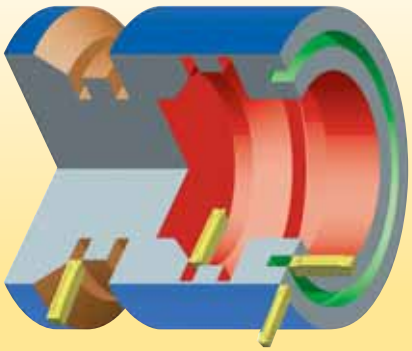
Step 1 • Select A4 size for grooving and turning application

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).



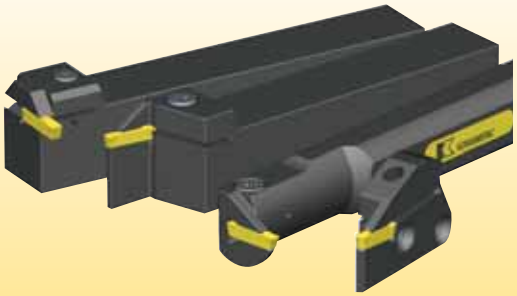
General Recommendation to Select the Insert Size

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

Step 2 • Select toolholder based on the application

	conventional toolholders	modular blades
O.D. grooving, cut-off, and turning	page D82	page D94
face grooving	page D85	page D95
I.D. grooving, cut-off, and turning	page D87	—

NOTE: Insert seat size must match the seat size of the toolholder.



Step 3 • Select chipbreaker style and feed rate

Choose Chipbreaker Based on Material Type

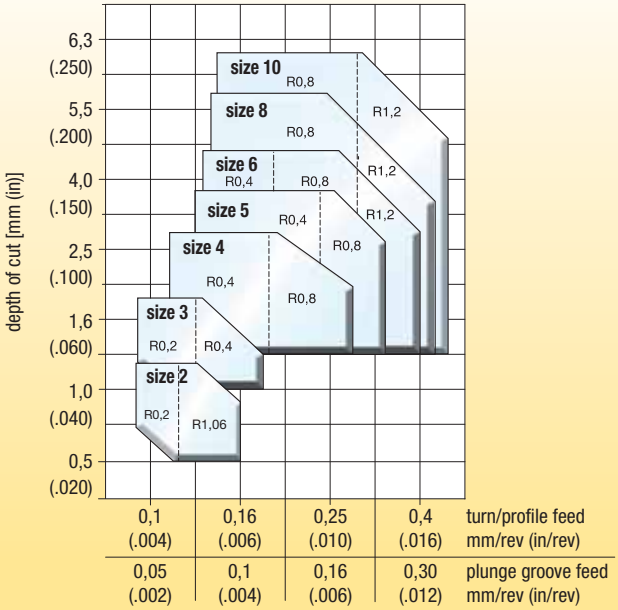
P	M	N	S	H
GMN	GUP/GMP	GUP/GMP precision ground (-E for KD 1405)	GUP/GMP precision ground	GMN

NOTE: Precision ground A4-P-GMN inserts can be applied on all material groups for inch-width grooving.

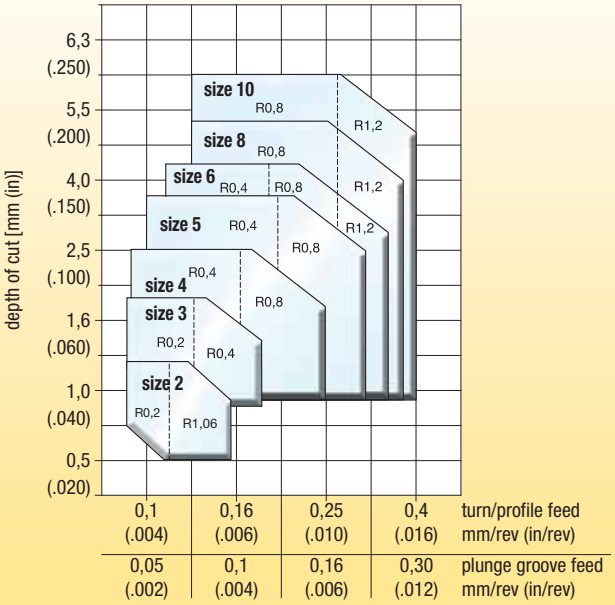
Depth of Cut and Feed Guidelines

square inserts (A4G...)			full radius inserts (A4R...)	
GMN chipbreaker	GMP chipbreaker	GUP chipbreaker	GMN chipbreaker	GMP chipbreaker
• Groove and turn moulded and precision ground inserts. • Stable cutting edge. • Available in metric and inch widths.	• Groove and turn inserts. • Available in moulded and precision-ground styles. • Positive rake angle. • Available in metric widths only.	• Groove and turn inserts in new Beyond™ grades. • Available in moulded and precision-ground styles. • Positive rake angle with enhanced chip control. • Available in metric widths only.	• Maximum turning and profiling depth of cut equals half the insert width. • The maximum turn and profile feed rate depends on the material to be machined and the depth of cut. For easy-to-machine materials, feed can be increased up to 1,5 times.	• Groove and turn inserts. • Available in moulded and precision-ground styles. • Positive rake angle. • Available in metric widths only.

GMN



GMP/GUP



NOTE: Select feed based on nose radius.
Diagram explanation: R0,2 - R = corner radius; 0,2 = 0,2mm radius.

Step 4 • Select grade and speed

Recommended Beyond™ Grades

cutting condition		P	M	K	N	S	H
heavily interrupted cut		KCU25/KC5025	KCU25/KC5025	KC9125	KCU25/KC5025	KCU25/KC5025	—
lightly interrupted cut		KCP25/KC9125/ KC9125/KCU25/ KC5025	KCU25/KC5025	KC9125	KCU25/KC5025	KCU25/KC5025	—
varying depth of cut, casting, or forging skin		KCU10/KC5010	KCU10/KC5010	KC9110	KCU10/KC5010/ KD1405	K313/KU10/ KCU10/KC5010	KCU10/KC5010
smooth cut, pre-turned surface		KT315/KCP10/ KC9110	KT315	KC9110	KCU10/KC5010/ KD1405	K313/KU10/ KCU10/KC5010	KCU10/KC5010

Recommended Beyond Cutting Speeds

Steel — speed — m/min (SFM) — starting conditions

material group	grade	60	120	185	245	300	360	m/min
P	KCU10							120
	KCP10							275
	KCP25							220
	KC5025							120
	KC9110							250
	KC9125							200
	KT315**							260

**KT315 is an alternative choice for steel; primarily available in the GMP chipbreaker.

Stainless Steel — speed — m/min (SFM) — starting conditions

material group	grade	45	90	140	185	230	275	m/min
M	KU10							55
	KCU10							140
	KCU25							110
	KC5010							135
	KC5025							105
	KT315							170

Non-Ferrous Metals — speed — m/min (SFM) — starting conditions

material group	grade	150	300	460	610	760	900	m/min
N	KC5025							365
	KC5010							455
	KD1405***							610

***Recommended for high-silicon aluminium alloys and abrasive nonmetallics.

High-Temperature Alloys — speed — m/min (SFM) — starting conditions

material group	grade	15	35	55	75	90	140	m/min
S	KU10							22
	KCU10							65
	KCU25							50
	KC5010							60
	KC5025							45
	KT315							30

Hardened Materials — speed — m/min (SFM) — starting conditions

material group	grade	15	35	55	75	95	115	m/min
H	KC5010							30

Step 5 • Select insert and holder from catalogue page

NOTE: The insert seat size must match the seat size of your toolholder selection.

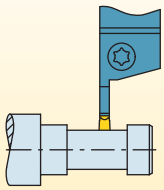
Example for A4 — Groove and Turn

Material.....low-alloyed steel
Workpiece O.D. 38mm
Groove depth 12mm
Groove width 22mm
Lightly interrupted cut

Recommendation

Insert A4G0405M04U08GMN
Grade KC9125
Insert width 4,05mm
Insert seat size 4

Toolholder A4SMR160417
Grooving depth..... 17mm
Seat size 4



Speed: 200 m/min
Feed: 0,25 mm/rev
Plunge feed: 0,14 mm/rev

Congratulations!

You have successfully maximised your productivity by selecting the best A4 insert geometry, grade, and cutting specifications for your application!