMG 432-CM2	-	-	-	\$9.15	-	-	-	-	-	-	-	-	-	-	-	-
CNGP 431-CM3	-	-	\$16.54	-	-	-	-	-	-	-	-	-	-	-	-	-
CNGP 432-CM3	-	-	\$16.54	-	-	-	-	-	-	-	-	-	-	-	-	-
CNMG 543-CP2	-	\$16.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CNMG 643-CP2	-	\$21.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CNMG 431-CS1	-	-	-	-	\$9.15	-	-	-	-	-	-	-	-	-	-	-
CNMG 431-CX1	\$9.15	\$9.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CNMG 432-CX1	\$9.15	\$9.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CNMG 321-ZK1	-	-	-	-	-	-	-	-	-	\$6.36	-	-	-	-	-	-
CNMG 322-ZK1	-	-	-	-	-	-	-	-	-	\$6.36	-	-	-	-	-	-
CNMG 431-ZK1	-	-	-	-	-	-	-	-	-	\$8.06	-	-	-	-	-	-
CNMG 432-ZK1	-	-	-	-	-	-	-	-	-	\$8.06	-	-	-	-	-	-
CNMG 542-ZK1	-	-	-	-	-	-	-	-	-	\$10.80	-	-	-	-	-	-
CNMG 543-ZK1	-	-	-	-	-	-	-	-	-	\$10.80	-	-	-	-	-	-
CNMG 642-ZK1	-	-	-	-	-	-	-	-	-	\$13.93	-	-	-	-	-	-
CNMG 643-ZK1	-	-	-	-	-	-	-	-	-	\$13.93	-	-	-	-	-	-
CNMG 321-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.36	-	-	-
CNMG 322-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.36	-	-	-
CNMG 431-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$8.06	-	-	-
CNMG 432-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$8.06	-	-	-
CNMG 321-ZP1	-	-	-	-	-	-	-	\$6.36	\$6.36	-	-	-	-	-	-	-
CNMG 322-ZP1	-	-	-	-	-	-	-	\$6.36	\$6.36	-	-	-	-	-	-	-
CNMG 431-ZP1	-	-	-	-	-	-	-	\$8.06	\$8.06	-	-	-	-	-	-	-
CNMG 432-ZP1	-	-	-	-	-	-	-	\$8.06	\$8.06	-	-	-	-	-	-	-
CNMG 542-ZP1	-	-	-	-	-	-	-	\$10.80	\$10.80	-	-	-	-	-	-	-
CNMG 543-ZP1	-	-	-	-	-	-	-	\$10.80	\$10.80	-	-	-	-	-	-	-
CNMG 642-ZP1	-	-	-	-	-	-	-	\$13.93	\$13.93	-	-	-	-	-	-	-
CNMG 643-ZP1	-	-	-	-	-	-	-	\$13.93	\$13.93	-	-	-	-	-	-	-
CNMA 432	-	-	-	-	-	-	\$9.18	-	-	-	-	-	-	-	-	-
CNMA 433	-	-	-	-	-	-	\$9.18	-	-	-	-	-	-	-	-	-
CNMA 543	-	-	-	-	-	-	\$15.34	-	-	-	-	-	-	-	-	-
CNMA 643	-	-	-	-	-	-	\$20.05	-	-	-	-	-	-	-	-	-

Inserts sold in packs of 10



DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
DNMG 331-CM2	-	-	-	\$9.31	-	-	-	-	-	-	-	-	-	-	-	-
DNMG 332-CM2	-	-	-	\$9.31	-	-	-	-	-	-	-	-	-	-	-	-
DNMG 431-CM2	-	-	-	\$11.73	-	-	-	-	-	-	-	-	-	-	-	-
DNMG 432-CM2	-	-	-	\$11.73	-	-	-	-	-	-	-	-	-	-	-	-
DNGP 431-CM3	-	-	\$18.12	-	-	-	-	-	-	-	-	-	-	-	-	-
DNGP 432-CM3	-	-	\$18.77	-	-	-	-	-	-	-	-	-	-	-	-	-
DNMG 432-CS1	-	-	-	-	\$12.35	-	-	-	-	-	-	-	-	-	-	-
DNMG 331-CX1	-	\$9.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DNMG 332-CX1	-	\$9.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DNMG 431-CX1	-	\$11.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DNMG 432-CX1	\$12.35	\$11.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DNMG 542-LX2	-	-	-	-	-	-	-	\$14.43	\$15.19	\$14.10	-	-	-	-	-	-
DNMG 543-LX2	-	-	-	-	-	-	-	\$14.43	\$15.19	\$14.10	-	-	-	-	-	-
DNMG 331-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$8.12	-	-	-
DNMG 332-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$8.12	-	-	-
DNMG 431-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$9.10	-	-	-
DNMG 432-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$9.10	-	-	-
DNMG 331-ZP1	-	-	-	-	-	-	-	\$8.12	\$8.12	-	-	-	-	-	-	-
DNMG 332-ZP1	-	-	-	-	-	-	-	\$8.12	\$8.12	-	-	-	-	-	-	-
DNMG 431-ZP1	-	-	-	-	-	-	-	\$9.10	\$9.10	-	-	-	-	-	-	-
DNMG 432-ZP1	-	-	-	-	-	-	-	\$9.10	\$9.10	-	-	-	-	-	-	-
DNMG 331-ZX2	-	-	-	-	-	-	-	-	-	\$8.12	-	-	-	-	-	-
DNMG 332-ZX2	-	-	-	-	-	-	-	-	-	\$8.12	-	-	-	-	-	-
DNMG 431-ZX2	-	-	-	-	-	-	-	-	-	\$9.10	-	-	-	-	-	-
DNMG 432-ZX2	-	-	-	-	-	-	-	-	-	\$9.10	-	-	-	-	-	-
DNMA 431	-	-	-	-	-	-	\$14.04	-	-	-	-	-	-	-	-	-
DNMA 432	-	-	-	-	-	-	\$14.04	-	-	-	-	-	-	-	-	-

Inserts sold in packs of 10



LX2



RNMA Flat Top

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
RNMG 32-LX2	-	-	-	-	-	-	-	\$6.86	\$8.61	\$7.90	-	-	-	-	-	-
RNMG 43-LX2	-	-	-	-	-	-	-	\$8.39	\$10.21	\$9.22	-	-	-	-	-	-
RNMG 54-LX2	-	-	-	-	-	-	-	\$13.39	\$14.70	\$13.61	-	-	-	-	-	-
RNMG 64-LX2	-	-	-	-	-	-	-	\$16.74	\$17.83	\$16.62	-	-	-	-	-	-
RNMA 43	-	-	-	-	-	-	\$7.02	-	-	-	-	-	-	-	-	-

Inserts sold in packs of 10



Hardware
pg: 204

Turning Inserts



CP2



CS1



CX1



ZK1



ZM1



ZP1



ZX2



SNMA Flat Top

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
SNMG 543-CP2	-	\$16.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SNMG 643-CP2	-	\$21.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SNMG 432-CS1	-	-	-	-	\$9.31	-	-	-	-	-	-	-	-	-	-	-
SNMG 432-CX1	-	\$9.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SNMG 643-ZK1	-	-	-	-	-	-	-	-	-	\$13.93	-	-	-	-	-	-
SNMG 644-ZK1	-	-	-	-	-	-	-	-	-	\$13.93	-	-	-	-	-	-
SNMG 431-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.86	-	-	-
SNMG 432-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.86	-	-	-
SNMG 431-ZP1	-	-	-	-	-	-	-	\$6.86	\$6.86	-	-	-	-	-	-	-
SNMG 432-ZP1	-	-	-	-	-	-	-	\$6.86	\$6.86	-	-	-	-	-	-	-
SNMG 542-ZP1	-	-	-	-	-	-	-	\$10.80	\$10.80	-	-	-	-	-	-	-
SNMG 543-ZP1	-	-	-	-	-	-	-	\$10.80	\$10.80	-	-	-	-	-	-	-
SNMG 643-ZP1	-	-	-	-	-	-	-	\$13.93	\$13.93	-	-	-	-	-	-	-
SNMG 644-ZP1	-	-	-	-	-	-	-	\$13.93	\$13.93	-	-	-	-	-	-	-
SNMG 431-ZX2	-	-	-	-	-	-	-	-	-	\$6.86	-	-	-	-	-	-
SNMG 432-ZX2	-	-	-	-	-	-	-	-	-	\$6.86	-	-	-	-	-	-
SNMG 543-ZX2	-	-	-	-	-	-	-	-	-	\$10.80	-	-	-	-	-	-
SNMA 432	-	-	-	-	-	-	\$9.65	-	-	-	-	-	-	-	-	-
SNMA 543	-	-	-	-	-	-	\$13.31	-	-	-	-	-	-	-	-	-

Inserts sold in packs of 10



CM2



CS1



CX1



LX2



ZM1



ZP1



ZX2



TNMA Flat Top

DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
TNMG 331-CM2	-	-	-	\$8.50	-	-	-	-	-	-	-	-	-	-	-	-
TNMG 332-CM2	-	-	-	\$8.50	-	-	-	-	-	-	-	-	-	-	-	-
TNMG 332-CS1	-	-	-	-	\$8.50	-	-	-	-	-	-	-	-	-	-	-
TNMG 331-CX1	\$8.50	\$8.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TNMG 332-CX1	\$8.50	\$8.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TNMG 431-CX1	-	\$12.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TNMG 432-CX1	-	\$12.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TNMG 542-LX2	-	-	-	-	-	-	-	\$13.88	\$15.19	\$14.21	-	-	-	-	-	-
TNMG 543-LX2	-	-	-	-	-	-	-	\$13.88	\$15.19	\$14.21	-	-	-	-	-	-
TNMG 331-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.69	-	-	-
TNMG 332-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$6.69	-	-	-
TNMG 431-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$8.51	-	-	-
TNMG 432-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$8.51	-	-	-
TNMG 331-ZP1	-	-	-	-	-	-	-	\$6.69	\$6.69	-	-	-	-	-	-	-
TNMG 332-ZP1	-	-	-	-	-	-	-	\$6.69	\$6.69	-	-	-	-	-	-	-
TNMG 431-ZP1	-	-	-	-	-	-	-	\$8.51	\$8.51	-	-	-	-	-	-	-
TNMG 432-ZP1	-	-	-	-	-	-	-	\$8.51	\$8.51	-	-	-	-	-	-	-
TNMG 331-ZX2	-	-	-	-	-	-	-	-	-	\$6.69	-	-	-	-	-	-
TNMG 332-ZX2	-	-	-	-	-	-	-	-	-	\$6.69	-	-	-	-	-	-
TNMG 431-ZX2	-	-	-	-	-	-	-	-	-	\$12.78	-	-	-	-	-	-
TNMG 432-ZX2	-	-	-	-	-	-	-	-	-	\$12.78	-	-	-	-	-	-
TNMA 332	-	-	-	-	-	-	\$7.36	-	-	-	-	-	-	-	-	-
TNMA 432	-	-	-	-	-	-	\$10.84	-	-	-	-	-	-	-	-	-
TNMA 543	-	-	-	-	-	-	\$19.14	-	-	-	-	-	-	-	-	-

Inserts sold in packs of 10



DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
VNMG 332-CM2	-	-	-	\$12.35	-	-	-	-	-	-	-	-	-	-	-	-
VNMG 332-CS1	-	-	-	-	\$12.35	-	-	-	-	-	-	-	-	-	-	-
VNMG 331-CX1	\$12.35	\$12.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VNMG 332-CX1	\$12.35	\$12.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VNMG 432-LX3	-	-	-	-	-	-	-	\$12.08	\$13.27	\$11.30	\$14.15	-	-	-	-	-
VNMG 331-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$10.43	-	-	-
VNMG 332-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$10.43	-	-	-
VNMG 331-ZX2	-	-	-	-	-	-	-	\$10.43	\$10.43	\$10.43	-	-	-	-	-	-
VNMG 332-ZX2	-	-	-	-	-	-	-	\$10.43	\$10.43	\$10.43	-	-	-	-	-	-
VNMA 332	-	-	-	-	-	-	\$14.40	-	-	-	-	-	-	-	-	-

Inserts sold in packs of 10



DESIGNATION	GRADE															
	HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
WNMG 432-CM2	-	-	-	\$9.96	-	-	-	-	-	-	-	-	-	-	-	-
WNMG 432-CS1	-	-	-	-	\$9.96	-	-	-	-	-	-	-	-	-	-	-
WNMG 331-CX1	\$8.50	\$8.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WNMG 332-CX1	\$8.50	\$8.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WNMG 431-CX1	\$9.96	\$9.96	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WNMG 432-CX1	\$9.96	\$9.96	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WNMG 331-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$5.99	-	-	-
WNMG 332-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$5.99	-	-	-
WNMG 431-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$7.74	-	-	-
WNMG 432-ZM1	-	-	-	-	-	-	-	-	-	-	-	-	\$7.74	-	-	-
WNMG 331-ZP1	-	-	-	-	-	-	-	\$7.08	\$8.95	-	-	-	-	-	-	-
WNMG 332-ZP1	-	-	-	-	-	-	-	\$5.99	\$5.99	-	-	-	-	-	-	-
WNMG 431-ZP1	-	-	-	-	-	-	-	\$7.74	\$7.74	-	-	-	-	-	-	-
WNMG 432-ZP1	-	-	-	-	-	-	-	\$7.74	\$7.74	-	-	-	-	-	-	-
WNMG 331-ZX2	-	-	-	-	-	-	-	-	-	\$8.61	-	-	-	-	-	-
WNMG 332-ZX2	-	-	-	-	-	-	-	-	-	\$5.99	-	-	-	-	-	-
WNMG 431-ZX2	-	-	-	-	-	-	-	-	-	\$7.74	-	\$7.74	-	-	-	-
WNMG 432-ZX2	-	-	-	-	-	-	-	-	-	\$7.74	-	\$7.74	-	-	-	-
WNMA 432	-	-	-	-	-	-	\$9.54	-	-	-	-	-	-	-	-	-

Inserts sold in packs of 10



SP2

Designation	UD51
WPGT 1.510-SP2	\$7.97
WPGT 1.510.5-SP2	\$7.97
WPGT 1.511-SP2	\$10.01
WPGT 21.50-SP2	\$7.90
WPGT 21.50.5-SP2	\$7.63
WPGT 21.51-SP2	\$10.01
WPMT 32.51-SP2	\$15.57
WPMT 32.52-SP2	\$15.57

Inserts sold in packs of 10

Series Style



SP1



Flat Top



SX1

Designation	UD51	UD25
TDHB 1.280.750.1	\$10.41	\$11.64
TDHB 1.280.750.5	\$12.42	\$10.73
TDHB 1.280.751	\$10.86	\$11.32
TPCB 220.5	\$10.01	\$10.73
TPCB 221	\$11.64	\$10.73
TPCB 222	\$10.01	\$11.20
TPCH 220.5-SP1	\$11.42	-
TPCH 221-SP1	\$11.26	-
TD 320.5	\$13.15	-
TD 321	\$13.13	-
TD 322	\$13.13	-
TPGH 321-SX1	\$16.75	\$14.12
TPGH 322-SX1	\$14.12	\$13.51

Inserts sold in packs of 10



Designation	UD5CBN	UD2CBN	UD2PCD
CCGW 21.51-1	\$42.41	\$42.41	\$60.40
CCGW 21.52-1	\$42.41	\$42.41	\$60.40
CCGW 32.51-2	\$64.41	\$64.41	\$62.62
CCGW 32.52-2	\$64.41	\$64.41	\$62.62
CNGA 431-2	\$64.41	\$64.41	-
CNGA 432-2	\$64.41	\$64.41	-
DCGW 21.51-1	\$42.41	\$42.41	\$61.30
DCGW 32.51-2	\$64.41	\$64.41	-
DCGW 32.52-2	\$64.41	\$64.41	-
DNGA 431-2	\$64.41	\$64.41	-
DNGA 432-2	\$64.41	\$64.41	-

Inserts sold individually



Designation	UD2PCD
CCGT 21.51-CB-1 *	\$90.48
CCGT 21.52-CB-1 *	\$90.48
CCGT 32.51-CB-1 *	\$92.40
CCGT 32.52-CB-1 *	\$100.10
DCGT 21.51-CB-1 *	\$94.33
DCGT 32.51-CB-1 *	\$100.10
DCGT 32.52-CB-1 *	\$111.71

Inserts sold individually



Designation	UD5CBN	UD2CBN	UD2PCD
TCGW 21.51-1	-	\$42.41	\$58.46
TCGW 21.52-1	\$42.41	\$42.41	\$58.46
TCGW 32.51-1	\$42.41	\$42.41	\$64.16
TCGW 32.52-1	\$42.41	\$42.41	\$64.16
TNGA 331-1	\$42.41	\$42.41	-
TNGA 332-1	\$42.41	\$42.41	-
VBGW 21.51-1	-	-	\$74.12
VBGW 21.52-1	-	-	\$74.12
VBGW 331-1	-	-	\$76.98
VBGW 332-1	-	-	\$88.38
VNGA 331-2	-	\$58.71	-
VNGA 332-2	\$58.71	\$58.71	-

Inserts sold individually



Designation	UD2PCD
TCGT 21.51-CB-1 *	\$94.33
TCGT 32.51-CB-1 *	\$98.18
TCGT 32.52-CB-1 *	\$109.73

Inserts sold individually



Designation	UD2PCD
VBGT 331-CB-1 *	\$132.83
VBGT 332-CB-1 *	\$146.30

Inserts sold individually

* Medium to Finish Machining

PATRIOT

High-Performance Drill Inserts

SEE PAGE 143
For All Available
Compatible Drills

New!

SEE PAGE 144
For Speeds and Feeds



PD1



Designation	HP600	HK356
PD1 042004	\$8.57	\$8.57
PD1 052804	\$8.57	\$8.57
PD1 063306	\$8.68	\$8.68
PD1 074006	\$9.12	\$9.12
PD1 094508	\$10.28	\$10.28
PD1 125812	\$11.79	\$11.79
PD1 156812	\$12.86	\$12.86

Inserts sold in packs of 10

Drilling (ISO Standard)



Designation	UD51	UD52	UD2	UD21	UD32
WCMX 1.81.52	\$7.52	\$9.22	\$7.52	\$9.22	\$8.34
WCMX 21.52	\$7.52	\$9.22	\$7.52	\$9.22	\$8.34
WCMX 2.522	\$7.52	\$9.22	\$7.52	\$9.22	\$8.34
WCMX 32.52	\$8.18	\$9.88	\$8.18	\$9.88	\$9.10
WCMX 433	\$8.18	\$10.21	\$8.18	\$10.21	\$9.10

Inserts sold in packs of 10



Hardware
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ULTRA-DEX

Ultra-Dex USA 199



PATRIOT

F

INSERTS



SEE PAGES 128-131

For all Available
Compatible Mills

High-Performance MILLING Inserts

New!



HCX



SCX

Designation	HP470	HM470	HS470	HS480	HK430	HN432
PM1 1205-HCX	\$19.32	-	-	-	-	-
PM1 1205-SCX	-	\$19.32	\$26.70	-	\$19.32	-

Inserts sold in packs of 10



HCX



SCX



CCX



LCX

Designation	HP470	HM470	HS470	HS480	HK430	HN432
PM2 09T308-HCX	\$11.10	-	-	-	-	-
PM2 09T308-SCX	-	\$11.10	\$17.94	\$17.94	-	-
PM2 09T308-CCX	-	-	-	-	\$11.10	-
PM2 09T308-LCX	-	-	-	-	-	\$13.52

Inserts sold in packs of 10



HCX



SCX

Designation	HP470	HM470	HS470	HS480	HK430	HN432
PM3 10T308-HCX	\$11.52	-	-	-	\$11.52	-
PM3 10T308-SCX	-	\$11.52	\$14.40	\$15.50	-	-

Inserts sold in packs of 10



HCX



SCX



LCX

Designation	HP470	HM470	HS470	HS480	HK430	HN432
PM4 0604-HCX	\$13.52	-	-	-	\$13.52	-
PM4 0604-SCX	-	\$13.52	\$16.93	-	-	-
PM4 0604-LCX	-	-	-	-	-	\$18.30

Inserts sold in packs of 10

	SFM	PM1		PM2		PM3		PM4	
		Inch/Rev	Ap (Inch)	Inch/Rev	Ap (Inch)	Inch/Rev	Ap (Inch)	Inch/Rev	Ap (Inch)
STEEL	200-720	.004-.020	.007-.236	.002-.010	.004-.157	.004-.020	.003-.031	.004-.015	.011-.150
STAINLESS STEEL	200-650	.003-.016	.007-.236	.002-.010	.004-.157	.004-.020	.003-.031	.004-.010	.011-.150
CAST IRON	350-1050	.003-.017	.007-.236	.002-.010	.004-.157	-	-	.003-.012	.011-.150
NON FERROUS	<6500	-	-	.002-.011	.004-.157	-	-	.004-.015	.011-.150
HEAT RESISTANT	80-250	.003-.010	.007-.236	.002-.006	.004-.157	.004-.020	.003-.031	.002-.005	.007-.150
TITANIUM	80-250	-	.007-.236	.002-.006	.004-.157	.004-.020	.003-.031	-	-



Milling (ISO Standard)



Designation	UD1	UD404	UD602
RDKW 0803	-	\$5.60	\$5.60
RCKT 10T3	\$5.38	\$5.38	\$5.38
RCKT 1204	\$6.42	\$6.42	\$6.42
RCKT 1606	-	\$9.27	\$9.27

Inserts sold in packs of 10



Designation	UD51	UD52	UD2	UD21	UD22
RCMT 21.5	\$7.96	\$9.17	\$6.54	\$8.67	\$7.35
RCMT 32.5	\$8.78	\$10.48	\$8.34	\$7.35	\$9.66
RCMT 43	\$10.31	\$12.23	\$8.45	\$11.35	\$9.88

Inserts sold in packs of 10



Designation	Radius	UD1	UD204	UD404	UD602
APKT 11T304-PF	.015	-	\$8.51	\$8.51	\$8.51
APKT 11T308-PF	.031	-	\$8.51	\$8.51	-
APKT 11T316-PF	.062	-	\$8.51	\$8.51	-
APKT 160408-PF	.031	-	-	\$10.15	\$10.15
APKT 11T304-PM	.015	-	\$8.51	\$8.51	\$8.51
APKT 11T308-PM	.031	-	\$8.51	\$8.51	\$8.51
APKT 11T312-PM	.046	-	-	\$8.51	-
APKT 11T316-PM	.062	-	\$8.51	\$8.51	-
APKT 160408-PM	.031	-	\$10.15	\$10.15	\$10.15
APKT 11T304-PR	.015	-	\$8.51	\$8.51	\$8.51
APKT 11T304-AL	.015	\$8.51	-	-	-
APKT 11T308-AL	.031	\$8.51	-	-	-
APKT 160408-AL	.031	\$10.15	-	-	-

Finish

Semi-Rough

Rough

Aluminum

Inserts sold in packs of 10

APKT 11T308



Depth of cut	Feed Per Tooth (inch)			
	AP (inch)	Light	Medium	Heavy
↑	.315	.0028	.0031	.0039
	.236	.0039	.0047	.0059
	.157	.0047	.0059	.0079

f/t

APKT 160408



Depth of cut	Feed Per Tooth (inch)			
	AP (inch)	Light	Medium	Heavy
↑	.472	.0028	.0031	.0039
	.315	.0039	.0047	.0059
	.197	.0047	.0059	.0079

f/t

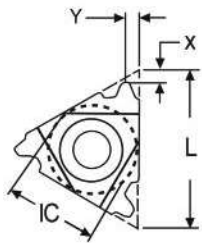


Hardware
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ULTRA-DEX

ULTRADEXUSA.com 201

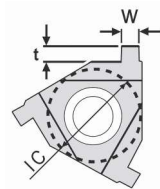
INSERTS



American Acme

Designation		I.C.	L	Pitch (tpi)	h (min)	X	Y	Anvil Right	Anvil Left	Price
Right Hand	Left Hand									
3IR16ACME	3IL16ACME	3/8"	.630	16	.036	.040	.040	YI3	YE3	\$15.04
3IR14ACME	3IL14ACME	3/8"	.630	14	.041	.040	.050	YI3	YE3	\$15.04
3IR12ACME	3IL12ACME	3/8"	.630	12	.047	.050	.050	YI3	YE3	\$15.04
3IR10ACME	3IL10ACME	3/8"	.630	10	.060	.050	.050	YI3	YE3	\$15.04
3IR8ACME	3IL8ACME	3/8"	.630	8	.072	.060	.060	YI3	YE3	\$15.04

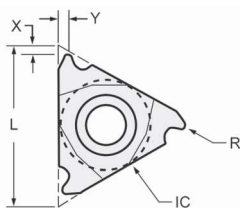
Inserts sold in packs of 10



Grooving

Designation		I.C.	W	t	Anvil Right	Price
Right Hand	Left Hand					
3IR NG W.031		3/8"	.031	.050	YI3M-1.5N	\$15.04
3IR NG W.047		3/8"	.047	.070	YI3M-1.5N	\$15.04
3IR NG W.062		3/8"	.062	.080	YI3M-1.5N	\$15.04
3IR NG W.093		3/8"	.093	.070	YI3	\$15.04

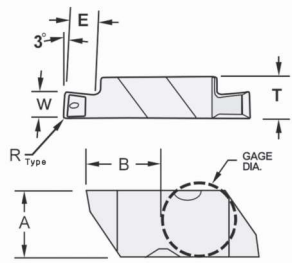
Inserts sold in packs of 10



Partial Profile 60°

Designation		I.C.	L	Pitch (mm)	Pitch (tpi)	r	X	Y	Anvil Right	Anvil Left	Price
Right Hand	Left Hand										
2JIRA60	2JILA60	1/4"	.630	.7-1.5	36-18	.004	.040	.045	YI3	YE3	\$10.15
2JIR12UN	2JIL12UN	1/4"	.630	1.0-2.0	28-12	.004	.030	.035	YI3	YE3	\$10.15
3IRA60	3ILA60	3/8"	.630	.05-1.5	48-16	.002	.030	.040	YI3	YE3	\$13.71
3IRG60	3ILG60	3/8"	.630	1.75-3.0	14-8	.006	.050	.070	YI3	YE3	\$13.71
3IRAG60	3ILAG60	3/8"	.630	.05-3.0	48-8	.002	.050	.070	YI3	YE3	\$13.71
3JIRA60	-	3/8" SCB	.630	.05-1.5	48-16	.002	.020	.030	YI3	-	\$13.71
3JIRG60	-	3/8" SCB	.630	1.75-3.0	14-8	.006	.040	.060	YI3	-	\$13.71
3JIRAG60	-	3/8" SCB	.630	.05-3.0	48-8	.002	.040	.060	YI3	-	\$13.71

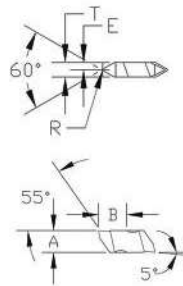
Inserts sold in packs of 10



Top Notch Grooving

Designation		A	B	E	R	T	W	Price
Right Hand	Left Hand							
NG-2R W.031	NG-2L W.031	.219	.270	.050	.002 / .005	.150	.031	\$23.05
NG-2R W.062	NG-2L W.062	.219	.270	.110	.005 / .010	.150	.062	\$23.05
NG-2R W.094	NG-2L W.094	.219	.270	.110	.005 / .010	.150	.094	\$23.05
NG-3R W.062	NG-3L W.062	.344	.405	.120	.005 / .010	.195	.062	\$23.05
NG-3R W.094	NG-3L W.094	.344	.405	.180	.005 / .010	.195	.094	\$23.05
NG-3R W.125	NG-3L W.125	.344	.405	.180	.005 / .010	.195	.125	\$23.05
NG-4R W.125	NG-4L W.125	.453	.636	.250	.005 / .010	.255	.125	\$33.31
NG-4R W.189	NG-4L W.189	.453	.636	.250	.020 / .025	.255	.189	\$33.31
NG-4R W.250	NG-4L W.250	.453	.636	.250	.020 / .025	.255	.250	\$33.31
NG-6R W.281	NG-6L W.281	.453	.636	.250	.030 / .035	.383	.281	\$36.76
NG-6R W.375	NG-6L W.375	.453	.636	.250	.030 / .035	.383	.375	\$36.76

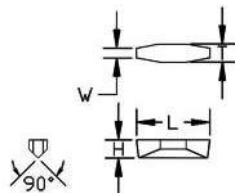
Inserts sold individually



Top Notch Threading

Designation		A	B	E	R	T	Ext. TPI	Int. TPI	Price
Right Hand	Left Hand								
NTP-2R	NTP-2L	.219	.266	.075	.003/.005	.150	8-36	1-20	\$19.92
NTP-3R	NTP-3L	.344	.400	.098	.005/.008	.195	6-20	5-12	\$20.79
NTP-4R	NTP-4L	.453	.629	.128	.005/.008	.255	4-20	4-12	\$26.78

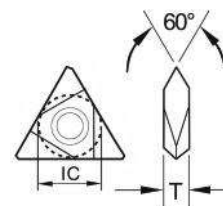
Inserts sold individually



V-Bottom

Designation	T	L	Radius	TPI	Price
Right Hand					
V84-NV	.250	1.000	.006/.008	5-20	\$22.83
V84-NV-.010R	.250	1.000	.010	4-20	\$24.59
V84-NV-.020R	.250	1.000	.020	4-12	\$24.59
V84-NV-.025R	.250	1.000	.025	4-8	\$24.59
V84-NV-.038R	.250	1.000	.038	4-6	\$24.59
V85-NV	.312	1.000	.006/.008	5-20	\$24.59

Inserts sold individually



On Edge

Designation	I.C.	T	Radius	TPI	Price
Right Hand					
TNMA-43NV	.500	.187	.003/.005	5-24	\$21.84
TNMA-43NV .010	.500	.187	.001	4-20	\$24.24
TNMC-43NV	.500	.187	.003/.005	5-24	\$21.84
TNMC-43NV .010	.500	.187	.001	4-20	\$24.24

Inserts sold individually



Hardware
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Boring Bars

Shim Seat	Price Each	Insert Screws	Price Each	Key	Price Each	Clamp	Price Each	Lock Pin	Price Each	Clamp Screw	Price Each		
ICSN-433	\$4.34	MTS-182	\$2.36	T-6	\$3.13	CL-6	\$3.95	NL-33	\$2.19	XNS-36	\$1.65		
ICSN-533	\$5.32	MTS-183	\$2.36	T-7	\$2.86	CL-7	\$3.95	NL-33L	\$2.19	XNS-47	\$1.65		
ICSN-633	\$6.14	MTS-184	\$2.36	T-10	\$4.83	CL-9	\$3.95	NL-34	\$2.19	XNS-48	\$1.65		
ISSN-432	\$4.28	MTS-2	\$2.14	T-15	\$2.86	CL-12	\$3.95	NL-34L	\$2.19	XNS-510	\$1.65		
ISSN-433	\$4.28	MTS-224	\$2.36	T-20	\$2.91	CL-19	\$4.94	NL-44	\$2.19	XNS-58	\$1.65		
ISSN-533	\$5.05	MTS-255	\$2.36	sold in QTY 5		CL-20	\$3.95	NL-46	\$2.03	XNS-59	\$1.65		
ISSN-633	\$5.99	MTS-35	\$2.36			CL-21	\$9.18	NL-56	\$2.47	sold in QTY 5			
IDSN-322	\$3.45	MTS-2.5L	\$2.14	sold in QTY 5		CL-22	\$9.66	NL-58	\$2.19				
IDSN-433	\$3.95	ETS 4-40	\$2.36			CL-30	\$6.97	NL-68	\$2.47	sold in QTY 5			
IDSN-533	\$5.99	sold in QTY 5		CL-84	\$21.89	NL-68L	\$4.88						
ITSN-323	\$3.01	MTS-3.5L	\$6.36	sold in QTY 1		CL-85	\$21.89						
ITSN-433	\$4.88	MTS-4	\$7.47										
ITSN-533	\$6.26	MTS-526	\$8.56										
ITSN-636	\$8.51	sold in QTY 1											
IVSN-322	\$3.51												
IVSN-432	\$4.66												
IVSN-433	\$4.66												
IWSN-322	\$3.95												
IWSN-433	\$5.38												
IRSN-32	\$3.84												
IRSN-43	\$3.45												
IRSN-53	\$5.54												
IRSN-63	\$6.26												
sold in QTY 10													

Laydown Threaders

Anvil Screw	Price Each	Insert Screw	Price Each
SY3T	\$1.75	SA3T	\$2.52
SY4T	\$2.19	SA4T	\$3.45
SY5T	\$3.51	SA5T	\$6.04
sold in QTY 5		sold in QTY 5	

Top Notch

Anvil	Price Each	Clamp	Price Each
YI3	\$15.53	CM-72	\$9.22
YE3	\$15.53	CM-73	\$9.22
YI4	\$26.17	CM-74	\$14.65
YI3M-1.5N	\$25.45	CM-75	\$14.65
YE4	\$26.17	CM-120	\$12.35
YI5	\$42.36	CM-121	\$12.35
YE5	\$42.36	CM-146	\$38.13
sold in QTY 1		CM-147	\$38.13
		sold in QTY 1	

Pullback

Shim Screw	Price Each	Clamp Screw	Price Each
PB3-SS	\$2.30	6-32	\$0.49
PB4-SS	\$2.30	10-32	\$0.49
		MTS-526	\$8.56
		sold in QTY 5	
Clamp Assy.	Price Each		
PB3-CA	\$15.35		
PB4-CA	\$16.44		
		sold in QTY 1	

Chatter-Free

Head Bolts	Price Each
8-32 HB	\$1.65
10-24 HB	\$1.65
1/4-20 HB	\$1.92
5/16-18 HB	\$2.19
sold in QTY 1	

Modular

Set Screws	Price Each
MH12S	\$1.26
MH16S	\$1.54
MH20S	\$1.84
MH24S	\$2.12
MH28S	\$2.40
MH32S	\$2.69
sold in QTY 2	

Drilling

Wrench	Price Each
T-6-S	\$3.95
T-7-S	\$3.79
T-8-S	\$3.95
T-9-S	\$4.49
T-10-S	\$4.49
T-15-S	\$4.49
T-25-S	\$8.01
sold in QTY 1	

Insert Screw	Price Each
MTS-184	\$2.36
MTS-2	\$2.14
MTS-255	\$2.36
MTS 25-DR	\$2.14
MTS 3-DR	\$2.14
MTS 35-DR	\$2.52
MTS 4-DR	\$2.14
sold in QTY 5	

Insert Screw	Price Each
PD1-16	\$4.45
PD1-2	\$4.05
PD1-22	\$4.05
PD1-25	\$4.05
PD1-35	\$4.05
PD1-5	\$4.75
PD1-6	\$6.75
sold in QTY 5	