



**CUTTING TOOL  
&  
TOOL HOLDER  
CATALOG**

featuring



**CUTTING TOOLS**





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\*HIGHLIGHTED / RED-DOT ITEMS ARE IN STOCK AT ROSEVILLE, MI DISTRIBUTION CENTER

## CARBIDE, 3 FLUTE 45° HELIX REGULAR LENGTH & CORNER RADIUS

- ▶ High velocity milling of aluminum & other non-ferrous materials.
- ▶ 3flute and 45° helix allow harmonic balance at high speed condition and smooth cutting.
- ▶ Improved surface roughness-cylindrical margin which is controlled tightly
- ▶ Maximum-metal removal rate.
- ▶ Superior chip evacuation.
- ▶ Mirror face-excellent surface finish.



◆ U.S.A Stock

### ■ SQUARE

Unit : Inch

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TICN COATED				
28558	28558TC	1/8	1/8	3/8	1-1/2
28565	28565TC	3/16	3/16	9/16	2
28573	28573TC	1/4	1/4	5/8	2-1/2
28579	28579TC	5/16	5/16	5/8	2-1/2
28584	28584TC	3/8	3/8	1	2-1/2
28588	28588TC	7/16	7/16	1-1/4	2-3/4
28593	28593TC	1/2	1/2	1-1/4	3
28595	28595TC	5/8	5/8	1-5/8	3-1/2
28598	28598TC	3/4	3/4	1-5/8	4
28600	28600TC	1	1	2	5

### ■ CORNER RADIUS

Unit : Inch

EDP No.		Corner Radius R	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TICN COATED					
EA50321	EA50321C	R.060	1/2	1/2	1-1/4	3
EA50401	EA50401C	R.060	5/8	5/8	1-5/8	3-1/2
EA50481	EA50481C	R.060	3/4	3/4	1-5/8	4
EA50641	EA50641C	R.065	1	1	2	5
EA20321	EA20321C	R.120	1/2	1/2	1-1/4	3
EA20401	EA20401C	R.120	5/8	5/8	1-5/8	3-1/2
EA20481	EA20481C	R.120	3/4	3/4	1-5/8	4
EA20641	EA20641C	R.120	1	1	2	5

Mill Dia. Tolerance (inch)	Shank Dia. Tolerance
0~-.0005	0~-.0003

◎ : Excellent ○ : Good

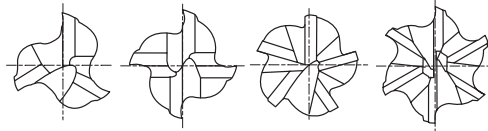
P				H	M	K	N				S		
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels	High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HRc20	HRc20~30	HRc30~40	HRc40~45 HRc45~55	HRc55~70								◎	





### CARBIDE, MULTI FLUTE 45° HELIX LONG LENGTH FINE PITCH ROUGHING

- ▶ Suitable for low hardness materials (under HRc45), alloy steels, tool steels, carbon steels, prehardened steels, stainless steel, titanium, inconel, nimonc, etc.
- ▶ High chip removed and minimizing breakages of cutting edges.
- ▶ Corner Protection against chipping.

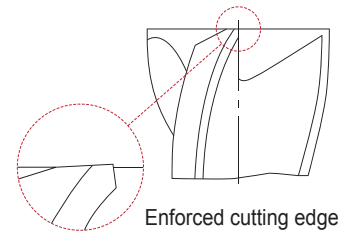


◆ U.S.A Stock

Unit : Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
95107	3/16	1/4	1/2	2-1/4	3
95108	1/4	1/4	3/4	2-1/2	4
95109	5/16	5/16	3/4	2-1/2	4
95110	3/8	3/8	7/8	2-1/2	4
95111	1/2	1/2	1	3	4
95112	5/8	5/8	1-1/4	3-1/2	5
95113	3/4	3/4	1-5/8	4	6
95114	1	1	1-3/4	4	6

Mill Dia. (inch)	Mill Dia. Tolerance(inch)	Shank Dia. Tolerance
3/16	0 ~ -.0019	0 ~ -.0003
1/4~3/8	0 ~ -.0022	
1/2~5/8	0 ~ -.0027	
3/4~1	0 ~ -.0033	



◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HRc20	HRc20~30	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
○	◎	◎	○			◎							◎	○

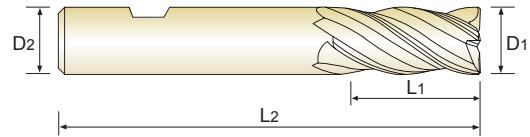
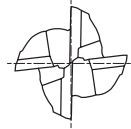


**ONLY ONE  
END MILLS**

**GYG66** SERIES

FLAT SHANK

**PM60, 4 FLUTE MULTIPLE HELIX (Center Cut)**



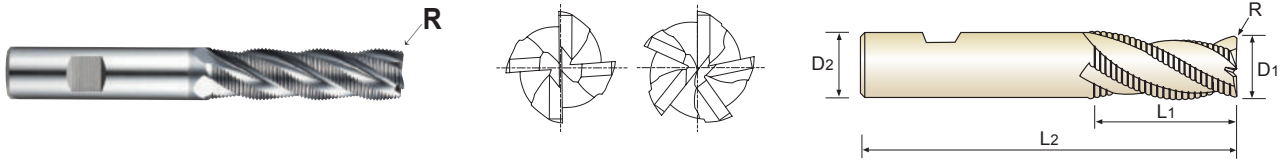
Unit : Inch

EDP No.	Mill Diameter	Shank Diameter	Length of Cut	Overall Length
Y-COATED	D1	D2	L1	L2
<b>GYG66008</b>	<b>1/8</b>	<b>3/8</b>	<b>3/8</b>	<b>2-5/16</b>
<b>GYG66012</b>	<b>3/16</b>	<b>3/8</b>	<b>1/2</b>	<b>2-3/8</b>
<b>GYG66016</b>	<b>1/4</b>	<b>3/8</b>	<b>5/8</b>	<b>2-7/16</b>
<b>GYG66020</b>	<b>5/16</b>	<b>3/8</b>	<b>3/4</b>	<b>2-1/2</b>
<b>GYG66024</b>	<b>3/8</b>	<b>3/8</b>	<b>3/4</b>	<b>2-1/2</b>
<b>GYG66032</b>	<b>1/2</b>	<b>1/2</b>	<b>1-1/4</b>	<b>3-1/4</b>
<b>GYG66040</b>	<b>5/8</b>	<b>5/8</b>	<b>1-5/8</b>	<b>3-3/4</b>
<b>GYG66048</b>	<b>3/4</b>	<b>3/4</b>	<b>1-5/8</b>	<b>3-7/8</b>
<b>GYG66064</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>4-1/2</b>

Mill Dia. Tolerance(inch)	Shank Dia. Tolerance
0 ~ -.0012	h6

◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HRc20	HRc20~30	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

**PM60, MULTI FLUTE MULTIPLE HELIX  
CORNER RADIUS ROUGHING - FINE (Center Cut)**


5 Flute, 44°/45°

Unit : Inch

EDP No.	Corner Radius	Mill Diameter	Shank Diameter	Length of Cut	Overall Length	No. of Flute
Y-COATED	R	D1	D2	L1	L2	
GYG69016	R.020	1/4	3/8	5/8	2-7/16	4
GYG69020	R.020	5/16	3/8	3/4	2-1/2	4
GYG69024	R.020	3/8	3/8	3/4	2-1/2	4
GYG69032	R.020	1/2	1/2	1-1/4	3-1/4	4
GYG69040	R.040	5/8	5/8	1-1/4	3-3/8	5
GYG69048	R.040	3/4	3/4	1-5/8	3-7/8	5
GYG69064	R.040	1	1	2	4-1/2	5

 Mill Dia.  
Tolerance(inch)

0 ~ +.0030

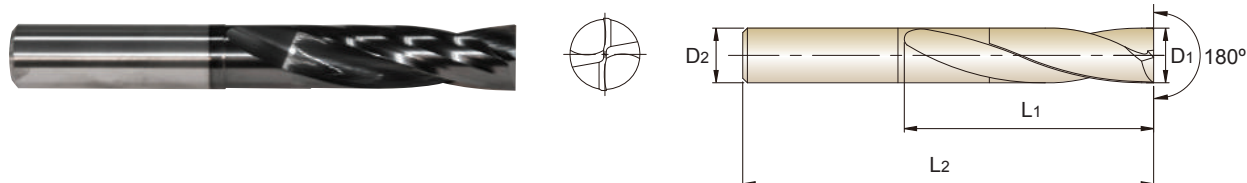
◎ : Excellent ○ : Good

P					H	M	K	N					S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		High Hardened Steels	Stainless Steels	Cast Iron	Copper	Graphite	Aluminum	Acrylic	CFRP	Titanium	High Temperature Alloy
~HRc20	HRc20~30	HRc30~40	HRc40~45	HRc45~55	HRc55~70									
◎	◎	○	○			◎	◎	○						

### CARBIDE, DREAM DRILLS - FLAT BOTTOM without COOLANT HOLES

SHORT

- ▶ Just ONE Drill 180 degree point angle enables drilling of horizontal surface and sloped surface
- ▶ Excellent chip evacuation by optimized flute shape
- ▶ High strength cutting edge to improve tool life and versatility drilling
- ▶ Variety of drilling can be used in a variety of drilling applications



2 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
X-Coating	D1			D2	L1	L2	X-Coating	D1			D2	L1	L2
DPP447030	3		.1181	6	16	50	DPP447051	5.1		.2008	6	24	60
DPP447031	3.1		.1220	6	16	50	DPP447052	5.2		.2047	6	24	60
DPP447008F	3.175	1/8	.1250	6	16	50	DPP447053	5.3		.2087	6	24	60
DPP447032	3.2		.1260	6	16	50	DPP447054	5.4		.2126	6	24	60
DPP447033	3.3		.1299	6	16	50	DPP447055	5.5		.2165	6	24	60
DPP447034	3.4		.1339	6	18	50	DPP447014F	5.556	7/32	.2188	6	24	60
DPP447035	3.5		.1378	6	18	50	DPP447056	5.6		.2205	6	24	60
DPP447036	3.6		.1417	6	18	50	DPP447057	5.7		.2244	6	26	60
DPP447037	3.7		.1457	6	18	50	DPP447058	5.8		.2283	6	26	60
DPP447038	3.8		.1496	6	18	50	DPP447059	5.9		.2323	6	26	60
DPP447039	3.9		.1535	6	18	50	DPP447060	6		.2362	6	26	60
DPP447010F	3.969	5/32	.1563	6	18	50	DPP447061	6.1		.2402	8	28	70
DPP447040	4		.1575	6	18	50	DPP447062	6.2		.2441	8	28	70
DPP447041	4.1		.1614	6	20	60	DPP447063	6.3		.2480	8	28	70
DPP447042	4.2		.1654	6	20	60	DPP447016F	6.35	1/4	.2500	8	30	70
DPP447043	4.3		.1693	6	20	60	DPP447064	6.4		.2520	8	30	70
DPP447044	4.4		.1732	6	20	60	DPP447065	6.5		.2559	8	30	70
DPP447045	4.5		.1772	6	22	60	DPP447066	6.6		.2598	8	30	70
DPP447046	4.6		.1811	6	22	60	DPP447067	6.7		.2638	8	30	70
DPP447047	4.7		.1850	6	22	60	DPP447068	6.8		.2677	8	30	70
DPP447012F	4.763	3/16	.1875	6	22	60	DPP447069	6.9		.2717	8	30	70
DPP447048	4.8		.1890	6	22	60	DPP447070	7		.2756	8	30	70
DPP447049	4.9		.1929	6	22	60	DPP447071	7.1		.2795	8	34	70
DPP447050	5		.1969	6	22	60	DPP447018F	7.144	9/32	.2812	8	34	70

▶ Other shank types are available on your request.

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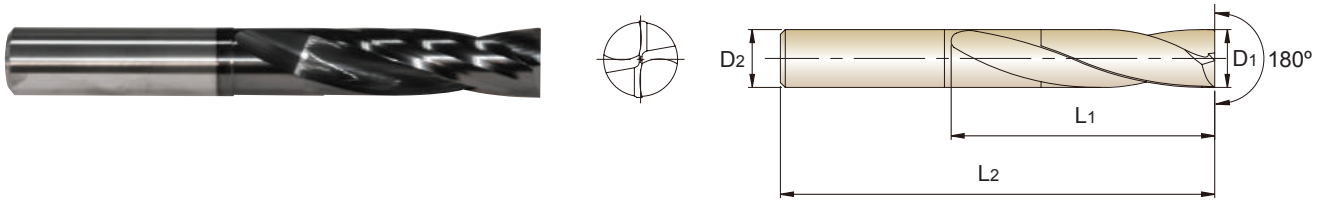
P				H		M	K	N			S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	◎	○		○	◎	○	○			

◎ : Excellent ○ : Good

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 without COOLANT HOLES

**SHORT**

- ▶ Just ONE Drill 180 degree point angle enables drilling of horizontal surface and sloped surface
- ▶ Excellent chip evacuation by optimized flute shape
- ▶ High strength cutting edge to improve tool life and versatility drilling
- ▶ Variety of drilling can be used in a variety of drilling applications



2 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter D2	Flute Length L1	Overall Length L2	EDP No.	Drill Diameter			Shank Diameter D2	Flute Length L1	Overall Length L2
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
X-Coating	D1			D2	L1	L2	X-Coating	D1			D2	L1	L2
DPP447072	7.2		.2835	8	34	70	DPP447093	9.3		.3661	10	42	80
DPP447073	7.3		.2874	8	34	70	DPP447094	9.4		.3701	10	42	80
DPP447074	7.4		.2913	8	34	70	DPP447095	9.5		.3740	10	42	80
DPP447075	7.5		.2953	8	34	70	<b>DPP447024F</b>	<b>9.525</b>	<b>3/8</b>	<b>.3750</b>	<b>10</b>	<b>42</b>	<b>80</b>
DPP447076	7.6		.2992	8	34	70	DPP447096	9.6		.3780	10	42	80
DPP447077	7.7		.3031	8	34	70	DPP447097	9.7		.3819	10	45	80
DPP447078	7.8		.3071	8	34	70	DPP447098	9.8		.3858	10	45	80
DPP447079	7.9		.3110	8	34	70	DPP447099	9.9		.3898	10	45	80
<b>DPP447020F</b>	<b>7.938</b>	<b>5/16</b>	<b>.3125</b>	<b>8</b>	<b>34</b>	<b>70</b>	<b>DPP447100</b>	<b>10</b>		<b>.3937</b>	<b>10</b>	<b>45</b>	<b>80</b>
<b>DPP447080</b>	<b>8</b>		<b>.3150</b>	<b>8</b>	<b>34</b>	<b>70</b>	DPP447101	10.1		.3976	12	46	90
<b>DPP447081</b>	<b>8.1</b>		<b>.3189</b>	<b>10</b>	<b>38</b>	<b>80</b>	DPP447102	10.2		.4016	12	46	90
DPP447082	8.2		.3228	10	38	80	DPP447103	10.3		.4055	12	46	90
DPP447083	8.3		.3268	10	38	80	<b>DPP447026F</b>	<b>10.319</b>	<b>13/32</b>	<b>.4062</b>	12	46	90
<b>DPP447021F</b>	<b>8.334</b>	<b>21/64</b>	<b>.3281</b>	10	38	80	DPP447104	10.4		.4094	12	48	90
DPP447084	8.4		.3307	10	38	80	DPP447105	10.5		.4134	12	48	90
DPP447085	8.5		.3346	10	38	80	DPP447106	10.6		.4173	12	48	90
DPP447086	8.6		.3386	10	38	80	DPP447107	10.7		.4212	12	48	90
DPP447087	8.7		.3425	10	40	80	DPP447108	10.8		.4252	12	48	90
DPP447088	8.8		.3465	10	40	80	DPP447109	10.9		.4291	12	48	90
DPP447089	8.9		.3504	10	40	80	DPP447110	11		.4330	12	48	90
DPP447090	9		.3543	10	40	80	DPP447111	11.1		.4370	12	50	90
DPP447091	9.1		.3583	10	42	80	<b>DPP447028F</b>	<b>11.113</b>	<b>7/16</b>	<b>.4375</b>	<b>12</b>	<b>50</b>	<b>90</b>
<b>DPP447023F</b>	<b>9.128</b>	<b>23/64</b>	<b>.3594</b>	10	42	80	DPP447112	11.2		.4409	12	50	90
DPP447092	9.2		.3622	10	42	80	DPP447113	11.3		.4448	12	50	90

▶ Other shank types are available on your request.

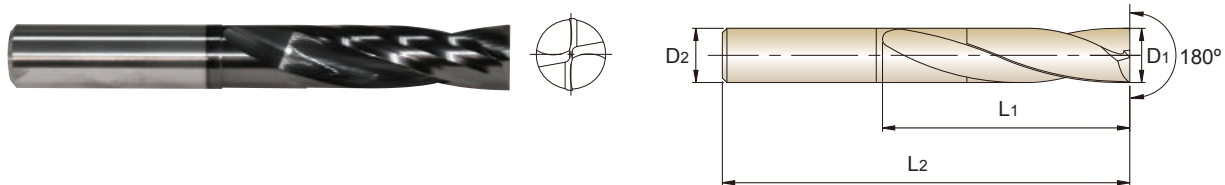
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◎ : Excellent ○ : Good

P		H		M	K	N				S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	◎	○		○	◎	○	○			

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**2 × D**

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
X-Coating	D1			D2	L1	L2	X-Coating	D1			D2	L1	L2
DPP447114	11.4		.4488	12	50	90	DPP447136	13.6		.5354	14	58	100
DPP447115	11.5		.4527	12	50	90	DPP447137	13.7		.5394	14	58	100
DPP447029F	11.509	29/64	.4531	12	50	90	DPP447138	13.8		.5433	14	58	100
DPP447116	11.6		.4566	12	50	90	DPP447139	13.9		.5472	14	58	100
DPP447117	11.7		.4606	12	52	90	DPP447140	14		.5512	14	58	100
DPP447118	11.8		.4645	12	52	90	DPP447141	14.1		.5551	16	62	105
DPP447119	11.9		.4685	12	52	90	DPP447142	14.2		.5591	16	62	105
DPP447030F	11.906	15/32	.4688	12	52	90	DPP447036F	14.288	9/16	.5625	16	62	105
DPP447120	12		.4724	12	52	90	DPP447143	14.3		.5630	16	62	105
DPP447121	12.1		.4764	14	54	100	DPP447144	14.4		.5669	16	62	105
DPP447122	12.2		.4803	14	54	100	DPP447145	14.5		.5709	16	62	105
DPP447123	12.3		.4843	14	54	100	DPP447146	14.6		.5748	16	62	105
DPP447124	12.4		.4882	14	54	100	DPP447147	14.7		.5787	16	62	105
DPP447125	12.5		.4921	14	54	100	DPP447148	14.8		.5827	16	62	105
DPP447126	12.6		.4961	14	54	100	DPP447149	14.9		.5866	16	62	105
DPP447127	12.7		.5000	14	56	100	DPP447150	15		.5905	16	62	105
DPP447128	12.8		.5039	14	56	100	DPP447151	15.1		.5945	16	64	115
DPP447129	12.9		.5079	14	56	100	DPP447152	15.2		.5984	16	64	115
DPP447130	13		.5118	14	56	100	DPP447153	15.3		.6024	16	64	115
DPP447131	13.1		.5157	14	58	100	DPP447154	15.4		.6063	16	64	115
DPP447132	13.2		.5197	14	58	100	DPP447155	15.5		.6102	16	64	115
DPP447133	13.3		.5236	14	58	100	DPP447156	15.6		.6142	16	64	115
DPP447134	13.4		.5276	14	58	100	DPP447157	15.7		.6181	16	64	115
DPP447135	13.5		.5314	14	58	100	DPP447158	15.8		.6220	16	64	115

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

P				H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	◎	○		○	◎	○	○			



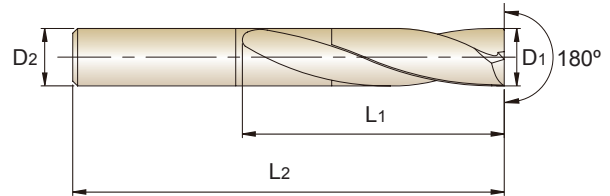
# DREAM DRILLS -FLAT BOTTOM

**DPP447** SERIES

## CARBIDE, DREAM DRILLS - FLAT BOTTOM without COOLANT HOLES

**SHORT**

- ▶ Just ONE Drill 180 degree point angle enables drilling of horizontal surface and sloped surface
- ▶ Excellent chip evacuation by optimized flute shape
- ▶ High strength cutting edge to improve tool life and versatility drilling
- ▶ Variety of drilling can be used in a variety of drilling applications



2 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
X-Coating	D1			D2	L1	L2
DPP447040F	15.875	5/8	.6250	16	64	115
DPP447159	15.9		.6260	16	64	115
DPP447160	16		.6299	16	64	115
DPP447165	16.5		.6496	18	70	125
DPP447170	17		.6693	18	70	125
DPP447044F	17.463	11/16	.6875	18	70	125
DPP447175	17.5		.6890	18	70	125

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal			
X-Coating	D1			D2	L1	L2
DPP447180	18		.7087	18	70	125
DPP447185	18.5		.7283	20	75	135
DPP447190	19		.7480	20	75	135
DPP447048F	19.05	3/4	.7500	20	75	135
DPP447195	19.5		.7677	20	75	145
DPP447200	20		.7874	20	75	145

▶ Other shank types are available on your request.

◎ : Excellent ○ : Good

P				H	M	K	N				S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	◎	○		○	◎	○	○			



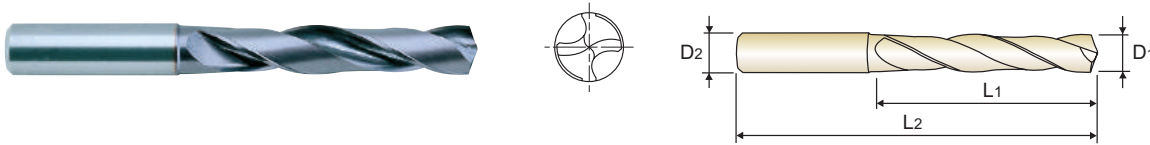


# DREAM DRILLS -GENERAL

**DH423** SERIES

## CARBIDE, DREAM DRILLS - GENERAL without COOLANT HOLES *SHORT*

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2	TiAlN	D1			D2	L1	L2
DH423030	3.0		.1181	6	20	62	DH423049	4.9		.1929	6	28	66
DH423031	3.1		.1220	6	20	62	DH423050	5.0		.1969	6	28	66
DH423008F	3.175	1/8	.1250	6	20	62	DH423051	5.1		.2008	6	28	66
DH423032	3.2		.1260	6	20	62	DH423013F	5.159	13/64	.2031	6	28	66
DH423033	3.3		.1299	6	20	62	DH423052	5.2		.2047	6	28	66
DH423034	3.4		.1339	6	20	62	DH423053	5.3		.2087	6	28	66
DH423035	3.5		.1378	6	20	62	DH423054	5.4		.2126	6	28	66
DH423009F	3.572	9/64	.1406	6	20	62	DH423055	5.5		.2165	6	28	66
DH423036	3.6		.1417	6	20	62	DH423014F	5.556	7/32	.2188	6	28	66
DH423037	3.7		.1457	6	20	62	DH423056	5.6		.2205	6	28	66
DH423038	3.8		.1496	6	24	66	DH423057	5.7		.2244	6	28	66
DH423039	3.9		.1535	6	24	66	DH423058	5.8		.2283	6	28	66
DH423010F	3.969	5/32	.1563	6	24	66	DH423059	5.9		.2323	6	28	66
DH423040	4.0		.1575	6	24	66	DH423015F	5.953	15/64	.2344	6	28	66
DH423041	4.1		.1614	6	24	66	DH423060	6.0		.2362	6	28	66
DH423042	4.2		.1654	6	24	66	DH423061	6.1		.2402	8	34	79
DH423043	4.3		.1693	6	24	66	DH423062	6.2		.2441	8	34	79
DH423011F	4.366	11/64	.1719	6	24	66	DH423063	6.3		.2480	8	34	79
DH423044	4.4		.1732	6	24	66	DH423016F	6.350	1/4	.2500	8	34	79
DH423045	4.5		.1772	6	24	66	DH423064	6.4		.2520	8	34	79
DH423046	4.6		.1811	6	24	66	DH423065	6.5		.2559	8	34	79
DH423047	4.7		.1850	6	24	66	DH423006L	6.528	F	.2570	8	34	79
DH423012F	4.763	3/16	.1875	6	24	66	DH423066	6.6		.2598	8	34	79
DH423048	4.8		.1890	6	28	66	DH423067	6.7		.2638	8	34	79

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

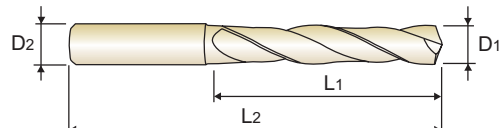
P				H		M	K	N				S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium	
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~								
◎	◎	◎			○	○						





### CARBIDE, DREAM DRILLS - GENERAL without COOLANT HOLES SHORT

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2	TiAlN	D1			D2	L1	L2
DH423017F	6.747	17/64	.2656	8	34	79	DH423085	8.5		.3346	10	47	89
DH423068	6.8		.2677	8	34	79	DH423086	8.6		.3386	10	47	89
DH423069	6.9		.2717	8	34	79	DH423087	8.7		.3425	10	47	89
DH423009L	6.909	I	.2720	8	34	79	DH423022F	8.731	11/32	.3438	10	47	89
DH423070	7.0		.2756	8	34	79	DH423088	8.8		.3465	10	47	89
DH423071	7.1		.2795	8	41	79	DH423089	8.9		.3504	10	47	89
DH423018F	7.144	9/32	.2812	8	41	79	DH423090	9.0		.3543	10	47	89
DH423072	7.2		.2835	8	41	79	DH423091	9.1		.3583	10	47	89
DH423073	7.3		.2874	8	41	79	DH423023F	9.128	23/64	.3594	10	47	89
DH423074	7.4		.2913	8	41	79	DH423092	9.2		.3622	10	47	89
DH423075	7.5		.2953	8	41	79	DH423093	9.3		.3661	10	47	89
DH423019F	7.541	19/64	.2969	8	41	79	DH423021L	9.347	U	.3680	10	47	89
DH423076	7.6		.2992	8	41	79	DH423094	9.4		.3701	10	47	89
DH423077	7.7		.3031	8	41	79	DH423095	9.5		.3740	10	47	89
DH423078	7.8		.3071	8	41	79	DH423024F	9.525	3/8	.3750	10	47	89
DH423079	7.9		.3110	8	41	79	DH423096	9.6		.3780	10	47	89
DH423020F	7.938	5/16	.3125	8	41	79	DH423097	9.7		.3819	10	47	89
DH423080	8.0		.3150	8	41	79	DH423098	9.8		.3858	10	47	89
DH423081	8.1		.3189	10	47	89	DH423099	9.9		.3898	10	47	89
DH423082	8.2		.3228	10	47	89	DH423025F	9.922	25/64	.3906	10	47	89
DH423083	8.3		.3268	10	47	89	DH423100	10.0		.3937	10	47	89
DH423021F	8.334	21/64	.3281	10	47	89	DH423101	10.1		.3976	12	55	102
DH423084	8.4		.3307	10	47	89	DH423102	10.2		.4016	12	55	102
DH423017L	8.433	Q	.3320	10	47	89	DH423103	10.3		.4055	12	55	102

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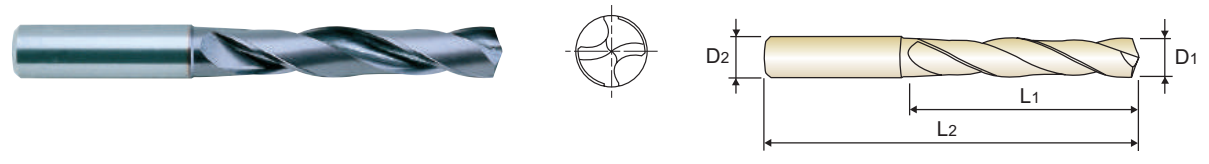
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◎ : Excellent ○ : Good

P				H	M	K	N				S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRc45~55	HRc55~							
◎	◎	◎			○	○					

**CARBIDE, DREAM DRILLS - GENERAL without COOLANT HOLES** *SHORT*

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



D IN 6 537	MG	h6	m7	140°		3 × D
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Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2	TiAlN	D1			D2	L1	L2
DH423026F	10.319	13/32	.4062	12	55	102	DH423123	12.3		.4843	14	60	107
DH423104	10.4		.4094	12	55	102	DH423031F	12.303	31/64	.4844	14	60	107
DH423105	10.5		.4134	12	55	102	DH423124	12.4		.4882	14	60	107
DH423106	10.6		.4173	12	55	102	DH423125	12.5		.4921	14	60	107
DH423107	10.7		.4213	12	55	102	DH423126	12.6		.4961	14	60	107
DH423027F	10.716	27/64	.4219	12	55	102	DH423032F	12.7	1/2	.5000	14	60	107
DH423108	10.8		.4252	12	55	102	DH423128	12.8		.5039	14	60	107
DH423109	10.9		.4291	12	55	102	DH423129	12.9		.5079	14	60	107
DH423110	11.0		.4331	12	55	102	DH423130	13.0		.5118	14	60	107
DH423111	11.1		.4370	12	55	102	DH423131	13.1		.5157	14	60	107
DH423028F	11.113	7/16	.4375	12	55	102	DH423132	13.2		.5197	14	60	107
DH423112	11.2		.4409	12	55	102	DH423133	13.3		.5236	14	60	107
DH423113	11.3		.4449	12	55	102	DH423134	13.4		.5276	14	60	107
DH423114	11.4		.4488	12	55	102	DH423135	13.5		.5315	14	60	107
DH423115	11.5		.4528	12	55	102	DH423136	13.6		.5354	14	60	107
DH423029F	11.509	29/64	.4531	12	55	102	DH423137	13.7		.5394	14	60	107
DH423116	11.6		.4567	12	55	102	DH423138	13.8		.5433	14	60	107
DH423117	11.7		.4606	12	55	102	DH423139	13.9		.5472	14	60	107
DH423118	11.8		.4646	12	55	102	DH423140	14.0		.5512	14	60	107
DH423119	11.9		.4685	12	55	102	DH423141	14.1		.5551	16	65	115
DH423030F	11.906	15/32	.4688	12	55	102	DH423142	14.2		.5591	16	65	115
DH423120	12.0		.4724	12	55	102	DH423036F	14.288	9/16	.5625	16	65	115
DH423121	12.1		.4764	14	60	107	DH423143	14.3		.5630	16	65	115
DH423122	12.2		.4803	14	60	107	DH423144	14.4		.5669	16	65	115

▶ Other shank types are available on your request. ▶ NEXT PAGE

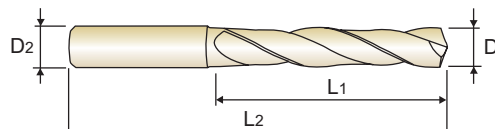
◎ : Excellent ○ : Good

P				H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRc45~55	HRC55~							
◎	◎	◎			○	○					



### CARBIDE, DREAM DRILLS - GENERAL without COOLANT HOLES *SHORT*

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



3 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length		Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length		Overall Length
	Metric	Fractional	Decimal		L1	L2			Metric	Fractional	Decimal		L1	L2	
TiAlN	D1			D2	L1	L2	TiAlN	D1			D2	L1	L2		
DH423145	14.5		.5708	16	65	115	DH423168	16.8		.6614	18	73	123		
DH423146	14.6		.5748	16	65	115	DH423169	16.9		.6654	18	73	123		
DH423147	14.7		.5787	16	65	115	DH423170	17.0		.6692	18	73	123		
DH423148	14.8		.5827	16	65	115	DH423171	17.1		.6732	18	73	123		
DH423149	14.9		.5866	16	65	115	DH423172	17.2		.6772	18	73	123		
DH423150	15.0		.5905	16	65	115	DH423173	17.3		.6811	18	73	123		
DH423151	15.1		.5945	16	65	115	DH423174	17.4		.6850	18	73	123		
DH423152	15.2		.5984	16	65	115	DH423044F	17.463	11/16	.6875	18	73	123		
DH423153	15.3		.6024	16	65	115	<b>DH423175</b>	<b>17.5</b>		<b>.6889</b>	<b>18</b>	<b>73</b>	<b>123</b>		
DH423154	15.4		.6063	16	65	115	DH423176	17.6		.6929	18	73	123		
DH423155	15.5		.6102	16	65	115	DH423177	17.7		.6968	18	73	123		
DH423156	15.6		.6142	16	65	115	DH423178	17.8		.7008	18	73	123		
DH423157	15.7		.6181	16	65	115	DH423179	17.9		.7047	18	73	123		
DH423158	15.8		.6220	16	65	115	DH423180	18.0		.7087	18	73	123		
DH423040F	15.875	5/8	.6250	16	65	115	DH423181	18.1		.7126	20	79	131		
DH423159	15.9		.6260	16	65	115	DH423182	18.2		.7165	20	79	131		
DH423160	16.0		.6299	16	65	115	DH423183	18.3		.7205	20	79	131		
DH423161	16.1		.6339	18	73	123	DH423184	18.4		.7244	20	79	131		
DH423162	16.2		.6378	18	73	123	DH423185	18.5		.7283	20	79	131		
DH423163	16.3		.6417	18	73	123	DH423186	18.6		.7323	20	79	131		
DH423164	16.4		.6457	18	73	123	DH423187	18.7		.7362	20	79	131		
DH423165	16.5		.6495	18	73	123	DH423188	18.8		.7402	20	79	131		
DH423166	16.6		.6535	18	73	123	DH423189	18.9		.7441	20	79	131		
DH423167	16.7		.6575	18	73	123	DH423190	19.0		.7480	20	79	131		

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent ○ : Good

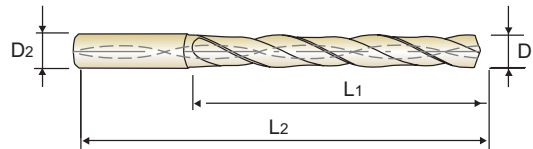
P			H		M	K	N				S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	◎			○	○					



### CARBIDE, DREAM DRILLS - GENERAL with COOLANT HOLES

LONG

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



5 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
TiAIN	D1			D2	L1	L2	TiAIN	D1			D2	L1	L2
DH408010	1.0		.0394	3	8	55	DH408008F	3.175	1/8	.1250	6	28	66
DH408011	1.1		.0433	3	12	55	DH408032	3.2		.1260	6	28	66
DH408012	1.2		.0472	3	12	55	DH408033	3.3		.1299	6	28	66
DH408013	1.3		.0512	3	12	55	DH408034	3.4		.1339	6	28	66
DH408014	1.4		.0551	3	12	55	DH408035	3.5		.1378	6	28	66
DH408015	1.5		.0591	3	16	55	DH408009F	3.572	9/64	.1406	6	28	66
DH408004F	1.588	1/16	.0625	3	16	55	DH408036	3.6		.1417	6	28	66
DH408016	1.6		.0630	3	16	55	DH408037	3.7		.1457	6	28	66
DH408017	1.7		.0669	3	16	55	DH408038	3.8		.1496	6	36	74
DH408018	1.8		.0709	3	16	55	DH408039	3.9		.1535	6	36	74
DH408019	1.9		.0748	3	16	55	DH408010F	3.969	5/32	.1563	6	36	74
DH408005F	1.984	5/64	.0781	3	16	55	DH408040	4.0		.1575	6	36	74
DH408020	2.0		.0787	4	21	57	DH408041	4.1		.1614	6	36	74
DH408021	2.1		.0827	4	21	57	DH408042	4.2		.1654	6	36	74
DH408022	2.2		.0866	4	21	57	DH408043	4.3		.1693	6	36	74
DH408023	2.3		.0906	4	21	57	DH408011F	4.366	11/64	.1719	6	36	74
DH408006F	2.381	3/32	.0938	4	21	57	DH408044	4.4		.1732	6	36	74
DH408024	2.4		.0945	4	21	57	DH408045	4.5		.1772	6	36	74
DH408025	2.5		.0984	4	21	57	DH408046	4.6		.1811	6	36	74
DH408026	2.6		.1024	4	21	57	DH408047	4.7		.1850	6	36	74
DH408027	2.7		.1063	4	21	57	DH408012F	4.763	3/16	.1875	6	36	74
DH408007F	2.778	7/64	.1094	4	21	57	DH408048	4.8		.1890	6	44	82
DH408028	2.8		.1102	4	21	57	DH408049	4.9		.1929	6	44	82
DH408029	2.9		.1142	4	21	57	DH408050	5.0		.1969	6	44	82
DH408030	3.0		.1181	6	28	66	DH408051	5.1		.2008	6	44	82
DH408031	3.1		.1220	6	28	66	DH408013F	5.159	13/64	.2031	6	44	82

▶ Other shank types are available on your request.

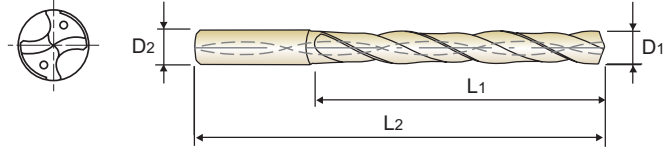
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◎ : Excellent ○ : Good

P			H		M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	◎			○	○					

**CARBIDE, DREAM DRILLS - GENERAL with COOLANT HOLES**
**LONG**

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation


**5 × D**

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
TiAlN	D1			D2	L1	L2	TiAlN	D1			D2	L1	L2
DH408052	5.2		.2047	6	44	82	DH408018F	7.144	9/32	.2812	8	53	91
DH408053	5.3		.2087	6	44	82	DH408072	7.2		.2835	8	53	91
DH408054	5.4		.2126	6	44	82	DH408073	7.3		.2874	8	53	91
DH408055	5.5		.2165	6	44	82	DH408074	7.4		.2913	8	53	91
DH408014F	5.556	7/32	.2188	6	44	82	DH408075	7.5		.2953	8	53	91
DH408056	5.6		.2205	6	44	82	DH408019F	7.541	19/64	.2969	8	53	91
DH408057	5.7		.2244	6	44	82	DH408076	7.6		.2992	8	53	91
DH408058	5.8		.2283	6	44	82	DH408077	7.7		.3031	8	53	91
DH408059	5.9		.2323	6	44	82	DH408078	7.8		.3071	8	53	91
DH408015F	5.953	15/64	.2344	6	44	82	DH408079	7.9		.3110	8	53	91
DH408060	6.0		.2362	6	44	82	DH408020F	7.938	5/16	.3125	8	53	91
DH408061	6.1		.2402	8	53	91	DH408080	8.0		.3150	8	53	91
DH408062	6.2		.2441	8	53	91	DH408081	8.1		.3189	10	61	103
DH408063	6.3		.2480	8	53	91	DH408082	8.2		.3228	10	61	103
DH408016F	6.350	1/4	.2500	8	53	91	DH408083	8.3		.3268	10	61	103
DH408064	6.4		.2520	8	53	91	DH408021F	8.334	21/64	.3281	10	61	103
DH408065	6.5		.2559	8	53	91	DH408084	8.4		.3307	10	61	103
DH408006L	6.528	F	.2570	8	53	91	DH408017L	8.433	Q	.3320	10	61	103
DH408066	6.6		.2598	8	53	91	DH408085	8.5		.3346	10	61	103
DH408067	6.7		.2638	8	53	91	DH408086	8.6		.3386	10	61	103
DH408017F	6.747	17/64	.2656	8	53	91	DH408087	8.7		.3425	10	61	103
DH408068	6.8		.2677	8	53	91	DH408022F	8.731	11/32	.3438	10	61	103
DH408069	6.9		.2717	8	53	91	DH408088	8.8		.3465	10	61	103
DH408009L	6.909	I	.2720	8	53	91	DH408089	8.9		.3504	10	61	103
DH408070	7.0		.2756	8	53	91	DH408090	9.0		.3543	10	61	103
DH408071	7.1		.2795	8	53	91	DH408091	9.1		.3583	10	61	103

▶ Other shank types are available on your request.

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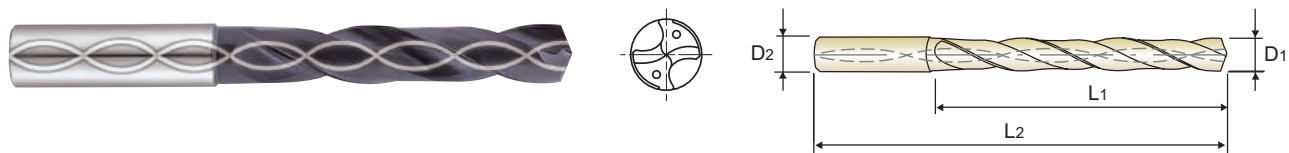
◎ : Excellent ○ : Good

P			H		M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	◎			○	○					



**CARBIDE, DREAM DRILLS - GENERAL with COOLANT HOLES** *LONG*

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation



DIN 6537

MG

h6

m7

140°

20 bar

5 × D

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
TiAIN	D1			D2	L1	L2	TiAIN	D1			D2	L1	L2
DH408023F	9.128	23/64	.3594	10	61	103	DH408028F	11.113	7/16	.4375	12	71	118
DH408092	9.2		.3622	10	61	103	DH408112	11.2		.4409	12	71	118
DH408093	9.3		.3661	10	61	103	DH408113	11.3		.4448	12	71	118
DH408021L	9.347	U	.3680	10	61	103	DH408114	11.4		.4488	12	71	118
DH408094	9.4		.3701	10	61	103	DH408115	11.5		.4527	12	71	118
DH408095	9.5		.3740	10	61	103	DH408029F	11.509	29/64	.4531	12	71	118
DH408024F	9.525	3/8	.3750	10	61	103	DH408116	11.6		.4566	12	71	118
DH408096	9.6		.3780	10	61	103	DH408117	11.7		.4606	12	71	118
DH408097	9.7		.3819	10	61	103	DH408118	11.8		.4645	12	71	118
DH408098	9.8		.3858	10	61	103	DH408119	11.9		.4685	12	71	118
DH408099	9.9		.3898	10	61	103	DH408030F	11.906	15/32	.4688	12	71	118
DH408025F	9.922	25/64	.3906	10	61	103	DH408120	12.0		.4724	12	71	118
DH408100	10.0		.3937	10	61	103	DH408121	12.1		.4764	14	77	124
DH408101	10.1		.3976	12	71	118	DH408122	12.2		.4803	14	77	124
DH408102	10.2		.4016	12	71	118	DH408123	12.3		.4843	14	77	124
DH408103	10.3		.4055	12	71	118	DH408031F	12.303	31/64	.4844	14	77	124
DH408026F	10.319	13/32	.4062	12	71	118	DH408124	12.4		.4882	14	77	124
DH408104	10.4		.4094	12	71	118	DH408125	12.5		.4921	14	77	124
DH408105	10.5		.4134	12	71	118	DH408126	12.6		.4961	14	77	124
DH408106	10.6		.4173	12	71	118	DH408032F	12.7	1/2	.5000	14	77	124
DH408107	10.7		.4212	12	71	118	DH408128	12.8		.5039	14	77	124
DH408027F	10.716	27/64	.4219	12	71	118	DH408129	12.9		.5079	14	77	124
DH408108	10.8		.4252	12	71	118	DH408130	13.0		.5118	14	77	124
DH408109	10.9		.4291	12	71	118	DH408131	13.1		.5157	14	77	124
DH408110	11.0		.4330	12	71	118	DH408132	13.2		.5197	14	77	124
DH408111	11.1		.4370	12	71	118	DH408133	13.3		.5236	14	77	124

▶ Other shank types are available on your request.

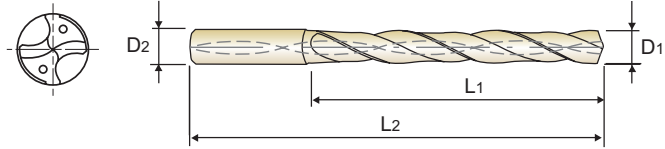
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◎ : Excellent   ○ : Good

P		H		M	K	N				S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎	◎			○	○					

**CARBIDE, DREAM DRILLS - GENERAL with COOLANT HOLES**
**LONG**

- ▶ Drilling for Steel, Cast Steel, Cast Iron, Malleable Cast Iron, Non-Ferrous, Abrasive Plastic
- ▶ Self centering and chip breaking by R-thinning
- ▶ Wave shape and negative land on the cutting edge for low thrust, stable torque and long tool life
- ▶ Optimized flute shape for strength of drilling and smooth chip evacuation


**5 × D**

Unit : mm

EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length	EDP No.	Drill Diameter			Shank Diameter	Flute Length	Overall Length
	Metric	Fractional	Decimal					Metric	Fractional	Decimal			
TiAIN	D1			D2	L1	L2	TiAIN	D1			D2	L1	L2
DH408134	13.4		.5276	14	77	124	DH408040F	15.875	5/8	.6250	16	83	133
DH408135	13.5		.5314	14	77	124	DH408159	15.9		.6260	16	83	133
DH408136	13.6		.5354	14	77	124	DH408160	16.0		.6299	16	83	133
DH408137	13.7		.5394	14	77	124	DH408161	16.1		.6339	18	93	143
DH408138	13.8		.5433	14	77	124	DH408162	16.2		.6378	18	93	143
DH408139	13.9		.5472	14	77	124	DH408163	16.3		.6417	18	93	143
DH408140	14.0		.5512	14	77	124	DH408164	16.4		.6457	18	93	143
DH408141	14.1		.5551	16	83	133	DH408165	16.5		.6495	18	93	143
DH408142	14.2		.5591	16	83	133	DH408166	16.6		.6535	18	93	143
DH408036F	14.288	9/16	.5625	16	83	133	DH408167	16.7		.6575	18	93	143
DH408143	14.3		.5630	16	83	133	DH408168	16.8		.6614	18	93	143
DH408144	14.4		.5669	16	83	133	DH408169	16.9		.6654	18	93	143
DH408145	14.5		.5708	16	83	133	DH408170	17.0		.6692	18	93	143
DH408146	14.6		.5748	16	83	133	DH408171	17.1		.6732	18	93	143
DH408147	14.7		.5787	16	83	133	DH408172	17.2		.6772	18	93	143
DH408148	14.8		.5827	16	83	133	DH408173	17.3		.6811	18	93	143
DH408149	14.9		.5866	16	83	133	DH408174	17.4		.6850	18	93	143
DH408150	15.0		.5905	16	83	133	DH408175	17.5		.6889	18	93	143
DH408151	15.1		.5945	16	83	133	DH408176	17.6		.6929	18	93	143
DH408152	15.2		.5984	16	83	133	DH408177	17.7		.6968	18	93	143
DH408153	15.3		.6024	16	83	133	DH408178	17.8		.7008	18	93	143
DH408154	15.4		.6063	16	83	133	DH408179	17.9		.7047	18	93	143
DH408155	15.5		.6102	16	83	133	DH408180	18.0		.7087	18	93	143
DH408156	15.6		.6142	16	83	133	DH408181	18.1		.7126	20	101	153
DH408157	15.7		.6181	16	83	133	DH408182	18.2		.7165	20	101	151
DH408158	15.8		.6220	16	83	133	DH408183	18.3		.7205	20	101	151

▶ Other shank types are available on your request.

▶ NEXT PAGE

◎ : Excellent    ○ : Good

P			H		M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎	◎			○	○					



**GOLD-P DRILLS**

**GOLD-P COATED DRILL SETS**



EDP No.	Series No.	Description	SIZE	Q'TY
D1GP138 SET	D1GP SET924	HSS Straight Shank, Split Point (#53 ~#56 : NORMAL point)	# 1~ # 56(Wire gauge)	56 pcs
D1GP139 SET	D1GP SET925	HSS Straight Shank, Split Point	A~Z(Letter)	26 pcs
D1GP182 SET	D1GP SET926	HSS Straight Shank, Split Point	Ø1/16~Ø1/2(Fractional)	29 pcs
D2GP185 SET	D2GP SET927	HSSCo8 Straight Shank, Split Point	Ø1/16~Ø1/2(Fractional)	29 pcs
D2GP186 SET	D2GP SET928	HSSCo8 Straight Shank, Split Point	A~Z(Letter)	26 pcs
D2GP187 SET	D2GP SET930	HSSCo8 Straight Shank, Split Point (#53 ~#56 : NORMAL point)	# 1~ # 56(Wire gauge)	56 pcs
DLGP511 SET	DLGP SET931	HSSCo5 Straight Shank, Split Point	Ø5/64~Ø1/2(Fractional)	28 pcs
DLGP512 SET	DLGP SET932	HSSCo5 Straight Shank, Split Point	# 1~ # 47(Wire gauge)	47 pcs
DLGP513 SET	DLGP SET933	HSSCo5 Straight Shank, Split Point	A~Z(Letter)	26 pcs

P				H	M	K	N				S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRc45~55	HRc55~							
◎	◎					○					

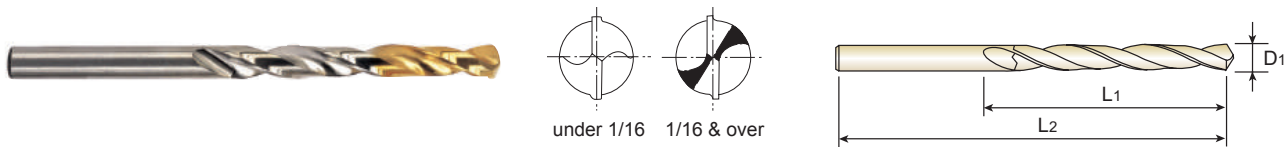




**HSSCo8, STRAIGHT SHANK, GOLD-P COATED**

**JOBBER**

- ▶ **Flute Geometry** : Right hand helix, wider flutes
- ▶ **Point Angle** : 135°  
     under 1/16 : Normal point  
     1/16 & over : Split point
- ▶ **Surface treatment** : Bright body TiN coating on working part
- ▶ **Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



**▶ Fractional sizes**

Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2	EDP No.	Diameter		Flute Length L1	Overall Length L2
	Fractional D1	Decimal				Fractional D1	Decimal		
* D2GP185003	3/64	.0469	3/4	1-3/4	* D2GP185018	9/32	.2813	2-15/16	4-1/4
* D2GP185004	1/16	.0625	7/8	1-7/8	* D2GP185019	19/64	.2969	3-1/16	4-3/8
* D2GP185005	5/64	.0781	1	2	* D2GP185020	5/16	.3125	3-3/16	4-1/2
* D2GP185006	3/32	.0938	1-1/4	2-1/4	** D2GP185021	21/64	.3281	3-5/16	4-5/8
* D2GP185007	7/64	.1094	1-1/2	2-5/8	** D2GP185022	11/32	.3438	3-7/16	4-3/4
* D2GP185008	1/8	.1250	1-5/8	2-3/4	** D2GP185023	23/64	.3594	3-1/2	4-7/8
* D2GP185009	9/64	.1406	1-3/4	2-7/8	** D2GP185024	3/8	.3750	3-5/8	5
* D2GP185010	5/32	.1563	2	3-1/8	** D2GP185025	25/64	.3906	3-3/4	5-1/8
* D2GP185011	11/64	.1719	2-1/8	3-1/4	** D2GP185026	13/32	.4063	3-7/8	5-1/4
* D2GP185012	3/16	.1875	2-5/16	3-1/2	** D2GP185027	27/64	.4219	3-15/16	5-3/8
* D2GP185013	13/64	.2031	2-7/16	3-5/8	** D2GP185028	7/16	.4375	4-1/16	5-1/2
* D2GP185014	7/32	.2188	2-1/2	3-3/4	** D2GP185029	29/64	.4531	4-3/16	5-5/8
* D2GP185015	15/64	.2344	2-5/8	3-7/8	** D2GP185030	15/32	.4688	4-5/16	5-3/4
* D2GP185016	1/4	.2500	2-3/4	4	** D2GP185031	31/64	.4844	4-3/8	5-7/8
* D2GP185017	17/64	.2656	2-7/8	4-1/8	** D2GP185032	1/2	.5000	4-1/2	6

\* 10pcs per package  
 \*\* 5pcs per package

Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : Excellent ○ : Good

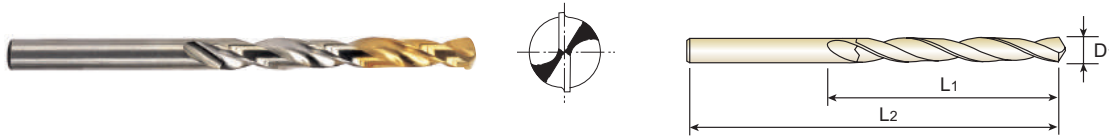
P				H	M	K	N				S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○		○				○



**HSSCo8, STRAIGHT SHANK, GOLD-P COATED**

**JOBBER**

- ▶ **Flute Geometry** : Right hand helix, wider flutes
- ▶ **Point Angle** : 135° : Split point
- ▶ **Surface treatment** : Bright body TiN coating on working part
- ▶ **Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



▶ **Letter sizes**

Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2	EDP No.	Diameter		Flute Length L1	Overall Length L2
	Letter	Decimal				Letter	Decimal		
* D2GP186101	A	.2340	2-5/8	3-7/8	* D2GP186114	N	.3020	3-1/16	4-3/8
* D2GP186102	B	.2380	2-3/4	4	* D2GP186115	O	.3160	3-3/16	4-1/2
* D2GP186103	C	.2420	2-3/4	4	* D2GP186116	P	.3230	3-5/16	4-5/8
* D2GP186104	D	.2460	2-3/4	4	** D2GP186117	Q	.3320	3-7/16	4-3/4
* D2GP185105	E	.2500	2-3/4	4	** D2GP186118	R	.3390	3-7/16	4-3/4
* D2GP186106	F	.2570	2-7/8	4-1/8	** D2GP186119	S	.3480	3-1/2	4-7/8
* D2GP186107	G	.2610	2-7/8	4-1/8	** D2GP186120	T	.3580	3-1/2	4-7/8
* D2GP186108	H	.2660	2-7/8	4-1/8	** D2GP186121	U	.3680	3-5/8	5
* D2GP186109	I	.2720	2-7/8	4-1/8	** D2GP186122	V	.3770	3-5/8	5
* D2GP186110	J	.2770	2-7/8	4-1/8	** D2GP186123	W	.3860	3-3/4	5-1/8
* D2GP186111	K	.2810	2-15/16	4-1/4	** D2GP186124	X	.3970	3-3/4	5-1/8
* D2GP186112	L	.2900	2-15/16	4-1/4	** D2GP186125	Y	.4040	3-7/8	5-1/4
* D2GP186113	M	.2950	3-1/16	4-3/8	** D2GP186126	Z	.4130	3-7/8	5-1/4

\* 10pcs per package  
\*\* 5pcs per package

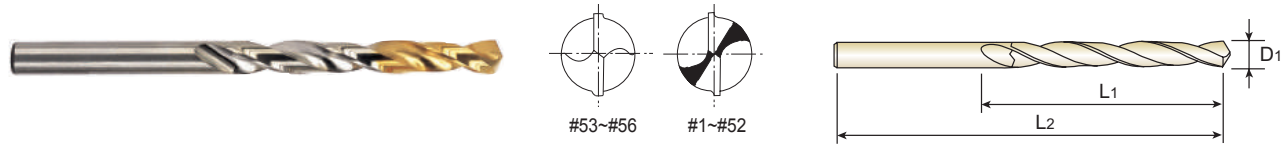
Tolerance Diameter (Inch)	
up to 1/8(.1250)	0 ~ -.0005
over 1/8(.1250) up to 1/4(.2500)	0 ~ -.0007
over 1/4(.2500) up to 1/2(.5000)	0 ~ -.0010

◎ : Excellent ○ : Good

P		H		M	K	N			S		
Carbon Steels ~HB225	Alloy Steels HB225~325	Prehardened Steels HRc30~45	Hardened Steels HRc45~55 HRc55~		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
◎	◎				○		○				○

**HSSCo8, STRAIGHT SHANK, GOLD-P COATED**
**JOBBER**

- ▶ **Flute Geometry** : Right hand helix, wider flutes
- ▶ **Point Angle** : 135° : Split point  
Wire gauge size #53~#56 : Normal point  
Wire gauge size #1~#52 : Split point
- ▶ **Surface treatment** : Bright body TIN coating on working part
- ▶ **Application** : Drilling in steel, cast steel alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron


**▶ Wire gauge sizes**

Unit : Inch

EDP No.	Diameter		Flute Length L1	Overall Length L2	EDP No.	Diameter		Flute Length L1	Overall Length L2
	Wire gauge	Decimal				Wire gauge	Decimal		
	D1					D1			
* D2GP187256	1	.2280	2-5/8	3-7/8	* D2GP187228	29	.1360	1-3/4	2-7/8
* D2GP187255	2	.2210	2-5/8	3-7/8	* D2GP187227	30	.1285	1-5/8	2-3/4
* D2GP187254	3	.2130	2-1/2	3-3/4	* D2GP187226	31	.1200	1-5/8	2-3/4
* D2GP187253	4	.2090	2-1/2	3-3/4	* D2GP187225	32	.1160	1-5/8	2-3/4
* D2GP187252	5	.2055	2-1/2	3-3/4	* D2GP187224	33	.1130	1-1/2	2-5/8
* D2GP187251	6	.2040	2-1/2	3-3/4	* D2GP187223	34	.1110	1-1/2	2-5/8
* D2GP187250	7	.2010	2-7/16	3-5/8	* D2GP187222	35	.1100	1-1/2	2-5/8
* D2GP187249	8	.1990	2-7/16	3-5/8	* D2GP187221	36	.1065	1-7/16	2-1/2
* D2GP187248	9	.1960	2-7/16	3-5/8	* D2GP187220	37	.1040	1-7/16	2-1/2
* D2GP187247	10	.1935	2-7/16	3-5/8	* D2GP187219	38	.1015	1-7/16	2-1/2
* D2GP187246	11	.1910	2-5/16	3-1/2	* D2GP187218	39	.0995	1-3/8	2-3/8
* D2GP187245	12	.1890	2-5/16	3-1/2	* D2GP187217	40	.0980	1-3/8	2-3/8
* D2GP187244	13	.1850	2-5/16	3-1/2	* D2GP187216	41	.0960	1-3/8	2-3/8
* D2GP187243	14	.1820	2-3/16	3-3/8	* D2GP187215	42	.0935	1-1/4	2-1/4
* D2GP187242	15	.1800	2-3/16	3-3/8	* D2GP187214	43	.0890	1-1/4	2-1/4
* D2GP187241	16	.1770	2-3/16	3-3/8	* D2GP187213	44	.0860	1-1/8	2-1/8
* D2GP187240	17	.1730	2-3/16	3-3/8	* D2GP187212	45	.0820	1-1/8	2-1/8
* D2GP187239	18	.1695	2-1/8	3-1/4	* D2GP187211	46	.0810	1-1/8	2-1/8
* D2GP187238	19	.1660	2-1/8	3-1/4	* D2GP187210	47	.0785	1	2
* D2GP187237	20	.1610	2-1/8	3-1/4	* D2GP187209	48	.0760	1	2
* D2GP187236	21	.1590	2-1/8	3-1/4	* D2GP187208	49	.0730	1	2
* D2GP187235	22	.1570	2	3-1/8	* D2GP187207	50	.0700	1	2
* D2GP187234	23	.1540	2	3-1/8	* D2GP187206	51	.0670	1	2
* D2GP187233	24	.1520	2	3-1/8	* D2GP187205	52	.0635	7/8	1-7/8
* D2GP187232	25	.1495	1-7/8	3	* D2GP187204	53	.0595	7/8	1-7/8
* D2GP187231	26	.1470	1-7/8	3	* D2GP187203	54	.0550	7/8	1-7/8
* D2GP187230	27	.1440	1-7/8	3	* D2GP187202	55	.0520	7/8	1-7/8
* D2GP187229	28	.1405	1-3/4	2-7/8	* D2GP187201	56	.0465	3/4	1-3/4

\* 10pcs per package

◎ : Excellent ○ : Good

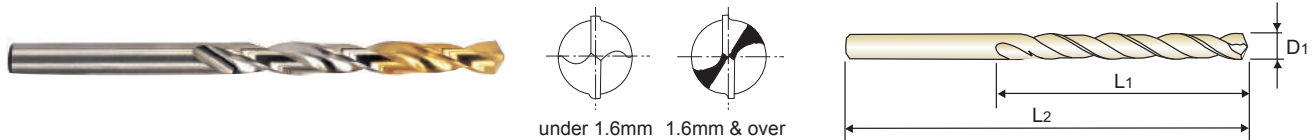
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Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRC45~55	HRC55~							
◎	◎				○		○				○



### HSSCo5, STRAIGHT SHANK DRILLS, GOLD-P COATED

JOBBER

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 135°  
under 1.6mm : Normal point  
1.6mm & over : Split point
- ▶ **Surface treatment** : Bright body, TiN coating on working area
- ▶ **Application** : Drilling to steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



Unit : mm

EDP No.	Diameter		Flute Length L1	Overall Length L2	EDP No.	Diameter		Flute Length L1	Overall Length L2
	Metric	Inch				Metric	Inch		
		D1					D1		
* DLGP195010	1.0	.0394	12	34	* DLGP195042	4.2	.1654	43	75
* DLGP195011	1.1	.0433	14	36	* DLGP195043	4.3	.1693	47	80
* DLGP195012	1.2	.0472	16	38	* DLGP195044	4.4	.1732	47	80
* DLGP195013	1.3	.0512	16	38	* DLGP195045	4.5	.1772	47	80
* DLGP195014	1.4	.0551	18	40	* DLGP195046	4.6	.1811	47	80
* DLGP195015	1.5	.0591	18	40	* DLGP195047	4.7	.1850	47	80
* DLGP195016	1.6	.0630	20	43	* DLGP195048	4.8	.1890	52	86
* DLGP195017	1.7	.0669	20	43	* DLGP195049	4.9	.1929	52	86
* DLGP195018	1.8	.0709	22	46	* DLGP195050	5.0	.1969	52	86
* DLGP195019	1.9	.0748	22	46	* DLGP195051	5.1	.2008	52	86
* DLGP195020	2.0	.0787	24	49	* DLGP195052	5.2	.2047	52	86
* DLGP195021	2.1	.0827	24	49	* DLGP195053	5.3	.2087	52	86
* DLGP195022	2.2	.0866	27	53	* DLGP195054	5.4	.2126	57	93
* DLGP195023	2.3	.0906	27	53	* DLGP195055	5.5	.2165	57	93
* DLGP195024	2.4	.0945	30	57	* DLGP195056	5.6	.2205	57	93
* DLGP195025	2.5	.0984	30	57	* DLGP195057	5.7	.2244	57	93
* DLGP195026	2.6	.1024	30	57	* DLGP195058	5.8	.2283	57	93
* DLGP195027	2.7	.1063	33	61	* DLGP195059	5.9	.2323	57	93
* DLGP195028	2.8	.1102	33	61	* DLGP195060	6.0	.2362	57	93
* DLGP195029	2.9	.1142	33	61	* DLGP195061	6.1	.2402	63	101
* DLGP195030	3.0	.1181	33	61	* DLGP195062	6.2	.2441	63	101
* DLGP195031	3.1	.1220	36	65	* DLGP195063	6.3	.2480	63	101
* DLGP195032	3.2	.1260	36	65	* DLGP195064	6.4	.2520	63	101
* DLGP195033	3.3	.1299	36	65	* DLGP195065	6.5	.2559	63	101
* DLGP195034	3.4	.1339	39	70	* DLGP195066	6.6	.2598	63	101
* DLGP195035	3.5	.1378	39	70	* DLGP195067	6.7	.2638	63	101
* DLGP195036	3.6	.1417	39	70	* DLGP195068	6.8	.2677	69	109
* DLGP195037	3.7	.1457	39	70	* DLGP195069	6.9	.2717	69	109
* DLGP195038	3.8	.1496	43	75	* DLGP195070	7.0	.2756	69	109
* DLGP195039	3.9	.1535	43	75	* DLGP195071	7.1	.2795	69	109
* DLGP195040	4.0	.1575	43	75	* DLGP195072	7.2	.2835	69	109
* DLGP195041	4.1	.1614	43	75	* DLGP195073	7.3	.2874	69	109

\* 10pcs per package

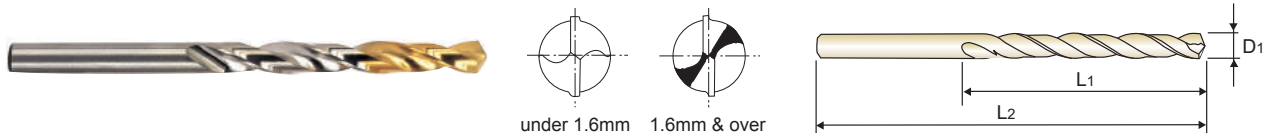
▶ NEXT PAGE

◎ : Excellent ○ : Good

P				H	M	K	N				S
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRC30~45	HRc45~55	HRc55~							
◎	◎				○		○				○

**HSSCo5, STRAIGHT SHANK DRILLS, GOLD-P COATED**
**JOBBER**

- ▶ **Flute Geometry** : Right hand helix
- ▶ **Point Angle** : 135°  
     under 1.6mm : Normal point  
     1.6mm & over : Split point
- ▶ **Surface treatment** : Bright body, TiN coating on working area
- ▶ **Application** : Drilling to steels, cast steels alloyed and Non-alloyed, grey cast iron, graphite, malleable cast iron



<b>DIN</b> 338	<b>HSS</b> Co5	33°	h8	135°	
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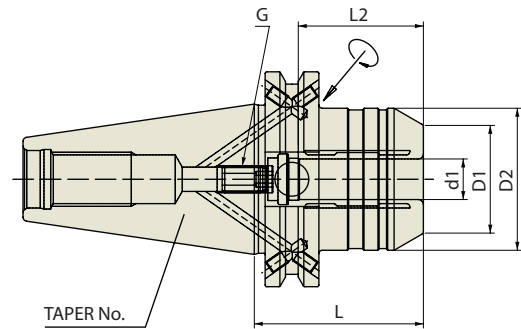
Unit : mm

EDP No.	Diameter		Flute Length L1	Overall Length L2	EDP No.	Diameter		Flute Length L1	Overall Length L2
	Metric D1	Inch				Metric D1	Inch		
* DLGP195074	7.4	.2913	69	109	** DLGP195103	10.3	.4055	87	133
* DLGP195075	7.5	.2953	69	109	** DLGP195104	10.4	.4094	87	133
* DLGP195076	7.6	.2992	75	117	** DLGP195105	10.5	.4134	87	133
* DLGP195077	7.7	.3031	75	117	** DLGP195106	10.6	.4173	87	133
* DLGP195078	7.8	.3071	75	117	** DLGP195107	10.7	.4212	94	142
* DLGP195079	7.9	.3110	75	117	** DLGP195108	10.8	.4252	94	142
* DLGP195080	8.0	.3150	75	117	** DLGP195109	10.9	.4291	94	142
* DLGP195081	8.1	.3189	75	117	** DLGP195110	11.0	.4330	94	142
* DLGP195082	8.2	.3228	75	117	** DLGP195111	11.1	.4370	94	142
* DLGP195083	8.3	.3268	75	117	** DLGP195112	11.2	.4409	94	142
** DLGP195084	8.4	.3307	75	117	** DLGP195113	11.3	.4448	94	142
** DLGP195085	8.5	.3346	75	117	** DLGP195114	11.4	.4488	94	142
** DLGP195086	8.6	.3386	81	125	** DLGP195115	11.5	.4527	94	142
** DLGP195087	8.7	.3425	81	125	** DLGP195116	11.6	.4566	94	142
** DLGP195088	8.8	.3465	81	125	** DLGP195117	11.7	.4606	94	142
** DLGP195089	8.9	.3504	81	125	** DLGP195118	11.8	.4645	94	142
** DLGP195090	9.0	.3543	81	125	** DLGP195119	11.9	.4685	101	151
** DLGP195091	9.1	.3583	81	125	** DLGP195120	12.0	.4724	101	151
** DLGP195092	9.2	.3622	81	125	** DLGP195121	12.1	.4764	101	151
** DLGP195093	9.3	.3661	81	125	** DLGP195122	12.2	.4803	101	151
** DLGP195094	9.4	.3701	81	125	** DLGP195123	12.3	.4843	101	151
** DLGP195095	9.5	.3740	81	125	** DLGP195124	12.4	.4882	101	151
** DLGP195096	9.6	.3780	87	133	** DLGP195125	12.5	.4921	101	151
** DLGP195097	9.7	.3819	87	133	** DLGP195126	12.6	.4921	101	151
** DLGP195098	9.8	.3858	87	133	** DLGP195127	12.7	.5000	101	151
** DLGP195099	9.9	.3898	87	133	** DLGP195128	12.8	.5039	101	151
** DLGP195100	10.0	.3937	87	133	** DLGP195129	12.9	.5079	101	151
** DLGP195101	10.1	.3976	87	133	** DLGP195130	13.0	.5118	101	151
** DLGP195102	10.2	.4016	87	133					

 \* 10pcs per package  
 \*\* 5pcs per package

◎ : Excellent    ○ : Good

P				H	M	K	N			S	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels		Stainless Steels	Cast Iron	Aluminum	Copper	Bronze	CFRP	Titanium
~HB225	HB225~325	HRc30~45	HRc45~55	HRc55~							
◎	◎				○		○				○



ASME B5.50 - CAT	Taper Accuracy <b>AT3</b>	G Value <b>2.5</b>	RPM <b>25,000</b>	Run-Out (at 3D) ≤0.00012"	Coolant System <b>AD/B</b>
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### ASME B5.50-2009-CAT

Unit : inch

EDP No.	TAPER No.	MODEL No.	d1	D1	D2	L	L2	G
WK022PE	40	CAT40 AD/B - HC 3/4P - 2.539	0.75	1.496	1.938	2.539	1.889	M8x1.0mm
WK023PE		CAT40 AD/B - HC 3/4P - 4.000	0.75	1.496	1.938	4.000	1.889	M8x1.0mm
WL028PE	50	CAT50 AD/B - HC 1 1/4P - 3.188	1.25	2.303	2.834	3.188	2.244	M8x1.0mm
WL030PE		CAT50 AD/B - HC 1 1/4P - 6.000	1.25	2.303	2.834	6.000	2.244	M8x1.0mm

Unit : mm

EDP No.	TAPER No.	MODEL No.	d1	D1	D2	L	L2	G
WK102PE	40	CAT40 AD/B - HC 20P - 64.5	20	38	49.25	64.5	48	M8x1.0
WK103PE		CAT40 AD/B - HC 20P - 101.6	20	38	49.25	101.6	48	M8x1.0
WL104PE	50	CAT50 AD/B - HC 32P - 81	32	58.5	72	81	57	M8x1.0
WL106PE		CAT50 AD/B - HC 32P - 152.4	32	58.5	72	152.4	57	M8x1.0

- \* High Clamping Torque Power version  
(Please refer to page 1420, Technical Information)
- \* Applicable for milling(roughing and finishing)
- \* Applicable Hydraulic Chuck collets(reduction sleeves)

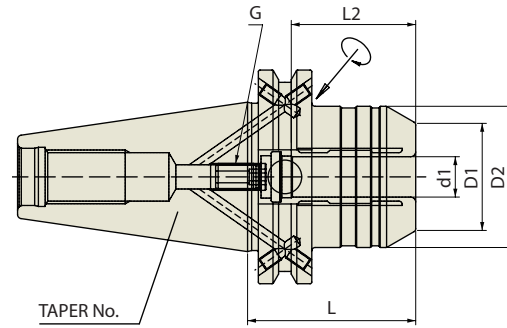




# ROTARY TOOL HOLDERS

## HYDRAULIC CHUCK (Short & Rigid)

# CAT



ASME B5.50 - CAT	Taper Accuracy <b>AT3</b>	G Value <b>2.5</b>	RPM <b>25,000</b>	Run-Out (at 3D) <b>≤0.00012"</b>	Coolant System <b>AD/B</b>
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### ASME B5.50-2009-CAT

Unit : inch

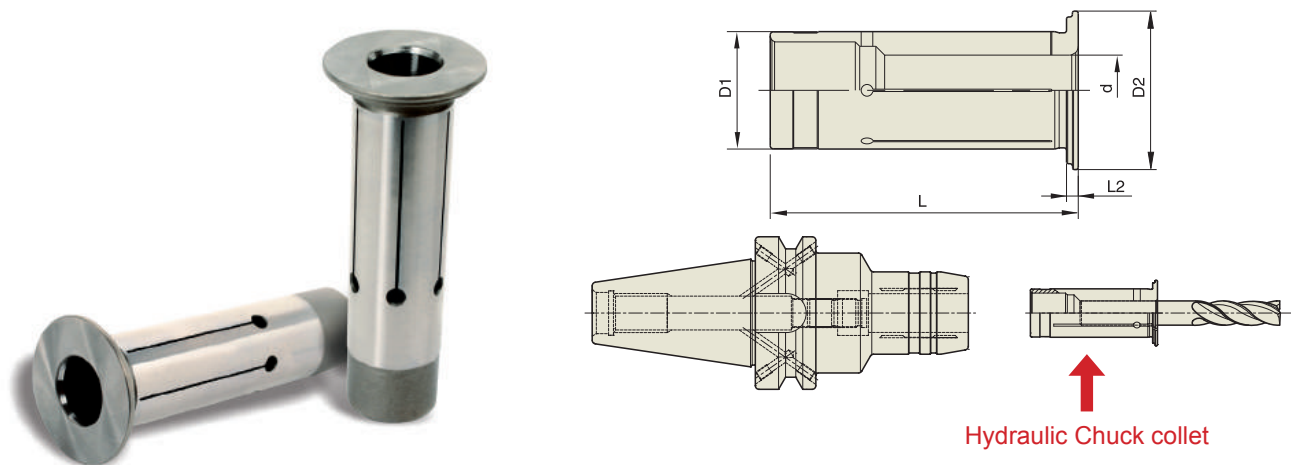
EDP No.	TAPER No.	MODEL No.	d1	D1	D2	L	L2	G
WK020SNR	40	CAT40 AD/B - HC 1/2S - 2.52	0.500	1.260	1.654	2.520	1.457	M8x1.0mm
WK021SNR		CAT40 AD/B - HC 5/8S - 2.52	0.625	1.362	1.752	2.520	1.654	M10x1.0mm
WK022SNR		CAT40 AD/B - HC 3/4S - 2.52	0.750	1.469	1.949	2.520	1.654	M10x1.0mm
WK024SNR		CAT40 AD/B - HC 1S - 3.50	1.000	2.244	2.598	3.500	1.890	M16x1.0mm
WL020SNR	50	CAT50 AD/B - HC 1/2S - 3.19	0.500	1.879	2.752	3.189	1.457	M8x1.0mm
WL022SNR		CAT50 AD/B - HC 5/8S - 3.19	0.625	1.819	2.752	3.189	1.654	M8x1.0mm
WL024SNR		CAT50 AD/B - HC 3/4S - 3.19	0.75	2.185	2.752	3.189	1.654	M10x1.0mm
WL026SNR		CAT50 AD/B - HC 1.00S - 3.19	1.000	2.185	2.752	3.189	1.890	M16x1.0mm
WL028SNR		CAT50 AD/B - HC 1.25S - 3.19	1.250	2.185	2.752	3.189	2.165	M16x1.0mm

Unit : mm

EDP No.	TAPER No.	MODEL No.	d1	D1	D2	L	L2	G
WK100SNR	40	CAT40 AD/B - HC 12S - 50	12	32	42	50	37	M8x1.0
WK102SNR		CAT40 AD/B - HC 20S - 64.5	20	37	49.5	64.5	42	M16x1.0
WL100SNR	50	CAT50 AD/B - HC 12S - 50	12	32	42	50	37	M8x1.0
WL102SNR		CAT50 AD/B - HC 20S - 64.5	20	37	49.5	64.5	42	M16x1.0
WL104SNR		CAT50 AD/B - HC 32S - 81	32	55	72	81	55	M16x1.0

\* Applicable Hydraulic Chuck collets(reduction sleeves)

## HYDRAULIC CHUCK COLLET (REDUCTION SLEEVE : CLOSED TYPE)



**INCH / INCH**

Unit : inch

EDP No.	TYPE	d	D1	D2	L	L2	
712108	HS1/2"	1/8"	0.125	0.500	0.748	1.850	0.079
712316		3/16"	0.188	0.500	0.748	1.850	0.079
712104		1/4"	0.250	0.500	0.748	1.850	0.079
712516		5/16"	0.313	0.500	0.748	1.850	0.079
725108	HS3/4"	1/8"	0.125	0.750	1.063	2.067	0.079
725316		3/16"	0.188	0.750	1.063	2.067	0.079
725104		1/4"	0.250	0.750	1.063	2.067	0.079
725516		5/16"	0.313	0.750	1.063	2.067	0.079
725308		3/8"	0.375	0.750	1.063	2.067	0.079
725102		1/2"	0.500	0.750	1.063	2.067	0.079
725508	5/8"	0.625	0.750	1.063	2.067	0.079	
732108	HS1 1/4"	1/8"	0.125	1.250	1.535	2.500	0.118
732316		3/16"	0.188	1.250	1.535	2.500	0.118
732104		1/4"	0.250	1.250	1.535	2.500	0.118
732516		5/16"	0.313	1.250	1.535	2.500	0.118
732308		3/8"	0.375	1.250	1.535	2.500	0.118
732102		1/2"	0.500	1.250	1.535	2.500	0.118
732508		5/8"	0.625	1.250	1.535	2.500	0.118
732304		3/4"	0.750	1.250	1.535	2.500	0.118
732100		1	1.000	1.250	1.535	2.500	0.118

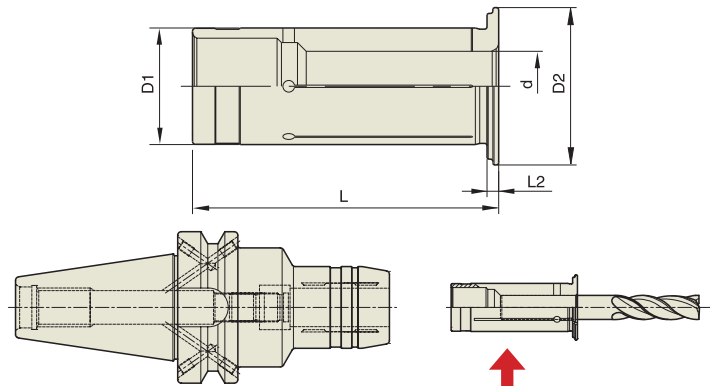
\* Other special sizes of Hydraulic Chuck collets can be supplied on request.

- Feature** The wall of Hydraulic Chuck collet(reduction sleeve) is cut by high precision wire-cutting to guarantee precise I.D and strong clamping power.
- Chucking Method** Please assemble cutting tool with collet first, and then insert collet into Hydraulic Chuck.





## HYDRAULIC CHUCK COLLET (REDUCTION SLEEVE : CLOSED TYPE)



Hydraulic Chuck collet

### INCH / METRIC

Unit : inch

EDP No.	TYPE	d	D1	D2	L	L2	
111203	HS1/2"	3	3mm	0.500	0.748	1.850	0.079
111204		4	4mm	0.500	0.748	1.850	0.079
111205		5	5mm	0.500	0.748	1.850	0.079
111206		6	6mm	0.500	0.748	1.850	0.079
111208		8	8mm	0.500	0.748	1.850	0.079
112503	HS3/4"	3	3mm	0.750	1.063	2.067	0.079
112504		4	4mm	0.750	1.063	2.067	0.079
112505		5	5mm	0.750	1.063	2.067	0.079
112506		6	6mm	0.750	1.063	2.067	0.079
112508		8	8mm	0.750	1.063	2.067	0.079
112510	HS1 1/4"	10	10mm	0.750	1.063	2.067	0.079
112512		12	12mm	0.750	1.063	2.067	0.079
112514		14	14mm	0.750	1.063	2.067	0.079
113208		8	8mm	1.250	1.535	2.500	0.118
113210	HS1 1/4"	10	10mm	1.250	1.535	2.500	0.118
113212		12	12mm	1.250	1.535	2.500	0.118
113214		14	14mm	1.250	1.535	2.500	0.118
113216		16	16mm	1.250	1.535	2.500	0.118
113218		18	18mm	1.250	1.535	2.500	0.118
113220		20	20mm	1.250	1.535	2.500	0.118
113225		25	25mm	1.250	1.535	2.500	0.118

\* Other special sizes of Hydraulic Chuck collets can be supplied on request.

#### Feature

The wall of Hydraulic Chuck collet(reduction sleeve) is cut by high precision wire-cutting to guarantee precise I.D and strong clamping power.

#### Chucking Method

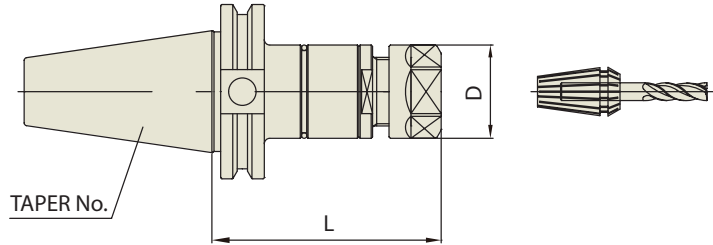
Please assemble cutting tool with collet first, and then insert collet into Hydraulic Chuck.



# ROTARY TOOL HOLDERS

## SYNCHRO TAPPING ER CHUCK

# CAT



ASME B5.50 - CAT	Taper Accuracy <b>AT3</b>	G Value -	RPM -	Coolant System <b>AD/B</b>
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### ASME B5.50-2009-CAT

Unit : mm

EDP No.	TAPER No.	MODEL No.	TAP SIZE	CLAMPING RANGE	NUT	D	L
JK060SYT	40	CAT40 AD/B - SYTER 12 - 79	M3 - M12	3.5 - 10	ER16	28	79
JK062SYT		CAT40 AD/B - SYTER 16 - 85	M3 - M16	3.5 - 10	ER20	35	85
JK064SYT		CAT40 AD/B - SYTER 20 - 90	M3 - M20	3.5 - 16	ER25	42	90
JK066SYT		CAT40 AD/B - SYTER 27 - 100	M4 - M27	3.5 - 16	ER32	50	100
JK068SYT		CAT40 AD/B - SYTER 33 - 105	M4 - M33	7 - 16	ER40	63	105
JL060SYT	50	CAT50 AD/B - SYTER 12 - 79	M3 - M12	3.5 - 10	ER16	28	79
JL062SYT		CAT50 AD/B - SYTER 16 - 85	M3 - M16	3.5 - 10	ER20	35	85
JL064SYT		CAT50 AD/B - SYTER 20 - 90	M3 - M20	3.5 - 16	ER25	42	90
JL066SYT		CAT50 AD/B - SYTER 27 - 100	M4 - M27	3.5 - 16	ER32	50	100
JL068SYT		CAT50 AD/B - SYTER 33 - 105	M4 - M33	7 - 16	ER40	63	105

\* BT(JIS B6339/MAS-403), HSK(DIN 69893/ISO 12164-1) and STRAIGHT-K Taper products are available.  
For details, please discuss separately.

\*

#### Feature

- To compensate for synchronization errors to extend tap life and to improve thread quality
- To compensate for pitch tolerances of taps
- For machine with synchronized spindle

## ER WRENCH

FIG.1

EDP No.	SERIES	TYPE
ZZ062	ER11	FIG.1
ZZ064	ER16	FIG.1
ZZ067	ER20	FIG.1



FIG.1

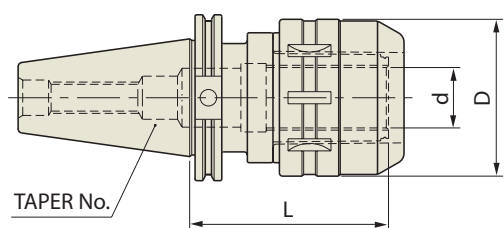
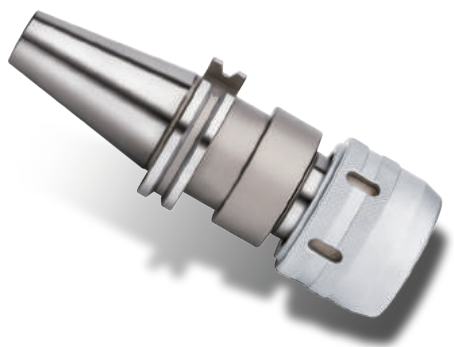
EDP No.	SERIES	TYPE
ZZ070	ER25	FIG.2
ZZ073	ER32	FIG.2
ZZ076	ER40	FIG.2



FIG.2

\* Design and shape could be changed without prior notice.

**POWER MILLING CHUCK** **CAT**



ASME B5.50 - CAT	Taper Accuracy AT3	G Value -	RPM -	Coolant System AD
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**ASME B5.50-2009-CAT**

■ **STANDARD**

Unit : inch

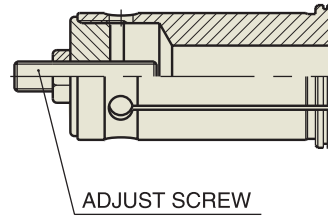
EDP No.	TAPER No.	MODEL No.	d	D	L
LK010	40	CAT40 - C3/4 - 4.13	0.750	2.126	4.13
LK014		CAT40 - C1" - 4.13	1.000	2.461	4.13
LK017		CAT40 - C1 1/4 - 4.13	1.250	2.835	4.13
LL010	50	CAT50 - C3/4 - 4.13	0.750	2.126	4.13
LL014		CAT50 - C1" - 4.13	1.000	2.461	4.13
LL017		CAT50 - C1 1/4 - 4.13	1.250	2.835	4.13

\* Collets / Wrenches for Power Milling Chucks on opposite page.



# ROTARY TOOL HOLDERS

## POWER MILLING CHUCK COLLET



Unit : inch

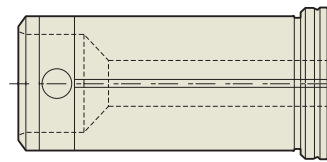
EDP No.	TYPE	D
MZ002	C3/4	1/4
MZ003	C3/4	5/16
MZ004	C3/4	3/8
MZ006	C3/4	1/2
MZ008	C3/4	5/8

Unit : inch

EDP No.	TYPE	D
MZ102	C1	1/4
MZ103	C1	5/16
MZ104	C1	3/8
MZ106	C1	1/2
MZ108	C1	5/8
MZ110	C1	3/4

Unit : inch

EDP No.	TYPE	D
MZ302	C1 1/4	1/4
MZ303	C1 1/4	5/16
MZ304	C1 1/4	3/8
MZ306	C1 1/4	1/2
MZ308	C1 1/4	5/8
MZ310	C1 1/4	3/4
MZ312	C1 1/4	7/8
MZ314	C1 1/4	1"



Unit : inch

EDP No.	TYPE	D
MY002	C3/4	1/4
MY003	C3/4	5/16
MY004	C3/4	3/8
MY006	C3/4	1/2
MY008	C3/4	5/8

Unit : inch

EDP No.	TYPE	D
MY102	C1	1/4
MY103	C1	5/16
MY104	C1	3/8
MY106	C1	1/2
MY108	C1	5/8
MY110	C1	3/4

Unit : inch

EDP No.	TYPE	D
MY302	C1 1/4	1/4
MY303	C1 1/4	5/16
MY304	C1 1/4	3/8
MY306	C1 1/4	1/2
MY308	C1 1/4	5/8
MY310	C1 1/4	3/4
MY312	C1 1/4	7/8
MY314	C1 1/4	1"

## WRENCH

Unit : inch

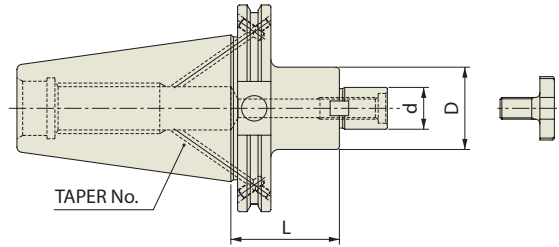
EDP No.	SERIES
ZZ056	C3/4
ZZ057	C1
ZZ058	C1 1/4





## SHELL MILL ARBOR

# CAT



### ASME B5.50-2009-CAT

ASME B5.50 - CAT	Taper Accuracy AT3	G Value 6.3	RPM 15,000	Coolant System AD/B
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#### STANDARD

Unit : inch

EDP No.	TAPER No.	MODEL No.	d	L	D
EK006B	40	CAT40 AD/B - SMA 1/2 - 1.50	0.500	1.50	1.44
EK010B		CAT40 AD/B - SMA 3/4 - 1.50	0.750	1.50	1.69
EK014B		CAT40 AD/B - SMA 1" - 2.00	1.000	2.00	2.19
EK017B		CAT40 AD/B - SMA 1 1/4 - 2.00	1.250	2.00	2.75
EK021B		CAT40 AD/B - SMA 1 1/2 - 3.00	1.500	3.00	3.81
EL010B	50	CAT50 AD/B - SMA 3/4 - 1.50	0.750	1.50	1.69
EL014B		CAT50 AD/B - SMA 1" - 2.00	1.000	2.00	2.19
EL017B		CAT50 AD/B - SMA 1 1/4 - 2.00	1.250	2.00	2.75
EL021B		CAT50 AD/B - SMA 1 1/2 - 2.50	1.500	2.50	3.81
EL029B		CAT50 AD/B - SMA 2" - 3.00	2.000	3.00	4.88

#### EXTENDED

Unit : inch

EDP No.	TAPER No.	MODEL No.	d	L	D
EK306B	40	CAT40 AD/B - SMA 1/2 - 3.50	0.500	3.50	1.44
EK310B		CAT40 AD/B - SMA 3/4 - 3.50	0.750	3.50	1.69
EK314B		CAT40 AD/B - SMA 1" - 4.00	1.000	4.00	2.19
EK317B		CAT40 AD/B - SMA 1 1/4 - 4.00	1.250	4.00	2.75
EK321B		CAT40 AD/B - SMA 1 1/2 - 4.00	1.500	4.00	3.81
EL310B	50	CAT50 AD/B - SMA 3/4 - 3.50	0.750	3.50	1.69
EL314B		CAT50 AD/B - SMA 1" - 4.00	1.000	4.00	2.19
EL317B		CAT50 AD/B - SMA 1 1/4 - 4.00	1.250	4.00	2.75
EL321B		CAT50 AD/B - SMA 1 1/2 - 4.00	1.500	4.00	3.81
EL329B		CAT50 AD/B - SMA 2" - 4.00	2.000	4.00	4.88

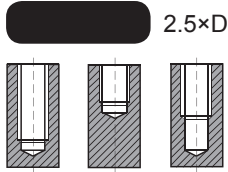
\* High balanced Shell Mill Arbors are available on request.



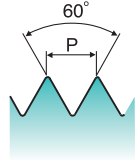
# SPIRAL FLUTE TAPS

**BD / BO** SERIES

## METRIC SPIRAL FLUTE TAPS MODIFIED BOTTOMING STYLE for Steels & Stainless Steels



DIN Length-ANSI Shank



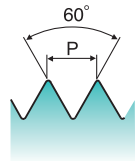
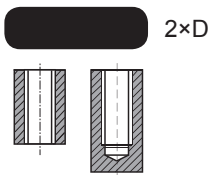
VG
Super HSS
M MF
2P~3P
Oxide
Hardslick
R40

SIZE	Pitch	Limit	No. of Flute	EDP No.	
				Steam Oxide	Hardslick
M3	0.5	D3	3	<b>BD203</b>	<b>B0203</b>
M3.5	0.6	D4	3	<b>BD224</b>	<b>B0224</b>
M4	0.7	D4	3	<b>BD244</b>	<b>B0244</b>
M5	0.8	D4	3	<b>BD284</b>	<b>B0284</b>
M6	1.0	D5	3	<b>BD315</b>	<b>B0315</b>
M7	1.0	D5	3	<b>BD345</b>	<b>B0345</b>
M8	1.25	D5	3	<b>BD365</b>	<b>B0365</b>
M8	1.0	D5	3	<b>BD375</b>	<b>B0375</b>
M10	1.5	D6	3	<b>BD426</b>	<b>B0426</b>
M10	1.25	D5	3	<b>BD435</b>	<b>B0435</b>
M12	1.75	D6	3	<b>BD506</b>	<b>B0506</b>
M12	1.25	D5	3	<b>BD525</b>	<b>B0525</b>
M14	2.0	D7	3	<b>BD547</b>	<b>B0547</b>
M14	1.5	D6	3	<b>BD556</b>	<b>B0556</b>
M16	2.0	D7	3	<b>BD607</b>	<b>B0607</b>
M16	1.5	D6	3	<b>BD616</b>	<b>B0616</b>
M18	2.5	D7	4	<b>BD657</b>	<b>B0657</b>
M18	1.5	D6	4	<b>BD676</b>	<b>B0676</b>

◎ : Excellent ○ : Good

P				M				K		
Low carbon steels/ Free machining carbon steels	Medium to high carbon steels/ Low alloyed steels	Steel castings & forgings / Heat-treatable alloy steels	Alloyed tool steels/ Mold steels	Free machining stainless steels	Heat-and corrosion resistant stainless steels / Valve stainless steels	Stainless steel castings / Precipitation hardening stainless steels	Grey cast iron			
~HRc15 (~HB180)	~HRc23 (~HB240)	~HRc24 (~HB250) ~HRc38 (~HB350)	~HRc38 (~HB350) ~HRc44 (~HB420)	~HRc23 (~HB240)	~HRc24 (~HB250) ~HRc38 (~HB350)	~HRc38 (~HB350) ~HRc44 (~HB420)	~HRc19 (~HB220)			
○	◎	◎		◎	◎					
K	N				S					
Nodular cast iron / Chilled cast iron / Meehanite iron / Ductile iron	Pure and alloyed copper	Free machining brass / Alloyed brass	Bronze	Pure Aluminum/ Aluminum alloy	Aluminum alloy castings	Zinc	Magnesium	718 & 625 INCO / Waspaloy / Hastelloy / Invar / Monel / Incoloy	718 Inconel / A286	Titanium
~HRc24 (~HB250)										
	○	○		○		○	○			

# SPIRAL FLUTE TAPS MODIFIED BOTTOMING STYLE for Steels & Stainless Steels



VG
Super HSS
UNC UNF
2P~3P

Hardslick
R40

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	
	UNC	UNF			Steam Oxide	Hardslick
#2	56	—	H2	2	BF082	BK082
#4	40	—	H2	2	BF162	BK162
#5	40	—	H2	3	BF202	BK202
#6	32	—	H3	3	BF243	BK243
#8	32	—	H3	3	BF283	BK283
#10	24	—	H3	3	BF323	BK323
#10	—	32	H3	3	BF343	BK343
1/4	20	—	H3	3	BF403	BK403
1/4	20	—	H5	3	BF405	BK405
1/4	—	28	H3	3	BF423	BK423
1/4	—	28	H4	3	BF424	BK424
5/16	18	—	H5	3	BF445	BK445
5/16	—	24	H4	3	BF464	BK464
3/8	16	—	H5	3	BF485	BK485
3/8	—	24	H4	3	BF504	BK504
7/16	14	—	H5	3	BF525	BK525
7/16	—	20	H5	3	BF545	BK545
1/2	13	—	H5	3	BF565	BK565
1/2	—	20	H5	3	BF585	BK585
9/16	12	—	H5	3	BF605	BK605
9/16	—	18	H5	3	BF625	BK625
5/8	11	—	H5	4	BF645	BK645
5/8	—	18	H5	4	BF665	BK665
3/4	10	—	H5	4	BF705	BK705
3/4	—	16	H5	4	BF725	BK725
7/8	9	—	H6	4	BF746	BK746
7/8	—	14	H6	4	BF766	BK766
1	8	—	H6	4	BF786	BK786
1	—	12	H6	4	BF806	BK806
1-1/8	8	—	H6	4	BF836	BK836
1-1/4	8	—	H6	4	BF876	BK876
1-3/8	8	—	H6	4	BF916	BK916
1-1/2	8	—	H6	4	BF956	BK956

◎ : Excellent ○ : Good

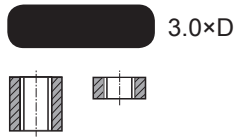
P				M				K		
Low carbon steels/ Free machining carbon steels ~HRc15 (~HB180)	Medium to high carbon steels/ Low alloyed steels ~HRc23 (~HB240)	Steel castings & forgings / Heat-treatable alloy steels ~HRc24 (~HB250) ~HRc38 (~HB350)	Alloyed tool steels/ Mold steels ~HRc38 (~HB350) ~HRc44 (~HB420)	Free machining stainless steels ~HRc23 (~HB240)	Heat-and corrosionresistant stainless steels / Valve stainless steels ~HRc24 (~HB250) ~HRc38 (~HB350)	Stainless steel castings / Precipitation hardening stainless steels ~HRc38 (~HB350) ~HRc44 (~HB420)	Grey cast iron ~HRc19 (~HB220)			
○	◎	◎		◎	◎					
K		N				S				
Nodular cast iron / Chilled cast iron / Meehanite iron / Ductile iron ~HRc24 (~HB250)	Pure and alloyed copper	Free machining brass / Alloyed brass	Bronze	Pure Aluminum/ Aluminum alloy	Aluminum alloy castings	Zinc	Magnesium	718 & 625 INCO / Waspaloy / Hastelloy / Invar / Monel / Incoloy	718 Inconel / A286	Titanium
	○	○		○		○	○			



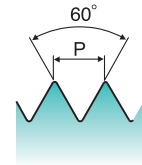
# SPIRAL POINT TAPS

**N3/03** SERIES

## METRIC SPIRAL POINT TAPS PLUG STYLE for Steels & Stainless Steels



DIN Length-ANSI Shank



HR
Super HSS
M MF
4P~5P
Oxide
Hardslick

SIZE	Pitch	Limit	No. of Flute	EDP No.	
				Steam Oxide	Hardslick
M3	0.5	D3	3	N3203	03203
M3.5	0.6	D4	3	N3224	03224
M4	0.7	D4	3	N3244	03244
M5	0.8	D4	3	N3284	03284
M6	1.0	D5	3	N3315	03315
M7	1.0	D5	3	N3345	03345
M8	1.25	D5	3	N3365	03365
M8	1.0	D5	3	N3375	03375
M10	1.5	D6	3	N3426	03426
M10	1.25	D5	3	N3435	03435
M12	1.75	D6	3	N3506	03506
M12	1.25	D5	3	N3525	03525
M14	2.0	D7	3	N3547	03547
M14	1.5	D6	3	N3556	03556
M16	2.0	D7	3	N3607	03607
M16	1.5	D6	3	N3616	03616
M18	2.5	D7	3	N3657	03657
M18	1.5	D6	3	N3676	03676

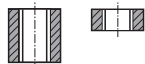
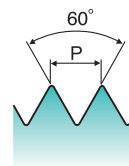
◎ : Excellent ○ : Good

P				M				K		
Low carbon steels/ Free machining carbon steels ~HRc15 (~HB180)	Medium to high carbon steels/ Low alloyed steels ~HRc23 (~HB240)	Steel castings & forgings / Heat-treatable alloy steels ~HRc24 (~HB250) ~HRc38 (~HB350)	Alloyed tool steels/ Mold steels ~HRc38 (~HB350) ~HRc44 (~HB420)	Free machining stainless steels ~HRc23 (~HB240)	Heat-and corrosion resistant stainless steels / Valve stainless steels ~HRc24 (~HB250) ~HRc38 (~HB350)	Stainless steel castings / Precipitation hardening stainless steels ~HRc38 (~HB350) ~HRc44 (~HB420)	Grey cast iron ~HRc19 (~HB220)			
○	◎	◎		◎	◎					
K	N						S			
Nodular cast iron / Chilled cast iron / Meehanite iron / Ductile iron ~HRc24 (~HB250)	Pure and alloyed copper	Free machining brass / Alloyed brass	Bronze	Pure Aluminum/ Aluminum alloy	Aluminum alloy castings	Zinc	Magnesium	718 & 625 INCO / Waspaloy / Hastelloy / Invar / Monel / Incoloy	718 Inconel / A286	Titanium
	○	○		○		○	○			



**SPIRAL POINT TAPS PLUG STYLE**  
**for Steels & Stainless Steels**

3.0xD


**DIN Length-ANSI Shank**


**VG**

Super HSS

UNC UNF

4P~5P

Hardslick

SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.	
	UNC	UNF			Steam Oxide	Hardslick
#2	56	—	H2	2	<b>N4082</b>	<b>05082</b>
#4	40	—	H2	2	<b>N4162</b>	<b>05162</b>
#5	40	—	H2	3	<b>N4202</b>	<b>05202</b>
#6	32	—	H3	3	<b>N4243</b>	<b>05243</b>
#8	32	—	H3	3	<b>N4283</b>	<b>05283</b>
#10	24	—	H3	3	<b>N4323</b>	<b>05323</b>
#10	—	32	H3	3	<b>N4343</b>	<b>05343</b>
1/4	20	—	H3	3	<b>N4403</b>	<b>05403</b>
1/4	20	—	H5	3	<b>N4405</b>	<b>05405</b>
1/4	—	28	H3	3	<b>N4423</b>	<b>05423</b>
5/16	18	—	H5	3	<b>N4445</b>	<b>05445</b>
5/16	—	24	H4	3	<b>N4464</b>	<b>05464</b>
3/8	16	—	H5	3	<b>N4485</b>	<b>05485</b>
3/8	—	24	H4	3	<b>N4504</b>	<b>05504</b>
7/16	14	—	H5	3	<b>N4525</b>	<b>05525</b>
7/16	—	20	H5	3	<b>N4545</b>	<b>05545</b>
1/2	13	—	H5	3	<b>N4565</b>	<b>05565</b>
1/2	—	20	H5	3	<b>N4585</b>	<b>05585</b>
9/16	12	—	H5	3	<b>N4605</b>	<b>05605</b>
9/16	—	18	H5	3	<b>N4625</b>	<b>05625</b>
5/8	11	—	H5	3	<b>N4645</b>	<b>05645</b>
5/8	—	18	H5	3	<b>N4665</b>	<b>05665</b>
3/4	10	—	H5	3	<b>N4705</b>	<b>05705</b>
3/4	—	16	H5	3	<b>N4725</b>	<b>05725</b>
7/8	9	—	H6	3	<b>N4746</b>	<b>05746</b>
7/8	—	14	H6	3	<b>N4766</b>	<b>05766</b>
1	8	—	H6	3	<b>N4786</b>	<b>05786</b>
1	—	12	H6	3	<b>N4806</b>	<b>05806</b>
1-1/8	8	—	H6	4	<b>N4836</b>	<b>05836</b>
1-1/4	8	—	H6	4	<b>N4876</b>	<b>05876</b>
1-3/8	8	—	H6	4	<b>N4916</b>	<b>05916</b>
1-1/2	8	—	H6	4	<b>N4956</b>	<b>05956</b>

◎ : Excellent ○ : Good

P				M				K		
Low carbon steels/ Free machining carbon steels	Medium to high carbon steels/ Low alloyed steels	Steel castings & forgings / Heat-treatable alloy steels	Alloyed tool steels/ Mold steels	Free machining stainless steels	Heat-and corrosionresistant stainless steels / Valve stainless steels	Stainless steel castings / Precipitation hardening stainless steels	Grey cast iron			
~HRc15 (~HB180)	~HRc23 (~HB240)	~HRc24 (~HB250) ~HRc38 (~HB350)	~HRc38 (~HB350) ~HRc44 (~HB420)	~HRc23 (~HB240)	~HRc24 (~HB250) ~HRc38 (~HB350)	~HRc38 (~HB350) ~HRc44 (~HB420)	~HRc19 (~HB220)			
○	◎	◎		◎	◎					
K		N				S				
Nodular cast iron / Chilled cast iron / Meehanite iron / Ductile iron	Pure and alloyed copper	Free machining brass / Alloyed brass	Bronze	Pure Aluminum/ Aluminum alloy	Aluminum alloy castings	Zinc	Magnesium	718 & 625 INCO / Waspaloy / Hastelloy / Invar / Monel / Incoloy	718 Inconel / A286	Titanium
~HRc24 (~HB250)										
	○	○		○		○	○			

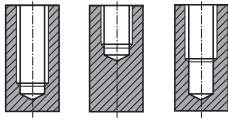


# PIPE TAPS

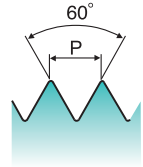
**Q1/Q0/Q6** SERIES

## TAPER PIPE TAPS : SPIRAL FLUTE STANDARD PROJECTION for Steels & Stainless Steels

2.5×D



USCTI



VA
HSSE-V3
NPTF
USCTI 311
2P~3P
Bright
Steam Oxide
Hardslick
R15

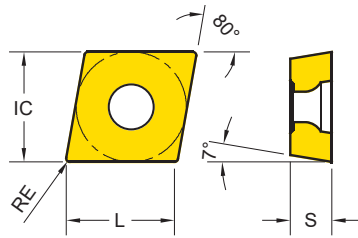
SIZE	Thread Per Inch	No. of Flute	EDP No.		
			Bright	Steam Oxide	Hardslick
1/16	27	4	Q1020	Q0020	Q6020
1/8(Lg.)	27	4	Q1200	Q0200	Q6200
1/8(Sm.)	27	4	Q1210	Q0210	Q6210
1/4	18	4	Q1400	Q0400	Q6400
3/8	18	4	Q1480	Q0480	Q6480
1/2	14	4	Q1560	Q0560	Q6560
3/4	14	4	Q1700	Q0700	Q6700
1	11-1/2	4	Q1780	Q0780	Q6780
1-1/4	11-1/2	5	Q1860	Q0860	Q6860
1-1/2	11-1/2	7	Q1960	Q0960	Q6960
2	11-1/2	7	Q1D20	Q0D20	Q6D20

► These Taps meet both NPT and NPTF Standards.

◎ : Excellent ○ : Good

P				M				K		
Low carbon steels/ Free machining carbon steels	Medium to high carbon steels/ Low alloyed steels	Steel castings & forgings / Heat-treatable alloy steels	Alloyed tool steels/ Mold steels	Free machining stainless steels	Heat and corrosion resistant stainless steels / Valve stainless steels	Stainless steel castings / Precipitation hardening stainless steels	Grey cast iron			
~HRc15 (~HB180)	~HRc23 (~HB240)	~HRc24 (~HB250) ~HRc38 (~HB350)	~HRc38 (~HB350) ~HRc44 (~HB420)	~HRc23 (~HB240)	~HRc24 (~HB250) ~HRc38 (~HB350)	~HRc38 (~HB350) ~HRc44 (~HB420)	~HRc19 (~HB220)			
○	◎	○		◎	○					
K	N				S					
Nodular cast iron / Chilled cast iron / Meehanite iron / Ductile iron	Pure and alloyed copper	Free machining brass / Alloyed brass	Bronze	Pure Aluminum/ Aluminum alloy	Aluminum alloy castings	Zinc	Magnesium	718 & 625 INCO / Waspaloy / Hastelloy / Invar / Monel / Incoloy	718 Inconel / A286	Titanium
~HRc24 (~HB250)										
○					○					




## Turning Inserts - Positive CCMT / CCGT (80° Positive)



Series	L	IC	S
CC** 21.5	.244	1/4	3/32
CC** 32.5	.362	3/8	5/32
CC** 43	.488	1/2	3/16

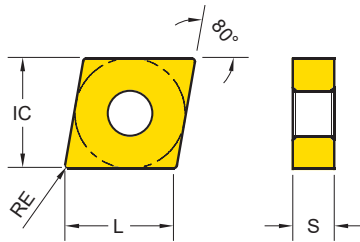
EDP 2200..

●: Stock item ○: Order made item

CCGT CCMT	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30					
-AL  Aluminum	CCGT 32.50.5 - AL	1/128	.001 ~ .003	.02 ~ .04	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
	CCGT 32.51 - AL	1/64	.002 ~ .010	.02 ~ .08										● 0340	● 0339
	CCGT 32.52 - AL	1/32	.004 ~ .014	.04 ~ .12										● 0330	● 0081
	CCGT 430.5 - AL	1/128	.002 ~ .006	.00 ~ .04										● 0331	● 0082
	CCGT 431 - AL	1/64	.002 ~ .008	.01 ~ .06										● 0474	● 0473
	CCGT 432 - AL	1/32	.002 ~ .008	.02 ~ .10										● 0476	● 0475
-UF  Finishing	CCMT 21.51 - UF	1/64	.002 ~ .008	.02 ~ .06		○ 0163	● 0866	● 0164	● 0165						
	CCMT 32.51 - UF	1/64	.002 ~ .008	.02 ~ .08		○ 0169		● 0170	● 0171						
	CCMT 32.52 - UF	1/32	.002 ~ .010	.04 ~ .08		○ 0964		● 0951	● 0953						
-UG  General	CCMT 21.51 - UG	1/64	.004 ~ .010	.02 ~ .08		○ 0166		● 0167	● 0168	● 0006					
	CCMT 21.52 - UG	1/32	.004 ~ .010	.03 ~ .08		○ 0479		● 0683	● 0684	● 0009					
	CCMT 32.51 - UG	1/64	.006 ~ .012	.02 ~ .08		○ 0172		○ 0173	● 0174	● 0007					
	CCMT 32.52 - UG	1/32	.006 ~ .012	.03 ~ .10	● 0445	○ 0150		○ 0151	● 0152	● 0008					
	CCMT 431 - UG	1/64	.006 ~ .014	.02 ~ .10		● 0175		● 0176	● 0177						
	CCMT 432 - UG	1/32	.006 ~ .014	.03 ~ .14		● 0153	● 0867	● 0154	● 0155	● 0005					
CCMT 433 - UG	3/64	.006 ~ .014	.05 ~ .14		● 0483		● 0915	● 1135							

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1-5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6-9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10-11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12-13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	
K	15-16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	17-18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	-	
S	31-37	Superalloys & Titanium	-	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	
H	38-41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

## Turning Inserts - Negative CNMG / CNMA (80° Negative)







Series	L	IC	S
CN** 43	.472	1/2	3/16
CN** 54	.630	5/8	1/4
CN** 64	.748	3/4	1/4

EDP 2200..

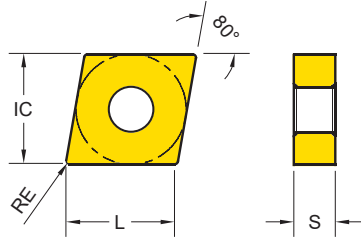
●: Stock item ○: Order made item

P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
K10	K20			M20		S10	S20	S30		

CNMA CNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	EDP 2200..															
					YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10					
..MA  Cast iron	CNMA 431	1/64	.006 ~ .020	.02 ~ .10	● 0089	● 0354														
	CNMA 432	1/32	.006 ~ .020	.04 ~ .14	● 0010	● 0355														
	CNMA 433	3/64	.006 ~ .020	.06 ~ .20	● 0011	● 0356														
	CNMA 434	1/16	.006 ~ .020	.06 ~ .20	● 1188															
	CNMA 543	3/64	.006 ~ .020	.06 ~ .20	● 0012	● 0357														
	CNMA 544	1/16	.006 ~ .020	.08 ~ .20	● 0446	● 0447														
	CNMA 643	3/64	.006 ~ .020	.06 ~ .35	● 0989	● 0990														
	CNMA 644	1/16	.006 ~ .039	.12 ~ .39	● 0448	● 0449														
-UF  Finishing	CNMG 431 - UF	1/64	.002 ~ .010	.02 ~ .06		● 0178		● 0179	● 0180	● 0003										
	CNMG 432 - UF	1/32	.002 ~ .010	.04 ~ .10		● 0189	● 1027	● 0190	● 0191											
-UL  Light Machining and Sticky Material	CNMG 431 - UL	1/64	.004 ~ .012	.02 ~ .08		● 0358		● 0359	● 0524											
	CNMG 432 - UL	1/32	.004 ~ .012	.04 ~ .12		● 0192		● 0193	● 0194											
	CNMG 433 - UL	3/64	.004 ~ .012	.06 ~ .14		● 0201		● 0202	● 0203											
-UM  Medium Machining Unstable condition	CNMG 431 - UM	1/64	.006 ~ .012	.02 ~ .06		● 0184		● 0185	● 0186											
	CNMG 432 - UM	1/32	.006 ~ .012	.02 ~ .08	● 0338	● 0114	● 0843	● 0100	● 0140											
	CNMG 433 - UM	3/64	.006 ~ .012	.06 ~ .12		● 0525		● 0486	● 0526											

Cutting Speed			Vc (ft/min)																					
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1-5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-
	6-9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-
	10-11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-
M	12-13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-
K	15-16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	
S	31-37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	
H	38-41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

# Turning Inserts - Negative CNMG / CNMA (80° Negative)



Series	L	IC	S
CN** 43	.472	1/2	3/16
CN** 54	.630	5/8	1/4
CN** 64	.748	3/4	1/4

EDP 2200..

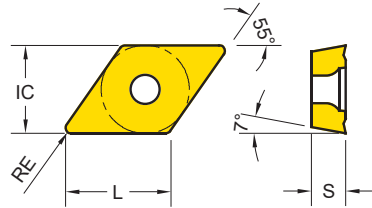
●: Stock item ○: Order made item

CNMA CNMG	Designation	RE	Fn (in/rev.)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	YG100	YG10			
<b>-UG</b>  Medium Machining at stable condition	CNMG 431 - UG	1/64	.008 ~ .016	.02 ~ .08	●	○	●	●	●	●					
	CNMG 432 - UG	1/32	.008 ~ .016	.04 ~ .12	○	●	●	●	●	●					
	CNMG 433 - UG	3/64	.008 ~ .016	.06 ~ .16	○	●	●	●	●	●					
	CNMG 542 - UG	1/32	.008 ~ .016	.06 ~ .20	○	●	●	●	●	●					
	CNMG 543 - UG	3/64	.008 ~ .016	.06 ~ .20	○	●	●	●	●	●					
	CNMG 544 - UG	1/16	.008 ~ .016	.07 ~ .20	○	●	●	●	●	●					
	CNMG 642 - UG	1/32	.008 ~ .020	.12 ~ .28	○	●	●	●	●	●					
<b>-UC</b>  Cast iron and Medium roughing	CNMG 431 - UC	1/64	.008 ~ .016	.02 ~ .10	○	●	●	●	●	●					
	CNMG 432 - UC	1/32	.008 ~ .016	.04 ~ .16	○	●	●	●	●	●					
	CNMG 433 - UC	3/64	.008 ~ .016	.06 ~ .18	○	●	●	●	●	●					
<b>-UR</b>  Roughing	CNMG 432 - UR	1/32	.012 ~ .020	.04 ~ .16	○	●	●	●	●	●					
	CNMG 433 - UR	3/64	.012 ~ .020	.06 ~ .20	○	●	●	●	●	●					
	CNMG 434 - UR	1/16	.012 ~ .020	.08 ~ .20	○	●	●	●	●	●					
	CNMG 542 - UR	1/32	.012 ~ .020	.04 ~ .20	○	●	●	●	●	●					
	CNMG 543 - UR	3/64	.012 ~ .020	.06 ~ .20	○	●	●	●	●	●					
	CNMG 544 - UR	1/16	.012 ~ .020	.08 ~ .20	○	●	●	●	●	●					
	CNMG 642 - UR	1/32	.012 ~ .031	.12 ~ .35	○	●	●	●	●	●					
	CNMG 643 - UR	3/64	.012 ~ .031	.12 ~ .35	○	●	●	●	●	●					
CNMG 644 - UR	1/16	.012 ~ .031	.12 ~ .35	○	●	●	●	●	●						

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	-	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	-	
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

# Turning Inserts - Positive

## DCMT / DCGT (55° Positive)



Series	L	IC	S
DC** 21.5	.295	1/4	3/32
DC** 32.5	.441	3/8	5/32

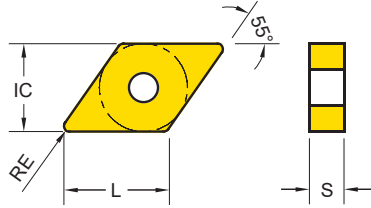
EDP 2200..

●: Stock item ○: Order made item

DCGT DCMT	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20		M20		S10	S20	S30			
					YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10
-AL  Aluminum	DCGT 32.50.5 - AL	1/128	.001 ~ .003	.02 ~ .04										●	●
	DCGT 32.51 - AL	1/64	.002 ~ .010	.02 ~ .08										●	●
	DCGT 32.52 - AL	1/32	.004 ~ .012	.04 ~ .10										●	●
-UF  Finishing	DCMT 21.51 - UF	1/64	.002 ~ .008	.02 ~ .06		●		●	●						
	DCMT 32.51 - UF	1/64	.002 ~ .010	.02 ~ .08		●		●	●						
	DCMT 32.52 - UF	1/32	.002 ~ .010	.04 ~ .10		●		●	●						
-UG  General	DCMT 21.51 - UG	1/64	.004 ~ .010	.02 ~ .06		●		●	●	●					
	DCMT 21.52 - UG	1/32	.004 ~ .010	.03 ~ .06		●		●	●	●					
	DCMT 32.51 - UG	1/64	.006 ~ .012	.02 ~ .08	●	●		●	●	●					
	DCMT 32.52 - UG	1/32	.006 ~ .012	.03 ~ .10	●	●		●	●	●					

Cutting Speed			Vc (ft/min)																					
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

# Turning Inserts - Negative DNMG / DNMA (55° Negative)



Series	L	IC	S
DN** 43	.551	1/2	3/16
DN** 44	.551	1/2	1/4

EDP 2200..

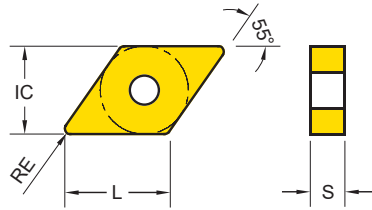
●: Stock item ○: Order made item

DNMA DNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30	N20	N20			
..MA  Cast iron	DNMA 432	1/32	.006 ~ .020	.04 ~ .12	●	●									
	DNMA 433	3/64	.006 ~ .020	.06 ~ .16	●	●									
	DNMA 442	1/32	.006 ~ .020	.04 ~ .12	●	●									
	DNMA 443	3/64	.006 ~ .020	.06 ~ .16	●	●									
-UF  Finishing	DNMG 431 - UF	1/64	.002 ~ .010	.02 ~ .06		●		●	●	●					
	DNMG 432 - UF	1/32	.002 ~ .010	.04 ~ .10		●	●	●	●						
	DNMG 441 - UF	1/64	.002 ~ .010	.04 ~ .08		●		●	●	●					
	DNMG 442 - UF	1/32	.002 ~ .010	.06 ~ .14		●		●	●	●					
-UL  Light Machining and Sticky Material	DNMG 331 - UL	1/64	.004 ~ .012	.02 ~ .10		●		●	●						
	DNMG 332 - UL	1/32	.004 ~ .012	.02 ~ .10		●		●	●						
	DNMG 431 - UL	1/64	.004 ~ .012	.02 ~ .12		●		●	●						
	DNMG 432 - UL	1/32	.004 ~ .012	.04 ~ .12		●	●	●	●						
	DNMG 433 - UL	3/64	.004 ~ .012	.06 ~ .12		●	●	●	●						
	DNMG 441 - UL	1/64	.004 ~ .012	.02 ~ .08		●		●	●						
	DNMG 442 - UL	1/32	.004 ~ .012	.06 ~ .12		●		●	●						
	DNMG 443 - UL	3/64	.004 ~ .012	.06 ~ .12		●		●	●						

Cutting Speed			Vc (ft/min)																					
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	





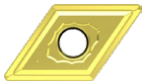

## Turning Inserts - Negative DNMG / DNMA (55° Negative)



Series	L	IC	S
DN** 43	.551	1/2	3/16
DN** 44	.551	1/2	1/4

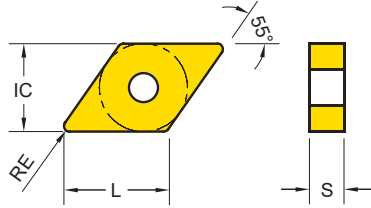
EDP 2200..

●: Stock item ○: Order made item

PARTING & GROOVING	MILLING	DRILLING	TECHNICAL INFORMATION	DNMA DNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20	
									K10	K20	M20	S10	S20	S30	N20	N20				
				<b>-UM</b>					YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214	YG100	YG10	
					DNMG 432 - UM	1/32	.006 ~ .012	.04 ~ .12	●	●		●	●							
					DNMG 433 - UM	3/64	.006 ~ .012	.06 ~ .16	●	●		●	●							
					DNMG 442 - UM	1/32	.006 ~ .012	.02 ~ .08		●		●	●							
					DNMG 443 - UM	3/64	.006 ~ .012	.06 ~ .12	●	●		●	●							
				<b>-UG</b>																
					DNMG 431 - UG	1/64	.008 ~ .016	.02 ~ .12		●		●	●							
					DNMG 432 - UG	1/32	.008 ~ .016	.04 ~ .10	●	●		●	●	●	●					
					DNMG 433 - UG	3/64	.008 ~ .016	.06 ~ .12	●	●		●	●							
					DNMG 441 - UG	1/64	.008 ~ .016	.02 ~ .08		●		●	●							
					DNMG 442 - UG	1/32	.008 ~ .016	.04 ~ .12	●	●		●	●	●	●					
					DNMG 443 - UG	3/64	.008 ~ .016	.06 ~ .14	●	●		●	●							
				<b>-UC</b>																
					DNMG 432 - UC	1/32	.008 ~ .016	.04 ~ .12	●	●	●	●	●							
					DNMG 433 - UC	3/64	.008 ~ .016	.06 ~ .14	●	●		●	●							
					DNMG 442 - UC	1/32	.008 ~ .016	.04 ~ .12	●	●	●	●	●							
					DNMG 443 - UC	3/64	.008 ~ .016	.06 ~ .14	●	●	●	●	●							
				<b>-UR</b>																
					DNMG 432 - UR	1/32	.012 ~ .020	.04 ~ .14		●		●	●							
					DNMG 433 - UR	3/64	.012 ~ .020	.06 ~ .16	●	●		●	●							
					DNMG 442 - UR	1/32	.012 ~ .020	.04 ~ .20	●	●		●	●	●						
					DNMG 443 - UR	3/64	.012 ~ .020	.06 ~ .16	●	●		●	●	●	●					

Cutting Speed			Vc (ft/min)																					
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1-5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-
	6-9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-
	10-11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-
M	12-13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-
K	15-16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	
S	31-37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	
H	38-41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

# Turning Inserts - Negative DNMG / DNMA (55° Negative)



Series	L	IC	S
DN** 43	.551	1/2	3/16
DN** 44	.551	1/2	1/4

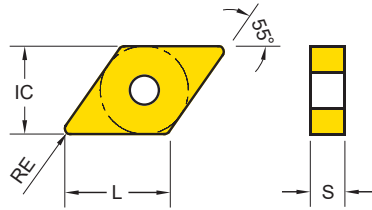
EDP 2200..

●: Stock item ○: Order made item

DNMA DNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30					
..MA  Cast iron	DNMA 432	1/32	.006 ~ .020	.04 ~ .12	●	●									
	DNMA 433	3/64	.006 ~ .020	.06 ~ .16	●	●									
	DNMA 442	1/32	.006 ~ .020	.04 ~ .12	●	●									
	DNMA 443	3/64	.006 ~ .020	.06 ~ .16	●	●									
-UF  Finishing	DNMG 431 - UF	1/64	.002 ~ .010	.02 ~ .06		●		●	●	●					
	DNMG 432 - UF	1/32	.002 ~ .010	.04 ~ .10	●	●	●	●	●						
	DNMG 441 - UF	1/64	.002 ~ .010	.04 ~ .08		●		●	●	●					
	DNMG 442 - UF	1/32	.002 ~ .010	.06 ~ .14		●		●	●	●					
-UL  Light Machining and Sticky Material	DNMG 331 - UL	1/64	.004 ~ .012	.02 ~ .10		●		●	●						
	DNMG 332 - UL	1/32	.004 ~ .012	.02 ~ .10		●		●	●						
	DNMG 431 - UL	1/64	.004 ~ .012	.02 ~ .12		●		●	●						
	DNMG 432 - UL	1/32	.004 ~ .012	.04 ~ .12		●	●	●	●						
	DNMG 433 - UL	3/64	.004 ~ .012	.06 ~ .12		●	●	●	●						
	DNMG 441 - UL	1/64	.004 ~ .012	.02 ~ .08		●		●	●						
	DNMG 442 - UL	1/32	.004 ~ .012	.06 ~ .12		●		●	●						
	DNMG 443 - UL	3/64	.004 ~ .012	.06 ~ .12		●		●	●						

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	-	-
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	-	-
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



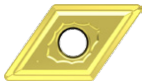

## Turning Inserts - Negative DNMG / DNMA (55° Negative)



Series	L	IC	S
DN** 43	.551	1/2	3/16
DN** 44	.551	1/2	1/4

EDP 2200..

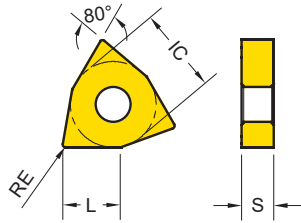
●: Stock item ○: Order made item

DNMA DNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20		M20		S10	S20	S30			
-UM  Medium Machining Unstable condition	DNMG 432 - UM	1/32	.006 ~ .012	.04 ~ .12	●	●		●	●						
	DNMG 433 - UM	3/64	.006 ~ .012	.06 ~ .16	●	●		●	●						
	DNMG 442 - UM	1/32	.006 ~ .012	.02 ~ .08		●		●	●						
	DNMG 443 - UM	3/64	.006 ~ .012	.06 ~ .12	●	●		●	●						
-UG  Medium Machining at stable condition	DNMG 431 - UG	1/64	.008 ~ .016	.02 ~ .12		●		●	●						
	DNMG 432 - UG	1/32	.008 ~ .016	.04 ~ .10	●	●		●	●	●					
	DNMG 433 - UG	3/64	.008 ~ .016	.06 ~ .12	●	●		●	●						
	DNMG 441 - UG	1/64	.008 ~ .016	.02 ~ .08		●		●	●						
	DNMG 442 - UG	1/32	.008 ~ .016	.04 ~ .12	●	●		●	●	●					
	DNMG 443 - UG	3/64	.008 ~ .016	.06 ~ .14	●	●		●	●						
-UC  Cast iron and Medium roughing	DNMG 432 - UC	1/32	.008 ~ .016	.04 ~ .12	●	●	●	●	●						
	DNMG 433 - UC	3/64	.008 ~ .016	.06 ~ .14	●	●		●	●						
	DNMG 442 - UC	1/32	.008 ~ .016	.04 ~ .12	●	●	●	●	●						
	DNMG 443 - UC	3/64	.008 ~ .016	.06 ~ .14	●	●		●	●						
-UR  Roughing	DNMG 432 - UR	1/32	.012 ~ .020	.04 ~ .14		●									
	DNMG 433 - UR	3/64	.012 ~ .020	.06 ~ .16	●	●		●							
	DNMG 442 - UR	1/32	.012 ~ .020	.04 ~ .20	●	●		●	●						
	DNMG 443 - UR	3/64	.012 ~ .020	.06 ~ .16	●	●		●	●	●					

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1-5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6-9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10-11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12-13	Ferritic & Martensitic	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	-	-
K	15-16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	-	-
S	31-37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	-	-
H	38-41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

# Turning Inserts - Negative

## WNMG / WNMA (80° Trigonal Negative)



Series	L	IC	S
WN** 33	.224	3/8	3/16
WN** 43	.307	1/2	3/16

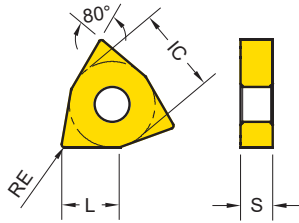
EDP 2200..

●: Stock item ○: Order made item

WNMA WNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20	M20	S10	S20	S30					
..MA Cast iron	WNMA 431	1/64	.006 ~ .020	.02 ~ .10	●	●									
	WNMA 432	1/32	.006 ~ .020	.04 ~ .14	●	●									
	WNMA 433	3/64	.006 ~ .020	.06 ~ .20	●	●									
-UF Finishing	WNMG 331 - UF	1/64	.002 ~ .010	.02 ~ .06	○	●		●	●	●					
	WNMG 431 - UF	1/64	.002 ~ .010	.02 ~ .08		●		●	●	●					
	WNMG 432 - UF	1/32	.002 ~ .010	.04 ~ .10		●		●	●						
-UL Light Machining and Sticky Material	WNMG 332 - UL	1/32	.004 ~ .012	.04 ~ .10		●		●	●						
	WNMG 432 - UL	1/32	.004 ~ .012	.04 ~ .12		●		●	●						
-UM Medium Machining Unstable condition	WNMG 331 - UM	1/64	.006 ~ .012	.04 ~ .10	●	●		●	●						
	WNMG 332 - UM	1/32	.006 ~ .012	.04 ~ .08	●	●		●	●						
	WNMG 431 - UM	1/64	.006 ~ .012	.02 ~ .12		●		●	●						
	WNMG 432 - UM	1/32	.006 ~ .012	.04 ~ .12	●	●	●	●	●						
	WNMG 433 - UM	3/64	.006 ~ .012	.06 ~ .12	●	●	●	●	●						
	WNMG 434 - UM	1/16	.006 ~ .012	.08 ~ .14	●	●	●	●	●						

Cutting Speed			Vc (ft/min)																					
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	




## Turning Inserts - Negative WNMG / WNMA (80° Trigonol Negative)



Series	L	IC	S
WN** 33	.224	3/8	3/16
WN** 43	.307	1/2	3/16

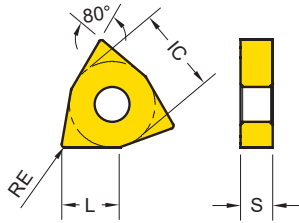
EDP 2200..

●: Stock item ○: Order made item

PARTING & GROOVING	MILLING	DRILLING	TECHNICAL INFORMATION	WNMA WNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20		
									K10	K20		M20	S10	S20	S30						
				 <p><b>-UG</b> Medium Machining at stable condition</p>	WNMG 332 - UG	1/32	.008 ~ .016	.04 ~ .10	●	●		●	●	●							
					WNMG 431 - UG	1/64	.008 ~ .016	.06 ~ .10	●	●		●	●								
					WNMG 432 - UG	1/32	.008 ~ .016	.04 ~ .14	●	●	●	●	●	●	●						
					WNMG 433 - UG	3/64	.008 ~ .016	.06 ~ .14	●	●	●	●	●	●	●						
					WNMG 434 - UG	1/16	.008 ~ .016	.08 ~ .16	●	●	●	●	●	●	●						
				 <p><b>-UC</b> Cast iron and Medium roughing</p>	WNMG 332 - UC	1/32	.008 ~ .016	.04 ~ .12	●	●		●	●								
					WNMG 431 - UC	1/64	.010 ~ .016	.02 ~ .14	●	●		●	●								
					WNMG 432 - UC	1/32	.008 ~ .016	.04 ~ .16	●	●	●	●	●	●	●						
					WNMG 433 - UC	3/64	.008 ~ .016	.06 ~ .18	●	●	●	●	●	●	●						
					WNMG 434 - UC	1/16	.008 ~ .016	.08 ~ .16	●	●		●	●	●	●						
				 <p><b>-UR</b> Roughing</p>	WNMG 333 - UR	3/64	.012 ~ .020	.06 ~ .12	●	●		●	●								
					WNMG 432 - UR	1/32	.012 ~ .020	.05 ~ .20	●	●		●	●	●							
					WNMG 433 - UR	3/64	.012 ~ .020	.06 ~ .20	●	●	●	●	●	●	●						
					WNMG 434 - UR	1/16	.012 ~ .020	.08 ~ .20	●	●	●	●	●	●	●						

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1-5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6-9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10-11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12-13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	-
K	15-16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	
S	31-37	Superalloys & Titanium	-	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	
H	38-41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	




## Turning Inserts - Negative WNMG / WNMA (80° Trigonal Negative)



Series	L	IC	S
WN** 33	.224	3/8	3/16
WN** 43	.307	1/2	3/16

EDP 2200..

●: Stock item ○: Order made item

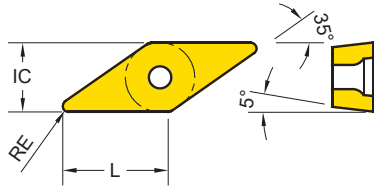
PARTING & GROOVING	MILLING	DRILLING	TECHNICAL INFORMATION	WNMA WNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20		
									K10	K20	M20	S10	S20	S30							
				 <p><b>-UG</b> Medium Machining at stable condition</p>	WNMG 332 - UG	1/32	.008 ~ .016	.04 ~ .10	●	○		●	●	●							
					WNMG 431 - UG	1/64	.008 ~ .016	.06 ~ .10	●	●			●	●							
					WNMG 432 - UG	1/32	.008 ~ .016	.04 ~ .14	●	●	●	●	●	●	●						
					WNMG 433 - UG	3/64	.008 ~ .016	.06 ~ .14	●	●	●	●	●	●	●						
					WNMG 434 - UG	1/16	.008 ~ .016	.08 ~ .16	●	●	●	●	●	●	●						
				 <p><b>-UC</b> Cast iron and Medium roughing</p>	WNMG 332 - UC	1/32	.008 ~ .016	.04 ~ .12	●	○		○	●								
					WNMG 431 - UC	1/64	.010 ~ .016	.02 ~ .14	●	●			●	●							
					WNMG 432 - UC	1/32	.008 ~ .016	.04 ~ .16	●	●	●	●	●	●							
					WNMG 433 - UC	3/64	.008 ~ .016	.06 ~ .18	●	●	●	●	●	●							
					WNMG 434 - UC	1/16	.008 ~ .016	.08 ~ .16	●	●			●	●							
				 <p><b>-UR</b> Roughing</p>	WNMG 333 - UR	3/64	.012 ~ .020	.06 ~ .12	●	●		●	●								
					WNMG 432 - UR	1/32	.012 ~ .020	.05 ~ .20	●	●			●	●							
					WNMG 433 - UR	3/64	.012 ~ .020	.06 ~ .20	●	●	●	●	●	●	●						
					WNMG 434 - UR	1/16	.012 ~ .020	.08 ~ .20	●	●	●	●	●	●							

Cutting Speed			Vc (ft/min)																					
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1-5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-
	6-9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-
	10-11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-
M	12-13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-
K	15-16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	
S	31-37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	
H	38-41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



# Turning Inserts - Positive



## VBMT (35° Positive)



Series	L	IC	S
VB** 33	.622	3/8	3/16

EDP 2200..

●: Stock item ○: Order made item

VBMT	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20		M20		S10	S20	S30			
-UF  Finishing	VBMT 331 - UF	1/64	.002 ~ .010	.02 ~ .08	●	○			○	○					
	VBMT 332 - UF	1/32	.002 ~ .010	.02 ~ .12		○			○	○					
-UG  General	VBMT 331 - UG	1/64	.006 ~ .012	.02 ~ .10	○	○		○	○	○					
	VBMT 332 - UG	1/32	.006 ~ .012	.04 ~ .12	○	○		○	○	○					

PARTING & GROOVING

MILLING

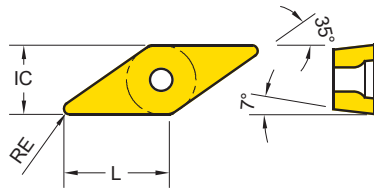
DRILLING

TECHNICAL INFORMATION

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	-	-
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	-	-
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






## Turning Inserts - Positive VCMT / VCGT (35° Positive)



Series	L	IC	S
VC** 33	.622	3/8	3/16

EDP 2200..

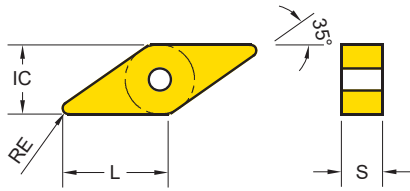
●: Stock item ○: Order made item

VCMT / VCGT	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20		M20		S10	S20	S30			
-AL  Aluminum	VCMT 330.5 - AL	1/128	.001 ~ .002	.02 ~ .04	●	○	○	○	○	○	○	○	○	○	○
	VCMT 331 - AL	1/64	.002 ~ .010	.02 ~ .08	○	○	○	○	○	○	○	○	○	○	○
	VCMT 332 - AL	1/32	.004 ~ .014	.04 ~ .12	○	○	○	○	○	○	○	○	○	○	○
-UF  Finishing	VCMT 331 - UF	1/64	.002 ~ .010	.02 ~ .12	●	○	○	○	○	○	○	○	○	○	○
	VCMT 332 - UF	1/32	.002 ~ .010	.02 ~ .12	○	○	○	○	○	○	○	○	○	○	○
-UG  General	VCMT 331 - UG	1/64	.006 ~ .012	.02 ~ .10	○	○	○	○	○	○	○	○	○	○	○
	VCMT 332 - UG	1/32	.006 ~ .012	.04 ~ .12	○	○	○	○	○	○	○	○	○	○	○

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1-5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6-9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10-11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12-13	Ferritic & Martensitic	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	-	-
K	15-16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	-	-
S	31-37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	-	-
H	38-41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

# Turning Inserts - Negative






## VNMG / VNMA (35° Negative)



Series	L	IC	S
VN** 33	.622	3/8	3/16

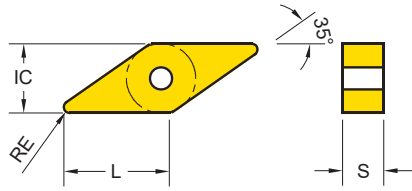
EDP 2200..

●: Stock item ○: Order made item

VNMA VNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20				
					K10	K20	M20	S10	S20	S30	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214
..MA  Cast iron	VNMA 332	1/32	.006~.020	.04~.12	●	●													
					○	○													
-UF  Finishing	VNMG 331 - UF	1/64	.002~.010	.02~.08		●		●	●	●									
	VNMG 332 - UF	1/32	.002~.010	.04~.10		●		●	●	●									
-UL  Light Machining and Sticky Material	VNMG 331 - UL	1/64	.004~.012	.02~.12		●		●	●	●									
	VNMG 332 - UL	1/32	.004~.012	.04~.10		●	●	●	●	●									
-UM  Medium Machining Unstable condition	VNMG 333 - UM	3/64	.006~.012	.06~.12	●	●	●	●	●	●									
					○	○	○	○	○	○									
-UG  Medium Machining at stable condition	VNMG 331 - UG	1/64	.008~.016	.02~.12		●		●	●	●									
	VNMG 332 - UG	1/32	.008~.016	.04~.12	●	●		●	●	●									
	VNMG 333 - UG	3/64	.008~.016	.06~.12	●	●		●	●	●									

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	-	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	






## Turning Inserts - Negative VNMG / VNMA (35° Negative)



Series	L	IC	S
VN** 33	.622	3/8	3/16

EDP 2200..

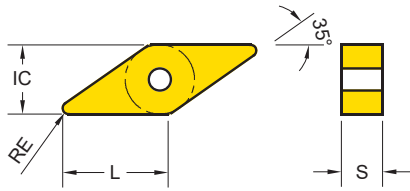
●: Stock item ○: Order made item

VNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20
					K10	K20		M20		S10	S20	S30			
-UC  Cast iron and Medium roughing	VNMG 331 - UC	1/64	.008 ~ .016	.02 ~ .10	●	●		●	●						
	VNMG 332 - UC	1/32	.008 ~ .016	.04 ~ .12	●	●		●	●						
-UR  Roughing	VNMG 333 - UR	3/64	.012 ~ .020	.05 ~ .12	●	●	●	●	●	●					
-MF  Stainless steel Finishing	VNMG 332 - MF	1/32	.002 ~ .012	.01 ~ .06					●		●	●			
-MM  Stainless steel Medium	VNMG 331 - MM	1/64	.008 ~ .014	.02 ~ .14							●	●			
	VNMG 332 - MM	1/32	.008 ~ .014	.02 ~ .14							●	●			
-MR  Stainless steel Roughing	VNMG 332 - MR	1/32	.012 ~ .022	.08 ~ .22					●		●	●			

Cutting Speed			Vc (ft/min)																					
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

# Turning Inserts - Negative






## VNMG / VNMA (35° Negative)



Series	L	IC	S
VN** 33	.622	3/8	3/16

EDP 2200..

●: Stock item ○: Order made item

VNMA VNMG	Designation	RE (in)	Fn (in/rev)	Ap (in)	P05	P10	P15	P20	P30	P20	M15	M30	M40	N20	N20				
					K10	K20	M20	S10	S20	S30	YG1001	YG3010	YG3015	YG3020	YG3030	YG801	YG211	YG213	YG214
..MA  Cast iron	VNMA 332	1/32	.006~.020	.04~.12	●	●													
					○	○													
-UF  Finishing	VNMG 331 - UF	1/64	.002~.010	.02~.08		●													
	VNMG 332 - UF	1/32	.002~.010	.04~.10		●													
-UL  Light Machining and Sticky Material	VNMG 331 - UL	1/64	.004~.012	.02~.12		●													
	VNMG 332 - UL	1/32	.004~.012	.04~.10		●													
-UM  Medium Machining Unstable condition	VNMG 333 - UM	3/64	.006~.012	.06~.12		●													
						●													
-UG  Medium Machining at stable condition	VNMG 331 - UG	1/64	.008~.016	.02~.12		●													
	VNMG 332 - UG	1/32	.008~.016	.04~.12		●													
	VNMG 333 - UG	3/64	.008~.016	.06~.12		●													

Cutting Speed			Vc (ft/min)																						
ISO	VDI	Sub Group	YG1001		YG3010		YG3015		YG3020		YG3030		YG801		YG211		YG213		YG214		YG100		YG10		
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
P	1~5	Non-Alloyed Steel	720	1570	560	1480	560	1340	590	1250	490	1150	390	660	-	-	-	-	-	-	-	-	-	-	-
	6~9	Low-Alloyed Steel	720	1380	590	1250	430	1180	360	1150	300	980	230	660	-	-	-	-	-	-	-	-	-	-	-
	10~11	High-Alloyed Steel	-	-	330	1080	260	1020	200	980	230	820	-	-	-	-	-	-	-	-	-	-	-	-	-
M	12~13	Ferritic & Martensitic	-	-	-	-	-	-	-	-	390	750	-	-	430	750	360	590	260	490	-	-	-	-	
	14	Austenitic Stainless Steel	-	-	-	-	-	-	-	-	260	660	-	-	330	660	130	430	100	390	-	-	-	-	
K	15~16	Grey Cast Iron	560	1380	390	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	17~18	Nodular Cast Iron	390	1340	390	920	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	3940	820	2620	-	
S	31~37	Superalloys & Titanium	-	-	-	-	-	-	-	110	260	-	-	100	300	70	130	70	130	-	-	-	-	-	
H	38~41	Hard Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



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