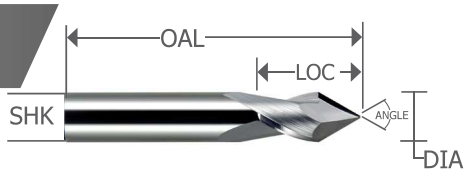
General Purpose Cobalt & HSS End Mills

2 Flute • 60° and 82° Drill Point End Mill



HSSCo M42 | 2 | 30° | BRIGHT | +.0015 -.0000 | Drill Pt. | HRc <48 | P K M S N

Series: A-__-DP60

DIA	SHK	LOC	OAL	ANGLE	LENGTH	MAT	TOOL	BRIGHT EDP
1/8	3/8	3/8	2-5/16	60°	std	M42	**A-1204-DP60**	16335
3/16	3/8	7/16	2-5/16	60°	std	M42	**A-1206-DP60**	16337
1/4	3/8	5/8	2-7/16	60°	std	M42	**A-1208-DP60**	16037
1/4	3/8	5/8	2-7/16	60°	std	M42	**A-1208-DP60-1**	16324
5/16	3/8	23/32	2-15/32	60°	std	M42	**A-1210-DP60**	16038
3/8	3/8	3/4	2-1/2	60°	std	M42	**A-1212-DP60**	16039
3/8	3/8	3/4	2-1/2	60°	std	M42	**A-1212-DP60-1**	16327
1/2	1/2	1-1/4	3-1/4	60°	std	M42	**A-1616-DP60**	16041
1/2	1/2	1-1/4	3-1/4	60°	std	M42	**A-1616-DP60-1**	16329
5/8	5/8	1-5/8	3-3/4	60°	std	M42	**A-2020-DP60**	16042
3/4	3/4	1-11/16	3-15/16	60°	std	M42	**A-2424-DP60**	16044
3/4	3/4	1-11/16	3-15/16	60°	std	M42	**A-2424-DP60-1**	16331
7/8	3/4	1-15/16	4-3/16	60°	std	M42	**A-2428-DP60**	16045
1	3/4	2	4-1/4	60°	std	M42	**A-2432-DP60**	16047

Tool names with "-1" have a .005" sharp point for groove milling

Series: A-__-DP82

DIA	SHK	LOC	OAL	ANGLE	LENGTH	MAT	TOOL	BRIGHT EDP
1/8	3/8	3/8	2-5/16	82°	std	M42	**A-1204-DP82**	16440
3/16	3/8	7/16	2-5/16	82°	std	M42	**A-1206-DP82**	16441
1/4	3/8	5/8	2-7/16	82°	std	M42	**A-1208-DP82**	16442
5/16	3/8	23/32	2-15/32	82°	std	M42	**A-1210-DP82**	16443
3/8	3/8	3/4	2-1/2	82°	std	M42	**A-1212-DP82**	16444
1/2	1/2	1-1/4	3-1/4	82°	std	M42	**A-1616-DP82**	16446
9/16	1/2	1-13/32	3-13/32	82°	std	M42	**A-1618-DP82**	16447
5/8	5/8	1-5/8	3-3/4	82°	std	M42	**A-2020-DP82**	16448

sizes continued on next page

General Purpose Cobalt & HSS End Mills

2 Flute • 90°, 100° & 120° Drill Point End Mill

HSSCo M42 | 2 | 30° | BRIGHT | +.0015 -.0000 | Drill Pt. | HRc <48 | P K M S N

Series: A-__-DP

DIA	SHK	LOC	OAL	ANGLE	LENGTH	MAT	TOOL	BRIGHT EDP
1/8	3/8	3/8	2-5/16	90°	std	M42	**A-1204-DP**	16334
1/8	3/8	3/8	2-5/16	90°	std	M42	**A-1204-DP-1**	16710
3/16	3/8	7/16	2-5/16	90°	std	M42	**A-1206-DP**	16336
3/16	3/8	7/16	2-5/16	90°	std	M42	**A-1206-DP-1**	16452
1/4	3/8	5/8	2-7/16	90°	std	M42	**A-1208-DP**	15434
1/4	3/8	5/8	2-7/16	90°	std	M42	**A-1208-DP-1**	16323
5/16	3/8	23/32	2-15/32	90°	std	M42	**A-1210-DP**	15436
5/16	3/8	23/32	2-15/32	90°	std	M42	**A-1210-DP-1**	16325
3/8	3/8	3/4	2-1/2	90°	std	M42	**A-1212-DP**	15438
3/8	3/8	3/4	2-1/2	90°	std	M42	**A-1212-DP-1**	16326
7/16	3/8	1-1/32	2-23/32	90°	std	M42	**A-1214-DP**	15440
7/16	3/8	1-1/32	2-23/32	90°	std	M42	**A-1214-DP-1**	16449
1/2	1/2	1-1/4	3-1/4	90°	std	M42	**A-1616-DP**	15442
1/2	1/2	1-1/4	3-1/4	90°	std	M42	**A-1616-DP-1**	16328
9/16	1/2	1-13/32	3-13/32	90°	std	M42	**A-1618-DP**	15444
9/16	1/2	1-13/32	3-13/32	90°	std	M42	**A-1618-DP-1**	16450
5/8	5/8	1-5/8	3-3/4	90°	std	M42	**A-2020-DP**	15446
5/8	5/8	1-5/8	3-3/4	90°	std	M42	**A-2020-DP-1**	16451
11/16	5/8	1-21/32	3-25/32	90°	std	M42	**A-2022-DP**	15448
3/4	3/4	1-11/16	3-15/16	90°	std	M42	**A-2424-DP**	15450
3/4	3/4	1-11/16	3-15/16	90°	std	M42	**A-2424-DP-1**	16330
13/16	3/4	1-29/32	4-5/32	90°	std	M42	**A-2426-DP**	15452
7/8	3/4	1-15/16	4-3/16	90°	std	M42	**A-2428-DP**	15454
15/16	3/4	1-31/32	4-7/32	90°	std	M42	**A-2430-DP**	15456
1	3/4	2	4-1/4	90°	std	M42	**A-2432-DP**	15458
1	3/4	2	4-1/4	90°	std	M42	**A-2432-DP-1**	16332

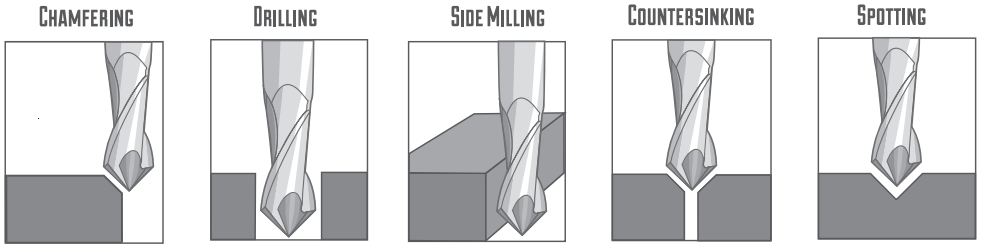
Tool names with "-1" have a .005" sharp point for groove milling

Series: A-__-DP100

DIA	SHK	LOC	OAL	ANGLE	LENGTH	MAT	TOOL	BRIGHT EDP
1/4	3/8	5/8	2-7/16	100°	std	M42	**A-1208-DP100**	16596
3/8	3/8	3/4	2-1/2	100°	std	M42	**A-1212-DP100**	16597

Series: A-__-DP120

DIA	SHK	LOC	OAL	ANGLE	LENGTH	MAT	TOOL	BRIGHT EDP
1/2	1/2	1-1/4	3-1/4	120°	std	M42	**A-1616-DP120**	16040
3/4	3/4	1-11/16	3-15/16	120°	std	M42	**A-2424-DP120**	16043
1	3/4	2	4-1/4	120°	std	M42	**A-2432-DP120**	16046



Cobalt & HSS End Mills

MATERIAL	HEAT-RESISTANT COBALT BASE ALLOYS, HIGH TENSILE STEELS (50-55 C)		HEAT-RESISTANT AUSTENITIC ALLOYS, HIGH TENSILE STEELS (46-50 C)		HEAT-RESISTANT NICKEL BASE ALLOYS, HIGH STRENGTH STAINLESS STEELS, HIGH STRENGTH TITANIUM ALLOYS		HIGH STRENGTH STAINLESS STEELS, HIGH TENSILE STEELS (40-60 C) MEDIUM STRENGTH TITANIUM ALLOYS		HEAT RESISTANT FERRITIC BASE ALLOYS MEDIUM STRENGTH STAINLESS STEELS UNALLOYED TITANIUM TOOL STEELS (30-40 C)		MACHINE STEEL, HARD BRASS AND BRONZE, ELECTROLYTIC COPPER MILD STEEL FORGINGS (20-30 C)		CAST IRON, MILD STEEL, HALF-HARD BRASS AND BRONZE		BRASS, BRONZE, ALLOYED ALUMINUM, ABRASIVE PLASTICS		ALUMINUM, PLASTICS, WOOD	
	SPEED 5-10 SFM	FEED	SPEED 10-15 SFM	FEED	SPEED 15-20 SFM	FEED	SPEED 20-40 SFM	FEED	SPEED 40-60 SFM	FEED	SPEED 60-80 SFM	FEED	SPEED 80-100 SFM	FEED	SPEED 100-200 SFM	FEED	SPEED 200-600 SFM	FEED
DIA. OF END MILLS	RPM	CHIP LOAD PER TOOTH	RPM	CHIP LOAD PER TOOTH	RPM	CHIP LOAD PER TOOTH	RPM	CHIP LOAD PER TOOTH	RPM	CHIP LOAD PER TOOTH	RPM	CHIP LOAD PER TOOTH	RPM	CHIP LOAD PER TOOTH	RPM	CHIP LOAD PER TOOTH	RPM	CHIP LOAD PER TOOTH
1/16	-	-	-	-	-	-	1222-2444	.0002-.0005	2444-3667	.0002 -.0005	3667-4888	.0002 -.0005	4888-6111	.0002 -.0005	6111-12222	.0002 -.0005	12222 UP	.0002 -.0005
3/32	-	-	-	-	611-815	.0002 -.0005	815-1629	.0002-.0005	1629-2750	.0002 -.005	2750-3259	.0002 -.0005	3259-4073	.0002 -.0005	4073-8146	.0002 -.0005	8146 UP	.0002 -.0005
1/8	-	-	-	-	456-611	.0002 -.0005	611-1222	.0002-.0005	1222-1833	.0002 -.005	1833-2440	.0002 -.001	2440-3056	.0002 -.001	3056-6112	.0002 -.001	6112 UP	.0002 -.001
3/16	-	-	204-306	.0002 -.0005	306-407	.0002 -.0005	407-815	.0002-.0005	815-1222	.0002 -.005	1222-1625	.0002 -.001	1625-2037	.0002 -.001	2037-4074	.0002 -.001	4074-12222	.0002 -.001
1/4	76-153	.0002 -.001	153-230	.0002 -.001	229-306	.0002 -.001	306-611	.0002 -.001	611-917	.0002 -.001	917-1222	.0005 -.002	1222-1528	.0005 -.002	1528-3056	.0005 -.002	3056-9168	.0005 -.002
5/16	61-122	.0002 -.001	122-183	.0002 -.001	183-244	.0002 -.001	244-489	.0002 -.001	489-733	.0002 -.001	733-978	.0005 -.002	978-1222	.0005 -.002	1222-2444	.0005 -.002	2444-7332	.0005 -.002
3/8	51-102	.0002 -.001	102-153	.0002 -.001	153-203	.0002 -.001	203-407	.0005 -.002	406-611	.0005 -.002	611-815	.001 -.003	815-1019	.001 -.003	1019-2038	.0005 -.003	2038-6114	.0005 -.002
7/16	44-88	.0005 -.001	88-132	.0005 -.001	131-175	.0005 -.002	175-349	.0005 -.002	349-524	.0005 -.002	524-698	.001 -.003	698-873	.001 -.003	873-1746	.0005 -.003	1746-5238	.0005 -.002
1/2	38-76	.0005 -.001	76-115	.0005 -.001	115-153	.0005 -.002	153-306	.0005 -.003	306-458	.001 -.003	458-611	.001 -.003	611-764	.001 -.003	764-1528	.0005 -.003	1528-4584	.0005 -.002
9/16	34-68	.0005 -.002	68-104	.0005 -.002	104-136	.0005 -.002	136-272	.0005 -.003	272-412	.001 -.003	412-543	.001 -.004	543-678	.001 -.004	678-1356	.0005 -.004	1356-4071	.0005 -.003
5/8	31-61	.0005 -.002	61-92	.0005 -.002	92-122	.0005 -.002	122-244	.001 -.004	244-367	.001 -.004	367-489	.001 -.004	489-611	.001 -.004	611-1222	.0005 -.004	1222-3666	.0005 -.003
11/16	28-56	.0005 -.002	56-84	.0005 -.002	84-111	.0005 -.002	111-222	.001 -.004	222-337	.001 -.004	337-444	.001 -.004	444-555	.001 -.004	555-1110	.0005 -.004	1110-3330	.0005 -.003
3/4	26-51	.0005 -.002	51-76	.0005 -.002	76-102	.001 -.004	102-203	.001 -.004	203-306	.001 -.004	306-407	.001 -.004	407-509	.002 -.006	509-1018	.001 -.006	1018-3054	.001 -.004
13/16	24-47	.001 -.003	47-71	.001 -.003	71-94	.001 -.004	94-189	.001 -.004	189-284	.001 -.004	284-379	.002 -.006	379-469	.002 -.006	469-938	.001 -.006	938-2814	.001 -.004
7/8	22-44	.001 -.003	44-65	.001 -.003	65-87	.001 -.004	87-175	.001 -.004	175-262	.002 -.006	262-349	.002 -.006	349-436	.002 -.006	436-872	.001 -.006	872-2616	.001 -.004
15/16	20-40	.001 -.003	40-62	.001 -.003	62-81	.001 -.004	81-163	.001 -.004	163-246	.002 -.006	246-326	.002 -.006	326-407	.002 -.006	407-814	.001 -.006	514-2442	.001 -.004
1	19-38	.001 -.003	38-58	.001 -.003	58-76	.001 -.004	76-153	.002 -.006	153-229	.002 -.006	229-306	.002 -.006	306-382	.002 -.006	382-764	.002 UP	764-2292	.002 UP
1 1/8	34	.0015 -.004	34-51	.0015 -.004	51-68	.0015 -.005	68-136	.002 -.006	136-204	.002 -.006	204-272	.002 -.006	272-340	.003 UP	340-680	.002 UP	680-2040	.002 UP
1 1/4	31	.0015 -.004	31-46	.0015 -.004	46-61	.0015 -.005	61-122	.002 -.006	122-183	.002 -.006	183-244	.003 UP	244-306	.003 UP	306-612	.002 UP	612-1836	.002 UP
1 3/8	28	.0015 -.004	28-42	.0015 -.004	42-55	.0015 -.005	55-111	.002 -.006	111-167	.003 UP	167-222	.003 UP	222-278	.003 UP	278-556	.002 UP	556-1668	.002 UP
1 1/2	26	.0015 -.004	26-38	.0015 -.004	38-51	.002 UP	51-102	.003 UP	102-153	.003 UP	153-204	.003 UP	204-255	.003 UP	255-510	.003 UP	510-1530	.002 UP
1 5/8	24	.002 UP	35	.002 UP	35-47	.002 UP	47-94	.003 UP	94-141	.003 UP	141-188	.003 UP	188-235	.003 UP	235-470	.003 UP	470-1410	.002 UP
1 3/4	22	.002 UP	32	.002 UP	32-43	.002 UP	43-87	.003 UP	87-131	.003 UP	131-175	.003 UP	175-218	.003 UP	218-436	.003 UP	436-1308	.002 UP
1 7/8	20	.002 UP	30	.002 UP	30-40	.003 UP	40-81	.003 UP	81-122	.003 UP	122-163	.003 UP	163-204	.003 UP	204-408	.003 UP	408-1224	.003 UP
2	19	.002 UP	29	.003 UP	29-38	.003 UP	38-76	.003 UP	76-115	.003 UP	115-153	.003 UP	153-191	.003 UP	191-382	.003 UP	382-1146	.003 UP
2 1/8	18	.003 UP	28	.003 UP	36	.003 UP	36-72	.003 UP	72-108	.003 UP	108-144	.003 UP	144-179	.003 UP	179-358	.003 UP	358-1074	.003 UP
2 1/4	17	.003 UP	26	.003 UP	34	.003 UP	34-68	.003 UP	68-102	.003 UP	103-136	.003 UP	136-170	.003 UP	170-340	.003 UP	340-1020	.003 UP
2 3/8	16	.003 UP	25	.003 UP	32	.003 UP	32-64	.003 UP	64-97	.003 UP	97-128	.003 UP	128-161	.003 UP	161-322	.003 UP	322-966	.003 UP
2 1/2	15	.003 UP	23	.003 UP	30	.003 UP	30-61	.003 UP	61-92	.003 UP	92-122	.003 UP	122-153	.003 UP	153-306	.003 UP	306-918	.003 UP
2 5/8	15	.003 UP	22	.003 UP	29	.003 UP	29-58	.003 UP	58-88	.003 UP	88-116	.003 UP	116-145	.003 UP	145-290	.003 UP	290-870	.003 UP
2 3/4	14	.003 UP	21	.003 UP	28	.003 UP	28-56	.003 UP	56-83	.003 UP	83-111	.003 UP	111-139	.003 UP	139-278	.003 UP	278-834	.003 UP
2 7/8	14	.003 UP	20	.003 UP	27	.003 UP	27-53	.003 UP	53-80	.003 UP	80-106	.003 UP	106-132	.003 UP	132-264	.003 UP	264-792	.003 UP
3	13	.003 UP	19	.003 UP	26	.003 UP	26-51	.003 UP	51-76	.003 UP	76-102	.003 UP	102-127	.003 UP	127-154	.003 UP	254-762	.003 UP

All technical data provided are suggested starting points. They may be increased or decreased depending on machine condition, depth of cut, finish required, coolant, etc. Call our TECHNICAL SERVICE TEAM with questions.

Calculations

End mill speed & feed formulas are the various individual equations that determine the proper overall machining setup or more specifically the speed of the cutting tool and the rate which it is fed into the work piece. Each individual formula is distinct in what it determines but coordinates with the others to ensure successful cutting tool application. You can visit the TECHNICAL section on www.melintool.com for more information.

INCH

RPM = Revolutions Per Minute
3.82 x SFM / Tool Dia

SFM = Surface Foot Per Minute
.262 x RPM x Tool Dia

CPT or IPT = Chip-Load Per Tooth
IPM / RPM / No. Of Flutes

IPM = Inches Per Minute
CPT x RPM x No. Of Flutes

MRRCI = Metal Removal Rate Cubic Inches
IPM x Axial Doc x Radial Woc

IPR = Inches Per Revolution
IPM / RPM

METRIC

RPM = Revolutions Per Minute
1000 x M/MIN / (3.14 x D)

M/MIN = Meters Per Minute
(3.14 x D x RPM) / 1000

Fz OR CPT = Chip-Load Per Tooth
Feedrate (mm) per MIN / (Z x RPM)

VF OR FPM = Feedrate (mm) Per Minute
Feerate (mm) per Tooth x Z x RPM

D = Cutter Dia.
Z= No. Of Teeth.

EQUIVALENTS & CONVERSIONS:

ABBREVIATIONS	
RPM	Revolutions Per Minute
SFM	Surface Feet Per Minute
CPT	Chip Load Per Tooth
IPM	Inches Per Minute
V_f	Millimeters Per Minute
ae	Radial Width of Cut
ap	Axial Depth of Cut
Vc	Surface Meters Per Minute
Fz	Metric Chip Load Per Tooth

N, n or Min^{-1} = RPM
Vc or M/MIN = SFM
Fz or mm/TOOTH = CPT
V_f or mm/MIN = IPM

SFM / 3.281 = M/MIN
M/MIN x 3.281 = SFM
mm/MIN / 25.4 = IPM
mm/TOOTH /25.4 = CPT

IMPERIAL ⟷ METRIC

Inch x 25.4 = Millimeter
Millimeter x .03937 = Inch