



How to choose your tooling package...

1 Define the material to be machined...

Define the material according to the ISO classification system.

ISO P – Carbon and alloy steels

ISO M – Stainless steels

ISO K – Cast irons

ISO N – Non-ferrous materials

ISO S – High-temperature alloys

ISO H – Hard materials

See our Workpiece Material Categories on pages 113-115 for assistance.

2 Select the type of application and shape of insert...

Finishing, medium machining, or roughing. Diamond, triangle, round, square, trigon...

Insert sections are arranged in alphabetical order by insert shape (e.g., CNMG, DNMG, etc.), then by application and ISO category (e.g., finishing for P, finishing for M, finishing for K, etc., then medium machining and roughing in the same manner). Negative inserts are listed before positive inserts, and positive screw-down style inserts are listed in order of rake angle (e.g., 5°, 7°, 11°).

3 Select a grade...

Using the product information grid or the grade selection information beginning on page 10, choose the grade best-suited for the type of application and material being machined that is available for the style of insert chosen.

4 Select tooling...

Need tooling? We've got that too. Choose from a wide selection of standard toolholders, boring bars, and boring adapters with interchangeable heads. Tooling systems are arranged in the same order as inserts, starting on page 62.

5 Select machining parameters...

Feeds, speeds, depths of cut. Recommendations for all insert and grade combinations are available on pages 109-112. And now you're ready to start machining!



Feed Rate and Depth of Cut Chart
Recommended parameters for the insert style

Workpiece Material Groups

- Steel
- Stainless Steel
- Cast Iron
- Non-ferrous Materials
- High-Temp Alloys
- Hardened Materials

Insert Style - Chip Control Geometry

2D View of Insert Shape

Finishing		CNMA-KR		P											M			K			N	S							
		ANSI Catalog #	ISO Catalog #	I.C.	T	r	Ød	P15	P20	P25	P25	P25	P30	P35	P35	P45	M05	M20	M25	K10	K10	K20	K20	K20	N10	S05	S20	S20	
 Depth of Cut (in.) .15 .10 .05 Feed Rate (in./rev.) .008 .016 .024			1/2	3/16	1/32 3/64	.203														★	★								
																					★	★							
				5/8		1/32 3/64	.250														★	★							
				3/4	1/4	1/32															★	★							
						3/64																	★	★					
						1/16	.312														★	★							

Insert I.C. Group
Each size group shaded for quick reference

ISO Application Range
Areas of application in order from wear resistance to toughness for all grades

Grade Availability
★ – First Choice
☆ – Alternate Choice

Machining Operation
Suggested area of application - different shades for different applications for easy identification

3D Model of Insert
Example of chip control geometry

Chip Control Profile
Cross-section through nose radius

Grades
Arranged by ISO area and range

Roughing		CNMG-P4		P											M			K			N	S							
		ANSI Catalog #	ISO Catalog #	I.C.	T	r	Ød	P15	P20	P25	P25	P25	P30	P35	P35	P45	M05	M20	M25	K10	K10	K20	K20	K20	N10	S05	S20	S20	
 Depth of Cut (in.) .48 .32 .16 Feed Rate (in./rev.) .020 .040 .060			1/2	3/16	1/32 3/64	.203																							
				5/8		1/16 3/64	.250																						
				3/4	1/4	1/16																							
						3/64																							
						1/16	.312																						

Catalog Numbers
ANSI and ISO nomenclature

Critical Insert Dimensions
I.C., thickness, corner radius and hole diameter