kennametal.com

KENNAMETAL®

MASTER CATALOG 2018

VOLUME TWO | **ROTATING** TOOLS

HOLEMAKING | TAPPING | SOLID END MILLING | INDEXABLE MILLING

Indexable Milling • Shoulder Milling

Mill 4-11™

One tool for all applications.

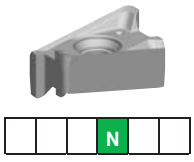
The Mill 4™ series is specially engineered to achieve excellent surface quality and higher metal removal rates in shoulder milling applications. Its unique design allows you to apply the tool in multiple passes (stepping down) with outstanding results.

From roughing to finishing operations, the Mill 4 series is applicable in a wide range of workpiece materials: steel, cast iron, stainless steel, non-ferrous materials, and high-temp alloys.

Features and Benefits

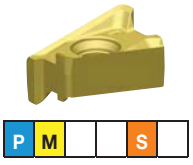
- Double-sided strong insert with 4 cutting edges.
- High positive geometry for lower cutting forces.
- Superior wall and surface finish capabilities.
- “Stepless” solution for multiple-pass operations.
- Comprehensive offering to cover all applications in all material groups.

-ELEJ



For non-ferrous materials.

-EGE

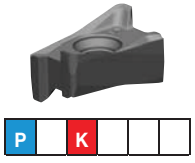


1st choice for stainless steel. Lower cutting forces.

-SGE

First choice for Mill 4 platform, especially when machining steels.

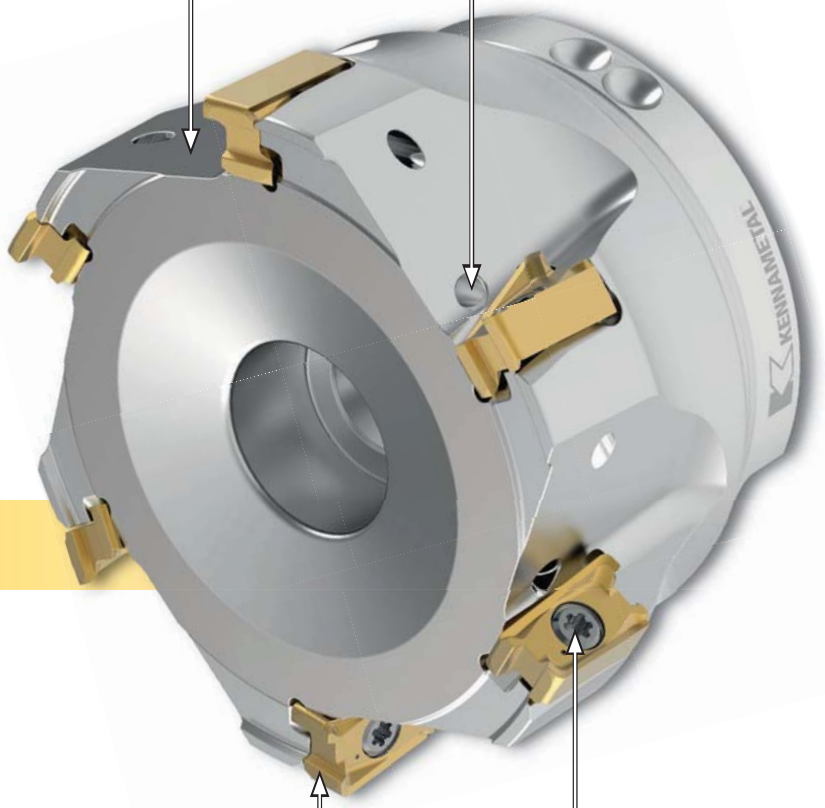
-SGEM



1st choice for cast iron. Strongest cutting edge.

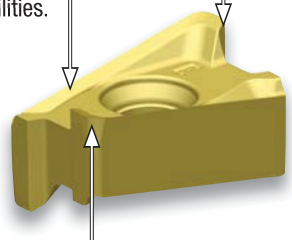
Uneven pocket spacing.

Screw-on, end mills, and shell mill cutter with internal coolant.



Integrated wiper facet for best-in-class floor finisher.

Up to 0.433" (11mm) Ap capabilities.

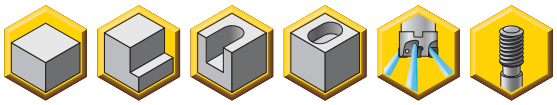


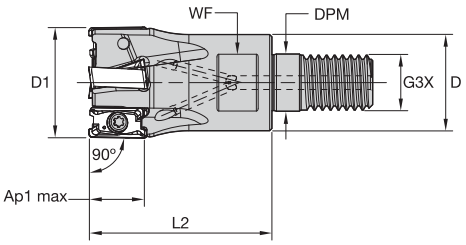
Multiple corner nose radii available from .016" (0,4mm) up to .063" (1,6mm).

TP9 insert screw (M3) to provide higher reliability and safe processes.

Double-sided insert with 4 cutting edges.

- One tool for all applications: from roughing to finishing.
- Superior wall and surface finish capabilities. Best choice for stepping down operations.
- Up to 0.433" (11mm) depth of cut.
- Screw-on cutters provided better rigidity and stability when used with small spindles: BT30, BT40, DV40, HSK50, HSK63, etc.
- Screw-on cutters can be less expensive when compared to cylindrical shank cutters due to their higher flexibility through multiple holder combinations.





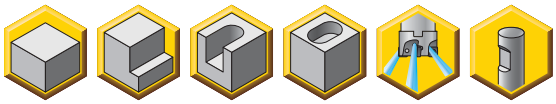
Screw-On End Mills

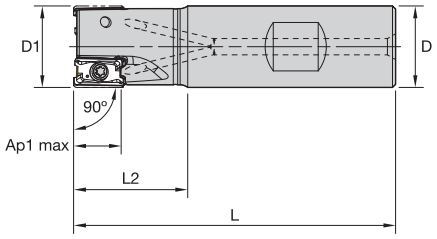
order number	catalog number	D1	D	DPM	G3X	L2	WF (mm)	Ap1 max	Z	lbs	max RPM
6139893	**M4D075L1103M10L110**	.750	.705	.413	M10	1.100	15	.433	3	.01	41700
6139894	**M4D100L1104M12L125**	1.000	.827	.492	M12	1.250	17	.433	4	.19	33900
6139895	**M4D125L1105M16L175**	1.250	1.142	.669	M16	1.750	24	.433	5	.49	29200

Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
.750	**MS2263**	13.3	**DT9IP**
1.000	**MS2263**	13.3	**DT9IP**
1.250	**MS2263**	13.3	**DT9IP**

- One tool for all applications: from roughing to finishing.
- Superior wall and surface finish capabilities.
- Best choice for stepping down operations.
- Up to 0.433" (11mm) depth of cut.





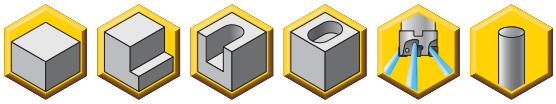
Weldon End Mills

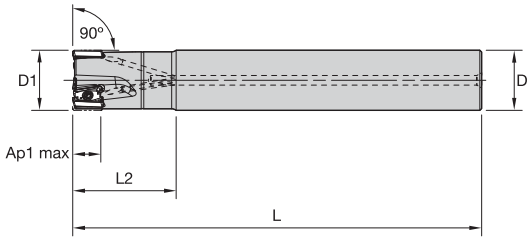
order number	catalog number	D1	D	L	L2	Ap1 max	Z	lbs	max RPM
6139928	**M4D062L1102W062L100**	.625	.625	2.906	1.000	.433	2	.20	48000
6139929	**M4D075L1102W075L110**	.750	.750	3.130	1.100	.433	2	.32	41700
6139930	**M4D075L1103W075L110**	.750	.750	3.130	1.100	.433	3	.32	41700
6139896	**M4D100L1103W075L175**	1.000	.750	3.780	1.750	.433	3	.45	33900
6140051	**M4D100L1103W100L175**	1.000	1.000	4.030	1.750	.433	3	.77	33900
6140052	**M4D125L1104W125L225**	1.250	1.250	4.530	2.250	.433	4	1.37	29200
6139897	**M4D150L1105W125L225**	1.500	1.250	4.530	2.250	.433	5	1.48	26200

Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
.625	**MS2263**	13.3	**DT9IP**
.750	**MS2263**	13.3	**DT9IP**
1.000	**MS2263**	13.3	**DT9IP**
1.250	**MS2263**	13.3	**DT9IP**
1.500	**MS2263**	13.3	**DT9IP**

- One tool for all applications: from roughing to finishing.
- Superior wall and surface finish capabilities.
- Best choice for stepping down operations.
- Up to 0.433" (11mm) depth of cut.





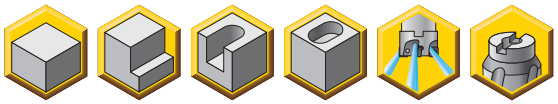
Cylindrical End Mills

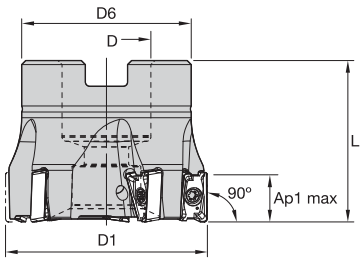
order number	catalog number	D1	D	L	L2	Ap1 max	Z	lbs	max RPM
6140053	**M4D062L1102C062L400**	.625	.625	4.000	1.000	.433	2	.30	48000
6139898	**M4D062L1102C062L600**	.625	.625	6.000	1.000	.433	2	.47	48000
6140055	**M4D075L1102C075L600**	.750	.750	6.000	1.100	.433	2	.67	41700
6140054	**M4D075L1103C075L400**	.750	.750	4.000	1.100	.433	3	.43	41700
6139899	**M4D075L1103C075L600**	.750	.750	6.000	1.100	.433	3	.66	41700
6201903	**M4D100L1104C075L450**	1.000	.750	4.500	1.750	.433	4	.53	33900
6140057	**M4D100L1103C100L700**	1.000	1.000	7.000	1.750	.433	3	1.42	33900
6140056	**M4D100L1104C100L450**	1.000	1.000	4.500	1.750	.433	4	.87	33900
6139900	**M4D100L1104C100L700**	1.000	1.000	7.000	1.750	.433	4	1.41	33900
6201904	**M4D125L1105C100L500**	1.250	1.000	5.000	2.250	.433	5	1.05	29200
6139921	**M4D125L1104C125L800**	1.250	1.250	8.000	2.250	.433	4	2.57	29200
6140058	**M4D125L1105C125L500**	1.250	1.250	5.000	2.250	.433	5	1.55	29200

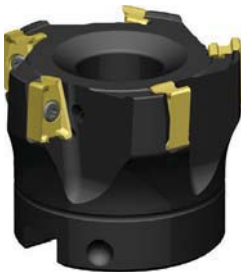
Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
.625	**MS2263**	13.3	**DT9IP**
.750	**MS2263**	13.3	**DT9IP**
1.000	**MS2263**	13.3	**DT9IP**
1.250	**MS2263**	13.3	**DT9IP**

- One tool for all applications: from roughing to finishing.
- Superior wall and surface finish capabilities.
- Best choice for stepping down operations.
- Up to 0.433" (11mm) depth of cut.







Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Z	lbs	max RPM
6140059	**M4D150L1105S050L157**	1.500	.500	1.421	1.575	.433	5	.49	26200
6139922	**M4D150L1106S050L157**	1.500	.500	1.421	1.575	.433	6	.49	26200
6140060	**M4D200L1105S075L157**	2.000	.750	1.750	1.575	.433	5	.80	22100
6140061	**M4D200L1107S075L157**	2.000	.750	1.750	1.575	.433	7	.81	22100
6140062	**M4D250L1107S075L157**	2.500	.750	1.750	1.575	.433	7	1.20	19500
6139923	**M4D250L1107S100L157**	2.500	1.000	2.190	1.575	.433	7	1.28	19500
6140063	**M4D300L1108S100L175**	3.000	1.000	2.190	1.750	.433	8	2.01	17600
6139924	**M4D300L1108S125L175**	3.000	1.250	2.665	1.750	.433	8	2.13	17600

Spare Parts

D1	D	 insert screw	 in. lbs.	 Torx Plus driver	 socket-head cap screw
1.500	.500	**MS2263**	13.3	**DT9IP**	**S424**
2.000	.750	**MS2263**	13.3	**DT9IP**	**S445**
2.500	.750	**MS2263**	13.3	**DT9IP**	**S445**
2.500	1.000	**MS2263**	13.3	**DT9IP**	**S458**
3.000	1.000	**MS2263**	13.3	**DT9IP**	**S458**
3.000	1.250	**MS2263**	13.3	**DT9IP**	**S467**

Insert Selection Guide

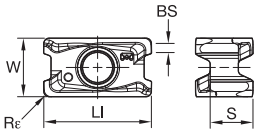
Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..GE	KCPM40	**.S..GE**	**KCPM40**	.S..GEM	KCPM40
P3–P4	.E..GE	KCPM40	**.S..GE**	**KCPM40**	.S..GEM	KCPM40
P5–P6	.E..GE	KC725M	**.S..GE**	**KC725M**	.S..GEM	KCPM40
M1–M2	.E..GE	KCSM40	**.S..GE**	**KCSM40**	.S..GEM	KC522M
M3	.E..GE	KCPM40	**.S..GE**	**KCPM40**	.S..GEM	KCPM40
K1–K2	.S..GE	KC520M	**.S..GE**	**KCK15**	.S..GEM	KCK15
K3	.S..GE	KC520M	**.S..GE**	**KCK15**	.S..GEM	KC520M
N1–N2	.E..LEJ	KC422M	**.E..LEJ**	**KC422M**	.E..LEJ	KC422M
N3	.E..LEJ	KC422M	**.E..LEJ**	**KC422M**	.E..LEJ	KC422M
S1–S2	.E..GE	KCSM40	**.S..GE**	**KC725M**	.S..GE	KCSM40
S3	.E..GE	KCSM40	**.S..GE**	**KCSM40**	.S..GE	KCSM40
S4	.E..GE	KCSM40	**.S..GE**	**KCSM40**	.S..GE	KCSM40
H1	–	–	–	–	–	–

Indexable Inserts • Mill 4-11

● first choice
○ alternate choice

		KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P				○	●		●	●		○
M				●	●		○	●	○	●
K			●	○		●	○			
N		●								
S				●	●			○	●	●
H										

LNGU11-ELEJ



LNGU11-ELEJ

LNGU11-ELEJ • For Aluminum and Other Non-Ferrous Alloys

catalog number	LI	S	W	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU431ERLEJ	.479	.190	.260	.054	.016	.002	4	●	–	–	–	–	–	–	–	–
LNGU432ERLEJ	.479	.190	.260	.039	.031	.002	4	●	–	–	–	–	–	–	–	–

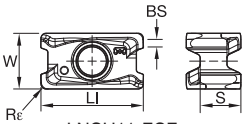
Shoulder Milling

- -EGE is the first choice for stainless steel and high-temp alloys.
- Use -EGE geometry for the highest finishing requirements in light machining for all materials.

● first choice
○ alternate choice

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

LNGU11-EGE



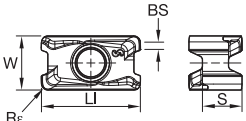
LNGU11-EGE

LNGU11-EGE • Precision Ground • For Stainless Steel and High-Temp Alloys

catalog number	LI	S	W	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU431ERGE	.479	.190	.260	.054	.016	.003	4	–	–	●	●	–	–	●	–	–
LNGU432ERGE	.479	.190	.260	.039	.031	.003	4	–	–	●	●	–	–	●	●	●
LNGU433ERGE	.479	.190	.260	.025	.047	.003	4	–	–	●	–	–	–	●	–	●

- -SGE is the universal geometry for Mill 4-11. First choice when machining steel, as well as stainless steel, and high-temp alloys in heavy applications.
- Precision ground insert results in a great versatility for both roughing and finishing operations.

LNGU11-SGE



LNGU11-SGE

LNGU11-SGE • Precision Ground • Universal Geometry • General Purpose for Roughing and Finishing Operations

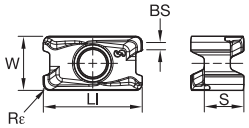
catalog number	LI	S	W	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU431SRGE	.479	.190	.260	.054	.016	.004	4	–	–	●	–	–	–	●	–	●
LNGU432SRGE	.479	.190	.260	.039	.031	.004	4	–	–	●	●	●	●	●	–	●

- -SGE is the universal geometry for Mill 4-11. First choice when machining steel, as well as stainless steel, and high-temp alloys in heavy applications.
- Precision-pressed insert is a perfect choice for roughing operations with a better cost-per-edge and great surface quality.

● first choice
○ alternate choice

		KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P				○	●		●	●		○
M				●	●		○	●	○	●
K			●	○		●	○			
N		●								
S				●	●			○	●	●
H										


LNPU11-SGE



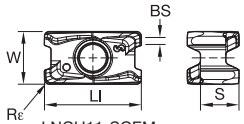
LNPU11-SGE

LNPU11-SGE • Precision Pressed • General Purpose for Roughing and Semi-Finishing Operations

catalog number	LI	S	W	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNPU432SRGE	.476	.190	.260	.036	.031	.004	4	–	●	●	●	●	●	●	–	–
LNPU433SRGE	.476	.190	.260	.021	.047	.004	4	–	●	●	●	●	●	●	–	–
LNPU434SRGE	.476	.190	.260	.001	.063	.004	4	–	●	●	●	–	●	●	–	–

- -SGEM geometry is the first choice for cast iron machining in medium and heavy applications.
- -M stands for margins, which are used to reinforce the geometry.


LNGU11-SGEM



LNGU11-SGEM

LNGU11-SGEM • Precision Ground • For Cast Iron and Heavy Applications

catalog number	LI	S	W	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU432SRGEM	.479	.190	.260	.036	.031	.004	4	–	●	●	–	●	●	●	–	–
LNGU433SRGEM	.479	.190	.260	.022	.047	.004	4	–	●	–	–	●	●	●	–	–
LNGU434SRGEM	.479	.190	.260	.004	.063	.004	4	–	●	–	–	●	●	●	–	–

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..LEJ	.005	**.014**	.023	.004	**.010**	.017	.003	**.008**	.012	.002	**.007**	.011	.002	**.006**	.010	.E..LEJ
.E..GE	.009	**.016**	.022	.007	**.012**	.016	.005	**.009**	.012	.004	**.008**	.010	.004	**.007**	.010	.E..GE
.S..GE	.009	**.018**	.025	.007	**.013**	.018	.005	**.010**	.014	.004	**.009**	.012	.004	**.008**	.011	.S..GE
.S..GEM	.009	**.018**	.028	.007	**.013**	.020	.005	**.010**	.015	.004	**.009**	.013	.004	**.008**	.012	.S..GEM

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Mill 4-11 Starter Kits

Order one of our starting kits and test the performance of our new Mill 4 platform. The kits are set up to serve the majority of shoulder milling applications, delivered with a cutter body as well as 20 inserts from a premium Kennametal grade.

Detailed order information can be found in the table below.

Order one Mill 4 Kit and experience the next level of shoulder milling!

Mill 4-11 Starter Kits • Inch

order number	catalog number	cutter diameter/ flutes	cutter type	material group	application range	content				
						cutter	quantity	insert	grade	quantity
6214774	M4-11KITD062Z2W062SGEKCPM40	0.62z2	Weldon	P	∇/∇∇	M4D062L1102W062L100	1	LNPU110408SRGE	KCPM40	20
6214775	M4-11KITD062Z2C062SGEKCPM40	0.62z2	Cylindrical	P	∇/∇∇	M4D062L1102C062L400	1	LNPU110408SRGE	KCPM40	20
6214776	M4-11KITD075Z2W075SGEKCPM40	0.75z2	Weldon	P	∇/∇∇	M4D075L1102W075L110	1	LNPU110408SRGE	KCPM40	20
6214777	M4-11KITD075Z3W075SGEKCPM40	0.75z3	Weldon	P	∇/∇∇	M4D075L1103W075L110	1	LNPU110408SRGE	KCPM40	20
6214778	M4-11KITD075Z3C075SGEKCPM40	0.75z3	Cylindrical	P	∇/∇∇	M4D075L1103C075L400	1	LNPU110408SRGE	KCPM40	20
6214779	M4-11KITD100Z3W100SGEKCPM40	1.00z3	Weldon	P	∇/∇∇	M4D100L1103W100L175	1	LNPU110408SRGE	KCPM40	20
6214780	M4-11KITD100Z4C100SGEKCPM40	1.00z4	Cylindrical	P	∇/∇∇	M4D100L1104C100L450	1	LNPU110408SRGE	KCPM40	20
6214801	M4-11KITD125Z4W125SGEKCPM40	1.25z4	Weldon	P	∇/∇∇	M4D125L1104W125L225	1	LNPU110408SRGE	KCPM40	20
6214802	M4-11KITD125Z5C125SGEKCPM40	1.25z5	Cylindrical	P	∇/∇∇	M4D125L1105C125L500	1	LNPU110408SRGE	KCPM40	20
6214803	M4-11KITD150Z5S050SGEKCPM40	1.50z5	Shell Mill	P	∇/∇∇	M4D150L1105S050L157	1	LNPU110408SRGE	KCPM40	20
6214804	M4-11KITD200Z5S075SGEKCPM40	2.00z5	Shell Mill	P	∇/∇∇	M4D200L1105S075L157	1	LNPU110408SRGE	KCPM40	20
6214805	M4-11KITD200Z7S075SGEKCPM40	2.00z7	Shell Mill	P	∇/∇∇	M4D200L1107S075L157	1	LNPU110408SRGE	KCPM40	20
6214806	M4-11KITD062Z2W062SGEKC725M	0.62z2	Weldon	M+S	∇∇/∇∇∇	M4D062L1102W062L100	1	LNGU110408ERGE	KC725M	20
6214807	M4-11KITD062Z2C062SGEKC725M	0.62z2	Cylindrical	M+S	∇∇/∇∇∇	M4D062L1102C062L400	1	LNGU110408ERGE	KC725M	20
6214808	M4-11KITD075Z3W075SGEKC725M	0.75z3	Weldon	M+S	∇∇/∇∇∇	M4D075L1103W075L110	1	LNGU110408ERGE	KC725M	20
6214809	M4-11KITD075Z3C075SGEKC725M	0.75z3	Cylindrical	M+S	∇∇/∇∇∇	M4D075L1103C075L400	1	LNGU110408ERGE	KC725M	20
6214810	M4-11KITD100Z3W100SGEKC725M	1.00z3	Weldon	M+S	∇∇/∇∇∇	M4D100L1103W100L175	1	LNGU110408ERGE	KC725M	20
6214821	M4-11KITD100Z4C100SGEKC725M	1.00z4	Cylindrical	M+S	∇∇/∇∇∇	M4D100L1104C100L450	1	LNGU110408ERGE	KC725M	20
6214822	M4-11KITD125Z4W125SGEKC725M	1.25z4	Weldon	M+S	∇∇/∇∇∇	M4D125L1104W125L225	1	LNGU110408ERGE	KC725M	20
6214823	M4-11KITD125Z5C125SGEKC725M	1.25z5	End Mill	M+S	∇∇/∇∇∇	M4D125L1105C125L500	1	LNGU110408ERGE	KC725M	20
6214824	M4-11KITD150Z5S050SGEKC725M	1.50z5	Shell Mill	M+S	∇∇/∇∇∇	M4D150L1105S050L157	1	LNGU110408ERGE	KC725M	20
6214825	M4-11KITD200Z5S075SGEKC725M	2.00z5	Shell Mill	M+S	∇∇/∇∇∇	M4D200L1105S075L157	1	LNGU110408ERGE	KC725M	20
6214826	M4-11KITD200Z7S075SGEKC725M	2.00z7	Shell Mill	M+S	∇∇/∇∇∇	M4D200L1107S075L157	1	LNGU110408ERGE	KC725M	20

∇ Heavy/Roughing
∇∇ Medium
∇∇∇ Light machining/Finishing

Mill 4-15™ • Double-Sided Shoulder Milling

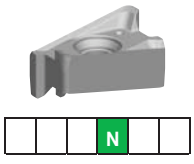
Primary Application

The Mill 4-15 series is specially engineered to achieve excellent surface quality and higher material removal rates in shoulder milling applications. Its unique design enables multiple passes (stepping down) with outstanding results. The Mill 4™ platform is applicable in a wide range of workpiece materials: steel, cast iron, stainless steel, and titanium, from roughing to finishing operations.

Features and Benefits

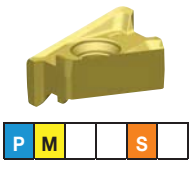
- Double-sided strong insert with 4 cutting edges.
- High positive geometry for lower cutting forces.
- Superior wall and surface finish capabilities.
- "Stepless" solution. No mismatch when machining walls in different steps.

-EGEJ



For non-ferrous materials.

-EGE

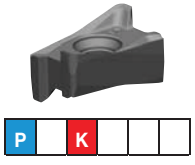


1st choice for stainless steel. Lower cutting forces.

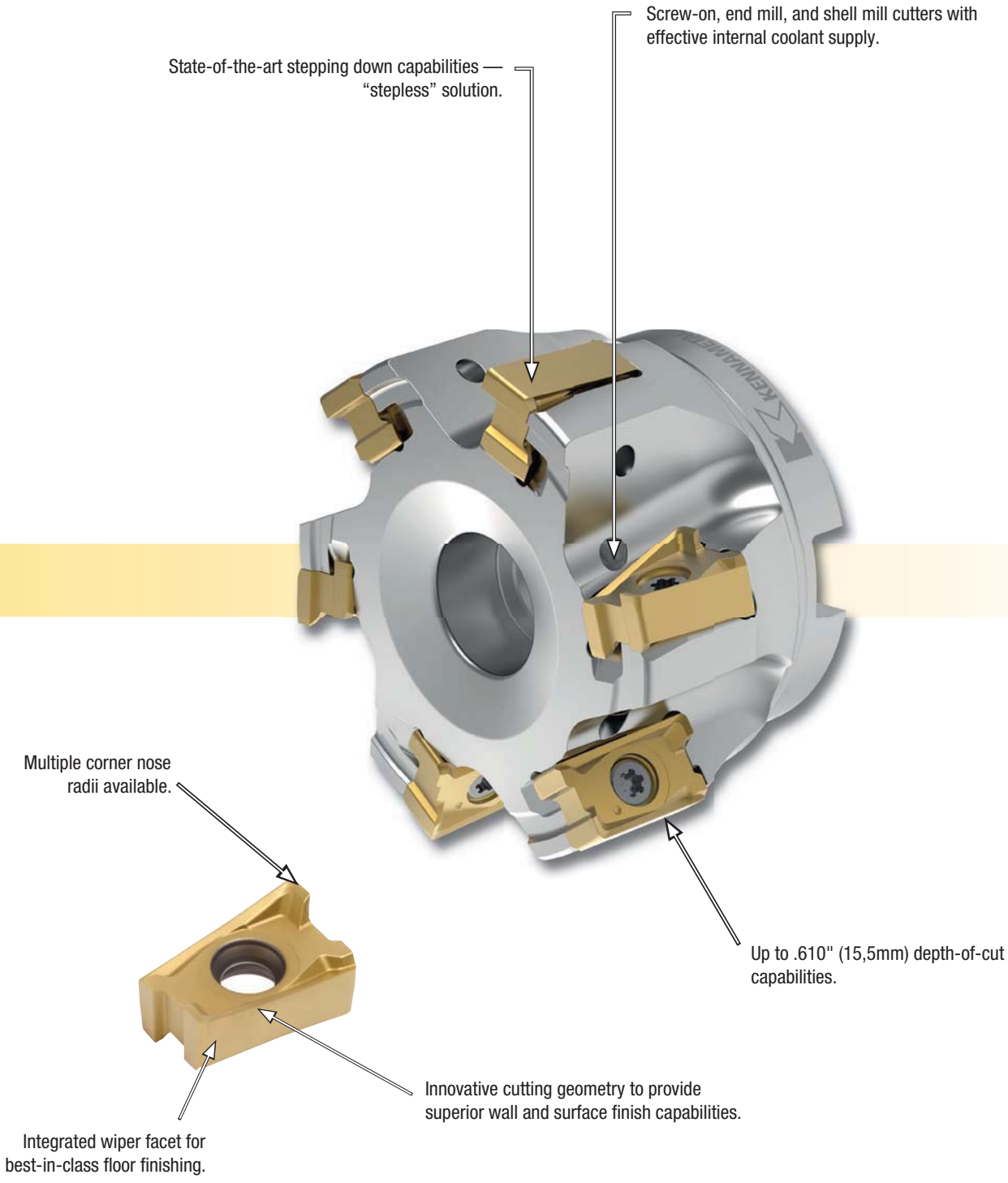
-SGE

First choice for Mill 4 platform, especially when machining steels.

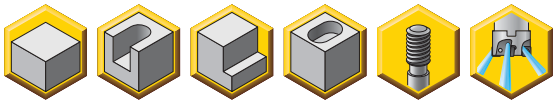
-SGEM

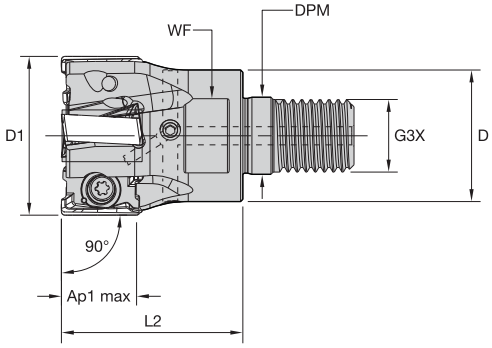


1st choice for cast iron. Strongest cutting edge.


Screw-on, end mill, and shell mill cutters with effective internal coolant supply.
State-of-the-art stepping down capabilities — "stepless" solution.
Multiple corner nose radii available.
Up to .610" (15,5mm) depth-of-cut capabilities.
Innovative cutting geometry to provide superior wall and surface finish capabilities.
Integrated wiper facet for best-in-class floor finishing.

- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to .610" (15,5mm) depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.





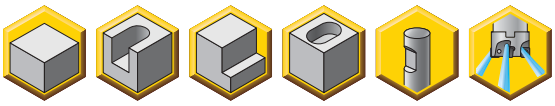
Screw-On End Mills

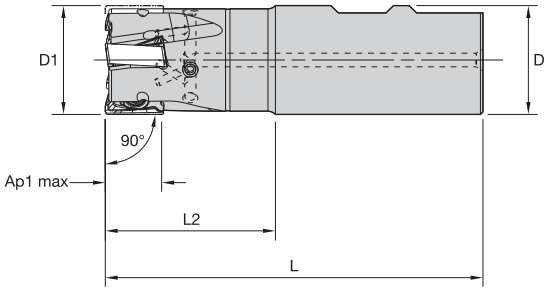
order number	catalog number	D1	D	DPM	G3X	L2	WF (mm)	Ap1 max	Z	lbs	max RPM
5568064	**M4D100L1502M12L125**	1.000	.827	.492	M12	1.250	17	.610	2	.73	26300
5568065	**M4D125L1503M16L175**	1.250	1.142	.669	M16	1.750	24	.610	3	.44	22100
5568066	**M4D150L1504M16L175**	1.500	1.142	.669	M16	1.750	24	.610	4	.52	19500

Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.000	**MS-2071**	31.0	**DT15IP**
1.250	**MS-2071**	31.0	**DT15IP**
1.500	**MS-2071**	31.0	**DT15IP**

- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to .610" (15,5mm) depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.





Weldon® End Mills

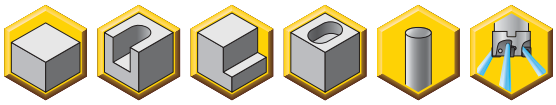
order number	catalog number	D1	D	L	L2	Ap1 max	Z	lbs	max RPM
5568067	**M4D100L1502W075L175**	1.000	.750	3.780	1.750	.610	2	.73	26300
5544366	**M4D100L1502W100L175**	1.000	1.000	4.030	1.750	.610	2	.73	26300
5544367	**M4D125L1503W100L225**	1.250	1.000	4.530	2.250	.610	3	.90	22100
5568068	**M4D125L1503W125L225**	1.250	1.250	4.530	2.250	.610	3	1.30	22100
5568069	**M4D150L1503W125L225**	1.500	1.250	4.530	2.250	.610	3	1.41	19500
5544368	**M4D150L1504W125L225**	1.500	1.250	4.530	2.250	.610	4	1.41	19500

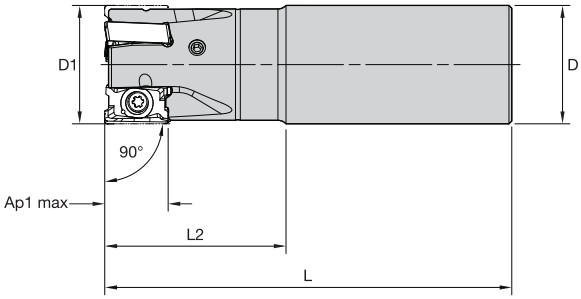
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.000	**MS-2071**	31	**DT15IP**
1.250	**MS-2071**	31	**DT15IP**
1.500	**MS-2071**	31	**DT15IP**

NOTE: Weldon type not recommended for finishing operations.

- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to .610" (15,5mm) depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.





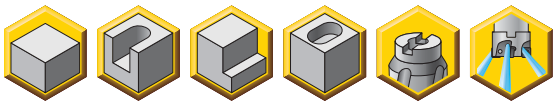
Cylindrical End Mills

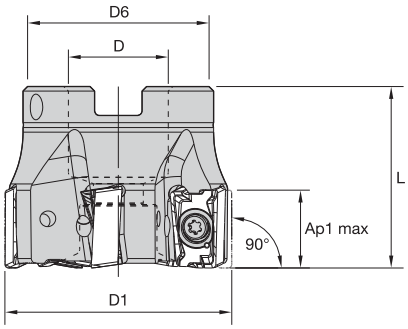
order number	catalog number	D1	D	L	L2	Ap1 max	Z	lbs	max RPM
5544369	**M4D100L1502C100L800**	1.000	1.000	8.000	1.750	.610	2	1.59	26300
5568080	**M4D100L1502C100L1000**	1.000	1.000	10.000	1.750	.610	2	2.03	26300
5544400	**M4D125L1503C125L800**	1.250	1.250	8.000	2.250	.610	3	2.50	22100
5568081	**M4D125L1503C125L1000**	1.250	1.250	10.000	2.250	.610	3	3.18	22100
5544401	**M4D150L1504C125L800**	1.500	1.250	8.000	2.250	.610	4	2.60	19500
5568082	**M4D150L1504C125L1000**	1.500	1.250	10.000	2.250	.610	4	3.29	19500

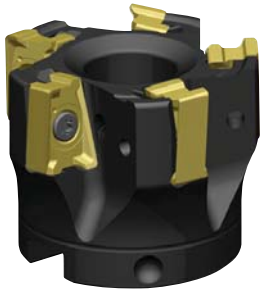
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.000	**MS-2071**	31.0	**DT15IP**
1.250	**MS-2071**	31.0	**DT15IP**
1.500	**MS-2071**	31.0	**DT15IP**

- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to .610" (15,5mm) depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.







Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Z	lbs	max RPM
5544402	M4D150L1505S050L157	1.500	.500	1.420	1.575	.610	5	.43	19500
5702499	M4D200L1504S075L175	2.000	.750	1.750	1.575	.610	4	.78	16100
5544403	M4D200L1505S075L157	2.000	.750	1.750	1.575	.610	5	.73	16100
5544404	M4D200L1506S075L157	2.000	.750	1.750	1.575	.610	6	.71	16100
5568083	M4D250L1505S075L157	2.500	.750	1.750	1.575	.610	5	1.09	14100
5544405	M4D250L1506S075L157	2.500	.750	1.750	1.575	.610	6	1.05	14100
5568084	M4D250L1507S100L175	2.500	1.000	2.190	1.750	.610	7	1.31	14100
5702495	M4D300L1505S100L175	3.000	1.000	2.190	1.750	.610	5	1.86	12700
5544406	M4D300L1507S100L175	3.000	1.000	2.190	1.750	.610	7	1.82	12700
5568085	M4D300L1509S100L175	3.000	1.000	2.190	1.750	.610	9	1.85	12700
5544407	M4D300L1508S125L200	3.000	1.250	2.665	2.000	.610	8	2.22	12700
5702496	M4D400L1506S150L200	4.000	1.500	3.380	2.000	.610	6	3.33	10800
5568086	M4D400L1508S150L200	4.000	1.500	3.380	2.000	.610	8	3.31	10800
5544408	M4D400L1511S150L200	4.000	1.500	3.380	2.000	.610	11	3.25	10800
5702500	M4D500L1507S150L238	5.000	1.500	3.907	2.380	.610	7	6.91	9600
5613026	M4D500L1509S150L238	5.000	1.500	3.907	2.380	.610	9	6.84	9660
5613027	M4D500L1512S150L238	5.000	1.500	3.907	2.380	.610	12	6.98	9660
5702497	M4D600L1508S200L238	6.000	2.000	4.880	2.380	.610	8	12.20	8600
5613028	M4D600L1510S200L238	6.000	2.000	4.880	2.380	.610	10	9.55	8600
5702498	M4D600L1512S200L238	6.000	2.000	4.880	2.380	.610	12	12.09	8600

Spare Parts

D1	D	insert screw	in. lbs.	Torx Plus driver	coolant lock screw	coolant lock screw assembly
1.500	.500	MS-2071	31.0	DT15IP	–	–
2.000	.750	MS-2071	31.0	DT15IP	–	–
2.500	.750	MS-2071	31.0	DT15IP	–	–
2.500	1.000	MS-2071	31.0	DT15IP	–	–
3.000	1.000	MS-2071	31.0	DT15IP	–	–
3.000	1.250	MS-2071	31.0	DT15IP	–	–
3.000	1.000	MS-2071	31.0	DT15IP	–	–
4.000	1.500	MS-2071	31.0	DT15IP	420.201	S2165C
5.000	1.500	MS-2071	31.0	DT15IP	420.201	S2165C
6.000	2.000	MS-2071	31.0	DT15IP	420.241	S2192C

NOTE: Coolant lock screw assembly must be ordered separately.

Insert Selection Guide

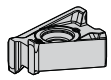
Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..GE	KCPM40	**.S..GE**	**KCPM40**	.S..GEM	KCPM40
P3–P4	.E..GE	KCPM40	**.S..GE**	**KCPK30**	.S..GEM	KCPK30
P5–P6	.E..GE	KC725M	**.S..GE**	**KC725M**	.S..GEM	KCPK30
M1–M2	.E..GE	KCSM40	**.S..GE**	**KCSM40**	.S..GEM	KCPM40
M3	.E..GE	KCPM40	**.S..GE**	**KCPM40**	.S..GEM	KCPM40
K1–K2	.S..GE	KC520M	**.S..GE**	**KCK15**	.S..GEM	KC520M
K3	.S..GE	KC520M	**.S..GE**	**KCK15**	.S..GEM	KC520M
N1–N2	.E..GEJ	KC422M	**.E..GEJ**	**KC422M**	.E..GEJ	KC422M
N3	.E..GEJ	KC422M	**.E..GEJ**	**KC422M**	.E..GEJ	KC422M
S1–S2	.E..GE	KC725M	**.S..GE**	**KC725M**	.S..GE	KC725M
S3	.E..GE	KCSM40	**.S..GE**	**KCSM40**	.S..GE	KCSM40
S4	.E..GE	KCSM40	**.S..GE**	**KCSM40**	.S..GE	KCSM40
H1	–	–	–	–	–	–

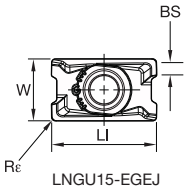
Indexable Inserts • Mill 4-15™

- -EGEJ is the first choice for roughing and finishing of aluminum and other non-ferrous alloys.

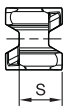
● first choice
○ alternate choice

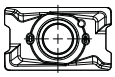
		KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P				○	●		●	●		○
M				●	●		○	●	○	●
K			●	○		●	○			
N		●								
S				●	●			○	●	●
H										


LNGU15-EGEJ



LNGU15-EGEJ

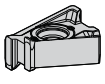


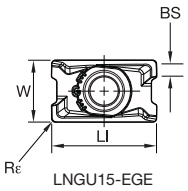

Back view

LNGU15-EGEJ • For Aluminum and Other Non-Ferrous Alloys

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU541ERGEJ	.670	.394	.274	.087	.016	.001	4	●	–	–	–	–	–	–	–	–
LNGU542ERGEJ	.670	.394	.274	.072	.031	.001	4	●	–	–	–	–	–	–	–	–

- -EGE is the first choice for stainless steel and high-temp alloys.
- Best choice for finishing operations in steels, stainless steels, and high-temp alloys.


LNGU15-EGE



LNGU15-EGE

LNGU15-EGE • Precision Ground • For Stainless Steel and High-Temp Alloys

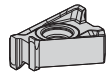
catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU541ERGE	.670	.394	.274	.087	.016	.003	4	–	–	●	●	–	–	●	●	–
LNGU542ERGE	.670	.394	.274	.072	.031	.003	4	–	–	●	●	–	–	●	●	●
LNGU543ERGE	.670	.394	.274	.057	.047	.003	4	–	–	●	●	–	–	●	●	●
LNGU544ERGE	.670	.394	.274	.042	.063	.003	4	–	–	–	●	–	–	●	●	–

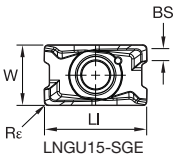
- -SGE is the universal geometry for Mill 4-15.
- First choice when machining steel.
- Suitable for stainless steel and high-temp alloys in medium-heavy applications.

beyond

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

● first choice
○ alternate choice


LNGU15-SGE

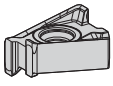


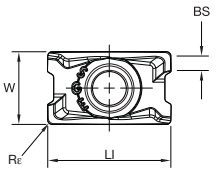
LNGU15-SGE

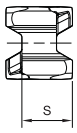
LNGU15-SGE • Precision Ground • For Steel Machining, Finishing, and Light Roughing

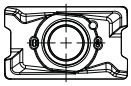
catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU541SRGE	.669	.394	.274	.086	.016	.004	4	–	●	●	●	●	●	–	–	–
LNGU542SRGE	.670	.394	.274	.071	.031	.004	4	–	●	●	●	●	●	–	–	●
LNGU543SRGE	.670	.394	.274	.056	.047	.004	4	–	●	●	●	●	●	–	–	●
LNGU544SRGE	.670	.394	.274	.042	.063	.004	4	–	●	●	●	●	●	–	–	–

- -SGE is the first choice for machining steel, as well as stainless steel and high-temp alloys in heavy applications.


LNPU15-SGE





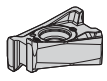

Back View

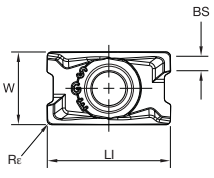
LNPU15-SGE

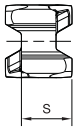
LNPU15-SGE • Precision Pressed • For Steel Machining in Medium-Heavy Roughing

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNPU541SRGE	.665	.394	.274	.085	.016	.004	4	–	●	●	●	●	●	–	–	–
LNPU542SRGE	.665	.394	.274	.070	.031	.004	4	–	●	●	●	●	●	●	–	–
LNPU543SRGE	.665	.394	.274	.058	.047	.004	4	–	●	●	●	–	●	●	–	–
LNPU544SRGE	.666	.394	.274	.042	.063	.004	4	–	●	●	●	●	●	●	–	–
LNPU545SRGE	.666	.394	.274	.028	.078	.004	4	–	–	●	●	●	●	●	–	–

- -SGEM geometry is the first choice for cast iron machining in medium and heavy applications


LNGU15-SGEM





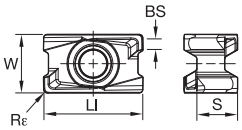
LNGU15-SGEM

LNGU15-SGEM • For Cast Iron Machining

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU542SRGEM	.670	.394	.274	.067	.031	.004	4	–	●	–	–	●	●	●	–	–
LNGU543SRGEM	.670	.394	.274	.053	.047	.004	4	–	●	–	–	●	–	●	–	–
LNGU544SRGEM	.670	.394	.274	.037	.064	.004	4	–	●	–	–	●	●	●	–	–
LNGU545SRGEM	.670	.394	.274	.013	.078	.004	4	–	●	–	–	●	●	●	–	–

- H stands for helical.
- Insert specially design to fit in helical cutters (porcupine).


LNGU15-SGEH



LNGU15-SGEH

● first choice
○ alternate choice

beyond

	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P			○	●		●	●		○
M			●	●		○	●	○	●
K		●	○		●	○			
N	●								
S			●	●			○	●	●
H									

LNGU15-SGEH • For Mill 4-15 Helical Cutters (Porcupine Style)

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU542SRGEH	.670	.394	.274	.071	.031	.004	4	–	–	–	–	–	–	–	–	●

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40%-100%			
.E..GEJ	.005	**.019**	.034	.003	**.014**	.024	.003	**.010**	.018	.002	**.009**	.016	.002	**.008**	.014	.E..GEJ
.E..GE	.009	**.020**	.035	.007	**.015**	.025	.005	**.011**	.019	.004	**.009**	.016	.004	**.009**	.015	.E..GE
.S..GE	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GE
.S..GEM	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GEM

NOTE: Use “Light Machining” values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Mill 4-15 Starter Kits

Order one of our starting kits and test the performance of our new Mill 4 platform. The kits are set up to serve the majority of shoulder milling applications and workpiece materials, delivered with a cutter body as well as 20 inserts from a premium Kennametal grade.

Order one Mill 4 kit, and experience the next level of shoulder milling!

Detailed order information can be found in the table below:

Mill 4-15 Inch Starter Kits

material group	order number	catalog number	cutter kit	application range	content				
					cutter	qty	insert	grade	qty
P	5972205	M4KITD100Z02W100SGEKCPM40	D1.00 x z2	∇∇	M4D100L1502W100L175	1	LNPU15T608SRGE	KCPM40	20
P	5972206	M4KITD125Z03W100SGEKCPM40	D1.50 x z3	∇∇	M4D125L1503W100L225	1	LNPU15T608SRGE	KCPM40	20
P	5972207	M4KITD150Z04W125SGEKCPM40	D1.50 x z4	∇∇	M4D150L1504W125L225	1	LNPU15T608SRGE	KCPM40	20
P	5972208	M4KITD150Z05S050SGEKCPM40	D1.50 x z5	∇∇	M4D150L1505S050L157	1	LNPU15T608SRGE	KCPM40	20
P	5972209	M4KITD200Z05S075SGEKCPM40	D2.00 x z5	∇∇	M4D200L1505S075L157	1	LNPU15T608SRGE	KCPM40	20
P	5972210	M4KITD200Z06S075SGEKCPM40	D2.00 x z6	∇∇	M4D200L1506S075L157	1	LNPU15T608SRGE	KCPM40	20
P	5972351	M4KITD250Z06S075SGEKCPM40	D2.50 x z6	∇∇	M4D250L1506S075L157	1	LNPU15T608SRGE	KCPM40	20
P	5972352	M4KITD300Z07S100SGEKCPM40	D3.00 x z7	∇∇	M4D300L1507S100L175	1	LNPU15T608SRGE	KCPM40	20
P	5972353	M4KITD400Z08S150SGEKCPM40	D4.00 x z8	∇∇	M4D400L1508S150L200	1	LNPU15T608SRGE	KCPM40	20
M + S	5972354	M4KITD100Z02C100EGEKC725M	D1.00 x z2	∇∇∇	M4D100L1502C100L800	1	LNGU15T608ERGE	KC725M	20
M + S	5972355	M4KITD125Z03C125EGEKC725M	D1.25 x z3	∇∇∇	M4D125L1503C125L800	1	LNGU15T608ERGE	KC725M	20
M + S	5972356	M4KITD150Z05S050EGEKC725M	D1.50 x z5	∇∇∇	M4D150L1505S050L157	1	LNGU15T608ERGE	KC725M	20
M + S	5972357	M4KITD200Z05S075EGEKC725M	D2.00 x z5	∇∇∇	M4D200L1505S075L157	1	LNGU15T608ERGE	KC725M	20
M + S	5972358	M4KITD200Z06S075EGEKC725M	D2.00 x z6	∇∇∇	M4D200L1506S075L157	1	LNGU15T608ERGE	KC725M	20
M + S	5972359	M4KITD250Z06S075EGEKC725M	D2.50 x z6	∇∇∇	M4D250L1506S075L157	1	LNGU15T608ERGE	KC725M	20
M + S	5972360	M4KITD300Z07S100EGEKC725M	D3.00 x z7	∇∇∇	M4D300L1507S100L175	1	LNGU15T608ERGE	KC725M	20
K	5972371	M4KITD100Z02W100SGEMKC520M	D1.00 x z2	∇	M4D100L1502W100L175	1	LNGU15T608SRGEM	KC520M	20
K	5972372	M4KITD125Z03W100SGEMKC520M	D1.25 x z3	∇	M4D125L1503W100L225	1	LNGU15T608SRGEM	KC520M	20
K	5972373	M4KITD150Z05S050SGEMKC520M	D1.50 x z5	∇	M4D150L1505S050L157	1	LNGU15T608SRGEM	KC520M	20
K	5972374	M4KITD200Z06S075SGEMKC520M	D2.00 x z6	∇	M4D200L1506S075L157	1	LNGU15T608SRGEM	KC520M	20
K	5972375	M4KITD250Z07S075SGEMKC520M	D2.50 x z7	∇	M4D250L1507S100L175	1	LNGU15T608SRGEM	KC520M	20
K	5972376	M4KITD300Z09S100SGEMKC520M	D3.00 x z9	∇	M4D300L1509S100L175	1	LNGU15T608SRGEM	KC520M	20
K	5972377	M4KITD400Z11S150SGEMKC520M	D4.00 x z11	∇	M4D400L1511S150L200	1	LNGU15T608SRGEM	KC520M	20

∇ Heavy/Roughing
∇∇ Medium
∇∇∇ Light machining/Finishing

Mill 1-7™

Primary Application

Mill 1-7 is engineered for small-component machining and covers multiple applications, including ramping, slotting, and plunging. Mill 1-7 tools provide solutions for roughing and finishing operations in energy, aerospace, and general engineering, where small-diameter end mills are required.

Features and Benefits

- Mill 1-7 inserts enable the use of higher density cutters, providing greater feed and higher metal removal rates.
- Super positive rake provides soft action and low cutting forces for smooth entry and exit from the component. Run at higher feed rates while using less power.
- Inserts are designed with elliptical cutting edges and are optimized for a straight 90° wall.
- Inserts are available in five grades: KC725M™, KCSM30™, KCPM40™, KCPK30™, and KC522M™.
- Ramping, slotting, and plunging capabilities in one platform.

High-Performance Shoulder Mill

20º rake face angle and 13º clearance angle for soft cutting action and reduced cutting forces.

Internal coolant/air supply.

All pockets are machined into heat-treated material, which guarantees runout and pocket strength.

Elliptical edge generates 90º wall.

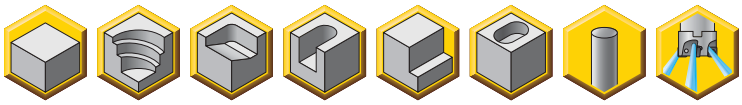
Chip gash designed for excellent chip evacuation.

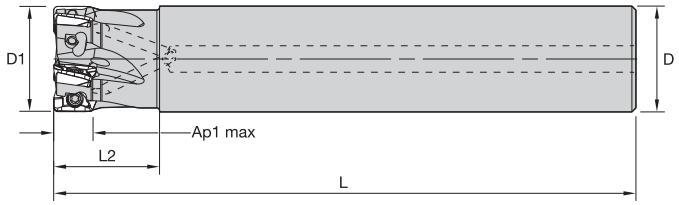
Margin along the main cutting edge and wiper facet for extra strength.

Insert screw: Torx 6.

Increase ramping capability up to 5.5º.

- Mill 90° walls.
- Aggressive ramping rates.
- High speed machining.
- Ramp, slot, plunge, face, and shoulder milling.





Cylindrical End Mills

order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
5190087	**M1D050E0702C050L400**	.500	.500	4.000	.750	.274	2	4.6°	.19	62680
5190088	**M1D062E0703C062L500**	.620	.625	5.000	1.000	.275	3	3.0°	.37	56010
5190089	**M1D075E0705C075L600**	.745	.750	6.000	1.000	.273	5	2.2°	.66	51100

Spare Parts

D1	 insert screw	 in. lbs.	 Torx wrench
.500	**12148006000**	4.4	**FT6**
.620	**12148006000**	4.4	**FT6**
.745	**12148006000**	4.4	**FT6**

Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.S..GE	KC725M	**.S..GE**	**KCPK30**	.S..GE	KCPM40
P3–P4	.S..GE	KC725M	**.S..GE**	**KCPK30**	.S..GE	KCPM40
P5–P6	.S..GE	KC725M	**.S..GE**	**KCPK30**	.S..GE	KCPM40
M1–M2	.S..GE	KC522M	**.S..GE**	**KC725M**	.S..GE	KCPM40
M3	.S..GE	KC725M	**.S..GE**	**KCPK30**	.S..GE	KCPM40
K1–K2	.S..GE	KCPK30	**.S..GE**	**KCPK30**	.S..GE	KCPK30
K3	.S..GE	KCPK30	**.S..GE**	**KCPK30**	.S..GE	KCPK30
N1–N2	–	–	**–**	**–**	–	–
N3	–	–	**–**	**–**	–	–
S1–S2	.S..GE	KC522M	**.S..GE**	**KC725M**	.S..GE	KC725M
S3	.S..GE	KC725M	**.S..GE**	**KC725M**	.S..GE	KCPM40
S4	.S..GE	KC522M	**.S..GE**	**KC725M**	.S..GE	KC725M
H1	–	–	**–**	**–**	–	–

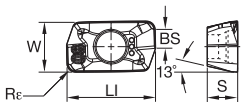
Indexable Inserts

- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .276" (7mm).

● first choice
○ alternate choice

		KC522M	KC725M	KCPK30	KCSM30	KCPM40
P		○	●	●		●
M		●	●	○	○	○
K		○		○		
N						
S		●	●		●	
H		●				


EDPT-S.GE



EDPT-S.GE

EDPT-S.GE

catalog number	Ll	W	S	BS	Rε	hm	cutting edges	KC522M	KC725M	KCPK30	KCSM30	KCPM40
EP0708SGE	.322	.185	.110	.067	.031	.003	2	●	●	●	●	●

Recommended Starting Feeds

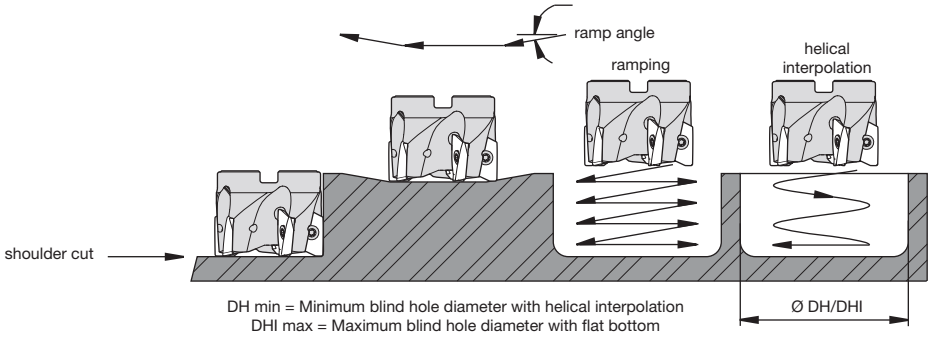
Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.S..GE	.009	**.018**	.027	.007	**.013**	.019	.005	**.010**	.014	.004	**.009**	.013	.004	**.008**	.012	.S..GE

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Application Examples



cutting diameter	max ramp angle to non-cutting corner tangent	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	max diameter (no flat bottom)
.500	4.56°	.628	.886	1.000
.625	2.97°	.877	1.095	1.250
.750	2.17°	1.126	1.362	1.500

NOTE: Max ramp angle decreases as nose radius increases.

Titanium and Stainless Steel Machining with New Milling Grade KCSM40™

Achieving maximum metal removal rates with highly engineering solutions from Kennametal.

- Ideal for roughing and semi-finishing operations.
- Available for the following milling series:
  - Mill 1™
  - Mill 4™
  - Dodeka™
  - MEGA™
  - KSOM™
  - NGE™
  - KSSM™
  - KSSM8+™
  - Rodeka™
  - 5230 Series
  - 7713 Series
  - 7792 Series
- This new carbide substrate provides toughness and fatigue resistance, minimizing the tendency for thermal cracking.
- The new coating provides high hot hardness and high abrasive resistance for unmatched tool life.
- KCSM40 milling grade is the first choice for high metal removal jobs in titanium structural aerospace components.
- Proven solution for various stainless steel applications, like machining automotive turbo chargers.

Visit kennametal.com or contact your local Authorized Kennametal Distributor.

KENNAMETAL®

kennametal.com

Mill 1-10™

High-Performance Shoulder Milling Platform

Primary Application

The multifunctional Mill 1-10 platform works with all tool materials in shoulder, ramp, slot, plunge, and helical milling with one insert style to improve productivity and reduce inventory and machining costs. The super positive cutting rake, soft cutting action, and low cutting forces enable higher feed rates and spindle protection. Innovative insert and cutter body designs offer improved ramping capabilities.

Features and Benefits

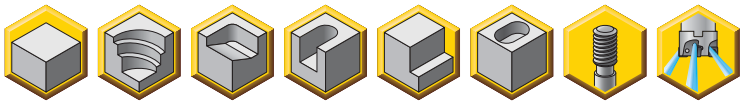
Versatility

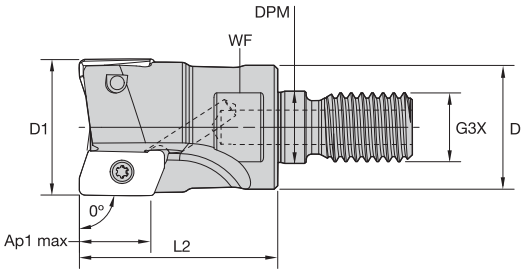
- Works with all tool materials.
- Capable of shoulder, ramp, plunge, and helical milling.
- Internal coolant and air supply.

Advantages

- Optimized soft cutting edge.
- Elliptical edge generates 0° wall.
- Increased ramping capability due to state of the art insert and cutter body design.
- Innovative chip gash design for excellent chip evacuation and perfect cutter body stability.
- All pockets are machined into heat-treated materials, guaranteeing best-in-class runout and pocket strength.
- Inserts feature innovative margin along the main cutting edge, corner nose radius, and wiper facet for perfect edge stability.

- Mill 0° walls.
- Ramping capable for all Mill 1-10.
- Generates superior surface finish.
- High RPM capabilities.





Screw-On End Mills

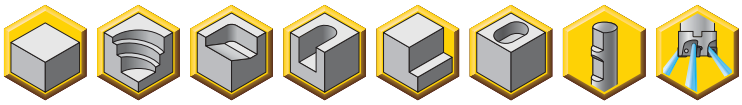
order number	catalog number	D1	D	DPM	G3X	L2	WF (mm)	Ap1 max	Z	max ramp angle	lbs	max RPM
3742470	**M1D062E1002CM08**	.625	.512	.335	M8	1.000	10	.396	2	9.5°	.05	53000
3742471	**M1D075E1002CM10**	.750	.709	.413	M10	1.100	15	.398	2	6.5°	.09	45900
3742472	**M1D075E1003CM10**	.750	.709	.413	M10	1.100	15	.398	3	6.5°	.10	45900
3742513	**M1D100E1003CM12**	1.000	.827	.492	M12	1.250	17	.395	3	4.0°	.19	39700
3742514	**M1D100E1004CM12**	1.000	.827	.492	M12	1.250	17	.395	4	4.0°	.18	39700
3742516	**M1D125E1005CM16**	1.250	1.142	.669	M16	1.500	22	.392	5	2.5°	.38	35500
3742517	**M1D150E1006CM16**	1.500	1.142	.669	M16	1.500	22	.390	6	2.0°	.46	32400

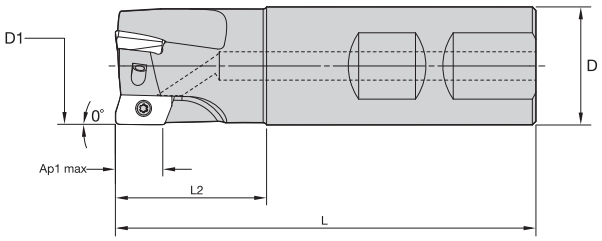
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus wrench
.625	**MS2205**	9.0	**F7IP**
.750	**MS2205**	9.0	**F7IP**
1.000	**MS2205**	9.0	**F7IP**
1.250	**MS2205**	9.0	**F7IP**
1.500	**MS2205**	9.0	**F7IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping rates.
- Generates superior surface finish.
- High RPM capabilities.





Weldon® End Mills

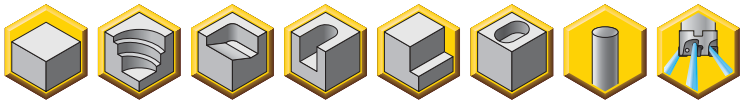
order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
3742552	**M1D062E1002W075L100**	.625	.750	3.030	1.000	.396	2	9.5°	.28	50300
3742553	**M1D075E1002W075L110**	.750	.750	3.130	1.100	.398	2	6.5°	.30	45900
3742554	**M1D075E1003W075L110**	.750	.750	3.130	1.100	.398	3	6.5°	.30	45900
3897781	**M1D100E1003W075L125**	1.000	.750	3.280	1.250	.395	3	4.0°	.40	39700
3897782	**M1D100E1004W075L125**	1.000	.750	3.280	1.250	.395	4	4.0°	.40	39700
3742555	**M1D100E1003W100L125**	1.000	1.000	3.530	1.250	.395	3	4.0°	.65	39700
3742556	**M1D100E1004W100L125**	1.000	1.000	3.530	1.250	.395	4	4.0°	.64	39700
3742557	**M1D125E1004W125L160**	1.250	1.250	3.880	1.600	.392	4	2.5°	1.12	35500
3742558	**M1D125E1005W125L160**	1.250	1.250	3.880	1.600	.392	5	2.5°	1.11	35500

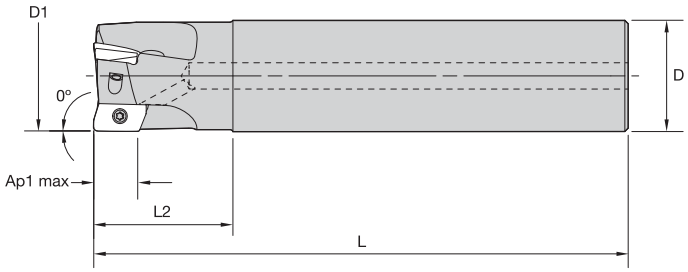
Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
.625	**MS2205**	9.0	**DT7IP**
.750	**MS2205**	9.0	**DT7IP**
1.000	**MS2205**	9.0	**DT7IP**
1.250	**MS2205**	9.0	**DT7IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping rates.
- Generates superior surface finish.
- High RPM capabilities.





Cylindrical End Mills

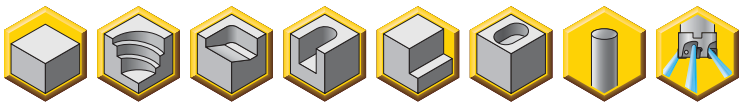
order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
3742518	M1D050E1001C062L350	.500	.625	3.500	.800	.404	1	11.5°	.25	56500
3742536	M1D062E1002C062L670	.625	.625	6.700	.999	.396	2	9.5°	.49	50300
3742519	M1D062E1002C075L400	.625	.750	4.000	1.000	.396	2	9.5°	.40	50300
3742520	M1D075E1002C075L450	.750	.750	4.500	1.100	.398	2	6.5°	.46	45900
3742538	M1D075E1002C075L670	.750	.750	6.700	1.250	.398	2	6.5°	.70	45900
3742521	M1D075E1003C075L450	.750	.750	4.500	1.100	.398	3	6.5°	.46	45900
3742540	M1D075E1003C075L670	.750	.750	6.700	1.250	.398	3	6.5°	.71	45900
3742542	M1D088E1003C075L670	.875	.750	6.700	1.250	.396	3	5.0°	.74	42600
3897779	M1D100E1003C075L480	1.000	.750	4.800	1.250	.395	3	4.0°	.58	39700
3897780	M1D100E1004C075L480	1.000	.750	4.800	1.250	.395	4	4.0°	.58	39700
3742522	M1D100E1003C100L480	1.000	1.000	4.800	1.250	.395	3	4.0°	.92	39700
3742543	M1D100E1003C100L800	1.000	1.000	8.000	1.600	.395	3	4.0°	1.59	39700
3742533	M1D100E1004C100L480	1.000	1.000	4.800	1.250	.395	4	4.0°	.92	39700
3742545	M1D100E1004C100L800	1.000	1.000	8.000	1.600	.395	4	4.0°	1.59	39700
3742547	M1D110E1004C100L800	1.100	1.000	8.000	1.600	.394	4	3.3°	1.64	38000
3742534	M1D125E1004C125L520	1.250	1.250	5.200	1.600	.392	4	2.5°	1.57	35500
3742548	M1D125E1004C125L800	1.250	1.250	8.000	1.900	.392	4	2.5°	2.48	35500
3742535	M1D125E1005C125L520	1.250	1.250	5.200	1.600	.392	5	2.5°	1.57	35500
3742550	M1D125E1005C125L800	1.250	1.250	8.000	1.900	.392	5	2.5°	2.48	35500

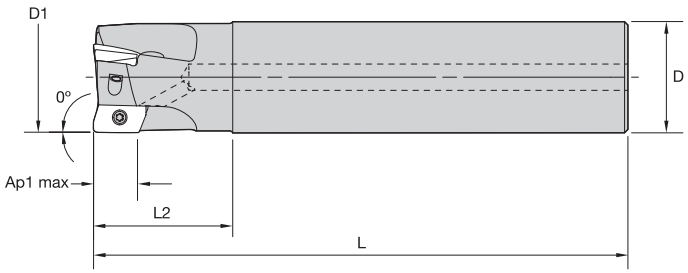
Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
.500	MS2205	9.0	DT7IP
.625	MS2205	9.0	DT7IP
.750	MS2205	9.0	DT7IP
.875	MS2205	9.0	DT7IP
1.000	MS2205	9.0	DT7IP
1.100	MS2205	9.0	DT7IP
1.250	MS2205	9.0	DT7IP

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping rates.
- Generates superior surface finish.
- High RPM capabilities.





Cylindrical End Mills • Long Length

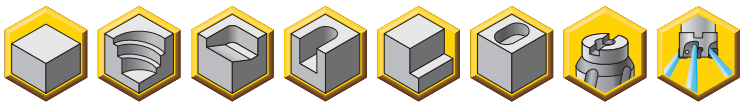
order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
3742537	**M1D062E1002C062L670R**	.625	.625	6.688	.987	.384	2	8.0°	.49	50300
3742541	**M1D075E1003C075L670R**	.750	.750	6.689	1.239	.387	3	5.3°	.71	45900
3742544	**M1D100E1003C100L800R**	1.000	1.000	7.989	1.589	.385	3	3.0°	1.59	39700
3742546	**M1D100E1004C100L800R**	1.000	1.000	7.989	1.589	.384	4	3.0°	1.59	39700
3742551	**M1D125E1005C125L800R**	1.250	1.250	7.989	1.889	.382	5	2.0°	2.48	35500

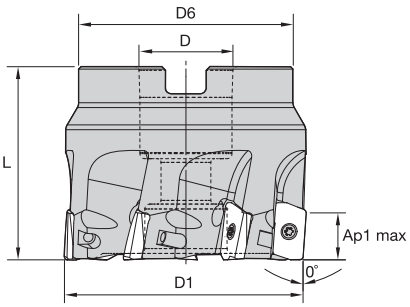
Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
.625	**MS2205**	9.0	**DT7IP**
.750	**MS2205**	9.0	**DT7IP**
1.000	**MS2205**	9.0	**DT7IP**
1.250	**MS2205**	9.0	**DT7IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.
"R" in catalog number designates factory-relieved tool for insert radii greater than .079".

- Mill 0° walls.
- Aggressive ramping rates.
- Generates superior surface finish.
- High RPM capabilities.





Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Z	max ramp angle	lbs	max RPM
3745039	**M1D150E1004S075L157**	1.500	.750	1.420	1.575	.391	4	2.0°	.46	32400
3745040	**M1D150E1006S075L157**	1.500	.750	1.420	1.575	.391	6	2.0°	.49	32400
3745041	**M1D200E1005S075L157**	2.000	.750	1.750	1.575	.389	5	1.5°	.92	28100
3745042	**M1D200E1008S075L157**	2.000	.750	1.750	1.575	.389	8	1.5°	.89	28100
3745043	**M1D250E1006S075L157**	2.500	.750	1.750	1.575	.389	6	1.0°	1.29	25100
3745045	**M1D250E1009S075L157**	2.500	.750	1.750	1.575	.389	9	1.0°	1.26	25100
3745047	**M1D300E1008S100L175**	3.000	1.000	2.190	1.750	.389	8	.8°	2.08	22900
3745048	**M1D300E1010S100L175**	3.000	1.000	2.190	1.750	.389	10	.8°	2.07	22900
3745049	**M1D400E1008S150L200**	4.000	1.500	3.380	2.000	.389	8	.5°	3.82	19800

Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver	 socket-head cap screw
1.500	**MS2205**	9.0	**DT7IP**	**S445**
2.000	**MS2205**	9.0	**DT7IP**	**S445**
2.500	**MS2205**	9.0	**DT7IP**	**S445**
3.000	**MS2205**	9.0	**DT7IP**	**S458**
4.000	**MS2205**	9.0	**DT7IP**	**–**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		⟷		toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..LD	KCPM40	**.S..GD**	**KCPM40**	.E..HD	KCPM40
P3–P4	.E..LD	KCPK30	**.S..GD**	**KCPK30**	.E..HD	KCPK30
P5–P6	.E..LD	KC725M	**.S..GD**	**KC725M**	.E..HD	KC725M
M1–M2	.E..LD	KCSM40	**.S..GD**	**KC725M**	.E..HD	KCSM40
M3	.E..LD	KCSM40	**.S..GD**	**KCPM40**	.E..HD	KCSM40
K1–K2	.E..LD	KCK15	**.S..GD**	**KCK15**	.E..HD	KCK15
K3	.E..LD	KC520M	**.S..GD**	**KC520M**	.E..HD	KC520M
N1–N2	.F..LDJ	KC410M	**.E..LDJ**	**KC422M**	.E..LD	KC510M
N3	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
S1–S2	.E..LD	KC725M	**.S..GD**	**KC725M**	.E..HD	KC725M
S3	.E..LD	KCSM40	**.S..GE**	**KCSM40**	.E..HD	KCSM40
S4	.E..LD	KCSM40	**.S..GE**	**KCSM40**	.E..HD	KCSM40
H1	.E..LD	KC510M	–	–	–	KC510M

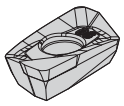
Indexable Inserts

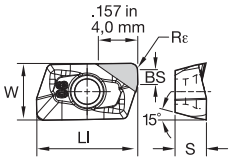
- Roughing and finishing of aluminum and non-ferrous alloys.
- Suitable for wet and dry machining.
- High precision.
- PCD inserts for long tool life.
- Ap1 max = 0.393" (10mm).

● first choice
○ alternate choice

beyond

	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
P				○		○	●		●	●		○	
M						●	●		○	○	○	●	
K				●	●	○		●	○				
N	●	●	●	○									●
S						●	●				●	●	
H													


EDCT-PCD



EDCT-PCD

EDCT-PCD

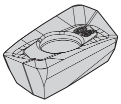
catalog number	LI	W	S	BS	Rε	hm	cutting edges
EC1004FR-PCD	.474	.266	.148	.083	.016	.001	1
EC1008FR-PCD	.474	.265	.148	.067	.031	.001	1

- Periphery ground and polished rake face.
- Roughing and finishing of aluminum alloys.
- Perfect floor surface finish.
- Ap1 max = 0.393" (10mm).

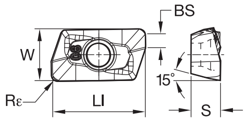
beyond

● first choice
○ alternate choice

	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
P				○		○	●		●	●		○	
M						●	●		○	○	○	●	
K				●	●	○		●	○				
N	●	●	●	○									●
S						●	●				●	●	
H													



EDCT-F.LDJ

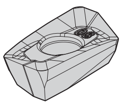


EDCT-F.LDJ

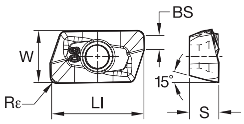
EDCT-F.LDJ

catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EC1002FLDJ	.474	.266	.148	.090	.008	.001	2	–	●	–	–	–	–	–	–	–	–	–	–	–
EC1004FLDJ	.474	.266	.148	.078	.016	.001	2	–	●	–	–	–	–	–	–	–	–	–	–	–
EC1008FLDJ	.474	.265	.148	.067	.031	.001	2	–	●	–	–	–	–	–	–	–	–	–	–	–
EC1012FLDJ	.475	.265	.148	.051	.047	.001	2	–	●	–	–	–	–	–	–	–	–	–	–	–
EC1016FLDJ	.475	.265	.148	.036	.062	.001	2	–	●	–	–	–	–	–	–	–	–	–	–	–
EC1020FLDJ	.475	.265	.148	.019	.079	.001	2	–	●	–	–	–	–	–	–	–	–	–	–	–
EC1031FLDJ	.453	.264	.148	—	.122	.001	2	–	●	–	–	–	–	–	–	–	–	–	–	–

- Periphery ground and polished rake face.
- Roughing and finishing of aluminum alloys.
- Perfect floor surface finish.
- Ap1 max = 0.551" (14mm).



EDCT-E.LDJ



EDCT-E.LDJ

EDCT-E.LDJ

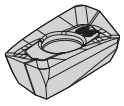
catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EC1004ELDJ	.474	.266	.148	.078	.016	.001	2	–	–	●	–	–	–	–	–	–	–	–	–	–
EC1008ELDJ	.474	.265	.148	.067	.031	.001	2	–	–	●	–	–	–	–	–	–	–	–	–	–
EC1016ELDJ	.475	.265	.148	.036	.062	.001	2	–	–	●	–	–	–	–	–	–	–	–	–	–
EC1020ELDJ	.475	.265	.148	.019	.079	.001	2	–	–	●	–	–	–	–	–	–	–	–	–	–
EC1024ELDJ	.475	.265	.148	.004	.094	.001	2	–	–	●	–	–	–	–	–	–	–	–	–	–

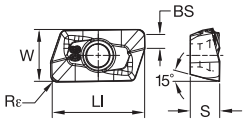
- Finishing and high-precision applications.
- Light machining.
- 15° positive rake angle.
- Perfect floor surface finish.
- Ap1 max = .393" (10mm).

● first choice
○ alternate choice

beyond

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


EDCT-LD

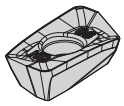


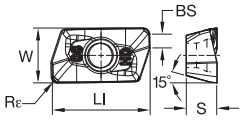
EDCT-LD

EDCT-LD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EC1002ELD	.474	.266	.148	.090	.008	.002	2	–	–	–	–	–	–	●	–	●	–	–	–	–
EC1004ELD	.474	.266	.148	.078	.016	.002	2	–	–	–	–	●	●	●	–	●	–	–	–	–
EC1008ELD	.474	.266	.148	.067	.031	.002	2	–	–	–	●	●	●	●	●	●	●	–	●	–
EC1012ELD	.475	.265	.148	.051	.047	.002	2	–	–	–	–	–	●	●	–	–	–	–	●	–
EC1016ELD	.475	.265	.148	.036	.062	.002	2	–	–	–	–	–	●	●	–	●	–	–	●	–
EC1020ELD	.475	.265	.148	.019	.079	.002	2	–	–	–	–	–	–	●	–	●	–	–	–	–
EC1024ELD	.475	.265	.148	.004	.094	.002	2	–	–	–	–	–	●	●	–	–	–	–	●	–
EC1031ELD	.453	.264	.148	—	.122	.002	2	–	–	–	–	–	–	●	–	●	–	–	●	–

- Medium roughing and semi-finishing.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .393" (10mm)


EDPT-E.HD



EDPT-E.HD

EDPT-E.HD

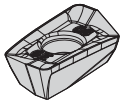
catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EP1004EHD	.474	.266	.148	.082	.016	.003	2	–	–	–	–	●	●	●	●	●	●	–	–	–
EP1008EHD	.474	.265	.148	.067	.031	.003	2	–	–	–	–	●	●	●	●	●	●	–	●	–
EP1010EHD	.474	.265	.148	.059	.039	.003	2	–	–	–	–	–	●	●	●	●	–	–	–	–
EP1012EHD	.475	.265	.148	.051	.047	.003	2	–	–	–	–	●	●	●	–	●	●	–	●	–
EP1016EHD	.475	.265	.148	.036	.062	.003	2	–	–	–	–	–	●	●	–	●	●	●	●	–
EP1020EHD	.475	.265	.148	.019	.079	.003	2	–	–	–	–	–	–	●	–	●	●	–	●	–
EP1024EHD	.475	.265	.148	.004	.094	.003	2	–	–	–	–	–	–	●	–	●	–	–	●	–
EP1031EHD	.453	.264	.148	—	.122	.003	2	–	–	–	–	–	●	●	–	●	–	–	●	–

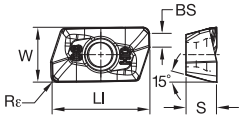
- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .393" (10mm).

● first choice
○ alternate choice

beyond

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


EDPT-S.GE

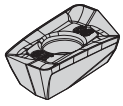


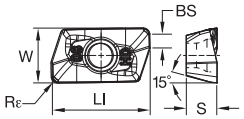
EDPT-S.GE

EDPT-S.GE

catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EP1004SGE	.474	.266	.148	.082	.016	.005	2	–	–	–	–	–	●	●	–	●	●	–	–	–
EP1008SGE	.474	.265	.148	.067	.031	.005	2	–	–	–	–	–	●	●	–	●	●	–	●	–
EP1012SGE	.475	.265	.148	.051	.047	.005	2	–	–	–	–	–	●	●	–	●	–	–	●	–
EP1016SGE	.475	.265	.148	.036	.062	.005	2	–	–	–	–	–	●	●	–	●	–	–	●	–
EP1031SGE	.453	.264	.148	—	.122	.005	2	–	–	–	–	–	●	●	–	●	–	–	●	–

- Heavy roughing applications.
- High feed rates.
- All material groups.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.393" (10mm).


EDPT-S.GD



EDPT-S.GD

EDPT-S.GD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EP1004SGD	.474	.266	.148	.082	.016	.005	2	–	–	–	–	–	–	●	●	●	–	–	–	–
EP1008SGD	.474	.265	.148	.067	.031	.005	2	–	–	–	–	●	–	●	●	●	●	–	–	–
EP1012SGD	.475	.265	.148	.051	.047	.005	2	–	–	–	–	●	–	●	●	●	–	–	–	–
EP1016SGD	.475	.265	.148	.036	.062	.005	2	–	–	–	–	●	–	●	–	●	–	–	–	–

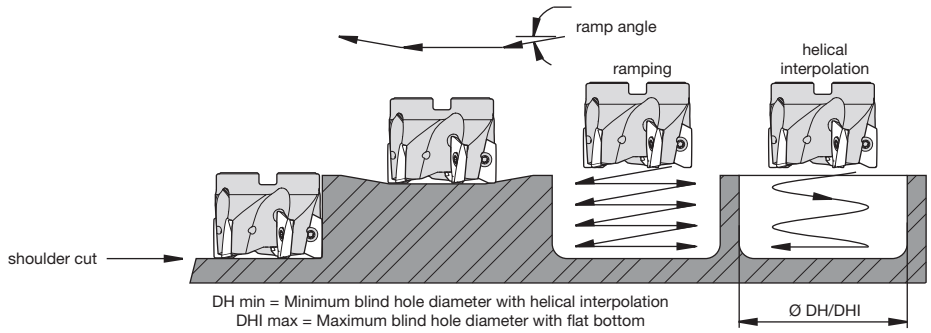
Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	.005	**.014**	.023	.003	**.010**	.017	.003	**.008**	.013	.002	**.007**	.011	.002	**.006**	.010	.F..LDJ
.F..-PCD	.005	**.014**	.023	.003	**.010**	.017	.003	**.008**	.013	.002	**.007**	.011	.002	**.006**	.010	.F..-PCD
.E..LDJ	.005	**.014**	.023	.003	**.010**	.017	.003	**.008**	.013	.002	**.007**	.011	.002	**.006**	.010	.E..LDJ
.E..LD	.005	**.014**	.023	.004	**.010**	.016	.003	**.008**	.012	.002	**.007**	.011	.002	**.006**	.010	.E..LD
.S..GE	.009	**.018**	.028	.007	**.013**	.020	.005	**.010**	.015	.004	**.009**	.013	.004	**.008**	.012	.S..GE
.S..GD	.009	**.019**	.028	.007	**.013**	.020	.005	**.010**	.015	.004	**.009**	.013	.004	**.008**	.012	.S..GD
.E..HD	.009	**.020**	.032	.007	**.014**	.023	.005	**.011**	.017	.004	**.009**	.015	.004	**.009**	.014	.E..HD

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Application Examples



insert style	cutting diameter	max ramp angle to non-cutting corner tangent	max ramp angle to steel body interference	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	max diameter (no flat bottom)
Mill-1, 10mm	.500	not recommended	not recommended	not recommended	not recommended	not recommended
Mill-1, 10mm	.625	9.9°	12.5°	.758	1.121	1.250
Mill-1, 10mm	.750	6.8°	9.7°	.998	1.367	1.500
Mill-1, 10mm	.875	5.1°	6.8°	1.248	1.617	1.750
Mill-1, 10mm	1.000	4.1°	5.1°	1.498	1.867	2.000
Mill-1, 10mm	1.100	3.5°	4.3°	1.698	2.067	2.200
Mill-1, 10mm	1.250	2.9°	3.4°	1.999	2.367	2.500
Mill-1, 10mm	1.500	2.2°	2.4°	2.499	2.867	3.000
Mill-1, 10mm	2.000	1.2°	1.6°	3.509	3.876	4.000
Mill-1, 10mm	2.500	1.2°	1.2°	4.509	4.876	5.000
Mill-1, 10mm	3.000	0.9°	1.0°	5.509	5.876	6.000
Mill-1, 10mm	4.000	0.7°	0.7°	7.509	7.876	8.000

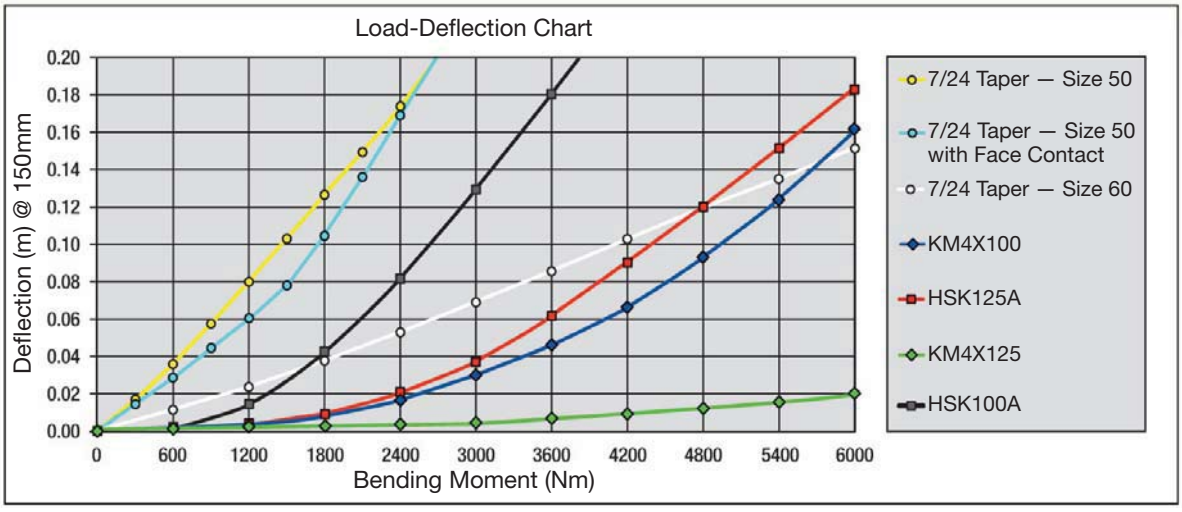
NOTE: Max ramp angle decreases as nose radius increases.

KM4X™

The Latest Innovation in Spindle Interface Technology!

Dramatically increase your metal removal rates when machining high-temperature alloys!

- Run jobs at significantly faster feeds and speeds than what is achievable with other spindle interfaces.
- Unique use of clamping force and interference level increases clamping capability 2 to 3 times.
- Achieve lower cost of ownership, increased throughput, and superior results.

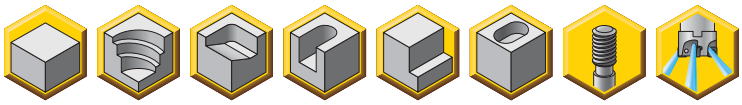


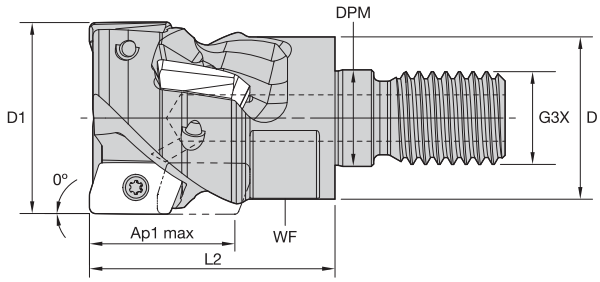
Visit **kennametal.com** or contact your local Authorized Kennametal Distributor.

KENNAMETAL®

kennametal.com

- Mill 0° walls.
- Aggressive ramping rates.
- Generates superior surface finish.





Screw-On Helical Mills

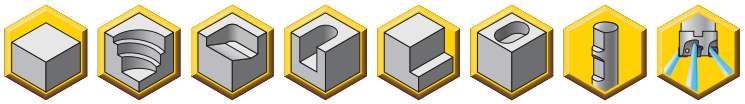
order number	catalog number	D1	D	DPM	G3X	L2	WF (mm)	Ap1 max	Z	Z U	max ramp angle	lbs	max RPM
3746106	**M1HR125ED10M16Z2L160C4**	1.250	1.142	.669	M16	1.614	24	.735	4	2	2.5°	.43	29400
3746107	**M1HR125ED10M16Z3L160C6**	1.250	1.142	.669	M16	1.614	24	.735	6	3	2.5°	.40	29400

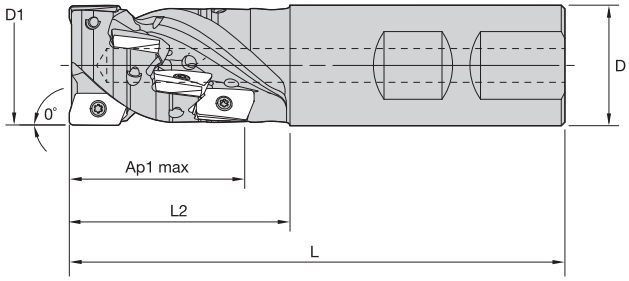
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus wrench
1.250	**MS2205**	9.0	**F7IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping rates.
- Generates superior surface finish.





Weldon® Helical Mills

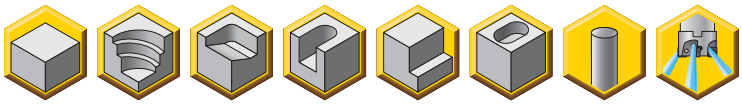
order number	catalog number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	lbs	max RPM
3746093	**M1HR075ED10W075Z2L140C6**	.750	.750	3.422	1.392	1.093	6	2	6.5°	.30	38000
3746097	**M1HR100ED10W100Z2L180C8**	1.000	1.000	4.071	1.790	1.432	8	2	4.0°	.64	32900
3746098	**M1HR125ED10W125Z2L210C10**	1.250	1.250	4.371	2.090	1.764	10	2	2.5°	1.16	29400
3746099	**M1HR125ED10W125Z3L210C15**	1.250	1.250	4.371	2.090	1.764	15	3	2.5°	1.08	29400

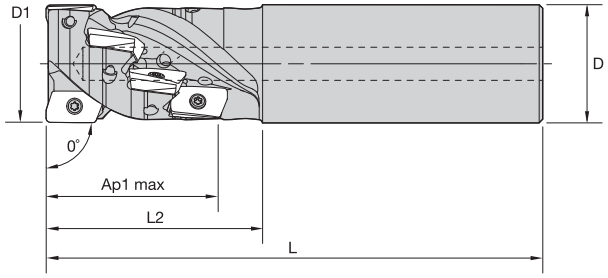
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
.750	**MS2205**	9.0	**DT7IP**
1.000	**MS2205**	9.0	**DT7IP**
1.250	**MS2205**	9.0	**DT7IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping rates.
- Generates superior surface finish.





Cylindrical Helical Mills

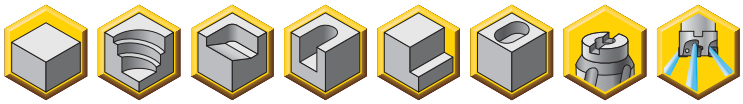
order number	catalog number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	lbs	max RPM
3746100	**M1HR075ED10C075Z2L110C4**	.750	.750	4.406	1.053	.745	4	2	6.5°	.47	38000
3746101	**M1HR100ED10C100Z2L110C4**	1.000	1.000	4.800	1.053	.740	4	2	4.0°	.89	32900

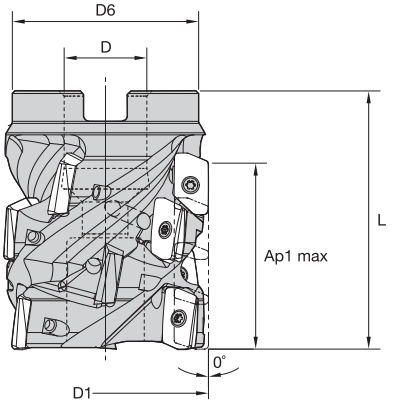
Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
.750	**MS2205**	9.0	**DT7IP**
1.000	**MS2205**	9.0	**DT7IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping rates.
- Generates superior surface finish.





Helical Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Z	Z U	max ramp angle	lbs	max RPM
3746108	**M1HR150ED10S075Z3L200C12**	1.500	.750	1.421	2.000	1.417	12	3	2.0°	.56	26900
3746109	**M1HR150ED10S075Z5L200C20**	1.500	.750	1.420	2.000	1.417	20	5	2.0°	.51	26900
3746110	**M1HR200ED10S075Z3L240C15**	2.000	.750	1.750	2.400	1.745	15	3	1.5°	1.47	23300
3746111	**M1HR200ED10S075Z5L240C25**	2.000	.750	1.750	2.400	1.745	25	5	1.5°	1.31	23300

Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.500	**MS2205**	9.0	**DT7IP**
2.000	**MS2205**	9.0	**DT7IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Insert Selection Guide

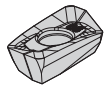
Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..LD	KCPM40	**.S..GD**	**KCPM40**	.E..HD	KCPM40
P3–P4	.E..LD	KCPK30	**.S..GD**	**KCPK30**	.E..HD	KCPK30
P5–P6	.E..LD	KC725M	**.S..GD**	**KC725M**	.E..HD	KC725M
M1–M2	.E..LD	KCSM40	**.S..GD**	**KC725M**	.E..HD	KCSM40
M3	.E..LD	KCSM40	**.S..GD**	**KCPM40**	.E..HD	KCSM40
K1–K2	.E..LD	KCK15	**.S..GD**	**KCK15**	.E..HD	KCK15
K3	.E..LD	KC520M	**.S..GD**	**KC520M**	.E..HD	KC520M
N1–N2	.F..LDJ	KC410M	**.E..LDJ**	**KC422M**	.E..LD	KC510M
N3	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
S1–S2	.E..LD	KC725M	**.S..GD**	**KC725M**	.E..HD	KC725M
S3	.E..LD	KCSM40	**.S..GE**	**KCSM40**	.E..HD	KCSM40
S4	.E..LD	KCSM40	**.S..GE**	**KCSM40**	.E..HD	KCSM40
H1	.E..LD	KC510M	–	–	–	–

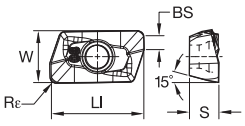
Indexable Inserts

- Periphery ground and polished rake face.
- Roughing and finishing of aluminum alloys.
- Perfect floor surface finish.
- Ap1 max = 0.393" (10mm).

● first choice
○ alternate choice

		K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○		○	●		●	●		○
M							●	●		○	○	○	●
K					●	●	○		●	○			
N		●	●	●	○								
S							●	●				●	●
H													


EDCT-F.LDJ



EDCT-F.LDJ

EDCT-F.LDJ

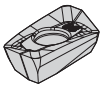
catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1002FLDJ	.474	.266	.148	.090	.008	.001	2	–	●	–	–	–	–	–	–	–	–	–	–
EC1004FLDJ	.474	.266	.148	.078	.016	.001	2	–	●	–	–	–	–	–	–	–	–	–	–
EC1008FLDJ	.474	.265	.148	.067	.031	.001	2	–	●	–	–	–	–	–	–	–	–	–	–
EC1012FLDJ	.475	.265	.148	.051	.047	.001	2	–	●	–	–	–	–	–	–	–	–	–	–
EC1016FLDJ	.475	.265	.148	.036	.062	.001	2	–	●	–	–	–	–	–	–	–	–	–	–
EC1020FLDJ	.475	.265	.148	.019	.079	.001	2	–	●	–	–	–	–	–	–	–	–	–	–
EC1031FLDJ	.453	.264	.148	—	.122	.001	2	–	●	–	–	–	–	–	–	–	–	–	–

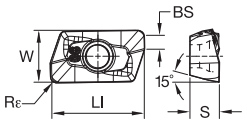
- Perfect floor surface finish.
- Ap1 max = 0.393" (10mm).

beyond

● first choice
○ alternate choice

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


EDCT-E.LDJ

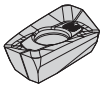


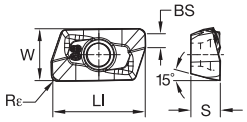
EDCT-E.LDJ

EDCT-E.LDJ

catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1004ELDJ	.474	.266	.148	.078	.016	.001	2	–	–	●	–	–	–	–	–	–	–	–	–
EC1008ELDJ	.474	.265	.148	.067	.031	.001	2	–	–	●	–	–	–	–	–	–	–	–	–
EC1016ELDJ	.475	.265	.148	.036	.062	.001	2	–	–	●	–	–	–	–	–	–	–	–	–
EC1020ELDJ	.475	.265	.148	.019	.079	.001	2	–	–	●	–	–	–	–	–	–	–	–	–
EC1024ELDJ	.475	.265	.148	.004	.094	.001	2	–	–	●	–	–	–	–	–	–	–	–	–

- Finishing and high precision applications.
- Light machining.
- 15° positive rake angle.
- Perfect floor surface finish.
- Ap1 max = 0.393" (10mm).


EDCT-LD

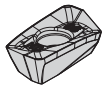


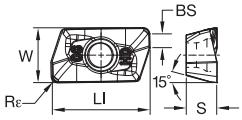
EDCT-LD

EDCT-LD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1002ELD	.474	.266	.148	.090	.008	.002	2	–	–	–	–	–	–	●	–	●	–	–	–
EC1004ELD	.474	.266	.148	.078	.016	.002	2	–	–	–	–	●	●	●	–	●	–	–	–
EC1008ELD	.474	.266	.148	.067	.031	.002	2	–	–	–	●	●	●	●	●	●	–	–	–
EC1012ELD	.475	.265	.148	.051	.047	.002	2	–	–	–	–	–	●	●	–	–	–	–	–
EC1016ELD	.475	.265	.148	.036	.062	.002	2	–	–	–	–	–	●	●	–	●	–	–	–
EC1020ELD	.475	.265	.148	.019	.079	.002	2	–	–	–	–	–	–	●	–	●	–	–	–
EC1024ELD	.475	.265	.148	.004	.094	.002	2	–	–	–	–	–	●	●	–	–	–	–	–
EC1031ELD	.453	.264	.148	—	.122	.002	2	–	–	–	–	–	–	–	–	●	–	–	–

- Medium roughing and semi-finishing.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.393" (10mm).


EDPT-E.HD



EDPT-E.HD

● first choice
○ alternate choice

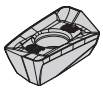
beyond

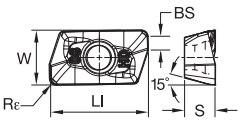
		K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○		○	●		●	●		○
M							●	●		○	○	○	●
K					●	●	○		●	○			
N		●	●	●	○								
S							●	●				●	●
H													

EDPT-E.HD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1004EHD	.474	.266	.148	.082	.016	.003	2	–	–	–	–	●	●	●	●	●	–	–	–
EP1008EHD	.474	.265	.148	.067	.031	.003	2	–	–	–	–	●	●	●	●	●	–	–	–
EP1010EHD	.474	.265	.148	.059	.039	.003	2	–	–	–	–	–	●	●	●	●	–	–	–
EP1012EHD	.475	.265	.148	.051	.047	.003	2	–	–	–	–	●	●	●	–	●	–	–	–
EP1016EHD	.475	.265	.148	.036	.062	.003	2	–	–	–	–	–	●	●	–	●	–	–	–
EP1020EHD	.475	.265	.148	.019	.079	.003	2	–	–	–	–	–	–	●	–	●	–	–	–
EP1024EHD	.475	.265	.148	.004	.094	.003	2	–	–	–	–	–	–	●	–	●	–	–	–
EP1031EHD	.453	.264	.148	—	.122	.003	2	–	–	–	–	–	●	●	–	●	–	–	–

- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.393" (10mm).


EDPT-S.GE



EDPT-S.GE

EDPT-S.GE

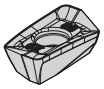
catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1004SGE	.474	.266	.148	.082	.016	.005	2	–	–	–	–	–	●	●	–	●	–	–	–
EP1008SGE	.474	.265	.148	.067	.031	.005	2	–	–	–	–	–	●	●	–	●	–	–	–
EP1012SGE	.475	.265	.148	.051	.047	.005	2	–	–	–	–	–	●	●	–	●	–	–	–
EP1016SGE	.475	.265	.148	.036	.062	.005	2	–	–	–	–	–	●	●	–	●	–	–	–
EP1031SGE	.453	.264	.148	—	.122	.005	2	–	–	–	–	–	●	●	–	●	–	–	–

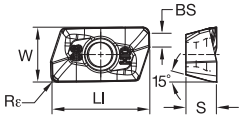
- Heavy roughing applications.
- High feed rates.
- All material groups.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.393" (10mm).

● first choice
○ alternate choice

beyond

	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P				○		○	●		●	●		○
M						●	●		○	○	○	●
K				●	●	○		●	○			
N	●	●	●	○								
S						●	●				●	●
H												


EDPT-S.GD



EDPT-S.GD

EDPT-S.GD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1004SGD	.474	.266	.148	.082	.016	.005	2	–	–	–	–	–	–	●	●	●	–	–	–
EP1008SGD	.474	.265	.148	.067	.031	.005	2	–	–	–	–	●	–	●	●	●	–	–	–
EP1012SGD	.475	.265	.148	.051	.047	.005	2	–	–	–	–	●	–	●	●	●	–	–	–
EP1016SGD	.475	.265	.148	.036	.062	.005	2	–	–	–	–	–	–	●	–	●	–	–	–

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	.005	**.014**	.023	.003	**.010**	.017	.003	**.008**	.013	.002	**.007**	.011	.002	**.006**	.010	.F..LDJ
.F..-PCD	.005	**.014**	.023	.003	**.010**	.017	.003	**.008**	.013	.002	**.007**	.011	.002	**.006**	.010	.F..-PCD
.E..LDJ	.005	**.014**	.023	.003	**.010**	.017	.003	**.008**	.013	.002	**.007**	.011	.002	**.006**	.010	.E..LDJ
.E..LD	.005	**.014**	.023	.004	**.010**	.016	.003	**.008**	.012	.002	**.007**	.011	.002	**.006**	.010	.E..LD
.S..GE	.009	**.018**	.028	.007	**.013**	.020	.005	**.010**	.015	.004	**.009**	.013	.004	**.008**	.012	.S..GE
.S..GD	.009	**.019**	.028	.007	**.013**	.020	.005	**.010**	.015	.004	**.009**	.013	.004	**.008**	.012	.S..GD
.E..HD	.009	**.020**	.032	.007	**.014**	.023	.005	**.011**	.017	.004	**.009**	.015	.004	**.009**	.014	.E..HD

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Mill 1-14™

Primary Application

The Mill 1-14 series is a versatile, functional cutter system for a range of cutting tasks. Mill 1-14 cutters can be used for profiling, slotting, ramping, helical interpolation, circular interpolation, and other milling applications. It's a single tool with multi-functional benefits. Mill 1-14 inserts are specially designed to add cutting versatility. Innovative micro-geometry features contribute greatly to enhanced performance, various rake angles, negative T-land, and small hone. Results include significantly reduced cycle times and lower cutting forces. Test results in producing 0° walls have proven excellent with the GD2 geometry.

Features and Benefits

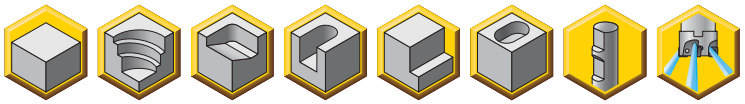
Features

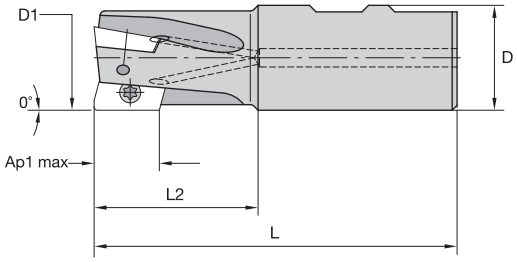
- Insert geometries and grades for most workpiece materials.
- Insert radii from .016" (0,15mm) up to .157" (4mm).
- Axial depth of cut up to .551" (14mm).
- Beyond™ grade technology.

Benefits

- Easy cutting action, even on entry and exiting the workpiece.
- Polished geometry for aluminum machining.
- Slotting, profiling, ramping, helical interpolation, and plunging.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.





Weldon® End Mills

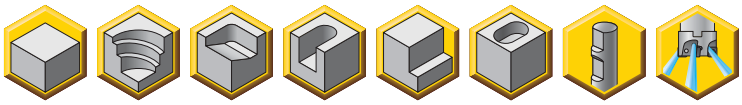
order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
2624243	**M1D062E1401W075L150**	.625	.750	3.530	1.500	.580	1	25.0°	.31	8000
2623856	**M1D075E1402W075L175**	.750	.750	3.780	1.750	.580	2	18.0°	.35	49600
2624245	**M1D088E1402W100L175**	.875	1.000	4.030	1.750	.580	2	13.2°	.66	43500
2624189	**M1D097E1403W100L175**	.970	1.000	4.030	1.750	.580	3	10.9°	.69	40100
2623857	**M1D100E1402W100L175**	1.000	1.000	4.030	1.750	.580	2	10.4°	.71	39200
2479508	**M1D100E1403W100L175**	1.000	1.000	4.030	1.750	.580	3	10.2°	.71	39200
2479506	**M1D125E1404W125L225**	1.250	1.250	4.530	2.250	.570	4	7.2°	1.25	33400

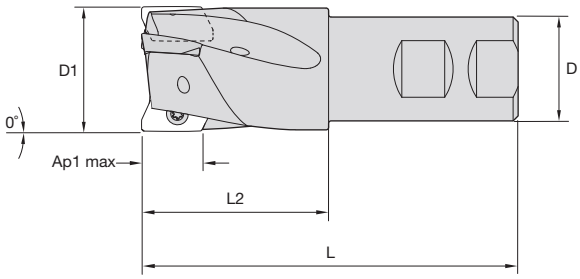
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
.625	**MS2167**	20.0	**DT9IP**
.750	**MS2167**	20.0	**DT9IP**
.875	**MS2166**	20.0	**DT9IP**
.970	**MS2166**	20.0	**DT9IP**
1.000	**MS2166**	20.0	**DT9IP**
1.250	**MS2166**	20.0	**DT9IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.





Weldon® End Mills • Reduced Shank

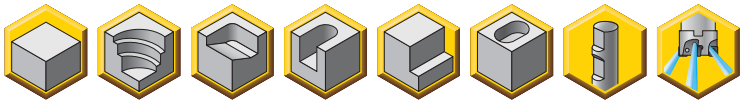
order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
2479507	**M1D100E1403W075L175**	1.000	.750	3.780	1.750	.575	3	10.4°	.46	39200
2624199	**M1D100E1403W100L175R**	1.000	1.000	4.010	1.730	.580	3	10.4°	.70	39200
2623858	**M1D125E1403W100L225**	1.250	1.000	4.530	2.250	.571	3	7.2°	.94	33400
2479512	**M1D125E1404W100L225**	1.250	1.000	4.530	2.250	.571	4	7.2°	.97	33400
2624201	**M1D125E1404W125L225R**	1.250	1.250	4.510	2.230	.570	4	7.2°	1.25	33400
2624194	**M1D150E1404W125L225**	1.500	1.250	4.530	2.250	.567	4	5.5°	1.49	29600
2623859	**M1D150E1405W125L225**	1.500	1.250	4.530	2.250	.567	5	5.5°	1.53	29600
2624271	**M1D150E1405W125L225R**	1.500	1.250	4.510	2.230	.555	5	5.5°	1.53	29600

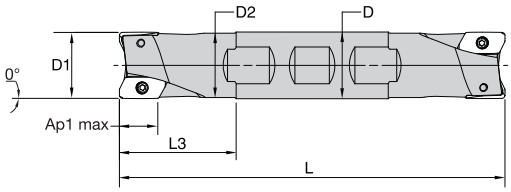
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.
"R" in catalog number designates factory-relieved tool for insert radii greater than .079".

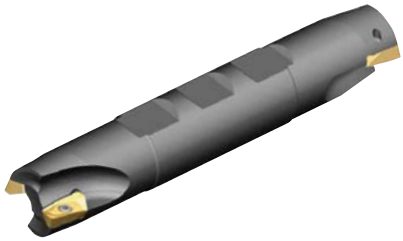
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.000	**MS2166**	20	**DT9IP**
1.250	**MS2166**	20	**DT9IP**
1.500	**MS2166**	20	**DT9IP**

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.







Weldon® End Mills • Double Ended

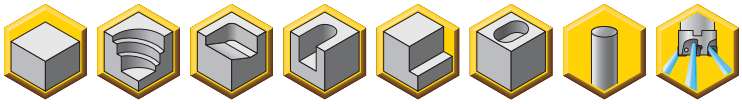
order number	catalog number	D1	D	D2	L	L3	Ap1 max	Z	max ramp angle	lbs	max RPM
2624188	**M1D075E1402W075L175DE**	.750	.750	.681	5.530	1.750	.551	2	18.0°	.53	49600
2624191	**M1D100E1403W100L175DE**	1.000	1.000	.950	5.780	1.750	.580	3	10.2°	1.00	39200

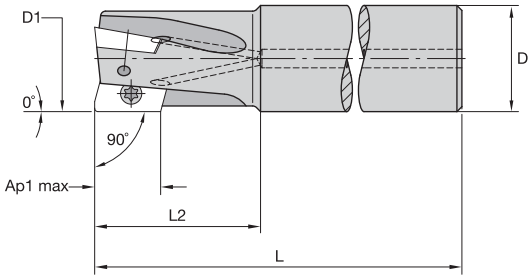
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
.750	**MS2167**	20	**DT9IP**
1.000	**MS2166**	20	**DT9IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Aggressive ramping angles.
- Generates superior surface finish.
- Mill 0° walls.
- High RPM capabilities.





Cylindrical End Mills

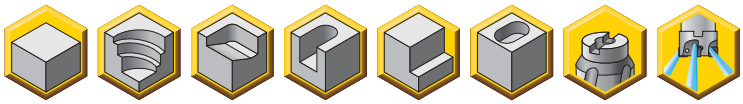
order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
2624187	**M1D075E1402C075L650**	.750	.750	6.500	1.750	.570	2	18.5°	.65	49600
2624197	**M1D075E1402C075L800**	.750	.750	8.000	1.750	.570	2	18.5°	.82	49600
2624198	**M1D100E1402C100L1000**	1.000	1.000	10.000	1.750	.570	2	10.2°	1.91	39200
2624190	**M1D100E1403C100L750**	1.000	1.000	7.500	1.750	.570	3	10.2°	1.44	39200
2624200	**M1D125E1403C125L1000**	1.250	1.250	10.000	2.250	.570	3	6.9°	3.09	33400
2624192	**M1D125E1404C125L800**	1.250	1.250	8.000	2.250	.570	4	6.9°	2.44	33400
5903140	**M1D150E1403C125L1000**	1.500	1.250	10.000	2.250	.560	3	5.2°	3.08	29600
2624202	**M1D150E1404C125L1000**	1.500	1.250	10.000	2.250	.560	4	5.2°	3.31	29600
2624250	**M1D150E1405C125L800**	1.500	1.250	8.000	2.250	.560	5	5.2°	2.65	29600

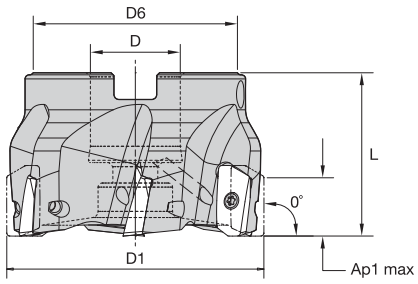
Spare Parts

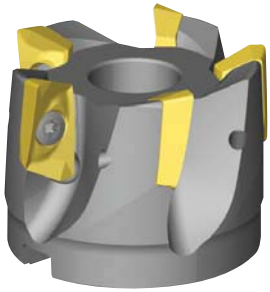
D1	 insert screw	 in. lbs.	 Torx Plus driver
.750	**MS2167**	20	**DT9IP**
1.000	**MS2166**	20	**DT9IP**
1.250	**MS2166**	20	**DT9IP**
1.500	**MS2166**	20	**DT9IP**

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.







Shell Mills

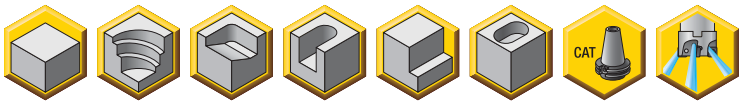
order number	catalog number	D1	D	D6	L	Ap1 max	Z	max ramp angle	lbs	max RPM
2479509	M1D125E1404S050L157	1.250	.500	1.204	1.575	.570	4	6.9°	.28	33400
2624255	M1D150E1405S075L157	1.500	.750	1.414	1.575	.560	5	5.2°	.39	29600
5898598	M1D200E1403S075L157	2.000	.750	1.750	1.575	.560	3	3.4°	.67	24700
2624270	M1D200E1405S075L157	2.000	.750	1.750	1.575	.560	5	3.4°	.72	24700
2479510	M1D200E1406S075L157	2.000	.750	1.750	1.575	.560	6	3.4°	.70	24700
2624274	M1D250E1405S075L157	2.500	.750	1.750	1.575	.560	5	2.5°	1.04	21700
2624254	M1D250E1407S075L157	2.500	.750	1.750	1.575	.560	7	2.5°	1.04	21700
5898597	M1D300E1404S100L175	3.000	1.000	2.188	1.750	.560	4	2.0°	1.56	19600
2624277	M1D300E1406S100L175	3.000	1.000	2.188	1.750	.560	6	2.0°	1.79	19600
2624275	M1D300E1408S100L175	3.000	1.000	2.188	1.750	.560	8	2.0°	1.78	19600
2624279	M1D400E1408S150L200	4.000	1.500	3.625	2.000	.560	8	1.5°	3.97	16700
2624278	M1D400E1410S150L200	4.000	1.500	3.625	2.000	.560	10	1.5°	3.99	16700

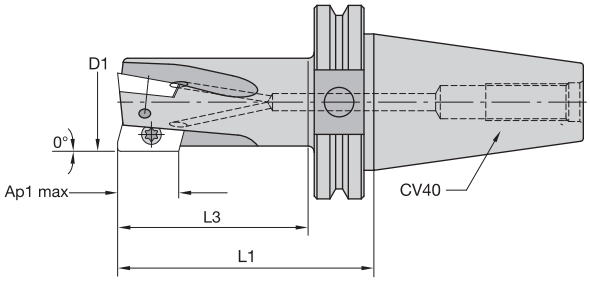
Spare Parts

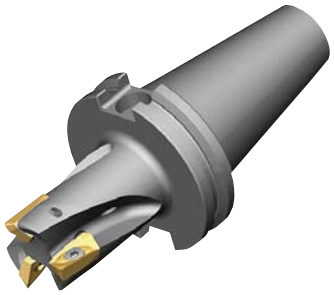
D1	 insert screw	 in. lbs.	 Torx Plus driver	 socket-head cap screw with coolant groove	 coolant screw assembly
1.250	MS2166	20	DT9IP	S422CG	–
1.500	MS2166	20	DT9IP	S445CG	–
2.000	MS2166	20	DT9IP	S445CG	–
2.500	MS2166	20	DT9IP	S445CG	–
3.000	MS2166	20	DT9IP	S2044CG	–
4.000	MS2166	20	DT9IP	–	S2165C

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.







End Mills • Steep Taper CV40

order number	catalog number	CSMS system size	D1	L1	L3	Ap1 max	Z	max ramp angle	lbs	max RPM
2624246	**M1D100E1403CV40L300**	CV40	1.000	3.000	1.500	.570	3	10.2°	2.40	39200
2624248	**M1D125E1404CV40L300**	CV40	1.250	3.000	1.500	.570	4	6.9°	2.56	33400
2624253	**M1D150E1405CV40L300**	CV40	1.500	3.000	1.625	.560	5	5.2°	2.72	29600

Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.000	**MS2166**	20	**DT9IP**
1.250	**MS2166**	20	**DT9IP**
1.500	**MS2166**	20	**DT9IP**

Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..GD	KCPM40	**.S..GD2**	**KCPM40**	.E..HD2	KCPM40
P3–P4	.S..GE	KCPK30	**.S..GD2**	**KCPK30**	.E..HD2	KCPK30
P5–P6	.S..GE	KC725M	**.S..GD2**	**KC725M**	.E..HD2	KC725M
M1–M2	.E..LD	KC522M	**.S..GD2**	**KC725M**	.E..HD2	KC522M
M3	.E..GD	KCSM40	**.S..GD2**	**KCPM40**	.E..HD2	KCPM40
K1–K2	.S..GD2	KC520M	**.E..HD2**	**KC520M**	.E..HD2	KCK15
K3	.S..GE	KCPM20	**.S..GD2**	**KC520M**	.E..HD2	KC520M
N1–N2	.F..LDJ	KC410M	**.E..LDJ**	**KC422M**	.E..LDJ	KC422M
N3	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
S1–S2	.E..GD	KC725M	**.S..GD2**	**KCSM30**	.E..HD2	KCSM30
S3	.E..GD	KCSM40	**.S..GD2**	**KCSM30**	.E..HD2	KCSM30
S4	.S..GE	KCSM40	**.S..GD2**	**KCSM30**	.E..HD2	KCSM30
H1	–	–	**–**	**–**	–	–

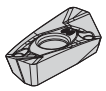
Indexable Inserts

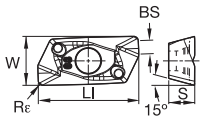
- Roughing and finishing of aluminum alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 0.551" (14mm).

● first choice
○ alternate choice

beyond

	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P				○	●		●	●		○
M				●	●		○	○	○	●
K			●	○		●	○			
N	●	●								
S				●	●				●	●
H										


EDCT-F.LDJ



EDCT-F.LDJ

EDCT-F.LDJ

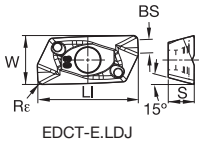
catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1402FLDJ	.687	.334	.177	.124	.008	.001	2	●	–	–	–	–	–	–	–	–	–
EC1404FLDJ	.687	.334	.177	.116	.016	.001	2	●	–	–	–	–	–	–	–	–	–
EC1408FLDJ	.688	.334	.177	.101	.031	.001	2	●	–	–	–	–	–	–	–	–	–
EC1412FLDJ	.688	.333	.177	.085	.047	.001	2	●	–	–	–	–	–	–	–	–	–
EC1416FLDJ	.688	.333	.177	.070	.062	.001	2	●	–	–	–	–	–	–	–	–	–
EC1431FLDJ	.689	.331	.177	.010	.122	.001	2	●	–	–	–	–	–	–	–	–	–
EC1440FLDJ	.651	.329	.177	—	.157	.001	2	●	–	–	–	–	–	–	–	–	–

- Roughing and finishing of aluminum alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 0.551" (14mm).

● first choice
○ alternate choice

		KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○	●		●	●		○
M					●	●		○	○	○	●
K				●	○		●	○			
N		●	●								
S					●	●				●	●
H											


EDCT-E.LDJ

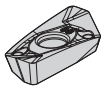


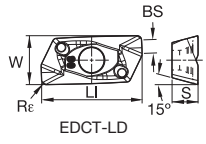
EDCT-E.LDJ

EDCT-E.LDJ

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1404ELDJ	.687	.334	.177	.116	.016	.001	2	–	●	–	–	–	–	–	–	–	–
EC1408ELDJ	.688	.334	.177	.101	.031	.001	2	–	●	–	–	–	–	–	–	–	–
EC1424ELDJ	.689	.332	.177	.039	.094	.001	2	–	●	–	–	–	–	–	–	–	–

- Finishing and high-precision applications.
- Light machining.
- 15° positive rake angle.
- Perfect floor surface finish.
- Ap1 max = 0.551" (14mm).


EDCT-LD

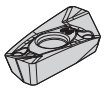


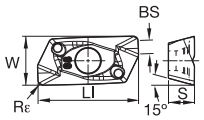
EDCT-LD

EDCT-LD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1404ELD	.687	.334	.177	.116	.016	.002	2	–	–	–	●	–	–	–	–	–	–
EC1408ELD	.688	.334	.177	.101	.031	.002	2	–	–	–	●	–	–	–	–	–	–
EC1412ELD	.688	.333	.177	.085	.047	.002	2	–	–	–	●	–	–	–	–	–	–
EC1416ELD	.688	.333	.177	.070	.062	.002	2	–	–	–	●	–	–	–	–	–	–
EC1431ELD	.689	.331	.177	.010	.122	.002	2	–	–	–	●	–	–	–	–	–	–

- Light machining and finish applications.
- Medium hone for increased edge protection.
- Periphery ground for high-precision machining.
- Ap1 max = .551" (14mm).


EDCT-E.GD



EDCT-E.GD

● first choice
○ alternate choice

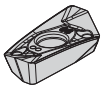
beyond

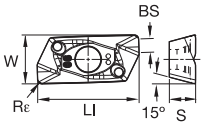
		KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○	●		●	●		○
M					●	●		○	○	○	●
K				●	○		●	○			
N		●	●								
S					●	●				●	●
H											

EDCT-E.GD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1404EGD	.687	.334	.177	.116	.016	.002	2	–	–	–	–	●	–	–	●	–	–
EC1408EGD	.688	.334	.177	.101	.031	.002	2	–	–	–	–	●	–	–	●	–	●
EC1412EGD	.688	.333	.177	.085	.047	.002	2	–	–	–	–	●	–	–	–	–	●
EC1416EGD	.688	.333	.177	.070	.062	.002	2	–	–	–	–	●	–	–	–	–	●
EC1431EGD	.689	.331	.177	.010	.122	.002	2	–	–	–	–	●	–	–	–	–	●

- Medium roughing and semi-finishing.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .551" (14mm).


EDPT-E.HD



EDPT-E.HD

EDPT-E.HD

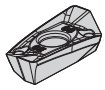
catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1404EHD	.687	.330	.177	.116	.016	.003	2	–	–	●	●	●	●	●	●	–	–
EP1408EHD	.688	.330	.177	.101	.031	.003	2	–	–	●	●	●	●	●	●	–	●
EP1412EHD	.688	.329	.177	.085	.047	.003	2	–	–	●	●	●	●	●	●	–	●
EP1416EHD	.688	.329	.177	.070	.062	.003	2	–	–	–	●	●	●	●	●	●	●
EP1420EHD	.688	.329	.177	.054	.079	.003	2	–	–	–	●	●	–	●	–	–	●
EP1424EHD	.689	.328	.177	.039	.094	.003	2	–	–	–	●	●	–	●	●	–	●
EP1431EHD	.689	.327	.177	.010	.122	.003	2	–	–	–	●	●	–	●	–	●	●
EP1440EHD	.651	.325	.177	–	.157	.003	2	–	–	–	●	●	–	●	–	●	●

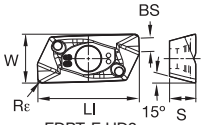
- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.551" (14mm).

beyond

● first choice
○ alternate choice

		KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○	●		●	●		○
M					●	●		○	○	○	●
K				●	○		●	○			
N		●	●								
S					●	●				●	●
H											


EDPT-E.HD2

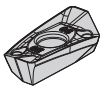


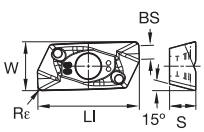
EDPT-E.HD2

EDPT-E.HD2

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1408EHD2	.688	.330	.177	.101	.031	.003	2	–	–	–	●	●	●	●	●	–	–

- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .551" (14mm).


EDPT-S.GE

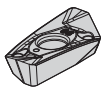


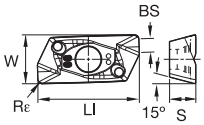
EDPT-S.GE

EDPT-S.GE

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1404SGE	.686	.323	.175	.110	.016	.005	2	–	–	–	●	●	–	●	–	–	–
EP1408SGE	.686	.322	.175	.094	.031	.005	2	–	–	–	●	●	–	●	●	–	●
EP1412SGE	.687	.320	.175	.078	.047	.005	2	–	–	–	●	●	–	●	–	–	●
EP1416SGE	.687	.320	.175	.062	.062	.005	2	–	–	–	●	●	–	●	–	–	●
EP1431SGE	.687	.318	.175	.005	.122	.005	2	–	–	–	–	●	–	●	–	–	●

- Heavy roughing applications.
- High feed rates.
- All material groups.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .551" (14mm).


EDPT-S.GD



EDPT-S.GD

EDPT-S.GD

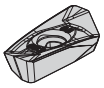
catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1408SGD	.688	.330	.177	.101	.031	.004	2	–	–	●	–	●	–	●	●	–	●
EP1412SGD	.688	.329	.177	.085	.047	.004	2	–	–	●	–	●	–	●	●	–	●
EP1416SGD	.688	.329	.177	.070	.062	.004	2	–	–	●	–	●	–	●	●	–	●

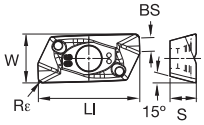
- Heavy roughing applications.
- High feed rates.
- All material groups.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .551" (14mm).

● first choice
○ alternate choice

beyond

		KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○	●		●	●		○
M					●	●		○	○	○	●
K				●	○		●	○			
N		●	●								
S					●	●				●	●
H											


EDPT-S.GD2



EDPT-S.GD2

EDPT-S.GD2

catalog number	LI	W	S	BS	Rε	hm	cutting edges
EP1408SGD2	.688	.330	.177	.103	.031	.004	2

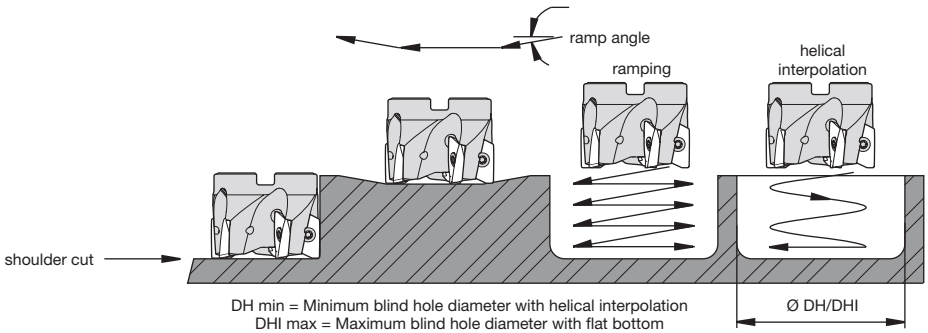
Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	.005	**.013**	.023	.003	**.009**	.017	.003	**.007**	.013	.002	**.006**	.011	.002	**.006**	.010	.F..LDJ
.E..LDJ	.005	**.017**	.028	.003	**.012**	.020	.003	**.009**	.015	.002	**.008**	.013	.002	**.007**	.012	.E..LDJ
.E..LD	.005	**.016**	.028	.004	**.012**	.020	.003	**.009**	.015	.002	**.008**	.013	.002	**.007**	.012	.E..LD
.E..GD	.007	**.019**	.032	.005	**.013**	.023	.004	**.010**	.017	.003	**.009**	.015	.003	**.008**	.014	.E..GD
.S..GE	.009	**.020**	.032	.007	**.014**	.023	.005	**.011**	.017	.004	**.009**	.015	.004	**.009**	.014	.S..GE
.S..GD	.009	**.020**	.032	.007	**.014**	.023	.005	**.011**	.017	.004	**.009**	.015	.004	**.009**	.014	.S..GD
.S..GD2	.009	**.020**	.032	.007	**.014**	.023	.005	**.011**	.017	.004	**.009**	.015	.004	**.009**	.014	.S..GD2
.E..HD	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.E..HD
.E..HD2	.008	**.023**	.037	.006	**.017**	.027	.004	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.E..HD2

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Application Examples



insert style	cutting diameter	max ramp angle	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	max diameter (no flat bottom)
Mill-1, 14mm	.625	25°	.625	1.065	1.25
Mill-1, 14mm	.750	18°	.869	1.130	1.50
Mill-1, 14mm	.875	13°	1.113	1.562	1.75
Mill-1, 14mm	.970	11°	1.300	1.752	1.94
Mill-1, 14mm	1.000	10°	1.360	1.812	2.00
Mill-1, 14mm	1.250	7°	1.862	2.312	2.50
Mill-1, 14mm	1.500	6°	2.361	2.812	3.00
Mill-1, 14mm	1.250	7°	1.873	2.322	2.50
Mill-1, 14mm	1.500	5°	2.370	2.822	3.00
Mill-1, 14mm	2.000	4°	3.368	3.822	4.00
Mill-1, 14mm	2.500	3°	4.367	4.822	5.00
Mill-1, 14mm	3.000	2°	5.366	5.822	6.00
Mill-1, 14mm	4.000	2°	7.366	7.822	8.00

NOTE: Max ramp angle decreases as nose radius increases.

Kennametal on the Web

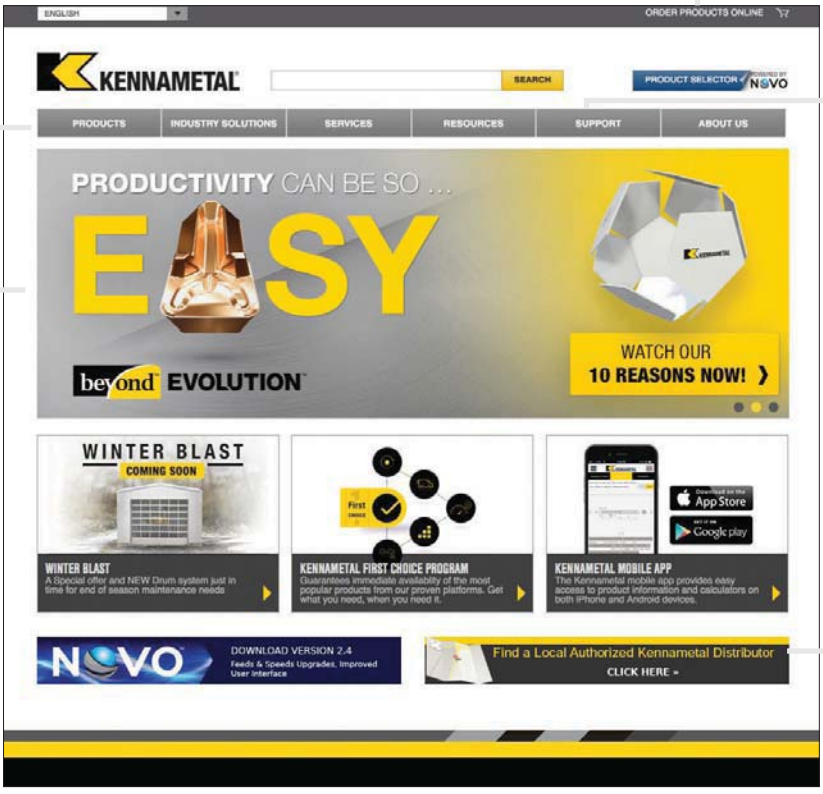
kennametal.com

FIND THE LATEST PRODUCT INFORMATION

Whether your operation is turning, milling, or holemaking, Kennametal brands are the high-performance tooling you need. We offer standard and custom solutions for a wide range of applications.

Find information about our most current campaigns and catalogs.

Register on Konnect for the full functionality of the Kennametal online ordering website.



CONTACT US

Our customers are important to us. We want to provide you the best customer service in the industry. If you have a comment or question, please send it to us. We strive to respond to all inquiries within 24 hours.

FIND A LOCAL AUTHORIZED DISTRIBUTOR IN YOUR AREA

Kennametal offers world-class products and services globally. Our distributors know us, and more importantly, they know you. They know better than anyone in the industry how to put the global power of Kennametal to work for you — in your industry, in your region, and for your business.

Mill 1-14™
Helical Cutters

Primary Application

Mill 1-14 helical cutters will increase axial depth of cut. Designed with axial support pins for added stability, the Mill 1-14 helical cutters feature essential Load-Optimized Insert Spacing™ (LOIS) technology. LOIS dramatically minimizes unwanted vibrations and fluctuations in power requirements, resulting in a much smoother-sounding cut. Up to nine different coolant nozzle diameters enable tailoring to suit each machine tool, providing remarkably consistent, focused coolant flow.

Features and Benefits

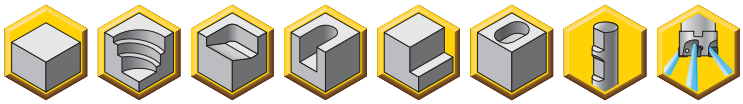
Functions

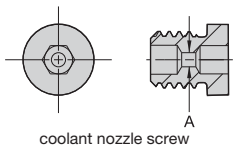
- Improves axial depth of cut better than standard end mills due to the positioning of inserts in helical configuration.
- Up to nine different coolant nozzle diameters tailored to suit each machine tool.
- One tool that offers features common to end mills, but rarely seen on a helical cutter:
  Helical ramping from solid, slotting, contouring, ramping, and plunging.

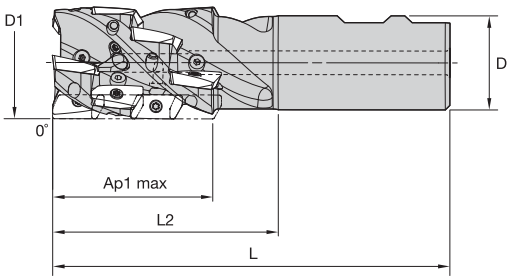
Benefits

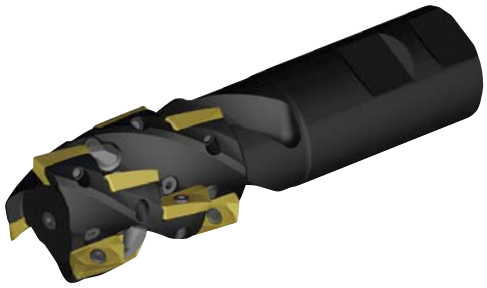
- Increases depth of cut.
- Consistent, focused coolant flow.
- Built for performance, accuracy, and versatility.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 0° walls.
- Axial support pins.
- Unique coolant nozzles.









Helical Weldon® End Mills • Slot and Profile

order number	catalog number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	lbs	max RPM
3732889	M1HR125E14W125Z2L200C4	1.250	1.250	4.280	2.000	1.100	4	2	6.9°	1.10	31100
3732890	M1HR150E14W125Z3L200C6	1.500	1.250	4.280	2.000	1.090	6	3	5.2°	1.18	28400
3732891	M1HR150E14W125Z3L250C9	1.500	1.250	4.780	2.500	1.612	9	3	5.2°	1.31	28400
3732892	M1HR150E14W125Z3L300C12	1.500	1.250	5.280	3.000	2.130	12	3	5.2°	1.39	28400
3732935	M1HR200E14W150Z3L300C12	2.000	1.500	5.690	3.001	2.104	12	3	3.4°	2.63	24600

Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver	pin	coolant nozzle screw
1.250	MS2148	20	DT9IP	ASPM07001802	MS2191C20
1.500	MS2148	20	DT9IP	ASPM07001802	MS2191C20
2.000	MS2148	20	DT9IP	ASPM07001802	MS2191C20

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Optional Coolant Nozzle Screws

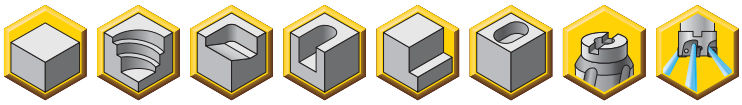
order number	catalog number	A
3400611	MS2191C00	—
3400612	MS2191C06	.024
3400613	MS2191C08	.032
3400616	MS2191C12	.047
3400617	MS2191C14	.055
3400618	MS2191C16	.063
3400619	MS2191C18	.071
3400620	MS2191C20	.079

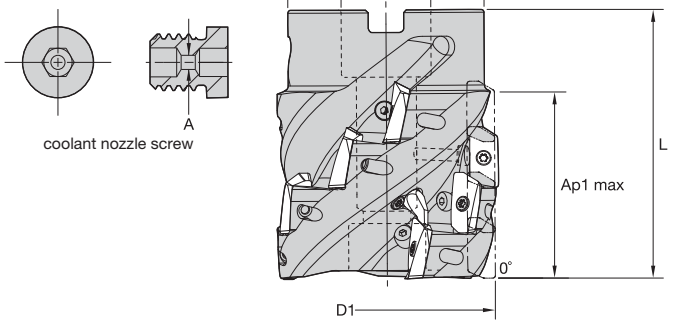
Coolant Nozzle Key

order number	T-handle hex wrench	drive size
1993552	THW2M	2 MM

NOTE: Check the spare parts table for the coolant hole size that is incorporated in the cutters.
If you need an alternative, there are eight other variants to choose from to increase or decrease the pressure.
Example: MS2191C12 this is a .047" hole.
All coolant nozzles are interchangeable with the original that is supplied with the cutter. This gives flexibility for coolant flow.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 0° walls.
- Axial support pins.
- Unique coolant nozzles.





Helical Shell Mills • Slot and Profile

order number	catalog number	D1	D	D6	L	Ap1 max	Z	Z U	max ramp angle	lbs	max RPM
3732933	**M1HR200E14S075Z3L200C6**	2.000	.750	1.750	2.000	1.070	6	3	3.4	.98	24600
3732934	**M1HR200E14S075Z3L250C9**	2.000	.750	1.750	2.500	1.591	9	3	3.4	1.27	24600
3732937	**M1HR250E14S100Z3L250C9**	2.500	1.000	2.188	2.500	1.570	9	3	2.5	2.12	22000
3732938	**M1HR250E14S100Z4L250C12**	2.500	1.000	2.188	2.500	1.570	12	4	2.5	2.05	22000
3732939	**M1HR250E14S100Z3L300C12**	2.500	1.000	2.188	3.000	2.080	12	3	2.5	2.61	22000

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Spare Parts

order number	D1	L	 insert screw	 in. lbs.	 Torx Plus driver	 pin	 socket-head cap screw	 coolant nozzle screw
3732933	2.000	2.000	**MS2148**	20	**DT9IP**	**ASPM07001802**	**S447**	**MS2191C20**
3732934	2.000	2.500	**MS2148**	20	**DT9IP**	**ASPM07001802**	**S449**	**MS2191C16**
3732937	2.500	2.500	**MS2148**	20	**DT9IP**	**ASPM07001802**	**S462**	**MS2191C20**
3732938	2.500	2.500	**MS2148**	20	**DT9IP**	**ASPM07001802**	**S462**	**MS2191C16**
3732939	2.500	3.000	**MS2148**	20	**DT9IP**	**ASPM07001802**	**S464**	**MS2191C16**

Optional Coolant Nozzle Screws

order number	catalog number	A
3400611	MS2191C00	–
3400612	MS2191C06	.024
3400613	MS2191C08	.032
3400616	MS2191C12	.047
3400617	MS2191C14	.055
3400618	MS2191C16	.063
3400619	MS2191C18	.071
3400620	MS2191C20	.079

Coolant Nozzle Key

order number	 catalog number	 drive size
1993552	THW2M	2 MM

NOTE: Check the spare parts column for the coolant hole size that is incorporated in the cutters.
If you need an alternative, there are eight other variants to choose from to increase or decrease the pressure.
Example: MS2191C12 this is a .047" (1,20mm) hole. All coolant nozzles are interchangeable with the original that is supplied with the cutter. This gives flexibility with coolant flow.

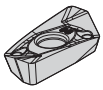
Insert Selection Guide

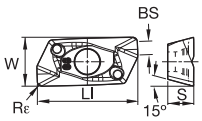
Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		⟷		toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..GD	KCPM40	**.S..GD2**	**KCPM40**	.E..HD2	KCPM40
P3–P4	.E..GD	KCPM40	**.S..GD2**	**KCPK30**	.E..HD2	KCPK30
P5–P6	.E..GD	KC725M	**.S..GD2**	**KC725M**	.E..HD2	KC725M
M1–M2	.E..LD	KC522M	**.E..GD**	**KCSM40**	.E..HD2	KC522M
M3	.E..GD	KCSM40	**.S..GD2**	**KCPM40**	.E..HD2	KCPM40
K1–K2	.S..GD2	KC520M	**.E..HD2**	**KC520M**	.E..HD2	KCK15
K3	.S..GD2	KC520M	**.E..HD2**	**KC520M**	.E..HD2	KCK15
N1–N2	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.E..LDJ	KC422M
N3	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
S1–S2	.E..GD	KC725M	**.S..GD2**	**KC725M**	.E..HD2	KC725M
S3	.E..GD	KCSM40	**.S..GD2**	**KC725M**	.E..HD2	KC725M
S4	.E..GD	KCSM40	**.S..GD2**	**KC725M**	.E..HD2	KC522M
H1	–	–	–	–	–	–

Indexable Inserts

- Roughing and finishing of aluminum alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 0.551" (14mm).

● first choice
○ alternate choice


EDCT-F.LDJ



EDCT-F.LDJ

EDCT-F.LDJ

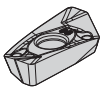
catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1402FLDJ	.687	.334	.177	.124	.008	.001	2	●	–	–	–	–	–	–	–	–	–
EC1404FLDJ	.687	.334	.177	.116	.016	.001	2	●	–	–	–	–	–	–	–	–	–
EC1408FLDJ	.688	.334	.177	.101	.031	.001	2	●	–	–	–	–	–	–	–	–	–
EC1412FLDJ	.688	.333	.177	.085	.047	.001	2	●	–	–	–	–	–	–	–	–	–
EC1416FLDJ	.688	.333	.177	.070	.062	.001	2	●	–	–	–	–	–	–	–	–	–
EC1431FLDJ	.689	.331	.177	.010	.122	.001	2	●	–	–	–	–	–	–	–	–	–
EC1440FLDJ	.651	.329	.177	—	.157	.001	2	●	–	–	–	–	–	–	–	–	–

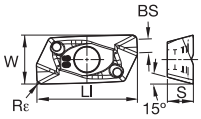
- Roughing and finishing of aluminum alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 0.551" (14mm).

beyond

● first choice
○ alternate choice

		KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○	●		●	●		○
M					●	●		○	○	○	●
K				●	○		●	○			
N		●	●								
S					●	●				●	●
H											


EDCT-E.LDJ

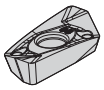


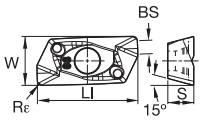
EDCT-E.LDJ

EDCT-E.LDJ

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1404ELDJ	.687	.334	.177	.116	.016	.001	2	–	●	–	–	–	–	–	–	–	–
EC1408ELDJ	.688	.334	.177	.101	.031	.001	2	–	●	–	–	–	–	–	–	–	–
EC1424ELDJ	.689	.332	.177	.039	.094	.001	2	–	●	–	–	–	–	–	–	–	–

- Finishing and high precision applications.
- Light machining.
- 15° positive rake angle.
- Perfect floor surface finish.
- Ap1 max = 0.551" (14mm).


EDCT-LD

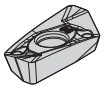


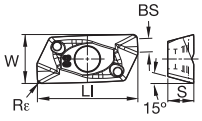
EDCT-LD

EDCT-LD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1404ELD	.687	.334	.177	.116	.016	.002	2	–	–	–	●	–	–	–	–	–	–
EC1408ELD	.688	.334	.177	.101	.031	.002	2	–	–	–	●	–	–	–	–	–	–
EC1412ELD	.688	.333	.177	.085	.047	.002	2	–	–	–	●	–	–	–	–	–	–
EC1416ELD	.688	.333	.177	.070	.062	.002	2	–	–	–	●	–	–	–	–	–	–
EC1431ELD	.689	.331	.177	.010	.122	.002	2	–	–	–	●	–	–	–	–	–	–

- Light machining and finish applications.
- Medium hone for increased edge protection.
- Periphery ground for high precision machining.
- Ap1 max = 0.551" (14mm).


EDCT-E.GD



EDCT-E.GD

● first choice
○ alternate choice

beyond

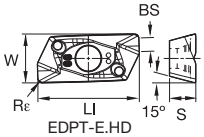
P					○	●		●	●		○
M					●	●		○	○	○	●
K				●	○		●	○			
N	●	●									
S					●	●				●	●
H											

EDCT-E.GD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1404EGD	.687	.334	.177	.116	.016	.002	2	–	–	–	–	●	–	–	●	–	–
EC1408EGD	.688	.334	.177	.101	.031	.002	2	–	–	–	–	●	–	–	●	–	●
EC1412EGD	.688	.333	.177	.085	.047	.002	2	–	–	–	–	●	–	–	–	–	●
EC1416EGD	.688	.333	.177	.070	.062	.002	2	–	–	–	–	●	–	–	–	–	●
EC1431EGD	.689	.331	.177	.010	.122	.002	2	–	–	–	–	●	–	–	–	–	●

- Medium roughing and semi-finishing.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.551" (14mm).


EDPT-E.HD



EDPT-E.HD

EDPT-E.HD

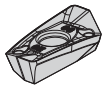
catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1404EHD	.687	.330	.177	.116	.016	.003	2	–	–	●	●	●	●	●	●	–	–
EP1408EHD	.688	.330	.177	.101	.031	.003	2	–	–	●	●	●	●	●	●	–	●
EP1412EHD	.688	.329	.177	.085	.047	.003	2	–	–	●	●	●	●	●	●	–	●
EP1416EHD	.688	.329	.177	.070	.062	.003	2	–	–	–	●	●	●	●	●	●	●
EP1420EHD	.688	.329	.177	.054	.079	.003	2	–	–	–	●	●	–	●	–	–	●
EP1424EHD	.689	.328	.177	.039	.094	.003	2	–	–	–	●	●	–	●	●	–	●
EP1431EHD	.689	.327	.177	.010	.122	.003	2	–	–	–	●	●	–	●	–	●	●
EP1440EHD	.651	.325	.177	—	.157	.003	2	–	–	–	●	●	–	●	–	●	●

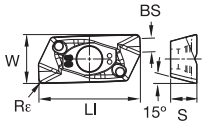
- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.551" (14mm).

beyond

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

● first choice
○ alternate choice


EDPT-E.HD2

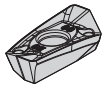


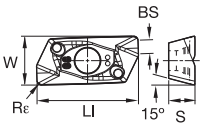
EDPT-E.HD2

EDPT-E.HD2

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1408EHD2	.688	.330	.177	.101	.031	.003	2	–	–	–	●	●	●	●	●	–	–

- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.551" (14mm).


EDPT-S.GE



EDPT-S.GE

EDPT-S.GE

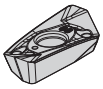
catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1404SGE	.686	.323	.175	.110	.016	.005	2	–	–	–	●	●	–	●	–	–	–
EP1408SGE	.686	.322	.175	.094	.031	.005	2	–	–	–	●	●	–	●	●	–	●
EP1412SGE	.687	.320	.175	.078	.047	.005	2	–	–	–	●	●	–	●	–	–	●
EP1416SGE	.687	.320	.175	.062	.062	.005	2	–	–	–	●	●	–	●	–	–	●
EP1431SGE	.687	.318	.175	.005	.122	.005	2	–	–	–	–	●	–	●	–	–	●

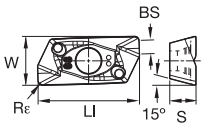
- Heavy roughing applications.
- High feed rates.
- All material groups.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.551" (14mm).

beyond

● first choice
○ alternate choice

		KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○	●		●	●		○
M					●	●		○	○	○	●
K				●	○		●	○			
N		●	●								
S					●	●				●	●
H											


EDPT-S.GD

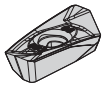


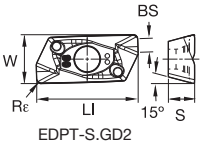
EDPT-S.GD

EDPT-S.GD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1408SGD	.688	.330	.177	.101	.031	.004	2	–	–	●	–	●	–	●	●	–	●
EP1412SGD	.688	.329	.177	.085	.047	.004	2	–	–	●	–	●	–	●	●	–	●
EP1416SGD	.688	.329	.177	.070	.062	.004	2	–	–	●	–	●	–	●	●	–	●

- Heavy roughing applications.
- High feed rates.
- All material groups.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 0.551" (14mm).


EDPT-S.GD2



EDPT-S.GD2

EDPT-S.GD2

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1408SGD2	.688	.330	.177	.103	.031	.004	2	–	–	●	–	●	–	●	●	–	–

Recommended Starting Feeds

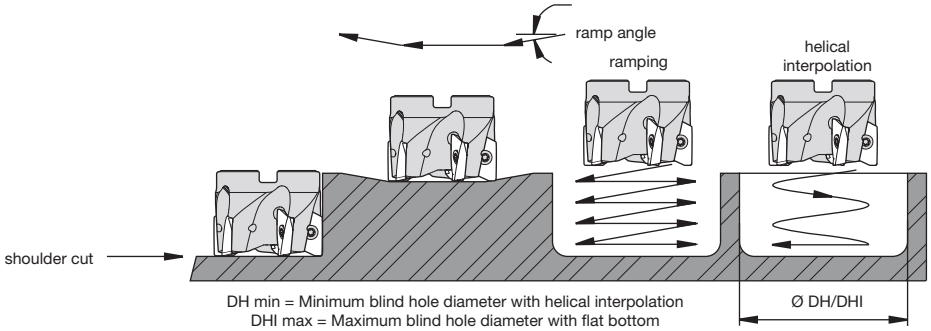
Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	.005	**.019**	.033	.003	**.013**	.023	.003	**.010**	.018	.002	**.009**	.015	.002	**.008**	.014	.F..LDJ
.E..LDJ	.005	**.019**	.033	.003	**.014**	.024	.003	**.010**	.018	.002	**.009**	.015	.002	**.008**	.014	.E..LDJ
.E..LD	.005	**.018**	.032	.004	**.013**	.023	.003	**.010**	.017	.002	**.009**	.015	.002	**.008**	.014	.E..LD
.E..GD	.007	**.020**	.035	.005	**.015**	.025	.004	**.011**	.019	.003	**.010**	.016	.003	**.009**	.015	.E..GD
.S..GE	.009	**.020**	.035	.007	**.014**	.025	.005	**.011**	.019	.004	**.009**	.017	.004	**.009**	.015	.S..GE
.S..GD	.009	**.020**	.035	.007	**.014**	.025	.005	**.011**	.019	.004	**.009**	.016	.004	**.009**	.015	.S..GD
.S..GD2	.009	**.020**	.035	.007	**.014**	.025	.005	**.011**	.019	.004	**.009**	.016	.004	**.009**	.015	.S..GD2
.E..HD	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.E..HD
.E..HD2	.008	**.023**	.037	.006	**.017**	.027	.004	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.E..HD2

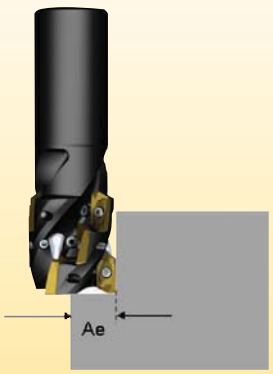
NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Application Examples



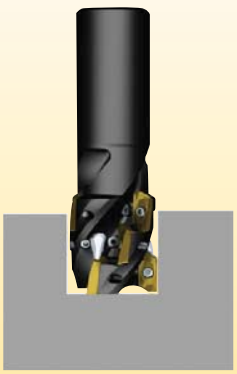
insert style	cutting diameter	max ramp angle	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	max diameter (no flat bottom)
Mill 1-14	1.25	5.4°	1.862	2.312	2.5
Mill 1-14	1.50	4.0°	2.370	2.822	3
Mill 1-14	2.00	2.6°	3.368	3.822	4
Mill 1-14	2.50	1.9°	4.367	4.822	5

Best Machining Practices



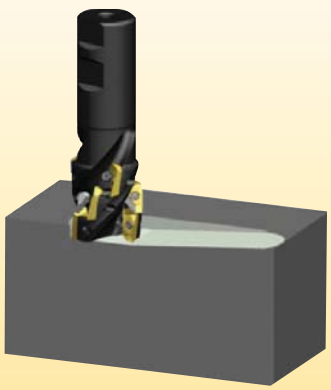
Contouring/Profiling

Ae = up to 50% of cutter Ø. This can be used with or without coolant/air blast, depending on materials being machined.



Slotting

Full width cutting or profiling over 50% of the cutter Ø. It is suggested to use coolant or air blast to evacuate chips. If necessary, reduce coolant nozzle hole size, which adds more pressure, and the chip is forced out of the chip gash.

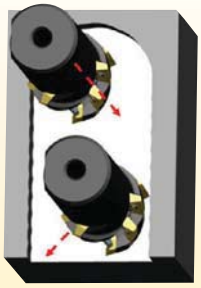


Ramping

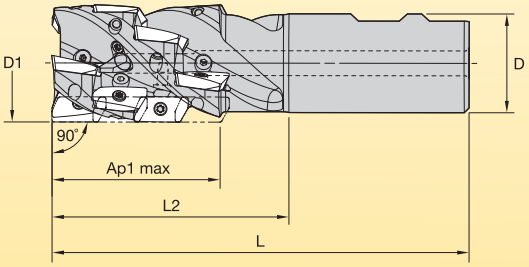
Only machine to the depth of the first insert. Observe the ramping angles given in the catalog.

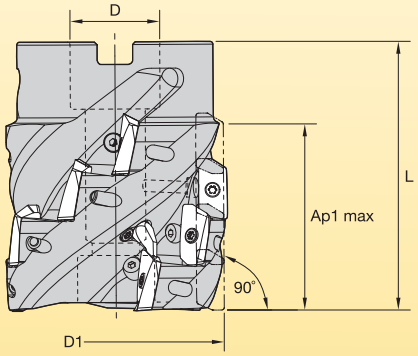
Slotting by Plunging

Slot with the alternate side method, alternating the cuts from side to side. This will enable the cutter to move away from the material prior to moving back up in the Z-axis. The cutter will not be in contact with the workpiece. Follow the direction of the arrows. Move 3 axes simultaneously into the center of the slot. Maximum step over 0.315" (8,0mm).



With multiple Z-axis passes, when the final depth is achieved, move straight back up in the Z-axis, then repeat at the next step over.





	catalog number	order number	D1	ZU[1]	Z	Mtg. [2]	D	L2	L	Ap1 max	max Ra[3]	max CR[4]	max RPM
Inch Cutters	M1HR125E14W125Z2L200C4	3732889	1.25	2	4	W	1.25	2.00	4.28	1.09	5.4°	0.094	31100
	M1HR150E14W125Z3L200C6	3732890	1.50	3	6	W	1.25	2.00	4.28	1.09	4.0°	0.094	28400
	M1HR150E14W125Z3L250C9	3732891	1.50	3	9	W	1.25	2.50	4.78	1.61	4.0°	0.094	28400
	M1HR150E14W125Z3L300C12	3732892	1.50	3	12	W	1.25	3.00	5.28	2.13	4.0°	0.094	28400
	M1HR200E14S075Z3L200C6	3732933	2.00	3	6	S	0.75	—	2.00	1.07	2.6°	0.094	24600
	M1HR200E14S075Z3L250C9	3732934	2.00	3	9	S	0.75	—	2.50	1.59	2.6°	0.094	24600
	M1HR200E14W150Z3L300C12	3732935	2.00	3	12	W	1.50	3.00	5.69	2.10	2.6°	0.094	24600
	M1HR250E14S100Z3L200C6	3732936	2.50	3	6	S	1.00	—	2.00	1.06	1.9°	0.094	22000
	M1HR250E14S100Z3L250C9	3732937	2.50	3	9	S	1.00	—	2.50	1.57	1.9°	0.062	22000
	M1HR250E14S100Z4L250C12	3732938	2.50	4	12	S	1.00	—	2.50	1.57	1.9°	0.062	22000
	M1HR250E14S100Z3L300C12	3732939	2.50	3	12	S	1.00	—	3.00	2.07	1.9°	0.062	22000
	[5] M1HR250E14S100Z5L300C20	3786638	2.50	5	20	S	1.00	—	3.00	2.07	1.9°	0.062	22000

Metric Cutters	M1H32J2R50B32S90ED14C4	3742932	32	2	4	W	32	50	111	27,8	5,4°	2,4	31100
	M1H40J3R50B32S90ED14C6	3743033	40	3	6	W	32	50	111	27,6	3,8°	2,4	28400
	M1H40J3R65B32S90ED14C9	3743034	40	3	9	W	32	65	126	40,8	3,8°	2,4	28400
	M1H40J4R80B32S90ED14C12	5085631	40	4	12	W	32	80	141	40,8	3,8°	2,5	28400
	M1H40J3R80B32S90ED14C12	3743035	40	3	12	W	32	80	141	54,0	3,8°	2,4	28400
	M1H50T3R50A22S90ED14C6	3743036	50	3	6	S	22	—	50	27,3	2,7°	2,4	24600
	M1H50T3R65A22S90ED14C9	3743037	50	3	9	S	22	—	65	40,4	2,7°	2,4	24600
	M1H50J3R80B40S90ED14C12	3743038	63	3	12	W	40	80	151	53,5	1,9°	2,4	24600
	M1H63T3R50A27S90ED14C6	3743039	63	3	6	S	27	—	50	27,0	1,9°	1,6	22000
	M1H63T3R65A27S90ED14C9	3743040	63	3	9	S	27	—	65	39,9	1,9°	1,6	22000
	M1H63T4R65A27S90ED14C12	3743041	63	4	12	S	27	—	65	39,9	1,9°	1,6	22000
	M1H63T3R75A27S90ED14C12	3743042	63	3	12	S	27	—	75	52,8	1,9°	1,6	22000
	[5] M1H63T5R75A27S90ED14C20	3831819	63	5	20	S	27	—	75	52,8	1,9°	1,6	22000

[1] Number of effective flutes.
[2] Mounting style: W = Weldon®; S = Shell Mill.
[3] Max ramp angle when radial depth of cut exceeds 0.31" (8mm)
[4] Max insert corner radius allowed in first row without cutter body modification.
[5] Recommended for profiling applications only.

Profile, Slot, and Ramp

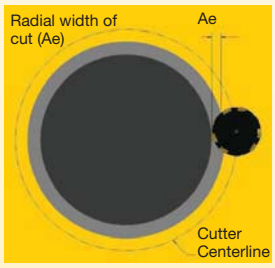
When taking a cut that equals up to 50% of the cutter diameter, you can operate without coolant, unless your material is coolant-dependent. When using more than 50% of the cutter diameter, there is a need to have coolant through the nozzles, or an air blast through the nozzles. This will assist with chip evacuation. Please use the feed table when taking a small percentage of the cutter diameter. This will improve the volume of material removed. To achieve a superior surface finish on the base, adjust the feed to suit the finish required.

When using this cutter for plunging, the maximum suggested step over is .130" (3,30mm). Always try to move the cutter and insert away from the material when retracting in the Z-axis. This can be done when employing the alternate cut method (zig zag method). Use a 3-axis move to get all axes moving at the same time, suggest .010" (0,25mm).

When machining a conventional slot, you have to move straight up in the Z-axis.

Circular and Helical Interpolation

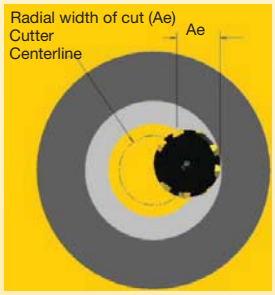
External



When profiling around the external part of a component, it is important to increase the feed rate. This will maintain the chip thickness value.
The programmed feed rate needs to be calculated at the cutter centerline.

For external profiling, adjust the feed rate for feed at the cutter centerline.
Increase the feed rate for external profiling.

Internal



When machining inside a component profile, the area of contact is larger.
The feed rate needs to be at the centerline, and the feed rate needs to be slower.

For internal profiling, adjust the feed rate for feed at the cutter centerline.
This will effectively reduce the feed rate as the distance traveled is less than the peripheral distance.

Cutting Data

Reference pages X23–X27 for speed tables. Reference platform pages for feed data. Each insert has an average chip thickness value that will enable you to determine the feed per tooth.

Please remember when using less than 50% of the cutter diameter, the feed rate will need to be increased. Failure to do so will result in premature insert failure.

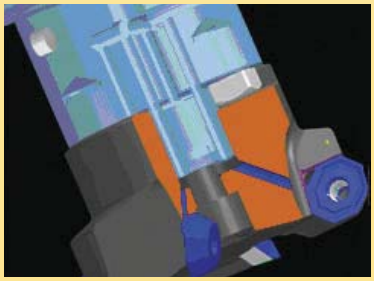
Running too slowly will reduce tool life.

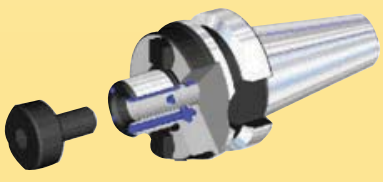
Spare Parts

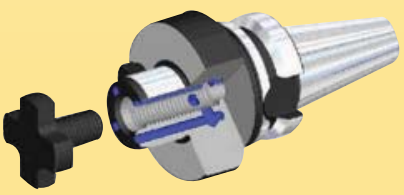
Please make sure all the spare parts in the cutters are fully tightened prior to using the product.

Shell mill cutters no longer have coolant grooved bolts. We now have adapters that will enable the coolant to be fed through the adapter pilot diameter.

True Through Coolant Shell Mill Adapters







Mill 1-18™

Primary Application

The Mill 1-18 series is a versatile, functional cutter system for a range of cutting tasks. Mill 1-18 cutters can be used for profiling, slotting, ramping, helical interpolation, plunging, and other milling applications. It's a single tool with multi-functional benefits. Mill 1-18 inserts are specially designed to add cutting versatility, especially for larger axial depths of cut. Results include significantly reduced cycle times and lower cutting forces.

Features and Benefits

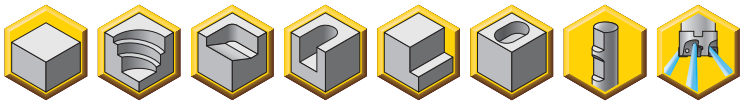
Features

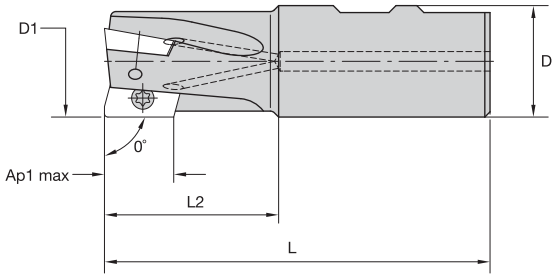
- Inserts for larger axial depth of cut.
- Inserts radii up to .250" (6,35mm).
- Axial depth of cut up to .708" (18mm).
- Cutter diameters up to 8" (160mm).
- Beyond™ grade technology.

Benefits

- Slotting, profiling, ramping, helical interpolation, and plunging.
- Angled screw for insert retention.
- Insert geometries and grades for most workpiece materials.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.





Weldon® End Mills

order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
2267545	**M1D097E1802W100L175**	.970	1.000	4.030	1.750	.710	2	17.7°	.66	37710
2267546	**M1D100E1802W100L175**	1.000	1.000	4.030	1.750	.710	2	16.7°	.68	37000
2267550	**M1D100E1802W100L175R**	1.000	1.000	3.968	1.688	.640	2	13.4°	.67	37000
2267547	**M1D100E1802W100L375**	1.000	1.000	6.030	3.750	.710	2	16.7°	1.00	37000
2267552	**M1D100E1802W100L375R**	1.000	1.000	5.968	3.688	.640	2	13.4°	.99	37000
2267623	**M1D125E1803W125L225**	1.250	1.250	4.530	2.250	.710	3	10.9°	1.17	32300
2267624	**M1D125E1803W125L225R**	1.250	1.250	4.469	2.188	.650	3	7.5°	1.16	32300
2267625	**M1D125E1803W125L425**	1.250	1.250	6.530	4.250	.710	3	10.9°	1.71	32300
2267626	**M1D125E1803W125L425R**	1.250	1.250	6.468	4.188	.650	3	7.5°	1.71	32300

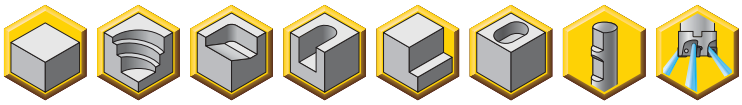
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.
"R" in catalog number designates factory-relieved tool for insert radii greater than .079". For example: M1D100E1802W100L375**R**.

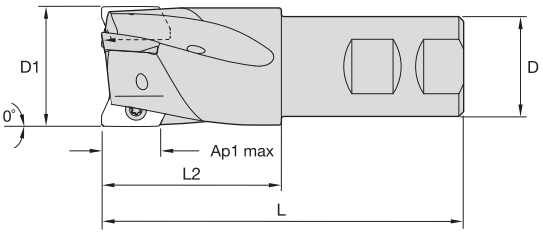
Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
.970	**MS2126**	35	**DT15IP**
1.000	**MS2126**	35	**DT15IP**
1.250	**MS2126**	35	**DT15IP**

NOTE: Additional insert screws may be ordered in packages of five pieces from catalog number MS2126PKG.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.





Weldon® End Mills • Reduced Shank

order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
2452372	**M1D100E1802W075L175**	1.000	.750	3.780	1.750	.710	2	14.0°	.43	37000
2452414	**M1D125E1802W100L225**	1.250	1.000	4.530	2.250	.710	2	10.9°	.95	32300
2635710	**M1D125E1803W100L225**	1.250	1.000	4.530	2.250	.710	3	10.9°	.89	32300
2267627	**M1D150E1803W125L225**	1.500	1.250	4.530	2.250	.710	3	8.2°	1.43	29020
2267651	**M1D150E1803W125L425**	1.500	1.250	6.530	4.250	.710	3	8.2°	2.26	29020
2267631	**M1D150E1803W125L425R**	1.500	1.250	6.468	4.188	.640	3	5.2°	2.25	29020
2267629	**M1D150E1804W125L225**	1.500	1.250	4.530	2.250	.710	4	8.2°	1.38	29020
2267628	**M1D150E1804W125L225R**	1.500	1.250	4.468	2.188	.640	4	5.2°	1.38	29020
2267621	**M1D200E1805W125L225**	2.000	1.250	4.530	2.250	.700	5	5.5°	2.00	24670

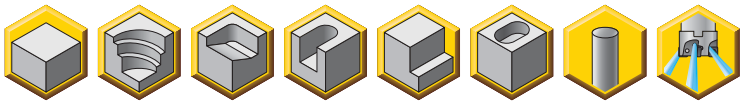
NOTE: "Standard milling cutters will accept insert nose radii up to .079" without modification.
R" in catalog number designates factory-relieved tool for insert radii greater than .079". For example: M1D100E1802W100L375**R**.

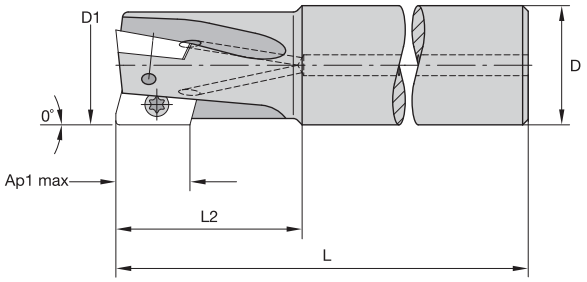
Spare Parts

D1	insert screw	in. lbs.	Torx Plus driver
1.000	**MS2126**	35	**DT15IP**
1.250	**MS2126**	35	**DT15IP**
1.500	**MS2126**	35	**DT15IP**
2.000	**MS2126**	35	**DT15IP**

NOTE: Additional insert screws may be ordered in packages of five pieces from catalog number MS2126PKG.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.





Cylindrical End Mills

order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
2267534	**M1D100E1802C100L800**	1.000	1.000	8.000	3.750	.710	2	16.7°	1.41	37000
2267535	**M1D100E1802C100L1000**	1.000	1.000	10.000	3.750	.710	2	16.7°	1.82	37000
2267536	**M1D125E1802C125L800**	1.250	1.250	8.000	4.250	.710	2	10.9°	2.27	32300
2267537	**M1D125E1802C125L1000**	1.250	1.250	10.000	4.250	.710	2	10.9°	2.94	32300
2267538	**M1D150E1803C125L800**	1.500	1.250	8.000	4.250	.710	3	8.2°	2.75	29020
2267539	**M1D150E1803C125L1000**	1.500	1.250	10.000	4.250	.710	3	8.2°	3.42	29020
5194531	**M1D150E1803C125L1000AL**	1.500	1.250	10.000	2.000	.710	3	8.2°	3.11	29020

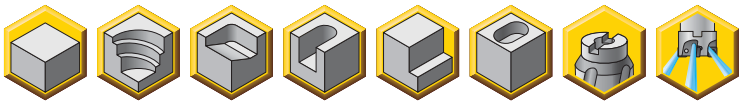
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.
Cylindrical shank with no through coolant.
Cutters designated with the -AL suffix have relieved flutes for aggressive aluminum machining.

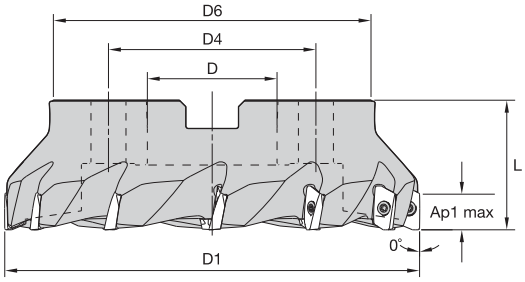
Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.000	**MS2126**	35	**DT15IP**
1.250	**MS2126**	35	**DT15IP**
1.500	**MS2126**	35	**DT15IP**

NOTE: Additional insert screws may be ordered in packages of five pieces from catalog number MS2126PKG.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.





Shell Mills

order number	catalog number	D1	D	D4	D6	L	Ap1 max	Z	max ramp angle	lbs	max RPM
2267542	**M1D200E1803S075L157**	2.000	.750	—	1.688	1.575	.700	3	5.2°	.71	24670
5067568	**M1D200E1803S075L157AL**	2.000	.750	—	1.688	1.575	.700	3	5.2°	.60	24670
2267650	**M1D200E1805S075L157**	2.000	.750	—	1.688	1.575	.700	5	5.2°	.69	24670
5067567	**M1D250E1804S075L157AL**	2.500	.750	—	1.750	1.575	.690	4	3.8°	.83	21820
2267632	**M1D250E1806S075L157**	2.500	.750	—	1.750	1.575	.690	6	3.8°	1.00	21820
5135356	**M1D300E1804S100L175AL**	3.000	1.000	—	2.188	1.750	.690	4	3.0°	1.44	19780
2267616	**M1D300E1805S100L175**	3.000	1.000	—	2.188	1.750	.690	5	3.0°	1.72	19780
2267643	**M1D300E1807S100L175**	3.000	1.000	—	2.188	1.750	.690	7	3.0°	1.75	19780
2267617	**M1D400E1806S150L200**	4.000	1.500	—	3.625	2.000	.690	6	2.1°	3.80	16970
2267644	**M1D400E1808S150L200**	4.000	1.500	—	3.625	2.000	.690	8	2.1°	3.83	16970
2267645	**M1D500E1809S150L200**	5.000	1.500	—	3.750	2.000	.690	9	1.6°	5.75	15100
2267646	**M1D600E1808S150L200**	6.000	1.500	—	3.750	2.000	.690	8	1.3°	7.46	13740
2267618	**M1D600E1808S200L200**	6.000	2.000	—	4.875	2.000	.690	8	1.3°	8.77	13740
2267620	**M1D800E1812S250L250**	8.000	2.500	4.000	6.125	2.500	.690	12	1.0°	15.35	11850

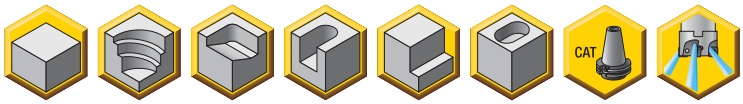
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.
"Speed screw" differential lock-up system is identified by the "SS" in the catalog number. For example: M1D200E1803**SS**075L157.
Cutters designated with the -AL suffix have relieved flutes for aggressive aluminum machining.

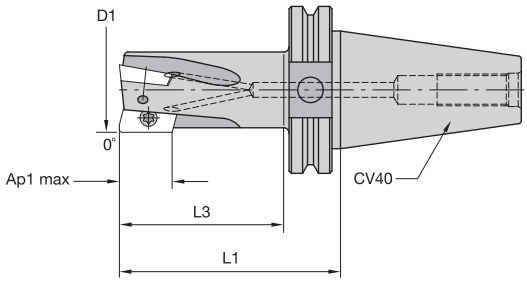
Spare Parts

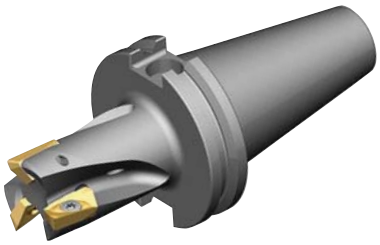
order number	D1	 insert screw	 in. lbs.	 Torx Plus driver	 socket-head cap screw with coolant groove	 coolant screw assembly	 coolant screw assembly
2267542	2.000	**MS2126**	35	**DT15IP**	**S445CG**	**—**	**—**
5067568	2.000	**MS2126**	35	**DT15IP**	**S445CG**	**—**	**—**
2267650	2.000	**MS2126**	35	**DT15IP**	**S445CG**	**—**	**—**
5067567	2.500	**MS2126**	35	**DT15IP**	**S445CG**	**—**	**—**
2267632	2.500	**MS2126**	35	**DT15IP**	**S445CG**	**—**	**—**
5135356	3.000	**MS2126**	35	**DT15IP**	**S2044CG**	**—**	**—**
2267616	3.000	**MS2126**	35	**DT15IP**	**S2044CG**	**—**	**—**
2267643	3.000	**MS2126**	35	**DT15IP**	**S2044CG**	**—**	**—**
2267617	4.000	**MS2126**	35	**DT15IP**	**—**	**—**	**S2165C**
2267644	4.000	**MS2126**	35	**DT15IP**	**—**	**—**	**S2165C**
2267645	5.000	**MS2126**	35	**DT15IP**	**—**	**—**	**S2165C**
2267646	6.000	**MS2126**	35	**DT15IP**	**—**	**—**	**S2165C**
2267618	6.000	**MS2126**	35	**DT15IP**	**—**	**KLS20C**	**—**
2267620	8.000	**MS2126**	35	**DT15IP**	**—**	**—**	**—**

NOTE: Additional insert screws may be ordered in packages of five pieces from catalog number MS2126PKG.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.







End Mills • Steep Taper CV40

order number	catalog number	CSMS system size	D1	L1	L3	Ap1 max	Z	max ramp angle	lbs	max RPM
2267549	**M1D100E1802CV40L250**	CV40	1.000	2.500	1.625	.710	2	16.7°	1.98	37000
2541967	**M1D100E1802CV40L450**	CV40	1.000	4.500	2.625	.710	2	16.7°	2.72	37000
2267551	**M1D125E1803CV40L288**	CV40	1.250	2.875	2.000	.710	3	10.9°	2.20	32300
2541970	**M1D125E1803CV40L488**	CV40	1.250	4.875	3.000	.710	3	10.9°	3.03	32300
2267548	**M1D150E1804CV40L288**	CV40	1.500	2.875	2.000	.710	4	8.2°	2.36	29020
2541972	**M1D150E1804CV40L488**	CV40	1.500	4.875	3.000	.710	4	8.2°	3.41	29020

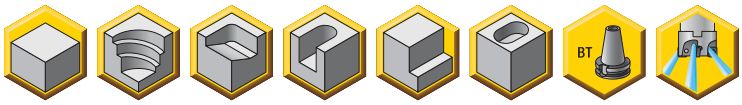
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

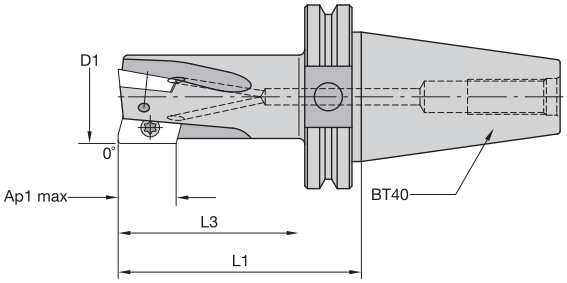
Spare Parts

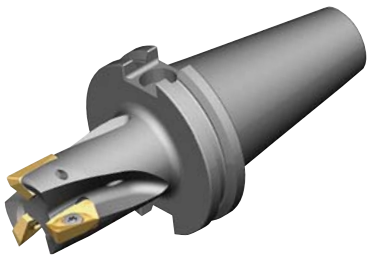
D1	 insert screw	 in. lbs.	 Torx Plus driver
1.000	**MS2126**	35	**DT15IP**
1.250	**MS2126**	35	**DT15IP**
1.500	**MS2126**	35	**DT15IP**

NOTE: Additional insert screws may be ordered in packages of five pieces from catalog number MS2126PKG.

- Mill 0° walls.
- Aggressive ramping angles.
- Generates superior surface finish.
- High RPM capabilities.







End Mills • Steep Taper BT40

order number	catalog number	CSMS system size	D1	L1	L3	Ap1 max	Z	max ramp angle	lbs	max RPM
2541969	**M1D100E1802BT40L450**	BT40	1.000	4.500	2.625	.710	2	16.7°	2.83	37000
2541984	**M1D150E1804BT40L488**	BT40	1.500	4.875	3.000	.710	4	8.2°	3.50	29020

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.000	**MS2126**	35.0	**DT15IP**
1.500	**MS2126**	35.0	**DT15IP**

NOTE: Additional insert screws may be ordered in packages of five pieces from catalog number MS2126PKG.

Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..GD	KCPM40	**.S..GD**	**KCPM40**	.E..HD	KCPM40
P3–P4	.E..GD	KCPK30	**.S..GD**	**KCPK30**	.E..HD	KCPK30
P5–P6	.E..GD	KC725M	**.S..GD**	**KC725M**	.E..HD	KC725M
M1–M2	.E..GD	KCSM40	**.S..GD**	**KCSM40**	.E..HD	KCSM40
M3	.E..GD	KCPM40	**.S..GD**	**KCPM40**	.E..HD	KCPM40
K1–K2	.E..GD	KC520M	**.E..GD**	**KC520M**	.S..GD	KCK15
K3	.E..GD	KC520M	**.S..GD**	**KCK15**	.E..HD	KCPK30
N1–N2	.F..LDJ	KC410M	**.E..LDJ**	**KC422M**	.E..LDJ	KC422M
N3	.F..LDJ	KC410M	**.F..LDJ**	**KC410M**	.F..LDJ	KC410M
S1–S2	.E..GD	KC725M	**.S..GD**	**KC725M**	.E..HD	KC725M
S3	.E..GD	KCSM40	**.S..GD**	**KCSM40**	.E..HD	KCSM40
S4	.E..GD	KCSM40	**.S..GD**	**KCSM40**	.E..HD	KCSM40
H1	–	–	**–**	**–**	–	–

Indexable Inserts

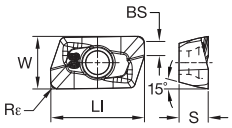
- Roughing and finishing of aluminum alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 0.708" (18mm).

● first choice
○ alternate choice

beyond

	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P				○		●		●	●		○
M				●	●	●		○	○	○	●
K			●	○			●	○			
N	●	●									
S				●	●	●				●	●
H											


EDCT-F.LDJ



EDCT-F.LDJ

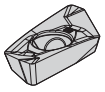
EDCT-F.LDJ

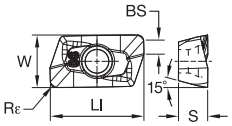
catalog number	Ll	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1804FJ	.856	.432	.217	.121	.016	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1808FJ	.857	.432	.217	.106	.031	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1812FJ	.857	.432	.217	.090	.047	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1816FJ	.858	.431	.217	.075	.062	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1820FJ	.858	.431	.217	.059	.079	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1824FJ	.858	.430	.217	.044	.095	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1832FJ	.858	.430	.217	.013	.125	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1840FJ	.818	.428	.217	—	.157	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1848FJ	.795	.426	.217	—	.188	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1850FJ	.785	.426	.217	—	.197	.001	2	●	–	–	–	–	–	–	–	–	–	–
EC1864FJ	.737	.422	.217	—	.250	.001	2	●	–	–	–	–	–	–	–	–	–	–

- Roughing and finishing of aluminum alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 0.708" (18mm).

● first choice
○ alternate choice

		KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○		●		●	●		○
M					●	●	●		○	○	○	●
K				●	○			●	○			
N		●	●									
S					●	●	●				●	●
H												


EC-E.LDJ

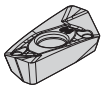


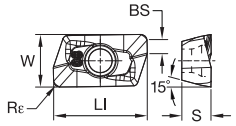
EC-E.LDJ

EDCT-E.LDJ

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1808EJ	.857	.432	.217	.106	.031	.001	2	–	●	–	–	–	–	–	–	–	–	–
EC1812EJ	.857	.432	.217	.090	.047	.001	2	–	●	–	–	–	–	–	–	–	–	–
EC1816EJ	.858	.431	.217	.075	.062	.001	2	–	●	–	–	–	–	–	–	–	–	–
EC1824EJ	.858	.430	.217	.044	.094	.001	2	–	●	–	–	–	–	–	–	–	–	–
EC1832EJ	.858	.430	.217	.013	.125	.001	2	–	●	–	–	–	–	–	–	–	–	–
EC1864EJ	.737	.422	.217	—	.250	.001	2	–	●	–	–	–	–	–	–	–	–	–

- Finishing and high-precision applications.
- Light machining.
- 15° Positive rake angle.
- Perfect floor surface finish.
- Ap1 max = 0.708" (18mm).


EDCT-LD

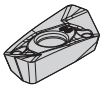


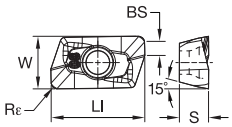
EDCT-LD

EDCT-LD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1808E2	.857	.432	.217	.106	.031	.002	2	–	–	–	●	–	–	–	–	–	–	–
EC1816E	.858	.431	.217	.075	.062	.002	2	–	–	–	●	–	–	–	–	–	–	–
EC1832E	.858	.430	.217	.013	.125	.002	2	–	–	–	●	–	–	–	–	–	–	–
EC1840E	.818	.428	.217	—	.157	.002	2	–	–	–	●	–	–	–	–	–	–	–
EC1848E	.795	.426	.217	—	.188	.002	2	–	–	–	●	–	–	–	–	–	–	–
EC1864E	.737	.422	.217	—	.250	.002	2	–	–	–	●	–	–	–	–	–	–	–

- Light machining and finish applications.
- Periphery ground for high-precision machining.
- Medium hone for increased edge protection.
- Ap1 max = 0.708" (18mm).


EDCT-EGD



EDCT-EGD

beyond

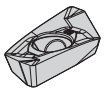
● first choice
○ alternate choice

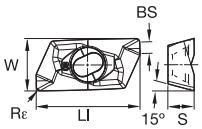
		KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○		●		●	●		○
M					●	●	●		○	○	○	●
K				●	○			●	○			
N		●	●									
S					●	●	●				●	●
H												

EDCT-E.GD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EC1804E	.856	.432	.217	.121	.016	.004	2	–	–	–	–	–	●	–	–	●	–	–
EC1808E	.857	.432	.217	.106	.031	.004	2	–	–	–	–	–	●	–	–	●	–	–
EC1812E	.857	.432	.217	.090	.047	.004	2	–	–	–	–	–	●	–	–	●	–	–

- Medium roughing and semi-finishing.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .708" (18mm).


EDPT-E.GD

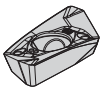


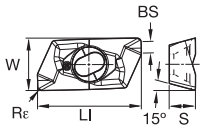
EDPT-E.GD

EDPT-E.GD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1808E	.857	.432	.217	.106	.031	.004	2	–	–	●	–	–	●	–	●	●	–	●
EP1812E	.857	.433	.217	.090	.047	.004	2	–	–	–	–	–	●	–	–	●	–	–
EP1816E	.858	.431	.217	.075	.062	.004	2	–	–	–	●	–	●	–	●	●	–	●
EP1824E	.858	.430	.217	.044	.095	.004	2	–	–	–	–	–	●	–	–	–	–	–
EP1832E	.858	.430	.217	.013	.125	.004	2	–	–	●	●	–	●	–	●	–	–	●
EP1848E	.795	.426	.217	—	.189	.004	2	–	–	–	–	–	●	–	–	–	–	●
EP1864E	.740	.422	.217	—	.250	.004	2	–	–	–	●	–	●	–	●	–	–	●

- Medium roughing and semi-finishing.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .708" (18mm).


EDPT-E.HD



EDPT-E.HD

● first choice
○ alternate choice

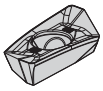
beyond

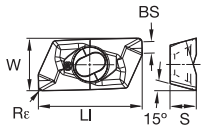
		KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P					○		●		●	●		○
M					●	●	●		○	○	○	●
K				●	○			●	○			
N		●	●									
S					●	●	●				●	●
H												

EDPT-E.HD

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1808EHD	.857	.429	.217	.106	.031	.003	2	–	–	–	–	–	●	–	●	●	–	●
EP1812EHD	.857	.428	.217	.090	.047	.003	2	–	–	–	–	–	●	–	●	–	–	●
EP1816EHD	.857	.428	.217	.075	.062	.003	2	–	–	–	–	–	●	–	●	●	–	●
EP1832EHD	.858	.426	.217	.012	.125	.003	2	–	–	–	–	–	●	–	●	●	–	●
EP1840EHD	.823	.424	.217	—	.157	.003	2	–	–	–	–	–	●	–	–	–	–	●
EP1848EHD	.794	.423	.217	—	.188	.003	2	–	–	–	–	–	●	–	●	–	–	●
EP1864EHD	.740	.420	.217	—	.250	.003	2	–	–	–	–	–	●	–	●	–	–	–

- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = .708" (18mm).


EDPT-S.GE



EDPT-S.GE

EDP T-S.GE

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1808SGE	.855	.421	.214	.095	.031	.005	2	–	–	–	●	–	●	–	●	–	–	●
EP1812SGE	.856	.420	.214	.079	.047	.005	2	–	–	–	●	–	–	–	●	–	–	●
EP1816SGE	.856	.420	.214	.063	.062	.005	2	–	–	–	–	–	–	–	–	–	–	●
EP1832SGE	.856	.418	.214	.003	.125	.005	2	–	–	–	–	–	–	–	●	–	–	●

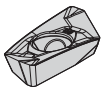
Shoulder Milling

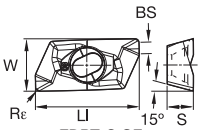
- Heavy roughing applications.
- High feed rates.
- All material groups.
- PSTS – Precision Pressed and Sintered to Size.
- Ap1 max = .708" (18mm).

● first choice
○ alternate choice

beyond

	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
P				○		●		●	●		○
M				●	●	●		○	○	○	●
K			●	○			●	○			
N	●	●									
S				●	●	●				●	●
H											


EDPT-S.GE



EDPT-S.GE

EDPT-S.GE

catalog number	LI	W	S	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EP1808S	.857	.429	.217	.106	.031	.006	2	–	–	–	–	–	●	●	●	●	–	●
EP1812S	.857	.429	.217	.090	.047	.006	2	–	–	–	–	–	●	●	●	●	–	●
EP1816S	.858	.428	.217	.075	.062	.006	2	–	–	–	–	–	●	–	●	●	–	●
EP1832S	.858	.426	.217	.013	.125	.006	2	–	–	–	–	–	●	–	●	–	–	●
EP1848S	.795	.423	.216	—	.189	.005	2	–	–	–	–	–	–	–	–	–	–	●
EP1864S	.739	.419	.217	—	.250	.005	2	–	–	–	–	–	●	–	–	–	–	●

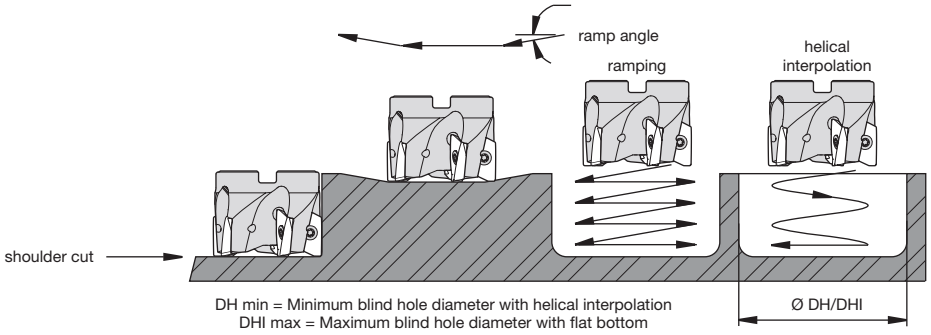
Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	.005	**.019**	.033	.003	**.013**	.023	.003	**.010**	.018	.002	**.009**	.015	.002	**.008**	.014	.F..LDJ
.E..LDJ	.005	**.018**	.032	.003	**.013**	.023	.003	**.010**	.017	.002	**.009**	.015	.002	**.008**	.014	.E..LDJ
.E..LD	.007	**.019**	.032	.005	**.013**	.023	.004	**.010**	.017	.003	**.009**	.015	.003	**.008**	.014	.E..LD
.E..GD	.009	**.020**	.035	.007	**.015**	.025	.005	**.011**	.019	.004	**.010**	.016	.004	**.009**	.015	.E..GD
.S..GE	.009	**.020**	.035	.007	**.014**	.025	.005	**.011**	.019	.004	**.009**	.017	.004	**.009**	.015	.S..GE
.S..GD	.009	**.020**	.035	.007	**.015**	.025	.005	**.011**	.019	.004	**.009**	.016	.004	**.009**	.015	.S..GD
.E..HD	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.E..HD

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Application Examples



insert style	cutting diameter	max ramp angle	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	max diameter (no flat bottom)
Mill 1–18	.970	18°	1.124	1.776	1.94
Mill 1–18	1.000	17°	1.182	1.836	2.00
Mill 1–18	1.250	11°	1.686	2.336	2.50
Mill 1–18	1.500	8°	2.182	2.836	3.00
Mill 1–18	2.000	5°	3.180	3.836	4.00
Mill 1–18	1.500	8°	2.180	2.836	3.00
Mill 1–18	2.000	5°	3.176	3.862	4.00
Mill 1–18	2.500	4°	4.174	4.862	5.00
Mill 1–18	3.000	3°	5.174	5.862	6.00
Mill 1–18	4.000	2°	7.174	7.862	8.00
Mill 1–18	5.000	2°	9.172	9.862	10.00
Mill 1–18	6.000	1°	11.172	11.862	12.00
Mill 1–18	8.000	1°	15.172	15.862	16.00

Flange Mount Adapters

For HARVI™ Ultra Helical Cutters

HARVI ultra helical cutters can be used with our flange mount adapters to create a powerful combination on nearly all spindle connections on the market.

Our flange mount adapters enable the same cutting tool to be easily adapted to different machine spindle connections.

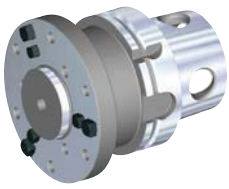
The Portfolio Features:


CV


DV


BT


HSK


KM4X™

Visit **kennametal.com** or contact your local Authorized Kennametal Distributor.

KENNAMETAL®

kennametal.com

Mill 1-25™

Primary Application

Also known as Mill1 Max, the Mill 1-25 cutter is made specifically for aluminum machining, but can also be used when machining cast iron. High-feed capabilities enable routing applications with an axial depth of cut of up to .98" (25mm).

Features and Benefits

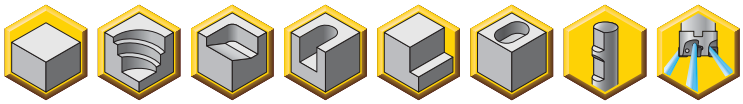
Functions

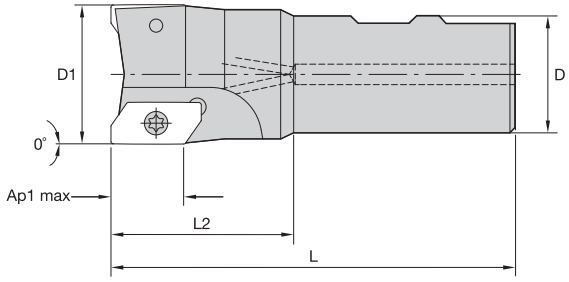
- Strong, thick inserts over .200" (5,2mm) thick.
- Axial depth of cut up to .98" (25mm).
- Cylindrical, monoblock/HSK63A, CV50, and shell mills.

Benefits

- Made for machining aluminum, but also used for machining cast iron.
- High-feed capability for routing applications.
- Balanced-by-design — if running over 10,000 RPM, balance the cutter assembly.

- For aluminum machining.
- High-speed capability.
- Insert screws should be changed when inserts are changed.





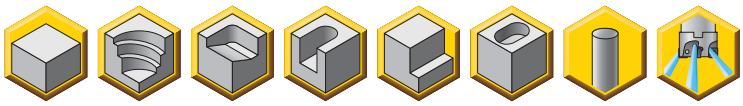
Weldon® End Mills

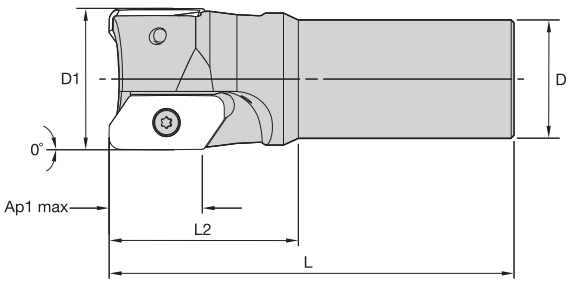
order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
2530317	**M1D150K2502W125L200**	1.500	1.250	4.280	2.000	.980	2	16.5°	1.21	25200

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Spare Parts

D1	insert screw	in. lbs.	Torx driver
1.5000	**MS1374**	35.0	**DT15**





Cylindrical End Mills

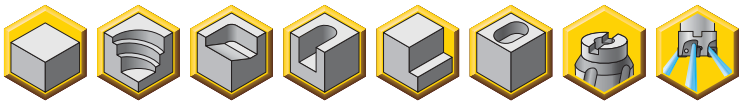
order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
2530318	**M1D150K2502C125L200**	1.500	1.250	4.280	2.000	.980	2	16.5°	1.23	25200
2530320	**M1D150K2502C125L400**	1.500	1.250	6.280	4.000	.980	2	16.5°	2.07	25200
2530322	**M1D200K2503C125L200**	2.000	1.250	4.155	2.000	.976	3	10.0°	1.54	20300

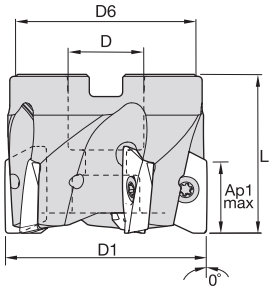
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

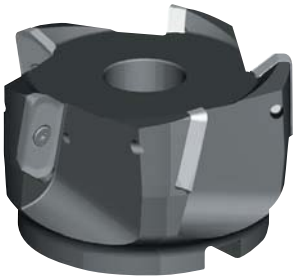
Spare Parts

D1	insert screw	in. lbs.	Torx driver
1.500	**MS1374**	35.0	**DT15**
2.000	**MS1374**	35.0	**DT15**

- For aluminum machining.
- High-speed capability.
- Insert screws should be changed when inserts are changed.
- Ap1 Max 0.985" (25mm).





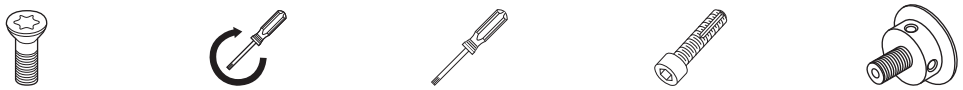


Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Z	max ramp angle	lbs	max RPM
2581445	**M1D200K2502S075L200**	2.000	.750	1.750	2.000	.980	2	10.0°	.87	20300
2581447	**M1D250K2503S100L225**	2.500	1.000	2.190	2.250	.970	3	7.0°	1.49	17500
2496869	**M1D300K2503S100L225**	3.000	1.000	2.190	2.250	.970	3	5.0°	2.33	15600
2581449	**M1D400K2504S125L225**	4.000	1.250	2.880	2.250	.970	4	3.5°	3.05	13100

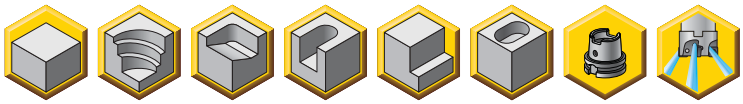
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

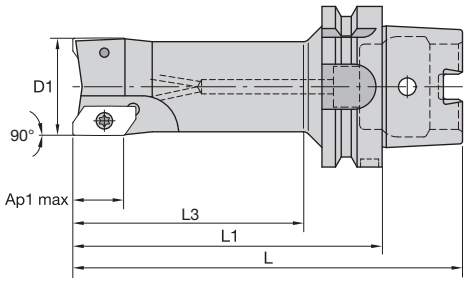
Spare Parts



D1	insert screw	in. lbs.	Torx driver	socket-head cap screw with coolant groove	coolant lock screw assembly
2.000	**MS1374**	35.0	**DT15**	**S445CG**	**—**
2.500	**MS1374**	35.0	**DT15**	**S459CG**	**—**
3.000	**MS1374**	35.0	**DT15**	**S458CG**	**—**
4.000	**MS1374**	35.0	**DT15**	**—**	**S2164C**

- Roughing and finishing of aluminum alloys
- Aggressive ramping angles.
- All integral shank tools are balanced to G2.5 at 10,000 RPM.
- High-speed capability.
- Ap1 Max 0.985" (25mm).
- Replace insert screws when inserts are changed.





Monoblocks • HSK63A

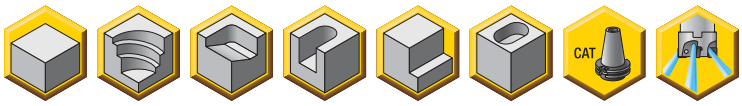
order number	catalog number	shank taper	D1	L	L1	L3	Ap1 max	Z	max ramp angle	lbs	max RPM
2530357	**M1D150K2502HSK63L477**	HSK63A	1.500	6.028	4.772	3.500	.984	2	16.5°	2.60	25200

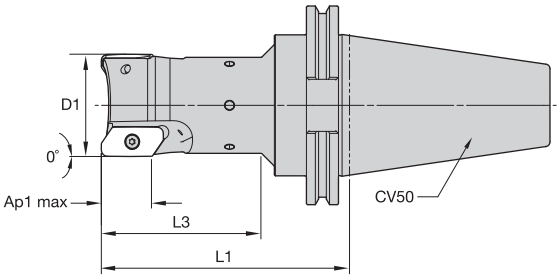
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Spare Parts

D1	insert screw	in. lbs.	Torx driver	balancing screw
1.500	**MS1374**	35.0	**DT15**	**KUAM27**

- For aluminum machining.
- High-speed capability.
- All integral shank tools are balanced to G2.5 at 10,000 RPM.
- Insert screws should be changed when inserts are changed.





Monoblocks • CV50

order number	catalog number	taper shank	D1	L1	L3	Ap1 max	Z	max ramp angle	lbs	max RPM
2530374	**M1D200K2503CV50L700**	CV50	2.000	7.000	5.375	.976	3	10.0°	10.62	20300

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Spare Parts

D1	insert screw	in. lbs.	Torx driver	balancing screw
2.000	**MS1374**	35.0	**DT15**	**KUAM27**

Insert Selection Guide

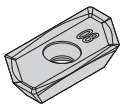
Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	–	–	–	–	–	–
P3–P4	–	–	–	–	–	–
P5–P6	–	–	–	–	–	–
M1–M2	–	–	–	–	–	–
M3	–	–	–	–	–	–
K1–K2	–	–	–	–	–	–
K3	–	–	–	–	–	–
N1–N2	.E..LDJ	KC410M	**.E..LDJ**	**KC410M**	.E..LDJ	KC410M
N3	.E..LDJ	KC410M	**.E..LDJ**	**KC410M**	.E..LDJ	KC410M
S1–S2	–	–	–	–	–	–
S3	–	–	–	–	–	–
S4	–	–	–	–	–	–
H1	–	–	–	–	–	–

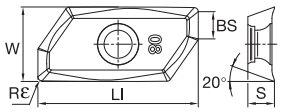
Indexable Inserts • KE..25L5..

- Roughing and finishing of aluminum alloys.
- Periphery ground for accuracy and consistency.
- Radiused cutting edge minimizes lap lines.
- Wiper facet with large radius for better floor surface finish.
- Ap1 max 0.985" (25mm).

● first choice
○ alternate choice

	KC410M
P	
M	
K	
N	●
S	
H	


KEGT-LDJ



KEGT-LDJ

KEGT-LDJ

catalog number	LI	S	W	BS	Rε	hm	cutting edges	KC410M
KG2508ELDJ	1.236	.205	.575	.210	.031	.001	2	●
KG2512ELDJ	1.239	.205	.575	.195	.047	.001	2	●
KG2516ELDJ	1.239	.205	.575	.179	.063	.001	2	●
KG2520ELDJ	1.239	.205	.575	.164	.079	.001	2	●
KG2531ELDJ	1.239	.205	.575	.120	.122	.001	2	●
KG2540ELDJ	1.239	.205	.575	.085	.157	.001	2	●
KG2550ELDJ	1.239	.205	.575	.045	.197	.001	2	●
KG2564ELDJ	1.181	.205	.575	—	.252	.001	2	●

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..LDJ	.005	**.023**	.042	.003	**.017**	.030	.003	**.013**	.023	.002	**.011**	.020	.002	**.010**	.018	.E..LDJ
.E..LDJ2	.005	**.023**	.042	.003	**.017**	.030	.003	**.013**	.023	.002	**.011**	.020	.002	**.010**	.018	.E..LDJ2

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Stellram® 5720VZ16 Series

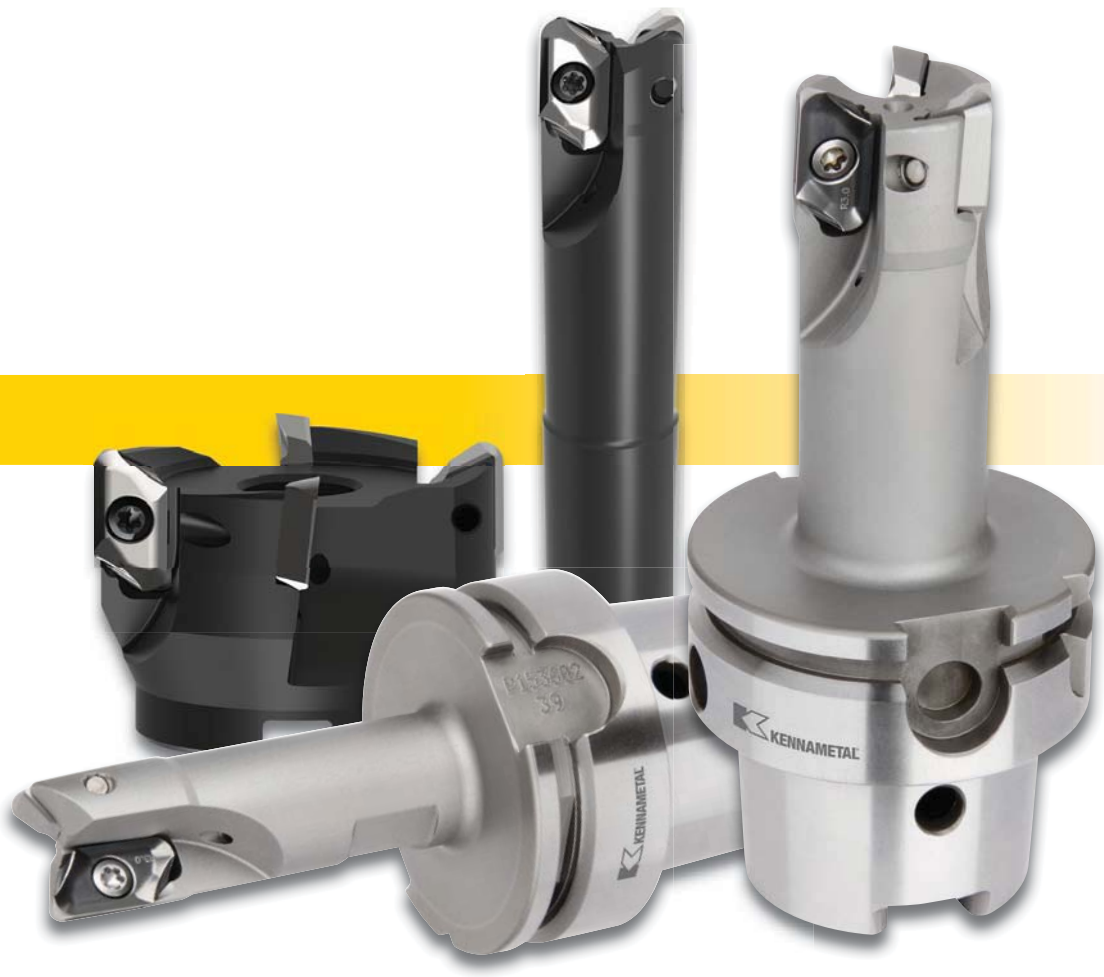
Taking extreme high-speed aluminum machining to the highest level.

Features and Benefits

- Specially designed for machining pockets and profiles on aluminum and aluminum alloys.
- The 5720VZ16 series is designed, manufactured, and tested in accordance with EN ISO 15641:2001 to ensure maximum stability in high-speed applications.
- The internal coolant enables better chip evacuation and higher feed rates.
- The pockets are reinforced to enable for heavy feeding and safe ramping during machining. These features increase tool life and productivity.
- Excellent tools for thin-walled machining due to very low cutting pressure.
- Twelve different insert radii are available, each with the same cutting depth capacity of .630" (16mm).
- Cylindrical shank and HSK63A integral shanks are designed and balanced to G6.3 at 30,000 RPM for diameters up to 50mm. Diameter larger than 50mm are balanced to G6.3 at 24,000 RPM.

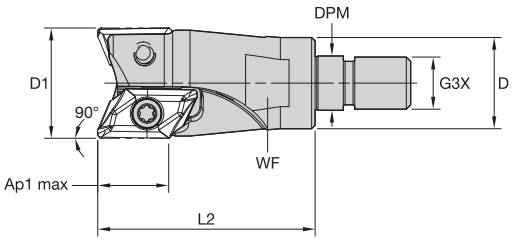
Metric monoblock cutters with HSK63A are available as standard in diameters 25, 32, 40, and 50mm.

The Stellram® 5720VZ16 cutters are our latest design for high metal removal in aluminum applications.



Maximum ap = .630"
Diameter Range = 1–3"

- High-speed profiling and pocketing aluminum alloy components in the aerospace industry.
- Maximum stability in high-speed applications.
- Through-tool coolant allows better chip evacuation and higher feed rates.



Screw-On End Mills

order number	catalog number	D1	D	DPM	G3X	L2	WF (mm)	Ap1 max	Z	max ramp angle	lbs	max RPM
5672512	**A5720VZ16SA1.00Z02R2**	1.000	.827	.492	M12	1.969	18	.630	2	14.7°	.23	50000
5672719	**A5720VZ16SA1.25Z02R2**	1.250	1.142	.669	M16	1.969	24	.630	2	11.5°	.45	41500
5672521	**A5720VZ16SA1.25Z3R2**	1.250	1.142	.669	M16	1.967	24	.630	3	11.5°	.39	41500

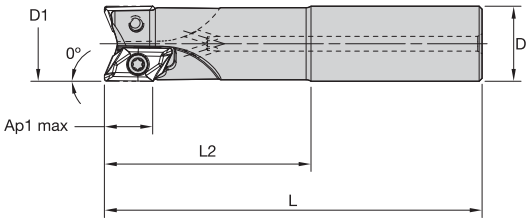
NOTE: It is important to change the screw each time the insert is changed to ensure the highest security. A dynamometric key and the right torque value are important, also.

Spare Parts

D1	insert screw	in. lbs.	Torx driver
1.000	**DP5009A**	54.0	**TP20**
1.250	**DP5009A**	54.0	**TP20**

NOTE: Adjustable torque wrench (order number 6197561) and Torx Plus 20 bit (order number 6205891) may be purchased separately in order to ensure proper torque setting.

- High-speed profiling and pocketing aluminum alloy components in the aerospace industry.
- Maximum stability in high-speed applications.
- Through-tool coolant allows better chip evacuation and higher feed rates.



Cylindrical End Mills

order number	catalog number	D1	D	L	L2	Ap1 max	Z	max ramp angle	lbs	max RPM
5672718	**C5720VZ16CA1.0Z02R2.7**	1.000	1.000	5.030	2.750	.630	2	14.7°	.87	50000
5673549	**C5720VZ16CA1.25Z2R3.0**	1.250	1.250	5.280	2.997	.630	2	11.5°	1.49	41500
5672885	**C5720VZ16CA1.25Z3R3.0**	1.250	1.250	5.280	3.000	.630	3	11.5°	1.46	41500

NOTE: It is important to change the screw each time the insert is changed to ensure the highest security. A dynamometric key and the right torque value are important, also.

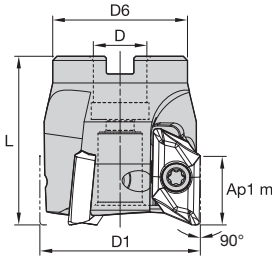
Spare Parts

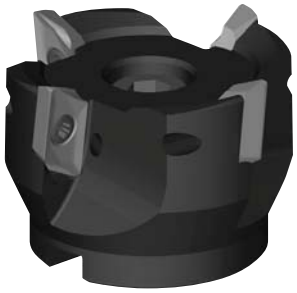


D1	insert screw	in. lbs.	Torx driver
1.000	**DP5009A**	54.0	**TP20**
1.250	**DP5009A**	54.0	**TP20**

NOTE: Adjustable torque wrench (order number 6197561) and Torx Plus 20 bit (order number 6205891) may be purchased separately in order to ensure proper torque setting.

- High-speed profiling and pocketing aluminum alloy components in the aerospace industry.
- Maximum stability in high-speed applications.
- Through-tool coolant allows better chip evacuation and higher feed rates.





Shell Mills • Coarse and Medium Pitch

order number	catalog number	D1	D	D6	L	Ap1 max	Z	max ramp angle	lbs	max RPM
5681118	**C5720VZ16-A1.50Z03R**	1.500	.500	1.260	1.575	.630	3	8.1°	.34	36500
5672871	**C5720VZ16-A2.00Z04R**	2.000	.750	1.772	1.574	.630	4	7.8°	.55	30000
5673799	**C5720VZ16-A2.00Z03R**	2.000	.750	1.772	1.575	.630	3	7.8°	.65	30000
5673175	**C5720VZ16-A2.50Z04R**	2.500	1.000	1.969	1.969	.630	4	5.8°	1.26	26000
5672872	**C5720VZ16-A2.50Z05R**	2.500	1.000	1.969	1.971	.630	5	5.8°	1.32	26000
5673338	**C5720VZ16-A3.00Z04R**	3.000	1.000	1.969	1.969	.630	4	4.6°	1.91	23000
5673745	**C5720VZ16-A3.00Z05R**	3.000	1.000	1.969	1.969	.630	5	4.6°	1.68	23000

NOTE: It is important to change the screw each time the insert is changed to ensure the highest security. A dynamometric key and the right torque value are important, also.

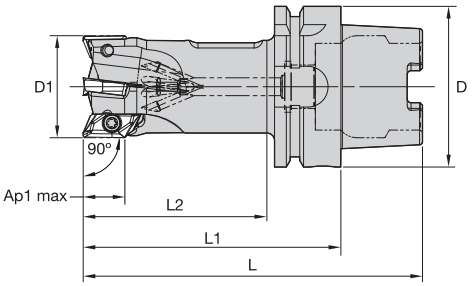
Spare Parts




D1	insert screw	in. lbs.	Torx driver	socket-head cap screw
1.500	**DP5009A**	54.0	**TP20**	**#1/4-28X3/4SHCSA**
2.000	**DP5009A**	54.0	**TP20**	**#3/8-24X1SHCSA**
2.500	**DP5009A**	54.0	**TP20**	**#1/2-20X1-1/4SHCSA**
3.000	**DP5009A**	54.0	**TP20**	**#1/2-20X1-1/4SHCSA**

NOTE: Adjustable torque wrench (order number 6197561) and Torx Plus 20 bit (order number 6205891) may be purchased separately in order to ensure proper torque setting.

- Providing solutions for the aerospace and aluminum industries' requirements for high-power and high-speed spindles.
- Specifically reinforced for highest metal removal rates for depths of cut ≤16mm.
- Locking system ensures operation safety and accuracy.
- Thin-walled machining for airframe components.



Monoblocks • HSK63A

order number	catalog number	D1	D	L	L1	L2	Ap1 max	Z	max ramp angle	kg	max RPM*
6087904	**5720VZ16HA025Z2R75**	25	63	133	101	75	16	2	14.5°	0,81	51000
5672766	**5720VZ16HA032Z3R75**	32	63	133	101	75	16	3	11.4°	0,92	41500
5673629	**5720VZ16HA040Z4R75**	40	63	133	101	75	16	4	7.8°	1,09	35000
6160117	**5720VZ16HA050Z4R75**	50	63	133	101	75	16	4	7.9°	1,41	30000

*Max RPM as per ISO 15641

NOTE: It is important to change the screw each time the insert is changed to ensure the highest security.
A dynamometric key and the right torque value are important, also.

Spare Parts

insert screw	Nm	driver
DP5009A	6,0	**TP20**

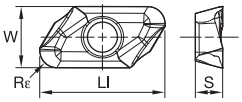
NOTE: Adjustable torque wrench (order number 6197561) and Torx Plus 20 bit (order number 6205891) may be purchased separately in order to ensure proper torque setting.

Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		◄——►		toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	–	–	–	–	–	–
P3–P4	–	–	–	–	–	–
P5–P6	–	–	–	–	–	–
M1–M2	–	–	–	–	–	–
M3	–	–	–	–	–	–
K1–K2	–	–	–	–	–	–
K3	–	–	–	–	–	–
N1–N2	.F..721	GH1	**.F..721**	**GH1**	.F..721	GH1
N3	.F..721	GH1	**.F..721**	**GH1**	.F..721	GH1
S1–S2	–	–	–	–	–	–
S3	–	–	–	–	–	–
S4	–	–	–	–	–	–
H1	–	–	–	–	–	–

Milling Inserts


ZDET-721



ZDET-721

● first choice
○ alternate choice

	GH1
P	
M	
K	○
N	●
S	
H	

ZDET-721 • Sharp edge preparation for finishing applications

catalog number	LI	W	S	Resultant WorkPiece Radius In	hm	cutting edges	GH1
ZDET16M5PDFR721	.902	.443	.197	.010	.001	2	●
ZDET16M508FR721	.906	.443	.197	.032	.001	2	●
ZDET16M512FR721	.906	.443	.197	.047	.001	2	●
ZDET16M516FR721	.906	.443	.197	.063	.001	2	●
ZDET16M520FR721	.906	.443	.197	.079	.001	2	●
ZDET16M525FR721	.906	.443	.197	.098	.001	2	●
ZDET16M530FR721	.906	.443	.197	.118	.001	2	●
ZDET16M532FR721	.906	.443	.197	.126	.001	2	●
ZDET16M540FR721	.906	.443	.197	.157	.001	2	●
ZDET16M550FR721	.906	.443	.197	.197	.001	2	●
ZDET16M560FR721	.906	.443	.197	.236	.001	2	●
ZDET16M504FR721	.906	.443	.197	.020	.001	2	●

ZDET-ER721 • Honed edge preparation for roughing applications. Apply under unstable conditions.

catalog number	LI	W	S	Resultant WorkPiece Radius In	hm	cutting edges	GH1
ZDET16M525ER721	.906	.443	.197	.098	.001	2	●
ZDET16M530ER721	.906	.443	.197	.118	.001	2	●
ZDET16M540ER721	.906	.443	.197	.157	.001	2	●

NOTE: Inserts will be delivered with two screws. Because of heavy force to the screw, it is important to change the screw when changing the insert.

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)												Insert Geometry
	10%			20%			30%			40–100%			
.F..721	.001	**.013**	.016	.001	**.010**	.012	.001	**.008**	.011	.001	**.008**	.010	.F..721
.E..721	.003	**.013**	.016	.002	**.010**	.012	.002	**.008**	.011	.002	**.008**	.010	.E..721

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

5720VZ16 Ramp Angle

cutter diameter	Insert ZDET16M5...FR-721								
	Facet 0.047	0.062	0.079	0.098	0.118	0.125	0.157	0.216	0.236
1.000	14.8	16.9	9.2	9.4	18.5	18.5	8.8	10.9	7.0
1.250	11.5	12.1	12.1	12.4	12.7	12.7	13.4	14.0	13.6
1.500	8.1	8.5	8.5	8.7	8.8	8.8	9.1	9.5	9.8
2.000	7.8	7.1	7.2	7.7	7.4	7.4	8.8	8.8	9.0
2.500	5.8	5.3	5.4	5.7	5.5	5.5	6.9	6.5	6.6
3.000	4.6	4.3	4.3	4.6	4.4	4.4	5.4	5.1	5.2

5720VZ16 Possible Maximum ap Slotting

Possible Max ap Slotting		
diameter	number of inserts	ap max
1.000	2	0.300
1.250	2	0.435
1.250	3	0.240
1.500	3	0.350
2.000	3	0.435
2.000	4	0.350
2.500	4	0.435
2.500	5	0.350
3.000	4	0.435
3.000	5	0.435

NOTE: Ap max depends on connection with cutter diameter, rigidity of the cutter, rigidity of the machine, and size of the flute.

5720VZ16 Possible Metal Removal

Possible Metal Removal Calculated with 24,000 RPM		
cutter diameter	ZU	MRR in^3/min
1.00	2	97
1.25	2	197
1.25	3	182.7
1.50	3	316
2.00	3	483
2.00	4	527
2.50	4	811
2.50	5	830
3.00	4	1030
3.00	5	1288

NOTE: The chart above shows total metal removal capacity (based on 24,000 RPM) by cutter diameter and number of teeth.
The maximum RPM is engraved on the cutter bodies.

Machinability by Materials • Aluminum

Alloy Group	Alloy Designation	Chemical Composition Limits (WT%)											
		Cu	Si	Fe	Mn	Mg	Zn	Cr	Ti	Pb	Bi	Al	Others
Al	1050	0.05	0.25	0.40	0.50	0.05	0.05	–	–	–	–	99.50min	–
	1100	0.05–0.20	Si+Fe 1.00 max	–	0.05	–	0.10	–	–	–	–	99.00min	–
AlCu	2011	5.00–6.00	0.40	0.70	–	–	0.30	–	–	0.20	0.60	remaining	–
	2014	3.90–5.00	0.50–1.20	0.70	0.40–1.20	0.20–0.80	0.25	0.10	0.15	–	–	remaining	–
	2017	3.50–4.50	0.20–0.80	0.70	0.40–1.00	0.40–0.80	0.25	0.10	0.15	–	–	remaining	–
	2024	3.80–4.90	0.50	0.50	0.30–0.90	1.20–1.80	0.25	0.10	0.15	–	–	remaining	–
	2218	3.50–4.50	0.90	1	0.20	1.20–1.80	0.25	0.10	–	–	–	remaining	Ni1.7–2.3
	2224	3.80–4.40	0.12	0.15	0.30–0.90	1.20–1.80	0.25	0.10	0.15	–	–	remaining	–
AlMn	3003	0.05–0.20	0.60	0.70	1.00–1.50	–	0.10	–	–	–	–	remaining	–
AlSi	4032	0.50–1.30	11.00–13.50	1	–	0.80–1.30	0.25	0.10	–	–	–	remaining	Ni0.5–1.3
AlMg	5052	0.10	0.25	0.40	0.10	2.20–2.80	0.10	0.15–0.35	–	–	–	remaining	–
	–	–	–	–	–	–	–	–	–	–	–	–	H34
	5056	0.10	0.30	0.40	0.05–0.20	4.50–5.60	0.10	0.05–0.20	–	–	–	remaining	–
	–	–	–	–	–	–	–	–	–	–	–	–	H32
	5083	0.10	0.40	0.40	0.40–1.00	4.00–4.90	0.25	0.05–0.25	0.15	–	–	remaining	–
	5086	0.10	0.40	0.50	0.20–0.70	3.50–4.50	0.25	0.05–0.25	0.15	–	–	remaining	–
	–	–	–	–	–	–	–	–	–	–	–	–	H116
AlMgSi	6061	0.15–0.40	0.40–0.80	0.70	0.15	0.80–1.20	0.25	0.04–0.35	0.15	–	–	remaining	–
	6063	0.10	0.20–0.60	0.35	0.10	0.45–0.90	0.10	0.10	0.10	–	–	remaining	–
	6070	0.15–0.40	1.00–1.70	0.50	0.40–1.00	0.50–1.20	0.25	0.10	0.15	–	–	remaining	–
	6151	0.35	0.60–1.20	1	0.20	0.45–0.80	0.25	0.15–0.35	0.15	–	–	remaining	–
	6262	0.15–0.40	0.40–0.80	0.70	0.15	0.80–1.20	0.25	0.04–0.14	0.15	0.40	0.70	remaining	–
	6351	0.10	0.70–1.30	0.50	0.40–0.80	0.40–0.80	0.20	–	0.20	–	–	remaining	–
	6463	0.20	0.20–0.60	0.15	0.05	0.45–0.90	0.05	–	–	–	–	remaining	–
AlZn	7001	1.60–2.60	0.35	0.40	0.20	2.60–3.40	6.80–8.00	0.18–0.35	0.20	–	–	remaining	–
	7003	0.20	0.30	0.35	0.30	0.50–1.00	5.00–6.50	0.20	0.20	–	–	remaining	Zr0.05–0.25
	7050	2.00–2.60	0.12	0.15	0.10	1.90–2.60	5.70–6.70	0.04	0.06	–	–	remaining	Zr0.08–0.15
	7075	1.20–2.00	0.40	0.50	0.30	2.10–2.90	5.10–6.10	0.18–0.28	0.20	–	–	remaining	–
	7178	1.60–2.40	0.40	0.50	0.30	2.40–3.10	6.30–7.30	0.18–0.35	0.20	–	–	remaining	–
	7475	1.20–1.90	0.10	0.12	0.06	1.90–2.60	5.20–6.20	0.18–0.25	0.06	–	–	remaining	–

(continued)

Machinability

A Excellent
B Good-to-Excellent
C Good
D Not Good

Vc = π x D x n/1000 m/min = mm x RPM

D: Tool diameter, N: RPM, Vc: Cutting speed, π = 3.1416

Choose a cutting speed in the range of values, compatible with the cutter max rotation capacity (engraved on the body) and your spindle stability.

(Machinability by Materials • Aluminum — continued)

	Typical Tremper	Rm (Mpa)	Machinability Chip Formation	Machinability	Typical Applications	vc SFM min–max	fz IPT max
	H14	105	D	A	• Chemical equipment. • Sheet metal work. • Coiled tube.	2625–9840	0.008
	H14	90	D	A			
	T3	310	A	A	• Screw machine products. • Tuck frame. • Aircraft structure. • Jet engine impellers. • Aircraft engine • Cylinder heads.	1315–8200	0.010
	T6	430	B	A			
	T4	390	B	A			
	T4	465	B	A			
	T72	331	B	B			
	–	–	A	A			
	H14	140	D	B	• Cooking utensils. • Chemical equipment.	656–8200	0.008
	T6	379	B	D	• Pistons.	656–3280	0.007
	H14	260	C	A	• Architectural. • Cable sheeting. • Welded pressure vessels. • Hydraulic tubes. • Transportation equipment.	1315–9840	0.010
	–	–	–	–			
	H12	300	C	A			
	–	–	–	–			
	H112	335	C	A			
	H32	300	C	A			
	–	–	–	–			
	T6	300	C	B	• Heavy-duty structure. • Furniture. • Architectural. • Heavy-duty welded structure. • Pipeline. • Heat sink.	1315–8200	0.008
	T5	200	C	B			
	T6	379	C	C			
	T6	–	C	C			
	T9	400	B	B			
	T6	310	D	C			
	T6	241	C	B			
	O	–	B	A	• High-strength structure. • Aircraft structure.	1315–9840	0.010
	T5	400	B	A			
	T73	530	B	A			
	T6	570	B	A			
	T6	600	B	A			
	T61	565	B	A			

Recommendations for High Speed Machining at 8,000 RPM or above

- Check spindle condition:
  - Runout
  - Clamping of the attachment in traction
  - Marking and cleanliness
- Check that the tool is suitable for the required use.
- Inserts must be locked positively in the pocket and secured using the torx screw provided. The screw must be torqued to the correct value as indicated in the charts on the product pages.
- Because of heavy force to the screw, it is important to change the screw when changing the insert.
- Check the balancing of the assembled tool: cutter body, inserts, and attachment.
- Before start up, note the maximum RPM engraved on the tool. The maximum RPM is linked to a precise balancing value.
- Ensure that the field of application of the tool shown in our technical documents and technological parameters is observed:

A_e (mm)	width of cut, lateral engagement (radial)
a_p (mm)	Axial depth of cut
f_z (mm/tooth)	Feed per tooth
n (RPM)	revolutions per minute

Kennametal cannot accept responsibility for misuse of this product due to:

- Non-observance of the above instructions
- Machine without casing
- Incorrect clamping of workpieces
- No safety device on the machine
- Any misuse or incorrect clamping

The optimum rotation must be determined by condition of the spindle.
The spindle must be rigid to run at these higher RPMs.

Under no circumstances must any attempt be made to repair this tool.
The only permitted maintenance is the indexing or replacement of the inserts.

When assembling the cutter to a Shrink Fit holder, the maximum protrusion cannot exceed 10% of the reach of tool.

Balancing:

- Cylindrical shank and HSK63A integral shanks are designed and balanced to G6.3 at 30,000 RPM for diameters up to 50mm. Diameter larger than 50mm are balanced to G6.3 at 24,000 RPM.
- Cylindrical shank tools mounted in a Shrink Fit holder or any other chuck mill holder + inserts + screws must be re-inspected for balance as an assembly by the end-user when at or exceeding 8,000 RPM. End-user must balance the assembly at a G6.3 at 30,000 RPM maximum.
- Shell mill and modular head cutters are not balanced. These tools must be re-inspected for balance as an assembly, cutter + inserts + screws, by the end-user for high speed machining at 8,000 RPM or above. End-user must balance the assembly at a G6.3 value minimum.
- Balancing requires removing some material by drilling or milling operations. To avoid making modular heads weaker, limit these operations by avoiding high RPM. It is not recommended to remove material by drilling operation.
- For each new modular head added to the same extension, re-balance the assembly. For each new shell mill installed on the same toolholder, re-balance the assembly.

Tighten the modular head to the extension; with lubricant, apply the torque value of:

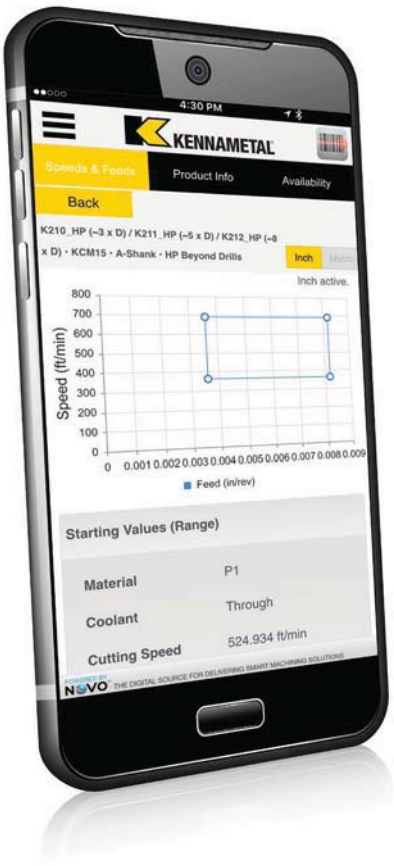
Thread sizes (mm)	Torque Values Ft. Lbs.
M6	7.37
M8	22.12
M10	36.87
M12	59.00
M16	81.13

Tighten the bolt between the shell mill and toolholder; with lubricant, apply the torque value of:

Thread sizes (inch)	Cutter Bore Size (inch)	Torque Values Ft. Lbs.
0.250	0.500	7.37
0.375	0.750	22.12
0.500	1.000	36.87
0.625	1.250	59.00
0.750	1.500	81.13

Mobile App

The Kennametal mobile app makes it easy to access product information, calculators, and much more from iPhone® and Android™ devices.



FEATURES

Scan a Kennametal tool package barcode or search a product catalog number to access complete product information.

Product information includes tool image, dimensions, grades, and product highlights.

View product availability at global locations.

Get speed and feed information in inch and metric values for all metalcutting products.

View tech tips for helpful solutions to common machining questions.

Contact Customer Support directly from the app.

MACHINING CALCULATORS

View data for milling and drilling applications.

Inch and metric values calculated.

ORDERING

Login using your Konnect credentials to complete a purchase.

WHERE TO FIND IT

Download the free app today from iTunes® or the Google Play™ store.

ANDROID APP ON Google play

Available on the App Store

KSSM™ Platform

Primary Application

The Kennametal KSSM platform is a versatile solution providing three insert sizes that cover a wide range of applications: face milling, shoulder milling, slotting, profiling, and Z-axis (plunge milling).

Features and Benefits

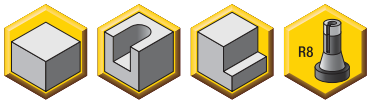
KSSM IC 10 Inserts

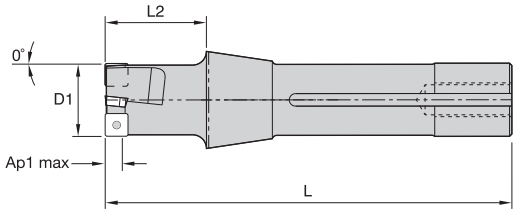
- Four cutting edges.
- Excellent surface finishes.
- Low power requirements.

KSSM IC 12 Inserts

- Four cutting edges.
- Excellent surface finishes.
- Low power requirements.
- Increased depth of cut.

- Mill 90° walls.
- Excellent surface finishes.
- Low power requirements.
- Four cutting edges per insert.





Bridgeport Shank

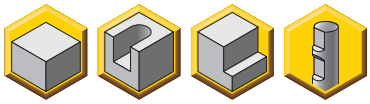
order number	catalog number	D1	L	L2	Ap1 max	Z	lbs	max RPM
1229112	**KISBR150SP10T30F**	1.500	5.180	1.250	.259	4	1.20	30300
1229113	**KISBR200SP10T30F**	2.000	5.180	1.250	.259	5	1.50	26300

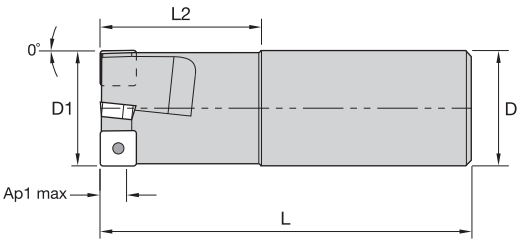
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
1.500	**MS2148**	10.0	**DT9IP**
2.000	**MS2148**	10.0	**DT9IP**

- Mill 90° walls.
- Excellent surface finishes.
- Low power requirements.
- Four cutting edges per insert.





Weldon® End Mills

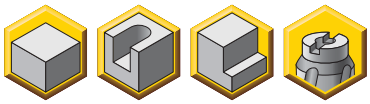
order number	catalog number	D1	D	L	L2	Ap1 max	Z	lbs	max RPM
1229091	**KISR075SP10T30F**	.750	.750	3.500	1.470	.259	1	.40	42900
1229092	**KISR100SP10T30F**	1.000	1.000	3.500	1.220	.259	2	.60	37100
1229095	**KISR125SP10T30F**	1.250	1.250	4.030	1.750	.259	3	1.10	33200
1229096	**KISR150SP10T30F**	1.500	1.500	4.030	1.340	.259	4	1.63	30300

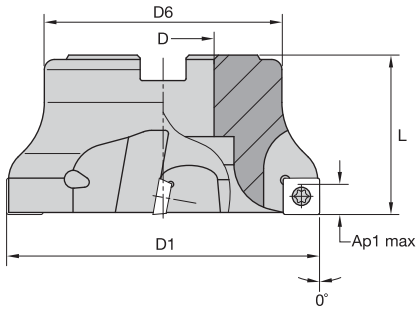
NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Spare Parts

D1	 insert screw	 in. lbs.	 Torx Plus driver
.750	**MS2148**	10.0	**DT9IP**
1.000	**MS2148**	10.0	**DT9IP**
1.250	**MS2148**	10.0	**DT9IP**
1.500	**MS2148**	10.0	**DT9IP**

- Mill 90° walls.
- Excellent surface finishes.
- Low power requirements.
- Four cutting edges per insert.





End Mills • Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Z	lbs	max RPM
1229047	**KSSR150SP10T30F2**	1.500	.500	1.355	1.250	.259	4	.30	30300
1229078	**KSSR200SP10T30F3**	2.000	.750	1.625	1.750	.259	5	.60	26300
1229079	**KSSR250SP10T30F4**	2.500	1.000	2.065	1.750	.259	6	.90	23500
1229080	**KSSR300SP10T30F4**	3.000	1.000	2.065	1.750	.259	8	1.30	21450
1229081	**KSSR400SP10T30F5**	4.000	1.250	2.755	2.000	.259	10	2.50	18600

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.

Spare Parts

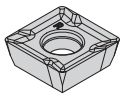
D1	 insert screw	 in. lbs.	 Torx Plus driver	 socket-head cap screw
1.500	**MS2148**	10.0	**DT9IP**	**S422**
2.000	**MS2148**	10.0	**DT9IP**	**S445**
2.500	**MS2148**	10.0	**DT9IP**	**–**
3.000	**MS2148**	10.0	**DT9IP**	**–**
4.000	**MS2148**	10.0	**DT9IP**	**–**

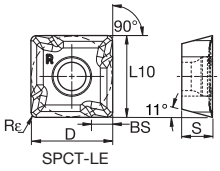
Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		⟷		toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..LD2	KCPM40	**.E..GB2**	**KCPM40**	.S..GB2	KCPK30
P3–P4	.E..LD2	KCPM40	**.E..GB2**	**KCPK30**	.S..GB2	KCPK30
P5–P6	.E..LD2	KC725M	**.E..GB2**	**KC725M**	.S..GB2	KC725M
M1–M2	.E..LD2	KC725M	**.E..GB2**	**KC725M**	.S..GB2	KC725M
M3	.E..LD2	KCPM40	**.E..GB2**	**KCPM40**	.S..GB2	KC725M
K1–K2	.E..LD2	KC520M	**.E..GB2**	**KCK15**	.S..GB2	KCK15
K3	.E..LD2	KC520M	**.E..GB2**	**KC520M**	.S..GB2	KC520M
N1–N2	.F..LE	KC410M	**.F..LE**	**KC410M**	.F..LD	KC510M
N3	.F..LE	KC410M	**.F..LE**	**KC410M**	.F..LE	KC410M
S1–S2	.E..LD2	KC725M	**.E..GB2**	**KC725M**	.S..GB2	KC725M
S3	.E..LD2	KCPM40	**.E..GB2**	**KCPM40**	.S..GB2	KC725M
S4	.E..LD2	KC725M	**.E..GB2**	**KC725M**	.S..GB2	KC725M
H1	.F..LD	KC510M	–	–	–	–

Indexable Inserts • SP.T10T3

- Aluminum workpiece materials.
- Precision ground.
- 20° rake face.
- Four cutting edges.


SPCT-LE



SPCT-LE

● first choice
○ alternate choice

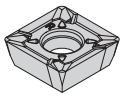
beyond

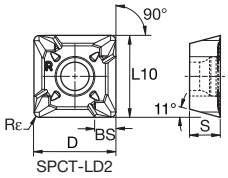
		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
P				○	●		●	●		○		
M				●	●		○	○	○	●		
K			●	○		●	○				●	●
N		●		○								
S				●	●				●	●		
H				○								

SPCT-LE

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
SPCT31251PPFL8LE	.394	.156	.394	.106	.016	.001	4	●	–	–	–	–	–	–	–	–	–	–
SPCT31251PPFR8LE	.394	.156	.394	.106	.016	.001	4	●	–	–	–	–	–	–	–	–	–	–
SPCT3125PPFL8LE	.394	.156	.394	.106	.031	.001	4	●	–	–	–	–	–	–	–	–	–	–
SPCT3125PPFR8LE	.394	.156	.394	.106	.031	.001	4	●	–	–	–	–	–	–	–	–	–	–
SPCT31253PPFR8LE	.394	.156	.394	.106	.047	.001	4	●	–	–	–	–	–	–	–	–	–	–
SPCT31255FNLE	.394	.156	.394	—	.078	.001	4	●	–	–	–	–	–	–	–	–	–	–

- Light and finish machining.
- Precision ground.
- 75° rake face.
- Four cutting edges.


SPCT-LD2



SPCT-LD2

● first choice
○ alternate choice

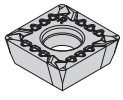
beyond

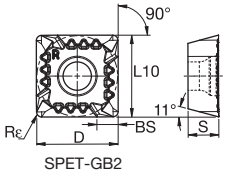
		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
P				○	●		●	●		○		
M				●	●		○	○	○	●		
K			●	○		●	○				●	●
N		●		○								
S				●	●				●	●		
H				○								

SPCT-LD2

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
SPCT31251PPEL8LD2	.394	.156	.394	.106	.016	.002	4	–	–	–	●	–	–	–	–	–	–	–
SPCT31251PPER8LD2	.394	.156	.394	.106	.016	.002	4	–	–	–	●	–	–	–	–	–	–	–
SPCT3125PPEL8LD2	.394	.156	.394	.106	.031	.002	4	–	–	–	●	–	–	–	–	–	–	–
SPCT3125PPER8LD2	.394	.156	.394	.106	.031	.002	4	–	●	–	●	–	–	●	–	–	–	–
SPCT31253PPEL8LD2	.394	.156	.394	.106	.047	.002	4	–	–	–	●	–	–	–	–	–	–	–
SPCT31253PPER8LD2	.394	.156	.394	.106	.047	.002	4	–	–	–	●	–	–	–	–	–	–	–
SPCT31254ENLD2	.394	.156	.394	—	.063	.002	4	–	–	–	●	–	–	–	●	–	–	–
SPCT31255ENLD2	.394	.156	.394	—	.078	.002	4	–	–	–	●	–	–	–	–	–	–	–

- Medium machining.
- Precision ground.
- 5° rake face.
- Four cutting edges.


SPET-GB2

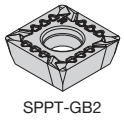


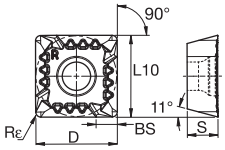
SPET-GB2

SPET-GB2

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
SPET31251PPEL8GB2	.394	.156	.394	.106	.016	.003	4	–	–	–	●	●	●	–	–	–	–	–
SPET31251PPER8GB2	.394	.156	.394	.106	.016	.003	4	–	–	–	●	●	●	–	–	–	–	–
SPET3125PPEL8GB2	.394	.156	.394	.106	.031	.003	4	–	●	–	●	●	●	–	–	–	–	–
SPET3125PPER8GB2	.394	.156	.394	.106	.031	.003	4	–	●	–	●	●	●	●	–	–	–	–
SPET3125PPSL8GB2	.394	.156	.394	.106	.031	.005	4	–	–	–	●	–	●	–	–	–	–	–
SPET3125PPSR8GB2	.394	.156	.394	.106	.031	.005	4	–	●	–	●	●	●	–	–	–	–	–

- Medium machining.
- PSTS — Precision Pressed and Sintered to Size.
- 5° rake face.
- Four cutting edges.


SPPT-GB2



SPPT-GB2

● first choice
○ alternate choice

beyond

	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
P			○	●		●	●		○		
M			●	●		○	○	○	●		
K		●	○		●	○				●	●
N	●		○								
S			●	●				●	●		
H			○								

SPPT-GB2

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
SPPT3125PPER8GB2	.394	.156	.394	.106	.031	.003	4	–	–	–	–	●	●	–	–	–	–	–
SPPT3125PPSR8GB2	.394	.156	.394	.106	.031	.005	4	–	–	–	–	●	●	–	–	–	●	–

Recommended Starting Feeds

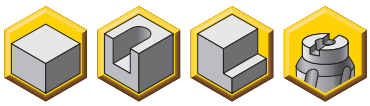
Recommended Starting Feeds [IPT]

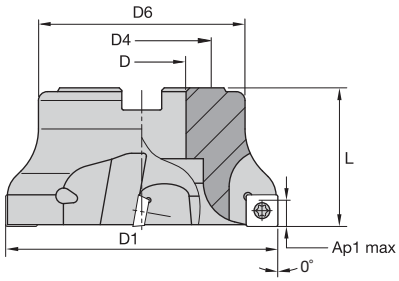
Light Machining	General Purpose	Heavy Machining

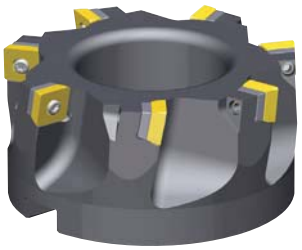
Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LE	.005	**.017**	.028	.003	**.012**	.020	.003	**.009**	.015	.002	**.008**	.013	.002	**.007**	.012	.F..LE
.F..LD	.005	**.017**	.028	.003	**.012**	.020	.003	**.009**	.015	.002	**.008**	.013	.002	**.007**	.012	.F..LD
.E..LD2	.005	**.018**	.032	.004	**.013**	.023	.003	**.010**	.017	.002	**.009**	.015	.002	**.008**	.014	.E..LD2
.E..LD	.007	**.019**	.032	.005	**.013**	.023	.004	**.010**	.017	.003	**.009**	.015	.003	**.008**	.014	.E..LD
.E..GB2	.009	**.021**	.035	.007	**.015**	.025	.005	**.011**	.019	.004	**.010**	.016	.004	**.009**	.015	.E..GB2
.S..GB	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GB
.S..GB2	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GB2
.S..GN	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GN

NOTE: Use “Light Machining” values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

- Mill 0° walls.
- Excellent surface finishes.
- Low power requirements.
- 4 cutting edges per insert.





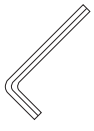


End Mills • Shell Mills

order number	catalog number	D1	D	D4	D6	L	Ap1 max	Z	lbs	max RPM
1024970	KSSISR200SD430C3	2.000	.750	—	1.625	1.750	.361	3	.79	20450
1024994	KSSISR200SD430F3	2.000	.750	—	1.625	1.750	.361	5	.77	20450
1024972	KSSISR200SD430M3	2.000	.750	—	1.625	1.750	.361	4	.75	20450
1025000	KSSISR250SD430F4	2.500	1.000	—	2.065	1.750	.361	6	1.23	18290
1024998	KSSISR250SD430M4	2.500	1.000	—	2.065	1.750	.361	5	1.20	18290
1024930	KSSISR300SD430C4	3.000	1.000	—	2.065	1.750	.361	4	1.42	16700
1024932	KSSISR300SD430F4	3.000	1.000	—	2.065	1.750	.361	7	1.38	16700
1024931	KSSISR300SD430M4	3.000	1.000	—	2.065	1.750	.361	6	1.38	16700
1025025	KSSISR400SD430C5	4.000	1.250	—	2.755	2.000	.361	5	3.05	14460
1025033	KSSISR400SD430F5	4.000	1.250	—	2.755	2.000	.361	8	3.01	14460
1025029	KSSISR400SD430M5	4.000	1.250	—	2.755	2.000	.361	7	3.03	14460
1025027	KSSISR400SD430C6	4.000	1.500	—	3.685	2.000	.361	5	3.58	14460
1025065	KSSISR400SD430F6	4.000	1.500	—	3.685	2.000	.361	8	3.62	14460
1025031	KSSISR400SD430M6	4.000	1.500	—	3.685	2.000	.361	7	3.57	14460
1024933	KSSISR500SD430C6	5.000	1.500	—	3.685	2.380	.361	6	5.82	12940
1024965	KSSISR500SD430F6	5.000	1.500	—	3.685	2.380	.361	10	5.96	12940
1024964	KSSISR500SD430M6	5.000	1.500	—	3.685	2.380	.361	8	5.91	12940
1024966	KSSISR600SD430C6	6.000	1.500	—	3.685	2.380	.361	8	8.52	11800
1024968	KSSISR600SD430F6	6.000	1.500	—	3.685	2.380	.361	12	8.60	11800
1024967	KSSISR600SD430M6	6.000	1.500	—	3.685	2.380	.361	10	8.58	11800
1025071	KSSISR600SD430C8	6.000	2.000	—	4.875	2.380	.361	8	7.37	11800
1025094	KSSISR600SD430M8	6.000	2.000	—	4.875	2.380	.361	10	7.44	11800
1025102	KSSISR800SD430C10	8.000	2.500	4.000	6.125	2.380	.361	10	15.40	10230
1025136	KSSISR800SD430F10	8.000	2.500	4.000	6.125	2.380	.361	14	15.30	10230
1025134	KSSISR800SD430M10	8.000	2.500	4.000	6.125	2.380	.361	12	15.40	10230
1025140	KSSISR1000SD430M10	10.000	2.500	4.000	8.125	2.380	.361	16	25.90	9150

NOTE: Standard milling cutters will accept insert nose radii up to .079" without modification.
2" cutter does not have shims.
2", 2.5", and 3" fine-pitch cutters do not have shims.

Spare Parts

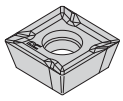
D1	 insert screw	 in. lbs.	 Torx Plus driver	 shim	 shim screw	 in. lbs.	 hex driver	 socket-head cap screw
2.000	MS2078	35.0	DT15IP	—	—	40.0	—	S445
2.500	MS2078	35.0	DT15IP	SM449	SRS3	40.0	DH35M	S458
3.000	MS2078	35.0	DT15IP	SM449	SRS3	40.0	DH35M	—
4.000	MS2078	35.0	DT15IP	SM449	SRS3	40.0	DH35M	—
5.000	MS2078	35.0	DT15IP	SM449	SRS3	40.0	DH35M	—
6.000	MS2078	35.0	DT15IP	SM449	SRS3	40.0	DH35M	—
8.000	MS2078	35.0	DT15IP	SM449	SRS3	40.0	DH35M	—
10.000	MS2078	35.0	DT15IP	SM449	SRS3	40.0	DH35M	—

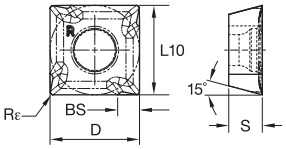
Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		⟷		toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1 - P2	.E..LD2	KCPM40	**.E..GB2**	**KCPM40**	.S..GB2	KCPM40
P3 - P4	.E..LD2	KCPM40	**.E..GB2**	**KCPK30**	.S..GB2	KCPK30
P5 - P6	.E..LD2	KC725M	**.E..GB2**	**KC725M**	.S..GB2	KC725M
M1 - M2	.E..LD2	KCSM40	**.E..GB2**	**KCSM40**	.S..GB2	KCSM40
M3	.E..LD2	KCPM40	**.E..GB2**	**KCPM40**	.S..GB2	KCPM40
K1 - K2	.E..LD2	KC520M	**.E..GB2**	**KCK15**	.S..GB2	KCK15
K3	.E..LD2	KC520M	**.E..GB2**	**KC520M**	.S..GB2	KC520M
N1 - N2	.F..LE	KC410M	**.F..LE**	**KC410M**	.F..LE	KC410M
N3	.F..LE	KC410M	**.F..LE**	**KC410M**	.F..LE	KC410M
S1 - S2	.E..LD2	KC725M	**.E..GB2**	**KC725M**	.S..GB2	KC725M
S3	.E..LD2	KCSM40	**.E..GB2**	**KCSM40**	.S..GB2	KCSM40
S4	.E..LD2	KCSM40	**.E..GB2**	**KCSM40**	.S..GB2	KCSM40
H1	–	–	**–**	**–**	–	–

Indexable Inserts • SD.T1204

- Aluminum workpiece materials.
- Precision ground.
- 20° rake face.
- Four cutting edges.


SDCT-LE



SDCT-LE

● first choice
○ alternate choice

beyond

	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
P			○	●		●	●		○	
M			●	●		○	○	○	●	
K		●	○		●	○				●
N	●		○							
S			●	●				●	●	
H			○							

SDCT-LE

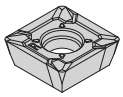
catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDCT431PDFL8LE	.500	.188	.500	.106	.016	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT431PDFR8LE	.500	.188	.500	.106	.016	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT43PDFL8LE	.500	.188	.500	.106	.031	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT43PDFR8LE	.500	.188	.500	.106	.031	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT433PDFL8LE	.500	.188	.500	.106	.047	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT433PDFR8LE	.500	.188	.500	.106	.047	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT434FNLE	.500	.188	.500	—	.063	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT435FNLE	.500	.188	.500	—	.078	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT436FNLE	.500	.188	.500	—	.094	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT438FNLE	.500	.188	.500	—	.125	.001	4	●	–	–	–	–	–	–	–	–	–

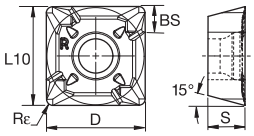
- Light and finish machining.
- Precision ground.
- 15° rake face.
- Four cutting edges.

beyond

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

● first choice
○ alternate choice


SDCT-LD2

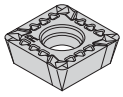


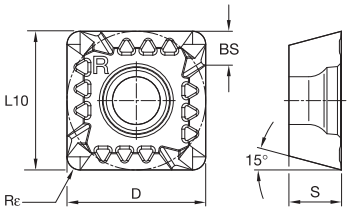
SDCT-LD2

SDCT-LD2

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDCT431PDEL8LD2	.500	.188	.500	.106	.016	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT431PDER8LD2	.500	.188	.500	.115	.016	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT43PDEL8LD2	.500	.188	.500	.130	.031	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT43PDER8LD2	.500	.188	.500	.130	.031	.002	4	–	●	–	●	–	–	●	–	●	–
SDCT433PDEL8LD2	.500	.188	.500	.120	.047	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT433PDER8LD2	.500	.188	.500	.120	.047	.002	4	–	–	–	●	–	–	–	–	●	–
SDCT434ENLD2	.500	.188	.500	—	.063	.002	4	–	–	–	●	–	–	–	–	●	–
SDCT435ENLD2	.500	.188	.500	—	.078	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT436ENLD2	.500	.188	.500	—	.094	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT438ENLD2	.500	.188	.500	—	.125	.002	4	–	–	●	●	–	–	–	●	●	–
SDCT4316ENLD2	.500	.188	.500	—	.250	.002	2	–	–	–	●	–	–	–	–	●	–

- Medium machining.
- Precision ground.
- 5° rake face.
- Four cutting edges.


SDET-GB2



SDET-GB2

SDET-GB2

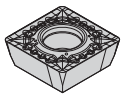
catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDET43PDEL8GB2	.500	.188	.500	.130	.031	.003	4	–	●	–	●	●	●	–	–	–	–
SDET43PDER8GB2	.500	.188	.500	.130	.031	.003	4	–	●	–	●	●	●	●	–	●	–
SDET43PDSL8GB2	.500	.188	.500	.130	.031	.005	4	–	–	–	●	–	●	–	–	–	–
SDET43PDSR8GB2	.500	.188	.500	.130	.031	.005	4	–	●	–	●	●	●	●	–	–	–
SDET433PDEL8GB2	.500	.188	.500	.120	.047	.003	4	–	●	–	●	●	–	–	–	–	–
SDET433PDER8GB2	.500	.188	.500	.120	.047	.003	4	–	●	–	●	●	●	●	–	–	–
SDET434SNGB2	.500	.188	.500	—	.063	.005	4	–	●	–	●	●	●	–	–	–	–
SDET435SNGB2	.500	.188	.500	—	.078	.005	4	–	●	–	●	●	●	●	–	–	–
SDET436SNGB2	.500	.188	.500	—	.094	.005	4	–	–	–	●	●	●	–	–	–	–
SDET438SNGB2	.500	.188	.500	—	.125	.005	4	–	●	–	●	●	●	–	–	–	–
SDET438XENGB2	.500	.188	.500	—	.125	.003	2	–	–	–	●	–	–	–	–	–	–
SDET4316SNGB2	.500	.188	.500	—	.250	.005	2	–	–	–	–	–	●	–	–	–	–

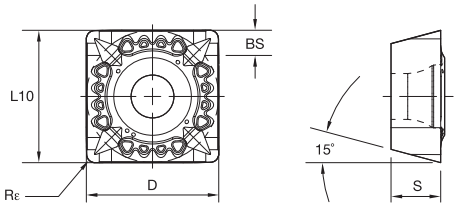
- Medium machining.
- Precision ground.
- 5° rake face.
- Four cutting edges.

● first choice
○ alternate choice

beyond

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


SDET-GB

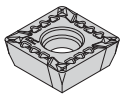


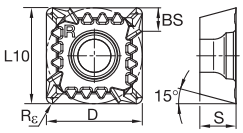
SDET-GB

SDET-GB

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDET43PDER8GB	.500	.188	.500	.101	.031	.003	4	–	●	–	–	–	–	–	–	●	–
SDET43PDSR8GB	.500	.188	.500	.101	.031	.006	4	–	–	–	●	–	●	●	●	●	–
SDET433PDER8GB	.500	.188	.500	.086	.047	.003	4	–	–	–	●	–	–	●	–	●	–
SDET433PDSR8GB	.500	.188	.500	.085	.047	.006	4	–	–	–	●	–	–	–	–	●	–
SDET434ENGB	.500	.188	.500	—	.062	.003	4	–	–	–	–	–	–	–	–	●	–
SDET434SNGB	.500	.188	.500	—	.062	.006	4	–	–	–	●	–	–	–	–	●	–
SDET436ENGB	.500	.188	.500	—	.094	.003	4	–	–	–	●	–	–	–	–	●	–
SDET436SNGB	.500	.188	.500	—	.094	.006	4	–	–	–	●	–	–	–	–	●	–
SDET438ENGB	.500	.188	.500	—	.125	.003	4	–	–	–	●	–	–	–	–	●	–
SDET438SNGB	.500	.188	.500	—	.125	.006	4	–	–	–	–	–	–	–	–	●	–
SDET4312ENGB	.500	.188	.500	—	.188	.003	2	–	–	–	●	–	–	–	–	●	–
SDET4312SNGB	.500	.188	.500	—	.188	.006	2	–	–	–	●	–	–	–	–	●	–
SDET4316ENGB	.500	.188	.500	—	.250	.003	2	–	–	–	●	–	–	–	–	●	–
SDET4316SNGB	.500	.188	.500	—	.250	.006	2	–	–	–	●	–	●	–	●	●	–

- Medium machining.
- Precision ground.
- 5° rake face.
- Four cutting edges.


SDPT-GB2



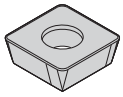
SDPT-GB2

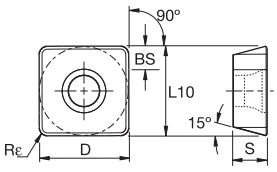
SDPT-GB2

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDPT43PDER8GB2	.500	.188	.500	.106	.031	.003	4	–	–	–	●	●	●	●	–	●	–
SDPT43PDSR8GB2	.500	.188	.500	.106	.031	.005	4	–	–	–	●	●	●	●	–	●	–

Shoulder Milling

- Heavy machining.
- Precision ground.
- 0° rake face flat top.
- Four cutting edges.


SDCW-GN



SDCW-GN

● first choice
○ alternate choice

beyond

	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
P			○	●		●	●		○	
M			●	●		○	○	○	●	
K		●	○		●	○				●
N	●		○							
S			●	●				●	●	
H			○							

SDCW-GN

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDCW43EDSR8GN	.500	.188	.500	.132	.031	.006	4	–	–	–	–	–	–	–	–	–	●
SDCW43PDSR8GN	.500	.188	.500	.099	.031	.006	4	–	–	–	–	–	–	–	–	–	●
SDCW433PDSR8GN	.500	.188	.500	.120	.047	.006	4	–	–	–	–	–	–	–	–	–	●

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LE	.005	**.017**	.030	.003	**.012**	.021	.003	**.009**	.016	.002	**.008**	.014	.002	**.007**	.013	.F..LE
.E..LD	.007	**.019**	.032	.005	**.013**	.023	.004	**.010**	.017	.003	**.009**	.015	.003	**.008**	.014	.E..LD
.E..LD2	.005	**.018**	.032	.004	**.013**	.023	.003	**.010**	.017	.002	**.009**	.015	.002	**.008**	.014	.E..LD2
.E..GB	.009	**.021**	.035	.007	**.015**	.025	.005	**.011**	.019	.004	**.010**	.016	.004	**.009**	.015	.E..GB
.E..GB2	.009	**.021**	.035	.007	**.015**	.025	.005	**.011**	.019	.004	**.010**	.016	.004	**.009**	.015	.E..GB2
.S..GB	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GB
.S..GB2	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GB2
.S..GN	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GN

NOTE: Use “Light Machining” values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

KSSM-KSSP Helical

Primary Application

KSSM-KSSP helical cutters were originally developed and proven for the aerospace industry, but are now available for all industries. The proprietary variable rake design minimizes vibration and chatter.

Features and Benefits

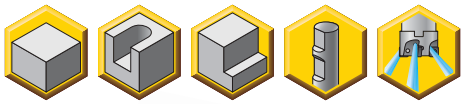
Features

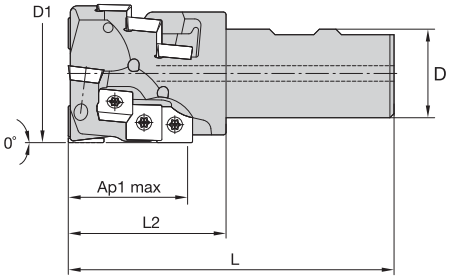
- Patented HARVI™ technology.
- Progressive helical rakes.
- Unique coolant supply.

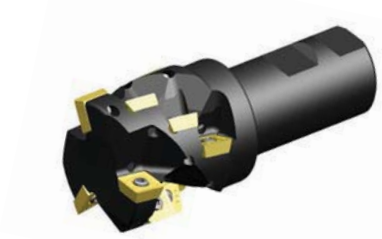
Benefits

- Increased tool life in titanium.
- Increased metal removal rates.
- Lower power consumption.
- Ensures chip evacuation, even on exotic materials.

- Patented HARVI™ technology.
- Progressive helical rakes.
- Increased metal removal rates (MRR).
- Excellent surface finishes.
- Low power requirements.
- Four cutting edges.







Weldon® End Mills

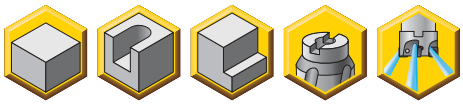
order number	catalog number	D1	D	L	L2	Ap1 max	Z	Z U	lbs	max RPM
2528269	**KSSP200R3SD43W125L169**	2.000	1.250	4.530	2.250	1.691	12	3	1.73	16300

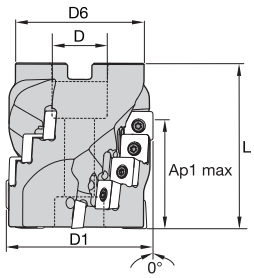
NOTE: Maximum nose radii of lead insert is .094" for a 2" diameter cutter.
All subsequent inserts up the flute should have a maximum nose radius of .031" to avoid lap lines.

Spare Parts

D1	 insert screw	 in. lbs.	 Torx wrench
2.000	**MS1273**	35.0	**TT15**

- Patented HARVI™ technology.
- Progressive helical rakes.
- Increased Metal Removal Rates (MRR).
- Excellent surface finishes.
- Low power requirements.
- Four cutting edges.





Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Z	Z U	lbs	max RPM
2601012	**KSSP200R3SD43L125**	2.000	.750	1.750	1.875	1.275	9	3.0	.87	16300
2400680	**KSSP200R3SD43L168**	2.000	.750	1.750	2.250	1.691	12	3.0	1.02	16300
3045090	**KSSP200R3SD43L200HC**	2.000	.750	1.913	3.000	2.072	15	3.0	1.42	16300
2400681	**KSSP250R3SD43L200**	2.500	1.000	2.190	2.750	2.005	15	3.0	2.34	14550
2400682	**KSSP300R4SD43L240**	3.000	1.250	2.750	3.250	2.427	24	4.0	4.07	13300
2977923	**KSSP300R5SD43L400HC**	3.000	1.250	2.900	5.000	4.114	55	5.0	5.95	13300

NOTE: ZU = Effective number of flutes.
Maximum nose radii of lead insert is .094" for 2" diameter cutters and .125" for 2.50" diameter cutters and above.
All subsequent inserts up the flutes should have a maximum nose radius of .031" to avoid lap lines.

Spare Parts

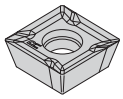
order number	D1	insert screw	in. lbs.	Torx Plus wrench	Torx wrench
2601012	2.000	**MS1273**	35.0	**–**	**TT15**
2400680	2.000	**MS1273**	35.0	**–**	**TT15**
3045090	2.000	**MS2085**	35.0	**TTP15**	**–**
2400681	2.500	**MS1273**	35.0	**–**	**TT15**
2400682	3.000	**MS1273**	35.0	**–**	**TT15**
2977923	3.000	**MS2085**	35.0	**TTP15**	**–**

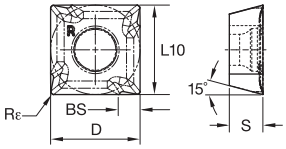
Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..LD2	KCPM40	**.E..GB2**	**KCPM40**	.S..GB2	KCPM40
P3–P4	.E..LD2	KCPM40	**.E..GB2**	**KCPK30**	.S..GB2	KCPK30
P5–P6	.E..LD2	KC725M	**.E..GB2**	**KC725M**	.S..GB2	KC725M
M1–M2	.E..LD2	KCSM40	**.E..GB2**	**KCSM40**	.S..GB2	KCSM40
M3	.E..LD2	KCPM40	**.E..GB2**	**KCPM40**	.S..GB2	KCPM40
K1–K2	.E..LD2	KC520M	**.E..GB2**	**KCK15**	.S..GB2	KCK15
K3	.E..LD2	KC520M	**.E..GB2**	**KC520M**	.S..GB2	KC520M
N1–N2	.F..LE	KC410M	**.F..LE**	**KC410M**	.F..LE	KC410M
N3	.F..LE	KC410M	**.F..LE**	**KC410M**	.F..LE	KC410M
S1–S2	.E..LD2	KC725M	**.E..GB2**	**KC725M**	.S..GB2	KC725M
S3	.E..LD2	KCSM40	**.E..GB2**	**KCSM40**	.S..GB2	KCSM40
S4	.E..LD2	KCSM40	**.E..GB2**	**KCSM40**	.S..GB2	KCSM40
H1	–	–	**–**	**–**	–	–

- Aluminum workpiece materials.
- Precision ground.
- 20° rake face.
- Four cutting edges.

● first choice
○ alternate choice


SDCT-LE

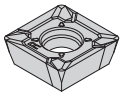


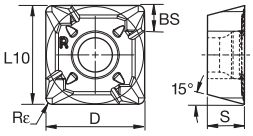
SDCT-LE

SDCT-LE

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDCT431PDFL8LE	.500	.188	.500	.106	.016	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT431PDFR8LE	.500	.188	.500	.106	.016	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT43PDFL8LE	.500	.188	.500	.106	.031	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT43PDFR8LE	.500	.188	.500	.106	.031	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT433PDFL8LE	.500	.188	.500	.106	.047	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT433PDFR8LE	.500	.188	.500	.106	.047	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT434FNLE	.500	.188	.500	—	.063	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT435FNLE	.500	.188	.500	—	.078	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT436FNLE	.500	.188	.500	—	.094	.001	4	●	–	–	–	–	–	–	–	–	–
SDCT438FNLE	.500	.188	.500	—	.125	.001	4	●	–	–	–	–	–	–	–	–	–

- Light and finish machining.
- Precision ground.
- 15° rake face.
- Four cutting edges.


SDCT-LD2



SDCT-LD2

● first choice
○ alternate choice

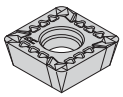
beyond

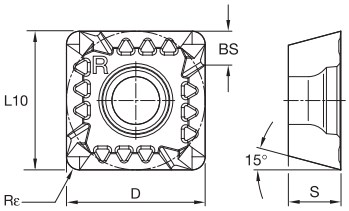
P				○	●		●	●		○		
M				●	●		○	○	○	●		
K			●	○		●	○				●	
N		●		○								
S				●	●					●	●	
H				○								

SDCT-LD2

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDCT431PDEL8LD2	.500	.188	.500	.106	.016	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT431PDER8LD2	.500	.188	.500	.115	.016	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT43PDEL8LD2	.500	.188	.500	.130	.031	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT43PDER8LD2	.500	.188	.500	.130	.031	.002	4	–	●	–	●	–	–	●	–	●	–
SDCT433PDEL8LD2	.500	.188	.500	.120	.047	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT433PDER8LD2	.500	.188	.500	.120	.047	.002	4	–	–	–	●	–	–	–	–	●	–
SDCT434ENLD2	.500	.188	.500	–	.063	.002	4	–	–	–	●	–	–	–	–	●	–
SDCT435ENLD2	.500	.188	.500	–	.078	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT436ENLD2	.500	.188	.500	–	.094	.002	4	–	–	–	●	–	–	–	–	–	–
SDCT438ENLD2	.500	.188	.500	–	.125	.002	4	–	–	●	●	–	–	–	●	●	–
SDCT4316ENLD2	.500	.188	.500	–	.250	.002	2	–	–	–	●	–	–	–	–	●	–

- Medium machining.
- Precision ground.
- 5° rake face.
- Four cutting edges.


SDET-GB2

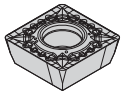


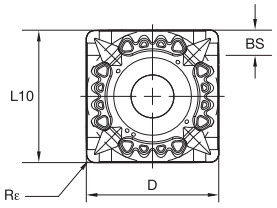
SDET-GB2

SDET-GB2

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDET43PDEL8GB2	.500	.188	.500	.130	.031	.003	4	–	●	–	●	●	●	–	–	–	–
SDET43PDER8GB2	.500	.188	.500	.130	.031	.003	4	–	●	–	●	●	●	●	–	●	–
SDET43PDSL8GB2	.500	.188	.500	.130	.031	.005	4	–	–	–	●	–	●	–	–	–	–
SDET43PDSR8GB2	.500	.188	.500	.130	.031	.005	4	–	●	–	●	●	●	●	–	–	–
SDET433PDEL8GB2	.500	.188	.500	.120	.047	.003	4	–	●	–	●	●	–	–	–	–	–
SDET433PDER8GB2	.500	.188	.500	.120	.047	.003	4	–	●	–	●	●	●	●	–	–	–
SDET434SNGB2	.500	.188	.500	–	.063	.005	4	–	●	–	●	●	●	–	–	–	–
SDET435SNGB2	.500	.188	.500	–	.078	.005	4	–	●	–	●	●	●	●	–	–	–
SDET436SNGB2	.500	.188	.500	–	.094	.005	4	–	–	–	●	●	●	–	–	–	–
SDET438SNGB2	.500	.188	.500	–	.125	.005	4	–	●	–	●	●	●	–	–	–	–
SDET438XENGB2	.500	.188	.500	–	.125	.003	2	–	–	–	●	–	–	–	–	–	–
SDET4316SNGB2	.500	.188	.500	–	.250	.005	2	–	–	–	–	–	●	–	–	–	–

- Medium machining.
- Precision ground.
- 5° rake face.
- Four cutting edges.


SDET-GB



SDET-GB

● first choice
○ alternate choice

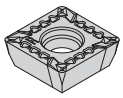
beyond

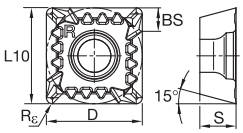
		KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
P				○	●		●	●		○	
M				●	●		○	○	○	●	
K			●	○		●	○				●
N		●		○							
S				●	●				●	●	
H				○							

SDET-GB

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDET43PDER8GB	.500	.188	.500	.101	.031	.003	4	–	●	–	–	–	–	–	–	●	–
SDET43PDSR8GB	.500	.188	.500	.101	.031	.006	4	–	–	–	●	–	●	●	●	●	–
SDET433PDER8GB	.500	.188	.500	.086	.047	.003	4	–	–	–	●	–	–	●	–	●	–
SDET433PDSR8GB	.500	.188	.500	.085	.047	.006	4	–	–	–	●	–	–	–	–	●	–
SDET434ENGB	.500	.188	.500	–	.062	.003	4	–	–	–	–	–	–	–	–	●	–
SDET434SNGB	.500	.188	.500	–	.062	.006	4	–	–	–	●	–	–	–	–	●	–
SDET436ENGB	.500	.188	.500	–	.094	.003	4	–	–	–	●	–	–	–	–	●	–
SDET436SNGB	.500	.188	.500	–	.094	.006	4	–	–	–	●	–	–	–	–	●	–
SDET438ENGB	.500	.188	.500	–	.125	.003	4	–	–	–	●	–	–	–	–	●	–
SDET438SNGB	.500	.188	.500	–	.125	.006	4	–	–	–	–	–	–	–	–	●	–
SDET4312ENGB	.500	.188	.500	–	.188	.003	2	–	–	–	●	–	–	–	–	●	–
SDET4312SNGB	.500	.188	.500	–	.188	.006	2	–	–	–	●	–	–	–	–	●	–
SDET4316ENGB	.500	.188	.500	–	.250	.003	2	–	–	–	●	–	–	–	–	●	–
SDET4316SNGB	.500	.188	.500	–	.250	.006	2	–	–	–	●	–	●	–	●	●	–

- Medium machining.
- Precision ground.
- 5° rake face.
- Four cutting edges.


SDPT-GB2

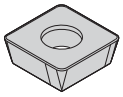


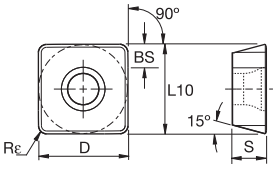
SDPT-GB2

SDPT-GB2

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDPT43PDER8GB2	.500	.188	.500	.106	.031	.003	4	–	–	–	●	●	●	●	–	●	–
SDPT43PDSR8GB2	.500	.188	.500	.106	.031	.005	4	–	–	–	●	●	●	●	–	●	–

- Heavy machining.
- Precision ground.
- 0° rake face flat top.
- Four cutting edges.


SDCW-GN



SDCW-GN

● first choice
○ alternate choice

beyond

	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
P			○	●		●	●		○	
M			●	●		○	○	○	●	
K		●	○		●	○				●
N	●		○							
S			●	●				●	●	
H			○							

SDCW-GN

catalog number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDCW43EDSR8GN	.500	.188	.500	.132	.031	.006	4	–	–	–	–	–	–	–	–	–	●
SDCW43PDSR8GN	.500	.188	.500	.099	.031	.006	4	–	–	–	–	–	–	–	–	–	●
SDCW433PDSR8GN	.500	.188	.500	.120	.047	.006	4	–	–	–	–	–	–	–	–	–	●

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LE	.005	**.017**	.030	.003	**.012**	.021	.003	**.009**	.016	.002	**.008**	.014	.002	**.007**	.013	.F..LE
.E..LD	.007	**.019**	.032	.005	**.013**	.023	.004	**.010**	.017	.003	**.009**	.015	.003	**.008**	.014	.E..LD
.E..LD2	.005	**.018**	.032	.004	**.013**	.023	.003	**.010**	.017	.002	**.009**	.015	.002	**.008**	.014	.E..LD2
.E..GB	.009	**.021**	.035	.007	**.015**	.025	.005	**.011**	.019	.004	**.010**	.016	.004	**.009**	.015	.E..GB
.E..GB2	.009	**.021**	.035	.007	**.015**	.025	.005	**.011**	.019	.004	**.010**	.016	.004	**.009**	.015	.E..GB2
.S..GB	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GB
.S..GB2	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GB2
.S..GN	.009	**.023**	.037	.007	**.017**	.027	.005	**.013**	.020	.004	**.011**	.017	.004	**.010**	.016	.S..GN

NOTE: Use “Light Machining” values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

NOVO KNOWS CAD/CAM

With the addition of NOVO™ applications to your team, your CAD/CAM capabilities become much more accurate, streamlined, and productive.

Before NOVO: The programmer would be in their CAD/CAM software, programming a part. Using the tedious method of finding a tool in a catalog, and then manually inputting the tooling information from the catalog into the CAD/CAM software.

The concern is that assumptions are made, and only partial tooling information is entered.

With NOVO: The powerful digital intelligence of NOVO applications not only help the programmer find the right tool for the metalcutting job, but also automatically integrates all the tooling data into a complete CAD/CAM solution. The integration of all the tooling data increases the viability of the part being programmed, and is delivered quickly — saving you time.

NOVO applications can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximizes every shift. **kennametal.com/novo**

5230VS • High Performance Long-Edge Milling Cutters

The Stellram® **5230VS09** and **5230VS12** cutter series is perfectly suited for profiling and full slotting.

Designed for high material removal rates in titanium and high-temperature alloys. Several applications have achieved metal removal rates of up to two times greater than the previous operating cutting parameters.

The advanced chevron design ensures that one cutting point is always in contact with the material during entrance and exit. This provides optimum harmonic stability resulting in maximum tool life and a 30% improvement in surface finish. A generous flute capacity, coupled with each cutting edge having its own coolant jet, ensures excellent chip evacuation. This works to enhance surface finish and increases metal removal rates for a higher level of productivity.

The advanced 5230VS series is ideal for rough machining of steel, alloyed steel, stainless steel, and particularly for titanium and high-temperature alloys.

Features and Benefits

- Insert positioning provides smooth, progressive penetration and cutting action for extended tool life.
- Individual coolant jets to each insert provides constant chip evacuation and temperature stability in the cutting zone.
- The advanced chevron design improves stability and lowers power consumption, increasing tool life up to two times greater than comparable cutter in today's market.
- Proven versatility in wide application area in titanium and high-temperature alloys increasing productivity.

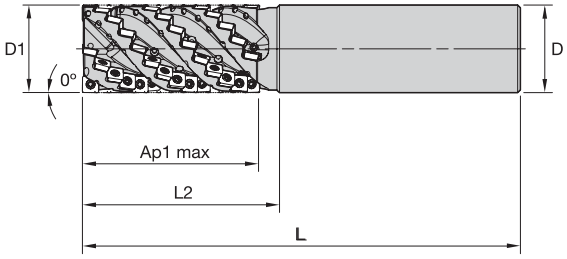
5230VS

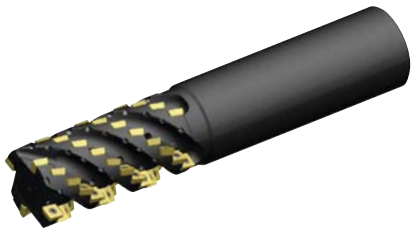
5230VS09:
(a_p max is determined by selection of cutter diameter)
Diameter range and maximum a_p= 2.000" diameter with a_p 2.010", 3.150" or 4.000"

5230VS12:

(a_p max is determined by selection of cutter diameter)
Diameter range and maximum a_p= 2.500" diameter with a_p 2.244" or 3.700"
3.000" diameter with a_p 2.560" or 4.433"
4.000" diameter with a_p 3.000" or 5.236"

- High material removal rates in titanium and high-temperature alloys.
- Chevron design improves stability and lowers power consumption.
- Insert positioning provides smooth, progressive penetration and cutting action for extended tool life.
- Individual coolant jets to each insert provide constant chip evacuation and temperature stability in the cutting zone.





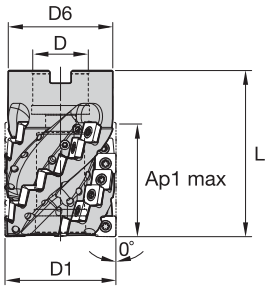
Cylindrical End Mills

order number	catalog number	D1	D	L	L2	Ap1 max	Z	Z U
5673041	C5230VS09CA2.0Z04R4.0	2.000	2.000	10.000	4.500	4.000	56	4

Spare Parts

D1	insert screw	in. lbs.	Torx driver	coolant control screw	Torx driver
2.000	F3508T	18.6	T15	F3006T	T9

- High material removal rates in titanium and high-temperature alloys.
- Chevron design improves stability and lowers power consumption.
- Insert positioning provides smooth progressive penetration and cutting action for extended tool life.
- Individual coolant jets to each insert provide constant chip evacuation and temperature stability in the cutting zone.



Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Ap2 max	Z	Z U
5673176	**C5230VS09-A2.0Z4R2.0**	2.000	1.000	1.882	2.990	2.010	1.750	28	4
5673530	**C5230VS09-A2.0Z04R3.1**	2.000	1.000	1.882	4.173	3.150	—	44	4

NOTE: Ap2 max is the max Ap for slotting.

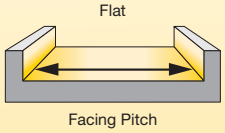
Spare Parts

order number	D1	 insert screw	 in. lbs.	 Torx driver	 coolant control screw	 Torx driver	 steel coolant plug	 nord lock washer	 socket-head cap screw
5673530	2.000	**F3508T**	18.6	**T15**	**F3006T**	**T9**	**SB3621**	**NLW-0.375**	**#1/2-20X1-1/4SHCSA**
5673176	2.000	**F3508T**	18.6	**T15**	**F3006T**	**T9**	**SB3413**	**NLW-0.375**	**#1/2-20X1-1/4SHCSA**

NOTE: Tighten mounting bolt to 59–74 ft. lbs.
Tighten steel coolant plug to 25 ft. lbs.

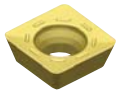
5230VS09 Technical Information (Inch)

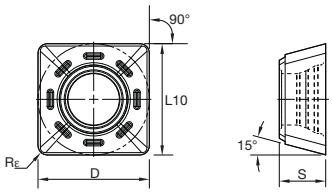
Product		Dimension					
EDP	**Item Description**	Facing Pitch	Ramping Angle°	Helical Hole min. – max.		a_p max Helical/Linear	Max RPM
033073	**C5230VS09-CA2.0Z4R4.0**	2.000	-	–	–	–	32,500
031430	**C5230VS09-A2.0Z4R2.0**	2.000	–	–	–	–	32,500
031581	**C5230VS09-A2.0Z4R3.1**	2.000	–	–	–	–	32,500



Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..422	SP6519	**.E..423**	**SP6519**	.E..41	SP6519
P3–P4	.E..423	SP6519	**.E..41**	**MP91M**	...TN	MP91M
P5–P6	.E..423	SP6519	**.E..41**	**SP6519**	...TN	SP6519
M1–M2	.E..422	KCSM40	**.E..423**	**KCSM40**	.E..41	KCSM40
M3	.E..423	KCSM40	**.E..41**	**KCSM40**	...TN	KCSM40
K1–K2	–	–	–	–	–	–
K3	–	–	–	–	–	–
N1–N2	–	–	–	–	–	–
N3	–	–	–	–	–	–
S1–S2	.E..422	X500	**.E..423**	**X500**	.E..41	X500
S3	.E..422	KCSM40	**.E..423**	**KCSM40**	.E..41	KCSM40
S4	.E..423	X500	**.E..41**	**X500**	...TN	X500
H1	–	–	–	–	–	–


SDHT09-422



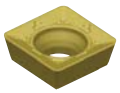
SDHT09-422

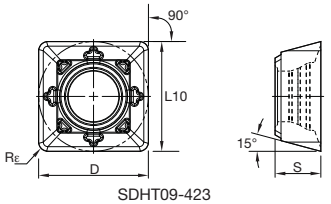
● first choice
○ alternate choice

		KCSM40	MP91M	SP6519	X500
P		○	●	○	○
M		●		●	●
K			●	○	
N					
S		●		●	●
H			○		

SDHT09-422

catalog number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDHT09T308EN422	.375	.375	.156	.031	.001	4	●	–	●	●
SDHT09T3AEEN422	.375	.375	.156	–	.002	4	–	–	●	–


SDHT09-423

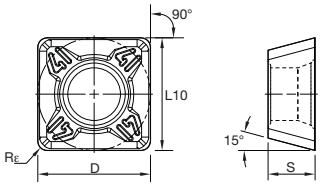


SDHT09-423

SDHT09-423

catalog number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDHT09T308EN423	.375	.375	.156	.031	.002	4	●	–	●	●


SDMT09-41



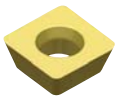
SDMT09-41

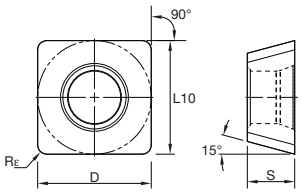
● first choice
○ alternate choice

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

SDMT09-41

catalog number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDMT09T308EN41	.375	.375	.156	.032	.002	4	●	●	●	●


SDMW09-TN



SDMW09-TN

SDMW09-TN

catalog number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDMW09T308TN	.375	.375	.156	.031	.004	4	●	–	–	–

Recommended Starting Feeds

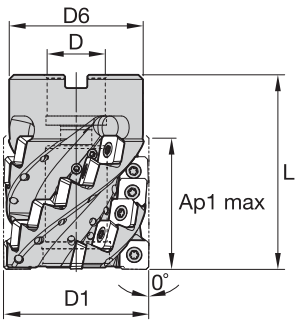
Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..422	.005	**.019**	.030	.003	**.014**	.022	.003	**.010**	.016	.002	**.009**	.014	.002	**.008**	.013	.E..422
.E..423	.005	**.019**	.030	.004	**.013**	.021	.003	**.010**	.016	.002	**.009**	.014	.002	**.008**	.013	.E..423
.E..41	.007	**.021**	.033	.005	**.015**	.023	.004	**.011**	.018	.003	**.010**	.015	.003	**.009**	.014	.E..41
...TN	.009	**.023**	.035	.007	**.017**	.025	.005	**.013**	.019	.004	**.011**	.016	.004	**.010**	.015	...TN

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

- High material removal rates in titanium and high-temperature alloys.
- Chevron design improves stability and lowers power consumption.
- Insert positioning provides smooth progressive penetration and cutting action for extended tool life.
- Individual coolant jets to each insert provide constant chip evacuation and temperature stability in the cutting zone.



Shell Mills

order number	catalog number	D1	D	D6	L	Ap1 max	Ap2 max	Z	Z U
5673797	C5230VS12-A2.5Z4R2.24	2.500	1.000	2.303	3.347	2.244	2.000	24	4
5672481	C5230VS12-A2.5Z4R3.70	2.500	1.000	2.283	4.882	3.701	—	40	4
5673747	C5230VS12-A3.0Z5R2.56	3.000	1.250	2.764	3.740	2.559	2.360	35	5
5673617	C5230VS12-A3.0Z5R4.33	3.000	1.250	2.764	5.630	4.331	—	60	5

NOTE: Ap2 max is the max Ap for slotting.

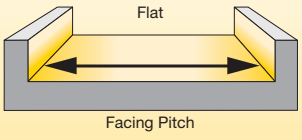
Spare Parts

D1	Z	 insert screw	 in. lbs.	 Torx driver	 coolant control screw	 Torx driver	 steel coolant plug	 nord lock washer	 socket-head cap screw
2.500	24	F4011T	27.4	T20	F3006T	T9	—	NLW-0.375	#1/2-20X1-1/4SHCSA
2.500	40	F4011T	27.4	T20	F3006T	T9	SB3230	NLW-0.375	#1/2-20X1-1/4SHCSA
3.000	35	F4011T	27.4	T20	F3006T	T9	—	NLW12SP	#5/8-18X1-1/2SHCSA
3.000	60	F4011T	27.4	T20	F3006T	T9	SB3232	NLW12SP	#5/8-18X1-1/2SHCSA

NOTE: Tighten mounting bolt on 2.5" cutters to 59–74 ft. lbs, 3" cutters to 81–110 ft. lbs, and 4" cutters to 89–132 ft. lbs.
Tighten steel coolant plug to 25 ft. lbs for 2.5" cutters and 45 ft. lbs for 3" and 4" cutters.

5230VS12 Technical Information (inch)

Product		Dimension					
EDP	Item Description	Facing Pitch	Ramping Angle°	Helical Hole min.–max.		a_p max Helical/Linear	Max RPM
031234	C5230VS12-A2.5Z4R2.24	2.500	–	–	–	–	21,000
031133	C5230VS12-A2.5Z4R3.70	2.500	–	–	–	–	21,000
031606	C5230VS12-A3.0Z5R2.56	3.000	–	–	–	–	18,500
031607	C5230VS12-A3.0Z5R4.33	3.000	–	–	–	–	18,500
031237	C5230VS12-A4.0Z6R5.23	4.000	–	–	–	–	16,000

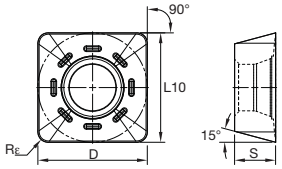


Insert Selection Guide

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←	→	toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	.E..422	SP6519	**.E..41**	**SP6519**	.E..423	SP6519
P3–P4	.E..41	MP91M	**.E..423**	**SP6519**	...TN	SP6519
P5–P6	.E..41	SP6519	**.E..423**	**SP6519**	...TN	SP6519
M1–M2	.E..422	KCSM40	**.E..41**	**KCSM40**	.E..423	KCSM40
M3	.E..41	KCSM40	**.E..423**	**KCSM40**	...TN	KCSM40
K1–K2	–	–	–	–	–	–
K3	–	–	–	–	–	–
N1–N2	–	–	–	–	–	–
N3	–	–	–	–	–	–
S1–S2	.E..422	KCSM40	**.E..41**	**KCSM40**	.E..423	KCSM40
S3	.E..41	KCSM40	**.E..423**	**KCSM40**	...TN	KCSM40
S4	.E..41	X500	**.E..423**	**X500**	...TN	X500
H1	–	–	–	–	–	–

Milling Inserts


SDHT12-422



SDHT12-422

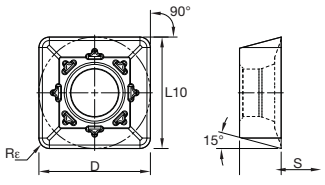
● first choice
○ alternate choice

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

SDHT12-422

catalog number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDHT120412EN422	.500	.500	.187	.047	.002	4	●	–	●	●


SDHT12-423

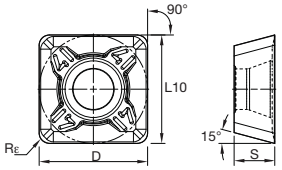


SDHT12-423

SDHT12-423

catalog number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDHT120412EN423	.500	.500	.187	.047	.002	4	●	–	●	●


SDMT12-41



SDMT12-41

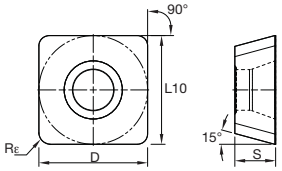
● first choice
○ alternate choice

		KCSM40	MP91M	SP6519	X500
P		○	●	○	○
M		●		●	●
K			●	○	
N					
S		●		●	●
H			○		

SDMT12-41

catalog number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDMT120412EN41	.500	.500	.187	.047	.002	4	●	●	●	●


SDMW12-TN



SDMW12-TN

SDMW12-TN

catalog number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDMW120412TN	.500	.500	.187	.047	.002	4	●	–	●	–

Recommended Starting Feeds

Recommended Starting Feeds [IPT]

Light Machining	General Purpose	Heavy Machining

Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..422	.007	**.021**	.035	.005	**.015**	.025	.004	**.011**	.019	.003	**.010**	.016	.003	**.009**	.015	.E..422
.E..41	.007	**.021**	.035	.005	**.015**	.025	.004	**.011**	.019	.003	**.010**	.016	.003	**.009**	.015	.E..41
.E..423	.008	**.023**	.037	.006	**.017**	.027	.004	**.013**	.020	.004	**.011**	.017	.003	**.010**	.016	.E..423
...TN	.008	**.023**	.037	.006	**.017**	.027	.004	**.013**	.020	.004	**.011**	.017	.003	**.010**	.016	...TN

NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22–X37 for recommended starting speeds.

Calculation of the average chip thickness in relation with the a_e (Radial Engagement) if a_e is less than 50% of diameter.

Formula: Program Feed Rate (f_z)

$$f_z = h_m \times \sqrt{\frac{d}{a_e}}$$

h_m = Average chip thickness
a_e = Radial engagement
f_z = Feed per tooth
d = Cutter diameter

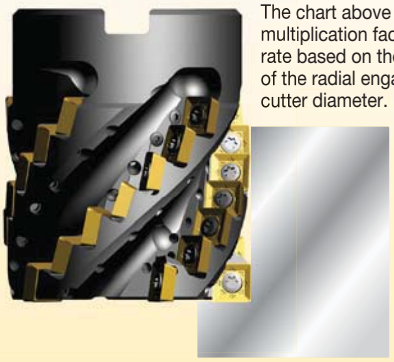
Formula: Average Chip Thickness (h_m)

$$h_m = f_z \times \sqrt{\frac{a_e}{d}}$$

h_m Correction Coefficient Chart

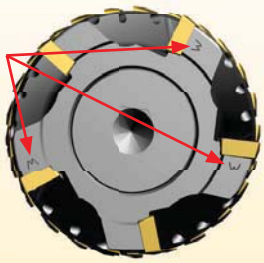
Cutter Ø 2.000"			Cutter Ø 2.500"			Cutter Ø 3.000"			Cutter Ø 4.000"		
ae%	ae (Inch)	Coefficient Factor	ae%	ae (Inch)	Coefficient Factor	ae%	ae (Inch)	Coefficient Factor	ae%	ae (Inch)	Coefficient Factor
5	0.100	2.294	5	0.125	2.329	5	0.150	2.294	5	0.200	2.294
10	0.200	1.667	10	0.250	1.667	10	0.300	1.667	10	0.400	1.667
15	0.300	1.400	15	0.375	1.425	15	0.450	1.407	15	0.600	1.407
20	0.400	1.250	20	0.500	1.250	20	0.600	1.250	20	0.800	1.250
25	0.500	1.155	25	0.625	1.160	25	0.750	1.155	25	1.000	1.155
35	0.700	1.048	35	0.875	1.056	35	1.050	1.048	35	1.400	1.056
50–100	1.000–2.000	1.000	50–100	1.250–2.500	1.000	50–100	1.500–3.000	1.000	50–100	2.000–4.000	1.000

Example: A 3.000" diameter cutter using a 0.300" radial engagement (ae) = 10% of the cutter diameter. At 10%, your coefficient is 1.667 (see above table); therefore you must multiply your feed rate by 1.667 for correcting the feed for profiling.

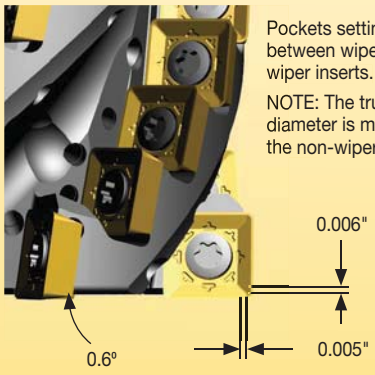


The chart above shows the multiplication factor for the feed rate based on the percentage of the radial engagement of the cutter diameter.

Wiper pockets are identified with a **W** engraved on the face of the body.



The 5230VS cutter series is designed with wiper pockets which provide a much better face surface finish. The non-wiper pockets generate the 90° corner. The same inserts can be utilized in all pockets.



Pockets setting difference between wiper and non-wiper inserts.

NOTE: The true cutter diameter is measured at the non-wiper pockets.

Non-wiper pocket positions are set back and square to axis to give a true 90° approach.

Wiper pocket positions are in front and angled to allow facing.

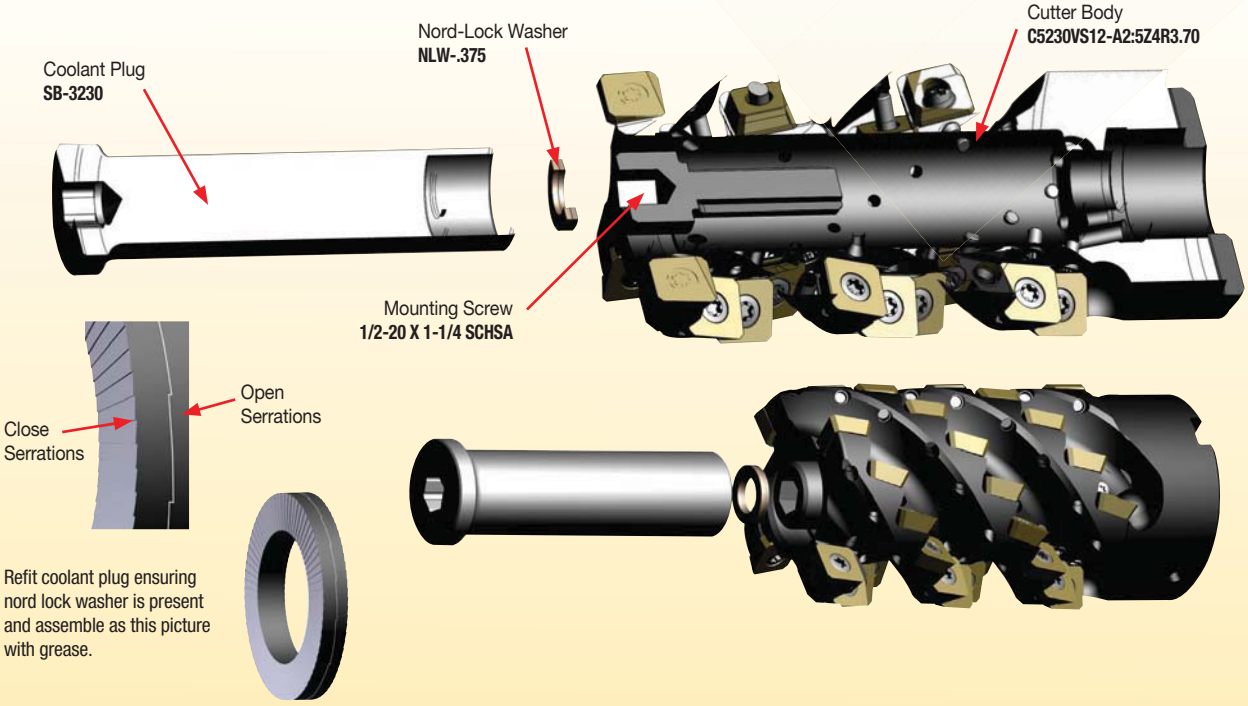
Cutter diameter (inch)	Number of Wiper Inserts
2.000	2
2.500	2
3.000	3
4.000	3

5230VS09 and 5230VS12 Fitting Instructions for Shell Mill Cutters

NOTE: All Shell Mill 5230VS09 and 5230VS12 chevron porcupine cutters are supplied assembled with mounting bolt, nord-lock washer, and steel coolant plug.

Please follow the instructions below to disassemble the cutter, attach the cutter to a shell mill adapter, and reassemble coolant plug. It is very important to use the proper torque when reassembling the cutter with the mounting bolt, nord-lock washer, and coolant plug.

Example of cutter: C5230VS12-A2.5Z4R3.70 assembly



Refit coolant plug ensuring nord lock washer is present and assemble as this picture with grease.

1. Remove coolant plug. *(NOTE: Ensure the nord-lock washer is retained to the bottom of the coolant plug.)*
2. Fit the cutter body to the shell mill adapter and secure using the mounting bolt supplied with the cutter.
   NOTE: The mounting bolt must be properly torqued to the specific torque setting shown in Detail 1 on page T136.
3. Refit coolant plug ensuring nord-lock washer is present and in the proper location on the bottom of the coolant plug. A small amount of grease can be used to hold the nord-lock washer in place.
4. Tighten coolant plug with specific torque setting shown in Detail 2 on page T136.
5. NOTE: If axial depth of cut (a_p) is less then maximum a_p of cutter, then **F3006T** coolant control screws supplied separately can be used to block coolant holes forcing more coolant to the front of the cutter. If these screws are used, please secure with loctite or similar product.

Torque values for mounting bolts

Excessive condition is when long reach extensions are required or when cutting parameters are elevated to extreme parameters.

5230VS09	Detail 1			Detail 2	
Cutter	Mounting Bolt Description	Torque Values in ft lbs. for Mounting Bolt		Coolant Plug Description	Coolant Plug Tightening ft lbs.
		Normal Condition	Excessive Condition		
C5230VS09-A2.0Z4R2.0	1/2-20 x 1-1/4 SHCSA	59	74	SB-3413	25
C5230VS09-A2.0Z4R3.1				SB-3621	

5230VS12	Detail 1			Detail 2	
Cutter	Mounting Bolt Description	Torque Values in ft lbs. for Mounting Bolt		Coolant Plug Description	Coolant Plug Tightening ft lbs.
		Normal Condition	Excessive Condition		
C5230VS12-A2.5Z4R2.24	1/2-20 x 1-1/4 SHCSA	59	74	SB-3229	25
C5230VS12-A2.5Z4R3.70				SB-3230	
C5230VS12-A3.0Z5R2.56	5/8-18 x 1-1/2 SHCSA	81.1	110.6	SB-3231	45
C5230VS12-A3.0Z5R4.33				SB-3232	
C5230VS12-A4.0Z6R3.00	3/4-16 x 1-3/4 SHCSA	88.5	132.76	SB-3233	45
C5230VS12-A4.0Z6R5.23				SB-3234	

Mounting Bolt Hex Keys

M12 = Hex Key Size 10
M16 = Hex Key Size 14
M20 = Hex Key Size 17