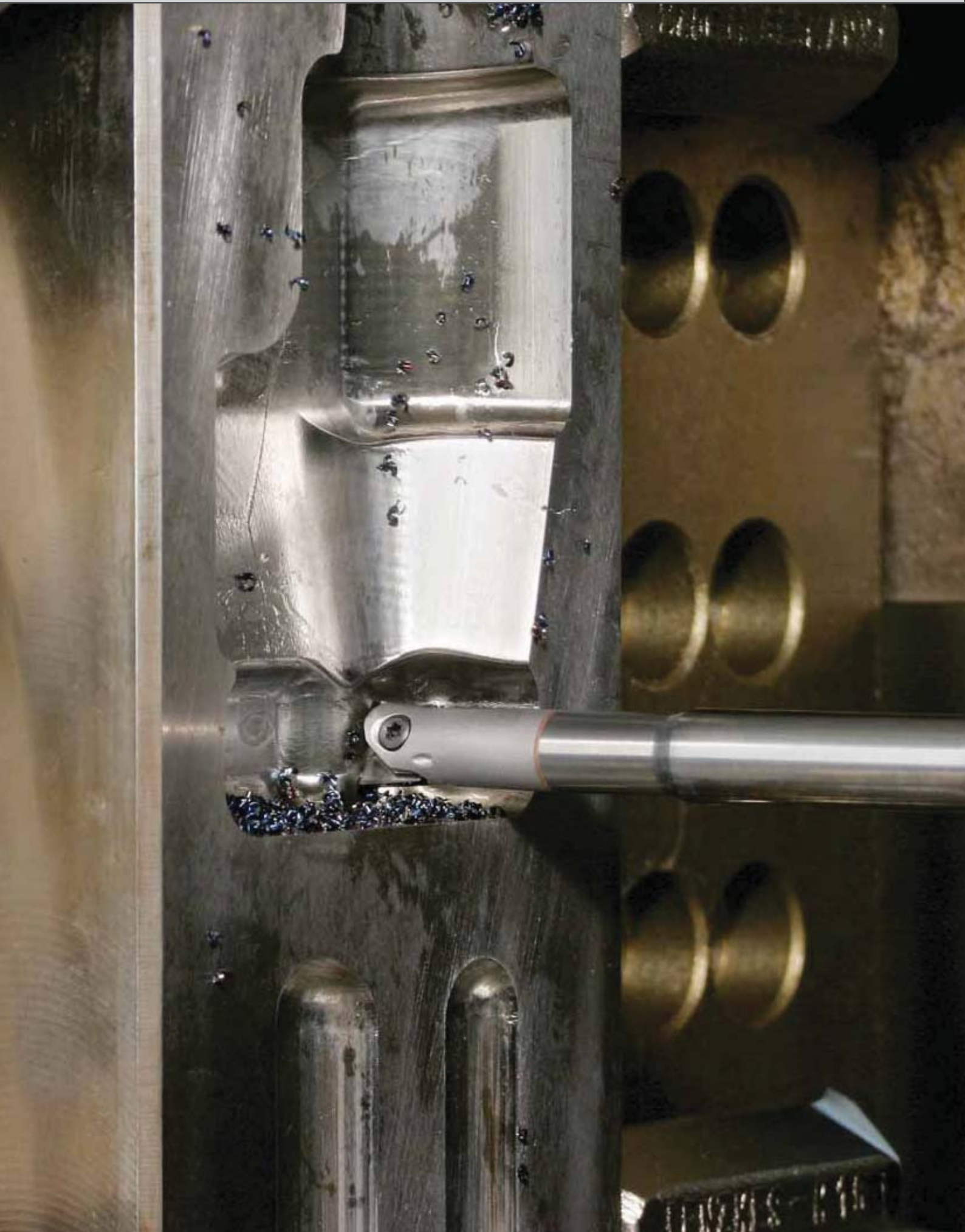




2017 Master Catalog

WIDIA ™



Indexable Milling • Copy Mills

M370 • High-Feed Double-Sided Platforms.....	K2-K18
M200 • Double-Sided Round Inserts	K20-K41
M170 • Round Inserts, Ideal for Die and Mold Applications	K42-K72
M100 • Positive Round Inserts.....	K74-K101
M270 • Indexable Ball Nose and Toroidal Inserts for Complex Parts	K102-K126



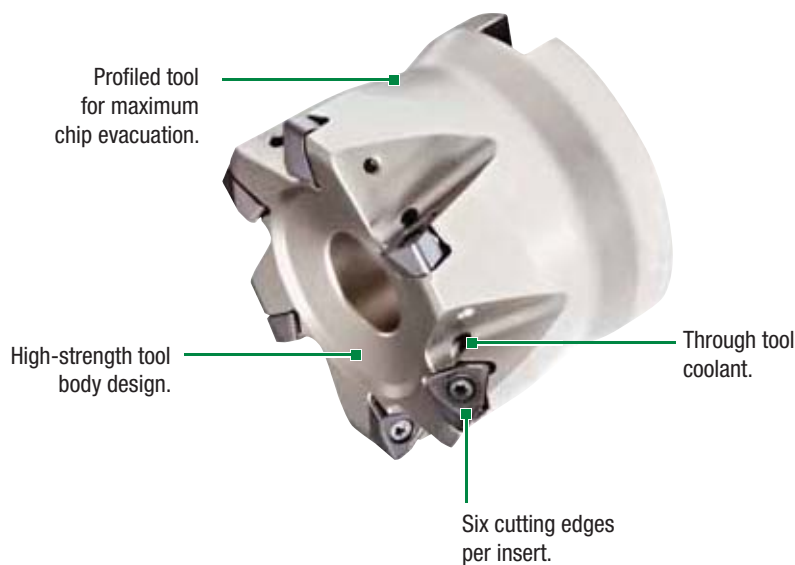
High-Feed Applications •
M370™ Series

M370



Designed for high feed rate productivity, the M370 Series provides the latest insert technology with outstanding performance and reliability. Its double-sided concept and six cutting edges provide security and optimal metal removal with an efficient cost per edge.

- Double-sided design offers six cutting edges per insert.
- Extremely high metal removal rates.
- First choice for high-feed roughing applications.



Copy Mills

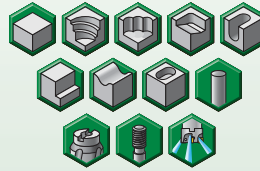


M370™

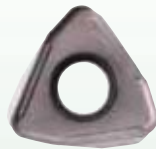
Max depth of cut: .078"

Indexes per insert: 6
Diameter: 1–5"

Pages: K4–K18



■ Insert Offering

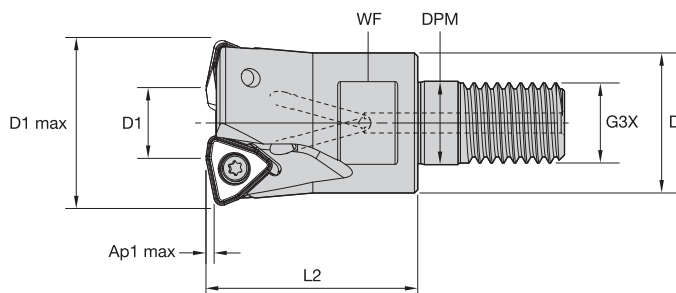
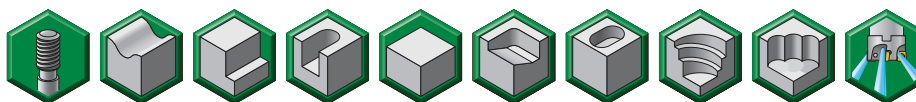


8mm iC Insert WOEJ0804
Up to .049" Ap max
Diameter range 1–3"



12mm iC Insert WOEJ1207
Up to .078" Ap max
Diameter range 1.5–5"

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



■ Screw-On End Mills

order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max RPM	coolant supply	lbs
4047591	M370D100Z02M12WO08	1.000	.460	.827	.492	M12.000	1.250	.669	.049	2	45500	Yes	.19
4171164	M370D100Z03M12WO08	1.000	.460	.827	.492	M12.000	1.378	.667	.049	3	46000	Yes	.19
4171165	M370D125Z02M16WO08	1.250	.700	1.132	.669	M16.000	1.500	.940	.049	2	38900	Yes	.41
4047592	M370D125Z03M16WO08	1.250	.700	1.132	.669	M16.000	1.500	.945	.049	3	38900	Yes	.41
4047653	M370D150Z03M16WO08	1.500	.950	1.142	.669	M16.000	1.500	.866	.049	3	34500	Yes	.49
4171166	M370D150Z04M16WO08	1.500	.950	1.142	.669	M16.000	1.500	.945	.049	4	34500	Yes	.48

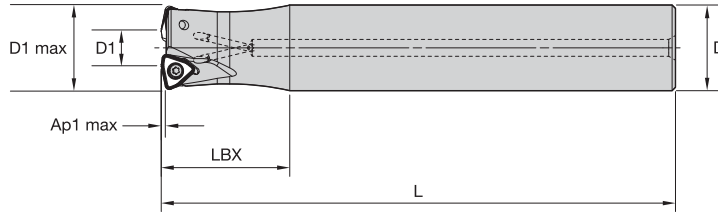
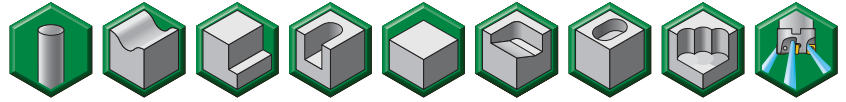
■ Spare Parts



D1 max	insert screw	in. lbs.	Torx Plus driver
1.000	MS2219	16	DT9IP
1.250	MS2219	16	DT9IP
1.500	MS2219	16	DT9IP

Copy Mills

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



■ Cylindrical End Mills

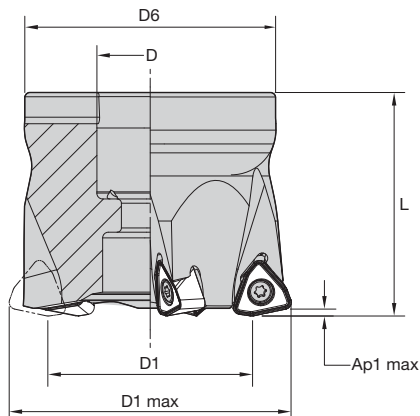
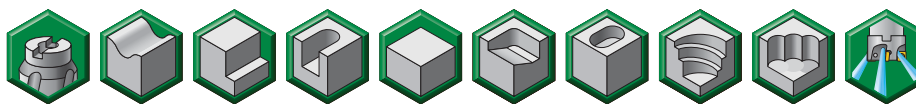
order number	catalog number	D1 max	D1	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	lbs
4047654	M370D100Z02C100WO08L600	1.000	.460	1.000	6.000	1.500	.049	2	45500	Yes	1.17
4047655	M370D100Z02C100WO08L800	1.000	.460	1.000	8.000	1.500	.049	2	45500	Yes	1.60
4047656	M370D100Z03C100WO08L600	1.000	.460	1.000	6.000	1.500	.049	3	45500	Yes	1.16
4047657	M370D125Z03C125WO08L600	1.250	.700	1.250	6.000	1.500	.049	3	38900	Yes	1.87
4047658	M370D125Z03C125WO08L800	1.250	.700	1.250	8.000	1.500	.049	3	38900	Yes	2.55
4047659	M370D150Z03C125WO08L600	1.500	.950	1.250	6.000	1.500	.049	3	34500	Yes	1.97
4171167	M370D150Z03C125WO08L800	1.500	.950	1.250	7.686	1.500	.049	3	34500	Yes	5.11
4171168	M370D150Z04C150WO08L600	1.500	.950	1.500	6.000	1.500	.049	4	34500	Yes	2.70

■ Spare Parts



D1 max	insert screw	in. lbs.	wrench
1.000	MS2219	16	DT9IP
1.250	MS2219	16	DT9IP
1.500	MS2219	16	DT9IP

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



■ Shell Mills

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max RPM	coolant supply	lbs
4047660	M370D150Z04S050WO08	1.500	.950	.500	1.417	1.575	.049	4	34500	Yes	.41
4047661	M370D200Z05S075WO08	2.000	1.450	.750	1.732	1.575	.049	5	29000	Yes	.82
4047662	M370D200Z07S075WO08	2.000	1.450	.750	1.732	1.575	.049	7	29000	Yes	.83
4171169	M370D250Z07S075WO08	2.500	1.950	.750	1.732	1.575	.049	7	29000	Yes	1.42
4171170	M370D300Z08S100WO08	3.000	2.270	1.000	2.362	1.968	.049	8	22900	Yes	4.82

■ Spare Parts

D1 max	insert screw	in. lbs.	Torx Plus driver	socket-head cap screw	socket-head cap screw with coolant groove
1.500	MS2219	16	DT9IP	S424	—
2.000	MS2219	16	DT9IP	S445	S445CG
2.500	MS2219	16	DT9IP	S445	S445CG
3.000	MS2219	16	DT9IP	S459	S459CG

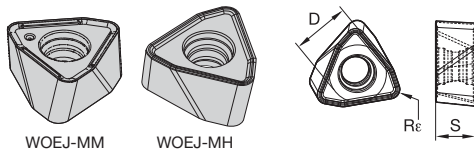
NOTE: Socket-head cap screw with coolant groove must be ordered separately.

Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	...MM	WP40PM	...MM	WP40PM	...MM	WP40PM
P3-P4	...MM	WP25PM	...MM	WP40PM	...MH	WP40PM
P5-P6	...MM	WP25PM	...MH	WP25PM	...MH	WP40PM
M1-M2	...MM	WP25PM	...MM	WS30PM	...MM	WP40PM
M3	...MM	WP25PM	...MM	WP25PM	...MM	WP40PM
K1-K2	...MH	WK15CM	...MH	WK15CM	...MH	WK15CM
K3	...MH	TN6520	...MH	TN6520	...MH	WK15CM
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	...MM	WP25PM	...MM	WS30PM	...MM	WP40PM
S3	...MM	WS30PM	...MM	WS30PM	...MM	WP40PM
S4	...MM	WS30PM	...MM	WP40PM	...MM	WP40PM
H1	...MH	WP25PM	-	-	-	-

Copy Mills

iC08 • Inserts • WO.J0804...



- MM geometry provides lower cutting forces. First choice for steel, stainless steel, and high-temp alloys.
- MH geometry is the first choice for high-strength steel and cast iron.

- first choice
- alternate choice

P	●	○	○	○	○	○	○	○	○	○
M	●	○	○	○	○	○	○	○	○	○
K	●	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○

WOEJ-MM

catalog number	cutting edges	D	S	Rr	TN6520	TN6525	TN7535	WK15CM	WP25PM	WS30PM	WP40PM
WOEJ080412SRMM	6	.307	.185	.048	○	○	○	○	○	○	○

WOEJ-MH

catalog number	cutting edges	D	S	Rr	TN6520	TN6525	TN7535	WK15CM	WP25PM	WS30PM	WP40PM
WOEJ080412SRMH	6	.307	.187	.048	○	○	○	○	○	○	○

■ Recommended Starting Speeds [SFM]

Material Group		TN6520			TN6525			TN7535		
P	1	-	-	-	1340	1045	925	1790	1555	1460
	2	-	-	-	1045	830	710	1105	1000	905
	3	-	-	-	925	710	610	1000	905	805
	4	-	-	-	770	550	475	750	690	630
	5	-	-	-	1025	770	650	1025	905	830
	6	-	-	-	670	535	430	630	535	430
M	1	-	-	-	630	395	260	805	725	610
	2	-	-	-	395	260	155	725	630	550
	3	-	-	-	415	260	180	570	510	450
K	1	1475	1045	750	905	805	725	1165	1045	940
	2	1280	830	630	710	630	590	925	830	750
	3	985	750	535	590	535	475	770	690	630
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-
H	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-

(continued)

Copy Mills

(Recommended Starting Speeds [SFM] — continued)

Material Group		WK15CM			WP25PM			WS30PM			WP40PM		
P	1	-	-	-	1295	1120	1060	-	-	-	1165	1025	965
	2	-	-	-	1080	940	785	-	-	-	985	845	710
	3	-	-	-	1000	845	690	-	-	-	905	770	630
	4	-	-	-	890	725	590	-	-	-	805	670	535
	5	-	-	-	725	670	590	-	-	-	670	610	535
	6	-	-	-	650	490	395	-	-	-	590	450	355
M	1	-	-	-	805	710	650	890	785	725	770	670	610
	2	-	-	-	725	630	510	805	710	570	690	590	490
	3	-	-	-	550	475	370	610	535	415	510	450	355
K	1	1655	1520	1340	905	805	725	-	-	-	-	-	-
	2	1320	1165	1080	710	630	590	-	-	-	-	-	-
	3	1105	985	905	590	535	475	-	-	-	-	-	-
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	155	140	95	180	155	120	155	140	120
	2	-	-	-	155	140	95	180	155	120	155	140	120
	3	-	-	-	200	155	95	215	180	120	200	155	120
	4	-	-	-	275	200	140	335	235	155	260	200	140
H	1	-	-	-	475	355	275	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Copy Mills

Recommended Starting Feeds

■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

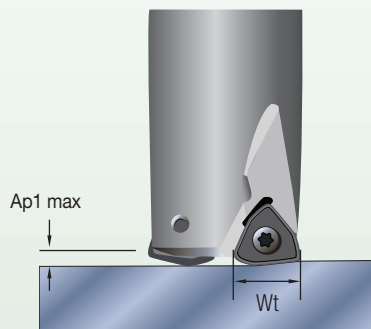
For Plunging Applications

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
...MM	.035	.061	.150	.025	.044	.104	.019	.033	.076	.017	.028	.066	.015	.026	.061	...MM
...MH	.035	.092	.197	.025	.065	.134	.019	.048	.098	.017	.042	.085	.015	.038	.078	...MH

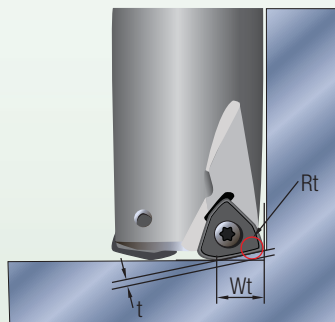
NOTE: Use "Light Machining" value as starting feed rate.

Applying High-Feed Tools

The high-feed concept bases its strategy on small depth of cut and higher fz values, which results in a higher MRR and productivity with low radial forces.



Small Ap1 values and higher feed rates generate lower cutting forces versus traditional milling strategies.



For CAM programming, the tools can be programmed as a toroidal tool type by using the Rt value as the insert radius.



Recommended when long overhang is necessary due to lower radial forces. Maximum L/D ratio of 10 x D.

Copy Mills

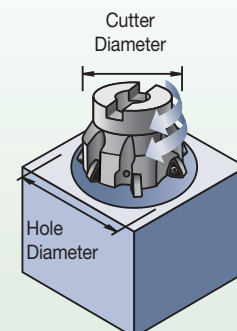
General Programming Information for Applying M370

L/D ratio	starting Ap1	starting fz range
<3	.035"	.04-.051"
>3-~5	.024"	.04-.051"
>5-~7	.016"	.024"

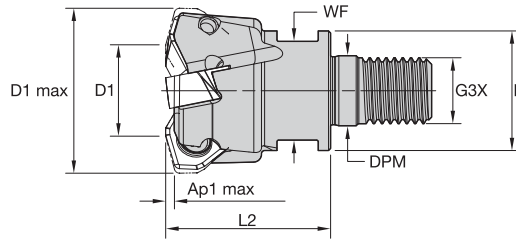
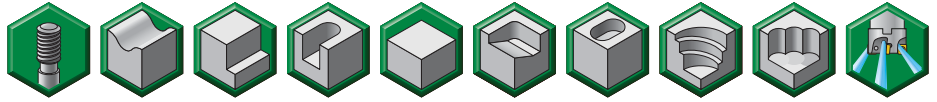
Rt	t	Wt
0.10"	0.04"	0.30"

Maximum Linear Ramping and Helical Interpolation from Solid • Inch

cutter diameter	max linear ramp angle (straight line)	min hole diameter	max hole diameter	Ap1 max per revolution
1.00"	3.1°	1.41"	1.98"	.049"
1.25"	2.2°	1.91"	2.48"	.049"
1.50"	1.8°	2.41"	2.98"	.049"
2.00"	1.3°	3.40"	3.98"	.049"
2.50"	1.0°	4.66"	4.98"	.049"
3.00"	0.8°	5.22"	5.98"	.049"



- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



■ **Screw-On End Mills**

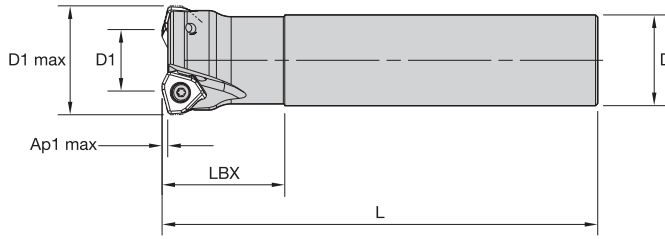
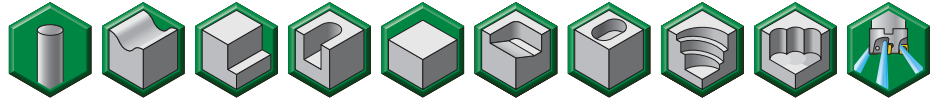
order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max RPM	coolant supply	lbs
5352393	M370D150Z02M16WO12	1.500	.837	1.142	.670	M16.000	1.690	.943	.078	2	22380	Yes	.49

■ **Spare Parts**

			
D1 max	insert screw	in. lbs.	Torx Plus driver
1.500	MS2085	35	DT15IP

Copy Mills

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



Copy Mills

■ Cylindrical End Mills

order number	catalog number	D1 max	D1	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	lbs
5352394	M370D150Z02C-125WO12L600	1.500	.837	1.250	6.000	1.690	.078	2	22380	Yes	1.92
5352395	M370D150Z02C-150WO12L1000	1.500	.837	1.500	10.000	2.500	.078	2	22380	Yes	4.50

■ Spare Parts



insert screw



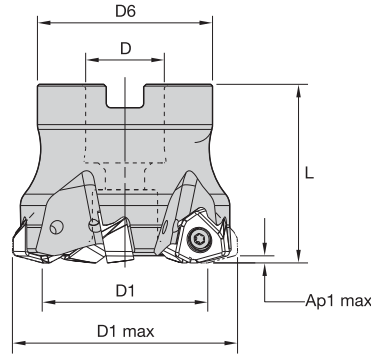
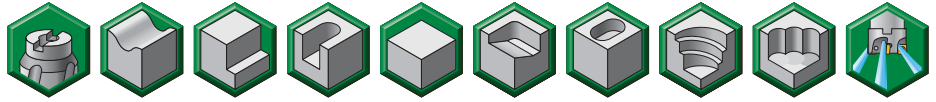
in. lbs.



Torx Plus driver

D1 max	MS2085	35	DT15IP
1.500			

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



■ **Shell Mills**

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max RPM	coolant supply	lbs
5352396	M370D200Z03S075WO12	2.000	1.335	.750	1.750	1.575	.078	3	19380	Yes	.70
5352397	M370D200Z04S075WO12	2.000	1.335	.750	1.750	1.575	.078	4	19380	Yes	.69
5698432	M370D200Z04S075WO12L200	2.000	1.335	.750	1.750	2.000	.078	4	19380	Yes	.92
5352398	M370D250Z05S075WO12	2.500	1.834	.750	1.750	1.750	.078	5	17330	Yes	1.06
5352399	M370D250Z05S100WO12	2.500	1.834	1.000	2.190	1.750	.078	5	17330	Yes	1.27
5352420	M370D300Z06S100WO12	3.000	2.333	1.000	2.750	1.750	.078	6	15820	Yes	2.08
5698433	M370D300Z06S100WO12L197	3.000	2.328	1.000	2.750	1.970	.078	6	15820	Yes	2.38
5352421	M370D300Z05S125WO12	3.000	2.333	1.250	2.750	2.000	.078	5	15820	Yes	2.30
5352422	M370D300Z06S125WO12	3.000	2.333	1.250	2.750	2.000	.078	6	15820	Yes	2.32
5352423	M370D400Z06S150WO12	4.000	3.333	1.500	3.625	2.000	.078	6	13700	Yes	3.81
5352424	M370D400Z08S150WO12	4.000	3.333	1.500	3.625	2.000	.078	8	13700	Yes	3.85
5352425	M370D500Z07S150WO12	5.000	4.333	1.500	3.810	2.375	.078	7	12260	Yes	6.62
5352426	M370D500Z09S150WO12	5.000	4.333	1.500	3.810	2.375	.078	9	12260	Yes	6.68

■ **Spare Parts**



D1 max	insert screw	in. lbs.	Torx Plus driver	socket-head cap screw	socket-head cap screw with coolant groove	low-head cap screw with coolant groove	lock screw	coolant lock screw assembly
2.000	MS2085	35	DT15IP	S445	S445CG	—	—	—
2.500	MS2085	35	DT15IP	S445	S445CG	—	—	—
2.500	MS2085	35	DT15IP	S458	S458CG	—	—	—
3.000	MS2085	35	DT15IP	S458	S458CG	—	—	—
3.000	MS2085	35	DT15IP	S467	—	S2172CG	—	—
4.000	MS2085	35	DT15IP	—	—	—	KLS15	S-2165-C
5.000	MS2085	35	DT15IP	—	—	—	KLS15	S2163C

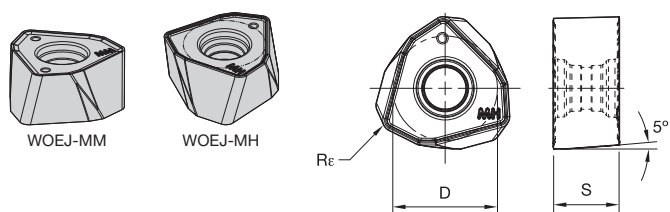
NOTE: Socket-head cap screw with coolant groove and coolant lock screw assembly must be ordered separately.

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	...MM	WU35PM	...MM	WP40PM	...MM	WP40PM
P3-P4	...MM	WP25PM	...MM	WP25PM	...MH	WP40PM
P5-P6	...MM	WP25PM	...MM	WP35CM	...MH	WP35CM
M1-M2	...MM	WS30PM	...MM	WU35PM	...MM	WP40PM
M3	...MM	WP25PM	...MM	WP35CM	...MM	WP40PM
K1-K2	...MH	WK15CM	...MH	WK15CM	...MH	WP20CM
K3	...MH	WK15CM	...MH	WK15CM	...MH	WP20CM
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	...MM	WS30PM	...MM	WU35PM	...MM	WP40PM
S3	...MM	WS30PM	...MM	WU35PM	...MM	WP40PM
S4	...MM	WS30PM	...MM	WU35PM	...MM	WP40PM
H1	...MH	WP35CM	...MR	WP25PM	-	-

Copy Mills

iC12 • Inserts • WO.J1207...



- -MM geometry provides lower cutting forces. First choice for steel, stainless steel, and high-temp alloys.
- -MH geometry is the first choice for high-strength steel and cast iron.
- -MR geometry is designed for heavy-duty steel and cast iron applications.

● first choice
○ alternate choice

P	●	●	●	●	●	●	●
M	○	○	○	○	○	○	○
K	●	○	○	○	○	○	○
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○

■ WOEJ-MM

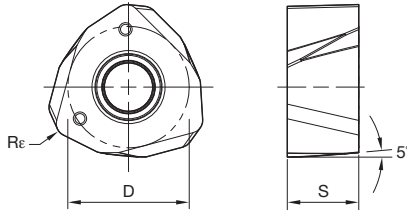
catalog number	cutting edges	D	S	Rε	WK15CM	WP20CM	WP25PM	WU35PM	WP35CM	WS30PM	WP40PM
WOEJ120712SRMM	6	.472	.287	.050	○	○	○	○	○	○	○

■ WOEJ-MH

catalog number	cutting edges	D	S	Rε	WK15CM	WP20CM	WP25PM	WU35PM	WP35CM	WS30PM	WP40PM
WOEJ120712SRMH	6	.472	.287	.050	○	○	○	○	○	○	○



WOEJ-MR



● first choice
○ alternate choice

P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

■ WOEJ-MR

catalog number	cutting edges	D	S	Re							
WOEJ120712SRMR	6	.472	.287	.050	WK15CM	WP20CM	WP25PM	WU35PM	WP35CM	WS30PM	WP40PM
							5698343				5698342



Copy Mills

■ Recommended Starting Speeds [SFM]

Material Group		WK15CM			WP20CM			WP25PM			WU35PM		
P	1	-	-	-	2165	1910	1770	1295	1120	1060	1165	1025	965
	2	-	-	-	1340	1220	1080	1080	940	785	985	845	710
	3	-	-	-	1220	1080	1000	1000	845	690	905	770	630
	4	-	-	-	905	845	750	890	725	590	805	670	535
	5	-	-	-	1080	985	905	725	670	590	670	610	535
	6	-	-	-	750	670	570	650	490	395	590	450	355
M	1	-	-	-	890	785	690	805	710	650	770	670	610
	2	-	-	-	805	690	630	725	630	510	690	590	490
	3	-	-	-	630	570	490	550	475	370	510	450	355
K	1	1655	1520	1340	1415	1280	1165	905	805	725	-	-	-
	2	1320	1165	1080	1120	1000	925	710	630	590	-	-	-
	3	1105	985	905	940	845	785	590	535	475	-	-	-
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	155	140	95	155	140	120
	2	-	-	-	-	-	-	155	140	95	155	140	120
	3	-	-	-	-	-	-	200	155	95	200	155	120
	4	-	-	-	-	-	-	275	200	140	260	200	140
H	1	-	-	-	550	450	370	475	355	275	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-

(continued)

Copy Mills

(Recommended Starting Speeds [SFM] — continued)

Material Group		WP35CM			WS30PM			WP40PM		
P	1	1790	1555	1460	-	-	-	1165	1025	965
	2	1105	1000	905	-	-	-	985	845	710
	3	1000	905	805	-	-	-	905	770	630
	4	750	690	630	-	-	-	805	670	535
	5	1025	905	830	-	-	-	670	610	535
	6	630	535	430	-	-	-	590	450	355
M	1	805	725	610	890	785	725	770	670	610
	2	725	630	550	805	710	570	690	590	490
	3	570	510	450	610	535	415	510	450	355
K	1	1165	1045	940	-	-	-	-	-	-
	2	925	830	750	-	-	-	-	-	-
	3	770	690	630	-	-	-	-	-	-
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	180	155	120	155	140	120
	2	-	-	-	180	155	120	155	140	120
	3	-	-	-	215	180	120	200	155	120
	4	260	200	130	335	235	155	260	200	140
H	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Copy Mills

Recommended Starting Feeds

■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

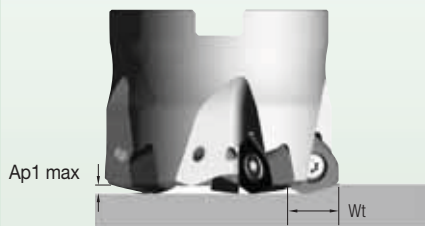
For All Other Applications

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
...MM	.035	.073	.143	.026	.052	.099	.019	.039	.073	.017	.034	.063	.015	.031	.058	...MM
...MH	.035	.093	.196	.026	.066	.134	.019	.049	.098	.017	.042	.085	.015	.039	.077	...MH
...MR	.035	.111	.214	.026	.078	.145	.019	.057	.106	.017	.050	.092	.015	.046	.084	...MR

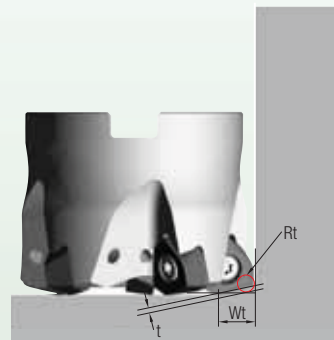
NOTE: Use "Light Machining" value as starting feed rate.

Applying High-Feed Tools

The high-feed concept bases its strategy on small depth of cut and higher fz values, which results in a higher MRR and productivity with low radial forces.



Small A_{p1} values and higher feed rates generate lower cutting forces versus traditional milling strategies.



For CAM programming, the tools can be programmed as a toroidal tool type by using the R_t value as the insert radius.



Recommended when long overhang is necessary due to lower radial forces. Maximum L/D ratio of $10 \times D$.

General Programming Information for Applying M370

	CAM programming information		
	R_t	W_t	t
inch value	0.13"	0.37"	0.06"

■ Maximum Linear Ramping and Helical Interpolation from Solid • Inch

diameter	max ramp angle	max ramp angle for 360° helical interpolation	D1	min hole diameter (DH min)	max flat-bottom hole diameter (DH1 max)	max diameter (no flat bottom)
1.50"	6.4°	1.70°	0.837"	1.96"	2.26"	3.00"
2.00"	3.6°	1.06°	1.335"	2.94"	3.26"	4.00"
2.50"	2.5°	0.78°	1.834"	3.93"	4.26"	5.00"
3.00"	1.9°	0.61°	2.333"	4.93"	5.26"	6.00"
4.00"	1.3°	0.43°	3.333"	6.93"	7.26"	8.00"
5.00"	1.0°	0.33°	4.333"	8.92"	9.26"	10.00"

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WIDIA™

Double-Sided Round Insert •

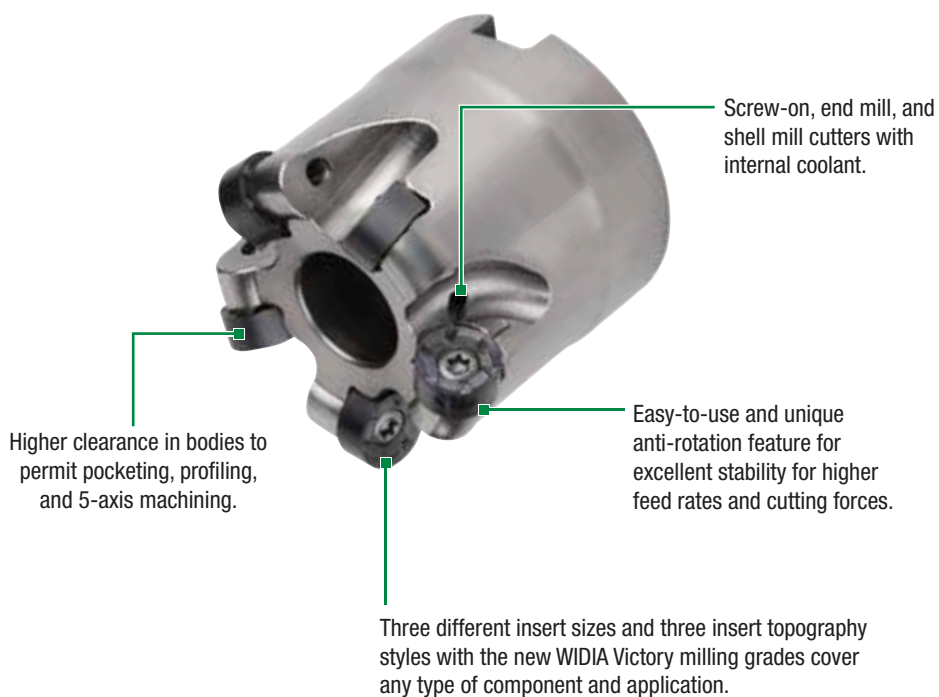
M200™ Series

Revolutionary double-sided round insert, capable of running in multiple types of milling operations and workpiece materials, increases customers' productivity with the most efficient cost per edge.

M200



- Up to 12 cutting edges per insert.
- Effective anti-rotation feature.
- Able to apply in all type of materials and milling applications.
- Latest WIDIA™ Victory™ grades offered.



Copy Mills

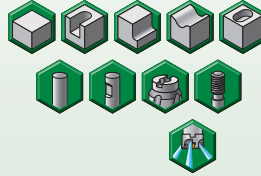
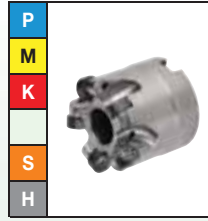


M200™

Max depth of cut: .200"

Indexes per insert up to: 12
Diameter: 1–4"

Pages: K22–K41



■ Insert Offering



M200 iC 10
10mm iC insert
8 cutting edges

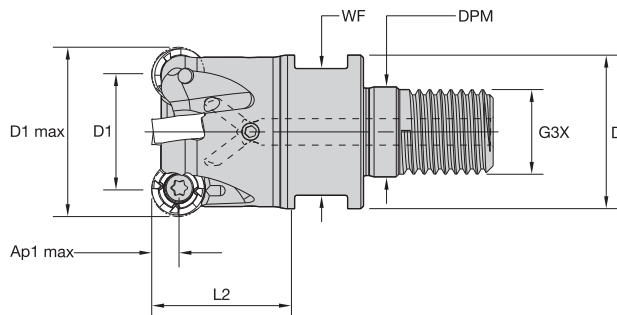
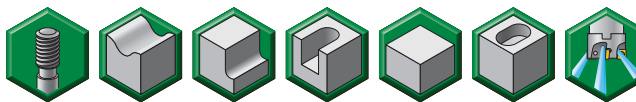


M200 iC 12
12mm iC insert
12 cutting edges



M200 iC 16
16mm iC insert
12 cutting edges

- Double-sided, eight cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



■ Screw-On End Mills

order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max RPM	coolant supply	lbs
5283432	M200D100Z03M12RN10	1.000	.606	.827	.490	M12.000	1.250	.667	.200	3	54200	Yes	.16
5283433	M200D125Z03M16RN10	1.250	.856	1.142	.670	M16.000	1.500	.943	.200	3	48500	Yes	.38
5283434	M200D125Z04M16RN10	1.250	.856	1.142	.670	M16.000	1.500	.943	.200	4	48500	Yes	.38
5283435	M200D150Z05M16RN10	1.500	1.106	1.142	.670	M16.000	1.500	.943	.200	5	44300	Yes	.45

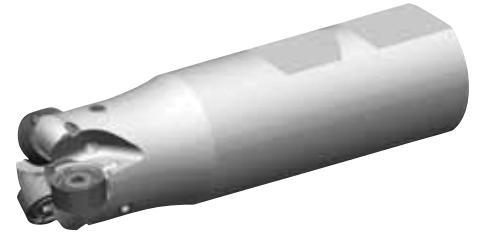
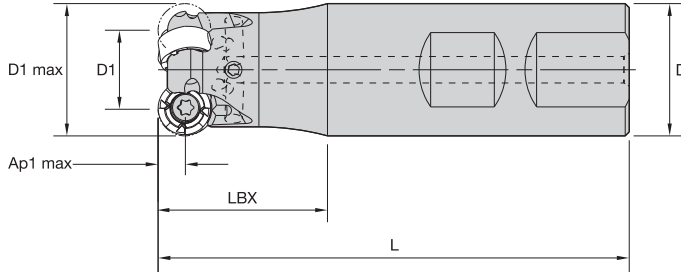
■ Spare Parts



D1 max	insert screw	in. lbs.	Torx driver
1.000	191.848	18	170.025
1.250	191.848	18	170.025
1.500	191.848	18	170.025

Copy Mills

- Double-sided, eight cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



■ **Weldon Shanks**

order number	catalog number	D1 max	D1	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	lbs
5283436	M200D100Z03W100RN10	1.000	.606	1.000	4.280	2.000	.200	3	54200	Yes	.75
5283437	M200D125Z03W125RN10	1.250	.856	1.250	4.280	2.000	.200	3	48500	Yes	1.20

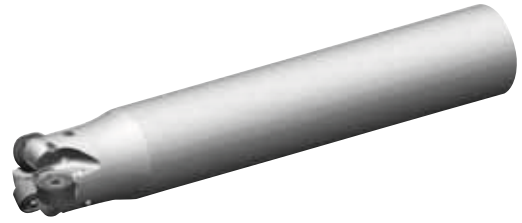
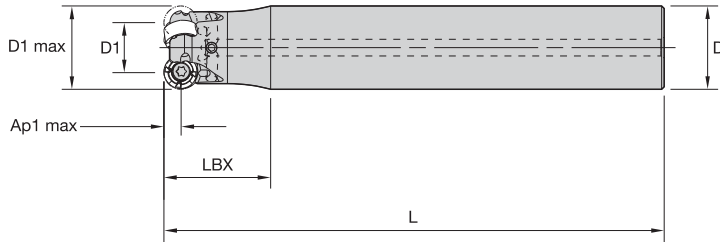
■ **Spare Parts**



D1 max	insert screw	in. lbs.	Torx driver
1.000	191.848	18	170.025
1.250	191.848	18	170.025

Copy Mills

- Double-sided, eight cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



Copy Mills

■ Cylindrical End Mills

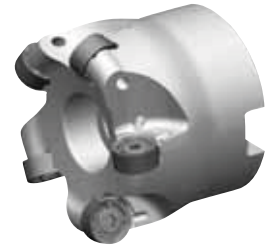
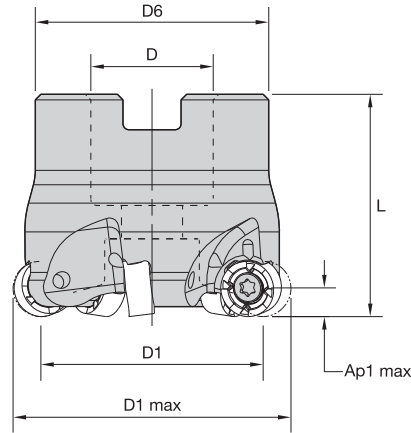
order number	catalog number	D1 max	D1	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	lbs
5283438	M200D100Z03C100RN10L600	1.000	.606	1.000	6.000	1.500	.200	3	54200	Yes	1.15
5283439	M200D100Z03C100RN10L800	1.000	.606	1.000	8.000	1.500	.200	3	54200	Yes	1.58
5283480	M200D125Z03C125RN10L900	1.250	.856	1.250	9.000	1.500	.200	3	48500	Yes	2.85

■ Spare Parts



D1 max	insert screw	in. lbs.	Torx driver
1.000	191.848	18	170.025
1.250	191.848	18	170.025

- Double-sided, eight cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



Copy Mills

■ Shell Mills

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max RPM	coolant supply	lbs
5283481	M200D150Z03S050RN10	1.500	1.106	.500	1.300	1.570	.200	3	44300	Yes	.46
5283482	M200D150Z05S050RN10	1.500	1.106	.500	1.300	1.570	.200	5	44300	Yes	.43
5283483	M200D200Z04S075RN10	2.000	1.606	.750	1.654	2.000	.200	4	38300	Yes	1.04
5283484	M200D200Z06S075RN10	2.000	1.606	.750	1.654	2.000	.200	6	38300	Yes	1.02

■ Spare Parts



D1 max	insert screw	in. lbs.	wrench	socket-head cap screw	socket-head cap screw with coolant groove
1.500	191.848	18	170.025	S422	S422CG
2.000	191.848	18	170.025	S445	S445CG

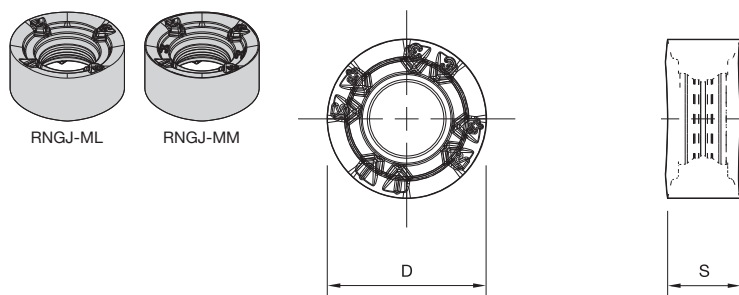
NOTE: Socket-head cap screw with coolant groove needs must be ordered separately.

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	ML	WP25PM	MM	WP40PM	MM	WP40PM
P3-P4	ML	WP25PM	MM	WP25PM	MH	WP40PM
P5-P6	ML	WP35CM	MM	WP35CM	MH	WP35CM
M1-M2	ML	WP25PM	ML	WU35PM	MM	WU35PM
M3	ML	WP25PM	MM	WU35PM	MM	WU35PM
K1-K2	MH	WK15CM	MH	WK15CM	MH	WP20CM
K3	MH	WK15CM	MH	WK15CM	MH	WP25PM
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	ML	WS30PM	MM	WS30PM	MM	WU35PM
S3	ML	WS30PM	MM	WU35PM	MM	WU35PM
S4	ML	WS30PM	MM	WU35PM	MM	WU35PM
H1	MH	WP25PM	MH	WP20CM	-	-

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iC10 • Inserts • RN.J10...



- -ML geometry is the first choice for stainless steel and high-temp alloys.
- -MM geometry is for general purpose, especially for steel.

● first choice
○ alternate choice

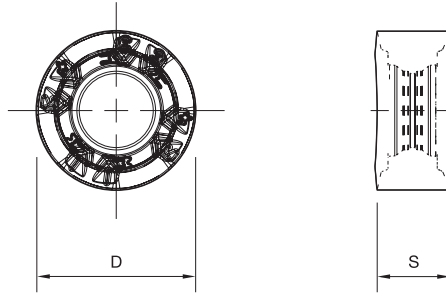
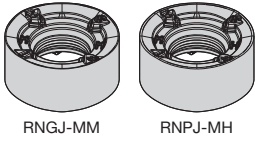
P	●	●	●	●	●	●	●
M	○	○	○	○	○	○	○
K	●	○	○	○	○	○	○
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○

■ RINGJ-ML

catalog number	number of indexes	D	S	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNGJ10T3M0EML	8	.394	.188	○	○	●	●	●	○	○

■ RINGJ-MM

catalog number	number of indexes	D	S	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNGJ10T3M0SMM	8	.394	.188	○	○	○	○	○	○	○



- -MM geometry is for general purpose, especially for steel.
- -MH geometry is the first choice for heavy applications, cast iron, and high-strength steel.

- first choice
- alternate choice

P	●	●	●	●	●	●	●
M	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○

■ RNPJ-MM

catalog number	number of indexes	D	S	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNPJ10T3M0SMM	8	.394	.188	●	○	○	○	○	○	○

■ RNPJ-MH

catalog number	number of indexes	D	S	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNPJ10T3M0SMH	8	.394	.187	○	○	○	○	○	○	○



■ Recommended Starting Speeds [SFM]

Material Group		WK15CM			WP20CM			WP25PM			WS30PM		
P	1	-	-	-	2165	1910	1770	1295	1120	1060	-	-	-
	2	-	-	-	1340	1220	1080	1080	940	785	-	-	-
	3	-	-	-	1220	1080	1000	1000	845	690	-	-	-
	4	-	-	-	905	845	750	890	725	590	-	-	-
	5	-	-	-	1080	985	905	725	670	590	-	-	-
	6	-	-	-	750	670	570	650	490	395	-	-	-
M	1	-	-	-	890	785	690	805	710	650	890	785	725
	2	-	-	-	805	690	630	725	630	510	805	710	570
	3	-	-	-	630	570	490	550	475	370	610	535	415
K	1	1655	1520	1340	1415	1280	1165	905	805	725	-	-	-
	2	1320	1165	1080	1120	1000	925	710	630	590	-	-	-
	3	1105	985	905	940	845	785	590	535	475	-	-	-
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	155	140	95	180	155	120
	2	-	-	-	-	-	-	155	140	95	180	155	120
	3	-	-	-	-	-	-	200	155	95	215	180	120
	4	-	-	-	-	-	-	275	200	140	335	235	155
H	1	-	-	-	550	450	370	475	355	275	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-

Copy Mills

Material Group		WU35PM			WP35CM			WP40PM		
P	1	1025	905	845	1790	1555	1460	1165	1025	965
	2	865	750	630	1105	1000	905	985	845	710
	3	785	670	550	1000	905	805	905	770	630
	4	710	590	475	750	690	630	805	670	535
	5	590	535	475	1025	905	830	670	610	535
	6	510	395	310	630	535	430	590	450	355
M	1	670	590	535	805	725	610	770	670	610
	2	610	510	430	725	630	550	690	590	490
	3	450	395	310	570	510	450	510	450	355
K	1	-	-	-	1165	1045	940	-	-	-
	2	-	-	-	925	830	750	-	-	-
	3	-	-	-	770	690	630	-	-	-
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	140	120	95	-	-	-	155	140	120
	2	140	120	95	-	-	-	155	140	120
	3	180	140	95	-	-	-	200	155	120
	4	235	180	120	260	200	130	260	200	140
H	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At .197 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
ML	.005	.017	.031	.004	.013	.023	.003	.009	.017	.002	.008	.015	.002	.008	.014	ML
MM	.011	.020	.036	.008	.014	.026	.006	.011	.019	.005	.009	.017	.005	.009	.015	MM
MH	.018	.023	.038	.013	.016	.027	.010	.012	.020	.009	.011	.018	.008	.010	.016	MH

At .098 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
ML	.006	.020	.036	.004	.014	.026	.003	.011	.020	.003	.009	.017	.003	.009	.016	ML
MM	.013	.023	.041	.009	.016	.030	.007	.012	.022	.006	.011	.019	.005	.010	.018	MM
MH	.021	.026	.044	.015	.019	.031	.011	.014	.023	.010	.012	.020	.009	.011	.019	MH

At .049 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
ML	.008	.026	.048	.006	.019	.034	.004	.014	.026	.004	.012	.022	.003	.011	.020	ML
MM	.017	.030	.054	.012	.022	.039	.009	.016	.029	.008	.014	.025	.007	.013	.023	MM
MH	.028	.035	.058	.020	.025	.041	.015	.019	.031	.013	.016	.027	.012	.015	.024	MH

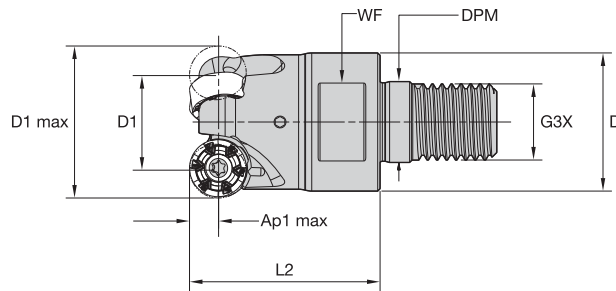
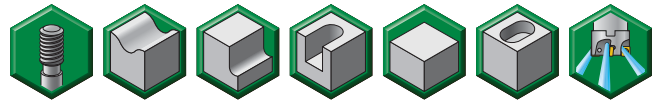
At .025 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
ML	.011	.036	.066	.008	.026	.047	.006	.019	.035	.005	.017	.030	.005	.015	.028	ML
MM	.023	.041	.075	.016	.029	.053	.012	.022	.040	.011	.019	.035	.010	.018	.032	MM
MH	.038	.048	.079	.027	.034	.056	.020	.025	.042	.018	.022	.036	.016	.020	.033	MH

NOTE: Use "Light Machining" value as starting feed rate.

Copy Mills

- Double-sided, 12 cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



Copy Mills

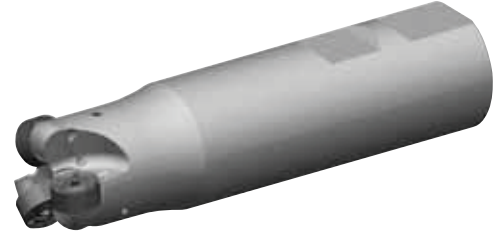
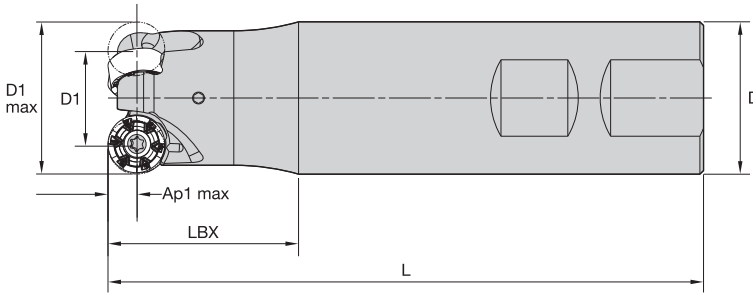
■ Screw-On End Mills

order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max RPM	coolant supply	lbs
5068352	M200D125Z03M16RN12	1.250	.778	1.142	.670	M16.000	1.500	.943	.117	3	39160	Yes	.37

■ Spare Parts

D1 max	insert screw	in. lbs.	Torx driver
1.250	193.492	35	170.025

- Double-sided, 12 cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



■ **Weldon Shanks**

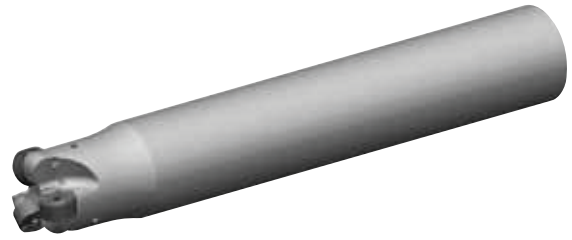
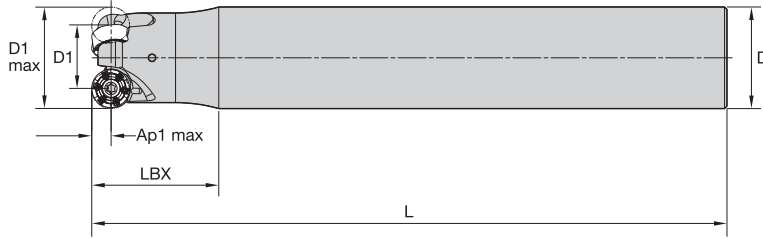
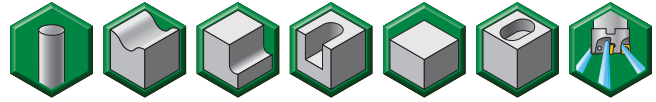
order number	catalog number	D1 max	D1	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	lbs
5068372	M200D125Z02W125RN12	1.250	.778	1.250	3.530	1.250	.117	2	39160	Yes	.98

■ **Spare Parts**

D1 max	 insert screw	 in. lbs.	 Torx driver
1.250	193.492	35	170.025

Copy Mills

- Double-sided, 12 cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



Copy Mills

■ Cylindrical End Mills

order number	catalog number	D1 max	D1	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	lbs
5068374	M200D125Z02C125RN12L900	1.250	.778	1.250	9.000	1.250	.117	2	39160	Yes	2.85
5068400	M200D150Z03C150RN12L900	1.500	1.028	1.500	9.250	1.499	.117	3	35890	Yes	4.21

■ Spare Parts



insert screw

193.492



in. lbs.

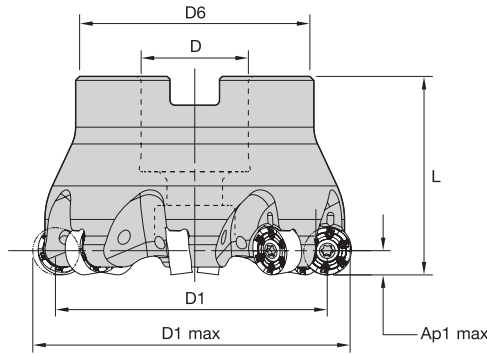
35



Torx driver

170.025

- Double-sided, 12 cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



■ **Shell Mills**

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max RPM	coolant supply	lbs
5068401	M200D150Z04S050RN12	1.500	1.028	.500	1.300	1.570	.117	4	35890	Yes	.41
5068402	M200D200Z04S075RN12	2.000	1.528	.750	1.750	2.000	.117	4	31080	Yes	1.02
5068403	M200D200Z05S075RN12	2.000	1.528	.750	1.750	2.000	.117	5	31080	Yes	1.03
5068404	M200D250Z07S075RN12	2.500	2.028	.750	1.750	2.000	.117	7	27800	Yes	1.53
5068405	M200D300Z08S100RN12	3.000	2.528	1.000	2.189	2.000	.117	8	25370	Yes	2.08
5068406	M200D400Z09S150RN12	4.000	3.528	1.500	3.380	2.000	.117	9	21970	Yes	3.29

■ **Spare Parts**



D1 max	insert screw	in. lbs.	wrench	socket-head cap screw	socket-head cap screw with coolant groove	coolant lock screw	coolant lock screw assembly
1.500	193.492	35	170.025	S422	S422CG	—	—
2.000	193.492	35	170.025	S422	S422CG	—	—
2.000	193.492	35	170.025	S445	S445CG	—	—
2.500	193.492	35	170.025	S445	S445CG	—	—
3.000	193.492	35	170.025	S445	S445CG	—	—
4.000	193.492	35	170.025	—	—	12146110500	S-2165-C

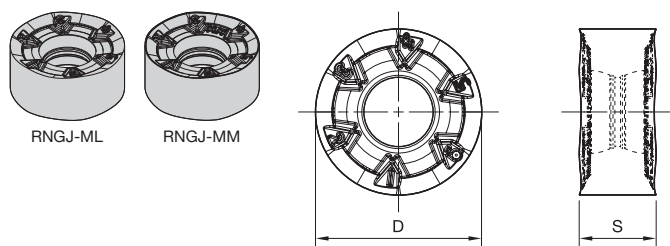
NOTE: Socket-head cap screw with coolant groove and coolant lock screw assembly must be ordered separately.

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	ML	WP25PM	MM	WP40PM	MM	WP40PM
P3-P4	ML	WP25PM	MM	WP25PM	MH	WP40PM
P5-P6	ML	WP35CM	MM	WP35CM	MH	WP35CM
M1-M2	ML	WP25PM	ML	WU35PM	MM	WU35PM
M3	ML	WP25PM	MM	WU35PM	MM	WU35PM
K1-K2	MH	WK15CM	MH	WK15CM	MH	WP20CM
K3	MH	WK15PM	MH	WK15PM	MH	WP25PM
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	ML	WS30PM	MM	WS30PM	MM	WU35PM
S3	ML	WS30PM	MM	WU35PM	MM	WU35PM
S4	ML	WS30PM	MM	WU35PM	MM	WU35PM
H1	MH	WP25PM	MH	WP20CM	-	-

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- -ML geometry is the first choice for stainless steel and high-temp alloys.
- -MM geometry is for general purpose, especially for steel.

- first choice
- alternate choice

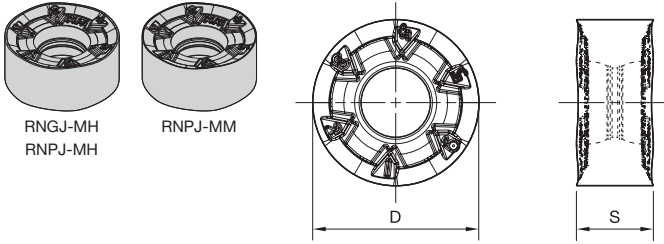
P	●	○	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○

■ RINGJ-ML

catalog number	cutting edges	D	S	WK15PM	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNGJ1204M0EML	12	.472	.187	●	○	○	○	○	○	○	○

■ RINGJ-MM

catalog number	cutting edges	D	S	WK15PM	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNGJ1204M0SMM	12	.472	.187	○	○	○	○	○	○	○	○



- -MM geometry is for general purpose, especially for steel.
- -MH geometry is the first choice for heavy applications, cast iron, and high-strength steels.

- first choice
- alternate choice

P											
M											
K											
N											
S											
H											

■ RRGJ-MH

catalog number	cutting edges	D	S	WK15PM	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RRGJ1204M0SMH	12	.472	.187	5123900	-	-	5123901	-	5123902	5123903	-

■ RNPJ-MM

catalog number	cutting edges	D	S	WK15PM	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNPJ1204M0SMM	12	.472	.187	-	-	5276362	5276361	-	5476634	5276360	5542329

■ RNPJ-MH

catalog number	cutting edges	D	S	WK15PM	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNPJ1204M0SMH	12	.472	.187	-	5276366	5276365	5276364	-	5476635	5276363	5542340

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■ Recommended Starting Speeds [SFM]

Material Group		WK15PM			WK15CM			WP20CM			WP25PM		
P	1	-	-	-	-	-	-	2165	1910	1770	1295	1120	1060
	2	-	-	-	-	-	-	1340	1220	1080	1080	940	785
	3	-	-	-	-	-	-	1220	1080	1000	1000	845	690
	4	-	-	-	-	-	-	905	845	750	890	725	590
	5	-	-	-	-	-	-	1080	985	905	725	670	590
	6	-	-	-	-	-	-	750	670	570	650	490	395
M	1	-	-	-	-	-	-	890	785	690	805	710	650
	2	-	-	-	-	-	-	805	690	630	725	630	510
	3	-	-	-	-	-	-	630	570	490	550	475	370
K	1	1060	965	845	1655	1520	1340	1415	1280	1165	905	805	725
	2	830	750	690	1320	1165	1080	1120	1000	925	710	630	590
	3	690	630	570	1105	985	905	940	845	785	590	535	475
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	-	-	-	155	140	95
	2	-	-	-	-	-	-	-	-	-	155	140	95
	3	-	-	-	-	-	-	-	-	-	200	155	95
	4	-	-	-	-	-	-	-	-	-	275	200	140
H	1	-	-	-	-	-	-	550	450	370	475	355	275
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-

Copy Mills

Material Group		WS30PM			WU35PM			WP35CM			WP40PM		
P	1	-	-	-	1025	905	845	1790	1555	1460	1165	1025	965
	2	-	-	-	865	750	630	1105	1000	905	985	845	710
	3	-	-	-	785	670	550	1000	905	805	905	770	630
	4	-	-	-	710	590	475	750	690	630	805	670	535
	5	-	-	-	590	535	475	1025	905	830	670	610	535
	6	-	-	-	510	395	310	630	535	430	590	450	355
M	1	890	785	725	670	590	535	805	725	610	770	670	610
	2	805	710	570	610	510	430	725	630	550	690	590	490
	3	610	535	415	450	395	310	570	510	450	510	450	355
K	1	-	-	-	-	-	-	1165	1045	940	-	-	-
	2	-	-	-	-	-	-	925	830	750	-	-	-
	3	-	-	-	-	-	-	770	690	630	-	-	-
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	180	155	120	140	120	95	-	-	-	155	140	120
	2	180	155	120	140	120	95	-	-	-	155	140	120
	3	215	180	120	180	140	95	-	-	-	200	155	120
	4	335	235	155	235	180	120	260	200	130	260	200	140
H	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At .236 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
ML	.005	.007	.013	.004	.005	.009	.003	.004	.007	.002	.003	.006	.002	.003	.006	ML
MM	.011	.020	.032	.008	.014	.023	.006	.011	.017	.005	.009	.015	.005	.009	.014	MM
MH	.018	.027	.040	.013	.020	.029	.010	.015	.022	.009	.013	.019	.008	.012	.017	MH

At .118 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
ML	.006	.008	.015	.004	.006	.011	.003	.004	.008	.003	.004	.007	.002	.004	.006	ML
MM	.013	.023	.038	.009	.016	.027	.007	.012	.020	.006	.011	.018	.005	.010	.016	MM
MH	.021	.032	.047	.015	.023	.033	.011	.017	.025	.010	.015	.022	.009	.014	.020	MH

At .059 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
ML	.007	.011	.020	.005	.008	.014	.004	.006	.011	.003	.005	.009	.003	.005	.008	ML
MM	.017	.030	.050	.012	.022	.035	.009	.016	.026	.008	.014	.023	.007	.013	.021	MM
MH	.028	.042	.062	.020	.030	.044	.015	.022	.033	.013	.019	.028	.012	.018	.026	MH

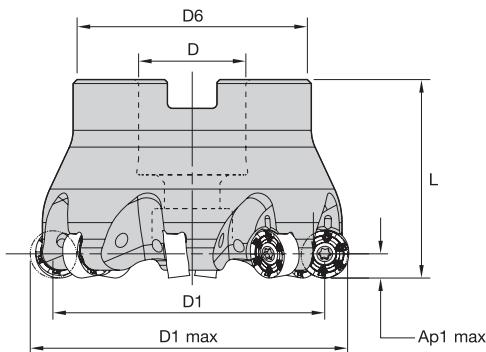
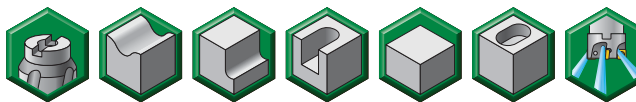
At .030 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
ML	.010	.015	.027	.007	.011	.019	.005	.008	.014	.005	.007	.013	.004	.006	.012	ML
MM	.023	.041	.068	.016	.029	.049	.012	.022	.036	.011	.019	.031	.010	.018	.029	MM
MH	.038	.058	.085	.027	.041	.060	.020	.031	.045	.018	.027	.039	.016	.024	.036	MH

NOTE: Use "Light Machining" value as starting feed rate.

Copy Mills

- Double-sided, 12 cutting edges.
- Anti-rotation feature for better stability and higher feed rates.
- Pocketing and profiling capabilities.



■ Shell Mills

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max RPM	coolant supply	lbs
5283521	M200D200Z04S075RN16	2.000	1.370	.750	1.752	2.000	.156	4	26400	Yes	.91
5283522	M200D250Z05S100RN16	2.500	1.870	1.000	2.189	2.000	.156	5	22600	Yes	1.51
5283523	M200D300Z05S100RN16	3.000	2.370	1.000	2.189	2.000	.156	5	20100	Yes	2.01
5283524	M200D300Z07S100RN16	3.000	2.370	1.000	2.189	2.000	.156	7	20100	Yes	1.91
5283525	M200D400Z06S150RN16	4.000	3.370	1.500	3.812	2.000	.156	6	16800	Yes	3.31
5283526	M200D400Z08S150RN16	4.000	3.370	1.500	3.812	2.000	.156	8	16800	Yes	3.34

■ Spare Parts

D1 max	insert screw	in. lbs.	wrench	socket-head cap screw	socket-head cap screw with coolant groove	coolant lock screw	coolant lock screw assembly
2.000	192.932	35	170.026	S445	S445CG	—	—
2.500	MS2260	35	170.026	S459	S459CG	—	—
3.000	MS2260	35	170.026	S459	S459CG	—	—
3.000	192.932	35	170.026	S459	S459CG	—	—
4.000	MS2260	35	170.026	—	—	12146110500	S2165C

NOTE: Socket-head cap screw with coolant groove and coolant lock screw assembly must be ordered separately.

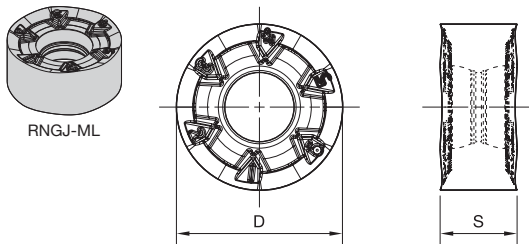
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■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	ML	WP25PM	MM	WP40PM	MM	WP40PM
P3-P4	ML	WP25PM	MM	WP25PM	MH	WP40PM
P5-P6	ML	WP35CM	MM	WP35CM	MH	WP35CM
M1-M2	ML	WP25PM	ML	WU35PM	MM	WU35PM
M3	ML	WP25PM	MM	WU35PM	MM	WU35PM
K1-K2	MH	WK15CM	MH	WK15CM	MH	WP20CM
K3	MH	WK15CM	MH	WP20CM	MH	WP35CM
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	ML	WS30PM	ML	WS30PM	ML	WU35PM
S3	ML	WS30PM	ML	WU35PM	ML	WU35PM
S4	ML	WS30PM	ML	WU35PM	ML	WU35PM
H1	MH	WP25PM	MH	WP20CM	-	-

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iC16 • Inserts • RN.J16...



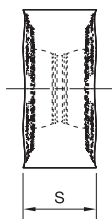
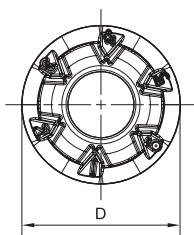
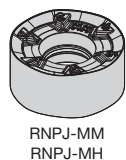
• -ML geometry is the first choice for stainless steel and high-temp alloys.

● first choice
○ alternate choice

P	●	●	●	●	●	●	●
M	○	○	○	○	○	○	○
K	●	○	○	○	○	○	○
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○

■ RNgJ-ML

catalog number	cutting edges	D	S	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNgJ1605M0EML	12	.630	.250	-	-	5274561	5520354	5274562	5274560	-



- -MM geometry is for general purpose, especially for steel.
- -MH geometry is the first choice for heavy applications, cast iron, and high-strength steels.

- first choice
- alternate choice

P	●	●	●	●	●	●	●	●	●	●	●
M	○	○	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○

■ RNPJ-MM

catalog number	cutting edges	D	S	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNPJ1605M0SMM	12	.630	.250	5276472	5276471	5476637	5276470	5542341		

■ RNPJ-MH

catalog number	cutting edges	D	S	WK15CM	WP20CM	WP25PM	WS30PM	WU35PM	WP35CM	WP40PM
RNPJ1605M0SMH	12	.630	.250	5276476	5276474	5476636	5276473	5542342		

Recommended Starting Speeds

■ Recommended Starting Speeds [SFM]

Material Group		WK15CM			WP20CM			WP25PM			WS30PM		
P	1	-	-	-	2165	1910	1770	1295	1120	1060	-	-	-
	2	-	-	-	1340	1220	1080	1080	940	785	-	-	-
	3	-	-	-	1220	1080	1000	1000	845	690	-	-	-
	4	-	-	-	905	845	750	890	725	590	-	-	-
	5	-	-	-	1080	985	905	725	670	590	-	-	-
	6	-	-	-	750	670	570	650	490	395	-	-	-
M	1	-	-	-	890	785	690	805	710	650	890	785	725
	2	-	-	-	805	690	630	725	630	510	805	710	570
	3	-	-	-	630	570	490	550	475	370	610	535	415
K	1	1655	1520	1340	1415	1280	1165	905	805	725	-	-	-
	2	1320	1165	1080	1120	1000	925	710	630	590	-	-	-
	3	1105	985	905	940	845	785	590	535	475	-	-	-
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	155	140	95	180	155	120
	2	-	-	-	-	-	-	155	140	95	180	155	120
	3	-	-	-	-	-	-	200	155	95	215	180	120
	4	-	-	-	-	-	-	275	200	140	335	235	155
H	1	-	-	-	550	450	370	475	355	275	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-

(continued)

(Recommended Starting Speeds [SFM] — continued)

Material Group		WU35PM			WP35CM			WP40PM		
P	1	1025	905	845	1790	1555	1460	1165	1025	965
	2	865	750	630	1105	1000	905	985	845	710
	3	785	670	550	1000	905	805	905	770	630
	4	710	590	475	750	690	630	805	670	535
	5	590	535	475	1025	905	830	670	610	535
	6	510	395	310	630	535	430	590	450	355
M	1	670	590	535	805	725	610	770	670	610
	2	610	510	430	725	630	550	690	590	490
	3	450	395	310	570	510	450	510	450	355
K	1	-	-	-	1165	1045	940	-	-	-
	2	-	-	-	925	830	750	-	-	-
	3	-	-	-	770	690	630	-	-	-
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	140	120	95	-	-	-	155	140	120
	2	140	120	95	-	-	-	155	140	120
	3	180	140	95	-	-	-	200	155	120
	4	235	180	120	260	200	130	260	200	140
H	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds

■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At .315 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)														Insert Geometry	
	5%		10%			20%			30%		40-100%					
ML	.005	.015	.019	.004	.011	.014	.003	.008	.010	.002	.007	.009	.002	.006	.008	ML
MM	.011	.027	.032	.008	.020	.023	.006	.015	.017	.005	.013	.015	.005	.012	.014	MM
MH	.021	.027	.046	.015	.020	.033	.011	.015	.025	.010	.013	.021	.009	.012	.020	MH

At .157 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)														Insert Geometry	
	5%		10%			20%			30%		40-100%					
ML	.006	.017	.022	.004	.012	.016	.003	.009	.012	.003	.008	.010	.002	.007	.010	ML
MM	.013	.032	.037	.009	.023	.026	.007	.017	.020	.006	.015	.017	.006	.014	.016	MM
MH	.024	.032	.053	.018	.023	.038	.013	.017	.029	.011	.015	.025	.010	.014	.023	MH

At .079 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)														Insert Geometry	
	5%		10%			20%			30%		40-100%					
ML	.007	.022	.029	.005	.016	.021	.004	.012	.016	.003	.010	.014	.003	.010	.012	ML
MM	.017	.042	.048	.012	.030	.035	.009	.022	.026	.008	.019	.022	.007	.018	.021	MM
MH	.032	.042	.071	.023	.030	.050	.017	.022	.037	.015	.019	.033	.014	.018	.030	MH

At .039 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)														Insert Geometry	
	5%		10%			20%			30%		40-100%					
ML	.010	.030	.040	.007	.022	.029	.005	.016	.021	.005	.014	.019	.004	.013	.017	ML
MM	.023	.058	.067	.017	.041	.047	.012	.031	.035	.011	.027	.031	.010	.024	.028	MM
MH	.044	.058	.098	.031	.041	.069	.023	.031	.051	.020	.027	.044	.019	.024	.041	MH

NOTE: Use "Light Machining" value as starting feed rate.

Ideal for Die and Mold Applications •

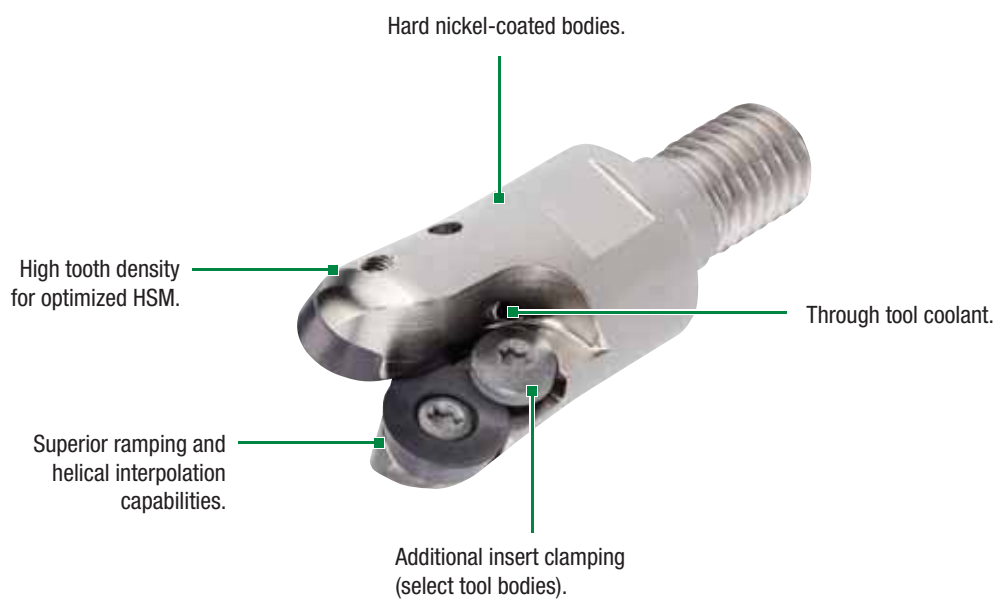
M170™ Series



M170

Specially engineered with industry standard insert sizes, the M170 Series offers the highest performance rates for best-in-class cost efficiency, high-strength steel, and hard machining capability, and a strong, solid cutter body designed for maximum performance.

- Nickel-coated cutter bodies ensure improved tool life and chip flow.
- Screw-on end mills and shell mills.
- High tooth density for optimized HSM.
- High-accuracy PSTS inserts are ideal for die and mold manufacturing.



Copy Mills

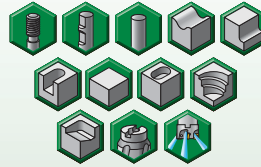


M170™

Max depth of cut: 8mm

Indexes per insert: 6
Diameter: 12–125mm

Pages: K44–K72



These products are available for metric only.

■ Insert Offering



iC07

7mm iC insert RD.X
Up to 3,5mm Ap max.
Diameter range
12–35mm



iC10

10mm iC insert RDPX
Up to 5mm Ap max.
Diameter range
20–52mm



iC12

12mm iC insert RDPX
Up to 6mm Ap max.
Diameter range
24–100mm

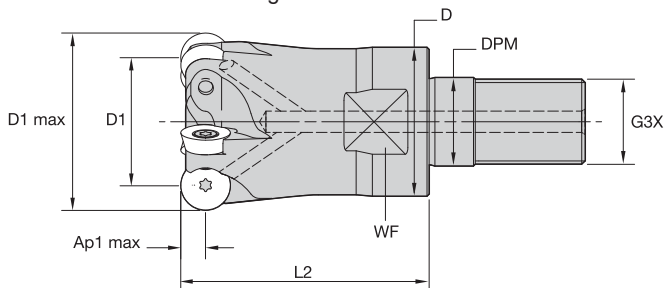
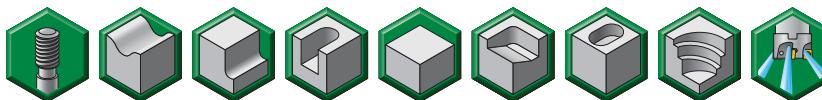


iC16

16mm iC insert RDPX
Up to 8mm Ap max.
Diameter range
32–125mm

These products are available for metric only.

- Longer cutter tool life.
- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ Screw-On End Mills

order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3935336	M170D012Z02M06RD07T	12	5	10	6,5	M6	18	7	3,5	2	22.0°	26200	Yes	0,02
3935337	M170D012Z02M08RD07T	12	5	13	8,5	M8	23	10	3,5	2	22.0°	26200	Yes	0,02
3935338	M170D015Z03M08RD07T	15	8	13	8,5	M8	18	10	3,5	3	11.0°	21200	Yes	0,02

■ Spare Parts



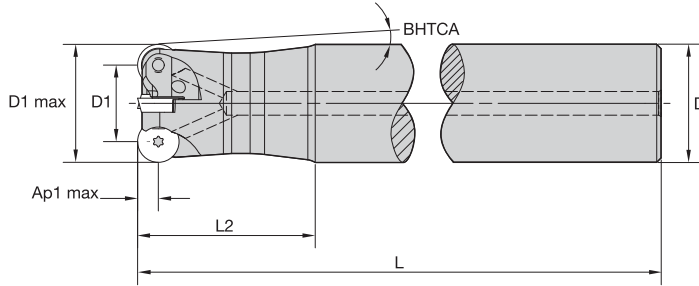
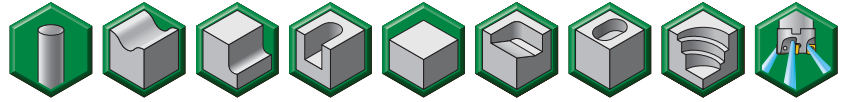
D1 max	insert screw	Nm	Torx driver
12	193.364	1,0	12147549000
15	193.364	1,0	12147549000

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

These products are available for metric only.

- Longer cutter tool life.
- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ Cylindrical Shanks

order number	catalog number	D1 max	D1	D	L	L2	BHTCA	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3935339	M170D012Z02A12RD07TL100	12	5	12	100	20	—	3,5	2	22.0°	26200	Yes	0,07
3935340	M170D012Z02A16RD07TL120	12	5	16	120	60	2.0°	3,5	2	22.0°	26200	Yes	0,14
3935341	M170D012Z02A16RD07TL140	12	5	16	140	80	1.5°	3,5	2	22.0°	26200	Yes	0,16
3935342	M170D015Z03A16RD07TL130	15	8	16	130	60	0.5°	3,5	3	11.0°	21200	Yes	0,13

■ Spare Parts



D1 max	insert screw	Nm	Torx driver
12	193.364	1,0	12147549000
15	193.364	1,0	12147549000

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	-	-	-	-	-	-
P3-P4	MH	TN2505	MH	TN6525	MH	TN6540
P5-P6	MH	TN2505	MH	TN6525	MH	TN6540
M1-M2	-	-	-	-	-	-
M3	-	-	-	-	-	-
K1-K2	MH	TN2505	MH	TN2505	MH	TN6525
K3	MH	TN2505	MH	TN2505	MH	TN6525
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	-	-	-	-
S3	-	-	-	-	-	-
S4	-	-	-	-	-	-
H1	MH	TN2505	MH	TN2505	-	-

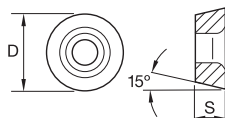
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iC07 • Inserts

These products are available for metric only.



RDHX-MH



- MH geometry is suitable for high-strength steels, cast iron, and hard machining.

- first choice
- alternate choice

P	●	○	○	○
M	●	○	○	○
K	●	○	○	○
N	○	○	○	○
S	○	○	○	○
H	●	○	○	○

■ RDHX-MH

catalog number	D	S	hm	TN2505	TN6525	TN6540
RDHX07T1M0SNMH	7,00	1,98	0,08	3960578	3960573	3960532

■ Recommended Starting Speeds [m/min]

Material Group		TN2505			TN6525			TN6540		
P	1	-	-	-	410	320	280	360	280	240
	2	-	-	-	320	250	215	250	190	170
	3	-	-	-	280	215	185	215	170	140
	4	-	-	-	235	170	145	180	130	110
	5	-	-	-	310	235	200	240	180	150
	6	-	-	-	205	160	130	160	120	100
M	1	-	-	-	190	120	80	130	80	60
	2	-	-	-	120	80	50	80	50	40
	3	-	-	-	125	80	55	85	50	40
K	1	400	300	250	275	245	220	220	205	180
	2	540	365	280	215	190	180	175	155	140
	3	310	190	155	180	160	145	155	145	125
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	50	35	30
	2	-	-	-	-	-	-	25	20	10
	3	-	-	-	-	-	-	70	40	30
	4	-	-	-	-	-	-	60	30	25
H	1	175	140	95	-	-	-	-	-	-
	2	175	140	95	-	-	-	-	-	-
	3	140	115	80	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Copy Mills

Recommended Starting Feeds

■ Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At 3,50 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MH	0,23	0,46	0,74	0,17	0,33	0,54	0,13	0,25	0,40	0,11	0,22	0,35	0,10	0,20	0,32	MH

At 1,50 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MH	0,28	0,56	0,91	0,20	0,41	0,65	0,15	0,31	0,49	0,13	0,27	0,43	0,12	0,24	0,39	MH

At 0,75 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MH	0,37	0,75	1,21	0,27	0,54	0,87	0,20	0,40	0,65	0,18	0,35	0,56	0,16	0,32	0,52	MH

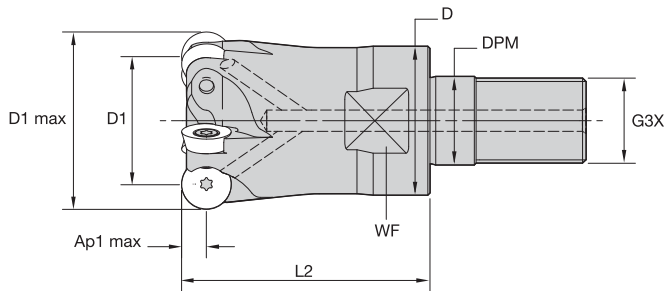
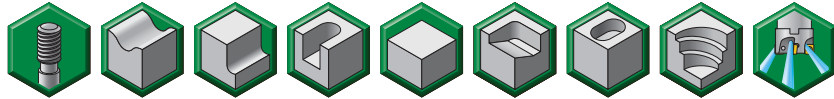
At 0,50 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MH	0,45	0,91	1,47	0,32	0,65	1,05	0,24	0,49	0,78	0,21	0,42	0,68	0,19	0,39	0,62	MH

NOTE: Use "Light Machining" value as starting feed rate.

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ **Screw-On End Mills**

order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3926607	M170D015Z02M08RD07	15	8	13	8,5	M8	23	10	3,5	2	18.0°	21200	Yes	0,03
3926608	M170D016Z03M08RD07	16	9	13	8,5	M8	23	10	3,5	3	9.0°	21200	Yes	0,03
3926609	M170D020Z04M10RD07	20	13	18	10,5	M10	30	14	3,5	4	12.5°	19600	Yes	0,06
3926610	M170D025Z05M12RD07	25	18	21	12,5	M12	35	19	3,5	5	8.5°	12700	Yes	0,10
3926611	M170D030Z05M16RD07	30	23	29	17,0	M16	43	22	3,5	5	6.5°	10600	Yes	0,20
3926612	M170D035Z06M16RD07	35	28	29	17,0	M16	43	22	3,5	6	4.8°	9900	Yes	0,23

■ **Spare Parts**



insert screw

193.341



Nm

1,0



Torx

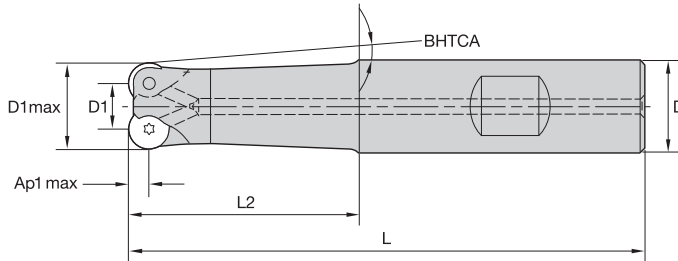
12147549000

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ **Weldon Shanks**

order number	catalog number	D1 max	D1	D	L	L2	BHTCA	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3929403	M170D015Z02B16RD07	15	8	16	90	40	1.0°	3,5	2	18.0°	21200	Yes	0,11

■ **Spare Parts**



insert screw



Nm



Torx driver

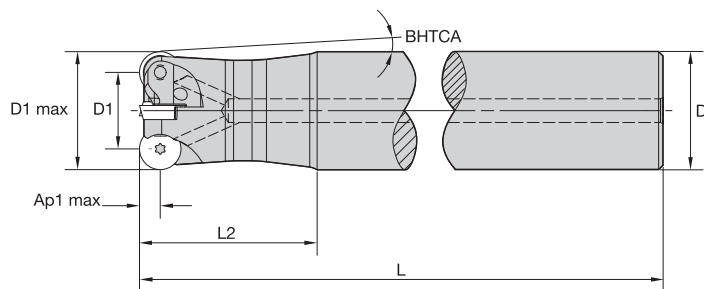
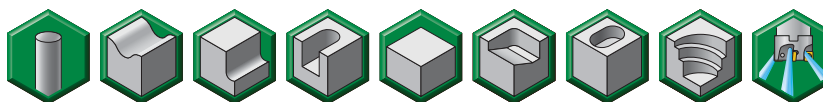
D1 max	15	193.341	1,0	12147549000
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NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ Cylindrical Shanks

order number	catalog number	D1 max	D1	D	L	L2	BHTCA	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3929404	M170D015Z02A16RD07L110	15	8	16	110	60	0.5°	3,5	2	18.0°	21200	Yes	0,14
3929405	M170D015Z02A16RD07L150	15	8	16	150	60	0.5°	3,5	2	18.0°	21200	Yes	0,20
3929407	M170D016Z02A16RD07L150	16	9	16	150	30	—	3,5	2	9.0°	21200	Yes	0,21
3929406	M170D016Z03A16RD07L110	16	9	16	110	20	—	3,5	3	9.0°	21200	Yes	0,16
3929409	M170D020Z03A20RD07L140	20	13	20	140	40	—	3,5	3	12.0°	10600	Yes	0,29
3929408	M170D020Z04A20RD07L115	20	13	20	115	30	—	3,5	4	12.0°	10600	Yes	0,25

■ Spare Parts



D1 max	insert screw	Nm	Torx driver
15	193.341	1,0	12147549000
16	193.341	1,0	12147549000
20	193.341	1,0	12147549000

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

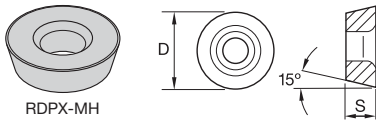
■ **Insert Selection Guide**

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	-	-	-	-	-	-
P3-P4	MH	TN2505	MH	TN6525	MH	TN6540
P5-P6	MH	TN2505	MH	TN6525	MH	TN6540
M1-M2	-	-	-	-	-	-
M3	-	-	-	-	-	-
K1-K2	MH	TN2505	MH	TN2505	MH	TN6525
K3	MH	TN2505	MH	TN2505	MH	TN6525
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	-	-	-	-
S3	-	-	-	-	-	-
S4	-	-	-	-	-	-
H1	MH	TN2505	MH	TN2505	-	-

Copy Mills

iC07 • Inserts

These products are available for metric only.



RDPX-MH

- -MH geometry is suitable for high-strength steels, cast iron, and hard machining.

- first choice
- alternate choice

P	○	●	●
M	○	○	●
K	○	○	○
N	○	○	○
S	○	○	●
H	○	○	○

■ **RDPX-MH**

catalog number	D	S	hm										
RDPX0702M0SNMH	7,00	2,38	0,08	<table border="1"> <tbody> <tr> <td>3959627</td> <td>TN2505</td> <td></td> </tr> <tr> <td>3959626</td> <td>TN6525</td> <td></td> </tr> <tr> <td>3959625</td> <td>TN6540</td> <td></td> </tr> </tbody> </table>	3959627	TN2505		3959626	TN6525		3959625	TN6540	
3959627	TN2505												
3959626	TN6525												
3959625	TN6540												

■ Recommended Starting Speeds [m/min]

Material Group		TN2505			TN6525			TN6540		
P	1	-	-	-	410	320	280	360	280	240
	2	-	-	-	320	250	215	250	190	170
	3	-	-	-	280	215	185	215	170	140
	4	-	-	-	235	170	145	180	130	110
	5	-	-	-	310	235	200	240	180	150
	6	-	-	-	205	160	130	160	120	100
M	1	-	-	-	190	120	80	130	80	60
	2	-	-	-	120	80	50	80	50	40
	3	-	-	-	125	80	55	85	50	40
K	1	400	300	250	275	245	220	220	205	180
	2	540	365	280	215	190	180	175	155	140
	3	310	190	155	180	160	145	155	145	125
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	50	35	30
	2	-	-	-	-	-	-	25	20	10
	3	-	-	-	-	-	-	70	40	30
	4	-	-	-	-	-	-	60	30	25
H	1	175	140	95	-	-	-	-	-	-
	2	175	140	95	-	-	-	-	-	-
	3	140	115	80	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds

■ Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At 3,50 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MH	0,23	0,46	0,74	0,17	0,33	0,54	0,13	0,25	0,40	0,11	0,22	0,35	0,10	0,20	0,32	MH

At 1,50 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MH	0,28	0,56	0,91	0,20	0,41	0,65	0,15	0,31	0,49	0,13	0,27	0,43	0,12	0,24	0,39	MH

At 0,75 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MH	0,37	0,75	1,21	0,27	0,54	0,87	0,20	0,40	0,65	0,18	0,35	0,56	0,16	0,32	0,52	MH

At 0,50 Axial Depth of Cut (ap)

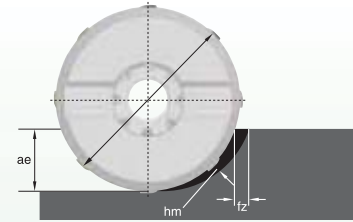
Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MH	0,45	0,91	1,47	0,32	0,65	1,05	0,24	0,49	0,78	0,21	0,42	0,68	0,19	0,39	0,62	MH

NOTE: Use "Light Machining" value as starting feed rate.

Selecting the Correct Cutting Values

1. fz depends on the Ap1 and ae values

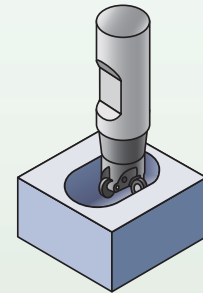
With round inserts, two factors can affect the hm: Ap1 and ae. fz has to be adjusted accordingly.



Recommended Starting Feed Rate Values (fz) Related to the Ap1 and ae Values:

ae engagement	10%	20%	30%	40%	50%	100%
Ap1 = 0,5mm	0,59mm	0,42mm	0,34mm	0,30mm	0,26mm	0,19mm
Ap1 = 0,75mm	0,50mm	0,36mm	0,29mm	0,25mm	0,22mm	0,16mm
Ap1 = 1mm	0,42mm	0,30mm	0,24mm	0,21mm	0,19mm	0,13mm
Ap1 = 1,5mm	0,34mm	0,24mm	0,20mm	0,17mm	0,15mm	0,11mm
Ap1 = 3,5mm	0,22mm	0,16mm	0,13mm	0,11mm	0,10mm	0,08mm

Example application highlighted.



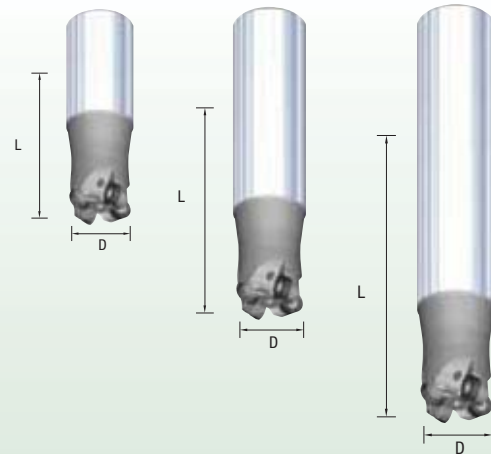
Example Cutting Conditions for RD..07... Insert in Pocketing, L/D ratio = 2 x D:

insert = RDPX0702M0SNMH		TN2505			TN6525			TN6540		
		feed per tooth fz (mm)/ae>50%								
		min	med	max	min	med	max	min	med	max
ae>50%	Recommended starting Ap1 = 0,5mm	0,19mm	0,22mm	0,30mm	0,19mm	0,30mm	0,35mm	0,19mm	0,30mm	50,4mm

2. Ap1 and vc corrections depend on L/D ratio

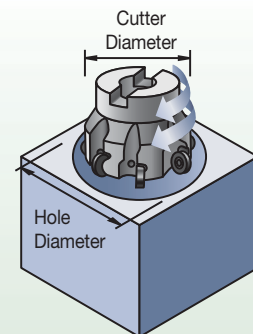
With increasing L/D ratios, or overhang, vibrations can occur due to reduced rigidity. To ensure successful application, it is recommended to adjust Ap1 and vc values according to the following table:

L/D ratio	% of Ap1 max to reduce	% of vc to reduce
<2	0%	0%
2<L/D<4	65-75%	10-15%
>4	80-95%	20-40%



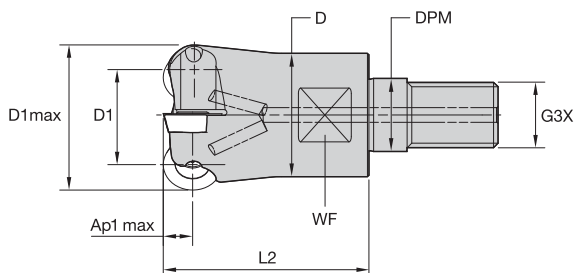
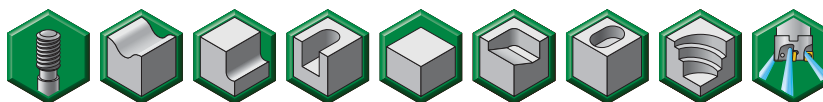
Recommended Cutting Conditions • Helical Interpolation from Solid

cutter diameter	min hole diameter	max hole diameter (flat bottom)	Ap1 max per revolution	max ramp angle	Ap1 max when plunging
12	17mm	17mm	3,5mm	22°	1mm
15	18mm	23mm	2,8mm	18°	2,2mm
16	20mm	25mm	1,9mm	9°	1,4mm
20	28mm	33mm	3,5mm	12°	1,5mm
25	36,5mm	43mm	3,5mm	8,5°	2,5mm
30	46,4mm	53mm	3,5mm	6,5°	2,5mm



These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ Screw-On End Mills

order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3934647	M170D020Z02M10RD10	20	10	18	10,5	M10	30	15	5,0	2	20.0°	15900	Yes	0,06
3934648	M170D025Z02M12RD10	25	15	21	12,5	M12	35	19	5,0	2	8.0°	12800	Yes	0,10
3934649	M170D025Z03M12RD10	25	15	21	12,5	M12	35	19	5,0	3	8.0°	12800	Yes	0,10
3934650	M170D030Z04M16RD10	30	20	29	17,0	M16	43	22	5,0	4	10.0°	10600	Yes	0,24
3934651	M170D035Z05M16RD10	35	25	29	17,0	M16	45	22	5,0	5	8.5°	9100	Yes	0,23
3934652	M170D042Z06M16RD10	42	32	29	17,0	M16	45	22	5,0	6	6.0°	7800	Yes	0,28

■ Spare Parts



insert screw

193.342



Nm

3,5



Torx driver

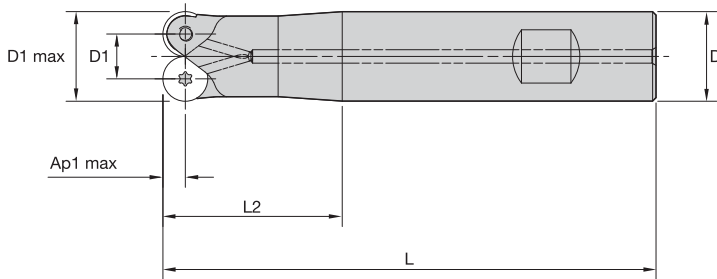
12148082400

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ **Weldon Shanks**

order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3940703	M170D020Z02B20RD10	20	10	20	110	40	5,0	2	20.0°	15900	Yes	0,24
3940708	M170D025Z03B25RD10	25	15	25	110	40	5,0	3	9.0°	12900	Yes	0,35

■ **Spare Parts**



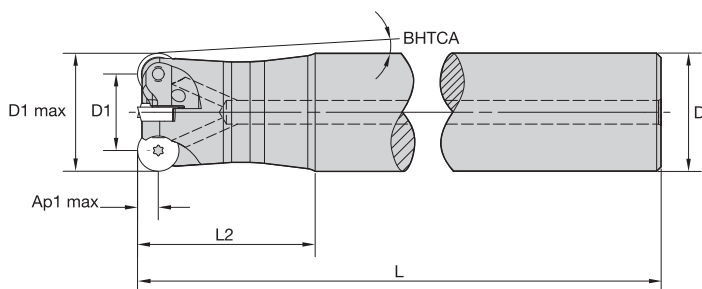
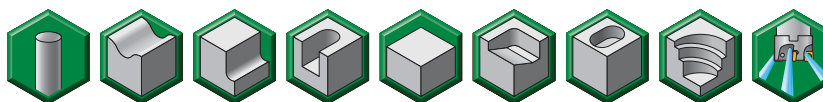
D1 max	insert screw	Nm	Torx driver
20	193.342	3,5	12148082400
25	193.342	3,5	12148082400

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ Cylindrical Shanks

order number	catalog number	D1 max	D1	D	L	L2	BHTCA	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3940704	M170D020Z02A20RD10L140	20	10	20	140	60	—	5,0	2	20.0°	15900	Yes	0,30
3940705	M170D020Z02A25RD10L160	20	10	25	160	80	2.0°	5,0	2	20.0°	15900	Yes	0,48
3940706	M170D020Z02A25RD10L180	20	10	25	180	100	1.5°	5,0	2	20.0°	15900	Yes	0,53
3940707	M170D022Z02A20RD10L160	22	12	20	160	40	—	5,0	2	12.0°	14400	Yes	0,35
3940709	M170D025Z02A25RD10L180	25	15	25	180	70	—	5,0	2	9.0°	12800	Yes	0,61
3940710	M170D025Z02A25RD10L220	25	15	25	220	100	—	5,0	2	9.0°	12800	Yes	0,74
3940711	M170D028Z02A25RD10L200	28	18	25	200	40	—	5,0	2	15.0°	11300	Yes	0,74

■ Spare Parts



insert screw

193.342



Nm

3,5



Torx driver

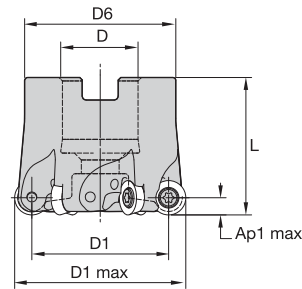
12148082400

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

These products are available for metric only.







- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ **Shell Mills**

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3940712	M170D040Z05RD10	40	30	16	37	40	5,0	5	7.2°	9950	Yes	0,28
3940723	M170D042Z05RD10	42	32	16	37	40	5,0	5	5.8°	9500	Yes	0,28
3940724	M170D050Z06RD10	50	40	22	44	40	5,0	6	5.2°	7950	Yes	0,35
3940725	M170D052Z06RD10	52	42	22	44	50	5,0	6	3.0°	7650	Yes	0,51

■ **Spare Parts**

D1 max	 insert screw	 Nm	 Torx driver	 socket-head cap screw	 low-head cap screw	 socket-head cap screw with coolant groove
40	193.342	3,5	12148082400	MS1294	—	MS1294CG
42	193.342	3,5	12148082400	MS1294	—	MS1294CG
50	193.342	3,5	12148082400	—	129.025	MS2072CG
52	193.342	3,5	12148082400	—	129.025	MS2072CG

NOTE: All spare parts except the insert screws must be ordered separately.

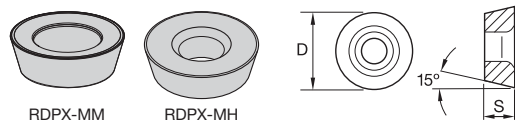
■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	MM	TN6525	MM	TN6525	MM	TN6540
P3-P4	MH	TN2505	MH	TN6525	MH	TN6540
P5-P6	MH	TN2505	MH	TN6525	MH	TN6540
M1-M2	-	-	MM	TN6525	MM	TN6540
M3	-	-	MM	TN6525	MM	TN6540
K1-K2	MH	TN2505	MH	TN2505	MH	TN6525
K3	MH	TN2505	MH	TN2505	MH	TN6525
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	MM	TN6540	-	-
S3	-	-	MM	TN6540	-	-
S4	-	-	MM	TN6540	-	-
H1	MH	TN2505	MH	TN2505	-	-

Copy Mills

iC10 • Inserts

These products are available for metric only.



● first choice
○ alternate choice

- MM geometry is the best option for general-purpose use, materials, and applications. Used for reduced cutting forces.

■ RDPX-MM

catalog number	D	S	hm	TN2505	TN6525	TN6540
RDPX1003M0SNMM	10,00	3,18	0,11	●	○	○

- MH geometry is the first choice for heavy machining.
- Suitable for high-strength steels, cast iron, and hard machining.

■ RDPX-MH

catalog number	D	S	hm	TN2505	TN6525	TN6540
RDPX1003M0SNMH	10,00	3,18	0,12	●	○	○

P	●	○	○	○	○	○
M	●	○	○	○	○	○
K	●	○	○	○	○	○
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H	○	○	○	○	○	○

■ Recommended Starting Speeds [m/min]

Material Group		TN2505			TN6525			TN6540		
P	1	-	-	-	410	320	280	360	280	240
	2	-	-	-	320	250	215	250	190	170
	3	-	-	-	280	215	185	215	170	140
	4	-	-	-	235	170	145	180	130	110
	5	-	-	-	310	235	200	240	180	150
	6	-	-	-	205	160	130	160	120	100
M	1	-	-	-	190	120	80	130	80	60
	2	-	-	-	120	80	50	80	50	40
	3	-	-	-	125	80	55	85	50	40
K	1	400	300	250	275	245	220	220	205	180
	2	540	365	280	215	190	180	175	155	140
	3	310	190	155	180	160	145	155	145	125
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	50	35	30
	2	-	-	-	-	-	-	25	20	10
	3	-	-	-	-	-	-	70	40	30
	4	-	-	-	-	-	-	60	30	25
H	1	175	140	95	-	-	-	-	-	-
	2	175	140	95	-	-	-	-	-	-
	3	140	115	80	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds

■ Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At 5,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,28	0,41	0,74	0,20	0,29	0,53	0,15	0,22	0,4	0,13	0,19	0,35	0,12	0,18	0,32	MM
MH	0,33	0,58	0,98	0,24	0,42	0,71	0,18	0,32	0,53	0,16	0,28	0,46	0,14	0,25	0,42	MH

At 2,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,35	0,51	0,93	0,25	0,37	0,67	0,19	0,28	0,50	0,17	0,24	0,44	0,15	0,22	0,40	MM
MH	0,42	0,73	1,23	0,30	0,53	0,88	0,23	0,39	0,66	0,20	0,34	0,57	0,18	0,32	0,53	MH

At 1,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,47	0,68	1,25	0,34	0,49	0,89	0,25	0,37	0,67	0,22	0,32	0,58	0,20	0,29	0,53	MM
MH	0,56	0,98	1,66	0,40	0,71	1,18	0,30	0,53	0,88	0,26	0,46	0,76	0,24	0,42	0,70	MH

At 0,50 Axial Depth of Cut (ap)

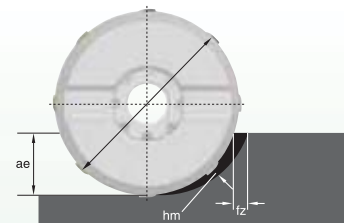
Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,64	0,94	1,73	0,46	0,68	1,24	0,35	0,51	0,92	0,30	0,44	0,80	0,28	0,40	0,73	MM
MH	0,77	1,36	2,31	0,55	0,97	1,63	0,41	0,73	1,21	0,36	0,63	1,05	0,33	0,58	0,96	MH

NOTE: Use "Light Machining" value as starting feed rate.

Selecting the Correct Cutting Values

1. fz depends on the Ap1 and ae values

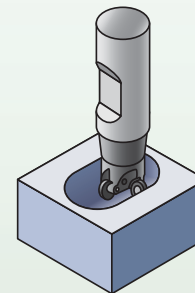
With round inserts, two factors can affect the hm: Ap1 and ae. fz has to be adjusted accordingly.



Recommended Starting Feed Rate Values (fz) Related to the Ap1 and ae Values:

ae engagement	10%	20%	30%	40%	50%	100%
Ap1 = 0,5mm	1,18mm	0,70mm	0,63mm	0,56mm	0,50mm	0,35mm
Ap1 = 0,75mm	0,95mm	0,62mm	0,56mm	0,50mm	0,45mm	0,30mm
Ap1 = 1mm	0,80mm	0,57mm	0,46mm	0,40mm	0,36mm	0,25mm
Ap1 = 2mm	0,57mm	0,40mm	0,33mm	0,28mm	0,25mm	0,18mm
Ap1 = 3mm	0,46mm	0,33mm	0,27mm	0,23mm	0,21mm	0,15mm
Ap1 = 5mm	0,36mm	0,25mm	0,21mm	0,18mm	0,16mm	0,11mm

Example application highlighted.



Copy Mills

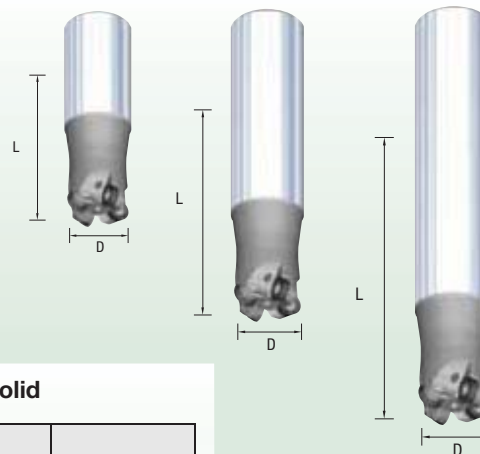
Example Cutting Conditions for RD..10... Insert in Pocketing, L/D ratio = 2 x D:

insert = RDPX1003M0SN			TN2505			TN6525			TN6540		
			feed per tooth fz (mm)/ae>50%								
			min	med	max	min	med	max	min	med	max
Edge Geometry MM	ae>50%	Recommended starting Ap1 = 1mm	-	-	-	0,25mm	0,30mm	0,40mm	0,25mm	0,32mm	0,45mm
Edge Geometry MH	ae>50%	Recommended starting Ap1 = 1mm	0,25mm	0,32mm	0,40mm	0,25mm	0,35mm	0,55mm	0,25mm	0,45mm	0,65mm

2. Ap1 and vc corrections depend on L/D ratio

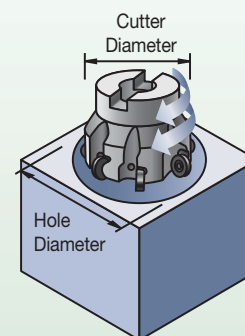
With increasing L/D ratios, or overhang, vibrations can occur due to reduced rigidity. To ensure successful application, it is recommended to adjust Ap1 and vc values according to the following table:

L/D ratio	% of Ap1 max to reduce	% of vc to reduce
<2	0%	0%
2<L/D<4	65-75%	10-15%
>4	80-95%	20-40%



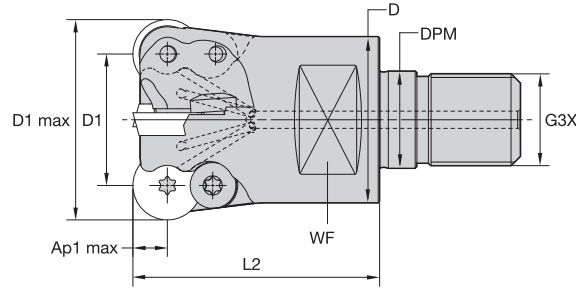
Recommended Cutting Conditions • Helical Interpolation from Solid

cutter diameter	min hole diameter	max hole diameter (flat bottom)	Ap1 max per revolution	max ramp angle	Ap1 max when plunging
20	22mm	30mm	2,1mm	20°	4mm
22	24mm	34mm	2,1mm	20°	2,4mm
25	33mm	40mm	3,2mm	8°	1,7mm
28	36mm	46mm	5mm	15°	3,8mm
30	40,6mm	50mm	5mm	10°	3,4mm
35	50,7mm	60mm	5mm	8,5°	3,4mm
40	60,5mm	70mm	5mm	7,2°	3,6mm
42	64,5mm	74mm	5mm	5,8°	3,6mm
50	80,3mm	90mm	5mm	5,2°	4mm
52	85,8mm	94mm	5mm	3°	2,2mm



These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ **Screw-On End Mills**

order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3930950	M170D024Z02M12RD12	24	12	21	12,5	M12	35	19	6,0	2	15.0°	13200	Yes	0,08
3930954	M170D035Z03M16RD12	35	23	29	17,0	M16	43	22	6,0	3	11.0°	9900	Yes	0,22
3930956	M170D035Z04M16RD12	35	23	29	17,0	M16	43	22	6,0	4	10.5°	9900	Yes	0,21
3930958	M170D042Z05M16RD12	42	30	29	17,0	M16	43	22	6,0	5	7.2°	7500	Yes	0,26

■ **Spare Parts**

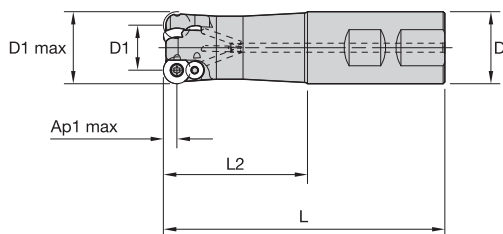
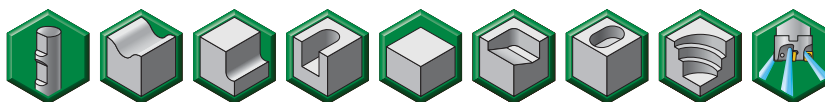


D1 max	insert screw	Nm	clamp screw	Torx driver
24	193.342	3,5	193.338	12148082400
35	193.342	3,5	193.338	12148082400
42	193.342	3,5	193.338	12148082400

NOTE: All spare parts except the insert screws must be ordered separately.

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



Copy Mills

Weldon Shanks

order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3930960	M170D032Z03B32RD12	32	20	32	125	64	6,0	3	12.0°	9500	Yes	0,63

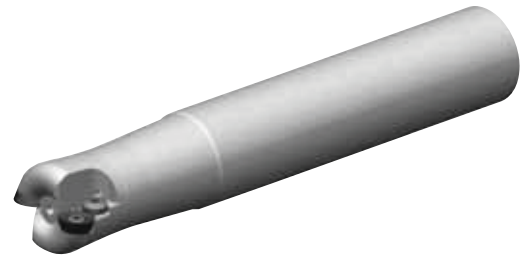
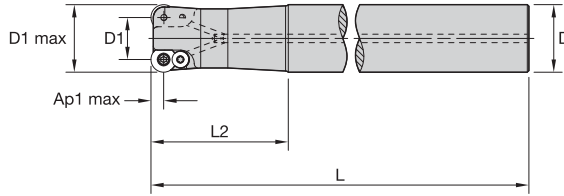
Spare Parts

D1 max	insert screw	Nm	clamp screw	Torx driver
32	193.342	3,5	193.338	12148082400

NOTE: All spare parts except the insert screws must be ordered separately.

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ **Cylindrical Shanks**

order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3930962	M170D032Z02A32RD12L200	32	20	32	200	65	6,0	2	12.0°	9500	Yes	1,12
3930964	M170D032Z02A32RD12L300	32	20	32	300	65	6,0	2	12.0°	9500	Yes	1,74
3930966	M170D035Z02A32RD12L300	35	23	32	300	40	6,0	2	11.0°	9100	Yes	1,79

■ **Spare Parts**

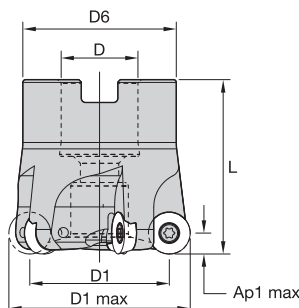
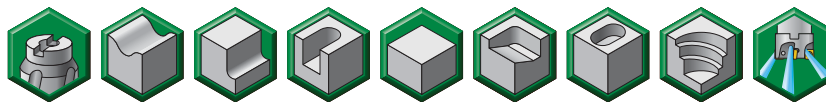
D1 max	insert screw	Nm	clamp screw	Torx driver
32	193.342	3,5	193.338	12148082400
35	193.342	3,5	193.338	12148082400

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



Copy Mills

■ Shell Mills

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3930968	M170D040Z04RD12	40	28	16	37	40	6,0	4	9.3°	7000	Yes	0,22
3930970	M170D050Z05RD12	50	38	22	44	40	6,0	5	6.1°	7950	Yes	0,32
3930972	M170D052Z05RD12	52	40	22	44	50	6,0	5	4.5°	7600	Yes	0,44
3930975	M170D063Z06RD12	63	51	22	44	40	6,0	6	4.5°	6300	Yes	0,45
3930976	M170D066Z06RD12	66	54	27	60	50	6,0	6	4.5°	6030	Yes	0,81
3930979	M170D080Z07RD12	80	68	27	60	50	6,0	7	3.5°	4900	Yes	0,97
3930981	M170D100Z08RD12	100	88	32	80	55	6,0	8	2.2°	3900	Yes	1,95

■ Spare Parts



D1 max	insert screw	Nm	clamp screw	Torx driver	low-head cap screw	low-head cap screw with coolant groove	socket-head cap screw	socket-head cap screw with coolant groove
40	193.342	3,5	193.338	12148082400	—	—	MS1294	MS1294CG
50	193.342	3,5	193.338	12148082400	129.025	—	—	MS2072CG
52	193.342	3,5	193.338	12148082400	129.025	—	—	MS2072CG
63	193.342	3,5	193.338	12148082400	129.025	—	—	MS2072CG
66	193.342	3,5	193.338	12148082400	—	—	MS2038	MS2038CG
80	193.342	3,5	193.338	12148082400	—	—	MS2038	MS2038CG
100	193.342	3,5	193.338	12148082400	MS1254	MS1254CG	—	—

NOTE: Socket-head cap screw, socket-head cap screw with coolant groove, low-head cap screw with coolant groove, and Torx driver must be ordered separately.

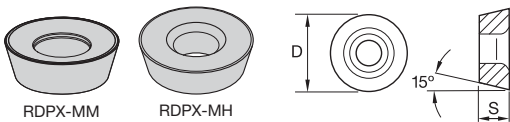
■ **Insert Selection Guide**

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	MM	TN6525	MM	TN6525	MM	TN6540
P3-P4	MH	TN2505	MH	TN6525	MH	TN6540
P5-P6	MH	TN2505	MH	TN6525	MH	TN6540
M1-M2	-	-	MM	TN6525	MM	TN6540
M3	-	-	MM	TN6525	MM	TN6540
K1-K2	MH	TN2505	MH	TN2505	MH	TN6525
K3	MH	TN2505	MH	TN2505	MH	TN6525
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	MM	TN6540	-	-
S3	-	-	MM	TN6540	-	-
S4	-	-	MM	TN6540	-	-
H1	MH	TN2505	MH	TN2505	-	-

Copy Mills

iC12 • Inserts

These products are available for metric only.



- -MM geometry is the best option for general-purpose use, materials, and applications. Used for reduced cutting forces.

- first choice
- alternate choice

P	●	○	○	○
M	●	○	○	○
K	●	○	○	○
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○

■ **RDPX-MM**

catalog number	D	S	hm	TN2505	TN6525	TN6540
RDPX12T3M0SNMM	12,00	3,97	0,13	●	○	○

- -MH geometry is the first choice for heavy machining.
- Suitable for high-strength steels, cast iron, and hard machining.

■ **RDPX-MH**

catalog number	D	S	hm	TN2505	TN6525	TN6540
RDPX12T3M0SNMH	12,00	3,97	0,17	○	●	○

■ Recommended Starting Speeds [m/min]

Material Group		TN2505			TN6525			TN6540		
P	1	-	-	-	410	320	280	360	280	240
	2	-	-	-	320	250	215	250	190	170
	3	-	-	-	280	215	185	215	170	140
	4	-	-	-	235	170	145	180	130	110
	5	-	-	-	310	235	200	240	180	150
	6	-	-	-	205	160	130	160	120	100
M	1	-	-	-	190	120	80	130	80	60
	2	-	-	-	120	80	50	80	50	40
	3	-	-	-	125	80	55	85	50	40
K	1	400	300	250	275	245	220	220	205	180
	2	540	365	280	215	190	180	175	155	140
	3	310	190	155	180	160	145	155	145	125
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	50	35	30
	2	-	-	-	-	-	-	25	20	10
	3	-	-	-	-	-	-	70	40	30
	4	-	-	-	-	-	-	60	30	25
H	1	175	140	95	-	-	-	-	-	-
	2	175	140	95	-	-	-	-	-	-
	3	140	115	80	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds

■ Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining
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At 6,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,33	0,48	0,76	0,24	0,35	0,54	0,18	0,26	0,41	0,16	0,23	0,35	0,14	0,21	0,33	MM
MH	0,35	0,70	1,17	0,25	0,50	0,84	0,19	0,38	0,63	0,16	0,33	0,55	0,15	0,30	0,50	MH

At 3,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,38	0,56	0,88	0,28	0,40	0,63	0,21	0,30	0,47	0,18	0,26	0,41	0,17	0,24	0,38	MM
MH	0,40	0,81	1,36	0,29	0,58	0,97	0,22	0,43	0,72	0,19	0,38	0,63	0,17	0,35	0,58	MH

At 2,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,44	0,65	1,02	0,32	0,47	0,73	0,24	0,35	0,55	0,21	0,30	0,48	0,19	0,28	0,44	MM
MH	0,47	0,94	1,59	0,34	0,68	1,13	0,25	0,50	0,84	0,22	0,44	0,73	0,20	0,40	0,67	MH

At 1,00 Axial Depth of Cut (ap)

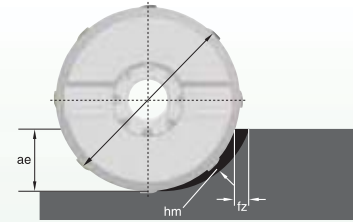
Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,60	0,88	1,38	0,43	0,63	0,99	0,32	0,47	0,74	0,28	0,41	0,64	0,26	0,38	0,59	MM
MH	0,63	1,28	2,16	0,45	0,91	1,53	0,34	0,68	1,14	0,30	0,59	0,99	0,27	0,54	0,90	MH

NOTE: Use "Light Machining" value as starting feed rate.

Selecting the Correct Cutting Values

1. fz depends on the Ap1 and ae values

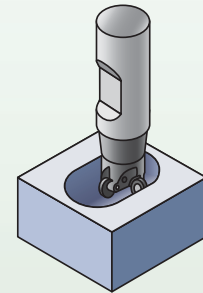
With round inserts, two factors can affect the hm: Ap1 and ae. fz has to be adjusted accordingly.



Recommended Starting Feed Rate Values (fz) Related to the Ap1 and ae Values:

ae engagement	10%	20%	30%	40%	50%	100%
Ap1 = 1mm	1,01mm	0,77mm	0,63mm	0,55mm	0,49mm	0,35mm
Ap1 = 2mm	0,77mm	0,55mm	0,45mm	0,39mm	0,35mm	0,24mm
Ap1 = 3mm	0,63mm	0,45mm	0,37mm	0,32mm	0,28mm	0,20mm
Ap1 = 4mm	0,55mm	0,39mm	0,32mm	0,27mm	0,24mm	0,17mm
Ap1 = 5mm	0,49mm	0,35mm	0,28mm	0,24mm	0,22mm	0,15mm
Ap1 = 6mm	0,45mm	0,32mm	0,26mm	0,22mm	0,20mm	0,14mm

Example application highlighted.



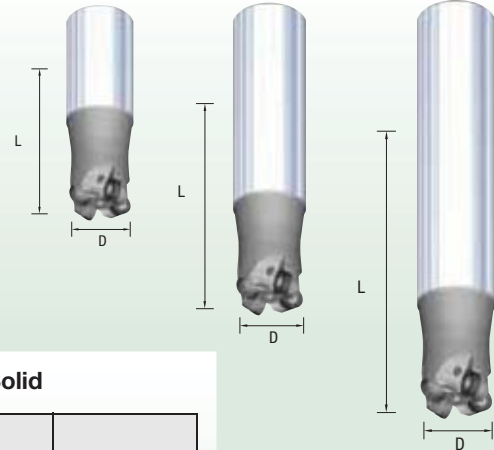
Example Cutting Conditions for RD..10... Insert in Pocketing, L/D ratio = 2 x D:

insert = RDPX12T3M0SN			TN2505			TN6525			TN6540		
			feed per tooth fz (mm)/ae>50%								
			min	med	max	min	med	max	min	med	max
Edge Geometry MM	ae>50%	Recommended starting Ap1 = 2mm	-	-	-	0,24mm	0,30mm	0,50mm	0,24mm	0,40mm	0,60mm
Edge Geometry MH	ae>50%	Recommended starting Ap1 = 2mm	0,24mm	0,30mm	0,50mm	0,24mm	0,40mm	0,65mm	0,24mm	0,50mm	0,70mm

2. Ap1 and vc corrections depend on L/D ratio

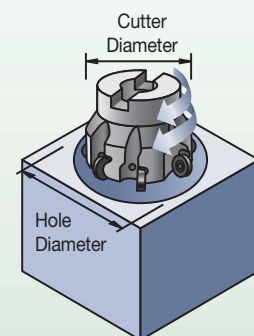
With increasing L/D ratios, or overhang, vibrations can occur due to reduced rigidity. To ensure successful application, it is recommended to adjust Ap1 and vc values according to the following table:

L/D ratio	% of Ap1 max to reduce	% of vc to reduce
<2	0%	0%
2<L/D<4	65-75%	10-15%
>4	80-95%	20-40%



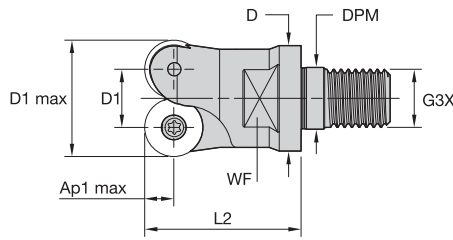
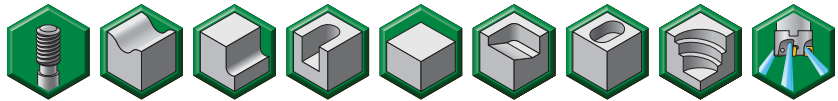
Recommended Cutting Conditions • Helical Interpolation from Solid

cutter diameter	min hole diameter	max hole diameter (flat bottom)	Ap1 max per revolution	max ramp angle	Ap1 max when plunging
24	25,6mm	36mm	1,3mm	15°	3mm
32	40,6mm	52mm	5,3mm	12°	4,4mm
35	46,9mm	58mm	6mm	11°	3,9mm
40	57,4mm	68mm	6mm	9.3°	3,3mm
42	61,2mm	72mm	6mm	7.2°	3,5mm
50	77,4mm	88mm	6mm	6.1°	3,5mm
52	81,3mm	92mm	6mm	4.5°	3,2mm
63	102,4mm	114mm	6mm	4.5°	4,6mm
66	108,5mm	120mm	6mm	4.5°	4,4mm
80	136,5mm	148mm	6mm	3.5°	4,2mm
100	176,5mm	188mm	6mm	2.2°	4,2mm



These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



Copy Mills

■ **Screw-On End Mills**

order number	catalog number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3926601	M170D032Z02M16RD16	32	16	29	17,0	M16	43	22	8,0	2	20.0°	9950	Yes	0,17

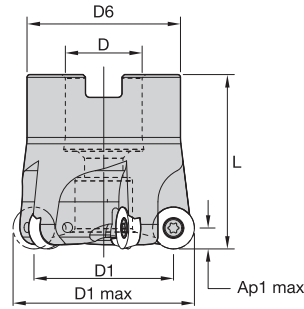
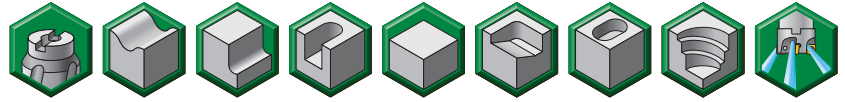
■ **Spare Parts**

D1 max	insert screw	Nm	Torx driver
32	193.343	6,0	12148099400

NOTE: All spare parts except the insert screws must be ordered separately.

These products are available for metric only.

- Premium nickel-coated bodies.
- Designed for maximum performance.
- Ideally suited for die and mold manufacturing.



■ **Shell Mills**

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max ramp angle	max RPM	coolant supply	kg
3926602	M170D050Z04RD16	50	34	22	44	40	8,0	4	8.5°	7900	Yes	0,28
3934623	M170D052Z04RD16	52	36	22	44	50	8,0	4	8.2°	7650	Yes	0,36
3934624	M170D063Z05RD16	63	47	22	44	40	8,0	5	5.5°	5300	Yes	0,39
3934625	M170D066Z05RD16	66	50	27	60	50	8,0	5	4.0°	6000	Yes	0,74
3934626	M170D080Z06RD16	80	64	27	60	50	8,0	6	3.0°	4900	Yes	1,06
3934628	M170D100Z07RD16	100	84	32	80	55	8,0	7	2.4°	3950	Yes	1,94
3934629	M170D125Z08RD16	125	109	40	90	60	8,0	8	2.2°	3200	Yes	2,90

■ **Spare Parts**



D1 max	insert screw	Nm	clamp screw	Torx driver	low-head cap screw	low-head cap screw with coolant groove	socket-head cap screw	socket-head cap screw with coolant groove	coolant lock screw	coolant cap
50	193.343	6,0	193.383	12148099400	129.025	—	—	MS2072CG	—	—
52	193.343	6,0	193.383	12148099400	129.025	—	—	MS2072CG	—	—
63	193.343	6,0	193.383	12148099400	129.025	—	—	MS2072CG	—	—
66	193.343	6,0	193.383	12148099400	—	—	MS2038	MS2038CG	—	—
80	193.343	6,0	193.383	12148099400	—	—	MS2038	MS2038CG	—	—
100	193.343	6,0	193.383	12148099400	MS1254	MS1254CG	—	—	—	—
125	193.343	6,0	193.383	12148099400	129.512	—	—	—	420.200	470.232

NOTE: All spare parts except the insert screws and clamp screws must be ordered separately.

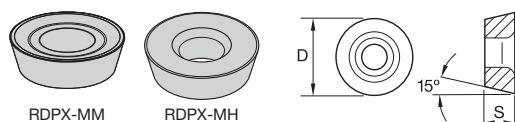
■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	MM	TN6525	MM	TN6525	MM	TN6540
P3-P4	MH	TN2505	MH	TN6525	MH	TN6540
P5-P6	MH	TN2505	MH	TN6525	MH	TN6540
M1-M2	-	-	MM	TN6525	MM	TN6540
M3	-	-	MM	TN6525	MM	TN6540
K1-K2	MH	TN2505	MH	TN2505	MH	TN6525
K3	MH	TN2505	MH	TN2505	MH	TN6525
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	MM	TN6540	-	-
S3	-	-	MM	TN6540	-	-
S4	-	-	MM	TN6540	-	-
H1	MH	TN2505	MH	TN2505	-	-

Copy Mills

iC16 • Inserts

These products are available for metric only.



- first choice
- alternate choice

- -MM geometry is the first choice for general-purpose use, materials, and applications. Used for reduced cutting forces.

■ RDPX-MM

catalog number	D	S	hm	TN2505	TN6525	TN6540
RDPX1604M0SNMM	16,00	4,76	0,14	●	○	○

- -MH geometry is the first choice for heavy machining.
- Suitable for high-strength steels, cast iron, and hard machining.

■ RDPX-MH

catalog number	D	S	hm	TN2505	TN6525	TN6540
RDPX1604M0SNMH	16,00	4,76	0,22	○	○	●

P	●	○	○	○	○	○
M	○	○	○	○	○	○
K	○	○	○	○	○	○
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H	○	○	○	○	○	○

■ Recommended Starting Speeds [m/min]

Material Group		TN2505			TN6525			TN6540		
P	1	-	-	-	410	320	280	360	280	240
	2	-	-	-	320	250	215	250	190	170
	3	-	-	-	280	215	185	215	170	140
	4	-	-	-	235	170	145	180	130	110
	5	-	-	-	310	235	200	240	180	150
	6	-	-	-	205	160	130	160	120	100
M	1	-	-	-	190	120	80	130	80	60
	2	-	-	-	120	80	50	80	50	40
	3	-	-	-	125	80	55	85	50	40
K	1	400	300	250	275	245	220	220	205	180
	2	540	365	280	215	190	180	175	155	140
	3	310	190	155	180	160	145	155	145	125
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	50	35	30
	2	-	-	-	-	-	-	25	20	10
	3	-	-	-	-	-	-	70	40	30
	4	-	-	-	-	-	-	60	30	25
H	1	175	140	95	-	-	-	-	-	-
	2	175	140	95	-	-	-	-	-	-
	3	140	115	80	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Copy Mills

Recommended Starting Feeds

■ Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At 8,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,39	0,52	0,82	0,28	0,37	0,59	0,21	0,28	0,44	0,18	0,24	0,38	0,17	0,22	0,35	MM
MH	0,51	0,70	1,17	0,37	0,50	0,84	0,28	0,38	0,63	0,24	0,33	0,55	0,22	0,30	0,50	MH

At 4,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,45	0,60	0,94	0,32	0,43	0,68	0,24	0,32	0,51	0,21	0,28	0,44	0,19	0,26	0,40	MM
MH	0,59	0,81	1,36	0,43	0,58	0,97	0,32	0,43	0,72	0,28	0,38	0,63	0,25	0,35	0,58	MH

At 2,00 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,59	0,79	1,24	0,43	0,57	0,89	0,32	0,42	0,66	0,28	0,37	0,58	0,25	0,34	0,53	MM
MH	0,77	1,06	1,79	0,56	0,76	1,28	0,42	0,57	0,95	0,36	0,50	0,83	0,33	0,45	0,76	MH

At 1,00 Axial Depth of Cut (ap)

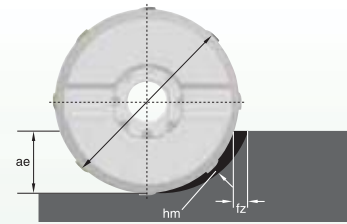
Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
MM	0,81	1,08	1,71	0,58	0,78	1,22	0,43	0,58	0,91	0,38	0,51	0,79	0,35	0,46	0,72	MM
MH	1,06	1,46	2,48	0,76	1,04	1,75	0,57	0,78	1,30	0,50	0,68	1,13	0,45	0,62	1,03	MH

NOTE: Use "Light Machining" value as starting feed rate.

Selecting the Correct Cutting Values

1. fz depends on the Ap1 and ae values

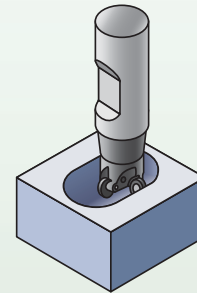
With round inserts, two factors can affect the hm: Ap1 and ae. fz has to be adjusted accordingly.



Recommended Starting Feed Rate Values (fz) Related to the Ap1 and ae Values:

ae engagement	10%	20%	30%	40%	50%	100%
Ap1 = 1mm	1,52mm	1,07mm	0,88mm	0,76mm	0,68mm	0,48mm
Ap1 = 2mm	1,07mm	0,76mm	0,62mm	0,54mm	0,48mm	0,34mm
Ap1 = 3mm	0,88mm	0,62mm	0,51mm	0,44mm	0,39mm	0,28mm
Ap1 = 4mm	0,76mm	0,54mm	0,44mm	0,38mm	0,34mm	0,24mm
Ap1 = 5mm	0,62mm	0,44mm	0,36mm	0,31mm	0,26mm	0,20mm
Ap1 = 6mm	0,54mm	0,38mm	0,31mm	0,27mm	0,24mm	0,17mm

Example application highlighted.



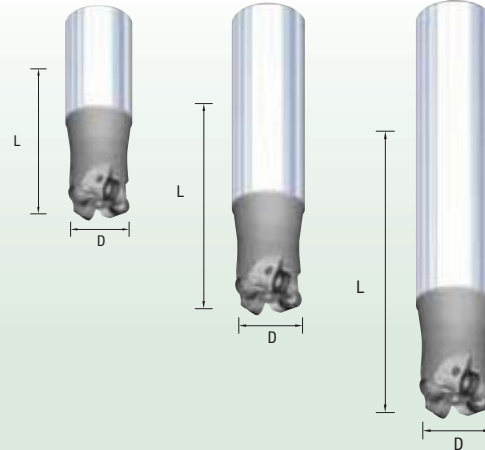
Example Cutting Conditions for iC16mm... Insert in Pocketing, up to 3 L/D approximately:

insert = RDPX1604M0SN			TN2505			TN6525			TN6540		
			feed per tooth fz (mm)/ae>50%								
			min	med	max	min	med	max	min	med	max
Edge Geometry MM	ae>50%	Recommended starting Ap1 = 3mm	-	-	-	0,28mm	0,45mm	0,65mm	0,28mm	0,50mm	0,70mm
Edge Geometry MH	ae>50%	Recommended starting Ap1 = 3mm	0,28mm	0,35mm	0,50mm	0,28mm	0,50mm	0,75mm	0,28mm	0,60mm	0,80mm

2. Ap1 and vc corrections depend on L/D ratio

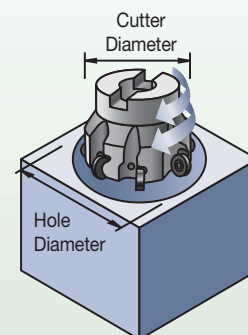
With increasing L/D ratios, or overhang, vibrations can occur due to reduced rigidity. To ensure successful application, it is recommended to adjust Ap1 and vc values according to the following table:

L/D ratio	% of Ap1 max to reduce	% of vc to reduce
<2	0%	0%
2<L/D<4	65-75%	10-15%
>4	80-95%	20-40%



Recommended Cutting Conditions • Helical Interpolation from Solid

cutter diameter	min hole diameter	max hole diameter (flat bottom)	Ap1 max per revolution	max ramp angle	Ap1 max when plunging
32	36mm	48mm	3mm	20°	3mm
50	69mm	84mm	8mm	9,5°	4,8mm
52	73mm	88mm	8mm	8,2°	5mm
63	95mm	110mm	8mm	5,5°	4,7mm
66	101mm	120mm	8mm	4°	4,2mm
80	129mm	144mm	8mm	3°	4,1mm
100	169mm	184mm	8mm	2,4°	4,6mm
125	219mm	234mm	8mm	2,2°	4,4mm





REPAIR SERVICES

Getting Started (and Getting Finished) Is Easy.

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

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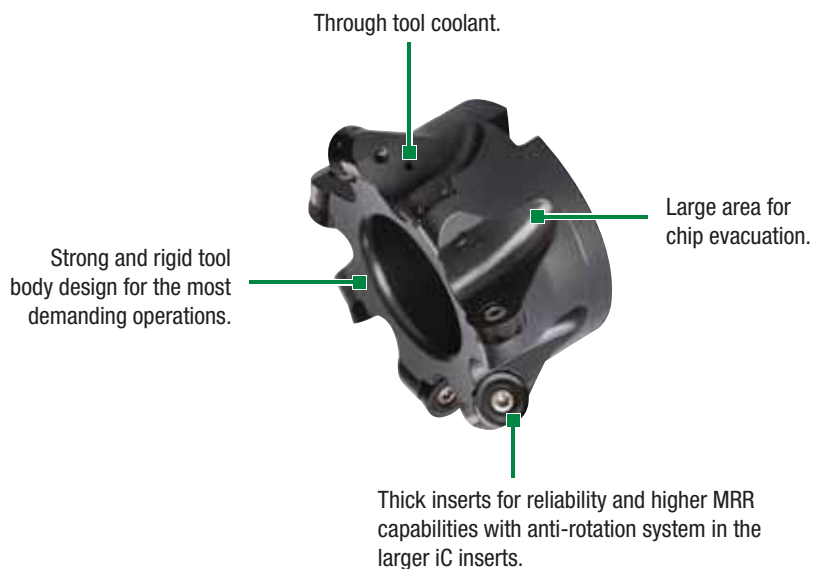
Versatile Platform for All Materials and Applications •
M100™ Series Copy Mills



M100

A trusted multipurpose solution for profiling and copy applications, the M100 Series ensures a reliable platform for all of your copy milling, face milling, helical interpolation, and roughing needs. The strong and rigid body design ensures superior results in even the most demanding operations.

- Thick inserts ensure reliability and consistent results.
- Anti-rotation systems in larger iC inserts provide higher MRR capabilities.
- Increased chip evacuation and through tool coolant for enhanced performance.



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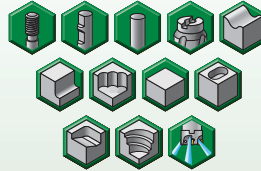


M100™

Max depth of cut: .236"

Diameter: 1–8"

Pages: K76–K101



■ Insert Offering



08mm iC
RD Insert Type
Ground and PSTS



10mm iC
RD Insert Type
Ground and PSTS



12mm iC
RD Insert Type
Anti-rotation Feature
Ground and PSTS

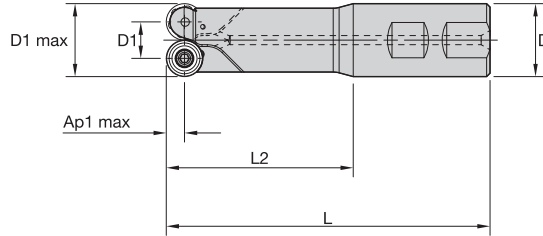
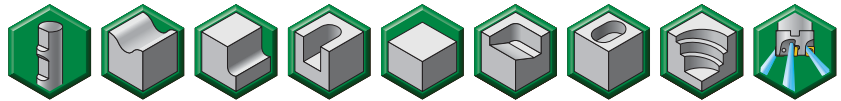


16mm iC
RD Insert Type
Anti-rotation Feature
Ground and PSTS



16mm iC
RC Insert Type
Anti-rotation Feature
Ground and PSTS

- General purpose face and copy milling.



■ Weldon Shanks

order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646596	M100D075Z02W075RD08L453	.750	.435	.750	4.530	2.500	.158	2	22.0°	26000	Yes	.85

■ Spare Parts

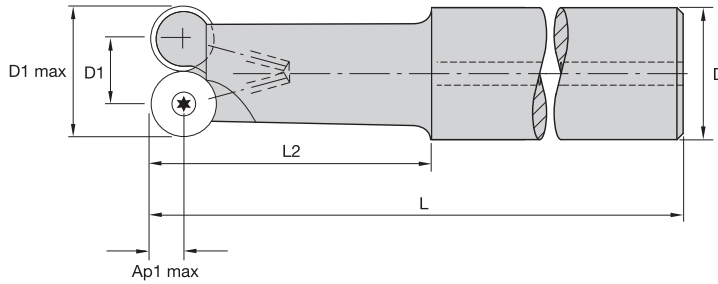
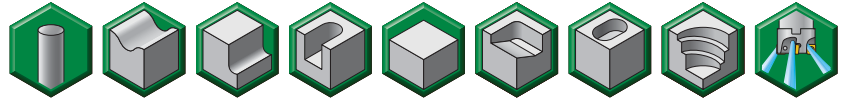


D1 max	insert screw	in. lbs.	Torx driver
.750	12148001300	27	12148086600

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

- General purpose face and copy milling.



■ **Cylindrical Shanks**

order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646581	M100D062Z02C075RD08L603	.625	.310	.750	6.030	4.000	.158	2	60.0°	31000	Yes	1.00
2646591	M100D075Z02C075RD08L378	.750	.435	.750	3.780	1.750	.158	2	22.0°	26000	Yes	.60
2646592	M100D075Z02C075RD08L453	.750	.435	.750	4.530	2.500	.158	2	22.0°	26000	Yes	.75

■ **Spare Parts**

D1 max	insert screw	in. lbs.	Torx driver
.625	12148001300	27	12148086600
.750	12148001300	27	12148086600

NOTE: All spare parts except the insert screws must be ordered separately.

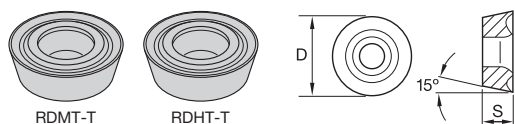
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■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	RDMT-T	TN7525	RDMT-T	TN7525	RDMT-T	TN7535
P3-P4	RDMT-T	TN7525	RDMW-T	TN6540	RDMW-T	TN6540
P5-P6	RDMT-T	TN7525	RDMT-T	TN7535	RDMT-T	TN7535
M1-M2	RDHT-T	TN7525	RDHT-T	TN7525	RDMT-T	TN7535
M3	RDHT-T	TN7525	RDHT-T	TN7525	RDMT-T	TN7535
K1-K2	-	-	RDMW-T	TN7535	RDMW-T	TN7535
K3	-	-	RDMW-T	TN7535	RDMW-T	TN7535
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	-	-	-	-
S3	-	-	-	-	-	-
S4	-	-	-	-	-	-
H1	-	-	-	-	-	-

Copy Mills

iC08 • Inserts



- Precision ground positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys.

- first choice
- alternate choice

P	●	○	○	○	○
M	●	○	○	○	○
K	●	○	○	○	○
N	○	○	○	○	○
S	○	○	○	○	○
H	○	○	○	○	○

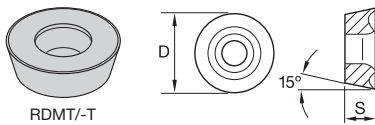
■ RDHT-T

catalog number	D	S	hm	TN2510	TN6540	TN7525	TN7535
RDHT0802M0T	.315	.094	.004	●	○	○	○

- Precision pressed positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys in roughing operations.

■ RDMT-T

catalog number	D	S	hm	TN2510	TN6540	TN7525	TN7535
RDMT0802M0T	.315	.094	.004	●	○	○	○



RDMT/-T

- Precision pressed insert.
- First choice for roughing operations, especially for steel and cast iron.

■ **RDMW/-T**

● first choice
○ alternate choice

P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

catalog number	D	S	hm	TN2510	TN6540	TN7525	TN7535
RDMW0802M0	.315	.094	.004	2012564	-	-	-
RDMW0802M0T	.315	.094	.004	3359278	-	-	2020727



■ Recommended Starting Speeds [SFM]

Material Group		TN2510			TN6540			TN7525			TN7535		
P	1	2165	1910	1770	1180	925	785	1340	1025	925	1790	1555	1460
	2	1340	1220	1080	830	630	550	1025	830	710	1105	1000	905
	3	1220	1080	1000	710	550	450	925	710	610	1000	905	805
	4	905	845	750	590	430	355	770	550	475	750	690	630
	5	1080	985	905	785	590	490	1025	770	650	1025	905	830
	6	750	670	570	535	395	335	670	535	430	630	535	430
M	1	890	785	690	430	260	200	805	725	610	805	725	610
	2	805	690	630	260	155	140	725	630	550	725	630	550
	3	630	570	490	275	155	140	570	510	450	570	510	450
K	1	1380	1180	985	725	670	590	1240	925	785	1165	1045	940
	2	1180	985	830	570	510	450	1060	785	650	925	830	750
	3	985	830	650	510	475	415	785	650	550	770	690	630
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	155	120	95	-	-	-	-	-	-
	2	-	-	-	80	60	40	-	-	-	-	-	-
	3	-	-	-	235	140	95	-	-	-	-	-	-
	4	-	-	-	200	95	80	-	-	-	-	-	-
H	1	475	360	230	-	-	-	-	-	-	-	-	-
	2	475	360	230	-	-	-	-	-	-	-	-	-
	3	380	260	150	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Copy Mills

■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At .157 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDMW-	.007	.011	.016	.005	.008	.012	.004	.006	.009	.003	.005	.008	.003	.005	.007	RDMW-
RDHT-T	.009	.012	.024	.007	.009	.018	.005	.007	.013	.004	.006	.011	.004	.005	.011	RDHT-T
RDMT-T	.009	.012	.024	.007	.009	.018	.005	.007	.013	.004	.006	.011	.004	.005	.011	RDMT-T
RDMW-T	.009	.016	.028	.007	.012	.021	.005	.009	.015	.004	.008	.013	.004	.007	.012	RDMW-T

At .079 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDMW-	.008	.013	.019	.006	.009	.014	.005	.007	.010	.004	.006	.009	.004	.006	.008	RDMW-
RDHT-T	.010	.014	.028	.008	.010	.020	.006	.008	.015	.005	.007	.013	.005	.006	.012	RDHT-T
RDMT-T	.010	.014	.028	.008	.010	.020	.006	.008	.015	.005	.007	.013	.005	.006	.012	RDMT-T
RDMW-T	.010	.019	.033	.008	.014	.024	.006	.010	.018	.005	.009	.015	.005	.008	.014	RDMW-T

At .039 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDMW-	.011	.017	.025	.008	.012	.018	.006	.009	.013	.005	.008	.012	.005	.007	.011	RDMW-
RDHT-T	.014	.018	.037	.010	.013	.027	.007	.010	.020	.006	.009	.017	.006	.008	.016	RDHT-T
RDMT-T	.014	.018	.037	.010	.013	.027	.007	.010	.020	.006	.009	.017	.006	.008	.016	RDMT-T
RDMW-T	.014	.025	.043	.010	.018	.031	.007	.013	.023	.006	.012	.020	.006	.011	.019	RDMW-T

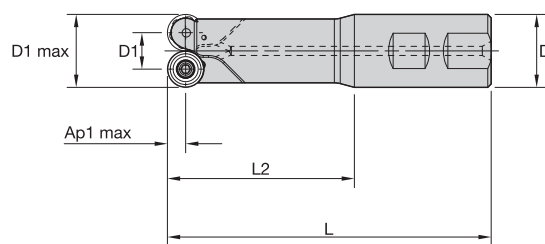
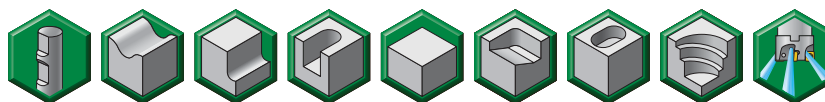
At .020 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDMW-	.015	.023	.034	.011	.017	.024	.008	.013	.018	.007	.011	.016	.007	.010	.014	RDMW-
RDHT-T	.019	.025	.051	.014	.018	.037	.010	.014	.027	.009	.012	.024	.008	.011	.022	RDHT-T
RDMT-T	.019	.025	.051	.014	.018	.037	.010	.014	.027	.009	.012	.024	.008	.011	.022	RDMT-T
RDMW-T	.019	.034	.060	.014	.024	.043	.010	.018	.032	.009	.016	.028	.008	.014	.025	RDMW-T

NOTE: Use "Light Machining" value as starting feed rate.

Copy Mills

- General purpose face and copy milling.



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■ Weldon Shanks

order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646600	M100D075Z02W075RD10L453	.750	.356	.750	4.530	2.500	.197	2	40.0°	26000	Yes	.85
2646599	M100D075Z02W075RD10	.750	.356	.750	3.780	1.750	.197	2	40.0°	26000	Yes	.66
2646602	M100D075Z02W100RD10L628	.750	.356	1.000	6.280	4.000	.197	2	40.0°	26000	Yes	1.10
2646601	M100D075Z02W100RD10	.750	.356	1.000	5.530	3.250	.197	2	40.0°	26000	Yes	1.00
2646604	M100D100Z02W100RD10	1.000	.606	1.000	5.280	3.000	.197	2	17.0°	23000	Yes	1.25
2646605	M100D100Z02W125RD10	1.000	.606	1.250	6.780	4.500	.197	2	17.0°	23000	Yes	1.75

■ Spare Parts



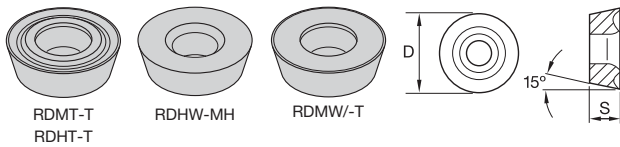
D1 max	insert screw	in. lbs.	Torx driver
.750	12148036700	27	12148000600
1.000	12148036700	27	12148000600

NOTE: All spare parts except the insert screws must be ordered separately.

Inserts

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	RDMT-T	TN6525	RDMT-T	TN6540	RDMW-T	TN6540
P3-P4	RDMT-T	TN6525	RDMW-T	TN6540	RDMW-T	TN6540
P5-P6	RDMT-T	TN7525	RDMT-T	TN7535	RDMW-T	TN7535
M1-M2	RDHT-T	TN7525	RDMT-T	TN6540	RDMT-T	TN6540
M3	RDHT-T	TN7525	RDMT-T	TN6540	RDMT-T	TN6540
K1-K2	RDMW-MH	TN2510	RDMW-MH	TN2510	RDMW-T	TN7535
K3	RDMW-MH	TN2510	RDMW-MH	TN2510	RDMW-T	TN7535
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	RDMT-T	TN6540	-	-
S3	-	-	RDMT-T	TN6540	-	-
S4	-	-	RDMT-T	TN6540	RDMT-T	TN6540
H1	RDMW-MH	TN2510	RDMW-MH	TN2510	-	-



- Precision pressed positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys in roughing operations.

- first choice
- alternate choice

P	●	○	●	●	●	●	●
M	●	○	○	○	○	○	○
K	●	○	○	○	○	○	○
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○

RDMT-T

catalog number	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	TT125
RDMT1003M0T	.394	.125	.006	-	2957429	2957428	2012534	2276618	-

- Precision insert.
- Alternative choice for stable milling operations.

RDHW-MH

catalog number	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	TT125
RDHW1003M0MH	.394	.125	.006	2012480	-	-	-	-	-

- Precision ground positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys.

RDHT-T

catalog number	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	TT125
RDHT1003M0T	.394	.125	.006	-	-	-	2012446	-	-

- Precision pressed insert.
- First choice for roughing operations, especially for steel and cast iron.

RDMW/-T

catalog number	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	TT125
RDMW1003M0	.394	.125	.004	2012572	-	-	-	-	-
RDMW1003M0T	.394	.125	.006	-	3353279	2109381	2020735	2012578	-



■ Recommended Starting Speeds [SFM]

Material Group		TN2510			TN6525			TN6540			TN7525			TN7535			TTI25		
P	1	2165	1910	1770	1340	1045	925	1180	925	785	1340	1025	925	1790	1555	1460	1415	1180	985
	2	1340	1220	1080	1045	830	710	830	630	550	1025	830	710	1105	1000	905	1025	830	710
	3	1220	1080	1000	925	710	610	710	550	450	925	710	610	1000	905	805	1025	830	710
	4	905	845	750	770	550	475	590	430	355	770	550	475	750	690	630	865	710	590
	5	1080	985	905	1025	770	650	785	590	490	1025	770	650	1025	905	830	1045	770	650
	6	750	670	570	670	535	430	535	395	335	670	535	430	630	535	430	475	355	295
M	1	890	785	690	630	395	260	430	260	200	805	725	610	805	725	610	1570	1025	710
	2	805	690	630	395	260	155	260	155	140	725	630	550	725	630	550	1060	670	475
	3	630	570	490	415	260	180	275	155	140	570	510	450	570	510	450	1045	690	475
K	1	1380	1180	985	905	805	725	725	670	590	1240	925	785	1165	1045	940	725	610	510
	2	1180	985	830	710	630	590	570	510	450	1060	785	650	925	830	750	590	475	415
	3	985	830	650	590	535	475	510	475	415	785	650	550	770	690	630	475	415	335
N	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	155	120	95	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	235	140	95	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	200	95	80	-	-	-	-	-	-	-	-	-
H	1	475	360	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	475	360	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	380	260	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Copy Mills

■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At .197 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHT-T	.009	.015	.026	.007	.011	.018	.005	.008	.014	.004	.007	.012	.004	.007	.011	RDHT-T
RDHW-MH	.009	.017	.035	.007	.012	.025	.005	.009	.019	.004	.008	.016	.004	.007	.015	RDHW-MH
RDMT-T	.009	.015	.026	.007	.011	.018	.005	.008	.014	.004	.007	.012	.004	.007	.011	RDMT-T
RDMW-	.009	.008	.024	.007	.006	.017	.005	.004	.013	.004	.004	.011	.004	.004	.010	RDMW-
RDMW-T	.009	.022	.035	.007	.016	.025	.005	.012	.019	.004	.011	.016	.004	.010	.015	RDMW-T

At .098 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHT-T	.010	.018	.030	.008	.013	.021	.006	.010	.016	.005	.008	.014	.005	.008	.013	RDHT-T
RDHW-MH	.010	.019	.040	.008	.014	.029	.006	.010	.021	.005	.009	.019	.005	.008	.017	RDHW-MH
RDMT-T	.010	.018	.030	.008	.013	.021	.006	.010	.016	.005	.008	.014	.005	.008	.013	RDMT-T
RDMW-	.010	.009	.027	.008	.007	.020	.006	.005	.015	.005	.004	.013	.005	.004	.012	RDMW-
RDMW-T	.010	.026	.040	.008	.019	.029	.006	.014	.021	.005	.012	.019	.005	.011	.017	RDMW-T

At .049 Axial Depth of Cut (ap)

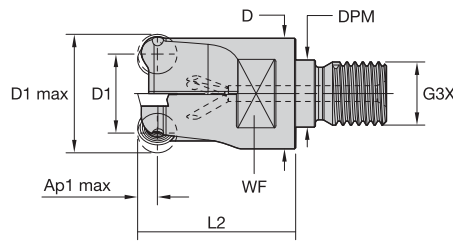
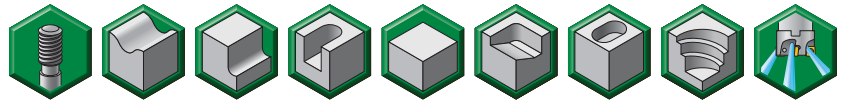
Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHT-T	.014	.023	.039	.010	.017	.028	.007	.012	.021	.006	.011	.018	.006	.010	.017	RDHT-T
RDHW-MH	.014	.025	.053	.010	.018	.038	.007	.014	.028	.006	.012	.025	.006	.011	.022	RDHW-MH
RDMT-T	.014	.023	.039	.010	.017	.028	.007	.012	.021	.006	.011	.018	.006	.010	.017	RDMT-T
RDMW-	.014	.012	.036	.010	.009	.026	.007	.007	.019	.006	.006	.017	.006	.005	.015	RDMW-
RDMW-T	.014	.034	.053	.010	.024	.038	.007	.018	.028	.006	.016	.025	.006	.015	.022	RDMW-T

At .025 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHT-T	.019	.032	.053	.014	.023	.038	.010	.017	.028	.009	.015	.025	.008	.014	.023	RDHT-T
RDHW-MH	.019	.034	.073	.014	.025	.052	.010	.019	.039	.009	.016	.034	.008	.015	.031	RDHW-MH
RDMT-T	.019	.032	.053	.014	.023	.038	.010	.017	.028	.009	.015	.025	.008	.014	.023	RDMT-T
RDMW-	.019	.017	.049	.014	.012	.035	.010	.009	.026	.009	.008	.023	.008	.007	.021	RDMW-
RDMW-T	.019	.047	.073	.014	.033	.052	.010	.025	.039	.009	.022	.034	.008	.020	.031	RDMW-T

NOTE: Use "Light Machining" value as starting feed rate.

- General purpose face and copy milling.
- Anti-rotation feature for top security.



Copy Mills

■ **Screw-On End Mills**

order number	catalog number	D1 max	D1	D	G3X	L	L2	WF	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646609	M100D100Z02M12RD12	1.000	.528	.827	M12.000	2.366	1.500	.750	.236	2	50.0°	23000	Yes	.44
2646620	M100D150Z02M16RD12	1.500	1.028	1.142	M16.000	2.715	1.750	1.000	.236	3	27.0°	17000	Yes	.71

■ **Spare Parts**



insert screw

12148038800



in. lbs.

27

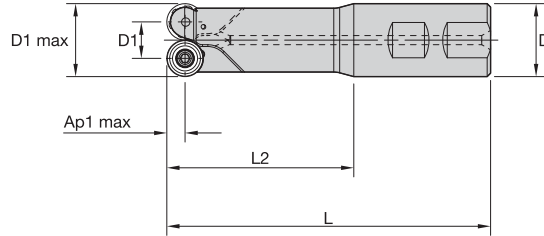


Torx driver

12148000600

NOTE: All spare parts except the insert screws must be ordered separately.

- General purpose face and copy milling.
- Anti-rotation feature for top security.



■ **Weldon Shanks**

order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646611	M100D100Z02W100RD12L553	1.000	.528	1.000	5.530	3.250	.236	2	50.0°	23000	Yes	1.25
2646610	M100D100Z02W100RD12	1.000	.528	1.000	4.780	2.500	.236	2	50.0°	23000	Yes	1.00
2646614	M100D100Z02W125RD12L715	1.000	.528	1.250	7.150	4.870	.236	2	50.0°	23000	Yes	1.75
2646612	M100D100Z02W125RD12	1.000	.528	1.250	6.400	4.120	.236	2	50.0°	23000	Yes	1.60
2646617	M100D125Z02W125RD12L615	1.250	.778	1.250	6.150	3.870	.236	2	23.0°	19000	Yes	1.60
2646616	M100D125Z02W125RD12	1.250	.778	1.250	5.400	3.120	.236	2	23.0°	19000	Yes	1.40
2646618	M100D125Z02W150RD12	1.250	.778	1.500	7.250	4.560	.236	2	23.0°	19000	Yes	2.10
2646622	M100D150Z03W125RD12L715	1.500	1.028	1.250	7.150	4.870	.236	3	27.0°	17000	Yes	2.25
2646621	M100D150Z03W125RD12	1.500	1.028	1.250	5.650	3.370	.236	3	27.0°	17000	Yes	1.80

■ **Spare Parts**



insert screw

12148038800



in. lbs.

27



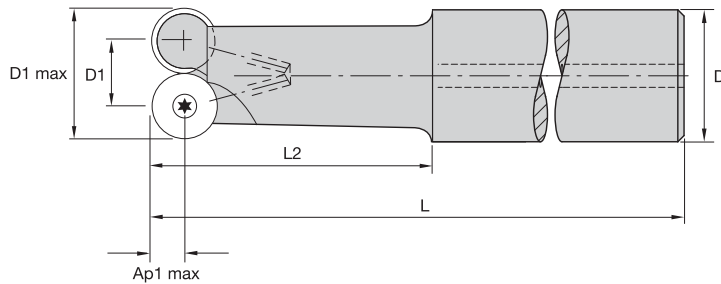
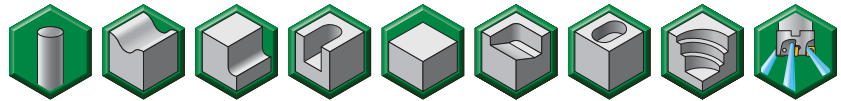
Torx driver

12148000600

NOTE: All spare parts except the insert screws must be ordered separately.

Copy Mills

- General purpose face and copy milling.
- Anti-rotation feature for top security.



Copy Mills

■ Cylindrical End Mills

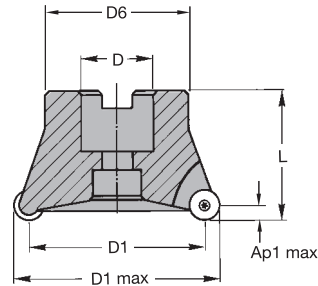
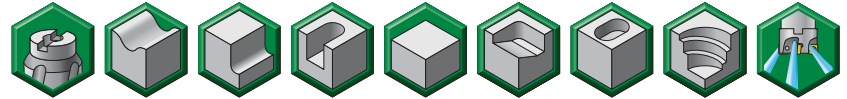
order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646607	M100D100Z02C100RD12L478	1.000	.528	1.000	4.780	2.500	.236	2	50.0°	23000	Yes	1.00

■ Spare Parts

			
D1 max	insert screw	in. lbs.	Torx driver
1.000	12148038800	27	12148000600

NOTE: All spare parts except the insert screws must be ordered separately.

- General purpose face and copy milling.
- Anti-rotation feature for top security.



■ **Shell Mills**

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646724	M100D200Z04S075RD12	2.000	1.530	.750	1.700	1.630	.236	4	10.0°	15000	Yes	.55
2646725	M100D200Z05S075RD12	2.000	1.530	.750	1.700	1.630	.236	5	10.0°	15000	Yes	.55
2646732	M100D300Z07S100RD12	3.000	2.528	1.000	2.300	2.000	.236	7	5.0°	12000	Yes	1.65

■ **Spare Parts**

D1 max	insert screw	in. lbs.	Torx driver	socket-head cap screw	socket-head cap screw with coolant groove
2.000	12148038800	27	12148000600	S445	S445CG
3.000	12148038800	27	12148000600	S458	S458CG

NOTE: All spare parts except the insert screws must be ordered separately.

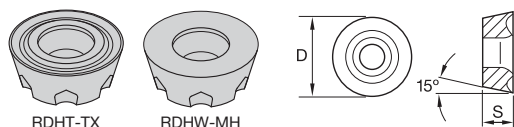
Copy Mills

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	RDMT-TX	TN7525	RDMT-TX	TN6540	RDMT-TX	TN6540
P3-P4	RDMT-TX	TN7525	RDMW-TX	TN6540	RDMW-TX	TN6540
P5-P6	RDMT-TX	TN7525	RDPT-MMX	TN7535	RDPT-MMX	TN7535
M1-M2	RDHT-TX	TN7525	RDMT-TX	TN6540	RDPT-MMX	TN6540
M3	RDHT-TX	TN7525	RDMT-TX	TN6540	RDPT-MMX	TN6540
K1-K2	RDMW-TX	WK15CM	RDMW-TX	WK15CM	RDMW-TX	TN7535
K3	RDHW-MH	TN2510	RDMW-TX	WK15CM	RDMW-TX	WK15CM
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	RDMT-TX	TN6540	-	-
S3	-	-	RDMT-TX	TN6540	-	-
S4	-	-	RDMT-TX	TN6540	RDPT-MMX	TN6540
H1	RDHW-MH	TN2510	RDHW-MH	TN2510	-	-

Copy Mills

iC12 • Inserts



- Precision ground positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys.

- first choice
- alternate choice

P	●	○	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○

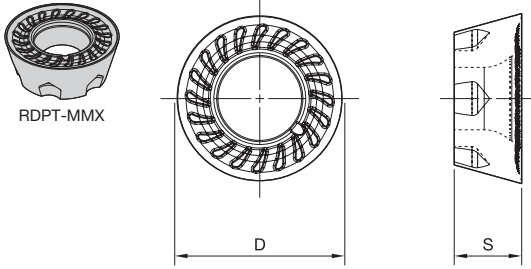
■ RDHT-TX

catalog number	number of indexes	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	WK15CM	WS30PM
RDHT1204M0TX	6	.472	.188	.005	○	○	○	○	○	○	○

- Precision ground flat top insert.
- Alternative choice for stable milling operations in high-strength steel and hardened material.

■ RDHW-MH

catalog number	number of indexes	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	WK15CM	WS30PM
RDHW1204M0MH	6	.472	.188	.006	○	○	○	○	○	○	○



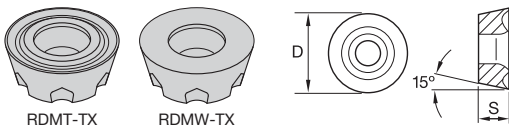
- Precision pressed insert.
- Improved performance in stainless steel and high-temp alloys.

RDPT-MMX

catalog number	number of indexes	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	WK15CM	WS30PM
RDPT1204M0SMMX	6	.472	.187	.007	•	•	•	•	•	•	•

P	•	•	•	•	•	•	•	•	•	•	•
M	•	•	•	•	•	•	•	•	•	•	•
K	•	•	•	•	•	•	•	•	•	•	•
N	•	•	•	•	•	•	•	•	•	•	•
S	•	•	•	•	•	•	•	•	•	•	•
H	•	•	•	•	•	•	•	•	•	•	•

• first choice
○ alternate choice



- Precision pressed positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys in roughing operations.

RDMT-TX

catalog number	number of indexes	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	WK15CM	WS30PM
RDMT1204M0TX	6	.472	.188	.006	•	•	•	•	•	•	•

P	•	•	•	•	•	•	•	•	•	•	•
M	•	•	•	•	•	•	•	•	•	•	•
K	•	•	•	•	•	•	•	•	•	•	•
N	•	•	•	•	•	•	•	•	•	•	•
S	•	•	•	•	•	•	•	•	•	•	•
H	•	•	•	•	•	•	•	•	•	•	•

• first choice
○ alternate choice

- Precision pressed insert.
- First choice for roughing operations, especially for steel and cast iron.

RDMW-TX

catalog number	number of indexes	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	WK15CM	WS30PM
RDMW1204M0TX	6	.472	.188	.006	•	•	•	•	•	•	•

■ Recommended Starting Speeds [SFM]

Material Group		TN2510			TN6525			TN6540			TN7525		
P	1	2165	1910	1770	1340	1045	925	1180	925	785	1340	1025	925
	2	1340	1220	1080	1045	830	710	830	630	550	1025	830	710
	3	1220	1080	1000	925	710	610	710	550	450	925	710	610
	4	905	845	750	770	550	475	590	430	355	770	550	475
	5	1080	985	905	1025	770	650	785	590	490	1025	770	650
	6	750	670	570	670	535	430	535	395	335	670	535	430
M	1	890	785	690	630	395	260	430	260	200	805	725	610
	2	805	690	630	395	260	155	260	155	140	725	630	550
	3	630	570	490	415	260	180	275	155	140	570	510	450
K	1	1380	1180	985	905	805	725	725	670	590	1240	925	785
	2	1180	985	830	710	630	590	570	510	450	1060	785	650
	3	985	830	650	590	535	475	510	475	415	785	650	550
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	155	120	95	-	-	-
	2	-	-	-	-	-	-	80	60	40	-	-	-
	3	-	-	-	-	-	-	235	140	95	-	-	-
	4	-	-	-	-	-	-	200	95	80	-	-	-
H	1	475	360	230	-	-	-	-	-	-	-	-	-
	2	475	360	230	-	-	-	-	-	-	-	-	-
	3	380	260	150	-	-	-	-	-	-	-	-	-

Copy Mills

Material Group		TN7535			WK15CM			WS30PM			TTI25		
P	1	1790	1555	1460	-	-	-	-	-	-	1415	1180	985
	2	1105	1000	905	-	-	-	-	-	-	1025	830	710
	3	1000	905	805	-	-	-	-	-	-	1025	830	710
	4	750	690	630	-	-	-	-	-	-	865	710	590
	5	1025	905	830	-	-	-	-	-	-	1045	770	650
	6	630	535	430	-	-	-	-	-	-	475	355	295
M	1	805	725	610	-	-	-	890	785	725	1570	1025	710
	2	725	630	550	-	-	-	805	710	570	1060	670	475
	3	570	510	450	-	-	-	610	535	415	1045	690	475
K	1	1165	1045	940	1655	1520	1340	-	-	-	725	610	510
	2	925	830	750	1320	1165	1080	-	-	-	590	475	415
	3	770	690	630	1105	985	905	-	-	-	475	415	335
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	180	155	120	-	-	-
	2	-	-	-	-	-	-	180	155	120	-	-	-
	3	-	-	-	-	-	-	215	180	120	-	-	-
	4	-	-	-	-	-	-	335	235	155	-	-	-
H	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
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At .236 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHT-TX	.014	.013	.022	.010	.009	.016	.007	.007	.012	.006	.006	.010	.006	.006	.009	RDHT-TX
RDMT-TX	.014	.016	.027	.010	.012	.020	.007	.009	.015	.006	.008	.013	.006	.007	.012	RDMT-TX
RDPT-MMX	.014	.023	.037	.010	.016	.026	.007	.012	.020	.006	.011	.017	.006	.010	.016	RDPT-MMX
RDHW-MH	.014	.027	.042	.010	.020	.031	.007	.015	.023	.006	.013	.020	.006	.012	.018	RDHW-MH
RDMW-TX	.014	.027	.046	.010	.020	.033	.007	.015	.024	.006	.013	.021	.006	.012	.019	RDMW-TX

At .118 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHT-TX	.016	.015	.025	.011	.011	.018	.009	.008	.014	.007	.007	.012	.007	.007	.011	RDHT-TX
RDMT-TX	.016	.019	.032	.011	.014	.023	.009	.010	.017	.007	.009	.015	.007	.008	.014	RDMT-TX
RDPT-MMX	.016	.026	.043	.011	.019	.031	.009	.014	.023	.007	.012	.020	.007	.011	.018	RDPT-MMX
RDHW-MH	.016	.032	.049	.011	.023	.035	.009	.017	.026	.007	.015	.023	.007	.014	.021	RDHW-MH
RDMW-TX	.016	.032	.053	.011	.023	.038	.009	.017	.028	.007	.015	.025	.007	.014	.022	RDMW-TX

At .059 Axial Depth of Cut (ap)

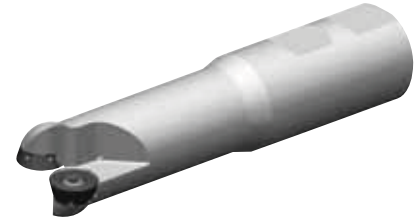
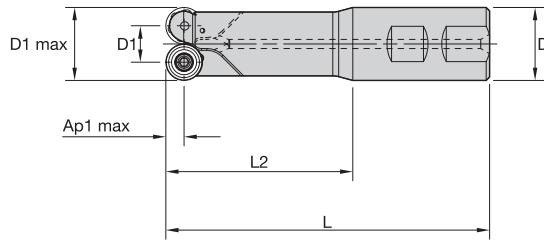
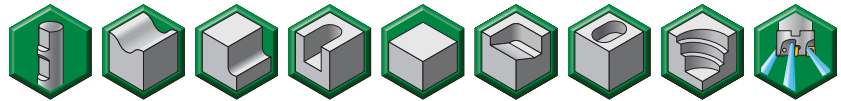
Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHT-TX	.021	.020	.033	.015	.014	.024	.011	.011	.018	.010	.009	.016	.009	.009	.014	RDHT-TX
RDMT-TX	.021	.025	.042	.015	.018	.030	.011	.013	.022	.010	.012	.019	.009	.011	.018	RDMT-TX
RDPT-MMX	.021	.035	.056	.015	.025	.040	.011	.019	.030	.010	.016	.026	.009	.015	.024	RDPT-MMX
RDHW-MH	.021	.042	.065	.015	.030	.046	.011	.022	.034	.010	.019	.030	.009	.018	.027	RDHW-MH
RDMW-TX	.021	.042	.070	.015	.030	.050	.011	.022	.037	.010	.019	.032	.009	.018	.029	RDMW-TX

At .030 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHT-TX	.028	.027	.046	.020	.020	.033	.015	.015	.024	.013	.013	.021	.012	.012	.019	RDHT-TX
RDMT-TX	.028	.034	.057	.020	.025	.041	.015	.018	.031	.013	.016	.027	.012	.015	.024	RDMT-TX
RDPT-MMX	.028	.047	.077	.020	.034	.055	.015	.025	.041	.013	.022	.036	.012	.020	.033	RDPT-MMX
RDHW-MH	.028	.058	.090	.020	.041	.064	.015	.031	.047	.013	.027	.041	.012	.024	.037	RDHW-MH
RDMW-TX	.028	.058	.097	.020	.041	.068	.015	.031	.051	.013	.027	.044	.012	.024	.040	RDMW-TX

NOTE: Use "Light Machining" value as starting feed rate.

- General purpose face and copy milling.
- Anti-rotation feature for top security.



Copy Mills

■ Weldon Shanks

order number	catalog number	D1 max	D1	D	L	L2	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646623	M100D150Z02W125RD16	1.500	.870	1.250	5.400	3.120	.315	2	27.0°	17000	Yes	.65

■ Spare Parts



insert screw



in. lbs.

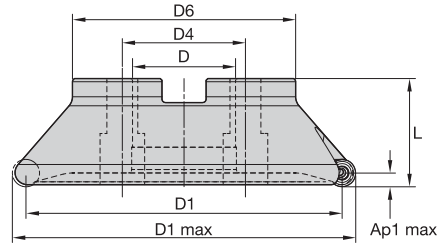
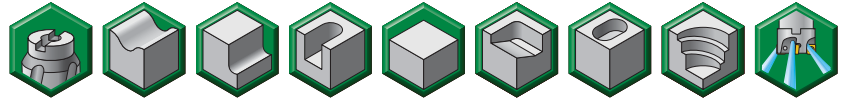


Torx driver

D1 max	1.500	12148007200	35	12148007500
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NOTE: All spare parts except the insert screws must be ordered separately.

- General purpose face and copy milling.
- Anti-rotation feature for top security.



■ **Shell Mills**

order number	catalog number	D1 max	D1	D	D6	L	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646726	M100D200Z03S075RD16	2.000	1.370	.750	1.700	1.630	.315	3	12.0°	15000	Yes	.55
2646729	M100D250Z04S100RD16	2.500	1.870	1.000	2.200	1.750	.315	4	8.0°	14000	Yes	1.05
2646733	M100D300Z05S100RD16	3.000	2.370	1.000	2.300	2.000	.315	5	11.0°	12000	Yes	1.65
2646736	M100D400Z06S125RD16	4.000	3.370	1.250	2.800	2.000	.315	6	7.0°	11000	No	2.55

■ **Spare Parts**



D1 max	insert screw	in. lbs.	Torx driver	socket-head cap screw	socket-head cap screw with coolant groove
2.000	12148007200	35	12148007500	S445	S445CG
2.500	12148007200	35	12148007500	S458	S458CG
3.000	12148007200	35	12148007500	S458	S458CG
4.000	12148007200	35	12148007500	—	—

NOTE: All spare parts except the insert screws must be ordered separately.

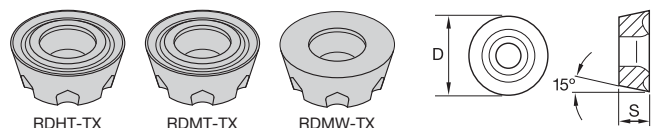
Copy Mills

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	RDMT-TX	TN6525	RDMT-TX	TN6540	RDMT-TX	TN6540
P3-P4	RDMT-TX	TN6525	RDMW-TX	TN6540	RDMW-TX	TN6540
P5-P6	RDMT-TX	TN7525	RDMT-TX	TN7535	RDMT-TX	TN7535
M1-M2	RDMT-TX	TN6525	RDMT-TX	TN6540	RDMT-TX	TN6540
M3	RDMT-TX	TN6525	RDMT-TX	TN6540	RDMT-TX	TN6540
K1-K2	RDMW-TX	TN2510	RDMW-TX	TN7535	RDMW-TX	TN7535
K3	RDMW-TX	TN2510	RDMW-TX	TN7535	RDMW-TX	TN7535
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	RDMT-TX	TN6540	-	-
S3	-	-	RDMT-TX	TN6540	-	-
S4	-	-	RDMT-TX	TN6540	RDMT-TX	TN6540
H1	RDMW-TX	TN2510	RDMW-TX	TN2510	-	-

Copy Mills

iC16 • Inserts



- Precision ground positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys.

- first choice
- alternate choice

P	●	○	○	○	○	○
M	○	○	○	○	○	○
K	○	○	○	○	○	○
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H	○	○	○	○	○	○

■ RDHT-TX

catalog number	cutting edges	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	TT125
RDHT1605M0TX	6	.630	.219	.005	●	○	○	○	○	○

- Precision pressed positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys in roughing operations.

■ RDMT-TX

catalog number	cutting edges	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	TT125
RDMT1605M0TX	6	.630	.219	.007	○	○	○	○	○	○

- Precision pressed insert.
- First choice for roughing operations, especially for steel and cast iron.

■ RDMW-TX

catalog number	cutting edges	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	TT125
RDMW1605M0TX	6	.630	.219	.006	○	○	○	○	○	○

Recommended Starting Speeds [SFM]

Material Group		TN2510			TN6525			TN6540			TN7525			TN7535			TTI25		
P	1	2165	1910	1770	1340	1045	925	1180	925	785	1340	1025	925	1790	1555	1460	1415	1180	985
	2	1340	1220	1080	1045	830	710	830	630	550	1025	830	710	1105	1000	905	1025	830	710
	3	1220	1080	1000	925	710	610	710	550	450	925	710	610	1000	905	805	1025	830	710
	4	905	845	750	770	550	475	590	430	355	770	550	475	750	690	630	865	710	590
	5	1080	985	905	1025	770	650	785	590	490	1025	770	650	1025	905	830	1045	770	650
	6	750	670	570	670	535	430	535	395	335	670	535	430	630	535	430	475	355	295
M	1	890	785	690	630	395	260	430	260	200	805	725	610	805	725	610	1570	1025	710
	2	805	690	630	395	260	155	260	155	140	725	630	550	725	630	550	1060	670	475
	3	630	570	490	415	260	180	275	155	140	570	510	450	570	510	450	1045	690	475
K	1	1380	1180	985	905	805	725	725	670	590	1240	925	785	1165	1045	940	725	610	510
	2	1180	985	830	710	630	590	570	510	450	1060	785	650	925	830	750	590	475	415
	3	985	830	650	590	535	475	510	475	415	785	650	550	770	690	630	475	415	335
N	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	155	120	95	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	235	140	95	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	200	95	80	-	-	-	-	-	-	-	-	-
H	1	475	360	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	475	360	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	380	260	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Copy Mills

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
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At .315 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHX-TX	.005	.014	.027	.003	.010	.020	.002	.007	.015	.002	.006	.013	.002	.006	.012	RDHX-TX
RDMT-TX	.009	.016	.033	.007	.012	.024	.005	.009	.018	.004	.008	.016	.004	.007	.014	RDMT-TX
RDMW-TX	.009	.020	.041	.007	.015	.030	.005	.011	.022	.004	.010	.019	.004	.009	.018	RDMW-TX

At .157 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHX-TX	.005	.016	.032	.004	.011	.023	.003	.008	.017	.002	.007	.015	.002	.007	.014	RDHX-TX
RDMT-TX	.010	.019	.038	.008	.014	.028	.006	.010	.021	.005	.009	.018	.005	.008	.016	RDMT-TX
RDMW-TX	.010	.024	.048	.008	.017	.034	.006	.013	.026	.005	.011	.022	.005	.010	.020	RDMW-TX

At .079 Axial Depth of Cut (ap)

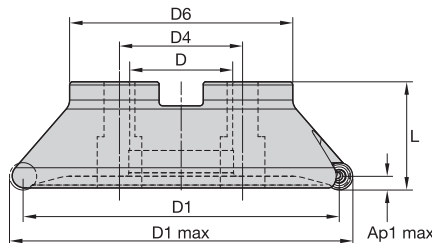
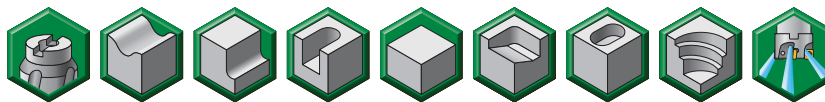
Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHX-TX	.007	.021	.042	.005	.015	.030	.004	.011	.022	.003	.010	.019	.003	.009	.018	RDHX-TX
RDMT-TX	.014	.025	.050	.010	.018	.036	.007	.013	.027	.006	.012	.023	.006	.011	.021	RDMT-TX
RDMW-TX	.014	.031	.063	.010	.022	.045	.007	.017	.034	.006	.015	.029	.006	.013	.027	RDMW-TX

At .039 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
RDHX-TX	.009	.028	.057	.007	.020	.041	.005	.015	.030	.004	.013	.027	.004	.012	.024	RDHX-TX
RDMT-TX	.019	.034	.070	.014	.025	.050	.010	.018	.037	.009	.016	.032	.008	.015	.029	RDMT-TX
RDMW-TX	.019	.043	.088	.014	.031	.062	.010	.023	.046	.009	.020	.040	.008	.018	.037	RDMW-TX

NOTE: Use "Light Machining" value as starting feed rate.

- General purpose face and copy milling.
- Anti-rotation feature for top security.



Copy Mills

■ Shell Mills

order number	catalog number	D1 max	D1	D	D4	D6	L	Ap1 max	Z	max ramp angle	max RPM	coolant supply	lbs
2646723	M100D200Z04S075RC16	2.000	1.370	.750	—	1.700	1.630	.315	4	12.0°	15000	Yes	.60
2646727	M100D250Z04S100RC16	2.500	1.870	1.000	—	2.200	1.750	.315	4	8.0°	14000	Yes	1.10
2646730	M100D300Z05S100RC16	3.000	2.370	1.000	—	2.300	2.000	.315	5	11.0°	12000	Yes	1.70
2646731	M100D300Z05S125RC16	3.000	2.370	1.250	—	2.800	2.000	.315	5	11.0°	12000	No	2.60
2646734	M100D400Z07S125RC16	4.000	3.370	1.250	—	2.800	2.000	.315	7	7.0°	11000	No	2.60
2646735	M100D400Z07S150RC16	4.000	3.370	1.500	—	3.100	2.000	.315	7	7.0°	11000	No	2.65
2646738	M100D600Z09S200RC16	6.000	5.370	2.000	—	4.000	2.500	.315	9	7.0°	7000	No	7.15
2646740	M100D800Z11S200RC16	8.000	7.370	2.000	4.000	5.500	2.500	.315	11	8.0°	5500	No	14.25

■ Spare Parts



D1 max	insert screw	in. lbs.	Torx driver	socket-head cap screw	socket-head cap screw with coolant groove
2.000	12148007200	35	12148007500	S445	S445CG
2.500	12148007200	35	12148007500	S458	S458CG
3.000	12148007200	35	12148007500	S458	S458CG
3.000	12148007200	35	12148007500	—	—
4.000	12148007200	35	12148007500	—	—
6.000	12148007200	35	12148007500	—	—
8.000	12148007200	35	12148007500	—	—

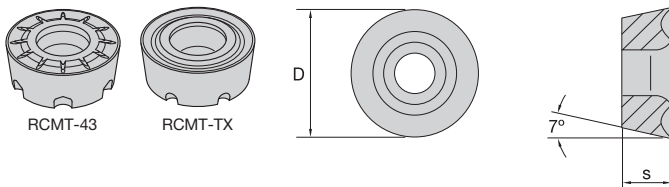
NOTE: All spare parts except the insert screws must be ordered separately.

■ **Insert Selection Guide**

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	...TX	TN6525	...43M	TN6540	...43M	TN6540
P3-P4	...TX	TN6525	...TX	TN6540	...43M	TN6540
P5-P6	...TX	TN6525	...TX	TN7535	...TX	TN7535
M1-M2	...TX	TN6525	...TX	TN6540	...TX	TN6540
M3	...TX	TN6525	...TX	TN6540	...TX	TN6540
K1-K2	...43	TN2510	...TX	WK15CM	...TX	WK15CM
K3	...TX	TN6525	...TX	WK15CM	...TX	WK15CM
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	-	-	-	-
S3	-	-	-	-	-	-
S4	...43M	TN6540	...TX	TN6540	...TX	TN6540
H1	-	-	...TX	TN2510	-	-

Copy Mills

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- Optimized geometry providing excellent chip control, even at lower depth of cut.

- first choice
- alternate choice

P	○	○	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○

■ **RCMT-43**

catalog number	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	WK15CM
RCMT1606M043M	.630	.250	.008	○	○	●	○	○	○

- Precision pressed positive geometry for lower cutting forces.
- First choice for general machining, stainless steel, and high-temp alloys in roughing operations.

■ **RCMT-TX**

catalog number	D	S	hm	TN2510	TN6525	TN6540	TN7525	TN7535	WK15CM
RCMT1606M0TX	.630	.250	.009	○	○	○	○	○	○

■ Recommended Starting Speeds [SFM]

Material Group		TN2510			TN6525			TN6540			TN7525			TN7535			WK15CM		
P	1	2165	1910	1770	1340	1045	925	1180	925	785	1340	1025	925	1790	1555	1460	-	-	-
	2	1340	1220	1080	1045	830	710	830	630	550	1025	830	710	1105	1000	905	-	-	-
	3	1220	1080	1000	925	710	610	710	550	450	925	710	610	1000	905	805	-	-	-
	4	905	845	750	770	550	475	590	430	355	770	550	475	750	690	630	-	-	-
	5	1080	985	905	1025	770	650	785	590	490	1025	770	650	1025	905	830	-	-	-
	6	750	670	570	670	535	430	535	395	335	670	535	430	630	535	430	-	-	-
M	1	890	785	690	630	395	260	430	260	200	805	725	610	805	725	610	-	-	-
	2	805	690	630	395	260	155	260	155	140	725	630	550	725	630	550	-	-	-
	3	630	570	490	415	260	180	275	155	140	570	510	450	570	510	450	-	-	-
K	1	1380	1180	985	905	805	725	725	670	590	1240	925	785	1165	1045	940	1655	1520	1340
	2	1180	985	830	710	630	590	570	510	450	1060	785	650	925	830	750	1320	1165	1080
	3	985	830	650	590	535	475	510	475	415	785	650	550	770	690	630	1105	985	905
N	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	155	120	95	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	80	60	40	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	235	140	95	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	200	95	80	-	-	-	-	-	-	-	-	-
H	1	475	360	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	475	360	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	380	260	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

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■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
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At .315 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
...43	.018	.024	.037	.013	.017	.027	.010	.013	.020	.009	.011	.017	.008	.010	.016	...43
...TX	.018	.027	.044	.013	.020	.032	.010	.015	.024	.009	.013	.021	.008	.012	.019	...TX

At .157 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
...43	.021	.028	.043	.015	.020	.031	.011	.015	.023	.010	.013	.020	.009	.012	.018	...43
...TX	.021	.032	.051	.015	.023	.037	.011	.017	.027	.010	.015	.024	.009	.014	.022	...TX

At .079 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
...43	.028	.036	.056	.020	.026	.040	.015	.019	.030	.013	.017	.026	.012	.016	.024	...43
...TX	.028	.042	.067	.020	.030	.048	.015	.022	.036	.013	.019	.031	.012	.018	.028	...TX

At .039 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
...43	.038	.050	.078	.027	.036	.055	.020	.027	.041	.018	.023	.036	.016	.021	.033	...43
...TX	.038	.058	.093	.027	.041	.066	.020	.031	.049	.018	.027	.042	.016	.024	.039	...TX

NOTE: Use "Light Machining" value as starting feed rate.



For Secure and Rigid Insert Clamping •

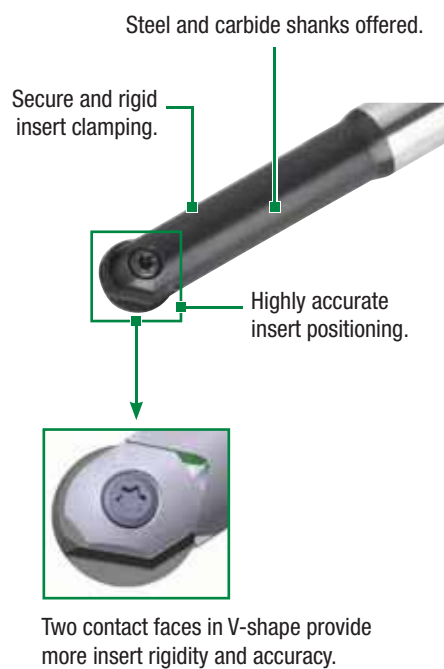
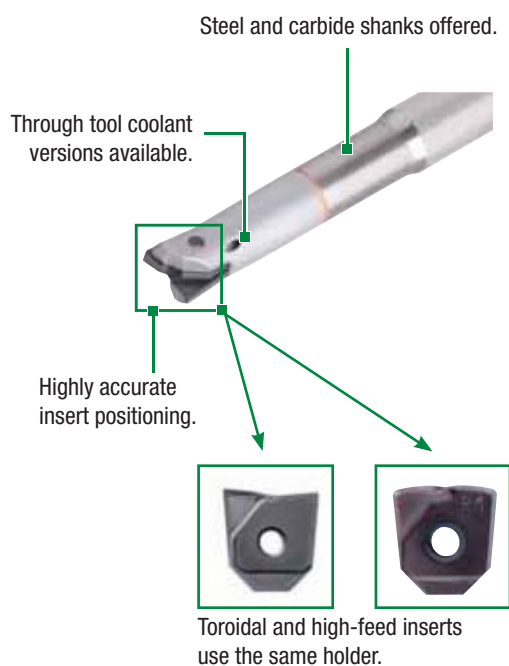
M270™ Series

M270



With precision-engineered ball nose, toroidal, and new high-feed inserts, the M270 Series provides the highest accuracy and insert stability for exceptional reliability and performance.

- Ball nose and toroidal tools for semi-finishing through finishing.
- Performance-boosting High-Feed (HF) inserts offered standard.
- V-shaped contact faces enable maximum stability and accuracy.



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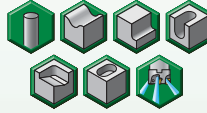


M270™ Ball Nose

Max depth of cut: .188–.500"

Diameter: .375–1"

Pages: K104–K115

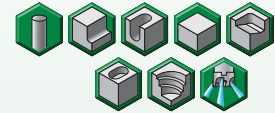
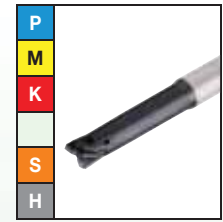


M270 Toroidal

Max depth of cut: .031–.126"

Diameter: .375–.750"

Pages: K116–K119

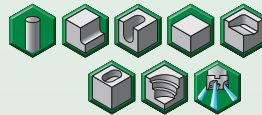
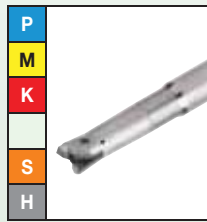


M270 High-Feed

Max depth of cut: .024–.043"

Diameter: .375–.750"

Pages: K120–K126



■ Insert Offering



**Ball nose inserts
BF/BR**

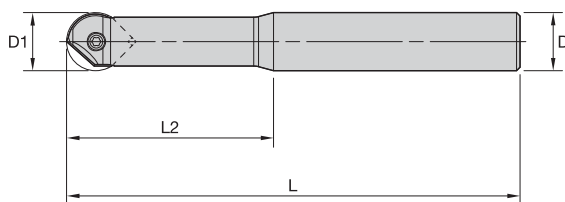
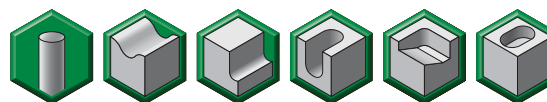


**Toroidal inserts
TF**



**High-Feed inserts
HF**

- Rough, semi-finishing, and finishing with one system.
- Secure and rigid insert clamping.



■ Ball Nose • Cylindrical Shank

order number	catalog number	D1	D	L	L2	Z	Z U	inserts	max RPM	coolant supply	lbs
2639138	M270BD037C050L550	.375	.500	5.550	1.800	1	2	M270B.0375	57000	No	.22
2639139	M270BD050C050L575	.500	.500	5.750	2.000	1	2	M270B.0500	55000	No	.22
2639140	M270BD062C062L600	.625	.625	6.000	2.300	1	2	M270B.0625	53000	No	.44
2639141	M270BD075C075L700	.750	.750	7.000	2.800	1	2	M270B.0750	52000	No	.77
2639142	M270BD100C100L800	1.000	1.000	8.000	3.500	1	2	M270B.1000	50000	No	1.54

NOTE: Z = number of pocket seats.
ZU = number of effective teeth.

■ Spare Parts

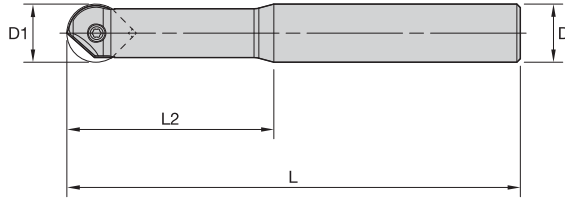


D1	insert screw	in. lbs.	Torx driver
.375	12748610500	18	12148788900
.500	12748610600	18	12148788900
.625	12748610700	44	12148099300
.750	12748610800	44	12148099300
1.000	12748610900	62	12148086800

NOTE: All spare parts except the insert screws must be ordered separately.

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- Rough, semi-finishing, and finishing with one system.
- Through tool coolant.
- Carbide shank to improve rigidity.



■ **Ball Nose • Carbide Cylindrical Shank**

order number	catalog number	D1	D	L	L2	Z	Z U	inserts	max RPM	coolant supply	lbs
2639253	M270BD037C050L555C	.375	.500	5.550	1.800	1	2	M270B.0375	57000	Yes	.44
2639254	M270BD050C050L575C	.500	.500	5.750	2.000	1	2	M270B.0500	55000	Yes	.55
2639255	M270BD062C062L600C	.625	.625	6.000	2.300	1	2	M270B.0625	53000	Yes	.88
2639256	M270BD075C075L700C	.750	.750	7.000	2.800	1	2	M270B.0750	52000	Yes	1.32

■ **Spare Parts**



D1	insert screw	in. lbs.	Torx driver
.375	12748610500	18	12148788900
.500	12748610600	18	12148788900
.625	12748610700	44	12148099300
.750	12748610800	44	12148099300

NOTE: All spare parts except the insert screws must be ordered separately.

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■ Insert Selection Guide • .375"

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	BF	TN2505	BR	TN7535	BR	TN7535
P3-P4	BF	TN2505	BR	TN7535	BR	TN7535
P5-P6	BF	TN2505	BR	TN7535	BR	TN7535
M1-M2	BR	TN7535	BR	TN7535	BR	TN7535
M3	BR	TN7535	BR	TN7535	BR	TN7535
K1-K2	BF	TN2505	BR	TN7535	BR	TN7535
K3	BF	TN2505	BR	TN7535	BR	TN7535
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	-	-	-	-
S3	-	-	-	-	-	-
S4	-	-	-	-	-	-
H1	BF	TN2505	BF	TN2505	-	-

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■ Insert Selection Guide • .500" and .652"

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	BF	TN2505	BR	TN7535	BR	TN7535
P3-P4	BF	TN2505	BR	TN7535	BR	TN7535
P5-P6	BF	TN2505	BR	TN7535	BR	TN7535
M1-M2	BR	TN7535	BR	TN7535	BR	TN7535
M3	BR	TN7535	BR	TN7535	BR	TN7535
K1-K2	BF	TN2505	BR	TN2510	BR	TN7535
K3	BF	TN2505	BR	TN2510	BR	TN7535
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	-	-	-	-
S3	-	-	-	-	-	-
S4	-	-	-	-	-	-
H1	BF	TN2505	BF	TN2505	BR	TN2510

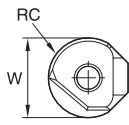
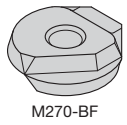
■ Insert Selection Guide • 0.750"

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	BF	TN6525	BR	TN7535	BR	TN7535
P3-P4	BF	TN6525	BR	TN7535	BR	TN7535
P5-P6	BF	TN6525	BR	TN7535	BR	TN7535
M1-M2	BF	TN6525	BF	TN6525	BR	TN7535
M3	BF	TN6525	BF	TN6525	BR	TN7535
K1-K2	BF	TN2505	BR	TN7535	BR	TN7535
K3	BF	TN2505	BR	TN7535	BR	TN7535
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	-	-	-	-
S3	-	-	-	-	-	-
S4	BF	TN2505	-	-	-	-
H1	BF	TN2505	BF	TN2505	BR	TN2510

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■ Insert Selection Guide • 1.000"

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	BF	TN6540	BF	TN6540	BF	TN6540
P3-P4	BF	TN6540	BF	TN6540	BF	TN7535
P5-P6	BF	TN6540	BF	TN7535	BF	TN7535
M1-M2	BF	TN6540	BF	TN6540	BF	TN7535
M3	BF	TN6540	BF	TN6540	BF	TN7535
K1-K2	BR	TN2505	BR	TN2505	-	-
K3	BR	TN2505	BR	TN2505	-	-
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	BF	TN6540	-	-
S3	-	-	BF	TN6540	-	-
S4	-	-	BF	TN6540	-	-
H1	-	-	BR	TN2505	-	-



- -BF geometry is the first choice for all finishing and light operations.

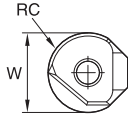
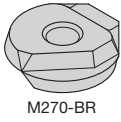
■ BF • Inch

- first choice
- alternate choice

P	●	○	○	○	○	○	○
M	●	○	○	○	○	○	○
K	●	○	○	○	○	○	○
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○

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catalog number	W	S	RC	hm	TN2505	TN2510	TN6525	TN6540	TN7525	TN7535
M270BF0375	.375	.094	.188	.003	●	○	○	○	○	○
M270BF0500	.500	.125	.250	.003	●	○	○	○	○	○
M270BF0625	.625	.187	.313	.003	○	○	○	○	○	○
M270BF0750	.750	.187	.375	.004	○	○	○	○	○	○
M270BF1000	1.000	.187	.500	.004	○	○	○	○	○	○



- -BR geometry is the first choice for all semi-finishing and medium duty applications.

● first choice
○ alternate choice

P	●	○	○	○	○	○	○
M	●	○	○	○	○	○	○
K	●	○	○	○	○	○	○
N	○	○	○	○	○	○	○
S	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○

■ BR • Inch

catalog number	W	S	RC	hm	TN2505	TN2510	TN6525	TN6540	TN7525	TN7535
M270BR0375	.375	.094	.188	.003	●	○	○	○	○	○
M270BR0500	.500	.125	.250	.003	○	●	○	○	○	○
M270BR0625	.625	.187	.313	.003	○	○	●	○	○	○
M270BR0750	.750	.187	.375	.003	○	○	○	●	○	○
M270BR1000	1.000	.187	.500	.003	○	○	○	○	○	●



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■ Recommended Starting Speeds [SFM]

Material Group		TN2505			TN2510			TN6525			TN6540		
P	1	1810	1380	1180	2165	1910	1770	1340	1045	925	1180	925	785
	2	1045	785	670	1340	1220	1080	1045	830	710	830	630	550
	3	1045	785	670	1220	1080	1000	925	710	610	710	550	450
	4	-	-	-	905	845	750	770	550	475	590	430	355
	5	-	-	-	1080	985	905	1025	770	650	785	590	490
	6	-	-	-	750	670	570	670	535	430	535	395	335
M	1	-	-	-	890	785	690	630	395	260	430	260	200
	2	-	-	-	805	690	630	395	260	155	260	155	140
	3	-	-	-	630	570	490	415	260	180	275	155	140
K	1	1320	985	830	1380	1180	985	905	805	725	725	670	590
	2	1770	1200	925	1180	985	830	710	630	590	570	510	450
	3	1025	630	510	985	830	650	590	535	475	510	475	415
N	1	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	-	-	-	155	120	95
	2	-	-	-	-	-	-	-	-	-	80	60	40
	3	-	-	-	-	-	-	-	-	-	235	140	95
	4	-	-	-	-	-	-	-	-	-	200	95	80
H	1	570	450	310	475	360	230	-	-	-	-	-	-
	2	570	450	310	475	360	230	-	-	-	-	-	-
	3	450	370	260	380	260	150	-	-	-	-	-	-

Material Group		TN7525			TN7535			TTI25		
P	1	1340	1025	925	1790	1555	1460	1415	1180	985
	2	1025	830	710	1105	1000	905	1025	830	710
	3	925	710	610	1000	905	805	1025	830	710
	4	770	550	475	750	690	630	865	710	590
	5	1025	770	650	1025	905	830	1045	770	650
	6	670	535	430	630	535	430	475	355	295
M	1	805	725	610	805	725	610	1570	1025	710
	2	725	630	550	725	630	550	1060	670	475
	3	570	510	450	570	510	450	1045	690	475
K	1	1240	925	785	1165	1045	940	725	610	510
	2	1060	785	650	925	830	750	590	475	415
	3	785	650	550	770	690	630	475	415	335
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-
H	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

■ Recommended Starting Feeds [IPT] • 0.375"

Light Machining	General Purpose	Heavy Machining
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At .188 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.005	.009	.016	.003	.006	.011	.002	.005	.008	.002	.004	.007	.002	.004	.007	BF
BR	.007	.011	.020	.005	.008	.013	.004	.006	.010	.003	.005	.008	.003	.005	.008	BR

At .094 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.005	.010	.019	.004	.007	.013	.003	.005	.010	.002	.005	.008	.002	.004	.008	BF
BR	.009	.013	.023	.006	.009	.016	.004	.007	.011	.004	.006	.010	.004	.005	.009	BR

At .047 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.007	.014	.026	.005	.010	.017	.004	.007	.013	.003	.006	.011	.003	.006	.010	BF
BR	.011	.018	.033	.008	.012	.021	.006	.009	.015	.005	.008	.013	.005	.007	.012	BR

At .023 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.010	.020	.039	.007	.013	.024	.005	.010	.017	.004	.008	.015	.004	.008	.013	BF
BR	.016	.025	.051	.011	.017	.029	.008	.012	.021	.007	.011	.018	.006	.010	.016	BR

NOTE: Use "Light Machining" value as starting feed rate.



■ Recommended Starting Feeds [IPT] • 0.500"

Light Machining	General Purpose	Heavy Machining
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At .250 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.005	.011	.017	.004	.008	.012	.003	.006	.009	.002	.005	.007	.002	.005	.007	BF
BR	.008	.015	.023	.006	.011	.016	.004	.008	.011	.004	.007	.010	.003	.006	.009	BR

At .125 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.006	.013	.020	.004	.009	.014	.003	.007	.010	.003	.006	.009	.003	.005	.008	BF
BR	.009	.018	.027	.007	.012	.018	.005	.009	.013	.004	.008	.011	.004	.007	.010	BR

At .063 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.008	.017	.026	.006	.012	.018	.004	.009	.013	.004	.008	.011	.003	.007	.010	BF
BR	.012	.024	.036	.009	.016	.024	.006	.012	.017	.006	.010	.015	.005	.009	.014	BR

At .031 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.011	.024	.038	.008	.017	.025	.006	.012	.018	.005	.011	.015	.004	.010	.014	BF
BR	.017	.034	.055	.012	.022	.034	.009	.016	.024	.008	.014	.020	.007	.013	.019	BR

NOTE: Use "Light Machining" value as starting feed rate.

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■ Recommended Starting Feeds [IPT] • 0.750"

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At .375 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BR	.005	.011	.017	.004	.008	.012	.003	.006	.009	.003	.005	.008	.002	.005	.007	BR
BF	.007	.014	.022	.005	.010	.015	.004	.007	.011	.003	.006	.010	.003	.006	.009	BF

At .188 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BR	.006	.013	.020	.005	.009	.014	.003	.007	.010	.003	.006	.009	.003	.005	.008	BR
BF	.008	.016	.025	.006	.011	.018	.005	.008	.013	.004	.007	.011	.004	.007	.010	BF

At .094 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BR	.008	.017	.027	.006	.012	.018	.004	.009	.014	.004	.008	.012	.004	.007	.011	BR
BF	.011	.021	.034	.008	.015	.023	.006	.011	.017	.005	.010	.015	.005	.009	.014	BF

At .047 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BR	.011	.023	.037	.008	.016	.026	.006	.012	.019	.005	.011	.016	.005	.010	.015	BR
BF	.015	.030	.049	.011	.021	.032	.008	.015	.024	.007	.013	.020	.006	.012	.019	BF

NOTE: Use "Light Machining" value as starting feed rate.



■ Recommended Starting Feeds [IPT] • 1.000"

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At .500 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.007	.009	.015	.005	.007	.011	.004	.005	.008	.003	.004	.007	.003	.004	.007	BF
BR	.009	.015	.025	.007	.011	.018	.005	.008	.013	.004	.007	.012	.004	.006	.011	BR

At .250 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.008	.011	.018	.006	.008	.013	.004	.006	.009	.004	.005	.008	.004	.005	.008	BF
BR	.011	.017	.030	.008	.012	.021	.006	.009	.015	.005	.008	.013	.005	.007	.012	BR

At .125 Axial Depth of Cut (ap)

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.011	.014	.024	.008	.010	.017	.006	.008	.012	.005	.007	.011	.005	.006	.010	BF
BR	.014	.023	.040	.010	.016	.027	.008	.012	.020	.007	.010	.017	.006	.009	.016	BR

At .063 Axial Depth of Cut (ap)




Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
BF	.015	.020	.033	.011	.014	.023	.008	.010	.017	.007	.009	.015	.006	.008	.013	BF
BR	.020	.031	.056	.014	.022	.038	.010	.016	.028	.009	.014	.024	.008	.013	.022	BR

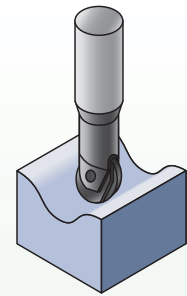
NOTE: Use "Light Machining" value as starting feed rate.

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Selecting the Correct Insert and Cutting Conditions for Your Application

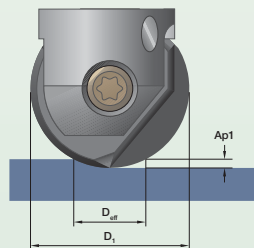
1. Insert Style: Considerations for selecting the correct insert

Best Choices for Insert and Grade Selection ● First choice ○ Alternate choice	BR Geometry		BF Geometry
			
Grade	TN7535	TN2510	TN2505
Roughing Operation	●	○	
Finishing Operation		○	●
Low RPM Machine	●	○	
Flat Areas or Face Milling (less than 10° inclination)	●	○	
Hard Machining		○	●
Unstable and/or Long Overhangs	●	○	
HSM or 5-Axis Machining (smaller ap/ae values)	●	○	

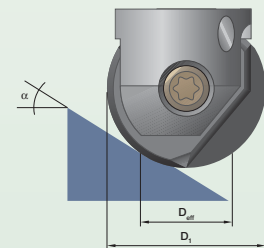


2. Calculating effective diameter and resulting surface speed

It is important to consider the effective diameter (D_{eff}) when using light depths of cut in order to properly calculate RPM values. Use the following formula when machining flat surfaces or inclinations of 10° or less to find the D_{eff} value, and then use this for RPM calculations as opposed to using the overall insert diameter (D_1).



When machining inclinations between 11° and 55°, further modification of v_c is required. Apply factor "k" from the given formula to calculate the correct v_c ($v_{c,eff}$). This corrected value is then used to calculate the proper RPM for the tool.



$$D_{eff} = \sqrt{D_1^2 - (D_1 - 2Ap_1)^2}$$

$$k = \frac{1}{\sin [\alpha + \arccos (1 - (2 (Ap_1 / D_1)))]}$$

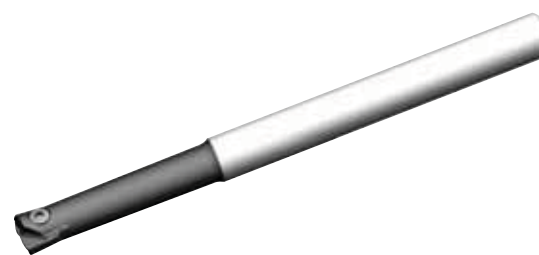
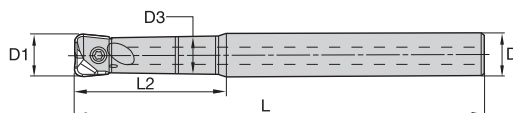
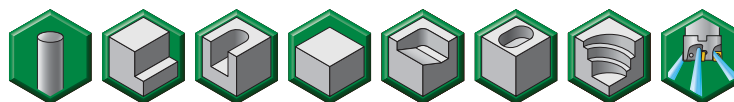
$$v_{c,eff} = v_c \times k$$

Starting Values for Semi-Finishing in Common Material Types (L/D ratio <3 x D1)

M270 is usually applied for semi-finishing and finishing operations; Ap_1/ae conditions depend on the operation. As a general rule: $Ap_1/ae \leq .05D$.

Material	Tool Diameter																
	.375"		.500"		.625"		.750"		1.000"								
	max rec. (inch)		fz (inch/tooth)		max rec. (inch)		fz (inch/tooth)		max rec. (inch)		fz (inch/tooth)		max rec. (inch)		fz (inch/tooth)		
	Ap1	ae	Ap1	ae	Ap1	ae	Ap1	ae	Ap1	ae	Ap1	ae	Ap1	ae	Ap1	ae	
Soft Steel <250 HB	.028	.028	.008	.031	.031	.008	.043	.043	.011	.051	.051	.011	.067	.067	.012		
High-Strength Steel 33-44 HRC	.020	.020	.006	.024	.024	.008	.031	.031	.010	.039	.039	.010	.051	.051	.010		
Hardened Steel 44-55 HRC	.012	.012	.006	.016	.016	.008	.020	.020	.009	.028	.028	.009	.031	.031	.010		
Gray Cast Iron GG25...	.039	.039	.008	.047	.047	.010	.063	.063	.010	.078	.078	.010	.098	.098	.012		
Nodular Cast Iron GGG60...	.028	.028	.008	.031	.031	.010	.043	.043	.010	.051	.051	.010	.067	.067	.012		

- Semi-finishing and finishing applications.
- Through tool coolant.
- Secure and rigid insert clamping.



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■ Toroidal • Cylindrical Shanks

order number	catalog number	D1	D	D3	L	L2	Z	Z U	inserts	max RPM	coolant supply	lbs
3904063	M270TD037C037L555	.375	.375	.345	5.550	1.800	1	2	M270TF0375R..	57000	Yes	.14
3904064	M270TD050C050L575	.500	.500	.417	5.750	2.000	1	2	M270TF0500R..	55000	Yes	.24
3904065	M270TD062C062L600	.625	.625	.559	6.000	2.300	1	2	M270TF0625R..	53000	Yes	.40
3904066	M270TD075C075L700	.750	.750	.707	7.000	2.800	1	2	M270TF0750R..	52000	Yes	.70

NOTE: Z = number of pocket seats.
ZU = number of effective teeth.

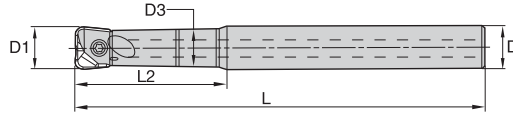
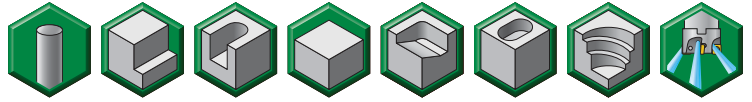
■ Spare Parts



D1	insert screw	in. lbs.	Torx driver
.375	12748610500	18	12148788900
.500	12748610600	18	12148788900
.625	12748610700	44	12148099300
.750	12748610800	44	12148099300

NOTE: All spare parts except the insert screws must be ordered separately.

- Semi-finishing and finishing applications.
- Through tool coolant.
- Secure and rigid insert clamping.



■ **Toroidal • Carbide Cylindrical Shanks**

order number	catalog number	D1	D	D3	L	L2	Z	Z U	inserts	max RPM	coolant supply	lbs
2639258	M270TD037C050L555C	.375	.500	.345	5.550	1.800	1	2	M270TF0375R..	57000	Yes	.44
2639259	M270TD050C050L575C	.500	.500	.417	5.750	2.000	1	2	M270TF0500R..	55000	Yes	.55
2639260	M270TD062C062L600C	.625	.625	.559	6.000	2.300	1	2	M270TF0625R..	53000	Yes	.88
2639261	M270TD075C075L700C	.750	.750	.707	7.000	2.800	1	2	M270TF0750R..	52000	Yes	1.32

NOTE: Z = number of pocket seats.
ZU = number of effective teeth.

■ **Spare Parts**



D1	insert screw	in. lbs.	Torx driver
.375	12748610500	18	12148788900
.500	12748610600	18	12148788900
.625	12748610700	44	12148099300
.750	12748610800	44	12148099300

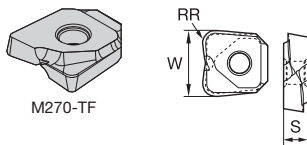
NOTE: All spare parts except the insert screws must be ordered separately.

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	TF	TN2505	-	-	-	-
P3-P4	TF	TN2505	-	-	-	-
P5-P6	TF	TN2505	-	-	-	-
M1-M2	-	-	-	-	-	-
M3	-	-	-	-	-	-
K1-K2	TF	TN2505	-	-	-	-
K3	TF	TN2505	-	-	-	-
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	-	-	-	-	-	-
S3	-	-	-	-	-	-
S4	-	-	-	-	-	-
H1	TF	TN2505	TF	TN2505	-	-

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Toroidal • Inserts



M270-TF

● first choice
○ alternate choice

P	○	○	●
M	○	○	○
K	●	●	○
N	○	○	○
S	○	○	○
H	●	●	○

■ M270 Toroidal

catalog number	W	S	RR	hm	TN2505	TN2510	TN2525
M270TF0375R0031	.375	.094	.031	.003	2638674		
M270TF0500R0063	.500	.125	.063	.003	2638676		2638757

NOTE: Ap1 max is equal to RR.

■ Recommended Starting Speeds [SFM]

Material Group		TN2505			TN2510			TN2525		
P	1	1810	1380	1180	2165	1910	1770	1810	1380	1180
	2	1045	785	670	1340	1220	1080	1045	785	670
	3	1045	785	670	1220	1080	1000	1045	785	670
	4	-	-	-	905	845	750	-	-	-
	5	-	-	-	1080	985	905	-	-	-
	6	-	-	-	750	670	570	-	-	-
M	1	-	-	-	890	785	690	-	-	-
	2	-	-	-	805	690	630	-	-	-
	3	-	-	-	630	570	490	-	-	-
K	1	1320	985	830	1380	1180	985	-	-	-
	2	1770	1200	925	1180	985	830	-	-	-
	3	1025	630	510	985	830	650	-	-	-
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-
H	1	570	450	310	475	360	230	430	295	200
	2	570	450	310	475	360	230	430	295	200
	3	450	370	260	380	260	150	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

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Recommended Starting Feeds

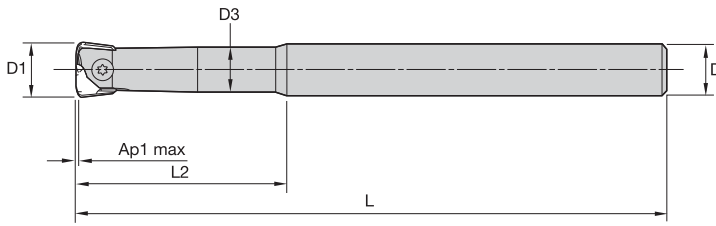
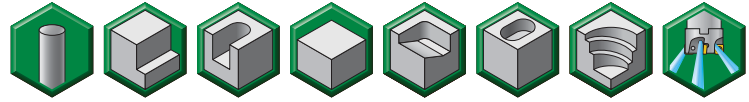
■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
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Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)														Insert Geometry	
	5%			10%			20%			30%			40-100%			
TF	.005	.014	.024	.003	.010	.017	.002	.007	.012	.002	.006	.011	.002	.006	.010	TF

NOTE: Use "Light Machining" value as starting feed rate.

- High metal removal rates.
- Excellent in long reach applications.
- Rough and semi-finishing applications.



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■ High-Feed • Cylindrical Shanks

order number	catalog number	D1	D	D3	L	L2	Ap1 max	Z	Z U	inserts	max RPM	coolant supply	lbs
4145101	M270TD037C037L525	.375	.375	—	5.250	.750	.024	1	2	M270HF0375	57000	Yes	.14
3904063	M270TD037C037L555	.375	.375	.345	5.550	1.800	.024	1	2	M270HF0375	57000	Yes	.14
4145102	M270TD050C050L550	.500	.500	.417	5.500	1.000	.024	1	2	M270HF0500	55000	Yes	.24
3904064	M270TD050C050L575	.500	.500	.417	5.750	2.000	.024	1	2	M270HF0500	55000	Yes	.24
4145103	M270TD062C062L575	.625	.625	.509	5.750	1.250	.035	1	2	M270HF0625	53000	Yes	.39
3904065	M270TD062C062L600	.625	.625	.559	6.000	2.300	.035	1	2	M270HF0625	53000	Yes	.40
3904066	M270TD075C075L700	.750	.750	.707	7.000	2.800	.043	1	2	M270HF0750	52000	Yes	.70

NOTE: Z = number of pocket seats.
ZU = number of effective teeth.

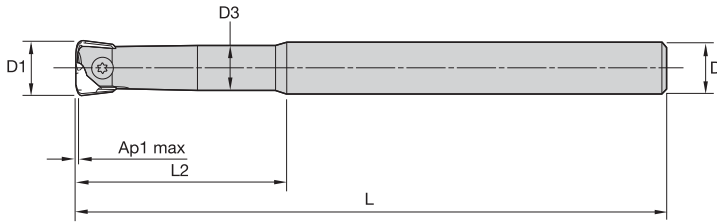
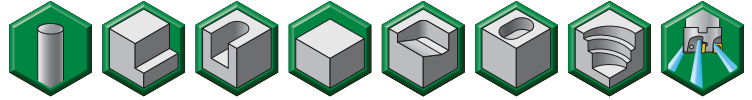
■ Spare Parts



D1	insert screw	in. lbs.	Torx driver
.375	12748610500	18	12148788900
.500	12748610600	18	12148788900
.625	12748610700	44	12148099300
.750	12748610800	44	12148099300

NOTE: All spare parts except the insert screws must be ordered separately.

- High metal removal rates.
- Excellent in long reach applications.
- Carbide shank for higher rigidity.



■ **High-Feed • Carbide Cylindrical Shanks**

order number	catalog number	D1	D	D3	L	L2	Ap1 max	Z	Z U	inserts	max RPM	coolant supply	lbs
2639258	M270TD037C050L555C	.375	.500	.345	5.550	1.800	.024	1	2	M270HF0375	57000	Yes	.44
2639259	M270TD050C050L575C	.500	.500	.417	5.750	2.000	.024	1	2	M270HF0500	55000	Yes	.55
2639260	M270TD062C062L600C	.625	.625	.559	6.000	2.300	.035	1	2	M270HF0625	53000	Yes	.88
2639261	M270TD075C075L700C	.750	.750	.707	7.000	2.800	.043	1	2	M270HF0750	52000	Yes	1.32

NOTE: Z = number of pocket seats.
ZU = number of effective teeth.

■ **Spare Parts**



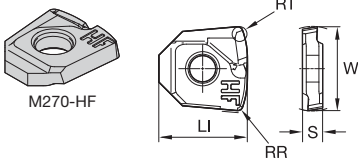
D1	insert screw	in. lbs.	Torx driver
.375	12748610500	18	12148788900
.500	12748610600	18	12148788900
.625	12748610700	44	12148099300
.750	12748610800	44	12148099300

NOTE: All spare parts except the insert screws must be ordered separately.

■ Insert Selection Guide

Material Group	Light Machining		General Purpose		Heavy Machining	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	HF	TN6525	HF	TN6540	HF	TN6540
P3-P4	HF	TN6525	HF	TN6540	HF	TN6540
P5-P6	HF	TN6525	HF	TN6540	HF	TN6540
M1-M2	HF	TN6525	HF	TN6540	HF	TN6540
M3	HF	TN6525	HF	TN6540	HF	TN6540
K1-K2	HF	TN2505	HF	TN6525	-	-
K3	HF	TN2505	HF	TN6525	-	-
N1-N2	-	-	-	-	-	-
N3	-	-	-	-	-	-
S1-S2	HF	TN6525	HF	TN6540	-	-
S3	HF	TN6525	HF	TN6540	-	-
S4	HF	TN6525	HF	TN6540	HF	TN6540
H1	HF	TN2505	HF	TN2505	HF	TN6525

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● first choice
○ alternate choice

P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
K	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

■ High-Feed

catalog number	W	LI	S	RR	RT	TN2505	TN6525	TN6540
M270HF0375	.375	.414	.094	.023	.044	1	4161104	3903955
M270HF0500	.500	.488	.125	.031	.057	1	4161105	3903957
M270HF0625	.625	.654	.187	.039	.070	3903960	4161106	3903959
M270HF0750	.750	.792	.187	.047	.090	3903962	4161107	3903961

NOTE: RT = Programming Radius.



■ Recommended Starting Speeds [SFM]

Material Group		TN2505			TN6525			TN6540		
P	1	1810	1380	1180	1340	1045	925	1180	925	785
	2	1045	785	670	1045	830	710	830	630	550
	3	1045	785	670	925	710	610	710	550	450
	4	-	-	-	770	550	475	590	430	355
	5	-	-	-	1025	770	650	785	590	490
	6	-	-	-	670	535	430	535	395	335
M	1	-	-	-	630	395	260	430	260	200
	2	-	-	-	395	260	155	260	155	140
	3	-	-	-	415	260	180	275	155	140
K	1	1320	985	830	905	805	725	725	670	590
	2	1770	1200	925	710	630	590	570	510	450
	3	1025	630	510	590	535	475	510	475	415
N	1	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-
S	1	-	-	-	-	-	-	155	120	95
	2	-	-	-	-	-	-	80	60	40
	3	-	-	-	-	-	-	235	140	95
	4	-	-	-	-	-	-	200	95	80
H	1	570	450	310	-	-	-	-	-	-
	2	570	450	310	-	-	-	-	-	-
	3	450	370	260	-	-	-	-	-	-

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

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■ Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining
-----------------	-----------------	-----------------

At .024 Axial Depth of Cut (ap) • .375"

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
HF	.005	.017	.090	.003	.012	.017	.003	.009	.012	.002	.008	.011	.002	.007	.010	HF

At .024 Axial Depth of Cut (ap) • .500"

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
HF	.010	.015	.022	.007	.011	.015	.005	.008	.011	.005	.007	.010	.004	.006	.009	HF

At .035 Axial Depth of Cut (ap) • .625"

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
HF	.041	.066	.080	.027	.041	.060	.020	.029	.041	.017	.025	.035	.016	.023	.032	HF

At .043 Axial Depth of Cut (ap) • .750"

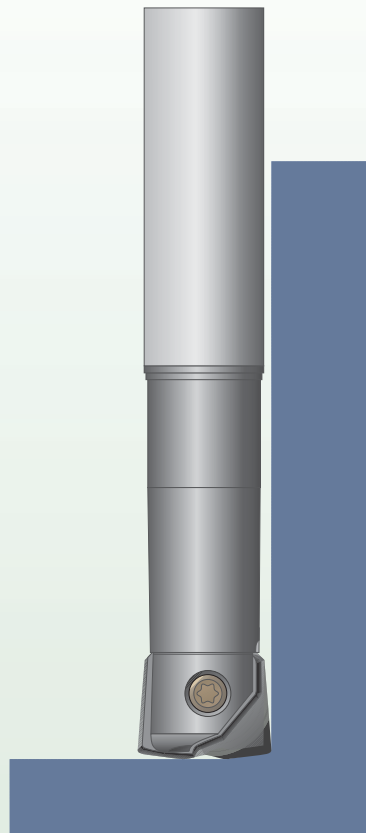
Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40-100%			
HF	.012	.018	.026	.009	.013	.018	.006	.009	.013	.006	.008	.011	.005	.008	.011	HF

NOTE: Use "Light Machining" value as starting feed rate.

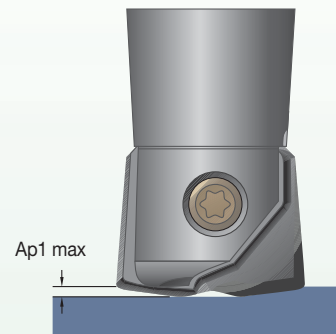
Copy Mills

Applying High-Feed Tools

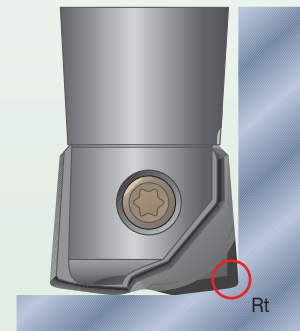
The high-feed concept bases its strategy in small depth of cut and high fz values, which results in a higher MRR and productivity with low radial forces.



Recommended when long overhang is necessary due to lower radial forces. Maximum L/D ratio of 10 x D.



Small Ap1 values and higher feed rate generate lower cutting forces versus traditional milling strategies.



For CAM programming, the tools can be programmed as a toroidal tool type by using the Rt value as the insert radius.

L/D ratio	% of Ap1 max to reduce	% of vc to reduce
<4	0%	0%
4<L/D<7	55-65%	10-15%
>8	65-75%	20-30%

General Programming Information for Applying M270 High-Feed

tool diameter	.375"	.500"	.625"	.750"
recommended starting Ap1 (inch)	.016	.016	.023	.030
Rt CAM programming	.044	.057	.070	.090
fz recommended for general purpose	.020	.022	.024	.030
fz recommended for 45 HRC (approx.)	.015	.018	.022	.026
fz recommended for 55 HRC (approx.)	.012	.014	.018	.020

NOTE: Use two effective teeth for feed calculations.
 For materials above 45 HRC, we recommend adjusting the ae max to 55% of cutting diameter and using no more than 50% of Ap1 max. While center cutting is possible, we recommend using a ramp angle of 0.5°-1.0° to ensure smooth operation.