Turning

Turning Introduction A3–A7

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Grooving and Cut-Off E1–E133

Threading F1–F101

Turning Product Highlights

WIDIA™ Victory™ High-Temp Turning

With three geometries and three grades, WIDIA Victory has a complete portfolio for high-temp turning applications in nickel based (INCONEL®, Waspaloy®, Rene), cobalt based (Stellite®), and Fe based (Nimonic 105) materials, as well as difficult to machine stainless (HARTIS, duplex, high alloy stainless), cobalt chrome, and stainless based powdered metals. These materials are commonly found in rings, bearings, hubs, compressors, fans, rotors, and medical devices.

-FS Geometry

The -FS Geometry is a ground, highly positive design tool used in finishing cuts where size control, finish, and minimization of part deflection are considerations.

- Excellent chip control versus similar competitive geometries. This chip control aids process stability and reduces machine stoppages to remove stringers.
- Increased cutting speed assists tool life for better chip control to reduce cycle time, gain productivity, and reduce machining cost.
- Reduced cutting forces provide longer tool life and/or better surface finish.
- Improved depth of cut (DOC) notching resistance for longer tool life.
- Advanced PVD grades provide more wear resistance and longer tool life.

-MS Geometry

MS geometry is a modified geometry with increased edge toughness that is best used in medium machining.

- The MS geometry offers excellent chip control across similar competitive geometries. This chip control aids process stability and reduces machine stoppages in remote strategies.
- Available in two PVD grades, MS is a high performance geometry. Compete with confidence against any competitor. The MS is also available in an uncoated grade.
- The WIDIA™ Victory™ grades offer better depth-of-cut (DOC) notching resistance and improved edge toughness. This offers customers an improved solution from other competitors.

-UR Geometry

- UR geometry offers a roughing solution for high temp materials. Available in WC1101™ and WC1201™, the UR geometry provides smooth chip forming and improved coolant flow for increased tool life. This positive geometry, with its unique chipbreaker without inflection points, reduces cutting forces and improves depth-of-cut (DOC) notching resistance.

Turning Product Highlights

WIDIA™ VanTurn™

Formerly known as WIDIA Valox, the WIDIA VanTurn platform offers high performance inserts with versatility. With eight grades and eight geometries, VanTurn covers 80% of all turning applications.

Every insert is gold, which exposes wear as the tool continues to be used. This makes it easy to detect when an insert is ready to be changed, maximizing the product's value and protecting the workpiece. Also, because WIDIA VanTurn inserts can be used in most applications, a single insert can take on any number of tasks, thus reducing inventory. WIDIA VanTurn products are reliable enough to cut steel, stainless steel, cast iron, and high-temperature alloys, enabling quick changes in workpiece materials without the need to swap inserts, saving time and money.

WMT™ System

The **WMT** platform is the economical and reliable option for all grooving, face grooving, cut-off, turning, and profiling applications. The **WMT** system ensures precise insert positioning and provides only the most accurate machining, with exceptionally fast cycle times and superior performance.

The WMT portfolio offers:

- Proven higher stability
  - **WMT** insert design has the best clamping system for stability
- Platform flexibility, with multiple geometries in single holder for multiple application types
- Victory™ grades:
  - WU1001™ — Uncoated
  - WU1021, WU25P1 — PVD
  - WP1003, WP25C1 — CVD
- Greater depth of cut (DOC) capability

Versatile and Well Constructed

- Specifically designed to increase speeds and feeds.
- Excellent geometry for even the most demanding deep grooving applications.
- The **WMT** system enables heavy duty cutouts in turning applications.
- Ensures finer surface finishes and a long, reliable tool life.

WIDIA™ Tools for Small Hole Boring

When the application calls for boring at a 0 mm of less than 3.5mm, WIDIA offers comprehensive and easy solutions to choose from. Our portfolio of tools for small hole boring offer solutions in either indexable inserts or solid carbide inserts, and inserts are available for boring, profiling, threading, and grooving.

I.D. Indexable Tooling

- Steel and solid carbide shanks with through coolant in inch and metric sizes.
- Ground in and pressed type chipbreaker inserts.
- Coated and uncoated carbide grades and cubic boron nitride/polycrystalline diamond tipped inserts to support all machining applications.

Quadralock™ System

- Versatile and engineered to give exceptional performance for I.D. machining applications. Quick, accurate insert indexing.
- Internal coolant can be used with all tool bodies. Cutting insert to have special slots that direct coolant to the cutting edge.
- Carbide grades for steels, stainless steels, non-ferrous materials, super alloys, titanium, and hard materials.

A/B Series Tooling

- Inserts repeat within ±0.010mm, allowing quick and accurate setups.
- Elliptical, ground insert shanks allow for maximum strength and rigidity.
- Available in boring, grooving, threading, and profiling insert styles.
- Coated and uncoated carbide grades and cubic boron nitride/polycrystalline diamond tipped inserts to support all machining applications.

ISO Turning Inserts

Step 1 • Select Insert Style

Threading, Grooving, and Cut-Off

	LT	TopThread™	WMT™	TopGroove™	Supercut™	ProGroove™
Inserts						
Toolholder						

WIDIA™ Turning Solutions

	Inserts in Machine Aluminum	TurTool™	Tools for Small Bore Boring
Inserts			

Step 2 • Select Application and Clamping System

External Machining

				D-Style Clamping	P-Style Clamping	Negative C-Style Clamping	S-Style Clamping	Positive C-Style Clamping
C	Rhombic 80°		conventional	[illegible]	[illegible]	[illegible]	[illegible]	–
D	Rhombic 55°			[illegible]	[illegible]	[illegible]	[illegible]	–
R	Round		conventional	[illegible]	–	[illegible]	–	[illegible]
S	Square 90°		conventional	[illegible]	[illegible]	[illegible]	[illegible]	–
T	Triangle 60°		conventional	[illegible]	[illegible]	[illegible]	[illegible]	–
V	Rhombic 35°		conventional	[illegible]	–	–	[illegible]	–
W	Trigon 80° Milling/Angle cutter angles		conventional	[illegible]	[illegible]	–	[illegible]	–

Internal Machining

				D-Style Clamping	P-Style Clamping	Negative C-Style Clamping	S-Style Clamping	Positive C-Style Clamping
C	Rhombic 80°		conventional	[illegible]	[illegible]	[illegible]	[illegible]	–
D	Rhombic 55°			[illegible]	–	[illegible]	[illegible]	–
R	Round		conventional	–	–	–	–	–
S	Square 90°		conventional	–	–	[illegible]	–	–
T	Triangle 60°		conventional	[illegible]	[illegible]	–	[illegible]	[illegible]
V	Rhombic 35°		conventional	[illegible]	–	–	[illegible]	–
W	Trigon 80° Milling/Angle cutter angles		conventional	[illegible]	[illegible]	[illegible]	–	–

Turning • ISO Inserts

WIDIA Victory High-Performance Inserts B3–B105
WIDIA VariTurn B106–B149
Inserts for Machining Aluminum B150–B157
Ceramic, PcBN, and PCD Inserts B158–B219

A Complete High-Performance Turning Portfolio •
WIDIA™ Victory™

Specifically engineered multilayer coating provides high-speed capability for finishing to roughing operations. New geometries enhance chip control for better tool life and superior surface finishes.

Victory

- Market leading technology
- Longer tool life
- Higher productivity through increased speed capability

Steel and Stainless Steel Grades

- Reduced cycle times — high speed and feed capability.
- Long tool life — new multilayer coating provides better wear resistance.
- Proven coating — smooth and secure coating surface.
- Outer layer is brown, colored for easier wear detection.

Post-coat treatment
- Improves edge toughness.
- Long, predictable tool life.
- Reduces depth-of-cut notching.
- Wide range of applications.

Improved edge toughness
- Provides smooth outer surface to reduce forces, friction, and workpiece sticking.

Post-coat grinding
- Provides secure coating surface.

New geometry
Innovative chip control.

Alpha-alumina layer
- Provides coating integrity at elevated speeds.
- Higher productivity and dependability at high cutting temperatures.

WIDIA

New WIDIA™ Victory™ grades and geometries are designed to offer better tool life and surface finishes.

...GG-FG Geometry

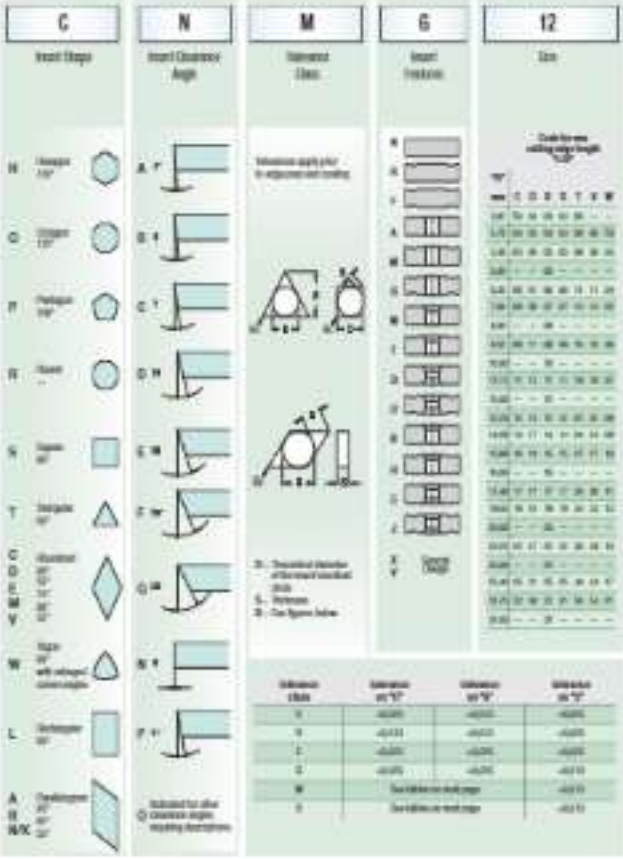
- All ...GG-FG inserts are G Seriesmm inserts. This is a critical feature in some applications, especially the aerospace industry.
- Reduced cycle times — high speed and feed capability
- Reduced cutting forces — improved dimensional control and reduced deflections.
- New chip forming elements — better chip control.
- Long tool life — new multilayer coating provides better wear resistance.
- Finest cutting — smooth and secure cutting surface.

...MG-MG Geometry

- High positive rake angle delivers improved tool life by reducing cutting forces and built up edge when machining high temp alloys.
- Improved chip control and reduced crater wear due to proprietary chipbreakers with varying shapes and distances.
- Reduced thermal wear and cracking due to wear sharp cutting edge with optimized edge treatment.
- Improved chipbreaking at various depths of cut due to variable land width, which improves impact strength.
- All MG-MG inserts are insulated, which supports increased tool life due to the elimination of greasing stress.

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.



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

04

Thickness
T

symbol	thickness
mm	mm
–	0.79
01	1.00
02	1.59
11	1.98
03	2.38
05	3.18
12	3.97
04	4.76
06	5.56
07	6.35
0	6.35
11	11.11
12	12.70

08

Corner
Radius "Re"

symbol	Corner radius
mm	mm
00	0.00
0	0.1
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
32	3.2
40	4.0
00	
MM	Round insert
–	

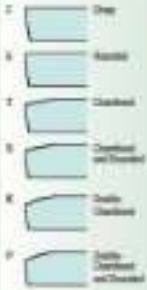
Hand of Insert
(optional)

R – Right hand

L – Left hand

N – Neutral

Cutting Edge
(optional)



UR

Chipbreaker
(optional)

- 13 – Universal Light
- 17 – Finish Turning
- 20 – Fine Finishing
- 27 – Finish Finishing
- 30 – Finish Milling
- 40 – Medium Light
- 50 – Medium Roughing
- 60 – Medium Milling
- 70 – Roughing Heavy
- T – Negative Land
- 10 – Universal Finishing
- 20 – Universal Medium
- 30 – Universal Roughing
- 40 – Heavy Medium
- 50 – Medium Finishing
- 70 – Finishing High Speed
- 80 – Medium High Speed
- 90 – Medium Universal
- 10 – Light Roughing
- 20 – Heavy Roughing

"D"	± Tolerance on "D" Class M Tolerance			Class of Tolerance
	Shapes C, T, C, K, S, M	Shape D	Shape V	Shapes C, T, S, E
mm	mm	mm	mm	mm
3.97	0.05	–	–	–
4.76	0.05	–	–	0.08
5.56	0.05	0.05	0.05	0.08
6.35	0.05	0.05	0.05	0.08
7.94	0.08	0.08	0.08	0.08
9.52	0.05	0.05	0.05	0.08
12.70	0.08	0.08	0.08	0.13
15.79	0.08	0.08	0.08	0.13
19.05	0.08	0.08	0.08	0.13
15.88	0.10	0.10	0.10	0.18
17.46	0.10	0.10	0.10	0.18
19.05	0.10	0.10	0.10	0.18
20.64	0.10	–	–	0.25
25.40	0.10	–	–	0.25
31.75	0.10	–	–	0.25

"D"	± Tolerance on "D" Class M Tolerance			Class of Tolerance
	Shapes C, T, C, K, S, M	Shape D	Shape V	Shapes C, T, S, E
mm	mm	mm	mm	mm
3.97	0.08	–	–	–
4.76	0.08	–	–	0.13
5.56	0.08	0.13	–	0.13
6.35	0.08	0.13	–	0.13
7.94	0.08	0.13	–	0.13
9.52	0.08	0.13	0.18	0.13
12.70	0.13	0.18	–	–
15.79	0.13	0.18	0.25	0.25
19.05	0.13	0.18	–	–
15.88	0.25	0.38	–	0.37
17.46	0.25	0.38	–	0.37
19.05	0.25	0.38	–	0.37
20.64	0.25	–	–	0.38
25.40	0.25	–	–	0.38
31.75	0.25	–	–	0.38

WIDIA

A system of grades, geometries, and application guidelines to provide optimal solutions for your metalcutting needs. It's easy to determine which "WIDIA" chip control cutting tool will work best in your specific workpiece materials and applications!

WIDIA VICTORY

W	P	15	C	T
Grade	Primary Workpiece Material	Application Range*	Insert Material	Application

- Steel
- Stainless Steel
- Cast Iron
- Non-Ferrous
- High Temp Alloys
- Hardened Materials
- U Universal Machining

- 05 – Non-finishing
- 10 – Finishing
- 15 – Medium to roughing
- 20 – Medium to roughing
- 25 – Medium to roughing
- 30 – Roughing
- 35 – Roughing
- 40 – Roughing
- 45 – Roughing
- 50 – Roughing

*Complete details and special non-turning and milling applications

- A – Uncoated Carbide
- C – Carbide – CVD
- P – Carbide – PVD
- T – Cermet
- Y – Ceramics
- D – Diamond
- B – PcBN
- S – SCS
- Z – SCS-Z
- W – SCS-Z-Wiper

- T – Turning
- M – Milling
- D – Drilling
- B – Boring
- E – Solid Mills
- F – Solid End Mills
- G – Tap
- R – Reamer
- Y – Thread Mills

WIDIA

Victory Toughness/Wear Resistance

WF Grades for Steel

- These grades are more primary generalists for use in roughing to finishing operations.
- Increase cutting speed and/or feed rate to gain productivity.

WK Grades for Cast Iron

- These grades in some of it's use cast iron turning operations
- Very good balance of wear resistance and toughness for long production runs. Use top geometry for machining cast iron. For finishing to roughing applications.

WM Grades for Stainless Steel

- These grades are new, 1.1 generation in use in roughing to finishing operations
- Increase cutting speed and/or feed rate by up to 20% over similar competitive grades.

WS Grades for High-Temp Alloys

- These grades in use in roughing to finishing operations.
- Very good wear resistance for longer tool life.
- Use specialized grades for use in titanium.

Positive and Negative Inserts

Positive Inserts

- Cutter or inserts are the best choice for: -ID turning of all materials and O.D. turning on small to medium lathes.
- Suitable for all workpiece materials.

Negative Inserts

- Negative style inserts are your first choice for general machining of all materials on medium to large lathes.
- Negative style inserts offer the best economy for high metal removal rates.
- Available in flat top and chip control geometries with both rounded and ground peripheries.
- Suitable for all workpiece materials.

Ceramic Inserts

- Ceramic inserts are a great choice for production machining of high tensile alloys.
- Negative style inserts are also recommended for the machining of hardened materials and cast iron.
- Available in flat top geometries with rounded and ground peripheries.

PcBN and PCD Inserts

- PcBN can be used for machining irons with a hardness higher than 45 HRC.
- PCD inserts can also be used for considerable improvements in machining non-ferrous and high-temp. alloys.
- PCD inserts are used for machining non-ferrous materials.

Insert Selection System
How to Use

[illegible]

Example:
The workpiece material groups

Step 1 • Select the insert geometry

Given: [illegible]
Unknown: insert geometry
Solution: [illegible]

Step 2 • Select the grade

Given: cutting conditions
[illegible]
Geometry: [illegible]
Unknown: grade
Solution: [illegible]

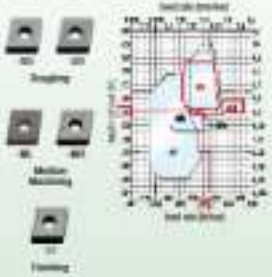
Step 3 • Select the cutting speed

Given: grade [illegible]
cutting conditions
material [illegible]
Unknown: cutting speed
Solution: [illegible]

Need help in selecting a product?
Additional information can be obtained by contacting the WIDIA Customer Application Support Team.
Go to widia.com for your country's phone number.

Step 1 • Select the insert geometry

Negative Inserts



Step 2 • Select the grade

Cutting Condition		Negative Insert Geometry					Positive Insert Geometry		
		FP	MM	MP	FM	FR	FP	MM	MP
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Step 3 • Selecting the cutting speed

Low-Carbon (<0.3% C) and Free-Machining Steel

speed — m/min

Starting Conditions

material group	grade	100	150	200	250	300	350	400	450	500	m/min
[illegible]	[illegible]										[illegible]
	[illegible]										[illegible]
	[illegible]										[illegible]
	[illegible]										[illegible]

WIDIA Material Group Selection Guide

To optimize speed recommendations, material subgroups from [illegible] groups.

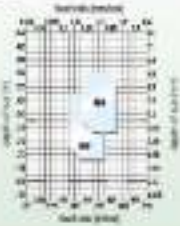
material	material group ISO color	number of material subgroups
steel	[illegible]	[illegible]
stainless steel	[illegible]	[illegible]
cast iron	[illegible]	[illegible]
non-ferrous materials	[illegible]	[illegible]
high temp alloys	[illegible]	[illegible]
hardened materials	[illegible]	[illegible]

Step 1 • Select the insert geometry

Negative Wiper Inserts

Medium Wiper

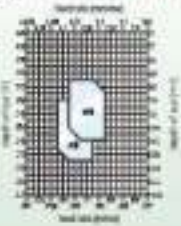
Finishing Wiper



Positive Wiper Inserts

Medium Wiper

Finishing Wiper



Step 2 • Select the grade

Cutting condition		Negative Insert Geometry		Positive Insert Geometry	
		-2W	-4W	-2W	-4W
Heavily interrupted cut		WPV20.1	WPV20.1	–	WPV20.1
Lightly interrupted cut		WPV20.1	WPV20.1	WPV20.1	WPV20.1
Varying depth of cut, casting, or forging skin		WPV20.1	WPV20.1	WPV20.1	WPV20.1
Smooth cut, pre-turned surface		WPV20.1	WPV20.1	WPV20.1	WPV20.1

Step 1 • Select the insert geometry

Negative Inserts

-2U -2R

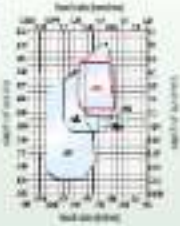
Roughing

-4U -4R

Medium Machining

-2F

Finishing



Positive Inserts

-4F -4U

Medium Machining

-2F

Finishing

Step 2 • Select the grade

Cutting condition		Negative Insert Geometry					Positive Insert Geometry		
		-2F	-2U	-4U	-2R	-2U	-2F	-4U	-4F
Heavily interrupted cut		WPV20.1	WPV20.1	WPV20.1 WPV30.1	WPV20.1	WPV20.1	WPV20.1 WPV30.1	WPV20.1	WPV20.1
Lightly interrupted cut		WPV20.1	WPV20.1	WPV20.1	WPV20.1	WPV20.1	WPV20.1	WPV20.1	WPV20.1
Varying depth of cut, casting, or forging skin		WPV20.1	WPV20.1	WPV20.1	WPV20.1 WPV30.1	WPV20.1	WPV20.1	WPV20.1 WPV30.1	WPV20.1
Smooth cut, pre-turned surface		WPV20.1	WPV20.1	WPV20.1	WPV20.1 WPV30.1	WPV20.1	WPV20.1	WPV20.1 WPV30.1	WPV20.1

(continued)

Step 3 • Select the cutting speed *continued*

Low Carbon (≤0.3% C) and Free-Machining Steel — speed – m/min — Starting Conditions

material group	grade	120	160	200	215	230	260	400	450	480	m/min
P1	WP10CT							◆			290
	WP20CT				◆						215
	WP30CT			◆							215
	WS20PT				◆						250
	WM20CT		◆								290

Medium- and High-Carbon Steels (>0.3% C) — speed – m/min — Starting Conditions

material group	grade	120	160	200	215	230	260	400	450	480	m/min
P2	WP10CT				◆						215
	WP20CT			◆							190
	WP30CT	◆									155
	WS20PT		◆								230
	WM20CT	◆									255

Alloy Steels and Tool Steels (≤250 HB) (≤28 HRC) — speed – m/min — Starting Conditions

material group	grade	120	160	200	215	230	260	400	450	480	m/min
P3	WP10CT			◆							190
	WP20CT		◆								155
	WP30CT	◆									170
	WS20PT		◆								155
	WM20CT	◆									155

Alloy Steels and Tool Steels (250–450 HB) (28–48 HRC) — speed – m/min — Starting Conditions

material group	grade	80	90	100	110	120	215	240	270	300	m/min
P4	WP10CT				◆						110
	WP20CT			◆							105
	WP30CT		◆								95
	WS20PT			◆							110
	WM20CT	◆									110

Ferritic, Martensitic, and PH Stainless Steels (≤250 HB) (≤28 HRC) — speed – m/min — Starting Conditions

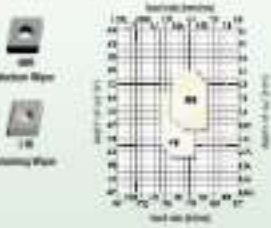
material group	grade	100	110	120	140	160	215	230	270	300	m/min
P5	WP10CT				◆						215
	WP20CT			◆							205
	WP30CT		◆								155
	WS20PT				◆						215

Ferritic, Martensitic, and PH Stainless Steels (>250 HB) (>28 HRC) — speed – m/min — Starting Conditions

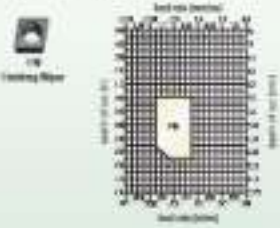
material group	grade	100	110	120	130	150	215	230	270	300	m/min
P6	WP10CT				◆						155
	WP20CT			◆							155
	WP30CT	◆									155
	WS20PT			◆							155

Step 1 • Select the insert geometry

Negative Wiper Inserts



Positive Wiper Inserts

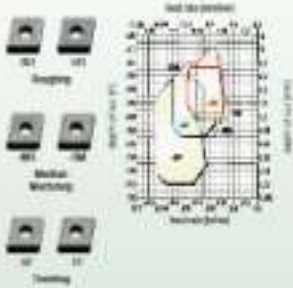


Step 2 • Select the grade

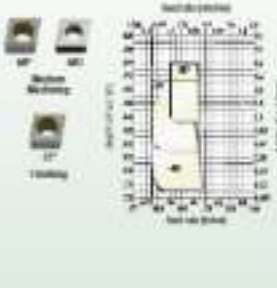
Cutting condition		Negative Insert Geometry		Positive Insert Geometry
		[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Step 1 • Select the insert geometry

Negative Inserts



Positive Inserts



Continued

Step 2 • Select the grade (continued)

cutting condition		Negative Insert Geometry					
		-11	-12	-13	-14	-32	-21
heavily interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]
lightly interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] [illegible]
varying depth of cut, coating, or forging skin		[illegible]	[illegible] [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
smooth cut, pre-turned surface		[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]

cutting condition		Positive Insert Geometry		
		-17	-32	-37
heavily interrupted cut		[illegible]	[illegible] [illegible]	[illegible]
lightly interrupted cut		[illegible]	[illegible] [illegible]	[illegible]
varying depth of cut, coating, or forging skin		[illegible] [illegible]	[illegible]	[illegible] [illegible]
smooth cut, pre-turned surface		[illegible]	[illegible]	[illegible]

Step 3 • Select the cutting speed

Austenitic Stainless Steel — speed – m/min — Starting Conditions

material group	grade	80	120	160	200	240	280	320	360	400	440	inserts
M1	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

Austenitic Stainless Steel — speed – m/min — Starting Conditions

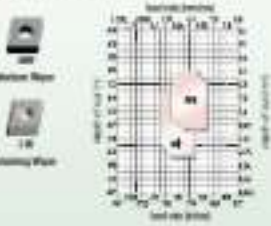
material group	grade	80	120	160	200	240	280	320	360	400	440	inserts
M2	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

Austenitic Stainless Steel, Duplex (Ferritic and Austenitic Mixture) — speed – m/min — Starting Conditions

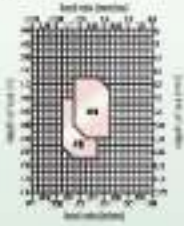
material group	grade	80	120	160	200	240	280	320	360	400	440	inserts
M3	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

Step 1 • Select the insert geometry

Negative Wiper Inserts



Positive Wiper Inserts

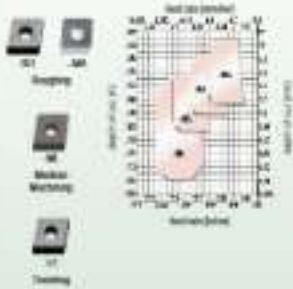


Step 2 • Select the grade

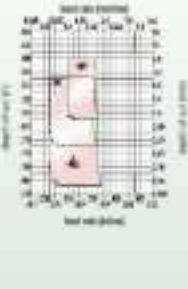
Cutting Condition		Negative Insert Geometry CW	Negative Insert Geometry MW	Positive Insert Geometry CW	Positive Insert Geometry MW
Heavily interrupted cut		–	–	–	–
Lightly interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]
Varying depth of cut, casting, or forging skin		[illegible]	[illegible]	[illegible]	[illegible]
Smooth cut, pre-turned surface		[illegible]	[illegible]	[illegible]	[illegible]

Step 1 • Select the insert geometry

Negative Inserts



Positive Inserts



Continued

Step 2 • Select the grade (continued)

cutting condition		Negative Insert Geometry				Positive Insert Geometry		
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Step 3 • Select the cutting speed

Grey Cast Iron — speed – m/min — Starting Conditions

material group	grade	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	m/min
[illegible]	[illegible]												[illegible]
	[illegible]												[illegible]

Ductile, Compacted Graphite, and Malleable Cast Iron (>350 MPa tensile strength) — speed – m/min — Starting Conditions

material group	grade	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	m/min
[illegible]	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

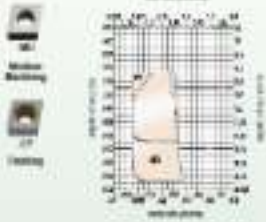
Ductile, Malleable, and Austempered Cast Iron (>350 MPa tensile strength) — speed – m/min — Starting Conditions

material group	grade	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	m/min
[illegible]	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

Step 1 • Select the insert geometry

Negative Inserts

Positive Inserts



Step 2 • Select the grade

Cutting condition		Negative Insert Geometry				Positive Insert Geometry	
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(continued)

Step 3 • Select the cutting speed *continued*

Iron-Based, Heat-Resistant Alloys
[(S1-S20 HB)] [(30 HRC)]

speed – m/min | Starting Conditions

material group	grade	70	80	90	100	110	120	130	140	150	160	m/min
M	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

Cobalt-Based, Heat-Resistant Alloys [(S21-S32 HB)] [(45 HRC)]

speed – m/min | Starting Conditions

material group	grade	70	80	90	100	110	120	130	140	150	160	m/min
M	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

Nickel-Based, Heat-Resistant Alloys
[(S41-S50 HB)] [(45 HRC)]

speed – m/min | Starting Conditions

material group	grade	70	80	90	100	110	120	130	140	150	160	m/min
M	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

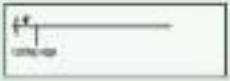
Titanium and Titanium Alloys [(S1-S10 HB)] [(40 HRC)]

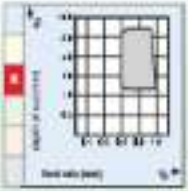
speed – m/min | Starting Conditions

material group	grade	70	80	90	100	110	120	130	140	150	160	m/min
M	[illegible]											[illegible]
	[illegible]											[illegible]
	[illegible]											[illegible]

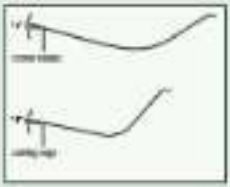
Negative Inserts

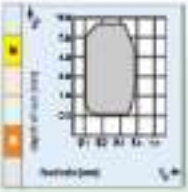
-MA



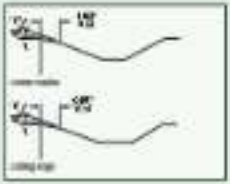


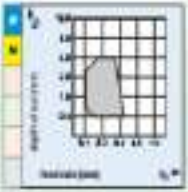
-NMF





-4

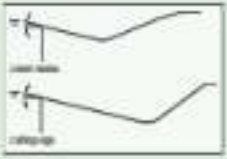


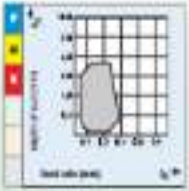


Negative Inserts *continued*

ZE

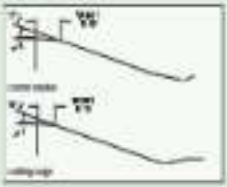
Low force turning, producing smooth, accurate surfaces. Very good chip control, especially at low depths of cut.





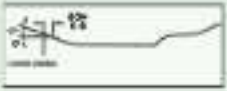
RS

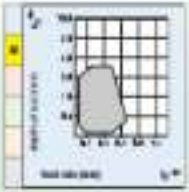
Rough turning geometry with chip control according to the medium duty range. Positive rake angle leaves cutting forces, reducing power requirements. Used on low tensile and stainless steels.



CT

Designed for untreated cast iron turning. When other geometries reduce long chips, the shape distribution of the cut results in good chip control.



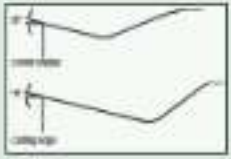


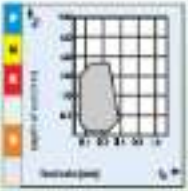
continued

Negative Inserts (continued)

FF

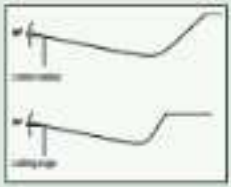
For finish turning, producing smooth, accurate surfaces. Very good chip control, especially at low depths of cut.

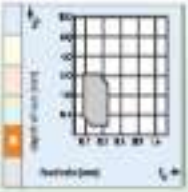




FS

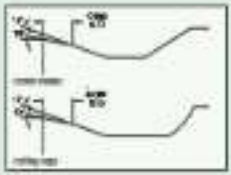
For finishing applications. Cutter geometry with positive cutting edge ideally suited for high speed, sharp, blade finished edges on the ground geometry with just a slight hone to improved edge integrity and reliability.

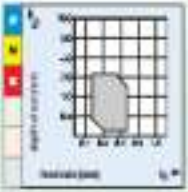




FW

Wiper geometry for finishing where good surface finish is needed using high feed rates. Interchange to high performance finishing.



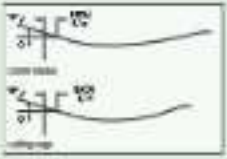


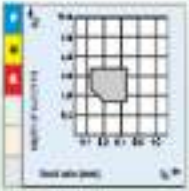
(continued)

Negative Inserts (continued)

MG

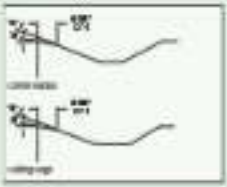
For light machining in light weighing.

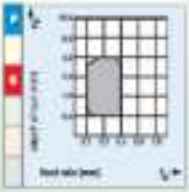




ML

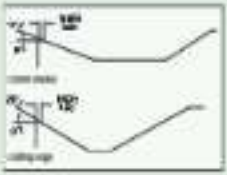
For finishing to medium machining with a negative, stable cutting edge.

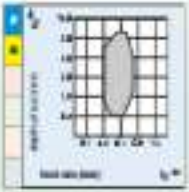




MR

For medium to light weighing of steels, difficult to machine high-alloy steels, and stainless steels. High strength in and with heavy chip extraction.



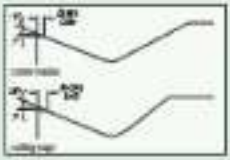


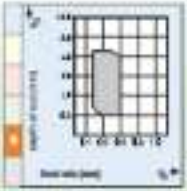
(continued)

Negative Inserts (continued)

MS

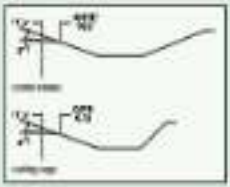
For medium roughing to light finishing applications. Offers a wiper finished edge preparation to minimize edge roughness.

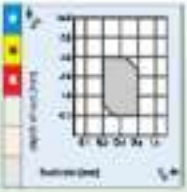




MW

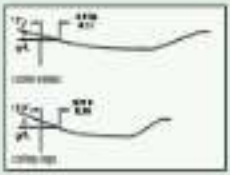
Wiper geometry for light to medium turning with high feed rates. Can flatten or light or with edge with full corner radii to produce even surface finish.





RH

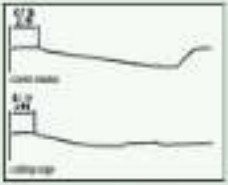
For medium duty to roughing. Outstanding chip control. High edge strength for interrupted cuts, hanging cuts, or scale. Preferred for difficult cuts, such as gray, malleable, and nodular.

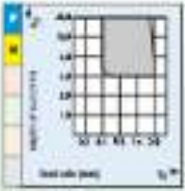


(continued)

Negative Inserts (continued)

SS





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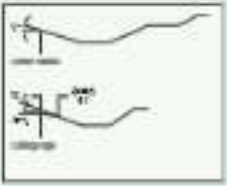

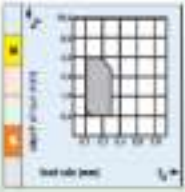

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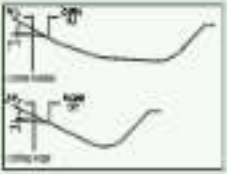
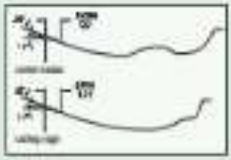


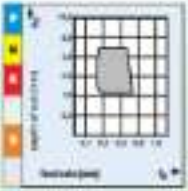
(continued)

Negative Inserts (continued)

U3

Roughing geometry with smooth chip forming and improved control than for increased feed life. Positive geometry reduces cutting force and improves depth of cut notching resistance. Ideally suitable for stainless steel applications and for smooth machining of steel.

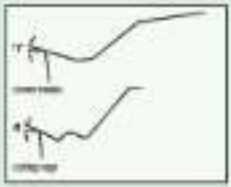




Positive Inserts

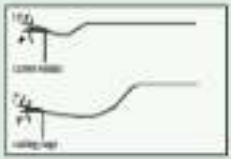
2

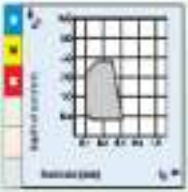
Sharp edge for finish machining. Good chip control with very small chip sections. High dimensional accuracy and smooth surface finishes. Inserts with .004" corner radius precision ground on all sides.



41

Preferred for light, to medium duty machining. Low cutting forces and reduced power requirements due to positive rake angle. Good chip control over a wide range. Also used in short chipping cast iron.



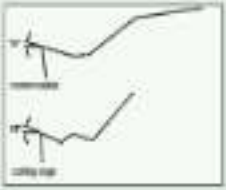


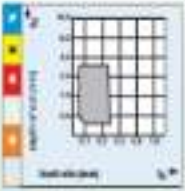
(continued)

Positive Inserts (continued)

CP

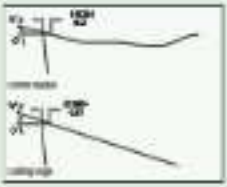
For finishing to medium turning operations with optimal chip control over a wide range of cutting conditions and workpiece materials.

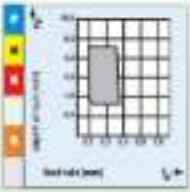




MP

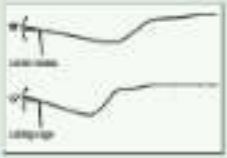
For medium to rough turning with reduced cutting forces and improved chip control. Its large back rake. Suitable for high axial nominal value and upset/flog applications.





MU

A medium universal geometry with a soft cutting action due to its positive geometry. Has a notable application range, and is suited for turning unstable workpieces and for turning applications.



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

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

Coating	Grade Description	Wear resistance ← → Toughness							
		P5	P10	P15	P20	P25	P30	P40	P45
WP-VD2CT (KC-P15)	Coated carbide. MT-CVD (TiCN) — TiN-TiCN-Al_2O_3-TiCN. Good balance of wear resistance and toughness properties. High productivity machining on smooth to lightly interrupted cuts. For steels.	P							
		M							
WP-VD2CT (KC-P25)	Coated carbide. MT-CVD (TiCN) — TiN-TiCN-Al_2O_3-TiCN. Good toughness properties. Excellent first choice for steel roughing. High productivity round inserts for all but the heaviest interrupted cuts.	P							
		M							
WP-VD2CT (KC-P35)	Coated carbide. MT-CVD (TiCN) — TiN-TiCN-Al_2O_3-TiCN. Choice for all roughing and heavy roughing operations, well suited for interrupted and continuous cuts.	P							
		M							
VM-VD2CT (KC-M15)	Coated carbide. MT-CVD (TiCN) — TiN-TiCN-Al_2O_3-TiCN. High degree of wear resistance and good resistance to depth of cut notching for long tool life in finishing to medium turning applications.	P							
		M							
		K							
N-VD2CT (KC-M25)	Coated carbide. MT-CVD (TiCN) — TiN-TiCN-Al_2O_3-TiCN. Good balance of wear resistance and toughness properties. Light and medium machining for austenitic stainless steel (M) cuts.	P							
		M							
		K							
AVANTIGT (KC-M35)	Coated carbide. MT-CVD (TiCN) — TiN-TiCN-Al_2O_3-TiCN. Good toughness and wear resistance balance. Choice for roughing operations with light and heavily interrupted cuts.	P							
		M							
		K							

Seatings provide high-speed capability and are engineered for finishing to heavy roughing.

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

Coating	Grade Description	Steel	Stainless Steel	Cast Iron	Non-Ferrous	High Temp Alloys	Hardened Materials
WC/CO/TiCN HC-400	Coated carbide. WC/CO/CoCr — Dk TiCN Al_2O_3. Increased wear resistance in long months of high cutting speeds. Limited cut edge strength against depth of cut underlying in interrupted cuts. Maximum wear resistance for long months of high cutting speeds in finish to medium machining.	P	K				
WC/CO/TiCN HC-420	Coated carbide. WC/CO/CoCr — Dk TiCN Al_2O_3. First choice for a wide range of machining on all gray cast iron/ductiles, light to heavy machining, smooth or interrupted cuts, and wet or dry.	P	K				
Proprietary PVD-APT HC-C10	An advanced multilayer PVD coating over a very informative substrate: unalloyed carbide substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. WIDIA™ 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 and feed capabilities.	P M K N S H					
WC/CO/TiCN HC-C20	An advanced PVD grade with best all-in cutting and fine grain unalloyed substrate. The new and improved coating improves edge stability with wide range speed and feed capabilities. WIDIA™ is ideal for general machining of most steels, stainless steels, high temp alloys, titanium, irons, and non-ferrous materials at moderate speeds with wide range of feeds, with improved edge toughness for interrupted cut and high feed rates.	P M K N S H					
WC/CO/TiCN CA-C30	An unalloyed, fault, low-binder content, unalloyed WC/Co fine grain grade. WIDIA™ offers exceptional edge wear and superior thermal deformation resistance of cut edge resistance. This grade characterizes well controlled on various jobs and fixes, which contribute to long reliable service.	M K S					

Coatings provide high speed capability and are emphasized for finishing to heavy roughing

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

Wear resistance ——— Toughness

Grades	Coating	Grade Description	01	10	15	20	25	30	35	40	45
T-CD	WM-K10	Uncoated carbide. Unparalleled guard against chipping, wear resistance, edge stability, and toughness. Light and medium machining. For Cast Iron, or non-ferrous metals, on non-rigid, or unstable conditions.	K								
			N								
			S								
			H								
T-TM	WM-K20	Uncoated carbide. Medium machining. For steel.	P								
			M								
T-TF	WM-K30	Uncoated carbide. Light and medium machining. For steel. To be used at low cutting speeds. Machine in unfavorable conditions.	P								
T-T1-10	UP-P10	Carbide. Light machining. Extremely good wear resistance at higher cutting speeds. For steels and nodular Cast Iron. Recommended for high cutting speeds under favorable conditions.	P								
			M								
			K								

WIDIA

NOVO KNOWS CAD/CAM

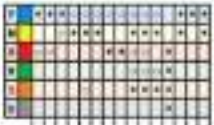
With the addition of NOVO™ to your team, your CAD/CAM capabilities become much more accurate, streamlined, and productive.

Before NOVO: The programmer would be in their CAD/CAM software, programming a part. Using the outdated method of finding a tool in a catalogue, and then manually inputting the tooling information from the catalogue into the CAD/CAM software.

The concern is that assumptions are made, and only partial tooling information is entered.

With NOVO: The powerful digital intelligence of NOVO not only helps the programmer find the right tool for the metalcutting job, but also automatically integrates all the tooling data into a complete CAD/CAM solution. The integration of all the tooling data increases the visibility of the part being programmed, and is delivered quickly - saving you time.

NOVO can ensure you have the right tools on your machines, in the right sequence. Resulting in flawless execution that accelerates every job, and maximizes every shift. widia.com/novo



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■ COMT-2

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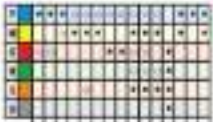

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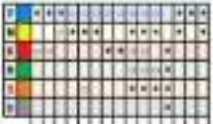

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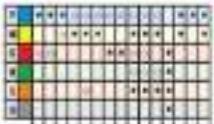

■ CCMT-MU

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■ CCMW

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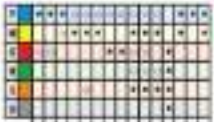

■ CNGG-FS

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■ CNGF

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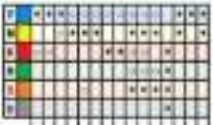
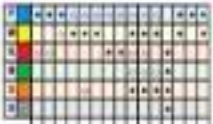


CMMA

| ISO catalogue number | D | LCD | S | Sb | Dn | | |



■ CNMG

ISO catalogue number	D	L/W	S	Dg	Dl
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■ CNMG-22

ISO catalogue number	D	L/W	S	Dg	Dl
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■ CNMG-FF

ISO catalogue number	D	L/W	S	Dg	Dl
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■CMMG-TW

ISO catalogue number	D	l.1h	S	Sg	Dh
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■CMMG-ML

ISO catalogue number	D	l.1h	S	Sg	Dh
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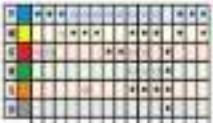

■ CNMG-MR

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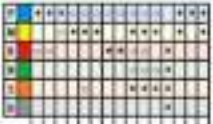
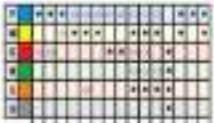


■ CNMG-MS

| ISO catalogue number | d | l1 | s | rε | l3 | | |



● CNMG-M

| ISO catalogue number | D | d-M | S | r_ε | M | | |

■ CNMG-UF

ISO catalogue number	B	L1B	L	r_ε	D
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■ CNMG-UM

ISO catalogue number	B	L1B	L	r_ε	D
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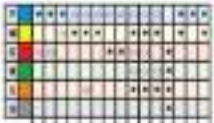

■ CNMG-GR

ISO catalogue number	D	S (M)	D	Rε	ID
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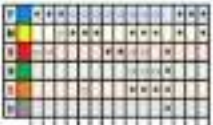

■ CNMM-05

ISO catalogue number	D	LCD	S	rε	CD
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■ CNMM-SR

ISO catalogue number	D	LCD	S	rε	CD
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■ CNMP

ISO catalogue number	D	L/W	S	Ra	D1
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■ CPGT-3

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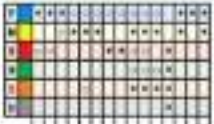

■ CPMT-FP

ISO catalogue number	D	l.1.D	S	S_B	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ CPMT-MP

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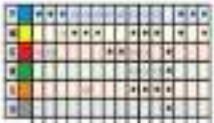

■ DCMT

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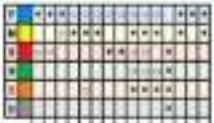
WIDIA



■ COMT-FP

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■ COMT-FW

ISO catalogue number	D	L/2A	S	Sb	Dh	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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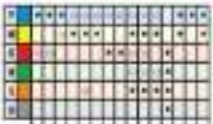

■ DCMT-MF

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■ DCMT-MU

ISO catalogue number	D	L/W	S	Da	D1
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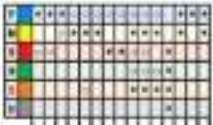

CCMT-MW

ISO catalogue number	D	L/B	S	Rε	ZD
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CCMX-10

ISO catalogue number	D	L/B	S	Rε	ZD
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CCMW

ISO catalogue number	D	L/B	S	Rε	ZD
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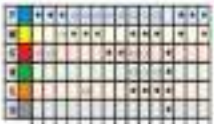

■ DNGG-FS

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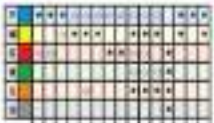

■ DNMG-22

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■ DNMG-CT

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■ CNMG-TT

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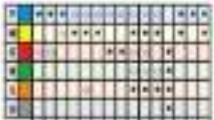

■ DNMG..TW

| ISO catalogue number | D | L/W | S | Rε | D1 | | |

■ CNMG ML

ISO catalogue number	D	L1	S	Ra	Z
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■ DNMG, MG

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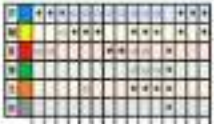
WIDIA



■ CNMG-MS

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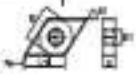

■ CNMG-MW

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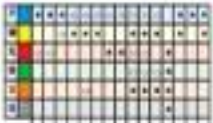

■ DNMG (6)

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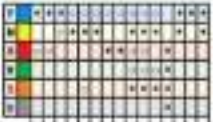

■ CNMG LE

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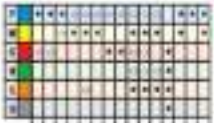

■ DNMG-UM

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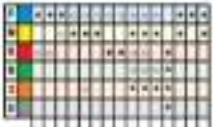
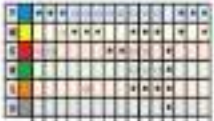


■ CNMG-UR

| ISO catalogue number | D | l.ss | S | r_ε | ap | | |



■ DNMP

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■ DPMT-FP

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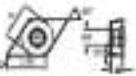

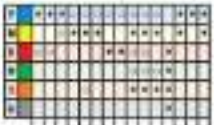

■ CPMT-MP

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■ LNGX-G

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■ LNUX-GNRS

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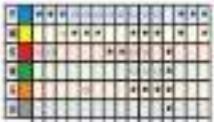

■ LNMX-T

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■ RCMT

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■ RCMT-IC

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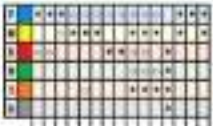

■ VCMT-T

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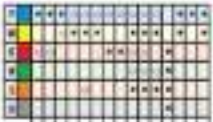

■ FINMA

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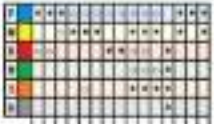

SCME

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SCMT-FP

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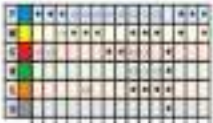
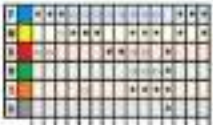


■ SCMT-MP

| ISO catalogue number | D | l/W | S | r_ε | D1 | | |



■ SCMW

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■ SNGG-FS

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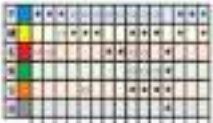

■ SNMG

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■ DNMG

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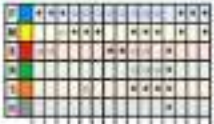

■ TMMG-FF

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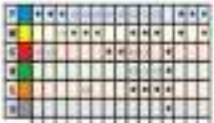

■ DNMC-MEI

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■ DNMC-MEI

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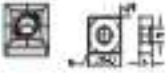

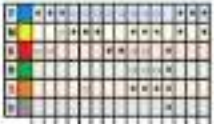

■ DNMG-RM

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■ DNMG-UF

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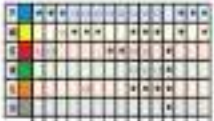

■ SNMG-UM

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■ SNMG-UR

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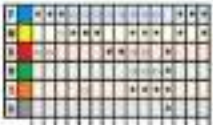

■ DNMM-05

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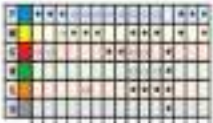

■ DNMP

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■ DNU

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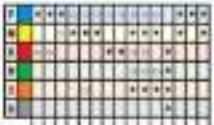

■ SPG

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■ SPMR

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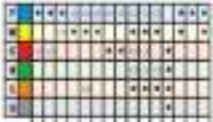

■ SPMT-FP

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■ SPMT-MP

ISO catalogue number	D	l1 ±0	S	r_ε	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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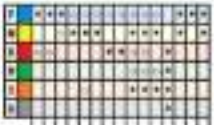

■ GFU

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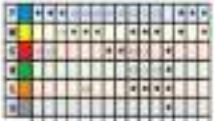

■ TCMT

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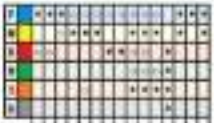

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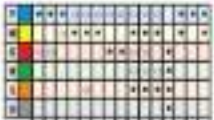

■ TCMT-MU

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■ TNGG-FS

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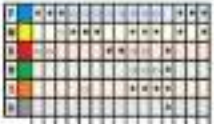
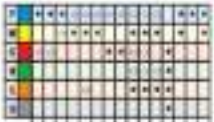


■ TNMA

| ISO catalogue number | D | l.IN | S | Rε | IN | | |



■ TMMC ML

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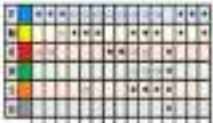

■ TNMG-ISO

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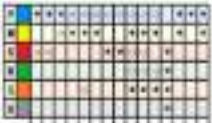

■ TNMG-LR

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■ TNMG-LM

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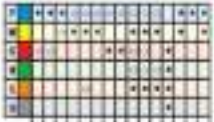

■ TMMG-UR

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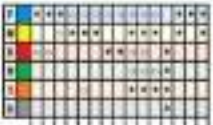

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TNMP

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■ TNU

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■ TPG

ISO catalogue number				
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ISO catalogue number					
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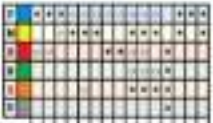

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■ TPMF-FP

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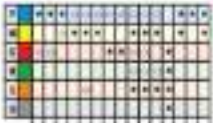

■ TPMT MP

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■ TPU

ISO catalogue number	D	l1	S	Dg
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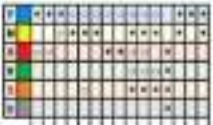

VBMT

ISO catalogue number	D	l.ER	S	Sb	Dh	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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VBMT-FP

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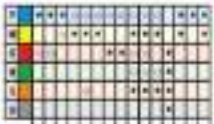

■ VCMT-MP

ISO catalogue number	D	l1	S	Rε	D1
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■ VNGG-FS

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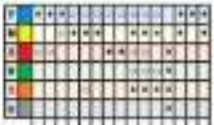

■ VNGP

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■ VNMG

ISO catalogue number	D	l.1	S	d_1	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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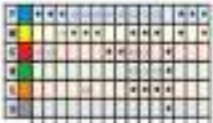

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■ VNMG-MF

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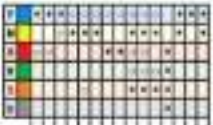
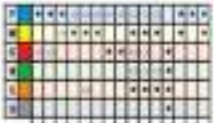


■ VNMG-MS

| ISO catalogue number | D | l.ss | S | r_ε | ap | | |



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VNMF

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WNCG FS

ISO catalogue number	D	l/W	S	r_ε	ER
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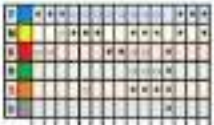

■ WNMA

ISO catalogue number	D	l.E.	S	Sa	Sw	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	9.53	9.53	4.76	0.4	0.81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]	9.53	9.53	4.76	1.2	0.81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]	12.70	9.69	4.76	0.4	0.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]	12.70	9.69	4.76	1.2	0.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]	12.70	9.69	4.76	1.6	0.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

■ WNMG-TT

ISO catalogue number	D	l.E.	S	Sa	Sw	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	9.53	9.53	4.76	0.4	0.81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]	9.53	9.53	4.76	0.8	0.81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]	12.70	9.69	4.76	0.4	0.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
[illegible]	12.70	9.69	4.76	0.8	0.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

■ WNMG-FW

ISO catalogue number	D	l=D	S	r_ε	Sw
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ WNMG-ML

ISO catalogue number	D	l=D	S	r_ε	Sw
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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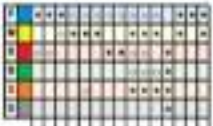
WIDIA



■ WNMG-MR

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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ WNMG-MS

ISO catalogue number	D	l.1	S	Rε	D1
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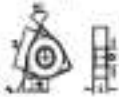

■ WNMG-MW

ISO catalogue number	D	l.1	S	Rε	D1
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Plus/minus
□ plus/minus choice

■ WNMG-GM

ISO catalogue number	D	L/W	S	D_{IC}	D_{OC}
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ WNMG-GF

ISO catalogue number	D	L/W	S	D_{IC}	D_{OC}
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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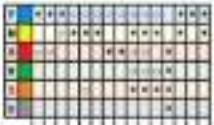
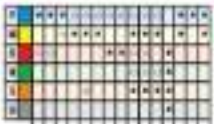
WIDIA



■ WNMG-UNI

| ISO catalogue number | D | L ±0.13 | S | Sb | Dn | | |



■ WNMP

ISO catalogue number	D	D-IB	S	Dg	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ WPMT-2P

ISO catalogue number	D	D-IB	S	Dg	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

The Gold Standard for Value •
WIDIA™ VariTurn™

VariTurn

WIDIA VariTurn is the cost-effective line of inserts from the brand you already know and trust for quality. Each insert is 100% manufactured by WIDIA to outperform the competition. WIDIA VariTurn offers the versatility for these operators that are cutting steel today and cast iron tomorrow and need an insert to get the job done. A focused portfolio with a simple grade selection method allows WIDIA VariTurn to be used for up to approximately 70% of all turning applications.

- Engineered to optimize performance
- Gold coating on every insert
- Proven grade technologies

Getting the Most from Every Insert

WIDIA™ VariTurn™ products make it simple to get the most out of your inserts, and your money. Every insert is gold, which signals wear as the tool continues to be used. This makes it easy to detect when an insert is ready to be changed — maximizing the product's value and protecting the workpiece. Also, because WIDIA VariTurn inserts can be used in most applications, a single insert can take on any number of tasks, thus reducing your inventory. WIDIA VariTurn products are also reliable enough to cut steel, stainless steel, cast iron, and high temperature alloys, enabling quick changes in workpiece materials without the need to swap inserts, saving time and money.

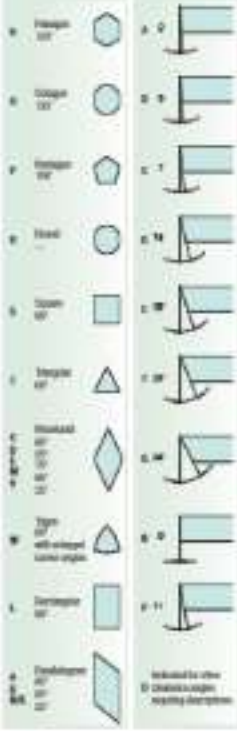
WIDIA VariTurn Options

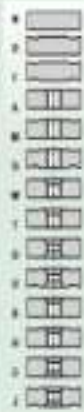
This versatile line offers a simple geometry selection system, eight grades, and eight geometries, including negative rake and neutral rake. With these options, WIDIA VariTurn inserts cover 70% of all general turning applications.

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.

C	N	M	G	12
Insert Shape	Insert Clearance Angle	Insert Tolerance Class	Insert Features	Size





Tolerance class	Tolerance on "D"	Tolerance on "T"	Tolerance on "W"
C	±0.013	±0.013	±0.025
U	±0.013	±0.013	±0.025
T	±0.013	±0.013	±0.025
Q	±0.013	±0.013	±0.13
M	See tables on next page		±0.13
U	See tables on next page		±0.13

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

04	08			6P
Thickness (mm)	Corner Radius "Re"	Hand of Insert (optional)	Cutting Edge (optional)	Chipbreaker (optional)

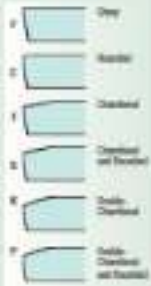
symbol	Thickness
mm	mm
–	0.35
02	1.00
03	1.59
04	2.00
05	2.38
06	3.18
07	3.97
09	4.76
11	5.56
12	6.35
15	7.94
16	9.52
20	12.70
25	15.88
30	19.05
35	22.22
40	25.40
50	31.75

symbol	Corner radius
mm	mm
00	0.20
01	0.4
02	0.8
03	0.8
04	1.2
05	1.6
06	2.4
07	3.2
08	4.0
09	5.0
10	6.0
12	8.0
16	12.0
20	16.0
24	20.0
32	25.0
40	32.0
50	40.0
60	50.0
80	Round Insert
–	

R – Right Hand

L – Left Hand

N – Neutral



SP	Finishing
MP	Finishing
LMP	Medium Machining
MP	Medium Machining
MP	Medium Roughing
HMP	Roughing
HP	Heavy Roughing

	± Tolerances on "D"			
	Class M Tolerances			Class G Tolerances
"d"	Shapes S, T, C, R, W	Shapes D	Shape V	Shapes C, T, S
mm	mm	mm	mm	mm
3.97	0.05	–	–	–
4.76	0.05	–	–	0.08
5.56	0.05	0.05	0.05	0.08
6.35	0.05	0.05	0.05	0.08
7.94	0.05	0.05	0.05	0.08
9.52	0.05	0.05	0.05	0.08
12.7	0.08	0.08	0.08	0.13
15.875	0.08	0.08	0.08	0.13
19.05	0.08	0.08	0.08	0.13
25.4	0.13	0.13	0.13	0.18
31.75	0.13	0.13	0.13	0.18
38.1	0.13	0.13	0.13	0.18
44.45	0.13	0.13	0.13	0.18
50.8	0.13	–	–	0.25
63.5	0.13	–	–	0.25

	± Tolerances on "D"			
	Class M Tolerances			Class G Tolerances
"d"	Shapes S, T, C, R, W	Shapes D	Shape V	Shapes C, T, S
mm	mm	mm	mm	mm
3.97	0.08	–	–	–
4.76	0.08	–	–	0.13
5.56	0.08	0.11	–	0.13
6.35	0.08	0.11	–	0.13
7.94	0.08	0.11	–	0.13
9.52	0.08	0.11	0.18	0.13
12.7	0.13	0.15	–	–
15.875	0.13	0.15	0.25	0.25
19.05	0.13	0.18	–	–
25.4	0.13	0.18	–	0.27
31.75	0.13	0.18	–	0.27
38.1	0.13	0.18	–	0.27
44.45	0.18	–	–	0.38
50.8	0.18	–	–	0.38
63.5	0.18	–	–	0.38

A system of grades, geometries, and application guidelines to provide optimal solutions for your metalcutting needs. It's easy to determine which WIDIA™ chip-control cutting tool will work best in your specific workpiece materials and applications!

TN	15	M
Brand	Relative Hardness (ISO 513)	Primary Workpiece Material (ISO 513)
TN – WIDIA	05 – Harshest 10 20 30 40 50 – Toughest	P – Steel M – Stainless Steel K – Cast Iron N – Non-Ferrous S – High-Temp Alloys H – Hardened Materials G – Universal Machining

WIDIA™ Tunable Tooling

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

Internal dampening package eliminates chatter, vibration, and harmonics in all your deep-hole boring applications!

- Proprietary features provide superior surface finish and increased productivity
- Wide product offering — from boring bars, extensions, and holders to vibration adaptors and modular sections.
- Reduce setup time with KM™ Quick Change Tooling — now an ISO Standard!
- Customize WIDIA pre-tuned boring bars — after they're on the machine — to optimize performance in your specific machining operations.

For tighter tolerances, reduced scrap rates, and improved tool life, you can rely on WIDIA Tunable Tooling!

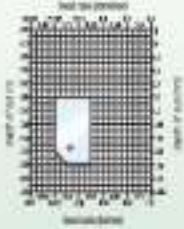
WIDIA

To learn more, contact your local Authorized Distributor or visit widia.com

Step 1 • Select the insert geometry

Negative Inserts

Positive Inserts



Step 2 • Select the grade

Cutting conditions		Negative Insert Geometry			Positive Insert Geometry
		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(continued)

Step 3 • Selecting the cutting speed *continued*

Low Carbon (<0.2% C) and Free Machining Steel

Material Group	grade	125	150	200	225	250	300	350	400	450	Starting Conditions
[illegible]	TN10P										[illegible]
	TN20P										[illegible]
	TN30P										[illegible]

Medium- and High-Carbon Steels (>0.2% C)

Material Group	grade	125	150	200	225	250	300	350	400	450	Starting Conditions
[illegible]	TN10P										[illegible]
	TN20P										[illegible]
	TN30P										[illegible]

Alloy Steels and Tool Steels (<300 HB(c.35 HRC))

Material Group	grade	125	150	200	225	250	300	350	400	450	Starting Conditions
[illegible]	TN10P										[illegible]
	TN20P										[illegible]
	TN30P										[illegible]

Alloy Steels and Tool Steels (300-450 HB(c.35-48 HRC))

Material Group	grade	50	80	100	150	200	250	300	350	400	Starting Conditions
[illegible]	TN10P										[illegible]
	TN20P										[illegible]
	TN30P										[illegible]

Cast, Martensitic, and PH Stainless Steels (<300 HB(c.35 HRC))

Material Group	grade	100	150	200	250	300	350	400	450	500	Starting Conditions
[illegible]	TN10P										[illegible]
	TN20P										[illegible]
	TN30P										[illegible]

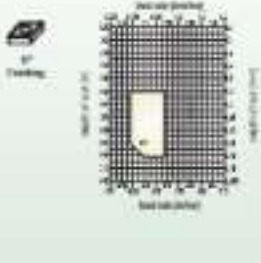
Cast, Martensitic, and PH Stainless Steels (300-450 HB(c.35-48 HRC))

Material Group	grade	100	125	150	175	200	250	300	350	400	Starting Conditions
[illegible]	TN10P										[illegible]
	TN20P										[illegible]
	TN30P										[illegible]

Step 1 • Select the insert geometry

Negative Inserts

Positive Inserts



Step 2 • Select the grade

Cutting Condition		Negative Insert Geometry		Positive Insert Geometry	
		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Step 3 • Selecting the cutting speed

Austenitic Stainless Steel — speed – m/min — Starting Condition

Material Group	grade	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Austenitic Stainless Steel — speed – m/min — Starting Condition

Material Group	grade	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Austenitic Stainless Steel Duplex (Ferritic and Austenitic Matrix) — speed – m/min — Starting Condition

Material Group	grade	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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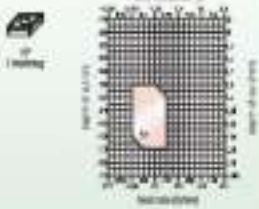
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Step 1 • Select the insert geometry

Negative Inserts

Positive Inserts



Step 2 • Select the grade

Cutting Condition		Negative Insert Geometry			Positive Insert Geometry
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Step 3 • Selecting the cutting speed

Grey Cast Iron — speed — m/min — Starting Conditions

Material Group	grade	60	120	180	240	300	360	420	480	540	m/min
[illegible]	[illegible]										[illegible]

Ductile, Compacted Graphite, and Malleable Cast Iron (>80 KSI tensile strength) — speed — m/min — Starting Conditions

Material Group	grade	60	120	180	240	300	360	420	480	540	m/min
[illegible]	[illegible]										[illegible]

Ductile, Compacted Graphite, and Malleable Cast Iron (<80 KSI tensile strength) — speed — m/min — Starting Conditions

Material Group	grade	60	120	180	240	300	360	420	480	540	m/min
[illegible]	[illegible]										[illegible]

Step 1 • Select the insert geometry

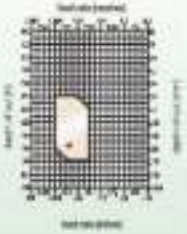
Negative Inserts

27°
Leading

27°
Medium

Positive Inserts

27°
Leading



Step 2 • Select the grade

Cutting Condition		Negative Insert Geometry 27°	Negative Insert Geometry 27°	Positive Insert Geometry 27°
[illegible]		[illegible]	–	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]

Step 3 • Select the cutting speed

Iron-Based, Heat-Resistant Alloys
(S1–S5 (HB) (≤ 34 HRC))

Material Group	grade	15	40	75	100	140	170	200	230	260	sfm/min	Starting Conditions
S1	[illegible]										[illegible]	
	[illegible]										[illegible]	

Cobalt-Based, Heat-Resistant Alloys
(S6–S10 (HB) (≤ 42 HRC))

Material Group	grade	15	40	75	100	140	170	200	230	260	sfm/min	Starting Conditions
S2	[illegible]										[illegible]	
	[illegible]										[illegible]	

Nickel-Based, Heat-Resistant Alloys
(S11–S15 (HB) (≤ 48 HRC))

Material Group	grade	15	40	75	100	140	170	200	230	260	sfm/min	Starting Conditions
S3	[illegible]										[illegible]	
	[illegible]										[illegible]	

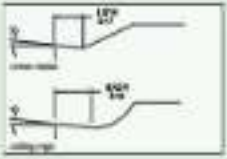
Titanium and Titanium Alloys
(S16–S20 (HB) (≤ 48 HRC))

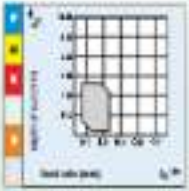
Material Group	grade	15	40	75	100	140	170	200	230	260	sfm/min	Starting Conditions
S4	[illegible]										[illegible]	
	[illegible]										[illegible]	

■ Positive and Negative Inserts

1P

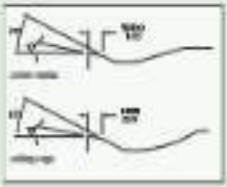
[illegible]





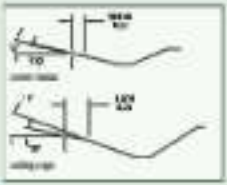
2P

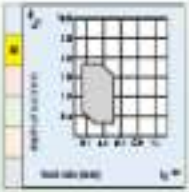
[illegible]



4P

[illegible]



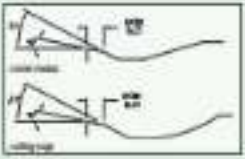


(continued)

Positive and Negative Inserts continued

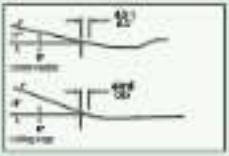
GP

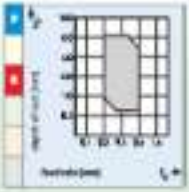
For medium to rough turning. Outstanding chip control due to variable configured chipbreaker channel in cutting area. Good chip breaking with low depth of cut.



7N

For medium chip to roughing. Outstanding chip control. High edge strength for interrupted cuts, forging skin, or scale. Preferred for difficult-to-cut such as gray, malleable, and nodular.



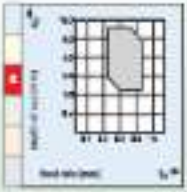


continued

Positive and Negative Inserts (continued)

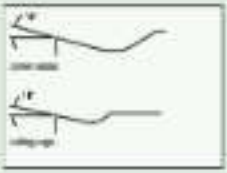
_MA

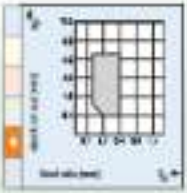
For low pressure for machining cast iron. For finishing to roughing applications.



_CP

For light machining in light roughing.





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

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

	Coating	Grade Description	Steel	Stainless Steel	Cast Iron	Non-Ferrous	High Temp Alloys	Hardened Materials	Roughness
Grade	TiN CVD IC-P40	Coated carbide ISO K10 / ~5% TiCN-Al_2O_3 / 5% Good for light finishing to medium machining applications. Superior wear resistance.	■	■	■				
	TiAlN PVD IC-P30	Coated carbide ISO K10 / ~5% TiCN-Al_2O_3 / 5% General purpose turning grade for steels. Ideal for semi-finishing to moderate heavy roughing.	■	■	■	■			
	TiAlN PVD IC-P20	Coated carbide ISO K10 / ~5% TiCN-Al_2O_3 / 5% Tough carbide grade. Ideal for roughing and heavy roughing applications.	■				■	■	
	TiN CVD IC-M10	Coated carbide ISO K10 / ~5% TiCN-Al_2O_3 / 5% Ideal for general purpose machining of stainless steels.	■	■	■	■			

Inserts provide high-speed capability and are engineered for finishing to heavy roughing.

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

Coating	Grade Description									
Finishing										
	Coated carbide WC/Co 5% TiC/TaC/Co 6% Used for general purpose machining of stainless steels.	P								
		M								
		K								
Finishing										
	Coated carbide WC/Co 5% TiC/TaC/Co 6% Used when need for straight or light interrupted cut applications (1-10% cut time).	P								
		K								
Finishing										
	Coated carbide TiC/TiN/Co 6% Used for finishing of difficult to machine alloy and stainless steels.	P								
		M								
		K								
		S								
		H								
Finishing										
	Non-coated carbide. Excellent abrasion resistance for machining cast iron, austenitic stainless steels, and heat high temperature alloys.	P								
		M								
		K								
		S								
		H								

■CDGT-IP

| ISO catalogue number | D | L16 | S | d_1 | D1 | | |

● Best choice
○ Alternate choice

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

● CCMT-6P

ISO catalogue number	B	LM	S	r_ε	D
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■ CBGP

ISO catalogue number	D	l1.18	S	Rε	ES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CBGP12400	12,70	12,00	4,76	0,1	2,24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CBGP12400	12,70	12,00	4,76	0,2	2,24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CBGP12404	12,70	12,00	4,76	0,4	2,24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CBGP12408	12,70	12,00	4,76	0,8	2,24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CBGP12400	12,70	12,00	4,76	1,2	2,24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ CNMA

ISO catalogue number																		
CNMA 120408																		
CNMA 120412																		
CNMA 120416																		
CNMA 120420																		
CNMA 150608																		
CNMA 150612																		
CNMA 150616																		
CNMA 150620																		

■CMMG 3F

ISO catalogue number	D	LF/D	E	a_p	D3	[illegible]
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■CMMG-8F

ISO catalogue number	D	LF/D	E	a_p	D3	[illegible]
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■ CNMG-GP

ISO catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ CBMG-7N

ISO catalogue number	D	L1N	E	d_k	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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DCGT-IP

ISO catalogue number	B	L1B	L	Rε	D1
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DCMT-IP

ISO catalogue number	B	L1B	L	Rε	D1
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■ CMCP

RD catalogue number	D	L/R	E	a_p	ER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ CMNA

RD catalogue number	D	L/R	E	a_p	ER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ DNMG 3P

ISO catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ DNMG 4P

ISO catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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CMMG-SF

Item Catalogue number	D	LCF	S	Rε	ZD
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■ DNMG-7N

ISO catalogue number	D	LCF	S	Tg	D1											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ RNMG-7N

ISO catalogue number	D	S	D1											
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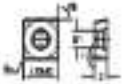

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■ SNMG 2P

ISO catalogue number					
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■ SNMG 4P

ISO catalogue number					
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■ VAMG-07

| ISO catalogue number | D | L1h | L | lg | D1 | | |

■ SNMG-TN

ISO catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ TCGT-6P

ISO catalogue number	D	$l_{1\,h13}$	L	l_N	l_{E3}	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ TCMT-VP

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■ TNGF

ISO catalogue number	D	LCF	S	r_ε	DN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ TNMA

ISO catalogue number	D	LCF	S	r_ε	DN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ TNMG 3P

ISO catalogue number					
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■ TNMG-6P

ISO catalogue number					
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■ TNMG GP

ISO catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ TNMG 7N

ISO (Ordering number)					
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VBGT-IP

| ISO catalogue number | D | LCF | S | Sb | D3 | | |

■ VNGJ

ISO catalogue number						
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■ VNMA

ISO catalogue number						
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■ VNMG-3°

ISO catalogue number					
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■ VNMG-6°

ISO catalogue number					
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■ VNMC-GF

Size / Catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ WNMA

Size / Catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ WNMG-07

ISO catalogue number	D	l.ss	S	Dg	Dc
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■ WNMG-TN

ISO catalogue number	D	l.ss	S	Dg	Dc
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WIDIA™ Inserts for Machining Aluminium

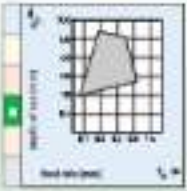
WIDIA offers a series of inserts specifically designed for machining aluminium materials. These inserts are available in both an uncoated and a PVD grade for better performance and better tool life.

Inserts for Aluminium

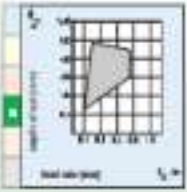
- Easy-to-choose platform – two geometry and three grades.
- Longer tool life.

Positive Inserts

AL1



AL3



Step 1 • Select the insert geometry

Positive inserts

Step 2 • Select the grade

Cutting Condition		Positive Insert Geometry	
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		[illegible]	[illegible]
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Step 3 • Selecting the cutting speed

Low Silicon Aluminum Alloys
Hypereutectic - 12.2% Si and Magnesium Alloys

Material Group	grade	250	300	750	1000	1250	1500	1750	2000	2250	2500	Starting Conditions
[illegible]	[illegible]											[illegible]

High Silicon Aluminum Alloys
Hypereutectic - 12.2% Si and Magnesium Alloys

Material Group	grade	250	300	750	1000	1250	1500	1750	2000	2250	2500	Starting Conditions
[illegible]	[illegible]											[illegible]

Additional cutting speed recommendations for miscellaneous workpiece materials

Copper, Brass, Zinc Based on a Machinability Index Range of 15-100

Material Group	grade	250	500	750	1000	Starting Conditions
[illegible]	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]				[illegible]

Nylon, Plastics, Polymers, Phenolics, Resins, Fiberglass, and Glass

Material Group	grade	250	500	750	1000	Starting Conditions
[illegible]	[illegible]	[illegible]				[illegible]

Carbon and Graphite Composites Graph Alloys, Resins, and Graphite

Material Group	grade	250	500	750	1000	Starting Conditions
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MMCs (Aluminum Based Metal Matrix Composites)

Material Group	grade	250	500	750	1000	Starting Conditions
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Tin Alloys, Cast: [illegible], Alloys 1, 2, 3, 4

Material Group	grade	250	500	750	1000	Starting Conditions
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	[illegible]	[illegible]				[illegible]

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

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

Coating	Grade Description	

■ Not shown
□ Alternate choice

■ CCGT-AL2

ISO catalogue number	D	L±0	S	Tw	ID		
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■ DCGT-AL3

ISO catalogue number	D	l.ED	S	Rε	Dn	[illegible]	[illegible]
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■ RCGT-AL3

ISO catalogue number	D	S	Dn	[illegible]	[illegible]
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■ SCGT-AL3

ISO catalogue number	D	l.ED	S	Rε	Dn	[illegible]	[illegible]
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■ TCGT AL1

ISO catalogue number	D	l.IC	S	Rε	D1	MGAX	MGCX	MGTX
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■ VCGT AL3

ISO catalogue number	D	l.IC	S	Rε	D1	MGAX	MGCX	MGTX
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Ceramic, PcBN, and PCD Inserts

Advanced Material Inserts

Hard part turning, along with the machining of cast irons, high-temp alloys, and non-ferrous materials, can be accomplished through the use of inserts made from advanced materials. These advanced materials include ceramics, PcBN (polycrystalline cubic boron nitride), and PCD (polycrystalline diamond). WIDIA™ offers:

- Improved performance.
- Greater wear resistance.
- Longer tool life.

Ceramic Inserts

- Silicon nitride based ceramic for cast iron machining.
- Mixed ceramic for hard machining and finishing of cast iron.
- Whisker ceramic for high temp alloy and hard machining.

CW2015 — Mixed Ceramic

CWN025 — Silicon-Nitride Ceramic

PcBN

Solid Inserts

- Inserts are made only from PcBN.
- No material joint.
- Good heat absorption capacity.
- Can work at highest temperatures.

Tipped Inserts

- Requires a carrier and a PcBN tip.
- The tips are brazed to a carrier.
- The substrate has to have a pocket that will accommodate and support the tip.

PCD

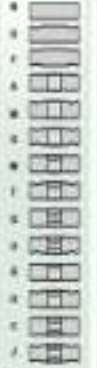
- Targeted machining of non-ferrous materials.
- Significant advantage in tool life over carbide tools.
- Increased productivity through higher speeds and longer tool life.
- Used to processing materials that are un-machinable with conventional tooling.

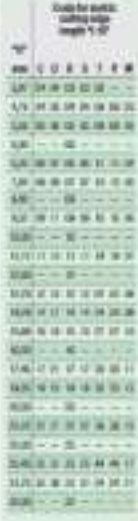
WIDIA

How Do Catalogue Numbers Work?

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

C	C	G	W	2
Insert Shape	Insert Clearance Angle	Tolerance Class	Insert Features	Size





Tolerance Class*	Tolerance on "d"	Tolerance on "m"	Tolerance on "s"
C	±0.025	±0.013	±0.025
U	±0.013	±0.013	±0.025
T	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.013
M	See tolerances on next page		±0.013
H	See tolerances on next page		±0.013

*Tolerances apply prior to single pass wet coating.

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

15	05		E			C	
Thickness "S"	Corner Radius "Re"	Nature of Insert (optional)	Cutting Edge (optional)	T-Land Width (optional)	T-Land Angle (optional)	Tip Style (optional)	Chipbreaker (optional)

C	
M	
MT	
ST	

"S"	Tolerances on "S" – Class M Tolerances: Shapes C, T, C, S, R/M	Shapes D	Shapes V	Class G Tolerances: Shapes C, T, C, S	"S"	Tolerances on "S" – Class M Tolerances: Shapes C, T, C, S, R/M	Shapes D	Shapes V	Class G Tolerances: Shapes C, T, C, S
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
3.18	0.13	–	–	–	3.18	0.08	–	–	–
4.76	0.13	–	–	0.08	4.76	0.08	–	–	0.13
6.35	0.13	0.08	0.08	0.08	6.35	0.08	0.13	–	0.13
7.94	0.13	0.08	0.08	0.08	7.94	0.08	0.13	–	0.13
9.52	0.13	0.08	0.08	0.08	9.52	0.08	0.13	0.18	0.13
12.7	0.13	0.08	0.08	0.13	12.7	0.13	0.13	–	–
15.875	0.18	0.08	0.08	0.13	15.875	0.13	0.13	0.25	0.25
19.05	0.18	0.08	0.08	0.13	19.05	0.13	0.13	–	–
25.400	0.25	0.13	0.13	0.18	25.400	0.13	0.18	–	0.27
31.750	0.25	0.13	0.13	0.18	31.750	0.13	0.18	–	0.27
38.100	0.25	0.13	0.13	0.18	38.100	0.13	0.18	–	0.27
12.700	0.13	–	–	0.25	12.700	0.13	–	–	0.38
15.875	0.13	–	–	0.25	15.875	0.18	–	–	0.38
19.175	0.18	–	–	0.25	19.175	0.25	–	–	0.38

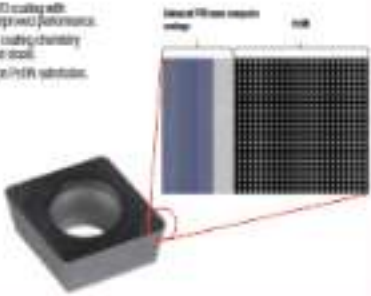
WIDIA™ for Enhanced Performance – Five Unique Features

1 Newly developed substrate enables application in a wide variety of demanding situations.

The substrate contains important grains with a uniquely formulated size distribution and nano-structured binder phase. This unique combination provides an unprecedented balance of wear resistance and toughness. The end result is a robust hard turning tooling solution for a wide range of applications, including continuous to interrupted cutting.

2 Nano-composite coating that enhances speed capabilities and tool life.

- Specially developed, advanced PVD coating with nano-composite architecture for improved performance.
- Improved wear resistance by PVD coating chemistry technology for machining hardened steel.
- Advanced PVD coating adhesion on PcBN substrates.



3 Improved edge preparation technology for longer tool life, reliable performance, better surface finish, and tighter workpiece tolerances.

A critical performance factor is the edge preparation itself. The chief directions, surface roughness, tool life, and tolerances have great impact on performance and process reliability. WIDIA™ has performed significant research work and optimized edge preparation to improve your overall machining effectiveness.

4 Large standard portfolio.

Standard edge preparation – the optimum combination of T land angle, T land width, and hone size – is guaranteed to achieve maximum performance. WIDIA™ has developed three standard edge configurations, including wiper inserts.

a – T land angle

- Light machining edge prep T:
- Medium machining edge prep T:
- Heavy machining edge prep T:

T: Finest cutting edge

T: Width: W x R – 0.00000 x "in"

T: Width: W x R – 0.00000 x "in"

These edge preps are available in common styles, sizes, and more odd in both positive and negative geometries.

5 CH1 chipbreaker in positive and negative geometries, solving chipbreaking and chip control issues.

Chipbreaker – when machining cast iron or steel with a hard outer skin and a tough and softer core, a chipbreaker provides a great advantage. The CH1 chipbreaker is a proven solution to effectively breaking chips. Long chips can form bird nests, causing machine malfunction, increasing scrap rates, and reducing the overall equipment effectiveness.

Available as a custom solution product.

Insert without Chipbreaker

- Long chips
- Bird nest formation

Insert with Chipbreaker

- Chips are broken

Grade Numbering System – Ceramics

CW	2	0	15
Brand	Cutting Material Group		Application Range
CW = WIDIA™	2 = CW Mixed (black) ceramic 3 = CC Whisker reinforced ceramic 3 = CN Silicon nitride ceramic	0 = Elaborate cutting edges (turning, parting, threading) 1 = Fine surfaces 2 = Semi-standard machining cutting edges 3 = Semi-standard general applications 9 = Formating cutting edges (milling, milling, reaming)	05 = Fine finishing 10 = Finishing 15 = finishing to roughing 20 = finishing to roughing 25 = finishing to roughing 30 = roughing 35 = roughing 40 = roughing 45 = heavy roughing 50 = heavy roughing

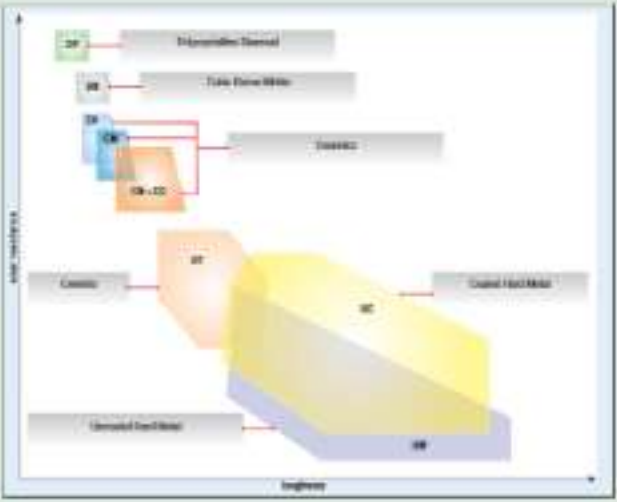
Grade Numbering System – PcBN and PCD

W	B	H	30	P
Brand	Cutting Material Group	Material Range	Application Range	Coating
WIDIA™	B – CBN B – PCD		30 – Non-finishing 30 – Finishing 10 – medium to roughing 20 – 25 – 30 – roughing 35 – 40 – heavy roughing 45 – 50 –	0 – Uncoated G – CVD Coated P – PVD Coated

- Steel
- Stainless Steel
- Cast Iron
- Non-ferrous
- High-temp Alloys
- Hardened Materials
- Universal Machining

[illegible]

[illegible]

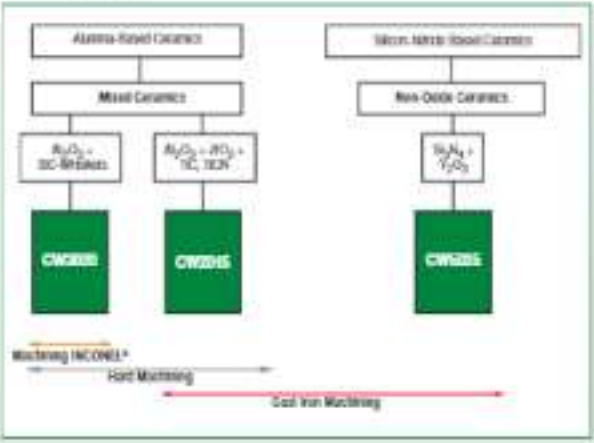

Polycrystalline Diamond
Cubic Boron Nitride
Ceramics
Ceramics
Coated Hard Metal
Uncoated Hard Metal
Toughness

Main group	Sub-group symbol	Details
hard metal	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
ceramics	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
cubic boron nitride	[illegible]	[illegible]
	[illegible]	[illegible]
diamond	[illegible]	[illegible]

Ceramic Inserts for Hard Turning, Turning in Cast Iron Materials, and Turning in High-Temp Alloys

- Ceramics offer greater wear resistance and toughness.
- Ceramics can be used in high-speed, continuous, and lightly interrupted turning applications in cast iron materials.
- Ceramics can be used for high-speed applications in high-temp alloys.

Ceramic Turning Grades



CW2015™

- Alumina and titanium carbo-nitride.
- High hardness and wear resistance.
- TiCN increases strength and hardness.
- Black in colour.

CW3020™

- Alumina + SiC whisker.
- High hardness and wear resistance.
- Whisker ceramic with elongated crystals and very high strength.
- Grey-green colour.

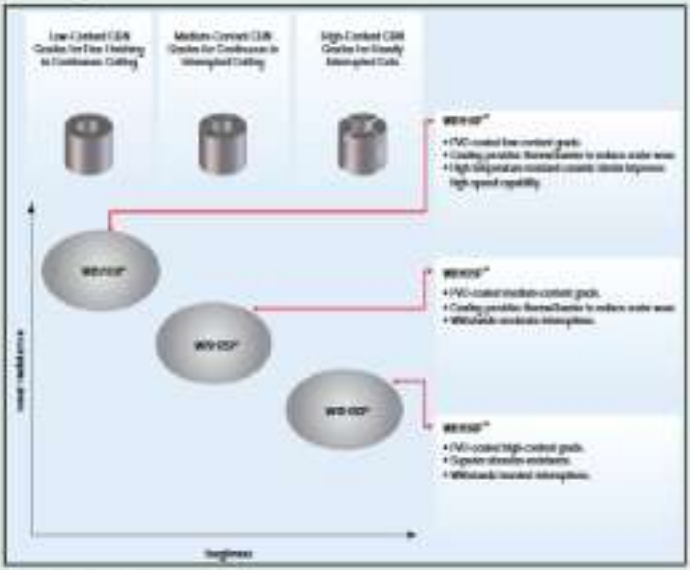
CW4025™

- Fine silicon nitride composition.
- Used in high-speed turning applications.
- Designed for use in gray cast iron and hard tensile ductile irons.

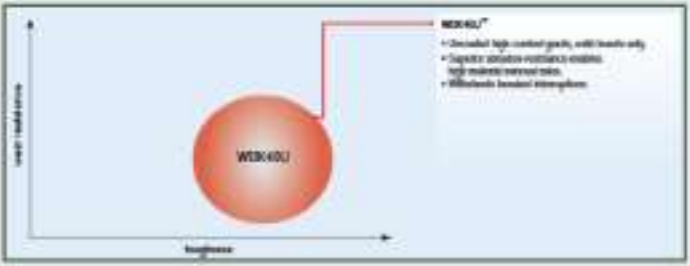
PcBN Grades for Hard Turning, Powder Metal, and Grey Cast Iron Machining

- PVD-coated grades available.
- Complete range of CBN grades for continuous to heavily interrupted turning.
- Industry-leading grades for grey cast iron machining.
- Full line of grades for hard turning.
- For best performance: solid, full flip, and tipped inserts are available.

Hard Turning Grades

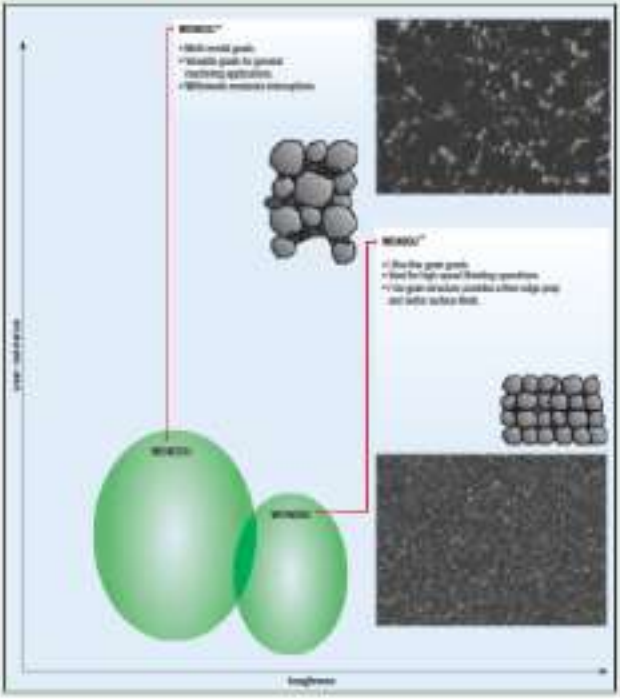


Grey Cast Iron Grades

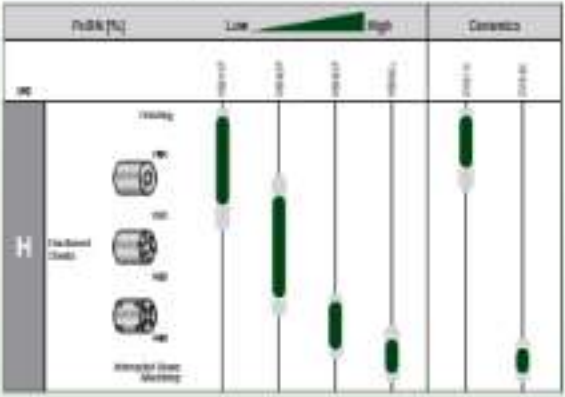


PCD Grades for Turning Non-Ferrous Materials

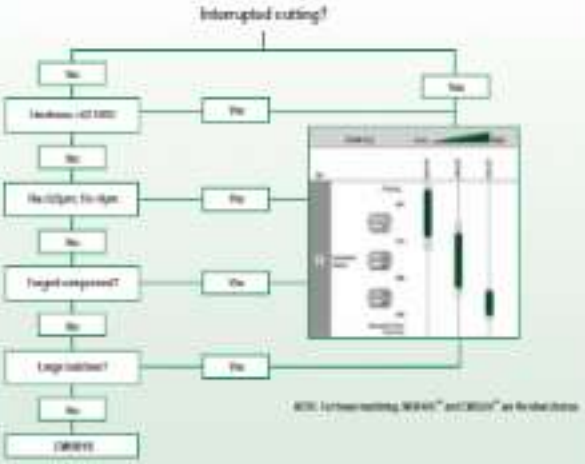
- Two PCD grades — [illegible] and [illegible] — cover a wide range of applications.
- These grades provide outstanding performance to increase productivity and cut manufacturing costs.
- High abrasion and chipping resistance.
- Used in machining aluminum alloys with low- and high-silicon content, copper alloys, ceramics, and plastics.
- Suitable for machining highly abrasive materials such as Aluminum and Metal Matrix Composites (MMC).



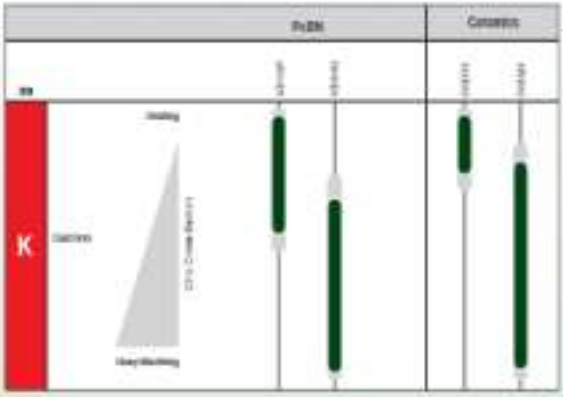
Advanced Materials for Hard Turning



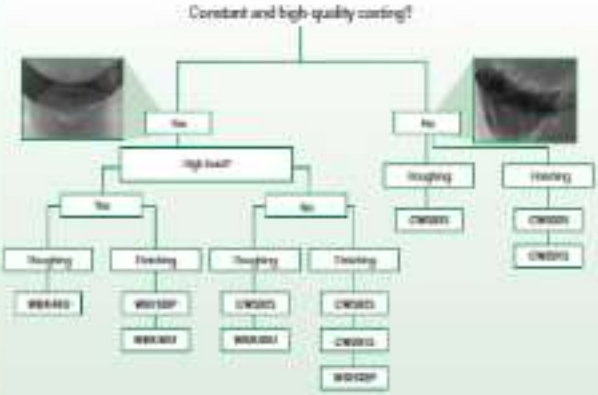
Hard Turning Grade Selection



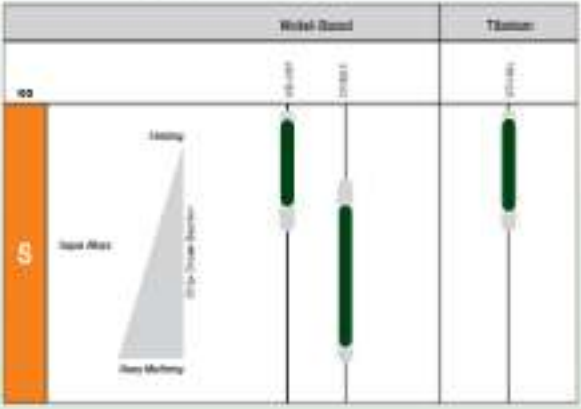
Advanced Materials for Cast Iron Machining



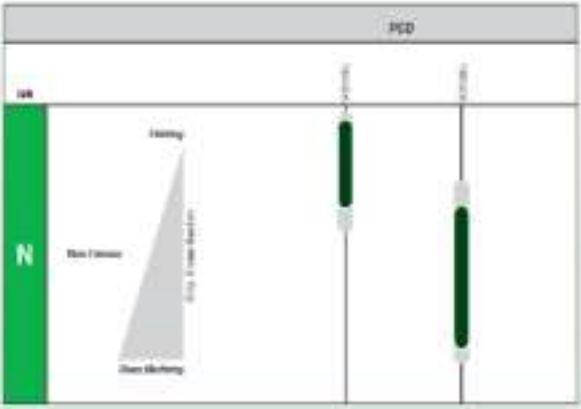
Cast Iron Machining Grade Selection



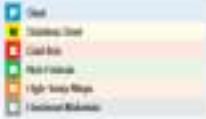
Advanced Materials for High-Temperature Machining

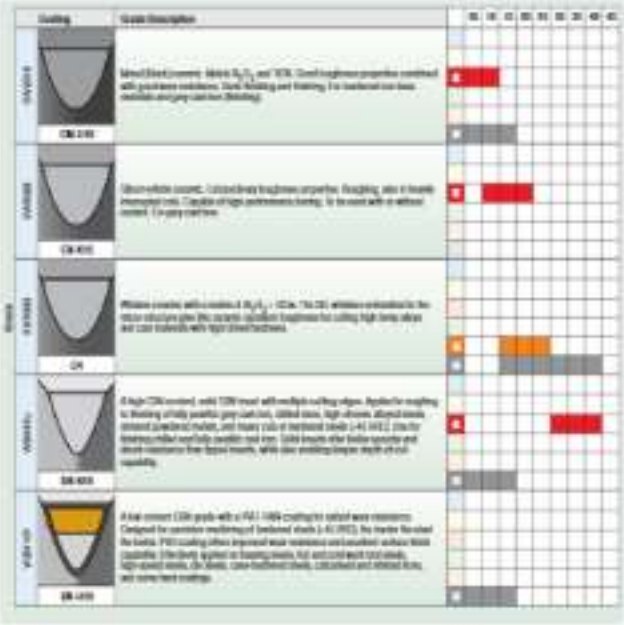


Advanced Materials for Non-Ferrous Machining



Reduce cycle times. High speed and feed capability. Long tool life. New multi-layer coating provides better wear resistance.





Reduces cycle times. High speed and feed capability. Long tool life. New multi-layer coating provides better wear resistance.

Coating	Grade Description									
[illegible]	[illegible]									
[illegible]	[illegible]									
[illegible]	[illegible]									

Material Group		Cutting Speed – sfm (m/min)								
		CNG321			CNG323			CNG325		
		min	Start	max	min	Start	max	min	Start	max
in (mm)		[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
f (mm/rev)		[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
P	0	–	–	–	–	–	–	–	–	–
	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–
	5	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	–	–	–
M	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
K	1	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
N	1	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–
	5	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	–	–	–
	7	–	–	–	–	–	–	–	–	–
	8	–	–	–	–	–	–	–	–	–
S	1	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	2	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	3	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	4	–	–	–	–	–	–	–	–	–
H	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–

WIDIA

Material Group		Cutting Speed – vc m/min														
		WIDI-HCF			WIDI-CCF			WIDI-CCF			WIDI-KCJ			WIDI-KCJ		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
ap [mm]		0.25		0.50	0.25		0.50	0.25		0.50	0.25		1.00	0.25		1.00
f [mm/rev]		0.05		0.25	0.05		0.25	0.05		0.25	0.05		0.25	0.05		0.25
P	01	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
M	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
K	1	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	4	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	5	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	6	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S	1	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	2	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	3	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
H	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–

■ CNGN/CMG

ISO catalogue number	D	L/W	S	Rε	LE	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	12,70	12,90	4,76	0,8	–	[illegible]	–	[illegible]	[illegible]
[illegible]	12,70	12,90	4,76	0,8	–	–	[illegible]	[illegible]	[illegible]
[illegible]	12,70	12,90	4,76	0,4	–	[illegible]	–	[illegible]	[illegible]
[illegible]	12,70	12,90	4,76	1,2	–	–	[illegible]	[illegible]	[illegible]
[illegible]	12,70	12,90	4,76	1,2	–	[illegible]	–	[illegible]	[illegible]
[illegible]	12,70	12,90	4,76	1,6	–	–	[illegible]	[illegible]	[illegible]
[illegible]	12,70	12,90	4,76	1,6	–	[illegible]	–	[illegible]	[illegible]
[illegible]	12,70	12,90	1,84	1,2	–	–	[illegible]	[illegible]	[illegible]
[illegible]	12,70	12,90	1,84	1,2	–	[illegible]	–	[illegible]	[illegible]
[illegible]	12,70	12,90	1,84	1,6	–	–	[illegible]	[illegible]	[illegible]

■ CMGA

| ISO catalogue number | D | L/W | S | Sg | Di | | |

■ CNGX

| ISO catalogue number | D | L/W | S | Dg | Dh | | |

CNGN/CNG

ISO catalogue number	D	l.IN	S	Rε	Di					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ DNGA

SSG catalogue number	D	l.ss	S	Rε	D1				
[illegible]	15,75	12,90	9,70	0,8	5,16	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,75	12,90	9,70	0,8	5,16	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,75	12,90	9,70	1,2	5,16	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,75	12,90	9,70	0,4	5,16	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,75	12,90	12,90	0,8	5,16	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,75	12,90	12,90	1,2	5,16	[illegible]	[illegible]	[illegible]	[illegible]

■ DNGX

SSG catalogue number	D	l.ss	S	Rε	D1				
[illegible]	15,88	12,21	3,94	1,2	—	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,88	12,21	3,94	1,6	—	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,75	12,20	3,94	0,8	—	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,75	12,20	3,94	1,2	—	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	15,75	12,20	3,94	1,6	—	[illegible]	[illegible]	[illegible]	[illegible]

■ ENGRAVING

ISO catalogue number	D	L/W	S	Rε	D1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–

■ ENGX

ISO catalogue number	D	L/W	S	Rε	D1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–

■RCGX/RCGV

ISO catalogue number	D	L
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
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MGMN/MG

ISO catalogue number	D	B
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■ RPGV

ISO catalogue number	D	S
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

■ SCGW/SCG

ISO catalogue number	D	l1.58	S	Sg	Dr	[illegible]	[illegible]
[illegible]	9.525	9.525	6.35	3.7	–	●	[illegible]

■ SCLW/SCU

ISO catalogue number	D	l1.58	S	Sg	Dr	[illegible]	[illegible]
[illegible]	9.525	9.525	6.35	3.7	–	●	●

■ ENGRAVING

ISO catalogue number	D	l.1/B	S	Rε	ap	[illegible]	[illegible]
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WIDIA

[illegible] — continued

ISO catalogue number	d	l 20	s	Rε	D1	[illegible]	[illegible]
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■ SNGA

ISO catalogue number	E	l1	S	Sk	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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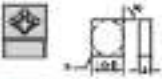

■ SNGX

ISO catalogue number	E	l1	S	Sk	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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WIDIA

■ [illegible]

ISO catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ [illegible]

ISO catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ SPGN-T/SPG-T

ISO catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ SPGN 7

ISO catalogue number	D	l-W	S	d_m	Dk				
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■ = first choice
□ = alternate choice

■ TN GIVING

ISO catalogue number	D	l.IC	S	r_ε	Dh	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ TNGA

ISO catalogue number	D	L/W	S	r_ε	DX						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ TPC

| ISO catalogue number | D | L1.IN | D | IN | D1 | | |

■ VNGA

ISO catalogue number	D	L (R)	S	Dg	ZD
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ WNGA

ISO catalogue number	D	L (R)	S	Dg	ZD
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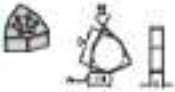

■ WNGX

ISO catalogue number	D	d IN	S	TN	RE
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■ Recommended
□ Alternative choice

■CCGW-C

ISO catalogue number	D	I.C	S	Rε	D1
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■CCGW-FSE

ISO catalogue number	D	I.C	S	Rε	D1
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CCGW-FWC

ISO catalogue number	D	l.1/d	S	R_ε	D1	[illegible]	[illegible]	[illegible]	[illegible]
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CCGW-MS

ISO catalogue number	D	l.1/d	S	R_ε	D1	[illegible]	[illegible]	[illegible]	[illegible]
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■ CCMW-FST

ISO Catalogue number	D	l.1	S	Fa	r2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	9.52	9.61	3.97	0.4	0.04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ CCMD-FST

ISO Catalogue number	D	l.1	S	Fa	r2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■CMGA DMT

ISO catalogue number	D	LM	S	Rε	W
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■CMGA FSE

ISO catalogue number	D	LM	S	Rε	W
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ CNGA-FW/MW MT

ISO catalogue number	D	l.ss	S	Sg	Sx					
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■ CNGA-MT

ISO catalogue number	D	l.ss	S	Sg	Sx					
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■ Not stock
Lead time

■ CNMN

| ISO catalogue number | D | l.ch | S | r_ε | Dr | | |

■ CPGN

ISO catalogue number	D	L/d2	S	Rε	ER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ CPGW-C

ISO catalogue number	D	L/d2	S	Rε	ER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■CPGW-1ST

ISO catalogue number	D	l1B	S	Sg	Dn					
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■CPGW-1WST

ISO catalogue number	D	l1B	S	Sg	Dn					
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■CPGW MT

ISO catalogue number	D	L/d	S	R_ε	D1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■CPMW FST

ISO catalogue number	D	L/d	S	R_ε	D1
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■CPMW FWST

ISO catalogue number	D	L/d	S	R_ε	D1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■CCGW-C

ISO catalogue number	D	l10	S	Da	D1						
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■CCGW-FST

ISO catalogue number	D	l10	S	Da	D1						
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■CCGW-MT

ISO catalogue number	D	l10	S	Da	D1						
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■ DCMW-FST

| ISO catalogue number | D | L/W | S | Rε | D1 | | |

■ CNGA / CNMT

ISO Catalogue number	D	l.1	S	Rε	ST	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ DNGA / MT

ISO Catalogue number	D	l.1	S	Rε	ST	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ DNMA

ISO Catalogue number	D	l.1	S	Rε	ST	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ DNMG-FSE

ISO catalogue number	D	LCD	S	r_ε	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	12.70	12.24	4.76	0.4	5.16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	12.70	12.24	4.76	0.8	5.16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ DPGW-C

ISO catalogue number	D	LCD	S	r_ε	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	6.35	5.25	2.38	0.2	2.60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	6.35	5.25	2.38	0.8	2.60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CPGW-FST

ISO catalogue number	D	L1B	S	Rε	ZB
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CPGW-FWST

ISO catalogue number	D	L1B	S	Rε	ZB
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DNM

ISO catalogue number	D	S
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■ SNGA-MT

ISO catalogue number	D	LCD	S	Rε	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ SNM

ISO catalogue number	D	LCD	S	Rε	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ SNMA

ISO catalogue number	D	L±0	S	d_2	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ SNMS-FSI

ISO catalogue number	D	L±0	S	d_2	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ TCGW-C

ISO catalogue number	D	L±0	S	d_2	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ TCGW-FSI

ISO	E	LE	S	Rε	CS
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■ TCMW-FSI

ISO	E	LE	S	Rε	CS
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ TNGA-FWMT

ISO	E	LE	S	Rε	CS
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■ TNGA-MT

ISO catalogue number	D	1.19	S	D_1	90	[illegible]	[illegible]	[illegible]	[illegible]
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■ TNMG-FST

ISO catalogue number	D	1.19	S	D_1	90	[illegible]	[illegible]	[illegible]	[illegible]
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■ TPGN

ISO catalogue number	D	l.W	S	Sg	r3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ TPGN-C

ISO catalogue number	D	l.W	S	Sg	r3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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WIDIA

■ TPGW-FST

ISO catalogue number	D	L/W	S	r_ε	D1						
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■ VBGW-FST

ISO catalogue number	D	L/W	S	r_ε	D1						
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■ VBGW-MT

ISO catalogue number	D	L/W	S	r_ε	D1						
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■ VCMW-1ST

ISO catalogue number	D	L/W	S	r_ε	D1						
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■ VNGA-1ST

ISO catalogue number	D	L/W	S	r_ε	D1						
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■ VNGA-MT

ISO catalogue number	D	L/W	S	r_ε	D1						
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VNMG-FST

ISO catalogue number	D	L1D	S	Rε	ap
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WNGA-FST

ISO catalogue number	D	L1D	S	Rε	ap
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Victory™ -UR Geometry

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

-UR geometry offers a roughing solution for high-temp materials

Available in WS/SVF™ and WS/SVF™, the -UR geometry provides smooth chip forming and improved coolant flow for increased tool life. This positive geometry, with its unique chipbreaker without intermediate points, reduces cutting forces and improves depth of cut (DOC) notching resistance, while still providing superior edge stability.

To learn more, contact your local Authorized Distributor or visit **widia.com**.

WIDIA VICTORY

Turning • Tools for External Turning and Internal Boring

Tools for External Turning C2–C40
Tools for Internal Boring C53–C81
Tunable Boring Bars C82–C94
Cartridges C96–C125

Modern machining operations performed on CNC machine tools and flexible production facilities require high-performance tools that provide straightforward design and application versatility. WIDIA™ offers an extensive range of toolholders for external turning to meet even the most exacting production demands across a broad spectrum of workpiece shapes and sizes.

Tools for External Turning

Whatever your operation requirements — from light finishing cuts at very high cutting speeds to heavy roughing applications — there is a WIDIA solution to meet your needs. The complete programme includes toolholders for pin-, screw-, or clamp-type holding.

D-Style Clamping

- Used for negative style inserts.
- Clamp assembly contains clamp, screw, and retaining ring.
- Quick insert indexing.
- Ensures insert repeatability and seating.
- Reduced chatter and extended tool life.

P-Style Clamping

- Lever type clamping system for negative indexable inserts.
- No interference to chip flow.
- Fixed insert changes.

P style available in metric sizes only.

S-Style Clamping

- Screw clamping system for positive indexable inserts.
- Compact design for high rigidity and cost efficiency.
- Carbide shim for additional tool protection.

C-Style Clamping

- Height adjustable clamp prevents use of additional chipbreakers.
- Unique cut clamping system for positive and negative flat top inserts.
- Robust engineering makes it easy to handle.
- Carbide shim for extra tool protection.

WIDIA

Look across clamping system, then product options to fit your specific toolholder needs. Find the illustration that fits your application and navigate to the corresponding page to get the correct solution.

S-Style Clamping

S

Two screw clamp assembly holder for carbide inserts, slim length, for extended tool clamping system. The tool is protected by a carbide shim.

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P-Style Clamping

P

Lever type clamping system for negative indexable inserts with hole in ISO 1832 and positive round inserts. Insert hole sizes in diameter 12mm with one, and two cutting edge, and two cutting edge generation from positive sides from 4° to 16°. Advantages of this system are fast insert changes and no interference with chip flow.

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C-Style Clamping

C

Two clamping system for negative and positive indexable inserts in C-196 sizes. The universal clamping system is shown and uses screwless lever height adjustable clamps which the use of additional chipbreakers, is certainly more complex, additional tool protection hardware with cutting edge height, generally in 1 turn and lower Co power than L-Clamp.

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LNXP*
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Tower Clamping System not shown

S-Style Clamping

S

Screw clamping system for positive indexable inserts with round mounting hole in CW-4042. Compact design using a minimum of space, particular large adaptability with cross-ability clamp. SLCF/SMC also provides additional tool protection. Toolholders with cutting edge height adjustable (1 screw) are marked Co more (L-Clamp are marked by means of a Revolver bushing).

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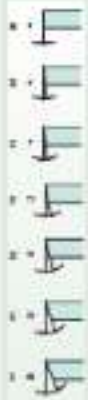
How Do Catalogue Numbers Work?

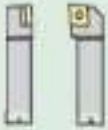
Each character in our catalogue number signifies a specific trait of the product. Use the following key columns and corresponding images to easily identify which attributes apply.

D	C	L	N	R	
Insert Holding Method	Insert Shape	Insert Style or Lead Angle	Insert Clearance Angle	Hand of Tool	Additional Information



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

25	25	M	12	KC	04
Shank Dimensions		Tool Length	Insert Size	Additional Information	Insert Thickness (optional)



The numerical and alpha positions shall be a significant two-digit number that indicates the holder cross section.

• If the dimension for the width "H" or the height "V" is represented by a non-digit number, a 0 (zero) will be used in front of it.

Example: 0.25mm – 25

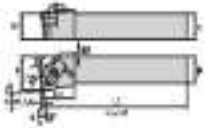
32	8
40	9
50	C
60	D
70	E
80	F
90	G
100	H
110	J
120	K
130	L
140	M
150	N
160	P
170	Q
180	R
190	S
200	T
210	U
220	V
230	W
240	X
250	Y
Special Design	Z

KC –
Cutting Edge Clamping

04 – 4.76mm
02 – 2.38mm

Cutting Edge Length (L/d)

See page 80 for Clamp Screwdriver



■ CCKN 75°

Order number	Catalogue number	H	B	F	L1	L4	L14	Weight (kg/pcs)	Clamp	Clamp screw	Torx Plus	Clamp screwdriver	Torx Plus	Wrench pin	Lubricant for screw
Right hand															
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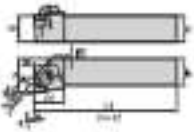

■DCLN 95°

order number	catalogue number	B	D	F	L1	L6	RD	qty. /box	screw	screw screw	Torx Plus	clamp assembly	Torx Plus	shelf pin	spherical DCLN pin
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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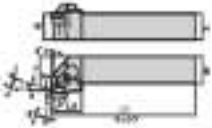
See page 816-Use tool wrench



■DCGN 75°

order number	catalogue number	D	B	F	L1	L2	L3	L4	gauge insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	dowel pin	optional lockpin
right hand																
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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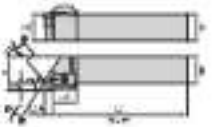
See page 816-Use tool wrench



■DCGN 40°

order number	catalogue number	D	B	F	L1	L2	L3	L4	gauge insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	dowel pin	optional lockpin
right hand																
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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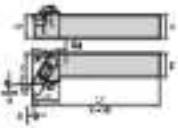
See pages C4-1 C4-2 for inserts



■ CCLN 93°

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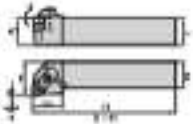
See pages 354–362 for inserts



■ CRGN

order number	catalogue number	D	B	T	L1	L2	screw torque	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	shifted pin	optional lock pin
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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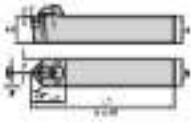
See pages 354–362 for inserts



■ CSGN 45°

order number	catalogue number	D	B	T	L1	L2	screw torque	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	shifted pin	optional lock pin
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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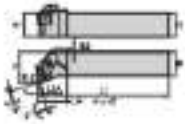

■ DSKN T3/

order number	catalogue number																									
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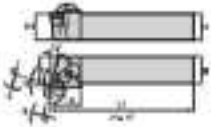

See page this item for details

■ CDFN 70°

order number	catalogue number	H	B	L	l1	l2	l3		gauge insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	shaft pin	optional torque
right hand																
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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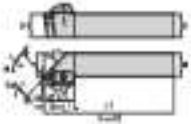

■ DSSN 45°

order number	catalog number	H	B	L	L1	L2	LA	LM	gage insert	screw	wrench	torx	clamp assembly	torx	wrench	pin	optional tool pin
right hand																	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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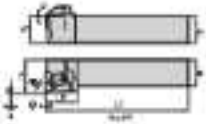

■ DTFN 90°

order number	catalogue number							gauge insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	starlock pin	optional lock pin
right hand															
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left hand															
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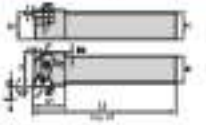

■ DTGN 90°

order number	catalogue number							gauge insert	shim	shim screw	Torx Plus	clamp assembly	Torx Plus	starlock pin	optional lock pin
right hand															
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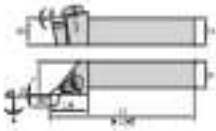

■ DVJN 93°

order number	catalogue number	W	D	L	LU	LH	gauge insert	shim	shim screw	Torx Plus	clamp assembling	Torx Plus	knitted pin	optional backplate
right hand														
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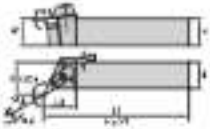

■DVDN 117.5°

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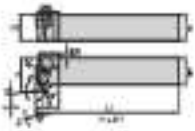

■ DWLN 95°

order number	catalogue number	D	B	F	L1	L2	ZD	gauge insert	shim	screw	Torx Plus	clamp assembly	Torx Plus	shaft pin	optional lock pin
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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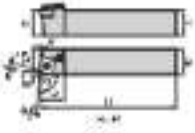

■ PCBN 70°

order number	catalogue number							gauge insert	screw	shim pin	punch pin	lever	lever screw	Torx Plus
right hand														
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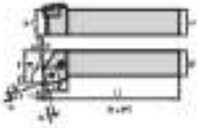

■PCKN 70°

order number	catalogue number	B	H	F	L1	L2	LM	page insert	screw	shim pin	punch pin	wrench	hex screw	Torx Plus
right hand														
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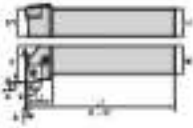
See page 8 for Cut-Off Toolholders



■ PCLN 95°

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right hand													
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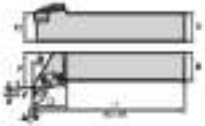

■ PCLNR 93°

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Right hand													
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Left hand													
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■ PDNN 62,5°

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right hand													
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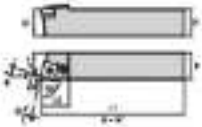

■ PSBN 75°

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right hand														
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PSDN 45°

order number	catalogue number	H	B	L	L1	L2	gage insert	screw	shim pin	punch pin	lever	lever screw	Torx Plus
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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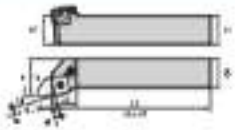

PSDN 75°

order number	catalogue number	H	B	L	L1	L2	L1/B	gage insert	screw	shim pin	punch pin	lever	lever screw	Torx Plus
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand														
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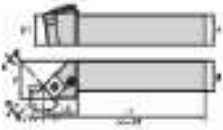
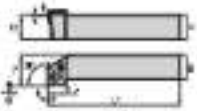


■ PSSN 45°

order number	catalogue number	B	B	L	L1	L2	L4	L15	gauge insert	screw	shim pin	punch set	lever	lever screw	Kxy Max
Right hand															
3010001	PSSNR3030K12	30	30	30,0	100	28,6	6,1	6,1	DN-3003W	5513001	5513101	5512200	5513100	5513150	0,4°
3010004	PSSNR3030K16	30	30	30,0	100	28,6	6,1	6,1	DN-3003W	5513001	5513101	5512200	5513100	5513150	0,4°
3010006	PSSNR3030K19	30	30	30,0	100	28,6	6,1	6,1	DN-3003W	5513001	5513101	5512200	5513100	5513150	0,4°
3010002	PSSNR3030M12	30	30	30,0	100	28,6	6,1	6,1	DN-3004W	5513001	5513101	5512200	5513100	5513150	0,4°
3010005	PSSNR3030M16	30	30	30,0	100	28,6	6,1	6,1	DN-3004W	5513001	5513101	5512200	5513100	5513150	0,4°
3010008	PSSNR3030M19	30	30	30,0	100	28,6	6,1	6,1	DN-3004W	5513001	5513101	5512200	5513100	5513150	0,4°
3010003	PSSNR3232P12	32	32	32,0	170	28,6	6,1	6,1	DN-3006W	5513002	5513102	5512200	5513100	5513150	0,3°
3010006	PSSNR3232P16	32	32	32,0	170	28,6	6,1	6,1	DN-3006W	5513002	5513102	5512200	5513100	5513150	0,3°
3010004	PSSNR3232P19	32	32	32,0	170	28,6	6,1	6,1	DN-3006W	5513002	5513102	5512200	5513100	5513150	0,3°
3010007	PSSNR3232P25	32	32	32,0	170	28,6	6,1	6,1	DN-3006W	5513002	5513102	5512200	5513100	5513150	0,3°
3010009	PSSNR3232P15	32	32	40,0	170	27,5	10,5	10,5	DN-3008W	5513003	5513103	5512200	5513100	5513150	0,3°
3010010	PSSNR3232P19	32	32	40,0	170	27,5	10,5	10,5	DN-3008W	5513003	5513103	5512200	5513100	5513150	0,3°
3010011	PSSNR4040K25	40	40	50,0	200	27,5	12,5	12,5	DN-3010W	5513004	5513104	5512200	5513100	5513150	0,3°
Left hand															
3010003	PSSNL3030K12	30	30	30,0	100	28,6	6,1	6,1	DN-3003W	5513001	5513101	5512200	5513100	5513150	0,4°
3010004	PSSNL3030K16	30	30	30,0	100	28,6	6,1	6,1	DN-3003W	5513001	5513101	5512200	5513100	5513150	0,4°
3010001	PSSNL3030M12	30	30	30,0	100	28,6	6,1	6,1	DN-3004W	5513001	5513101	5512200	5513100	5513150	0,4°
3010005	PSSNL3030M16	30	30	30,0	100	28,6	6,1	6,1	DN-3004W	5513001	5513101	5512200	5513100	5513150	0,4°
3010006	PSSNL3232P12	32	32	32,0	170	28,6	6,1	6,1	DN-3006W	5513002	5513102	5512200	5513100	5513150	0,3°
3010008	PSSNL3232P16	32	32	32,0	170	28,6	6,1	6,1	DN-3006W	5513002	5513102	5512200	5513100	—	0,3°
3010007	PSSNL3232P19	32	32	32,0	170	28,6	6,1	6,1	DN-3006W	5513002	5513102	5512200	5513100	5513150	0,3°
3010009	PSSNL3232P25	32	32	40,0	170	27,5	10,5	10,5	DN-3008W	5513003	5513103	5512200	5513100	5513150	0,3°
3010010	PSSNL3232P15	32	32	40,0	170	27,5	10,5	10,5	DN-3008W	5513003	5513103	5512200	5513100	5513150	0,3°
3010011	PSSNL4040K25	40	40	50,0	200	27,5	12,5	12,5	DN-3010W	5513004	5513104	5512200	5513100	5513150	0,3°



■PTGN 90°

Order number	Catalogue number	B	H	A	L1	L2	Insert clamp	Screw	Wrench pin	Wrench pin	Wrench	Clamp screw	Torx Plus
Right hand													
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Left hand													
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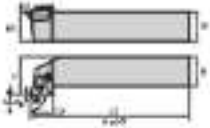

■PTGN 90°

order number	catalogue number	H	B	F	L1	L2	shim part	shim	shim pin	screw pin	lever	lever screw	torx plus
right hand													
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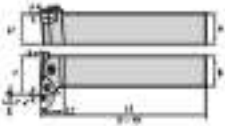

■ PWLN 95°

order number	catalogue number	B	B	F	L1	L2	gauge point	screw	wrench pin	punch pin	lever	lever screw	Torx Plus
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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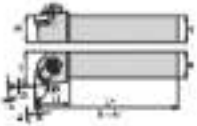
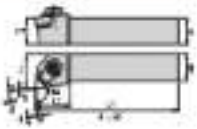


■ CCLN-MIX 95°

order number	catalogue number	H	B	F	L1	L2	gauge insert	screw	screw screw	key	clamp assembly	key
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

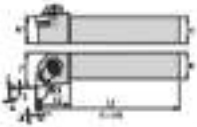
NOTE: left ... clamping tension is shown



■ CCLN-MIN 95°

order number	catalogue number	H	B	F	L1	L2	gauge insert	screw	screw screw	key	Torx® screw	clamp assembly	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

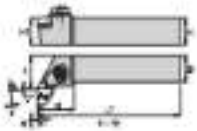
NOTE: left ... clamping tension is shown



CCLN MF 93°

order number	catalogue number	B	B	F	L1	L2	page (back)	shim	shim screw	key	clamping screw	clamping assembly	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

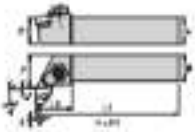
NOTE: MF – clamping screw in shaft



CCLN MX 93°

order number	catalogue number	B	B	F	L1	L2	page (back)	shim	shim screw	key	clamping screw	clamping assembly	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

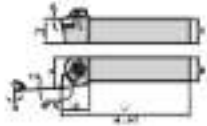
NOTE: MF – clamping screw in shaft



■ CCLN MN 93°

order number	catalogue number	B	H	F	L1	L2	gauge insert	screw	screw screw	key	thread plate	clamp accessories	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

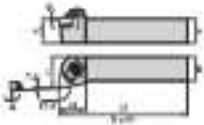
NOTE: left – clamping screw is shown



■ CCLN MF 91,5°

order number	catalogue number	B	H	F	L1	L2	gauge insert	screw	screw screw	key	clamp plate	clamp accessories	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

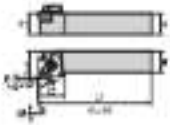
NOTE: left – clamping screw is shown



CCLN-MN 97,5°

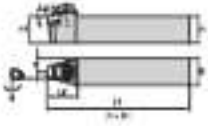
order number	catalogue number	B	H	L	L1	L2	insert	screw	allen screw	key	thread clamp	clamp assembly	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] ... clamping screw is shown



CKJN

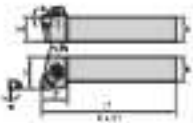
order number	catalogue number	B	H	L	L1	L2	insert	screw	allen screw	clamp	clamp assembly	key	key wrench	pin
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]



See pages 16 to 18 for shims and 20 to 24 for inserts.

■ CRDN-MN

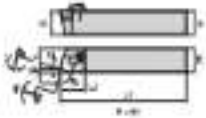
order number	catalogue number	B	D	T	L1	L2	gauge insert	shim	shim screw	key	thread plate	clamp assembly	key
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



See pages 16 to 18 for shims and 20 to 24 for inserts.

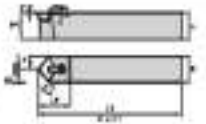
■ CRSN-MN

order number	catalogue number	B	D	T	L1	L2	gauge insert	shim	shim screw	key	thread plate	clamp assembly	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



CSDP 75°

order number	catalogue number	B	D	F	J1	L2	Cb	gauge insert	screw	screw torque	key	clamp	clamp screw	key
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



CSDP 45°

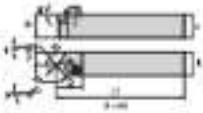
order number	catalogue number	B	D	F	J1	L2	gauge insert	screw	screw torque	key	clamp	clamp screw	key
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■CSSP 45°

order number	catalogue number	B	D	F	L1	L2	L3	L10	gauge insert	screw	screw screwdriver	key	clamp	clamp screw	key
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

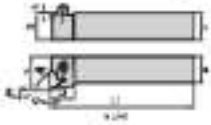
■CTGP 90°

order number	catalogue number	B	D	F	L1	L2	gauge insert	screw	screw screwdriver	key	clamp	clamp screw	key
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



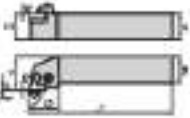
■ CTDP 45°

order number	catalogue number	H	B	F	L1	L2	gauge insert	shim	shim screw	clamp	clamp screw	key
right hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■ CTFP 90°

order number	catalogue number	H	B	F	L1	L2	gauge insert	shim	shim screw	key	clamp	clamp screw	key
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■CTGP 90°

order number	catalogue number	B	H	F	L1	L2	grip insert	screw	key	clamp	clamp screw	key
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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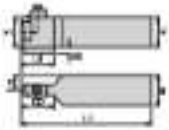

■ CRDP

order number	catalogue number								grip insert				
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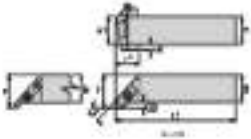
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: CRDP toolholders are able to use DPGT and DCGT insert styles.



■ CRGF

order number	catalog page number	B	B	F	H	LF	RD	CD	[illegible]	insert	clamp	clamp screw	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand													
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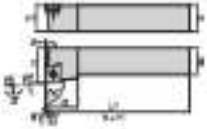
NOTE: [illegible] toolholders are ideal for use with [illegible] and [illegible] insert styles.



■SCLC 95°

order number	catalogue number	H	B	F	L1	L2	page insert	shim	shim screw	Rec.	insert screw	Torx
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
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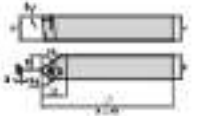

■SCDP 45°

order number	catalogue number	H	B	F	L1	L2	page insert	insert screw	Torx
right hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand									
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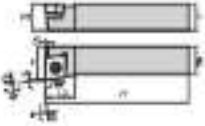

■SCLP 95°

order number	catalogue number	H	W	F	L1	L2	gauge insert	screw	Torx
right hand									
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand									
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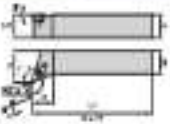

■SDNC 107_P

order number	catalogue number	H	W	F	L1	L2	gauge insert	shim	shim screw	key	insert screw	Torx
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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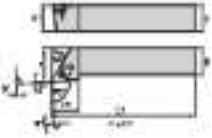
WIDIA



● SDJC 93°

order number	catalogue number	H	B	T	L1	L2	page/ sheet	shim	shim screw	key	insert screw	Torx
right hand												
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left hand												
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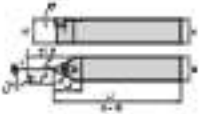

■SDNC 42.5°

order number	catalogue number	B	D	F	L1	L2	gage insert	shim	shim screw	key	insert screw	Torx
left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	—	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	—	[illegible]	[illegible]
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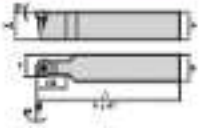

■SRDC

order number	catalogue number	B	D	F	L1	L2	gage insert	shim	shim screw	key	insert screw	Torx
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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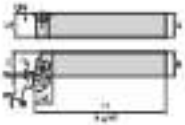
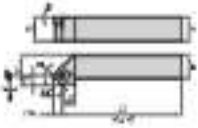


■ SSDC 70°

order number	catalogue number	A	B	F	L1	L2	FA	page insert	screw	screw	key	insert screw	Fcut
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■ SSSC 40°

order number	catalogue number	B	H	F	L1	L2	L4	L10	gage insert	shim	shim screw	key	insert screw	Torx
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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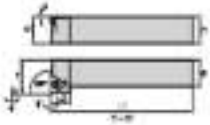
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

See page Rev. Hole Toolholders



STFC 90°

order number	catalogue number	h	B	l	L1	L2	gauge insert	shim	shim screw	key	insert screw	Torx
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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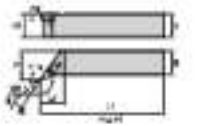
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

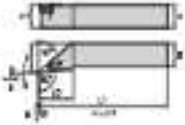
See page Rev. Hole Toolholders



DWBS 107,5°

order number	catalogue number	h	B	l	L1	L2	gauge insert	shim	shim screw	key	insert screw	Torx
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

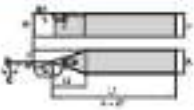
See pages 6xx–6xx for inserts



■ SWB 93°

order number	catalogue number	B	H	L	L1	L2	gauge insert	shim	screw	key	insert screw	Torx
Right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

See pages 6xx–6xx for inserts



■ SWB 72,5°

order number	catalogue number	B	H	L	L1	L2	gauge insert	shim	screw	key	insert screw	Torx
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Today's modern boring operations require the most reliable, high-performance tools. WIDIA™ offers an extensive range of toolholders for internal boring to meet even the most precise production demands across a broad spectrum of workpiece shapes and sizes.

Tools for Internal Boring

WIDIA boring bars, available with both a conventional steel shank or a vibration resistant carbide shank and coolant hole, guarantee consistent results and enhanced production reliability.

D-Style Clamping

- Insert to negative style inserts.
- Clamp assembly contains clamp, screw, and retaining ring.
- Quick insert indexing.
- Ensures insert repeatability and seating.
- Reduced chatter and extended tool life.

P-Style Clamping

- Lever type clamping system for negative indexable inserts.
- No interference to chip flow.
- Fast insert changes.

P-style available in metric sizes only.

S-Style Clamping

- Screw clamping option for positive indexable inserts.
- Compact design for high rotability and cost efficiency.
- Carbide shim for additional tool protection.

C-Style Clamping

- Height adjustable clamp permits use of additional chipbreakers.
- Universal clamping option for positive and negative flat top inserts.
- Robust engineering makes it easy to handle.
- Carbide shim for extra tool protection.

WIDIA

Look across clamping system (then product options to fit your specific machining needs. Find the illustration that fits your application and navigate to the corresponding page to get the correct solution.

D-Style Clamping

D

Two-piece clamp assembly design for use with negative rake inserts. An extremely rigid clamping system. The tool is actuated by a carbide screw.

A-DCLN
87°
Page
C56

A-DSRN
[illegible]
Page
C56

A-DCKR
[illegible]
Page
C57

A-DSSR
87°
Page
C57

A-DTFN
87°
Page
C58

DSSN
87°
Page
C58

A-DMLN
87°
Page
C59

P-Style Clamping

P

Lever-type clamping system for negative indexable inserts with hole in CW. Milled-out pocket (open) inserts were from 2.5mm to [illegible]. Inserts with one- and two-sided [illegible] pocket allow from 0° to 15°. Advantages of this system are fast insert changes and no interference with chip flow.

A-PCLN
87°
Page
C60

A-PTFN
87°
Page
C60

A-PMLN
87°
Page
C61

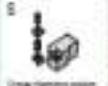
WIDIA

C-Style Clamping

C

S-Style Clamping

S



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	32	S	D	C
Bar Type	Bar Diameter	Bar Length**	Insert Holding Method	Insert Shape

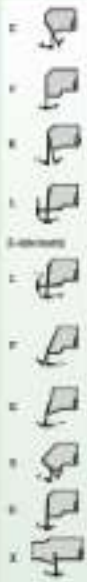
Notes:
A two-digit number indicates the bar diameter in mm.
If the diameter is represented by a one-digit number, a 0 (zero) will be used in front of it.
Example:
0000 – 06

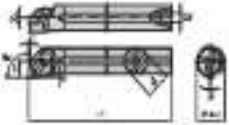
2	1
2.5	2
4	3
4.5	4
5	5
5.5	6
6	10
6.5	11
7	12
8	13
10	3
11	7
14	8
15	9
16	10
20	7

**Used only when more than one length is available or a special length is required.

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

L	N	L	12	KC04
Bar Clamp or Lead Angle	Insert Clearance Angle	Direction Tool	Insert Size Cutting Edge Length (-10)	Additional Information





■A DCLN 95°

order number	catalogue number	D	D max	Z	L1	L2	L3	ϕ°	gauge insert	shim	shim screw	Torx Plus	clamp assembly	stabilizer pin	Torx Plus
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
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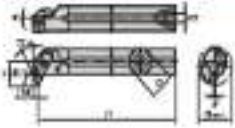
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■A CDPN 117.5°

order number	catalogue number	D	D max	Z	L1	L2	L3	ϕ°	gauge insert	shim	shim screw	Torx Plus	clamp assembly	stabilizer pin	Torx Plus
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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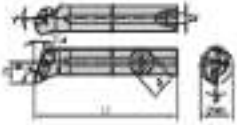
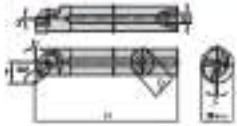
Steel shank with through coolant



■A-DCLN 93°,5°

order number	catalogue number	D	D min	l	L1	L2	gr	gr	gauge insert	shim	shim screw	Torx Plus	clamp assembly	shifted pin	Torx Plus
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Steel shank with through coolant



■A-DCLN 93°

order number	catalogue number	D	D min	l	L1	L2	gr	gr	gauge insert	shim	shim screw	Torx Plus	clamp assembly	shifted pin	Torx Plus
right hand															
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left hand															
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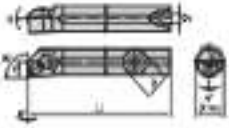
Steel shank with through coolant
For single flat-face inserts



■ A-DTFN 90°

order number	catalogue number	D	D max	L	LF	CD	φ°	gauge insert	screw	allen screw	Torx Plus	clamp assembly	dowel pin	Torx Plus
right hand														
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left hand														
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Steel shank with through coolant
For single flat-face inserts

■ A-CWLN 93°

order number	catalogue number	D	D max	L	LF	CD	φ°	gauge insert	screw	allen screw	Torx Plus	clamp assembly	dowel pin	Torx Plus
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand														
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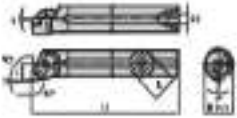
Steel shank with through coolant



■ A DWLN 95°

order number	catalogue number	D	D max	A	L1	CL	■°	gage insert	shim	shim screw	Torx Plus	clamp assembly	dowel pin	Torx Plus
Right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
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Left hand														
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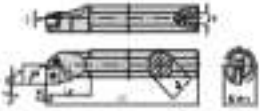
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WIDIA

Steel shank with through coolant

See page Bore Size for inserts



■ A-PCLN 95°

order number	catalogue number	D	D max	L	L1	L2	CB	gauge insert	screw	wrench pin	key	toggle lever	lever screw	Torx Plus
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand														
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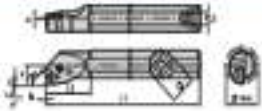
Steel shank with through coolant

See page Bore Size for inserts



■ A-PTFN 90°

order number	catalogue number	D	D max	L	L1	L2	CB	gauge insert	screw	wrench pin	key	toggle lever	lever screw	Torx Plus
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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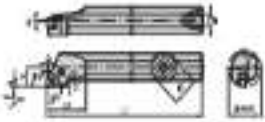

■ A-PWLN 93°

Order number	Catalogue number	D	D max	F	L1	L2	L3	R	Weight kg/pcs	Screw	Wrench	Pin	Toggle lever	Hand screw	Tube Plug
Right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	—	[illegible]	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	—	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
Left hand															
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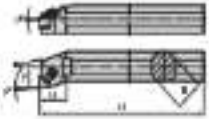

See pages 82-1 – 82-3 and 83-1 – 83-3 for inserts

Steel shank with through coolant

■S-CCLN-MR 95°

order number	catalogue number	D	D min	F	L1	L2	◤	◥	gauge insert	shim	shim screw	key	clamp assembly	tool
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
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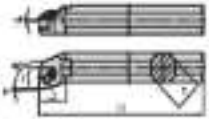
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: MR = clamping screw is shown



See pages 82-1 – 82-3 and 83-1 – 83-3 for inserts

Steel shank with through coolant

■S-CCLN-MR 95°

order number	catalogue number	D	D min	F	L1	L2	◤	◥	gauge insert	shim	shim screw	key	lever plate	clamp assembly	tool
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand															
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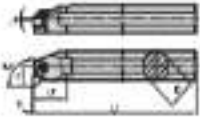
NOTE: MR = clamping screw is shown



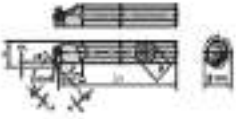
Two-pages Finish (Front and Back) Bore for inserts

Steel shank with through coolant

■S-C20N-MX

order number	catalogue number	D	D min	F	L1	L2	45°	90°	grub screw	shim	screw	key	clamp assembly	key
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: MR — clamping screwdriver is shown.



Two-pages Finish (Front and Back) Bore for inserts

Steel shank with through coolant

■S-C20N-MX 45°

order number	catalogue number	D	D min	F	L1	L2	L1M	L2	grub screw	shim	screw	key	clamp assembly	key
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: MR — clamping screwdriver is shown.

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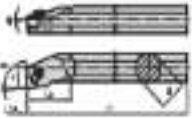
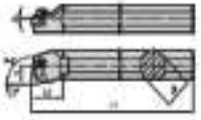


Steel shank with through coolant

S-CSKN-MN 95°

order number	catalogue number	D	D max	F	L1	L2	L3	gage insert	screw	screw screw	key	blank screw	clamp assembly	key
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: MN = clamping screw is shown



Steel shank with through coolant

S-CWLN-MX 95°

order number	catalogue number	D	D max	F	L1	L2	gage insert	screw	screw screw	key	clamp assembly	key
right hand												
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left hand												
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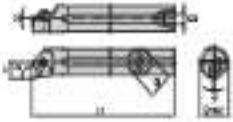
NOTE: MX = clamping screw is shown



Steel shank with through coolant

■ A CTFP 98°

order number	catalogue number	D	D min	T	L1	L2	gr°	insert insert	screw	key	clamp	clamp screw	key
right hand													
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left hand													
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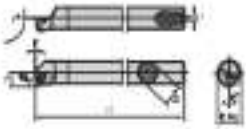
WIDIA



■ E-SCFC 93°

order number	catalogue number	D	D max	F	L1	R			gauge insert	insert screw	Tang
right hand											
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left hand											
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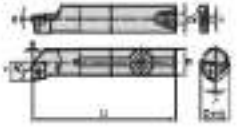
Steel Shank with Through Coolant



■ A-SCTP 93°

order number	catalogue number	D	D max	F	L1	R	CB		gauge insert	insert screw	Tang
right hand											
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand											
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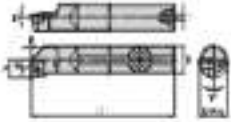

Carbide shank with through coolant
See engage Size chart for inserts

■ E-SCFP 90°

order number	catalogue number	D	D min	F	L1	A	A1	ϕ°	pitch screw	insert screw	Torx
right hand											
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left hand											
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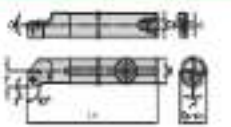
Steel Shank with Through Coolant



Steel shank with through coolant
See engage Size chart for inserts

■ A-SCLC 95°

order number	catalogue number	D	D min	F	L1	A	A1	ϕ°	pitch screw	shim	shim screw	Torx	insert screw	Torx
right hand														
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left hand														
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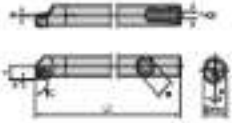
Carbide shank with through coolant

See page 800-866 for inserts



■E-SCLC 95°

order number	micrograin number	D	D min	A	L1	R	DS	α°	γ°	shim screw	screw	Torx
right hand												
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand												
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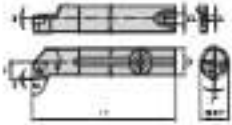

■ A SCLP 95°

order number	catalogue number	D	D max	A	L1	A	D2	ϕ°	page	insert screw	Torx
Right hand											
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Left hand											
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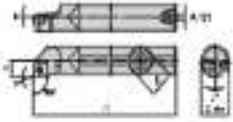
Carbide shank with through coolant

See page 800-866 for inserts



■E-SCLP 95°

order number	catalogue number	d	D max	l	l1	a	ar°	page insert	insert screw	Torx
right hand										
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left hand										
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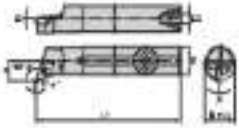

■ A-SDQC 107.5°

order number	catalogue number	D	D max	F	L1	CB	φ°	grip point	insert screw	Fxx
right hand										
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left hand										
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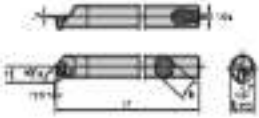
WIDIA



Carbide shank with through coolant
See pages first-line for details

■ E-SDQC 107.5°

order number	catalogue number	D	D min	F	L1	A	D1			page insert	insert screw	Tmax
right hand												
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left hand												
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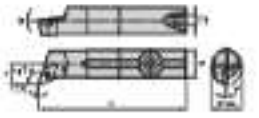
Steel Shank with Through Coolant



Steel shank with through coolant
See pages first-line for details

■ A-SDQP

order number	catalogue number	D	D min	F	L1	D1		page insert	insert screw	Tmax
right hand										
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left hand										
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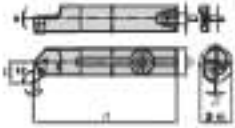
Steel shank with through coolant

See pages for clips to inserts



■ A-SDUC 90°

order number	catalogue number	D	D max	C	L1	a	CB	ϕ°	gauge insert	clamp	clamp screw	key	insert screw	Torx
right hand														
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
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left hand														
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Carbide shank with through coolant

See pages for other tool details

■ E-SDUC-93°

order number	catalogue number	D	D min	F	l1	R	CE	ϕ1°	ϕ2°	Skip insert	Insert screw	Torx
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Steel shank with through coolant

See pages 6a-1 thru 6a-6 for inserts.

■ A-SDUP 93°

order number	catalogue number	D	D min	F	L1	CD	gauge insert	insert screw	Torx
right hand									
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Carbide Shank with Through Coolant

Carbide shank with through coolant

See pages 6a-1 thru 6a-6 for inserts.

■ E-SDUP 92°

order number	catalogue number	D	D min	F	L1	R	gauge insert	insert screw	Torx
right hand									
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand									
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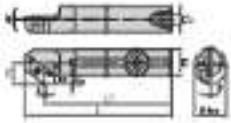
WIDIA



Steel shank with through coolant

See pages for line 10 details

■ A-S20D 95°

order number	catalogue number	D	D max	F	L1	L	DB	CB	jaw insert	insert screw	Torx
right hand											
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left hand											
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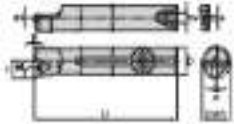

Steel shank with through coolant

See pages for line 10 details

■ A-STFC 90°

order number	catalogue number	D	D max	F	L1	A	g°	jaw insert	insert screw	Torx
right hand										
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left hand										
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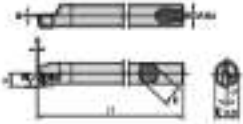
Carbide shank with through coolant.
Two angles for clamping inserts.



■ C: 93°/C 90°

order number	catalogue number	D	D min	L	L1	A	CB	ρ°	screw driver	insert screw	Torx
Right hand											
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Left hand											
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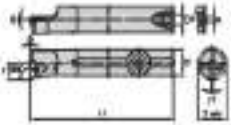
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■ A STFP 90°

order number	catalogue number	D	D min	L	L1	A	D1	ø°	screw part	insert screw	Torx
right hand											
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left hand											
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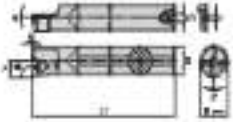

■ C-STFP 90°

order number	catalogue number	D	D max	L	LF	A	ø1°	spare part	insert screw	Torx
right hand										
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left hand										
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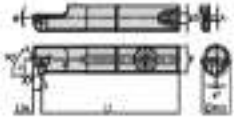
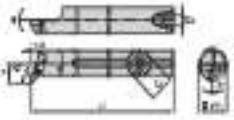


■ A-STWP 60°

order number	catalogue number	D	D min	F	L1	L1A	A	ø°	page insert	insert screw	Tens
right hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]
left hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]



■ A-SWQB 107,5°

order number	catalogue number	D	D min	F	L1	CD	ø°	page insert	insert screw	Tens
right hand										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand										
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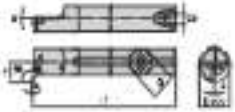
Steel shank with through coolant

See pages 6xx–6xx for details



■ A. GVLEE 93°

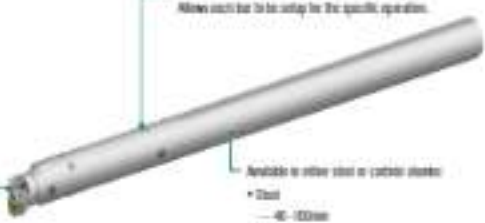
order number	catalogue number	D	D max	l	l1	l3	screw torque	insert screw	Torx
Right hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Left hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Tunable Boring Bars with Front End KM™ Quick Change Adaptor

Reduce vibrations and enhance productivity in deep boring applications with KM Quick Change heads and tunable boring bars.

Tunable Boring Bars

7



Adjustment screw to allow for on machine tuning. Allows each bar to be setup for the specific operation.

Available in either steel or carbide shanks:

- Steel
  - 40 - 100mm
- Carbide
  - 50 - 100mm

Comprehensive offering of KM Quick Change cutting units. See WIDIA™ Tooling Systems Catalogue (A-05-07477) for KM adaptors.

Features	Functions	Benefit
Robust Kennametal chucking package	• Increases stability and rigidity • Higher metal removal rate • Longer chatter-free tool	• High surface quality • Low scrap rate • Increased productivity • Reduced wear expenses
Versatile changing mechanism	The cartridge seated on the chucking with pull turning screwdriver	Efficient changing mechanism for all kinds of machining conditions
[illegible]® Quick Change insert and cartridge	• Robust chucking system • Wide selection of [illegible] Quick Change cutting tools	For the operator-friendly cutting machinery and turning lathes

■ Turning Procedure

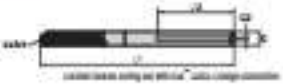
1. Loosen the two locking screws on the bar.
2. Turn the adjusting screw in the positive direction until it becomes snug. The adjusting screw becomes snug when it holds the bar in place.
3. Turn the screw one complete turn in the negative direction and take a test cut.
4. Repeat Step 3 until chatter is eliminated.
5. Once chatter is eliminated, note that chatter starts between the current screw setting and one turn in the positive direction. Make 1/4 turn adjustments within this range, taking test cuts for each setting, until you can identify the adjusting screw setting that causes chatter to start.
6. Once the adjusting screw setting that causes chatter is determined, back the adjusting screw off a 1/4 turn in the negative direction.
7. Tighten both clamping screws and take a test cut to confirm desired results.

KM QUICK CHANGE

■ C...TTB-KM • Metric

order number	catalogue number	D	L1	D2	L1D	L1 min	TSMC system size
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: KM adaptors can be found in the WIDIA™ Tooling Systems Catalogue (A-04-01-0110)



KM QUICK CHANGE

■ G-KM-TTB • Metric

order number	catalogue number	D	L1	D2	L1D	TSMC system size
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: KM adaptors can be found in the WIDIA™ Tooling Systems Catalogue (A-04-01-0110)

Separator™ Toolholders and Inserts

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

Specifically engineered to deliver toolholder flexibility with integral, component, universal, and blade-style designs.

- Insert widths 2–4mm.
- Toolholder shank sizes 10, 24, 31mm.
- Cut off up to 75mm bar capacity.
- Quick, reliable insert indexing.
- Positive mechanical clamping.
- CNC, square shank, screw machine, and FT, blade-style toolholders.

To learn more, contact your local Authorized Distributor or visit **widia.com**.

WIDIA

Modern machining operations demand high-quality, high-performance facilitators that provide straightforward design and application versatility.

Standard WIDIA™ cartridges are ideal for turning tools with one, or several, cutting edges. A wide range of cartridge sizes and styles provide numerous combinations and application possibilities.

Cartridges

Clamping System M

- Centered pin/wedge clamp for negative inserts.
- An extremely sturdy clamping system, specially designed for interrupted cuts.
- The tool is protected by a carbide shim.

Clamping System P

- Lever type clamping system for negative indexable inserts with hole to DIN 4988 and positive round inserts more than 20mm in diameter.
- Inserts with rear and two side chip control geometries have positive rake from 4° to 18°.
- Advantages of this system are tool mount changes and no interference with chip flow.

1* style available in metric sizes only.

Simple and secure mounting to the tool by a single cartridge clamping screw.

High accuracy on "Y" dimension ensures proper application to minimum bore dimensions.

Same clamping systems as standard turning toolholders.

Overall sizes to DIN and ISO are ideal for single- and multi-tooth turning, boring, and profiling tools.

Precise axial and radial positioning by adjustment screws.

Clamping System C

- Top clamping system for negative and positive indexable inserts to DIN 4960.
- This universal clamping system is robust and easy to handle.
- Same height adjustable clamps enable the use of additional chipbreakers.
- A carbide shim provides additional tool protection.

Clamping System S

- Screw clamping system for positive indexable inserts with counter-sunk hole to DIN 4960.
- Compact design using a minimum of spare parts for high reliability and cost efficiency.
- A carbide shim provides additional tool protection.
- Toolholders with cutting edge heights upwards of 16mm (.630") and bore Ø's from 32.5mm (1.279") are secured by means of a throughbolt fastening.

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.

M	C	F	N	R
Insert Clamping System	Insert Shape	Cartridge Style	Insert Clearance Angle	Hand of Tool

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

10	C	A	3	
Cartridge Size	Identifying Code of Cartridge	Mounting Design of Cartridge	Insert Size	Additional Information
	C = Cartridge	A = Angle conforming to ISO 26-1	Insert Size Number of Cutting Edges x 10	

WIDIA

Each unique clamping system offers product options to fit your specific machining needs. Find the illustration for the your application and navigate to the corresponding page to get the correct solution.

Clamping System M

M

Combined pin/wedge clamp for negative inserts. An extremely sturdy clamping system, specially designed for interrupted cuts. The tool is controlled by a metric screw.

MCLN
Page
C30

MCGN
Page
C32

MCLN
Page
C34

MCLN
Page
C36

MCGN
Page
C38

MGEN
Page
C47

MGIN
Page
C49

MGIN
Page
C49

MGTN
Page
C49

MGTN
Page
C51

MGTN
Page
C53

MGUN
Page
C53

F-Style Clamping

F

Lever type clamping system for negative indexable inserts with hole or DIN shape and positive round inserts. Now indexable double inserts with one- and two-sided control geometries have positive rake from 0° to 10°. Advantages of the system are fast insert changes and no interference with chip flow.

FCLN
Page
C106

FNMN
Page
C110

Clamping System C

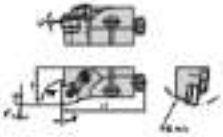
C

The clamping system for negative and positive indexable inserts in ETM WIDIA. This universal clamping system is simple, precisely it inserts. Screw height adjustable change enable the use of additional adjustments. It provides clear position and high rigidity.

Clamping System S

S

Combined pressing clamp for negative inserts. An extremely sturdy clamping system, specially designed for interrupted cuts. The tool is protected by a carbide stem.



■ MCFN 90°

order number	cartridge number	D min	F	L1	[illegible]	[illegible]	proper insert
right hand							
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D min	shim	lock pin	box	clamp	clamp screw	box	upper adjusting screw	box	upper adjusting screw	mounting screw	box	washer
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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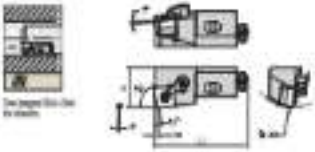

■ MCKN 70°

order number	catalogue number	d mm	F	L1	L1A	φ^1	φ^2	grip head
right hand								
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

d mm	screw	lock pin	key	clamp	clamp screw	key	radial adjusting screw	key	axial adjusting screw	mounting screw	key	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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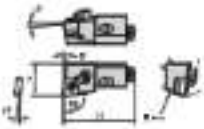

■ MCLN 95°

order number	cartridge number	d min	l	l1	gl°	gl°	grub screw
right hand							
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D min	shim	lock pin	box	clamp	clamp screw	box	radial adjusting screw	box	axial adjusting screw	mounting screw	holding screw	box	washer
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
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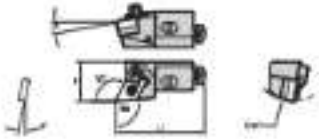

MDJN 93°

order number	Cartridge number	D min	F	L1	[illegible]	[illegible]	[illegible] insert
right hand							
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Spare Parts

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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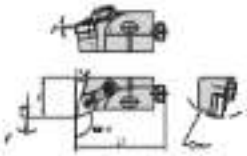

MDQN 137,5°

order number	catalogue number	D mm	l	L1	[illegible]	[illegible]	[illegible]
right hand							
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Spare Parts

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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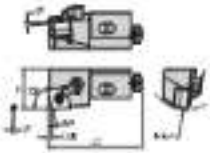
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■ MSDN 72°

order number	cartridge number	D mm	F	L1	L2A	α°	β°	gauge insert
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

Drawing	screw	lock pin	lever	clamping screw	clamp screw	lever	radial adjusting screw	lever	axial adjusting screw	mounting screw	holding screw	lever	washer
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
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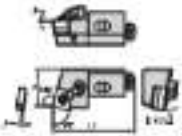

■ MDXN 75°

order number	catalogue number	[illegible]	F	[illegible]	[illegible]	[illegible]	[illegible]
right hand							
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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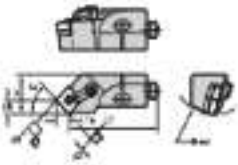

■ MSSN 45°

order number	cartridge number	d mm	l	l1	l2	45°	90°	pin set
right hand								
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

d mm	clow	lock pin	box	clamp	clamp screw	box	cartridge adjusting screw	box	pin adjusting screw	mounting screw	box	wrench
[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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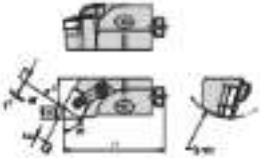
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

See page this clamp for inserts

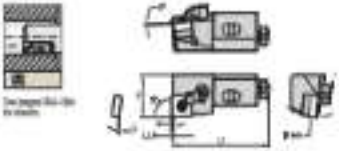


■ MSTN 03°

order number	cartridge number	Clamp	F	L1	HA	30°	37°	SPP insert
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

Clamp	Wrench	lock pin	Torx	clamp screw	Torx	clamp screw	Torx	radial adjusting screw	Torx	axial adjusting screw	mounting screw	Torx	washer
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■ MSYN 00°

order number	cartridge number	D mm	F	L1	L1A			
right hand								
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D min	shim	lock pin	box	clamp	clamp screw	box	insert adjusting screw	box	insert adjusting screw	mounting screw	holding screw	box	wrench
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]

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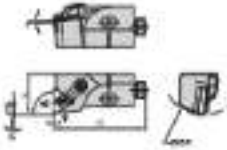

MTFN 90°

order number	catalogue number	D mm	l	L1	[illegible]	[illegible]	page
right hand							
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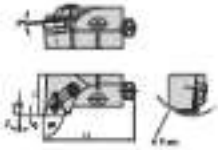
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Spare Parts

D mm	clamp	lock pin	key	clamp	clamp screw	key	cartridge adjusting screw	key	screw adjusting screw	mounting screw	locking screw	key	washer
[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]



■MTQN 90°

order number	catalogue number	D min	l	l1	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■Spare Parts

D min	shim	lock pin	key	clamp	clamp screw	key	radial adjusting screw	key	axial adjusting screw	mounting screw	key	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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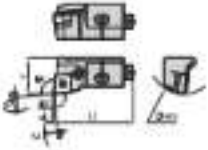

■ PCLN 90°

order number	cartridge number	D mm	F	L1	90°	90°	spare insert
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D mm	shim	shim pin	toggle insert	lever screw	wrench size lever screw	cartridge adjusting screw	Torx	insert adjusting screw	mounting screw	Torx	washer
[illegible]	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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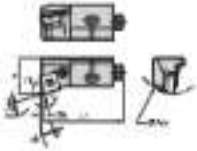

■ PSKN 75°

order number	catalogue number	D min	F	L1	L7N	30°	35°	shim screw
right hand								
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D min	screw	shim pin	toggle clamp	inner screw	wrench size inner screw	cartridge adjusting screw	fuse	cartridge adjusting screw	mounting screw	fuse	wrench
[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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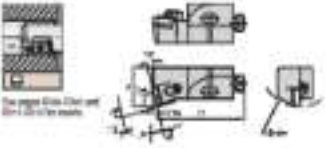

CSKP 75°

order number	cartridge number	D min	F	L1	L2A	α_1°	α_2°	[illegible]
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Spare Parts

[illegible]	[illegible]	clamp screw	Nm	radial adjusting screw	Nm	axial adjusting screw	mounting screw	Nm	wrench
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Chipbreakers for C-Style Cartridges

insert	chipbreaker	effective width	notes
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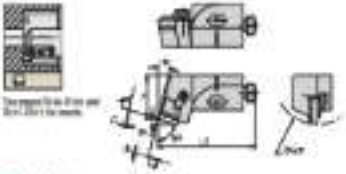
[illegible]	[illegible]	[illegible]	
	[illegible]*	[illegible]	*For chipbreaking on both primary and secondary cutting edges
	[illegible]	[illegible]	
	[illegible]	[illegible]	

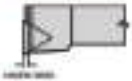


■ CSRP 75°

order number	catalogue number	D min	l	L1	l16	β_1°	β_2°	grap insert
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

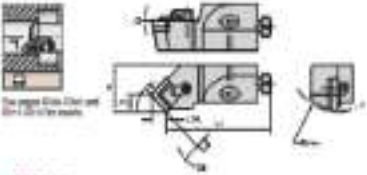
■ Spare Parts

D min	clamp screw	key	axial adjusting screw	key	axial adjusting screw	mounting screw	key	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■ Chipbreakers for C-Style Cartridges

insert	chipbreaker	effective width	note
[illegible]	Chipbreakers		
[illegible]	[illegible]	[illegible]	
	[illegible]*	[illegible]	*For chipbreaking on both primary and secondary cutting edges
[illegible]	[illegible]	[illegible]	
	[illegible]*	[illegible]	*For chipbreaking on both primary and secondary cutting edges
	[illegible]	[illegible]	
	[illegible]	[illegible]	

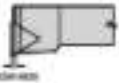


CSGP 45°

order number	cartridge number	D min	F	L1	LA	LB	90°	45°	screw wrench
right hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]

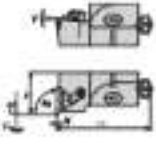
Spare Parts

D min	shim	shim screw	key	clamp	clamp screw	key	radial adjusting screw	key	axial adjusting screw	mounting screw	key	washer
[illegible]	—	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	—	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



Chipbreakers for C-Style Cartridges

insert	chipbreaker	effective width	note
	Chipbreakers		
[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]	*For chipbreaking on both primary and secondary cutting edges
[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]	*For chipbreaking on both primary and secondary cutting edges
	[illegible]	[illegible]	
	[illegible]	[illegible]	

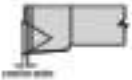


CTFP 90°

order number	cartridge number	Z mm	I	L2	90°	90°	grip mm
right hand							
[illegible]	CTFP[illegible]RGAH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	CTFP[illegible]RGAR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	CTFP[illegible]RGAZ	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	CTFP[illegible]LGAR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

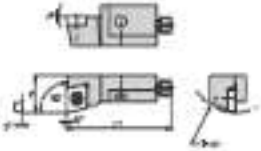
Spare Parts

D mm	screw	shim screw	clamp	clamp screw	key	radial adjusting screw	key	axial adjusting screw	mounting screw	key	washer
[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



Chipbreakers for C-Style Cartridges

Chipbreakers			
insert	chipbreaker	effective width	note
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	

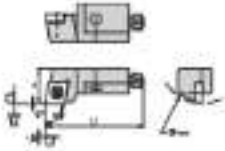


SCTP 90°

order number	catalogue number	d mm	l	l2			insert
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Spare Parts

D mm	insert screw	Torx	cartridge adjusting screw	Torx	jaw adjusting screw	mounting screw	holding screw	Torx	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]

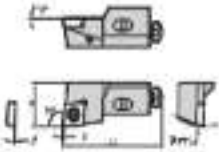


■ SCGP 90°

order number	cartridge number	D mm	l	L1	90°	90°	
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D mm	insert screw	Torx	radial adjusting screw	Torx	axial adjusting screw	locking screw	Torx	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

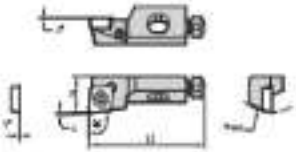


■ SCLC 90°

order number	catalogue number	d mm	l	l1	90°	91°	page
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

d mm	insert screw	Torx	lateral adjusting screw	Nm	axial adjusting screw	mounting screw	Nm	spacer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



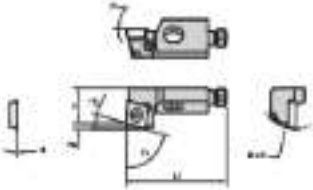
■ SCLP 90°

order number	cartridge number	d min	l	l1	[illegible]	[illegible]	[illegible] insert
right hand							
[illegible]	SCLP[illegible]CAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	SCLP[illegible]CAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	SCLP[illegible]CAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	SCLP[illegible]CAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	SCLP[illegible]CAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	SCLP[illegible]CAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

[illegible]	[illegible] screw	[illegible]	[illegible] adjusting screw	[illegible]	[illegible] adjusting screw	[illegible] screw	[illegible] screw	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]

See page 8 for the formula

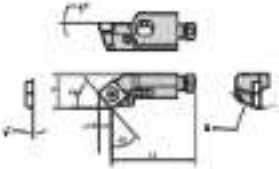


■SCHF 75°

order number	catalogue number	D min	F	CL	L1			screw driver
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■Spare Parts

D min	insert screw	Torx	radial adjusting screw	Torx	axial adjusting screw	holding screw	Torx	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

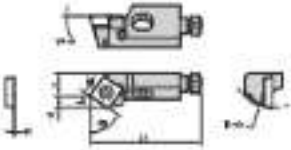


■ SCSP 45°

order number	catalogue number	D min	F	L1	L10	γ°	γ°	
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D min	insert screw	Torx	radial adjusting screw	Torx	axial adjusting screw	locking screw	Torx	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

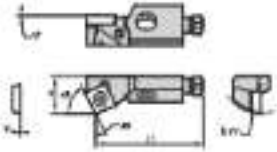


■SCSP 07

order number	cartridge number	D min	l	l1	l2	F	F'	grip head
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■Spare Parts

D min	insert screw	Torx	cartridge adjusting screw	Torx	wiper adjusting screw	locking screw	Torx	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

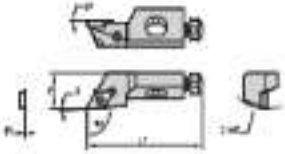


■ SCWP 07

order number	cartridge number	D min	l	l1	[illegible]	[illegible]	shim screw
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D min	insert screw	torx	radial adjusting screw	torx	axial adjusting screw	locking screw	torx	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

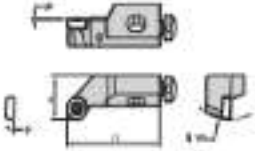


■ SDJP 93°

order number	catalogue number	D max	L	L1			gauge insert
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D max	insert screw	Torx	seat adjusting screw	Torx	anvil adjusting screw	mounting screw	Torx	wrench
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



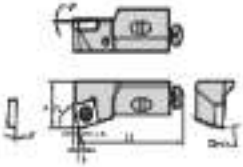
■ SRGC

order number	cartridge number	D max	l	l1			
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D mm	insert screw	Torx	radial adjusting screw	Torx	axial adjusting screw	mounting screw	locking screw	Torx	wrench
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

See page this tool for inserts

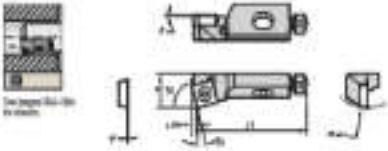


■ DSKC 75°

order number	catalogue number	D mm	F	L1	[illegible]	[illegible]	gauge insert
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D mm	insert screw	Torx	[illegible] adjusting screw	key	[illegible] adjusting screw	mounting screw	key	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

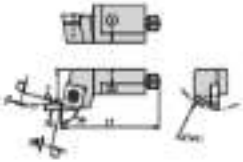


■ GSKP 70°

order number	cartridge number	D size	F	L1	β°	γ°	insert
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D size	insert screw	Torx	radial adjusting screw	key	axial adjusting screw	mounting screw	key	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

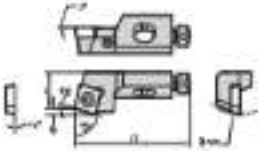


■SSRC 75°

order number	cartridge number	D min	F	l16	l11	80°	85°	spare parts
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■Spare Parts

D min	insert screw	Torx	radial adjusting screw	key	axial adjusting screw	mounting screw	key	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



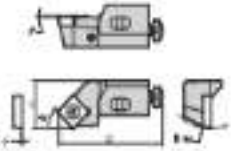
■ GSSP 70°

order number	catalogue number	D min.	l	D4	L1	[illegible]	[illegible]	gage insert
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

Order	insert screw	Torx	radial adjusting screw	hex	axial adjusting screw	mounting screw	hex	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

See page this item for inserts

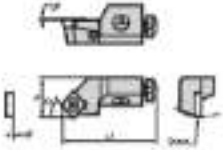


■ GSSC 40°

order number	catalogue number	D mm	F	L1	[illegible]	[illegible]	gauge insert
right hand							
[illegible]	[illegible]	40	44.2	44	3.4	3.4	[illegible]
[illegible]	[illegible]	50	55.2	51	3.4	3.4	[illegible]
[illegible]	[illegible]	60	65.2	52	3.4	3.4	[illegible]
left hand							
[illegible]	[illegible]	50	55.2	51	3.4	3.4	[illegible]

■ Spare Parts

D mm	insert screw	Torx	cartridge mounting screw	Torx	gauge adjusting screw	mounting screw	Torx	washer
40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



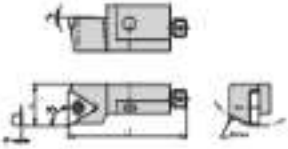
■ [illegible] 40°

order number	catalogue number	D nominal	F	L1	[illegible]	[illegible]	page [illegible]
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

Cmax	insert screw	Torx	radial adjusting screw	key	axial adjusting screw	mounting screw	key	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

See page for this tool

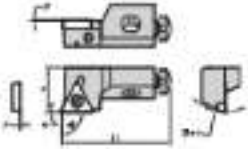


■ STEP 90°

order number	cartridge number	D mm	F	L1			STEP point
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D mm	insert screw	T mm	cartridge adjusting screw	hex	wedge adjusting screw	mounting screw	holding screw	hex	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



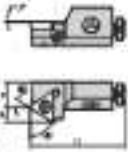
■ STGP 90°

order number	catalogue number	D min	l	l1	[illegible]	[illegible]	grip insert
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

D min	insert screw	Torx	cartridge adjusting screw	Torx	anvil adjusting screw	mounting screw	holding screw	Torx	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

See page for this tool holder

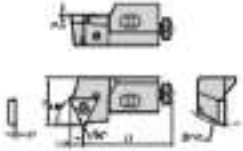


■GTTP 60°

order number	cartridge number	D mm	F	H	L	[illegible]	[illegible]	grip insert
right hand								
[illegible]	GTTP60R2A6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	GTTP60R3A4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	GTTP60R4A6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■Spare Parts

D mm	insert screw	Torx	radial adjusting screw	Torx	axial adjusting screw	mounting screw	holding screw	Torx	washer
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]



■ STWF-93°

order number	catalogue number							
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Turning • Tools for Small Hole Boring

Small Hole Boring I.D. Indexable Insert Tooling D3–D68

A-B Series D69–D71

Quadrabore D72–D84

Technical Information D85–D88

Custom Solution Worksheet D89–D91

The WIDIA™ line of micro boring bars provide accurate holemaking tooling in diameters as small as 1.57mm. These economical, indexable inserts are available in both steel and carbide shanks and are stocked in both metric and inch sizes. Ideal for a wide range of applications, including precision micro boring.

Small Hole Boring •

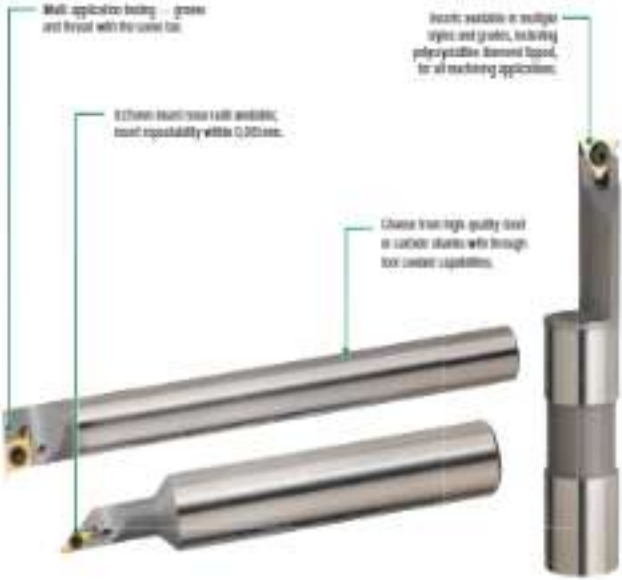
I.D. Indexable Insert Tooling

80° Diamond Insert Boring Bars

- Available in shanks as small as 4mm to bore >4.5mm diameter
- Positive rake geometry for free cutting action and better surface finishes.
- Superior, unobstructed chip evacuation.
- Stocked in multiple grades to bore a wide range of materials.

Threading and Grooving Boring Bars

- Easy insert changes for threading and grooving.
- Thread sizes to a 48 TPI, 1.2mm TP (pitch).
- Thread and groove capabilities to an inside bore diameter of 6.35mm.



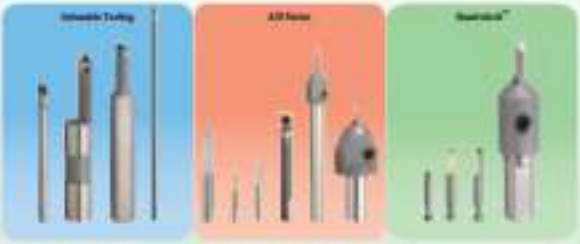
Triangle Insert Boring Bars

- Designed for less obstruction and greater chip evacuation.
- Positive rake geometry in bore holes ~4.78mm diameter.
- Standard in all grades, including diamond tipped and boracite tipped styles.
- Standard in shanks as small as 6mm for .236mm minimum bore diameter.

The World's Most Comprehensive Boring Solutions

[illegible]

[illegible]



Select the Correct Small Hole Boring Product Platform for Your Application

[illegible]

Facing

minimum bore diameter (2 mm)	high performance ◀ ▶ general purpose
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Threading

minimum bore diameter (2 mm)	high performance ◀ ▶ general purpose
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Grooving

minimum bore diameter (2 mm)	high performance ◀ ▶ general purpose
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

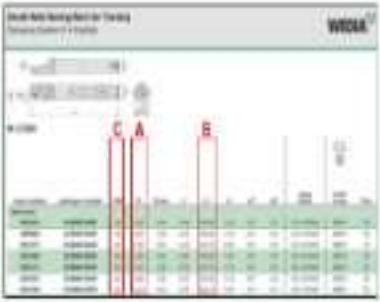
NOTE: Proper bar selection will have larger minimum bore diameters under hole size to be bored.

3 Determine boring bar (D).

A. Select shank size (D) based on your machine's requirements.

B. Determine bore depth (how far the boring bar extends from the holder). Multiply bore diameter by 4. If bore depth is less, use a short bar. If bore depth exceeds 4×1 ratio, use a carbide bar (see 1 or 4 depending on bar selection). (See recommended maximum overhang chart on pages 208,211) or extension holder, go to step 3. For all other boring systems, go directly to step 4.

C. Determine lead angle (KAPR). Low degree lead angle is best when maximum stability is required. Lead angle may vary based on changing conditions, such as boring in a lathe/mill.



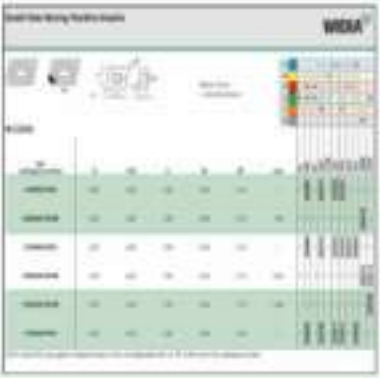
3 Determine which angle/radius is best for the material to be machined.

Consult the Small Hole Boring Chip/Insert Geometry charts on pages 224-227.

4 Determine which grade is best for the material to be machined.

Consult the Grade and Grade Descriptions charts on pages 228-232.

2. Select the appropriate insert based on style, grade, and geometry.



3. Determine the Speed and Feed Chart with the appropriate cutting data.

   A. Based on grade and edge geometry, identify starting speed (m/min) and feed (in). The first choice starting feed is in bold.

   B. Use the corresponding speed located in the same column below the feed information.

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.

C	S	B	M	
Series Type	Bar Type	Bar Style Designation	Units	Insert Shape (optional)

By referencing this map to our guide, you can identify the correct product to meet your needs.

52	10	12	5	R
Head Diameter shown as "52"	Shank Diameter shown as "10"	Length/Depth shown as "1.1 1.2"	Lead Angle*	Hand of Tool

Metric

7 – 7.0mm
8 – 8.0mm
10 – 10.0mm
12 – 12.0mm
12.0mm
16 – 16.0mm
20 – 20.0mm
25 – 25.0mm
32 – 32.0mm
40 – 40.0mm
50 – 50.0mm
63 – 63.0mm
80 – 80.0mm
100 – 100.0mm

Metric

6 – 6.0mm
8 – 8.0mm
10 – 10.0mm
12 – 12.0mm
16 – 16.0mm
20 – 20.0mm
25 – 25.0mm

Bore Length for Stub Bars
Thread Length for Threading Bars
Overall Length for Straight Shank Bar

Metric

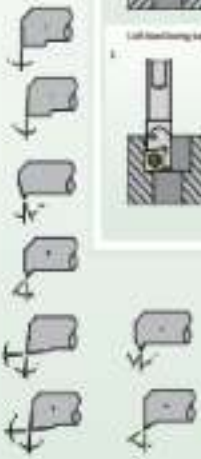
10 – 10.7mm
14 – 14.0mm
21 – 21.0mm
23 – 23.0mm
28 – 28.7mm
38 – 38.0mm
48 – 47.0mm
51 – 51.0mm
63 – 63.0mm
69 – 69.0mm
76 – 76.0mm
78 – 78.0mm
100 – 100.0mm
100.0mm
100.0mm
109 – 109.0mm
127 – 127.0mm
133 – 133.0mm
133.0mm
170 – 171.0mm
170.0mm
200 – 200.0mm
254 – 254.0mm

5 – 5°
Used for "Threading" "Grooving" Bars
3 – 3°
5 – 5°
7 – 7°
15 – 15.0
30 – 30°
45 – 45°
60 – 60°

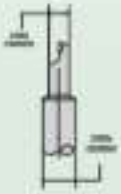
R – Right hand
L – Left hand

Right hand boring bar
R

Left hand boring bar
L



*NOTE: Chips shown on tool are not part of the tool.



*NOTE: Chip shown on tool is not part of the tool.

*NOTE: Shown as "RHT" for ease of use.

■ CS28M

order number	catalogue number	RM	D	D min	D2	d	l1	A			screw driver	insert screw	key
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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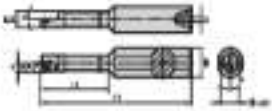

■ CSBM • STEPPED

order number	catalogue number	KW	D	D min	D2	l	l1	l4	A			screw driver	screw	Fig.
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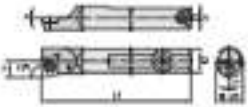

■CCSM

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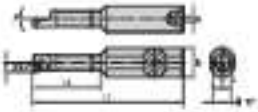

■ CCBM • STEPPED

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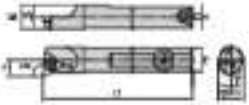

■ FSBM

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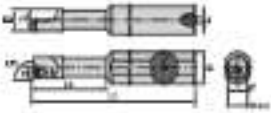

■ FSBM • STEPPED

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■FCDM

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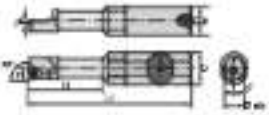

■ FORM • STEPPED

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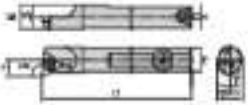

■ C203M

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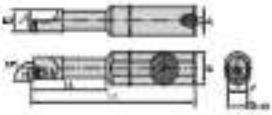

■ QSEM • STEPPED

order number	catalogue number	ISO	D	D min	D2	L	L1	L4	h	γ°	α°	clamp finger	insert screw	Fine
right hand														
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■ Q23M

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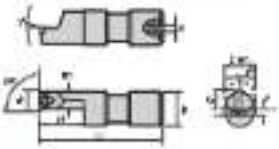
Clamping System S • Steel



■ Q30M

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right hand																
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■ SSSM

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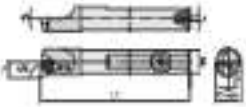
Clamping System S • Carbide



■ SCSM

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WIDIA

■ S20RM

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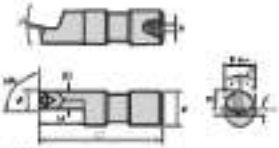
Clamping System S • Steel



■ S30M

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right hand																
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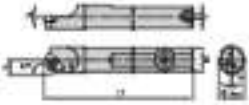

■ GSBMW

order number	catalogue number	BW	D	D max	DB	F	L1	A			screw clamp	screw screw	Torx
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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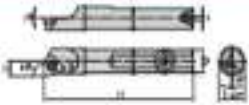
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Clamping System S • Carbide



■ GCBMW

order number	catalogue number	BW	D	D max	F	L1	A			screw clamp	screw screw	Torx
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
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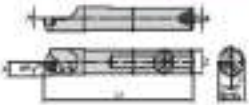
■ QD3MW

order number	catalogue number	KDS	D	D max	DE	L	L1	A			screw driver	insert screw	Torx
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Clamping System 5 • Carbide



■ QD3MW

order number	catalogue number	KDS	D	D max	L	L1	A			screw driver	insert screw	Torx
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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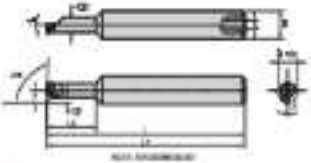
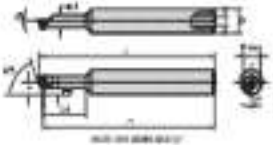
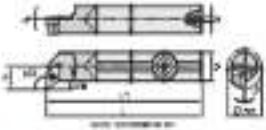
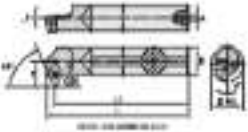




■CSFM

order number	catalogue number	[illegible]	D	D max	[illegible]	L	[illegible]	L1	L4	A	[illegible]	[illegible]	[illegible]	[illegible] screw	Torx
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CTS	15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CTS	15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CTS	15
left hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CTS	15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CTS	15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CTS	15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CTS	15

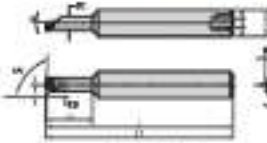


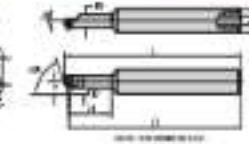


■CCFM

order number	catalogue number	BD	D	D min	F	CD	L	L1	A					Torx
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Clamping System S • Steel





■CSFM

order number	catalogue number	BD	D	D min	D3	F	CD	L	L1	L4	A			
right hand														
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left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■ GCPM

Order number	Catalogue number	[illegible]	D	D max	F	CD	L	L1	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Fore
Right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Left hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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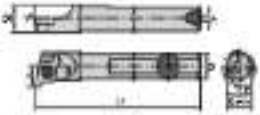
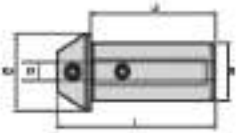
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■CSMM

order number	catalogue number	D	D min	DF	L	l1	A						
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Refer to insert image for cutting depth, cutting width, and blade hole orientation.



■CSM

order number	catalogue number	Dh	D	EB	LS	L
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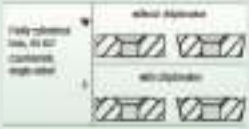
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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.

C	D	H	B	S4
Insert Shape	Insert Clearance Angle	Tolerance Class	Insert Features	Size



Tolerance class	Tolerance on "D"	Tolerance on "H"	Tolerance on "S"
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	See tolerances on next page		[illegible]
[illegible]	See tolerances on next page		[illegible]

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

T0	02			
Tolerance	Cutter Radius "Rw"	Hand of tool (optional)	Cutting Edge Condition in Only Cutter Holders (optional)	Tip Size (optional)

Symbol mm	Tolerance mm
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Symbol mm	Cutter radius mm
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

R – right hand
L – left hand

R

L

HP – high positive
LP – light positive

Symbol
M
Image
Mm/tip

"D" mm	+ Tolerance on "D" – Class M Tolerance: Shapes S, T, C, G, S-W	Shape U	Shape V	Class H Tolerance: Shapes S, T, G	"D" mm	+ Tolerance on "D" – Class M Tolerance: Shapes S, T, C, G, S-W	Shape U	Shape V	Class H Tolerance: Shapes S, T, G
[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	–	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
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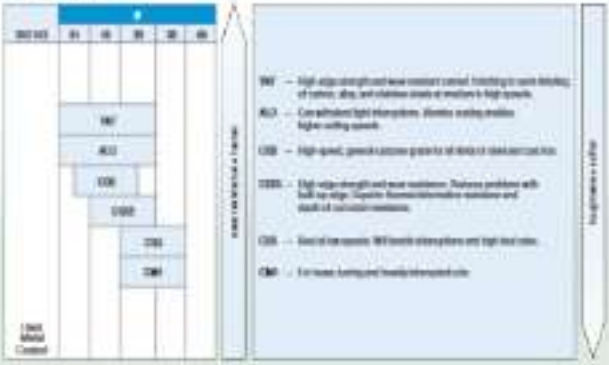
[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	–	–	[illegible]

WIDIA

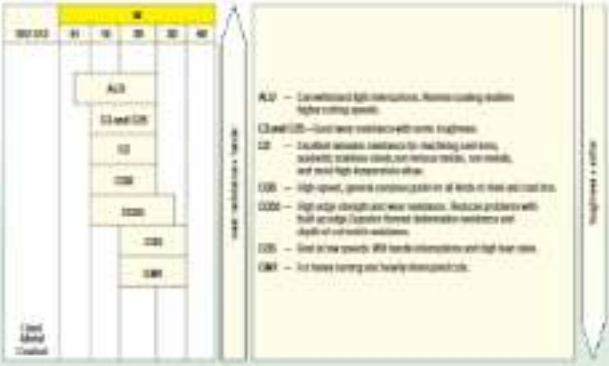
The WIDIA™ three-step insert selection system makes choosing and applying the most productive tool easy. Tool recommendations are based on our workpiece material groups.

1. **Select the Insert Geometry**
   Based on the needed depth of cut and hole size, choose the geometry that best matches your needs.
2. **Select the Grade**
   Determine your cutting conditions, and choose the proper grade.

TN7–CM1 for Steel



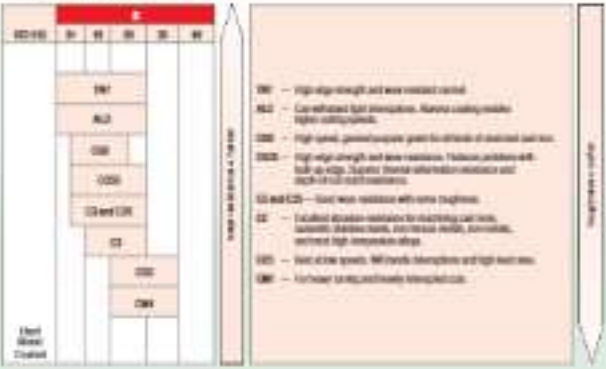
ALU–CM1 for Stainless Steel



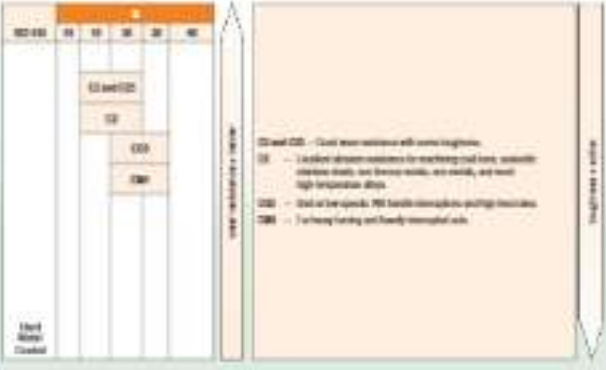
2 Select the Cutting Speed
In the indicated speed and feed chart, establish your cutting speed and contact your global machining conditions and range.

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

TM7–CM1 for Cast Iron



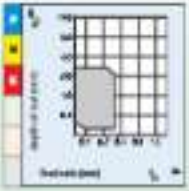
C3–CM1 for High-Temperature Alloys



Single-Sided, Positive Inserts

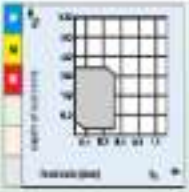
.HB

[illegible]



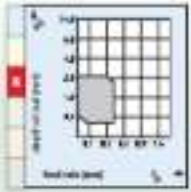
.HT

[illegible]



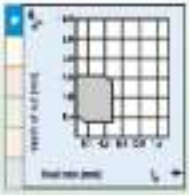
.HB-M

[illegible]



.LF

[illegible]



Geometry Selection Criteria

Flat Top-Type Inserts

Chipbreaker Geometry: ...HL, ...HM, ...HM

- Suitable for interrupted cuts.
- Use when chip control is not critical.

Pressed Chipbreaker-Type Inserts

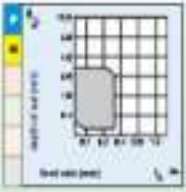
Chipbreaker Geometry: ...LT

- Suitable for moderate interruption of cuts.
- Use when chip control is a concern.

Single-Sided, Positive Inserts

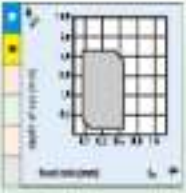
.HH

Peripheral ground for best surface quality and reduced cutting pressure. For fine to medium finishes.



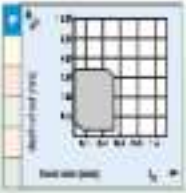
HP

High positive lapped chipbreaker. Peripheral ground for best surface quality and reduced cutting pressure. Recommended for high-temp alloys and non-ferrous machining.



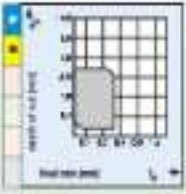
.HH-SVL

Chamfered chipbreaker. Peripheral ground for best surface quality and reduced cutting pressure.
Triple hone insert, need to full hone (see DR1), all hone inserts need no right hone (see DR1)



.HM

For hard to cutting. Very stable cutting edge offers maximum rigidity.



Geometry Selection Criteria

Pressed Chipbreaker-Type Inserts with Ground Periphery

Chipbreaker Geometry: [illegible]

- Suitable for light to moderate interrupted cuts.
- Use when chip control is a concern.
- Superior surface finish and closer tolerance on workpiece.

Ground-in Chipbreaker-Type Inserts

Chipbreaker Geometry: [illegible]

- Suitable for smooth cuts.
- Use when chip control is a concern.
- Superior surface finish and closer tolerance on workpiece.

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

Coating	Grade Description										
TiN	Uncoated carbide. A very tough, ultra-fine grain cobalt-bond substrate. For general purpose machining of most steels, stainless steels, high temperature alloys, titanium, irons, and non-ferrous materials. Performs best at low speeds and will handle interruptions and high feed rates. Use when CC, CS, or CG fail due to chipping or breaking.	P									
		M									
		K									
		N									
		S									
TiCN	Uncoated carbide. A hard, low-stress coated, analogue WC/Co fine grained grade. General purpose grade for non-ferrous materials. Fine excellent abrasion resistance for machining cast irons, composite stainless steels, non-ferrous metals, exotic metals, and most high temperature alloys.	M									
		K									
		N									
		S									
TiCN (Low Stress)	Uncoated carbide. Low stress ensures resistance to machining cast iron, aluminum, and non-ferrous metals. Good wear resistance with some roughness. Harder than CG, resulting in greater edge wear resistance. Suitable for finishing operations.	M									
		K									
		N									
		S									
TiCN	A highly wear resistant (CC/TiN coated) carrier grade. High edge strength and wear resistant carrier offers improved tool life over uncoated carrier combined with excellent material build up on cutting edge. Finishing to semi finishing of carbon, alloy, and stainless steels at medium to high speeds. Can also be used on non-ferrous materials.	P									
		K									
Al_2O_3	Coated carbide. CVD – TiCN/TiC/Al_2O_3. A fine alumina coating over a hard substratum resistant substrate. High speed finishing of grey cast iron and medium speed finishing of alloy steels that are in a hardness range of 25-50 HRC. Can withstand light interruptions. Alumina coating resists higher surface speeds.	P									
		M									
		K									

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

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

Wear resistance ←——→ Toughness

Coating	Grade Description									
[illegible]	[illegible]									
[illegible]	[illegible]									
[illegible]	[illegible]									
[illegible]	[illegible]									
[illegible]	[illegible]									

WIDIA

Material Group		Cutting Speed – m/min														
		CD			CDX			CG			CGX			CGXX		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	vc [m/min]															
	f [mm/rev]															
	01	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	6	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
M	vc [m/min]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
	f [mm/rev]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
K	vc [m/min]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
	f [mm/rev]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N	vc [m/min]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
	f [mm/rev]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
S	vc [m/min]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
	f [mm/rev]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
H	vc [m/min]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	f [mm/rev]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

NOTE: Speed and feed rates and depth of cut may vary depending on materials and machining conditions including, but not limited to, coolant flow, fixturing, tool wear, and finished surface requirements.

Material Group		Cutting Speed – sfm														
		CM			ALU			TMT			CSMM			CFM		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
M	AISI/SAE	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]						
	Typical	[illegible]		[illegible]	[illegible]	-	[illegible]	[illegible]	-	[illegible]	-	-	-	-	-	-
	4/4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
S	AISI/SAE	[illegible]	-	[illegible]	[illegible]	-	[illegible]	[illegible]	-	[illegible]	-	-	-	-	-	-
	Typical	[illegible]	-	[illegible]	[illegible]	-	[illegible]	[illegible]	-	[illegible]	-	-	-	-	-	-
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
K	AISI/SAE	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]						
	Typical	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]						
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
N	AISI/SAE	[illegible]	-	[illegible]		-		[illegible]		[illegible]		-	-	[illegible]	-	[illegible]
	Typical	[illegible]		[illegible]				[illegible]		[illegible]				[illegible]		[illegible]
	1	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]
	7	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]
O	AISI/SAE	[illegible]	-	[illegible]	-	-	-		-	-	[illegible]	-	[illegible]	-	-	-
	Typical	[illegible]	-	[illegible]	-	-	-	-	-	-	[illegible]	-	[illegible]	-	-	-
	1	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-
	2	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-
	3	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	AISI/SAE				-	-	-				[illegible]	-	[illegible]	-	-	-
	Typical				-	-	-				[illegible]	-	[illegible]	-	-	-
	1	-	-	-	-	-	-	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-
	2	-	-	-	-	-	-	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-
	3	-	-	-	-	-	-	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-
	4	-	-	-	-	-	-	-	-	-	[illegible]	[illegible]	[illegible]	-	-	-

NOTE: Speed and feed rates and depth of cut may vary depending on materials and machining conditions including, but not limited to, tool overhang, tool size, and finished surface requirements.

■CDHE

ISO catalogue number	D	L/W	S	D_{in}	D_{ex}	d_{min}	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Also ISO catalogue number applies to tipped inserts, which are designated with an "M" at the end of the catalogue number.

■ [illegible]

ISO catalogue number	C	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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NOTE: Right-hand inserts used in left-hand bars only.

■CDI(I)

ISO catalogue number	D	L(d)	S	d_2	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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■CPI(I)

ISO catalogue number	D	L(d)	S	d_2	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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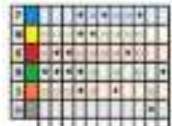
■CPSS

ISO catalogue number	D	L16	S	d_2	D1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■CPMT-LI

ISO catalogue number	D	L16	S	d_2	D1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



CDHW

ISO catalogue number	D	L/W	S	r_ε	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	6.75	6.35	7.20	0.40	5.00	●	●	●	●	●	●	●	●	●
[illegible]	6.75	6.35	7.20	0.80	5.00	●	●	●	●	●	●	●	●	●

CDHT

ISO catalogue number	D	L/W	S	r_ε	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	6.75	6.35	7.20	0.40	5.00	●	●	●	●	●	●	●	●	●
[illegible]	6.75	6.35	7.20	0.80	5.00	●	●	●	●	●	●	●	●	●

CPHW

ISO catalogue number	D	L/W	S	r_ε	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	6.75	6.35	7.20	0.40	5.00	●	●	●	●	●	●	●	●	●
[illegible]	6.75	6.35	7.20	0.80	5.00	●	●	●	●	●	●	●	●	●

■ CPHT

| ISO catalogue number | D | L/W | S | r_ε | D1 | | |

■ Non-stocked
□ Alternate choice

| | | |

■ TDHH-RIL

ISO catalogue number	D	L1H	S	d_H	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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NOTE: Right hand inserts used in left hand bars only

■ TDHH

ISO catalogue number	D	L1H	S	d_H	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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NOTE: Also ISO only applies to tipped inserts, which are designated with an "M" at the end of the catalogue number.

■ TPHB

ISO catalogue number	D	L/D	S	Dg	Dh	mm	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]

■ TPKN-GIC

ISO catalogue number	D	L16	S	S_B	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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NOTE: Right hand inserts used in left hand bars only

■ TPGI

ISO catalogue number	D	l.W	S	Dg	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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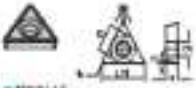

■ TPGI-LF

ISO catalogue number	D	l.W	S	Dg	D1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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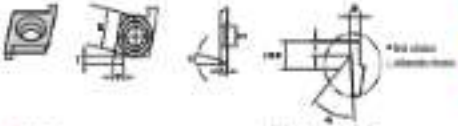
■ TPGT-MP

| ISO catalogue number | D | L/10 | S | d_a | D1 | | |

| | | |



■ CDC RR

ISO catalogue number	D	S	T	W	RN
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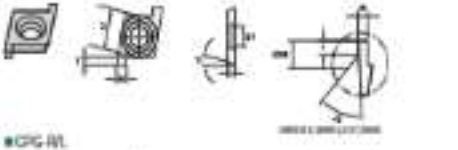
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■ CPC RR

ISO catalogue number	D	S	T	W	RN
right hand					
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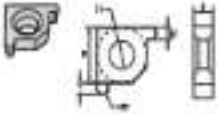
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

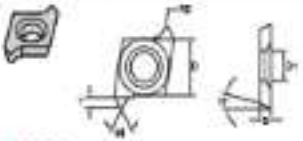


■ CNN-NL

ISO catalogue number	D	C	T	W	RE	D1
right hand						
CNN080408	3.18	1.59	1.59	1.19	0.08	4.20

■ CDT-NL

ISO catalogue number	D	S	T	RE	D1	l1 max	l2 max	l3 max	l4 max
right hand									
CDT080408	3.97	1.27	4.76	0.08	5.41	1.8	1.6	0.3	0.3



■ CPT-NL

ISO catalogue number	D	S	T	RE	D1	l1 max	l2 max	l3 max	l4 max
right hand									
CPT080408	4.76	1.59	1.59	0.12	5.48	1.9	1.6	1.3	0.3

■FNT-ACME-R/L

ISO catalogue number	D	S	T	L	D1	TPI min
right hand						
FNT1103ACME-R/L	0.20	0.22	0.16	0.20	0.24	27

■FNT-UN-R/L

ISO catalogue number	D	S	T	L	D1	TPI min
right hand						
FNT1103UN-R/L	0.20	0.22	0.16	0.20	0.24	28

WIDIA CIRCLE™ catalogue number	Rival ICS catalogue number
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[illegible]	[illegible]
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[illegible]	[illegible]
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[illegible]	[illegible]

Insert Screws

order number	ISO catalogue number	Torx/Hex	Internal thread
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]

Wrenches

order number	ISO catalogue number	Torx/Hex
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Drive Bits

order number	ISO catalogue number	Torx/Hex
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Wedges

order number	ISO catalogue number
[illegible]	[illegible]
[illegible]	[illegible]

A/B Series Small Hole Tooling

Available in steel and carbide shanks, the WIDIA™ line of micro boring bars is an excellent, economical choice for a wide range of applications — from creating small holes in small parts to precision micro boring typically found in large workpieces — manufactured in the aerospace, heavy equipment, and automotive industries.

A/B Series

A/B Series Micro Boring Bar

Features

- 1/16–2.00mm diameter boring range.
- Unique locking option enables quick, accurate insert changes.
- Insert repeatability guaranteed within ±0.01mm.

Benefits

- Quick, accurate insert setups.
- Available in multiple styles for machining a wide range of materials.
- Highest, ground insert shanks for maximum strength and rigidity.

ABD Type

Replaceable boring insert with coolant slot.

ABD Type

Replaceable boring insert available in coated and uncoated carbide, CBN, and PCD tip. A carrier has a coolant slot.

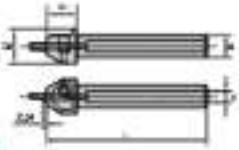
BB Type

Replaceable boring insert.

A/B Series Boring Bar Identification System

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

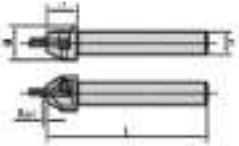
AT	B	M	6	38
Series (Table and the Type Construction material of the boring bar	Boring Bar	Type	Shank Diameter shown as "D"	Length shown as "L"
AT - Through Coolant AB - No Coolant		M - Metric	Metric 6 - 6.00mm 10 - 10.00mm 12 - 12.00mm 16 - 16.00mm 20 - 20.00mm	Metric 38 - 38.00mm 100 - 100.00mm 150 - 150.00mm 200 - 200.00mm



■ATOM

order number	catalogue number	D	DF	L	A	wedge	wedge screw	box
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

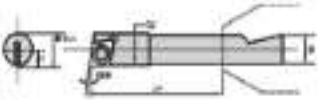
NOTE: Please look at the complete A-Series order number chart (R20, R20-M, R22, R22-M, and R25).



■R25M

order number	catalogue number	D	DF	L	H	wedge	wedge screw	box
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Please look at the complete A-Series order number chart (R22 and R25).



■ ARC

order number	catalogue number	EDX	B	D max	DE	F	LA	screw insert	torx screw	Torx
right hand										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WIDIA

A/B Series Boring Bar Identification System

ABD	125	375	R	
Insert Style	Minimum Bore shown as "0.0 mm"	Bore Depth, Groove Width, / Int. or Thread shown as "1.4, W"	Hand of Tool	Tip Style (optional)

A Series – Through Coolant

ABC – Indexable Boring
ABD – Boring
ABG – Grooving
ABR – Profiling
ABT – Threading

B Series – Without Coolant

BB – Boring
BP – Profiling

A Series

CC – 0.0mm
CD – 0.0mm
KD – 0.0mm
KE – 0.0mm

(ACC style only)
CM – 0.0mm
KG – 0.0mm
KM – 0.0mm

(ACD style only)
CM – 0.0mm
KG – 0.0mm
KM – 0.0mm

B Series

BP – 0.0mm
BW – 0.0mm
BW – 0.0mm

Bore Depth

187 – 0.0mm
264 – 0.0mm
313 – 0.0mm
371 – 0.0mm
500 – 0.0mm
600 – 0.0mm
801 – 0.0mm
750 – 0.0mm
802 – 0.0mm
803 – 0.0mm
1000 – 0.0mm
1250 – 0.0mm
1500 – 0.0mm
1750 – 0.0mm
2125 – 0.0mm

A Series

Groove Width (ACC style only)

W – 0.0mm
W – 0.0mm
W – 0.0mm

Thread (BT3 style only)

TT – 0.0mm
Int or thread

R – Right hand

L – Left hand

Symbol or

Image (max. 5)

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

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

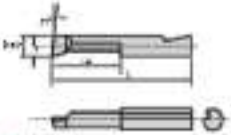
Wear resistance ←——→ Toughness

Coating	Grade Description									

WIDIA

Material Group		Cutting Speed – vc m/min								
		CD10			CD15			CD200		
		min	Chart	max	min	Chart	max	min	Chart	max
P	vc [m/min]	[illegible]		[illegible]	[illegible]		[illegible]			
	f [mm/rev]	[illegible]		[illegible]	[illegible]		[illegible]			
	01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
M	vc [m/min]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	–	–	–
	f [mm/rev]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	–	–	–
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
K	vc [m/min]	[illegible]		[illegible]	[illegible]		[illegible]			
	f [mm/rev]	[illegible]		[illegible]	[illegible]		[illegible]			
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
N	vc [m/min]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	–	–	–
	f [mm/rev]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	–	–	–
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
S	vc [m/min]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	–	–	–
	f [mm/rev]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	–	–	–
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
	4	–	–	–	–	–	–	–	–	–
H	vc [m/min]	–	–	–	–	–	–	[illegible]		[illegible]
	f [mm/rev]	–	–	–	–	–	–	[illegible]	–	[illegible]
	1	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	2	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	3	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	4	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]

NOTE: Speed and feed rates and depth of cut may vary depending on materials and machining conditions including, but not limited to, tool overhang, tool wear, and finished surface requirements.



■ AED

WIDIA catalogue number	D mm	L4	L	T				
right hand								
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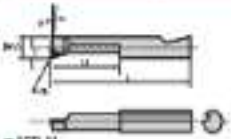

■ AED-M

WIDIA catalogue number	D mm	L4	L	T	W			
right hand								
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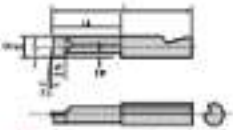
WIDIA



■ A(2)

ISO catalogue number	D min	L4	L	T	DD	W				
right hand										
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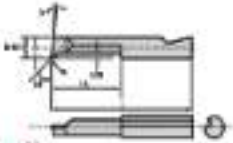

■ A(F)

ISO catalogue number	D min	L4	L	T	DD	W				
right hand										
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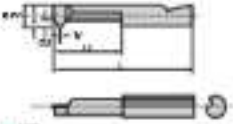

■ [illegible]

ISO catalogue number	D max	L2	L	T	CD	W	TF min	TF max	TT min	TT max	[illegible]
right hand											
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■ [illegible]

ISO catalogue number	D min	L2	L	T	[illegible]
right hand					
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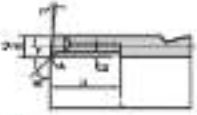
WIDIA



■ CGT

ISO insert designation	D max	L4	L	T	CD	r_ε			
right hand									
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Insert Screws

order number	ISO catalogue number	Torx/Hex	Internal thread
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	–
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[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Wrenches

order number	ISO catalogue number	Torx/Hex
[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Drive Bits

order number	ISO catalogue number	Torx/Hex
[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Wedges

order number	ISO catalogue number
[illegible]	[illegible]
[illegible]	[illegible]

Quadralock™ +

High-Precision Products for I.D. Applications

Easy access, quick-change toolholders and inserts perform multiple I.D. applications for maximum productivity with one toolholder.

The unique cutting tip of the Quadralock™ I.D. Quick-Change Tooling System can be locked in four different positions, enabling operation in both Swiss-style and conventional machines. Fast, quick, easy setup steps and guaranteed insert repeatability within ±0.01/0mm ensures superior performance.

Quadralock

Quadralock Ultra-Precision Tooling

Features

- Fast, tool-less step for precise and repeatable cutting edge positioning.
- Tight insert seat pocket ensures secure hold.
- 4 seats and tool-less bolts for increased reliability.

Benefits

- Internal coolant supply directly lubricates cutting edge.
- Ability to rotate tool at 90° increments.
- For all boring, grooving, profiling, and threading applications.

Boring

Bore holes as small as 0.75mm.

Grooving

Groove in a 3.175mm diameter hole.

Profiling

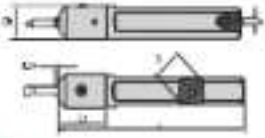
Profile in diameters as small as 1.5mm.

Threading

Thread down to a No. 1, 72-mm.

Quadralock Boring Bar Identification System

MTM	M	S	40
Quadralock Boring System	Type	Shank Diameter shown as "S"	Length shown as "L"
	M - Metric	Metric S - 8.0mm M - 10.0mm L - 12.0mm W - 16.0mm Q - 20.0mm	Metric 40 - 40.0mm 50 - 50.0mm 60 - 60.0mm



■ MTMM

order number	catalogue number	D	D1	L	L1	A	screw	key
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Easy Access to Proven Metalworking Expertise!

WIDIA™ Customer Application engineers assist customers and engineering groups throughout the world with expert tool selection and application recommendations for the entire range of WIDIA tooling.

Customer Application Support (CAS)

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

COUNTRY	LANGUAGE	TEL	FAX	EMAIL
Australia	English	+61 [illegible]	[illegible]	[illegible]
Austria	German	[illegible]	[illegible]	[illegible]
Belgium	English / French	[illegible]	[illegible]	[illegible]
China	Chinese	+86 [illegible]	+86 [illegible]	[illegible]
Denmark	English	+45 [illegible]	[illegible]	[illegible]
Finland	English	[illegible]	[illegible]	[illegible]
France	French	+33 [illegible]	[illegible]	[illegible]
Germany	German	[illegible]	[illegible]	[illegible]
India	English	+91 [illegible]	[illegible]	[illegible]
Israel	English	[illegible]	[illegible]	[illegible]
Italy	Italian	[illegible]	[illegible]	[illegible]
Japan	English	+81 [illegible]	[illegible]	[illegible]
Korea (South)	English	+82 [illegible]	[illegible]	[illegible]
Malaysia	English	+60 [illegible]	[illegible]	[illegible]
Netherlands	English	[illegible]	[illegible]	[illegible]
New Zealand	English	+64 [illegible]	[illegible]	[illegible]
Norway	English	[illegible]	[illegible]	[illegible]
Poland	Polish	[illegible]	[illegible]	[illegible]
Russia (Moscow)	Russian	[illegible]	[illegible]	[illegible]
Russia (St. Petersburg)	Russian	[illegible]	[illegible]	[illegible]
Singapore	English	+65 [illegible]	[illegible]	[illegible]
South Africa	English	+27 [illegible]	[illegible]	[illegible]
Sweden	English	+46 [illegible]	[illegible]	[illegible]
Taiwan	English	+886 [illegible]	[illegible]	[illegible]
Thailand	English	+66 [illegible]	[illegible]	[illegible]
United Kingdom	English	+44 [illegible]	[illegible]	[illegible]
Ukraine	Russian	[illegible]	[illegible]	[illegible]
USA	English	[illegible]	[illegible]	[illegible]

Phone and fax numbers marked with * are not toll-free.

For more information, contact your local WIDIA Authorized Distributor or visit **widia.com/services**.

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Quadralock Boring Bar Insert Identification System

MB	125	625	R
Insert Style	Minimum Bore (shown as "D size")	Bore Depth, Groove Width, Pitch or Thread (shown as "L-J-W")	Hand of Tool
MB... Boring	Metric [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] (for MB and MF style only) [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible]	Metric Bore Depth [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] Groove Width (for MB style only) [illegible] - [illegible] [illegible] - [illegible] [illegible] - [illegible] Thread (for MF style only) [illegible] - [illegible] [illegible]	R... Right Hand L... Left Hand
MBC... Grooving			
MF... Profiling			
MT... Threading			

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

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

WIDE APPLICABILITY ←——— Toughness

	Coating	Grade Description									
Inserts	CD 1 WM CD1	Uncoated carbide. A very tough, ultra-fine grain multi-purpose substrate. For general purpose machining of mild steels, stainless steels, high temperature alloys, titanium, irons, and non-ferrous materials. Performed best at low speeds and will handle interruptions and high feed rates. Use when CL, CU, or CD fail due to chipping or breaking.									
	CD4 WC CD4	A TiN coated grade. Straight WC-Co substrate. Substitute grade. For general purpose machining of mild steels, stainless steels, high temperature alloys, titanium, irons, and non-ferrous materials. Performed best at mid speeds and will handle interruptions and high feed rates.									

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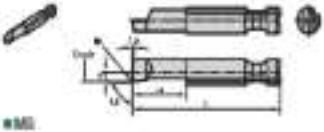
Material Group		Cutting Speed – vc m/min					
		CD2			CD4		
		min	Start	max	min	Start	max
P	vc [m/min]	[illegible]		[illegible]	[illegible]		[illegible]
	f [mm/rev]	[illegible]		[illegible]	[illegible]		[illegible]
	01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
M	vc [m/min]	[illegible]		[illegible]	[illegible]		[illegible]
	f [mm/rev]	[illegible]		[illegible]	[illegible]		[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
K	vc [m/min]	[illegible]		[illegible]	[illegible]		[illegible]
	f [mm/rev]	[illegible]		[illegible]	[illegible]		[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N	vc [m/min]	[illegible]		[illegible]	[illegible]		[illegible]
	f [mm/rev]	[illegible]		[illegible]	[illegible]		[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S	vc [m/min]	[illegible]		[illegible]	[illegible]		[illegible]
	f [mm/rev]	[illegible]		[illegible]	[illegible]		[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	-	-	-	-	-	-
H	vc [m/min]	-		-	-		-
	f [mm/rev]	-	-	-	-	-	-
	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	-	-	-	-	-

NOTE: Speed and feed rates and depth of cut may vary depending on materials and machining conditions including, but not limited to, tool overhang, tool wear, and finished surface requirements.



WIDIA

[illegible] — continued

[illegible]

ISO catalogue number	D min	LF	L	F	Dg	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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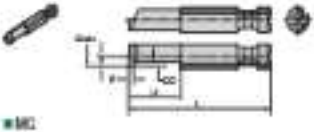
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Active bore depth for [illegible] and [illegible] square LX inserts.
ANSI Catalogue Number [illegible] and NSD Catalogue Number [illegible] have an actual bore depth of .[illegible]"



■ MC

KC catalogue number	D max	L1	L	F	CC	W	
Right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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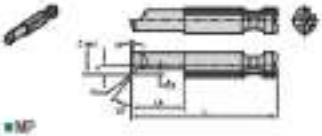
WIDIA



■ MP

WIDIA catalogue number	D min	L1	L	F	CD	Dg
right hand						
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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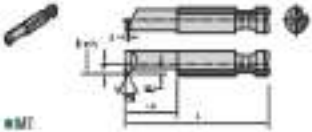

WIDIA catalogue number	D min	L4	L	F	CD	W
Right hand						
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Left hand						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WIDIA

Insert Screws

order number	ISO catalogue number	Torx/Hex	internal thread
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	-
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	-
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Wrenches

order number	ISO catalogue number	Torx/Hex
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[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Core Bits

order number	ISO catalogue number	Torx/Hex
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Wedges

order number	ISO catalogue number
[illegible]	[illegible]
[illegible]	[illegible]

WMT™ System

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

The WMT platform is the economical and reliable option for all your grooving, cut-off, turning, and profiling applications. Trust the WMT system to ensure precise insert positioning and provide only the most accurate machining with exceptionally fast cycle times and superior performance.

Versatile and Well-Constructed

- Specifically designed to increase speeds and feeds.
- Excellent geometry to save your most demanding deep grooving applications.
- The WMT system enables heavy stock removal in turning applications.
- Ensures finer surface finishes and a long, reliable tool life.

WMT Toolholders

- Outstanding system rigidity and clamping capabilities.
- Guarantees fast cycle times and limited burrs indexes.
- Precise insert positioning for accurate machining.
- Double V shape ensures operator friendly insert indexing and optimum insert positioning.
- Choice of integral or modular holders.

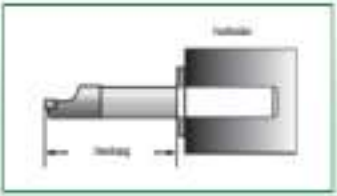
To learn more, contact your local Authorized Distributor or visit widia.com.

WIDIA

Setup Recommendations for Bar Overhang

WIDIA CERO™ cutting tools are the finest quality turning, grooving, profiling, and threading tools available. For more than 50 years, WIDIA CERO has been the industry leader in solving small diameter tube machining problems in major manufacturing plants worldwide.

A common problem associated with any cutting tool is extending the tool beyond its support zone. This condition, or excessive overhang, can cause chatter, poor finishes, or premature tool life.



We recommend a 4:1 ratio (4 times the diameter overhang when using blank shank bars and up to a 10:1 (10 times the diameter) overhang when using carbide shank bars. The overhang ratio are affected by many factors:

- Capacity of machine(s) being machined
- Depth of cut(s)
- Feed rate(s)

Any unusual operation conditions may still be unsuitable for a number of reasons. A better tool can be tailored to non-rigid setups or harmonics from the machine or machining conditions. In many cases, changing the RPM of the machine can reduce chatter.

Shank diameter (mm)	Blank shank ratio 4:1 (mm)	Carbide shank ratio 10:1 (mm)
6.35mm	25.4mm	63.5mm
7.94mm	31.75mm	79.25mm
9.53mm	38.1mm	95.25mm
12.70mm	50.8mm	127mm
15.88mm	63.5mm	158.75mm
19.05mm	76.2mm	190.5mm
25.40mm	101.6mm	254mm
31.75mm	127mm	317.5mm
38.10mm	152.4mm	381mm
50.80mm	203.2mm	508mm

Setup Information and Recommendations

Tool "D" above centerline:

[illegible]

Tool "C" on centerline or below:

[illegible]

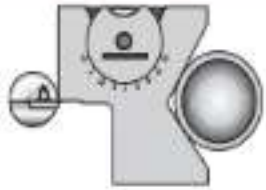
Tip of the insert

[illegible]

[illegible]

[illegible]

DN-Level Precision Setup Level



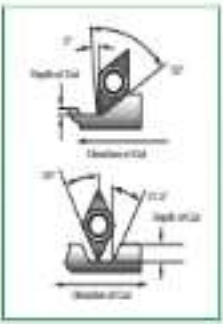
For most machines:
Set the dial to the 0° mark

For steel bed type machines:
Set the dial to the degree of the bed.

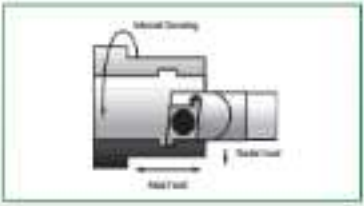
Rotate (-1): Tooling (facing) to rear bed. This sets the tooling at -1.7 mm above centerline.

Rotate (+1): Tooling (facing) to rear bed. This sets the tooling at +1 centerline.

Setup Information and Recommendations for Boring and Profiling



Setup Information and Recommendations for Grooving



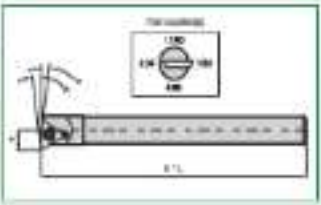
■ CDG Indexable Type Grooving Inserts

Safe machining conditions	Steel [illegible] (m/min)	Carbide [illegible] (m/min)
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	[illegible]	

WIDIA

[illegible]

[illegible]



Straight Shank Type Boring Bars

Steel or Carbide

Date: _____

Customer-Specified Dimensions

_____	O.A.L. (Overall Length)	[illegible]
_____	"C" Dimension	[illegible]
_____	"W" Dimension	[illegible]
_____	Flat Location(s)	[illegible]

Special Instructions
[illegible]

Closest Catalogue Standard

Customer

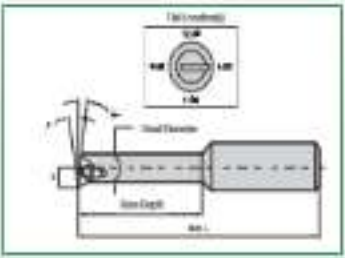
Distributor

Shipping Requirements

Distributor Customers: Use this worksheet to collect information for your customers.

☐ Concept ☐ Detail Drg. Req. ☐ Final Drg. Req. ☐ Final Drg. Req.

Use this worksheet to modify one of our existing products to meet your new specifications. If your special requirements do not fit any of these categories, contact us directly.



Step Down Shank Type Boring Bars

Steel or Carbide

Date:

Customer-Specified Dimensions

	Bore Depth	1/2 Bore in tool diameter steel, 1/2 Bore in tool diameter carbide
	O.A.L. (Overall Length)	Steel shank: Max O.A.L. Max in catalogue carbide bore depth, and standard shank length
	"T" Dimension	1/2 Bore from head, dimension shown is catalogue length, shank bore only
	"B" Dimension	1/2" to 1/2" length shank bore only
	Flat Location(s)	Flat – no charge (see illustration above)

Special Instructions
Please indicate with a check mark:

Closest Catalogue Standard:

Customer:

Distributor:

Shipping Requirements:

Please Distributor: Use this worksheet to collect information for your customer.

☐ Current ☐ Rush Ship Kit ☐ Lead Ship Kit ☐ Low Ship Kit

NOVO KNOWS
ART TO PART TO PROFIT

WIDIA

01

THE DIGITAL SOURCE FOR DELIVERING SMART MACHINING SOLUTIONS

NOVO

Turning • Grooving and Cut-Off

Grooving and Cut-Off Platforms E3-E3
WMT Grooving, Face Grooving, Cut-Off, and Profiling E4-E38
TopGroove Shallow Grooving and Face Grooving E40-E84
ProGroove Grooving and Cut-Off E86-E107
Separator for Cut-Off E108-E130

WIDIA

Grooving

WMT™

- Insert cutting width: 3–6mm
- O.D. cutting depth: 6.2–10.8mm
- I.D. boring bar minimum bore diameter: 11.15mm
- Screw-clamping integral shank holdings: instructions available
- Secondary for deep grooving

Pages: 24-236

TopGroove™

- Insert cutting width: 4.2–6.25mm
- Insert cutting depth: 1.5–10.5mm
- I.D. boring bar minimum bore diameter: 11.15mm
- Integral shank: instructions available

Pages: 248-254

ProGroove™

- Insert cutting depth: 10–16mm
- Insert retain precision without deviation, pitch tolerance, and repeatability
- Screw-clamping integral shank: instructions available
- Grooving and O.D. turning

Pages: 248-2.xxx

LS

- Insert cutting width: 3–16mm
- O.D. cutting depth: 10–22mm
- Wedge-clamping integral shank: tooling available

Pages: 248-2.xxx

Cut-Off

WMT

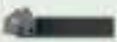
- Cut-off width: 1.5–4mm
- Maximum cutting depth: 10.5mm
- Screw-clamping integral shank holdings: instructions available
- Compact multi-edge inserts for rigidity and dimensional accuracy
- Right-hand insert edges: 0° and 4° lead angles

Pages: 24-236

Separator™

- Cut-off width: 3–4mm
- Positive rake insert, with clamping blades
- Right-hand lead angle: instructions available
- Single edge inserts for maximum depth capacity

Pages: 248-2.xxx



ProGrooves

- Cut-off width: 3–4mm
- Single edge insert for maximum depth capacity
- Right-hand insert edges with 0° lead angles
- Soft clamping blades/screw-clamping integral shank: instructions available

Pages: 248-2.xxx

Plunge and Turn

WMT

Heavy Duty Grooves for Turning Applications

- Positive rake inserts, cutting width: 3–6mm
- O.D. cutting depth: 6.2–10.8mm
- I.D. boring bar minimum bore diameter: 11.15mm
- Screw-clamping integral shank holdings: instructions available

Pages: 24-236

ProGrooves

For Light Cutting Inserts

- Cutting width: 3–6mm
- O.D. cutting depth: 10–16mm
- Single edge inserts for maximum depth capacity
- Screw-clamping integral shank: instructions available

Pages: 248-2.xxx

Face Grooving

WMT™

- Cutting width: [illegible]
- Cutting depth: [illegible]
- Minimum face groove diameter: [illegible]

Pages [illegible]

TopGroove™

- [illegible]
- Cutting width range for standard inserts: [illegible]
- Cutting depth range for standard inserts: [illegible]
- Cutting width range for [illegible] face grooving inserts: [illegible]
- Cutting depth range for [illegible] face grooving inserts: [illegible]
- Cutting depth range for [illegible]: [illegible]
- Cutting depth range for [illegible]: [illegible]

Pages [illegible]

Profiling

WMT

For Heavy Stock Removal

- Full radius insert cutting width: [illegible]
- [illegible] cutting depth: [illegible]
- Screw clamping, integral insert bearings, instructions available.

Pages [illegible]

TopGroove

Medium Stock Removal or Shallow Profile Duplex

- Full radius insert cutting width: [illegible]
- Insert cutting depth: [illegible]
- Integral shaft, instructions and [illegible] insert available.

Pages [illegible]

ProGroove™

For Light Cutting

- Full radius insert cutting width: [illegible]
- [illegible] cutting depth: [illegible]
- Screw clamping, integral insert bearings, instructions available.

Pages [illegible]

Undercutting

TopGrooves

- Undercutting insert width: [illegible]
- Conventional double-sided inserts.

Pages [illegible]

WMT™ System •

One Platform for Grooving, Face Grooving, Cut-Off, and Profiling

WMT

The WMT platform is the economical and reliable option for all your grooving, cut-off, turning, and profiling applications. Trust the WMT system to ensure precise insert positioning and provide only the most accurate machining with exceptionally fast cycle times and superior performance.

Versatile and Well-Constructed

- Specifically designed to increase speeds and feeds.
- Excellent gaging for near-net insert demanding deep grooving applications.
- The WMT system enables tramp-stock removal in turning applications.
- Ensures fine surface finishes and a long, reliable tool life.

WMT™ Toolholders

- Outstanding system rigidity and clamping capabilities.
- Guarantees fast cycle times and limited tool entrans.
- Precise insert positioning for accurate machining.
- Double 'A' shape insert specific friendly insert indexing and optimum insert positioning.
- Choice of integral or modular holders.

The Most Advanced Turning Solutions in the Industry

For unsurpassed quality, value, and performance, look no further than the WIDIA™ comprehensive line of specially engineered and dependable grooving and cut-off solutions. All the tools you need from the reliable [illegible] [illegible]!

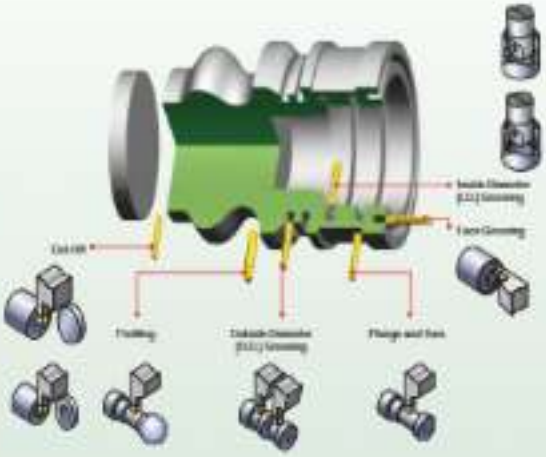
The WMT system, with its unmatching clamping and positionable positioning, ensures exceptionally fast and accurate machining, all in one tool, for your most demanding grooving, cut-off, turning, and profiling applications.

It's perfect for all general purpose operations, including both shallow and deep grooving.

Follow the handy, easy-to-use guide to identify and select the appropriate grooving and cut-off tools for your specific needs.

1 Choose the application to be performed

Consider depth, width, and profile

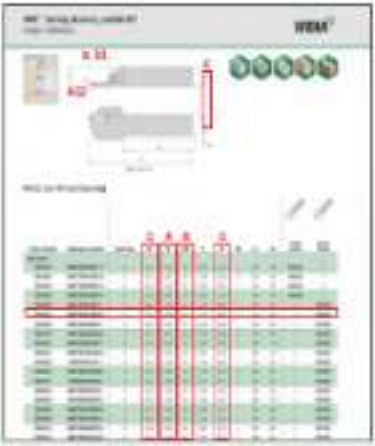


2 Identify the material to be machined

Look to find a material grid matched with a color indicating the materials that can be machined.

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

3. Select your toolholder based on the application:
   A. Choose the appropriate width "W" required for the application.
   B. Choose the shortest cutting depth "CD" dimension for increased tool rigidity.
   C. Select the largest toolholder shank "H" and "W" dimensions for maximum rigidity.

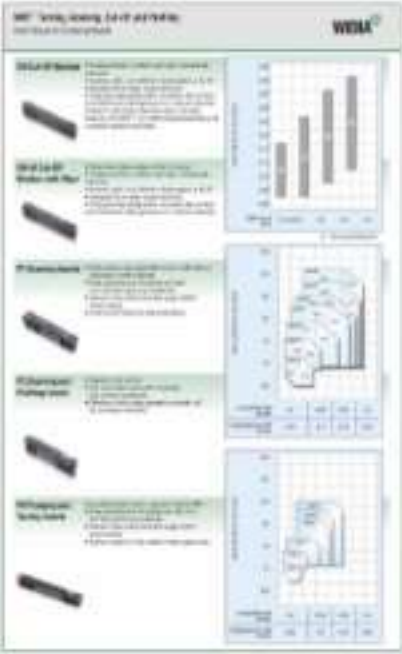


	application	conventional toolholders	modular blades
	O.D. Grooving and Cut-Off	page C-24-C-27	page C-34
	Face Grooving	page C-24-C-29	page C-34
	O.D. Grooving	page C-31	–
	Plunge and turn	page C-24-C-31	page C-34

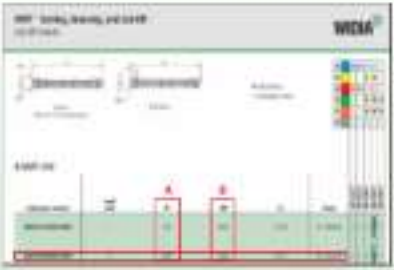
- Select chipbreaker style for the application:

CB	Cut Off Medium
CB-W	Cut Off Medium with Wiper
FT	Grooves, Plunge, and Turn
FC	Plunge and Contour
FG	Grooves, Plunge, and Turn

NOTE: Cost times recommended starting feed rate.



- A. Choose the appropriate insert with "W" for your specific application.
- B. Select the required corner radius value "0.8".



2. Select grades

Grooving cutting Condition		Recommended Grades					
		steel	stainless steel	cast iron	non-ferrous metals	high temp alloys	functional materials
heavily interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
lightly interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
varying depth of cut, coating, or forging skin		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
smooth cut, pure round surface		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Cut-Off cutting condition		Recommended Grades					
		steel	stainless steel	cast iron	non-ferrous metals	high temp alloys	functional materials
heavily interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
lightly interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
varying depth of cut, coating, or forging skin		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
smooth cut, pure round surface		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: See page [illegible] for Grade and Cutting Recommendations.

3. Determine cutting data

A. Based on material group and grade, identify starting speed (sfm).

B. Find chosen starting speed in a table.

NOTE: See page [illegible] for cutting data.

WMT Identification System

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.

Cut-Off

WMT	C	015	N	00	CM	08
Tooling System	Cut-Off	Width mm/ in	Hand of Insert	Main Cutting Edge Lead Angle	Chipbreaker Geometry CM - Cut-Off Medium CM-W - Cut-Off Medium with Wiper	Corner Radius in mm/ in

Grooves, Plunge, Turn, and Contour Inserts

WMT	S	205	M	2	U	02	PT
Tooling System	Grooves	mm/ in mm/ inch	Unit of Measurement M = mm I = inch	Tool Size	Insert Tolerance	Corner Radius in mm/ in	Chipbreaker Geometry PT = Grooves, Plunge, and Turn PM = Grooves, Plunge, and Turn PW = Plunge with Contour

F – Increase ground grooving width tolerance
± .001" (0.025mm)

U – Utility standard grooving width tolerance

0.010–0.125	+.000" / -.002"	+0.000mm / -0.050mm
0.126–0.250	+.000" / -.003"	+0.000mm / -0.075mm

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

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

Wear resistance ——— Toughness

	Coating	Grade Description		01	10	15	20	25	30	35	40	50
Grade	WG-CT1	An enhanced CVD TiCN/Al2O3 coating over a very tough substrate resulting in a versatile substrate. The WG-CT1™ grade is now and improved coating supplier current so as to replace or to [illegible]. The WG-CT1™ grade is ideal for finishing to general machining in most workpiece materials of higher speeds. Excellent for machining cast iron, stainless steels, cast iron, low tensile materials, and wear alloys under stable conditions. Ideal performance and machining hardened and alloy changing materials.	P									
			M									
			K									
			N									
			S									
			H									
	WG-CT2	An enhanced CVD TiCN/Al2O3 coating grade with a tough, ultra thin grain, medium substrate. For general purpose machining of most steels, stainless steels, high temperature alloys, titanium, nodular and low tensile materials. Speeds may vary from finish to medium and light rough cutting, and high feed rates.	P									
			M									
			K									
			N									
			S									
			H									
	WG-CT3	A finish low tensile material, medium and WG-CT3 thin general purpose cutting grade. Conventional edge wear resistance combined with very high strength for machining titanium, cast iron, nodularity, stainless steels, low tensile materials, wear resistant, and many high temperature alloys. Improved thermal shock resistance and depth of cut and/or resistance. The grade recommended as well controlled for continuous and heavy, which contributes to long, reliable tooling.	M									
			K									
			N									
			S									
			H									
	WG-CT7	A specially engineered, proprietary, robust unwrinkled substrate grade with thick [illegible] coating layers. An [illegible] layer of substrate grain size, and with layers of [illegible] and [illegible] maximum wear resistance. An excellent finishing to medium machining grade for a variety of workpiece materials including cast steels, ferritic and martensitic stainless steels, and cast irons. The specially engineered, robust unwrinkled substrate offers a balanced combination of deformation resistance and edge toughness, while the finish coating layers offer outstanding abrasion resistance and crater wear resistance for high speed machining. The specially coating provides good resistance to edge build up and wear chipping and produces excellent surface finishes.	P									
			K									
			N									
			S									
			H									
	WG-CT8	A tough, robust unwrinkled substrate grade with a newly designed multilayer of [illegible] Al_2O_3 TiCN PVD coating with superior interlayer adhesion. This is the material to beat. Ideal for carbide turning grade for most steels and tools, and materials, stainless steels. The substrate design, with robust wear resistance, resistance and grain structure combination, with excellent flank toughness and tool edge strength. The coating leaves the good wear resistance over a wide range of machining conditions. The combination of the coating tools to enhance thermal fatigue, resistance and chipping, and improves workpiece surface finishes.	P									
			K									
			N									
			S									
			H									

WIDIA

CM Cut-Off Medium

- Double-ended, V-bottom, and top, mechanically clamped
- Neutral, right-, and left-hand lead angles up to 15°
- Designed to increase speed and feed
- Chip geometry designed for excellent chip control and minimum cutting pressure on various materials

CM-W Cut-Off Medium with Wiper

- Wiper flats where surface finish is critical
- Double-ended, V-bottom, and top, mechanically clamped
- Neutral, right-, and left-hand lead angles up to 15°
- Designed to increase speed and feed
- Chip geometry designed for excellent chip control and minimum cutting pressure on various materials
- Ideal for 300 Series stainless steel, tool steel, titanium, INCONEL®, and other difficult-to-cut alloys at moderate speeds and feeds

PI Plunge, Groove, and Turn Inserts

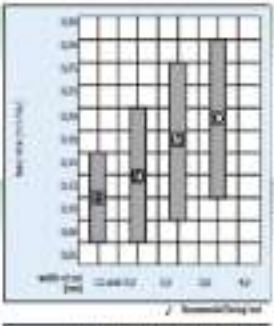
- High positive rake geometry for low cutting force, especially in soft materials
- Deep grooving and for plunge and turn (I.D. and face grooving operations)
- Delivers chip control over full range of D.O.C. when turning
- Cuts in both axial and radial directions

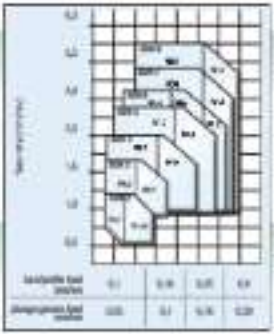
PC Grooving and Profiling Inserts

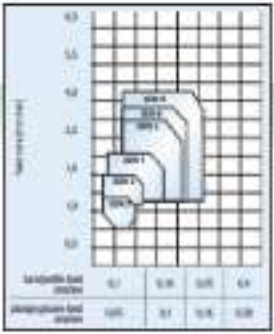
- Superior chip control
- Cell-inspiration geometry for plunge and contour operations
- Positive cutting edge geometry extends life for increased versatility

PN Plunge, Groove, and Turn Inserts

- Excellent performance in greater than 30 HRC
- Deep grooving and for plunge and turn (O.D. and face grooving operations)
- Delivers chip control over full range of D.O.C. when turning
- Delivers superior chip control in interrupted cuts







Material Group		Cutting Speed – m/min														
		WM10CT			WM15CT			WM25CT			WM40CT			WM50CT		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
K	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
S	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	4	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
H	1	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	2	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
	3	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–
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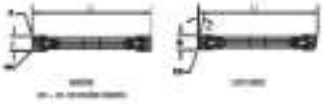
WIDIA



■ WMT-CM

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WMT™ CIP — continued

right-hand

| catalogue number | insert size | W | OL | LL | MT | hand | | |

WIDIA

WMT-CM-W

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catalogue number	inscribed circle	W	OD	L	gb	hand	WMT-CM-W	WMT-CM-W-F	WMT-CM-W-M	WMT-CM-W-P
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WMT+ CWMP — continued

Right hand

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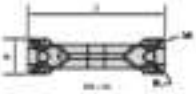

■ WMT-U-PF • Moulded

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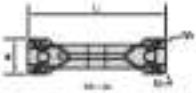

■ WMS P-PT • Precision

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WIDIA

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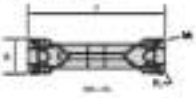

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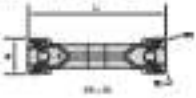

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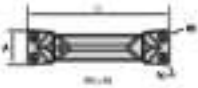

■ WMT-U-PM • Moulded

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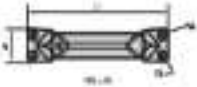

■WMT P-PM • Positive

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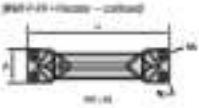

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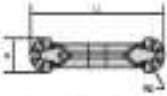

■ WMT-U-PC • Moulded

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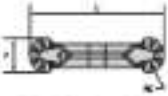

■ WMT-P-RC • Precision

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NOVO KNOWS SEARCH

Searching for a tool by using the outdated method of a catalogue has been replaced with the Advise and Select functions from NOVO™ — saving you time and money.

ADVISE

Uses a rules-based approach to provide cutting tool recommendations:

- Define Machining Features (face milling, slotting, blind hole, etc.)
- Apply Constraint Requirements (geometric, material, tolerance, etc.)
- Set Machining Sequence (single or multi-step operations, rough then finish, etc.)
- Deliver Desired Results

SELECT

A method of selecting cutting tools from a tree structure via a hierarchy or parametric search.

- If you know which product you are looking for, a quick search can be performed by just the catalogue number or product description.
- Smart filters significantly reduce the amount of potential tooling solutions.
- After the tool is selected, NOVO also provides cutting and adaptor tool options that fit with your solution.

NOVO can ensure you have the right tools on your machines, in the right sequence, resulting in flawless execution that accomplishes every job, and maximizes every shift. **widia.com/novo**

WIDIA

WMT System

Our WMT toolholders now have a small new naming system. Here are some examples of the improved nomenclature for our WMT toolholders.

Integral Toolholders

WMT	B	R	2525	M	3	13	—	038-052
Tooling Symbols	Tool Style	Hand	Shank Size	Tool Length	Seat Size	Max Grooving Depth		Face Grooving Diameter
WMT – Widia and Euro Wheel Tooling	B – Straight G – Straight with circular support D – Cross-head A – Straight, face grooving, center in K – Straight, face grooving, center out	R – Right hand L – Left hand	Height x Width in mm	K – 100 J – 110 E – 125 L – 160 M – 200 P – 250	1 2 20 3 4 5 6 8	13 mm to 1mm	0 mm – 0 mm or blank R e.g. 1L – 0.01 – Tolerance 0 mm (0.01 mm Grooving)	Dimensions are metric and based the center frame grooves diameters with – indicated 0 center

Modular Blades

WMT	WGM	R	3	16	B	070-100
Tooling Symbols	Connection Type	Hand	Seat Size	Max Grooving Depth	Tool Style	Face Grooving Diameter
		R – Right hand L – Left hand			R – Center in K – Center Out	

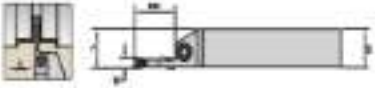
WIDIA VICTORY

Modular Toolholders

WGM	S	R	2525
Boring System	Tool Style	Hand	Shank Size
WGM: Modular Boring System	S: Straight E: End mount	R: Right hand L: Left hand	

Integral Boring Bars

A	25	R	WMT	E	R	03	16	M
Face Bar with Coolant	Bar Diameter	Bar Length	WMT™ Carbide Bar System	Tool Style	Hand	Insert Size	Max Cutting Depth	Insert Holder
				E: ... recommended (EP)	R: Right hand L: Left hand			R: Right M: Metric



O.D. Grooving and Cut-Off

order number	catalogue number	shank size	W	H	R	DD	F	DB	L1	L2	clamp screw	clamp screw
right hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
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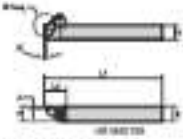
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]

(continued)

(1.5) Grooving and Cut-Off — (continued)

order number	catalogue number	insert size	W	H	B	LU	F	RE	LF	LE	Coolant screw	Coolant screw
Left hand												
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]

WIDIA



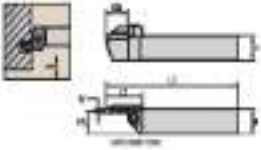
■ Swiss Grooving and Cut-Off • Metric

order number	catalogue number	[illegible]	W	H	B	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
right hand											
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	3.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	4.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	5.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	6.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	7.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	8.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	10.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	12.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	15.0	11	[illegible]
[illegible]	[illegible]	1.5	1.26	12.0	11.7	11.8	3.0	22	5.0	13	[illegible]
left hand											
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	3.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	4.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	5.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	6.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	7.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	8.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	10.0	11	[illegible]
[illegible]	[illegible]	1	1.00	10.0	10.0	10.0	3.0	16	12.0	11	[illegible]
[illegible]	[illegible]	1.5	1.26	12.0	11.7	11.8	3.0	22	5.0	13	[illegible]

NOTE: Insert contact edge is the left toolholder edge for right hand and right hand toolholders.

Upgrade to our latest style cut-off inserts for use in the above style toolholders.
These holders can be used in many machines including Citizen, Cincinnati, Tornquist, and Tsugami/CNCCS.

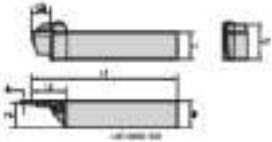
Insert Width	Lead Angle	Old Manufacturer Catalogue Number	Old Manufacturer Grade	WMT Cut-Off Insert	WMT Insert Grade	WIDIA™ Order Number
1.0mm	Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.0mm	Right - 5°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.0mm	Right - 10°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1.0mm	Left - 5°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.0mm	Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.0mm	Right - 5°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.0mm	Right - 10°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.0mm	Left - 5°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2.0mm	Left - 10°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.0mm	Neutral - Coarse	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.0mm	Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.0mm	Right - 5°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.0mm	Right - 10°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3.0mm	Left - 10°	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



■ Curve Out

order number	catalogue number	insert size	W	G	B	FS	CD	D max	D min	OD	L1	L2	clamp	clamp screw
right hand														
2024A01	[illegible]	3	3.20	24.0	24.0	20.0	10	10	16	10	100	24	–	6100[illegible]
2024A02	[illegible]	3	3.20	24.0	24.0	20.0	16	15	20	10	100	24	–	6100[illegible]
2024A03	[illegible]	3	3.20	24.0	24.0	20.0	16	19	25	10	100	24	–	6100[illegible]
2024A07	[illegible]	3	4.20	32.0	24.0	20.0	16	20.5	30.5	10	100	27	–	6100[illegible]
2024A08	[illegible]	4	4.20	24.0	24.0	20.0	12	20	30	10	100	24	–	6100[illegible]
2024B05	[illegible]	3	4.20	24.0	24.0	20.0	16	15	20	10	100	24	–	6100[illegible]
2024B10	[illegible]	4	4.20	24.0	24.0	20.0	16	20.5	30.5	10	100	27	–	6100[illegible]
2024G01	[illegible]	3	3.20	24.0	24.0	20.0	16	15	20	10	100	24	4[illegible]	6100[illegible]
2024G02	[illegible]	3	3.20	24.0	24.0	20.0	16	19	25	10	100	24	4[illegible]	6100[illegible]
2024G03	[illegible]	3	3.20	24.0	24.0	20.0	16	20.5	30.5	10	100	24	4[illegible]	6100[illegible]
2024G07	[illegible]	4	3.20	24.0	24.0	20.0	16	20	30	10	100	24	4[illegible]	6100[illegible]
2024H1	[illegible]	3	3.20	24.0	24.0	20.0	16	20.5	30.5	10	100	27	4[illegible]	6100[illegible]
2024H2	[illegible]	4	3.20	24.0	24.0	20.0	16	20.5	30.5	10	100	27	4[illegible]	6100[illegible]
left hand														
2024A2	[illegible]	3	3.20	24.0	24.0	20.0	12	10	16	10	100	24	–	6100[illegible]
2024A4	[illegible]	3	3.20	24.0	24.0	20.0	16	15	20	10	100	24	–	6100[illegible]
2024A5	[illegible]	3	3.20	24.0	24.0	20.0	16	19	25	10	100	24	–	6100[illegible]
2024A8	[illegible]	3	3.20	24.0	24.0	20.0	16	20.5	30.5	10	100	27	–	6100[illegible]
2024B0	[illegible]	4	4.20	24.0	24.0	20.0	12	20	30	10	100	24	–	6100[illegible]
2024B7	[illegible]	4	4.20	24.0	24.0	20.0	16	15	20	10	100	24	–	6100[illegible]
2024B8	[illegible]	4	4.20	24.0	24.0	20.0	16	19	25	10	100	24	–	6100[illegible]
2024T1	[illegible]	4	4.20	24.0	24.0	20.0	16	20.5	30.5	10	100	27	–	6100[illegible]
2024G2	[illegible]	4	4.20	24.0	24.0	20.0	16	20	30	10	100	24	4[illegible]	6100[illegible]
2024H4	[illegible]	3	3.20	24.0	24.0	20.0	16	15	20	10	100	24	4[illegible]	6100[illegible]
2024H5	[illegible]	3	3.20	24.0	24.0	20.0	16	19	25	10	100	24	4[illegible]	6100[illegible]
2024H8	[illegible]	4	4.20	24.0	24.0	20.0	16	20	30	10	100	24	4[illegible]	6100[illegible]
2024H9	[illegible]	4	4.20	24.0	24.0	20.0	16	20.5	30.5	10	100	27	4[illegible]	6100[illegible]

NOTE: Width of tool must be between 2 mm and 3 mm. Due to the insert being overhung, 1.5mm above mins, minimum diameter after turns is 11.5mm.
Toolholders that accept 3mm and 4mm width inserts have an integral clamp.
Toolholders that accept 3mm and 4mm width inserts are supplied with a detachable clamp.



■ Carbo-Ix

order number	catalogue number	shank size	W	H	B	FD	DD	D max	D min	KD	H1	L2	clamp	clamp screw
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]

NOTE: Initial cut of tool must be perpendicular to axis and D max. Due to the tool being positioned in Z, 2mm down cutting, minimum diameter drilled initial cut is 12.0mm.
Toolholders that accept 2mm and 4mm width inserts are integral clamp.
Toolholders that accept 6mm and 8mm width inserts are supplied with a detachable clamp.

I.D. Boring Bars

Order number	Catalogue number	Insert size	W	F	CCC	D	D max	LF	A	Library name	Size
Right hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Left hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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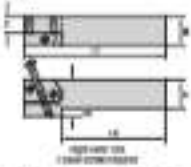
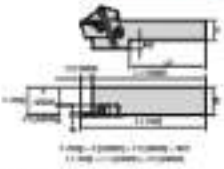
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]





■ Straight Mount • Grooving, Cut-Off, and Face Grooving

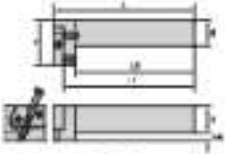
Order Number	Catalogue Number	B	H	L1	L2	F	RE	Blade Screw	Torx for Blade Screw	Clamp Screw	Torx for Clamp Screw
Right Hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]
Left Hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]

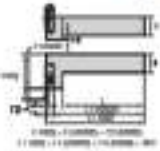
NOTE: [illegible]

Toolholder Style	Hand of Holder	Hand of Blade
WSMR – Straight Mount	Right	Right
	Left	Left
WSML – Left Mount	Right	Left
	Left	Right

Grooving and Cut-Off Blades
Hand of page [illegible]

Face Grooving Blades
page [illegible]





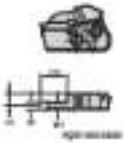
■ End Mount • Grooving, Cut-Off, and Face Grooving

Order Number	Catalogue Number	B	D	L	L1	L2	T	DB
Right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
Left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–

Toolholder Style	Hand of Holder	Hand of Blade
[illegible] – Straight Mount	Right	Right
	Left	Left
[illegible] – End Mount	Right	Left
	Left	Right

Grooving and Cut-Off Blades
Insert on page [illegible]

Face Grooving Blades Insert on
page [illegible]

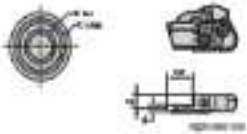


■ Grooving and Cut-Off

order number	catalogue number	insert size	CW	W	FS	RN
right hand						
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]
left hand						
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: [illegible]

Toolholder Type	Hand of Holder	Hand of Blade
[illegible] – Straight Mount	Right	Right
	Left	Left
[illegible] – Left Mount	Right	Left
	Left	Right



Face Grooving

order number	catalogue number	insert size	D min	D max	D1	W	F1
right hand							
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Shank and clamp screw torque equals 4 in-lbs.

Toolholder Style	Hand of Holder	Hand of Blade
WGMR – Straight Mount	Right	Right
	Left	Left
WGML – Left Mount	Right	Left
	Left	Right

WIDIA™ TopGroove™ for Shallow Grooving and Face Grooving

TopGroove

WIDIA has set the industry standard for threading and grooving productivity with the TopGroove clamping design. The TopGroove design provides consistent tool performance, accurate indexing, and superior clamping to provide excellent surface finish and outstanding tool life.

Let us help you select the correct insert for your application needs or upgrade your current TopGroove tooling inventory to include chip control geometries and the high productivity grades available from WIDIA.

Rigidity, Versatility, and Chip Control

- TopGroove clamping design features a rugged hinge clamp, which locates in a groove moulded into the insert to provide superior resistance to axial and radial cutting forces.
- TopGroove inserts are available for shallow grooving, deep grooving, light turning, profiling, shallow and deep face grooving, back turning, undercutting, and Poly-Vee grooving.
- The proprietary WIDIA chip control design works in multi-directional turning as well as radial tool applications to provide excellent chip evacuation in deep grooving applications.

Right clamping generates holding force in three directions to hold inserts in place through the toughest cuts

Carbide Grades and Proven Solutions for High Productivity

- The TopGroove system has a carbide grade to match your application needs that include uncoated grades, PVD-coated grades, CVD-coated grades, and advanced material grades, including cermets, ceramics, PCBNs, and PCDs (as custom solutions).
- PVD TiAlN coated grades are designed to cut a variety of workpiece materials.
- Versatile design enables one system to handle O.D. and I.D. grooving, face grooving, blank forming, undercutting, and even threading operations.

The Most Advanced Turning Solutions in the Industry

Perfect for shallow grooving operations, the WIDIA™ TopGroove clamping system provides a complete line of grooving geometries and an extensive grade selection to meet even the most demanding application requirements. For increased rigidity, versatility, chip control, and reliable grade options, the TopGroove clamping system is the proven solution.

With maximum clamping rigidity and superior versatility, TopGroove inserts employ a unique line-into-chip control geometry that efficiently evacuates chips and produces better quality parts, faster than ever before.

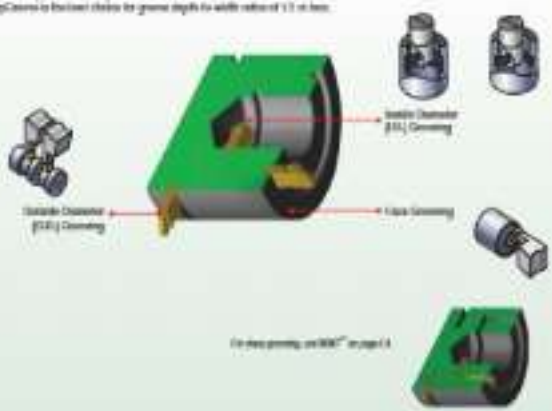
Utilize this comprehensive, easy-to-use guide for the information necessary to identify, choose, and select the appropriate cutting tools to your specific needs.

What you need to know:

- Material being machined
- Groove depth, width, and profile
- Application to be performed (face, O.D., or I.D. grooving)
- Indexable requirements (e.g. KM™, CHAMFER™, square shoulder, right/left)

1 Choose the application to be performed:

Groove depth, width, and profile.
TopGroove is the lower choice for groove depth to width ratios of 1:1 or less.



For deep grooving, see WIDA™ on page 4

TopGroove™ for Internal, External, and Face Grooving Applications

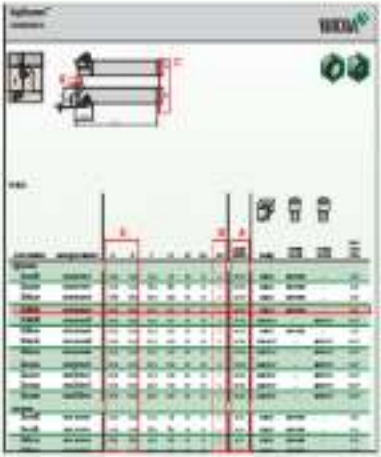
Insert capabilities			minimum	maximum
	I.D./O.D. Grooving	width	0.50mm	6.35mm
		depth	–	6.35mm
	Face Grooving	width	2.1mm	6.35mm
		depth	–	6.35mm
	Internal Grooving	diameter	13.0mm	–
	Face Grooving diameter	minimum	20.0mm	–
		drop	–	–
	Deep I.D./O.D. Grooving	width	1.00mm	6.35mm
		depth	–	12.7mm
	Deep Face Grooving	width	2.10mm	6.35mm
		depth	–	6.35mm

2 Identify the material to be machined.

Each tool has a material grid marked with a letter indicating the materials that can be machined.

3 Select your toolholder based on the application:

A. Choose the appropriate gage insert (width) required for the application.
B. Choose the shortest cutting depth "C/D" dimension for increased tool rigidity.
C. Select the largest toolholder shank "G" and "H" dimensions for maximum rigidity.



		application	conventional toolholders	modular blades
		[illegible]	[illegible]	–
		[illegible]	[illegible]	–

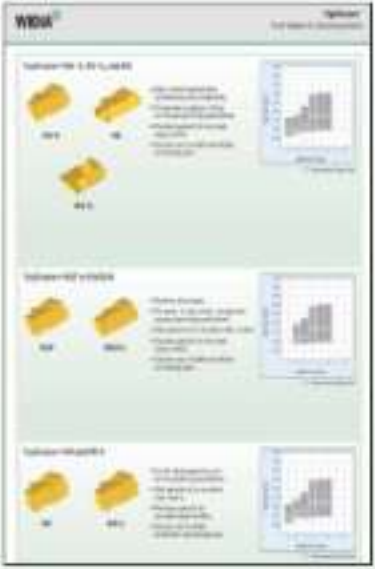
WIDIA

4. Select chipbreaker style for the application:

See application guide on page 140 for a complete list of insert styles.

NOTE: Chart shows recommended starting feed rates.

See page 139.



5. Choose the appropriate insert width "W" for your specific application.
6. Select the required corner radius value "r".

2. Select grade:

Cutting Conditions		Recommended Grades					
		Steel	Stainless Steel	Cast Iron	Non-Ferrous Metals	High-Temp Alloys	Hardened Materials
smooth cut, pre-turned surface		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
varying depth of cut, casting or forging skin		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
lightly interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
heavily interrupted cut		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

See page [illegible] for Grades and Grade Descriptions

6. Determine cutting data:

- Consult recommended group and grade, identify starting speed (sfm).
- Find closest starting speed in table.

See page [illegible] for cutting data.

TopGroove Insert Identification System

N	G	D	2	M	150	R		K	
Type of Insert	Insert Type	Additional Information	Insert Size	Size Identification	Groove Size**	Hand of Insert	Cutting Depth	Chipbreaker Design	Indication of Inserts

N – TopGroove

G
- G – Deep Groove Turning
- F – Face grooving
- D – Grooving
- P – Shell turning
- R – Full radius
- U – Undercutting (on request)
- V – Poly-flat

D
- D – Deep grooving
- R – Radius
- C – Groove and chamfer

2 – Insert Size

Insert number	W mm
1	0.50
2	0.61
3	0.75
4	0.85
5	0.95
6	0.15

M
- M – Metric insert groove width
- C – Cutting groove insert width in inches/ circular mm
- Blank – Indicates inch metric insert

150 – Groove Size**

R
- L – Left hand
- R – Right hand

Cutting Depth – Shown by groove and chamfer depth in (1) mm dimensions.

K
- K – Standard chip control
- A – Open chip

Position pockets by groove width for 1 – 6 – and 5 – open chipcontrol, suitable for 6 mm grooving inserts, and turning inserts for groove width. Chamfer inserts. Dimensions in (1) mm.
Example: 1) 3 mm width groove or radius: requires "1003" catalogue position number.
Metric Tolerance: +0.25 mm unless otherwise specified.

Indication of Inserts
- Groove size 2 or 3 – Poly-flat inserts
- 1 – Internal turn grooving

Chip Control – Indicates chip control.

*Chip position for TopGroove NK-type inserts.

TopGroove/TopThread Threading and Grooving Insert Dimensions

Insert size	D		W	
	mm	inch	mm	inch
1	3.04	.119	0.50	.020
2	3.55	.140	0.61	.024
3	4.76	.188	0.85	.033
4	11.51	.453	0.94	.037
5	11.46	.451	0.95	.037
6	11.51	.453	0.71	.028
8	3.80	.149	11.10	.436

TopGroove/TopThread Holder Design

NOTE: Holders are designed to locate insert bottom to 0° to provide back clearance (see right side).

WIDIA® TopGroove and Top Thread® tooling technology continues to bring you the very best threading and grooving system available on the world today.

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

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

wear resistance ← → toughness

Coating	Grade Description		05	10	15	20	25	30	35	40	45
TiAlN PVD WC-030	An advanced TiAlN PVD coating over a very fine-micrograin cemented carbide substrate. This is an ideal for finishing to general machining of most workpiece materials at higher speeds. Excellent for machining steel, steels, stainless steels, cast iron, non-ferrous materials, and super alloys under stable conditions. It also performs well machining hardened and short chipping materials.	P									
		M									
		K									
		N									
		S									
		H									
TiAlCrN PVD WC-035	An advanced TiAlCrN PVD coated grade with a tough, ultra fine grain cemented substrate. For general purpose machining of mild steels, stainless steels, high-temp alloys, titanium, iron, and non-ferrous materials. Speeds may vary from low to medium and will handle interruptions and high feed rates.	P									
		M									
		K									
		N									
		S									
		H									
TiCN PVD WC-110	Coated carbide. ANSI/B212.20 — ISO 513 K_{10}, K_{15}, K_{20}. Very wear resistant. Light and medium machining. For steels and ductile cast iron.	P									
		M									
		K									
		N									
		S									
		H									
Uncoated WC-K10	Uncoated carbide. For machining good balance of hardness, wear resistance, edge stability and toughness. Light and medium machining. For cast iron and all non-ferrous metals and non-metals. Stable to unfavorable conditions.	P									
		M									
		K									
		N									
		S									
		H									

Insert style	Application	Cutter angle	Page(s)
[illegible]	• General purpose face grooving • Cross grooving • Center grooving	neutral	[illegible]
[illegible]	• Chip control geometry • General purpose grooving • Cross grooving • Center grooving • Light turning	[illegible] positive	[illegible]
[illegible]	• Combined grooves and chamfered edge cuts in one pass, always with chip control • Designed for Clip-X-Mini chamfered circlip grooves	[illegible] positive	—
[illegible]	• Deep grooving	neutral	—
[illegible]	• Chip control geometry • Deep grooving • Light turning	[illegible] positive	[illegible]
[illegible]	• General purpose grooving • Cross grooving • Center grooving	[illegible] positive	[illegible]
[illegible]	• Face grooving • Additional side chamfers	neutral	—
[illegible]	• Face grooving with chip control • Additional side chamfers	[illegible] positive	[illegible]
[illegible]	• Deep face grooving with chip control • Additional side chamfers	[illegible] positive	[illegible]

Insert style	Application	Cutter angle	Page(s)
[illegible]	• General face face grooving with chip control • For cross turning back to internal face grooves	[illegible] positive	—
[illegible]	• Turning • Deep turning grooves • Profiling with chip control	[illegible] positive	[illegible]
[illegible]	• Full radius grooving • Turning and profiling	neutral	[illegible]
[illegible]	• Chip control geometry • Full radius grooving, turning and profiling	[illegible] positive	[illegible]
[illegible]	• Deep grooving • Full radius cut-off	neutral	[illegible]
[illegible]	• Full radius grooving • Light turning/profiling	[illegible] positive	—
[illegible]	• Undercutting	neutral	—
[illegible]	• Deep face grooving	neutral	—
[illegible]	• Circlips • Circlips for deep grooving • Available in uncoated grade only	—	[illegible]

*Inserts are available as carbide inserts.

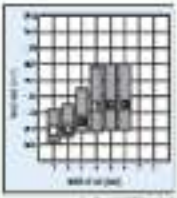
TopGroove • NG-K, NG-1L, and NG

NG-K

NG

NG-1L

- Chip control enables true optimization and productivity
- For general purpose, O-ring, and circlip grooving applications
- Precision ground for accurate edge location
- Can be used in both toolholders and boring bars



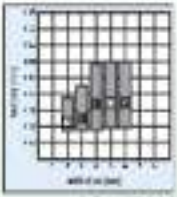
1 Recommended Grooving Tool

TopGroove • NGP and NGD-K

NGP

NGD-K

- Positive rake angles
- For deep, O-ring, circlip, and general purpose grooving applications
- Chip geometry for excellent chip control
- Precision ground for accurate edge location
- Can be used in both toolholders and boring bars



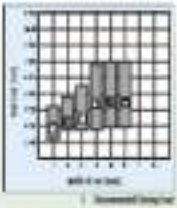
1 Recommended Grooving Tool

TopGroove • NR and NR-K

NR

NR-K

- For full radius grooving and turning profiling applications
- Chip geometry for excellent chip control
- Precision ground for accurate edge location
- Can be used in both toolholders and boring bars



1 Recommended Grooving Tool

Material Group		Cutting Speed – m/min											
		TA8204			TA8203			TA7210			TA8		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	01	140	175	210	130	140	150	160	175	200	90	95	100
	2	110	140	170	110	140	170	170	200	210	70	100	120
	3	110	140	170	110	140	170	170	200	210	70	100	120
	4	75	100	125	75	90	110	110	140	175	50	60	80
	5	60	80	100	60	80	100	100	130	200	70	80	90
	6	40	50	70	40	50	60	60	80	100	40	40	40
M	1	90	110	140	80	70	60	–	–	–	60	70	80
	2	50	70	90	40	50	60	–	–	–	40	50	70
	3	40	50	60	40	40	40	–	–	–	40	30	30
K	1	110	130	160	80	90	90	170	200	270	70	90	100
	2	110	140	160	60	70	80	140	170	200	50	60	80
	3	110	140	170	60	70	80	140	200	200	60	70	80
N	1	600	750	900	500	700	900	–	–	–	500	700	900
	2	500	600	800	500	600	800	–	–	–	500	600	800
	3	500	600	800	500	600	800	–	–	–	500	700	800
	4	500	600	800	500	600	800	–	–	–	500	600	800
	5	70	80	110	70	80	110	–	–	–	200	200	210
	6	400	500	600	400	500	600	–	–	–	500	500	500
	7	500	700	900	500	700	900	–	–	–	500	500	500
S	1	30	40	50	30	30	30	–	–	–	20	30	40
	2	30	30	30	30	30	30	–	–	–	30	30	30
	3	50	70	80	40	50	70	–	–	–	30	30	30
	4	30	35	40	30	30	30	–	–	–	30	30	30
H	1	30	30	40	30	30	30	–	–	–	30	30	30
	2	30	30	40	30	30	30	–	–	–	30	30	30
	3	30	30	40	30	30	30	–	–	–	30	30	30
	4	30	30	40	30	30	30	–	–	–	30	30	30

■ NC • Grooving Inserts

catalogue number	insert size	W	RE	L	[illegible]	[illegible]	[illegible]
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

continued

NG – Grooving Inserts – continued

right-hand insert shown, left-hand insert is mirror image

ordering number	insert size	W	DD	T
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ NG-11, • Grooving Inserts

ordering number	insert size	W	DD	T	cutting edges
left-hand					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

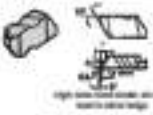
NOTE: Width tolerances +/- 0.2 from all NG-11 inserts

■ NG-K • Grooving Inserts with Chip Control

| catalogue number | insert size | W | lg max | RE | T | | |

WIDIA

(Ø)-X • Grooving Inserts with Chip Control — (continued)



| catalogue number | insert size | W | Rp max | DC | T | [illegible] | [illegible] | [illegible]

[illegible] – Grooving Inserts with Chip Control — Continued

[illegible]

[illegible]

[illegible]	[illegible]	W	Rp max	RE	T	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	0.[illegible]	1.[illegible]	0.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	0.[illegible]	1.[illegible]	0.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	0.[illegible]	1.[illegible]	0.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	5	0.[illegible]	1.[illegible]	0.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	5	0.[illegible]	1.[illegible]	0.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	3	0.[illegible]	2.[illegible]	0.[illegible]	0.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Continued

WIDIA

(W-X • Grooving Inserts with Chip Control — continued)

right-hand tool holder, left-hand tool holder

• Not Stock
○ Indicates Stocks

Catalogue number	Insert size	W	Rp max	DC	T						
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(continued)

[illegible] – Grooving Inserts with Chip Control — continued

catalogue number	insert size	W	tip radius	RE	T	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WIDIA

(W-X • Grooving inserts with Chip Control — continued)

right-hand insert shown, left-hand insert is also available

• Not shown
○ Available shortly

| Ordering number | Insert size | W | Ap max | OD | T | | |

[illegible] – Grooving Inserts with Chip Control — continued

Catalogue number	Insert size	W	Top radius	RE	T	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ N123-K • Deep Grooving Inserts with Chip Control

| catalogue number | insert size | W | lg max | BD | T | cutting edges | | |

[illegible]

[illegible]

catalogue number	insert size	W	fig. max	RE	r	cutting edge	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

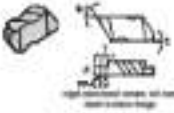
(continued)

WIDIA

WGI-4 • Deep Grooving Inserts with Chip Control — continued

Right-hand tool holder shown, left-hand tool holder mirror image

Cartridge number	Insert size	W	Dg max	RE	r	Left/Right hand	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	[illegible]	[illegible]



■ NCP • Grooving Positive Rake Inserts

Catalogue number	Insert size	W	RE	F			
right hand							
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(continued)

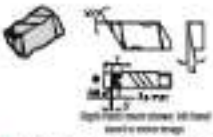
(N.J = Grooving Positive Side Inserts – continued)

Right hand insert shown, left hand inserts mirror image.

● first choice
○ alternate choice

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

catalogue number	insert size	W	HR	T	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	2	1.00	0.10	0.19	[illegible]	-	[illegible]
[illegible]	3	1.50	0.10	1.00	[illegible]	-	[illegible]
[illegible]	2	1.57	0.10	0.19	[illegible]	-	-
[illegible]	2	2.00	0.10	0.19	[illegible]	-	[illegible]
[illegible]	3	2.00	0.10	0.19	[illegible]	-	[illegible]
[illegible]	2	2.00	0.10	0.19	[illegible]	-	[illegible]
[illegible]	3	2.00	0.10	0.27	[illegible]	-	[illegible]
[illegible]	2	3.00	0.10	0.19	-	-	[illegible]
[illegible]	3	3.00	0.10	0.27	[illegible]	-	[illegible]

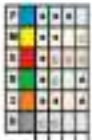


■ Best choice
□ Alternate choice

NF-K • Face Grooving Positive Rake Inserts

catalogue number	insert size	W	Ap max	RE	T				
right hand									
[illegible]	3	3.00	3.07	0.19	1.25	■	■	■	□
[illegible]	3	3.00	3.07	0.19	3.00	■	■	■	□
[illegible]	3	3.19	3.07	0.19	3.00	■	■	■	□
left hand									
[illegible]	3	3.00	3.07	0.19	1.25	■	■	■	□
[illegible]	3	3.00	3.07	0.19	3.00	■	■	■	□
[illegible]	3	3.19	3.07	0.19	3.00	■	■	■	□
[illegible]	3	3.00	3.07	0.19	3.00	■	■	■	□

Right hand insert shown; left hand insert is mirror image



■ first choice
□ alternate choice

■ NFD-K • Face Grooving Deep-Grooving Inserts

catalogue number	insert size	W	Ap max	D1	T	cutting edges	TX617	TX610	TX1101	TX1151
right hand										
NFD3000R	3	3.00	1.00	6.19	6.20	1	■	■	□	□
NFD3125R	3	3.18	1.00	6.19	6.20	1	■	■	□	□
NFD4000R	4	4.00	2.00	8.07	9.00	1	■	■	□	□
NFD4200R	4	4.20	2.00	8.07	10.00	1	■	■	□	□
left hand										
NFD3000L	3	3.00	1.00	6.19	6.20	1	■	■	□	□
NFD3125L	3	3.18	1.00	6.19	6.20	1	■	■	□	□
NFD4000L	4	4.00	2.00	8.07	9.00	1	■	■	□	□

Right hand insert shown; left hand insert is mirror image

■ NP-K • Profiling Inserts

catalogue number	insert size	W	D1	T	TX617	TX610	TX1101	TX1151
right hand								
NP3000R	3	3.00	6.20	3.30	■	■	□	□
NP4000R	3	4.00	6.20	3.80	■	■	□	□
NP4000R	3	4.00	6.20	3.80	■	■	□	□

All D1: Width tolerance is +/- 0.12mm

Right-hand insert shown; left-hand insert is mirror image

■ Best choice
□ Alternate choice

P	■	■	■		
M	■	■	■		□
K	■	■	□	□	□
N	■	■			■
S	■	■	■		■
H	□	□	□		

NR • Full Radius Inserts

catalogue number	insert size	W	RC	T					
right hand									
[illegible]	2	1.00	0.50	2.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	2	1.00	0.75	2.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	2	1.00	0.75	2.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	3	1.00	0.50	2.00	[illegible]	[illegible]	[illegible]	■	[illegible]
[illegible]	2	2.00	1.00	2.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	3	2.00	1.00	3.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	2	2.00	1.00	2.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	3	2.00	1.00	3.00	[illegible]	[illegible]	[illegible]	■	[illegible]
[illegible]	2	2.00	1.00	2.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	3	3.00	1.50	3.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	3	3.00	1.50	3.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	2	3.00	1.50	2.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	3	3.00	1.50	3.00	[illegible]	[illegible]	[illegible]	■	[illegible]
[illegible]	3	3.00	1.50	3.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	2	3.00	2.00	2.00	[illegible]	[illegible]	[illegible]	■	■
[illegible]	3	3.00	2.00	3.00	[illegible]	[illegible]	[illegible]	■	■

(continued)

[illegible] – continued

Right-hand insert shown. Left-hand insert is mirror image.

● first choice
○ alternate choice

catalogue number	insert size	W	CC	T	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	4.00	7.94	3.81	[illegible]	[illegible]	-	-
[illegible]	4	4.00	7.94	4.76	[illegible]	[illegible]	-	-
[illegible]	3	4.00	7.75	3.81	[illegible]	[illegible]	-	-
[illegible]	4	4.00	7.75	4.76	[illegible]	[illegible]	-	-
[illegible]	3	4.00	7.94	3.81	[illegible]	[illegible]	-	-
[illegible]	4	4.00	7.94	4.76	[illegible]	[illegible]	-	-
[illegible]	4	4.00	7.10	4.76	[illegible]	[illegible]	-	-
left hand								
[illegible]	3	1.00	6.00	3.17	[illegible]	[illegible]	[illegible]	-
[illegible]	3	1.00	6.75	3.76	[illegible]	[illegible]	-	-
[illegible]	3	1.00	6.79	3.79	[illegible]	[illegible]	-	-
[illegible]	3	1.00	6.79	3.38	[illegible]	[illegible]	-	[illegible]
[illegible]	3	1.00	1.00	3.79	[illegible]	[illegible]	[illegible]	-
[illegible]	3	1.00	1.00	3.38	[illegible]	[illegible]	-	-
[illegible]	3	1.39	1.19	3.79	-	[illegible]	-	-
[illegible]	3	1.39	1.19	3.81	[illegible]	[illegible]	-	[illegible]

(continued)

(WI • Full blade inserts — continued)

Right hand insert shown (left hand insert is mirror image)

■ Best choice
□ Alternate choice

| | | |

■ NR-K • Full Radius Inserts with Chip Control

Catalogue number	Insert size	W	Ap max	RE	r				
Right hand									
[illegible]	3	3.07	[illegible]	0.79	3.09	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	3.09	1.61	1.19	3.09	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	3.10	3.00	1.59	3.09	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	3.10	1.00	2.39	3.09	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	3.06	3.29	1.99	3.09	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	4.20	3.61	3.19	4.20	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	4.20	3.61	3.19	4.20	[illegible]	[illegible]	[illegible]	[illegible]
Left hand									
[illegible]	3	3.08	[illegible]	0.79	3.09	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	3.09	1.61	1.19	3.61	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3	3.10	3.00	1.59	3.61	[illegible]	[illegible]	[illegible]	[illegible]
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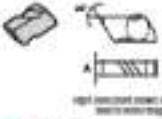
[illegible]	4	4.20	3.61	3.19	4.20	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	4.20	3.61	3.19	4.20	[illegible]	[illegible]	[illegible]	[illegible]

■ Best choice
□ Alternate choice

■ NRD + Full Radius Deep Grooving Inserts

catalogue number	insert size	W	L	cutting edge	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
right hand									
[illegible]	1	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	2	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand									
[illegible]	1	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



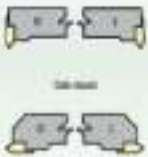
■ NG + Blanks

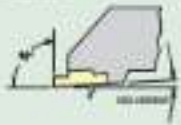
Catalogue number	Insert size	W				
Right hand						
[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]				
Left hand						
[illegible]	[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]				

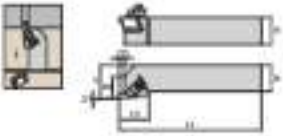
NOTE: All inserts are designed to allow modification of the W dimension and cut-in-from.
W dimension is provided for indicate maximum possible width.
Available in one carbide grades only.

TopGroove™
Holder Identification System

N	S	R		2525	M	4	
Insert Holding Method	Insert Mounting Location	Hand of Tool	Crop Head	Shank Size	Tool Length	Insert Size	Modified Surface and Length







■ NS

catalog number	catalogue number	H	B	F	L1	L2	W	CW	gauge insert	clamp	clamp screw	clamp screw	Seat Tech Plus
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
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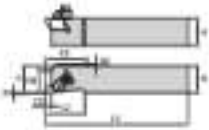
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CMS	[illegible]	–	T-15

NOTE: F dimensions measured one sharp point of insert.



■ R/S

order number	catalogue number	H	B	F	L1	L2	R1	L3	R2	L2	page number	clamp	clamp screw	clamp screw	torque Tmax Nm
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
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left hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	–	[illegible]
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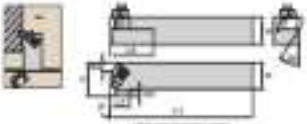
N.B.: [illegible]



NL

order number	catalogue number	H	B	F	L1	L2	L4	RR	LCF	grade	clamp	clamp screw	clamp screw	tool	
right hand															
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
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left hand															
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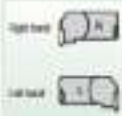
[illegible]

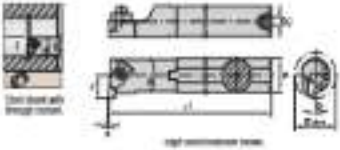
TopGroove
Boring Bar Identification System

A	25	R	N	N	T	0	R	2
Bar Type	Bar Diameter	Bar Length	Insert Holding Method	Insert Shape	Insert Location	Rake Angle	Hand of Tool	Insert Size



Insert Size	W
1	[illegible]
2	[illegible]
3	[illegible]
4	[illegible]
5	[illegible]
6	[illegible]
8	[illegible]

Metric Bars	
M	[illegible]
S	[illegible]
R	[illegible]
E	[illegible]
T	[illegible]
U	[illegible]



A NMT

order number	catalogue number	D	D min	L1	F	CD	grade	clamp	clamp screw	clamp screw	Seat/ Torx Plus
right hand											
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
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left hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]

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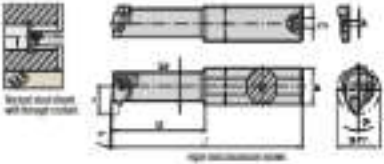
[illegible]



■ A-INVT-1

order number	catalogue number	D	D min	M	L1	L2	F	A	CS	screw driver	clamp	clamp screw	torque for screw
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Minimum bore capability varies with depth of groove. See pages [illegible] for details.
1 Dimension measured from clamp point of contact.

TopGroove™ Inserts: The Best Platform for Customization

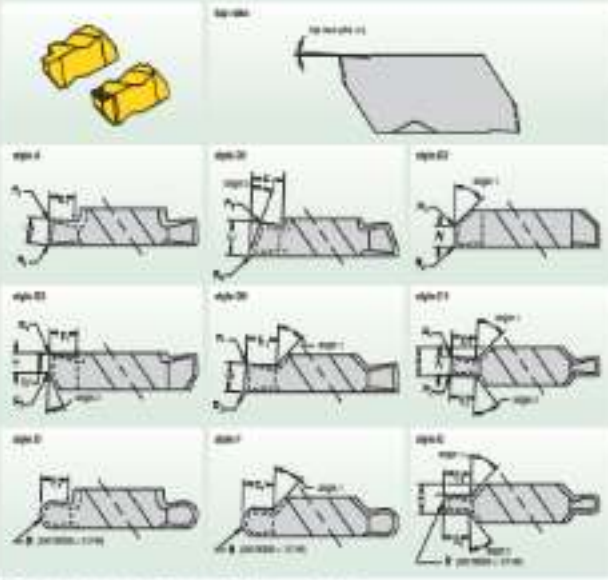
All TopGroove custom order inserts benefit from the superior rigidity of our TopGroove toolholder and clamping system. For added productivity, most custom inserts can be accomplished by the double-ended inserts.

Custom order inserts are with proven WIDIA™ carbide grade technology as the basis for optimizing tool performance. Positive top rake angles are also available in most inserts.

Gone are the old CAD enabling rapid development of your custom insert design. For convenience, a sample drawing is always available to facilitate engineering measurement of an insert.

There are multiple variations of the flat top TopGroove design. Additionally, chip control for the most common chipping shapes have optimization and efficiencies. With the choice of – and NO – side tool clearance as well. These blades can be used from ground for your new chip.

Whatever your special grooving requirements may be, WIDIA can provide an effective solution. We have the technical expertise, resources, and commitment to help you develop insert designs that satisfy your machining application demands.



NOTE: Common styles are shown here in right hand versions. Left hand versions are also available.

TopGroove Grooving Systems

Use this Custom Order Worksheet to modify or sending product to meet your specifications. If your custom requirements are not listed below categories, please contact your WIDIA™ Distributor.

Trust our experienced distributors and WIDIA engineering team to design the best solution for you.

Date

Customer Specified Dimensions

Edge (circle one): A A1 B B1 B2 C1 D F E

Orientation (circle one): left hand / right hand

Top Width: | Total Width (T):

Locking Width (W): | Angle 1:

Center Radius 1 (R1): | Angle 2:

Center Radius 2 (R2): | Offset (H):

Locking Depth (L1): | Other (please specify):

Special Instructions

(please make any necessary notes or sketches in the area at right)

Closest Catalogue Standard

Customer

Distributor

Shipping Requirements

Wanted Distributor, use this worksheet to collect information for your customer.

☐ [illegible] ☐ [illegible] ☐ [illegible] ☐ [illegible]

WA-OK Specials

W positive cutting action
- Grooving
- Face grooving

Insert catalogue number		width range W	corner radii range r_1 and r_2	X	Y	grades
right hand	left hand					
WG3-0-OK or WG3-0-OK	WG3-L-OK or WG3-L-OK	0,95–1,4 1,95–2,05	0,05–0,4 0,05–0,2	1,27 2,54	0,015	Carbide grades quality and coated See page D47
WG3-0-OK or WG3-0-OK	WG3-L-OK or WG3-L-OK	1,97–2,75 2,75–3,00 3,00–3,25 3,15–3,37 3,38–3,75 3,50–3,95 3,95–4,25 4,25–4,90 4,97–5,00	0,05–0,8 0,10–0,8 0,10–0,75 0,10–0,75 0,10–0,75 0,10–0,75 0,10–0,75 0,20–0,95 0,20–0,77	1,98 3,00 3,81 3,81 3,81 3,81 3,81 3,81 3,81	0,025	
WG4-0-OK or WG4-0-OK	WG4-L-OK or WG4-L-OK	3,24–3,75 3,80–3,90 3,90–3,97 3,97–4,00 3,98–4,11 3,98–4,50 4,50–4,80 4,80–5,10 5,21–5,50	0,10–0,80 0,10–0,75 0,10–0,75 0,10–0,75 0,10–0,75 0,10–0,75 0,20–0,77 0,20–0,95 0,20–0,97	3,81 3,81 3,81 3,81 3,81 3,81 4,32 4,32 4,32	0,025	

WG, GL, W, OK, WG3-OK, and WG4-OK inserts must be specified when the specifications listed in the above table.

Order example: W 3/4" OK W – 200,
P_1 – 210, P_2 – 210, grade WM40 D**

Unless otherwise specified, a standard tolerance of ±0,05mm on width W will be applied, and a standard tolerance of +0,05mm on radii r_1 and r_2 will be applied.

If deeper cutting depth D is required, please specify. Refer to the specifications drawing on chart for measurements for groove depths and minimum face groove diameters.

In addition to the guideline above, jet cutting face groove inserts may be applied. Under certain conditions, this control performance may vary from standard insert styles.

A-SK Specials

- [illegible] cutting edges
  - Deep grooving
  - Deep face grooving

Insert catalogue number						
right hand	left hand	width range W	corner radii range R_1 and R_2	A	T	grades
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Carbide grades, special quote required. See page [illegible]
or	or	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
		[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
or	or	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

*Cross cutting edge

[illegible] may be specified subject within the specifications listed in the above [illegible].

Order example: [illegible] ... [illegible] R_1 ... [illegible] R_2 ... [illegible] grade [illegible]*.

Unless otherwise specified, a standard tolerance of ±0.05mm on width (W) will be applied, and a standard tolerance of ±0.05mm on radii (R_1 and R_2) will be applied.

If deeper cutting depth is required, please specify. Refer to the application drawing and check for maximum tool groove depth and minimum face groove diameter.

In addition to the guidelines above, full radius face groove inserts may be quoted. Order certain conditions, chip control performance may vary from standard insert range.

C1-SK Specials

- Groove with chamfer

Insert catalogue number						
right hand	left hand	width range W	corner radii range R_1 and R_2	A	T	grades
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Carbide grades, special quote required. See page [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

NOTE: The above insert data is for simultaneous groove and chamfer operations with chip control.

TopGroove Toolholders and Boring Bars

Insert size and style	Clamp	Clamp screw	Wrench	Shim screw
KG-3	[illegible]	[illegible]	–	–
KG-3R	[illegible]	[illegible]	–	–
KG-4	[illegible]	[illegible]	–	–
KG-4R	[illegible]	[illegible]	–	–
KG-5	[illegible]	[illegible]	–	–
KG-5R	[illegible]	[illegible]	–	–
KG-6	[illegible]	[illegible]	–	–
KG-6R	[illegible]	[illegible]	–	–
KG-8	[illegible]	[illegible]	–	–
KG-8R	[illegible]	[illegible]	–	–
KG-10	[illegible]	[illegible]	–	–
KG-10R	[illegible]	[illegible]	–	–
KG-10R*	[illegible]	[illegible]	–	–
KG-10R**	[illegible]	[illegible]	–	–
KG-14	[illegible]	[illegible]	[illegible]	[illegible]
KG-14R	[illegible]	[illegible]	[illegible]	[illegible]
KG-20	[illegible]	[illegible]	–	–
KG-20R	[illegible]	[illegible]	[illegible]	[illegible]
KG-40	[illegible]	[illegible]	[illegible]	[illegible]
KG-40R	[illegible]	[illegible]	[illegible]	[illegible]
TopGroove radial grooving				
KG-[illegible]	[illegible]	[illegible]	–	–
KG-[illegible]	[illegible]	[illegible]	–	–
KG-[illegible]*	[illegible]	[illegible]	–	–
KG-[illegible]**	[illegible]	[illegible]	–	–
Utility forming				
KGU-40	[illegible]	[illegible]	–	–
KGU-4L	[illegible]	[illegible]	–	–

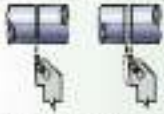
*Cross diameter during insert
**Turning insert

Grooving Tool Failure and Solution Guide

Practical Solutions to Common Grooving Problems

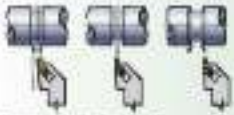
Holder Position for Grooving Operation

How to Cut a Groove Slightly Wider than the Groove Tool



1. Plunge the centre of the groove.
2. Plunge each side of the groove to get the specified width. Use a shower tool side when cutting groove sides.

How to Cut Wider Grooves



1. Plunge cut both sides of groove width.
2. Plunge centre area to remove rest of material remaining.
3. Plunge both sides of groove at the required angle, using approximately one-half the width of the grooving tool to maximum width of cut.

Finish Turning the Groove

1. Follow recommendations in printed inserts.
2. To avoid tool chipping and to achieve grooves well perpendicularly, follow the tool path outlined here.
3. Use the tightest depth of cut that still enables good chip surface finishing.

problem	solution
flat	1. Create tool center height 2. Use sharp tool (hone 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 work hardening material) 6. Chamfer before grooving 7. Change tool path
poor surface finish	1. Increase speed 2. Use sharp tool (hone more often) 3. Dwell tool in bottom 1-2 revolutions (zero) 4. Use proper chip control geometry 5. Increase coolant flow/concentration 6. Ensure proper setup (overhang, check rigidity) 7. Use correct geometry (e.g., positive rake for work hardening material)
groove bottom finish not flat	1. Use sharp tool (hone more often) 2. Dwell tool in bottom 1-2 revolutions (zero) 3. Reduce feed (overhang increases rigidity) 4. Ensure correct tool alignment 5. Reduce feed rate at groove bottom 6. Use a wiper insert 7. Ensure tool center height
poor chip control	1. Use "R" chip control geometry insert 2. Use sharp tool (hone more often) 3. Increase coolant concentration 4. Adjust feed rate (usually increase feed)
chatter	1. Reduce tool and workpiece overhang 2. Adjust speed and feed (usually increase feed) 3. Ensure center 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
side walls not straight	1. Check tool alignment for square 2. Use correct insert blade 3. Reduce workpiece and tool overhang 4. Use sharp insert (hone more often)

Machining Guidelines for Chip Control • Grooving

When the proper cutter diameter is not available, proper cutter positioning will correct positive results.

- Centre height of insert should be positioned at the centre of the workpiece or up to 0.1 (.004) above.
- Bend lines in the bottom of the groove (seen from three sides) are not recommended.
- Chip control is hard wire related and should be adjusted to fit the particular situation. The recommended feed range is 0.05–0.3 mm/rev.

Machining Guidelines for Chip Control • Turning/Profiling

Maximum depth of cut for side cutting (turning/profiling) depends on the material being cut and the width of the tool.

- 0.79–1.2mm wide insert can cut up to 1.5mm deep.
- 1.7–2.2mm wide insert can cut up to 4mm deep.
- 2.5–4.2mm wide insert can cut up to 6mm deep.
- 5–6.2mm wide insert can cut up to 8mm deep.

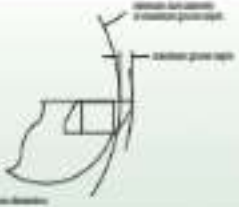
Groove / width		
Insert catalogue number	maximum (diametral) groove depth mm	minimum bore diameter mm
MC-1006	1.4	15.00
–	1.8	11.00
MC-0203.0	1.7	16.00
MC-0204.0	–	–
MC-0404.0	–	–
MC-0503.0	–	–
–	2.75	16.00
MC-0505.0	3.50	16.00
MC-0506.0	3.00	18.00
MC-0508.0	3.00	19.00
–	1.00	18.00
MC-0404.0	–	–
MC-0605.0	3.00	19.00
MC-0605.0	3.75	21.00
MC-0606.0	1.00	24.00
MC-0606.0	–	–
MC-0606.0	–	–
MC-0606.0	3.00	40.00
MC-0606.0	–	–
MC-0606.0	3.00	50.00
MC-0606.0	–	–
MC-0606.0	3.00	21.00
MC-0606.0	–	–
MC-0606.0	3.75	30.00
MC-0606.0	–	–
MC-0606.0	3.00	30.00
–	3.00	90.00
MC-0606.0	3.00	97.00
MC-0606.0	3.00	114.00
MC-0606.0	3.00	40.00
MC-0606.0	3.00	50.00

NOTE: The same maximum groove depth and minimum bore diameter values also apply to inserts MC-A (chip control) and MC-B (profiling) inserts of similar size. The same internal grooving depth limits are a function of the minimum bores bore diameter.

Finish Turning the Groove

1. Plunge both sides of groove width.
2. Plunge cutter away to remove web of material remaining.
3. To avoid insert chipping, use to achieve groove wall perpendicularity. Follow the tool path outlined.
4. Use the tightest depth of cut that still allows good chip/breaking, tool life, and surface finish.

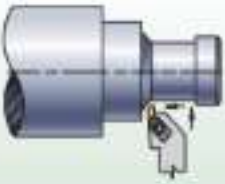
Internal Groove Depth versus Bar Interference



NOTE: Internal grooving depth limits are a function of bar diameter or minimum bore diameter.

Machining Guidelines for Back Turning/Turning/Profiling

[illegible]



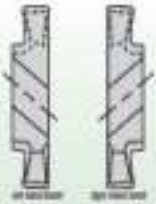
Machining Guidelines for Using TopGroove Deep Grooving Inserts (N123)

Typically, Kennametal N123 and N143 style inserts with two cutting edges require no machine offset changes. However, these inserts with only one cutting edge do require offset changes. Refer to the chart here to ensure proper offset adjustments.

Insert Catalogue Number	[illegible] Dimension mm	[illegible] Dimension mm
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

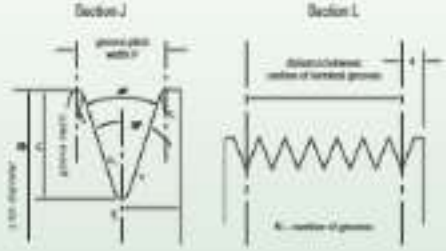
TopGroove Insert Selection Guide

- All TopGroove inserts are precision ground to provide accurate edge location and insure locking of the insert in the toolholder pocket.
- TopGroove inserts can be used in either toolholders or boring bars.
- Right-hand TopGroove toolholders use right-hand inserts. Left-hand TopGroove toolholders use left-hand inserts.
- Right-hand TopGroove boring bars use left-hand inserts. Left-hand TopGroove boring bars use right-hand inserts.



Machining Guidelines for Poly Vee Grooving with Custom Solution and TopGroove NV Inserts (NVJ-J and NVK-L)

- To machine cross section "J", use insert NVJ-J.
- To machine cross section "L", use insert NVK-L.



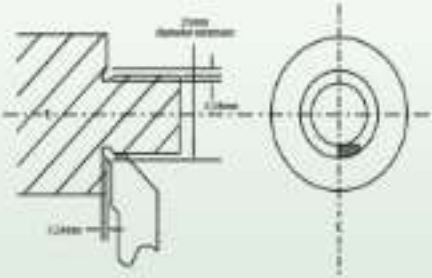
Groove Dimensions and Tolerances for Sheaves

groove cross section	pitch width (f)	groove depth (h)	minimum radius (r1)	radius (r2)	bottom distance	distance between centres of formed grooves and maximum recommended tolerance
J	3.24 ±0.05	3.11 ±0.10	0.20	0.20 ±0.05	3.36	[illegible] ±0.10
L	4.24 ±0.05	3.11 ±0.10	0.20	0.20 ±0.05	3.36	[illegible] ±0.20

Multiple Tooth Poly-Vee Grooving

[illegible]

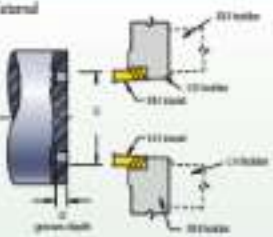
Machining Guidelines for Undercutting Operations Performed with Custom Solution and TopGroove NU Inserts (NU0004, NU0125, and NU0150)



[illegible]

Machining Guidelines for Face Grooving Operations • External

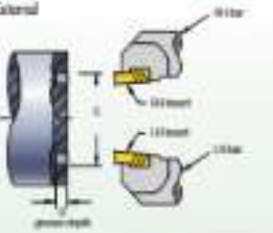
Toolholders



Insert Family	Maximum groove depth G mm	Minimum groove diameter C mm
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

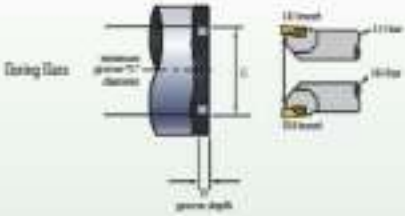
Machining Guidelines for Face Grooving Operations • External

Boring Bars



Insert Family	Maximum groove depth G mm	Minimum groove diameter C mm
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Machining Guidelines for Face Grooving Operations • Internal



Standard WIDIA® Inserts		
Insert Family	Maximum groove depth D mm	Minimum groove diameter C mm
[illegible]	[illegible]	[illegible]

ProGroove

With easy-to-change inserts available in multiple high-performance carbide grades, the ProGroove system ensures accurate, reliable, and reproducible cutting edge performance.

- Single and grooving and cut-off inserts
- Offered with integral toolholders and blades
- Shallow, deep grooving, and cut-off capabilities
- Available in four different generations

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

- Reduce cycle times — high speed and feed capability
- Longer tool life — new multilayer coating provides better wear resistance

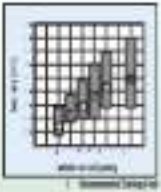
Steel
Stainless Steel
Cast Iron
Non Ferrous
High Temp Alloys
Hardened Materials

Wear resistance ——— Toughness

Coating	Grade Description									
Finishing										
HC-F30	[illegible]	P								
		M								
		K								
HC-F35	[illegible]	P								
		K								
HC-F20	[illegible]	P								
		K								
HC-M20	[illegible]	M								
Finishing										
HM-K10	[illegible]	K								
		N								
		S								
		H								
Finishing										
HM-P20	[illegible]	P								
		M								

P20

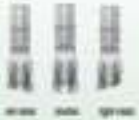
For grooving and parting operations, universal use. Positive corporation grooves for light cutting action. Right-hand and left-hand styles with 6° hold angle.



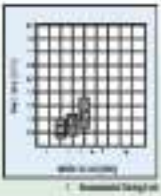
P30

For grooving and parting, also capable of copy and straight turning as well as chamfering. With additional chip forming element for good chip control with varying depths of cut.

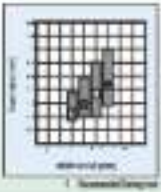
P35



For low-feed parting with straight flanks and smooth surface finishes. All inserts are recommended for parting and grooving stainless workpieces, part diameter ~25mm, and thin-wall tubes.



P25

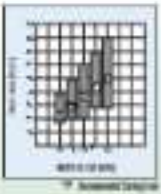


Full coated inserts for profiling, grooving, and copy turning. Very good chip control for broad general use. Accurate, reproducible cutting edge positioning.

LS System – Cassette

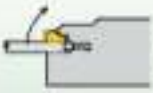
—P
Inserts with wide range of applications in grooving and deep grooving. With additional chip control element for good chip control, even with varying widths of cut.

—S
Inserts with wide range of uses in grooving and deep grooving of short chipping materials.

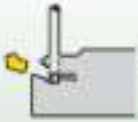


Material Group		Cutting Speed – m/min																	
		TM8000			TM7000			TM7000			TM6000			T200			T200		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]
M	1	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]
K	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	5	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	6	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	[illegible]	[illegible]	[illegible]	–	–	–

ProGroove System



To change the cutting insert, place the wrench into the blade recess.
The blade wrench is opened by turning through 90°.



In this position, the wrench is self-locking, leaving both hands free for changing the cutting insert.

The cutting insert is pressed against the rear wall in the blade recess, releasing the wrench. The insert is accurately positioned and securely clamped.

■ PG3J

catalogue number	insert size	W	CR	hand	
[illegible]	[illegible]	[illegible]	[illegible]	● Neutral	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	● Neutral	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	● Neutral	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	● Neutral	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	● Neutral	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	● Neutral	[illegible]

NOTE: ● [illegible]

continued

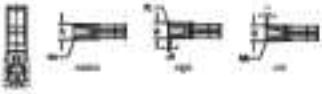
catalogue number	insert size	W	RE	gR	hand				
[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

catalogue number	insert size	W	RE	gR	hand				
[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ PC3M

catalogue number	insert size	W	RE	hand						
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: [illegible]



P	
M	
K	
N	
S	
H	

■ PG2

catalogue number	insert size	W	DC	hand						
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	-	[illegible]	-	-	-	-
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	-	[illegible]	-	-	-	-
[illegible]	[illegible]	[illegible]	[illegible]	R - Neutral	-	[illegible]	-	-	-	-

catalogue number	insert size	W	DC	gR	hand						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	L - Left	-	[illegible]	-	-	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	L - Left	-	[illegible]	-	-	-	-

catalogue number	insert size	W	DC	gR	hand						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	R - Right	-	[illegible]	-	-	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	R - Right	-	[illegible]	-	-	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	R - Right	-	[illegible]	-	-	-	-

NOTE: [illegible]

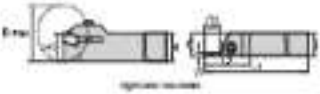
■ PG3

catalogue number	insert size	W	EC
[illegible]	3	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]
[illegible]	3	[illegible]	[illegible]
[illegible]	4	[illegible]	[illegible]

[illegible]

Grooving and Cut-Off

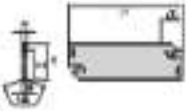
order number	catalogue number	shank size	W	LCD	A	B	F	L1	L2	R1	[illegible]	[illegible]	[illegible]
right hand													
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
left hand													
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]



■ Grooving and Profiling

order number	catalogue number	insert size	W	CD	D max	A	B	F	L1	L2	DA	CAM SCREW	CAM SCREW	WRENCH
right hand														
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	5	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	2	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
left hand														
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	5	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	6	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	6	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]

NOTE: Tool shank CD dimension for solid stability



Cut-Off Blades

order number	catalogue number	width mm	W	D	D1	L1	B	CD	weight
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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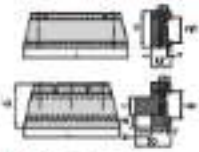
NOTE: Order amount separately

Blade Holders



Cut-Off Blade Holders

order number	catalogue number	DNR	H	B	F	BC	BD	BE	L	[illegible]	[illegible]
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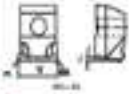

■ L (2N)

catalogue number	■	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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NOTE: [illegible]

■ L (2N)

catalogue number	■	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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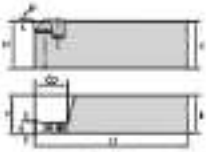
NOTE: [illegible]



■ Grooving

order number	catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand								
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■ Spare Parts

catalogue number	clamping bolt	wedge clamp	clamping screw	wrench for clamp screw	wrench for clamp screw	wrench for clamping bolt
right hand						
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[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
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left hand						
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[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
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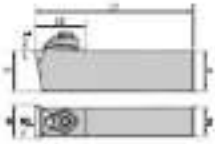

■ Grooving

order number	W	D1	D	E	L1	L2	r	stop insert
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Large inserts order on (X) VPKR-style inserts.
Holders are supplied without chipbreaker. For chipbreaker order numbers, see below.

■ For Grooving without Chipbreaker

catalogue number	clamp	clamp screw	clamp screw	shim	shim screw	shim screw	washer	wrench
[illegible]	[illegible]	[illegible]	–	[illegible]	–	[illegible]	–	–
[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	–

■ For Grooving with Chipbreaker (Order Additional Clamp and Chipbreaker)

			chipbreaker X = edge width					
inserts	clamp with chipbreaker	X	0,5mm	1,0mm	1,5mm	2,0mm	2,5mm	3,0mm
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	[illegible]

Separator™ for Cut-Off

Specifically engineered to deliver toolholder flexibility with integral, component, universal, and blade-style designs.

Separator

Features

- Insert widths 2 - 4mm.
- Toolholder shank sizes 16, 21, 25mm.
- Cut off up to 20mm bar capacity.

Benefits

- Quick, reliable insert indexing.
- Positive mechanical clamping.
- CAT, square shank, screw machine, and PI, blade-style toolholders.

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

- Reduce cycle times — high speed and feed capability
- Longer tool life — wear multilayer coating provides further wear resistance.

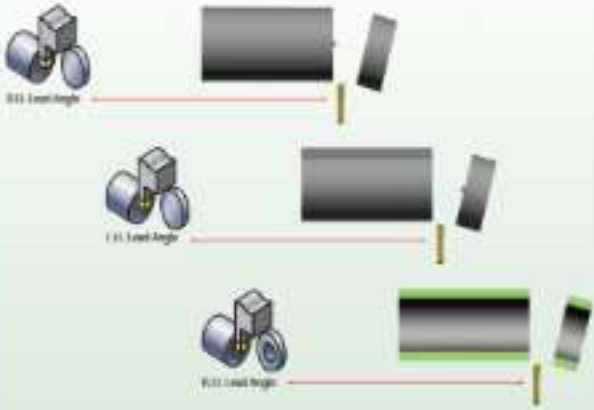
- Steel
- Stainless Steel
- Cast Iron
- Non Ferrous
- High Temp Alloys
- Hardened Materials

Wear resistance ——— Toughness

Coating	Grade Description	05	10	15	20	25	30	35	40	45
Grade 1 — UC-F30	A premium, single phase PVD TiN coating over a tough, specially innovated substrate that performs well under extremely low to moderate speed conditions found in screw machines, lower for carbon steels, alloy steels, most stainless steels, and many high-temperature alloys.									
Grade 2 — UC-F35	PVD – TiAlN multilayer coating over a tough, shock-resistant, fine-grained carbide substrate with increased oxidation resistance. Recommended at low to medium cutting speeds when good toughness properties are needed.									
Grade 3 — UC-M35	PVD – TiAlN single layer coating over a superior tough, fine-grained carbide substrate. Outstanding toughness properties with excellent resistance to wear during edge chipping in high speed cut tools, for stainless steels and high temperature alloys.									
Grade 4 — UC-F30	A premium PVD – TiAlN coated, shock-resistant carbide designed for low to moderate speeds. Excellent resistance to cratering and BUL – along with improved operator efficiency make this an ideal grade for automatic operation lines, low carbon steel, and high temperature alloys.									
Grade 5 — UC-F30	PVD – TiAlN multilayer coating over a tough, fine-grained carbide substrate with increased resistance to heat. Recommended for medium to higher cutting speeds under moderate conditions.									

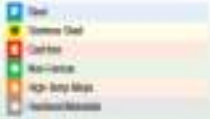
1. Choose the application to be performed.

Choose best angle of insert for application.



2. Identify the material to be machined.

Each tool has a colored grid marked with a letter indicating the materials that can be machined.

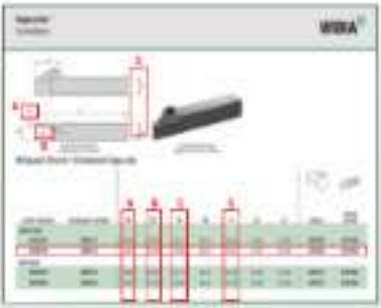


3. Select your toolholder based on the application:

A. Choose the appropriate width of insert required for the application.

B. Choose the shortest cutting depth "L/D" diameter for increased tool rigidity.

C. Select the largest toolholder shank "H" and "W" dimensions for maximum rigidity.



4 Select chipbreaker style for the application

Use the application guide on page [illegible] for a complete list of insert styles.

Insert Type	Steel	Stainless Steel	Cast Iron	Non-ferrous metals	High temp alloys	Hardened materials
Wide choice	[illegible] (2° Ultra above)	2° Ultra	2° Ultra	2° Ultra	2° Ultra	–
Limited choice	2° Ultra	2° Ultra	Classic	2° Ultra	2° Ultra	2°

5 Select grade:

	Recommended Grades					
machining condition	Steel	Stainless Steel	Cast Iron	Non-ferrous metals	High temp alloys	Hardened materials
high performance for optimal conditions (rigid machine condition, high speed machine condition, higher insert capacities)	WK1	WK1(S)	WK1	WK1	WK1(S)	–
	–	WK2	–	–	WK2	–
general purpose the choice for general machining	WK1	WK1	WK1	WK1	WK1	WK1
unfavorable conditions (interrupted cuts, low speeds, etc.)	WK1	WK1	WK2	WK1	WK1	–
	WK1	WK1	WK2	WK1	WK1	–

See page [illegible] for Grades and Grade Descriptions.

6 Determine cutting data:

A Based on material group and grade, identify starting speed (vc).

B Find chosen starting speed in a table.

See page [illegible] for cutting data.

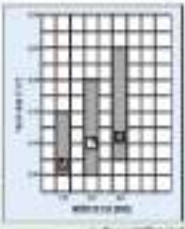
Separator • X² and X²-Ultra

X²

X²-Ultra

This insert has the same geometry as the MM-GX™. Chip control geometry offers the widest range of speed and feed capabilities and provides excellent flatness and finish. The edge hone cuts with the least amount of tool pressure, extending tool life. The geometry also includes wipers and a corner radius. This geometry works well on a variety of materials.

This insert has the same geometry as the MM-GX-Ultra. The X²-Ultra is an enhanced version of the X² and is ideal for stainless steels, nickel-based alloys, tool steel, INCONEL™, and titanium.



1. Recommended Starting Feed

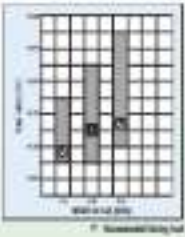
Separator • S² and S²-Ultra

S²

S²-Ultra

High positive rake with a wave open chipbreaker enables increased speeds and feeds for moderate, to high-speed applications. The geometry includes wipers and a corner radius that provides superior flatness and finish. This insert is now available with sharp corners. Its greatest strengths can be seen on stainless steels and soft gummy steels.

The S²-Ultra is an enhanced version of the S² and is ideal for 300 series stainless steels, nickel-based alloys, tool steel, INCONEL™, and titanium at moderate to high speeds and feeds.



1. Recommended Starting Feed

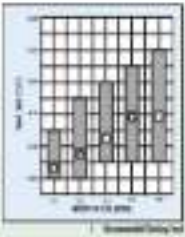
Separator • Classic and F²

Classic

F²

A good general purpose insert for carbon steels, alloy steels, soft mild stainless steels. The Separator Classic chipbreaker is designed to perform well at moderate to slow speeds and feeds. The Classic provides standard high feed angles and sharp corners, making it the first choice when choosing an insert for side-face cut off.

This insert provides superior flatness and finish on a wide variety of materials. Ideal for thick wall parts or cutting off large diameter parts in stainless. The Separator F² performs well at slow to moderate speeds and feeds.



1. Recommended Starting Feed

Material Group		Cutting Speed – m/min														
		[illegible]			[illegible]			[illegible]			[illegible]			[illegible]		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
M	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
K	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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N	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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H	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
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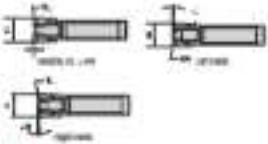
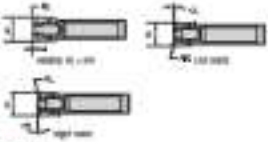


| catalogue number | Insert size | W | OD | hand | | |



■ X™ Ultra

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catalogue number	insert size	W	D		hand												
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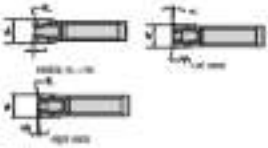

■ SF Ultra

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catalogue number	insert size	W	OD	[illegible]	hand	[illegible]	[illegible]	[illegible]
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catalogue number	insert size	W	OL	[illegible]	hand	[illegible]	[illegible]	[illegible]
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| | | |

WIDIA

Classic – unbreak

Right-hand

● first choice
○ alternate choice

catalogue number	insert size	W	gC	hand	[illegible]	[illegible]	[illegible]	[illegible]
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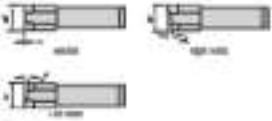
NOTE: [illegible] have a modified aggressive chip control design



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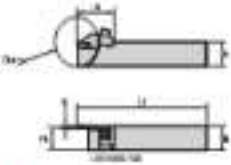

■ Square Shank

order number	catalogue number	W	D max	B	FD	R	L2	L1	clamp	clamp screw
right hand										
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left hand										
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NOTE: Above toolholders are supplied with clamp and clamp screw.

■ Square Shank • Extended Capacity

order number	catalogue number	W	L2	D	FL	H	L2	L1	clamp	clamp screw
right hand										
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left hand										
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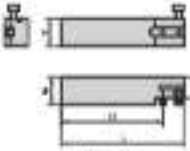
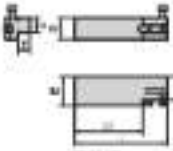
NOTE: Above toolholders are supplied with clamp and clamp screw





■ 12mm and 20mm Shank Toolholders

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left hand										
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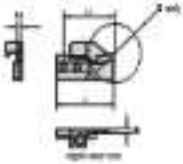
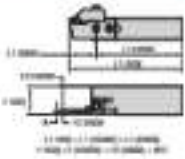
Tapport Blade Assembly

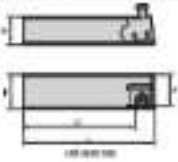




■ 12mm and 20mm Shank Blades

order number	catalogue number	W	D max	F2	L	L1	clamp
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

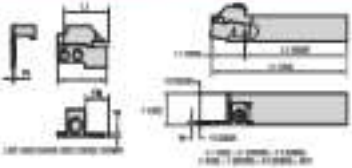
NOTE: Clamps do not ship with blades. Order clamps separately.



■ 25mm and 32mm Shank Toolholders

order number	catalogue number	H	B	L	L1	F	support blade screw	clamp screw	clamp screw
right hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
left hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–

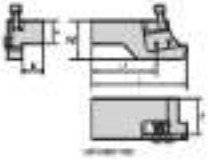
Support Blade Assembly



■ 25mm and 32mm Shank Blades

order number	catalogue number	W	CW	TW	L	L1	clamp
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]



Universal Style Toolholder • 16mm Bar Capacity

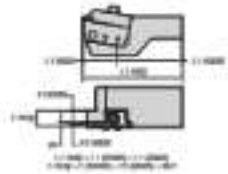
order number	catalogue number	B	H	M	F	L1	L	screw
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

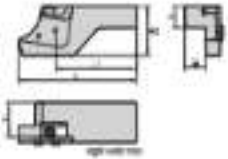
NOTE: [illegible]

Components

W	L1	F2	left hand clamp for [illegible]	left hand clamp for [illegible]	support blade	right hand clamp for [illegible]	right hand clamp for [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: [illegible]





■ Universal Style Toolholder • 17mm Bar Capacity

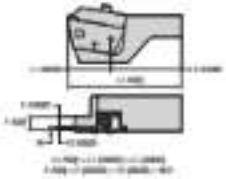
order number	cartridge number	B	H	W	F	L1	L	support blade screw	clamp screw
right hand									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

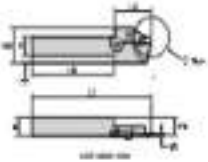
NOTE: Support blade requires two screws.
CAN: Metric equivalent

■ Components:

W	L1	L2	left hand clamp	support blade	right hand clamp
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: All components ship separately





Sub Spindle

order number	catalogue number	W	P max.	B	T1	D	D2	D3	L1	L2	L3	Hollow head cap screw	clamp	flat head cap screw	washer
right hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WIDIA™ Victory™ High-Temp Turning

The new -FG and -MG geometries from WIDIA are specifically designed for use in high-temperature alloys, nickel-based (INCONEL®, Udimet®, Rene) materials, cobalt-based (Haynes®), Fe-based (Alnetl 100) materials, titanium and titanium alloys, as well as difficult-to-machine stainless (AISI316, duplex, high-alloy stainless), cobalt-chrome, and stainless-based powdered metals.

_GG-FG Geometry

- All _GG_FG inserts are periphery ground to provide a G tolerance. This is a critical in some applications, especially in the aerospace industry.
- Precision grinding provides a high quality cutting edge which reduces depth of cut notching and delivers consistent surface quality in finishing applications.
- Be more productive by utilizing the higher speed capability provided by the latest in PVD coating technology and optimized post coat treatment.
- Achieve better tool life through the high positive rake angle which reduces cutting forces and built up edge.

_MG_MG Geometry

- High positive rake angle delivers improved tool life by reducing cutting forces and built up edge when machining high-temp alloys.
- Improved chip control and reduced crater wear due to proprietary chipbreakers with varying shapes and dimensions.
- Reduced thermal wear and cracking due to more sharp cutting edge with optimized edge treatment.
- Improved chipbreaking at various depths of cut due to variable land width, which improves impact strength.
- All MG_MG inserts are insulated, which supports increased tool life due to the elimination of grinding stress.

To learn more, contact your local Authorized Distributor or visit widia.com.

WIDIA VICTORY

Definitions and Guidelines

1. Width of cut (W) – width of the insert.
2. Lead angle – 0° (neutral), 6°, 8°, 15°, 16° (EX) or 11°.

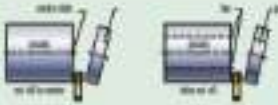
Reduce burr at cut-off faces

- Use lead angle-type inserts (Figures 1 and 2). Lead angles on a cut-off insert reduce the burr that remains on the part and decreases tool life and increases tool side deflection and possible tool chatter.

Figure 1
Insert selection left-hand lead

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

Figure 2
Insert selection right-hand lead



Right-hand lead insert leaves centre stub or burr 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 to the centre; recommended cutting position is 0.05mm above centre.

Figure 3
Above centre

- 0.0° lead angle is mandatory, use the narrowest possible cut-off insert and blade. This will minimize the centre stub or cut-off bar length. Increase the feed rate to maximum 0.01mm or less at the point where diameter equals insert width.
- On tubing-type parts (lead angle is chamfer on the I.D., edge I.D.), chamfer tool with cut-off surface. This will enable the chamfering operation to actually separate the part from the bar (see Figure 4). Note the part was stop-onto the chamfering tool, which, in this case, will act like a catcher for the part.

Figure 4
Internal chamfer tool

Improve surface finish at cut-off faces

- Use insert with 0° lead angle.
- Increase coolant flow or improve application techniques, as shown in Figure 5.
- Increase the feed rate over the break-through point of the cut.
- Check that the grooving tool is cut at the correct angle.
- Use blades with the greatest possible face height and smallest possible cutting width.
- Increase the speed.

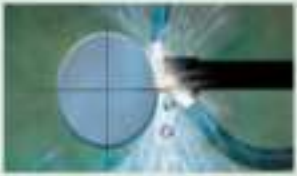


Figure 5
Preferred method for applying coolant

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

Improve chip control:

- Adjust head side up or down to accommodate chip formation.
- Use a 0° or smaller lead available.
- Use ample amounts of well-directed coolant (see Figure A).
- Maintain sharp cutting edge and corners.

Figure A

Improve flatness of cut-off surface:

- Maintain 90° position (perpendicular alignment) between cut-off tool and workpiece.
- Use low to moderate speed (rpm), see Separator I®.
- Use moderate to high speed (rpm), see Separator II® or III®.
- Use strongest toolholder system possible.
- Use 0° lead angle inserts when possible. If lead angle inserts are needed, reduce the lead rate.
- Check for minimum overhang of holder and blade.
- Set up for minimum workpiece overhang (distance out of chuck).
- Reduce feed rate.
- Maintain sharp edge and corners on cut-off insert.
- Increase speed (SFM).
- Use ample amounts of well-directed coolant (see Figure A).
- Maintain proper tool center height (+/-) over whole center (see Figure B).

Figure B

Improve surface finish:

- Use low to moderate speed (rpm), see Separator I®.
- Use moderate to high speed (rpm), see Separator II® or III®.
- Avoid overly aggressive chip control.
- Increase speed.
- Reduce feed rate and feed rate.
- Determine if corner radius is too large or small.
- Use a coated grade.
- Use coolant (see Figure A).

Minimize edge chipping:

- Check to see if tool is rigidly held in chuck or below centerline.
- Reduce feed rate to part drop-off.
- Use Separator II® or III®.
- Choose the proper speed consistent with the insert grade used.
- Call Technical Support to see if a larger insert size is needed.
- Eliminate chatter.
- Avoid chip re-cutting.
- Check for flows and machine problems:
  - Debris flows.
  - Debris found in irrigation.
  - Bearing (O.D. and/or I.D.) is out of round.
  - Bearing wipes.
  - Tool wall collapses (bulging) in the cut.
  - Part is unstable.
  - Cut-off through unusual stock.
  - Excessive tool overhang.
  - Insert or partly attached flash ring.

(continued)

WIDIA

Continued

Eliminate chatter:

- Minimize tool blade and holder overhang.
- Minimize part overhang.
- Use an angled toolholder operation.
- Use a more narrow width of insert.
- Chatbreaker might be too aggressive. (Call Technical Support.)
- Adjust speed and feed rate up or down.
- Hold workpiece rigidly.
- With a longer part, support with steady rest or live center.
- Avoid machine dwell.
- Use 0° or 4° to reduce cutting forces.

Reduce cut-off nib on solid bar or I.D. bar on tubing.

- Check tool height. Insert cutting edge should be on center to 0.05mm above centerline of workpiece.
- To reduce nib on part, use a high lead angle type insert. Lead angle on a cut off insert reduces the nib, which remains on the workpiece. CAUTION: the higher the lead, the more tool rate deflection.
- Use the narrowest possible cut off insert to minimize the cut off bar height.
- Reduce feed rate at the end of a cut.
- On most tubing type parts, a 4° or 7° lead angle will be sufficient.
- Add support to a long slender type part.
- Maintain proper sub-spindle alignment.
- If nib on bar persists, call Technical Support about retracting bone tool.
- Use small 1a or screw collet.

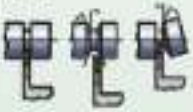
Eliminate built-up-edge:

- Select proper grade for insert.
- Increase speed (SFM).
- Increase the feed rate.
- Use angle accounts of well-directed coolant (see Figure A on page 6-10).

Chamfer and cut off operations:

- Use Separator 5° or 8°.
- Groove or breakdown workpiece surface using machined.
- Machine the chamfer.
- For jobs requiring a chamfer on both ends of the part, begin by plunging in a depth just beyond the depth of the chamfer. Then, return to the part O.D. and profile each chamfer individually. Check the cut off after completion of the second chamfer.
- Cut off the workpiece (see Figure C).

Figure C



Modifications for Increased Depth of Cut

Figure 1
Standard bar capacity shown

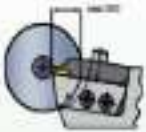


Figure 2
Larger bar diameter shown

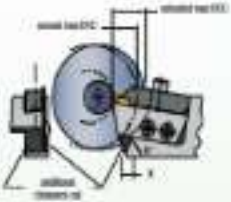


Figure 3
Modified toolholder with larger bar diameter shown

Capacity Chart for 32.15mm Diameter Bar Capacity Tooling								
bar diameter	63.00	75.00	88.00	101.00	114.00	127.00	152.00	NOTE
max DOC	19.08	18.00	15.70	14.20	12.35	11.04	11.35	with no modification on toolholder
	20.45	20.00	19.04	19.84	20.35	21.24	18.00	with no modification on toolholder X = 40.45mm A = 127mm

Capacity Chart for 19.2mm Diameter Bar Capacity Tooling						
bar diameter	90.00	101.00	114.00	127.00	152.00	NOTE
max DOC	20.45	20.45	22.35	19.81	17.23	with no modification on toolholder
	20.08	24.00	22.27	21.71	20.45	with no modification on toolholder X = 50.15mm A = 127mm

Turning • Threading

Threading Application Guide F2-F3
TopThread F4-F37
Laydown Threading F38-F78
Technical Information F79-F101

TopThread External Threading

[illegible]

[illegible]

TopThread Internal Threading

[illegible]

[illegible]

Laydown External Threading

[illegible]

[illegible]

Laydown Internal Threading

[illegible]

[illegible]

TopThread

High feed and high edge line load concentrated to a small nose radius, combined with high feed rates, places high demands on carbide threading inserts. The WIDIA TopThread system is the best solution for these problems.

The WIDIA TopThread system is the superior choice for high-demand applications like machining Acme, Buttress, and API threads.

TopThread Insert Technology

TopThread insert technology keeps superior chip control in your threading operations. Unlike competitors' designs, the WIDIA crescent chip groove, when used according to our recommendations, will control the chip in most applications, bringing you better tool life and lower cutting pressures.

- Reduced inconsistencies and better workpiece finish.
- Superior chip control reduces the danger to operators.
- Increased productivity in all of your threading operations.
- Excellent choice for special thread forms and toolholder designs.

TopThread™ inserts are available in TN60 ST™ and TN60TS™ grades to withstand the demands placed on the cutting edge of the threading insert.

The versatility of the TopThread shim enables you to use both threading and grooving inserts in the same toolholder.

NOTE: Holders are designed to locate inserts to achieve 0.2° to provide back clearance when open-side

The Simple Solution

With the WIDIA™ TopThread solution, there is no need to worry about costly setup mistakes. TopThread insert selection is easy, quick, and enables accurate indexing to keep your machine spindle turning.

- Right-angle for increased insert stability during threading applications.
- Good quality threads, improved tool life, and improved surface finishes.
- Locking forces in three directions for superior resistance to tangential force.
- Unique 2° insert relief angle for back clearance.
- Available in partial profile insert to for 60° thread forms.

Step 1 • Select Threading Method and Hand of Tooling

Required Information:
- External/Internal operation
- Operation rotation/hand of thread
- Feed direction

Hand of thread | Hand of toolholder | Hand of insert

Feed direction toward the chuck

internal left hand thread | internal right hand thread | internal left hand thread | internal right hand thread

Feed direction away from the chuck

internal right hand thread | internal left hand thread | internal right hand thread | internal left hand thread

Step 2 • Select Holder from Catalogue Page

The insert size must match the page insert size of our toolholder selection.

Required Information:
- External/Internal operation
- Minimum bore diameter (for internal operations)
- Hand of tool
- Insert size (page/index)

catalogue number	page/insert
[illegible]	[illegible]
[illegible]	[illegible]

NOTE: TopThread toolholders and tooling become interchangeable a page/insert to indicate the size and hand required. They are compatible with both grooving and threading inserts of the same size.

Select the appropriate holder for the insert size and hand:

NOTE: Optimum over threading operation can only be achieved when the proper infeed method and the recommended infeed values.

See the Technical section on pages [illegible] of the catalogue. For internal threading, minimum bore varies depending on thread type. See page [illegible] for details.

Step 3 – Choose Insert for Application

- Use threading insert overview on page 6.
- Select threading inserts for fully multiflute thread form including diameter control. Threading inserts eliminate the need for deburring.
- Non-threading partial profile inserts can cut a variety of thread sizes.
- Hone insert size for toolholder selection.

Insert size	Catalogue number	TM8IR	TM8IRR
1	[illegible]	•	•
2	[illegible]	•	•
3	[illegible]	•	•

Step 4 – Select Grade and Speed

Recommendations for Grade and Speed Selection – metric

Workpiece material	Steel	Stainless steel	Cast iron	Non-ferrous metals	High temp. alloys
Insert type	chip control or neutral	chip control or neutral	neutral	positive	positive
Optimum cutting conditions	TM8IR [illegible]	TM8IR [illegible]	TM8IR [illegible]	–	TM8IR [illegible]
Grade choice	TM8IR [illegible]	TM8IR [illegible]	TM8IR [illegible]	TM8IR [illegible]	TM8IR [illegible]

Example:

Chip Control: [illegible]
Neutral: [illegible]
Positive: [illegible]

TopThread Threading Example

Application: [illegible]
Material: [illegible]
Workpiece diameter: [illegible]

Recommendation:

Insert: [illegible]
Grade: [illegible]
Insert size: [illegible]
Holding bar: [illegible]
Stop insert: [illegible]
Speed: [illegible]
Infeed method*: [illegible]

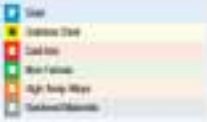
* Meet the recommendations provided in technical data section on pages [illegible].

WIDIA

Style											
Style name — 1								Thread profile	Standard	Minimum Class	Coating	Application	Page(s)
[illegible]		[illegible]		[illegible]		[illegible]		Parker Hydraflex 60°	–	–	N	General use for 60° thread forms, such as ISO and DIN, where non-sealing inserts are desired to cut a variety of pitches.	[illegible]
[illegible]								Parker Hydraflex 60° — Coarse pitch	–	–	N	Coarse pitch 60° thread forms, such as ISO and DIN, where non-sealing inserts are desired to cut a variety of pitches.	[illegible]
		[illegible]		[illegible]		[illegible]		Parker Hydraflex 60° — Recut	–	–	N	Fine pitch 60° thread forms, such as ISO and DIN, where non-sealing inserts are desired to cut a variety of pitches — with A thread class in mind.	[illegible]
		[illegible]		[illegible]				American DIN	[illegible]	[illegible]	Y	Widia uses tool based 60° A form for all industries.	[illegible]
					[illegible]	[illegible]		DIN	[illegible]	[illegible]	N	Controlled root radius on internal threads, for military and aerospace industries.	[illegible]
					[illegible]	[illegible]		DIN — Recut	[illegible]	[illegible]	N	Controlled root radius on internal threads, for military and aerospace industries — with A thread class in mind.	[illegible]
		[illegible]		[illegible]				NPT	[illegible]	[illegible]	Y	National Pipe Thread tapered forms, for pipe fittings.	[illegible]
		[illegible]		[illegible]				NPT — multi-start	[illegible]	[illegible]	Y	High productivity multi-start threading inserts for NPT threads.	[illegible]
		[illegible]		[illegible]				Whitworth, [illegible]	[illegible]	Medium Class B	Y	Widia uses [illegible] for general metric connections.	[illegible]
		[illegible]		[illegible]				[illegible]	[illegible]	[illegible]	Y	[illegible] in bore with stop collar, for coring, tubing, and brazed in the oil and gas industry, including [illegible] in steel bores.	[illegible]
		[illegible]		[illegible]				Acme	[illegible]	[illegible]	N	[illegible] thread form for medium applications in a wide variety of industries.	[illegible]
		[illegible]		[illegible]				Stub Acme	[illegible]	[illegible]	N	Shallow depth [illegible] thread form for medium applications in a wide variety of industries.	[illegible]
		[illegible]		[illegible]				American Standard — [illegible] Rolle Rounding (PAR)	[illegible]	[illegible]	N	Used both over or underground bearing applications in a variety of industries — see the "PT" chart within the [illegible] tolerance field in the leading flank.	[illegible]

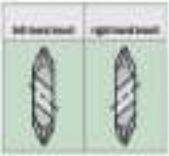
Coatings provide high-speed capability and are engineered for thinning to light imaging.

- Reduces cycle times … high-speed capability
- Longer tool life — more multilayer coating provides better wear resistance



	Coating	Grade Description									
Finishing	TiAlN PVD HC-P40	An advanced PVD TiAlN coating over every intermediate and hard analyzed carbide substrate. TiAlN PVD is ideal for finishing to general machining of most workpiece materials at higher speeds. Excellent for machining most steels, stainless steels, cast iron, non-ferrous materials, and heat alloys under stable conditions. It also performs well in machining hardened and hard-to-machine materials.									
	TiAlN PVD HC-P20	An advanced PVD TiAlN coated grade with a tough, ultra-fine grain analyzed substrate. For general purpose machining of most steels, stainless steels, high-temp alloys, titanium, iron, and non-ferrous materials. Speeds may be more low to medium and will handle interrupted cuts and light feed rates.									
Thread	WN-K11	Uncoated carbide for light and medium machining. For cast iron, all non-ferrous metals, and non-metals. Also capable of machining hardened materials at low cutting speeds.									

- All TopThread inserts are precision ground to provide accurate edge location and tolerance holding in the insert in the toolholder pocket.
- TopThread inserts can be used in either toolholders or boring bars.
- All non-coating-type threading tools can be used for either external or internal applications. All coating-type inserts are designated specifically for external or internal use.
- Right-hand TopThread toolholders are right-hand inserts. Left-hand TopThread toolholders use left-hand inserts.
- Right-hand TopThread boring bars use left-hand inserts. Left-hand TopThread boring bars are right-hand inserts.
- See this page for suitable grade selection and more ref. tool information.



WIDIA

TopThread
Insert Identification System

N	D	C	3	8RD	R	75	
Type of insert	Insert	Additional information	Insert Size	Industry Thread identification	Hand of insert	Definition of insert	Additional information

N — TopThread®

A — Series

D — 80°Lx80°

L — 35° Insert

T — 60° V Insert

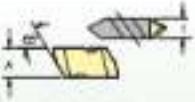
W — 35° V Wiper Insert

C — Coolant

F — Finishing edge

R — Right Hand

L — Left Hand



TopThread Insert Dimensions

Insert size	A mm	T mm
1	3.25	2.25
2	5.25	3.25
3	8.25	4.25
4	11.25	5.25
5	12.25	6.25
6	11.25	5.75
8	7.25	11.25

T — Internal Thread

L — External Thread (insert size 1 internal and external thread forms are different)

M — Multiform insert

R — Standard chip control

G — Groove insert

D — Thread

Material Group		Cutting Speed – m/min								
		TM20H			TM25S			TC60		
		min	Start	max	min	Start	max	min	Start	max
P	1(P)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
M	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
K	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
H	1	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	2	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	3	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-
	4	[illegible]	[illegible]	[illegible]	-	-	-	-	-	-

The best solution for demanding threading applications

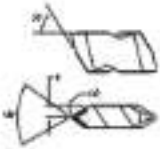
EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

The WIDIA™ TopThread system is the best solution for demanding threading applications. With unmatched tooling technology, you can trust WIDIA TopThread tools to solve your threading and grooving needs.

- Large selection of insert geometries and grades.
- Rigid insert clamping design ensures the best tool life, surface finish, and workpiece quality.
- Ensures accurate, high-quality threads. Excellent for internal threading operations.

To learn more, contact your local Authorized Distributor or visit **widia.com**.

WIDIA™



■ NT-K

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left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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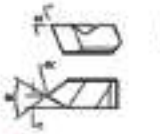

■ NT-L

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catalogue number	[illegible]	[illegible]	insert size	external thread pitch min	internal thread pitch min	external TPI	internal TPI	[illegible]	[illegible]	[illegible]	[illegible]
right hand											
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand											
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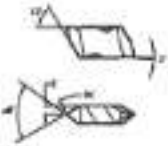

WNT

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left hand									
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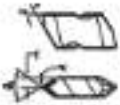

WNT CK

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■ NTI

catalogue number	TC	Z	insert size	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	[illegible]	[illegible]
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left hand									
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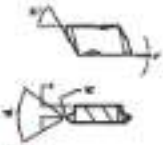

■ NTE

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right hand									
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left hand									
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■ NTC-G

catalogue number	EC	Z	insert size	external thread pitch max	internal thread pitch max	external TPI	internal TPI	[illegible]	[illegible]	[illegible]
right hand										
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[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	–	[illegible]	[illegible]	–

■ NTC-I

catalogue number	EC	Z	insert size	external thread pitch max	internal thread pitch max	external TPI	internal TPI	[illegible]	[illegible]	[illegible]
left hand										
[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	–	[illegible]	–

■ NJP

catalogue number	TC	L	insert size	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	[illegible]	[illegible]
right hand									
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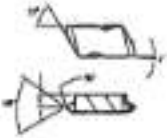

■ NJK

catalogue number	TC	L	insert size	external thread pitch mm	internal thread pitch mm	external TPI	internal TPI	[illegible]	[illegible]
right hand									
[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	-	[illegible]	[illegible]

■ NDC V

catalogue number	TC	L	insert size	TPI	TPI	[illegible]	[illegible]
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ NDC-V-M

catalogue number	NC	L	insert size	TPI	TPP
right hand					
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■ NWC-E

catalogue number	NC	L	insert size	TPI	TPP
right hand					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
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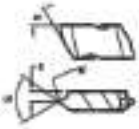

NDC-RD

catalogue number	RD	L	Insert size	TPI	TPP
right hand					
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left hand					
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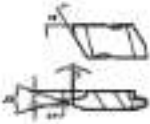

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[illegible]					
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NAS

catalogue number	[illegible]	[illegible]	insert size	[illegible]	[illegible]	[illegible]
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left hand						
NAS[illegible]-ST	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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NTS-S

catalogue number	[illegible]	[illegible]	insert size	[illegible]	[illegible]	[illegible]
left hand						
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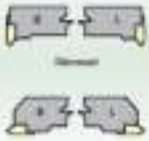
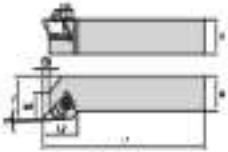
TopThread
Holder Identification System

N	S	R		2525	M	4	
Insert Locking Method	Insert Mounting Location	Hand of Tool	Drop Head	Shank Size	Tool Length	Insert Size	Qualified Holder





■ NS

order number	catalogue number	insert size	H	B	F	L1	L2	BR	CW	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
right hand														
[illegible]	[illegible]	3	10	10	14	64	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	12	12	14	72	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	12	12	16	80	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	12	12	18	88	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	16	16	20	119	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	16	16	20	100	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	16	16	20	119	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	20	20	20	120	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	20	20	20	120	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	20	20	20	147	10	9	2.5	10.01	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	3	10	10	19	100	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	10	10	19	119	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	10	10	19	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	120	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	120	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	4	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	4	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	4	12	12	20	150	10	11	2.5	10.01	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	5	20	20	36	150	10	15	10.5	10.01	[illegible]	–	–	[illegible]
[illegible]	[illegible]	5	20	20	36	150	10	15	10.5	10.01	[illegible]	–	–	[illegible]

NOTE: 1. Dimensions measured from cutting point of insert

(continued)

(M) — continued

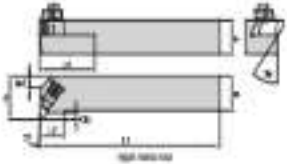
order number	catalogue number	shank size	H	B	F	L1	L2	L4	L3	grade insert	clamp	clamp screw	clamp screw	key / torx plus
MR Insert														
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]
[illegible]	MR2-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	N.A.	CM15	[illegible]	–	[illegible]

NOTE: [illegible]

■ NAS

ordering number	catalogue number	shaft size	B	H	F	l1	L2	DR	CC	SC	L3	weight (kg)	clamp	clamp screw	shim screw	Torx Tool/Plus
right hand																
[illegible]	NAS[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	T15
[illegible]	NAS[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	–	T15
[illegible]	NAS[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	–	[illegible]	[illegible]
left hand																
[illegible]	NAS[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	T15
[illegible]	NAS[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]	–	T15
[illegible]	NAS[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	–	[illegible]	[illegible]

NOTE: F dimension measured into chip point of insert



order number	catalogue number	insert size	H	B	T	L1	L2	R1	L3	grade	clamp	clamp screw	shim	insert Tooltip Plus
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
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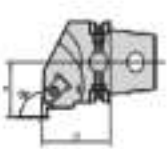
NOTE: [illegible]



KM
CERMET
CHAMFER

■ RE 92°

Turning

		L1		T		D min							
order number	catalogue number	mm	in	mm	in	mm	in	grade number	clamp	clamp screw	kg	lbs
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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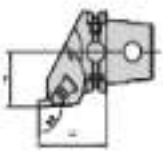

KM QUICK CHANGE

■ RH 5.0"

		L1		L							
order number	catalogue number	mm	in	mm	in					kg	lbs
right hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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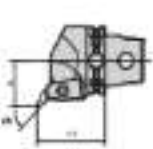
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



KM QUICK CHANGE

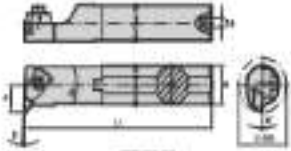
■ RH 4.0"

		L1		L		D max					
order number	catalogue number	mm	in	mm	in	mm	in			kg	lbs
right hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WIDIA

TopThread
Boring Bar Identification System

A	25	R	N	N	T	0	R	2
Bar Type	Bar Diameter	Bar Length	Insert Holding Method	Insert Shape	Insert Location	Rake Angle 0 - 9°	Hand of Tool	Insert Size



W.A. RH/T

order number	catalogue number	shank size	B	D min	L1	T	TZ	gauge length	clamp	clamp screw	shim screw	insert Torx Plus
right hand												
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left hand												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
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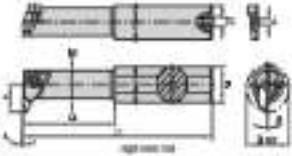
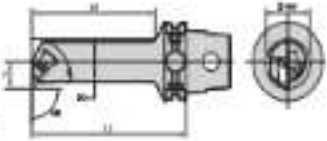
[illegible] Dimension measured from clamp point of insert



■ A-INT-1

order number	catalogue number	insert size	D	Z min	D2	L1	L2	F	A	D5	gauge model	chamfer	chamfer corner	head face Plan
right hand														
[illegible]	[illegible]	1	10	11.5	8.2	90	11	2	4.2	17x-17.5° INT	N-S	CMPDR	MPDX5R	1.2 mm
[illegible]	[illegible]	1	10	11.5	8.2	90	—	1	3.2	—	N-S	CMPDR	MPDX5R	1.2 mm

NOTE: 1. dimension measured from sharp point of insert



KM QUICK CHANGE

■ NE: 90° • Dual

		D2		Cross		F		L4		L3		page	kg	lbs
order number	catalogue number	mm	in	mm	in	mm	in	mm	in	mm	in			
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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left hand														
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(continued)

[illegible] • [illegible] – continued

■ Spare Parts

catalogue number	clamp	screw
right hand		
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[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
left hand		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
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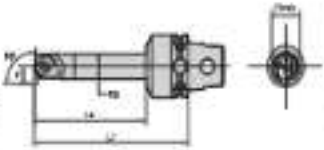


KM

■ RE 60° • Carbide

order number	catalogue number	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

■ Spare Parts

catalogue number	[illegible]	[illegible]
right hand		
[illegible]	[illegible]	[illegible]
left hand		
[illegible]	[illegible]	[illegible]

The WIDIA™ high performance carbide grades, coupled with our style Top Thread cleaning design, offer the outstanding industry optimum threading productivity.

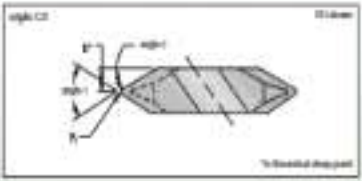
With the large inventory of WIDIA standard products, many of competing carbide wear productivity requirements, consider using Top Thread blank custom ground to meet your unique application needs.

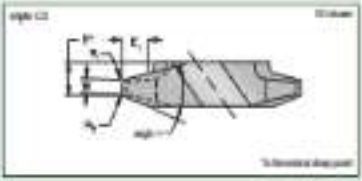
The large variety of Top Thread blank sizes allows maximum flexibility in threading cutting design, especially for custom or off-field applications.

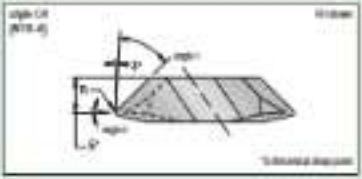
Common examples of special forms are shown here. Please contact your local WIDIA representative for recommendations on selecting your optimal threading blank.

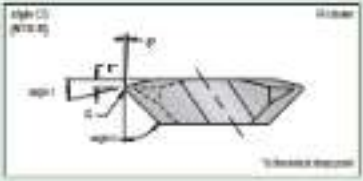
Features and Benefits:

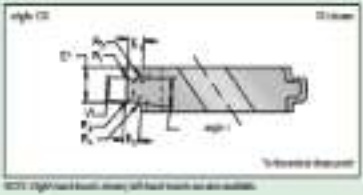
- Custom are detailed quickly and efficiently using state-of-the-art CAD design software and electronic database software.
- Our Carbide Custom Solutions Design Team is your link to one of the industry's largest electronic databases. They can solve your most challenging design problems.
- When necessary or required, normal drawings are available to facilitate your engineering development.
- A large number of high performance carbide grades are available to optimize your productivity. The option of producing standard base substrate non-standard carbide grades allows you to optimize tool life performance.











NOTE: Right hand tools, mirror, left hand tools are also available.

TopThread and TopGroove Toolholders and Boring Bars

Insert size and style		Holder	Clamp screw	Shim	Shim screw
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	–	–
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[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
TopGroove [illegible] grooving					
[illegible]		[illegible]	[illegible]	–	–
[illegible]		[illegible]	[illegible]	–	–
[illegible]*		[illegible]	[illegible]	–	–
[illegible]*		[illegible]	[illegible]	–	–

[illegible] Clamp diameter boring head
*Boring head

WIDIA™ Laydown Threading

For increased reliability and productivity, look no further than the WIDIA Laydown Threading System for all of your I.D. and O.D. threading applications. The Laydown Threading System maximizes tool life and thread quality.

Laydown

This specially engineered system meets all modern production standards. With an extensive range of inserts and toolholders available, the Laydown Threading platform is ideal for all of your threading requirements.

Laydown Insert Technology

Laydown insert technology, with its wide range of available tools and inserts, guarantees increased tool life, minimized built up edges, and precise cuts of most common materials.

- TRIAD1™ premium PVD TiAlN coated grade outperforms conventional PVD grades.
- Features superior chip control and reduced cutting forces.
- Partial and full profile insert options available for all common thread forms.

The Laydown Threading Solution

With the WIDIA™ Laydown Threading System, you experience reliable continuous screw making for unhindered chip flow and precise insert positioning accuracy.

- Industry leading thread quality.
- Four insert sizes available to cover a wide range of thread making operations.
- Ideal for high-helix/multi-start threads and single point threading in small-diameter bores.
- Maximized tool life and low profile design for unhindered chip flow and superior performance.

Reliable TopClamp™ locking guarantees precise insert positioning accuracy.
Get more parts per insert with the screwing of the Lightner Threading insert's three cutting edges.
Choose from both steel and carbide boring bars to satisfy all machining application needs.
WIDIA

Step 1 • Select Threading Method and Hand of Tooling

Required Information

- External/Internal operation
- Spindle rotation/hand of thread
- Feed direction

Feed direction toward the chuck • standard tools

Feed direction away from the chuck • reverse tools*

*Negative rake required

Step 2 • Select Holder from Catalogue Page

Required Information

- External/Internal operation
- Minimum bore diameter (for internal operations)
- Hand of tool
- Insert size (gage mark)

Select the appropriate holder for the insert size and hand

The insert size must match the gage insert size of your toolholder selection

Catalogue Location	Gage Insert	Minimum Bore Diameter	Other
[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]

Step 3 – Choose Insert for Application

- Select coarse pitch inserts for fully controlled thread form including diameter.
- Coarse pitch eliminates the need for measuring and are optimized for the best tool life at thread pitch.
- Use coarse pitch inserts for fine pitch, also the flexibility to cut a variety of thread pitches with one insert.
- Note insert size for machine selection.

See threading insert overview on pages [illegible]

insert size	catalogue number	TMEC
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Step 4 – Select Appropriate Stars

Required information

- Thread form (ISO or other)
- Pitch (diameter)
- Hole position (front of tool, tool direction, front of thread)
- Number of starts

Select the proper stars TMFR... for external ISO or internal [illegible]
TMIR... for external ISO or internal [illegible]

For recommended stars a different from stars supplied with machine, order stars separately.
NOTE: Optimize your threading operation by using the proper lead angle and the recommended lead values. See the Technical Section on pages [illegible] Also see detailed data sets for information on pages [illegible]

Step 5 – Select Grade and Speed

Recommendations for Grade and Speed Selection – [illegible]

Workpiece material	steel	stainless steel	cast iron	non ferrous metals	high temp alloys
insert coats	[illegible]				
Grade	TMEC[illegible]	TMEC[illegible]	TMEC[illegible]	TMEC[illegible]	TMEC[illegible]
Speed (m/min)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WIDIA

Style			Thread profile	Standard	Tolerance class	Coolant	Applications	Page(s)
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Coatings provide high-speed repeatability and are engineered for finishing to heavy roughing.

- Reduce cycle times — high-speed repeatability
- Longer tool life — new coatings resulting inserts better wear resistance

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

Wear resistance ——— Toughness

Coating	Grade Description									
Grade TM4125 HC-PVD	PVD, TiAlN Nano multilayer coated carbide. General purpose threading for steels, stainless steels, cast iron, non-ferrous materials, and difficult to machine materials. Recommended in non-coolant cutting operations when higher toughness is required.									

Laytown Threading Thread Form Guide

- All Laytown Threading inserts are precision ground to provide accurate thread forms and indexing.
- Both cutting and non-cutting partial profile inserts are specifically designed for either external or internal threading operations.
- Cutting inserts provide a fully controlled thread form, including standard for a given pitch. The need to clearance is eliminated and the inserts are optimized for the cast and fill of that pitch.
- Non-cutting partial profile inserts offer the flexibility to cut a variety of thread profiles with one insert.
- Right hand Laytown Threading notation: use right hand inserts. Left hand Laytown Threading notation: use left hand inserts.
- Right hand Laytown Threading boring bars use right hand inserts. Left hand Laytown Threading boring bars use left hand inserts.

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Laydown Threading
Insert Identification System

3	E	R	A	ISO	
Insert Size	Insert Type	Hand of Insert	Thread Pitch	Thread Profile	Number of Teeth

E – External thread

I – Internal thread

R – Right hand thread

L – Left hand thread

Single tooth profile – Unspecified

Multi-tooth profile – Number of teeth (cutting edge are specified)

Multi-tooth profile with two teeth – 2M

55	Partial Profile 55°
60	Partial Profile 60°
55C	55 Radius 55°
55L	55 Radius 55°
55M	55 Combination 55° 60°
W	Whitworth 55°
NPT	American National Pipe Thread 60°
ISO	Metric
PG	Giant Conical
NPMS	NPT Mixed

Partial profile inserts

symbol	mm
A	0.5–12
AL	0.5–12
B	1.7–50
W	0.5–50
D	0.5–50

Full profile inserts

symbol	mm
Number of TPI	0.5–50

symbol	d	L1
2	0.250	11
3	0.375	16
4	0.500	22
5	0.625	27

Material Group		Cutting Speed – m/min		
		TM200		
		min	Start	max
P	01	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]
M	1	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]
K	1	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]
N	1	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]
	5	[illegible]	[illegible]	[illegible]
	6	[illegible]	[illegible]	[illegible]
	7	[illegible]	[illegible]	[illegible]
S	1	[illegible]	[illegible]	[illegible]
	2	[illegible]	[illegible]	[illegible]
	3	[illegible]	[illegible]	[illegible]
	4	[illegible]	[illegible]	[illegible]

■ GSUL-60

Catalogue number	TCL	LE	A	Insert size	Thread pitch mm	TPI	TPF
Right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
Left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—

■ BVL-00

catalogue number	FC	LS	L	insert size	thread pitch mm	TT	TTT
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–

WIDIA

■ GBL-BD

catalogue number	[illegible]	[illegible]	insert size	thread pitch range	[illegible]	[illegible]
right hand						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–

Catalogue number	[illegible]	[illegible]	Insert size	Thread [illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–

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[illegible] – continued

catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–

■ Rt.-ISO

Catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
right hand						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–

(continued)

WIDIA

[illegible] – continued

catalogue number	[illegible]	[illegible]	insert size	thread pitch range	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
left hand						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–

[continued]

(ISO-G) — continued

catalogue number	L2	L	Insert size	Thread pitch mm	TPI	TPI
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–

WIDIA

■ G32L-EN

catalogue number	CB	L	insert size	thread pitch mm	TPI	TPF
right hand						
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–

(continued)

catalogue number	CE	E	insert size	thread pitch mm	TPI	TPI
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–

WIDIA

■ISO, UN

catalogue number	[illegible]	[illegible]	insert size	thread pitch range	[illegible]	[illegible]
right hand						
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–

continued

[illegible] – continued

■ [illegible]

catalogue number	[illegible]	[illegible]	thread size	thread pitch mm	[illegible]	[illegible]
right hand						
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]

WIDIA

■ C30S, 6E

Catalogue number	TEL	LE	L	Insert size	Thread pitch mm	TPI	TPF
Right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–
Left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–

■ Best choice
□ Alternate choice

■ 60.0 - 55

Catalogue number	DC	CW	L	Insert size	Thread pitch mm	TPI	TPP	Page
Right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
Left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]

WIDIA

Catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Right hand						
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
Left hand						
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—
[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—

catalogue number	[illegible]	[illegible]	insert size	thread pitch mm	[illegible]	[illegible]
right hand						
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–

■ Best choice
□ Alternate choice

■ IR-APKD

catalogue number	RE	RE	L	insert size	thread pitch min	RH	RH
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]

■ IR-APKD

catalogue number	RE	RE	L	insert size	thread pitch min	RH	RH
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]

■ [illegible]

catalogue number	[illegible]	[illegible]	[illegible]	Insert size	Thread pitch min	[illegible]	[illegible]	[illegible]
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–	[illegible]

■ [illegible]

catalogue number	[illegible]	[illegible]	[illegible]	Insert size	Thread pitch min	[illegible]	[illegible]	[illegible]
right hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–	[illegible]
left hand								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–	[illegible]

■ [illegible]

catalogue number	[illegible]	[illegible]	[illegible]	thread size	thread pitch mm	[illegible]	[illegible]
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–

■ GAR-TR

catalogue number	[illegible]	[illegible]	Insert size	Thread pitch range	[illegible]	[illegible]	[illegible]
right hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]
left hand							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]

■ISO, TR

catalogue number	[illegible]	[illegible]	insert size	thread pitch min	[illegible]	[illegible]
right hand						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–

Laydown Threading
Toolholder Identification System

A	L	25	3	R
Toolholder Construction	Tool Type	Shank Size	Insert Size	Hand of Tool

A – [illegible]

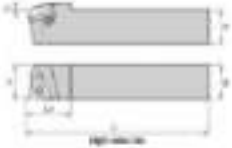
B – [illegible]

L – Lateral Thread

symbol	d	l1
2	6.35	11
3	9.53	16
4	12.7	22
5	15.88	27

RR – [illegible]

LH – [illegible]



■ N/A

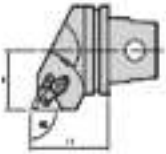
order number	catalogue number	insert size	H	B	F	L1	L2	shim	shim screw	Torx	insert screw	Torx
right hand												
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

KM™ QUICK CHANGE

W.S.S.–N 60° • Internal Only

			L2		L		D min									
Catalog Number	Cartridge Number	Hand	in	mm	in	mm	in	mm	grip screw	insert screw	shim	wrench	clamp assembly	kg	lbs
Right Hand																
[illegible]	[illegible]	RH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	RH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	RH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Left Hand																
[illegible]	[illegible]	LH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	LH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	LH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

N.B.: Cutting units are supplied with insert screw and clamp assembly. However, tools are designed to use either the insert screw or the clamp assembly, not both.



KM

■ ESS 90°

order number	catalogue number	LF mm	LF in	F mm	F in	grip wrench	insert screw	shim	shim screw	clamp assembly	kg	lbs
right hand												
[illegible]	[illegible]	40	[illegible]	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	40	[illegible]	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	40	[illegible]	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand												
[illegible]	[illegible]	40	[illegible]	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	40	[illegible]	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	40	[illegible]	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

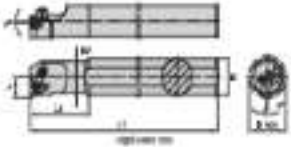
NOTE: Cutting units are supplied with insert screw and clamp assembly. However, both are designed to use either the insert screw or the clamp assembly not both.

Laydown Threading
Boring Bar Identification System

A	VR		20	3	R
Shank Requirement	Tool Type	Coolant Capability	Shank Head Diameter	Insert Size	Hand of Tool
A – Shank required N – No shank required D – Minimum Bores		C – Coolant available	16 20 25 32 40 50 A = Metric shank A = Metric shank		RH – Thread symbol 2 LH – Thread symbol 1

VR – Internal coolant shank

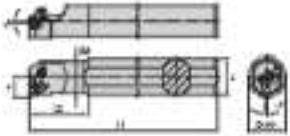
Symbol	A	L1
1	6.35	11
2	9.53	16
3	12.7	19
4	15.9	22
5	19.05	27



■ N.A. VII

Order number	Catalogue number	Insert size	B	D min	DS	F	L1	L2	α°	γ°	Shim	Screw	Key	Screw torque	Page
right hand															
[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand															
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-0,2°	-1,0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

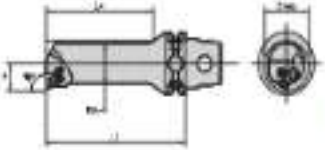
NOTE: Items listed without a letter are designed for a 1,5° tool flank angle.



■ (CNS)

order number	catalogue number	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
right hand													
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: WIDIA™ [illegible] per the [illegible] and [illegible] industry. The insert dimensions correspond to [illegible] Standard in ISO [illegible]. Carbide with [illegible] or [illegible] shank are available. An internal [illegible] tool can also be used for internal [illegible] threads in the same way as internal [illegible] but can be used for internal [illegible] threads. Please see [illegible]. The indicated angle on the tool is [illegible]. Tools are always clamped with the shank parallel to the [illegible].



KM
QUICK CHANGE

■ 0.50" 90°

Order number	Catalogue number	Z (min) mm	Z (min) in	X (max) mm	X (max) in	F mm	F in	LF mm	LF in	LT mm	LT in	Weight (kg/pc)	kg	lbs
right hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
left hand														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(continued)

[illegible] – continued

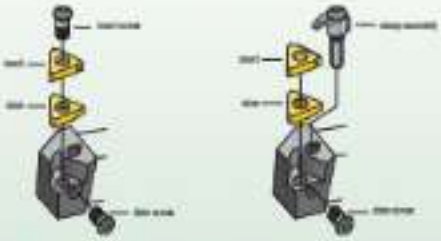
■ Spare Parts

Catalogue number	Insert screw	Shim	Shim screw	Clamp assembly
Right hand				
[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Left hand				
[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	–	–	–
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: [illegible]
Cutting units are supplied with insert screw and clamp assembly. However, tools are designed to use either the insert screw or the clamp assembly not both.

Laydown Threading Toolholders

[illegible]



Insert size and screw		Insert screw	Shim	Shim screw and washer	Clamp assembly
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
Laydown Threading tooling [illegible]					
[illegible]		[illegible]	—	—	—
[illegible]		[illegible]	—	—	—
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]

SM	—	Y	E	3	—	2N
Shim		Y shim for Laydown standard inserts	E — External I — Internal	3 — 1mm		Shim Angle

[illegible]	[illegible]
[illegible]	[illegible]
—	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

rectifiers angle		2.5°	2.0°	1.5°	0.5°	-0.5°	-1.5°
insert size (C)	toolholder	wiper ordering code					
6mm	ex. TF-06L-1.5 ex. L-06L-TF1	GW-TF-2.5° GW-TF-2.5°	GW-TF-2° GW-TF-2°	GW-TF-1.5 GW-TF-1.5	GW-TF-0.5° GW-TF-0.5°	GW-TF-0.5° GW-TF-0.5°	GW-TF-1.5° GW-TF-1.5°
8mm	ex. TF-08L-1.5 ex. L-08L-TF1	GW-TF-2.5° GW-TF-2.5°	GW-TF-2° GW-TF-2°	GW-TF-1.5 GW-TF-1.5	GW-TF-0.5° GW-TF-0.5°	GW-TF-0.5° GW-TF-0.5°	GW-TF-1.5° GW-TF-1.5°

Slanted Shim Kit

Because one angle is unavailable each different shim has been supplied with an standard toolholder, we strongly recommend that other kits be readily available in every tool shop.

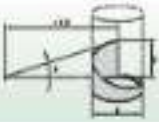
insert base	shim size (D)	ordering code	available standard shims
W	10mm	W-TF1	GW-TF-2.5°, 2°, 1°, 0°, 0°, 0° GW-TF-0.5°, 1°, 1°, 0°, 0°, 0°
W	12mm	W-TF2	GW-TF-2.5°, 2°, 1°, 0°, 0°, 0° GW-TF-0.5°, 1°, 1°, 0°, 0°, 0°

The Helix Angle

Example:
C = 6L (diameter 6 mm)
p = 1.5 (lead 1.5°)

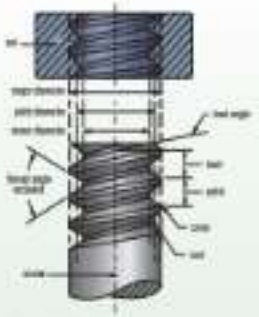
α = helix angle
C = pitch
D = pitch diameter

$$\alpha = \arctan\left(\frac{C \cdot \text{pitch}}{\pi \cdot D}\right) = 1.5°$$

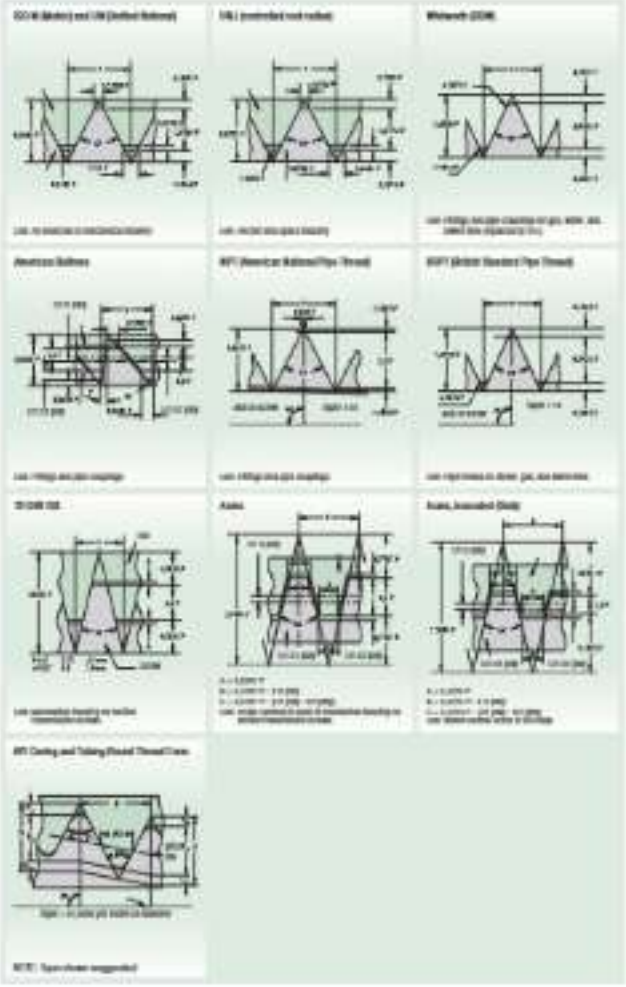


Screw Thread Definitions

1. Major diameter — The largest diameter of a straight screw thread. This applies to both external and internal threads.
2. Pitch diameter — For a straight thread, it is the diameter which passes through the thread profiles at such points which make the thread width of the groove equal to one half of the basic pitch. (For a "hollow thread," the contact at the point where the widths of the thread and grooves are equal.
3. Thread angle (included) — The included angle between the individual flanks of the thread form.
4. Minor diameter — The smallest diameter of a straight screw thread. This applies to both external and internal threads.
5. Lead angle — (For a straight thread, the lead angle is the angle created by the helix of the thread at the pitch diameter and a plane perpendicular to the axis.
6. Lead — The distance a screw thread advances parallel to the revolution. (For a single start, the pitch and lead are identical. The lead is equal to the pitch times the number of starts.
7. Pitch — The distance from a point on a screw thread to a corresponding point on the next thread measured parallel to the thread axis.
8. Crest — The outer most surface of the thread form which joins the flanks.
9. Root — The inner most surface of the thread form which joins the flanks.



NOTE: Threads per inch (TPI) and pitch:
The number of threads per inch is measured axially.
The metric pitch and TPI are thus used interchangeably. (TPI = 1/pitch)


Whitworth (BSW)
American Buttress
NPT (American National Pipe Thread)
BSPT (British Standard Pipe Thread)
Acme
Acme, Generalized (Stub)
API Casing and Tubing (Round Thread) Form

Suggested Grades and Speeds for Threading Various Workpiece Materials

workpiece group	workpiece material	recommended surface speed – SFM		
		uncoated	PVD coated	
		TX8	TM8000	TM6000
low machining carbon steel	[illegible]	–	[illegible]	[illegible]
plain carbon steel	[illegible]	–	[illegible]	[illegible]
alloy steel/tool steels (22–32 HRC) (up to 14 HRC)	[illegible]	–	[illegible]	[illegible]
alloy steel/tool steels (32–42 HRC) (34–47 HRC)		–	[illegible]	–
martensitic/ferritic stainless/precipitation hardening	[illegible]	–	[illegible]	[illegible]
austenitic stainless steel	[illegible]	[illegible]	[illegible]	[illegible]
gray cast iron (125–250 HB)	[illegible]	[illegible]	[illegible]	[illegible]
gray cast iron (35–60 HRC)	[illegible]	[illegible]	[illegible]	[illegible]
alloy/ductile iron	[illegible]	[illegible]	[illegible]	[illegible]
low machining aluminum alloys	[illegible]	[illegible]	[illegible]	–
high silicon aluminum alloys	[illegible]	–	–	–
magnesium/brass		[illegible]	[illegible]	[illegible]
non metallics	[illegible]	[illegible]	[illegible]	[illegible]
high temperature alloys (32–40 HRC) (up to 37 HRC)	[illegible]	[illegible]	[illegible]	[illegible]
high temperature alloys (32–40 HRC) (34–47 HRC)	[illegible]	[illegible]	[illegible]	[illegible]
titanium alloys	[illegible]	[illegible]	[illegible]	–

NOTE: When workpiece/material hardness are in the top of a range, starting speeds should be at the lower end. Regularly inspect insert wear/tear to ensure tight

single parameter
"uncoated" — [illegible]
PVD coated – tight finish on tight condition top only
top/side [illegible]

WIDIA

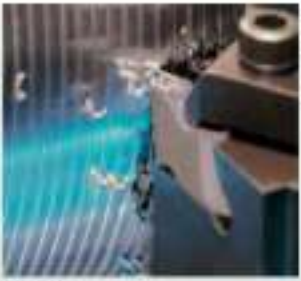
problem	cause	possible solution
Uneven tool wear 	• Burr. • Tool flank. • Chipping. • Insufficient rake. • Insufficient relief.	• Use modified flank relief. • Use full profile insert. • Increase coolant concentration. • Increase speed. • Check machine "C" bearing play. • Check insert lock. • Check for contact when in C1 position. • Calculate flank clearance.
Scratch 	• Poor rigidity. • Insert movement. • Insufficient relief. • Oil contamination.	• Use modified flank relief. • Minimize tool overhang. • Check for workpiece deflection. • Check insert and clamp. • Notch tool including position over workpiece centerline. • Adjust number of passes. Fewer passes reduce chatter.
Built-up edge 	• Gummy tool feel. • Insufficient coolant. • Chip load.	• Increase speed. • Increase coolant concentration and/or flow. • Adjust insert angle. • Increase depth of cut per pass.
Deformation 	• Wrong grade. • Speed too high. • Insufficient relief angle. • Insufficient coolant.	• Use modified flank relief. • Consider more wear-resistant grade (e.g., "WM10"). • Reduce speed. • Increase coolant flow.
Chipping 	• Insufficient relief. • Chip load. • Wrong grade. • Too much speed. • Poor rigidity.	• Use modified flank relief. • Increase or decrease number of passes. • Eliminate spring passes. • Use tougher grade (e.g., "WM20"). • Increase radius or chamfer on leading edge. • Decrease radius or chamfer on leading edge. • Minimize tool overhang. • Check for insert movement/loose clamp. Torque screw as clamp is seated/stable. • Check for possible part deflection. • Calculate flank clearance. • Decrease speed/feed.
Surface wear 	• Coarse chip load. • Crack initiation. • Wrong grade. • Insufficient relief.	• Use modified flank relief. • Decrease chip load. • Use large nose radius if possible. • Use tougher grade (e.g., "WM10").
Flank wear 	• Insufficient relief. • Wrong grade. • Insufficient coolant. • Oil contamination. • Insufficient flank clearance. • Insufficient relief angle.	• Decrease speed/feed. • Consider more wear-resistant grade (e.g., "WM10"). • Increase coolant flow. • Check clamp screw(s) tight to the tool. (For smaller tool diameters, the screw is critical the most for operation accuracy). • Calculate flank clearance and change relief to increase clearance on worn flank. • If work is in cutting flank, increase relief angle clearance.

problem	possible solution																	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
chatter	•			•							•	•				•		•
flow on wear	•								•									•
short tool life		•	•	•		•		•										•
chipped leading edge			•	•	•													
chipped trailing edge					•					•								
broken cross (flat panel)	•														•	•		
broken cross (plus first panel)				•	•					•			•					•
built up on leading edge	•		•				•	•										•
corrosion cracking													•					
splitting threads																	•	
poor chip evacuation														•				•

WIDIA™ insert technology brings chip control to your threading operations with the "cyclone" platform. The innovative WIDIA-exclusive chip groove, when used according to our recommendations, controls the chip in most applications. Our positive rake design lowers cutting pressures, which in turn lowers damaging tool deflection thus providing better tool life. Long, stringy chips are longer may be wrapped or carbon steel. The change to operation when removing long chips from the workpiece and chuck is eliminated. All of these benefits combine to help tool life practically of your threading operations.

The Last Pass

Some CNC controls require the last pass to be at a 0° infeed angle because the edge will not break on the last pass. On most carbon and alloy steels, the last pass can remain at 0°. Other depth of cut and workpiece are acceptable. For some materials, as a result of the 0° infeed angle pass may be used to improve surface finish, however, chip handling action may be compromised.

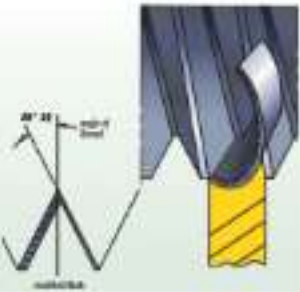


Machine Programming

Modern CNC controls allow the programmer to easily adjust infeed angle, the number of passes, and depth of cut for each pass. The chip control threading insert performs best at an infeed angle of 29°, 30°, although 31° to 33° is acceptable. Also, it is important to maintain a minimum of 0.5 of the length of cut on every pass. In most applications, use of CNC infeed cycles produces very marginally successful results. Custom written programmes are better and are recommended.

Infeed Angle

In order to effectively and consistently break the chip, it is important to use an infeed angle between 29° and 33°. Do not apply chip control inserts at infeed angles less than 27°.



Radial	Modified Rank	Alternating Rank	Reversed modified Rank
Advantage – • Cutting on both sides of the thread form (done after the cutting edge in the cut, set protects edge from chipping) • Can work to the head	**Advantage –** • Cut cuts both sides of thread form, so it is protected from chipping, similar to 0° rake). Chamfer type chip deviates, but reverse chip flattens helps remove the chip similar to flank rakes) • This is the preferred method, especially when cast with a chip control insert • Combined radial and the alternating flank rakes • Results in good tool life, with wear evenly distributed over both flanks	**Advantage –** • Increased tool life because both edges are used equally NOTE: Some machine tools may require special programming techniques to achieve this method of rake)	**Advantage –** • Cut cuts both sides of thread form, so it is protected from chipping, similar to 0° rake). Chamfer type chip deviates, but reverse chip flattens helps remove the chip similar to flank rakes) • This is the preferred method, especially when cast with a chip control insert • Combined radial and the alternating flank rakes • Results in good tool life, with wear evenly distributed over both flanks • As chip flow is the reversed from direction, this an excellent choice for internal threading
Disadvantage – • Cut deviates a chamfer chip that may be difficult to handle • Tendency to wear when cutting high tensile materials • Tool condition is necessary • Extra cutting edge is engaged in flank of thread, causing the wear tendency to shorten	**Disadvantage –** • Similar disadvantages as with 0° rake), although reduced remaining to negligible as cutting forces are better equalized, and chip flow is much less in a position	**Disadvantage –** • Difficult to cut on conventional machines	**Disadvantage –** • Programming needs to be done line by line

Partial Profile

Tooth profile with universal profile shape

- 55° or 60° without cutting edges for the tooth tipping
- Reduced threading
- For various pitches in a defined range
- Previously one-time production
- Major/minor diameter must be accordingly pre-turned

Full Profile

Tooth profile with full profile shape including tooth height

- For one-time, precise threads in the specified pitch.
- General applications
- Machining allowance in relation to nominal diameter amounts to 1 – 2 times

Multi-Tooth Profile

Multi-tooth full profile generally with 2 blades

- Highly productive threading with fewer passes and longer tool life.
- Requires a rigid setup and long thread cross-through
- Minimum clearance width approximately 1.25 x C as per technical book dimension table

Formulas

Metric Formula		
to find	**given**	**formula**
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Legend

[illegible] = [illegible]
[illegible] = [illegible]
[illegible] = [illegible]
[illegible] = [illegible]

Maximum Cutting Speeds

On older machines, cutting speed is often limited by the maximum feed speed (motor) of the machine or by the machine.

Check your maximum speed with the following formulas:

metric formula: maximum cutting speed (m/min) = part diameter (mm) x π x [illegible] / max. machine feed (mm)

Flank clearance

[illegible] = [illegible]
[illegible] = [illegible]
[illegible] = [illegible]
[illegible] = [illegible]

Thread	Angle	C (mm)	Deep
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Recommendation for Threading Infeed Passes

M	M 3	M 4	M 5	M 6	M 8	M 10	M 12	M 16
Metric pitch (mm)	0,35-0,45	0,50-0,7	0,75-1,0	1,25-1,5	1,75-2	2,5-3	3,5-4	4,5-6
Thread Type	**Recommended number of passes**							
Common Thread forms ISO, DIN, JIS, BSF, Whitworth, ISO/1, UN Rolex/Shoulder	4-5	5-6	5-6	6-7	6-7	7-8	7-8	8-10
Metric Trapez, Round, ACME thread	—	—	3-4	3-4	4-5	5-6	5-6	6-8
Metric Buttress, NPT thread	—	—	4	4-5	5-6	6-7	7-8	8-10
American Buttress	—	—	3-4	4-5	5-6	6-7	7-8	8-10

Information: minimum 2 (3 mm infeed on last passes to avoid work hardening and excessive abrasion of the threading tool)

Constant Volume Infeed Values for Threading Operations

In most applications, use of CNC control cycles produces only marginally successful results. For example, on a shaft requiring thread has a depth of 1mm (.0787").

$$AD_n = \frac{AD}{\sqrt{\text{nap}-1}} = \sqrt{n}$$

Formula for constant chip load infeed

Anp	=	radial infeed
n	=	actual pass (from 1 to the nap)
nap	=	number of passes
n	=	1st pass, 2
		2nd pass, 3
		3rd pass and up, n-1

Using Radial Infeed

Starting stress on the cutting edge caused by 3 shaped chips from long chipping steel workpiece materials.

High cutting forces with small cutting. Necessary inserts sharp edges with high strength.

Using Flank Infeed

Lower bending stress and additional cutting edges produce more favorable chip shapes and longer cutting. Necessary.

Carbides with high hardness, good wear resistance, and temperature stability are advantageous.

Guidelines for Infeeds – How to Determine the Number and the Size of Passes

The number of passes "n" per thread is decisive for successful threading and tool life. The following tables give standard values for the application conditions: wear, machining time. The proper number of passes must be determined empirically.

A hard machining process, the number of passes must be increased. With increased stress, as a rule, tool life is increased. The number of passes. The chip thickness should not be less than 0,05mm. The allowance in the diameter should not exceed 0,2mm.

Metric ISO, External Thread Cutting

pitch (mm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
T dp (mm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N dp	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	values in feed mm/rev (IPT)													
number of passes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9									[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10									[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11										[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12										[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13											[illegible]	[illegible]	[illegible]	[illegible]
14											[illegible]	[illegible]	[illegible]	[illegible]
15													[illegible]	[illegible]
16														[illegible]
T dp (mm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Always advance cutter to full profile depth.

Metric ISO, Internal Thread Cutting

thread pitch P (mm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
T dp (mm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
N dp	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	values in feed mm/rev (IPT)													
number of passes	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9									[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10									[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11										[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12										[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13											[illegible]	[illegible]	[illegible]	[illegible]
14											[illegible]	[illegible]	[illegible]	[illegible]
15													[illegible]	[illegible]
16														[illegible]
T dp (mm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: Always advance cutter to full profile depth.

UN Thread, External Thread Cutting

TPI	14	16	18	20	24	32	40	48	56	64	72	80	96
T Dp (mm)	0.040	0.037	0.034	0.031	0.027	0.021	0.018	0.014	0.013	0.011	0.010	0.009	0.007
N Dp	5	6	8	7	9	8	10	11	11	12	14	15	16
	Values for hard mixed (HC)												
Grade of process	3H	3H	3H	3H	3H	3H	3H	3H	3H	3H	3H	3H	3H
1	0.101	0.093	0.087	0.078	0.117	0.101	0.093	0.084	0.081	0.071	0.064	0.061	0.055
2	0.140	0.128	0.115	0.110	0.145	0.117	0.108	0.098	0.090	0.080	0.072	0.065	0.059
3	0.172	0.155	0.142	0.132	0.159	0.130	0.118	0.108	0.098	0.086	0.076	0.069	0.059
4	0.192	0.173	0.153	0.135	0.163	0.130	0.118	0.102	0.093	0.080	0.067	0.059	0.052
5	0.200	0.184	0.163	0.145	0.167	0.133	0.118	0.105	0.095	0.082	0.069	0.060	0.053
6		0.202	0.181	0.161	0.170	0.139	0.126	0.114	0.102	0.087	0.073	0.063	0.057
7				0.167	0.180	0.145	0.127	0.115	0.104	0.090	0.076	0.066	0.059
8					0.183	0.154	0.135	0.118	0.104	0.093	0.078	0.069	0.061
9					0.189	0.163	0.134	0.118	0.101	0.098	0.080	0.072	0.063
10							0.139	0.120	0.105	0.101	0.087	0.077	0.066
11								0.124	0.108	0.103	0.091	0.080	0.068
12									0.105	0.106	0.093	0.084	0.071
13										0.107	0.103	0.089	0.073
14											0.097	0.093	0.074
15												0.101	0.086
16													0.091
T Dp (mm)	0.040	0.037	0.034	0.031	0.027	0.021	0.018	0.014	0.013	0.011	0.010	0.009	0.007

(ECO): Range allow 0.10 (-). Over-ratio dual for full profile insert.

UN Thread, Internal Thread Cutting

TPI	14	16	18	20	24	32	40	48	56	64	72	80	96
T Dp (mm)	0.047	0.045	0.042	0.039	0.035	0.027	0.022	0.017	0.014	0.013	0.012	0.011	0.009
N Dp	5	6	8	7	9	8	8	10	11	12	13	14	16
	Values for hard mixed (HC)												
Grade of process	3H	3H	3H	3H	3H	3H	3H	3H	3H	3H	3H	3H	3H
1	0.130	0.120	0.107	0.100	0.095	0.071	0.061	0.053	0.054	0.045	0.038	0.037	0.032
2	0.172	0.158	0.139	0.134	0.134	0.101	0.088	0.077	0.074	0.066	0.055	0.047	0.037
3	0.211	0.197	0.171	0.166	0.172	0.127	0.107	0.094	0.092	0.076	0.064	0.054	0.044
4	0.245	0.227	0.198	0.193	0.199	0.150	0.126	0.108	0.102	0.086	0.069	0.060	0.050
5	0.255	0.243	0.207	0.209	0.206	0.166	0.138	0.114	0.111	0.093	0.075	0.063	0.056
6		0.255	0.226	0.220	0.220	0.180	0.149	0.126	0.114	0.099	0.080	0.069	0.059
7				0.231	0.230	0.189	0.159	0.136	0.121	0.105	0.085	0.073	0.063
8					0.235	0.195	0.166	0.140	0.125	0.109	0.089	0.076	0.065
9						0.219	0.168	0.150	0.128	0.113	0.092	0.079	0.067
10								0.159	0.130	0.117	0.095	0.081	0.069
11									0.134	0.120	0.097	0.083	0.070
12										0.120	0.098	0.084	0.071
13											0.098	0.084	0.071
14												0.084	0.071
15													0.071
16													0.071
T Dp (mm)	0.047	0.045	0.042	0.039	0.035	0.027	0.022	0.017	0.014	0.013	0.012	0.011	0.009

(ECO): Range allow 0.10 (-). Over-ratio dual for full profile insert.

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NPT Thread, External, and Internal Machining

TPI	11	14	18	11.5	8
T Ap (mm)	0.761	1.116	1.451	1.177	2.464
N Ap	5	4	10	9	16
	values for front infeed (X2)				
order of passes	X11	X14	X18	X11	X8
1	0.340	0.213	0.200	0.240	0.234
2	0.539	0.169	0.214	0.236	0.230
3	0.411	0.151	0.186	0.218	0.206
4	0.366	0.138	0.161	0.186	0.174
5	0.341	0.131	0.147	0.170	0.160
6	0.300	0.120	0.133	0.155	0.150
7		0.110	0.121	0.141	0.137
8		0.100	0.110	0.130	0.126
9			0.102	0.120	0.116
10			0.094	0.109	0.110
11				0.100	0.110
12				0.100	0.107
13					0.102
14					0.096
15					
16					
T Ap (mm)	0.761	1.116	1.451	1.177	2.464

NOTE: Always allow 0.254 to 0.508 mm extra stock for full profile inserts.

BSPT Thread, External, and Internal Machining

TPI	28	19	14	11
T Ap (mm)	0.909	0.954	1.185	1.454
N Ap	3	6	10	11
	values for front infeed (X2)			
order of passes	X28	X19	X14	X11
1	0.400	0.319	0.310	0.334
2	0.330	0.196	0.230	0.287
3	0.301	0.156	0.193	0.241
4	0.283	0.134	0.164	0.204
5	0.274	0.121	0.147	0.177
6		0.117	0.136	0.155
7		0.115	0.130	0.138
8		0.114	0.125	0.126
9			0.121	0.116
10			0.117	0.111
11				0.111
12				0.107
13				
14				
15				
16				
T Ap (mm)	0.909	0.954	1.185	1.454

Trapezoidal Thread to DIN 103, External, and Internal Machining

pitch	12	8	6	4	3
T Ap (mm)	1.414	1.141	1.773	2.451	2.745
N Ap	5	4	10	9	16
	values for front infeed (X2)				
order of passes	X12	X8	X6	X4	X3
1	0.298	0.258	0.230	0.213	0.212
2	0.292	0.213	0.194	0.208	0.196
3	0.286	0.186	0.172	0.192	0.183
4	0.279	0.162	0.156	0.177	0.170
5	0.272	0.150	0.137	0.163	0.159
6	0.272	0.141	0.128	0.151	0.148
7		0.136	0.121	0.140	0.142
8		0.134	0.115	0.134	0.136
9			0.117	0.129	0.130
10			0.118	0.127	0.126
11				0.111	0.123
12				0.105	0.117
13					0.110
14					0.108
15					
16					
T Ap (mm)	1.414	1.141	1.773	2.451	2.745

NOTE: Always allow 0.254 to 0.508 mm extra stock for full profile inserts.

Round Thread to DIN 405, External, and Internal Machining

pitch	10	8	6
T Ap (mm)	1.251	1.414	1.732
N Ap	6	10	12
	values for front infeed (X2)		
order of passes	X10	X8	X6
1	0.313	0.297	0.257
2	0.275	0.245	0.244
3	0.255	0.214	0.210
4	0.245	0.193	0.187
5	0.234	0.175	0.171
6	0.214	0.166	0.158
7	0.207	0.156	0.150
8	0.206	0.150	0.139
9		0.149	0.136
10		0.147	0.131
11			0.130
12			0.128
13			
14			
15			
16			
T Ap (mm)	1.251	1.414	1.732

NOTE: Always allow 0.254 to 0.508 mm extra stock for full profile inserts.

Whitworth, External, and Internal Thread Cutting

TPI	28	26	24	22	20	18	16	14	12	11	10	9
T-Up (mm)	0.568	0.615	0.673	0.684	0.745	0.786	0.872	0.935	0.935	0.959	0.991	1.118
Rdg	3	3	3	4	4	4	4	5	5	5	5	6
	values in bold (red) (R3)											
Infeed in passes	R3	R3	R3	R3	R3	R3	R3	R3	R3	R3	R3	R3
1	0.203	0.209	0.209	0.229	0.243	0.251	0.262	0.269	0.271	0.285	0.287	0.286
2	0.143	0.144	0.148	0.162	0.171	0.179	0.184	0.192	0.198	0.217	0.208	0.216
3	0.101	0.117	0.121	0.132	0.139	0.147	0.170	0.179	0.178	0.155	0.166	0.201
4	0.085	0.114	0.118	0.108	0.120	0.131	0.148	0.155	0.161	0.162	0.164	0.174
5	0.074	0.101	0.097	0.097	0.102	0.116	0.142	0.145	0.153	0.154	0.173	0.181
6		0.086	0.082	0.077	0.085	0.114	0.133	0.138	0.138	0.143	0.151	0.171
7				0.072	0.081	0.101	0.121	0.135	0.137	0.137	0.137	0.155
8				0.064	0.072	0.085	0.102	0.126	0.131	0.133	0.135	0.145
9						0.082	0.092	0.104	0.118	0.131	0.133	0.133
10								0.092	0.104	0.116	0.128	0.131
11									0.092	0.104	0.114	0.126
12										0.092	0.099	0.110
13											0.092	0.101
14											0.091	0.092
15												0.084
16												0.078
T-Up (mm)	0.568	0.615	0.673	0.684	0.745	0.786	0.872	0.935	0.935	0.959	0.991	1.118

NOTE: Always allow 0.05-0.1mm extra stock for fully profile inserts.

Multi-Tooth Threads, Internal

	55° metric						55° UN						Whitworth	60° V		
type	06	08	06	08	08	06	06	08	06	08	06		06	06	08	06
pitch (mm)	1.0	1.5	1.0	1.0	1.5	1.0	—	—	—	—	—		—	—	—	—
TPI	—	—	—	—	—	—	16	16	12	12	8		11	11.5	11.5	8
max depth (mm)	0.614	0.920	0.614	1.104	1.104	1.104	0.919	0.919	1.192	1.192	1.841		1.131	1.152	1.152	1.440
max Width	0.125	0.187	0.125	0.208	0.312	0.125	0.157	0.234	0.234	0.312	0.187		0.176	0.184	0.317	0.484
2	0.174	0.254	0.255	0.254	0.457	0.460	0.254	0.254	0.458	0.462	0.254		0.460	0.254	0.254	0.635
3	—	0.203	—	0.203	—	0.762	0.203	—	0.279	—	0.762		0.203	0.203	0.381	0.508
4	—	—	—	—	—	0.508	—	—	—	—	0.203		—	0.254	—	0.762

Recommendations for Steel Workpieces (<300 BHN)

			Side depth – mm/side		
Catalogue number	Insert size	TPI profile	1st pass	2nd pass	3rd pass
WTC-05V1.5ER	6	8 UN	1.11	1.00	0.93
WTC-05V1.5RH	6	8 UN	1.19	1.05	1.00
WTC-05V1.5ER	6	10 UN	0.93	0.87	0.83
WTC-05V1.5RH	6	10 UN	0.99	0.93	0.93
WTC-05V1.5ER	6	11 UN	0.91	0.84	0.87
WTC-05V1.5RH	6	11 UN	0.93	0.93	0.93
WTC-05V2.1RER	6	14 UN	0.66	0.65	0.72
WTC-05V2.1RRH	6	14 UN	0.66	0.79	0.81
WTC-05V1.5RER-S	6	16 UN	0.59	0.61	0.66
WTC-05V1.5RER	6	16 UN	0.59	0.66	0.66
WTC-05V1.5RLH	6	16 UN	0.66	0.66	0.66
WTC-05V1.5RRH	6	16 UN	0.66	0.66	0.66
WTC-05V0.5-.75M	6	0 metric	1.11	1.05	1.00
WTC-05V0.5-.75M	6	10 metric	1.11	1.09	1.00
WTC-05V0.5-.75M	6	0 metric	1.05	1.15	1.00
WTC-05V0.5-.75M	6	0 MT	1.07	1.12	1.00
WTC-05V0.5-.75M	6	10 MT	0.88	1.07	1.05
WTC-05V0.5-.75M	6	10 MT	0.88	1.07	1.05

NOTE: Always allow 0.05-0.1mm extra stock for fully profile inserts.

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The following charts list the largest thread pitch that can be applied in internal applications using TopThread threading inserts for 60° V-threading and Acme threading.

Metric-sized 60° V-Threading Limits

Internal Threading Limitations
W1-1, W2-2 60° V-threading inserts

	nominal thread size		minimum thread diameter (mm)	
TPI	W1-1	W2-2	W1-1	W2-2
4.00	M40 x 0.25	–	42.00	–
5.00	M40 x 0.20	–	36.75	–
5.50	M36 x 0.20	M39 x 0.20	36.25	39.25
6.00	M33 x 0.20	M36 x 0.20	33.00	36.00
7.00	M30 x 0.20	M33 x 0.20	30.11	33.11
7.50	M28 x 0.20	M30 x 0.20	30.00	32.00
8.00	M27 x 0.20	M30 x 0.20	27.00	30.00
8.50	M27 x 0.20	M30 x 0.20	27.00	30.00
9.00	M27 x 0.20	M30 x 0.20	27.00	30.00
9.50	M24 x 0.20	M27 x 0.20	24.00	27.00
10.00	M24 x 0.20	M27 x 0.20	24.00	27.00
10.50	M24 x 0.20	M27 x 0.20	24.00	27.00
11.00	M24 x 0.20	M27 x 0.20	24.00	27.00
11.50	M24 x 0.20	M27 x 0.20	24.00	27.00
12.00	M24 x 0.20	M27 x 0.20	24.00	27.00
12.50	M24 x 0.20	M27 x 0.20	24.00	27.00
13.00	M24 x 0.20	M27 x 0.20	24.00	27.00
13.50	M24 x 0.20	M27 x 0.20	24.00	27.00
14.00	M24 x 0.20	M27 x 0.20	24.00	27.00
14.50	M24 x 0.20	M27 x 0.20	24.00	27.00
15.00	M24 x 0.20	M27 x 0.20	24.00	27.00
15.50	M24 x 0.20	M27 x 0.20	24.00	27.00
16.00	M24 x 0.20	M27 x 0.20	24.00	27.00
16.50	M24 x 0.20	M27 x 0.20	24.00	27.00
17.00	M24 x 0.20	M27 x 0.20	24.00	27.00
17.50	M24 x 0.20	M27 x 0.20	24.00	27.00
18.00	M24 x 0.20	M27 x 0.20	24.00	27.00
18.50	M24 x 0.20	M27 x 0.20	24.00	27.00
19.00	M24 x 0.20	M27 x 0.20	24.00	27.00
19.50	M24 x 0.20	M27 x 0.20	24.00	27.00
20.00	M24 x 0.20	M27 x 0.20	24.00	27.00
20.50	M24 x 0.20	M27 x 0.20	24.00	27.00
21.00	M24 x 0.20	M27 x 0.20	24.00	27.00
21.50	M24 x 0.20	M27 x 0.20	24.00	27.00
22.00	M24 x 0.20	M27 x 0.20	24.00	27.00
22.50	M24 x 0.20	M27 x 0.20	24.00	27.00
23.00	M24 x 0.20	M27 x 0.20	24.00	27.00
23.50	M24 x 0.20	M27 x 0.20	24.00	27.00
24.00	M24 x 0.20	M27 x 0.20	24.00	27.00
24.50	M24 x 0.20	M27 x 0.20	24.00	27.00
25.00	M24 x 0.20	M27 x 0.20	24.00	27.00
25.50	M24 x 0.20	M27 x 0.20	24.00	27.00
26.00	M24 x 0.20	M27 x 0.20	24.00	27.00
26.50	M24 x 0.20	M27 x 0.20	24.00	27.00
27.00	M24 x 0.20	M27 x 0.20	24.00	27.00
27.50	M24 x 0.20	M27 x 0.20	24.00	27.00
28.00	M24 x 0.20	M27 x 0.20	24.00	27.00
28.50	M24 x 0.20	M27 x 0.20	24.00	27.00
29.00	M24 x 0.20	M27 x 0.20	24.00	27.00
29.50	M24 x 0.20	M27 x 0.20	24.00	27.00
30.00	M24 x 0.20	M27 x 0.20	24.00	27.00
30.50	M24 x 0.20	M27 x 0.20	24.00	27.00
31.00	M24 x 0.20	M27 x 0.20	24.00	27.00
31.50	M24 x 0.20	M27 x 0.20	24.00	27.00
32.00	M24 x 0.20	M27 x 0.20	24.00	27.00
32.50	M24 x 0.20	M27 x 0.20	24.00	27.00
33.00	M24 x 0.20	M27 x 0.20	24.00	27.00
33.50	M24 x 0.20	M27 x 0.20	24.00	27.00
34.00	M24 x 0.20	M27 x 0.20	24.00	27.00
34.50	M24 x 0.20	M27 x 0.20	24.00	27.00
35.00	M24 x 0.20	M27 x 0.20	24.00	27.00
35.50	M24 x 0.20	M27 x 0.20	24.00	27.00
36.00	M24 x 0.20	M27 x 0.20	24.00	27.00
36.50	M24 x 0.20	M27 x 0.20	24.00	27.00
37.00	M24 x 0.20	M27 x 0.20	24.00	27.00
37.50	M24 x 0.20	M27 x 0.20	24.00	27.00
38.00	M24 x 0.20	M27 x 0.20	24.00	27.00
38.50	M24 x 0.20	M27 x 0.20	24.00	27.00
39.00	M24 x 0.20	M27 x 0.20	24.00	27.00
39.50	M24 x 0.20	M27 x 0.20	24.00	27.00
40.00	M24 x 0.20	M27 x 0.20	24.00	27.00
40.50	M24 x 0.20	M27 x 0.20	24.00	27.00
41.00	M24 x 0.20	M27 x 0.20	24.00	27.00
41.50	M24 x 0.20	M27 x 0.20	24.00	27.00
42.00	M24 x 0.20	M27 x 0.20	24.00	27.00
42.50	M24 x 0.20	M27 x 0.20	24.00	27.00
43.00	M24 x 0.20	M27 x 0.20	24.00	27.00
43.50	M24 x 0.20	M27 x 0.20	24.00	27.00
44.00	M24 x 0.20	M27 x 0.20	24.00	27.00
44.50	M24 x 0.20	M27 x 0.20	24.00	27.00
45.00	M24 x 0.20	M27 x 0.20	24.00	27.00
45.50	M24 x 0.20	M27 x 0.20	24.00	27.00
46.00	M24 x 0.20	M27 x 0.20	24.00	27.00
46.50	M24 x 0.20	M27 x 0.20	24.00	27.00
47.00	M24 x 0.20	M27 x 0.20	24.00	27.00
47.50	M24 x 0.20	M27 x 0.20	24.00	27.00
48.00	M24 x 0.20	M27 x 0.20	24.00	27.00
48.50	M24 x 0.20	M27 x 0.20	24.00	27.00
49.00	M24 x 0.20	M27 x 0.20	24.00	27.00
49.50	M24 x 0.20	M27 x 0.20	24.00	27.00
50.00	M24 x 0.20	M27 x 0.20	24.00	27.00

*Dimensions of 1 mm and less can be cut with an W1-1 insert provided the nominal thread diameter is 1 mm or larger. (1 mm or larger with W1-2).

Internal Threading Limitations
W1-3 and W1-4 60° V-threading inserts

TPI	nominal thread size	minimum thread diameter (mm)
5.00*	M10 x 0.50	10.00
5.50**	M10 x 0.50	10.00
6.00	M10 x 0.50	10.00
6.50	M8 x 0.50	8.00
7.00	M8 x 0.50	8.00
7.50	M8 x 0.50	8.00
8.00	M8 x 0.50	8.00
8.50	M8 x 0.50	8.00
9.00	M8 x 0.50	8.00
9.50	M8 x 0.50	8.00
10.00	M8 x 0.50	8.00
10.50	M8 x 0.50	8.00
11.00	M8 x 0.50	8.00
11.50	M8 x 0.50	8.00
12.00	M8 x 0.50	8.00
12.50	M8 x 0.50	8.00
13.00	M8 x 0.50	8.00
13.50	M8 x 0.50	8.00
14.00	M8 x 0.50	8.00
14.50	M8 x 0.50	8.00
15.00	M8 x 0.50	8.00
15.50	M8 x 0.50	8.00
16.00	M8 x 0.50	8.00
16.50	M8 x 0.50	8.00
17.00	M8 x 0.50	8.00
17.50	M8 x 0.50	8.00
18.00	M8 x 0.50	8.00
18.50	M8 x 0.50	8.00
19.00	M8 x 0.50	8.00
19.50	M8 x 0.50	8.00
20.00	M8 x 0.50	8.00
20.50	M8 x 0.50	8.00
21.00	M8 x 0.50	8.00
21.50	M8 x 0.50	8.00
22.00	M8 x 0.50	8.00
22.50	M8 x 0.50	8.00
23.00	M8 x 0.50	8.00
23.50	M8 x 0.50	8.00
24.00	M8 x 0.50	8.00
24.50	M8 x 0.50	8.00
25.00	M8 x 0.50	8.00
25.50	M8 x 0.50	8.00
26.00	M8 x 0.50	8.00
26.50	M8 x 0.50	8.00
27.00	M8 x 0.50	8.00
27.50	M8 x 0.50	8.00
28.00	M8 x 0.50	8.00
28.50	M8 x 0.50	8.00
29.00	M8 x 0.50	8.00
29.50	M8 x 0.50	8.00
30.00	M8 x 0.50	8.00
30.50	M8 x 0.50	8.00
31.00	M8 x 0.50	8.00
31.50	M8 x 0.50	8.00
32.00	M8 x 0.50	8.00
32.50	M8 x 0.50	8.00
33.00	M8 x 0.50	8.00
33.50	M8 x 0.50	8.00
34.00	M8 x 0.50	8.00
34.50	M8 x 0.50	8.00
35.00	M8 x 0.50	8.00
35.50	M8 x 0.50	8.00
36.00	M8 x 0.50	8.00
36.50	M8 x 0.50	8.00
37.00	M8 x 0.50	8.00
37.50	M8 x 0.50	8.00
38.00	M8 x 0.50	8.00
38.50	M8 x 0.50	8.00
39.00	M8 x 0.50	8.00
39.50	M8 x 0.50	8.00
40.00	M8 x 0.50	8.00
40.50	M8 x 0.50	8.00
41.00	M8 x 0.50	8.00
41.50	M8 x 0.50	8.00
42.00	M8 x 0.50	8.00
42.50	M8 x 0.50	8.00
43.00	M8 x 0.50	8.00
43.50	M8 x 0.50	8.00
44.00	M8 x 0.50	8.00
44.50	M8 x 0.50	8.00
45.00	M8 x 0.50	8.00
45.50	M8 x 0.50	8.00
46.00	M8 x 0.50	8.00
46.50	M8 x 0.50	8.00
47.00	M8 x 0.50	8.00
47.50	M8 x 0.50	8.00
48.00	M8 x 0.50	8.00
48.50	M8 x 0.50	8.00
49.00	M8 x 0.50	8.00
49.50	M8 x 0.50	8.00
50.00	M8 x 0.50	8.00

*Dimensions of 1 mm and less can be cut provided the nominal thread diameter is 10 mm or larger.
**M8 x 0.50 insert only.

Acme Threading Limits

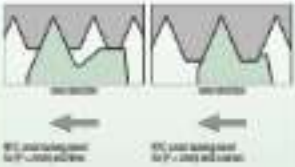
Internal Threading Limitations
W4-1 and W4-2 Acme threading inserts

	nominal thread size	minimum thread diameter (mm)	
TPI	W4-1	W4-1	W4-2
2.**	0	8.200	11.0.2
2.5**	0.5*	8.100	10.1
3**	0	8.000	10.1
4	0.5*	8.000	10.0
5	0	8.000	11.1
6	0.5*	8.000	10.0
8	0.5*	8.000	10.0
10	0	8.000	10.2
12	0.5*	8.000	10.0
14	0.5*	8.000	10.0
16	0.5*	8.000	10.0
20	0.5*	8.000	10.0

*Surface threads per inch and thread can be cut provided minor diameter is 10.2 mm or larger.
**W4-2 insert only.

Additional secondary clearance can be ground on leading edge of insert to provide additional helix clearance for machining coarse threads and multiple start threads. Modified standard inserts may be required for machining thread outside of the limits shown.

60° V-Thread Cross Turning Application Data



60° V-Thread Cross Turning Application Data

Insert catalogue number	Cross radius on insert (mm)	Thread radius per ISO, G (0.0721G) (mm)
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

*P Thread note for catalogues

[illegible]

NOTE: WIC inserts automatically control cut & crest dimensions. Therefore, in setting up threading operations with WIC inserts, disregard G, C, or C1 in the thread and for correct dimensions.

60° V-Thread Application Data

Insert description	Insert	D (mm)	C (mm)	Recommended TPI		Recommended TPI	
				minimum	maximum	minimum	maximum
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

*Based on maximum insert radius and per class 2A and 2B thread specifications.

API Thread Forms • Insert Applications Chart for API Rotary Shouldered Connections

Thread form	WIDIA® insert: coating	WIDIA® insert: non-coating	Insert application	Minimum bore size*
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	API 8Cr
[illegible]	[illegible]	[illegible]	[illegible]	3-1/2 API full hole
[illegible]	[illegible]	[illegible]	[illegible]	3-1/2 API regular
[illegible]	[illegible]	[illegible]	[illegible]	3-1/2 API regular

*Minimum bore size that can be threaded with a standard Top Drive® insert due to minimum bore requirements.

API Thread Forms
Product Thread Dimensions • Rotary Shouldered Connections (Inch)

Threadform	Taper inch (per ft)	Thread height, with truncation H_{ET}	Thread height, truncated H_{ET}	root truncation T_{RT}	crest truncation T_{CT}	width of flat: crest T_{CT}	width of flat: crest T_{CT}	root radius T_{RT}	radius at thread contour r	pitch P
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	[illegible]

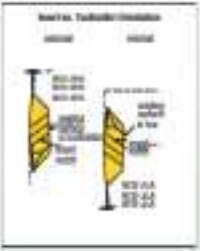
NOTE: All dimensions in inches.

V-240 and V-200 Product Thread Form

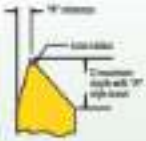
Casing and Tubing Round Thread (Weight Dimensions)

Thread element	10 TPI (p = .100)	8 TPI (p = .125)
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

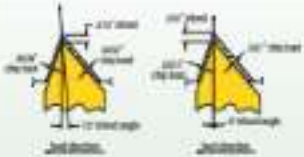
American Buttress (7° Pressure Flank Loading) NTU-A Inserts • Push Type



Insert Dimensions



Helical Angle vs. Chip Load: 7° Pressure Flank Loading



Insert	D (inch)	"A" (in) (inch)	Cross section (inch)	pitch (inch) or maximum radius
NTU-3A	.123	.039	.122 - .124	5 - 32, 32
NTU-5A	.171	.051	.169 - .172	8 - 32, 32
NTU-8A	.218	.059	.216 - .217	4 - 32, 32

NOTE: For balanced chip load, 10° helical angle is suggested.

Internal Threading Limitations

Internal threading limitations
NTU-3A Buttress threading inserts

TPI	nominal thread size	minimum minor diameter (inch)
6	1.125	1.045
10	1.000	1.000
12	1.125	1.000
14	1.125	1.125
16	1.000	1.000

Internal threading limitations
NTU-5 and NTU-8A Buttress threading inserts

TPI	nominal thread size	minimum minor diameter (inch)
4*	1.125	1.000
5	1.125	1.000
6	1	1.000
8	1.000	1.000
10	1.000	1.000
12*	1.125	1.000

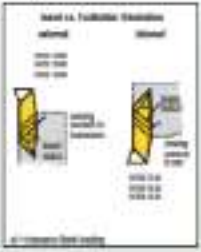
NTU-8 insert only.
*Use cut 10 to 16 threads per inch, provided minor diameter is 1.125" or larger.

Threads per Inch vs. Maximum Root Radius Chart (inch)

TPI	20	18	16	14	12	10	8	6	5	4	3.5	3	2.5	2.25	2
maximum root radius	.0300	.0400	.0500	.0571	.0600	.0714	.0800	.0917	.0900	.0950	.0971	.0970	.0971	.0971	.0970

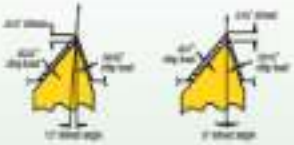
NOTE: Special Buttress forms are available upon request.

American Outboard (40° Clearance Flank Leading): NTI8-IS Inserts • PULL type



Reference Dimensions

Inlead Angle vs. Chip Load: 40° Clearance Flank Leading



Insert	L (mm)	"R" tolerance (mm)	Chip Radius (mm)	Pitch based on maximum radius
NTI8-IS	17.1	0.01	0.03–0.04	0.12–0.17

NOTE: For balanced chip load, a minimum 12° inlead angle is suggested.

Internal Threading Limitations

Internal Threading Limitations NTI8-IS Solid-core threading inserts		
TPI	Nominal Thread Size	Minimum Minor Diameter (mm)
8	1.25	1.032
10	1.25	1.032
12	1.50	1.432
14	1.50	1.732
16	1.75	1.829

Internal Threading Limitations NTI8-S and NTI8-IS Solid-core threading inserts		
TPI	Nominal Thread Size	Minimum Minor Diameter (mm)
4	1.50	0.371
5	1.50	0.514
6	2.00	0.771
8	2.00	1.071
10	2.50	1.732
12	2.50	2.032
14	3.00	2.480
16	3.00	2.829

NTI8-IS insert only.

Laydown Threading System

EXTREME **CHALLENGES.**
EXTREME **RESULTS.**

The specially engineered WIDIA™ Laydown Threading System ensures the highest accuracy and quality available to meet all modern production standards. With an extensive range of inserts and toolholders available, the Laydown Threading platform is ideal for all of your internal and external threading applications.

- Low profile design enables unrestricted chip flow
- Precision-ground thread forms for industry-leading thread quality
- Ideal choice for high tolerance/multi-start threads and single point threading in small diameter bores.

To learn more, contact your local Authorized Distributor or visit **widia.com.**

WIDIA

Required Information

From Part Drawing:

- material:
- thread form:
- tolerance:
- operation:
- pitch diameter:

From Machine Setup Data:

- loading:
- spindle rotation:
- hold:

Steps for a Successful Threading Operation

Step 1 •
Determine Threading Method

Need to Know:

- Operation (external)
- Spindle rotation (CCW, anti-clockwise rotation)
- Hold-Machine (Select Chuck)
- Right-hand toolholder
- Right-hand insert (LH)
- Standard Helix Method

Step 2 •
Select Insert

Need to Know:

- Thread form (ISO 7/60°, inner-pitch)
- Hand of insert (right hand — LH)

Choose the High-Performance Solution

catalogue number	insert size	TMS/TC
[illegible]	[illegible]	[illegible]

High-Performance Solution

NOTE: Use insert with longest insert size available.
- insert:
- grade: TMS/TC
- shape: [illegible]

Step 3 •
Select the Grade and Speed

Need to Know:

- Workpiece material (ISO P, M, K, N, S)
- Operation (external)

Optimum Grade and Speed
Selection Guidelines

threading operation	stainless steel
external	general purpose and high performance
	TMS/TC
	[illegible]

Step 4 •
Select Toolholder

Need to Know:

- Tailstock or internal operation (internal)
- Shank diameter (to determine minimum bore diameter DMIN)
- Type of threading — toolholder, boring bar (toolholder)
- Hand of tool (right hand)
- Insert size (S)

Optimum

catalogue number	insert size	shank
[illegible]	[illegible]	[illegible]

Step 5 •
Select Shim

Need to Know:

- Thread form — 55° or pitch (P, TPI)
- Pitch diameter (Dpitch)
- Lead angle (psi)
  Use Lagrange's Threading & Shim calculation sheet

Select DIN 16 Shims

NOTE: For the application, the standard shim supplied should be replaced with the recommended shim (S2, S3).

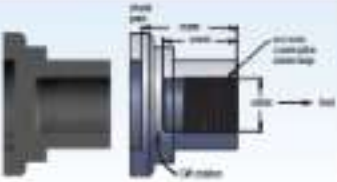
Required Information

From Part Drawing:

material: [illegible]
Thread form: [illegible]
tolerance: [illegible]
operation: internal threading
pitch diameter: [illegible]

From Machine Setup Data:

holding: [illegible]
spindle rotation: [illegible]
feed: [illegible]



Steps for a Successful Threading Operation

Step 1 =
Determine Threading Method

Need to Know:

- Operation (internal)
- Spindle rotation (L/R)
  Clockwise rotation
- Feed direction (away from chuck)
- Left hand toolholder
- Left hand insert (RH)
- Reverse tools method.

Step 2 =
Select Insert

Need to Know:

- Thread form (ISO Metric Class [illegible])
- Hand of insert (left hand — [illegible])

Choose the High-Performance Solution

catalogue number	insert size	TMAX
[illegible]	3	4

High-Performance Selection

NOTE: Use insert with largest possible insert size to upgrade the tool.
insert: [illegible]
grade: [illegible]
speed: [illegible] sfm/min

Step 3 =
Select the Grade and Speed

Need to Know:

- Workpiece material ([illegible] steel)
- Operation (internal)

Cutting Grade and Speed
Selection Guidelines

threading operation	chuck
Internal	general purpose and high performance
	TMAX
	No chip breaker

Step 4 =
Select Toolholder

Need to Know:

- Cutting tool to internal operation (internal)
- Pitch diameter to determine minimum bore diameter for internal operations (internal)
- Type of holding — cartridge, boring bar (boring bar)
- Hand of tool (left hand)
- Insert size ([illegible])

Options:

catalogue number	insert size	other
[illegible]	3	[illegible]

Step 5 =
Select Shim

Need to Know:

- Thread form — [illegible] or pitch ([illegible] pitch)
- Pitch diameter (shim)
- Hole method (reverse)
  Type I (angular) Threading ([illegible])
  shim selection chart

Select [illegible]

NOTE: For this application, the standard shim supplied should be replaced with the recommended shim [illegible]

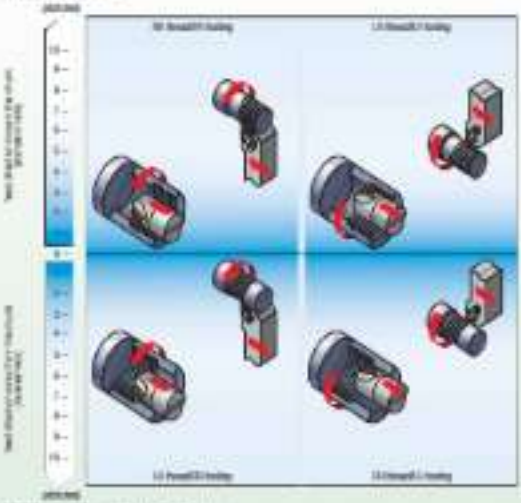
Laydown Threading Shim Selection Guidelines

It is essential to select the correct shim to ensure thread quality and toolholder tool life. These parameters are needed:

- Pitch
- Pitch diameter
- Number of starts
- Tool direction

NOTE: When a positive rake is used in thread cutting, the part's shape and stability and the flow of chips are determining factors in chip thickness.

Laydown Selection Chart



NOTE: For multi-start threads, see the manufacturer's recommendations.

Diagram of Thread Lead Angles

To calculate the lead angle of a given thread, use the formula:

$$\beta = \arctan\left(\frac{P_h}{\pi \cdot D_m}\right)$$

β – Thread lead angle
D_m – effective pitch diameter of thread (mm)
P_h – pitch
TPI – threads per inch
S – number of starts
single start, lead = pitch
multiple start, lead = pitch × number of starts

All toolholders are designed with an inclination angle – 1.2°. When turning standard threads with a lead angle of 1–2°, this guarantees adequate clearance of the flanks of the insert in thread form. The thread lead angle and the required inclination angle of the insert are given by β.

Cutting edge height is constant in many other and insert toolholders. All toolholders are supplied with 1–2° lead angle.

Laybow Threading Shim Selection Table • Metric

Insert size	Indexable		Shim selecting code (mm)								
	external	internal	standard								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TPI	pitch (mm)	pitch diameter (mm)									
[illegible]	-	-	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
-	[illegible]	-	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-	-	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
-	[illegible]	-	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-	-	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
-	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
-	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
-	[illegible]	[illegible]