

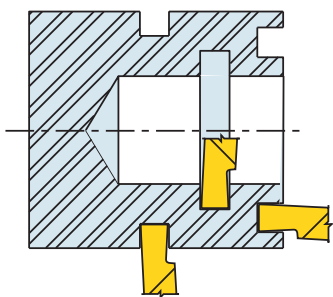


### What you need to know:

- groove depth, width, and profile
- material to be machined
- application to be performed (Face, OD, or ID grooving)
- toolholder requirements (ie: KM, square shank, right/left)

### 1st Step – Choose Your System Based on the Groove Depth Required

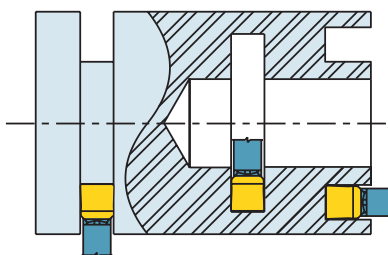
#### Top Notch



#### Grooving

For grooving depth  $\leq 1.5 \times$  grooving width,  
see Top Notch Grooving, page B8.

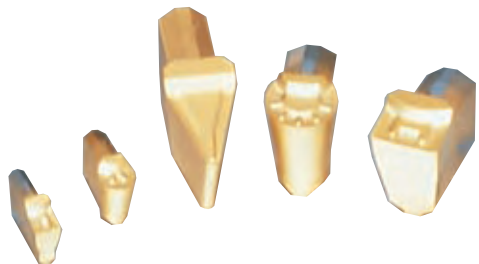
#### A3 or A4



#### Deep Grooving

For grooving depth  $\geq 1.5 \times$  grooving width,  
proceed to Step 2 for the A3 Deep Grooving program  
or see A4 Groove & Turn program on page B38.

### A3 Deep Grooving for deep internal, external, and face grooving applications



#### System Capabilities

Groove	min.	max.
Width	.087 in. (2,25 mm)	.397 in. (10,05 mm)
Depth	–	1.260 in. (32 mm)

Face grooving diameter range: .984 in. (25 mm) to  $\infty$

### 2nd Step – Choose Your Toolholder Based on the Application

Note: Toolholders are available as conventional square shank versions and as well as quick-change versions.  
Please select equal seat sizes for the insert and the toolholder.

- ID grooving applications → see page B75
- Face grooving with integral square shank toolholders → see page B72
- OD grooving with integral square shank toolholders → see page B71
- Face and OD grooving with modular toolholders → see pages B77 - B82

### 3rd Step – Select Chipbreaker Style and Feed Rate

#### DF – Deep Finishing



#### DM – Deep Medium






#### DR – Deep Roughing





### Chipbreaker and Feed Rates – in/rev (mm/rev)

Workpiece Material and Application	Steel	Stainless Steel	Cast Iron	Non-Ferrous Metals	High-Temp Alloys	Hardened Materials
 <b>Deep OD Grooving</b>	<b>DM</b> .002 - .010 (0,05 - 0,25)	<b>DF</b> .002 - .006 (0,05 - 0,15)	<b>DM</b> .002 - .009 (0,05 - 0,23)	<b>DF</b> .002 - .010 (0,05 - 0,25)	<b>DF</b> .002 - .005 (0,05 - 0,13)	<b>CBN tip on request</b> .002 - .004 (0,05 - 0,10)
	<b>DF</b> .002 - .007 (0,05 - 0,18)	–	–	–	–	–
 <b>Face &amp; ID Grooving</b>	<b>DF</b> .002 - .006 (0,05 - 0,15)	<b>DF</b> .002 - .005 (0,05 - 0,13)	<b>DM</b> .002 - .007 (0,05 - 0,18)	<b>DF</b> .002 - .007 (0,05 - 0,18)	<b>DF</b> .0015 - .004 (0,04 - 0,10)	<b>CBN tip on request</b> .002 - .004 (0,05 - 0,10)
	–	–	<b>DF</b> .002 - .006 (0,05 - 0,15)	–	–	–
 <b>Profiling</b>	<b>DR</b> .004 - .015 (0,10 - 0,40)	<b>DF</b> .002 - .010 (0,05 - 0,25)	<b>DR</b> .004 - .015 (0,10 - 0,40)	<b>DF</b> .002 - .010 (0,05 - 0,25)	<b>DF</b> .002 - .010 (0,05 - 0,25)	<b>CBN tip on request</b> .002 - .004 (0,05 - 0,10)
	<b>DF</b> .002 - .010 (0,05 - 0,25)	–	–	–	–	–

For profiling, the maximum recommended depth of cut is one-third the insert's width.

NOTE: Use minimum feed rates for narrower grooves and heavier feed rates for wider grooves. Increase feed rate as operation allows. See Technical Section for additional application information.

### 4th Step – Select Grade and Speed

#### Recommendations for Grade and Speed Selection – sfm (m/min)

Machining Condition	Workpiece Material					
	Steel	Stainless Steel	Cast Iron	Non-Ferrous Metals	High-Temp Alloys	Hardened Materials
<b>high-performance for optimal conditions</b> (clean cuts, good machine condition, higher speed capability)	<b>KT315</b> 330 - 750 (100 - 230)	<b>KT315</b> 230 - 560 (70 - 170)	<b>KC5010</b> 230 - 720 (70 - 220)	<b>KC5010</b> 590 - 2800 (180 - 850)	<b>KC5010</b> 35 - 360 (10 - 110)	<b>KB5625*</b> 390 - 500 (120 - 150)
	<b>KC5010</b> 200 - 600 (60 - 185)	–	–	–	–	–
<b>general purpose</b> (first choice for general machining)	<b>KC5025</b> 200 - 525 (60 - 160)	<b>KC5010</b> 160 - 450 (50 - 140)	<b>KC5025</b> 230 - 500 (70 - 150)	<b>KC5010</b> 500 - 2400 (150 - 730)	<b>KC5025</b> 35 - 200 (10 - 60)	<b>KB5625*</b> 260 - 425 (80 - 130)
<b>unfavorable conditions</b> (roughing, poor machine condition, interrupted cuts, low speed)	<b>KC5025</b> 160 - 360 (50 - 110)	<b>KC5025</b> 130 - 300 (40 - 90)	<b>KC5025</b> 80 - 450 (25 - 140)	<b>KC5025</b> 200 - 1000 (60 - 305)	<b>KC5025</b> 35 - 150 (10 - 46)	<b>KC5010</b> 35 - 115 (10 - 35)
	–	–	–	<b>KMF</b> 200 - 650 (60 - 200)	<b>KMF</b> 35 - 100 (10 - 30)	–

\*NOTE: PCBN tipped inserts in KB5625 are available on request.

### 5th Step – Select Insert and Holder from Catalog Pages

Note: The insert seat size and cutting width must match the seat size and cutting width of your toolholder selection.

#### Example for A3 – Deep Grooving:

material: low-alloyed steel  
 groove depth: .5 in. (12 mm)  
 groove width: .250 in. (6,35 mm)  
 smooth cut

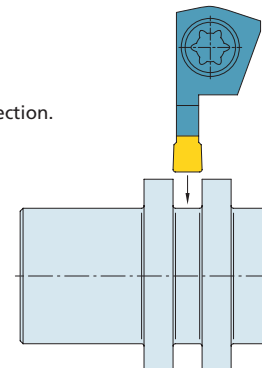
#### Recommendation:

insert: A3G250I06P1DF  
 grade: KC5010  
 insert width: .250 in. (6,35 mm)  
 insert seat size: 6

toolholder: A3SML2525M0616  
 grooving depth: .630 in. (16 mm)  
 seat size: 6

**Congratulations!**

You have successfully maximized your productivity by selecting the best A3 insert geometry, grade, and cutting specifications for your application!



speed: 570 sfm (180 m/min)  
 plunge feed: .008 ipr (0,15 mm)

TOP NOTCH  
A4  
A3  
GROOVING & CUT-OFF TOOLS  
A2