INNOVATIONS **CATALOGUE**

Beyond™ Evolution™

METRIC

www.kennametal.com

KENNAMETAL®

Industry Leader

After investing more than four years of research and development, Kennametal proudly introduces Beyond™ Evolution™. Built on simplicity, our industry experts engineered a system that challenges today's approach to grooving and cut-off.

Kennametal Introduces **Grooving and Cut-Off**

The Grooving and Cut-Off Market Is Evolving

Choosing the right tooling can be difficult and time consuming. This is why "easy-to-choose, easy-to-use" became the foundation for Beyond™ Evolution™. The Kennametal high-performance system with ultimate flexibility increases profitability for customers who expect more.

Simplicity

Unwilling to sacrifice performance or applications, Beyond™ Evolution™ became the first portfolio in the market to compete in all grooving and cut-off applications with up to 35% less tooling than our competitors.

the Most Brilliant Solution in the Industry —

beyond™ EVOLUTION™

Turn up the Heat

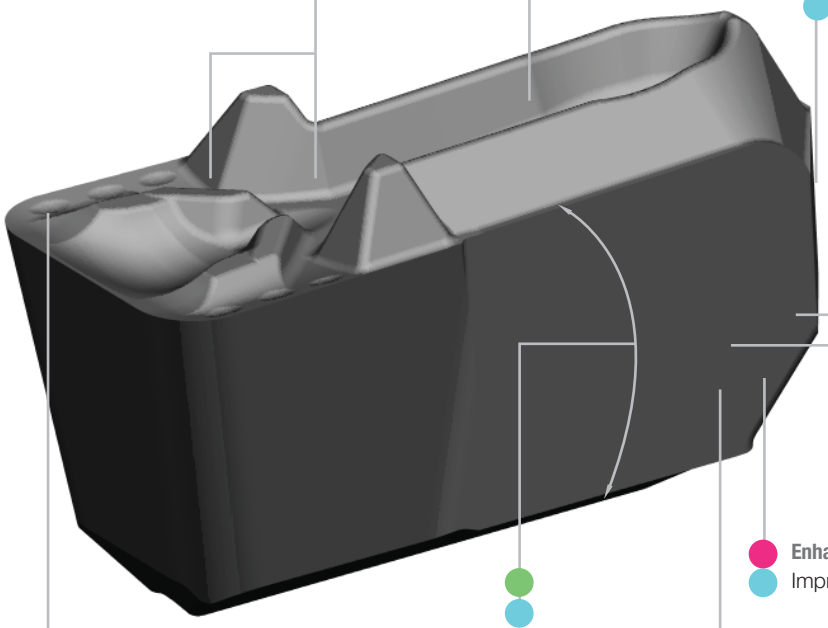
If your coolant delivery is typical to the market, you may be applying more heat to your insert than you think, and reducing insert life. The Beyond™ Evolution™ proprietary coolant delivery directs coolant precisely to the cutting edges underneath the chip — the best method for heat removal in grooving and cut-off applications.

One versatile grooving and cut-off system

Coolant channel on rake and pocket
First system on the market with active coolant distribution, providing coolant directly to the minor edge and radius.

Proprietary negative chip geometry
Added chip control in steel, cast, stainless, and hardened materials.

Single-ended design
Deeper grooving capability than double-ended systems.



Proprietary V back seating design
Provides high side load stability comparable to longer double-ended inserts.

Positive back stop
Enables easy indexing.

Triple-V feature
High stability for grooving, cut-off, side turning, deep grooving, face grooving, and profiling applications.

Enhanced body edge design
Improved seating stability.

Angle between top and bottom V
Creates a pull-in effect, securing the insert tighter in the pocket.

Wide range of insert offering
1,4–10mm (.055–.394")
PVD, CVD, and uncoated.

Industry-leading grade technologies
Proven performance in all materials.

Full range of holders
Use one system to select the right tooling for all grooving and cut-off applications.

that reduces inventory.

If you are a **Various Component Producer**

Challenge
- Reduce setup time.
- Selecting the right tool for the job.
- Using fewer tools to complete the job.
- Reduce tooling inventory.

Solution
- Versatility:
  - Holders, inserts, chipbreakers, and grades.
  - Same pocket for many operations.
- Choose from one system.
- Indexability.

If you are a High **Volume Production Shop**

Challenge
- Increase machine uptime.
- Reduce setup time.
- Lower cost per part.
- Freeing up production capacity.

Solution
- Functional stability.
- Grade, chip control, coolant — MRR and automation.
- Clean and consistent cutting tool edge.
- Indexability.
- Versatility — more operations with the same pocket.

If **Workpiece Finish and Accuracy** is most important to you

Challenge
- Better surface finish.
- Tool consistency.
- Machining accuracy.
- Selecting the right tool.

Solution
- Functional stability — Triple V clamping and three-point contact.
- Process stability — chipbreaker, grade, and coolant.
- Easy to index — clamping and positive back stop.
- Easy to chose from one system — full range of widths and holder styles, chipbreakers, grades, and radii.

One system capable of all grooving and cut-off applications —

beyond™ EVOLUTION™

Insert Offering with ultimate flexibility —

GUP — Grooving Universal Positive
- Positive chipbreaker lowers cutting forces.
- Engineered geometry for chip control in side turning.
- High performance in all materials.

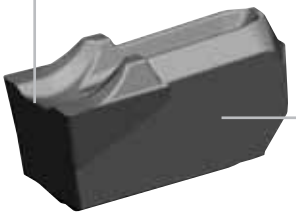
GUN — Grooving Universal Negative
- Negative rake face for strongest cutting edge.
- More aggressive applications.
- Advantages in low-feed and depth-of-cut applications.

Full Radius
- First choice in profiling.
- >180° cutting edge.
- High performance in all materials.

CL — Cut-Off Low Speed
- Most aggressive chipbreaker.
- For use in long chipping materials.
- Problem solver.

CF — Cut-Off Fine
- Positive chipbreaker lowers cutting forces.
- First choice for steel and stainless steel.
- Excellent surface finish.

CR — Cut-Off Rough
- Strong chip control due to concave edge.
- First choice in steel when additional stability is required.
- Can apply most aggressive feed rates.



CM — Cut-Off Medium
- Ultimate solution in edge stability.
- Leverage for interrupted cuts or hardened skin.
- First choice for cast iron.

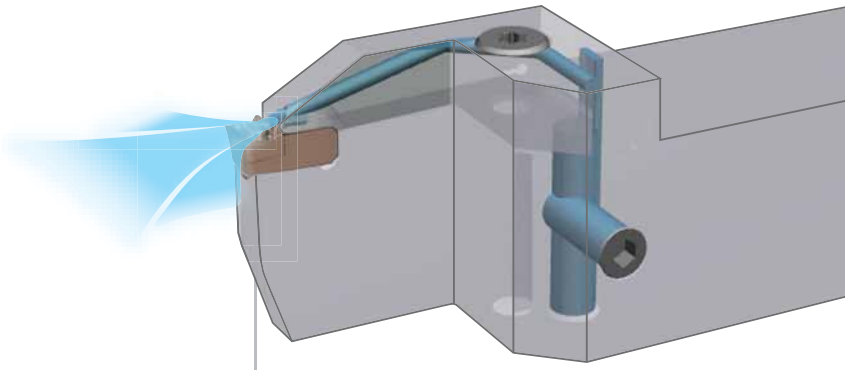
Any insert in any holder by simply matching the seat size.

Up to 35% less tooling vs. the competition

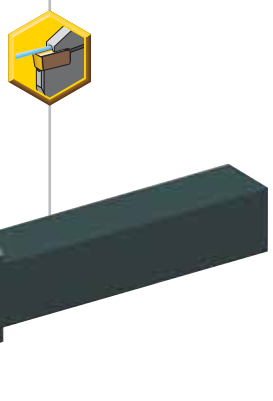
beyond™ EVOLUTION™

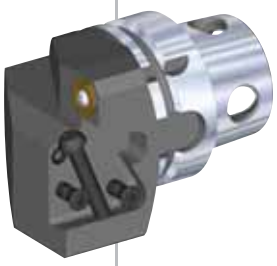
Easy-to-choose, easy-to-use —

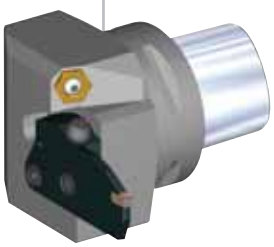
Efficient coolant delivery

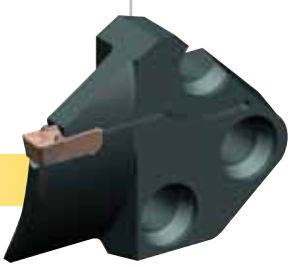


Modular with through coolant





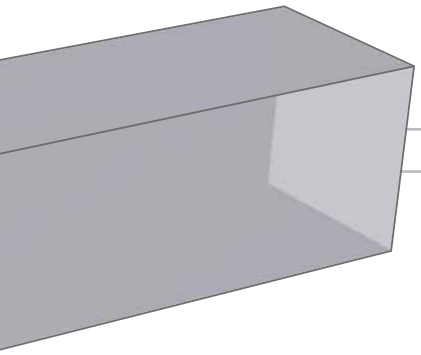




Coming Soon

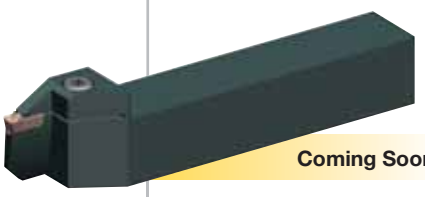
beyond™ EVOLUTION™

high-performance system.

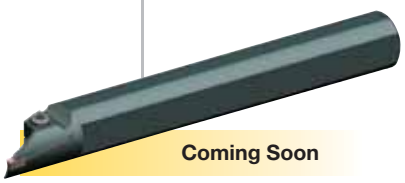


Face grooving
with through coolant

I.D. Boring Bar

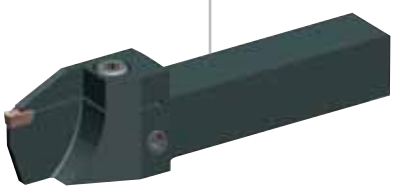


Coming Soon

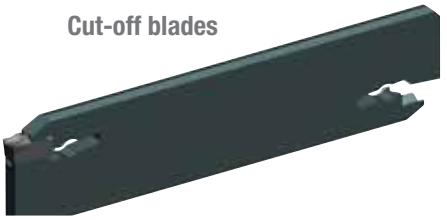


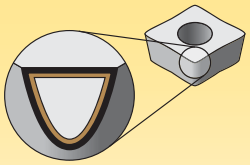
Coming Soon

Square shank
with through coolant



Cut-off blades



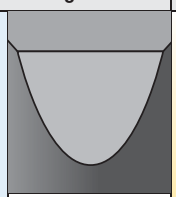
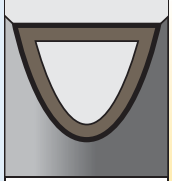
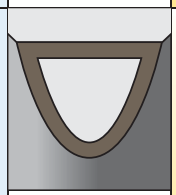


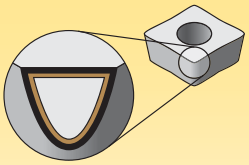
Coatings provide high-speed capability and are engineered for finishing to light roughing.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ⟷ toughness

Grade

Coating		Grade Description		05	10	15	20	25	30	35	40	45
K313	 C3–C4	**Composition:** A hard, low binder content, unalloyed WC/Co fine-grain grade. **Application:** Exceptional edge wear resistance combined with very high strength for machining titanium, cast irons, austenitic stainless steels, non-ferrous metals, non-metals, and most high-temp alloys. Superior thermal deformation and depth-of-cut notch resistance. The grain structure is well controlled for minimal pits and flaws, which contributes to long, reliable service.										
			M									
			K									
			N									
			S									
KCU10	 C3–C4	**Composition:** An advanced multilayer PVD coating over a very deformation-resistant unalloyed carbide substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. **Application:** The KCU10™ grade is ideal for finishing to general machining of most workpiece materials at a wide range of speed and feed capabilities. Excellent for machining most steels, stainless steels, cast irons, non-ferrous materials, and super alloys with improved edge toughness and higher cutting speed/feed capability.	P									
			M									
			K									
			N									
			S									
			H									
KCU25	 C2, C6	**Composition:** An advanced PVD grade with hard AlTiN coating and fine-grain unalloyed substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. **Application:** The KCU25™ grade is ideal for general machining of most steels, stainless steels, high-temp alloys, titanium, irons, and non-ferrous materials in a wide range of speeds and feeds with improved edge toughness for interrupted cuts and high feed rates.	P									
			M									
			K									
			N									
			S									

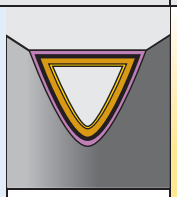
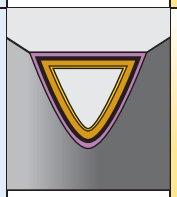
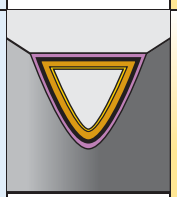


Coatings provide high-speed capability and are engineered for finishing to light roughing.

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ⟷ toughness

Grade

Coating		Grade Description		05	10	15	20	25	30	35	40	45
KCP10B	 C3, C7	**Composition:** A specially engineered wear-resistant carbide grade with a newly designed multilayer MTCVD-TiCN-Al_2O_3-TiOCN coating with superior interlayer adhesion. **Application:** An excellent finishing to medium machining grade for a variety of workpiece materials, including most steels, ferritic, martensitic, and PH stainless steels, and cast irons. The cobalt-enriched substrate offers a balanced combination of deformation resistance and edge toughness, while the thick coating layers offer outstanding abrasion resistance and crater wear resistance for high-speed machining. Smooth coating provides resistance to edge build-up and microchipping and produces excellent surface finishes.	P		■	■	■					
			K					■	■			
KCP25B	 C2-C3, C6-C7	**Composition:** A tough cobalt-enriched carbide grade with a newly designed multilayer MTCVD-TiCN-Al_2O_3-TiOCN coating with superior interlayer adhesion. **Application:** Best general-purpose turning grade for most steels and ferritic and martensitic stainless steels. The substrate design ensures adequate deformation resistance with excellent insert edge strength. Coating layers offer good wear resistance over a wide range of machining conditions and the post-coat treatment minimises microchipping and improves coating adhesion to substrate leading to long tool life and improved workpiece finishes.	P					■	■	■		
			K						■	■	■	
KCK20B	 C3, C4	**Composition:** A multilayered coating with thick MTCVD TiCN-Al_2O_3-TiOCN layers applied over a carbide substrate specifically engineered for cast irons. **Application:** Delivers consistent performance in high-speed machining of grey and ductile irons. The substrate design permits the insert to stay in the cut for a long time at high speeds with minimum deformation. The thick CVD coating and post-coat treatment provide superior wear resistance ensuring long and consistent tool life. Can be applied both in straight and lightly interrupted cuts.	P	■	■							
			K			■	■	■	■			

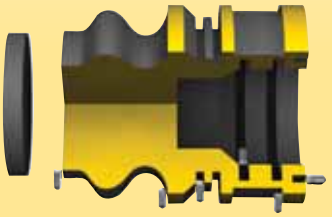
Step 1 • Identify your grooving or cut-off application

What you need to know:

- Groove depth, width, and profile.
- Material being machined.
- Application to be performed (O.D. and I.D. grooving, turning, face grooving, and cut-off).
- Shank size requirements of the machine.

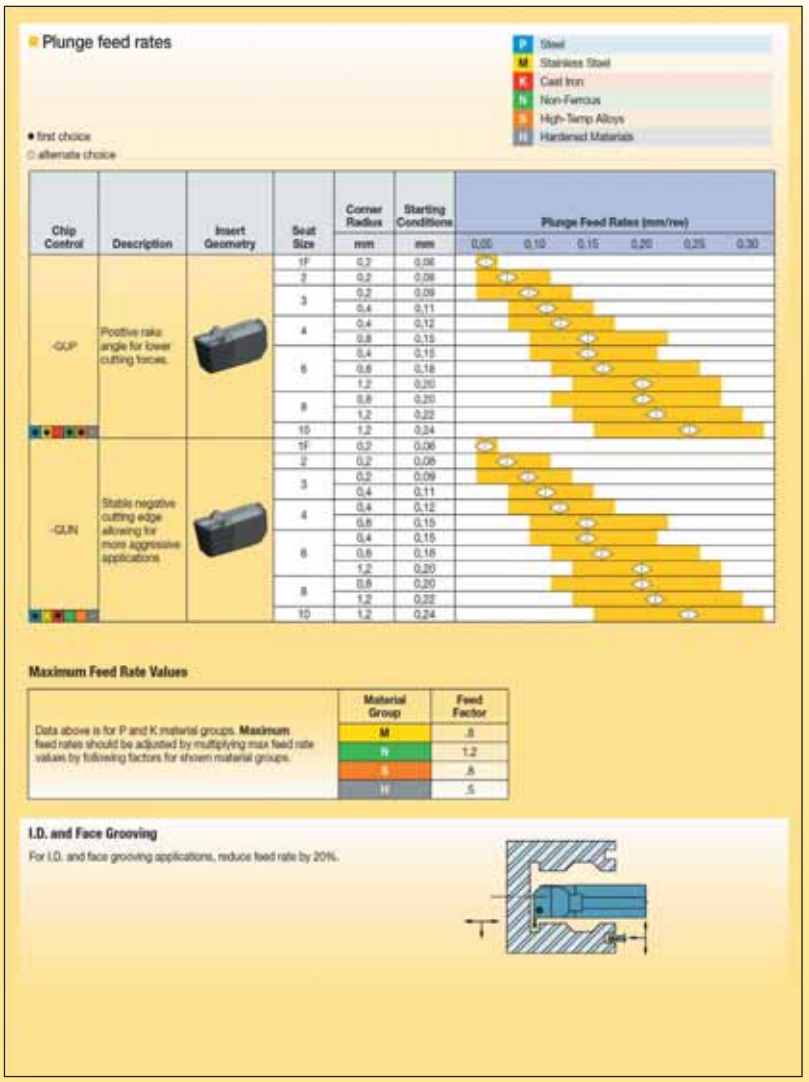
General Recommendation to Select the Insert Size

for workpiece diameters	insert seat size
<25mm	3
25–50mm	4
>50mm	5–10



Step 2 • Select chipbreaker style and feed rate

Based on the application and seat size, determine the recommended geometry and starting feed rate.



Plunge feed rates

P Steel
M Stainless Steel
K Cast Iron
N Non-Ferrous
S High-Temp Alloys
H Hardened Materials

• first choice
○ alternate choice

Chip Control	Description	Insert Geometry	Seat Size	Corner Radius mm	Starting Conditions mm	Plunge Feed Rates (mm/rev) 0,05 0,10 0,15 0,20 0,25 0,30
-GUP	Positive rake angle for lower cutting forces.		1F	0,2	0,06	•
			2	0,2	0,08	•
			3	0,2	0,09	•
				0,4	0,11	○
			4	0,4	0,12	•
				0,8	0,15	○
			6	0,4	0,15	•
				0,8	0,18	○
				1,2	0,20	○
			8	0,8	0,20	•
				1,2	0,22	○
			10	1,2	0,24	•
-GUN	Stable negative cutting edge allowing for more aggressive applications		1F	0,2	0,06	•
			2	0,2	0,08	•
			3	0,2	0,09	•
				0,4	0,11	○
			4	0,4	0,12	•
				0,8	0,15	○
			6	0,4	0,15	•
				0,8	0,18	○
				1,2	0,20	○
			8	0,8	0,20	•
				1,2	0,22	○
			10	1,2	0,24	•

Maximum Feed Rate Values

Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.

Material Group	Feed Factor
M	.8
N	1.2
S	.6
H	.5

I.D. and Face Grooving

For I.D. and face grooving applications, reduce feed rate by 20%.

Step 3 • Select the starting speed

Based on material and grade, identify starting speed (vc). First choice is in **bold** type.

Recommended Starting Speeds [m/min]

Material Group		K313			KCU10			KCU25			KCP10B			KCP25B			KCK20B		
														A					
P	0-1	–	**–**	–	140	**280**	335	110	**225**	270	185	**400**	450	145	**290**	365	200	**440**	490
	2	–	**–**	–	140	**200**	245	110	**160**	195	185	**270**	350	145	**200**	305	200	**300**	380
	3	–	**–**	–	140	**155**	245	110	**125**	195	170	**190**	260	140	**155**	245	600	**200**	280
	4	–	**–**	–	75	**110**	170	60	**90**	135	90	**145**	200	75	**110**	180	100	**160**	220
	5	–	**–**	–	120	**200**	260	100	**160**	210	150	**220**	305	120	**200**	270	165	**240**	330
	6	–	**–**	–	110	**150**	230	85	**120**	185	120	**180**	275	110	**150**	230	130	**190**	300
M	1	60	**90**	120	140	**210**	260	90	**170**	245	–	**–**	–	–	**–**	–	–	**–**	–
	2	45	**75**	110	120	**200**	245	90	**150**	245	–	**–**	–	–	**–**	B –	–	**–**	–
	3	35	**65**	100	120	**180**	245	90	**140**	210	–	**–**	–	–	**–**	–	–	**–**	–
K	1	30	**75**	120	120	**180**	245	100	**145**	195	170	**245**	440	140	**200**	360	210	**305**	550
	2	25	**70**	110	90	**150**	210	70	**120**	170	120	**195**	340	100	**160**	280	150	**245**	430
	3	20	**60**	90	60	**110**	150	50	**85**	120	120	**170**	270	100	**140**	220	150	**210**	335

Step 4 • Select toolholder based on application

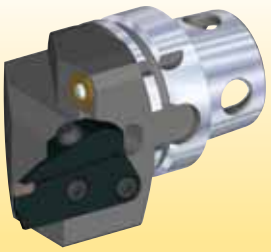
Choose the high-performance holder based on your specific grooving or cut-off application, with the corresponding seat size.

Style		Application
	Boring Bar	• For use in I.D. grooving applications.
	Cut-Off Blade	• Allows user to vary the depth of cut.
	Toolholder — Integral	• Offers the most stability over other styles.
	Toolholder — Modular	• Interchangeable blades for versatility.
	KM™ — Modular **KM4X™ — Modular**	• Best-in-class KM Quick Change platform.
	PSC — Modular	• The modular system in the PSC Quick Change platform.

Step 5 • Select the insert and holder from catalogue page

Congratulations!

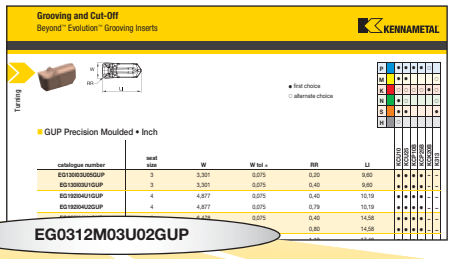
You have successfully maximised your productivity by selecting the best insert geometry, grade, and cutting specifications for your application!



Turning

How Do Catalogue Numbers Work?

Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



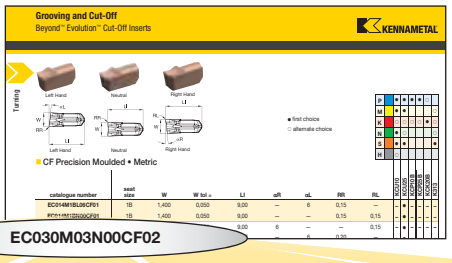
E	G	0312	M	03	U	02	GUP
Family Name	Insert Type	Groove Width	Unit	Seat Size	Tolerance	Corner Radius	Chipbreaker/ Edge Condition
Beyond™ Evolution™	**G** = Square **R** = Full Radius	**Metric** = 1/100mm	**M** = Metric		**U** = Precision Moulded **P** = Precision Ground		**GUP** = Groove-Turn Universal Positive **GUN** = Groove-Turn Universal Negative **FB** = Flat Top Blank **PB** = Positive Chip Control Blank

seat size	groove width mm
1B	1,40
1F	1,60–1,99
02	2,00–2,99
03	3,00–3,99
04	4,00–4,99
05	5,00–5,99
06	6,00–7,99
08	8,00–8,99
10	9,00–10,12

mm	
00	full radius
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2

How Do Catalogue Numbers Work?

Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



EC030M03N00CF02

E	C	030	M	03	N	00	CF	02
Family Name	Insert Type	Cutting Edge Width	Unit	Seat Size	Hand of Insert	Approach Angle	Chipbreaker	Corner Radius
Beyond™ Evolution™	**C** = Cut-Off		**M** = Metric		**N** = Neutral **L** = Left hand **R** = Right hand	**00** = Neutral **06** = 6°	**CL** = Cut-Off Low Feed **CF** = Cut-Off Fine **CM** = Cut-Off Medium **CR** = Cut-Off Rough	

	mm
014	1,4
020	2,0
030	3,0
040	4,0
050	5,0
060	6,0
070	7,0
080	8,0

	mm
014	1,4
020	2,0
030	3,0
040	4,0
050	5,0
060	6,0
070	7,0
080	8,0

	mm
01	0,1
02	0,2
04	0,4

Select the geometry

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

● first choice
○ alternate choice

Chip Control	Description	Insert Geometry	Seat Size	Corner Radius mm	Starting Conditions mm	Plunge Feed Rates mm/rev 0,05	0,10	0,15	0,20	0,25	0,30
-GUP ● ● ● ● ● ○	Positive rake angle for lower cutting forces.		1F	0,2	0,06						
			2	0,2	0,08						
			3	0,2	0,09						
				0,4	0,11						
			4	0,4	0,12						
				0,8	0,15						

Pictorial View of Insert

Seat Size

Corner Radius

Recommended Starting Feed Rate

Recommended Feed Rate Range

Plunge Feed Rates

Primary Workpiece Material Group

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

● first choice
○ alternate choice

Chip Control Geometry Designation

Maximum Feed Rate Values

Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.

Material Group	Feed Factor
M	.8
N	1.2
S	.8
H	.5

Plunge feed rates

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

● first choice
○ alternate choice

Chip Control	Description	Insert Geometry	Seat Size	Corner Radius mm	Starting Conditions mm	Plunge Feed Rates mm/rev 0,05	0,10	0,15	0,20	0,25	0,30
-GUP	Positive rake angle for lower cutting forces.		1F	0,2	0,06						
			2	0,2	0,08						
			3	0,2	0,09						
				0,4	0,11						
			4	0,4	0,12						
				0,8	0,15						
			6	0,4	0,15						
				0,8	0,18						
				1,2	0,20						
			8	0,8	0,20						
				1,2	0,22						
			10	1,2	0,24						
-GUN	Stable negative cutting edge allowing for more aggressive applications		1F	0,2	0,06						
			2	0,2	0,08						
			3	0,2	0,09						
				0,4	0,11						
			4	0,4	0,12						
				0,8	0,15						
			6	0,4	0,15						
				0,8	0,18						
				1,2	0,20						
			8	0,8	0,20						
				1,2	0,22						
			10	1,2	0,24						

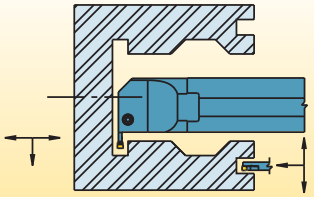
Maximum Feed Rate Values

Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.

Material Group	Feed Factor
M	.8
N	1.2
S	.8
H	.5

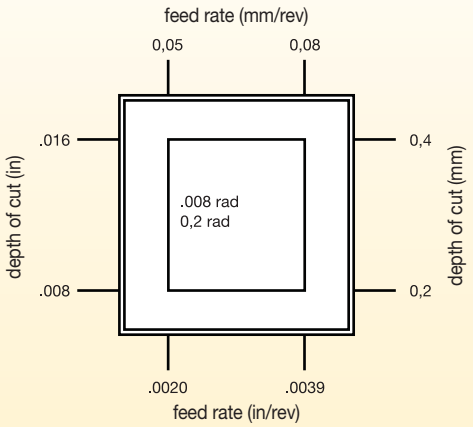
I.D. and Face Grooving

For I.D. and face grooving applications, reduce feed rate by 20%.

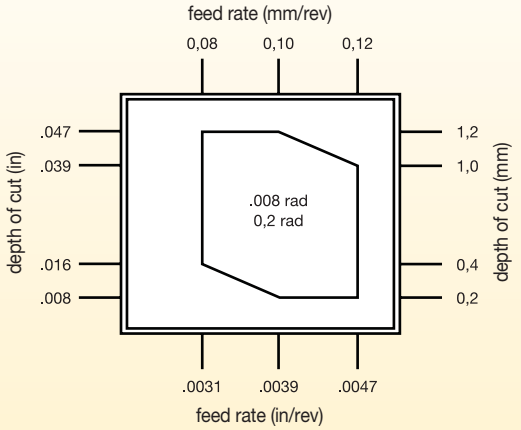


Turn and profile feed rates

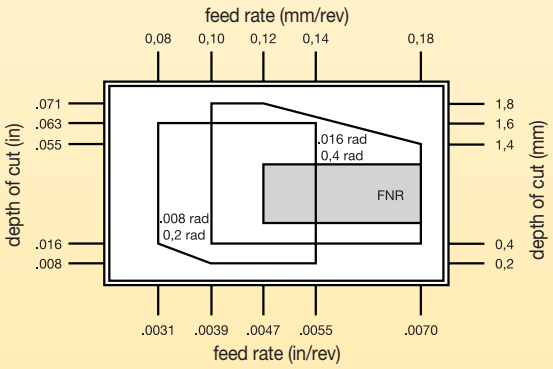
Seat Size 1F



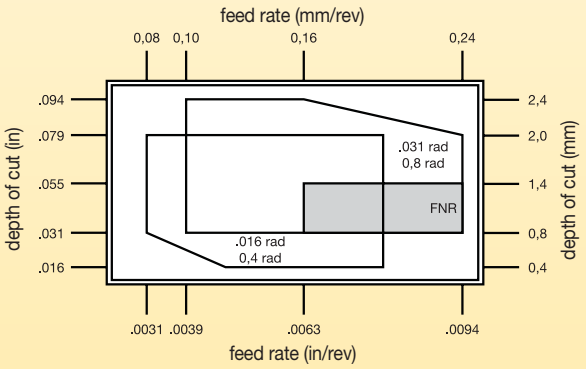
Seat Size 2



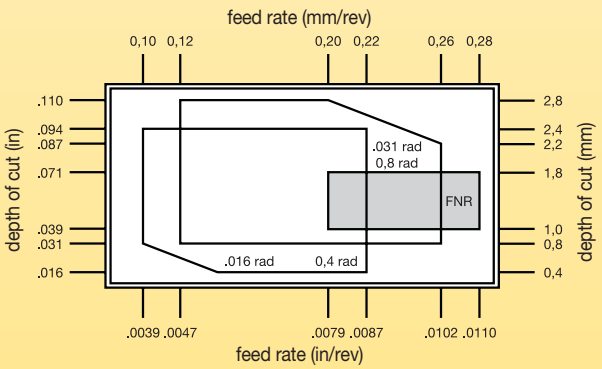
Seat Size 3



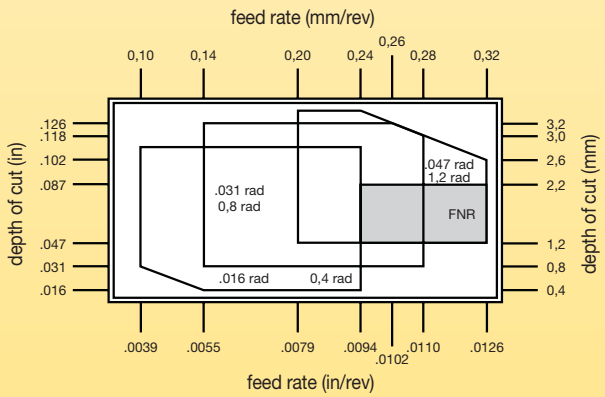
Seat Size 4



Seat Size 5



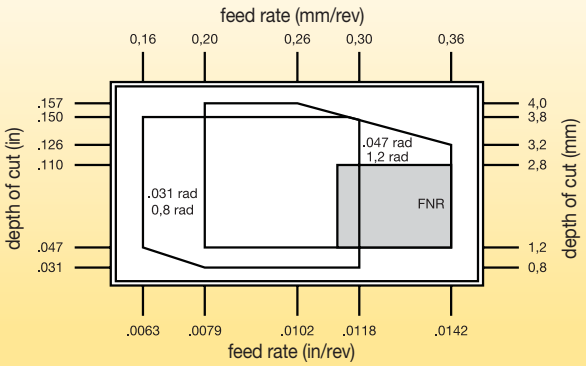
Seat Size 6



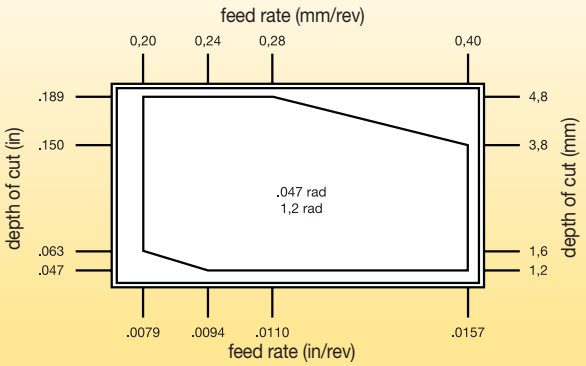
(continued)

(Turn and profile feed rates — continued)

Seat Size 8



Seat Size 10



Cut-Off Feed Rates

Plunge feed rates

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

● first choice
○ alternate choice

Chip Control	Description	Insert Geometry	Seat Size	Starting Conditions mm	Cut-Off Feed Rates mm/rev 0,05 0,10 0,15 0,20 0,25 0,30
-CL	Aggressive geometry for hard to break chips.		1B	0,06	
			2	0,07	
			3	0,08	
			4	0,09	
-CF	Positive geometry for reduced cutting forces.		1B	0,06	
			2	0,07	
			3	0,09	
			4	0,11	
			5	0,13	
-CM	Stable cutting edge for aggressive feed rates. Primarily in cast iron.		1B	0,06	
			2	0,07	
			3	0,09	
			4	0,11	
			5	0,14	
-CR	Most stable cutting edge for steel.		2	0,10	
			3	0,14	
			4	0,16	
			5	0,19	

NOTE: For cut-off inserts with a lead angle, maximum feed rate should be reduced by up to 40%.

Maximum Feed Rate Values

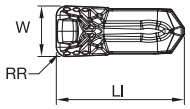
Data above is for P and K material groups. **Maximum** feed rates should be adjusted by multiplying max feed rate values by following factors for shown material groups.

Material Group	Feed Factor
M	.8
N	1.2
S	.8
H	.5

Recommended Starting Speeds [m/min]

Material Group		K313			KCU10			KCU25			KCP10B			KCP25B			KCK20B		
P	0-1	–	**–**	–	140	**280**	335	110	**225**	270	185	**400**	450	145	**290**	365	200	**440**	490
	2	–	**–**	–	140	**200**	245	110	**160**	195	185	**270**	350	145	**200**	305	200	**300**	380
	3	–	**–**	–	140	**155**	245	110	**125**	195	170	**190**	260	140	**155**	245	600	**200**	280
	4	–	**–**	–	75	**110**	170	60	**90**	135	90	**145**	200	75	**110**	180	100	**160**	220
	5	–	**–**	–	120	**200**	260	100	**160**	210	150	**220**	305	120	**200**	270	165	**240**	330
	6	–	**–**	–	110	**150**	230	85	**120**	185	120	**180**	275	110	**150**	230	130	**190**	300
M	1	60	**90**	120	140	**210**	260	90	**170**	245	–	**–**	–	–	**–**	–	–	**–**	–
	2	45	**75**	110	120	**200**	245	90	**150**	245	–	**–**	–	–	**–**	–	–	**–**	–
	3	35	**65**	100	120	**180**	245	90	**140**	210	–	**–**	–	–	**–**	–	–	**–**	–
K	1	30	**75**	120	120	**180**	245	100	**145**	195	170	**245**	440	140	**200**	360	210	**305**	550
	2	25	**70**	110	90	**150**	210	70	**120**	170	120	**195**	340	100	**160**	280	150	**245**	430
	3	20	**60**	90	60	**110**	150	50	**85**	120	120	**170**	270	100	**140**	220	150	**210**	335
N	1-2	150	**370**	610	150	**550**	975	120	**440**	780	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	4	120	**275**	430	120	**365**	610	100	**290**	490	–	**–**	–	–	**–**	–	–	**–**	–
	5	45	**90**	150	90	**170**	245	70	**135**	195	–	**–**	–	–	**–**	–	–	**–**	–
	6	40	**75**	150	120	**210**	305	100	**170**	245	–	**–**	–	–	**–**	–	–	**–**	–
S	1	8	**30**	75	15	**55**	135	8	**40**	60	–	**–**	–	–	**–**	–	–	**–**	–
	2	8	**35**	75	15	**60**	135	8	**30**	75	–	**–**	–	–	**–**	–	–	**–**	–
	3	8	**40**	75	15	**70**	135	15	**40**	75	–	**–**	–	–	**–**	–	–	**–**	–
	4	8	**45**	75	15	**70**	170	8	**50**	110	–	**–**	–	–	**–**	–	–	**–**	–
H	1	–	**–**	–	30	**45**	60	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	15	**30**	45	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–

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

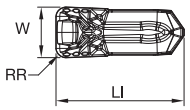


● first choice
○ alternate choice

		KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
P		●	●	●	●	○	
M		●	●				○
K		○	○	○	○	●	○
N		●	○				○
S		●	●				●
H		○					

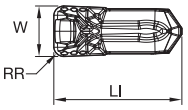
GUP Precision Moulded • Metric

catalogue number	seat size	W	W tol ±	RR	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EG0212M02U02GUP	2	2,125	0,050	0,20	8,97	●	●	●	●	–	–
EG0251M02U02GUP	2	2,511	0,050	0,20	8,97	●	●	●	●	–	–
EG0312M03U02GUP	3	3,125	0,075	0,20	9,60	●	●	●	–	–	–
EG0312M03U04GUP	3	3,125	0,075	0,40	9,60	●	●	●	●	–	–
EG0412M04U04GUP	4	4,125	0,075	0,40	10,19	●	●	●	●	–	–
EG0412M04U08GUP	4	4,125	0,075	0,80	10,19	●	●	●	●	–	–
EG0512M05U04GUP	5	5,125	0,075	0,40	12,25	●	●	●	●	–	–
EG0512M05U08GUP	5	5,125	0,075	0,80	12,25	●	●	●	●	–	–
EG0612M06U04GUP	6	6,125	0,075	0,40	14,60	●	●	●	●	–	–
EG0612M06U08GUP	6	6,125	0,075	0,80	14,60	●	●	●	●	–	–
EG0712M06U08GUP	6	7,125	0,075	0,80	14,60	●	●	●	●	–	–
EG0812M08U08GUP	8	8,125	0,075	0,80	17,47	●	●	●	●	–	–
EG0812M08U12GUP	8	8,125	0,075	1,18	17,45	●	●	●	●	–	–
EG1012M10U12GUP	10	10,125	0,075	1,20	20,80	●	●	●	●	–	–



GUP Precision Ground • Metric

catalogue number	seat size	W	W tol ±	RR	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EG0200M02P02GUP	2	2,000	0,025	0,20	8,80	●	●	–	–	–	●
EG0300M03P02GUP	3	3,000	0,025	0,20	9,40	●	●	–	–	–	●
EG0300M03P04GUP	3	3,000	0,025	0,40	9,60	●	●	–	–	–	●
EG0400M04P04GUP	4	4,000	0,025	0,40	10,10	●	●	–	–	–	●
EG0400M04P08GUP	4	4,000	0,025	0,80	10,10	●	●	–	–	–	●
EG0500M05P04GUP	5	5,000	0,025	0,40	12,20	●	●	–	–	–	●
EG0500M05P08GUP	5	5,000	0,025	0,80	12,20	●	●	–	–	–	●
EG0600M06P04GUP	6	6,000	0,025	0,40	14,50	●	●	–	–	–	●
EG0600M06P08GUP	6	6,000	0,025	0,80	14,50	●	●	–	–	–	●
EG0700M06P08GUP	6	7,000	0,025	0,80	14,50	●	●	–	–	–	●
EG0800M08P08GUP	8	8,000	0,025	0,80	17,40	●	●	–	–	–	●
EG0800M08P12GUP	8	8,000	0,025	1,20	17,40	●	●	–	–	–	●
EG1000M10P12GUP	10	10,000	0,025	1,20	20,70	●	●	–	–	–	●

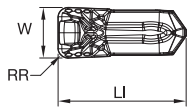


● first choice
○ alternate choice

		KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
P		●	●	●	●	○	
M		●	●				○
K		○	○	○	○	●	○
N		●	○				○
S		●	●				●
H		○					

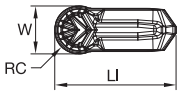
GUP Precision Moulded • Inch

catalogue number	seat size	W	W tol ±	RR	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EG130I03U05GUP	3	3,301	0,075	0,20	9,60	●	●	●	●	–	–
EG130I03U1GUP	3	3,301	0,075	0,40	9,60	●	●	●	●	–	–
EG192I04U1GUP	4	4,877	0,075	0,40	10,19	●	●	●	●	–	–
EG192I04U2GUP	4	4,877	0,075	0,79	10,19	●	●	●	●	–	–
EG255I06U1GUP	6	6,478	0,075	0,40	14,58	●	●	●	●	–	–
EG255I06U2GUP	6	6,478	0,075	0,80	14,58	●	●	●	●	–	–
EG317I08U3GUP	8	8,051	0,075	1,19	17,46	●	●	●	●	–	–
EG380I10U3GUP	10	9,651	0,075	1,19	20,80	●	●	●	●	–	–



GUP Precision Ground • Inch

catalogue number	seat size	W	W tol ±	RR	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EG063I1FP05GUP	1F	1,600	0,025	0,20	9,00	●	●	–	–	–	●
EG094I02P05GUP	2	2,388	0,025	0,20	8,90	●	●	–	–	–	●
EG125I03P05GUP	3	3,175	0,025	0,20	9,40	●	●	–	–	–	●
EG125I03P1GUP	3	3,175	0,025	0,40	9,40	●	●	–	–	–	●
EG187I04P1GUP	4	4,760	0,025	0,40	10,10	●	●	–	–	–	●
EG187I04P2GUP	4	4,762	0,025	0,79	10,10	●	●	–	–	–	●
EG250I06P1GUP	6	6,350	0,025	0,40	14,50	●	●	–	–	–	●
EG250I06P2GUP	6	6,350	0,025	0,80	14,50	●	●	–	–	–	●
EG312I08P3GUP	8	7,920	0,025	1,20	17,40	●	●	–	–	–	●
EG375I10P3GUP	10	9,525	0,025	1,20	20,70	●	●	–	–	–	●

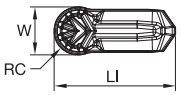


● first choice
○ alternate choice

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

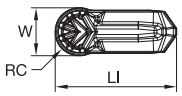
GUP Full Radius Precision Moulded • Metric

catalogue number	seat size	W	W tol ±	RC	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
ER0312M03U00GUP	3	3,125	0,075	1,560	9,60	●	●	●	●	–	–
ER0412M04U00GUP	4	4,125	0,075	2,060	10,20	●	●	●	●	–	–
ER0512M05U00GUP	5	5,125	0,075	2,560	12,20	●	●	●	●	–	–
ER0612M06U00GUP	6	6,125	0,075	3,060	14,60	●	●	●	●	–	–
ER0812M08U00GUP	8	8,125	0,075	4,060	17,50	●	●	●	●	–	–



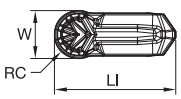
GUP Full Radius Precision Ground • Metric

catalogue number	seat size	W	W tol ±	RC	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
ER0300M03P00GUP	3	3,000	0,025	1,500	9,50	●	●	–	–	–	●
ER0400M04P00GUP	4	4,000	0,025	2,000	10,10	●	●	–	–	–	●
ER0500M05P00GUP	5	5,000	0,025	2,500	12,20	●	●	–	–	–	●
ER0600M06P00GUP	6	6,000	0,025	3,000	14,50	●	●	–	–	–	●
ER0800M08P00GUP	8	8,000	0,025	4,000	17,40	●	●	–	–	–	●



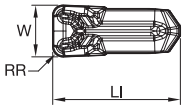
GUP Full Radius Precision Moulded • Inch

catalogue number	seat size	W	W tol ±	RC	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
ER130I03U00GUP	3	3,302	0,075	1,650	9,60	●	●	●	●	–	–
ER192I04U00GUP	4	4,878	0,075	2,440	10,20	●	●	●	●	–	–
ER255I06U00GUP	6	6,478	0,075	3,240	14,60	●	●	●	●	–	–
ER317I08U00GUP	8	8,052	0,075	4,030	17,50	●	●	●	●	–	–



GUP Full Radius Precision Ground • Inch

catalogue number	seat size	W	W tol ±	RC	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
ER125I03P00GUP	3	3,175	0,025	1,590	9,50	●	●	–	–	–	●
ER187I04P00GUP	4	4,762	0,025	2,380	10,10	●	●	–	–	–	●
ER250I06P00GUP	6	6,350	0,025	3,170	14,50	●	●	–	–	–	●
ER312I08P00GUP	8	7,920	0,025	3,960	17,40	●	●	–	–	–	●

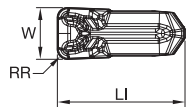


● first choice
○ alternate choice

		KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
P		●	●	●	●	○	
M		●	●				○
K		○	○	○	○	●	○
N		●	○				○
S		●	●				●
H		○					

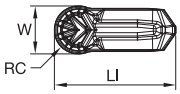
GUN Precision Moulded • Metric

catalogue number	seat size	W	W tol ±	RR	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EG0212M02U02GUN	2	2,125	0,050	0,20	8,97	●	●	●	●	–	–
EG0251M02U02GUN	2	2,510	0,050	0,20	8,97	●	●	●	●	–	–
EG0312M03U02GUN	3	3,125	0,075	0,20	9,60	●	●	●	●	–	–
EG0312M03U04GUN	3	3,125	0,075	0,40	9,60	●	●	●	●	–	–
EG0412M04U04GUN	4	4,125	0,075	0,40	10,19	●	●	●	●	–	–
EG0412M04U08GUN	4	4,125	0,075	0,80	10,19	●	●	●	●	–	–
EG0512M05U04GUN	5	5,125	0,075	0,40	12,20	●	●	●	●	–	–
EG0512M05U08GUN	5	5,125	0,075	0,80	12,20	●	●	●	●	–	–
EG0612M06U04GUN	6	6,125	0,075	0,40	14,60	●	●	●	–	–	–
EG0612M06U08GUN	6	6,125	0,075	0,80	14,60	●	●	–	●	–	–
EG0812M08U08GUN	8	8,125	0,075	0,80	17,50	●	●	●	●	–	–
EG0812M08U12GUN	8	8,125	0,075	1,20	17,50	●	●	●	●	–	–
EG1012M10U12GUN	10	10,125	0,075	1,20	20,80	●	●	●	●	–	–



GUN Precision Moulded • Inch

catalogue number	seat size	W	W tol ±	RR	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EG063I1FU05GUN	1F	1,600	0,050	0,20	9,00	●	●	●	●	–	–
EG130I03U05GUN	3	3,302	0,075	0,20	9,60	●	●	●	●	–	–
EG130I03U1GUN	3	3,302	0,075	0,40	9,60	●	●	●	●	–	–
EG192I04U1GUN	4	4,877	0,075	0,40	10,19	●	●	●	●	–	–
EG192I04U2GUN	4	4,878	0,075	0,79	10,19	●	●	●	●	–	–
EG255I06U1GUN	6	6,477	0,075	0,40	14,58	●	●	●	●	–	–
EG255I06U2GUN	6	6,477	0,075	0,80	14,58	●	●	●	●	–	–
EG317I08U3GUN	8	8,052	0,075	1,19	17,46	●	●	●	●	–	–
EG380I10U3GUN	10	9,651	0,075	1,20	20,80	●	●	●	●	–	–

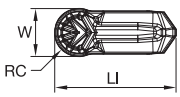


● first choice
○ alternate choice

		KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
P		●	●	●	●	○	
M		●	●				○
K		○	○	○	○	●	○
N		●	○				○
S		●	●				●
H		○					

GUN Full Radius Precision Moulded • Metric

catalogue number	seat size	W	W tol ±	RC	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
ER0312M03U00GUN	3	3,125	0,075	1,560	9,60	●	●	●	●	–	–
ER0412M04U00GUN	4	4,125	0,075	2,060	10,20	●	●	●	●	–	–
ER0512M05U00GUN	5	5,125	0,075	2,560	12,20	●	●	●	●	–	–
ER0612M06U00GUN	6	6,125	0,075	3,060	14,60	●	●	●	●	–	–
ER0812M08U00GUN	8	8,125	0,075	4,060	17,47	●	●	●	●	–	–



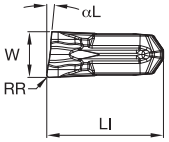
GUN Full Radius Precision Moulded • Inch

catalogue number	seat size	W	W tol ±	RC	LI	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
ER130I03U00GUN	3	3,302	0,075	1,650	9,60	●	●	●	●	–	–
ER192I04U00GUN	4	4,873	0,075	2,440	10,20	●	●	●	●	–	–
ER255I06U00GUN	6	6,473	0,075	3,240	14,60	●	●	●	●	–	–
ER317I08U00GUN	8	8,052	0,075	4,030	17,50	●	●	●	●	–	–

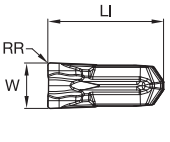
Left Hand

Neutral

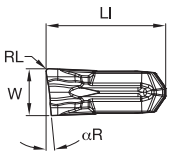
Right Hand



Left Hand



Neutral



Right Hand

● first choice
○ alternate choice

		KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
P		●	●	●	●	○	
M		●	●				○
K		○	○	○	○	●	○
N		●	○				○
S		●	●				●
H		○					

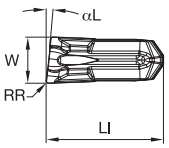
CF Precision Moulded • Metric

catalogue number	seat size	W	W tol ±	LI	αR	αL	RR	RL	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EC014M1BL06CF01	1B	1,400	0,050	9,00	–	6	0,15	–	–	●	–	–	–	–
EC014M1BN00CF01	1B	1,400	0,050	9,00	–	–	0,15	0,15	–	●	–	–	–	–
EC014M1BR06CF01	1B	1,400	0,050	9,00	6	–	–	0,15	–	●	–	–	–	–
EC020M02L06CF02	2	2,000	0,050	8,97	–	6	0,20	–	–	●	–	–	–	–
EC020M02N00CF02	2	2,000	0,050	8,97	–	–	0,20	0,20	–	●	–	–	–	–
EC020M02R06CF02	2	2,000	0,050	8,97	6	–	–	0,20	–	●	–	–	–	–
EC030M03L06CF02	3	3,000	0,075	9,60	–	6	0,20	–	–	●	–	–	–	–
EC030M03N00CF02	3	3,000	0,075	9,60	–	–	0,20	0,20	–	●	–	–	–	–
EC030M03R06CF02	3	3,000	0,075	9,60	6	–	–	0,20	–	●	–	–	–	–
EC040M04L06CF02	4	4,000	0,075	10,19	–	6	0,20	–	–	●	–	–	–	–
EC040M04N00CF02	4	4,000	0,075	10,19	–	–	0,20	0,20	–	●	–	–	–	–
EC040M04R06CF02	4	4,000	0,075	10,19	6	–	–	0,20	–	●	–	–	–	–
EC050M05N00CF03	5	5,000	0,075	12,20	–	–	0,30	0,30	–	●	–	–	–	–

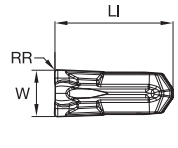
Left Hand

Neutral

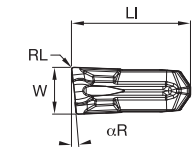
Right Hand



Left Hand



Neutral



Right Hand

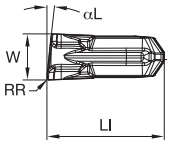
CL Precision Moulded • Metric

catalogue number	seat size	W	W tol ±	LI	αR	αL	RR	RL	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EC014M1BL06CL01	1B	1,400	0,050	9,00	–	6	0,15	–	–	●	–	–	–	–
EC014M1BN00CL01	1B	1,400	0,050	9,00	–	–	0,15	0,15	–	●	–	–	–	–
EC014M1BR06CL01	1B	1,400	0,050	9,00	6	–	–	0,15	–	●	–	–	–	–
EC020M02L06CL02	2	2,000	0,050	8,96	–	6	0,20	–	–	●	–	–	–	–
EC020M02N00CL02	2	2,000	0,050	8,97	–	–	0,20	0,20	–	●	–	–	–	–
EC020M02R06CL02	2	2,000	0,050	8,96	6	–	–	0,20	–	●	–	–	–	–
EC030M03L06CL02	3	3,000	0,075	9,59	–	6	0,20	–	–	●	–	–	–	–
EC030M03N00CL02	3	3,000	0,075	9,60	–	–	0,20	0,20	–	●	–	–	–	–
EC030M03R06CL02	3	3,000	0,075	9,59	6	–	–	0,20	–	●	–	–	–	–
EC040M04L06CL02	4	4,000	0,075	10,19	–	6	0,20	–	–	●	–	–	–	–
EC040M04N00CL02	4	4,000	0,075	10,20	–	–	0,20	0,20	–	●	–	–	–	–
EC040M04R06CL02	4	4,000	0,075	10,19	6	–	–	0,20	–	●	–	–	–	–

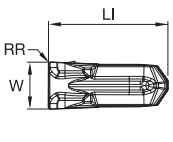
Left Hand

Neutral

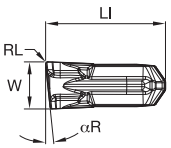
Right Hand



Left Hand



Neutral



Right Hand

● first choice
○ alternate choice

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

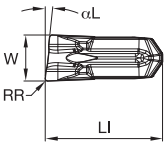
CM Precision Moulded • Metric

catalogue number	seat size	W	W tol ±	LI	αR	αL	RR	RL	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EC014M1BN00CM01	1B	1,400	0,050	9,00	–	–	0,15	0,15	–	●	–	–	–	–
EC014M1BL06CM01	1B	1,400	0,050	9,00	–	6	0,20	–	–	●	–	–	–	–
EC014M1BR06CM01	1B	1,400	0,050	9,00	6	–	–	0,20	–	●	–	–	–	–
EC020M02N00CM02	2	2,000	0,050	8,98	–	–	0,20	0,20	–	●	–	–	–	–
EC020M02L06CM02	2	2,000	0,050	9,00	–	6	0,20	–	–	●	–	–	–	–
EC020M02R06CM02	2	2,000	0,050	9,00	6	–	–	0,20	–	●	–	–	–	–
EC030M03L06CM02	3	3,000	0,075	9,60	–	6	0,20	–	–	●	–	–	–	–
EC030M03N00CM02	3	3,000	0,075	9,60	–	–	0,20	0,20	–	●	–	–	–	–
EC030M03R06CM02	3	3,000	0,075	9,60	6	–	–	0,20	–	●	–	–	–	–
EC040M04L06CM02	4	4,000	0,075	10,20	–	6	0,20	–	–	●	–	–	–	–
EC040M04N00CM02	4	4,000	0,075	10,20	–	–	0,20	0,20	–	●	–	–	–	–
EC040M04R06CM02	4	4,000	0,075	10,20	6	–	–	0,20	–	●	–	–	–	–
EC050M05N00CM03	5	5,000	0,075	12,20	–	–	0,30	0,30	–	●	–	–	–	–
EC060M06N00CM03	6	6,000	0,075	14,59	–	–	0,30	0,30	–	●	–	–	–	–
EC070M06N00CM04	6	7,000	0,075	14,60	–	–	0,40	0,40	–	●	–	–	–	–
EC080M08N00CM04	8	8,000	0,075	17,50	–	–	0,40	0,40	–	●	–	–	–	–

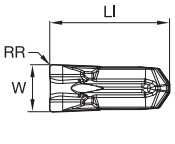
Left Hand

Neutral

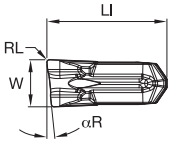
Right Hand



Left Hand



Neutral



Right Hand

● first choice
○ alternate choice

		KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
P		●	●	●	●	○	
M		●	●				○
K		○	○	○	○	●	○
N		●	○				○
S		●	●				●
H		○					

CR Precision Moulded • Metric

catalogue number	seat size	W	W tol ±	LI	αR	αL	RR	RL	KCU10	KCU25	KCP10B	KCP25B	KCK20B	K313
EC020M02N00CR02	2	2,000	0,050	8,98	–	–	0,20	0,20	–	●	–	–	–	–
EC020M02L06CR02	2	2,000	0,050	9,00	–	6	0,20	–	–	●	–	–	–	–
EC020M02R06CR02	2	2,000	0,050	9,00	6	–	–	0,20	–	●	–	–	–	–
EC030M03L06CR02	3	3,000	0,075	9,60	–	6	0,20	–	–	●	–	–	–	–
EC030M03N00CR02	3	3,000	0,075	9,60	–	–	0,20	0,20	–	●	–	–	–	–
EC030M03R06CR02	3	3,000	0,075	9,60	6	–	–	0,20	–	●	–	–	–	–
EC040M04L06CR02	4	4,000	0,075	10,20	–	6	0,20	–	–	●	–	–	–	–
EC040M04N00CR02	4	4,000	0,075	10,20	–	–	0,20	0,20	–	●	–	–	–	–
EC040M04R06CR02	4	4,000	0,075	10,20	6	–	–	0,20	–	●	–	–	–	–
EC050M05N00CR03	5	5,000	0,075	12,25	–	–	0,30	0,30	–	●	–	–	–	–
EC060M06N00CR03	6	6,000	0,075	14,59	–	–	0,30	0,30	–	●	–	–	–	–
EC060M06L06CR04	6	6,000	0,075	14,59	–	6	0,40	–	–	●	–	–	–	–
EC060M06R06CR04	6	6,000	0,075	14,59	6	–	–	0,40	–	●	–	–	–	–
EC070M06N00CR04	6	7,000	0,075	14,60	–	–	0,40	0,40	–	●	–	–	–	–
EC080M08L06CR04	8	8,000	0,075	17,50	–	6	0,40	–	–	●	–	–	–	–
EC080M08N00CR04	8	8,000	0,075	17,50	–	–	0,40	0,40	–	●	–	–	–	–
EC080M08R06CR04	8	8,000	0,075	17,50	6	–	–	0,40	–	●	–	–	–	–

Experience Powering Productivity™

Any project, any challenge, optimised and refined using digital intelligence to fundamentally transform your workflow into seamless, elegant, simple production. From art to part — to profit.

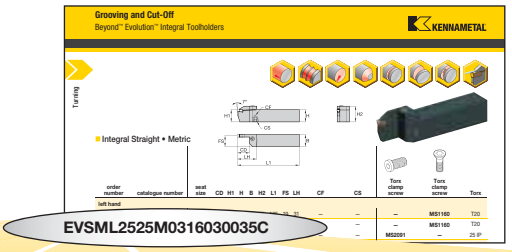
With NOVO™ you can now have the right tools on your machines, in the right sequence. This enterprise-wide solution ensures that you execute flawlessly to accelerate every job, and maximise every shift.

Experience digital intelligence that will transform your manufacturing process: **www.kennametal.com/novo**

KENNAMETAL®

How Do Catalogue Numbers Work?

Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



EV	S	M	L	2525M	03	16	030035	C
Family Name	Tool Style	Support Type	Hand	Shank Size	Seat Size	Max Groove Depth	Face Grooving Diameters	Coolant
Beyond™ Evolution™	**S** = Straight mount		**L** = Left hand **R** = Right hand		**1B** **1F** **02** **03** **04** **05** **06** **08** **10**	in millimetres	**030** = Minimum diameter in mm **035** = Maximum diameter in mm	**C** = Through the pocket coolant capable

M = Maximum support for specific groove width and straight clearance for unlimited workpiece diameter

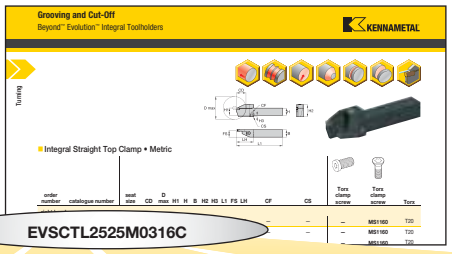
A = Face grooving-inboard sweep

B = Face grooving-outboard sweep

Metric = Height x Width in mm letter indicates tool length according to ISO

How Do Catalogue Numbers Work?

Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



EVSCTL2525M0316C

EV	S	C	T	L	2525M	03	16	C
Family Name	Tool Style	Support Type	Clamping Screw Position	Hand	Shank Size	Seat Size	Max Groove Depth	Coolant
Beyond™ Evolution™	**S** = Straight mount		**T** = Top **F** = Front **S** = Self-clamping	**L** = Left hand **R** = Right hand		**1B** **1F** **02** **03** **04** **05** **06** **08** **10**	in millimetres	**C** = Through the pocket coolant capable

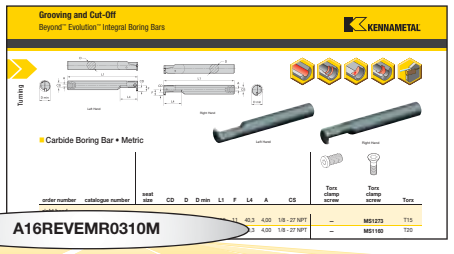
M = Maximum support and straight clearance

E = No steel support for face grooving

Metric = Height x Width in mm letter indicates tool length according to ISO

How Do Catalogue Numbers Work?

Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



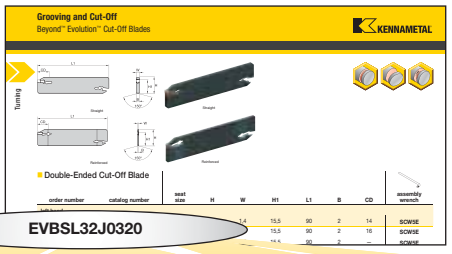
A	16	R	EV	E	M	R	03	10	M
Steel Bar with Coolant	Bar Diameter	Bar Length	Platform	Tool Type	Support Type	Hand of Tool	Insert Seat Size	Max Cutting Depth	Tool Units
Steel boring bar with through coolant capability.			Beyond™ Evolution™	**E** = End mount (90°)	**M** = Maximum support	**R** = Right hand **L** = Left hand	**1F** **02** **03** **04** **05** **06** **08** **10**	in millimetres	**M** = Metric

Metric = Diameter in mm

symbol	mm
K	125
M	150
Q	180
R	200
S	250
T	300

How Do Catalogue Numbers Work?

Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

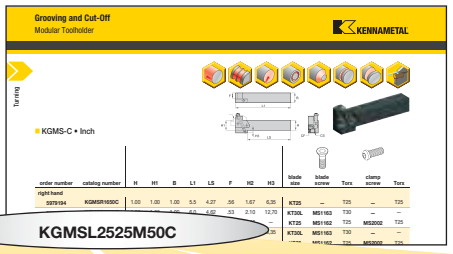


EVBSL32J0320

EV	B	S	L	32	J	03	20
Family Name	Tool Style	Support Type	Hand	Blade Height	Overall Length	Seat Size	Max Cutting Depth
Beyond™ Evolution™	**B** = 2 pocket blade	**S** = Standard **C** = Reinforced	**N** = Neutral **L** = Left hand **R** = Right hand	in millimetres	According to ISO **G** = 90mm **J** = 110mm **M** = 150mm **X** = Special	**1B** **1F** **02** **03** **04** **05** **06** **08** **10**	in millimetres

How Do Catalogue Numbers Work?

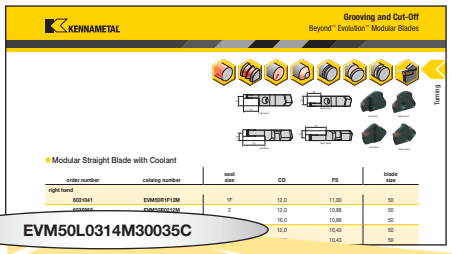
Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



KGM	S	L	2525M	50	C
Family Name	Tool Style	Hand	Shank Size	Blade Size	Coolant
Grooving Modular System	**S** = Straight mount **E** = End mount (90°)	**L** = Left hand **R** = Right hand	**Metric** = Height x Width in mm letter indicates tool length according to ISO	**50** **65**	**C** = Through coolant capable

How Do Catalogue Numbers Work?

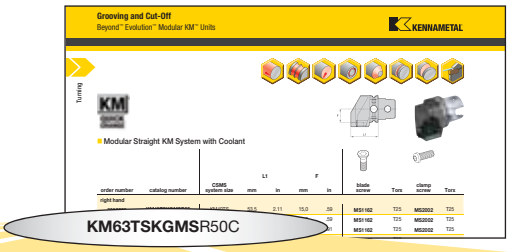
Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



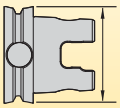
EVM	50	L	03	14	M	30035	C
Family Name	Blade Size	Hand	Seat Size	Max Groove Depth	Support Type	Face Grooving Diameters	Coolant
Beyond™ Evolution™ Modular Blade	**50** **65**	**L** = Left hand **R** = Right hand	**1B** **1F** **02** **03** **04** **05** **06** **08** **10**	in millimetres	**M** = Maximum support for specific groove width and straight clearance for unlimited diameter **A** = Face grooving-inboard sweep **B** = Face grooving-outboard sweep	**030** = Minimum diameter in mm **035** = Maximum diameter in mm	**C** = Through the pocket coolant capable

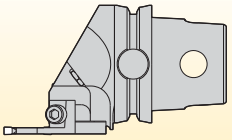
How Do Catalogue Numbers Work?

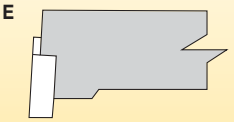
Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

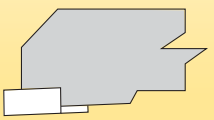


KM	63	TS	KGM	S
KM Quick Change	System Size	Feature	Insert Holding Method	Insert Location
KM **KM4X**™ **PSC**	**40** = 40mm **50** = 50mm **63** = 63mm **80** = 80mm **100** = 100mm	**TS** **XMZ**	**KGM** **Beyond**™ **Evolution**™ **Modular Grooving**	**E** = End mount **S** = Side mount

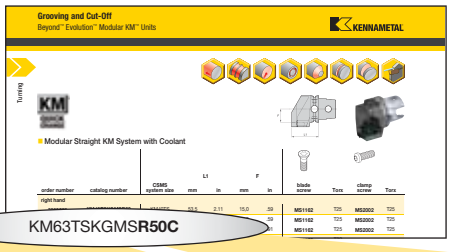








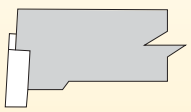
By referencing this easy-to-use guide, you can identify the correct product to meet your needs.



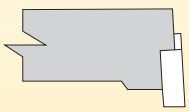
R	50	C	
Hand of Tool	Blade Size	Coolant	Special Features
R = Right hand **L** = Left hand	**50** **60**	**C** = Through the pocket coolant capable	**Y** = Mazak® INTEGREX®

End Mount

R

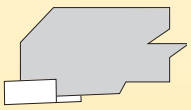


L

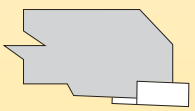


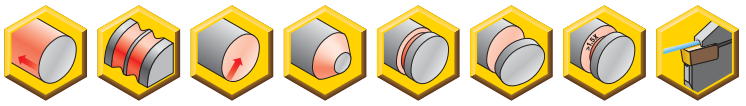
Side Mount

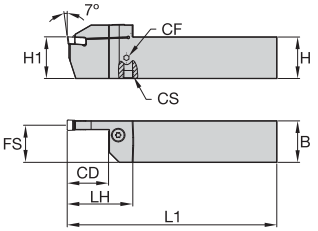
R



L







Integral Straight • Metric

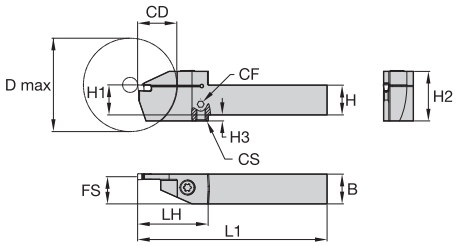
order number	catalogue number	seat size	CD	H1	H	B	H2	L1	FS	LH	CF	CS	Torx clamp screw	Torx clamp screw	Torx
right hand															
5953960	EVSMR2020K0216	2	16	20	20	20	27	125	19	31	–	–	–	MS1160	T20
5953958	EVSMR2525M0216	2	16	25	25	25	32	150	24	31	–	–	–	MS1160	T20
5953959	EVSMR2020K0222	2	22	20	20	20	29	125	19	38	–	–	MS2091	–	25 IP
5953957	EVSMR2525M0226	2	26	25	25	25	34	150	24	42	–	–	MS2091	–	25 IP
5939452	EVSMR2020K0316C	3	16	20	20	20	29	125	19	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5939448	EVSMR2525M0316C	3	16	25	25	25	34	150	24	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5939451	EVSMR2020K0322C	3	22	20	20	20	29	125	19	43	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5939447	EVSMR2525M0326C	3	26	25	25	25	34	150	24	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5939450	EVSMR2020K0416C	4	16	20	20	20	29	125	18	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5939446	EVSMR2525M0416C	4	16	25	25	25	34	150	23	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5939449	EVSMR2020K0422C	4	22	20	20	20	29	125	18	43	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5939445	EVSMR2525M0426C	4	26	25	25	25	34	150	23	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5939444	EVSMR3232P0426C	4	26	32	32	32	42	170	30	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5939443	EVSMR3232P0432C	4	32	32	32	32	42	170	30	53	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954258	EVSMR2020K0516C	5	16	20	20	20	29	125	18	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5954254	EVSMR2525M0516C	5	16	25	25	25	34	150	23	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954257	EVSMR2020K0522C	5	22	20	20	20	29	125	18	43	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5954253	EVSMR2525M0526C	5	26	25	25	25	34	150	23	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954249	EVSMR3232P0526C	5	26	32	32	32	42	170	30	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954248	EVSMR3232P0532C	5	32	32	32	32	42	170	30	53	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954256	EVSMR2020K0616C	6	16	20	20	20	29	125	20	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5954252	EVSMR2525M0616C	6	16	25	25	25	34	150	25	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954255	EVSMR2020K0622C	6	22	20	20	20	29	125	20	43	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5954251	EVSMR2525M0626C	6	26	25	25	25	34	150	25	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954247	EVSMR3232P0626C	6	26	32	32	32	42	170	32	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954246	EVSMR3232P0632C	6	32	32	32	32	43	170	29	55	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954242	EVSMR4040P0640C	6	40	40	40	40	51	200	37	63	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954250	EVSMR2525M0826C	8	26	25	25	25	35	150	21	49	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954245	EVSMR3232P0826C	8	26	32	32	32	43	170	28	49	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954244	EVSMR3232P0832C	8	32	32	32	32	43	170	28	55	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954241	EVSMR4040P0840C	8	40	40	40	40	51	200	36	63	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954243	EVSMR3232P1032C	10	32	32	32	32	43	170	28	55	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954240	EVSMR4040P1040C	10	40	40	40	40	51	200	36	63	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45

(continued)

(Integral Straight • Metric — continued)

order number	catalogue number	seat size	CD	H1	H	B	H2	L1	FS	LH	CF	CS	Torx clamp screw	Torx clamp screw	Torx
left hand															
5953956	EVSML2020K0216	2	16	20	20	20	27	125	19	31	–	–	–	MS1160	T20
5953954	EVSML2525M0216	2	16	25	25	25	32	150	24	31	–	–	–	MS1160	T20
5953955	EVSML2020K0222	2	22	20	20	20	29	125	19	38	–	–	MS2091	–	25 IP
5953953	EVSML2525M0226	2	26	25	25	25	34	150	24	42	–	–	MS2091	–	25 IP
5939442	EVSML2020K0316C	3	16	20	20	20	29	125	19	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5939438	EVSML2525M0316C	3	16	25	25	25	34	150	24	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5939441	EVSML2020K0322C	3	22	20	20	20	29	125	19	43	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5939437	EVSML2525M0326C	3	26	25	25	25	34	150	24	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5939440	EVSML2020K0416C	4	16	20	20	20	29	125	18	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5939436	EVSML2525M0416C	4	16	25	25	25	34	150	23	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5939439	EVSML2020K0422C	4	22	20	20	20	29	125	18	43	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5939435	EVSML2525M0426C	4	26	25	25	25	34	150	23	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5939433	EVSML3232P0426C	4	26	32	32	32	42	170	30	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5939432	EVSML3232P0432C	4	32	32	32	32	42	170	30	53	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954239	EVSML2020K0516C	5	16	20	20	20	29	125	18	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5954235	EVSML2525M0516C	5	16	25	25	25	34	150	23	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954238	EVSML2020K0522C	5	22	20	20	20	29	125	18	43	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5954234	EVSML2525M0526C	5	26	25	25	25	34	150	23	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954220	EVSML3232P0526C	5	26	32	32	32	42	170	30	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954219	EVSML3232P0532C	5	32	32	32	32	42	170	30	53	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954237	EVSML2020K0616C	6	16	20	20	20	29	125	17	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5954233	EVSML2525M0616C	6	16	25	25	25	34	150	22	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954236	EVSML2020K0622C	6	22	20	20	20	29	125	17	43	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5954232	EVSML2525M0626C	6	26	25	25	25	34	150	22	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954218	EVSML3232P0626C	6	26	32	32	32	42	170	29	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5954217	EVSML3232P0632C	6	32	32	32	32	43	170	29	55	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954213	EVSML4040P0640C	6	40	40	40	40	51	200	37	63	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954231	EVSML2525M0826C	8	26	25	25	25	35	150	21	49	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954216	EVSML3232P0826C	8	26	32	32	32	43	170	28	49	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954215	EVSML3232P0832C	8	32	32	32	32	43	170	28	55	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954212	EVSML4040P0840C	8	40	40	40	40	51	200	36	63	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954214	EVSML3232P1032C	10	32	32	32	32	43	170	28	55	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45
5954211	EVSML4040P1040C	10	40	40	40	40	51	200	36	63	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45

screw	screw	torque				wrench	wrench
catalogue number	order number	Nm	in. lbs.	thread	socket	catalogue number	order number
MS1160	1099645	7	62	M5	T20	KT20	1022703
MS1162	1127019	9	80	M6	T25	KT25	1022725
MS1163	1124104	18	159	M8	T30	KT30L	1099676
MS1273	1020977	4	35.4	M4-0.7p	T15	KT15	1022701
MS1490	2263299	17	151	M8	T45	KT45	1018227
MS1595	1094300	12	106	M6	T30	KT30	1099676
MS1970	1106668	12	106	M6	T30	KT30	1099676
MS2002	1621087	9	80	M6-1.0P x 45	T25	KT25	1022725
MS2091	1931147	9	80	M5	25IP	K25IP	2050113



Integral Straight Top Clamp • Metric

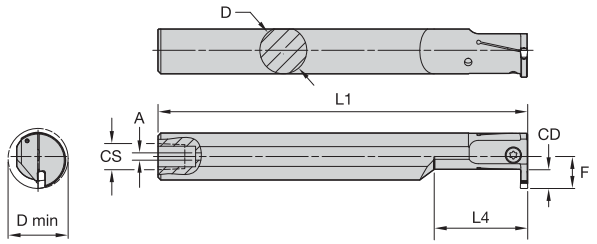
order number	catalogue number	seat size	CD	D max	H1	H	B	H2	H3	L1	FS	LH	CF	CS	Torx clamp screw	Torx clamp screw	Torx
right hand																	
5980139	EVSCTR1616K0216	2	16	42	16	16	16	23	–	125	15	31	–	–	–	MS1160	T20
5980762	EVSCTR2020K0216	2	16	42	20	20	20	27	–	125	19	31	–	–	–	MS1160	T20
5980767	EVSCTR2525M0216	2	16	42	25	25	25	32	–	150	24	31	–	–	–	MS1160	T20
5980768	EVSCTR2525M0226	2	26	62	25	25	25	34	–	150	24	42	–	–	MS2091	–	25 IP
5980140	EVSCTR1616K0316C	3	16	52	16	16	16	24	–	125	15	36	1/16 - 27 NPTF	1/16 - 27 NPTF	MS2091	–	25 IP
5980763	EVSCTR2020K0316C	3	16	52	20	20	20	29	–	125	19	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5980138	EVSCTR2525M0316C	3	16	62	25	25	25	34	–	150	24	37	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5980764	EVSCTR2020K0326C	3	26	62	20	20	20	33	4	125	19	47	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5980769	EVSCTR2525M0326C	3	26	62	25	25	25	34	–	150	24	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5980761	EVSCTR1616K0416C	4	16	52	16	16	16	24	–	125	14	36	1/16 - 27 NPTF	1/16 - 27 NPTF	MS2091	–	25 IP
5980765	EVSCTR2020K0416C	4	16	52	20	20	20	29	–	125	18	37	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5980766	EVSCTR2020K0426C	4	26	62	20	20	20	33	–	125	18	47	1/16 - 27 NPTF	1/16 - 27 NPTF	MS1595	–	T30
5980770	EVSCTR2525M0426C	4	26	62	25	25	25	34	–	150	23	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5980771	EVSCTR2525M0432C	4	32	64	25	25	25	38	4	150	23	53	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1595	–	T30
5980774	EVSCTR3232P0432C	4	32	64	32	32	32	42	–	170	30	53	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5980772	EVSCTR2525M0526C	5	26	62	25	25	25	34	–	150	23	47	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5980773	EVSCTR2525M0532C	5	32	64	25	25	25	39	4	150	23	53	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1970	–	T30
5980775	EVSCTR3232P0540C	5	40	82	32	32	32	47	4	170	30	63	1/8 - 27 NPTF	1/8 - 27 NPTF	MS1490	–	T45

(continued)

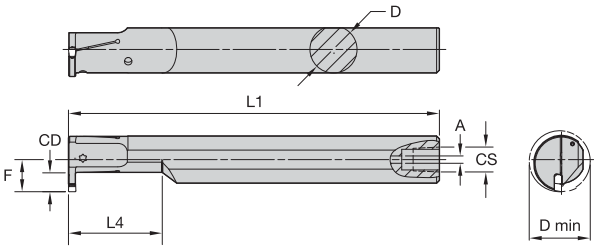
(Integral Straight Top Clamp • Metric — continued)

order number	catalogue number	seat size	CD	D max	H1	H	B	H2	H3	L1	FS	LH	CF	CS	Torx clamp screw	Torx clamp screw	Torx
left hand																	
5980777	**EVSCTL1616K0216**	2	16	42	16	16	16	23	—	125	15	31	—	—	**—**	**MS1160**	T20
5980780	**EVSCTL2020K0216**	2	16	42	20	20	20	27	—	125	19	31	—	—	**—**	**MS1160**	T20
5980805	**EVSCTL2525M0216**	2	16	42	25	25	25	32	—	150	24	31	—	—	**—**	**MS1160**	T20
5980806	**EVSCTL2525M0226**	2	26	62	25	25	25	34	—	150	24	42	—	—	**MS2091**	**—**	25 IP
5980778	**EVSCTL1616K0316C**	3	16	52	16	16	16	24	—	125	15	36	1/16 - 27 NPTF	1/16 - 27 NPTF	**MS2091**	**—**	25 IP
5980801	**EVSCTL2020K0316C**	3	16	52	20	20	20	29	—	125	19	37	1/16 - 27 NPTF	1/16 - 27 NPTF	**MS1595**	**—**	T30
5980776	**EVSCTL2525M0316C**	3	16	62	25	25	25	34	—	150	24	37	1/8 - 27 NPTF	1/8 - 27 NPTF	**MS1595**	**—**	T30
5980802	**EVSCTL2020K0326C**	3	26	62	20	20	20	33	4	125	19	47	1/16 - 27 NPTF	1/16 - 27 NPTF	**MS1595**	**—**	T30
5980807	**EVSCTL2525M0326C**	3	26	62	25	25	25	34	—	150	24	47	1/8 - 27 NPTF	1/8 - 27 NPTF	**MS1595**	**—**	T30
5980779	**EVSCTL1616K0416C**	4	16	52	16	16	16	24	—	125	14	36	1/16 - 27 NPTF	1/16 - 27 NPTF	**MS2091**	**—**	25 IP
5980803	**EVSCTL2020K0416C**	4	16	52	20	20	20	29	—	125	18	37	1/16 - 27 NPTF	1/16 - 27 NPTF	**MS1595**	**—**	T30
5980804	**EVSCTL2020K0426C**	4	26	62	20	20	20	33	—	125	18	47	1/16 - 27 NPTF	1/16 - 27 NPTF	**MS1595**	**—**	T30
5980808	**EVSCTL2525M0426C**	4	26	62	25	25	25	34	—	150	23	47	1/8 - 27 NPTF	1/8 - 27 NPTF	**MS1595**	**—**	T30
5980809	**EVSCTL2525M0432C**	4	32	64	25	25	25	38	4	150	23	53	1/8 - 27 NPTF	1/8 - 27 NPTF	**MS1595**	**—**	T30
5980812	**EVSCTL3232P0432C**	4	32	64	32	32	32	42	—	170	30	53	1/8 - 27 NPTF	1/8 - 27 NPTF	**MS1970**	**—**	T30
5980810	**EVSCTL2525M0526C**	5	26	62	25	25	25	34	—	150	23	47	1/8 - 27 NPTF	1/8 - 27 NPTF	**MS1970**	**—**	T30
5980811	**EVSCTL2525M0532C**	5	32	64	25	25	25	39	4	150	23	53	1/8 - 27 NPTF	1/8 - 27 NPTF	**MS1970**	**—**	T30
5980813	**EVSCTL3232P0540C**	5	40	82	32	32	32	47	4	170	30	63	1/8 - 27 NPTF	1/8 - 27 NPTF	**MS1490**	**—**	T45

screw	screw	torque				wrench	wrench
catalogue number	order number	Nm	in. lbs.	thread	socket	catalogue number	order number
MS1160	**1099645**	7	62	M5	T20	**KT20**	**1022703**
MS1162	**1127019**	9	80	M6	T25	**KT25**	**1022725**
MS1163	**1124104**	18	159	M8	T30	**KT30L**	**1099676**
MS1273	**1020977**	4	35.4	M4-0.7p	T15	**KT15**	**1022701**
MS1490	**2263299**	17	151	M8	T45	**KT45**	**1018227**
MS1595	**1094300**	12	106	M6	T30	**KT30**	**1099676**
MS1970	**1106668**	12	106	M6	T30	**KT30**	**1099676**
MS2002	**1621087**	9	80	M6-1.0P x 45	T25	**KT25**	**1022725**
MS2091	**1931147**	9	80	M5	25IP	**K25IP**	**2050113**



Left Hand



Right Hand

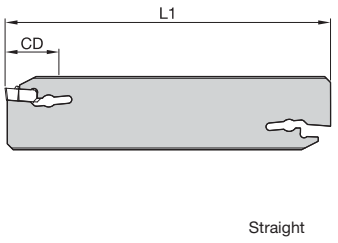
Left Hand

Right Hand

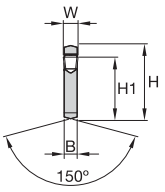
Carbide Boring Bar • Metric

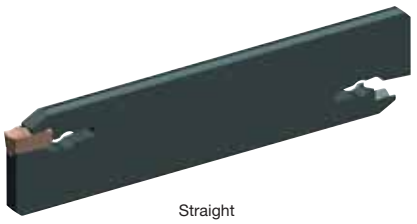
order number	catalogue number	seat size	CD	D	D min	L1	F	L4	A	CS	Torx clamp screw	Torx clamp screw	Torx
right hand													
5954259	**A16MEVEMR0307M**	3	7,00	16	20	150	11	40,3	4,00	1/8 - 27 NPT	–	**MS1273**	T15
5954260	**A20QEVEMR0307M**	3	7,00	20	25	180	13	40,3	4,00	1/8 - 27 NPT	–	**MS1160**	T20
5954281	**A25REVEMR0310M**	3	10,00	25	32	200	17	50,3	6,40	1/4 - 18 NPT	–	**MS1162**	T25
5954283	**A32SEVEMR0312M**	3	12,00	32	40	250	22	64,0	6,40	1/4 - 18 NPT	**MS1595**	–	T30
5954282	**A25REVEMR0410M**	4	10,00	25	32	200	17	50,3	6,40	1/4 - 18 NPT	–	**MS1162**	T25
5954284	**A32SEVEMR0412M**	3	12,00	32	40	250	22	64,0	6,40	1/4 - 18 NPT	**MS1595**	–	T30
left hand													
5954285	**A16MEVEML0307M**	3	7,00	16	20	150	11	40,3	4,00	1/8 - 27 NPT	–	**MS1273**	T15
5954286	**A20QEVEML0307M**	3	7,00	20	25	180	13	40,3	4,00	1/8 - 27 NPT	–	**MS1160**	T20
5954287	**A25REVEML0310M**	3	10,00	25	32	200	17	50,3	6,40	1/4 - 27 NPT	–	**MS1162**	T25
5954289	**A32SEVEML0312M**	3	12,00	32	40	250	22	64,0	6,40	1/4 - 27 NPT	**MS1595**	–	T30
5954288	**A25REVEML0410M**	4	10,00	25	32	200	17	50,3	6,40	1/4 - 18 NPT	–	**MS1162**	T25
5954290	**A32SEVEML0412M**	4	12,00	32	40	250	22	64,0	6,40	1/4 - 18 NPT	**MS1595**	–	T30

screw catalogue number	screw order number	torque Nm	torque in. lbs.	thread	socket	wrench catalogue number	wrench order number
MS1160	**1099645**	7	62	M5	T20	**KT20**	**1022703**
MS1162	**1127019**	9	80	M6	T25	**KT25**	**1022725**
MS1163	**1124104**	18	159	M8	T30	**KT30L**	**1099676**
MS1273	**1020977**	4	35.4	M4-0.7p	T15	**KT15**	**1022701**
MS1490	**2263299**	17	151	M8	T45	**KT45**	**1018227**
MS1595	**1094300**	12	106	M6	T30	**KT30**	**1099676**
MS1970	**1106668**	12	106	M6	T30	**KT30**	**1099676**
MS2002	**1621087**	9	80	M6-1.0P x 45	T25	**KT25**	**1022725**
MS2091	**1931147**	9	80	M5	25IP	**K25IP**	**2050113**

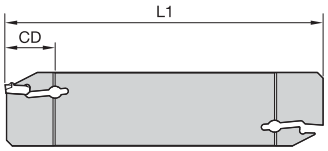


Straight

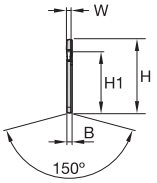


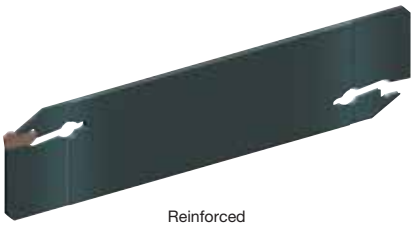


Straight



Reinforced

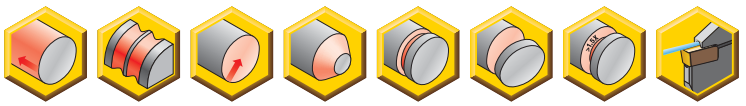


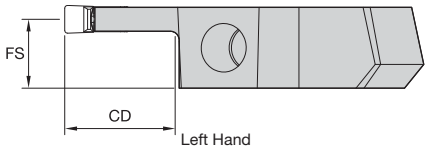


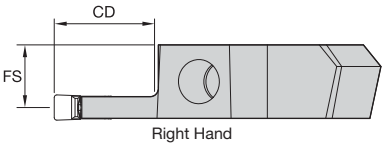
Reinforced

Double-Ended Cut-Off Blade

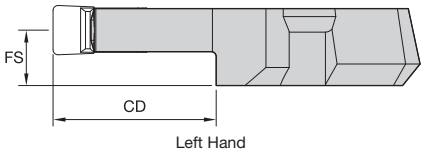
order number	catalogue number	seat size	H	W	H1	L1	B	CD	assembly wrench
left hand									
5941706	EVBSN19G1B14	1B	19	1,4	15,5	90	2	14	SCW5E
5955391	EVBSN19G1F16	1F	19	1,6	15,5	90	2	16	SCW5E
5941707	EVBSN19G0220	2	19	2,0	15,5	90	2	–	SCW5E
5941708	EVBSN26J1B15	1B	26	1,4	21,5	110	2	15	SCW5E
5955392	EVBSN26J1F17	1F	26	1,6	21,5	110	2	17	SCW5E
5941709	EVBSN26J0230	2	26	2,0	21,5	110	2	–	SCW5E
5941710	EVBSN26M0230	2	26	2,0	21,5	150	2	–	SCW5E
5941721	EVBSN26J0340	3	26	3,0	21,5	110	2	–	SCW5E
5941722	EVBSN26M0340	3	26	3,0	21,5	150	2	–	SCW5E
5941723	EVBSN26J0440	4	26	4,0	21,5	110	3	–	SCW5E
5977635	EVBSN26J0540	5	26	5,0	21,5	110	4	–	SCW5E
5977636	EVBSN26J0640	6	26	6,0	21,5	110	5	–	SCW8E
5941725	EVBSN32M0350	3	32	3,0	25,1	150	2	–	SCW5E
5941724	EVBSN32M0250	2	32	2,0	25,1	150	2	–	SCW5E
5941726	EVBSN32M0450	4	32	4,0	25,1	150	3	–	SCW5E
5977637	EVBSN32M0560	5	32	5,0	25,1	150	4	–	SCW5E
5977638	EVBSN32M0660	6	32	6,0	25,1	150	5	–	SCW8E
5977639	EVBSN32M0860	8	32	8,0	25,1	150	7	–	SCW8E
5977640	EVBSN52X06120	6	53	6,0	45,3	260	5	–	SCW8E
5977721	EVBSN52X08120	8	53	8,0	45,3	260	7	–	SCW8E

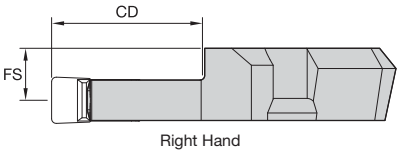






(50 blade size shown)





(65 blade size shown)

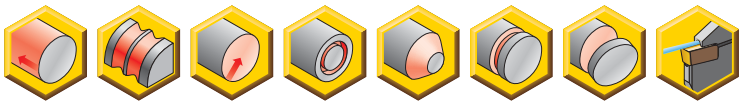
Modular Straight Blade with Coolant

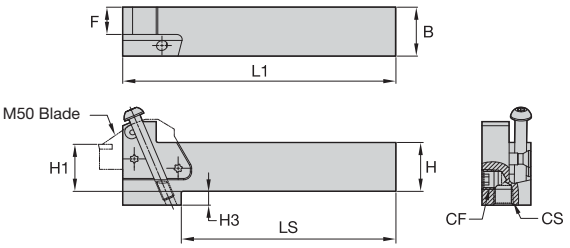
order number	catalogue number	seat size	CD	FS	blade size
right hand					
6031041	**EVM50R1F12M**	1F	12,0	11,00	50
6030969	**EVM50R0212M**	2	12,0	10,88	50
5955423	**EVM50R0216MC**	2	16,0	10,88	50
5979200	**EVM50R0312MC**	3	12,0	10,43	50
5979010	**EVM50R0316MC**	3	16,0	10,43	50
5979181	**EVM50R0322MC**	3	22,0	10,43	50
5979201	**EVM50R0412MC**	4	12,0	9,93	50
5979182	**EVM50R0416MC**	4	16,0	9,93	50
5979183	**EVM50R0422MC**	4	22,0	9,93	50
5979198	**EVM50R0426MC**	4	26,0	9,93	50
5979184	**EVM50R0432MC**	4	32,0	9,93	50
6031031	**EVM50R0512MC**	5	12,0	9,43	50
6031033	**EVM50R0516MC**	5	16,0	9,43	50
6031035	**EVM65R0616MC**	5	16,0	9,88	65
5955415	**EVM50R0526MC**	5	26,0	9,43	50
5955416	**EVM50R0532MC**	5	32,0	9,43	50
5955417	**EVM65R0626MC**	6	26,0	9,88	65
6031037	**EVM65R0632MC**	6	32,0	9,88	65
6031039	**EVM65R0816MC**	8	16,0	9,00	65
5955418	**EVM65R0826MC**	8	26,0	9,00	65

(continued)

(Modular Straight Blade with Coolant — continued)

order number	catalogue number	seat size	CD	FS	blade size
left hand					
6031042	EVM50L1F12M	1F	12,0	11,00	50
6030970	EVM50L0212M	2	12,0	10,88	50
5955424	EVM50L0216MC	2	16,0	10,88	50
5979202	EVM50L0312MC	3	12,0	10,43	50
5979185	EVM50L0316MC	3	16,0	10,43	50
5979186	EVM50L0322MC	3	22,0	10,43	50
5979203	EVM50L0412MC	4	12,0	9,93	50
5979187	EVM50L0416MC	4	16,0	9,93	50
5979188	EVM50L0422MC	4	22,0	9,93	50
5979199	EVM50L0426MC	4	26,0	9,93	50
5979189	EVM50L0432MC	4	32,0	9,93	50
6031032	EVM50L0512MC	5	12,0	9,93	50
6031034	EVM50L0516MC	5	16,0	9,43	50
6031036	EVM65L0616MC	5	16,0	9,88	65
5955419	EVM50L0526MC	5	26,0	9,43	50
5955420	EVM50L0532MC	5	32,0	9,43	50
5955421	EVM65L0626MC	6	26,0	9,88	65
6031038	EVM65L0632MC	6	32,0	9,88	65
6031040	EVM65L0816MC	8	16,0	9,00	65
5955422	EVM65L0826MC	8	26,0	9,00	65

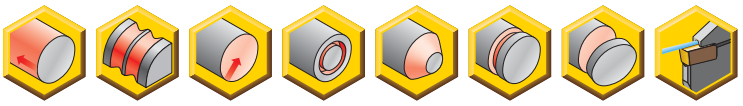


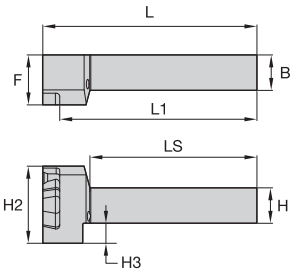


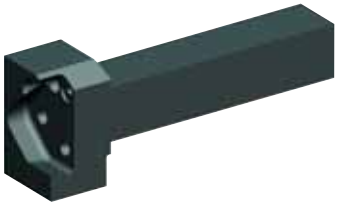
KGMS-C • Metric

order number	catalogue number	B	H	H1	L1	F	CS	CF	LS	H2	H3	blade size	blade screw	Torx	clamping screw	Torx
right hand																
5979190	**KGMSR2525M50C**	25	25	25	138,75	13,84	1/8 - 27 NPTF	1/8 - 27 NPTF	109,00	1.67	7,00	50	**MS1162**	T25	**MS2002**	T25
5979745	**KGMSR2525M65C**	25	25	25	150,00	13,00	1/8 - 27 NPTF	1/8 - 27 NPTF	115,00	2.16	14,00	65	**MS1163**	T30	**–**	–
5979746	**KGMSR3232P50C**	32	32	32	158,75	20,81	1/8 - 27 NPTF	1/8 - 27 NPTF	138,62	1.74	–	50	**MS1162**	T25	**MS2002**	T25
5979747	**KGMSR3232P65C**	32	32	32	170,00	20,00	1/8 - 27 NPTF	1/8 - 27 NPTF	142,00	2.12	7,00	65	**MS1163**	T30	**–**	–
left hand																
5979191	**KGMSL2525M50C**	25	25	25	138,75	13,84	1/8 - 27 NPTF	1/8 - 27 NPTF	109,00	1.67	7,00	50	**MS1162**	T25	**MS2002**	T25
5979748	**KGMSL2525M65C**	25	25	25	150,00	13,00	1/8 - 27 NPTF	1/8 - 27 NPTF	115,00	2.16	14,00	65	**MS1163**	T30	**–**	–
5979749	**KGMSL3232P50C**	32	32	32	158,75	20,80	1/8 - 27 NPTF	1/8 - 27 NPTF	138,50	1.74	–	50	**MS1162**	T25	**MS2002**	T25
5979750	**KGMSL3232P65C**	32	32	32	170,00	20,00	1/8 - 27 NPTF	1/8 - 27 NPTF	142,00	2.12	7,00	65	**MS1163**	T30	**–**	–

NOTE: KGMS..: Right-hand holder uses right-hand blades.
KGME..: Right-hand holder uses left-hand blades.
M50 blade and clamp screw torque equals 8–10 Nm (71–88 in. lbs.).
M65 blade and clamp screw torque equals 18–20 Nm (159–177 in. lbs.).



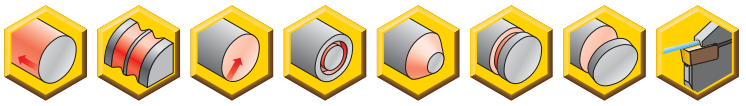


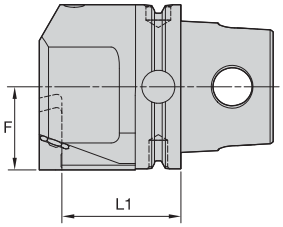


KGME-C • Metric

order number	catalogue number	B	H	H1	L1	F	LS	H2	H3	blade size	blade screw	Torx	clamping screw	Torx
right hand														
5979765	**KGMER2525M65C**	25	25	25	138,15	35,00	117,00	2.13	14,00	65	**MS1163**	T30	–	–
5979192	**KGMER2525M50C**	25	25	25	139,25	40,00	125,25	1.67	7,00	50	**MS1162**	T25	**MS2002**	T25
5979767	**KGMER3232P65C**	32	32	32	158,15	35,00	137,00	2.13	7,00	65	**MS1163**	T30	–	–
5979766	**KGMER3232P50C**	32	32	32	159,25	40,00	145,25	1.67	–	50	**MS1162**	T25	**MS2002**	T25
left hand														
5979768	**KGMEL2525M65C**	25	25	25	138,15	35,00	117,00	2.13	14,00	65	**MS1163**	T30	–	–
5979193	**KGMEL2525M50C**	25	25	25	139,25	40,00	125,25	1.67	7,00	50	**MS1162**	T25	**MS2002**	T25
5979770	**KGMEL3232P65C**	32	32	32	158,15	35,00	137,00	2.13	7,00	65	**MS1163**	T30	–	–
5979769	**KGMEL3232P50C**	32	32	32	159,25	40,00	145,25	1.67	–	50	**MS1162**	T25	**MS2002**	T25

NOTE: KGMS..: Right-hand holder uses right-hand blades.
KGME..: Right-hand holder uses left-hand blades.
M50 blade and clamp screw torque equals 8–10 Nm (71–88 in. lbs.).
M65 blade and clamp screw torque equals 18–20 Nm (159–177 in. lbs.).

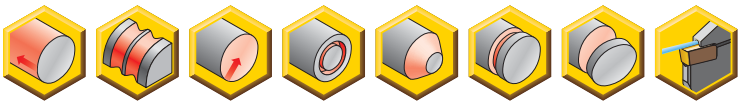


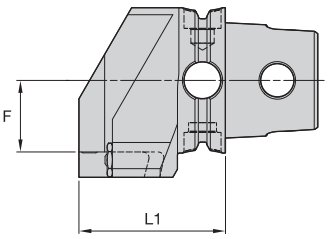


Modular End Mount KM System with Coolant

order number	catalogue number	CSMS system size	L1	F	blade size	blade screw	Torx	clamp screw	Torx
right hand									
5999788	**KM40TSKGMER50C**	KM40TS	28,0	20,5	50	**MS1162**	T25	**MS2002**	T25
5999862	**KM50TSKGMER50C**	KM50TS	38,0	25,5	50	**MS1162**	T25	**MS2002**	T25
5999946	**KM63TSKGMER50C**	KM63TS	48,0	32,5	50	**MS1162**	T25	**MS2002**	T25
5999950	**KM63XMZKGMER50CY**	KM63XMZ	48,0	32,5	50	**MS1162**	T25	**MS2002**	T25
6000016	**KM80ATCKGMER50C**	KM80ATC	58,0	40,5	50	**MS1162**	T25	**MS2002**	T25
6000012	**KM80TSKGMER50C**	KM80TS	58,0	40,5	50	**MS1162**	T25	**MS2002**	T25
left hand									
5999789	**KM40TSKGMEL50C**	KM40TS	28,0	20,5	50	**MS1162**	T25	**MS2002**	T25
5999863	**KM50TSKGMEL50C**	KM50TS	38,0	25,5	50	**MS1162**	T25	**MS2002**	T25
5999947	**KM63TSKGMEL50C**	KM63TS	48,0	32,5	50	**MS1162**	T25	**MS2002**	T25
5999971	**KM63XMZKGMELF50CY**	KM63XMZ	48,0	32,5	50	**MS1162**	T25	**MS2002**	T25
6000017	**KM80ATCKGMEL50C**	KM80ATC	58,0	40,5	50	**MS1162**	T25	**MS2002**	T25
6000013	**KM80TSKGMEL50C**	KM80TS	58,0	40,5	50	**MS1162**	T25	**MS2002**	T25

NOTE: KGMS..: Right-hand holder uses right-hand blades.
KGME..: Right-hand holder uses left-hand blades.
M50 blade and clamp screw torque equals 8–10 Nm (71–88 in. lbs.).
M65 blade and clamp screw torque equals 18–20 Nm (159–177 in. lbs.).



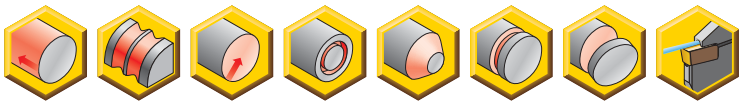


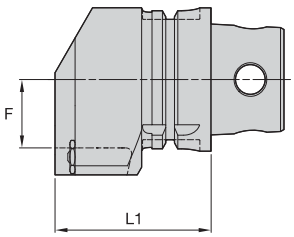
KM QUICK CHANGE

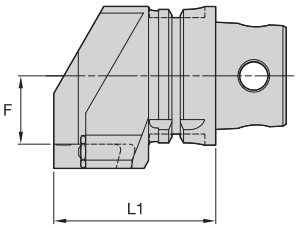
Modular Straight KM System with Coolant

order number	catalogue number	CSMS system size	L1	F	blade size	blade screw	Torx	clamp screw	Torx
right hand									
5999790	**KM40TSKGMSR50C**	KM40TS	53,5	15,0	50	**MS1162**	T25	**MS2002**	T25
5999864	**KM50TSKGMSR50C**	KM50TS	58,5	23,0	50	**MS1162**	T25	**MS2002**	T25
5999948	**KM63TSKGMSR50C**	KM63TS	63,5	31,0	50	**MS1162**	T25	**MS2002**	T25
5999972	**KM63XMZKGMSR50CY**	KM63XMZ	63,5	31,0	50	**MS1162**	T25	**MS2002**	T25
6000018	**KM80ATCKGMSR50C**	KM80ATC	66,5	41,0	50	**MS1162**	T25	**MS2002**	T25
6000014	**KM80TSKGMSR50C**	KM80TS	66,5	41,0	50	**MS1162**	T25	**MS2002**	T25
left hand									
5999861	**KM40TSKGMSL50C**	KM40TS	53,5	15,0	50	**MS1162**	T25	**MS2002**	T25
5999865	**KM50TSKGMSL50C**	KM50TS	58,5	23,0	50	**MS1162**	T25	**MS2002**	T25
5999949	**KM63TSKGMSL50C**	KM63TS	63,5	31,0	50	**MS1162**	T25	**MS2002**	T25
5999973	**KM63XMZKGMSLF50CY**	KM63XMZ	63,5	31,0	50	**MS1162**	T25	**MS2002**	T25
6000019	**KM80ATCKGMSL50C**	KM80ATC	66,5	41,0	50	**MS1162**	T25	**MS2002**	T25
6000015	**KM80TSKGMSL50C**	KM80TS	66,5	41,0	50	**MS1162**	T25	**MS2002**	T25

NOTE: KGMS..: Right-hand holder uses right-hand blades.
KGME..: Right-hand holder uses left-hand blades.
M50 blade and clamp screw torque equals 8–10 Nm (71–88 in. lbs.).
M65 blade and clamp screw torque equals 18–20 Nm (159–177 in. lbs.).





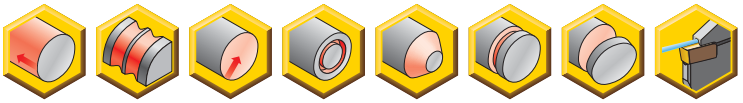


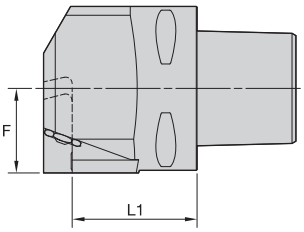
KM QUICK CHANGE

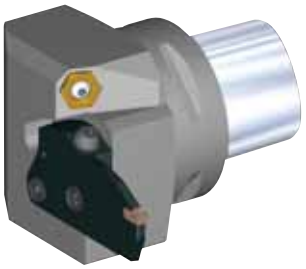
Modular Straight KM4X™ System with Coolant

order number	catalogue number	CSMS system size	L1	F	blade size	blade screw	Torx
right hand							
5543560	**KM4X63KGMSR65C**	KM4X63	68,5	30,0	65	**MS1163**	T30
left hand							
5543558	**KM4X63KGMSL65C**	KM4X63	68,5	30,0	65	**MS1163**	T30

NOTE: KGMS..: Right-hand holder uses right-hand blades.
KGME..: Right-hand holder uses left-hand blades.
M50 blade and clamp screw torque equals 8–10 Nm (71–88 in. lbs.).
M65 blade and clamp screw torque equals 18–20 Nm (159–177 in. lbs.).



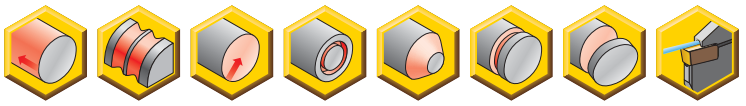


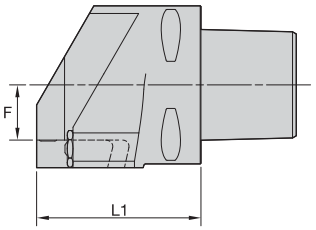


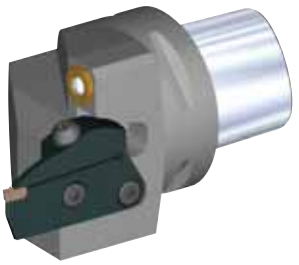
Modular End Mount PSC System with Coolant

order number	catalogue number	CSMS system size	L1	F	blade size	blade screw	Torx	clamp screw	Torx
right hand									
6000026	**PSC40KGMER50C**	PSC40	33,0	20,5	50	**MS1162**	T25	**MS2002**	T25
6000030	**PSC50KGMER50C**	PSC50	43,0	25,5	50	**MS1162**	T25	**MS2002**	T25
5405652	**PSC50KGMER65C**	PSC50	55,5	22,0	65	**MS1163**	T30	**–**	–
6000159	**PSC63KGMER50C**	PSC63	48,0	32,5	50	**MS1162**	T25	**MS2002**	T25
6000214	**PSC80KGMER50C**	PSC80	58,0	40,5	50	**MS1162**	T25	**MS2002**	T25
left hand									
6000027	**PSC40KGMEL50C**	PSC40	33,0	20,5	50	**MS1162**	T25	**MS2002**	T25
6000151	**PSC50KGMEL50C**	PSC50	43,0	25,5	50	**MS1162**	T25	**MS2002**	T25
5405653	**PSC50KGMEL65C**	PSC50	55,5	22,0	65	**MS1163**	T30	**–**	–
6000160	**PSC63KGMEL50C**	PSC63	48,0	32,5	50	**MS1162**	T25	**MS2002**	T25
6000215	**PSC80KGMEL50C**	PSC80	58,0	40,5	50	**MS1162**	T25	**MS2002**	T25

NOTE: KGMS..: Right-hand holder uses right-hand blades.
KGME..: Right-hand holder uses left-hand blades.
M50 blade and clamp screw torque equals 8–10 Nm (71–88 in. lbs.).
M65 blade and clamp screw torque equals 18–20 Nm (159–177 in. lbs.).







Modular Straight PSC System with Coolant

order number	catalogue number	CSMS system size	L1	F	blade size	blade screw	Torx	clamp screw	Torx
right hand									
6000028	**PSC40KGMSR50C**	PSC40	63,5	10,0	50	**MS1162**	T25	**MS2002**	T25
5405654	**PSC50KGMSR65C**	PSC50	49,0	25,5	65	**MS1163**	T30	**–**	–
6000152	**PSC50KGMSR50C**	PSC50	63,5	15,0	50	**MS1162**	T25	**MS2002**	T25
6000211	**PSC63KGMSR50C**	PSC63	65,5	22,0	50	**MS1162**	T25	**MS2002**	T25
6000216	**PSC80KGMSR50C**	PSC80	73,5	30,0	50	**MS1162**	T25	**MS2002**	T25
left hand									
6000029	**PSC40KGMSL50C**	PSC40	63,5	10,0	50	**MS1162**	T25	**MS2002**	T25
5405655	**PSC50KGMSL65C**	PSC50	49,0	25,5	65	**MS1163**	T30	**–**	–
6000153	**PSC50KGMSL50C**	PSC50	63,5	15,0	50	**MS1162**	T25	**MS2002**	T25
6000213	**PSC63KGMSL50C**	PSC63	65,5	22,0	50	**MS1162**	T25	**MS2002**	T25
6000217	**PSC80KGMSL50C**	PSC80	73,5	30,0	50	**MS1162**	T25	**MS2002**	T25

NOTE: KGMS..: Right-hand holder uses right-hand blades.
KGME..: Right-hand holder uses left-hand blades.
M50 blade and clamp screw torque equals 8–10 Nm (71–88 in. lbs.).
M65 blade and clamp screw torque equals 18–20 Nm (159–177 in. lbs.).

Looking for a product that's not shown in this catalogue?

Check the Kennametal website!

Online product catalogue available 24/7

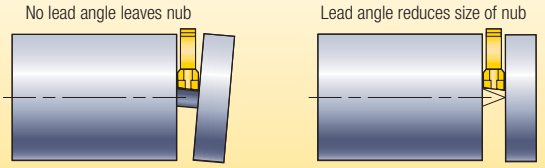
Visit http://**www.kennametal.com/Turning/** to browse our electronic catalogue any time you're looking for Kennametal's best tooling solutions. It's fast, free, and always available. The online e-catalogue is updated weekly with products and solutions for milling, turning, holemaking, and tooling systems applications.

Tool Application Guidelines

- Always use good general machining practices.
- Make the machine and workpiece setup as rigid as possible.
- Integral shank toolholders offer the best rigidity. They should be your first toolholder choice, when possible.
- Use the toolholder with the shortest possible depth of cut for the application (“CD” dimension).
- When changing inserts, make sure the new insert locates securely against the toolholder’s positive stop.
- Never tighten the clamping screw without an insert in the pocket.
- Toolholder projection out of the tool block should be as short as possible.
- Inserts should cut as close to centre as possible.
- Dwell time in bottom of groove should be less than three revolutions.
- Recommended cutting speed and feeds are a starting point. Adjust, as necessary, for optimum tool life and chip control.

Definitions and Guidelines

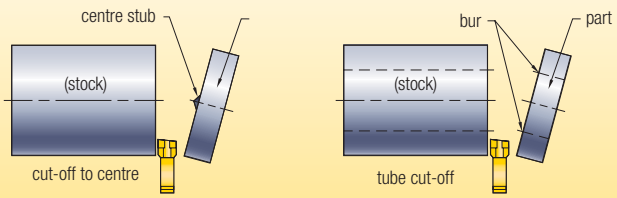
1. Width of cut (W) = width of the insert.
2. Lead angle = 0° (neutral); 6° (RH or LH).



Reduce bur of cut-off faces:

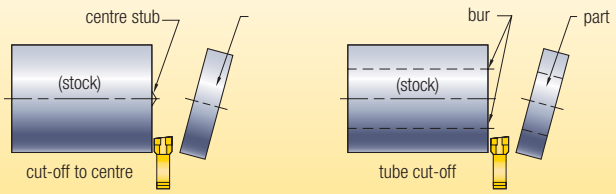
- Use lead angle-type inserts (Figures 1 and 2). Lead angle on a cut-off insert reduces the bur that remains on the part but decreases tool life and increases tool side deflection and possibly cycle time.
- If 0° lead angle is mandatory, use the narrowest possible cut-off insert and blade. This will minimise the centre stub or cut-off bur length.

Figure 1
Insert selection **left-hand lead**



Left-hand lead insert leaves centre stub or bur on part and produces clean stock surface.

Figure 2
Insert selection **right-hand lead**



Reduces nub but decreases tool life and productivity

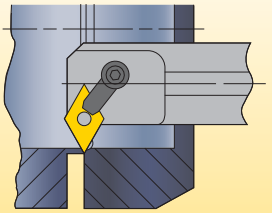
Right-hand lead insert leaves centre stub or bur on stock and produces clean part surface.

- Check total height and maintain on centre with part diameter.
- The cutting edge height should be within ±0,1mm (.004") to the centre; recommended cutting position is 0,05mm (.002") above centre.

Tubing

- On tubing-type parts that require a chamfer on the I.D., align I.D. chamfer tool with cut-off surface. This will enable the chamfering operation to actually separate the part from the bar (see Figure 3). Note the part may drop onto the chamfering bar, which, in this case, will act like a catcher for the part.

Figure 3

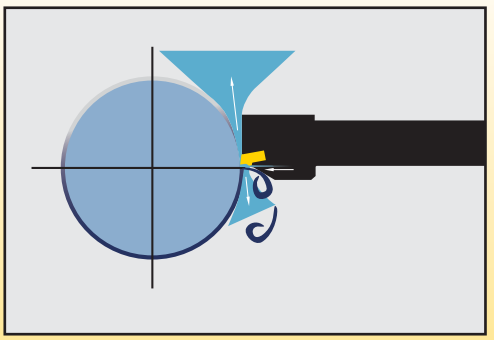


Internal chamfer line up

Improve surface finish of cut-off faces:

- Use insert with 0° lead angle.
- Increase coolant flow or improve application technique, as shown in Figure 4.
- Decrease the feed rate near the break-through point of the cut.
- Check that the grooving tool is set at the correct angle.
- Use blades with the greatest possible face height and smallest possible cutting width.
- Increase the speed.

Figure 4

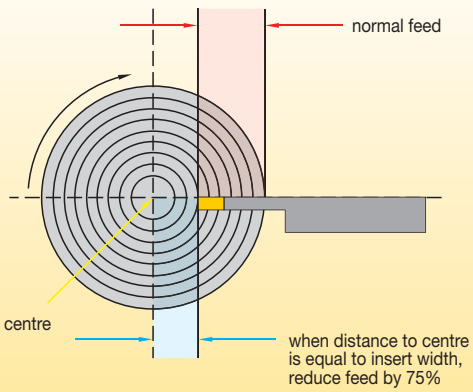


Preferred method for applying coolant

- Mount cut-off tool upside down. This enables gravity to remove chips and avoid cutting the chips twice. Another benefit of mounting the tool upside down is preventing chips from wedging between the tool insert and the groove side walls, which galls the side wall surfaces.

Programming Guidelines

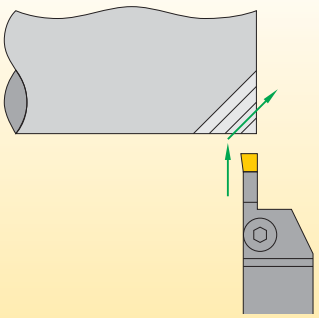
Feed reduction in cut-off



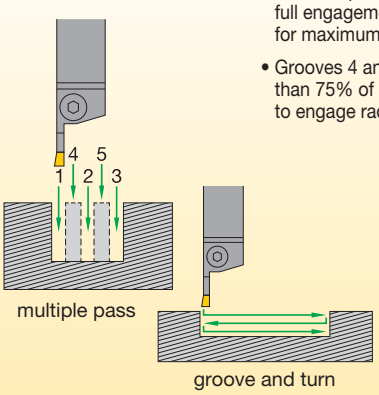
Feed reduction when approaching centre = longer tool life

Chamfering

Chamfering with a grooving tool reduced machine index time and tool stations



Pocketing



- In a multiple-pass operation, generate full engagement grooves in 1, 2, and 3 for maximum stability.
- Grooves 4 and 5 should be no more than 75% of insert width, so as not to engage radii.

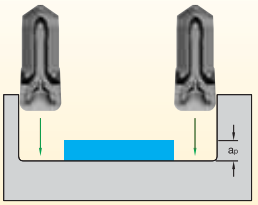
If pocket is deeper than wide = multiple pass

If pocket is wider than deep = groove and turn

Square Pocket

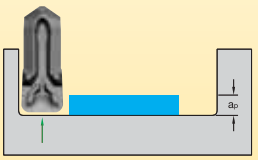
Steps 1 and 2

Plunge the radius and wall on each side to open up two grooves.



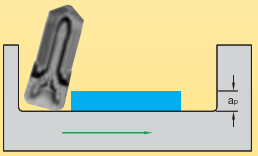
Step 3

Retract tool 0,1mm; this is necessary to create a flat bottom.



Step 4

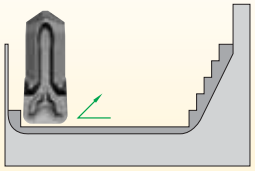
Side turn. This tool is designed to deflect, creating the necessary front clearance.



Profile Pocket

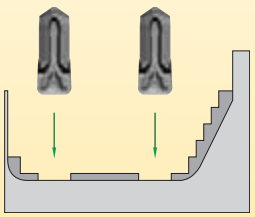
Step 1

Rough to have about the same amount of stock left on all surfaces for finish.



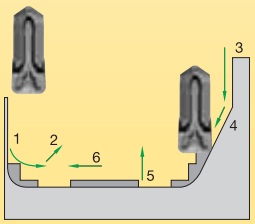
Step 2

Open up two grooves away from wall and radius.



Step 3

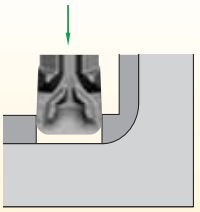
(1 and 2) Finish wall and radius. (3 and 4) Finish wall, angle, and radius on opposite side of pocket. (5) Retract tool 0,1mm. (6) Side turn to finish the floor of the pocket.



Generating a Radius

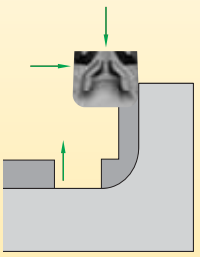
Step 1

Open up a groove away from the radius.



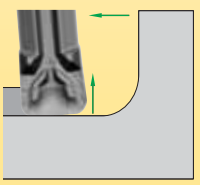
Step 2

Retract and move the material on the wall and generate the radius. By generating the groove in the prior step, only one surface is engaged at a time, reducing the risk of vibrations.



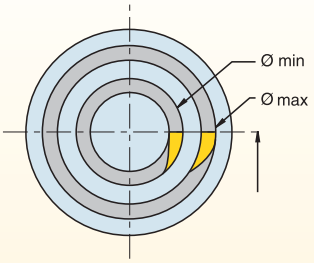
Step 3

Retract the tool 0,1mm and then side turn.



Grooving Tool Failure and Solution Guide

Face Grooving Application Guidelines

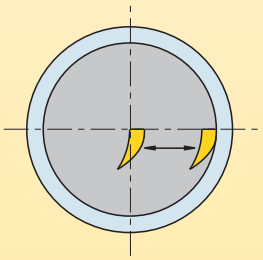


Tool Selection
- When selecting the toolholder, always start at the largest diameter possible and work toward the smaller diameter. This will allow the strongest tool to be used.

Cutting the First Groove
- The outside diameter of the first groove must be between the diameter minimum and diameter maximum capability of the face grooving tool (see illustration above). This creates clearance for the toolholder.

Chip Control
- Adjust speed and feed for good chip control and evacuation from the groove. Chip compaction can cause poor surface finish, tool breakage, and reduced tool life.

Tool Setting
- The tool should be set as close to the center as possible to avoid extreme formation of burs.
- Align the cutting edge square to the workpiece.



Widening a Face Groove
- After the first groove has been cut, the groove width can be widened in either direction using the same tool. The best practice is to work from the O.D. to the I.D.

Practical Solutions to Grooving Problems

problem	remedy
bur	1. Verify tool centre height. 2. Use sharp tools (index more often). 3. Use positive rake PVD coated insert. 4. Use correct grade for workpiece material. 5. Use correct geometry (e.g., positive rake for workhardening material). 6. Change tool path.
poor surface finish	1. Increase speed. 2. Use sharp tools (index more often). 3. Dwell time in bottom 1–3 revolutions (max). 4. Use proper chip control geometry. 5. Increase coolant flow. 6. Verify proper setup (overhang, shank size). 7. Use correct geometry (e.g., positive rake for workhardening material).
groove bottom not flat	1. Use sharp tools (index more often). 2. Dwell time in bottom 1–3 revolutions (max). 3. Reduce tool overhang (increase rigidity). 4. Reduce feed rate at groove bottom. 5. Use a wider insert. 6. Verify tool center height.
poor chip control	1. Use sharp tools (index more often). 2. Increase coolant concentration. 3. Adjust feed rate (usually increase first).
chatter	1. Reduce tool and workpiece overhang. 2. Adjust speed (usually increase first). 3. Adjust feed (usually increase first). 4. Verify tool centre height.
insert chipping	1. Use correct grade for workpiece material. 2. Increase speed. 3. Reduce feed. 4. Use a stronger grade. 5. Increase tool and setup rigidity.
built-up edge	1. Use positive rake PVD coated insert. 2. Increase speed. 3. Reduce feed. 4. Increase coolant flow/concentration. 5. Use cermets.
side walls not straight	1. Check tool alignment for square. 2. Reduce workpiece and tool overhang. 3. Use sharp inserts (index more often).

INNOVATIONS **CATALOGUE**

WORLD AND CORPORATE HEADQUARTERS
Kennametal Inc.
1600 Technology Way
Latrobe, PA 15650 USA
Phone: 800 446 7738 (United States and Canada)
E-mail: ftmill.service@kennametal.com

EUROPEAN HEADQUARTERS
Kennametal Europe GmbH
Rheingoldstrasse 50
CH 8212 Neuhausen am Rheinfall
Switzerland
Phone: +41 52 6750 100
E-mail: neuhausen.info@kennametal.com

ASIA-PACIFIC HEADQUARTERS
Kennametal Singapore Pte. Ltd.
3A International Business Park
Unit #01-02/03/05, ICON@IBP
Singapore 609935
Phone: +65 6265 9222
E-mail: k-sg.sales@kennametal.com

INDIA HEADQUARTERS
Kennametal India Limited
CIN: L27109KA1964PLC001546
8/9th Mile, Tumkur Road
Bangalore - 560 073
Phone: +91 080 22198444 or +91 080 43281444
E-mail: bangalore.information@kennametal.com

KENNAMETAL®

www.kennametal.com

©2015 by Kennametal Inc., Latrobe, PA 15650 USA
All rights reserved. I A-15-04478EN_me