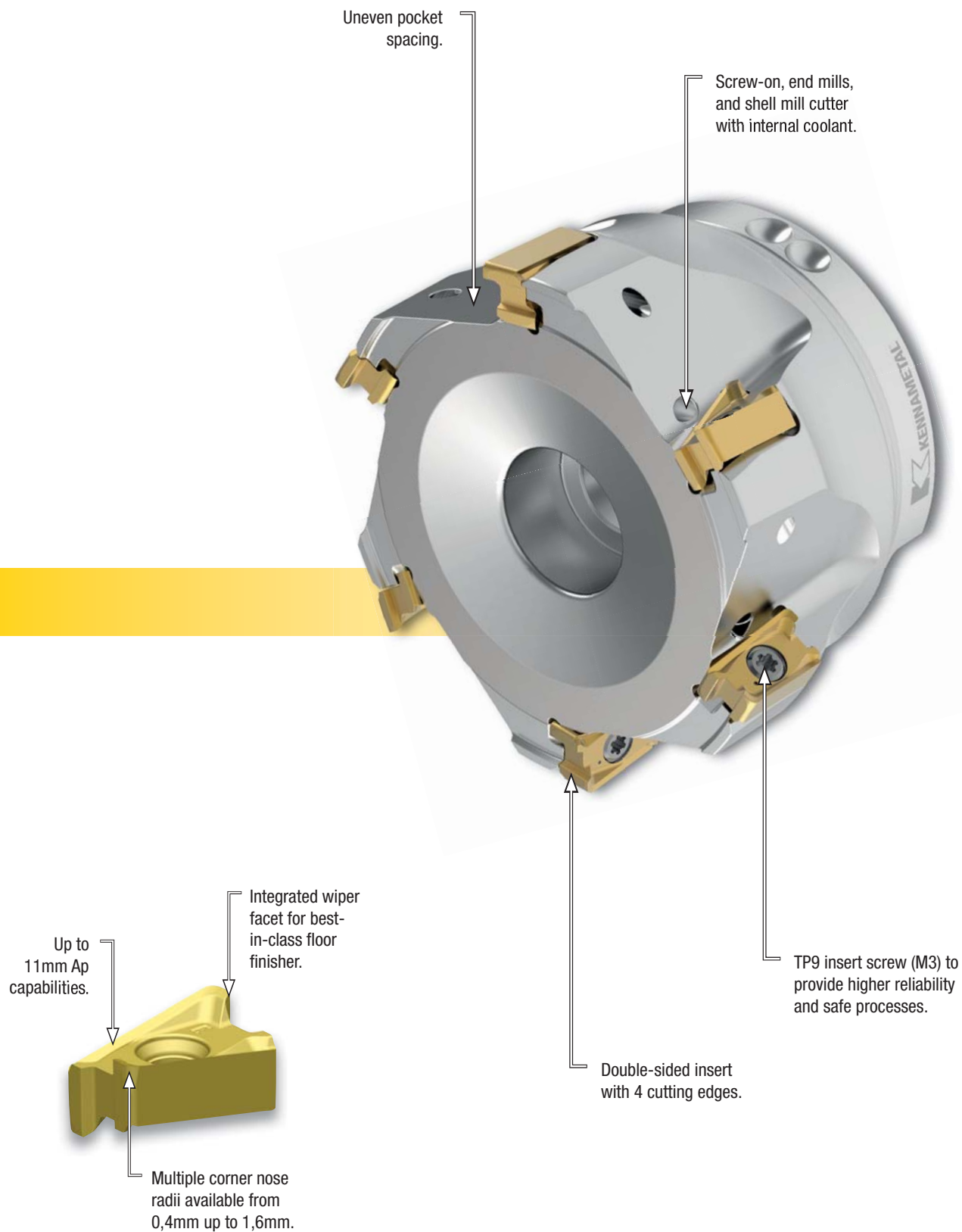
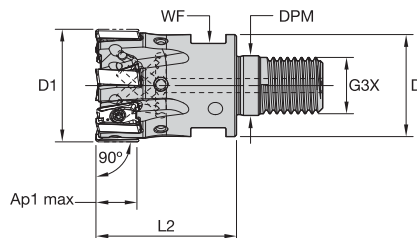
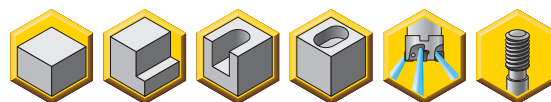




- One tool for all applications: from roughing to finishing.
- Superior wall and surface finishing capabilities. Best choice for stepping down operations.
- Up to 11mm depth of cut.
- Screw-on cutters provide better rigidity and stability when used with small spindles: BT30, BT40, DV40, HSK50, HSK63, 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

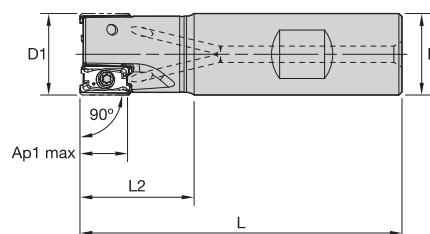
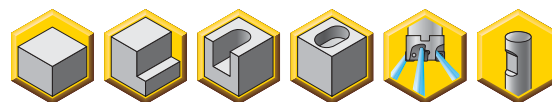
order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	kg	max RPM
6136738	M4D016Z02M08LN11	16	13	8,5	M8	25	10	11,0	2	0,03	48000
6131682	M4D020Z03M10LN11	20	18	10,5	M10	28	15	11,0	3	0,06	40200
6131686	M4D025Z04M12LN11	25	21	12,5	M12	40	17	11,0	4	0,10	34300
6136793	M4D032Z05M16LN11	32	29	17,0	M16	40	24	11,0	5	0,20	29200
6134187	M4D032Z06M16LN11	32	29	17,0	M16	40	24	11,0	6	0,19	29200

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
16	MS2263	1,5	DT9IP
20	MS2263	1,5	DT9IP
25	MS2263	1,5	DT9IP
32	MS2263	1,5	DT9IP

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



Weldon End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
6131628	M4D016Z02B16LN11	16	16	74	25	11,0	2	0,09	48000
6131630	M4D020Z02B20LN11	20	20	79	28	11,0	2	0,17	40200
6136740	M4D020Z03B20LN11	20	20	79	28	11,0	3	0,16	42000
6131684	M4D025Z03B25LN11	25	25	89	32	11,0	3	0,29	34300
6134185	M4D032Z04B32LN11	32	32	110	49	11,0	4	0,60	29200
6136795	M4D040Z05B32LN11	40	32	110	49	11,0	5	0,66	25400

Spare Parts

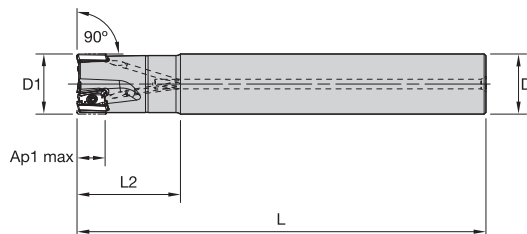
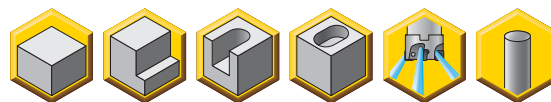


D1	insert screw	Nm	Torx Plus driver
16	MS2263	1,5	DT9IP
20	MS2263	1,5	DT9IP
25	MS2263	1,5	DT9IP
32	MS2263	1,5	DT9IP
40	MS2263	1,5	DT9IP



Shoulder Milling

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



■ Cylindrical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
6131627	M4D016Z02A16LN11L090	16	16	90	25	11,0	2	0,12	48000
6136737	M4D016Z02A16LN11L150	16	16	150	25	11,0	2	0,21	48000
6131629	M4D020Z02A20LN11L150	20	20	150	28	11,0	2	0,33	40200
6131681	M4D020Z03A20LN11L090	20	20	90	28	11,0	3	0,21	40200
6136739	M4D020Z03A20LN11L150	20	20	150	28	11,0	3	0,33	40200
6131683	M4D025Z03A25LN11L170	25	25	170	43	11,0	3	0,63	34300
6131685	M4D025Z04A25LN11L100	25	25	100	43	11,0	4	0,33	34300
6136791	M4D025Z04A25LN11L170	25	25	170	43	11,0	4	0,59	34300
6134184	M4D032Z04A32LN11L200	32	32	200	49	11,0	4	1,16	29200
6134186	M4D032Z05A32LN11L110	32	32	110	49	11,0	5	0,61	29200
6136792	M4D032Z05A32LN11L200	32	32	200	49	11,0	5	1,17	29200
6136794	M4D040Z05A32LN11L200	40	32	200	49	11,0	5	1,22	25400

■ Spare Parts

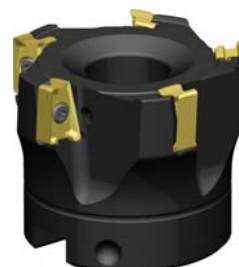
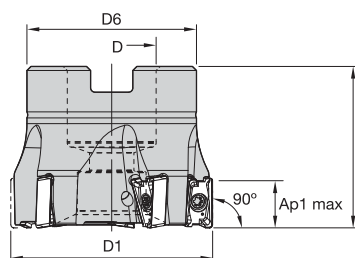
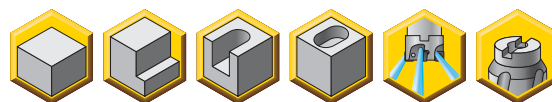


Shoulder Milling



D1	insert screw	Nm	Torx Plus driver
16	MS2263	1,5	DT9IP
20	MS2263	1,5	DT9IP
25	MS2263	1,5	DT9IP
32	MS2263	1,5	DT9IP
40	MS2263	1,5	DT9IP

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



■ Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	kg	max RPM
6134188	M4D040Z04S16LN11	40	16	37	40	11,0	4	0,23	25400
6134189	M4D040Z06S16LN11	40	16	37	40	11,0	6	0,22	25400
6136796	M4D040Z07S16LN11	40	16	37	40	11,0	7	0,23	25400
6134190	M4D050Z05S22LN11	50	22	42	40	11,0	5	0,31	22300
6134231	M4D050Z07S22LN11	50	22	42	40	11,0	7	0,32	22300
6136797	M4D050Z09S22LN11	50	22	42	40	11,0	9	0,32	22300
6134232	M4D063Z06S22LN11	63	22	50	40	11,0	6	0,56	19500
6134233	M4D063Z09S22LN11	63	22	50	40	11,0	9	0,56	19500
6134234	M4D080Z08S27LN11	80	27	60	50	11,0	8	1,12	17100
6136798	M4D080Z10S27LN11	80	27	60	50	11,0	10	1,11	17100

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver	socket-head cap screw
40	MS2263	1,5	DT9IP	125.825
50	MS2263	1,5	DT9IP	125.025
63	MS2263	1,5	DT9IP	125.025
80	MS2263	1,5	DT9IP	125.230



Shoulder Milling

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	–	–	–	–	–	–	

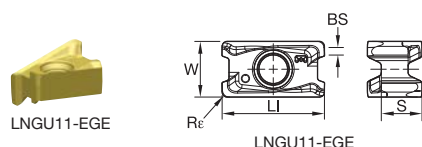
Technical drawing of the LINGU11-ELEJ component. The drawing includes a 3D perspective view and two cross-sectional views. The 3D view shows a grey, L-shaped component with a central circular hole. The first cross-section shows dimensions: W (width), LI (length), R_e (fillet radius), and BS (hole diameter). The second cross-section shows dimension S (thickness). The text "LINGU11-ELEJ" is present below both cross-sections.

- first choice
- alternate choice

[illegible]

catalogue number	LI	S	W	BS	R _E	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU110404ERLEJ	12,16	4,83	6,60	1,40	0,4	0,04	4	●	—	—	—	—	—	—	—	—
LNGU110408ERLEJ	12,16	4,83	6,60	1,00	0,8	0,04	4	●	—	—	—	—	—	—	—	—

- -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.



catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC42M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40			
LNGU110404ERGE	12,16	4,83	6,60	1,40	0,4	0,08	4	—	—	●	●	—	—	●	—	—	—	—	—
LNGU110408ERGE	12,16	4,83	6,60	1,00	0,8	0,08	4	—	—	●	●	—	—	●	●	—	—	—	—
LNGU110412ERGE	12,17	4,83	6,60	0,60	1,2	0,08	4	—	—	●	—	—	—	●	—	—	—	—	—

- first choice
- alternate choice



catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	
LNGU110404SRGE	12,16	4,83	6,60	1,40	0,4	0,10	4	—	—	●	—	—	●	●	—	●	●
LNGU110408SRGE	12,16	4,83	6,60	1,00	0,8	0,10	4	—	—	●	●	—	●	●	—	—	●

- LNPU11-SGE

catalogue number	LI	S	W	BS	R _g	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCKP30	KCPM40	KCSM30	KCSM40				
LNPU110408SRGE	12,10	4,83	6,60	0,90	0,8	0,10	4	—	●	●	●	●	●	●	—	—				
LNPU110412SRGE	12,10	4,83	6,60	0,50	1,2	0,10	4	—	●	●	●	●	●	●	●	—	—			
LNPU110416SRGE	12,10	4,83	6,60	0,02	1,6	0,10	4	—	●	●	●	—	●	●	—	—				

- LNGU11-SGEM

								KC42M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSN30	KCSN40
catalogue number	LI	S	W	BS	Rε	hm	cutting edges									
LNGU110408SRGEM	12,16	4,83	6,60	0,90	0,8	0,10	4	-	●	●	-	●	●	●	-	-
LNGU110412SRGEM	12,16	4,83	6,60	0,60	1,2	0,10	4	-	●	-	-	●	●	●	-	-
LNGU110416SRGEM	12,16	4,83	6,60	0,10	1,6	0,10	4	-	●	-	-	●	●	●	-	-

P										
M										
K										
N										
S										
H										

■ Recommended Starting Feeds [mm]

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..LEJ	0,13	0,35	0,58	0,09	0,25	0,42	0,07	0,19	0,31	0,06	0,17	0,27	0,06	0,15	0,25	.E..LEJ
.E..GE	0,23	0,43	0,59	0,17	0,31	0,43	0,13	0,23	0,32	0,11	0,20	0,28	0,10	0,18	0,25	.E..GE
.S..GE	0,23	0,46	0,65	0,17	0,33	0,47	0,13	0,25	0,35	0,11	0,22	0,31	0,10	0,20	0,28	.S..GE
.S..GEM	0,23	0,46	0,71	0,17	0,33	0,51	0,13	0,25	0,38	0,11	0,22	0,33	0,10	0,20	0,30	.S..GEM

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

Please see pages X22–X37 for recommended starting speeds.

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Online product catalogue available 24/7

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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 • Metric

order number	catalogue number	cutter diameter/ flutes	cutter type	material group	application range	content				
						cutter	quantity	insert	grade	quantity
6213970	M4-11KITD16Z2A16SGEKCPC40	16z2	Cylindrical	P	▽/▽▽	M4D016Z02A16LN11L090	1	LNPU110408SRGE	KCPM40	20
6214071	M4-11KITD20Z2B20SGEKCPC40	20z2	Weldon	P	▽/▽▽	M4D020Z02B20LN11	1	LNPU110408SRGE	KCPM40	20
6214072	M4-11KITD20Z3A20SGEKCPC40	20z3	Cylindrical	P	▽/▽▽	M4D020Z03A20LN11L090	1	LNPU110408SRGE	KCPM40	20
6214073	M4-11KITD25Z3B25SGEKCPC40	25z3	Weldon	P	▽/▽▽	M4D025Z03B25LN11	1	LNPU110408SRGE	KCPM40	20
6214074	M4-11KITD25Z4A25SGEKCPC40	25z4	Cylindrical	P	▽/▽▽	M4D025Z04A25LN11L100	1	LNPU110408SRGE	KCPM40	20
6214075	M4-11KITD32Z4B32SGEKCPC40	32z4	Weldon	P	▽/▽▽	M4D032Z04B32LN11	1	LNPU110408SRGE	KCPM40	20
6214076	M4-11KITD32Z5A32SGEKCPC40	32z5	Cylindrical	P	▽/▽▽	M4D032Z05A32LN11L110	1	LNPU110408SRGE	KCPM40	20
6214077	M4-11KITD40Z4S16SGEKCPC40	40z4	Shell Mill	P	▽/▽▽	M4D040Z04S16LN11	1	LNPU110408SRGE	KCPM40	20
6214078	M4-11KITD40Z6S16SGEKCPC40	40z6	Shell Mill	P	▽/▽▽	M4D040Z06S16LN11	1	LNPU110408SRGE	KCPM40	20
6214079	M4-11KITD50Z5S22SGEKCPC40	50z5	Shell Mill	P	▽/▽▽	M4D050Z05S22LN11	1	LNPU110408SRGE	KCPM40	20
6214080	M4-11KITD50Z7S22SGEKCPC40	50z7	Shell Mill	P	▽/▽▽	M4D050Z07S22LN11	1	LNPU110408SRGE	KCPM40	20
6214081	M4-11KITD63Z9S22SGEKCPC40	63z9	Shell Mill	P	▽/▽▽	M4D063Z09S22LN11	1	LNPU110408SRGE	KCPM40	20
6214082	M4-11KITD16Z2A16EGEKC725M	16z2	Cylindrical	M+S	▽▽/▽▽▽	M4D016Z02A16LN11L090	1	LNGU110408ERGE	KC725M	20
6214083	M4-11KITD20Z2B20EGEKC725M	20z2	Weldon	M+S	▽▽/▽▽▽	M4D020Z02B20LN11	1	LNGU110408ERGE	KC725M	20
6214084	M4-11KITD20Z3A20EGEKC725M	20z3	Cylindrical	M+S	▽▽/▽▽▽	M4D020Z03A20LN11L090	1	LNGU110408ERGE	KC725M	20
6214085	M4-11KITD25Z3B20EGEKC725M	25z3	Weldon	M+S	▽▽/▽▽▽	M4D025Z03B25LN11	1	LNGU110408ERGE	KC725M	20
6214086	M4-11KITD25Z4A25EGEKC725M	25z4	Cylindrical	M+S	▽▽/▽▽▽	M4D025Z04A25LN11L100	1	LNGU110408ERGE	KC725M	20
6214087	M4-11KITD32Z4B32EGEKC725M	32z4	Weldon	M+S	▽▽/▽▽▽	M4D032Z04B32LN11	1	LNGU110408ERGE	KC725M	20
6214088	M4-11KITD32Z5A32EGEKC725M	32z5	Cylindrical	M+S	▽▽/▽▽▽	M4D032Z05A32LN11L110	1	LNGU110408ERGE	KC725M	20
6214089	M4-11KITD40Z4S16EGEKC725M	40z4	Shell Mill	M+S	▽▽/▽▽▽	M4D040Z04S16LN11	1	LNGU110408ERGE	KC725M	20
6214090	M4-11KITD40Z6S16EGEKC725M	40z6	Shell Mill	M+S	▽▽/▽▽▽	M4D040Z06S16LN11	1	LNGU110408ERGE	KC725M	20
6214091	M4-11KITD50Z5S22EGEKC725M	50z5	Shell Mill	M+S	▽▽/▽▽▽	M4D050Z05S22LN11	1	LNGU110408ERGE	KC725M	20
6214092	M4-11KITD50Z7S22EGEKC725M	50z7	Shell Mill	M+S	▽▽/▽▽▽	M4D050Z07S22LN11	1	LNGU110408ERGE	KC725M	20
6214093	M4-11KITD63Z9S22EGEKC725M	63z9	Shell Mill	M+S	▽▽/▽▽▽	M4D063Z09S22LN11	1	LNGU110408ERGE	KC725M	20

▽ Heavy/Roughing
 ▽▽ Medium
 ▽▽▽ Light machining/Finishing

➤ Mill 4-15™ •

Double-Sided Shoulder Milling

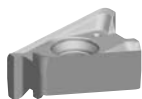
Primary Application

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



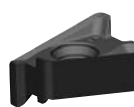
For non-ferrous materials.

-EGE



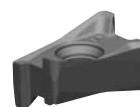
1st choice for stainless steel.
Lower cutting forces.

-SGE

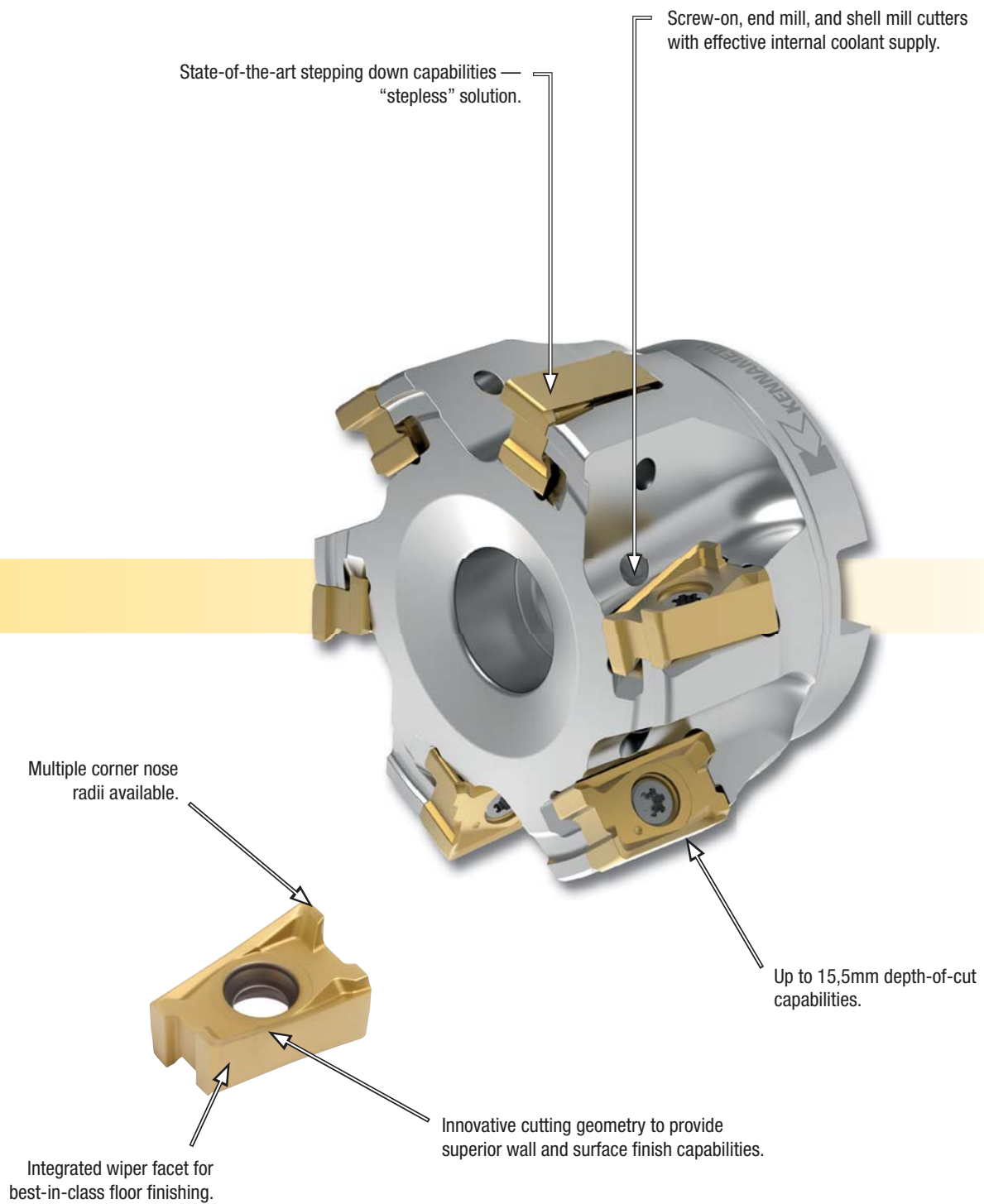


First choice for the Mill 4 platform,
especially when machining steels.

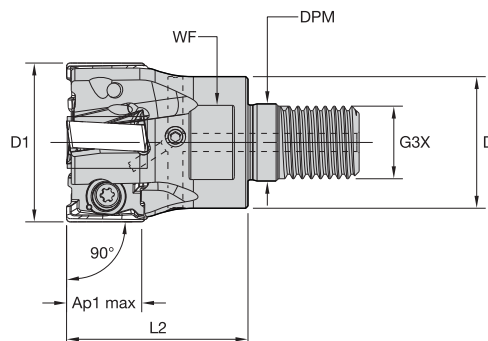
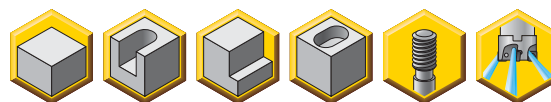
-SGEM



1st choice for cast iron.
Strongest cutting edge.



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



■ Screw-On End Mills

order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	kg	max RPM
5531911	M4D025Z02M12LN15	25	21	12,5	M12	32	17	15,5	2	0,08	26700
5531912	M4D032Z03M16LN15	32	29	17,0	M16	40	24	15,5	3	0,18	22000
5555606	M4D032Z04M16LN15	32	29	17,0	M16	40	24	15,5	4	0,18	22000
5528599	M4D035Z04M16LN15	35	29	17,0	M16	40	24	15,5	4	0,19	20600
5531913	M4D040Z05M16LN15	40	29	17,0	M16	40	24	15,5	5	0,23	18800

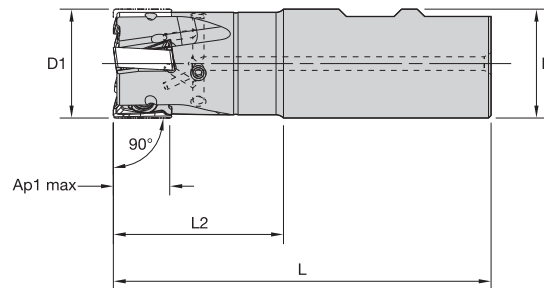
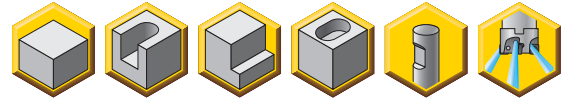
■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
25	MS-2071	3,5	DT15IP
32	MS-2071	3,5	DT15IP
35	MS-2071	3,5	DT15IP
40	MS-2071	3,5	DT15IP

Shoulder Milling

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



■ Weldon End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
5528630	M4D025Z02B25LN15	25	25	89	32	15,5	2	0,28	26700
5528631	M4D032Z03B32LN15	32	32	111	50	15,5	3	0,58	22000
5531914	M4D040Z03B32LN15	40	32	111	50	15,5	3	0,65	18800
5555607	M4D040Z04B32LN15	40	32	111	50	15,5	4	0,65	18800

■ Spare Parts

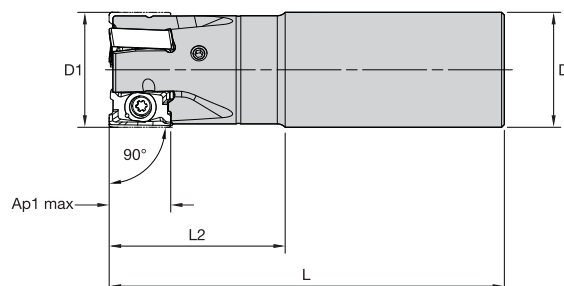
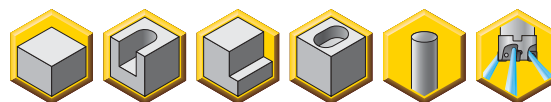


D1	insert screw	Nm	Torx Plus driver
25	MS-2071	3,5	DT15IP
32	MS-2071	3,5	DT15IP
40	MS-2071	3,5	DT15IP

NOTE: Weldon type not recommended for finishing operations.

Shoulder Milling

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



Cylindrical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
5531915	M4D025Z02A25LN15L100	25	25	100	43	15,5	2	0,28	26700
5531916	M4D025Z02A25LN15L170	25	25	170	43	15,5	2	0,58	26700
5531917	M4D032Z03A32LN15L110	32	32	110	49	15,5	3	0,58	22000
5531918	M4D032Z03A32LN15L200	32	32	200	50	15,5	3	1,14	22000
5555608	M4D032Z04A32LN15L110	32	32	110	49	15,5	4	0,58	22000
5555609	M4D032Z04A32LN15L200	32	32	200	50	15,5	4	1,14	22000
5531919	M4D040Z03A32LN15L200	40	32	200	50	15,5	3	1,21	18800
5555800	M4D040Z04A32LN15L200	40	32	200	50	15,5	4	1,20	18800

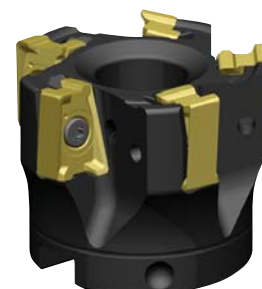
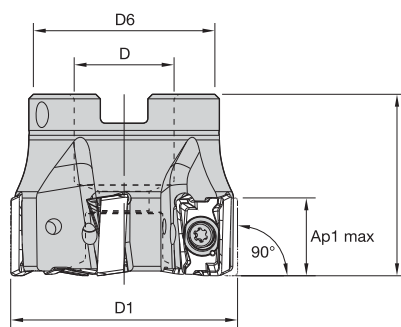
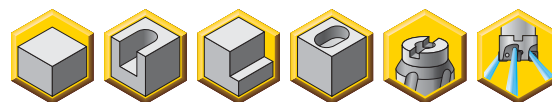
Spare Parts



D1	insert screw	Nm	Torx Plus driver
25	MS-2071	3,5	DT15IP
32	MS-2071	3,5	DT15IP
40	MS-2071	3,5	DT15IP

Shoulder Milling

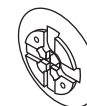
- Superior wall and surface finish capabilities.
- True 90° capabilities. Stepless solution when using multiple steps.
- Engineered to run up to 15,5mm depth of cut.
- Effective internal coolant feature, reaching the cutting edge precisely.



■ Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	kg	max RPM
5528632	M4D040Z04S16LN15	40	16	37	40	15,5	4	0,20	18800
5555801	M4D040Z05S16LN15	40	16	37	40	15,5	5	0,19	18800
5698436	M4D050Z04S22LN15	50	22	42	40	15,5	4	0,28	16300
5528633	M4D050Z05S22LN15	50	22	42	40	15,5	5	0,28	16300
5528634	M4D050Z06S22LN15	50	22	42	40	15,5	6	0,27	16300
5698437	M4D063Z05S22LN15	63	22	50	40	15,5	5	0,50	14200
5528635	M4D063Z06S22LN15	63	22	50	40	15,5	6	0,49	14200
5528636	M4D063Z07S22LN15	63	22	50	40	15,5	7	0,50	14200
5698438	M4D080Z05S27LN15	80	27	60	50	15,5	5	1,03	12300
5528637	M4D080Z07S27LN15	80	27	60	50	15,5	7	1,02	12300
5555802	M4D080Z09S27LN15	80	27	60	50	15,5	9	1,04	12300
5698439	M4D100Z06S32LN15	100	32	80	50	15,5	6	1,58	10900
5528638	M4D100Z08S32LN15	100	32	80	50	15,5	8	1,57	10900
5555803	M4D100Z11S32LN15	100	32	80	50	15,5	11	1,64	10900
5698490	M4D125Z07S40LN15	125	40	90	63	15,5	7	2,96	9600
5555804	M4D125Z09S40LN15	125	40	90	63	15,5	9	2,98	9600
5532000	M4D125Z12S40LN15	125	40	90	63	15,5	12	3,00	9600
5698491	M4D160Z08S40LN15	160	40	110	63	15,5	8	4,67	8400
5555805	M4D160Z12S40LN15	160	40	110	63	15,5	12	4,78	8400
5555806	M4D160Z16S40LN15	160	40	110	63	15,5	16	4,75	8400

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver	socket-head cap screw	coolant lock screw assembly	coolant lock screw	coolant cap
40	MS-2071	3,5	DT15IP	125.825	—	—	—
50	MS-2071	3,5	DT15IP	125.025	—	—	—
63	MS-2071	3,5	DT15IP	125.025	—	—	—
80	MS-2071	3,5	DT15IP	125.230	—	—	—
100	MS-2071	3,5	DT15IP	—	MS2189C	—	—
125	MS-2071	3,5	DT15IP	—	MS2187C	—	—
160	MS-2071	3,5	DT15IP	—	—	420.200	470.233

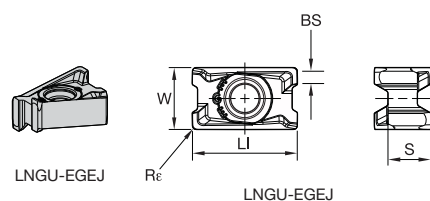
NOTE: Coolant lock screw assembly and coolant cap must be ordered separately.

■ 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 aluminium and other non-ferrous alloys.



- first choice
- alternate choice

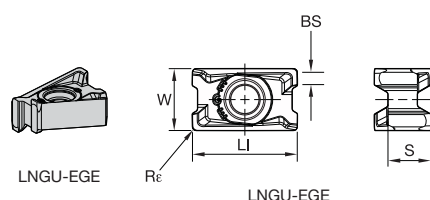
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■ **LNGU15-EGEJ • For Aluminium and Other Non-Ferrous Alloys**

								KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
catalogue number	LI	S	W	BS	R _e	hm	cutting edges									
LNGU15T604ERGEJ	17,00	6,96	10,00	2,20	0,4	0,03	4	●	-	-	-	-	-	-	-	-
LNGU15T608ERGEJ	17,00	6,96	10,00	1,80	0,8	0,03	4	●	-	-	-	-	-	-	-	-

Shoulder Milling

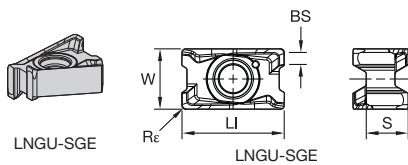
- -EGE is the first choice for stainless steel and high-temp alloys.
- Best choice for finishing operations in steels, stainless steels, and high-temp alloys.



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

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU15T604ERGE	17,01	6,96	10,00	2,20	0,4	0,08	4	-	-	●	●	-	-	●	●	●
LNGU15T608ERGE	17,01	6,96	10,00	1,80	0,8	0,08	4	-	-	●	●	-	-	●	●	●
LNGU15T612ERGE	17,01	6,96	10,00	1,40	1,2	0,08	4	-	-	●	●	-	-	●	●	●
LNGU15T616ERGE	17,01	6,96	10,00	1,07	1,6	0,08	4	-	-	●	●	-	-	●	●	●

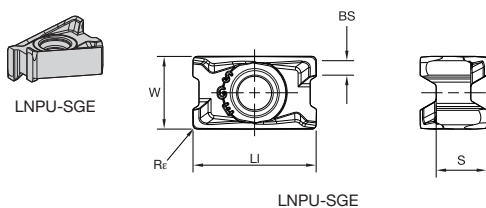
- -SGE is the universal geometry for Mill 4-15.
- First choice when machining steel.
- Suitable for stainless steel and high-temp alloys in medium-heavy applications.



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

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU15T604SRGE	17,00	6,96	10,00	2,20	0,4	0,10	4	-	•	•	•	•	•	-	-	-
LNGU15T608SRGE	17,01	6,96	10,00	1,80	0,8	0,10	4	-	•	•	•	•	•	-	-	•
LNGU15T612SRGE	17,01	6,96	10,00	1,40	1,2	0,10	4	-	•	•	•	•	•	-	-	•
LNGU15T616SRGE	17,01	6,96	10,00	1,07	1,6	0,10	4	-	•	•	•	•	•	-	-	-

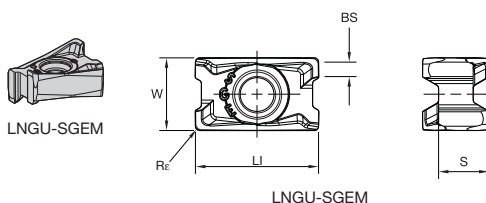
- -SGE is the universal geometry for Mill 4-15. First choice when machining steel, as well as stainless steel and high-temp alloys in heavy applications.



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

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNPU15T604SRGE	16,90	6,96	10,00	2,20	0,4	0,10	4	-	•	•	•	•	•	-	-	-
LNPU15T608SRGE	16,90	6,96	10,00	1,80	0,8	0,10	4	-	•	•	•	•	•	-	-	-
LNPU15T612SRGE	16,90	6,96	10,00	1,50	1,2	0,10	4	-	•	•	•	-	•	•	-	-
LNPU15T616SRGE	16,90	6,96	10,00	1,10	1,6	0,10	4	-	-	-	-	-	•	-	-	-
LNPU15T620SRGE	16,92	6,96	10,00	0,70	2,0	0,10	4	-	-	•	•	•	•	•	-	-

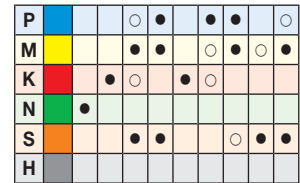
- -SGEM geometry is the first choice for cast iron machining in medium and heavy applications.



■ **LNGU15-SGEM • For Cast Iron Machining**

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU15T608SRGEM	17,01	6,96	10,00	1,70	0,8	0,10	4	-	•	-	-	-	•	•	-	-
LNGU15T612SRGEM	17,01	6,96	10,00	1,30	1,2	0,10	4	-	•	-	-	•	•	•	-	-
LNGU15T616SRGEM	17,01	6,96	10,00	0,95	1,6	0,10	4	-	•	-	-	•	•	•	-	-
LNGU15T620SRGEM	17,01	6,96	10,00	0,34	2,0	0,10	4	-	•	-	-	•	•	•	-	-

- first choice
- alternate choice



catalogue number	LI	S	W	BS	R _ε	hm	cutting edges	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
LNGU15T60SRGEH	17,01	6,96	10,00	1,80	0,8	0,10	4	—	—	—	—	—	—	—	—	●

Light Machining	General Purpose	Heavy Machining
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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	0,12	0,47	0,84	0,08	0,34	0,60	0,06	0,26	0,45	0,06	0,22	0,39	0,05	0,20	0,36	.E..GEJ
.E..GE	0,23	0,54	0,93	0,17	0,39	0,67	0,13	0,29	0,50	0,11	0,25	0,44	0,10	0,23	0,40	.E..GE
.S..GE	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GE
.S..GEM	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GEM

Shoulder Milling

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 Metric Starter Kits



material group	order number	catalogue number	cutter kit	application range	content				
					cutter	qty	insert	grade	qty
P	5956817	M4KITD25Z02A25SGEKCPC40	D25z2	∇∇	M4D025Z02A25LN15L100	1	LNPU15T608SRGE	KCPM40	20
P	5956818	M4KITD32Z03A32SGEKCPC40	D32z3	∇∇	M4D032Z03A32LN15L110	1	LNPU15T608SRGE	KCPM40	20
P	5956819	M4KITD40Z04S16SGEKCPC40	D40z4	∇∇	M4D040Z04S16LN15	1	LNPU15T608SRGE	KCPM40	20
P	5956820	M4KITD50Z05S22SGEKCPC40	D50z5	∇∇	M4D050Z05S22LN15	1	LNPU15T608SRGE	KCPM40	20
P	5956872	M4KITD50Z06S22SGEKCPC40	D50z6	∇∇	M4D050Z06S22LN15	1	LNPU15T608SRGE	KCPM40	20
P	5956873	M4KITD63Z06S22SGEKCPC40	D63z6	∇∇	M4D063Z06S22LN15	1	LNPU15T608SRGE	KCPM40	20
P	5956874	M4KITD80Z07S27SGEKCPC40	D80z7	∇∇	M4D080Z07S27LN15	1	LNPU15T608SRGE	KCPM40	20
P	5956875	M4KITD100Z08S32SGEKCPC40	D100z8	∇∇	M4D100Z08S32LN15	1	LNPU15T608SRGE	KCPM40	20
M + S	5956876	M4KITD25Z02A25EGEKC725M	D25z2	∇∇∇	M4D025Z02A25LN15L100	1	LNGU15T608ERGE	KC725M	20
M + S	5956877	M4KITD32Z03A32EGEKC725M	D32z3	∇∇∇	M4D032Z03A32LN15L110	1	LNGU15T608ERGE	KC725M	20
M + S	5956878	M4KITD40Z04S16EGEKC725M	D40z4	∇∇∇	M4D040Z04S16LN15	1	LNGU15T608ERGE	KC725M	20
M + S	5956879	M4KITD50Z05S22EGEKC725M	D50z5	∇∇∇	M4D050Z05S22LN15	1	LNGU15T608ERGE	KC725M	20
M + S	5956880	M4KITD50Z06S22EGEKC725M	D50z6	∇∇∇	M4D050Z06S22LN15	1	LNGU15T608ERGE	KC725M	20
M + S	5956891	M4KITD63Z06S22EGEKC725M	D63z6	∇∇∇	M4D063Z06S22LN15	1	LNGU15T608ERGE	KC725M	20
M + S	5956892	M4KITD80Z07S27EGEKC725M	D80z7	∇∇∇	M4D080Z07S27LN15	1	LNGU15T608ERGE	KC725M	20
K	5956893	M4KITD25Z02A25SGEMKC520M	D25z2	∇	M4D025Z02A25LN15L100	1	LNGU15T608SRGEM	KC520M	20
K	5956894	M4KITD32Z03A32SGEMKC520M	D32z3	∇	M4D032Z03A32LN15L110	1	LNGU15T608SRGEM	KC520M	20
K	5956896	M4KITD40Z04S16SGEMKC520M	D40z4	∇	M4D040Z04S16LN15	1	LNGU15T608SRGEM	KC520M	20
K	5956897	M4KITD50Z05S22SGEMKC520M	D50z5	∇	M4D050Z05S22LN15	1	LNGU15T608SRGEM	KC520M	20
K	5956898	M4KITD50Z06S22SGEMKC520M	D50z6	∇	M4D050Z06S22LN15	1	LNGU15T608SRGEM	KC520M	20
K	5956899	M4KITD63Z07S22SGEMKC520M	D63z7	∇	M4D063Z07S22LN15	1	LNGU15T608SRGEM	KC520M	20
K	5956900	M4KITD80Z09S27SGEMKC520M	D80z9	∇	M4D080Z09S27LN15	1	LNGU15T608SRGEM	KC520M	20
K	5956901	M4KITD100Z11S32SGEMKC520M	D100z11	∇	M4D100Z11S32LN15	1	LNGU15T608SRGEM	KC520M	20

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

➤ Mill 1-7™

Primary Application

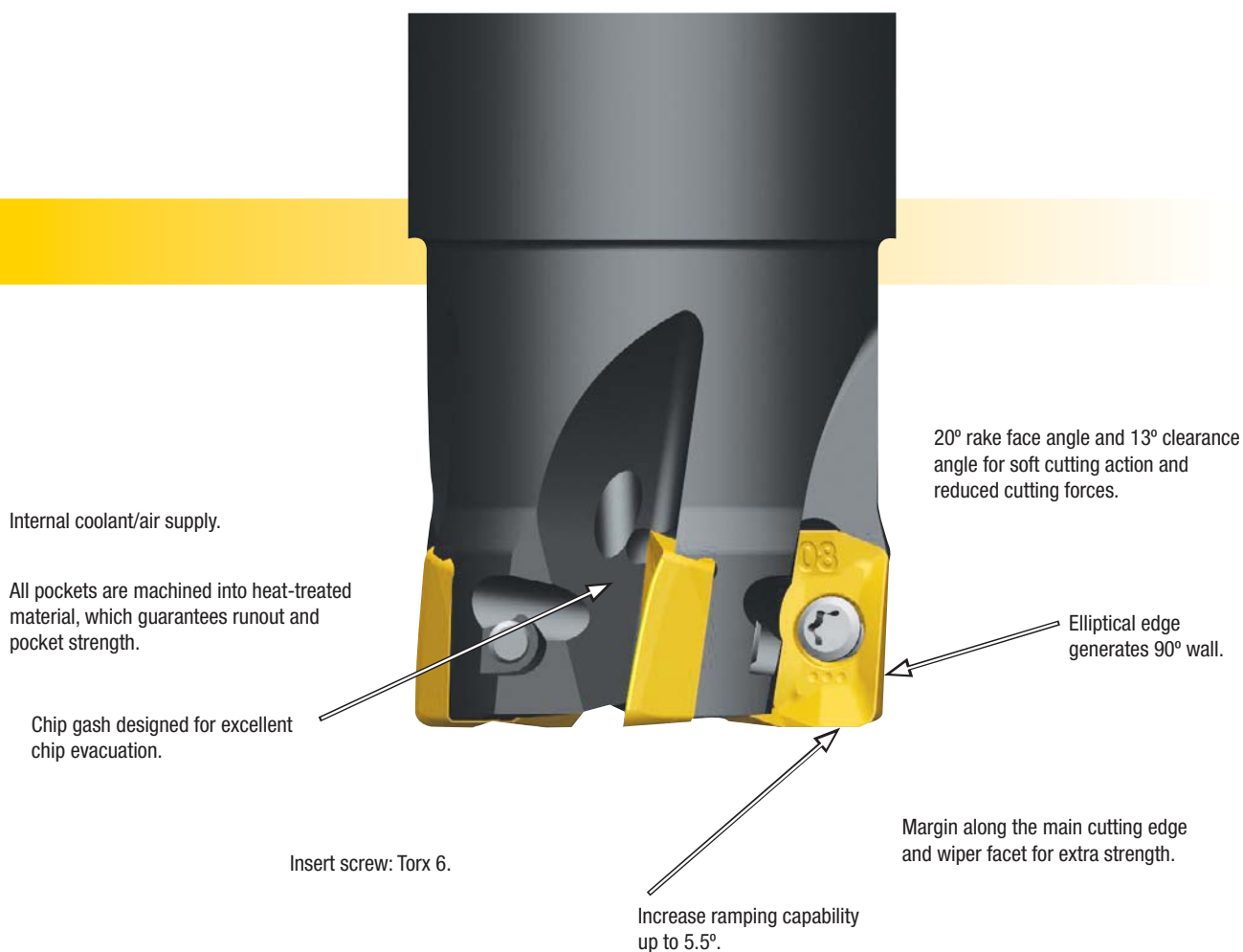
Mill 1-7 is engineered for small-component machining and covers multiple applications, including ramping, slotting, and plunging. Mill 1-7 tools provide solutions for roughing and finishing operations in energy, aerospace, and general engineering, where small-diameter end mills are required.

Features and Benefits

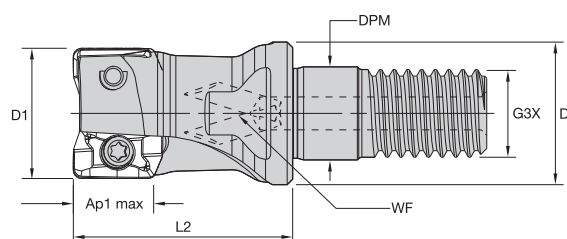
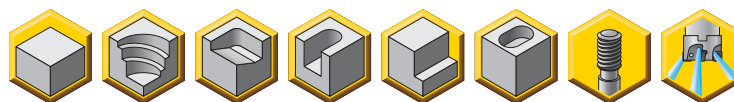
- Mill 1-7 inserts enable the use of higher density cutters, providing greater feed and higher metal removal rates.
- Super positive rake provides soft action and low cutting forces for smooth entry and exit from the component. Run at higher feed rates while using less power.
- Inserts are designed with elliptical cutting edges and are optimised 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



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



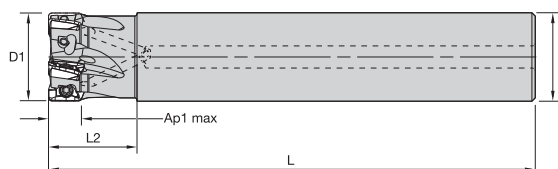
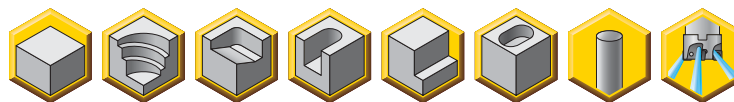
Screw-On End Mills

order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	kg	max RPM
5190197	12A02R020M08ED07	12	13	8,5	M8	20	10	7,0	2	5.2°	0,02	64510

Spare Parts

D1	insert screw	Nm	Torx wrench
12	12148006000	0,5	FT6

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



Cylindrical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
5190190	12A02R018A12ED07	12	12	100	18	7,0	2	5.2°	0,08	64510
5190191	16A03R020A16ED07	16	16	100	20	7,0	3	2.9°	0,14	55790
5190192	20A05R020A20ED07	20	20	110	20	6,9	5	2.0°	0,24	49860

Spare Parts

D1	insert screw	Nm	Torx wrench
12	12148006000	0,5	FT6
16	12148006000	0,5	FT6
20	12148006000	0,5	FT6

Insert Selection Guide

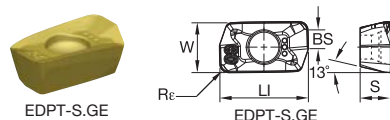
Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance				toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1-P2	.S..GE	KC725M	.S..GE	KCPK30	.S..GE	KCPM40
P3-P4	.S..GE	KC725M	.S..GE	KCPK30	.S..GE	KCPM40
P5-P6	.S..GE	KC725M	.S..GE	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.
- $Ap1 \text{ max} = 7\text{mm}$.

- first choice
- alternate choice

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



EDPT-S.GE

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC522M	KC725M	KCPK30	KCSM30	KCPM40
EDPT070308PDSRGE	8,19	2,80	4,69	1,70	0,8	0,09	2	●	●	●	●	●

Recommended Starting Feeds

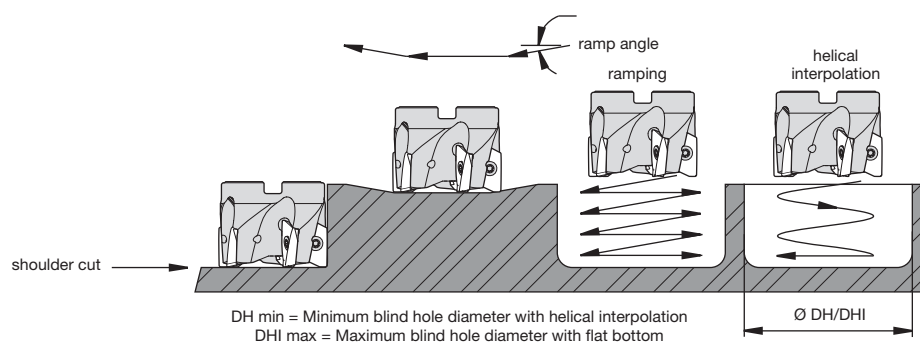
Recommended Starting Feeds [mm]

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	0.23	0.47	0.69	0.17	0.34	0.50	0.13	0.26	0.37	0.11	0.22	0.32	0.10	0.20	0.30	.S..GE	

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

■ Application Examples



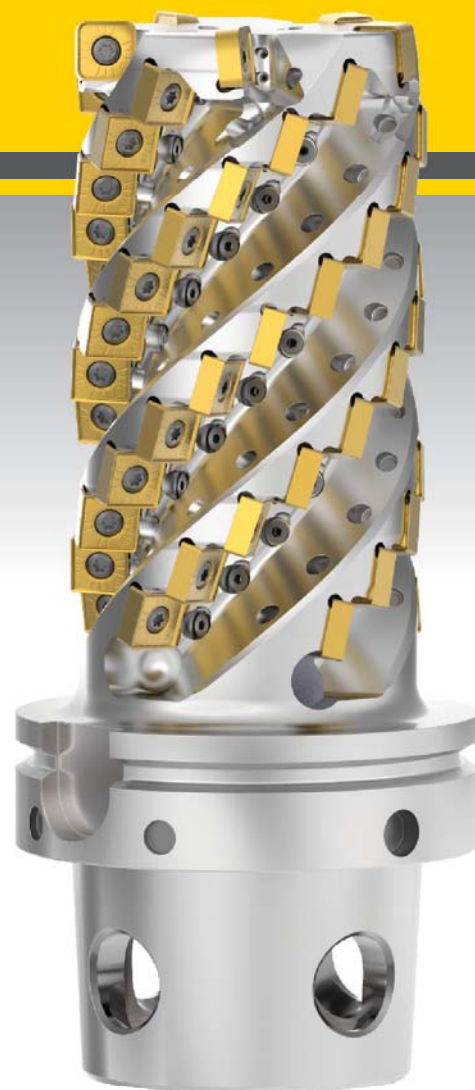
cutting diameter	max ramp angle to non-cutting corner tangent	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	max diameter (no flat bottom)
12	5,49°	14,62	21,43	24
16	2,92°	22,52	28,04	32
20	2,01°	30,51	36,49	40

Mill 1-7	
max ADOC	6,98
fz	0,10–0,68
hm	0,09

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, minimising 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.



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Authorised Kennametal Distributor.



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➤ 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

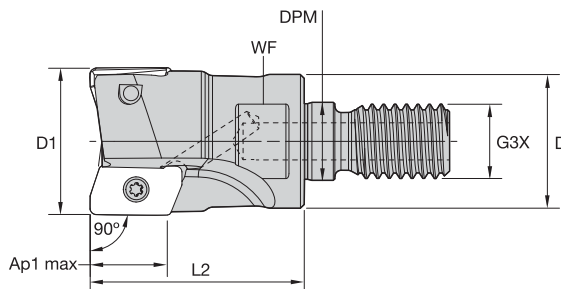
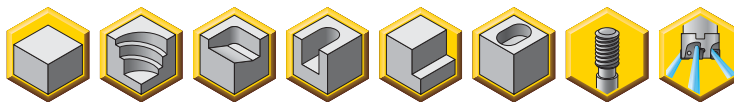
Versatility

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

Advantages

- Optimised soft cutting edge.
- Elliptical edge generates 90° 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.

- Ramping capable for all Mill 1-10.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Screw-On End Mills

order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	kg	max RPM
3745708	16A02R025M08ED10	16	13	8,5	M8	25	10	10,1	2	9.5°	0,02	50100
3745709	20A02R028M10ED10	20	18	10,5	M10	28	15	10,1	2	6.0°	0,04	44800
3745710	20A03R028M10ED10	20	18	10,5	M10	28	15	10,1	3	6.0°	0,05	44800
3745711	25A03R032M12ED10	25	21	12,5	M12	32	17	10,0	3	4.0°	0,09	40000
3745712	25A04R032M12ED10	25	21	12,5	M12	32	17	10,0	4	4.0°	0,08	40000
3745723	32A04R040M16ED10	32	29	17,0	M16	40	24	10,0	4	2.8°	0,19	35400
3745724	32A05R040M16ED10	32	29	17,0	M16	40	24	10,0	5	2.8°	0,19	35400
3745725	40A06R040M16ED10	40	29	17,0	M16	40	24	9,9	6	2.0°	0,23	31600
3745726	42A06R040M16ED10	42	29	17,0	M16	40	24	9,9	6	1.8°	0,23	30900

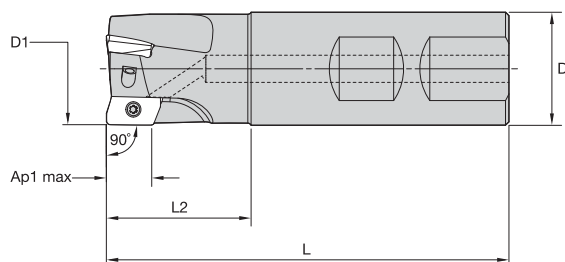
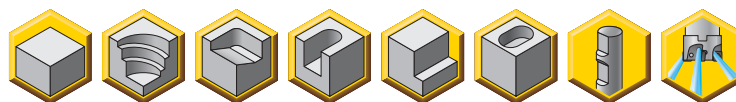
■ Spare Parts



D1	insert screw	Nm	Torx wrench
16	MS2205	1,0	F7IP
20	MS2205	1,0	F7IP
25	MS2205	1,0	F7IP
32	MS2205	1,0	F7IP
40	MS2205	1,0	F7IP
42	MS2205	1,0	F7IP

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Weldon® End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3744633	16A02R025B16ED10	16	16	74	25	10,1	2	9.5°	0,09	50100
3744634	20A02R028B20ED10	20	20	79	28	10,1	2	6.0°	0,15	44800
3744635	20A03R028B20ED10	20	20	79	28	10,1	3	6.0°	0,15	44800
3744636	25A03R032B25ED10	25	25	89	32	10,0	3	4.0°	0,28	40000
3744637	25A04R032B25ED10	25	25	89	32	10,0	4	4.0°	0,28	40000
3744638	32A04R040B32ED10	32	32	101	40	10,0	4	2.8°	0,53	35400
3744639	32A05R040B32ED10	32	32	101	40	10,0	5	2.8°	0,53	35400

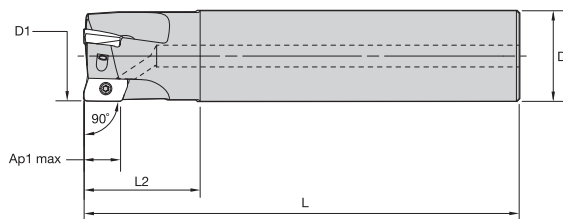
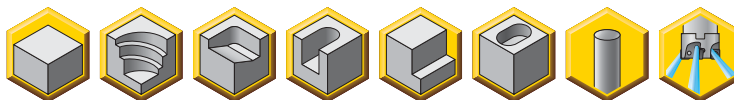
■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
16	MS2205	1,0	DT7IP
20	MS2205	1,0	DT7IP
25	MS2205	1,0	DT7IP
32	MS2205	1,0	DT7IP

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Cylindrical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3744538	12A01R020A16ED10	12	16	90	20	10,3	1	11.5°	0,12	57800
3744539	16A02R025A16ED10	16	16	100	25	10,1	2	9.5°	0,13	50100
3744540	20A02R028A20ED10	20	20	110	28	10,1	2	6.0°	0,23	44800
3744541	20A03R028A20ED10	20	20	110	28	10,1	3	6.0°	0,22	44800
3744542	25A03R032A25ED10	25	25	120	32	10,0	3	4.0°	0,40	40000
3744613	25A04R032A25ED10	25	25	120	32	10,0	4	4.0°	0,40	40000
3744614	32A04R040A32ED10	32	32	130	40	10,0	4	2.8°	0,72	35400
3744615	32A05R040A32ED10	32	32	130	40	10,0	5	2.8°	0,71	35400

■ Spare Parts

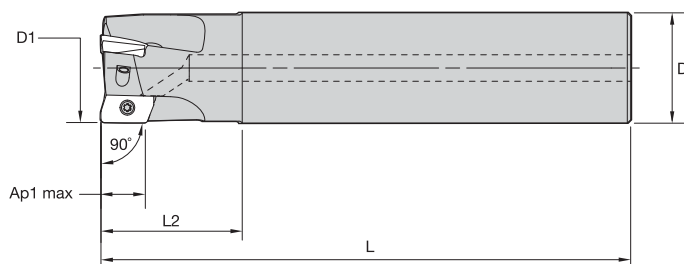
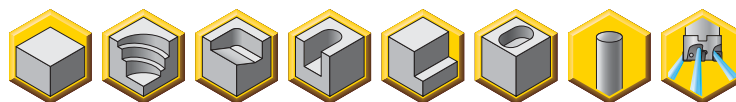


D1	insert screw	Nm	Torx Plus driver
12	MS2205	1,0	DT7IP
16	MS2205	1,0	DT7IP
20	MS2205	1,0	DT7IP
25	MS2205	1,0	DT7IP
32	MS2205	1,0	DT7IP

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Shoulder Milling

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Cylindrical End Mills • Long Length

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3744616	16A02R025A16ED10-170	16	16	170	25	10,1	2	9.5°	0,23	50100
3744617	16A02R025A16ED10R31-170	16	16	170	25	9,7	2	8.0°	0,23	50100
3744618	18A02R028A16ED10-170	18	16	170	28	10,1	2	7.5°	0,24	47200
3744619	20A02R032A20ED10-170	20	20	170	32	10,1	2	6.0°	0,37	44800
3744620	20A02R032A20ED10R31-170	20	20	170	32	9,8	2	4.5°	0,37	44800
3744621	20A03R032A20ED10-170	20	20	170	32	10,1	3	6.0°	0,36	44800
3744622	20A03R032A20ED10R31-170	20	20	170	32	9,8	3	4.5°	0,36	44800
3744623	22A03R032A20ED10-170	22	20	170	32	10,1	3	5.0°	0,37	42700
3744624	25A03R040A25ED10-200	25	25	200	40	10,0	3	4.0°	0,69	40000
3744625	25A03R040A25ED10R31-200	25	25	200	40	9,8	3	3.0°	0,69	40000
3744626	25A04R040A25ED10-200	25	25	200	40	10,0	4	4.0°	0,68	40000
3744627	25A04R040A25ED10R31-200	25	25	200	40	9,8	4	3.0°	0,68	40000
3744628	28A04R040A25ED10-200	28	25	200	40	10,0	4	3.3°	0,71	37800
3744629	32A04R048A32ED10-200	32	32	200	48	10,0	4	2.8°	1,14	35400
3744630	32A04R048A32ED10R31-200	32	32	200	48	9,7	4	2.0°	1,13	35400
3744631	32A05R048A32ED10-200	32	32	200	48	10,0	5	2.8°	1,13	35400
3744632	32A05R048A32ED10R31-200	32	32	200	48	9,7	5	2.0°	1,13	35400

■ Spare Parts

Shoulder Milling

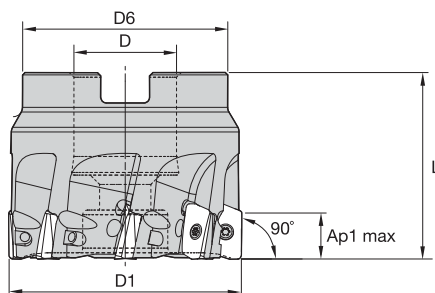
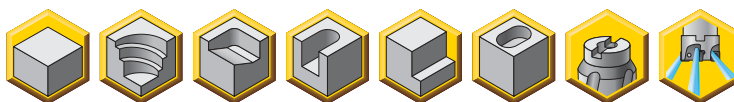


D1	insert screw	Nm	Torx Plus driver
16	MS2205	1,0	DT7IP
18	MS2205	1,0	DT7IP
20	MS2205	1,0	DT7IP
22	MS2205	1,0	DT7IP
25	MS2205	1,0	DT7IP
28	MS2205	1,0	DT7IP
32	MS2205	1,0	DT7IP

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

"R31" in catalogue number designates factory-relieved tool which accepts inserts with nose radii > 2mm.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	max ramp angle	kg	max RPM
3745674	40A04RS90ED10D	40	16	37	40	9,9	4	2.0°	0,25	31600
3745675	40A06RS90ED10D	40	16	37	40	9,9	6	2.0°	0,24	31600
3745676	50A05RS90ED10D	50	22	44	40	9,9	5	1.5°	0,38	28300
3745677	50A08RS90ED10D	50	22	44	40	9,9	8	1.5°	0,36	28300
3745678	63A06RS90ED10D	63	22	44	40	9,9	6	1.0°	0,54	25200
3745679	63A09RS90ED10D	63	22	44	40	9,9	9	1.0°	0,53	25200
3745680	80A08RS90ED10D	80	27	60	50	9,9	8	.8°	1,26	22400
3745681	80A10RS90ED10D	80	27	60	50	9,9	10	.8°	1,25	22400
3745682	100B08RS90ED10D	100	32	80	50	9,9	8	.5°	1,88	20000
3745703	100B12RS90ED10D	100	32	80	50	9,9	12	.5°	1,85	20000

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver	socket-head cap screw
40	MS2205	1,0	DT7IP	—
50	MS2205	1,0	DT7IP	—
63	MS2205	1,0	DT7IP	MS1234
80	MS2205	1,0	DT7IP	MS2038
100	MS2205	1,0	DT7IP	—

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Shoulder Milling

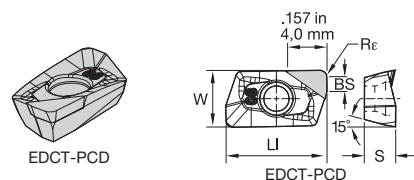
Insert Selection Guide

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

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

- first choice
- alternate choice



EDCT-PCD

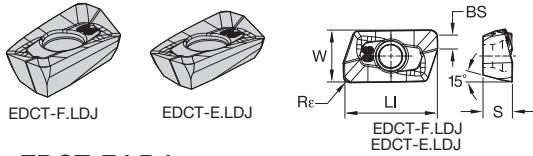
catalogue number	LI	S	W	BS	Re	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EDCT10T304PDFR-PCD	12,04	3,75	6,75	2,10	0,4	0,02	1	-	-	-	-	-	-	-	-	-	-	-	-	●
EDCT10T308PDFR-PCD	12,05	3,75	6,74	1,71	0,8	0,02	1	-	-	-	-	-	-	-	-	-	-	-	-	●

beyond

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

- Roughing and finishing of aluminium alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 10mm.

- first choice
- alternate choice



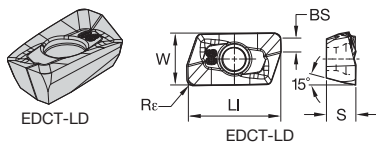
EDCT-F.LDJ

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EDCT10T302PDFRLDJ	12,05	3,75	6,75	2,29	0,2	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-	-
EDCT10T304PDFRLDJ	12,05	3,75	6,75	1,98	0,4	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-	-
EDCT10T308PDFRLDJ	12,05	3,75	6,74	1,70	0,8	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-	-
EDCT10T312PDFRLDJ	12,06	3,75	6,74	1,30	1,2	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-	-
EDCT10T316PDFRLDJ	12,06	3,75	6,74	0,90	1,6	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-	-
EDCT10T320PDFRLDJ	12,06	3,75	6,73	0,49	2,0	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-	-
EDCT10T331PDFRLDJ	11,52	3,75	6,71	-	3,1	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-	-

EDCT-E.LDJ

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EDCT10T304PDERLDJ	12,05	3,75	6,75	1,98	0,4	0,03	2	-	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T308PDERLDJ	12,05	3,75	6,74	1,70	0,8	0,03	2	-	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T316PDERLDJ	12,06	3,75	6,74	0,90	1,6	0,03	2	-	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T320PDERLDJ	12,06	3,75	6,73	0,49	2,0	0,03	2	-	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T324PDERLDJ	12,06	3,75	6,73	0,11	2,4	0,03	2	-	-	•	-	-	-	-	-	-	-	-	-	-

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



EDCT-LD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KD1410
EDCT10T302PDERLD	12,04	3,75	6,75	2,29	0,2	0,04	2	-	-	-	-	-	•	•	•	•	-	-	-	-
EDCT10T304PDERLD	12,05	3,75	6,75	1,98	0,4	0,04	2	-	-	-	-	•	•	•	•	•	-	-	-	-
EDCT10T308PDERLD	12,05	3,75	6,74	1,70	0,8	0,04	2	-	-	-	•	•	•	•	•	•	•	-	-	-
EDCT10T312PDERLD	12,06	3,75	6,74	1,30	1,2	0,04	2	-	-	-	•	•	•	•	•	•	•	•	-	-
EDCT10T316PDERLD	12,06	3,75	6,74	0,90	1,6	0,04	2	-	-	-	•	•	•	•	•	•	•	•	-	-
EDCT10T320PDERLD	12,06	3,75	6,73	0,49	2,0	0,04	2	-	-	-	•	•	•	•	•	•	•	•	-	-
EDCT10T324PDERLD	12,06	3,75	6,73	0,11	2,4	0,04	2	-	-	-	•	•	•	•	•	•	•	•	-	-
EDCT10T331PDERLD	11,52	3,75	6,71	-	3,1	0,04	2	-	-	-	•	•	•	•	•	•	•	•	-	-

-

catalogue number	LI	S	W	BS	Rε	hm
EDPT10T304PDERHD	12,05	3,75	6,75	2,07	0,4	0,08
EDPT10T308PDERHD	12,05	3,75	6,74	1,70	0,8	0,08
EDPT10T310PDERHD	12,05	3,75	6,74	1,49	1,0	0,08
EDPT10T312PDERHD	12,06	3,75	6,74	1,30	1,2	0,08
EDPT10T316PDERHD	12,06	3,75	6,74	0,90	1,6	0,08
EDPT10T320PDERHD	12,06	3,75	6,74	0,49	2,0	0,08
EDPT10T324PDERHD	12,06	3,75	6,74	0,11	2,4	0,08
EDPT10T331PDERHD	11,52	3,75	6,71	—	3,1	0,08

-

catalogue number	LI	S	W	BS	R _e	hm
EDPT10T304PDSRGE	12,04	3,75	6,75	2,08	0,4	0,14
EDPT10T308PDSRGE	12,05	3,75	6,74	1,70	0,8	0,14
EDPT10T312PDSRGE	12,05	3,75	6,74	1,30	1,2	0,14
EDPT10T316PDSRGE	12,06	3,75	6,74	0,90	1,6	0,14
EDPT10T331PDSRGE	11,51	3,75	6,71	—	3,1	0,14

-
- EDPT-S.GD
- EDPT-S.GD
- W
- LI
- R_{ϵ}
- BS
- 15°
- S
- 1:1

catalogue number	LI	S	W	BS	R€	hm
EDPT10T304PDSRGD	12,05	3,75	6,75	2,07	0,4	0,13
EDPT10T308PDSRGD	12,05	3,75	6,74	1,70	0,8	0,13
EDPT10T312PDSRGD	12,06	3,75	6,74	1,30	1,2	0,13
EDPT10T316PDSRGD	12,06	3,75	6,74	0,90	1,6	0,13

[illegible]

- first choice
- alternate choice

Shoulder Milling

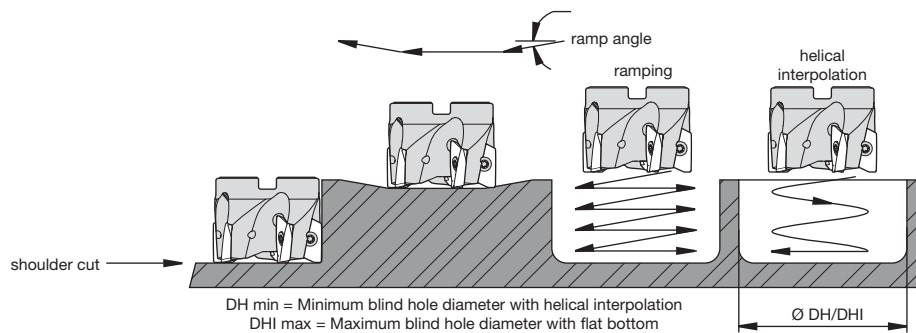
■ Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining
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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	0,12	0,35	0,58	0,08	0,25	0,42	0,06	0,19	0,31	0,06	0,16	0,27	0,05	0,15	0,25	.F..LDJ
.F..PCD	0,12	0,35	0,58	0,08	0,25	0,42	0,06	0,19	0,31	0,06	0,16	0,27	0,05	0,15	0,25	.F..PCD
.E..LDJ	0,12	0,35	0,58	0,08	0,25	0,42	0,06	0,19	0,32	0,06	0,16	0,28	0,05	0,15	0,25	.E..LDJ
.E..LD	0,12	0,35	0,57	0,09	0,25	0,41	0,07	0,19	0,31	0,06	0,17	0,27	0,05	0,15	0,25	.E..LD
.S..GE	0,23	0,46	0,70	0,17	0,33	0,51	0,13	0,25	0,38	0,11	0,22	0,33	0,10	0,20	0,30	.S..GE
.S..GD	0,23	0,47	0,71	0,17	0,34	0,51	0,13	0,25	0,38	0,11	0,22	0,33	0,10	0,20	0,30	.S..GD
.E..HD	0,23	0,51	0,82	0,17	0,37	0,59	0,13	0,28	0,44	0,11	0,24	0,38	0,10	0,22	0,35	.E..HD

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

Application Data



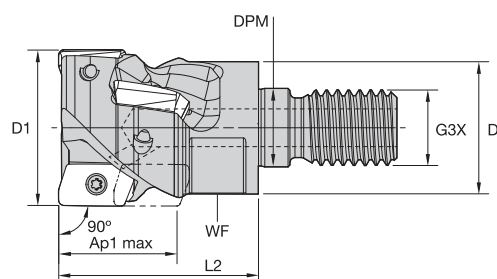
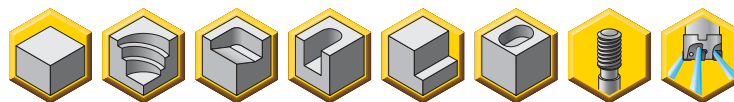
■ Application Examples

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	12	not recommended	not recommended	not recommended	not recommended	not recommended
Mill-1, 10mm	16	9,7°	12,3°	19,50	28,73	32
Mill-1, 10mm	18	7,6°	9,6°	23,29	32,68	63
Mill-1, 10mm	20	6,2°	8,6°	27,25	36,63	40
Mill-1, 10mm	22	5,2°	7,0°	31,25	40,63	44
Mill-1, 10mm	25	4,2°	5,3°	37,26	46,62	50
Mill-1, 10mm	28	3,5°	4,3°	43,26	52,62	56
Mill-1, 10mm	32	2,8°	3,3°	51,27	60,62	64
Mill-1, 10mm	40	2,0°	2,3°	67,30	76,61	80
Mill-1, 10mm	42	1,9°	2,1°	71,32	80,60	82
Mill-1, 10mm	50	1,5°	1,6°	87,53	96,86	100
Mill-1, 10mm	63	1,2°	1,2°	113,54	122,86	126
Mill-1, 10mm	80	0,9°	0,9°	147,54	156,85	160
Mill-1, 10mm	100	0,7°	0,7°	187,54	196,85	200

NOTE: Max ramp angle decreases as nose radius increases.

Shoulder Milling

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.



■ Screw-On Helical End Mills

order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3773810	M1H20J02R28M10ED10C4	20	18	10,5	M10	32	15	18,9	4	2	6.0°	0,49	37100
3773811	M1H25J02R32M12ED10C4	25	21	12,5	M12	32	17	18,8	4	2	4.0°	0,07	33200
3773813	M1H32J03R40M16ED10C6	32	29	17,0	M16	40	24	18,7	6	3	2.8°	0,18	29300

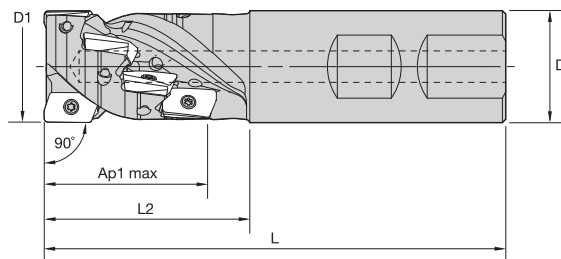
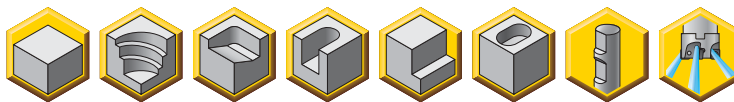
■ Spare Parts



D1	insert screw	Nm	Torx wrench
20	MS2205	1,0	F7IP
25	MS2205	1,0	F7IP
32	MS2205	1,0	F7IP

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.



■ Weldon® Helical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3773118	M1H20J02R36B20ED10C6	20	20	87	36	27,7	6	2	6.0°	0,34	37100
3773119	M1H25J02R46B25ED10C8	25	25	103	46	36,4	8	2	4.0°	0,31	33200
3773120	M1H32J02R54B32ED10C10	32	32	115	54	44,8	10	2	2.8°	0,56	29300
3773121	M1H32J03R54B32ED10C15	32	32	115	54	44,8	15	3	2.8°	0,53	29300

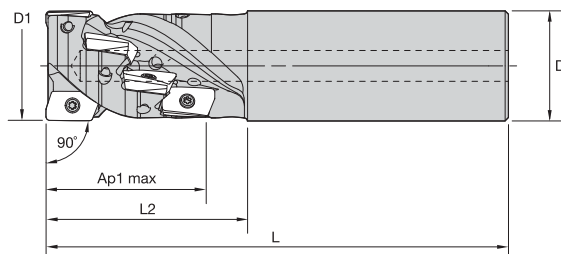
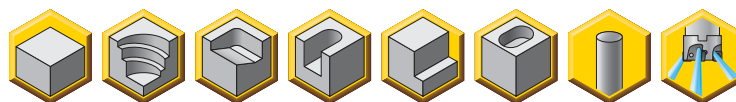
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
20	MS2205	1,0	DT7IP
25	MS2205	1,0	DT7IP
32	MS2205	1,0	DT7IP

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.



■ Cylindrical Helical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3773806	M1H20J02R28A20ED10C4	20	20	110	28	18,9	4	2	6.0°	0,48	37100
3773122	M1H20J02R36A20ED10C6	20	20	90	36	27,7	6	2	6.0°	0,36	37100
3773807	M1H25J02R28A25ED10C4	25	25	120	28	18,8	4	2	4.0°	0,38	33200
3773803	M1H25J02R46A25ED10C8	25	25	105	46	36,4	8	2	4.0°	0,30	33200
3773808	M1H32J02R28A32ED10C4	32	32	130	28	18,7	4	2	2.8°	0,72	29300
3773809	M1H32J03R28A32ED10C6	32	32	130	28	18,7	6	3	2.8°	0,71	29300
3773805	M1H32J03R54A32ED10C15	32	32	115	54	44,8	15	3	2.8°	0,53	29300

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

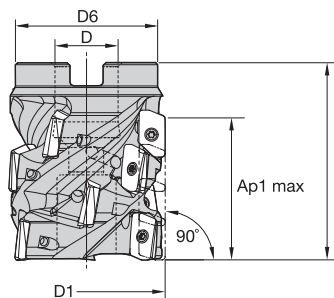
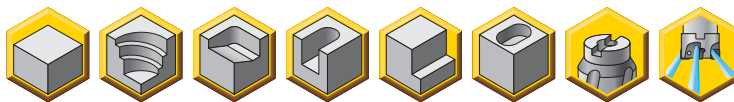
■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
20	MS2205	1,0	DT7IP
25	MS2205	1,0	DT7IP
32	MS2205	1,0	DT7IP

Shoulder Milling

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.



■ Helical Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3773814	M1H40T03R50A16ED10C12	40	16	37	50	35,9	12	3	2.0°	0,27	26200
3773815	M1H40T05R50A16ED10C20	40	16	37	50	35,9	20	5	2.0°	0,26	26200
3773816	M1H50T03R60A22ED10C15	50	22	44	60	44,3	15	3	1.5°	0,62	23400
3773817	M1H50T05R60A22ED10C25	50	22	44	60	44,3	25	5	1.5°	0,55	23400

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



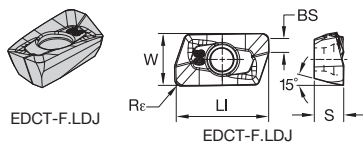
D1	insert screw	Nm	Torx Plus driver	socket-head cap screw
40	MS2205	1,0	DT7IP	MS1340
50	MS2205	1,0	DT7IP	MS1558

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 aluminium alloys.
- Perfect floor surface finish.



- first choice
- alternate choice

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

EDCT-F.LDJ

catalogue number	LI	S	W	BS	Re	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT10T302PDFRLDJ	12,05	3,75	6,75	2,29	0,2	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T304PDFRLDJ	12,05	3,75	6,75	1,98	0,4	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T308PDFRLDJ	12,05	3,75	6,74	1,70	0,8	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T312PDFRLDJ	12,06	3,75	6,74	1,30	1,2	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T316PDFRLDJ	12,06	3,75	6,74	0,90	1,6	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T320PDFRLDJ	12,06	3,75	6,73	0,49	2,0	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-
EDCT10T331PDFRLDJ	11,52	3,75	6,71	-	3,1	0,02	2	-	•	-	-	-	-	-	-	-	-	-	-

Shoulder Milling

- Periphery ground.
- Roughing and finishing.
- Perfect floor surface finish.



■ EDCT-E.LDJ

- first choice
- alternate choice

[illegible][illegible]

- Finishing and high precision applications.
- Light machining.
- 15° positive rake angle.
- Perfect floor surface finish.
- $A_{p1} \text{ max} = 10\text{mm}$.



■ EDCT-LD

[illegible]

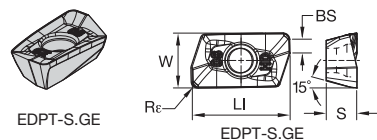
- Medium roughing and semi-finishing.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- $Ap_1 \text{ max} = 10\text{mm}$.



EDPT-E.HD

catalogue number	LI	S	W	BS	R _e	hm	cutting edges	K13	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT10T304PDERHD	12,05	3,75	6,75	2,07	0,4	0,08	2	-	-	-	-	●	●	●	●	●	-	-	-
EDPT10T308PDERHD	12,05	3,75	6,74	1,70	0,8	0,08	2	-	-	-	-	●	●	●	●	●	-	-	-
EDPT10T310PDERHD	12,05	3,75	6,74	1,49	1,0	0,08	2	-	-	-	-	●	●	●	●	●	-	-	-
EDPT10T312PDERHD	12,06	3,75	6,74	1,30	1,2	0,08	2	-	-	-	-	●	●	●	-	●	-	-	-
EDPT10T316PDERHD	12,06	3,75	6,74	0,90	1,6	0,08	2	-	-	-	-	-	●	●	-	●	-	-	-
EDPT10T320PDERHD	12,06	3,75	6,74	0,49	2,0	0,08	2	-	-	-	-	-	-	●	-	●	-	-	-
EDPT10T324PDERHD	12,06	3,75	6,74	0,11	2,4	0,08	2	-	-	-	-	-	-	●	-	●	-	-	-
EDPT10T331PDERHD	11,52	3,75	6,71	—	3,1	0,08	2	-	-	-	-	-	-	●	-	●	-	-	-

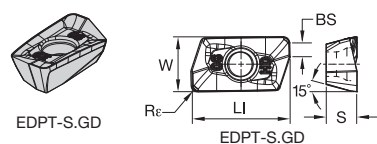
- Medium roughing and semi-finishing.
- Solution for austenitic stainless steel and super alloys.
- Medium feed rates.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 10mm.



EDPT-S.GE

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT10T304PDSRGE	12,04	3,75	6,75	2,08	0,4	0,14	2	-	-	-	-	-	-	•	-	•	-	-	-
EDPT10T308PDSRGE	12,05	3,75	6,74	1,70	0,8	0,14	2	-	-	-	-	-	-	•	-	•	-	-	-
EDPT10T312PDSRGE	12,05	3,75	6,74	1,30	1,2	0,14	2	-	-	-	-	-	-	•	-	•	-	-	-
EDPT10T316PDSRGE	12,06	3,75	6,74	0,90	1,6	0,14	2	-	-	-	-	-	-	•	-	•	-	-	-
EDPT10T331PDSRGE	11,51	3,75	6,71	—	3,1	0,14	2	-	-	-	-	-	-	•	-	•	-	-	-

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



EDPT-S.GD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	K313	KC410M	KC422M	KC510M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT10T304PDSRGD	12,05	3,75	6,75	2,07	0,4	0,13	2	-	-	-	-	-	-	•	•	•	-	-	-
EDPT10T308PDSRGD	12,05	3,75	6,74	1,70	0,8	0,13	2	-	-	-	-	•	-	•	•	•	-	-	-
EDPT10T312PDSRGD	12,06	3,75	6,74	1,30	1,2	0,13	2	-	-	-	-	•	-	•	•	•	-	-	-
EDPT10T316PDSRGD	12,06	3,75	6,74	0,90	1,6	0,13	2	-	-	-	-	-	-	•	•	•	-	-	-

Recommended Starting Feeds

Recommended Starting Feeds [mm]

Recommended Starting Feeds [mm]											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	0,12	0,35	0,58	0,08	0,25	0,42	0,06	0,19	0,31	0,06	0,16	0,27	0,05	0,15	0,25	.F..LDJ
.F..PCD	0,12	0,35	0,58	0,08	0,25	0,42	0,06	0,19	0,31	0,06	0,16	0,27	0,05	0,15	0,25	.F..PCD
.E..LDJ	0,12	0,35	0,58	0,08	0,25	0,42	0,06	0,19	0,32	0,06	0,16	0,28	0,05	0,15	0,25	.E..LDJ
.E..LD	0,12	0,35	0,57	0,09	0,25	0,41	0,07	0,19	0,31	0,06	0,17	0,27	0,05	0,15	0,25	.E..LD
.S..GE	0,23	0,46	0,70	0,17	0,33	0,51	0,13	0,25	0,38	0,11	0,22	0,33	0,10	0,20	0,30	.S..GE
.S..GD	0,23	0,47	0,71	0,17	0,34	0,51	0,13	0,25	0,38	0,11	0,22	0,33	0,10	0,20	0,30	.S..GD
.E..HD	0,23	0,51	0,82	0,17	0,37	0,59	0,13	0,28	0,44	0,11	0,24	0,38	0,10	0,22	0,35	.E..HD

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

Flange Mount Adaptors

For HARVI™ Ultra Helical Cutters

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

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



The Portfolio Features:



CV



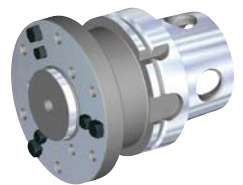
DV



BT



HSK



KM4X™

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kennametal.com

➤ 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 90° walls have proven excellent with the GD2 geometry.

Features and Benefits

Features

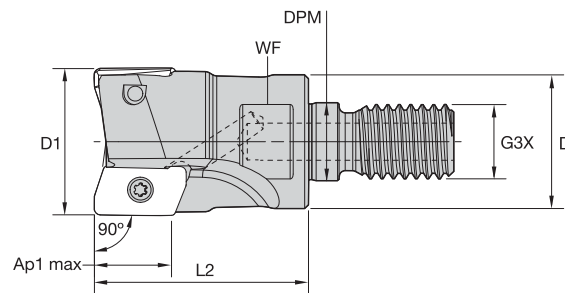
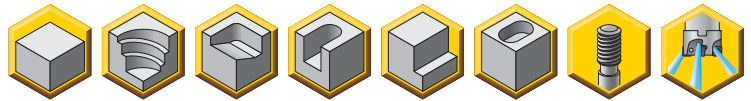
- Insert geometries and grades for most workpiece materials.
- Insert radii from 0,15mm up to 4mm.
- Axial depth of cut up to 14mm.
- Beyond™ grade technology.

Benefits

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



- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Screw-On End Mills

order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	kg	max RPM
2968370	20A02R035M10SED14	20	18	10,5	M10	35	15	14,6	2	16.6°	0,05	47500
2968371	25A02R035M12SED14	25	21	12,5	M12	35	17	14,5	2	10.5°	0,08	39700
3345679	25A03R035M12SED14	25	21	12,5	M12	35	17	14,5	3	10.5°	0,08	39700
2968372	32A03R040M16SED14	32	29	17,0	M16	40	22	14,4	3	6.8°	0,17	33300
3345680	32A04R040M16SED14	32	29	17,0	M16	40	22	14,4	4	6.8°	0,18	33300
2968373	40A04R040M16SED14	40	29	17,0	M16	40	22	14,3	4	4.8°	0,23	28700
3345681	40A05R040M16SED14	40	29	17,0	M16	40	22	14,3	5	4.8°	0,23	28700

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

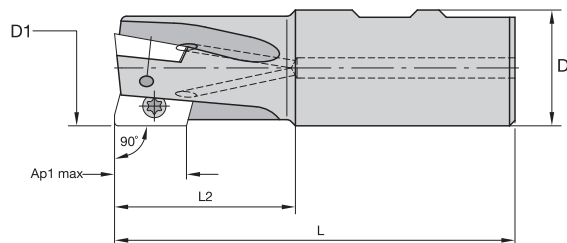
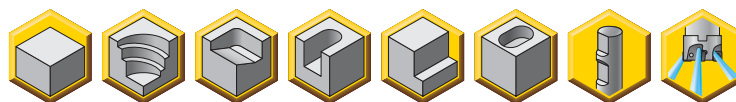
■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
20	MS2167	2,3	DT9IP
25	MS2166	2,3	DT9IP
32	MS2166	2,3	DT9IP
40	MS2166	2,3	DT9IP

Shoulder Milling

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



Weldon® End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
2622232	20A02R039B20SED14	20	20	90	39	14,7	2	16.6°	0,17	47500
2623937	25A02R044B25SED14	25	25	101	44	14,6	2	10.7°	0,31	39700
2478640	25A03R044B25SED14	25	25	101	44	14,6	3	10.5°	0,30	39700
2623938	32A03R050B32SED14	32	32	111	50	14,5	3	6.8°	0,55	33300
2478642	32A04R050B32SED14	32	32	111	50	14,5	4	6.8°	0,56	33300
2623939	40A04R050B32SED14	40	32	111	50	14,3	4	4.8°	0,71	28700
2623933	40A05R050B32SED14	40	32	111	50	14,3	5	4.8°	0,71	28700

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

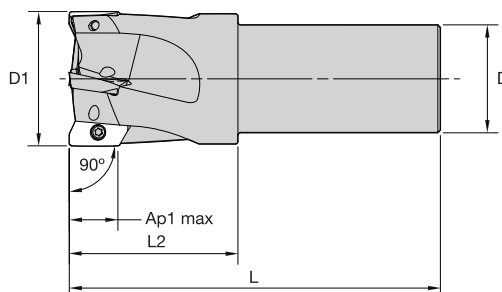
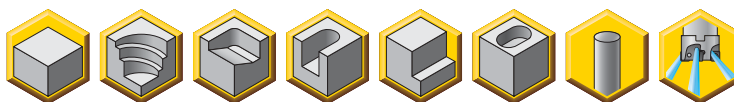
Spare Parts



D1	insert screw	Nm	Torx Plus driver
20	MS2167	2,3	DT9IP
25	MS2166	2,3	DT9IP
32	MS2166	2,3	DT9IP
40	MS2166	2,3	DT9IP

Shoulder Milling

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Cylindrical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3345674	20A02R039A20SED14	20	20	90	39	14,7	2	16.6°	0,17	47500
2968363	20A02R050A20SED14-170	20	20	170	50	14,7	2	16.6°	0,34	47500
3345675	25A02R044A25SED14	25	25	100	44	14,6	2	10.5°	0,31	39700
2968367	25A02R050A25SED14-170	25	25	170	50	14,6	2	10.5°	0,56	39700
3345676	25A03R044A25SED14	25	25	100	44	14,6	3	10.5°	0,31	39700
2968364	25A03R050A25SED14-170	25	25	170	50	14,6	3	10.5°	0,56	39700
3345677	32A03R050A25SED14	32	25	107	50	14,6	3	6.8°	0,39	33300
3345678	32A04R050A25SED14	32	25	107	50	14,6	4	6.8°	0,41	33300
3348765	32A03R050A32SED14	32	32	110	50	14,5	3	6.8°	0,55	33300
2968368	32A03R050A32SED14-200	32	32	200	50	14,6	3	6.8°	1,10	33300
3348766	32A04R050A32SED14	32	32	110	50	14,5	4	6.8°	0,56	33300
2968365	32A04R050A32SED14-200	32	32	200	50	14,6	4	6.8°	1,11	33300
3348767	40A04R050A32SED14	40	32	110	50	14,5	4	4.8°	0,71	28700
2968369	40A04R050A32SED14-200	40	32	200	50	14,4	4	4.8°	1,26	28700
3348768	40A05R050A32SED14	40	32	110	50	14,5	5	4.8°	0,70	28700
2968366	40A05R050A32SED14-200	40	32	200	50	14,4	5	4.8°	1,25	28700

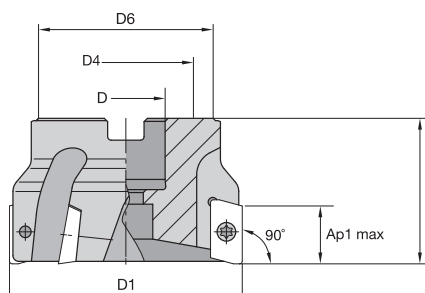
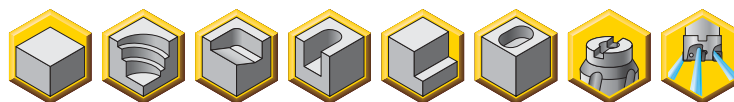
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.
 "R" in catalogue number designates factory-relieved tool for insert radii greater than 2mm.

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
20	MS2167	2,3	DT9IP
25	MS2166	2,3	DT9IP
32	MS2166	2,3	DT9IP
40	MS2166	2,3	DT9IP

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Shell Mills

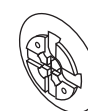
order number	catalogue number	D1	D	D4	D6	L	Ap1 max	Z	max ramp angle	kg	max RPM
2623940	40A04RS90ED14D	40	16	—	37	40	14,3	4	4.8°	0,21	28700
2623934	40A05RS90ED14D	40	16	—	37	40	14,3	5	4.8°	0,21	28700
2623941	50A05RS90ED14D	50	22	—	45	40	14,0	5	3.5°	0,30	25000
2478686	50A06RS90ED14D	50	22	—	45	40	14,0	6	3.5°	0,29	25000
2623942	63A06RS90ED14D	63	22	—	50	40	14,0	6	2.5°	0,49	21800
2478689	63A07RS90ED14D	63	22	—	50	40	14,0	7	2.5°	0,48	21800
2623963	80A07RS90ED14D	80	27	—	60	50	14,0	7	1.9°	1,00	19000
2478690	80A09RS90ED14D	80	27	—	60	50	14,0	9	1.9°	1,00	19000
2623964	100A08RS90ED14D	100	32	—	80	50	14,2	8	1.5°	1,80	16800
2623935	100A10RS90ED14D	100	32	—	80	50	14,2	10	1.5°	1,81	16800
2510390	125B09RS90ED14D	125	40	—	90	63	14,1	9	1.2°	2,64	14900
2623936	125B12RS90ED14D	125	40	—	90	63	14,1	12	1.2°	2,66	14900
2623965	160C11RS90ED14D	160	40	66,7	100	63	14,1	11	.9°	3,64	13100

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts

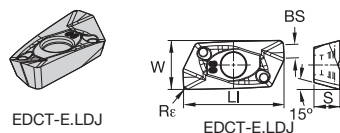


Shoulder Milling



D1	insert screw	Nm	Torx Plus driver	mounting screw	lock screw	coolant shower plate
40	MS2166	2,3	DT9IP	MS1294	—	—
50	MS2166	2,3	DT9IP	—	—	—
63	MS2166	2,3	DT9IP	—	—	—
80	MS2166	2,3	DT9IP	MS2038	—	—
100	MS2166	2,3	DT9IP	MS1559	—	—
125	MS2166	2,3	DT9IP	—	420.200	470.232
160	MS2166	2,3	DT9IP	—	420.200	470.233

- Roughing and finishing of aluminium alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 14mm.



EDCT-E.LDJ

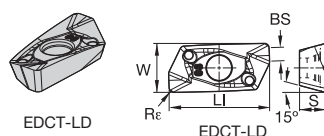
- first choice
- alternate choice

beyond

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

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT140404PDERLDJ	17,46	4,50	8,49	2,95	0,4	0,03	2	-	●	-	-	-	-	-	-	-	-
EDCT140408PDERLDJ	17,47	4,50	8,48	2,56	0,8	0,03	2	-	●	-	-	-	-	-	-	-	-
EDCT140424PDERLDJ	17,50	4,50	8,42	0,99	2,4	0,03	2	-	●	-	-	-	-	-	-	-	-

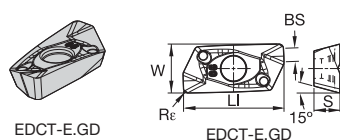
- Finishing and high-precision applications.
- Light machining.
- 15° positive rake angle.
- Perfect floor surface finish.
- Ap1 max = 14mm.



EDCT-LD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT140404PDERLD	17,46	4,50	8,49	2,95	0,4	0,04	2	-	-	-	●	-	-	-	-	-	-
EDCT140408PDERLD	17,47	4,50	8,48	2,56	0,8	0,04	2	-	-	-	●	-	-	-	-	-	-
EDCT140412PDERLD	17,48	4,50	8,46	2,17	1,2	0,04	2	-	-	-	●	-	-	-	-	-	-
EDCT140416PDERLD	17,49	4,50	8,45	1,77	1,6	0,04	2	-	-	-	●	-	-	-	-	-	-
EDCT140431PDERLD	17,50	4,50	8,40	0,26	3,1	0,04	2	-	-	-	●	-	-	-	-	-	-

- Light machining and finishing applications.
- Periphery ground for high-precision machining.
- Medium hone for increased edge protection.
- Ap1 max = 14mm.



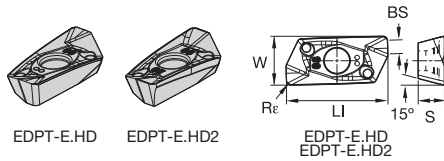
EDCT-E.GD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT140404PDERGD	17,46	4,50	8,49	2,95	0,4	0,05	2	-	-	-	●	-	-	-	●	-	-
EDCT140408PDERGD	17,47	4,50	8,48	2,56	0,8	0,05	2	-	-	-	●	-	-	-	●	-	●
EDCT140412PDERGD	17,48	4,50	8,46	2,17	1,2	0,05	2	-	-	-	●	-	-	-	-	-	●
EDCT140416PDERGD	17,49	4,50	8,45	1,77	1,6	0,05	2	-	-	-	●	-	-	-	-	-	●
EDCT140431PDERGD	17,50	4,50	8,40	0,26	3,1	0,05	2	-	-	-	●	-	-	-	-	-	●

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

beyond

- first choice
- alternate choice



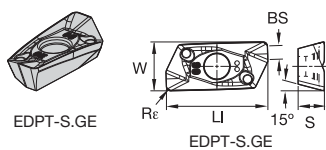
EDPT-E.HD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140404PDERHD	17,46	4,50	8,39	2,95	0,4	0,08	2	-	-	●	●	●	●	●	●	-	-
EDPT140408PDERHD	17,47	4,50	8,38	2,56	0,8	0,08	2	-	-	●	●	●	●	●	●	-	●
EDPT140412PDERHD	17,48	4,50	8,36	2,16	1,2	0,08	2	-	-	●	●	●	●	●	●	-	●
EDPT140416PDERHD	17,49	4,50	8,36	1,77	1,6	0,08	2	-	-	-	●	●	●	●	●	-	●
EDPT140420PDERHD	17,49	4,50	8,35	1,37	2,0	0,08	2	-	-	-	●	●	●	●	●	-	●
EDPT140424PDERHD	17,50	4,50	8,32	0,99	2,4	0,08	2	-	-	-	●	●	●	●	●	-	●
EDPT140431PDERHD	17,51	4,50	8,30	0,26	3,1	0,08	2	-	-	-	●	●	●	●	●	-	●
EDPT140440PDERHD	16,53	4,50	8,26	-	4,0	0,08	2	-	-	-	●	●	●	●	●	-	●

EDPT-E.HD2

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140408PDERHD2	17,47	4,50	8,38	2,56	0,8	0,06	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 = 14mm.

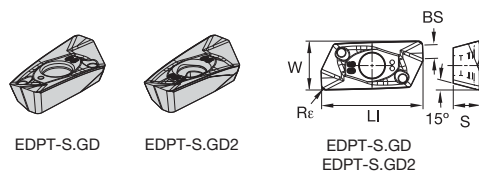


EDPT-S.GE

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140404PDSRGE	17,43	4,45	8,20	2,80	0,4	0,14	2	-	-	-	●	●	●	●	-	-	-
EDPT140408PDSRGE	17,44	4,45	8,17	2,39	0,8	0,14	2	-	-	-	●	●	●	●	-	-	●
EDPT140412PDSRGE	17,44	4,45	8,14	1,98	1,2	0,14	2	-	-	-	●	●	●	●	-	-	●
EDPT140416PDSRGE	17,45	4,45	8,12	1,58	1,6	0,14	2	-	-	-	●	●	●	●	-	-	●
EDPT140431PDSRGE	17,46	4,45	8,07	0,13	3,1	0,14	2	-	-	-	●	●	●	●	-	-	●

Shoulder Milling

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



EDPT-S.GD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140408PDSRGD	17,47	4,50	8,37	2,55	0,8	0,11	2	-	-	•	-	-	-	•	•	-	•
EDPT140412PDSRGD	17,48	4,50	8,36	2,17	1,2	0,11	2	-	-	•	-	-	-	•	•	-	•
EDPT140416PDSRGD	17,49	4,50	8,35	1,77	1,6	0,11	2	-	-	•	-	-	-	•	•	-	•

EDPT-S.GD2

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140408PDSRGD2	17,47	4,50	8,37	2,61	0,8	0,11	2	-	-	•	-	-	-	•	•	-	-

beyond

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

- first choice
- alternate choice

Recommended Starting Feeds

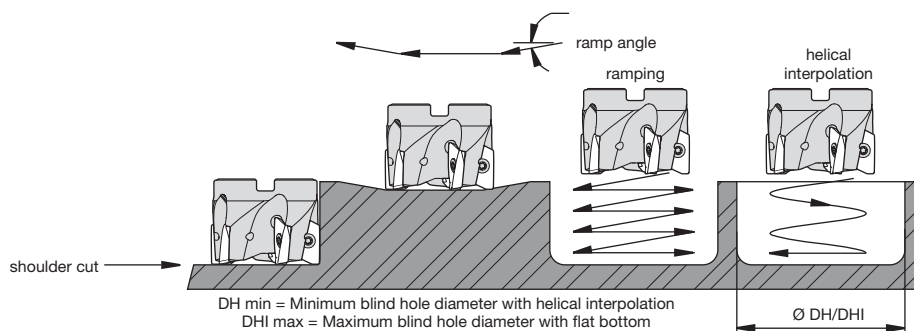
Recommended Starting Feeds [mm]

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	0,12	0,46	0,82	0,08	0,33	0,59	0,06	0,25	0,44	0,06	0,22	0,38	0,05	0,20	0,35	.F..LDJ
.E..LDJ	0,12	0,47	0,82	0,08	0,34	0,59	0,06	0,26	0,44	0,06	0,22	0,39	0,05	0,20	0,35	.E..LDJ
.E..LD	0,12	0,46	0,81	0,09	0,33	0,58	0,07	0,25	0,43	0,06	0,22	0,38	0,05	0,20	0,35	.E..LD
.E..GD	0,17	0,52	0,89	0,12	0,38	0,64	0,09	0,28	0,48	0,08	0,24	0,42	0,07	0,22	0,38	.E..GD
.S..GE	0,23	0,51	0,89	0,17	0,37	0,64	0,13	0,27	0,48	0,11	0,24	0,42	0,10	0,22	0,38	.S..GE
.S..GD	0,23	0,50	0,88	0,17	0,36	0,63	0,13	0,27	0,47	0,11	0,24	0,41	0,10	0,22	0,38	.S..GD
.S..GD2	0,23	0,50	0,88	0,17	0,36	0,63	0,13	0,27	0,47	0,11	0,24	0,41	0,10	0,22	0,38	.S..GD2
.E..HD	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.E..HD
.E..HD2	0,21	0,59	0,95	0,15	0,43	0,68	0,11	0,32	0,51	0,10	0,28	0,44	0,09	0,25	0,41	.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
Mill 1-14	20	16°	23,74	35,62	40
Mill 1-14	25	11°	33,75	44,44	50
Mill 1-14	32	7°	47,80	59,79	64
Mill 1-14	40	5°	63,76	75,22	80
Mill 1-14	40	5°	64,00	75,47	80
Mill 1-14	50	4°	83,96	96,05	100
Mill 1-14	63	3°	109,93	121,47	126
Mill 1-14	80	2°	143,91	155,47	160
Mill 1-14	100	1°	183,89	199,47	200
Mill 1-14	125	1°	233,88	245,47	250
Mill 1-14	160	1°	303,88	315,47	320

NOTE: Max ramp angle decreases as nose radius increases.



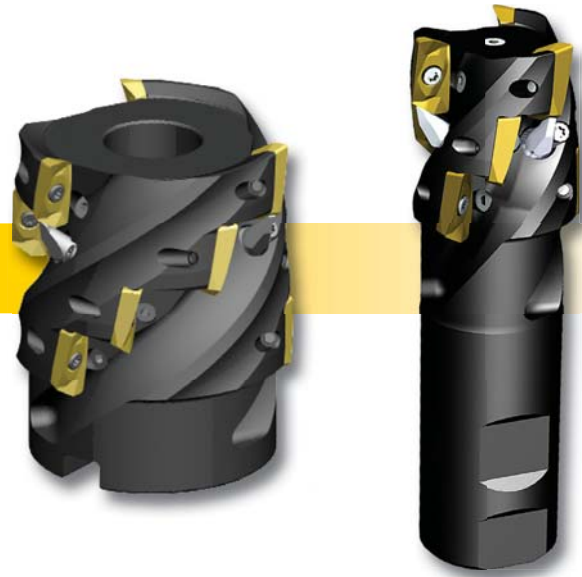
Shoulder Milling

➤ 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-Optimised Insert Spacing™ (LOIS) technology. LOIS dramatically minimises 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

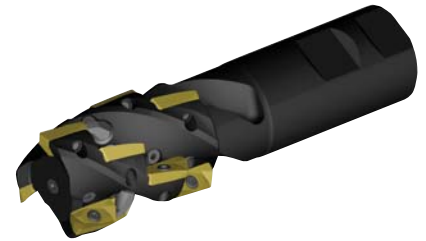
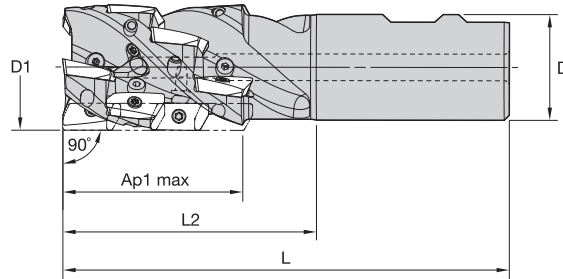
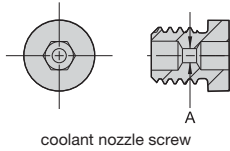
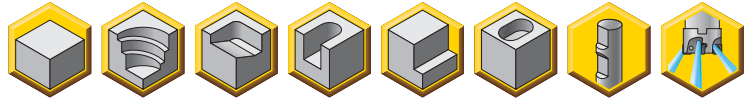
Functions

- 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 90° walls.
- Axial support pins.
- Unique coolant nozzles.



■ Helical Weldon® End Mills • Slot and Profile

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3742932	M1H32J2R50B32S90ED14C4	32	32	111	50	27,8	4	2	6.8°	0,52	31100
3743033	M1H40J3R50B32S90ED14C6	40	32	111	50	27,5	6	3	4.8°	0,59	28400
3743034	M1H40J3R65B32S90ED14C9	40	32	126	65	40,8	9	3	4.8°	0,66	28400
3743035	M1H40J3R80B32S90ED14C12	40	32	141	80	54,0	12	3	4.8°	0,73	28400
3743038	M1H50J3R80B40S90ED14C12	50	40	151	80	53,5	12	3	3.5°	1,30	24600

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver	pin	coolant nozzle screw
32	MS2148	2,3	DT9IP	ASPM07001802	MS2191C20
40	MS2148	2,3	DT9IP	ASPM07001802	MS2191C20
50	MS2148	2,3	DT9IP	ASPM07001802	MS2191C20

■ Helical Weldon Mills • Profile Only

order number	catalogue number	D1	D	L	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
5085631	M1H40J4R80B32S90ED14C12	40	32	141	40,8	12	4	4.8°	0,75	28400

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver	pin	coolant nozzle screw
40	MS2148	2,3	DT9IP	ASPM07001802	MS2191C20

Optional Coolant Nozzle Screw



order number	catalogue number	A
3400611	MS2191C00	—
3400612	MS2191C06	0,6
3400613	MS2191C08	0,8
3400616	MS2191C12	1,2
3400617	MS2191C14	1,4
3400618	MS2191C16	1,6
3400619	MS2191C18	1,8
3400620	MS2191C20	2,0

Coolant Nozzle Key



order number	catalogue number	drive size
1993552	THW2M	2 MM

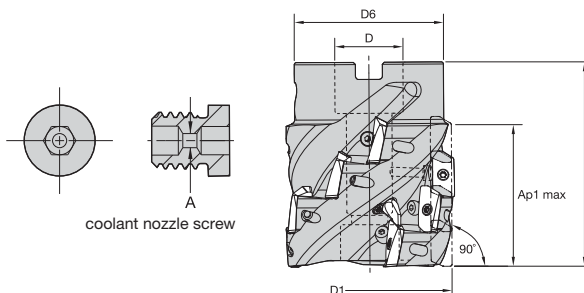
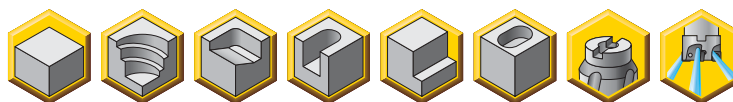
NOTE: Check the spare parts table for the coolant hole size that is incorporated in the cutters.

If you need an alternative, there are eight other variants to choose from to increase or decrease the pressure.

Example: MS2191C12 is a 1,20mm hole. All coolant nozzles are interchangeable with the original that is supplied with the cutter.

This gives flexibility with coolant flow.

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- Axial support pins.
- Unique coolant nozzles.



Helical Shell Mills • Slot and Profile

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3743036	M1H50T3R50A22S90ED14C6	50	22	46	50	27,3	6	3	3.5°	0,43	24600
3743037	M1H50T3R65A22S90ED14C9	50	22	46	65	40,4	9	3	3.5°	0,57	24600
3743039	M1H63T3R50A27S90ED14C6	63	27	60	50	26,9	6	3	2.5°	0,76	22000
3743040	M1H63T3R65A27S90ED14C9	63	27	60	65	39,9	9	3	2.5°	1,00	22000
3743042	M1H63T3R75A27S90ED14C12	63	27	60	75	52,8	12	3	2.5°	1,16	22000
3743041	M1H63T4R65A27S90ED14C12	63	27	60	65	39,9	12	4	2.5°	0,97	22000

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

Spare Parts



order number	D1	insert screw	Nm	Torx Plus driver	pin	socket-head cap screw	coolant nozzle screw
3743036	50	MS2148	2,3	DT9IP	ASPM07001802	MS1235	MS2191C20
3743037	50	MS2148	2,3	DT9IP	ASPM07001802	MS1233	MS2191C16
3743039	63	MS2148	2,3	DT9IP	ASPM07001802	MS1198	MS2191C20
3743040	63	MS2148	2,3	DT9IP	ASPM07001802	MS1238	MS2191C20
3743042	63	MS2148	2,3	DT9IP	ASPM07001802	MS1433	MS2191C16
3743041	63	MS2148	2,3	DT9IP	ASPM07001802	MS1238	MS2191C16

■ Helical Shell Mills • Profile Only

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	Z U	max ramp angle	kg	max RPM
3831819	M1H63T5R75A27S90ED14C20	63	27	60	75	52,8	20	5	2.0°	1,06	22000

■ Spare Parts

						
D1	insert screw	Nm	Torx Plus driver	pin	socket-head cap screw	coolant nozzle screw
63	MS2148	2,3	DT9IP	ASPM07001802	MS1433	MS2191C12

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Optional Coolant Nozzle Screw

		
order number	catalogue number	A
3400611	MS2191C00	—
3400612	MS2191C06	0,6
3400613	MS2191C08	0,8
3400616	MS2191C12	1,2
3400617	MS2191C14	1,4
3400618	MS2191C16	1,6
3400619	MS2191C18	1,8
3400620	MS2191C20	2,0

■ Coolant Nozzle Key

		
order number	catalogue number	drive size
1993552	THW2M	2 MM

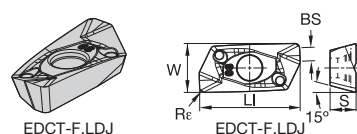
NOTE: Check the spare parts table for the coolant hole size that is incorporated in the cutters.
If you need an alternative, there are eight other variants to choose from to increase or decrease the pressure.
Example: MS2191C12 is a 1,20mm hole. All coolant nozzles are interchangeable with the original 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 aluminium alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- Ap1 max = 14mm.



EDCT-F.LDJ

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT140402PDFRLDJ	17,46	4,50	8,49	3,14	0,2	0,02	2	●	-	-	-	-	-	-	-	-	-
EDCT140404PDFRLDJ	17,46	4,50	8,49	2,95	0,4	0,02	2	●	-	-	-	-	-	-	-	-	-
EDCT140408PDFRLDJ	17,47	4,50	8,48	2,56	0,8	0,02	2	●	-	-	-	-	-	-	-	-	-
EDCT140412PDFRLDJ	17,47	4,50	8,46	2,17	1,2	0,02	2	●	-	-	-	-	-	-	-	-	-
EDCT140416PDFRLDJ	17,49	4,50	8,45	1,77	1,6	0,02	2	●	-	-	-	-	-	-	-	-	-
EDCT140431PDFRLDJ	17,50	4,50	8,40	0,26	3,1	0,02	2	●	-	-	-	-	-	-	-	-	-
EDCT140440PDFRLDJ	16,53	4,50	8,34	-	4,0	0,02	2	●	-	-	-	-	-	-	-	-	-

beyond

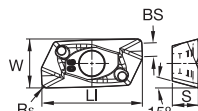
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M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
H	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

- first choice
- alternate choice

- Roughing and finishing of aluminium alloys.
- Periphery ground and polished rake face.
- Perfect floor surface finish.
- $Ap_1 \text{ max} = 14\text{mm}$.



EDCT-E.LDJ



EDCT-E.LDJ

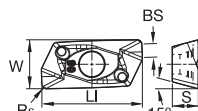
■ EDCT-E.LDJ

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT140404PDERLDJ	17,46	4,50	8,49	2,95	0,4	0,03	2	-	●	-	-	-	-	-	-	-	-
EDCT140408PDERLDJ	17,47	4,50	8,48	2,56	0,8	0,03	2	-	●	-	-	-	-	-	-	-	-
EDCT140424PDERLDJ	17,50	4,50	8,42	0,99	2,4	0,03	2	-	●	-	-	-	-	-	-	-	-

- Finishing and high-precision applications.
- Light machining.
- 15° positive rake angle.
- Perfect floor surface finish.
- $Ap1 \text{ max} = 14\text{mm}$.



EDCT-LD

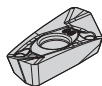


EDCT-LD

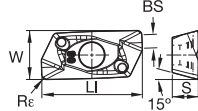
■ EDCT-LD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT140404PDERLD	17,46	4,50	8,49	2,95	0,4	0,04	2	-	-	-	●	-	-	-	-	-	-
EDCT140408PDERLD	17,47	4,50	8,48	2,56	0,8	0,04	2	-	-	-	●	-	-	-	-	-	-
EDCT140412PDERLD	17,48	4,50	8,46	2,17	1,2	0,04	2	-	-	-	●	-	-	-	-	-	-
EDCT140416PDERLD	17,49	4,50	8,45	1,77	1,6	0,04	2	-	-	-	●	-	-	-	-	-	-
EDCT140431PDERLD	17,50	4,50	8,40	0,26	3,1	0,04	2	-	-	-	●	-	-	-	-	-	-

- Light machining and finishing applications.
- Periphery ground for high-precision machining.
- Medium hone for increased edge protection.
- $A_{p1 \text{ max}} = 14\text{mm}$.



EDCT-E.GD



EDCT-E.GD

■ EDCT-E.GD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT140404PDERGD	17,46	4,50	8,49	2,95	0,4	0,05	2	-	-	-	-	●	-	-	●	-	-
EDCT140408PDERGD	17,47	4,50	8,48	2,56	0,8	0,05	2	-	-	-	-	●	-	-	●	-	●
EDCT140412PDERGD	17,48	4,50	8,46	2,17	1,2	0,05	2	-	-	-	-	●	-	-	-	-	●
EDCT140416PDERGD	17,49	4,50	8,45	1,77	1,6	0,05	2	-	-	-	-	●	-	-	-	-	●
EDCT140431PDERGD	17,50	4,50	8,40	0,26	3,1	0,05	2	-	-	-	-	●	-	-	-	-	●

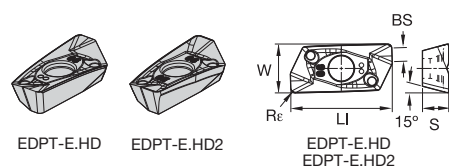
The image shows the 'beyond' logo, which consists of the word 'beyond' in black lowercase letters on a white background, followed by a yellow square containing the word 'beyond' in black lowercase letters. Below the logo is a 6x6 grid. The grid contains colored squares and symbols as follows:

P	Blue			Light Blue	○	Light Blue	●	●	○
M	Yellow	Yellow			●	●	Yellow	○	○
K	Red			●	○		●	○	
N	Green	●	●						
S	Orange				●	●		●	●
H	Grey								

- first choice
- alternate choice

Shoulder Milling

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



EDPT-E.HD

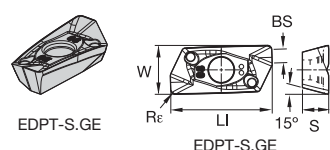
catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140404PDERHD	17,46	4,50	8,39	2,95	0,4	0,08	2	-	-	•	•	•	•	•	•	-	-
EDPT140408PDERHD	17,47	4,50	8,38	2,56	0,8	0,08	2	-	-	•	•	•	•	•	•	-	-
EDPT140412PDERHD	17,48	4,50	8,36	2,16	1,2	0,08	2	-	-	•	•	•	•	•	•	-	•
EDPT140416PDERHD	17,49	4,50	8,36	1,77	1,6	0,08	2	-	-	•	•	•	•	•	•	•	•
EDPT140420PDERHD	17,49	4,50	8,35	1,37	2,0	0,08	2	-	-	•	•	•	-	•	-	-	•
EDPT140424PDERHD	17,50	4,50	8,32	0,99	2,4	0,08	2	-	-	•	•	•	-	•	•	-	•
EDPT140431PDERHD	17,51	4,50	8,30	0,26	3,1	0,08	2	-	-	•	•	•	-	•	-	•	•
EDPT140440PDERHD	16,53	4,50	8,26	-	4,0	0,08	2	-	-	•	•	•	-	•	-	•	•

- For improved 90° wall capabilities.

EDPT-E.HD2

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140408PDERHD2	17,47	4,50	8,38	2,56	0,8	0,06	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 = 14mm.



EDPT-S.GE

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140404PDSRGE	17,43	4,45	8,20	2,80	0,4	0,14	2	-	-	-	•	•	•	•	-	-	-
EDPT140408PDSRGE	17,44	4,45	8,17	2,39	0,8	0,14	2	-	-	-	•	•	-	•	•	-	•
EDPT140412PDSRGE	17,44	4,45	8,14	1,98	1,2	0,14	2	-	-	-	•	•	•	•	-	-	•
EDPT140416PDSRGE	17,45	4,45	8,12	1,58	1,6	0,14	2	-	-	-	•	•	-	•	-	-	•
EDPT140431PDSRGE	17,46	4,45	8,07	0,13	3,1	0,14	2	-	-	-	•	•	•	•	-	-	•

beyond

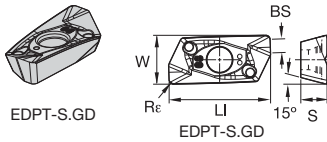
- first choice
- alternate choice

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



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

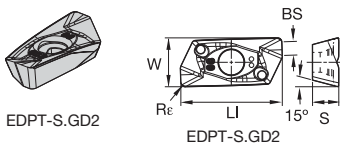
- first choice
- alternate choice



EDPT-S.GD

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140408PDSRGD	17,47	4,50	8,37	2,55	0,8	0,11	2	-	-	●	-	-	-	●	●	-	●
EDPT140412PDSRGD	17,48	4,50	8,36	2,17	1,2	0,11	2	-	-	●	-	-	-	●	●	-	●
EDPT140416PDSRGD	17,49	4,50	8,35	1,77	1,6	0,11	2	-	-	●	-	-	-	●	●	-	●

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



EDPT-S.GD2

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT140408PDSRGD2	17,47	4,50	8,37	2,61	0,8	0,11	2	-	-	●	-	-	-	●	●	-	-

Recommended Starting Feeds

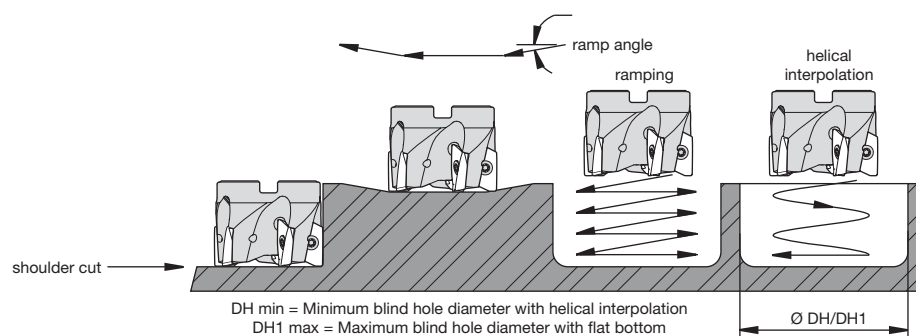
Recommended Starting Feeds [mm]

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	0,12	0,46	0,82	0,08	0,33	0,59	0,06	0,25	0,44	0,06	0,22	0,38	0,05	0,20	0,35	.F..LDJ
.E..LDJ	0,12	0,47	0,82	0,08	0,34	0,59	0,06	0,26	0,44	0,06	0,22	0,39	0,05	0,20	0,35	.E..LDJ
.E..LD	0,12	0,46	0,81	0,09	0,33	0,58	0,07	0,25	0,43	0,06	0,22	0,38	0,05	0,20	0,35	.E..LD
.E..GD	0,17	0,52	0,89	0,12	0,38	0,64	0,09	0,28	0,48	0,08	0,24	0,42	0,07	0,22	0,38	.E..GD
.S..GE	0,23	0,51	0,89	0,17	0,37	0,64	0,13	0,27	0,48	0,11	0,24	0,42	0,10	0,22	0,38	.S..GE
.S..GD	0,23	0,50	0,88	0,17	0,36	0,63	0,13	0,27	0,47	0,11	0,24	0,41	0,10	0,22	0,38	.S..GD
.S..GD2	0,23	0,50	0,88	0,17	0,36	0,63	0,13	0,27	0,47	0,11	0,24	0,41	0,10	0,22	0,38	.S..GD2
.E..HD	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.E..HD
.E..HD2	0,21	0,59	0,95	0,15	0,43	0,68	0,11	0,32	0,51	0,10	0,28	0,44	0,09	0,25	0,41	.E..HD2

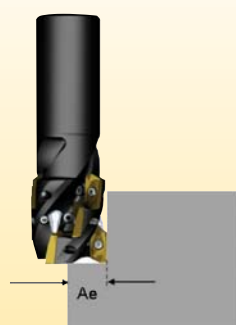
NOTE: Use "Light Machining" values as starting feed rate.
Please see pages X22-X37 for recommended starting speeds.

■ Application Examples

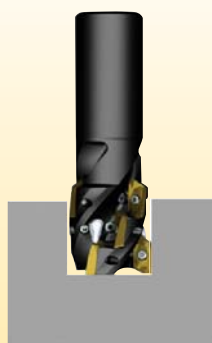


insert style	cutting diameter	max ramp angle	min hole diameter (DH min)	max flat-bottom hole diameter (DH1 max)	max diameter
Mill 1-14	32	5.4°	47,80	59,79	64
Mill 1-14	40	3.8°	64,00	75,47	80
Mill 1-14	50	2.7°	83,96	96,05	100
Mill 1-14	63	1.9°	109,93	121,47	126

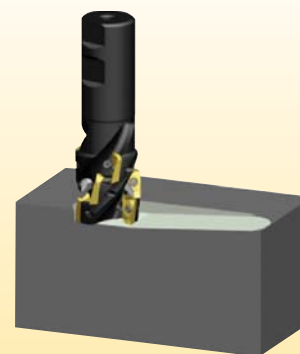
■ Best Machining Practices



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



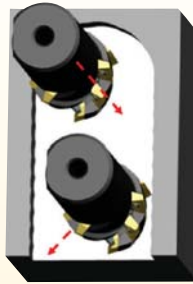
Slotting
Full width cutting or profiling over 50% of the cutter Ø. It is suggested to use coolant or air blast to evacuate chips. If necessary, reduce coolant nozzle hole size, which adds more pressure, and the chip is forced out of the chip gash.



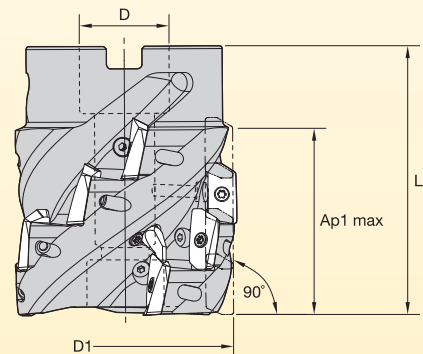
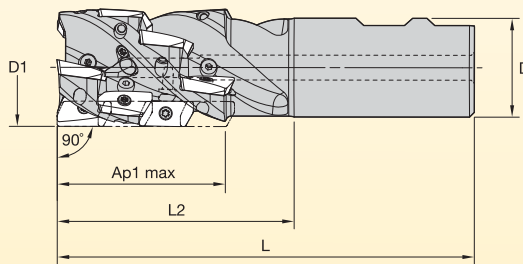
Ramping
Only machine to the depth of the first insert. Observe the ramping angles given in the catalogue.

■ 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 centre of the slot. Maximum step over 8,0mm (0.315").



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.



	catalogue 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
	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
	⁵ M1HR250E14S100Z3L300C12	3732939	2.50	3	12	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 8mm (.31")

⁴ Max insert corner radius allowed in first row without cutter body modification.

⁵ Recommended for profiling applications only.

■ Profile, Slot, and Ramp

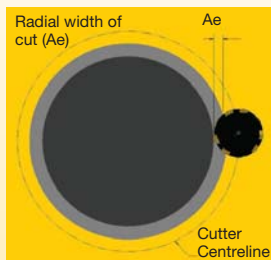
When taking a cut that equals up to 50% of the cutter diameter, you can operate without coolant, unless your material is coolant-dependent. When using more than 50% of the cutter diameter, there is a need to have coolant through the nozzles, or an air blast through the nozzles. This will assist with 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 3,30mm (.130"). 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 0,25mm (.010").

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

■ Circular and Helical Interpolation

External



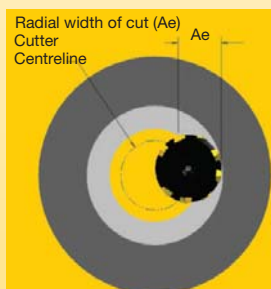
When profiling around the external part of a component, it is important to increase the feed rate. This will maintain the chip thickness value.

The programmed feed rate needs to be calculated at the cutter centreline.

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

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 centreline, and the feed rate needs to be slower.

For internal profiling, adjust the feed rate for feed at the cutter centreline.

This will effectively reduce the feed rate as the distance traveled is less than the peripheral distance.

■ Cutting Data

Reference pages X22-X37 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.

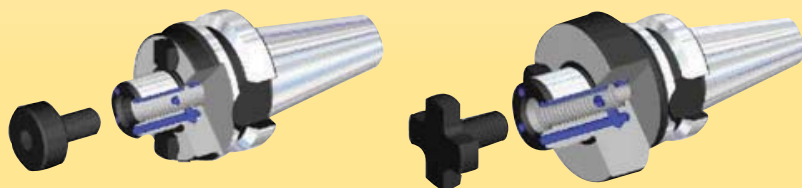
Please remember when using less than 50% of the cutter diameter, the feed rate will need to be increased.

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 adaptors that will enable the coolant to be fed through the adaptor pilot diameter.

■ True Through Coolant Shell Mill Adaptors



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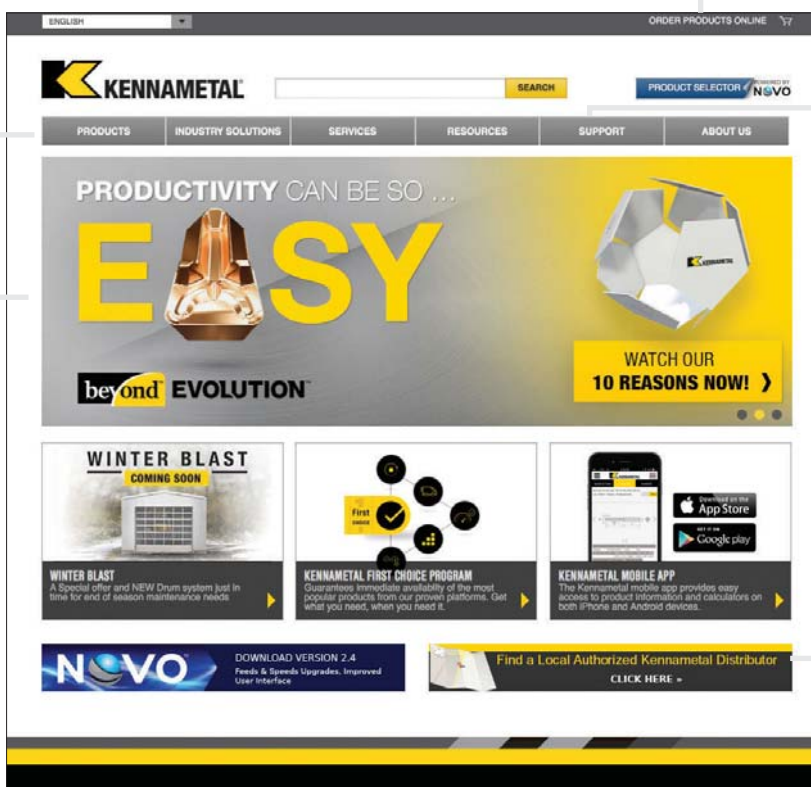
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➤ Mill 1-18™

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

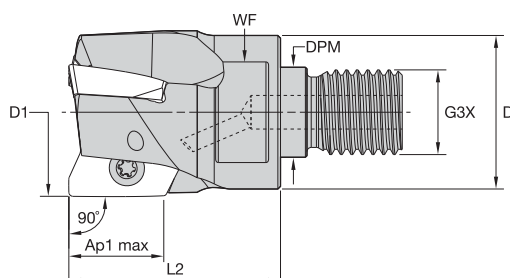
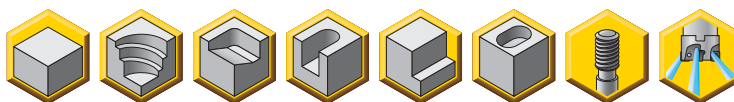
- Inserts for larger axial depth of cut.
- Inserts radii up to 6,35mm.
- Axial depth of cut up to 18mm.
- Cutter diameters up to 160mm.
- Beyond™ grade technology.

Benefits

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



- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Screw-On End Mills

order number	catalogue number	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max ramp angle	kg	max RPM
3349690	25A02R035M12SED18	25	21	12,5	M12	35	17	18,0	2	17.3°	0,08	37380
3349691	32A02R040M16SED18	32	29	17,0	M16	40	24	18,0	2	10.8°	0,17	32140
3349692	32A03R040M16SED18	32	29	17,0	M16	40	24	18,0	3	10.8°	0,16	32140
3349773	40A03R040M16SED18	40	29	17,0	M16	40	24	17,8	3	7.4°	0,21	28220
3349774	40A04R040M16SED18	40	29	17,0	M16	40	24	17,8	4	7.4°	0,20	28220

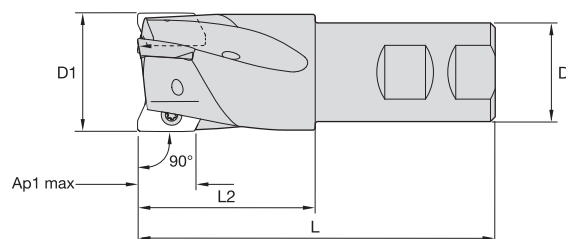
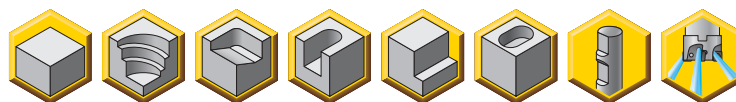
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
25	MS2126	4,0	DT151P
32	MS2126	4,0	DT151P
40	MS2126	4,0	DT151P

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Weldon® End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
2390446	25A02R044B25SED18	25	25	100	44	18,0	2	17.3°	0,29	37380
2390448	32A03R050B32SED18	32	32	110	50	18,0	3	10.8°	0,52	32140
2417191	40A03R050B32SED18	40	32	110	50	17,8	3	7.4°	0,66	28220
2390450	40A04R050B32SED18	40	32	110	50	17,4	4	7.4°	0,63	28220

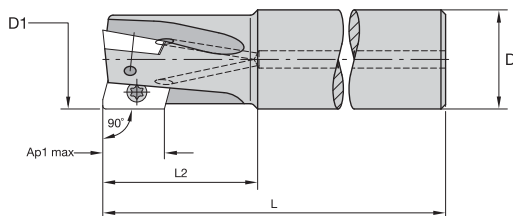
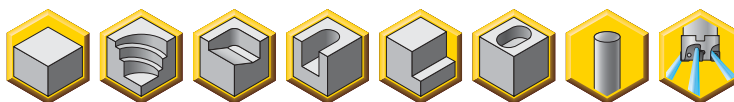
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
25	MS2126	4,0	DT15iP
32	MS2126	4,0	DT15iP
40	MS2126	4,0	DT15iP

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.



■ Cylindrical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
3349685	25A02R044A25SED18	25	25	100	44	18,0	2	17.3°	0,29	37380
2963873	25A02R044A25SED18-150	25	25	150	44	18,0	2	17.3°	0,47	37380
2613785	25A02R050A25SED18-170	25	25	170	50	18,0	2	17.3°	0,54	37380
3349689	32A03R050A25SED18	32	25	107	50	18,0	3	10.8°	0,37	32140
2613788	32A02R050A32SED18-200	32	32	200	50	17,0	2	10.8°	1,10	32140
3349686	32A03R050A32SED18	32	32	110	50	17,0	3	10.8°	0,52	32140
2613786	32A03R050A32SED18-200	32	32	200	50	17,0	3	10.8°	1,07	32140
2963874	34A03R050A32SED18-250	34	32	250	50	18,0	3	9.8°	1,40	31210
2613789	40A03R050A32SED18-200	40	32	200	50	17,4	3	7.4°	1,20	28220
2963875	40A03R050A32SED18-250	40	32	250	50	17,4	3	7.4°	1,50	28220
3349688	40A04R050A32SED18	40	32	110	50	17,4	4	7.4°	0,64	28220
2613787	40A04R050A32SED18-200	40	32	200	50	17,4	4	7.4°	1,18	28220
2963876	40A04R050A32SED18-250	40	32	250	50	17,4	4	7.4°	1,48	28220

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts

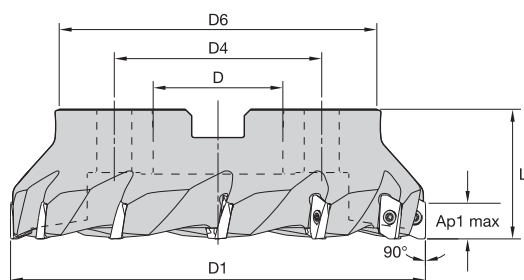
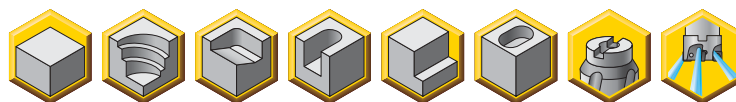


D1	insert screw	Nm	Torx Plus driver
25	MS2126	4,0	DT15IP
25	MS2126	4,0	DT15IP
32	MS2126	4,0	DT15IP
40	MS2126	4,0	DT15IP
40	MS2126	4,0	DT15IP



Shoulder Milling

- Aggressive ramping rates.
- Generates superior surface finish.
- Mill 90° walls.
- High RPM capabilities.

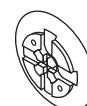


■ Shell Mills

order number	catalogue number	D1	D	D4	D6	L	Ap1 max	Z	max ramp angle	kg	max RPM
2417185	50A04RS90ED18D	50	22	—	45	40	17,7	4	5.3°	0,27	24890
2417183	50A05RS90ED18D	50	22	—	45	40	17,7	5	5.3°	0,28	24890
2417186	63A05RS90ED18D	63	22	—	50	40	17,6	5	3.8°	0,45	21910
2390483	63A06RS90ED18D	63	22	—	50	40	17,6	6	3.8°	0,48	21910
2417187	80A06RS90ED18D	80	27	—	60	50	17,4	6	2.8°	0,96	19270
2417184	80A07RS90ED18D	80	27	—	60	50	17,4	7	2.8°	0,99	19270
2417188	100A07RS90ED18D	100	32	—	80	50	17,4	7	2.1°	1,75	17120
2390485	100A08RS90ED18D	100	32	—	80	50	17,4	8	2.1°	1,77	17120
2417189	125B08RS90ED18D	125	40	—	90	63	17,4	8	1.7°	2,57	15230
2390486	125B09RS90ED18D	125	40	—	90	63	17,4	9	1.7°	2,61	15230
2417190	160C10RS90ED18D	160	40	66,7	100	63	17,4	10	1.3°	3,90	13400
2390487	160C12RS90ED18D	160	40	66,7	100	63	17,4	12	1.3°	3,90	13400

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



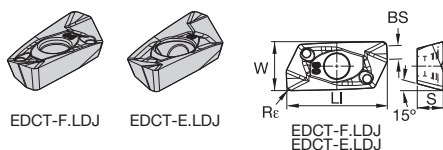
D1	insert screw	Nm	Torx Plus wrench	mounting screw	mill cutter lock screw	coolant cap
50	MS2126	4,0	DT15IP	—	—	—
63	MS2126	4,0	DT15IP	—	—	—
80	MS2126	4,0	DT15IP	MS2038	—	—
100	MS2126	4,0	DT15IP	MS1559	—	—
125	MS2126	4,0	DT15IP	—	420.200	470.232
160	MS2126	4,0	DT15IP	—	420.200	470.233

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

- Light edge prep for reduced cutting forces.
- Periphery ground for high-precision machining.
- Light machining and finish applications.
- Ap1 max = 18mm.



EDCT-F.LDJ

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT180504PDFRLDJ	21,75	5,50	10,98	3,07	0,4	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180508PDFLLDJ	21,76	5,50	10,97	2,69	0,8	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180508PDFRLDJ	21,76	5,50	10,97	2,69	0,8	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180512PDFRLDJ	21,77	5,50	10,97	2,29	1,2	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180516PDFRLDJ	21,78	5,50	10,96	1,90	1,6	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180520PDFRLDJ	21,79	5,50	10,95	1,49	2,0	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180524PDFRLDJ	21,79	5,50	10,93	1,11	2,4	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180532PDFRLDJ	21,79	5,50	10,91	0,32	3,2	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180540PDFRLDJ	20,78	5,50	10,87	-	4,0	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180548PDFRLDJ	20,20	5,50	10,83	-	4,8	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180550PDFRLDJ	19,95	5,50	10,81	-	5,0	0,02	2	●	-	-	-	-	-	-	-	-	-	-
EDCT180564PDFRLDJ	18,72	5,50	10,73	-	6,4	0,02	2	●	-	-	-	-	-	-	-	-	-	-

EDCT-E.LDJ

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT180508PDERLDJ	21,76	5,50	10,97	2,69	0,8	0,03	2	-	●	-	-	-	-	-	-	-	-	-
EDCT180512PDERLDJ	21,77	5,50	10,97	2,29	1,2	0,03	2	-	●	-	-	-	-	-	-	-	-	-
EDCT180516PDERLDJ	21,78	5,50	10,96	1,90	1,6	0,03	2	-	●	-	-	-	-	-	-	-	-	-
EDCT180524PDERLDJ	21,79	5,50	10,93	1,11	2,4	0,03	2	-	●	-	-	-	-	-	-	-	-	-
EDCT180532PDERLDJ	21,79	5,50	10,91	0,32	3,2	0,03	2	-	●	-	-	-	-	-	-	-	-	-
EDCT180564PDERLDJ	18,72	5,50	10,73	-	6,4	0,03	2	-	●	-	-	-	-	-	-	-	-	-

beyond

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

- first choice
- alternate choice

Shoulder Milling

- first choice
- alternate choice



catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT180508PDERLD	21,76	5,50	10,97	2,69	0,8	0,05	2	-	-	-	●	-	-	-	-	-	-	-
EDCT180516PDERLD	21,78	5,50	10,96	1,90	1,6	0,05	2	-	-	-	●	-	-	-	-	-	-	-
EDCT180532PDERLD	21,79	5,50	10,91	0,32	3,2	0,05	2	-	-	-	●	-	-	-	-	-	-	-
EDCT180540PDERLD	20,78	5,50	10,87	—	4,0	0,05	2	-	-	-	●	-	-	-	-	-	-	-
EDCT180548PDERLD	20,20	5,50	10,83	—	4,8	0,05	2	-	-	-	●	-	-	-	-	-	-	-
EDCT180564PDERLD	18,72	5,50	10,73	—	6,4	0,05	2	-	-	-	●	-	-	-	-	-	-	-



catalogue number	LI	S	W	BS	R _e	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDCT180504PDERGD	21,75	5,50	10,98	3,07	0,4	0,09	2	-	-	-	-	-	●	-	-	●	-	-
EDCT180508PDERGD	21,76	5,50	10,97	2,69	0,8	0,09	2	-	-	-	-	-	●	-	-	●	-	-
EDCT180512PDERGD	21,77	5,50	10,97	2,29	1,2	0,09	2	-	-	-	-	-	●	-	-	●	-	-

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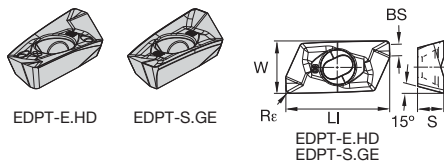
■ EDPT-E.GD

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT180508PDERGD	21,76	5,50	10,97	2,69	0,8	0,09	2	-	-	●	-	●	-	●	●	-	●	-
EDPT180512PDERGD	21,77	5,50	11,00	2,29	1,2	0,09	2	-	-	-	-	●	-	-	●	-	-	-
EDPT180516PDERGD	21,78	5,50	10,94	1,90	1,6	0,09	2	-	-	-	●	-	●	-	●	-	-	●
EDPT180524PDERGD	21,79	5,50	10,93	1,11	2,4	0,09	2	-	-	-	-	●	-	-	-	-	-	-
EDPT180532PDERGD	21,79	5,50	10,91	0,32	3,2	0,09	2	-	-	●	●	-	●	-	●	-	-	●
EDPT180548PDERGD	20,20	5,50	10,83	—	4,8	0,09	2	-	-	-	-	●	-	-	-	-	-	●
EDPT180564PDERGD	18,79	5,50	10,73	—	6,4	0,09	2	-	-	-	●	-	●	-	●	-	-	-

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

beyond

- first choice
- alternate choice



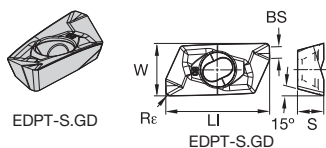
EDPT-E.HD

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT180508PDERHD	21,77	5,50	10,89	2,69	0,8	0,08	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180512PDERHD	21,77	5,50	10,88	2,29	1,2	0,08	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180516PDERHD	21,78	5,50	10,87	1,90	1,6	0,08	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180532PDERHD	21,79	5,50	10,83	0,31	3,2	0,08	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180540PDERHD	20,92	5,50	10,77	—	4,0	0,08	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180548PDERHD	20,16	5,50	10,75	—	4,8	0,08	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180564PDERHD	18,79	5,50	10,66	—	6,4	0,08	2	-	-	-	-	-	-	-	-	-	-	-

EDPT-S.GE

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT180508PDSRGE	21,73	5,45	10,70	2,42	0,8	0,14	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180512PDSRGE	21,77	5,45	10,68	2,00	1,2	0,14	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180516PDSRGE	21,74	5,45	10,66	1,59	1,6	0,14	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180532PDSRGE	21,75	5,45	10,62	0,07	3,2	0,14	2	-	-	-	-	-	-	-	-	-	-	-

- Heavy roughing applications.
- High feed rates.
- All material groups.
- PSTS — Precision Pressed and Sintered to Size.
- Ap1 max = 18mm.



EDPT-S.GD

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC410M	KC422M	KC520M	KC522M	KC525M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40
EDPT180508PDSRGD	21,76	5,50	10,90	2,69	0,8	0,15	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180512PDSRGD	21,77	5,50	10,89	2,29	1,2	0,15	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180516PDSRGD	21,78	5,50	10,88	1,90	1,6	0,15	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180532PDSRGD	21,79	5,50	10,83	0,32	3,2	0,15	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180548PDSRGD	20,20	5,49	10,75	—	4,8	0,13	2	-	-	-	-	-	-	-	-	-	-	-
EDPT180564PDSRGD	18,77	5,50	10,64	—	6,4	0,13	2	-	-	-	-	-	-	-	-	-	-	-



■ Recommended Starting Feeds [mm]

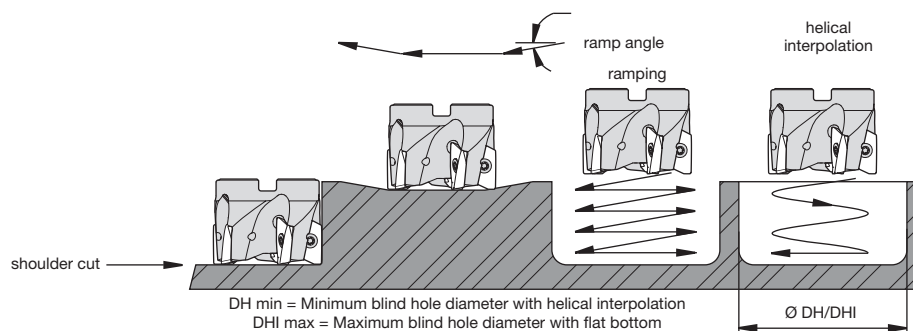
Light Machining	General Purpose	Heavy Machining
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Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.F..LDJ	0,12	0,46	0,82	0,08	0,33	0,59	0,06	0,25	0,44	0,06	0,22	0,38	0,05	0,20	0,35	.F..LDJ
.E..LDJ	0,12	0,45	0,80	0,08	0,33	0,58	0,06	0,24	0,43	0,06	0,21	0,38	0,05	0,20	0,35	.E..LDJ
.E..LD	0,17	0,47	0,82	0,12	0,34	0,59	0,09	0,26	0,44	0,08	0,22	0,38	0,07	0,20	0,35	.E..LD
.E..GD	0,23	0,52	0,89	0,17	0,37	0,64	0,13	0,28	0,48	0,11	0,24	0,42	0,10	0,22	0,38	.E..GD
.S..GE	0,23	0,51	0,89	0,17	0,37	0,64	0,13	0,27	0,48	0,11	0,24	0,42	0,10	0,22	0,38	.S..GE
.S..GD	0,23	0,51	0,89	0,17	0,37	0,64	0,13	0,28	0,48	0,11	0,24	0,41	0,10	0,22	0,38	.S..GD
.E..HD	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.E..HD

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

Application Data

■ 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, 18mm	25	17°	29,24	45,84	50
Mill-1, 18mm	32	11°	42,98	59,84	64
Mill-1, 18mm	40	8°	58,92	75,84	80
Mill-1, 18mm	50	5°	78,88	95,84	100
Mill-1, 18mm	63	4°	104,86	121,84	126
Mill-1, 18mm	80	3°	139,02	156,5	160
Mill-1, 18mm	100	2°	179,00	196,5	200
Mill-1, 18mm	125	2°	228,98	246,5	250
Mill-1, 18mm	160	1°	298,98	316,5	320

NOTE: Max ramp angle decreases as nose radius increases.



Carbide Recycling

Help preserve and protect our planet!



It's easy for your company to be environmentally conscious with the Kennametal Carbide Recycling Programme.

By sending us your used carbide tools, you help preserve and protect the environment and ensure that these products are recycled responsibly. Kennametal accepts any coated or non-coated carbide items, including inserts, drills, reamers, and taps.

By using the Kennametal Carbide Recycling Programme, you will receive:

- A partner who cares about a sustainable environment.
- Easy-to-use web portal to value your used carbide.
- Access to our popular Green Box™ options for carbide collection.
- Systematic and efficient disposal of carbide materials.
- Improved profitability.

Programme is not currently available in all geographical areas.
For more information, please visit [kennametal.com/carbiderecycling](https://www.kennametal.com/carbiderecycling).



[kennametal.com](https://www.kennametal.com)

➤ Mill 1-25™

Primary Application

Also known as Mill1 Max, the Mill 1-25 cutter is made specifically for aluminium 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 25mm.

Features and Benefits

Functions

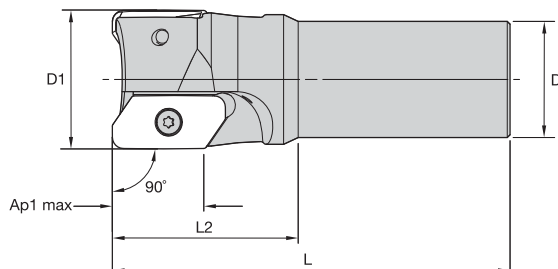
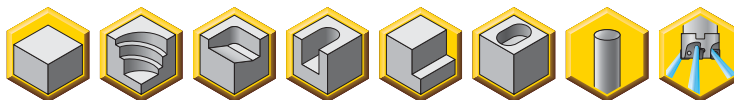
- Strong, thick inserts over 5,2mm thick.
- Axial depth of cut up to 25mm.
- Cylindrical, monoblock/HSK63A, and shell mills.

Benefits

- Made for machining aluminium, 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.



- Roughing and finishing of aluminium alloys.
- Aggressive ramping angles.
- High-speed capability.
- $Ap1 \text{ max} = 25\text{mm}$.



■ Cylindrical End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
2649569	40A02R50A32SKE25	40	32	111	50	25,0	2	15.0°	0,61	24300
2479504	40A02R80A32SKE25	40	32	141	80	25,0	2	15.0°	0,86	24300
2649571	50A02R100A32SKE25	50	32	161	100	24,9	2	10.0°	1,43	20600
2500741	50A03R80A32SKE25	50	32	141	80	24,9	3	10.0°	1,10	20600

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

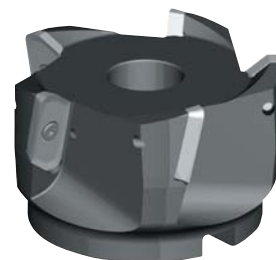
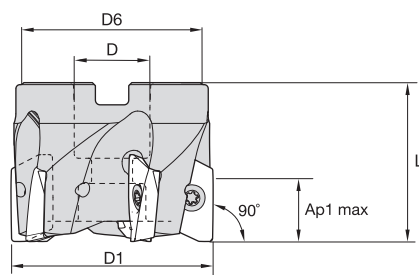
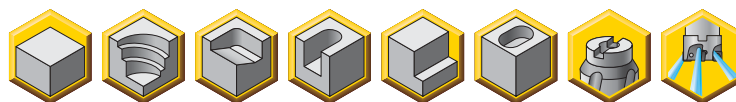
■ Spare Parts



D1	insert screw	Nm	Torx driver
40	MS1374	3,9	DT15
50	MS1374	3,9	DT15

Shoulder Milling

- Roughing and finishing of aluminium alloys.
- Aggressive ramping angles.
- High-speed capability.
- $Ap1 \text{ max} = 25\text{mm}$.
- Insert screws should be changed when inserts are changed.



■ Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	max ramp angle	kg	max RPM
2878139	52A02RS90KE25	52	22	49	58	24,8	2	9.5°	0,50	20000
2954527	63A02RS90KE25	63	22	50	55	24,7	2	7.0°	0,69	17600
2954528	63A03RS90KE25	63	22	50	55	24,7	3	7.0°	0,59	17600

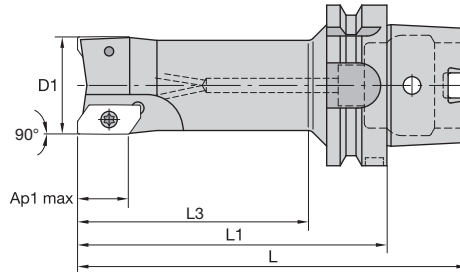
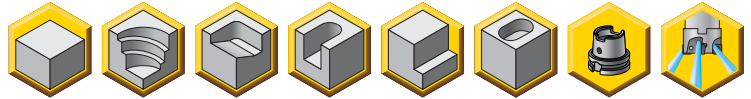
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



D1	insert screw	Nm	Torx driver	socket-head cap screw with coolant groove
52	MS1374	3,9	DT15	MS1235CG
63	MS1374	3,9	DT15	MS1242CG

- Roughing and finishing of aluminium alloys.
- Aggressive ramping angles.
- All integral shank tools are balanced to G2.5 at 10.000 RPM.
- High-speed capability.
- $Ap1 \text{ max} = 25\text{mm}$.
- Replace insert screws when inserts are changed.



■ Monoblocks • HSK63A

order number	catalogue number	shank taper	D1	L	L1	L2	Ap1 max	Z	max ramp angle	kg	max RPM
2880434	40A02R110S63SKE25	HSK63A	40	142	110	77,65	25,0	2	15.0°	1,17	24300
2880439	50A03R140S63SKE25	HSK63A	50	172	140	114,00	24,9	3	10.0°	1,81	20600

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



D1	insert screw	Nm	Torx driver	balancing screw
40	MS1374	3,9	DT15	KUAM27
50	MS1374	3,9	DT15	KUAM27

Insert Selection Guide

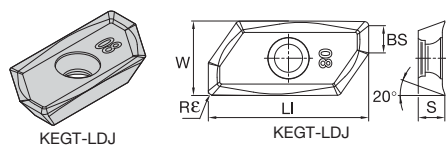
Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		←————→ toughness			
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	–	–	–	–	–	–
P3–P4	–	–	–	–	–	–
P5–P6	–	–	–	–	–	–
M1–M2	–	–	–	–	–	–
M3	–	–	–	–	–	–
K1–K2	–	–	–	–	–	–
K3	–	–	–	–	–	–
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 aluminium alloys.
- Periphery ground for accuracy and consistency.
- Radiused cutting edge minimises lap lines.
- Wiper facet with large radius for better floor surface finish.
- Ap1 max = 25mm.

- first choice
- alternate choice

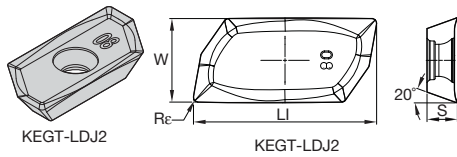
P	
M	
K	
N	●
S	
H	



KEGT-LDJ

catalogue number	LI	S	W	BS	Rε	hm	cutting edges	KC410M
KEGT25L508PEERLDJ	31,39	5,21	14,59	5,34	0,8	0,03	2	●
KEGT25L512PEERLDJ	31,47	5,21	14,60	4,94	1,2	0,03	2	●
KEGT25L516PEERLDJ	31,47	5,21	14,60	4,55	1,6	0,03	2	●
KEGT25L520PEERLDJ	31,47	5,21	14,60	4,15	2,0	0,03	2	●
KEGT25L531PEERLDJ	31,47	5,21	14,60	3,06	3,1	0,03	2	●
KEGT25L540PEERLDJ	31,47	5,21	14,60	2,16	4,0	0,03	2	●
KEGT25L550PEERLDJ	31,47	5,21	14,60	1,14	5,0	0,03	2	●
KEGT25L564PEERLDJ	29,99	5,21	14,60	—	6,4	0,03	2	●

- -LDJ specifically designed for machining aluminium.
- Corner radii range 0,80–6,40mm.



- first choice
- alternate choice

P	
M	
K	
N	●
S	
H	

■ KEGT-LDJ2

catalogue number	LI	S	W	BS	Re	hm	cutting edges	KC410M
KEGT25L516PEERLDJ2	31,39	5,21	14,59	—	1,6	0,03	2	●

Recommended Starting Feeds

■ Recommended Starting Feeds [mm]

Light Machining	General Purpose	Heavy Machining
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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	0,12	0,56	1,05	0,08	0,40	0,76	0,06	0,30	0,56	0,06	0,26	0,49	0,05	0,24	0,45	.E..LDJ
.E..LDJ2	0,12	0,56	1,05	0,08	0,40	0,76	0,06	0,30	0,56	0,06	0,26	0,49	0,05	0,24	0,45	.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 aluminium machining to the highest level.



Features and Benefits

- Specially designed for machining pockets and profiles on aluminium and aluminium 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 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.

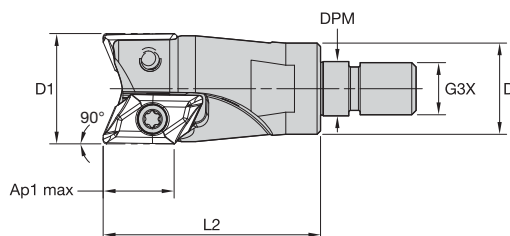
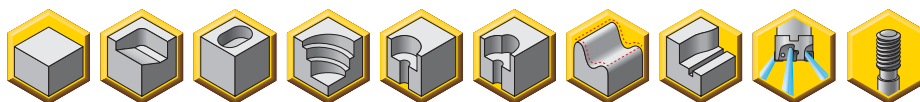
Monoblock cutters with HSK63A are available as standard in diameters 25, 32, 40, and 50mm.

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



Maximum a_p = 16mm
Diameter Range = 25–80mm

- High-speed profiling and pocketing aluminium 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	catalogue number	D1	D	DPM	G3X	L2	Ap1 max	Z	max ramp angle	kg	max RPM
5672893	5720VZ16SA025Z2R50	25	21	12,50	M12	50	16	2	14.5°	0,12	50000
5672894	5720VZ16SA032Z2R50	32	29	17,00	M16	50	16	2	11.4°	0,21	41500
5673238	5720VZ16SA032Z3R50	32	29	17,00	M16	50	16	3	11.4°	0,21	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.

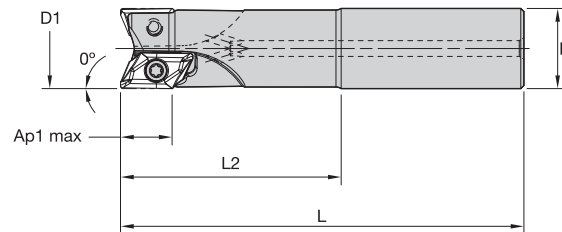
■ Spare Parts



D1	insert screw	Nm	Torx driver
25	DP5009A	6,0	TP20
32	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.

- High-speed profiling and pocketing aluminium 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	catalogue number	D1	D	L	L2	Ap1 max	Z	max ramp angle	kg	max RPM
5672892	5720VZ16CA025Z2R75	25	25	131	75	16	2	14.5°	0,41	50000
5672271	5720VZ16CA032Z2R75	32	32	135	75	16	2	11.4°	0,71	41500
5681115	5720VZ16CA032Z3R75	32	32	135	75	16	3	11.4°	0,64	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.

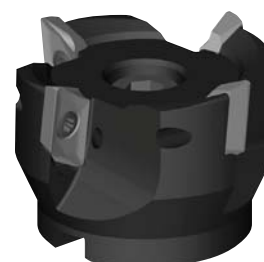
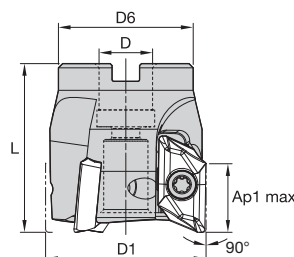
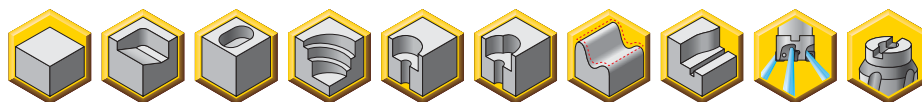
■ Spare Parts



D1	insert screw	Nm	Torx driver
25	DP5009A	6,0	TP20
32	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.

- High-speed profiling and pocketing aluminium 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	catalogue number	D1	D	D6	L	Ap1 max	Z	max ramp angle	kg	max RPM
5673490	5720VZ16-A040Z3R	40	16	32	45	16	3	7.6°	0,21	36500
5672869	5720VZ16-A050Z03R	50	22	45	45	16	3	7.9°	0,35	30000
5673174	5720VZ16-A050Z04R	50	22	45	45	16	4	7.9°	0,28	30000
5672870	5720VZ16-A063Z4R	63	22	50	45	16	4	5.9°	0,52	26000
5673528	5720VZ16-A063Z5R	63	22	50	45	16	5	5.9°	0,48	26000
5673616	5720VZ16-A080Z04R	80	27	55	50	16	4	4.4°	0,91	23000
5673316	5720VZ16-A080Z5R	80	27	55	50	16	5	4.4°	0,85	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.

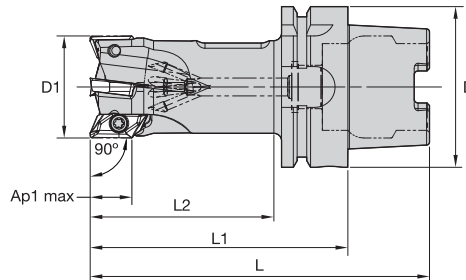
■ Spare Parts



D1	insert screw	Nm	Torx driver	socket-head cap screw
40	DP5009A	6,0	TP20	M8 1.25 X 25 SHCS
50	DP5009A	6,0	TP20	M10 1.5 X 25 SHCS
63	DP5009A	6,0	TP20	M10 1.5 X 25 SHCS
80	DP5009A	6,0	TP20	M12 X 1.75 X 30 SHCS

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 aluminium industries' requirements for high-power and high-speed spindles.
- Specifically reinforced for highest metal removal rates for depths of cut $\leq 16\text{mm}$.
- Locking system ensures operation safety and accuracy.
- Thin-walled machining for airframe components.



■ Monoblocks • HSK63A

order number	catalogue 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

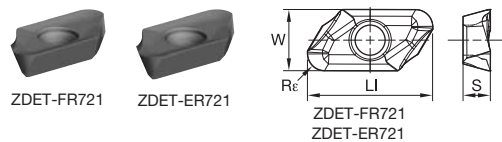
DP5009A	6,0	TP20
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NOTE: Adjustable torque wrench (order number 6197561) and Torx Plus 20 bit (order number 6205891) may be purchased separately in order to ensure proper torque setting.

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



- first choice
- alternate choice

P	●
M	●
K	○
N	●
S	●
H	●

ZDET-FR721 • Sharp edge preparation for finishing applications.

catalogue number	LI	W	S	Resultant WorkPiece Radius mm	hm	cutting edges	GH1
ZDET16M5PDFR721	22,92	11,25	5,00	0,3	0,02	2	●
ZDET16M504FR721	23,02	11,25	5,00	0,4	0,02	2	●
ZDET16M508FR721	23,02	11,25	5,00	0,8	0,02	2	●
ZDET16M512FR721	23,02	11,25	5,00	1,2	0,02	2	●
ZDET16M516FR721	23,02	11,25	5,00	1,6	0,02	2	●
ZDET16M520FR721	23,02	11,25	5,00	2,0	0,02	2	●
ZDET16M525FR721	23,02	11,25	5,00	2,5	0,02	2	●
ZDET16M530FR721	23,02	11,25	5,00	3,0	0,02	2	●
ZDET16M532FR721	23,02	11,25	5,00	3,2	0,02	2	●
ZDET16M540FR721	23,02	11,25	5,00	4,0	0,02	2	●
ZDET16M550FR721	23,02	11,25	5,00	5,0	0,02	2	●
ZDET16M560FR721	23,02	11,25	5,00	6,0	0,02	2	●

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

catalogue number	LI	W	S	Resultant WorkPiece Radius mm	hm	cutting edges	GH1
ZDET16M525ER721	23,02	11,25	5,00	2,5	0,03	2	●
ZDET16M530ER721	23,02	11,25	5,00	3,0	0,03	2	●
ZDET16M540ER721	23,02	11,25	5,00	4,0	0,03	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.

Shoulder Milling

■ Recommended Starting Feeds [mm]

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%			
...FR721	0,12	0,51	0,93	0,08	0,37	0,67	0,06	0,28	0,50	0,06	0,24	0,44	0,05	0,22	0,40	...FR721
...ER721	0,12	0,51	0,93	0,08	0,37	0,67	0,06	0,28	0,50	0,06	0,24	0,44	0,05	0,22	0,40	...ER721

NOTE: Use "Light Machining" values as starting feed rate.
 $\% = ae/Dc * 100$ (ae = radial depth of cut, Dc = cutting diameter)
 Please see pages X22-X37 for recommended starting speeds.

Technical Information

■ 5720VZ16 Ramp Angle

cutter diameter	Insert ZDET16M5...721								
	PDFR-R1,20	R1,60	R2,00	R2,50	R3,00	R3,20	R4,00	R5,00	R6,00
25,0	14,50	17,30	9,40	9,60	18,80	18,90	9,00	11,20	7,30
32,0	11,40	11,90	11,90	12,20	12,40	12,40	13,10	13,80	13,40
40,0	7,60	7,80	7,80	8,00	8,10	8,10	8,50	8,80	9,10
50,0	7,90	7,20	7,30	7,90	7,60	7,60	8,90	9,00	9,25
63,0	5,90	5,40	5,50	5,80	5,60	5,60	6,90	6,60	6,65
80,0	4,40	4,00	4,10	4,30	4,20	4,20	5,10	4,80	4,90

■ 5720VZ16 Possible Maximum ap Slotting

Possible Max ap Slotting		
diameter	number of inserts	ap max
25	2	7,50
32	2	11,00
32	3	6,00
40	3	9,00
50	3	11,00
50	4	9,00
63	4	11,00
63	5	9,00
80	4	11,00
80	5	11,00

NOTE: Ap max depending on:
 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	Q cm³/min
25	2	1560
32	2	3226
32	3	2056
40	3	5184
50	3	7921
50	4	8641
63	4	13307
63	5	13609
80	4	16898
80	5	21123

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 • Aluminium

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

$$V_c = \pi \times D \times n / 1000 \quad \text{m/min} = \text{mm} \times \text{RPM}$$

D: Tool diameter, N: RPM, Vc: Cutting speed, $\pi = 3.1416$

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 • Aluminium — continued)

	Typical Temper	Rm (Mpa)	Machinability Chip Formation	Machinability	Typical Applications	vc m/min min-max	fz mm/Z max
	H14	105	D	A	- Chemical equipment. - Sheet metal work. - Coiled tube.	600-3000	0,2
	H14	90	D	A			
	T3	310	A	A	- Screw machine products. - Tuck frame. - Aircraft structure. - Jet engine impellers. - Aircraft engine - Cylinder heads.	400-2500	0,25
	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.	200-2500	0,20
	T6	379	B	D	Pistons.	200-1000	0,18
	H14	260	C	A	- Architectural. - Cable sheeting. - Welded pressure vessels. - Hydraulic tubes. - Transportation equipment.	400-3000	0,25
	–	–	–	–			
	H12	300	C	A			
	–	–	–	–			
	H112	335	C	A			
	H32	300	C	A			
	–	–	–	–	- Heavy-duty structure. - Furniture. - Architectural. - Heavy-duty welded structure. - Pipeline. - Heat sink.	400-2500	0,20
	T6	300	C	B			
	T5	200	C	B			
	T6	379	C	C			
	T6	–	C	C			
	T9	400	B	B			
	T6	310	D	C			
	T6	241	C	B	- High-strength structure. - Aircraft structure.	400-3000	0,25
	O	–	B	A			
	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:

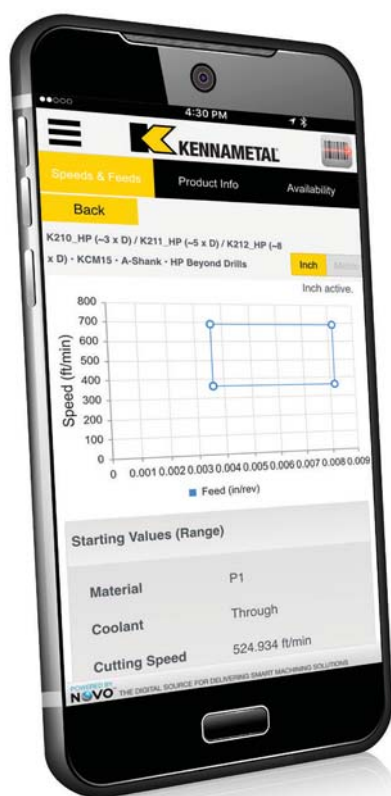
Thread sizes (mm)	Torque Values Nm
M6	10
M8	30
M10	50
M12	80
M16	110

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

Thread sizes (mm)	Cutter Bore Size (mm)	Torque Values Nm
M6	13	10
M8	16	30
M10	22	50
M12	27	80
M16	32	110
M20	40	120

Mobile App

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➤ 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

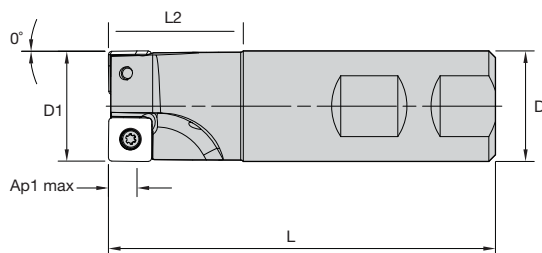
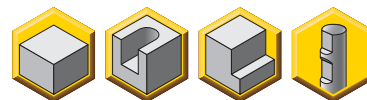
- Four cutting edges.
- Excellent surface finishes.
- Low power requirements.

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.



■ Weldon® End Mills

order number	catalogue number	D1	D	L	L2	Ap1 max	Z	kg	max RPM
1981679	25A02R039B25SSP10G	25	25	96	39	6,6	2	0,30	37100
1981788	32A03R039B32SSP10G	32	32	100	39	6,6	3	0,50	33200
1981790	40A04R049B32SSP10G	40	32	110	49	6,6	4	0,70	30300

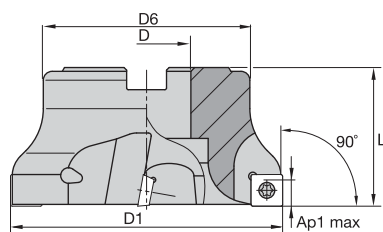
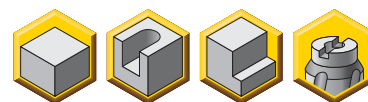
NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



D1	insert screw	Nm	Torx Plus driver
25	MS2148	1,5	DT9IP
32	MS2148	1,5	DT9IP
40	MS2148	1,5	DT9IP

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



■ Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	kg	max RPM
1981677	50A05RS90SP10DG	50	22	47	40	6,6	5	0,40	26300
1981678	63A06RS90SP10DG	63	22	50	40	6,6	6	0,50	23500
1981853	80A08RS90SP10DG	80	27	60	50	6,6	8	1,10	21450
1981854	100B10RS90SP10DG	100	32	80	50	6,6	10	1,70	18600

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



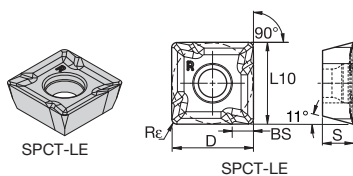
D1	insert screw	Nm	Torx Plus driver	mounting screw
50	MS2148	1,5	DT9IP	—
63	MS2148	1,5	DT9IP	—
80	MS2148	1,5	DT9IP	MS1556
100	MS2148	1,5	DT9IP	—

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

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



- first choice
- alternate choice

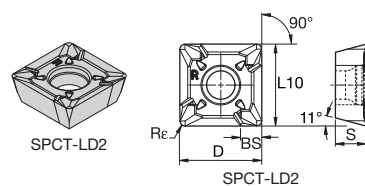
	P	M	K	N	S	H
○	●	●	●	●	●	●
○	●	●	●	●	●	●
○	●	●	●	●	●	●
○	●	●	●	●	●	●
○	●	●	●	●	●	●
○	●	●	●	●	●	●
○	●	●	●	●	●	●
○	●	●	●	●	●	●
○	●	●	●	●	●	●

SPCT-LE

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
SPCT10T304PPFLLE	10,00	3,97	10,00	2,70	0,4	0,02	4	●	-	-	-	-	-	-	-	-	-	-
SPCT10T304PPFRLE	10,00	3,97	10,00	2,70	0,4	0,02	4	●	-	-	-	-	-	-	-	-	-	-
SPCT10T3PPFLLE	10,00	3,97	10,00	2,70	0,8	0,02	4	●	-	-	-	-	-	-	-	-	-	-
SPCT10T3PPFRLE	10,00	3,97	10,00	2,70	0,8	0,02	4	●	-	-	-	-	-	-	-	-	-	-
SPCT10T312PPFRLE	10,00	3,97	10,00	2,70	1,2	0,02	4	●	-	-	-	-	-	-	-	-	-	-
SPCT10T320FNLE	10,00	3,97	10,00	-	2,0	0,02	4	●	-	-	-	-	-	-	-	-	-	-

Shoulder Milling

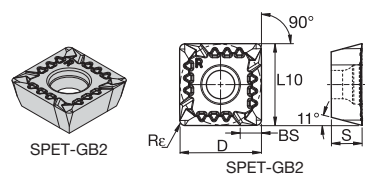
- Light and finish machining.
- Precision ground.
- 15° rake face.
- Four cutting edges.



■ SPCT-LD2

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
SPCT10T304PPELLD2	10,00	3,97	10,00	2,70	0,4	0,04	4	-	-	-	•	-	-	-	-	-	-	-
SPCT10T304PPERLD2	10,00	3,97	10,00	2,70	0,4	0,04	4	-	-	-	•	-	-	-	-	-	-	-
SPCT10T3PPELLD2	10,00	3,97	10,00	2,70	0,8	0,04	4	-	-	-	•	-	-	-	-	-	-	-
SPCT10T3PPERLD2	10,00	3,97	10,00	2,70	0,8	0,04	4	-	•	-	•	-	•	-	-	-	-	-
SPCT10T312PPELLD2	10,00	3,97	10,00	2,70	1,2	0,04	4	-	-	-	•	-	-	-	-	-	-	-
SPCT10T312PPERLD2	10,00	3,97	10,00	2,70	1,2	0,04	4	-	-	-	•	-	-	-	-	-	-	-
SPCT10T316ENLD2	10,00	3,97	10,00	-	1,6	0,04	4	-	-	-	•	-	-	•	-	-	-	-
SPCT10T320ENLD2	10,00	3,97	10,00	-	2,0	0,04	4	-	-	-	•	-	-	-	-	-	-	-

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



■ SPET-GB2

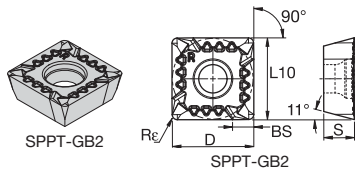
catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KTPK20	KY3500
SPET10T304PPELGB2	10,00	3,97	10,00	2,70	0,4	0,08	4	-	-	-	•	•	•	-	-	-	-	-
SPET10T304PPERGB2	10,00	3,97	10,00	2,70	0,4	0,08	4	-	-	-	•	•	•	-	-	-	-	-
SPET10T3PPELGB2	10,00	3,97	10,00	2,70	0,8	0,08	4	-	•	-	•	•	•	-	-	-	-	-
SPET10T3PPERGB2	10,00	3,97	10,00	2,70	0,8	0,08	4	-	•	-	•	•	•	-	-	-	-	-
SPET10T3PPSLGB2	10,00	3,97	10,00	2,70	0,8	0,13	4	-	-	-	•	-	-	-	-	-	-	-
SPET10T3PPSRGB2	10,00	3,97	10,00	2,70	0,8	0,13	4	-	•	-	•	•	•	-	-	-	-	-

beyond

- first choice
- alternate choice

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

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



■ SPPT-GB2

catalogue number	D	S	L10	BS	Rε	hm	cutting edges										
SPPT10T3PPERGB2	10,00	3,97	10,00	2,70	0,8	0,08	4	-	-	-	-	●	●	●	●	○	-
SPPT10T3PPSRGB2	10,00	3,97	10,00	2,70	0,8	0,13	4	-	-	-	-	●	●	●	●	○	-

- first choice
- alternate choice

beyond

P																	
M																	
K																	
N																	
S																	
H																	

Recommended Starting Feeds

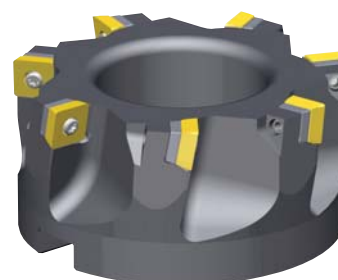
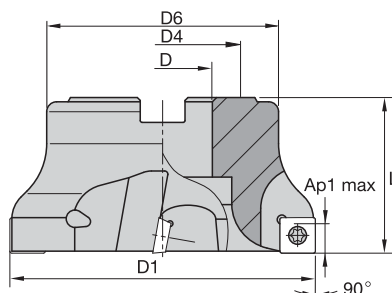
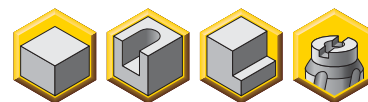
■ Recommended Starting Feeds [mm]

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	0,12	0,42	0,70	0,08	0,30	0,50	0,06	0,23	0,38	0,06	0,20	0,33	0,05	0,18	0,30	.F..LE
.F..LD	0,12	0,42	0,70	0,08	0,30	0,50	0,06	0,23	0,38	0,06	0,20	0,33	0,05	0,18	0,30	.F..LD
.E..LD2	0,12	0,46	0,81	0,09	0,33	0,58	0,07	0,25	0,43	0,06	0,22	0,38	0,05	0,20	0,35	.E..LD2
.E..LD	0,17	0,47	0,82	0,12	0,34	0,59	0,09	0,26	0,44	0,08	0,22	0,38	0,07	0,20	0,35	.E..LD
.E..GB2	0,23	0,53	0,89	0,17	0,38	0,64	0,13	0,29	0,48	0,11	0,25	0,41	0,10	0,23	0,38	.E..GB2
.S..GB	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GB
.S..GB2	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GB2
.S..GN	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GN

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

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

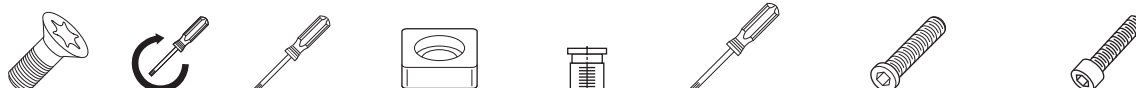


■ Shell Mills

order number	catalogue number	D1	D	D4	D6	L	Ap1 max	Z	kg	max RPM
1926939	50A03RS90SD12DG	50	22	—	45	40	9,2	3	0,30	20600
1926938	50A04RS90SD12DG	50	22	—	46	40	9,2	4	0,30	20600
1926936	63A04RS90SD12DG	63	22	—	50	40	9,2	4	0,50	18300
1926933	63A05RS90SD12DG	63	22	—	50	40	9,2	5	0,50	18300
1926901	80A05RS90SD12DG	80	27	—	60	50	9,2	5	1,00	16300
1926898	80A06RS90SD12DG	80	27	—	60	50	9,2	6	1,00	16300
1926841	100B06RS90SD12DG	100	32	—	80	50	9,2	6	1,60	14600
1926840	100B08RS90SD12DG	100	32	—	80	50	9,2	8	1,70	14600
1926839	125B07RS90SD12DG	125	40	—	90	63	9,2	7	2,80	13000
1926837	125B10RS90SD12DG	125	40	—	90	63	9,2	10	2,90	13000
1926836	160C08RS90SD12DG	160	40	67	100	63	9,2	8	4,30	11500
1926983	160C12RS90SD12DG	160	40	67	100	63	9,2	12	4,40	11500
1926942	200C11RS90SD12DG	200	60	102	130	63	9,2	11	6,80	10300
1926941	200C14RS90SD12DG	200	60	102	130	63	9,2	14	6,83	10300

NOTE: Standard milling cutters will accept insert nose radii up to 2mm without modification.

■ Spare Parts



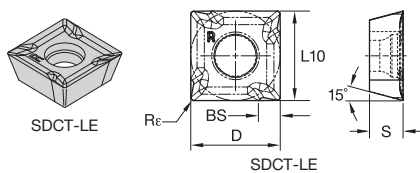
D1	insert screw	Nm	Torx Plus driver	shim	shim screw	hex driver	low-head cap screw	socket-head cap screw
50	MS2078	4,0	DT15IP	—	—	—	—	—
63	MS2078	4,0	DT15IP	—	—	—	129.025	—
80	MS2078	4,0	DT15IP	SM449	SRS3	DH35M	—	MS2038
100	MS2078	4,0	DT15IP	SM449	SRS3	DH35M	—	—
125	MS2078	4,0	DT15IP	SM449	SRS3	DH35M	—	—
160	MS2078	4,0	DT15IP	SM449	SRS3	DH35M	—	—
200	MS2078	4,0	DT15IP	SM449	SRS3	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

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



SDCT-LE

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDCT120404PDFLLE	12,70	4,76	12,70	2,70	0,4	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120404PDFRLE	12,70	4,76	12,70	2,70	0,4	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT1204PDFLLE	12,70	4,76	12,70	2,70	0,8	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT1204PDFRLE	12,70	4,76	12,70	2,70	0,8	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120412PDFLLE	12,70	4,76	12,70	2,70	1,2	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120412PDFRLE	12,70	4,76	12,70	2,70	1,2	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120416FNLE	12,70	4,76	12,70	-	1,6	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120420FNLE	12,70	4,76	12,70	-	2,0	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120424FNLE	12,70	4,76	12,70	-	2,4	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120432FNLE	12,70	4,76	12,70	-	3,2	0,02	4	●	-	-	-	-	-	-	-	-	-

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

- first choice
- alternate choice

Shoulder Milling

-

[illegible]

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KV3500
SDCT120404PDELLD2	12,70	4,76	12,70	2,70	0,4	0,04	4	-	-	-	●	-	-	-	-	-	-
SDCT120404PDERLD2	12,70	4,76	12,70	2,93	0,4	0,04	4	-	-	-	●	-	-	-	-	-	-
SDCT1204PDELLD2	12,70	4,76	12,70	3,32	0,8	0,04	4	-	-	-	●	-	-	-	-	-	-
SDCT1204PDERLD2	12,70	4,76	12,70	3,32	0,8	0,04	4	-	●	-	●	-	●	-	●	-	-
SDCT120412PDELLD2	12,70	4,76	12,70	3,05	1,2	0,04	4	-	-	-	●	-	-	-	-	-	-
SDCT120412PDERLD2	12,70	4,76	12,70	3,05	1,2	0,04	4	-	-	-	●	-	-	-	●	-	-
SDCT120416ENLD2	12,70	4,76	12,70	—	1,6	0,04	4	-	-	-	●	-	-	-	-	●	-
SDCT120420ENLD2	12,70	4,76	12,70	—	2,0	0,04	4	-	-	-	●	-	-	-	-	-	-
SDCT120424ENLD2	12,70	4,76	12,70	—	2,4	0,04	4	-	-	-	●	-	-	-	-	-	-
SDCT120432ENLD2	12,70	4,76	12,70	—	3,2	0,04	4	-	-	●	●	-	-	-	●	●	-
SDCT120464ENLD2	12,70	4,76	12,70	—	6,3	0,04	2	-	-	-	●	-	-	-	-	●	-

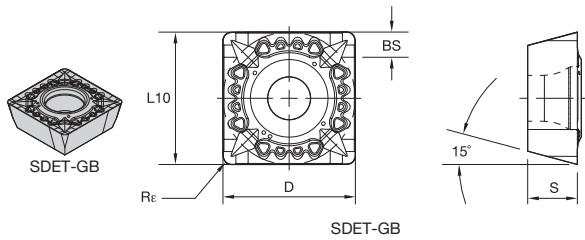
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catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KV3500
SDET1204PDELBGB2	12,70	4,76	12,70	3,32	0,8	0,08	4	-	●	-	●	●	●	-	-	-	-
SDET1204PDERGB2	12,70	4,76	12,70	3,32	0,8	0,08	4	-	●	-	●	●	●	●	-	●	-
SDET1204PDSLGB2	12,70	4,76	12,70	3,32	0,8	0,13	4	-	-	-	●	-	●	-	-	-	-
SDET1204PDSRGB2	12,70	4,76	12,70	3,32	0,8	0,13	4	-	●	-	●	●	●	●	-	-	-
SDET120412PDELBGB2	12,70	4,76	12,70	3,05	1,2	0,08	4	-	●	-	●	●	-	-	-	-	-
SDET120412PDERGB2	12,70	4,76	12,70	3,05	1,2	0,08	4	-	●	-	●	●	●	●	-	-	-
SDET120416SNGB2	12,70	4,76	12,70	—	1,6	0,13	4	-	●	-	●	●	●	-	-	-	-
SDET120420SNGB2	12,70	4,76	12,70	—	2,0	0,13	4	-	●	-	●	●	●	●	-	-	-
SDET120424SNGB2	12,70	4,76	12,70	—	2,4	0,13	4	-	-	-	●	●	●	-	-	-	-
SDET120432SNGB2	12,70	4,76	12,70	—	3,2	0,13	4	-	●	-	●	●	●	-	-	-	-
SDET120432XENGB2	12,70	4,76	12,70	—	3,2	0,08	2	-	-	-	●	-	-	-	-	-	-
SDET120464SNGB2	12,70	4,76	12,70	—	6,4	0,13	2	-	-	-	-	-	●	-	-	-	-

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

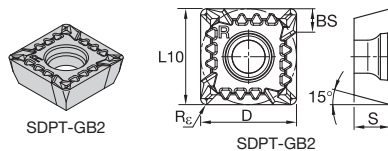
beyond

- first choice
- alternate choice



■ SDET-GB

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDET1204PDERGB	12,70	4,76	12,70	2,56	0,8	0,08	4	-	•	-	-	-	-	-	-	•	-
SDET1204PDSRGB	12,70	4,76	12,70	2,56	0,8	0,15	4	-	-	-	•	-	•	•	•	•	-
SDET120412PDERGB	12,70	4,76	12,70	2,19	1,2	0,08	4	-	-	-	•	-	-	•	-	•	-
SDET120412PDSRGB	12,70	4,76	12,70	2,16	1,2	0,15	4	-	-	-	•	-	-	-	-	•	-
SDET120416ENGB	12,70	4,76	12,70	—	1,6	0,08	4	-	-	-	-	-	-	-	-	•	-
SDET120416SNGB	12,70	4,76	12,70	—	1,6	0,15	4	-	-	-	•	-	-	-	-	•	-
SDET120424ENGB	12,70	4,76	12,70	—	2,4	0,08	4	-	-	-	•	-	-	-	-	•	-
SDET120424SNGB	12,70	4,76	12,70	—	2,4	0,15	4	-	-	-	•	-	-	-	-	•	-
SDET120432ENGB	12,70	4,76	12,70	—	3,2	0,08	4	-	-	-	•	-	-	-	-	•	-
SDET120432SNGB	12,70	4,76	12,70	—	3,2	0,15	4	-	-	-	•	-	-	-	-	•	-
SDET120448ENGB	12,70	4,76	12,70	—	4,8	0,08	2	-	-	-	•	-	-	-	-	•	-
SDET120448SNGB	12,70	4,76	12,70	—	4,8	0,15	2	-	-	-	•	-	-	-	-	•	-
SDET120464ENGB	12,70	4,76	12,70	—	6,4	0,08	2	-	-	-	•	-	-	-	-	•	-
SDET120464SNGB	12,70	4,76	12,70	—	6,4	0,15	2	-	-	-	•	•	-	•	•	•	-



■ SDPT-GB2

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDPT1204PDERGB2	12,70	4,76	12,70	2,70	0,8	0,08	4	-	-	-	•	•	•	•	-	•	-
SDPT1204PDSRGB2	12,70	4,76	12,70	2,70	0,8	0,13	4	-	-	-	•	•	•	•	-	•	-

Shoulder Milling

- first choice
- alternate choice

[illegible]

■ Recommended Starting Feeds [mm]

Recommended Starting Feeds [mm]											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	0,12	0,42	0,74	0,08	0,30	0,54	0,06	0,23	0,40	0,06	0,20	0,35	0,05	0,18	0,32	.F..LE
.E..LD	0,17	0,47	0,82	0,12	0,34	0,59	0,09	0,26	0,44	0,08	0,22	0,38	0,07	0,20	0,35	.E..LD
.E..LD2	0,12	0,46	0,81	0,09	0,33	0,58	0,07	0,25	0,43	0,06	0,22	0,38	0,05	0,20	0,35	.E..LD2
.E..GB	0,23	0,53	0,89	0,17	0,38	0,64	0,13	0,29	0,48	0,11	0,25	0,41	0,10	0,23	0,38	.E..GB
.E..GB2	0,23	0,53	0,89	0,17	0,38	0,64	0,13	0,29	0,48	0,11	0,25	0,41	0,10	0,23	0,38	.E..GB2
.S..GB	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GB
.S..GB2	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GB2
.S..GN	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GN

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

Leader in Advanced Face Milling Applications

Dodeka™ Mini

The Dodeka Mini series is the most comprehensive face milling booster on the market today and offers fast, accurate indexing — with only one screw!

It is the first choice for long-reach face milling applications, or light fixtures with up to 40% shorter machining cycle time. With a standard offering of 15°, 45°, and 60° in combination with Beyond™ premium milling grades, expect up to 35% better tool life in light to heavy machining.



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



kennametal.com

➤ 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 minimises vibration and chatter.

Features and Benefits

Features

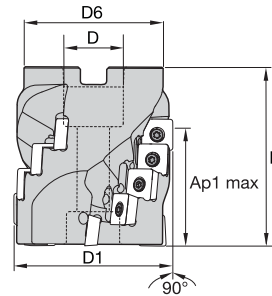
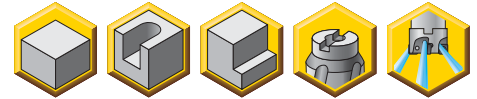
- Patented HARVI™ technology.
- Progressive helical rakes.
- Unique coolant supply.

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 per insert.



■ Shell Mills • Standard Pitch

order number	catalogue number	D1	D	D6	L	Ap1 max	Z	Z U	kg	max RPM
2400693	50A3RS90SD12L32	50	22	44	55	32,4	9	3	0,46	16400
2400694	63A3RS90SD12L50	63	27	55	70	51,2	15	3	1,00	14600
2400695	80A4RS90SD12L61	80	32	70	80	61,6	24	4	2,13	12950

■ Spare Parts

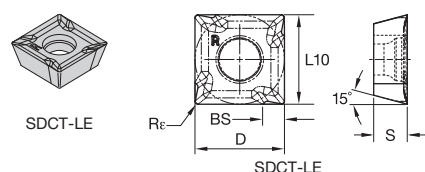


D1	insert screw	Nm	socket-head cap screw	Torx wrench
50	MS1273	4,0	MS1235	TT15
63	MS1273	4,0	MS1238	TT15
80	MS1273	4,0	MS1241	TT15

NOTE: Maximum nose radii of lead insert is 2,4mm for 50mm diameter cutter.
All subsequent inserts up the flutes should have a maximum nose radius of 0,8mm to avoid lap lines.
Standard milling cutters will accept insert nose radii up to 2mm without modification.

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	–	–	–	–	–	–	

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



- first choice
- alternate choice

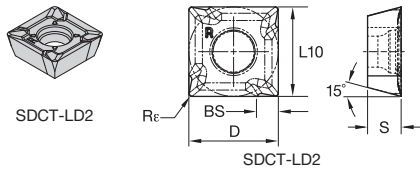
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■ SDCT-LE

catalogue number	D	S	L10	BS	R _ε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KV2500
SDCT120404PDFLLE	12,70	4,76	12,70	2,70	0,4	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120404PDFRLE	12,70	4,76	12,70	2,70	0,4	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT1204PDFLLE	12,70	4,76	12,70	2,70	0,8	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT1204PDFRLE	12,70	4,76	12,70	2,70	0,8	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120412PDFLLE	12,70	4,76	12,70	2,70	1,2	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120412PDFRLE	12,70	4,76	12,70	2,70	1,2	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120416FNLE	12,70	4,76	12,70	—	1,6	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120420FNLE	12,70	4,76	12,70	—	2,0	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120424FNLE	12,70	4,76	12,70	—	2,4	0,02	4	●	-	-	-	-	-	-	-	-	-
SDCT120432FNLE	12,70	4,76	12,70	—	3,2	0,02	4	●	-	-	-	-	-	-	-	-	-

Shoulder Milling

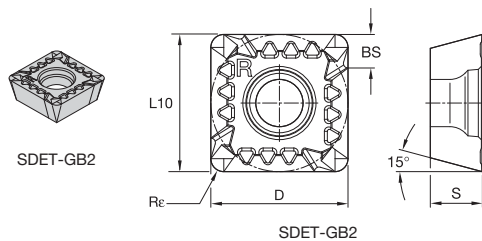
- Light and finish machining.
- Precision ground.
- 15° rake face.
- Four cutting edges.



SDCT-LD2

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDCT120404PDELLD2	12,70	4,76	12,70	2,70	0,4	0,04	4	-	-	-	•	-	-	-	-	-	-
SDCT120404PDERLD2	12,70	4,76	12,70	2,93	0,4	0,04	4	-	-	-	•	-	-	-	-	-	-
SDCT1204PDELLD2	12,70	4,76	12,70	3,32	0,8	0,04	4	-	-	-	•	-	-	-	-	-	-
SDCT1204PDERLD2	12,70	4,76	12,70	3,32	0,8	0,04	4	-	•	-	•	-	•	-	•	-	-
SDCT120412PDELLD2	12,70	4,76	12,70	3,05	1,2	0,04	4	-	-	-	•	-	-	-	-	-	-
SDCT120412PDERLD2	12,70	4,76	12,70	3,05	1,2	0,04	4	-	-	-	•	-	-	-	-	•	-
SDCT120416ENLD2	12,70	4,76	12,70	—	1,6	0,04	4	-	-	-	•	-	-	-	-	•	-
SDCT120420ENLD2	12,70	4,76	12,70	—	2,0	0,04	4	-	-	-	•	-	-	-	-	-	-
SDCT120424ENLD2	12,70	4,76	12,70	—	2,4	0,04	4	-	-	-	•	-	-	-	-	-	-
SDCT120432ENLD2	12,70	4,76	12,70	—	3,2	0,04	4	-	-	•	•	-	-	-	•	•	-
SDCT120464ENLD2	12,70	4,76	12,70	—	6,3	0,04	2	-	-	-	•	-	-	-	-	•	-

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



SDET-GB2

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KCK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDET1204PDELGB2	12,70	4,76	12,70	3,32	0,8	0,08	4	-	•	-	•	•	•	-	-	-	-
SDET1204PDERGB2	12,70	4,76	12,70	3,32	0,8	0,08	4	-	•	-	•	•	•	-	-	•	-
SDET1204PDSLGB2	12,70	4,76	12,70	3,32	0,8	0,13	4	-	-	-	•	-	•	-	-	-	-
SDET1204PDSRGB2	12,70	4,76	12,70	3,32	0,8	0,13	4	-	•	-	•	•	•	-	-	-	-
SDET120412PDELGB2	12,70	4,76	12,70	3,05	1,2	0,08	4	-	•	-	•	•	-	-	-	-	-
SDET120412PDERGB2	12,70	4,76	12,70	3,05	1,2	0,08	4	-	•	-	•	•	•	-	-	-	-
SDET120416SNGB2	12,70	4,76	12,70	—	1,6	0,13	4	-	•	-	•	•	•	-	-	-	-
SDET120420SNGB2	12,70	4,76	12,70	—	2,0	0,13	4	-	•	-	•	•	•	-	-	-	-
SDET120424SNGB2	12,70	4,76	12,70	—	2,4	0,13	4	-	-	-	•	•	•	-	-	-	-
SDET120432SNGB2	12,70	4,76	12,70	—	3,2	0,13	4	-	•	-	•	•	•	-	-	-	-
SDET120432XENGB2	12,70	4,76	12,70	—	3,2	0,08	2	-	-	-	•	-	-	-	-	-	-
SDET120464SNGB2	12,70	4,76	12,70	—	6,4	0,13	2	-	-	-	-	•	-	-	-	-	-

- first choice
- alternate choice



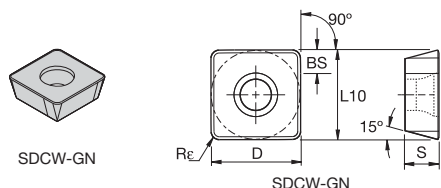
SDPT-GB2

SDPT-GB2

■ SDPT-GB2

catalogue number	D	S	L10	BS	Rε	hm	cutting edges	KC410M	KC520M	KC522M	KC725M	KK15	KCPK30	KCPM40	KCSM30	KCSM40	KY3500
SDPT1204PDERGB2	12,70	4,76	12,70	2,70	0,8	0,08	4	-	-	-	●	●	●	●	-	●	-
SDPT1204PDSRGB2	12,70	4,76	12,70	2,70	0,8	0,13	4	-	-	-	●	●	●	-	-	●	-

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



- first choice
- alternate choice

[illegible]

■ SDCW-GN

[illegible]

Recommended Starting Feeds

■ Recommended Starting Feeds [mm]

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	0,12	0,42	0,74	0,08	0,30	0,54	0,06	0,23	0,40	0,06	0,20	0,35	0,05	0,18	0,32	.F..LE
.E..LD	0,17	0,47	0,82	0,12	0,34	0,59	0,09	0,26	0,44	0,08	0,22	0,38	0,07	0,20	0,35	.E..LD
.E..LD2	0,12	0,46	0,81	0,09	0,33	0,58	0,07	0,25	0,43	0,06	0,22	0,38	0,05	0,20	0,35	.E..LD2
.E..GB	0,23	0,53	0,89	0,17	0,38	0,64	0,13	0,29	0,48	0,11	0,25	0,41	0,10	0,23	0,38	.E..GB
.E..GB2	0,23	0,53	0,89	0,17	0,38	0,64	0,13	0,29	0,48	0,11	0,25	0,41	0,10	0,23	0,38	.E..GB2
.S..GB	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GB
.S..GB2	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GB2
.S..GN	0,23	0,59	0,95	0,17	0,43	0,68	0,13	0,32	0,51	0,11	0,28	0,44	0,10	0,25	0,41	.S..GN

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

➤ 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 = 50mm diameter with a_p 51mm or 80mm

5230VS12:

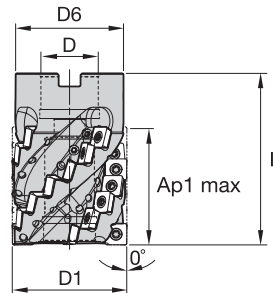
(a_p max is determined by selection of cutter diameter)

Diameter range and maximum a_p = 63mm diameter with a_p 57mm or 94mm

80mm diameter with a_p 65mm or 110mm

100mm diameter with a_p 76mm or 133mm

- High material removal rates in titanium and high-temperature alloys.
- Chevron design improves stability and lowers power consumption.
- Insert positioning provide 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.

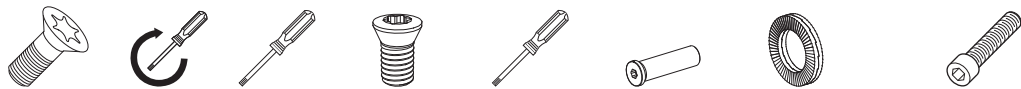


Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Ap2 max	Z	Z U
5672876	5230VS09-A050Z4R51	50	27	48	76	51	44	28	4
5673801	5230VS09-A050Z4R80	50	27	48	106	80	—	44	4

NOTE: Ap2 max is the max Ap for slotting.

Spare Parts

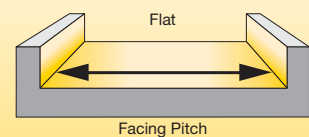


order number	D1	insert screw	Nm	Torx driver	coolant control screw	Torx driver	steel coolant plug	nord lock washer	socket-head cap screw
5672876	50	F3508T	2,1	T15	F3006T	T9	SB3413	NLW-0.375	M12 X 1.75 X 30 SHCS
5673801	50	F3508T	2,1	T15	F3006T	T9	SB3621	NLW-0.375	M12 X 1.75 X 30 SHCS

NOTE: 59–74 ft. lbs. change to 80–100 Nm.
25 ft. lbs. change to 34 Nm.

5230VS09 Technical Information (mm)

Product		Dimension				
EDP	Item Description	Facing Pitch	Ramping Angle°	Helical Hole min.-max.	ap max Helical/Linear	Max RPM
031419	5230VS09-A050Z4R51	50	—	—	—	32500
031603	5230VS09-A050Z4R80	50	—	—	—	32500

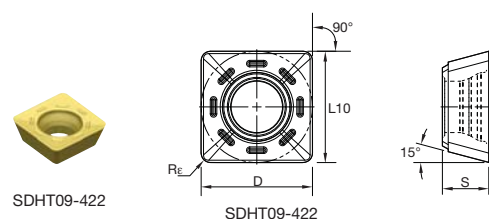


Shoulder Milling

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	–	–	–	–	–	–		

Milling Inserts



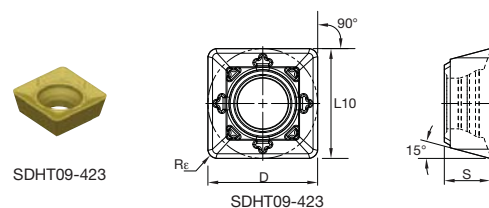
● first choice
○ alternate choice

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

SDHT09-422

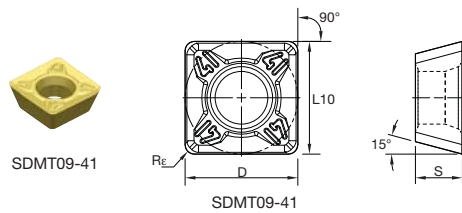
catalogue number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDHT09T308EN422	9,53	9,53	3,97	0,8	0,03	4	●	-	●	●
SDHT09T3AEEN422	9,53	9,53	3,97	-	0,05	4	-	-	●	-

Shoulder Milling



SDHT09-423

catalogue number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDHT09T308EN423	9,53	9,53	3,97	0,8	0,04	4	●	-	●	●

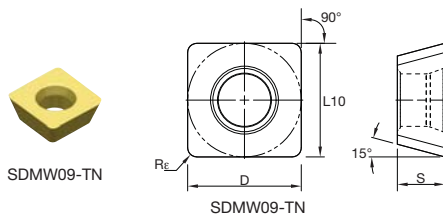


● first choice
○ alternate choice

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

SDMT09-41

catalogue number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDMT09T308EN41	9,52	9,52	3,97	0,8	0,05	4	●	●	●	●



SDMW09-TN

catalogue number	D	L10	S	Rε	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDMW09T308TN	9,53	9,53	3,96	0,8	0,11	4	●	○	○	○

Recommended Starting Feeds

Recommended Starting Feeds [mm]

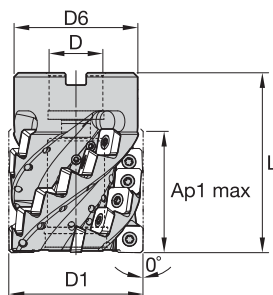
Light Machining	General Purpose	Heavy Machining
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Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
	5%			10%			20%			30%			40–100%			
.E..422	0,12	0,47	0,75	0,08	0,34	0,54	0,06	0,26	0,41	0,06	0,22	0,35	0,05	0,20	0,32	.E..422
.E..423	0,13	0,46	0,74	0,09	0,33	0,54	0,07	0,25	0,40	0,06	0,22	0,35	0,06	0,20	0,32	.E..423
.E..41	0,16	0,52	0,82	0,12	0,38	0,59	0,09	0,28	0,44	0,08	0,25	0,38	0,07	0,23	0,35	.E..41
...TN	0,23	0,59	0,89	0,17	0,43	0,64	0,13	0,32	0,48	0,11	0,28	0,41	0,10	0,25	0,38	...TN

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

Shoulder Milling

- 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 provides constant chip evacuation and temperature stability in the cutting zone.



■ Shell Mills

order number	catalogue number	D1	D	D6	L	Ap1 max	Ap2 max	Z	Z U
5672864	5230VS12-A063Z4R57	63	27	58	85	57	52	24	4
5673167	5230VS12-A063Z4R94	63	27	58	124	94	—	40	4
5672883	5230VS12-A080Z5R65	80	32	74	95	65	60	35	5
5673236	5230VS12-A080Z5R110	80	32	74	143	110	—	60	5
5673742	5230VS12-A100Z6R76	100	40	94	106	76	70	48	6
5673169	5230VS12-A100Z6R133	100	40	94	165	133	—	84	6

NOTE: Ap2 max is the max Ap for slotting.

■ Spare Parts

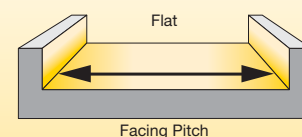


D1	Z	insert screw	Nm	Torx driver	coolant control screw	Torx driver	steel coolant plug	nord lock washer	socket-head cap screw
63	24	F4011T	3,1	T20	F3006T	T9	SB3229	NLW-0.375	M12 X 1.75 X 30 SHCS
63	40	F4011T	3,1	T20	F3006T	T9	SB3230	NLW-0.375	M12 X 1.75 X 30 SHCS
80	35	F4011T	3,1	T20	F3006T	T9	SB3231	NLW12SP	M16 X 2 X 40 SHCS
80	60	F4011T	3,1	T20	F3006T	T9	SB3232	NLW12SP	M16 X 2 X 40 SHCS
100	48	F4011T	3,1	T20	F3006T	T9	SB3233	NLW-16SP	M20 X 2.5 X 50 SHCS
100	84	F4011T	3,1	T20	F3006T	T9	SB3234	NLW-16SP	M20 X 2.5 X 50 SHCS

NOTE: Tighten mounting bolt on 63mm cutters to 80–100 Nm, 80mm cutters to 110–150 Nm, and 100mm cutters to 120–180 Nm.
Tighten steel coolant plug to 34 Nm for 63mm cutters and 61 Nm for 80 and 100mm cutters.

5230VS12 Technical Information (mm)

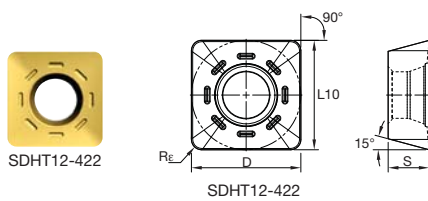
Product		Dimension					
EDP	Item Description	Facing Pitch	Ramping Angle°	Helical Hole min.-max.	a_p max Helical/Linear	Max RPM	
31228	5230VS12-A063Z4R57	63	—	—	—	21000	
31229	5230VS12-A063Z4R94	63	—	—	—	21000	
31604	5230VS12-A080Z5R65	80	—	—	—	18500	
31605	5230VS12-A080Z5R110	80	—	—	—	18500	
31232	5230VS12-A100Z6R76	100	—	—	—	16000	
31233	5230VS12-A100Z6R133	100	—	—	—	16000	



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

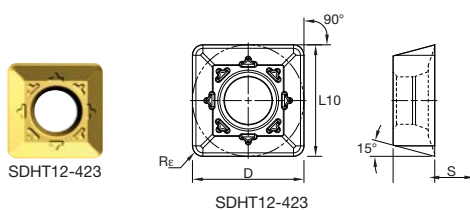


● first choice
○ alternate choice

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

SDHT12-422

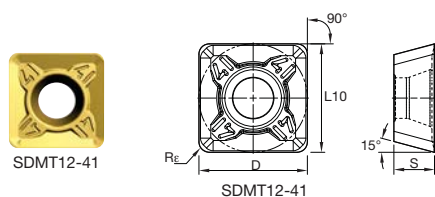
catalogue number	D	L10	S	Re	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDHT120412EN422	12,70	12,70	4,75	1,2	0,05	4	●	-	●	●



SDHT12-423

catalogue number	D	L10	S	Re	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDHT120412EN423	12,70	12,70	4,75	1,2	0,06	4	●	-	●	●

Shoulder Milling

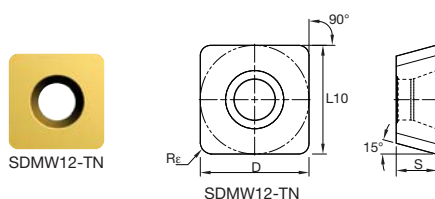


● first choice
○ alternate choice

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

SDMT12-41

catalogue number	D	L10	S	Re	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDMT120412EN41	12,70	12,70	4,75	1,2	0,05	4	●	●	●	●



SDMW12-TN

catalogue number	D	L10	S	Re	hm	cutting edges	KCSM40	MP91M	SP6519	X500
SDMW120412TN	12,70	12,70	4,76	1,2	0,06	4	●	●	●	●

Recommended Starting Feeds

Recommended Starting Feeds [mm]

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	0,16	0,52	0,87	0,12	0,38	0,63	0,09	0,28	0,47	0,08	0,25	0,41	0,07	0,23	0,38	.E..422
.E..41	0,16	0,52	0,87	0,12	0,38	0,63	0,09	0,28	0,47	0,08	0,25	0,41	0,07	0,23	0,38	.E..41
.E..423	0,20	0,59	0,95	0,14	0,43	0,68	0,11	0,32	0,51	0,09	0,28	0,44	0,08	0,25	0,41	.E..423
...TN	0,20	0,59	0,95	0,14	0,43	0,68	0,11	0,32	0,51	0,09	0,28	0,44	0,08	0,25	0,41	...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: Programme 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)

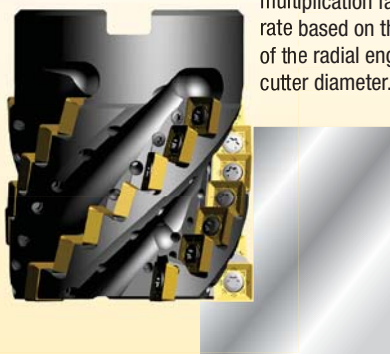
$$h_m = f_z \times \sqrt{\frac{a_e}{d}}$$

h_m Correction Coefficient Chart

Cutter Ø 50mm			Cutter Ø 63mm			Cutter Ø 80mm			Cutter Ø 100mm		
ae%	ae (mm)	Coefficient Factor	ae%	ae (mm)	Coefficient Factor	ae%	ae (mm)	Coefficient Factor	ae%	ae (mm)	Coefficient Factor
5	2,50	2,30	5	3,15	2,30	5	4,00	2,30	5	5,00	2,30
10	5,00	1,66	10	6,30	1,66	10	8,00	1,66	10	10,00	1,66
15	7,5	1,40	15	9,45	1,40	15	12,00	1,40	15	15,00	1,40
20	10,00	1,25	20	12,60	1,25	20	16,00	1,25	20	20,00	1,25
25	12,50	1,16	25	15,75	1,16	25	20,00	1,16	25	25,00	1,16
35	17,50	1,05	35	22,05	1,05	35	28,00	1,05	35	35,00	1,05
50-100	25,00-50,00	1,00	50-100	31,50-63,00	1,00	50-100	40,00-80,00	1,00	50-100	50,00-100,00	1,00

Example: A 50mm diameter cutter using 5,00mm radial engagement (a_e) = 10% of the cutter diameter.

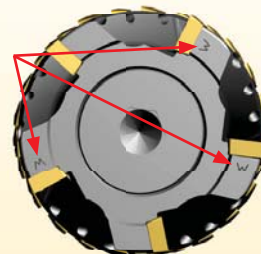
At 10%, your coefficient is 1,66 (see above table); therefore you must multiply your feed rate by 1,66 for correcting the feed for profiling.



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 utilised in all pockets.



Pockets setting difference between wiper and non-wiper inserts.
 NOTE: The true cutter diameter is measured at the non-wiper pockets.

0,15mm
 0,6°
 0,13mm



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 (mm)	Number of Wiper Inserts
50	2
63	2
80	3
100	3

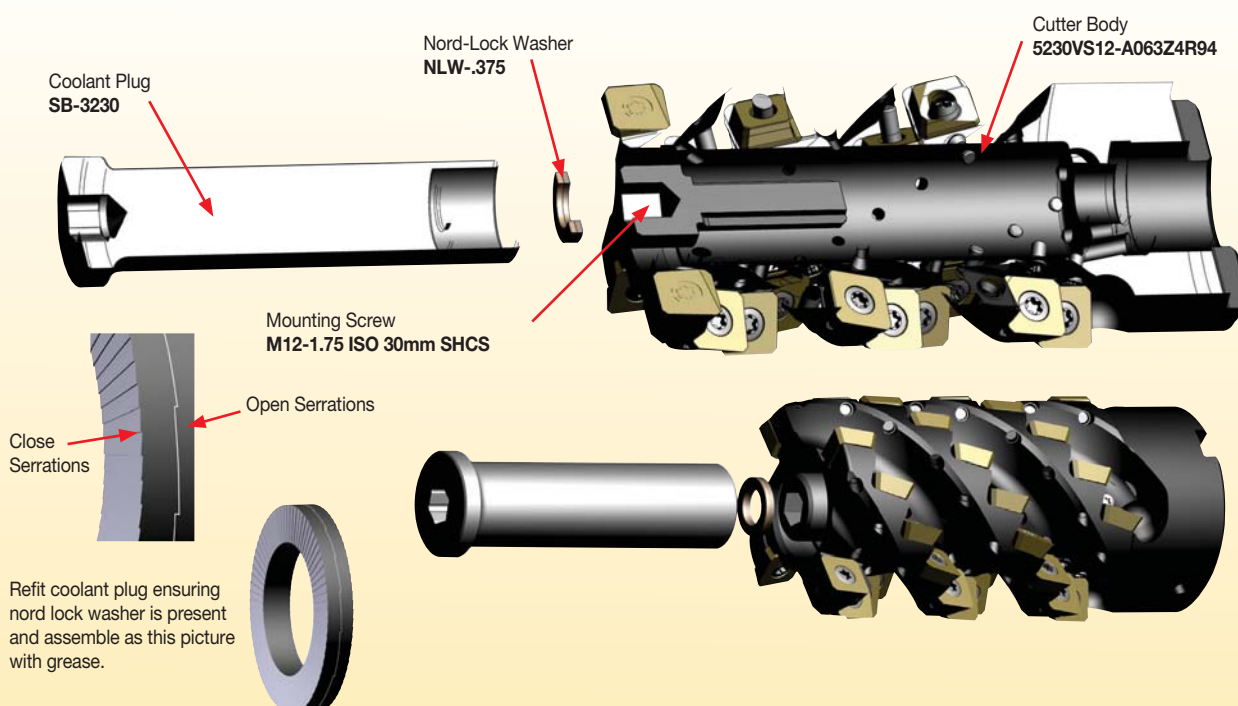
5230VS09 and 5230VS12 Fitting Instructions for Shell Mill Cutters

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 adaptor, 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: 5230VS12-A063Z4R94 assembly



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 adaptor 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 T123.
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 T123.
5. *NOTE: If axial depth of cut (a_p) is less than 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 Nm for Mounting Bolt		Coolant Plug Description	Coolant Plug tightening Nm
		Normal Condition	Excessive Condition		
5230VS09-A050Z4R51	M12-1.75 ISO x 30mm SHCS	80	100	SB-3413	34
5230VS09-A050Z4R80				SB-3621	

5230VS12	Detail 1			Detail 2	
Cutter	Mounting Bolt Description	Torque Values in Nm for Mounting Bolt		Coolant Plug Description	Coolant Plug tightening Nm
		Normal Condition	Excessive Condition		
5230VS12-A063Z4R57	M12-1.75 ISO x 30mm SHCS	80	100	SB-3229	34
5230VS12-A063Z4R94				SB-3230	
5230VS12-A080Z5R65	M16-2 ISO x 40mm SHCS	110	150	SB-3231	61
5230VS12-A080Z5R110				SB-3232	
5230VS12-A100Z6R76	M20-2.5 ISO x 50mm SHCS	120	180	SB-3233	61
5230VS12-A100Z6R133				SB-3234	

Mounting Bolt Hex Keys



M12 = Hex Key Size 10

M16 = Hex Key Size 14

M20 = Hex Key Size 17