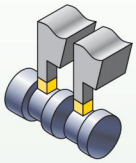
Turning • Grooving and Cut-Off

Grooving



WMT™

- Insert cutting widths: 2–8mm.
- O.D. cutting depths: 16,5–25,4mm.
- I.D. boring bar minimum bore diameter: 57,15mm.
- Screw-clamping integral shank/cartridge toolholders available.
- Geometry for deep grooving.

Pages:
E4–E39

TopGroove™

- Insert cutting widths: 0,5–6,35mm.
- Insert cutting depths: 0,64–12,7mm.
- I.D. boring bar minimum bore diameter: 11,2mm.
- Integral shank toolholders available.

Pages:
E40–E91

ProGroove™

- Insert cutting depths: 10–40mm.
- Inserts enable precision sintered execution, good tolerances, and repeatability.
- Screw-clamping integral shank toolholders available.
- Grooving and O.D. turning.

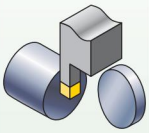
Pages:
E92–E104

LG

- Insert cutting widths: 8–16mm.
- O.D. cutting depths: 20–32mm.
- Wedge-clamping integral shank tooling available.

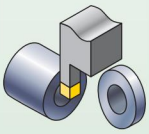
Pages:
E105–E107

Cut-Off



WMT

- Cut-off widths: 1,5–4mm.
- Maximum cutting depth: 22,2mm.
- Screw-clamping integral shank/cartridge toolholders available.
- Economical double-sided inserts for rigidity and dimensional accuracy.
- Right-/left-hand styles: 5° and 12° lead angles.



Pages:
E4–E39

Separator™

- Cut-off widths: 2–4mm.
- Positive mechanical, self-clamping blades.
- Right-/left-hand style toolholders available.
- Single-edge inserts for maximum depth capacity.

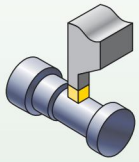
Pages:
E108–E133

ProGroove

- Cut-off widths: 2–8mm.
- Single-edge inserts for maximum depth capacity.
- Right-/left-hand styles with 6° lead angles.
- Self-clamping blades/screw-clamping integral shank toolholders available.

Pages:
E92–E104

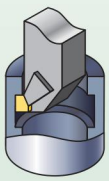
Plunge and Turn



WMT

Heavy Stock Removal in Turning Applications

- Double-sided inserts, cutting widths: 2–8mm.
- O.D. cutting depths: 16,5–25,4mm.
- I.D. boring bar minimum bore diameter: 57,15mm.
- Screw-clamping integral shank/cartridge toolholders available.



Pages:
E4–E39

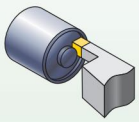
ProGroove

For Light-Cutting Inserts

- Cutting widths: 2–8mm.
- O.D. cutting depths: 10–40mm.
- Single-edge inserts for maximum depth capacity.
- Screw-clamping integral shank toolholders available.

Pages:
E92–E104

Face Grooving



WMT™

- Cutting widths: 3–6,35mm.
- Cutting depths: 13–25,4mm.
- Minimum face groove diameter: 38–205mm.

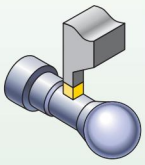
Pages: E4–E39

TopGroove™

- NF/NFD face groove insert range: 24–57mm.
- Cutting width range for standard inserts: 0,8–9,5mm.
- Cutting depth range for standard inserts: 1,27–12,70mm.
- Cutting width range for NF/NFD face grooving inserts: 2–6,35mm.
- Standard insert minimum face groove diameter range: 54–330mm.
- Cutting depth range for NF/NFD face grooving inserts: 1,52–12,70mm.
- Cutting depth range for NF: 1,52–3,81mm.
- Cutting depth range for NFD: 6,35–12,7mm.

Pages: E40–E91

Profiling



WMT

For Heavy Stock Removal

- Full-radius insert cutting widths: 3–8mm.
- O.D. cutting depths: 16,5–25,4mm.
- Screw-clamping integral shank/cartridge toolholders available.

Pages: E4–E39

TopGroove

Moderate/Heavy Stock Removal at Shallow Profile Depths

- Full-radius insert cutting widths: 1,57–6,35mm.
- Insert cutting depths: 2,39–6,35mm.
- Integral shank toolholders and ERICKSON™ heads available.

Pages: E40–E91

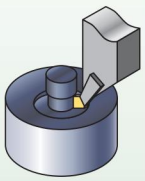
ProGroove™

For Light Cutting

- Full-radius insert cutting widths: 3–6mm.
- O.D. cutting depths: 10–32mm.
- Screw-clamping integral shank/cartridge toolholders available.

Pages: E92–E104

Undercutting



TopGroove

- Undercutting insert widths: 2,4–4mm.
- Economical double-ended inserts.

Pages: E40–E91

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 geometry for even 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 turret indexes.
- Precise insert positioning for accurate machining.
- Double-V shape means operator-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 name you can trust!

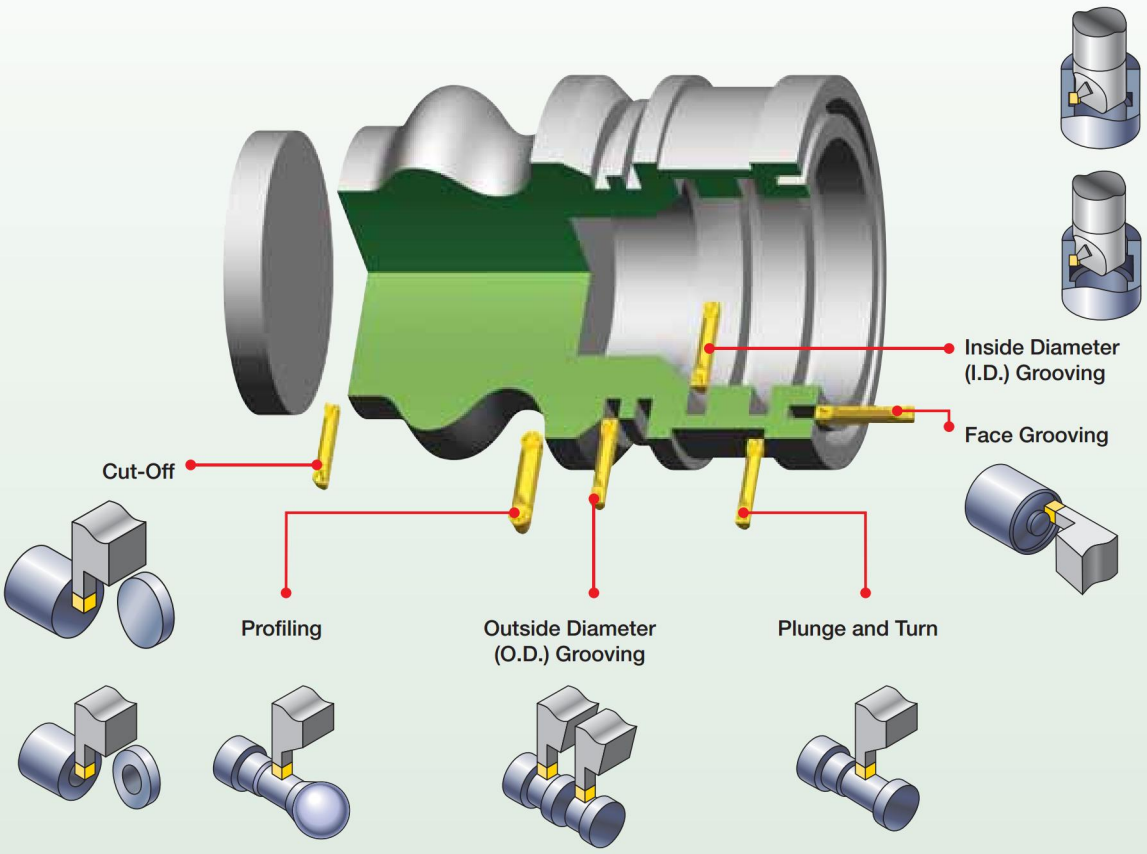
The WMT system, with its extra-long clamping area and precise insert positioning, ensures exceptionally fast and accurate machining, all-in-one tool, for your most demanding grooving, cut-off, turning, and profiling applications.

It is perfect for all general-purpose operations, including both shallow and deep grooving.

Utilise this 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:

Groove depth, width, and profile.



2 Identify the material to be machined:

Each tool has a material grid marked with a letter indicating the materials that can be machined.

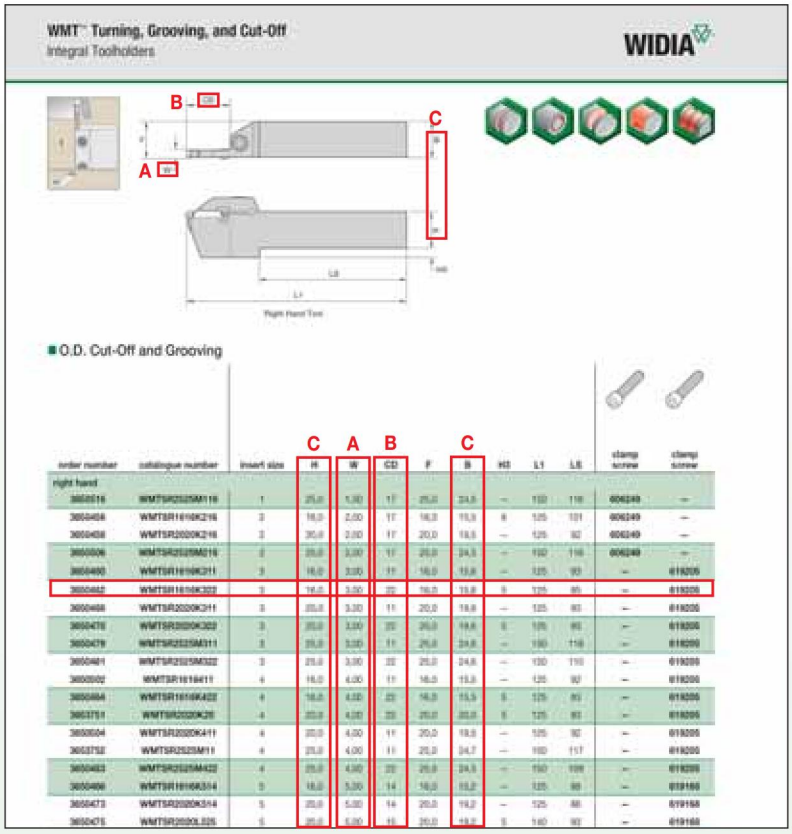
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

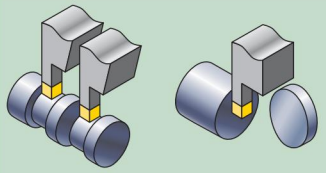
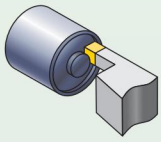
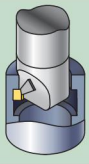
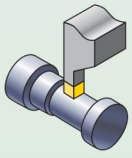
3 Select your toolholder based on the application:

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 "B" dimensions for maximum rigidity.

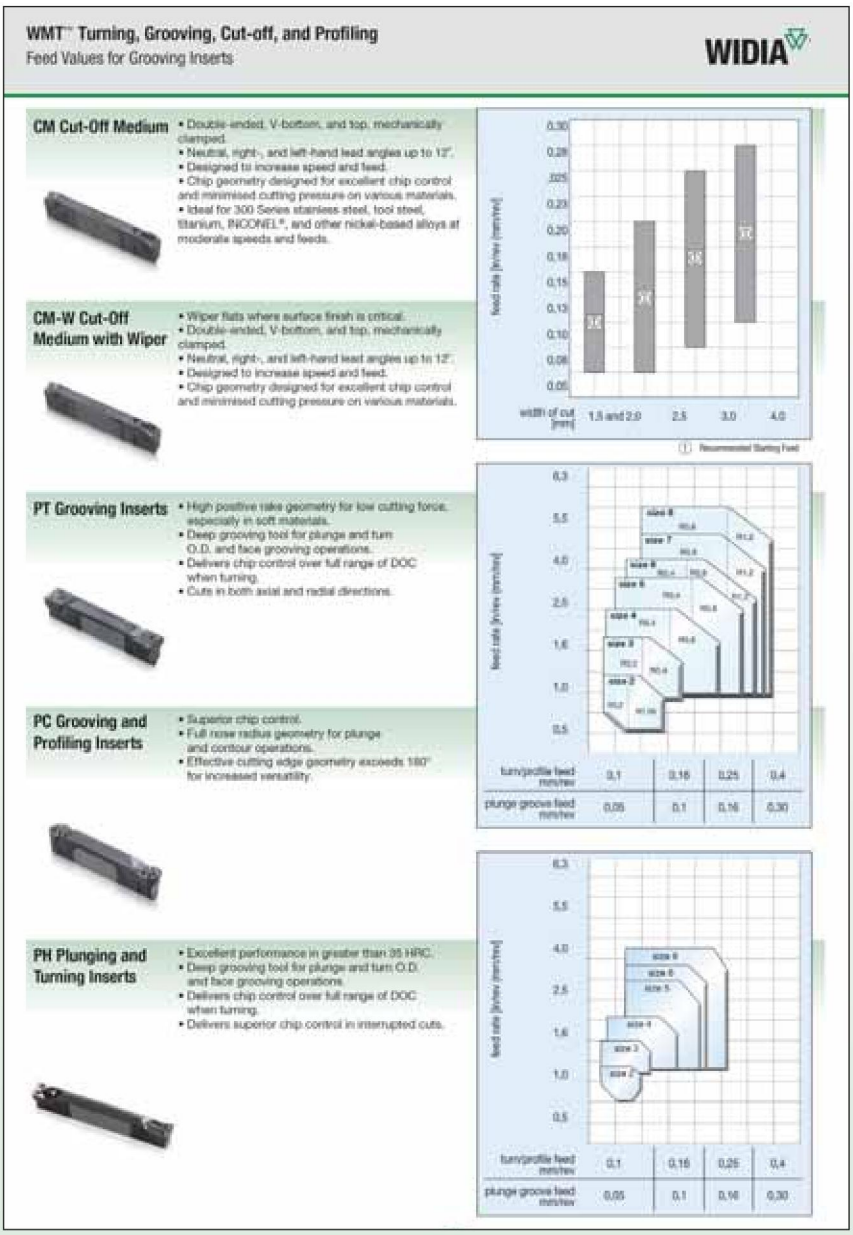


	application	conventional toolholders	modular blades
	O.D. Grooving and Cut-Off	pages E30–E32	page E38
	Face Grooving	pages E33–E34	page E39
	I.D. Grooving	page E35	–
	Plunge and Turn	pages E30–E32	page E38

4 Select chipbreaker style for the application:

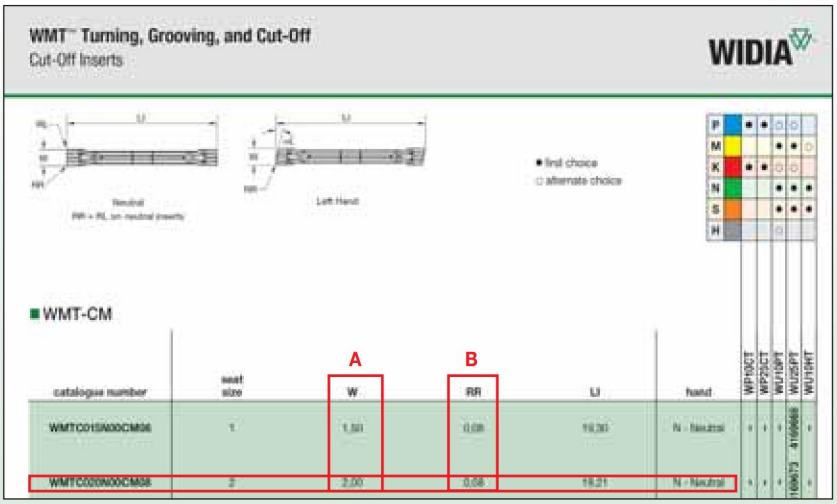
CM	Cut-Off Medium
CM-W	Cut-Off Medium with Wiper
PT	Groove, Plunge, and Turn
PC	Plunge and Contour
PH	Groove, Plunge, and Turn

NOTE: Chart shows recommended starting feed rates.



A Choose the appropriate insert width "W" for your specific application.

B Select the required corner radius value "RR".



5 Select grade:

Grooving cutting condition		Recommended Grades: steel	stainless steel	cast iron	non-ferrous metals	high-temp alloys	hardened materials
heavily interrupted cut		WU25PT	WU25PT	WU25PT	WU25PT	WU25PT	–
lightly interrupted cut		WP25CT/ WU25PT	WU25PT	WP25CT/ WU25PT	WU25PT	WU25PT	–
varying depth of cut, casting, or forging skin		WU10PT	WU10PT	WP10CT/ WU10PT	WU10PT	WU10HT/ WU10PT	WU10PT
smooth cut, pre-turned surface		WP10CT/ WU10PT	WU10PT	WP10CT/ WU10PT	WU10PT	WU10HT/ WU10PT	WU10PT

Cut-Off cutting condition		Recommended Grades: steel	stainless steel	cast iron	non-ferrous metals	high-temp alloys	hardened materials
heavily interrupted cut		WU25PT	WU25PT	WU25PT	WU25PT	WU25PT	–
lightly interrupted cut		WU25PT	WU25PT	WU25PT	WU25PT	WU25PT	–
varying depth of cut, casting, or forging skin		WU25PT	WU25PT	WU25PT	WU25PT	WU25PT	WU25PT
smooth cut, pre-turned surface		WU25PT	WU25PT	WU25PT	WU25PT	WU25PT	WU25PT

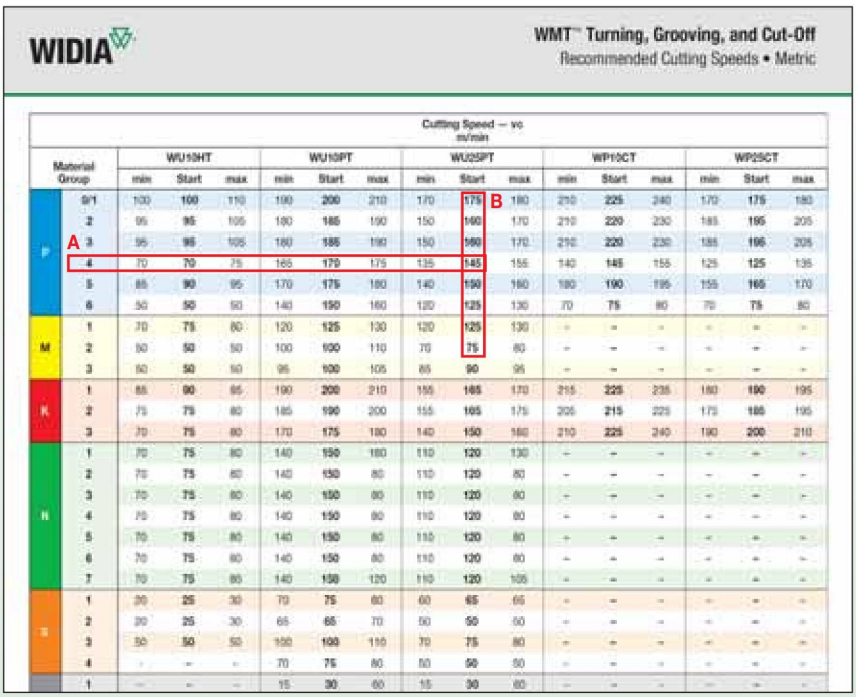
NOTE: See page E11 for Grades and Grade Descriptions.

6 Determine cutting data:

A Based on material group and grade, identify starting speed (vc).

B First choice starting speed is in **bold**.

NOTE: See page E13 for cutting data.



WIDIA

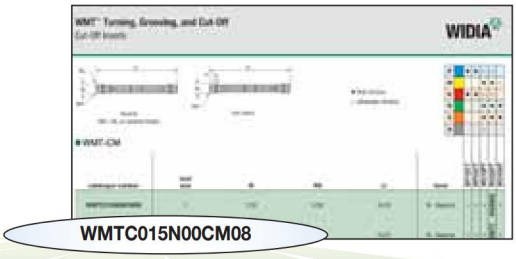
WMT™ Turning, Grooving, and Cut-Off
Recommended Cutting Speeds • Metric

Cutting Speed — vc m/min

Material Group		WU10HT min	WU10HT Start	WU10HT max	WU10PT min	WU10PT Start	WU10PT max	WU25PT min	WU25PT Start	WU25PT max	WP10CT min	WP10CT Start	WP10CT max	WP25CT min	WP25CT Start	WP25CT max
P	0/1	100	100	110	190	200	210	170	175	180	210	225	240	170	175	180
	2	95	95	105	180	185	190	150	160	170	210	220	230	185	195	205
	A 3	95	95	105	180	185	190	150	160	170	210	220	230	185	195	205
	4	70	70	75	165	170	175	135	145	155	140	145	155	125	125	135
	5	85	90	95	170	175	180	140	150	160	180	190	195	155	165	170
	6	50	50	50	140	150	160	120	125	130	70	75	80	70	75	80
M	1	70	75	80	120	125	130	120	125	130	–	–	–	–	–	–
	2	50	50	50	100	100	110	70	75	80	–	–	–	–	–	–
	3	50	50	50	95	100	105	65	90	95	–	–	–	–	–	–
K	1	85	90	95	190	200	210	155	165	170	215	225	235	180	190	195
	2	75	75	80	185	190	200	155	165	175	205	215	225	175	185	195
	3	70	75	80	170	175	180	140	150	160	210	225	240	190	200	210
N	1	70	75	80	140	150	160	110	120	130	–	–	–	–	–	–
	2	70	75	80	140	150	80	110	120	80	–	–	–	–	–	–
	3	70	75	80	140	150	80	110	120	80	–	–	–	–	–	–
	4	70	75	80	140	150	80	110	120	80	–	–	–	–	–	–
	5	70	75	80	140	150	80	110	120	80	–	–	–	–	–	–
	6	70	75	80	140	150	80	110	120	80	–	–	–	–	–	–
	7	70	75	80	140	150	120	110	120	105	–	–	–	–	–	–
S	1	30	25	30	70	75	80	60	65	65	–	–	–	–	–	–
	2	30	25	30	65	65	70	50	50	50	–	–	–	–	–	–
	3	50	50	50	100	100	110	70	75	80	–	–	–	–	–	–
	4	–	–	–	70	75	80	50	50	50	–	–	–	–	–	–
	1	–	–	–	15	30	60	15	30	60	–	–	–	–	–	–

WMT Identification System

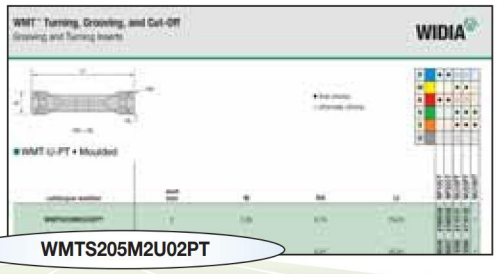
Each character in our catalogue number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



WMTC015N00CM08

Cut-Off

WMT	C	015	N	00	CM	08
Tooling System	Cut-Off	W in mm* 10	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* 10



WMTS205M2U02PT

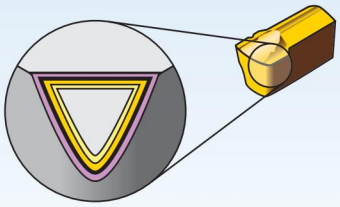
Groove, Plunge, Turn, and Contour Inserts

WMT	S	205	M	2	U	02	PT
Tooling System	Square	mm* 10 inch* 1000	Unit of Measurement for Width **M** = mm **I** = inch	Seat Size	Insert Tolerance	Corner Radius in mm* 10	Chipbreaker Geometry **PT** = Groove, Plunge, and Turn **PH** = Groove, Plunge, and Turn **PC** = Plunge and Contour

P = Precision ground grooving width tolerance:
± .001" (0,025mm)

U = Utility moulded grooving width tolerance:

3,05–4,05:	+ .006" / -0	(+0,15mm) / -0
5,05–10,05:	+ .010" / -0	(+0,25mm) / -0

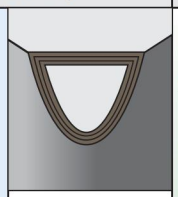
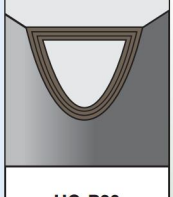
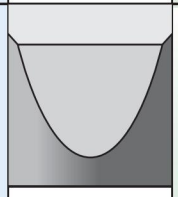
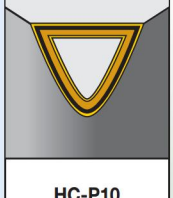
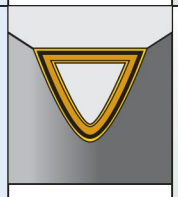


Coatings provide high-speed capability and are engineered for finishing to heavy roughing.

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

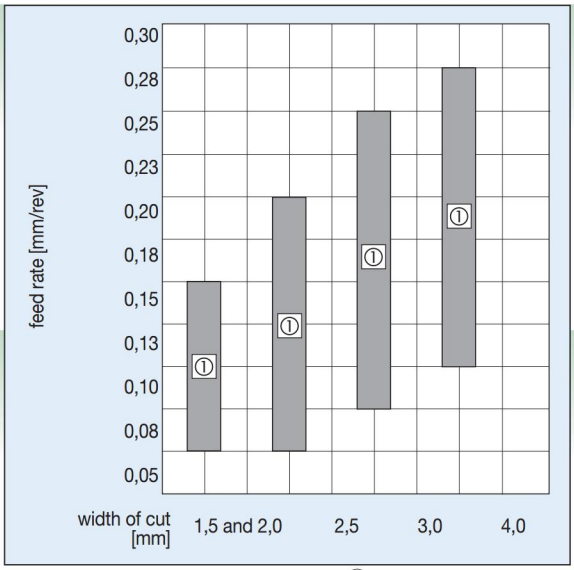
wear resistance ← → toughness

Grade

Coating	Grade Description	05	10	15	20	25	30	35	40	45
WU10PT  HC-P15	An advanced PVD-TiAlN coating over a very deformation-resistant unalloyed carbide substrate. The WU10PT™ grade's new and improved coating enables speeds to be increased by 50–100%. The WU10PT grade is ideal for finishing to general machining of most workpiece materials at higher speeds. Excellent for machining most steels, stainless steels, cast irons, non-ferrous materials, and super alloys under stable conditions. It also performs well machining hardened and short chipping materials.			P	P	P				
				M	M	M				
				K	K	K				
				N	N	N				
				S	S	S				
				H						
WU25PT  HC-P30	An advanced PVD-TiAlN-coated grade with a tough, ultra-fine-grain, unalloyed substrate. For general-purpose machining of most steels, stainless steels, high-temperature alloys, titanium, irons, and non-ferrous materials. Speeds may vary from low to medium and will handle interruptions and high feed rates.				P	P	P			
					M	M	M			
					K	K	K			
					N	N	N			
					S	S	S			
				H	H					
WU10HT  HW-K15	A hard, low binder content, unalloyed WC/Co fine-grained uncoated grade. Exceptional edge wear resistance combined with very high strength for machining titanium, cast irons, austenitic stainless steels, non-ferrous metals, non-metals, and most high-temperature alloys. Superior thermal deformation and depth of cut notch resistance. The grain structure is well controlled for minimal pits and flaws, which contributes to long, reliable service.									
				M	M	M				
			K	K	K	K				
				N	N	N				
				S	S	S				
WP10CT  HC-P10	A specially engineered, proprietary, cobalt-enriched carbide grade with thick K-MTCVD-TiCN coating layer, an Al_2O_3 layer of controlled grain size, and outer layers of TiCN and TiN for maximum wear resistance. An excellent finishing to medium machining grade for a variety of workpiece materials including most steels, ferritic and martensitic stainless steels, and cast irons. The specially engineered cobalt-enriched substrate offers a balanced combination of deformation resistance and edge toughness, while the thick coating layers offer outstanding abrasion resistance and crater wear resistance for high-speed machining. The smooth coating provides good resistance to edge build-up and microchipping and produces excellent surface finishes.			P	P	P				
				K	K					
WP25CT  HC-P25	A tough cobalt-enriched carbide grade with a newly designed multilayer K-MTCVD TiCN-Al_2O_3-TiCNTiN coating with superior interlayer adhesion. This is the industry's best general-purpose turning grade for most steels and ferritic and martensitic stainless steels. The substrate design, with cobalt-enrichment, ensures adequate deformation resistance along with excellent bulk toughness and insert edge strength. The coating layers offer good wear resistance over a wide range of machining conditions. The smoothness of the coating leads to reduced frictional heat, minimises microchipping, and improves workpiece surface finishes.				P	P	P			
				K	K	K	K			

CM Cut-Off Medium

- Double-ended, V-bottom, and top, mechanically clamped.
- Neutral, right-, and left-hand lead angles up to 12°.
- Designed to increase speed and feed.
- Chip geometry designed for excellent chip control and minimised cutting pressure on various materials.



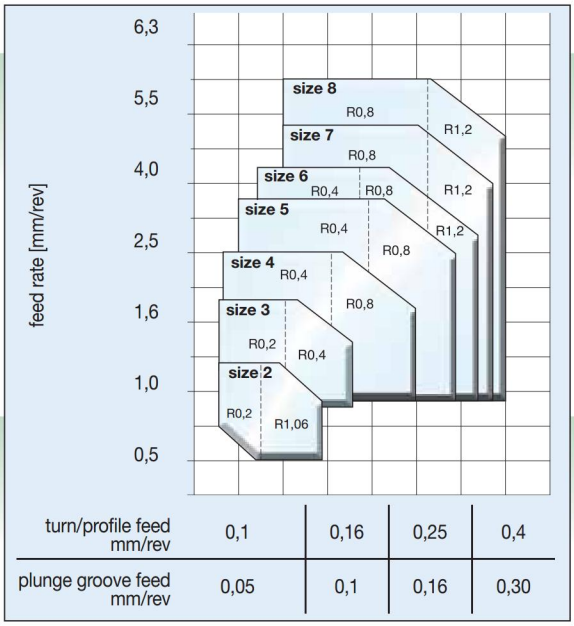
① Recommended Starting Feed

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 12°.
- Designed to increase speed and feed.
- Chip geometry designed for excellent chip control and minimised cutting pressure on various materials.
- Ideal for 300 Series stainless steel, tool steel, titanium, INCONEL®, and other nickel-based alloys at moderate speeds and feeds.

PT Plunge, Groove, and Turn Inserts

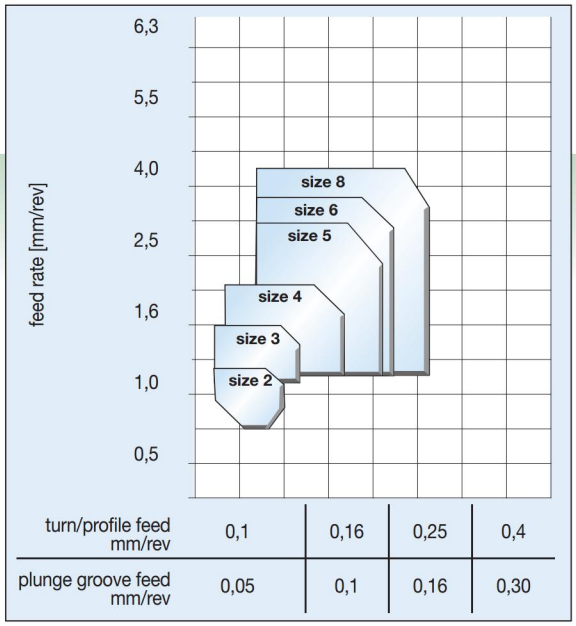
- High positive rake geometry for low cutting force, especially in soft materials.
- Deep grooving tool for plunge and turn O.D. and face grooving operations.
- Delivers chip control over full range of DOC when turning.
- Cuts in both axial and radial directions.



turn/profile feed mm/rev	0,1	0,16	0,25	0,4
plunge groove feed mm/rev	0,05	0,1	0,16	0,30

PC Grooving and Profiling Inserts

- Superior chip control.
- Full nose radius geometry for plunge and contour operations.
- Effective cutting edge geometry exceeds 180° for increased versatility.

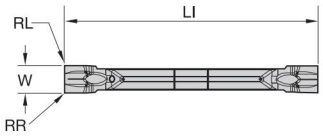


turn/profile feed mm/rev	0,1	0,16	0,25	0,4
plunge groove feed mm/rev	0,05	0,1	0,16	0,30

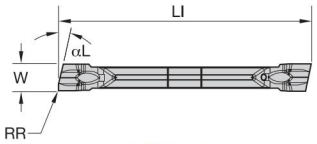
PH Plunge, Groove, and Turn Inserts

- Excellent performance in greater than 35 HRC.
- Deep grooving tool for plunge and turn O.D. and face grooving operations.
- Delivers chip control over full range of DOC when turning.
- Delivers superior chip control in interrupted cuts.

Material Group		Cutting Speed — vc m/min														
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	0/1	100	**100**	110	190	**200**	210	170	**175**	180	210	**225**	240	170	**175**	180
	2	95	**95**	105	180	**185**	190	150	**160**	170	210	**220**	230	185	**195**	205
	3	95	**95**	105	180	**185**	190	150	**160**	170	210	**220**	230	185	**195**	205
	4	70	**70**	75	165	**170**	175	135	**145**	155	140	**145**	155	125	**125**	135
	5	85	**90**	95	170	**175**	180	140	**150**	160	180	**190**	195	155	**165**	170
	6	50	**50**	50	140	**150**	160	120	**125**	130	70	**75**	80	70	**75**	80
M	1	70	**75**	80	120	**125**	130	120	**125**	130	–	**–**	–	–	**–**	–
	2	50	**50**	50	100	**100**	110	70	**75**	80	–	**–**	–	–	**–**	–
	3	50	**50**	50	95	**100**	105	85	**90**	95	–	**–**	–	–	**–**	–
K	1	85	**90**	95	190	**200**	210	155	**165**	170	215	**225**	235	180	**190**	195
	2	75	**75**	80	185	**190**	200	155	**165**	175	205	**215**	225	175	**185**	195
	3	70	**75**	80	170	**175**	180	140	**150**	160	210	**225**	240	190	**200**	210
N	1	70	**75**	80	140	**150**	160	110	**120**	130	–	**–**	–	–	**–**	–
	2	70	**75**	80	140	**150**	80	110	**120**	80	–	**–**	–	–	**–**	–
	3	70	**75**	80	140	**150**	80	110	**120**	80	–	**–**	–	–	**–**	–
	4	70	**75**	80	140	**150**	80	110	**120**	80	–	–	–	–	–	–
	5	70	**75**	80	140	**150**	80	110	**120**	80	–	**–**	–	–	**–**	–
	6	70	**75**	80	140	**150**	80	110	**120**	80	–	**–**	–	–	**–**	–
	7	70	**75**	80	140	**150**	120	110	**120**	105	–	**–**	–	–	**–**	–
S	1	20	**25**	30	70	**75**	80	60	**65**	65	–	**–**	–	–	**–**	–
	2	20	**25**	30	65	**65**	70	50	**50**	50	–	**–**	–	–	**–**	–
	3	50	**50**	50	100	**100**	110	70	**75**	80	–	**–**	–	–	**–**	–
	4	-	**–**	–	70	**75**	80	50	**50**	50	–	**–**	–	–	**–**	–
H	1	–	**–**	–	15	**30**	60	15	**30**	60	–	**–**	–	–	**–**	–
	2	–	**–**	–	15	**30**	60	15	**30**	60	–	**–**	–	–	**–**	–
	3	–	**–**	–	15	**30**	60	15	**30**	60	–	**–**	–	–	**–**	–
	4	–	**–**	–	15	**30**	60	15	**30**	60	–	**–**	–	–	**–**	–



Neutral
RR = RL on neutral inserts



Left Hand

● first choice
○ alternate choice

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

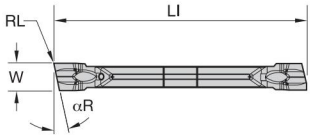
WMT-CM

catalogue number	seat size	W	RR	LI	hand	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTC015N00CM08	1	1,50	0,08	19,30	N - Neutral	'	'	'	4169668	'
WMTC020N00CM08	2	2,00	0,08	19,21	N - Neutral	'	'	'	4169673	'
WMTC094N00CM13	2B	2,39	0,13	22,32	N - Neutral	'	'	'	4169576	'
WMTC030N00CM17	3	3,00	0,17	25,40	N - Neutral	'	'	'	4169682	'
WMTC125N00CM17	3	3,17	0,17	25,41	N - Neutral	'	'	'	4169582	'
WMTC040N00CM17	4	4,00	0,17	25,40	N - Neutral	'	'	'	4169692	'

catalogue number	seat size	W	RR	LI	αL	hand	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTC015L05CM08	1	1,50	0,08	19,31	5	L - Left	'	'	'	4169671	'
WMTC020L05CM08	2	1,99	0,08	19,21	5	L - Left	'	'	'	4169677	'
WMTC020L12CM08	2	2,00	0,08	19,25	12	L - Left	'	'	'	4169680	'
WMTC030L12CM17	3	3,00	0,17	25,40	12	L - Left	'	'	'	4169690	'
WMTC030L05CM17	3	3,00	0,17	25,40	5	L - Left	'	'	'	4169686	'
WMTC040L12CM17	4	4,00	0,17	25,40	12	L - Left	'	'	'	4169697	'
WMTC040L05CM17	4	4,00	0,17	25,40	5	L - Left	'	'	'	4169695	'

(continued)

(WMT-CM — continued)

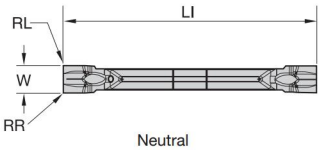


Right Hand

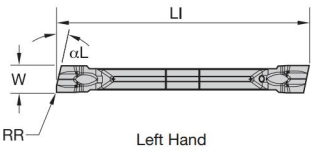
● first choice
○ alternate choice

		WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
P		●	●	○	○	
M				●	●	○
K		●	●	○	○	
N				●	●	●
S				●	●	●
H				○		

catalogue number	seat size	W	RL	LI	αR	hand	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTC015R12CM08	1	1,50	0,08	19,28	12	R - Right	■	■	■	4169672	■
WMTC015R05CM08	1	1,50	0,08	19,31	5	R - Right	■	■	■	4169670	■
WMTC020R05CM08	2	2,00	0,08	19,26	5	R - Right	■	■	■	4169675	■
WMTC020R12CM08	2	2,00	0,08	19,26	12	R - Right	■	■	■	4169678	■
WMTC094R12CM13	2B	2,39	0,13	22,28	12	R - Right	■	■	■	4169580	■
WMTC094R05CM13	2B	2,39	0,13	22,32	5	R - Right	■	■	■	4169578	■
WMTC030R05CM17	3	3,00	0,17	25,40	5	R - Right	■	■	■	4169684	■
WMTC030R12CM17	3	3,00	0,17	25,40	12	R - Right	■	■	■	4169688	■
WMTC125R05CM17	3	3,17	0,17	25,40	5	R - Right	■	■	■	4169664	■
WMTC125R12CM17	3	3,18	0,17	25,40	12	R - Right	■	■	■	4169666	■
WMTC040R12CM17	4	4,00	0,17	25,40	12	R - Right	■	■	■	4169696	■
WMTC040R05CM17	4	4,00	0,17	25,40	5	R - Right	■	■	■	4169694	■



Neutral
RR = RL on neutral inserts



Left Hand

● first choice
○ alternate choice

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

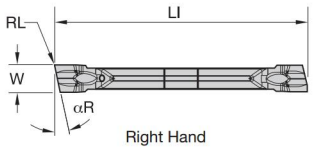
■ WMT-CM-W

catalogue number	seat size	W	RR	LI	hand	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTC015N00CMW08	1	1,50	0,08	19,30	N - Neutral	■	■	■	4169669	■
WMTC020N00CMW08	2	2,00	0,08	19,21	N - Neutral	■	■	■	4169674	■
WMTC094N00CMW13	2B	2,39	0,13	22,32	N - Neutral	■	■	■	4169577	■
WMTC030N00CMW17	3	3,00	0,17	25,40	N - Neutral	■	■	■	4169683	■
WMTC125N00CMW17	3	3,18	0,17	25,41	N - Neutral	■	■	■	4169663	■
WMTC040N00CMW17	4	4,00	0,17	25,40	N - Neutral	■	■	■	4169693	■

catalogue number	seat size	W	RR	LI	αL	hand	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTC020L12CMW08	2	2,00	0,08	19,27	12	L - Left	■	■	■	4169681	■
WMTC030L12CMW17	3	3,00	0,17	25,40	12	L - Left	■	■	■	4169691	■
WMTC030L05CMW17	3	3,00	0,17	25,40	5	L - Left	■	■	■	4169687	■

(continued)

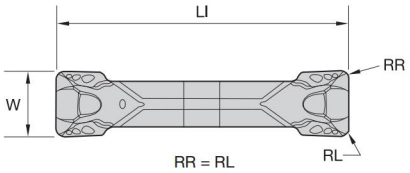
(WMT-CM-W — continued)



● first choice
○ alternate choice

		WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
P		●	●	○	○	
M				●	●	○
K		●	●	○	○	
N				●	●	●
S				●	●	●
H				○		

catalogue number	seat size	W	RL	LI	αR	hand	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTC020R05CMW08	2	2,00	0,08	19,20	5	R - Right	■	■	■	4169676	■
WMTC020R12CMW08	2	2,00	0,08	19,27	12	R - Right	■	■	■	4169679	■
WMTC094R12CMW13	2B	2,39	0,13	22,29	12	R - Right	■	■	■	4169581	■
WMTC094R05CMW13	2B	2,39	0,13	22,32	5	R - Right	■	■	■	4169579	■
WMTC030R05CMW17	3	3,00	0,17	25,40	5	R - Right	■	■	■	4169685	■
WMTC030R12CMW17	3	3,00	0,17	25,40	12	R - Right	■	■	■	4169689	■
WMTC125R05CMW17	3	3,17	0,17	25,41	5	R - Right	■	■	■	4169665	■
WMTC125R12CMW17	3	3,17	0,17	25,41	12	R - Right	■	■	■	4169667	■

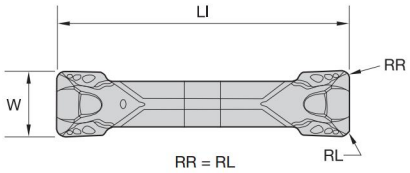


● first choice
○ alternate choice

		WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
P		●	●	○	○	
M				●	●	○
K		●	●	○	○	
N				●	●	●
S				●	●	●
H				○		

■ WMT-U-PT • Moulded

catalogue number	seat size	W	RR	LI	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS205M2U02PT	2	2,05	0,15	19,23	4169554	4169555	4116131	4116132	-
WMTS305M3U03PT	3	3,05	0,31	25,81	4169556	4169557	4113568	4113569	-
WMTS305M3U06PT	3	3,05	0,61	25,78	4169558	4169559	4113570	4113571	-
WMTS405M4U03PT	4	4,05	0,31	25,53	4169560	4169561	4113577	4113578	-
WMTS405M4U06PT	4	4,05	0,61	25,53	4169562	4169563	4113579	4113580	-
WMTS505M5U03PT	5	5,05	0,30	28,76	4169564	4169565	4116148	4116149	-
WMTS505M5U06PT	5	5,05	0,61	28,76	4169566	4169567	4116150	4116151	-
WMTS605M6U03PT	6	6,05	0,30	28,76	4169568	4169569	4117253	4117254	-
WMTS605M6U06PT	6	6,05	0,59	28,76	4169570	4169571	4117255	4117256	-
WMTS805M8U06PT	8	8,05	0,61	28,70	4169572	4169573	4117261	4117262	-
WMTS805M8U15PT	8	8,05	1,50	28,71	4169574	4169575	4117263	4117264	-



● first choice
○ alternate choice

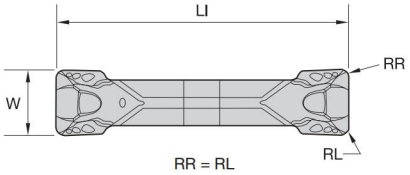
P	●	●	○	○		
M			●	●	○	
K	●	●	○	○		
N			●	●	●	
S			●	●	●	
H			○			

WMT-P-PT • Precision

catalogue number	seat size	W	RR	LI	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS200M2P02PT	2	2,00	0,15	19,10	-	-	4116129	4116130	-
WMTS094I2BP02PT	2B	2,38	0,15	22,15	-	-	4118451	4118452	-
WMTS094I2BP04PT	2B	2,38	0,38	22,14	-	-	4118583	4118584	-
WMTS300M3P03PH	3	3,00	0,30	25,65	-	-	5346412	5346413	5346414
WMTS300M3P03PT	3	3,00	0,31	25,65	-	-	4113563	4113564	4113566
WMTS300M3P06PH	3	3,00	0,60	25,65	-	-	5346415	5346416	5346417
WMTS300M3P06PT	3	3,00	0,61	25,65	-	-	4113565	4113567	-
WMTS125I3P03PT	3	3,17	0,23	25,40	-	-	4118585	4118586	-
WMTS125I3P08PT	3	3,17	0,76	25,40	-	-	4118587	4118588	-
WMTS125I3P03PH	3	3,18	0,25	25,40	-	-	5345914	5291300	-
WMTS125I3P08PH	3	3,18	0,75	25,40	-	-	5345915	5331093	-
WMTS156I4P03PH	4	3,95	0,30	25,40	-	-	5345916	5345917	-
WMTS156I4P08PH	4	3,96	0,75	25,40	-	-	5345918	5345919	-
WMTS400M4P03PH	4	4,00	0,30	25,40	-	-	5346418	5346419	5346420
WMTS400M4P03PT	4	4,00	0,31	25,40	-	-	4113572	4113574	4113573
WMTS400M4P06PH	4	4,00	0,60	25,40	-	-	5346421	5346422	5346423

(continued)

(WMT-P-PT • Precision — continued)



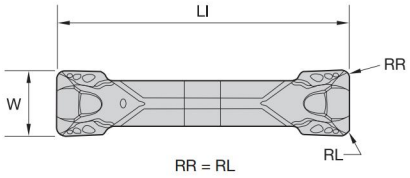
● first choice
○ alternate choice

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

catalogue number	seat size	W	RR	LI	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS400M4P06PT	4	4,00	0,60	25,40	–	–	4113575	4113576	–
WMTS188I5P03PT	5	4,76	0,26	28,63	–	–	4118589	4118590	–
WMTS188I5P03PH	5	4,77	0,25	28,63	–	–	5345980	5331095	–
WMTS188I5P08PH	5	4,77	0,75	28,63	–	–	5345981	5331097	–
WMTS188I5P08PT	5	4,77	0,76	28,63	–	–	4118591	4118592	–
WMTS500M5P03PH	5	5,00	0,30	28,63	–	–	5346424	5346425	5346426
WMTS500M5P03PT	5	5,00	0,30	28,63	–	–	4116143	4116144	4116145
WMTS500M5P06PH	5	5,00	0,60	28,63	–	–	5346427	5346428	5346429
WMTS500M5P06PT	5	5,00	0,61	28,63	–	–	4116146	4116147	–
WMTS600M6P03PH	6	6,00	0,30	28,63	–	–	5346430	5346431	–
WMTS600M6P03PT	6	6,00	0,30	28,63	–	–	4117239	4117240	–
WMTS600M6P06PT	6	6,00	0,58	28,63	–	–	4117241	4117242	–
WMTS600M6P06PH	6	6,00	0,60	28,63	–	–	5346432	5346433	–
WMTS250I6P08PH	6	6,32	0,75	28,63	–	–	5345984	5327621	–

(continued)

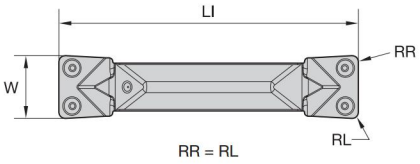
(WMT-P-PT • Precision — continued)



● first choice
○ alternate choice

		WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
P		●	●	○	○	
M				●	●	○
K		●	●	○	○	
N				●	●	●
S				●	●	●
H				○		

catalogue number	seat size	W	RR	LI	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS250I6P08PT	6	6,34	0,76	28,63	-	-	4118595	4118596	-
WMTS250I6P03PH	6	6,35	0,25	28,63	-	-	5345983	5327620	-
WMTS250I6P03PT	6	6,35	0,25	28,63	-	-	4118593	4118594	-
WMTS312I8P03PH	8	7,92	0,25	28,57	-	-	5345985	5345986	-
WMTS312I8P08PH	8	7,92	0,75	28,57	-	-	5345987	5345988	-
WMTS800M8P03PH	8	8,00	0,30	28,57	-	-	5346436	5346437	-
WMTS800M8P06PH	8	8,00	0,60	28,57	-	-	5346434	5346435	-
WMTS800M8P06PT	8	8,00	0,61	28,57	-	-	4117257	4117258	-
WMTS800M8P15PT	8	8,00	1,50	28,57	-	-	4117259	4117260	-

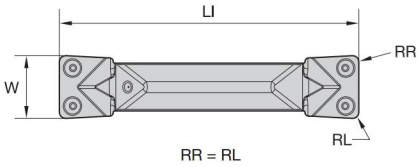


● first choice
○ alternate choice

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

■ WMT-U-PH • Moulded

catalogue number	seat size	W	RR	LI	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS305M3U03PH	3	3,05	0,30	25,81	-	-	5346392	5346393	-
WMTS305M3U06PH	3	3,05	0,60	25,81	-	-	5346394	5346395	-
WMTS405M4U03PH	4	4,05	0,30	25,53	-	-	5346396	5346397	-
WMTS405M4U06PH	4	4,05	0,60	25,53	-	-	5346398	5346399	-
WMTS505M5U03PH	5	5,05	0,30	28,76	-	-	5346400	5346401	-
WMTS505M5U06PH	5	5,05	0,60	28,76	-	-	5346402	5346403	-
WMTS605M6U03PH	6	6,05	0,30	28,76	-	-	5346404	5346405	-
WMTS605M6U06PH	6	6,05	0,60	28,76	-	-	5346406	5346407	-
WMTS805M8U03PH	8	8,05	0,30	28,70	-	-	5346410	5346411	-
WMTS805M8U06PH	8	8,05	0,60	28,70	-	-	5346408	5346409	-



● first choice
○ alternate choice

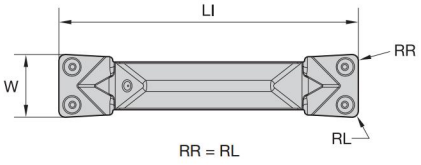
P	●	●	○	○		
M			●	●	○	
K	●	●	○	○		
N			●	●	●	
S			●	●	●	
H			○			

■ WMT-P-PH • Precision

catalogue number	seat size	W	RR	LI	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS300M3P03PH	3	3,00	0,30	25,65	-	-	5346412	5346413	5346414
WMTS300M3P06PH	3	3,00	0,60	25,65	-	-	5346415	5346416	5346417
WMTS125I3P03PH	3	3,18	0,25	25,40	-	-	5345914	5291300	-
WMTS125I3P08PH	3	3,18	0,75	25,40	-	-	5345915	5331093	-
WMTS156I4P03PH	4	3,95	0,30	25,40	-	-	5345916	5345917	-
WMTS156I4P08PH	4	3,96	0,75	25,40	-	-	5345918	5345919	-
WMTS400M4P03PH	4	4,00	0,30	25,40	-	-	5346418	5346419	5346420
WMTS400M4P06PH	4	4,00	0,60	25,40	-	-	5346421	5346422	5346423
WMTS188I5P03PH	5	4,77	0,25	28,63	-	-	5345980	5331095	-
WMTS188I5P08PH	5	4,77	0,75	28,63	-	-	5345981	5331097	-

(continued)

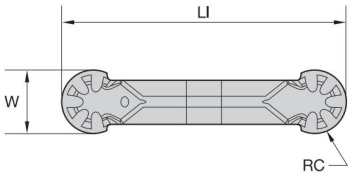
(WMT-P-PH • Precision — continued)



● first choice
○ alternate choice

		WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
P		●	●	○	○	
M				●	●	○
K		●	●	○	○	
N				●	●	●
S				●	●	●
H				○		

catalogue number	seat size	W	RR	LI	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS500M5P03PH	5	5,00	0,30	28,63	-	-	5346424	5346425	5346426
WMTS500M5P06PH	5	5,00	0,60	28,63	-	-	5346427	5346428	5346429
WMTS600M6P03PH	6	6,00	0,30	28,63	-	-	5346430	5346431	-
WMTS600M6P06PH	6	6,00	0,60	28,63	-	-	5346432	5346433	-
WMTS250I6P08PH	6	6,32	0,75	28,63	-	-	5345984	5327621	-
WMTS250I6P03PH	6	6,35	0,25	28,63	-	-	5345983	5327620	-
WMTS312I8P03PH	8	7,92	0,25	28,57	-	-	5345985	5345986	-
WMTS312I8P08PH	8	7,92	0,75	28,57	-	-	5345987	5345988	-
WMTS800M8P03PH	8	8,00	0,30	28,57	-	-	5346436	5346437	-
WMTS800M8P06PH	8	8,00	0,60	28,57	-	-	5346434	5346435	-

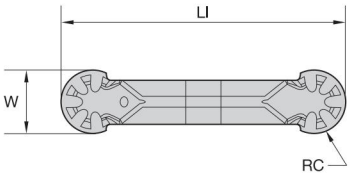


● first choice
○ alternate choice

		WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
P		●	●	○	○	
M				●	●	○
K		●	●	○	○	
N				●	●	●
S				●	●	●
H				○		

■ WMT-U-PC • Moulded

catalogue number	seat size	W	RC	LI					
WMTR305M3UPC	3	3,05	1,53	25,53	4170174	-	4170172	4170173	-
WMTR405M4UPC	4	4,05	2,03	25,58	4170179	-	4170177	4170178	-
WMTR505M5UPC	5	5,05	2,53	29,01	4170184	-	4170182	4170183	-
WMTR605M6UPC	6	6,05	3,03	28,77	4170189	-	4170187	4170188	-
WMTR805M8UPC	8	8,05	4,03	29,22	4170194	-	4170192	4170193	-



● first choice
○ alternate choice

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

WMT-P-PC • Precision

catalogue number	seat size	W	RC	LI	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTR300M3PPC	3	3,00	1,50	25,40	-	-	4170170	4170171	4170195
WMTR400M4PPC	4	4,00	2,00	25,45	-	-	4170175	4170176	4170196
WMTR188I5PPC	5	4,78	2,39	28,65	-	-	4170119	4170120	-
WMTR500M5PPC	5	5,00	2,50	28,88	-	-	4170180	4170181	-
WMTR600M6PPC	6	6,00	3,00	28,65	-	-	4170185	4170186	-
WMTR250I6PPC	6	6,36	3,18	29,01	-	-	4170121	4170122	-
WMTR312I8PPC	8	7,94	3,96	29,00	-	-	4170163	4170164	-
WMTR800M8PPC	8	8,00	4,00	29,08	-	-	4170190	4170191	-

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 Feature (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.)
- Receive Ranked Results

SELECT

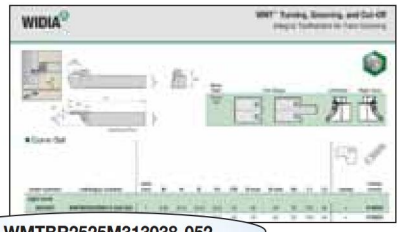
A method of selecting cutting tools from a tree structure via a hierarchy or parametric search:

- 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 adaptive item 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 accelerates every job, and maximises every shift. **widia.com/novo**

WMT System

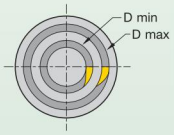
Our WMT toolholders now have a smart new naming system. Here are some examples of the improved nomenclature for our WMT Toolholders.

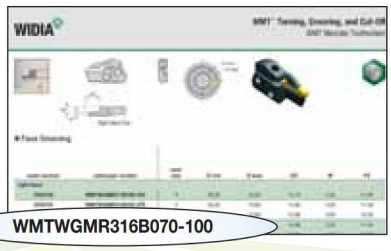


WMTBR2525M313038-052

Integral Toolholders

WMT	B	R	2525	M	3	13	—	038-052
Tooling System	Tool Style	Hand	Shank Size	Tool Length	Seat Size	Max Grooving Depth		Face Grooving Diameter
WMT = Groove and Turn (WMT Insert)	**S** = Straight **C** = Straight with circular support **E** = End mount **A** = Straight, face grooving, curve in **B** = Straight, face grooving, curve out	**R** = Right hand **L** = Left hand	Height x Width in mm	**H** = 100 **J** = 110 **K** = 125 **L** = 140 **M** = 150 **P** = 170	1 2 2B 3 4 5 6 8	CD max in mm	D min – D max in mm (e.g., 70–100 = 70mm D min 100 mm D max)	Diameters are min and max for outer face groove diameter 999 = unlimited D max

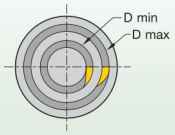




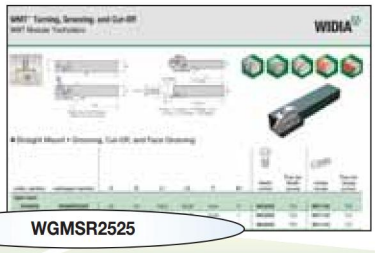
WMTWGMR316B070-100

Modular Blades

WMT	WGM	R	3	16	B	070-100
Tooling System	Connection Type	Hand	Seat Size	Max Grooving Depth	Tool Style	Face Grooving Diameter
		R = Right hand **L** = Left hand			**A** = Curve In **B** = Curve Out	



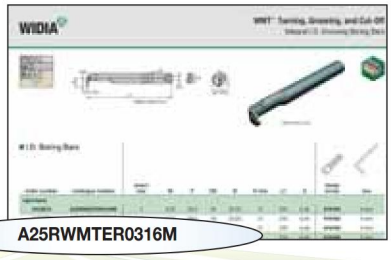
WIDIA VICTORY



WGMSR2525

Modular Toolholders

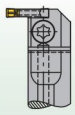
WGM	S	R	2525
Tooling System	Tool Style	Hand	Shank Size
MDG = Modular Deep Grooving **WGM** = Modular Serrated Locking System	**S** = Straight **E** = End mount	**R** = Right hand **L** = Left hand	

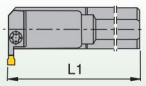


A25RWMTER0316M

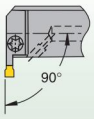
Integral Boring Bars

A	25	R	WMT	E	R	03	16	M
Steel Bar with Coolant	Bar Diameter	Bar Length	WMT™ Groove and Turn System	Tool Style	Hand	Seat Size	Max Grooving Depth	Tool Units





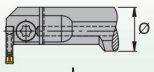
metric bars:		inch bars:		
R	= 200mm	R	=	8"
S	= 250mm	S	=	10"
T	= 300mm	T	=	12"



E = End mounted (90°)

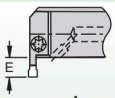
R = Right hand
L = Left hand

N = Inch
M = Metric



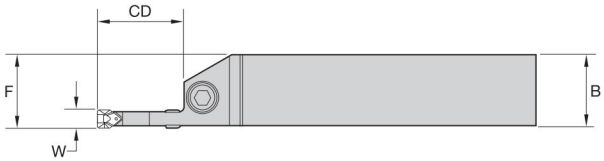
metric bars:	inch bars:
Bar diameter in millimetres	A two-digit number which indicates the bar diameter in 1/16" increments.

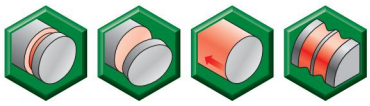
pocket seat size	cutting width (mm)
02	2,00–2,62
2B	2,39–2,62
03	3,0–3,05
04	4,0–4,05
05	5,0–5,05
06	6,0–6,05
08	8,0–8,05
10	10,0–10,05

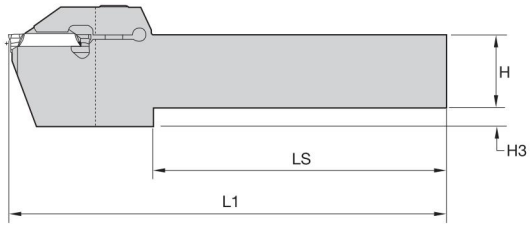


conversions:

mm	inch
7mm	.28"
10mm	.39"
12mm	.47"
16mm	.63"







Right Hand Tool

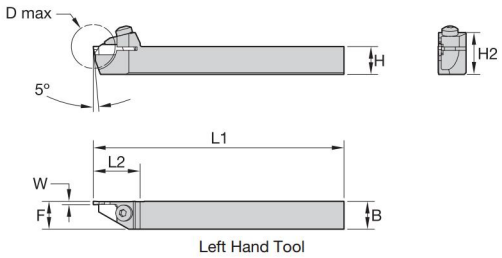
O.D. Grooving and Cut-Off

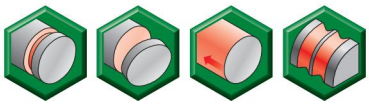
order number	catalogue number	seat size	W	H	B	CD	F	H3	L1	LS	clamp screw	clamp screw
right hand												
3650516	WMTSR2525M116	1	1,50	25,0	25,0	17	25,0	–	150	116	606249	–
3650456	WMTSR1616K216	2	2,00	16,0	16,0	17	16,0	6	125	101	606249	–
3650458	WMTSR2020K216	2	2,00	20,0	20,0	17	20,0	–	125	92	606249	–
3650506	WMTSR2525M216	2	2,00	25,0	25,0	17	25,0	–	150	116	606249	–
3539172	WMTSR1616K2B19	2B	2,38	16,0	16,0	24	15,9	5	125	88	–	MS326
3539174	WMTSR2020K2B19	2B	2,38	20,0	20,0	24	19,9	5	125	88	–	MS326
3539221	WMTCR2525M2B19	2B	2,38	25,0	25,0	24	24,9	–	150	113	–	MS326
3650460	WMTSR1616K311	3	3,00	16,0	16,0	11	16,0	–	125	93	–	619205
3650462	WMTSR1616K322	3	3,00	16,0	16,0	22	16,0	5	125	85	–	619205
3650468	WMTSR2020K311	3	3,00	20,0	20,0	11	20,0	–	125	93	–	619205
3650470	WMTSR2020K322	3	3,00	20,0	20,0	22	20,0	5	125	85	–	619205
3650479	WMTSR2525M311	3	3,00	25,0	25,0	11	25,0	–	150	118	–	619205
3650481	WMTSR2525M322	3	3,00	25,0	25,0	22	25,0	–	150	110	–	619205
3650502	WMTSR1616411	4	4,00	16,0	16,0	11	16,0	–	125	92	–	619205
3650464	WMTSR1616K422	4	4,00	16,0	16,0	22	16,0	5	125	83	–	619205
3653751	WMTSR2020K20	4	4,00	20,0	20,0	22	20,0	5	125	83	–	619205
3650504	WMTSR2020K411	4	4,00	20,0	20,0	11	20,0	–	125	92	–	619205
3653752	WMTSR2525M11	4	4,00	25,0	25,0	11	25,0	–	150	117	–	619205
3650483	WMTSR2525M422	4	4,00	25,0	25,0	22	25,0	–	150	109	–	619205
3650466	WMTSR1616K514	5	5,00	16,0	16,0	14	16,0	–	125	88	–	619168
3650473	WMTSR2020K514	5	5,00	20,0	20,0	14	20,0	–	125	88	–	619168
3650475	WMTSR2020L525	5	5,00	20,0	20,0	15	20,0	5	140	93	–	619168
3650485	WMTSR2525M514	5	5,00	25,0	25,0	14	25,0	–	150	115	–	619168
3650487	WMTSR2525M525	5	5,00	25,0	25,0	25	25,0	–	150	104	–	619168
3650477	WMTSR2020L614	6	6,00	20,0	20,0	14	20,0	–	140	103	–	619168
3650489	WMTSR2525M614	6	6,00	25,0	25,0	14	25,0	–	150	114	–	619168
3650491	WMTSR2525M625	6	6,00	25,0	25,0	25	25,0	–	150	104	–	619168
3650494	WMTSR2525M814	8	8,00	25,0	25,0	14	25,0	–	150	113	–	619168
3650496	WMTSR2525M825	8	8,00	25,0	25,0	25	25,0	–	150	104	–	619168
3650498	WMTSR3232M814	8	8,00	32,0	32,0	14	32,0	–	150	113	–	619168
3650500	WMTSR3232M825	8	8,00	32,0	32,0	25	32,0	–	150	104	–	619168

(continued)

(O.D. Grooving and Cut-Off — continued)

order number	catalogue number	seat size	W	H	B	CD	F	H3	L1	LS	 clamp screw	 clamp screw
left hand												
3653332	**WMTSL2525M116**	1	1,50	25,0	25,0	16	25,0	–	150	116	**606249**	–
3650457	**WMTSL1616K216**	2	2,00	16,0	16,0	17	16,0	6	125	101	**606249**	–
3650459	**WMTSL2020K216**	2	2,00	20,0	20,0	17	20,0	–	125	92	**606249**	–
3650507	**WMTSL2525M216**	2	2,00	25,0	25,0	17	25,0	–	150	116	**606249**	–
3539173	**WMTSL1616K2B19**	2B	2,38	16,0	16,0	24	15,9	5	125	88	–	**MS326**
3539175	**WMTSL2020K2B19**	2B	2,38	20,0	20,0	24	19,9	5	125	88	–	**MS326**
3650461	**WMTSL1616K311**	3	3,00	16,0	16,0	11	16,0	–	125	93	–	**619205**
3650463	**WMTSL1616K322**	3	3,00	16,0	16,0	22	16,0	5	125	85	–	**619205**
3650469	**WMTSL2020K311**	3	3,00	20,0	20,0	11	20,0	–	125	93	–	**619205**
3650471	**WMTSL2020K322**	3	3,00	20,0	20,0	22	20,0	5	125	85	–	**619205**
3650480	**WMTSL2525M311**	3	3,00	25,0	25,0	11	25,0	–	150	118	–	**619205**
3650482	**WMTSL2525M322**	3	3,00	25,0	25,0	22	25,0	–	150	110	–	**619205**
3650465	**WMTSL1616K422**	4	4,00	16,0	16,0	22	16,0	5	125	83	–	**619205**
3650472	**WMTSL2020K22**	4	4,00	20,0	20,0	22	20,0	5	125	83	–	**619205**
3650505	**WMTSL2020K411**	4	4,00	20,0	20,0	11	20,0	–	125	92	–	**619205**
3653763	**WMTSL2525M11**	4	4,00	25,0	25,0	11	25,0	–	150	117	–	**619205**
3650484	**WMTSL2525M422**	4	4,00	25,0	25,0	22	25,0	–	150	109	–	**619205**
3650467	**WMTSL1616K514**	5	5,00	16,0	16,0	14	16,0	–	125	88	–	**619168**
3650474	**WMTSL2020K514**	5	5,00	20,0	20,0	14	20,0	–	125	88	–	**619168**
3650486	**WMTSL2525M514**	5	5,00	25,0	25,0	14	25,0	–	150	113	–	**619168**
3650488	**WMTSL2525M525**	5	5,00	25,0	25,0	25	25,0	–	150	104	–	**619168**
3650478	**WMTSL2020L614**	6	6,00	20,0	20,0	14	20,0	–	140	103	–	**619168**
3650490	**WMTSL2525M614**	6	6,00	25,0	25,0	14	25,0	–	150	114	–	**619168**
3650493	**WMTSL2525M625**	6	6,00	25,0	25,0	25	25,0	–	150	104	–	**619168**
3650495	**WMTSL2525M814**	8	8,00	25,0	25,0	14	25,0	–	150	113	–	**619168**
3650497	**WMTSL2525M825**	8	8,00	25,0	25,0	25	25,0	–	150	104	–	**619168**
3650499	**WMTSL3232M814**	8	8,00	32,0	32,0	14	32,0	–	150	113	–	**619168**
3650501	**WMTSL3232M825**	8	8,00	32,0	32,0	25	32,0	–	150	104	–	**619168**





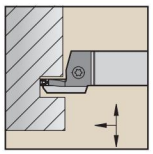
Swiss Grooving and Cut-Off • Metric

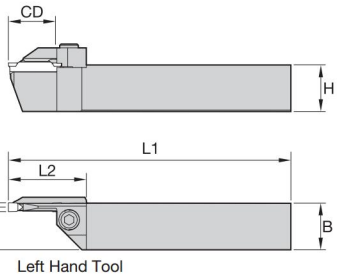
order number	catalogue number	seat size	W	H	B	F	D max	H2	L1	L2	clamp screw
right hand											
3650508	**WMTCR1010H110**	1	1,50	10,0	10,0	10,0	20	16	100	21	**606249**
3650510	**WMTCR1212H110**	1	1,50	12,0	12,0	12,0	20	18	100	21	**606249**
3650512	**WMTCR1616K113**	1	1,50	16,0	15,9	16,0	26	24	125	24	**606266**
3650514	**WMTCR2020K113**	1	1,50	20,0	19,9	20,0	26	28	125	24	**606266**
3653413	**WMTCR1010H210**	2	2,00	10,0	10,0	10,0	20	16	100	21	**606249**
3653415	**WMTCR1212H210**	2	2,00	12,0	12,0	12,0	20	18	100	21	**606249**
3653417	**WMTCR1616K213**	2	2,00	16,0	15,8	16,0	26	24	125	24	**606266**
3653419	**WMTCR2020K213**	2	2,00	20,0	19,8	20,0	26	28	125	24	**606266**
3539170	**WMTCR1212H2B16**	2B	2,38	12,0	11,7	11,9	32	23	100	30	**606249**
left hand											
3650509	**WMTCL1010H110**	1	1,50	10,0	10,0	10,0	20	16	100	21	**606249**
3650511	**WMTCL1212H110**	1	1,50	12,0	12,0	12,0	20	18	100	21	**606249**
3650513	**WMTCL1616K113**	1	1,50	16,0	15,9	16,0	26	24	125	24	**606266**
3650515	**WMTCL2020K113**	1	1,50	20,0	19,9	20,0	26	28	125	24	**606266**
3653414	**WMTCL1010H210**	2	2,00	10,0	10,0	10,0	20	16	100	21	**606249**
3653416	**WMTCL1212H210**	2	2,00	12,0	12,0	12,0	20	18	100	21	**606249**
3653418	**WMTCL1616K213**	2	2,00	16,0	15,8	16,0	26	24	125	24	**606266**
3653420	**WMTCL2020K213**	2	2,00	20,0	19,8	20,0	26	28	125	24	**606266**
3539171	**WMTCL1212H2B16**	2B	2,38	12,0	11,7	11,9	32	23	100	30	**606249**

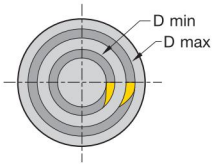
NOTE: Insert exterior edge in line with toolholder edge for 10mm and 12mm shank toolholders.

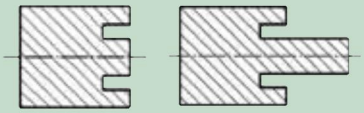
Update to our latest style cut-off inserts for use in the above style toolholders.
These holders can be used in many machines including Stars, Citizens, Tsugami, and Tonos/DECO.

Insert Width	Lead Angle	Old Manchester Catalogue Number	Old Manchester Grade	WMT Cut-Off Insert	WMT Insert Grade	WIDIA™ Order Number
1,5mm	Neutral	583-165	M443B	WMTC015N00CM08	WU25PT	**4169668**
1,5mm	Right - 5°	583-166	M443B	WMTC015R05CM08	WU25PT	**4169670**
1,5mm	Right - 12°	583-168	M443B	WMTC015R12CM08	WU25PT	**4169672**
1,5mm	Left - 5°	583-167	M443B	WMTC015L05CM08	WU25PT	**4169671**
2,0mm	Neutral	583-170	M443B	WMTC020N00CM08	WU25PT	**4169673**
2,0mm	Right - 5°	583-170	M443B	WMTC020R05CM08	WU25PT	**4169675**
2,0mm	Right - 12°	583-173	M443B	WMTC020R12CM08	WU25PT	**4169678**
2,0mm	Left - 5°	583-172	M443B	WMTC020L05CM08	WU25PT	**4169677**
2,0mm	Left - 12°	583-174	M443B	WMTC020L12CM08	WU25PT	**4169680**
2,0mm	Neutral - Groove	583-129	M45 / M43	WMTS200M2P02PT	WU25PT	**4116130**
2,0mm	Neutral	583-125	M45 / M43	WMTC020N00CMW08	WU25PT	**4169674**
2,0mm	Right - 5°	583-126	M45 / M43	WMTC020R05CMW08	WU25PT	**4169676**
2,0mm	Right - 12°	583-128	M45 / M43	WMTC020R12CMW08	WU25PT	**4169679**
2,0mm	Left - 12°	583-129	M45 / M43	WMTC020L12CMW08	WU25PT	**4169681**





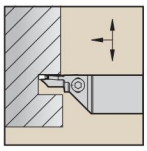


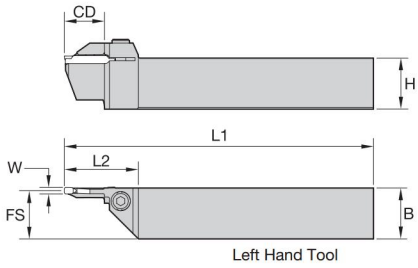
Blade Style	Part Shape	Left Hand	Right Hand
Curve Out			

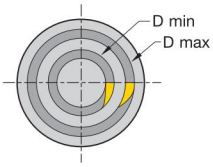
Curve Out

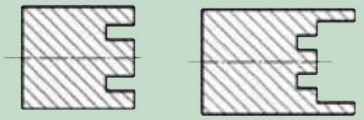
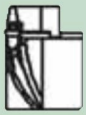

order number	catalogue number	seat size	W	H	B	FS	CD	D max	D min	H2	L1	L2	clamp	clamp screw
right hand														
3653421	WMTBR2525M313-038-052	3	3,00	24,8	24,8	23,5	13	52	38	32	150	34	–	619205
3653423	WMTBR2525M316-052-070	3	3,00	24,8	24,8	23,5	16	70	52	32	150	34	–	619205
3653425	WMTBR2525M316-070-100	3	3,00	24,8	24,8	23,5	16	100	70	32	150	34	–	619205
3653427	WMTBR2525M319-100-205	3	3,00	25,0	24,8	23,5	19	205	100	32	150	37	–	619205
3653764	WMTBR2525M412-032-052	4	4,00	24,8	24,8	23,0	13	52	32	32	150	34	–	619205
3653766	WMTBR2525M415-052-070	4	4,00	24,8	24,8	23,0	16	70	52	32	150	34	–	619205
3653770	WMTBR2525M418-100-205	4	4,00	24,8	24,8	23,0	19	205	100	32	150	37	–	619205
3653431	WMTBR2525M519-052-070	5	5,00	24,8	24,8	22,5	19	70	52	34	150	38	446102	619168
3653433	WMTBR2525M519-070-100	5	5,00	24,8	24,8	22,5	19	100	70	34	150	42	446104	619168
3653435	WMTBR2525M525-100-205	5	5,00	24,8	24,8	22,5	25	205	100	34	150	42	446104	619168
3653437	WMTBR2525M616-038-052	6	6,00	24,8	24,8	22,0	16	52	38	35	150	38	446102	619168
3653441	WMTBR2525M619-070-100	6	6,00	24,8	24,8	22,0	19	100	70	36	150	42	446104	619168
3653443	WMTBR2525M625-100-205	6	6,00	24,8	24,8	22,0	25	205	100	34	150	42	446104	619168
left hand														
3653422	WMTBL2525M313-038-052	3	3,00	24,8	24,8	23,5	13	52	38	32	150	34	–	619205
3653424	WMTBL2525M316-052-070	3	3,00	24,8	24,8	23,5	16	70	52	32	150	34	–	619205
3653426	WMTBL2525M316-070-100	3	3,00	24,8	24,8	23,5	16	100	70	32	150	34	–	619205
3653428	WMTBL2525M319-100-205	3	3,00	24,8	24,8	23,5	19	205	100	32	150	37	–	619205
3653765	WMTBL2525M412-032-052	4	4,00	24,8	24,8	23,0	13	52	32	32	150	34	–	619205
3653767	WMTBL2525M415-052-070	4	4,00	24,8	24,8	23,0	16	70	52	32	150	34	–	619205
3653769	WMTBL2525M415-070-100	4	4,00	24,8	24,8	23,0	16	100	70	32	150	34	–	619205
3653771	WMTBL2525M418-100-205	4	4,00	24,8	24,8	23,0	19	205	100	32	150	37	–	619205
3653432	WMTBL2525M519-052-070	5	5,00	24,8	24,8	22,5	19	70	52	34	150	38	446101	619168
3653434	WMTBL2525M519-070-100	5	5,00	24,8	24,8	22,5	19	100	70	34	150	42	446103	619168
3653436	WMTBL2525M525-100-205	5	5,00	24,8	24,8	22,5	25	205	100	34	150	42	446103	619168
3653438	WMTBL2525M616-038-052	6	6,00	24,8	24,8	22,0	16	52	38	35	150	38	446101	619168
3653444	WMTBL2525M625-100-205	6	6,00	24,8	24,8	22,0	25	205	100	34	150	42	446103	619168

NOTE: Initial cut of tool must be between D min and D max. Due to the insert being positioned 0,75mm above centre, minimum diameter after initial cut is 12,6mm.
Toolholders that accept 3mm and 4mm width inserts have an integral clamp.
Toolholders that accept 5mm and 6mm width inserts are supplied with a detachable clamp.





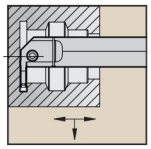


Blade Style	Part Shape	Left Hand	Right Hand
Curve In			

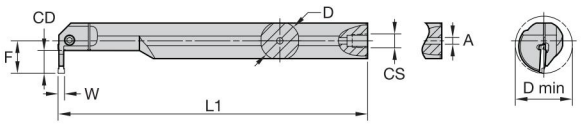
Curve In


order number	catalogue number	seat size	W	H	B	FS	CD	D max	D min	H2	L1	L2	clamp	clamp screw
right hand														
3634282	**WMTAR2525M316-070-100**	3	3,00	24,8	24,8	23,5	16	100	70	32	150	34	–	**MS326**
3634284	**WMTAR2525M319-100-205**	3	3,00	24,8	24,8	23,5	19	205	100	32	150	37	–	**MS326**
3634290	**WMTAR2525M619-070-100**	6	6,00	24,8	24,8	22,0	19	100	70	34	150	42	**446104**	**619168**
left hand														
3634283	**WMTAL2525M316-070-100**	3	3,00	24,8	24,8	23,5	16	100	70	32	150	34	–	**MS326**
3634285	**WMTAL2525M319-100-205**	3	3,00	24,8	24,8	23,5	19	205	100	32	150	37	–	**MS326**

NOTE: Initial cut of tool must be between D min and D max. Due to the insert being positioned 0,75mm above centre, minimum diameter after initial cut is 12,6mm.
Toolholders that accept 3mm and 4mm width inserts have an integral clamp.
Toolholders that accept 5mm and 6mm width inserts are supplied with a detachable clamp.



Steel shank with through coolant.

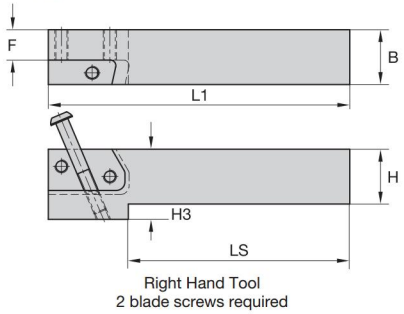


Right Hand Tool

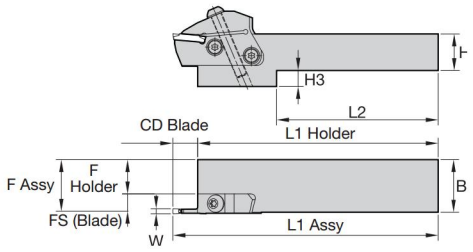
Right Hand Tool

I.D. Boring Bars

order number	catalogue number	insert size	W	F	CD	D	D min	L1	A	clamp screw	hex
right hand											
5423874	**A25RWMTER0316M**	3	3,00	26,0	16	25,00	41	200	6,40	**619168**	5 mm
5423875	**A32SWMTER0319M**	3	3,00	29,0	19	32,00	47	250	6,40	**619168**	5 mm
5423876	**A25RWMTER0416M**	4	4,00	26,0	16	25,00	41	200	6,40	**619168**	5 mm
5423877	**A32SWMTER0419M**	4	4,00	29,0	19	32,00	47	250	6,40	**619168**	5 mm
5423878	**A32SWMTER0519M**	5	5,00	29,0	19	32,00	47	250	6,40	**619168**	5 mm
5423879	**A40TWMTER0522M**	5	5,00	32,0	22	40,00	54	300	6,40	**619168**	5 mm
5423880	**A32SWMTER0619M**	6	6,00	29,0	19	32,00	47	250	6,40	**619168**	5 mm
5423881	**A40TWMTER0622M**	6	6,00	31,8	22	40,00	54	300	6,40	**619168**	5 mm
left hand											
5423882	**A25RWMTEL0316M**	3	3,00	26,0	16	25,00	41	200	6,40	**619168**	5 mm
5423883	**A32SWMTEL0319M**	3	3,00	29,0	19	32,00	47	250	6,40	**619168**	5 mm
5423884	**A25RWMTEL0416M**	4	4,00	26,0	16	25,00	41	200	6,40	**619168**	5 mm
5423885	**A32SWMTEL0419M**	4	4,00	29,0	19	32,00	47	250	6,40	**619168**	5 mm
5423886	**A32SWMTEL0519M**	5	5,00	29,0	19	32,00	47	250	6,40	**619168**	5 mm
5423887	**A40TWMTEL0522M**	5	5,00	32,0	22	40,00	54	300	6,40	**619168**	5 mm
5423888	**A32SWMTEL0619M**	6	6,00	29,0	19	32,00	47	250	6,40	**619168**	5 mm
5423889	**A40TWMTEL0622M**	6	6,00	31,8	22	40,00	54	300	6,40	**619168**	5 mm



Right Hand Tool
2 blade screws required



F Assy = F (Holder) + FS (Blade) + W/2
L1 Assy = L1 (Holder) + CD (Blade)

Straight Mount • Grooving, Cut-Off, and Face Grooving

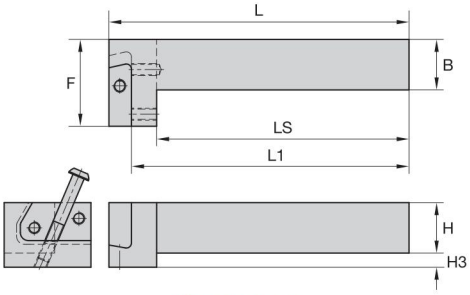
order number	catalogue number	H	B	L1	LS	F	H3	blade screw	Torx for blade screw	clamp screw	Torx for clamp screw
right hand											
5349628	**WGMSR2020**	20	20	108,0	68,00	8,84	12	**MS2002**	T25	**MS1162**	T25
5349629	**WGMSR2525**	25	25	126,0	95,78	13,84	7	**MS2002**	T25	**MS1162**	T25
5349641	**WGMSR3232**	32	32	126,0	69,85	20,81	–	**MS2002**	T25	**MS1162**	T25
left hand											
5349625	**WGMSL1620**	16	20	108,0	68,00	8,84	16	**MS2002**	T25	**MS1162**	T25
5349626	**WGMSL2020**	20	20	108,0	68,00	8,84	12	**MS2002**	T25	**MS1162**	T25
5349627	**WGMSL2525**	25	25	126,0	95,78	13,84	7	**MS2002**	T25	**MS1162**	T25
5349640	**WGMSL3232**	32	32	126,0	69,85	20,81	–	**MS2002**	T25	**MS1162**	T25

NOTE: Use the larger seat size toolholder for optimal performance.
Blade screws and clamp screw included with holder.

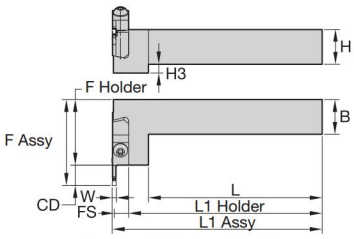
Toolholder Style	Hand of Holder	Hand of Blade
WGMS — Straight Mount	Right	Right
	Left	Left
WGME — End Mount	Right	Left
	Left	Right

Grooving and Cut-Off Blades found on page E38.

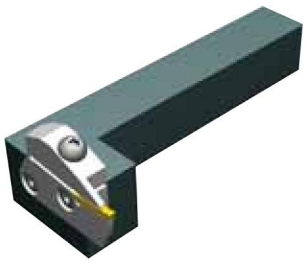
Face Grooving Blades found on page E39.



Right Hand Tool



F Assy = F (Holder) + CD (Blade)
L1 Assy = L1 (Holder) + FS (Blade) + W/2



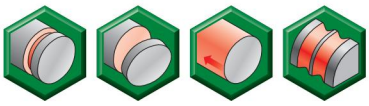
End Mount • Grooving, Cut-Off, and Face Grooving

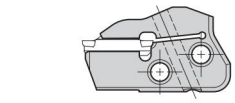
order number	catalogue number	H	B	L	L1	LS	F	H3
right hand								
5514979	**WGMER2525**	25	25	150,3	139,3	125,25	42,75	9
5515021	**WGMER3232**	32	32	170,3	159,3	145,25	42,75	–
left hand								
5514978	**WGMEL2525**	25	25	150,3	139,3	125,25	42,75	9
5515020	**WGMEL3232**	32	32	170,3	159,3	145,25	42,75	–

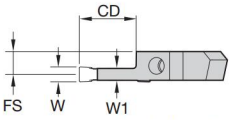
Toolholder Style	Hand of Holder	Hand of Blade
WGMS — Straight Mount	Right	Right
	Left	Left
WGME — End Mount	Right	Left
	Left	Right

Grooving and Cut-Off Blades found on page E38.

Face Grooving Blades found on page E39.







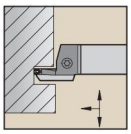
Right Hand Blade

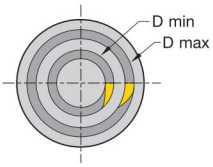
Grooving and Cut-Off

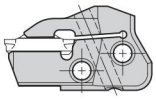
order number	catalogue number	seat size	CD	W	FS	W1
right hand						
5359127	**WMTWGMR114S**	1	14,00	1,50	11,04	1,22
5359128	**WMTWGMR213S**	2	13,00	2,00	10,81	1,68
5359129	**WMTWGMR2B16S**	2B	16,50	2,39	10,71	1,88
5359130	**WMTWGMR319S**	3	19,00	3,00	10,38	2,54
5359131	**WMTWGMR419S**	4	19,00	4,00	10,00	3,30
5359132	**WMTWGMR522S**	5	22,00	5,00	9,82	3,66
5359133	**WMTWGMR622S**	6	22,00	6,00	9,26	4,78
left hand						
5359120	**WMTWGML114S**	1	14,00	1,50	11,04	1,22
5359121	**WMTWGML213S**	2	13,00	2,00	10,81	1,68
5359122	**WMTWGML2B16S**	2B	16,50	2,39	10,71	1,88
5359123	**WMTWGML319S**	3	19,00	3,00	10,38	2,54
5359124	**WMTWGML419S**	4	19,00	4,00	10,00	3,30
5359125	**WMTWGML522S**	5	22,00	5,00	9,82	3,66
5359126	**WMTWGML622S**	6	22,00	6,00	9,26	4,78

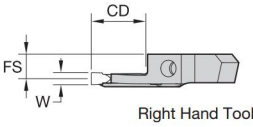
NOTE: Blade and clamp screw torque equals 8–10 Nm.

Toolholder Style	Hand of Holder	Hand of Blade
WGMS — Straight Mount	Right	Right
	Left	Left
WGME — End Mount	Right	Left
	Left	Right









Right Hand Tool

Face Grooving

order number	catalogue number	seat size	D min	D max	CD	W	FS
right hand							
5359150	**WMTWGMR313B038-052**	3	38,00	52,00	12,70	3,00	11,00
5359151	**WMTWGMR316B052-070**	3	52,00	70,00	15,88	3,00	11,00
5359154	**WMTWGMR416B052-070**	4	52,00	70,00	15,88	4,00	10,50
5359152	**WMTWGMR316B070-100**	3	70,00	100,00	15,88	3,00	11,00
5359155	**WMTWGMR416B070-100**	4	70,00	100,00	15,88	4,00	10,50
5359153	**WMTWGMR319B100-205**	3	100,00	205,00	19,05	3,00	11,00
5359156	**WMTWGMR419B100-205**	4	100,00	205,00	19,05	4,00	10,50
5359157	**WMTWGMR522B100-205**	5	100,00	205,00	22,00	5,00	10,00
5359158	**WMTWGMR622B100-205**	6	100,00	205,00	22,00	6,00	10,00
left hand							
5359146	**WMTWGML616B030-052**	6	30,00	52,00	15,88	6,00	10,00
5359134	**WMTWGML313B038-052**	3	38,00	52,00	12,70	3,00	11,00
5359138	**WMTWGML413B038-052**	4	38,00	52,00	12,70	4,00	10,50
5359142	**WMTWGML516B038-052**	5	38,00	52,00	15,88	5,00	10,00
5359135	**WMTWGML316B052-070**	3	52,00	70,00	15,88	3,00	11,00
5359139	**WMTWGML416B052-070**	4	52,00	70,00	15,88	4,00	10,50
5359143	**WMTWGML519B052-070**	5	52,00	70,00	19,05	5,00	10,00
5359147	**WMTWGML619B052-070**	6	52,00	70,00	19,05	6,00	10,00
5359136	**WMTWGML316B070-100**	3	70,00	100,00	15,88	3,00	11,00
5359140	**WMTWGML416B070-100**	4	70,00	100,00	15,88	4,00	10,50
5359144	**WMTWGML519B070-100**	5	70,00	100,00	19,05	5,00	10,00
5359148	**WMTWGML619B070-100**	6	70,00	100,00	19,05	6,00	10,00
5359137	**WMTWGML319100-205**	3	100,00	205,00	19,05	3,00	11,00
5359141	**WMTWGML419B100-205**	4	100,00	205,00	19,05	4,00	10,50
5359145	**WMTWGML522B100-205**	5	100,00	205,00	22,00	5,00	10,00
5359149	**WMTWGML622B100-205**	6	100,00	205,00	22,00	6,00	10,00

NOTE: Blade and clamp screw torque equals 8–10 Nm.

Toolholder Style	Hand of Holder	Hand of Blade
WGMS — Straight Mount	Right	Right
	Left	Left
WGME — End Mount	Right	Left
	Left	Right

WIDIA™ TopGroove™ for Shallow Grooving and Face Grooving

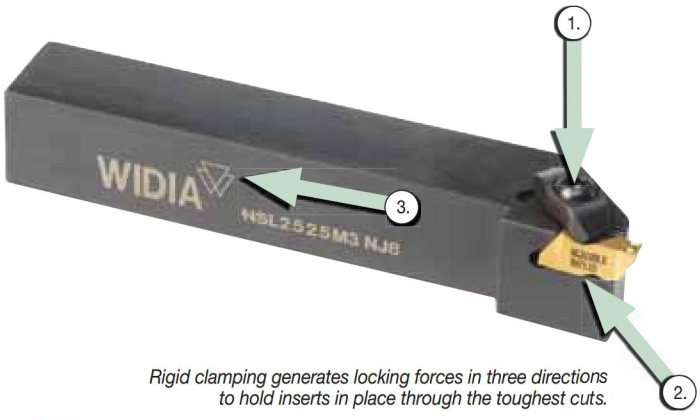
TopGroove

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

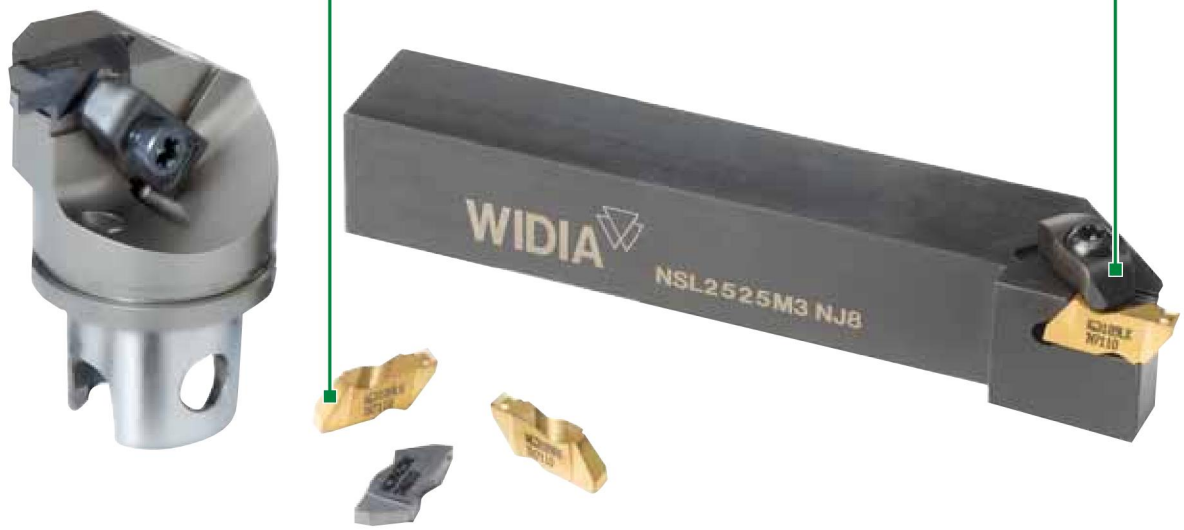
- TopGroove clamping design features a rugged bridge clamp, which locates in a groove moulded into the insert to provide superior resistance to side and radial cutting forces.
- TopGroove inserts are available for shallow grooving, deep grooving, light turning, profiling, shallow and deep face grooving, back turning, undercutting, and Poly-Vee grooving.
- The proprietary WIDIA chip control design works in multi-directional turning as well as radial feed applications to provide excellent chip evacuation in deep grooving applications.



Rigid clamping generates locking forces in three directions to hold inserts in place through the toughest cuts.

TopGroove inserts employ a unique top rake chip control geometry that efficiently evacuates chips and produces better quality parts faster.

The WIDIA™ TopGroove™ clamping system offers a complete line of grooving geometries and an extensive grade selection.



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, back turning, 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 carbide grade options, the TopGroove clamping system is the proven solution.

With maximum clamping rigidity and superior versatility, TopGroove inserts employ a unique top rake chip control geometry that efficiently evacuates chips and produces better quality parts, faster than ever before.

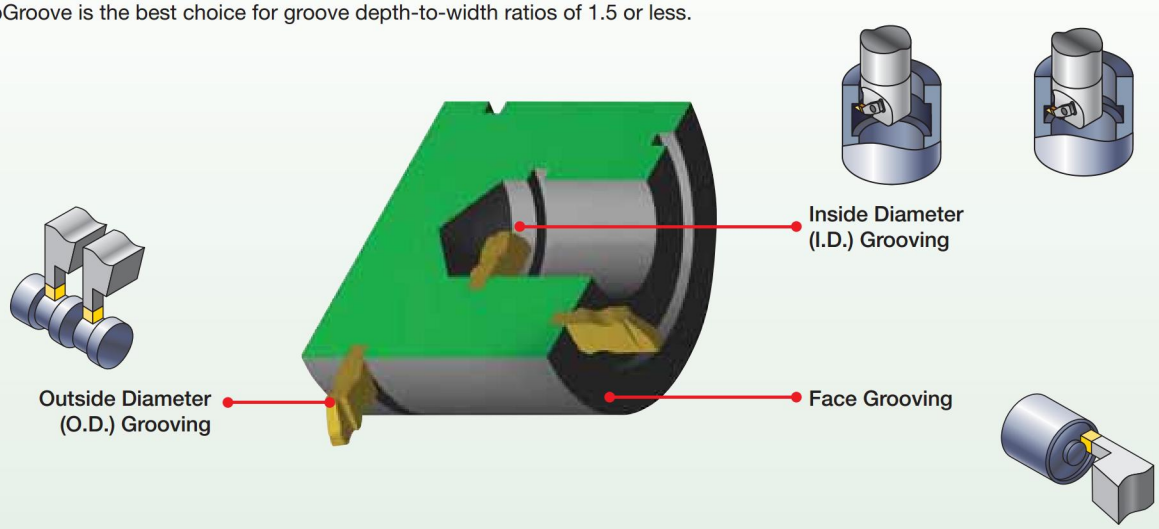
Utilise this comprehensive, easy-to-use guide for the information necessary to identify, choose, and select the appropriate cutting tools for your specific needs.

What you need to know:

- Material being machined.
- Groove depth, width, and profile.
- Application to be performed (face, O.D., or I.D. grooving).
- Toolholder requirements (e.g. KM™, ERICKSON™, square shank, right/left).

1 Choose the application to be performed:

Groove depth, width, and profile.
TopGroove is the best choice for groove depth-to-width ratios of 1.5 or less.



For deep grooving, use WMT™ on page E4.

TopGroove™ for Internal, External, and Face Grooving Applications

system capabilities			minimum	maximum
	O.D./I.D. Grooving	width	0,50mm	9,53mm
		depth	–	12,7mm
	Face Grooving	width	3,2mm	6,35mm
		depth	–	12,7mm
	Internal Grooving	diameter	11,2mm	–
	Face Grooving Diameter	standard	23,9mm	–
		deep	–	–
	Deep O.D./I.D. Grooving	width	1,50mm	6,35mm
		depth	–	12,7mm
	Deep Face Grooving	width	3,18mm	6,35mm
		depth	–	12,7mm

2 Identify the material to be machined:
Each tool has a material grid marked with a letter indicating the materials that can be machined.

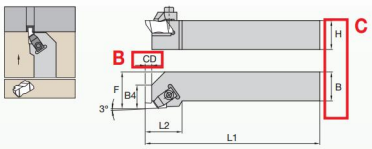
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

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 "CD" dimension for increased tool rigidity.
C Select the largest toolholder shank "H" and "B" dimensions for maximum rigidity.

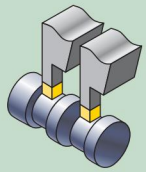
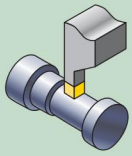
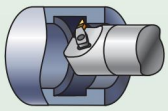
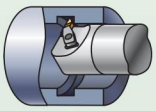
TopGroove™
Toolholders

WIDIA



■ NS

		C						B	A					
order number	catalogue number	H	B	F	L1	L2	B4	CD	gage insert	clamp	clamp screw	clamp screw	hex/ Torx Plus	
right hand														
3641682	NSR1010E2	10,0	10,0	14,0	70	19	9	4	N.2R	CM74	MS1200	–	T10	
3641660	NSR1212F2	12,0	12,0	16,0	80	19	9	4	N.2R	CM74	MS1200	–	T10	
3636542	NSR1616H2	16,0	16,0	20,0	100	19	9	4	N.2R	CM74	MS1200	–	T10	
3638589	NSR2020K2	20,0	20,0	25,0	125	19	9	4	N.2R	CM74	MS1200	–	T10	
3638588	NSR2020K3	20,0	20,0	25,0	125	32	13	5	N.3R	CM72LP	–	MS2111	25 IP	
3638590	NSR2525M2	25,0	25,0	32,0	150	19	9	4	N.2R	CM74	MS1200	–	T10	
3636536	NSR2525M3	25,0	25,0	32,0	150	32	13	5	N.3R	CM72LP	–	MS2111	25 IP	
3636540	NSR2525M4	25,0	25,0	32,0	150	35	14	7	N.4R	CM72LP	–	MS2111	25 IP	
3641664	NSR3225P3	32,0	25,0	32,0	170	32	13	5	N.3R	CM72LP	–	MS2111	25 IP	
3641675	NSR3225P4	32,0	25,0	32,0	170	35	14	7	N.4R	CM72LP	–	MS2111	25 IP	
3641666	NSR3232P3	32,0	32,0	40,0	170	32	13	5	N.3R	CM72LP	–	MS2111	25 IP	
3641669	NSR3232P4	32,0	32,0	40,0	170	35	14	7	N.4R	CM72LP	–	MS2111	25 IP	
left hand														
3641683	NSL1010E2	10,0	10,0	14,0	70	19	9	4	N.2L	CM75	MS1200	–	T10	
3641681	NSL1212F2	12,0	12,0	16,0	80	19	9	4	N.2L	CM75	MS1200	–	T10	
3636545	NSL1616H2	16,0	16,0	20,0	100	19	9	4	N.2L	CM75	MS1200	–	T10	
3639045	NSL2020K2	20,0	20,0	25,0	125	19	9	4	N.2L	CM75	MS1200	–	T10	

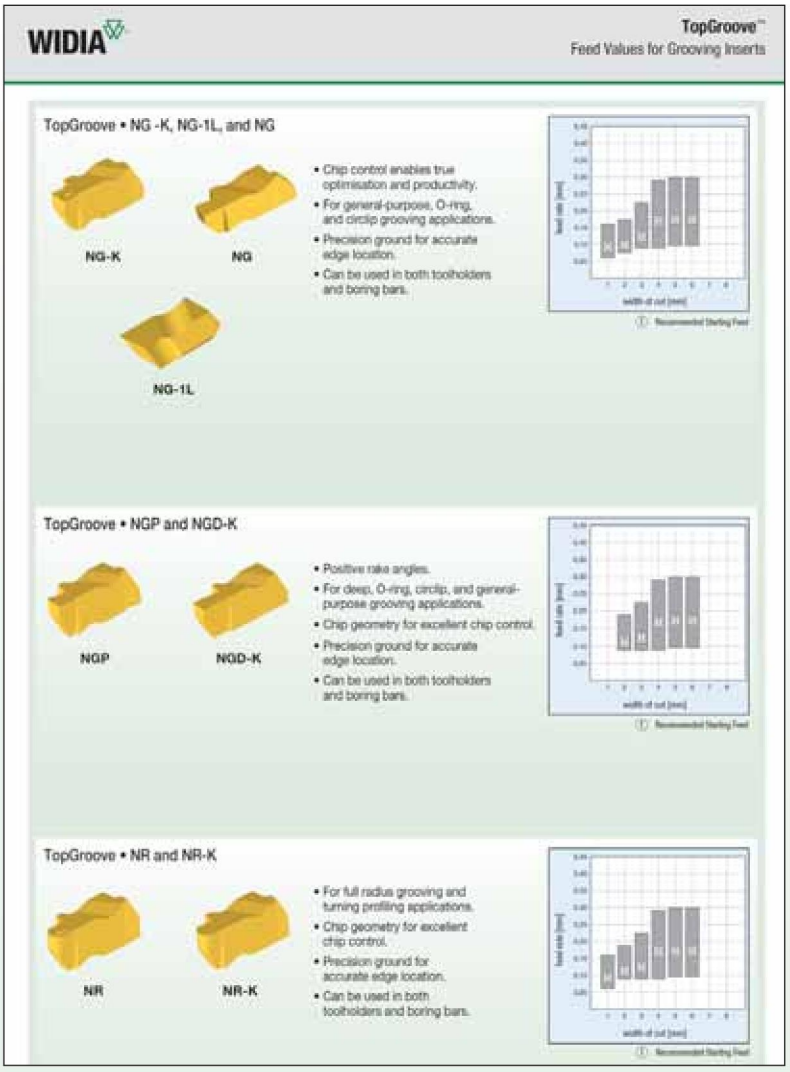
		application	conventional toolholders	modular blades
		O.D. Grooving and Plunge and Turn	pages E74–E76	–
		I.D. Grooving	pages E78–E79	–

4 Select chipbreaker style for the application:

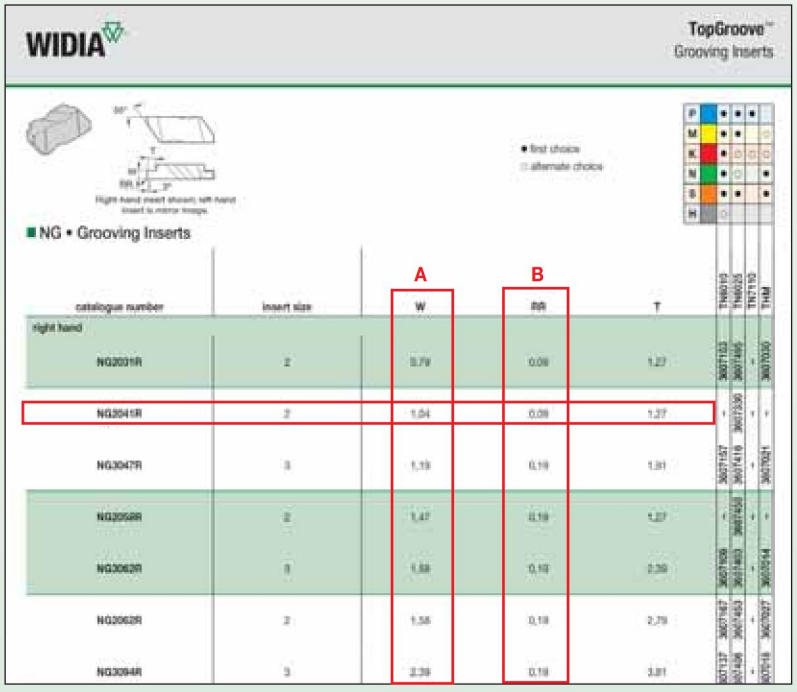
See application guide on page E48 for a complete list of insert styles.

NOTE: Chart shows recommended starting feed rates.

See page E49.



A Choose the appropriate insert width "W" for your specific application.
B Select the required corner radius value "RR".



5 Select grade:

cutting condition		Recommended Grades: steel	stainless steel	cast iron	non-ferrous metals	high-temp alloys	hardened materials
smooth cut, pre-turned surface		TN7110	TN6010	TN7110	TN6010/ THM	TN6010	TN6010
varying depth of cut, casting, or forging skin		TN6010	TN6010	TN6010	TN6010/ THM	TN6010	TN6010
lightly interrupted cut		TN6025	TN6025	TN6025	TN6010/ THM	TN6010	TN6025
heavily interrupted cut		TN6025	TN6025	TN6025	TN6010/ THM	TN6010	TN6025

See page E47 for Grades and Grade Descriptions.

6 Determine cutting data:

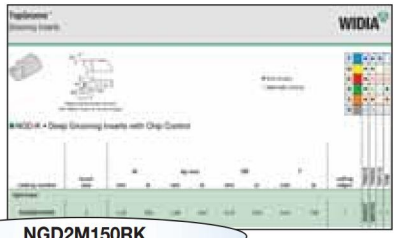
A Based on material group and grade, identify starting speed (vc).
B First choice starting speed is in **bold**.

See page E50 for cutting data.

TopGroove™
Recommended Cutting Speeds • Metric
WIDIA

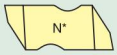
Material Group		Cutting Speed – vc m/min											
		min	Start	max	min	Start	max	min	Start	max	min	Start	max
		TN6010			TN6025			TN7110			THM		
P	0 / 1	140	175	210	130	140	150	200	215	230	90	95	100
	2	115	145	175	110	145	175	170	220	270	75	100	125
	3	115	145	175	110	145	175	170	220	270	75	100	125
	A 4	75	100	120	75	95	115	115	145	175	55	65	80
	5	105	140	170	100	125	145	155	190	B 220	70	88	100
	6	45	60	75	40	55	65	65	85	100	30	40	45
M	1	90	115	140	60	75	90	–	–	–	60	75	90
	2	55	70	90	40	50	55	–	–	–	50	60	75
	3	60	80	95	40	50	60	–	–	–	40	50	55
K	1	120	150	180	60	80	90	175	220	275	70	90	100
	2	120	150	180	60	75	85	165	215	265	50	65	80
	3	110	140	170	60	75	90	160	230	280	60	70	80
N	1	600	750	900	600	750	900	–	–	–	600	750	900
	2	535	685	835	535	685	835	–	–	–	500	650	800
	3	230	300	370	230	300	370	–	–	–	600	750	900
	4	135	180	225	135	180	225	–	–	–	500	650	800
	5	70	90	110	70	90	110	–	–	–	230	300	370
	6	445	565	690	445	565	690	–	–	–	150	200	250
	7	560	700	850	560	700	850	–	–	–	150	200	250
S	1	35	40	50	25	35	40	–	–	–	25	35	45
	2	20	20	30	15	20	20	–	–	–	20	30	35
	3	60	70	80	40	60	70	–	–	–	15	25	30
	4	30	35	45	20	30	35	–	–	–	10	15	20
H	1	–	–	–	15	30	60	15	30	60	–	–	–
	2	–	–	–	15	30	60	15	30	60	–	–	–
	3	–	–	–	15	30	60	15	30	60	–	–	–
	4	–	–	–	15	30	60	15	30	60	–	–	–

TopGroove
Insert Identification System



N	G	D	2	M	150	R		K	
Type of Insert	Insert Style	Additional Information	Insert Size	Size Identification	Groove Size**	Hand of Insert	Cutting Depth	Chipbreaker Design	Definition of Inserts

N — TopGroove



B — Blank (for special forms)
F — Face grooving
G — Grooving
P — Back turning
R — Full radius
U — Undercutting (or relieving)
V — Poly-Vee

D — Deep grooving
P — Positive
C — Groove and chamfer

M — Metric insert groove width
C — Circlip groove insert width is nominal circlip size
Blank — Indicates inch width insert

insert number	W1 mm
1	2,54
2	3,81
3	4,95
4	6,98
5	9,65
6	9,73

Position pertains to groove width for F-, G-, and U-style inserts, radii for R-style grooving inserts, and circlip size for groove and chamfer inserts. Dimension in 0,01mm.
Example: 3,25mm width groove or radius equals "325" catalogue position number.
Width Tolerance: ±0,025mm unless otherwise specified.

L — Left hand
R — Right hand

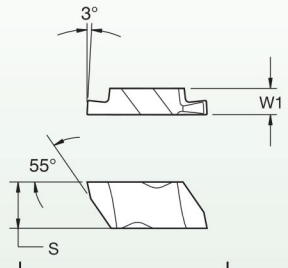
Shown for groove and chamfer inserts in 0,01mm increments.

K — Standard chip control
E — Hone only

Groove size
J or L — Poly-Vee inserts
I — Internal face grooving

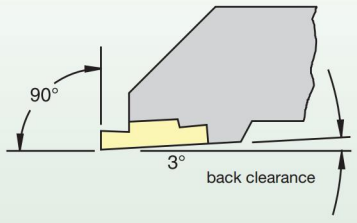
***Omit position for TopGroove NB-style blanks.*

TopGroove/TopThread Threading and Grooving Insert Dimensions



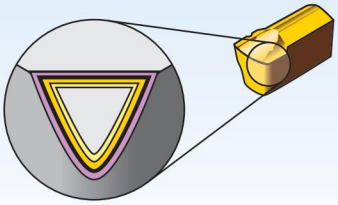
insert size	S mm	S inch	W1 mm	W1 Inch
1	2,54	.100	2,54	.100
2	5,56	.219	3,81	.150
3	8,74	.344	4,95	.195
4	11,51	.453	6,48	.255
5	17,48	.688	9,65	.380
6	11,51	.453	9,73	.383
8	7,93	.312	11,13	.438

TopGroove/TopThread Holder Design



NOTE: Holders are designed to locate insert inclined to 3° to provide back clearance down open side.

WIDIA™ TopGroove and TopThread™ tooling technology combine to bring you the very best threading and grooving system available in 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

Grade

Coating		Grade Description		05	10	15	20	25	30	35	40	45
TN6010	HC-S10	An advanced PVD TiAlN coating over a very deformation-resistant unalloyed carbide substrate. TN6010 is ideal for finishing to general machining of most workpiece materials at higher speeds. Excellent for machining most steels, stainless steels, cast irons, 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									
TN6025	HC-S25	An advanced PVD TiAlN-coated grade with a tough, ultra-fine-grain unalloyed substrate. For general-purpose machining of most steels, stainless steels, high-temp alloys, titanium, irons, 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									
TN7110	HC-P10	Coated carbide. MTCVD/CVD — TiN-TiCN-Al_2O_3-TiN. Very wear resistant. Light and medium machining. For steels and nodular cast iron.	P									
			K									
THM	HW-K15	Uncoated carbide. Extraordinarily 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. Useful in unfavourable conditions.	P									
			M									
			K									
			N									
			S									
			H									

insert style	application	rake angle	page(s)
NG	• General-purpose grooving. • O-ring grooving. • Circlip grooving.	neutral	E51–E52
NG-K	• Chip control geometry. • General-purpose grooving. • O-ring grooving. • Circlip grooving. • Light turning.	10° positive	E53–E59
NGC-K*	• Combined groove and chamfered edge break in one positive plunge with chip control. • Designed for DIN 471/472 standard circlip grooves.	10° positive	–
NGD*	• Deep grooving.	neutral	–
NGD-K	• Chip control geometry. • Deep grooving. • Light turning.	10° positive	E60–E62
NGP	• General-purpose grooving. • O-ring grooving. • Circlip grooving.	5° positive	E63–E64
NF*	• Face grooving. • Additional side clearance.	neutral	–
NF-K	• Face grooving with chip control. • Additional side clearance.	10° positive	E65
NFD-K	• Deep face grooving with chip control. • Additional side clearance.	10° positive	E66

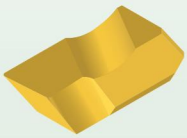
insert style	application	rake angle	page(s)
NFD-KI*	• Internal deep face grooving with chip control. • For use in boring bars for internal face grooves.	10° positive	–
NP-K	• Turning. • Back turning positive. • Profiling with chip control.	10° positive	E66
NR	• Full radius grooving. • Turning and profiling.	neutral	E67–E69
NR-K	• Chip control geometry. • Full radius grooving, turning, and profiling.	10° positive	E70
NRD	• Deep grooving. • Full radius end-form.	neutral	E71
NRP*	• Full radius grooving. • Light-turning profiling.	5° positive	–
NU*	• Undercutting.	neutral	–
NV*	• Poly-Vee grooving.	neutral	–
NB/NBD	• Blanks. • Blanks for deep grooving. • Available in uncoated grades only.	–	E72

**Inserts are available as custom solutions.*

TopGroove • NG -K, NG-1L, and NG

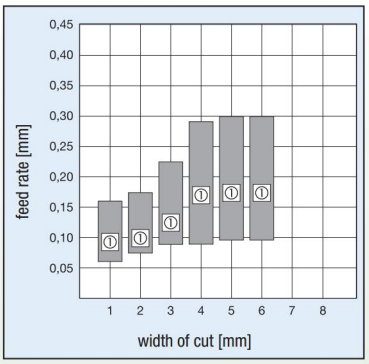
NG-K

NG



NG-1L

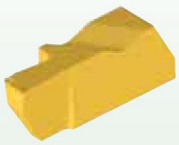
- Chip control enables true optimisation and productivity.
- For general-purpose, O-ring, and circlip grooving applications.
- Precision ground for accurate edge location.
- Can be used in both toolholders and boring bars.



① Recommended Starting Feed

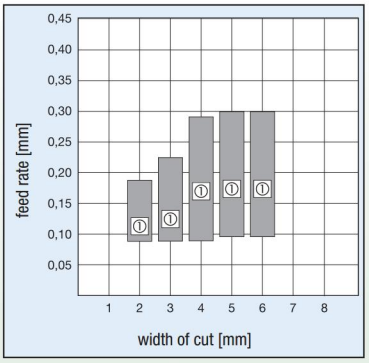
TopGroove • NGP and NGD-K

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.



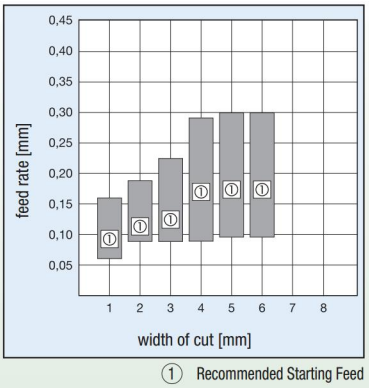
① Recommended Starting Feed

TopGroove • NR and NR-K

NR

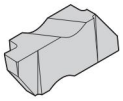
NR-K

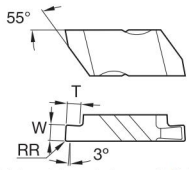
- For full radius grooving and turning profiling applications.
- Chip geometry for excellent chip control.
- Precision ground for accurate edge location.
- Can be used in both toolholders and boring bars.



① Recommended Starting Feed

Material Group		Cutting Speed — vc m/min											
		TN6010			TN6025			TN7110			THM		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	0/1	140	**175**	210	130	**140**	150	200	**215**	230	90	**95**	100
	2	115	**145**	175	110	**145**	175	170	**220**	270	75	**100**	125
	3	115	**145**	175	110	**145**	175	170	**220**	270	75	**100**	125
	4	75	**100**	120	75	**95**	115	115	**145**	175	55	**65**	80
	5	105	**140**	170	100	**125**	145	155	**190**	220	70	**85**	100
	6	45	**60**	75	40	**55**	65	65	**85**	100	30	**40**	45
M	1	90	**115**	140	60	**75**	90	–	**–**	–	60	**75**	90
	2	55	**70**	90	40	**50**	55	–	**–**	–	50	**60**	75
	3	60	**80**	95	40	**50**	60	–	**–**	–	40	**50**	55
K	1	120	**150**	180	60	**80**	90	175	**220**	275	70	**90**	100
	2	120	**150**	180	60	**75**	85	165	**215**	265	50	**65**	80
	3	110	**140**	170	60	**75**	90	180	**230**	280	60	**70**	80
N	1	600	**750**	900	600	**750**	900	–	**–**	–	600	**750**	900
	2	535	**685**	835	535	**685**	835	–	**–**	–	500	**650**	800
	3	230	**300**	370	230	**300**	370	–	**–**	–	600	**750**	900
	4	135	**180**	225	135	**180**	225	–	**–**	–	500	**650**	800
	5	70	**90**	110	70	**90**	110	–	**–**	–	230	**300**	370
	6	445	**565**	690	445	**565**	690	–	**–**	–	150	**200**	250
	7	550	**700**	850	550	**700**	850	–	**–**	–	150	**200**	250
S	1	35	**40**	50	25	**35**	40	–	**–**	–	25	**35**	45
	2	20	**20**	30	15	**20**	20	–	**–**	–	20	**30**	35
	3	60	**70**	80	40	**60**	70	–	**–**	–	15	**25**	30
	4	30	**35**	45	20	**30**	35	–	**–**	–	10	**15**	20
H	1	15	**30**	60	15	**30**	60	–	**–**	–	10	**20**	35
	2	15	**30**	60	15	**30**	60	–	**–**	–	10	**20**	35
	3	15	**30**	60	15	**30**	60	–	**–**	–	10	**20**	35
	4	15	**30**	60	15	**30**	60	–	**–**	–	10	**20**	35





Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

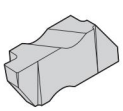
P		●	●	●	
M		●	●		○
K		●	○	○	○
N		●	○		●
S		●	●		●
H		○	○		

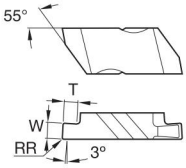
■ NG • Grooving Inserts

catalogue number	insert size	W	RR	T	TN6010	TN6025	TN7110	THM
right hand								
NG2031R	2	0,79	0,09	1,27	3607153	3607495	-	3607030
NG2041R	2	1,04	0,09	1,27	-	3607330	-	-
NG3047R	3	1,19	0,19	1,91	3607157	3607416	-	-
NG2058R	2	1,47	0,19	1,27	-	3607450	-	-
NG2062R	2	1,58	0,19	2,79	3607167	3607453	-	3607027
NG3062R	3	1,58	0,19	2,39	3607109	3607403	-	3607014
NG3094R	3	2,39	0,19	3,81	3607137	3607406	-	3607018
NG3125R	3	3,18	0,19	3,81	3607110	3607375	-	3607020
NG4250R	4	6,35	0,57	6,35	3607143	3607382	-	-
left hand								
NG2031L	2	0,79	0,09	1,27	-	3607482	-	-
NG3047L	3	1,19	0,19	1,91	3607179	3607501	-	3607036
NG2058L	2	1,47	0,19	1,27	-	3607498	-	-
NG2062L	2	1,58	0,19	2,79	-	3607481	-	-
NG3062L	3	1,58	0,19	2,39	3607158	3607459	-	-

(continued)

(NG • Grooving Inserts — continued)



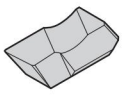


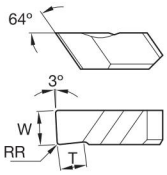
Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

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

catalogue number	insert size	W	RR	T	TN6010	TN6025	TN7110	THM
NG3094L	3	2,39	0,19	3,81	3607160	3607323	-	-
NG3125L	3	3,18	0,19	3,81	3607152	3607445	-	3607022
NG5M500L	5	5,00	0,32	9,52	-	3636572	-	-
NG4250L	4	6,35	0,57	6,35	3607175	3607513	-	-

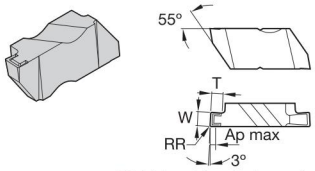




NG-1L • Grooving Inserts

catalogue number	insert size	W	RR	T	cutting edges	TN6010	TN6025	TN7110	THM
left hand									
NG1047L	1	1,19	0,19	1,91	1	-	3636571	-	-
NG1062L	1	1,58	0,19	1,91	1	-	3636569	-	-
NG1094L	1	2,39	0,19	1,91	1	-	3636570	-	-

NOTE: Width tolerance is +/– 0,076mm on NG-1L inserts.



Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

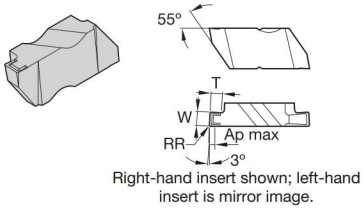
P	●	●	●		
M	●	●		○	
K	●	○	○	○	
N	●	○		●	
S	●	●		●	
H	○	○			

NG-K • Grooving Inserts with Chip Control

catalogue number	insert size	W	Ap max	RR	T	TN6010	TN6025	TN7110	THM
right hand									
NG2M050RK	2	0,50	0,64	0,09	0,64	3606991	3607394	-	-
NG2031RK	2	0,79	0,76	0,09	1,27	3607090	3607313	-	-
NG2M080RK	2	0,80	0,76	0,09	1,27	3606903	3607291	-	-
NG2M100RK	2	1,00	0,76	0,09	1,27	3607129	3607218	-	-
NG3M100RK	3	1,00	0,76	0,19	1,91	-	3607219	-	-
NG2047RK	2	1,19	0,76	0,09	1,27	3607123	3607404	-	-
NG3047RK	3	1,19	0,76	0,19	1,91	3607084	3607238	-	-
NG2M120RK	2	1,20	0,76	0,09	1,27	3606679	3607299	-	-
NG3M120RK	3	1,20	0,76	0,19	1,91	3606915	3607412	-	-
NG2M140RK	2	1,40	0,76	0,09	1,27	3607151	3607318	-	-
NG2M150RK	2	1,50	1,09	0,19	2,79	-	3607234	-	-
NG3M150RK	3	1,50	1,02	0,19	2,39	-	3607221	3607668	-
NG2062RK	2	1,58	1,09	0,19	2,79	3607089	3607215	-	-
NG3062RK	3	1,58	1,02	0,19	2,39	3607055	3607070	3607628	-
NG2M170RK	2	1,70	1,09	0,19	2,79	3606673	3607242	-	-

(continued)

(NG-K • Grooving Inserts with Chip Control — continued)



Right-hand insert shown; left-hand insert is mirror image.

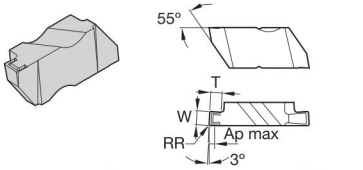
● first choice
○ alternate choice

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

catalogue number	insert size	W	Ap max	RR	T	TN6010	TN6025	TN7110	THM
NG2M175RK	2	1,75	1,09	0,19	2,79	-	3607379	-	-
NG3M175RK	3	1,75	1,02	0,19	2,39	-	3607418	-	-
NG3072RK	3	1,83	1,02	0,19	2,39	3607145	3607332	-	-
NG2M195RK	2	1,95	1,09	0,19	2,79	3606829	3607417	-	-
NG3078RK	3	1,98	1,02	0,19	2,39	3607111	3607309	-	-
NG2M200RK	2	2,00	1,09	0,19	2,79	3607100	3607071	-	-
NG3M200RK	3	2,00	1,02	0,19	2,39	-	3607208	3607662	-
NG2M220RK	2	2,20	1,09	0,19	2,79	-	3607521	-	-
NG3M220RK	3	2,20	1,02	0,19	2,39	-	3607336	-	-
NG3M225RK	3	2,24	1,02	0,19	2,39	3606674	3607310	-	-
NG2M225RK	2	2,25	1,09	0,19	2,79	3606828	3607411	-	-
NG2094RK	2	2,39	1,09	0,19	2,79	3607146	3607317	-	-
NG3094RK	3	2,39	1,02	0,19	3,81	3606660	3607069	-	-
NG2M250RK	2	2,50	1,09	0,19	2,79	-	3607324	-	-
NG3M250RK	3	2,50	1,02	0,19	3,81	-	3607217	3607664	-
NG2M275RK	2	2,75	1,09	0,19	2,79	3606916	3607409	-	-

(continued)

(NG-K • Grooving Inserts with Chip Control — continued)



Right-hand insert shown; left-hand insert is mirror image.

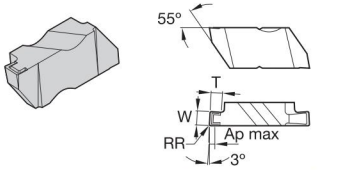
● first choice
○ alternate choice

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

catalogue number	insert size	W	Ap max	RR	T	TN6010	TN6025	TN7110	THM
NG3M275RK	3	2,75	1,02	0,19	3,81	3606677	3607337	-	-
NG2M300RK	2	3,00	1,09	0,19	2,79	3606676	3607340	-	-
NG3M300RK	3	3,00	1,02	0,19	3,81	3607138	3607072	3607655	-
NG4M300RK	4	3,00	1,02	0,19	3,81	-	3607388	-	-
NG2125RK	2	3,18	1,09	0,19	2,79	3607155	3607381	-	-
NG3125RK	3	3,18	1,02	0,19	3,81	3607057	3607068	-	-
NG4125RK	4	3,18	1,06	0,19	3,81	3607163	3607449	-	-
NG3M320RK	3	3,20	1,02	0,19	3,81	-	3607365	-	-
NG2M325RK	2	3,25	1,09	0,19	2,79	-	3607533	-	-
NG3M325RK	3	3,25	1,02	0,19	3,81	-	3607515	-	-
NG3M350RK	3	3,50	2,92	0,32	3,81	-	3607302	-	-
NG4M350RK	4	3,50	2,92	0,57	6,35	-	3607370	-	-
NG3156RK	3	3,96	2,92	0,19	3,81	3607127	3607456	-	-
NG3M400RK	3	3,99	2,92	0,32	3,81	3606678	3607235	-	-
NG4M400RK	4	4,00	2,92	0,57	6,35	3606908	3607364	-	-
NG3M425RK	3	4,24	2,92	0,32	3,81	3606914	3607517	-	-

(continued)

(NG-K • Grooving Inserts with Chip Control — continued)



Right-hand insert shown; left-hand insert is mirror image.

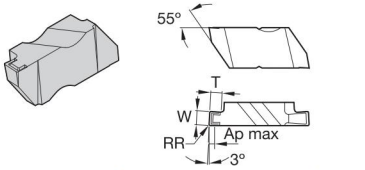
● first choice
○ alternate choice

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

catalogue number	insert size	W	Ap max	RR	T	TN6010	TN6025	TN7110	THM
NG3M450RK	3	4,50	2,92	0,32	3,81	-	3607362	-	-
NG4M450RK	4	4,50	2,92	0,57	6,35	-	3607390	-	-
NG3189RK	3	4,80	2,92	0,57	3,81	3607108	3607305	3607630	-
NG4189RK	4	4,80	2,92	0,57	6,35	3607103	3607220	-	-
NG4M500RK	4	5,00	2,92	0,32	6,35	3606830	3607447	-	-
NG4M550RK	4	5,50	3,81	0,57	6,35	-	3607383	-	-
NG4M600RK	4	6,00	3,81	0,57	6,35	-	3607385	-	-
NG4250RK	4	6,35	3,81	0,57	6,35	3607168	3607304	-	-
left hand									
NG2M050LK	2	0,50	0,64	0,09	0,64	3606990	3607463	-	-
NG2031LK	2	0,79	0,76	0,09	1,27	3607112	3607443	-	-
NG2M080LK	2	0,80	0,76	0,09	1,27	3606911	3607534	-	-
NG2M100LK	2	1,00	0,76	0,09	1,27	3607159	3607239	-	-
NG3M100LK	3	1,00	0,76	0,19	1,91	-	3607419	-	-
NG2047LK	2	1,19	0,76	0,09	1,27	-	3607376	-	-
NG3047LK	3	1,19	0,76	0,19	1,91	3607105	3607374	-	-

(continued)

(NG-K • Grooving Inserts with Chip Control — continued)



Right-hand insert shown; left-hand insert is mirror image.

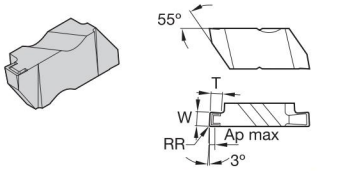
● first choice
○ alternate choice

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

catalogue number	insert size	W	Ap max	RR	T	TN6010	TN6025	TN7110	THM
NG2M120LK	2	1,20	0,76	0,09	1,27	3606827	3607334	-	-
NG3M120LK	3	1,20	0,76	0,19	1,91	3606917	3607384	-	-
NG2M140LK	2	1,40	0,76	0,09	1,27	3606904	3607338	-	-
NG2M150LK	2	1,50	1,09	0,19	2,79	-	3607294	-	-
NG3M150LK	3	1,50	1,02	0,19	2,39	-	3607308	3607663	-
NG2062LK	2	1,58	1,09	0,19	2,79	3607126	3607307	-	-
NG3062LK	3	1,58	1,02	0,19	2,39	3607092	3607213	3607631	-
NG2M170LK	2	1,70	1,09	0,19	2,79	3606905	3607327	-	-
NG2M175LK	2	1,75	1,09	0,19	2,79	-	3607421	-	-
NG3M175LK	3	1,75	1,02	0,19	2,39	-	3607331	-	-
NG3072LK	3	1,83	1,02	0,19	2,39	3607184	3607454	-	-
NG2M195LK	2	1,95	1,09	0,19	2,79	3606910	3607420	-	-
NG3078LK	3	1,98	1,02	0,19	2,39	3607106	3607460	-	-
NG2M200LK	2	2,00	1,09	0,19	2,79	3607144	3607207	-	-
NG3M200LK	3	2,00	1,02	0,19	2,39	-	3607211	3607666	-
NG2M220LK	2	2,20	1,09	0,19	2,79	-	3607367	-	-

(continued)

(NG-K • Grooving Inserts with Chip Control — continued)



Right-hand insert shown; left-hand insert is mirror image.

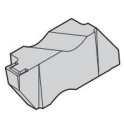
● first choice
○ alternate choice

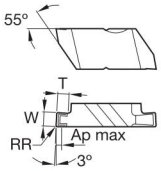
		TN6010	TN6025	TN7110	THM
P		●	●	●	
M		●	●		○
K		●	○	○	○
N		●	○		●
S		●	●		●
H		○	○		

catalogue number	insert size	W	Ap max	RR	T	TN6010	TN6025	TN7110	THM
NG3M220LK	3	2,20	1,02	0,19	2,39	-	3607516	-	-
NG3M225LK	3	2,24	1,02	0,19	2,39	3606909	3607329	-	-
NG2M225LK	2	2,25	1,09	0,19	2,79	3606907	3607413	-	-
NG2094LK	2	2,39	1,09	0,19	2,79	3607149	3607380	-	-
NG3094LK	3	2,39	1,02	0,19	3,81	3607058	3607204	-	-
NG2M250LK	2	2,50	1,09	0,19	2,79	-	3607518	-	-
NG3M250LK	3	2,50	1,02	0,19	3,81	-	3607300	-	-
NG2M275LK	2	2,75	1,09	0,19	2,79	3606913	3607292	-	-
NG3M275LK	3	2,75	1,02	0,19	3,81	3606831	3607297	-	-
NG2M300LK	2	3,00	1,09	0,19	2,79	3606680	3607326	-	-
NG3M300LK	3	3,00	1,02	0,19	3,81	3606522	3607212	-	-
NG4M300LK	4	3,00	1,02	0,19	3,81	-	3607386	-	-
NG2125LK	2	3,18	1,09	0,19	2,79	3607165	3607444	-	-
NG3125LK	3	3,18	1,02	0,19	3,81	3607061	3607203	-	-
NG4125LK	4	3,18	1,06	0,19	3,81	3607183	3607448	-	-
NG3M320LK	3	3,20	1,02	0,19	3,81	-	3607372	-	-

(continued)

(NG-K • Grooving Inserts with Chip Control — continued)



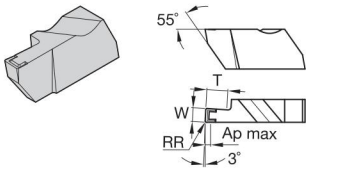


Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

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

catalogue number	insert size	W	Ap max	RR	T	TN6010	TN6025	TN7110	THM
NG2M325LK	2	3,25	1,09	0,19	2,79	-	3607368	-	-
NG3M325LK	3	3,25	1,02	0,19	3,81	-	3607315	-	-
NG3M350LK	3	3,50	2,92	0,32	3,81	-	3607519	-	-
NG4M350LK	4	3,50	2,92	0,57	6,35	-	3607371	3607653	-
NG3156LK	3	3,96	2,92	0,19	3,81	3607177	3607335	-	-
NG3M400LK	3	3,99	2,92	0,32	3,81	3606906	3607237	3607656	-
NG4M400LK	4	4,00	2,92	0,57	6,35	3606912	3607363	-	-
NG3M425LK	3	4,24	2,92	0,32	3,81	3606918	3607520	-	-
NG3M450LK	3	4,50	2,92	0,32	3,81	-	3607369	-	-
NG4M450LK	4	4,50	2,92	0,57	6,35	-	3607389	-	-
NG3189LK	3	4,80	2,92	0,57	3,81	3607107	3607320	3607629	-
NG4189LK	4	4,80	2,92	0,57	6,35	3607140	3607377	-	-
NG4M500LK	4	5,00	2,92	0,32	6,34	3606832	3607522	-	-
NG4M550LK	4	5,50	3,81	0,57	6,35	-	3607366	-	-
NG4M600LK	4	6,00	3,81	0,57	6,35	-	3607387	-	-
NG4250LK	4	6,35	3,81	0,57	6,35	3607142	3607311	-	-



Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

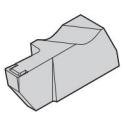
P	●	●	●	
M	●	●		○
K	●	○	○	○
N	●	○		●
S	●	●		●
H	○	○		

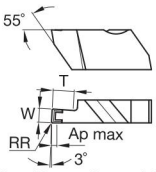
■ NGD-K • Deep Grooving Inserts with Chip Control

catalogue number	insert size	W	Ap max	RR	T	cutting edges	TN6010	TN6025	TN7110	THM
right hand										
NGD2M150RK	2	1,50	1,09	0,19	4,06	1	3606937	3607503	-	-
NGD3062RK	3	1,58	1,02	0,19	3,18	2	3607104	3607233	-	-
NGD2M200RK	2	2,00	1,09	0,19	5,08	1	3606938	3607465	-	-
NGD3M200RK	3	2,00	1,02	0,19	4,06	1	3606945	3607505	-	-
NGD3094RK	3	2,39	1,02	0,19	6,35	1	3607083	3607205	-	3607029
NGD2M250RK	2	2,50	1,09	0,19	5,08	1	3606939	3607504	-	-
NGD3M250RK	3	2,50	1,02	0,19	6,35	1	3606946	3607425	-	-
NGD3M300RK	3	3,00	1,02	0,19	6,35	1	3606922	3607426	-	-
NGD3125RK	3	3,18	1,02	0,19	6,35	1	3607088	3607210	-	-
NGD4125RK	4	3,18	1,02	0,19	6,35	2	3607133	3607312	-	-
NGD3M350RK	3	3,50	2,92	0,32	6,35	1	-	3607506	-	-
NGD3M400RK	3	4,00	2,92	0,32	6,35	1	3606940	3607427	-	-
NGD4M400RK	4	4,00	2,92	0,57	9,53	1	3606986	3607507	-	-
NGD4M450RK	4	4,50	2,92	0,57	12,70	1	-	3607508	-	-
NGD3189RK	3	4,80	2,92	0,57	6,35	1	3607170	3607373	-	-

(continued)

(NGD-K • Deep Grooving Inserts with Chip Control — continued)





Right-hand insert shown; left-hand insert is mirror image.

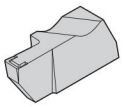
P	●	●	●	
M	●	●		○
K	●	○	○	○
N	●	○		●
S	●	●		●
H	○	○		

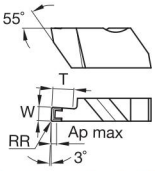
● first choice
○ alternate choice

catalogue number	insert size	W	Ap max	RR	T	cutting edges	TN6010	TN6025	TN7110	THM
NGD4189RK	4	4,80	2,92	0,57	9,53	1	3607161	3607321	-	-
NGD4M500RK	4	5,00	2,92	0,57	12,70	1	3606988	3607509	-	-
NGD4M550RK	4	5,50	3,81	0,57	12,70	1	3606989	-	-	-
NGD4250RK	4	6,35	3,81	0,57	12,70	1	3607134	3607414	-	-
left hand										
NGD2M150LK	2	1,50	1,09	0,19	4,06	1	3606935	3607402	-	-
NGD3062LK	3	1,58	1,02	0,19	3,18	2	3607098	3607451	-	-
NGD2M200LK	2	2,00	1,09	0,19	5,08	1	3606936	3607399	-	-
NGD3M200LK	3	2,00	1,02	0,19	4,06	1	3606941	3607487	-	-
NGD3094LK	3	2,39	1,02	0,19	6,34	1	3607096	3607240	-	3607035
NGD2M250LK	2	2,50	1,09	0,19	5,08	1	3606992	3607391	-	-
NGD3M250LK	3	2,50	1,02	0,19	6,35	1	3606942	3607423	-	-
NGD3M300LK	3	3,00	1,02	0,19	6,35	1	3606943	3607400	-	-
NGD3125LK	3	3,18	1,02	0,19	6,35	1	3607097	3607209	-	-
NGD4125LK	4	3,18	1,02	0,19	6,35	2	3607132	3607316	-	-
NGD3M350LK	3	3,50	2,92	0,32	6,35	1	-	3607488	-	-

(continued)

(NGD-K • Deep Grooving Inserts with Chip Control — continued)



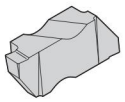


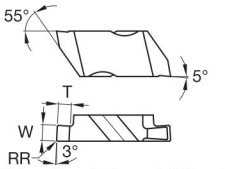
Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

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

catalogue number	insert size	W	Ap max	RR	T	cutting edges	TN6010	TN6025	TN7110	THM
NGD3M400LK	3	4,00	2,92	0,32	6,35	1	3606921	3607424	-	-
NGD4M400LK	4	4,00	2,92	0,57	9,53	1	3606923	3607489	-	-
NGD4M450LK	4	4,50	2,92	0,57	12,70	1	-	3607490	-	-
NGD3189LK	3	4,80	2,92	0,57	6,35	1	3607148	3607410	-	-
NGD4189LK	4	4,80	2,92	0,57	9,53	1	3607147	3607314	-	-
NGD4M500LK	4	5,00	2,92	0,57	12,70	1	-	3607491	-	-
NGD4M550LK	4	5,50	3,81	0,57	12,70	1	-	3607492	-	-
NGD4250LK	4	6,35	3,80	0,57	12,70	1	3607178	3607422	-	-





Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

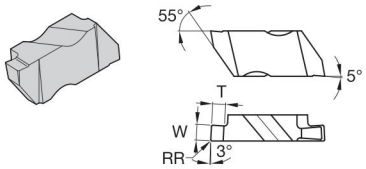
P		●	●	●	
M		●	●		○
K		●	○	○	○
N		●	○		●
S		●	●		●
H		○	○		

■ NGP • Grooving Positive Rake Inserts

catalogue number	insert size	W	RR	T	TN6010	TN6025	TN7110	THM
right hand								
NGP2M150R	2	1,50	0,19	2,79	3606975	-	-	3607045
NGP3M150R	3	1,50	0,19	1,90	3606979	-	-	3607049
NGP2062R	2	1,58	0,19	2,79	3607128	-	-	-
NGP2M200R	2	2,00	0,19	2,79	3606976	-	-	3607046
NGP3M200R	3	2,00	0,19	2,79	3606980	-	-	3607050
NGP2M250R	2	2,50	0,19	2,79	3606977	-	-	3607047
NGP3M250R	3	2,50	0,19	3,81	3606981	-	-	3607051
NGP2M300R	2	3,00	0,19	2,79	3606978	-	-	3607048
NGP3M300R	3	3,00	0,19	3,81	-	-	-	3607052

(continued)

(NGP • Grooving Positive Rake Inserts — continued)

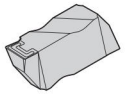


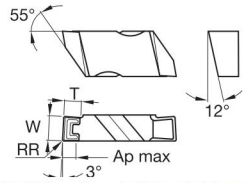
Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

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

catalogue number	insert size	W	RR	T	TN6010	TN6025	TN7110	THM
left hand								
NGP2M150L	2	1,50	0,19	2,79	3606967	-	-	3607037
NGP3M150L	3	1,50	0,19	1,90	3606971	-	-	3607041
NGP2062L	2	1,57	0,19	2,79	3607182	-	-	-
NGP2M200L	2	2,00	0,19	2,79	3606968	-	-	3607038
NGP3M200L	3	2,00	0,19	2,79	3606972	-	-	3607042
NGP2M250L	2	2,50	0,19	2,79	3606969	-	-	3607039
NGP3M250L	3	2,50	0,19	3,81	3606973	-	-	3607043
NGP2M300L	2	3,00	0,19	2,79	-	-	-	3607040
NGP3M300L	3	3,00	0,19	3,81	3606974	-	-	3607044





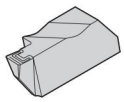
Right-hand insert shown; left-hand insert is mirror image.

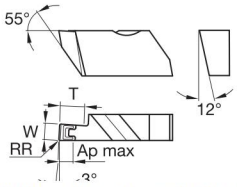
● first choice
○ alternate choice

		TN6010	TN6025	TN7110	THM
P		●	●	●	
M		●	●		○
K		●	○	○	○
N		●	○		●
S		●	●		●
H		○	○		

■ NF-K • Face Grooving Positive Rake Inserts

catalogue number	insert size	W	Ap max	RR	T	TN6010	TN6025	TN7110	THM
right hand									
NF3M200RK	3	2,00	1,02	0,19	1,78	■	3607511	■	■
NF3M300RK	3	3,00	1,02	0,19	3,81	■	3607512	■	■
NF3125RK	3	3,18	1,02	0,19	3,81	■	3607241	■	■
left hand									
NF3M200LK	3	2,00	1,02	0,19	1,78	■	3607428	■	■
NF3M300LK	3	3,00	1,02	0,19	3,81	■	3607429	■	■
NF3125LK	3	3,18	1,02	0,19	3,81	■	3607322	■	■
NF3156LK	3	3,96	2,92	0,19	3,81	■	3607333	■	■





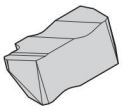
Right-hand insert shown; left-hand insert is mirror image.

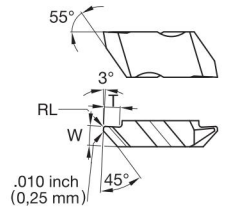
● first choice
○ alternate choice

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

NFD-K • Face Grooving Deep-Grooving Inserts

catalogue number	insert size	W	Ap max	RR	T	cutting edges	TN6010	TN6025	TN7110	THM
right hand										
NFD3M300RK	3	3,00	1,02	0,19	6,35	1	-	3607523	-	-
NFD3125RK	3	3,18	1,02	0,19	6,35	1	-	3607296	-	-
NFD4189RK	4	4,80	2,92	0,57	9,53	1	-	3607325	-	-
NFD4250RK	4	6,35	3,81	0,57	12,70	1	-	3607378	-	-
left hand										
NFD3M300LK	3	3,00	1,02	0,19	6,35	1	-	3607464	-	-
NFD3125LK	3	3,18	1,02	0,19	6,35	1	-	3607293	-	-
NFD4189LK	4	4,80	2,92	0,57	9,53	1	-	3607415	-	-



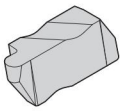


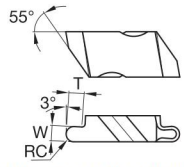
Right-hand insert shown; left-hand insert is mirror image.

NP-K • Profiling Inserts

catalogue number	insert size	W	RL	T	TN6010	TN6025	TN7110	THM
right hand								
NP2002RK	2	3,68	0,25	2,79	3607136	3607477	-	-
NP3002RK	3	4,83	0,25	5,08	3607154	3607493	-	-
NP3012RK	3	4,83	0,25	5,08	-	3607328	-	-

NOTE: Width tolerance is +/- 0,13mm.





Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

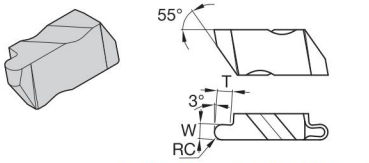
P		●	●	●	
M		●	●		○
K		●	○	○	○
N		●	○		●
S		●	●		●
H		○	○		

■ NR • Full Radius Inserts

catalogue number	insert size	W	RC	T	TN6010	TN6025	TN7110	THM
right hand								
NR2M050R	2	1,00	0,50	1,27	3606957	3607393	-	-
NR2M075R	2	1,50	0,75	2,79	3606929	3607469	-	-
NR2031R	2	1,58	0,79	2,79	3607174	3607301	-	-
NR3031R	3	1,58	0,79	2,39	3607125	3607475	-	3607015
NR2M100R	2	2,00	1,00	2,79	3606930	3607470	-	-
NR3M100R	3	2,00	1,00	2,39	3606958	3607397	-	-
NR2047R	2	2,39	1,19	2,79	-	3607494	-	-
NR3047R	3	2,39	1,19	3,81	3607093	3607502	-	3607031
NR2M125R	2	2,50	1,25	2,79	3606931	3607471	-	-
NR3M125R	3	2,50	1,25	3,81	3606959	3607439	-	-
NR2M150R	2	3,00	1,50	2,79	3606932	3607472	-	-
NR3M150R	3	3,00	1,50	3,81	3606960	3607440	-	-
NR3062R	3	3,18	1,59	3,81	3607131	3607473	-	3607026
NR2M175R	2	3,50	1,75	2,79	3606933	3607483	-	-
NR3M175R	3	3,50	1,75	3,81	3606961	3607441	-	-

(continued)

(NR • Full Radius Inserts — continued)



Right-hand insert shown; left-hand insert is mirror image.

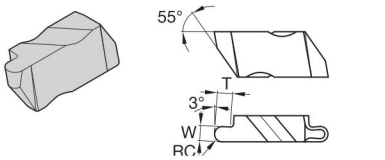
● first choice
○ alternate choice

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

catalogue number	insert size	W	RC	T	TN6010	TN6025	TN7110	THM
NR3M200R	3	4,00	2,00	3,81	3606962	3607398	-	-
NR4M200R	4	4,00	2,00	6,35	3606964	3607484	-	-
NR3M225R	3	4,50	2,25	3,81	3606963	3607442	-	-
NR4M225R	4	4,50	2,25	6,35	3606965	3607485	-	-
NR3094R	3	4,78	2,39	3,81	3607180	3607476	-	-
NR4M250R	4	5,00	2,50	6,35	3606966	3607486	-	-
NR4125R	4	6,35	3,18	6,35	3607130	3607500	-	-
left hand								
NR2M050L	2	1,00	0,50	1,27	3606948	3607401	3607672	-
NR2M075L	2	1,50	0,75	2,79	3606924	3607430	-	-
NR2031L	2	1,58	0,79	2,79	3607176	3607319	-	-
NR3031L	3	1,58	0,79	2,39	3607139	3607478	-	3607034
NR2M100L	2	2,00	1,00	2,79	3606925	3607431	3607684	-
NR3M100L	3	2,00	1,00	2,39	3606949	3607395	-	-
NR2047L	2	2,39	1,19	2,79	-	3607446	-	-
NR3047L	3	2,39	1,19	3,81	3607135	3607479	-	3607028

(continued)

(NR • Full Radius Inserts — continued)

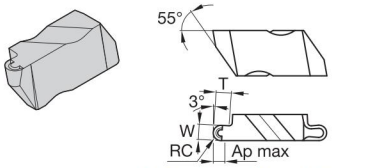


Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

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

catalogue number	insert size	W	RC	T	TN6010	TN6025	TN7110	THM
NR2M125L	2	2,50	1,25	2,79	3606926	3607432	-	-
NR3M125L	3	2,50	1,25	3,81	3606950	3607435	3607689	-
NR2M150L	2	3,00	1,50	2,79	3606927	3607433	-	-
NR3M150L	3	3,00	1,50	3,81	3606951	3607436	-	-
NR3062L	3	3,18	1,59	3,81	3607171	3607497	-	3607032
NR2M175L	2	3,50	1,75	2,79	3606928	3607434	-	-
NR3M175L	3	3,50	1,75	3,81	3606952	3607437	3607691	-
NR3M200L	3	4,00	2,00	3,81	3606953	3607396	-	-
NR4M200L	4	4,00	2,00	6,35	3606954	3607466	-	-
NR3M225L	3	4,50	2,25	3,81	3606934	3607438	-	-
NR4M225L	4	4,50	2,25	6,35	3606955	3607467	-	-
NR3094L	3	4,78	2,39	3,81	3607169	3607339	-	-
NR4M250L	4	5,00	2,50	6,35	3606956	3607468	-	-
NR4125L	4	6,35	3,18	6,35	3607181	3607514	-	-



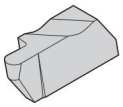
Right-hand insert shown; left-hand insert is mirror image.

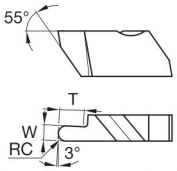
● first choice
○ alternate choice

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

■ NR-K • Full Radius Inserts with Chip Control

catalogue number	insert size	W	Ap max	RC	T	TN6010	TN6025	TN7110	THM
right hand									
NR3031RK	3	1,57	1,97	0,79	2,39	3607062	3607206	-	-
NR3047RK	3	2,39	1,91	1,19	3,81	3607086	3607214	-	-
NR3062RK	3	3,18	2,92	1,59	3,81	3607056	3607236	-	-
NR4062RK	4	3,18	2,92	1,59	3,81	-	3607461	-	-
NR3078RK	3	3,96	2,54	1,98	3,81	3607094	3607407	-	-
NR4094RK	4	4,78	3,81	2,39	6,35	3607101	3607480	-	-
NR4125RK	4	6,35	3,81	3,18	6,35	3607141	3607303	-	-
left hand									
NR3031LK	3	1,58	1,98	0,79	2,39	3607095	3607222	-	-
NR3047LK	3	2,39	1,91	1,19	3,81	3607102	3607408	-	-
NR3062LK	3	3,18	2,92	1,59	3,81	3607091	3607216	-	-
NR4062LK	4	3,18	2,92	1,59	3,81	3607156	3607405	-	-
NR3078LK	3	3,96	2,54	1,98	3,81	3607172	3607306	-	-
NR4094LK	4	4,78	3,81	2,39	6,35	3607150	3607452	-	-
NR4125LK	4	6,35	3,81	3,18	6,35	3607166	3607458	-	-





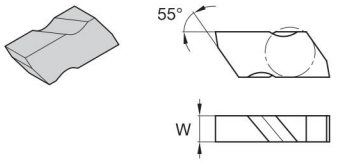
Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

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

■ NRD • Full Radius Deep-Grooving Inserts

catalogue number	insert size	W	T	cutting edges	TN6010	TN6025	TN7110	THM
right hand								
NRD3031R	3	1,58	3,18	2	3607087	3607457	-	-
NRD3062R	3	3,18	6,35	1	3607099	3607474	-	-
NRD4062R	4	3,18	6,35	2	3607173	3607499	-	-
NRD4125R	4	6,35	12,70	1	-	3607496	-	-
left hand								
NRD3031L	3	1,58	3,18	2	3607085	3607455	-	-
NRD3062L	3	3,18	6,35	1	3607124	3607462	-	-
NRD4062L	4	3,18	6,35	2	3607162	3607295	-	-
NRD4125L	4	6,35	12,70	1	3607186	3607298	-	-



Right-hand insert shown; left-hand insert is mirror image.

● first choice
○ alternate choice

		TN6010	TN6025	TN7110	THM
P		●	●	●	
M		●	●		○
K		●	○	○	○
N		●	○		●
S		●	●		●
H		○	○		

■ NB • Blanks

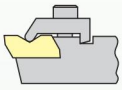
catalogue number	insert size	W	TN6010	TN6025	TN7110	THM
right hand						
NB2R	2	3,81	■	■	■	3607064
NB3R	3	4,95	■	■	■	3607019
left hand						
NB2L	2	3,81	■	■	■	3607016
NB3L	3	4,95	■	■	■	3607017

NOTE: NB blanks are designed to allow modification of the W dimension and end form.
W dimension is provided to indicate maximum possible width.
Available in uncoated grades only.

TopGroove™ Holder Identification System

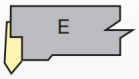
N	S	R		2525	M	4	
Insert Holding Method	Insert Mounting Location	Hand of Tool	Drop Head	Shank Size	Tool Length	Insert Size	Qualified Surface and Length

N –
TopGroove*

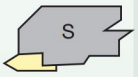


*Proprietary standard only.

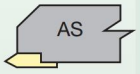
End mount



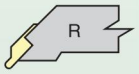
Side mount
Offset



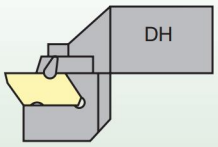
Side mount
No offset
for swiss
machining



NRR undercut

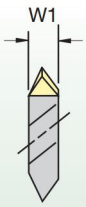


Shank height and width in mm and holder length according to ISO standard.



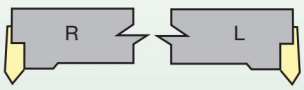
DH = Drop Head

L1	ISO
32	A
40	B
50	C
60	D
70	E
80	F
90	G
100	H
110	I
125	J
140	K
150	L
160	M
170	N
180	P
200	Q
250	R
300	S
350	T
400	U
450	V
500	W
Special Length	Y
	X

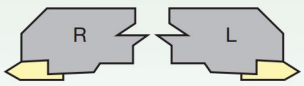


insert size	W1
2	3,81mm
3	4,95mm
4	6,98mm
5	9,65mm
6	9,73mm
8	11,13mm

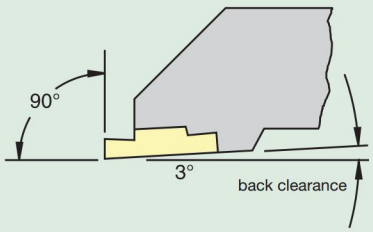
End mount



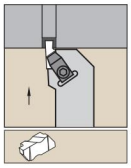
Side mount

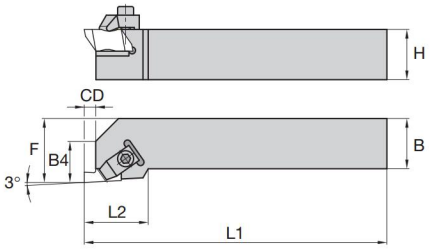


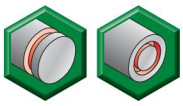
Q –
qualified metric holder



NOTE: Holders are designed to locate insert inclined to 3° to provide back clearance down open side.



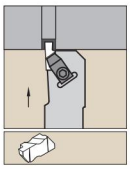


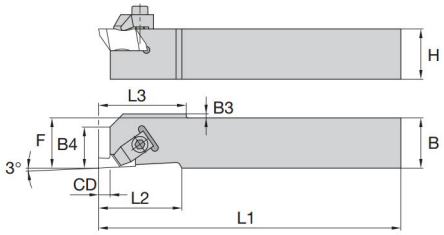


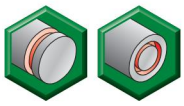
NS

order number	catalogue number	H	B	F	L1	L2	B4	CD	gage insert	clamp	clamp screw	clamp screw	hex/ Torx Plus
right hand													
3641682	**NSR1010E2**	10,0	10,0	14,0	70	19	9	4	N.2R	**CM74**	**MS1200**	–	T10
3641660	**NSR1212F2**	12,0	12,0	16,0	80	19	9	4	N.2R	**CM74**	**MS1200**	–	T10
3636542	**NSR1616H2**	16,0	16,0	20,0	100	19	9	4	N.2R	**CM74**	**MS1200**	–	T10
3638589	**NSR2020K2**	20,0	20,0	25,0	125	19	9	4	N.2R	**CM74**	**MS1200**	–	T10
3638588	**NSR2020K3**	20,0	20,0	25,0	125	32	13	5	N.3R	**CM72LP**	–	**MS2111**	25 IP
3638590	**NSR2525M2**	25,0	25,0	32,0	150	19	9	4	N.2R	**CM74**	**MS1200**	–	T10
3636536	**NSR2525M3**	25,0	25,0	32,0	150	32	13	5	N.3R	**CM72LP**	–	**MS2111**	25 IP
3636540	**NSR2525M4**	25,0	25,0	32,0	150	35	14	7	N.4R	**CM72LP**	–	**MS2111**	25 IP
3641664	**NSR3225P3**	32,0	25,0	32,0	170	32	13	5	N.3R	**CM72LP**	–	**MS2111**	25 IP
3641675	**NSR3225P4**	32,0	25,0	32,0	170	35	14	7	N.4R	**CM72LP**	–	**MS2111**	25 IP
3641666	**NSR3232P3**	32,0	32,0	40,0	170	32	13	5	N.3R	**CM72LP**	–	**MS2111**	25 IP
3641669	**NSR3232P4**	32,0	32,0	40,0	170	35	14	7	N.4R	**CM72LP**	–	**MS2111**	25 IP
left hand													
3641683	**NSL1010E2**	10,0	10,0	14,0	70	19	9	4	N.2L	**CM75**	**MS1200**	–	T10
3641681	**NSL1212F2**	12,0	12,0	16,0	80	19	9	4	N.2L	**CM75**	**MS1200**	–	T10
3636545	**NSL1616H2**	16,0	16,0	20,0	100	19	9	4	N.2L	**CM75**	**MS1200**	–	T10
3639045	**NSL2020K2**	20,0	20,0	25,0	125	19	9	4	N.2L	**CM75**	**MS1200**	–	T10
3639046	**NSL2020K3**	20,0	20,0	32,0	125	32	13	5	N.3L	**CM73LP**	–	**MS2111**	25 IP
3639047	**NSL2525M2**	25,0	25,0	32,0	150	19	9	4	N.2L	**CM75**	**MS1200**	–	T10
3636539	**NSL2525M3**	25,0	25,0	32,0	150	32	13	5	N.3L	**CM73LP**	–	**MS2111**	25 IP
3636544	**NSL2525M4**	25,0	25,0	32,0	150	35	14	7	N.4L	**CM73LP**	–	**MS2111**	25 IP
3641670	**NSL3225P3**	32,0	25,0	32,0	170	32	13	5	N.3L	**CM73LP**	–	**MS2111**	25 IP
3641678	**NSL3225P4**	32,0	25,0	32,0	170	35	14	7	N.4L	**CM73LP**	–	**MS2111**	25 IP
3641671	**NSL3232P3**	32,0	32,0	40,0	170	32	13	5	N.3L	**CM73LP**	–	**MS2111**	25 IP
3641679	**NSL3232P4**	32,0	32,0	40,0	170	35	14	7	N.4L	**CM73LP**	–	**MS2111**	25 IP
3641688	**NSL3232P5**	32,0	32,0	40,0	170	51	16	11	N.5L	**CM81**	**MS352**	–	6 mm

NOTE: F dimension measured over sharp point of insert.



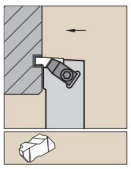


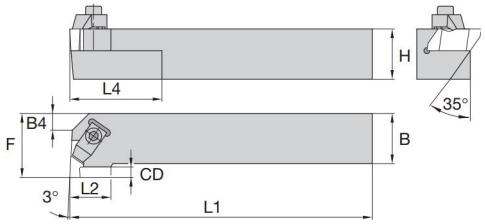


NAS

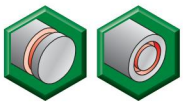
order number	catalogue number	H	B	F	L1	L2	B4	CD	B3	L3	gage insert	clamp	clamp screw	clamp screw	hex/ Torx Plus
right hand															
3641667	**NASR1010M2Q**	10,0	10,0	10,0	150	19	9	3,5	2,03	19	N.2R	**CM182**	**MS1200**	–	T10
3641662	**NASR1212M2Q**	12,0	12,0	12,0	150	19	9	3,5	–	–	N.2R	**CM182**	**MS1200**	–	T10
3639048	**NASR1616K3Q**	16,0	16,0	16,0	125	32	12	5,3	–	–	N.3R	**CM184LP**	–	**MS2111**	25 IP
left hand															
3641691	**NASL1010M2Q**	10,0	10,0	10,0	150	19	9	3,5	2,03	19	N.2L	**CM183**	**MS1200**	–	T10
3641686	**NASL1212M2Q**	12,0	12,0	12,0	150	19	9	3,5	–	–	N.2L	**CM183**	**MS1200**	–	T10
3641687	**NASL1616K3Q**	16,0	16,0	16,0	125	32	12	5,3	–	–	N.3L	**CM185LP**	–	**MS2111**	25 IP

NOTE: F dimension measured over sharp point of insert.





Right-hand toolholder shown.

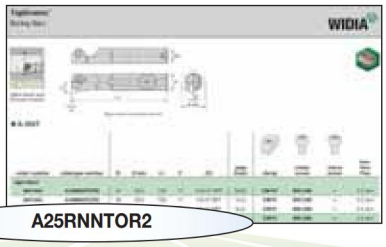


NE

order number	catalogue number	H	B	F	L1	L2	L4	B4	CD	gage insert	clamp	clamp screw	clamp screw	hex/ Torx Plus
right hand														
3641674	**NER1616H2**	16,0	16,0	20,0	100	15	25	–	4	N.2L	**CM75**	**MS1200**	–	T10
3641658	**NER2020K2**	20,0	20,0	25,0	125	15	25	6	4	N.2L	**CM75**	**MS1200**	–	T10
3641665	**NER2525M2**	25,0	25,0	32,0	150	15	25	12	4	N.2L	**CM75**	**MS1200**	–	T10
3636541	**NER2525M3**	25,0	25,0	32,0	150	22	51	–	5	N.3L	**CM73LP**	–	**MS2111**	25 IP
3641672	**NER2525M4**	25,0	25,0	35,0	150	24	51	–	7	N.4L	**CM73LP**	–	**MS2111**	25 IP
3641680	**NER3225P3**	32,0	25,0	32,0	170	22	51	–	4	N.3L	**CM73LP**	–	**MS2111**	25 IP
3641689	**NER3225P4**	32,0	25,0	35,0	170	24	51	–	7	N.4L	**CM73LP**	–	**MS2111**	25 IP
3641693	**NER3232P4**	32,0	32,0	40,0	170	24	51	–	6	N.4L	**CM73LP**	–	**MS2111**	25 IP
3641692	**NER3232P5**	32,0	32,0	50,0	170	35	51	–	11	N.5L	**CM81**	**MS352**	–	6 mm
left hand														
3641684	**NEL1616H2**	16,0	16,0	20,0	100	15	25	–	4	N.2R	**CM74**	**MS1200**	–	T10
3641677	**NEL2020K2**	20,0	20,0	25,0	125	15	25	6	4	N.2R	**CM74**	**MS1200**	–	T10
3641676	**NEL2525M2**	25,0	25,0	32,0	150	15	25	12	4	N.2R	**CM74**	**MS1200**	–	T10
3636543	**NEL2525M3**	25,0	25,0	32,0	150	22	51	–	5	N.3R	**CM72LP**	–	**MS2111**	25 IP
3641668	**NEL2525M4**	25,0	25,0	35,0	150	24	51	–	7	N.4R	**CM72LP**	–	**MS2111**	25 IP
3641685	**NEL3225P3**	32,0	25,0	32,0	170	22	51	–	4	N.3R	**CM72LP**	–	**MS2111**	25 IP
3641694	**NEL3225P4**	32,0	25,0	35,0	170	24	51	–	7	N.4R	**CM72LP**	–	**MS2111**	25 IP
3641696	**NEL3232P4**	32,0	32,0	40,0	170	24	51	–	6	N.4R	**CM72LP**	–	**MS2111**	25 IP
3641695	**NEL3232P5**	32,0	32,0	50,0	170	35	51	–	11	N.5R	**CM80**	**MS352**	–	6 mm

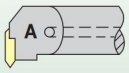
NOTE: F dimension measured over sharp point of insert.

TopGroove
Boring Bar Identification System

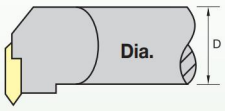


A	25	R	N	N	T	O	R	2
Bar Type	Bar Diameter	Bar Length	Insert Holding Method	Insert Shape	Insert Location	Rake Angle	Hand of Tool	Insert Size

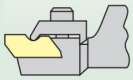
Steel with coolant



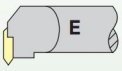
Bar diameter



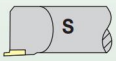
N – TopGroove



End mount

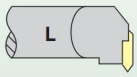


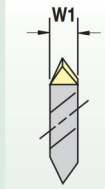
Side mount

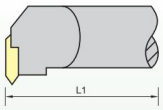


Right hand

Left hand

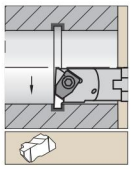




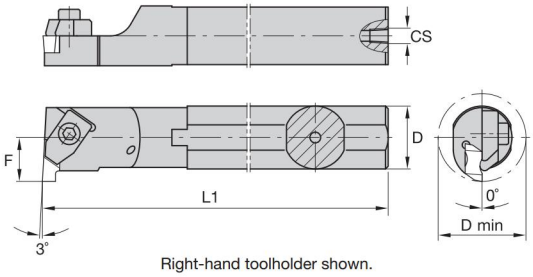


Metric Bars	
M	150mm
Q	180mm
R	200mm
S	250mm
T	300mm
U	350mm

insert size	W1
1	3,54mm
2	3,81mm
3	5,35mm
4	6,40mm
5	9,65mm
6	9,73mm
8	11,13mm



Steel shank with through coolant.

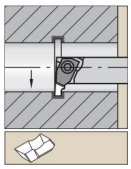


Right-hand toolholder shown.

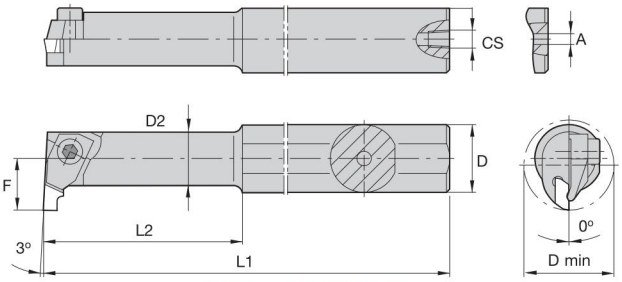
A-NNT

order number	catalogue number	D	D min	L1	F	CS	gage insert	clamp	clamp screw	clamp screw	hex/ Torx Plus
right hand											
3641644	**A12MNNTOR2**	12	18,5	150	11	1/16-27 NPT	NG2L	**CM147**	**MS1200**	–	2.5 mm
3641643	**A16MNNTOR2**	16	22,0	150	11	1/8-27 NPT	N.2L	**CM75**	**MS1200**	–	2.5 mm
3641645	**A20QNNTOR2**	20	26,0	180	13	1/8-27 NPT	N.2L	**CM75**	**MS1200**	–	2.5 mm
3641651	**A25RNNTOR2**	25	34,0	200	17	1/4-18 NPT	N.2L	**CM75**	**MS1200**	–	2.5 mm
3641622	**A25RNNTOR3**	25	34,0	200	17	1/8 - 27 NPT	N.3L	**CM73LP**	–	**MS2111**	25 IP
3641646	**A32SNNTOR3**	32	44,0	250	22	1/4-18 NPT	N.3L	**CM73LP**	–	**MS2111**	25 IP
3641653	**A40TNNTOR3**	40	54,0	300	27	1/4-18 NPT	N.3L	**CM73LP**	–	**MS2111**	25 IP
3641654	**A40TNNTOR4**	40	54,0	300	27	1/4-18 NPT	N.4L	**CM73LP**	–	**MS2111**	25 IP
3641661	**A50UNNTOR4**	50	70,0	350	35	1/4-18 NPT	N.4L	**CM73LP**	–	**MS2111**	25 IP
left hand											
3641655	**A12MNNTOL2**	12	18,5	150	11	1/16-27 NPT	NG2R	**CM146**	**MS1200**	–	2.5 mm
3641649	**A16MNNTOL2**	16	22,0	150	11	1/8-27 NPT	N.2R	**CM74**	**MS1200**	–	2.5 mm
3641652	**A20QNNTOL2**	20	26,0	180	13	1/8-27 NPT	N.2R	**CM74**	**MS1200**	–	2.5 mm
3641657	**A25RNNTOL2**	25	34,0	200	17	1/4-18 NPT	N.2R	**CM74**	**MS1200**	–	2.5 mm
3641650	**A25RNNTOL3**	25	34,0	200	17	1/4-18 NPT	N.3R	**CM72LP**	–	**MS2111**	25 IP
3641656	**A32SNNTOL3**	32	44,0	250	22	1/4-18 NPT	N.3R	**CM72LP**	–	**MS2111**	25 IP
3641659	**A40TNNTOL3**	40	54,0	300	27	1/4-18 NPT	N.3R	**CM72LP**	–	**MS2111**	25 IP
3641663	**A40TNNTOL4**	40	54,0	300	27	1/4-18 NPT	N.4R	**CM72LP**	–	**MS2111**	25 IP
3641690	**A50UNNTOL4**	50	70,0	350	35	1/4-18 NPT	N.4R	**CM72LP**	–	**MS2111**	25 IP

NOTE: Minimum bore capability varies with depth of groove. See pages E86–E87 for details.
F dimension measured over sharp point of insert.



Necked steel shank with through coolant.



Right-hand toolholder shown.

A-NNT-1

order number	catalogue number	D	D min	D2	L1	L2	F	A	CS	gage insert	clamp	clamp screw	hex/ Torx Plus
right hand													
3641648	**A10KNNTOR1**	10	11,5	10,0	125	—	7	3,2	—	NG1L	**CM109**	**MS1034**	1.5 mm
3641647	**A12MNNTOR1**	12	11,5	8,7	150	31,30	7	4,0	1/16-27 NPT	N.1L	**CM109**	**MS1034**	1.5 mm

NOTE: Minimum bore capability varies with depth of groove. See pages E86–E87 for details.
F dimension measured over sharp point of insert.

TopGroove™ Inserts: The Best Platform for Customisation

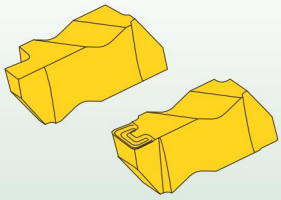
All TopGroove custom order inserts benefit from the superior rigidity of our TopGroove toolholder and clamping system. For added productivity, most custom orders can be incorporated into the double-ended inserts.

Custom orders start with proven WIDIA™ carbide grade technology as the basis for optimising tool performance. Positive top rake angles are also available in most inserts.

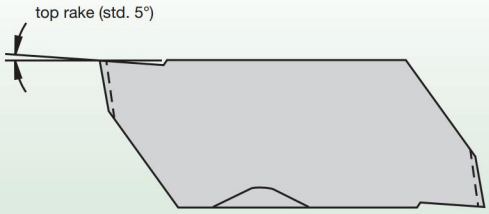
State-of-the-art CAD enables rapid development of your custom insert design. For convenience, a concept drawing is always available to facilitate engineering development of an insert.

There are limitless variations of the flat-top TopGroove design. Additionally, chip control in the most common styles enables true optimisation and productivity. WIDIA offers NB- and NBD-style insert blanks as well. These blanks can be end-form ground in your own shop.

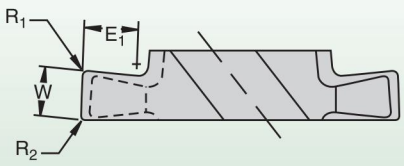
Whatever your special grooving requirements may be, WIDIA can provide an effective solution. We have the technical expertise, resources, and commitment to help you develop insert designs that satisfy your metalcutting application demands.



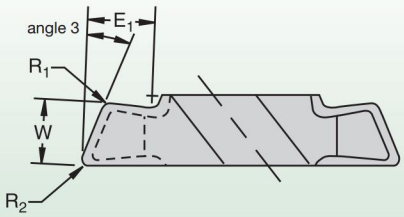
top rake



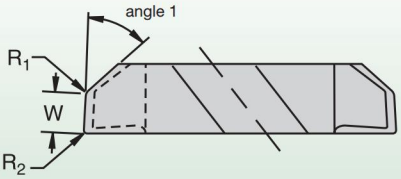
style A



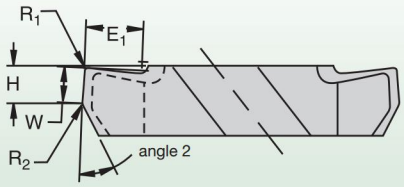
style B1



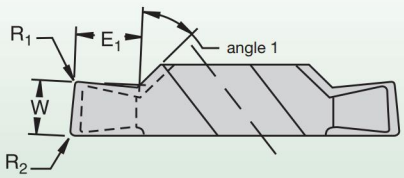
style B2



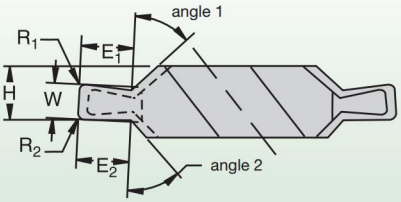
style B3



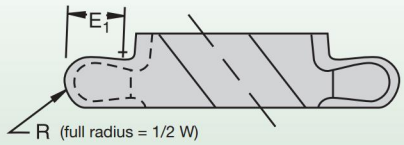
style B4



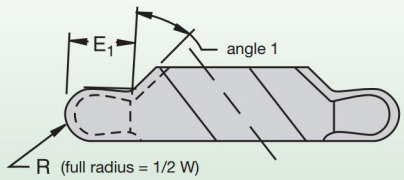
style C1



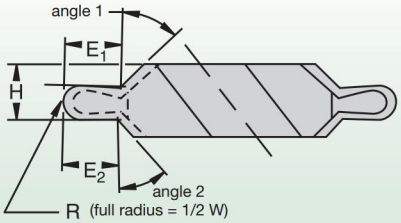
style D



style F



style G



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 an existing product to meet your specifications. If your custom requirements do not fall into these categories, simply contact your WIDIA™ Distributor.

Trust our experienced distributors and WIDIA engineering team to design the best solution for you.

Date

Customer-Specified Dimensions

Style (circle one) A B1 B2 B3 B4 C1 D F G

Orientation (circle one) left hand right hand

Top Rake		**Total Width (T)**	
Cutting Width (W)		**Angle 1**	
Corner Radius 1 (R_1)		**Angle 2**	
Corner Radius 2 (R_2)		**Offset (H)**	
Cutting Depth (E_1)		**Other** (please specify)	

Special Instructions

(please make any necessary notes or sketches in the box at right)

Closest Catalogue Standard

Customer

Distributor

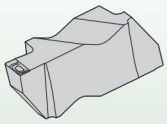
Shipping Requirements

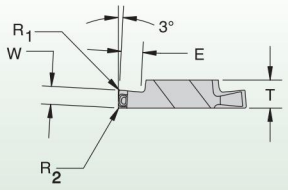
Attention Distributors: Use this worksheet to collect information for your customer.

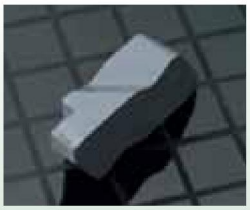
❒ Ground ❒ Next Day Air ❒ 2nd Day Air ❒ 3rd Day Air

A-SK Specials

10° positive cutting action
- Grooving
- Face grooving







insert catalogue number		width range W	corner radii range R_1 and R_2	E	T	grades
right hand	left hand					
NG2-R-SK	**NG2-L-SK**	0,66–1,42	0,00–0,18	1,27	3,810	Carbide grades quoted upon request. **See page E47.**
or NF2-R-SK	**or NF2-L-SK**	1,45–3,43	0,08–0,33	2,79		
		1,07–1,70	0,08–0,33	2,39		
		1,73–1,93	0,13–0,51	2,39		
		1,96–2,39	0,13–0,76	3,81		
NG3-R-SK	**NG3-L-SK**	2,41–2,67	0,13–0,51	3,81		
or	**or**	2,69–3,18	0,13–0,76	3,81	4,950	
NF3-R-SK	**NF3-L-SK**	3,20–3,40	0,13–0,51	3,81		
		3,43–3,96	0,13–0,76	3,81		
		3,99–4,42	0,20–0,46	3,81		
		4,67–4,98	0,46–0,71	3,81		
		2,54–2,79	0,13–0,51	3,81		
		2,82–3,18	0,13–0,76	3,81		
		3,20–3,33	0,13–0,51	3,81		
NG4-R-SK	**NG4-L-SK**	3,35–3,96	0,13–0,76	3,81		
or	**or**	3,99–4,11	0,13–0,51	3,81	6,480	
NF4-R-SK	**NF4-L-SK**	3,89–4,80	0,13–0,76	6,35		
		4,83–4,85	0,46–0,71	6,35		
		4,88–5,18	0,20–0,46	6,35		
		6,22–6,53	0,46–0,64	6,35		

NG-SK, NF-SK, NGD-SK, and NFD-SK inserts may be specially ordered within the specifications listed in the above charts.

Order example: NF3R-SK W = .090, R_1 = .010, R_2 = .010, grade TN6010™.

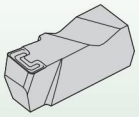
Unless otherwise specified, a standard tolerance of ±0,03mm on width (W) will be applied, and a standard tolerance of ±0,06mm on radii (R_1 and R_2) will be applied.

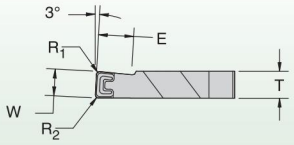
If deeper cutting depth (E) is required, please specify. Refer to the application drawing and charts for maximum face groove depths and minimum face groove diameters.

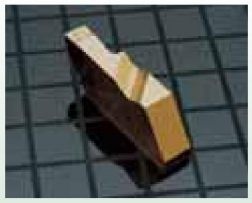
In addition to the guidelines above, full radius face groove inserts may be quoted. Under certain conditions, chip control performance may vary from standard insert styles.

A-SK Specials

10° positive cutting action
- Deep grooving
- Deep face grooving







insert catalogue number		width range W	corner radii range R_1 and R_2	E	T	grades
right hand	left hand					
NGD3-R-SK	NGD3-L-SK	1,45–1,75	.008–.033	3,18	4,95	Carbide grades quoted upon request. **See page E47.**
or	or	2,26–2,57*	.008–.033	6,35		
NFD3-R-SK	NFD3-L-SK	3,05–3,35*	.008–.033	6,35		
		4,67–4,98*	.046–.071	6,35		
NGD4-R-SK	NG4-L-SK	3,05–3,35*	.008–.033	6,35	6,48	
or	or	4,57–4,98*	.046–.071	9,53		
NFD4-R-SK	NF4-L-SK	6,22–6,53*	.046–.071	12,70		

**One cutting edge.*

NG-SK, NF-SK, NGD-SK, and NFD-SK inserts may be specially ordered within the specifications listed in the above charts.

Order example: NF3R-SK W = .090, R_1 = .010, R_2 = .010, grade TN6010™.

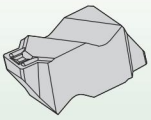
Unless otherwise specified, a standard tolerance of ±0,03mm on width (W) will be applied, and a standard tolerance of ±0,06mm on radii (R_1 and R_2) will be applied.

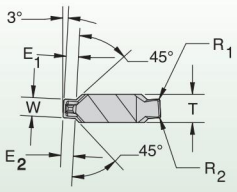
If deeper cutting depth (E) is required, please specify. Refer to the application drawing and charts for maximum face groove depths and minimum face groove diameters.

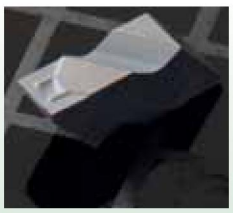
In addition to the guidelines above, full radius face groove inserts may be quoted. Under certain conditions, chip control performance may vary from standard insert styles.

C1-SK Specials

- Groove and chamfer



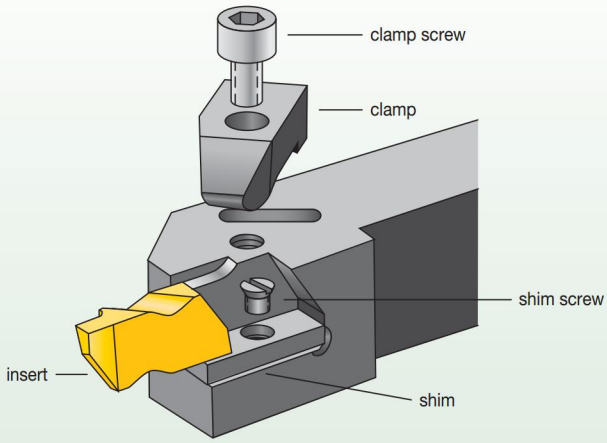




insert catalogue number		width range W	corner radii range R_1 and R_2	E	T	grades
right hand	left hand					
NB2-R-K	NB2-L-K	1,19–3,18	0,13–0,38	2,54	3,81	Carbide grades quoted upon request. **See page E47.**
NB3-R-K	NB3-L-K	2,39–4,32	0,13–0,64	3,81	4,95	

NOTE: The above insert style is for simultaneous groove and chamfer operations with chip control.

TopGroove Toolholders and Boring Bars



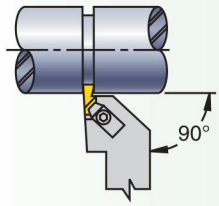
insert size and style	clamp	clamp screw	shim	shim screw
NG-1L	CM-109	S-304	–	–
NG-2R	CM-182	S-310	–	–
NG-2L	CM-183	S-310	–	–
NG-2R	CM-74	S-310	–	–
NG-2L	CM-75	S-310	–	–
NG-3R	CM-184	S-412	–	–
NG-3L	CM-185	S-412	–	–
NG-3R	CM-72	S-412	–	–
NG-3L	CM-73	S-412	–	–
NG-3R*	CM-78	S-412	–	–
NG-3L*	CM-70	S-412	–	–
NG-4R	CM-72	S-412	SM-420	SL-344
NG-4L	CM-73	S-412	SM-420	SL-344
NG-5R	CM-80	S-352	–	–
NG-5L	CM-81	S-352	–	–
NG-6R	CM-120	S-412	SM-416	S-111
NG-6L	CM-121	S-412	SM-416	S-111
TopGroove relief grooving				
NU-3125R	CM-72	S-412	–	–
NU-3125L	CM-73	S-412	–	–
NU-3125R**	CM-72	S-618	–	–
NU-3125L**	CM-73	S-618	–	–
Utility threading				
NTU-4R	CM-72	S-412	–	–
NTU-4L	CM-73	S-412	–	–

**25mm diameter boring head.*
***Boring head.*

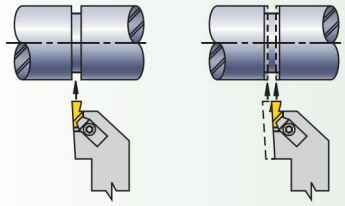
Grooving Tool Failure and Solution Guide

Practical Solutions to Common Grooving Problems

Holder Position for Grooving Operation

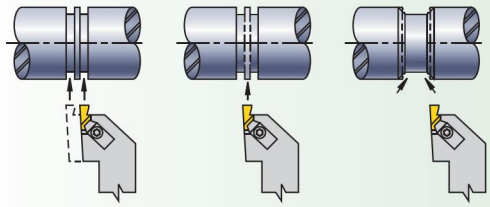


How to Cut a Groove Slightly Wider than the Groove Tool



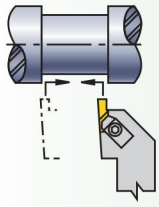
1. Plunge the centre of the groove.
2. Plunge each side of the groove to get the specified width. Use a slower feed rate when cutting groove sides.

How to Cut Wider Grooves



1. Plunge out both sides of groove width.
2. Plunge centre area to remove web of material remaining.
3. Plunge both sides of groove at the required angle, using approximately one-half the width of the grooving tool for maximum width of cut.

Finish Turning the Groove



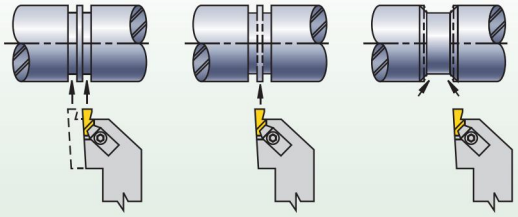
1. Follow recommendations explained above.
2. To avoid insert chipping and to achieve groove wall perpendicularity, follow the tool path outlined here.
3. Use the lightest depth of cut that still enables good chip surface finishing.

problem	solution
bur	1. Ensure tool centre height. 2. Use sharp tool (index more often). 3. Use positive rake PVD-coated insert. 4. Use correct grade for workpiece material. 5. Use correct geometry (e.g., positive rake for work-hardening material). 6. Chamfer before grooving. 7. Change tool path.
poor surface finish	1. Increase speed. 2. Use sharp tool (index more often). 3. Dwell tool in bottom 1–3 revolutions (max). 4. Use proper chip control geometry. 5. Increase coolant flow/concentration. 6. Ensure proper setup (overhang, shank size). 7. Use correct geometry (e.g., positive rake for work-hardening material).
groove bottom that is not flat	1. Use sharp tool (index more often). 2. Dwell tool in bottom 1–3 revolutions (max). 3. Reduce tool overhang (increase rigidity). 4. Ensure correct tool alignment. 5. Reduce feed rate at groove bottom. 6. Use a wider insert. 7. Ensure tool centre height.
poor chip control	1. Use “K” chip control geometry insert. 2. Use sharp tool (index more often). 3. Increase coolant concentration. 4. Adjust feed rate (usually increase first).
chatter	1. Reduce tool and workpiece overhang. 2. Adjust speed and feed (usually increase first). 3. Ensure centre height.
insert chipping	1. Use correct grade for workpiece material. 2. Increase speed. 3. Reduce feed. 4. Use a stronger grade. 5. Increase tool and setup rigidity.
side walls not straight	1. Check tool alignment for square. 2. Use correct insert hand. 3. Reduce workpiece and tool overhang. 4. Use sharp insert (index more often).

Machining Guidelines for Chip Control • Grooving

When the proper cutter diameter is not available, proper cutter positioning will provide positive results.

- Centre height of insert should be positioned at the centre of the workpiece or up to 0,13mm above.
- Dwell time in the bottom of the groove (more than three revolutions) is not recommended.
- Chip control is feed-rate related and should be adjusted to fit the particular situation. Recommended feed range is 0,08–0,3 mm/rev.

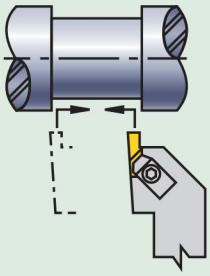


Machining Guidelines for Chip Control • Turning/Profiling

Maximum depth of cut for side cutting (turning/profiling) depends on the material being cut and the width of the tool.

- 0,79–1,6mm wide insert can cut up to 0,6mm deep.
- 1,7–3,3mm wide insert can cut up to 1mm deep.
- 3,5–4,8mm wide insert can cut up to 2mm deep.
- 5–6,35mm wide insert can cut up to 3mm deep.

Finish Turning the Groove

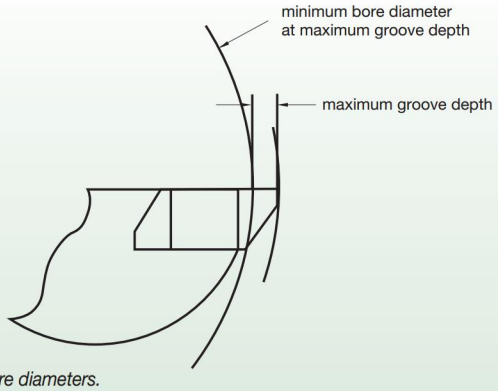


1. Plunge both sides of groove width.
2. Plunge centre area to remove web of material remaining.
3. To avoid insert chipping and to achieve groove wall perpendicularity, follow the tool path outlined.
4. Use the lightest depth of cut that still allows good chipbreaking, tool life, and surface finish.

Groove Limits		
insert catalogue number	maximum internal groove depth mm	minimum bore diameter mm
NG-1094L	1,91	20,32
–	1,02	11,18
NG-2031R/L	1,27	18,54
NG-2041R/L	–	–
NG-2047R/L	–	–
NG-2058R/L	–	–
–	2,79	63,50
NG-2062R/L	2,59	44,45
NG-2094R/L	2,49	38,10
NG-2125R/L	2,03	25,40
–	1,40	18,54
NG-3047R/L	–	–
NG-3062R/L	2,39	44,45
NG-3072R/L	2,29	41,28
NG-3078R/L	1,91	34,93
NG-3088R/L	–	–
NG-3094R/L	–	–
NG-3097R/L	3,81	60,33
NG-3105R/L	–	–
NG-3110R/L	3,68	53,98
NG-3122R/L	–	–
NG-3125R/L	3,51	47,63
NG-3142R/L	–	–
NG-3156R/L	3,18	41,28
NG-3178R/L	–	–
NG-3185R/L	2,79	34,93
NG-3189R/L	–	–
NG-4125R/L	3,81	69,85
–	6,35	146,05
NG-4189R/L	6,22	127,00
NG-4213R/L	6,10	114,30
NG-4219R/L	5,54	82,55
NG-4250R/L	5,08	63,50

NOTE: The same maximum groove depth and minimum bore diameter values also apply to metric, NG-K (chip control), and NR (full radius) inserts of similar size. The same internal grooving depth limits are a function of bar clearance versus bore diameters.

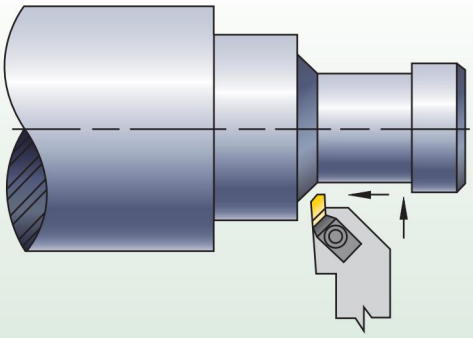
Internal Groove Depth versus Bar Interference



NOTE: Internal grooving depth limits are a function of bar clearance versus bore diameters.

Machining Guidelines for Back Turning/Turning/Profiling

The NP-K-style TopGroove inserts were engineered specifically for back turning on small automatic lathes, but they also find applications for other light turning and profiling operations. For general applications, maximum depth of cut should not exceed 2,74mm for size 2 inserts or 3,84mm for size 3 inserts.



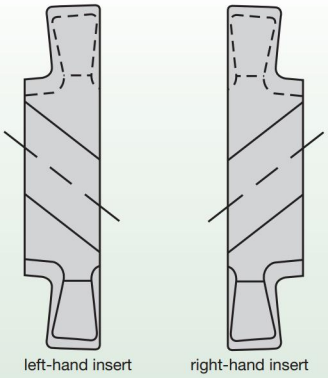
Machining Guidelines for Using TopGroove Deep Grooving Inserts (NGD)

Typically, those NGD- and NRD-style inserts with two cutting edges require no machine offset changes. However, those inserts with only one cutting edge do require offset changes. Refer to the chart here to ensure proper offset adjustments.

insert catalogue number	add to C dimension mm	add to F dimension mm
NGD-3062	0,00	0,00
NGD-3094	2,54	2,54
NGD-3125	2,54	2,54
NGD-3189	2,54	2,54
NGD-4125	0,00	0,00
NGD-4189	3,18	3,18
NGD-4250	6,35	6,35
NRD-3031	0,00	0,00
NRD-3062	2,54	2,54
NRD-4062	0,00	0,00
NRD-4094	6,35	6,35
NRD-4125	6,35	6,35

TopGroove Insert Selection Guide

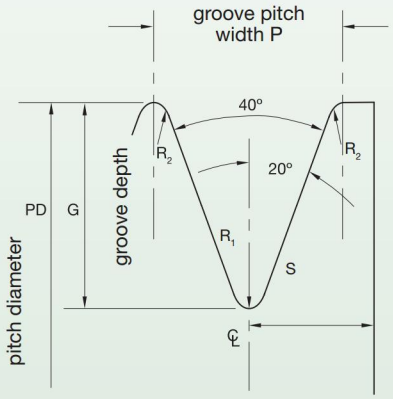
- All TopGroove inserts are precision ground to provide accurate edge location and secure locking of the insert in the toolholder pocket.
- TopGroove inserts can be used in either toolholders or boring bars.
- Right-hand TopGroove toolholders use right-hand inserts. Left-hand TopGroove toolholders use left-hand inserts.
- Right-hand TopGroove boring bars use left-hand inserts. Left-hand TopGroove boring bars use right-hand inserts.



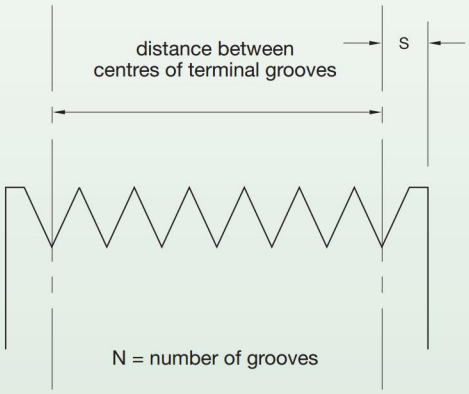
Machining Guidelines for Poly-Vee Grooving with Custom Solution and TopGroove NV Inserts (NV3-J and NV4-L)

- To machine cross section “J”, use insert NV3-J.
- To machine cross section “L”, use insert NV4-L.

Section J



Section L

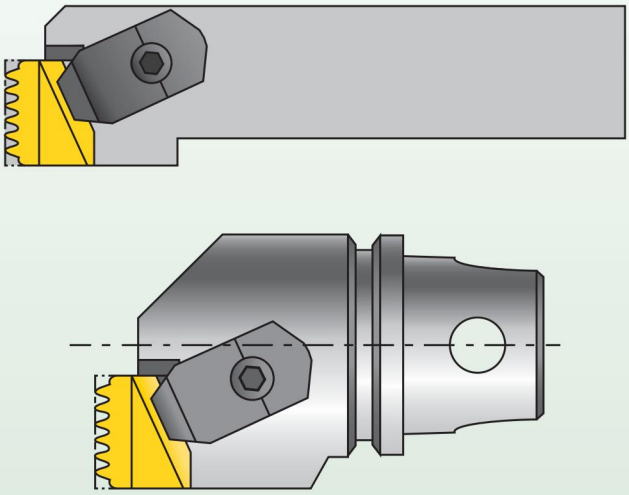


Groove Dimensions and Tolerances for Sheaves

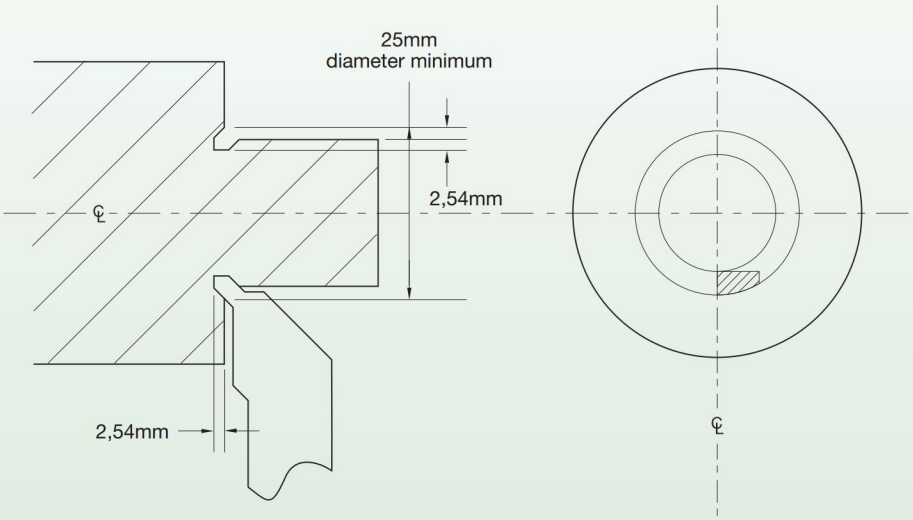
groove cross section	pitch width (P)	groove depth (G)	minimum radius (R2)	radius (R1)	terminal distance	distance between centres of terminal grooves and maximum accumulated tolerance
J	2,34 ±0,03	2,21 ±0,13	0,20	0,32 ±0,06	3,18	(N-1)4,88 ±0,25
L	4,70 ±0,05	5,11 ±0,13	0,38	0,32 ±0,06	3,18	(N-1)4,70 ±0,25

Multiple Tooth Poly–Vee Grooving

Let WIDIA™ quote your multiple tooth poly-vee grooving applications. Semi-standard inserts and holders are available. The strong TopGroove design holds the insert rigid and outperforms any other tooling method for this application.



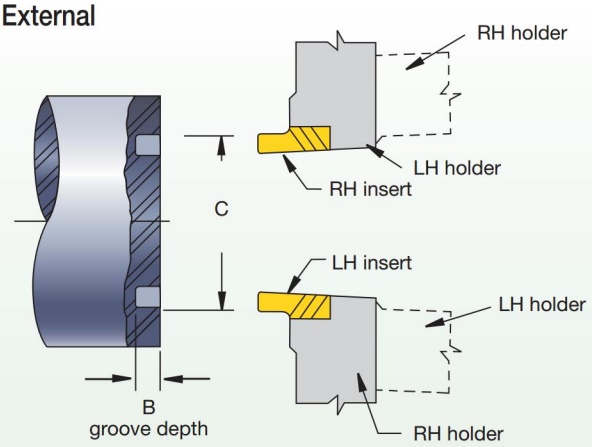
Machining Guidelines for Undercutting Operations Performed with Custom Solution and TopGroove NU Inserts (NU3094, NU3125, and NU3156)



NOTE: Items shown are non-standard items.

Machining Guidelines for Face Grooving Operations • External

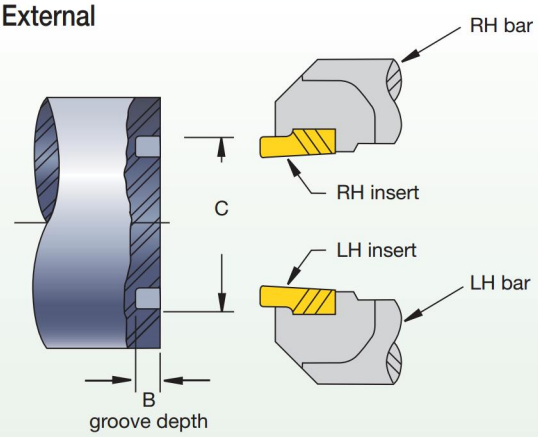
Toolholders



Standard NF/NDF Inserts		
insert family	maximum groove depth B mm	minimum groove diameter C mm
NF-3	1,52	23,9
NF-3	2,39	30,5
NF-3	3,18	36,1
NF-3	3,81	41,3
NFD-3	6,35	47,6
NFD-4	9,53	57,2
NFD-4	12,70	57,2

Machining Guidelines for Face Grooving Operations • External

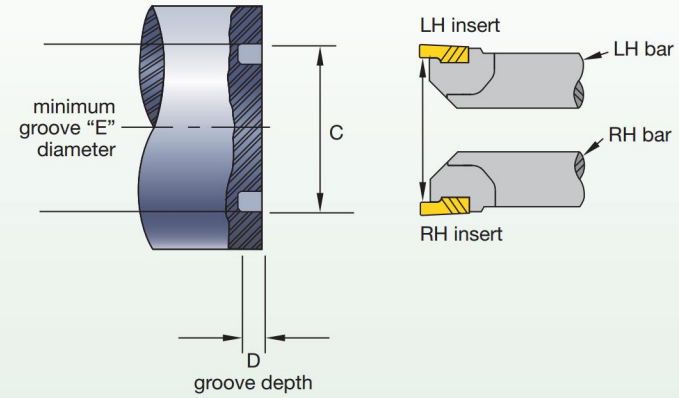
Boring Bars



Standard NG/NGD Inserts		
insert family	maximum groove depth B mm	minimum groove diameter C mm
NG-2	1,27	54,0
NG-2	2,79	88,9
NG-3	2,39	101,6
NG-3	3,18	127,0
NG-3	3,81	139,7
NGD-3	6,35	174,6
NG-4	3,81	152,4
NG-4	6,35	209,6
NGD-4	9,53	222,3
NGD-4	12,70	222,3

Machining Guidelines for Face Grooving Operations • Internal

Boring Bars

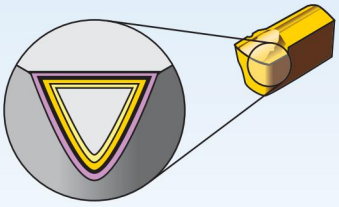


Standard NG/NGD Inserts		
insert family	maximum groove depth B mm	minimum groove diameter C mm
NFD-3-KI	6,35	63,5 *NOTE: Also check minimum bore diameter of boring bar. See page E78.*

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-end grooving and cut-off inserts.
- Offered with integral toolholders and blades.
- Shallow, deep grooving, and cut-off capabilities.
- Available in four different geometries.



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.

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

wear resistance ← → toughness

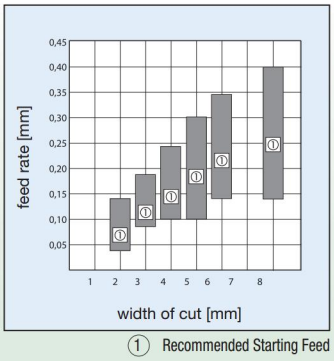
Grade

Coating		Grade Description		05	10	15	20	25	30	35	40	45
TN6030	HC-P30	PVD-TiAlN Nanolayer coated carbide. Medium and heavy machining for steels and nodular cast irons. Recommended at medium cutting speeds when good toughness properties are required.	P									
			M									
			K									
TN7525	HC-P25	MT-CVD/CVD — TiN-TiCN-Al_2O_3-TiN coated carbide. Light and medium machining for steels and nodular cast irons.	P									
			K									
TN7535	HC-P35	MT-CVD/CVD — TiN-TiCN-Al_2O_3 coated carbide. Medium and heavy machining for steels and nodular cast iron.	P									
			K									
TN8025	HC-M25	MT-CVD/CVD-TiN-TiCN-Al_2O_3-ZrCN coated carbide. Light and medium machining for all stainless steels. Can be used both with or without coolant.										
			M									
THM	HW-K15	Uncoated carbide for light and medium machining. For cast iron and all non-ferrous metals and non-metals. Also capable of machining hardened materials at low cutting speeds.										
			K									
			N									
			S									
			H									
TTM	HW-P25	Uncoated carbide with good toughness and wear properties. Medium machining for steels.	P									
			M									

PGU

left-hand neutral right-hand

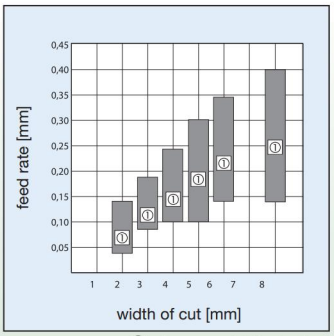
For grooving and parting operations, universal use. Positive chipbreaker groove for light cutting action. Right-hand and left-hand styles with 6° front angle.



① Recommended Starting Feed

PGM

neutral



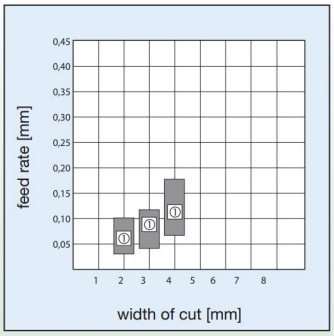
① Recommended Starting Feed

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.

PGS

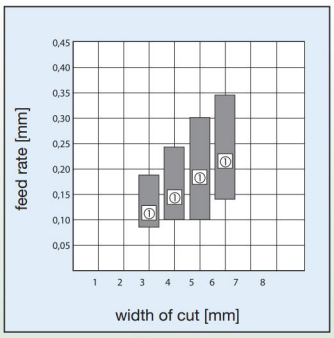
left-hand neutral right-hand

For low-bur parting with straight flanks and smooth surface finishes. All inserts are recommended for parting and grooving slender workpieces, part diameter <32mm, and thin-wall tubes.



① Recommended Starting Feed

PGR



① Recommended Starting Feed

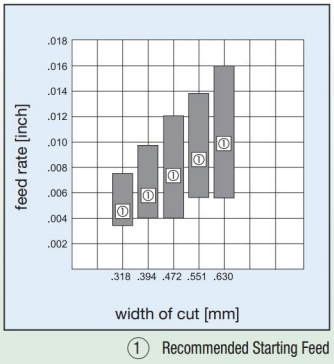
Full round inserts for profiling, grooving, and copy turning. Very good chip control for broad general use. Accurate, reproducible cutting edge positioning.

LG System • 0 and 1

0 1

…0
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.

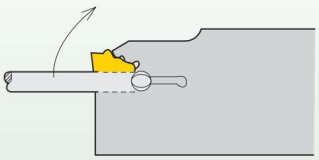
…1
Inserts with wide range of uses in grooving and deep grooving of short chipping materials.



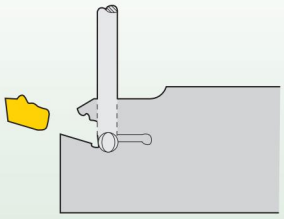
① Recommended Starting Feed

Material Group		Cutting Speed — vc m/min																	
		TN6030			TN7525			TN7535			TN8025			THM			TTM		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	0/1	130	**140**	150	200	**215**	230	140	**175**	210	–	–	–	–	–	–	90	**95**	100
	2	110	**145**	175	170	**220**	270	115	**145**	175	–	–	–	–	–	–	75	**100**	125
	3	110	**145**	175	170	**220**	270	115	**145**	175	–	–	–	–	–	–	75	**100**	125
	4	75	**95**	115	115	**145**	175	75	**100**	120	–	–	–	–	–	–	55	**65**	80
	5	100	**125**	145	155	**190**	220	105	**140**	170	–	–	–	–	–	–	70	**85**	100
	6	40	**55**	65	65	**85**	100	45	**60**	75	–	–	–	–	–	–	30	**40**	45
M	1	90	**110**	140	–	–	–	–	–	–	90	**120**	150	–	–	–	60	**75**	90
	2	55	**70**	90	–	–	–	–	–	–	55	**75**	95	–	–	–	40	**50**	55
	3	60	**75**	95	–	–	–	–	–	–	60	**80**	100	–	–	–	40	**50**	60
K	1	60	**80**	90	120	**150**	180	–	–	–	–	–	–	60	**80**	90	–	–	–
	2	60	**75**	85	120	**150**	180	–	–	–	–	–	–	60	**75**	85	–	–	–
	3	60	**75**	90	110	**140**	170	–	–	–	–	–	–	60	**75**	90	–	–	–
N	1	–	–	–	–	–	–	–	–	–	–	–	–	600	**750**	900	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	535	**685**	835	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	230	**300**	370	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	135	**180**	225	–	–	–
	5	–	–	–	–	–	–	–	–	–	–	–	–	70	**90**	110	–	–	–
	6	–	–	–	–	–	–	–	–	–	–	–	–	445	**565**	690	–	–	–
	7	–	–	–	–	–	–	–	–	–	–	–	–	550	**700**	850	–	–	–
S	1	–	–	–	–	–	–	–	–	–	–	–	–	25	**35**	40	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	15	**20**	20	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	40	**60**	70	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	20	**30**	35	–	–	–
H	1	–	–	–	–	–	–	–	–	–	–	–	–	10	**20**	35	–	–	–
	2	–	–	–	–	–	–	–	–	–	–	–	–	10	**20**	35	–	–	–
	3	–	–	–	–	–	–	–	–	–	–	–	–	10	**20**	35	–	–	–
	4	–	–	–	–	–	–	–	–	–	–	–	–	10	**20**	35	–	–	–

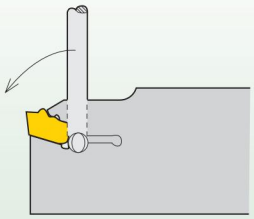
ProGroove System



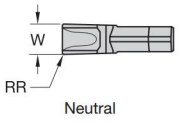
To change the cutting insert, place the wrench into the blade recess.
The blade mouth is opened by turning through 90°.



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 seat in the blade mouth, releasing the wrench. The insert is accurately positioned and securely clamped.



● first choice
○ alternate choice

		TN6030	TN7525	TN7535	TN8025	THM	TTM
P		●	●	●	○		●
M		●	○	○	●		●
K		●	●	●		●	
N		○				●	
S		○				●	
H						●	

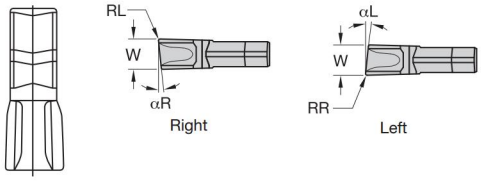
PGU

catalogue number	insert size	W	RR	hand	TN6030	TN7525	TN7535	TN8025	THM	TTM
123567320	2	2,10	0,20	N - Neutral	2953289	2498725	2498713	2021804	2008876	-
123567330	3	3,10	0,30	N - Neutral	2953284	-	2498714	2017822	2008931	-
123567340	4	4,10	0,30	N - Neutral	2953286	2498727	2498715	-	2009080	-
123567350	5	5,10	0,30	N - Neutral	2953673	2498728	2498716	-	2021873	-
123567360	6	6,10	0,40	N - Neutral	2953674	2952333	2952350	-	2009385	-
123567380	8	8,15	0,60	N - Neutral	2953666	-	2952351	2009482	2009504	-

NOTE: W tolerance on all = ±0,05mm.

(continued)

(PGU — continued)



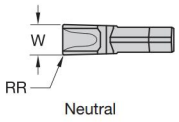
● first choice
○ alternate choice

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

catalogue number	insert size	W	RR	αL	hand	TN6030	TN7525	TN7535	TN8025	THM	TTM
123567231	3	3,10	0,25	6	L - Left	2953672	2498730	2498718	-	-	-
123567241	4	4,10	0,25	6	L - Left	2953676	-	-	-	-	-

catalogue number	insert size	W	RL	αR	hand	TN6030	TN7525	TN7535	TN8025	THM	TTM
123567230	3	3,10	0,25	6	R - Right	2953291	2498729	2498717	-	-	-
123567240	4	4,10	0,25	6	R - Right	2953667	2498731	2498719	-	-	-

NOTE: W tolerance on all = ±0,05mm.



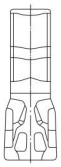
● first choice
○ alternate choice

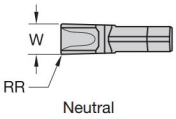
		TN6030	TN7525	TN7535	TN8025	THM	TTM
P		●	●	●	○		●
M		●	○	○	●		●
K		●	●	●		●	
N		○				●	
S		○				●	
H						●	

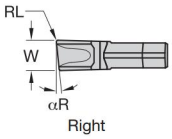
■ PGM

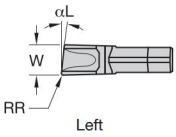
catalogue number	insert size	W	RR	hand	TN6030	TN7525	TN7535	TN8025	THM	TTM
123567420	2	2,10	0,20	N - Neutral	2953679	2498733	2498721	-	-	-
123567430	3	3,10	0,30	N - Neutral	2953678	2498734	2498722	-	-	-
123567440	4	4,10	0,30	N - Neutral	2953663	2498735	2498723	-	-	-
123567450	5	5,10	0,30	N - Neutral	2953671	2498736	2498724	-	-	-
123567460	6	6,10	0,40	N - Neutral	2953677	2952335	2952352	-	-	-
123567480	8	8,15	0,60	N - Neutral	2953675	2952336	2952353	-	-	-

NOTE: W tolerance on all = ±0,05mm.









● first choice
○ alternate choice

		TN6030	TN7525	TN7535	TN8025	THM	TTM
P		●	●	●	○		●
M		●	○	○	●		●
K		●	●	●		●	
N		○				●	
S		○				●	
H						●	

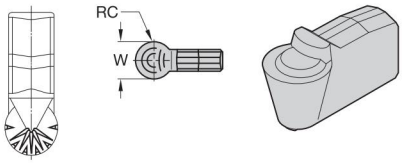
■ PGS

catalogue number	insert size	W	RR	hand	TN6030	TN7525	TN7535	TN8025	THM	TTM
123567702	2	2,25	0,20	N - Neutral	▮	▮	2952354	▮	▮	▮
123567703	3	3,25	0,20	N - Neutral	▮	▮	2952355	▮	▮	▮
123567704	4	4,25	0,20	N - Neutral	▮	▮	2952356	▮	▮	▮

catalogue number	insert size	W	RR	αL	hand	TN6030	TN7525	TN7535	TN8025	THM	TTM
123567721	2	2,25	0,20	6	L - Left	▮	▮	2952358	▮	▮	▮
123567731	3	3,25	0,20	6	L - Left	▮	▮	2952360	▮	▮	▮

catalogue number	insert size	W	RL	αR	hand	TN6030	TN7525	TN7535	TN8025	THM	TTM
123567720	2	2,25	0,20	6	R - Right	▮	▮	2952357	▮	▮	▮
123567730	3	3,25	0,20	6	R - Right	▮	▮	2952359	2017912	▮	▮
123567740	4	4,25	0,20	6	R - Right	▮	▮	2952361	▮	▮	▮

NOTE: W tolerance on all = ±0,05mm.



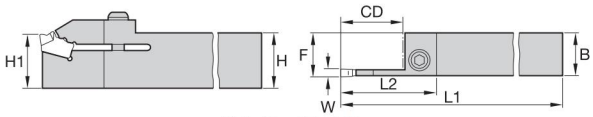
● first choice
○ alternate choice

		TN6030	TN7525	TN7535	TN8025	THM	TTM
P		●	●	●	○		●
M		●	○	○	●		●
K		●	●	●		●	
N		○				●	
S		○				●	
H						●	

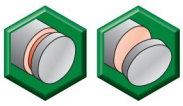
■ PGR

catalogue number	insert size	W	RC	TN6030	TN7525	TN7535	TN8025	THM	TTM
123567803	3	3,00	1,50	-	2952337	-	-	-	-
123567804	4	4,00	2,00	-	2952338	-	-	-	-
123567805	5	5,00	2,50	-	2952339	-	-	-	-
123567806	6	6,00	3,00	-	2952340	-	-	-	-

NOTE: W tolerance on all = ±0,07mm.

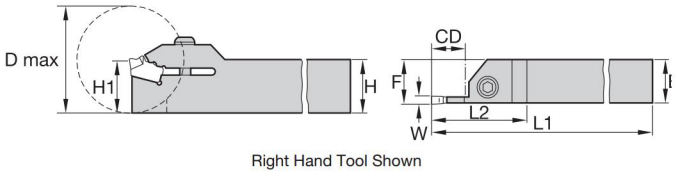


Right Hand Tool Shown



Grooving and Cut-Off

order number	catalogue number	seat size	W	CD	H	B	F	L1	L2	H1	cap screw	cap screw	wrench
right hand													
2007136	**12251782000**	2	2,10	16,0	16	16,0	16,2	100	27	16	–	**12146012600**	**12148041100**
2962743	**12250023000**	3	3,10	20,0	19	19,1	19,4	127	32	19	**12148596200**	–	–
2962745	**12250023200**	3	3,10	25,0	25	25,4	25,7	152	40	25	**12148596200**	–	–
2022560	**12251783000**	3	3,10	20,0	20	20,0	20,3	125	32	20	**12148596200**	–	–
2007142	**12251783200**	3	3,10	25,0	25	25,0	25,3	150	40	25	**12148596200**	–	–
2008153	**12251783600**	3	3,10	25,0	32	25,0	25,3	170	40	32	**12148596200**	–	–
2022562	**12251784000**	4	4,10	25,0	20	20,0	20,4	125	40	20	**12148596200**	–	–
2007148	**12251784200**	4	4,10	25,0	25	25,0	25,4	150	40	25	**12148596200**	–	–
2022564	**12251785200**	5	5,10	32,0	25	25,0	25,4	150	53	25	**12148596200**	–	–
2022566	**12251785400**	5	5,10	32,0	32	25,0	25,4	170	53	32	**12148596200**	–	–
2962751	**12250025200**	5	5,11	32,0	25	25,4	25,8	152	53	25	**12148596200**	–	–
2015814	**12251784400**	6	4,10	32,0	32	25,0	25,4	170	53	32	**12148596200**	–	–
2022568	**12251786400**	6	6,10	32,0	32	25,0	25,5	170	53	32	–	**12146012700**	**12148041300**
2022569	**12251788400**	8	8,10	40,0	32	25,0	25,6	170	66	32	–	**12146012700**	**12148041300**
left hand													
2007139	**12251782100**	2	2,10	16,0	16	16,0	16,2	100	27	16	–	**12146012600**	**12148041100**
2962744	**12250023100**	3	3,10	20,0	19	19,1	19,4	127	32	19	**12148596200**	–	–
2022561	**12251783100**	3	3,10	20,0	20	20,0	20,3	125	32	20	**12148596200**	–	–
2007145	**12251783300**	3	3,10	25,0	25	25,0	25,3	150	40	25	**12148596200**	–	–
2008150	**12251783700**	4	3,10	25,0	32	25,0	25,3	170	40	32	**12148596200**	–	–
2022563	**12251784100**	4	4,10	25,0	20	20,0	20,4	125	40	20	**12148596200**	–	–
2007151	**12251784300**	4	4,10	25,0	25	25,0	25,4	150	40	25	**12148596200**	–	–
2015816	**12251784500**	4	4,10	32,0	32	25,0	25,4	170	53	32	**12148596200**	–	–
2015839	**12251786500**	4	6,10	32,0	32	25,0	25,5	170	53	32	–	**12146012700**	**12148041300**
2022565	**12251785300**	5	5,10	32,0	25	25,0	25,4	150	53	25	**12148596200**	–	–
2022567	**12251785500**	5	5,10	32,0	32	25,0	25,4	170	53	32	**12148596200**	–	–
2015842	**12251788500**	8	8,10	40,0	32	25,0	25,6	170	66	32	–	**12146012700**	**12148041300**



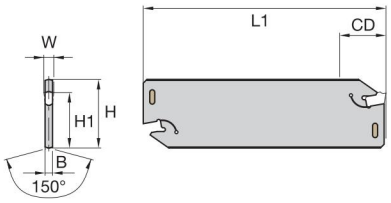
Right Hand Tool Shown

Grooving and Profiling



order number	catalogue number	seat size	W	CD	D max	H	B	F	L1	L2	H1	cap screw	cap screw	wrench
right hand														
2007105	12251762000	2	2,10	10,0	25,4	16	16,0	16,2	100	26	16	–	12146012600	12148041100
2021637	12251762400	2	2,10	10,0	25,4	25	25,0	25,2	150	26	25	–	12146012600	12148041100
2007111	12251763200	2	3,10	10,0	25,4	25	25,0	25,3	150	26	20	12148596200	–	–
2007127	12251763400	3	3,10	10,0	25,4	16	16,0	16,3	100	26	25	12148596200	–	–
2007130	12251764200	3	4,10	12,5	32,0	25	25,0	25,4	150	31	25	12148596200	–	–
2007832	12251762200	4	2,10	10,0	25,4	20	20,0	20,2	125	26	25	–	12146012600	12148041100
2022548	12251764000	4	4,10	12,5	32,0	20	20,0	20,4	125	31	20	12148596200	–	–
2022550	12251764400	4	4,10	12,5	32,0	32	25,0	25,4	170	31	32	12148596200	–	–
2022552	12251765200	5	5,10	12,5	–	25	25,0	25,5	150	31	25	12148596200	–	–
2015792	12251768400	5	8,10	16,0	–	32	25,0	25,7	170	36	32	–	12146012700	12148041300
2022555	12251766200	6	6,10	16,0	–	25	25,0	25,6	150	35	25	–	12146012700	12148041300
2022557	12251766400	6	6,10	16,0	–	32	25,0	25,6	170	35	32	–	12146012700	12148041300
2015754	12251763000	8	3,10	10,0	25,4	20	20,0	20,3	125	26	25	12148596200	–	–
left hand														
2007108	12251762100	2	2,10	10,0	25,4	16	16,0	16,2	100	26	16	–	12146012600	12148041100
2021636	12251762500	2	2,10	10,0	25,4	25	25,0	25,2	150	26	25	–	12146012600	12148041100
2007124	12251763300	2	3,10	10,0	25,4	25	25,0	25,3	150	26	20	12148596200	–	–
2021631	12251762300	3	2,10	10,0	25,4	20	20,0	20,2	125	26	16	–	12146012600	12148041100
2022547	12251763100	3	3,10	10,0	25,4	20	20,0	20,3	125	26	20	12148596200	–	–
2007133	12251764300	3	4,10	12,5	32,0	25	25,0	25,4	150	31	25	12148596200	–	–
2015782	12251765500	3	5,10	12,5	–	32	25,0	25,5	170	31	20	12148596200	–	–
2022549	12251764100	4	4,10	12,5	32,0	20	20,0	20,4	125	31	20	12148596200	–	–
2022551	12251764500	4	4,10	12,5	32,0	32	25,0	25,4	170	31	32	12148596200	–	–
2022553	12251765300	5	5,10	12,5	–	25	25,0	25,5	150	31	25	12148596200	–	–
2022556	12251766300	6	6,10	16,0	–	25	25,0	25,6	150	35	25	–	12146012700	12148041300
2022558	12251766500	6	6,10	16,0	–	32	25,0	25,6	170	35	32	–	12146012700	12148041300
2021627	12251763500	8	3,10	10,0	25,4	16	16,0	16,3	100	26	32	12148596200	–	–
2022559	12251768500	8	8,10	16,0	–	32	25,0	25,7	170	36	32	–	12146012700	12148041300

NOTE: Select shorter CD dimension for added stability.

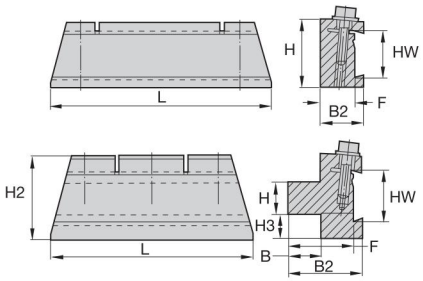


Cut-Off Blades

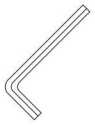
order number	catalogue number	seat size	W	H	H1	L1	B	CD	wrench
2021629	12251332000	2	2,1	19,0	15,7	90	1,7	20	12146003800
2021639	12251342000	2	2,1	26,0	21,4	110	1,7	25	12146003800
2008113	12251352000	2	2,1	32,0	25,0	150	1,7	25	12146003800
2021640	12251343000	3	3,1	26,0	21,4	110	2,4	40	12146003800
2008116	12251353000	3	3,1	32,0	25,0	150	2,4	50	12146003800
2021641	12251344000	4	4,1	26,0	21,4	110	3,2	40	12146003800
2008119	12251354000	4	4,1	32,0	25,0	150	3,2	50	12146003800
2008122	12251355000	5	5,1	32,0	25,0	150	4,2	60	12146003800
2008135	12251356000	6	6,1	32,0	25,0	150	5,0	60	12146009500
2008138	12251358000	8	8,1	32,0	25,0	150	6,8	60	12146009500
2021743	12251368000	8	8,1	52,5	45,0	250	6,8	100	12146009500

NOTE: Order wrench separately.

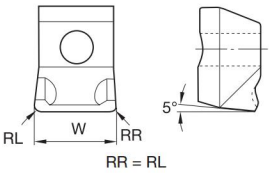
Blade Holders



Cut-Off Blade Holders



order number	catalogue number	HW	H	B	F	H2	B2	H3	L	cap screw	wrench
2021625	12251221900	19	16,0	16,0	28,3	30	30	4	100	12148036000	12148041300
2021634	12251212500	19	25,0	19,0	17,3	25	19	—	100	12148036000	12148041300
2021626	12251221600	26	16,0	16,0	31,0	40	36	12	100	12148036000	12148041300
2007826	12251222000	26	20,0	18,0	33,0	40	38	8	100	12148036000	12148041300
2008141	12251213200	26	32,0	20,0	15,0	32	20	—	125	12148036000	12148041300
2021635	12251222500	32	25,0	20,0	35,0	50	40	10	125	12148036000	12148041300
2008156	12251223200	32	32,0	25,0	40,0	50	45	3	125	12148036000	12148041300
2008159	12251233200	53	32,0	25,0	50,0	82	57	30	160	12146013400	12148041400
2021723	12251234000	53	40,0	40,0	58,0	82	65	22	160	12146013400	12148041400



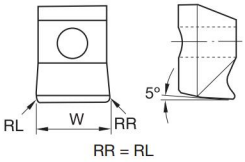
● first choice
○ alternate choice

		TN6030	TN7525	TN7535	TN8025	THM	TTM
P		●	●	●	○		●
M		●	○	○	●		●
K		●	●	●		●	
N		○				●	
S		○				●	
H						●	

LGN0

catalogue number	W	RR	TN6030	TN7525	TN7535	TN8025	THM	TTM
123568080	8,15	0,80	-	2952341	2952363	-	2017973	2009562
123568100	10,15	0,80	-	2952342	2952364	-	2017976	-
123568120	12,20	0,80	-	2952343	2952365	-	2017980	-
123568140	14,20	0,80	-	2952344	2952366	-	2022789	-
123568160	16,20	0,80	-	2952345	2952367	-	2022790	2021798

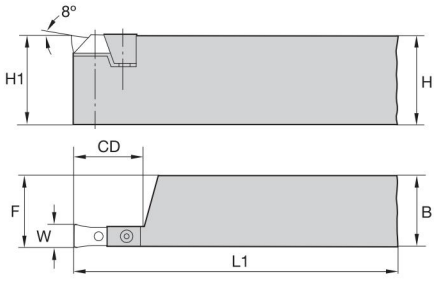
NOTE: W tolerance on all = ± 0,05mm.



LGN1

catalogue number	W	RR	TN6030	TN7525	TN7535	TN8025	THM	TTM
123568081	8,15	0,80	-	-	-	-	2022787	-
123568121	12,20	0,80	-	-	-	-	2017993	-
123568141	14,20	0,80	-	-	-	-	2017996	-
123568161	16,20	0,80	-	-	-	-	2022791	-

NOTE: W tolerance on all = ±0,05mm.



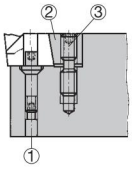
Right Hand Tool

Grooving

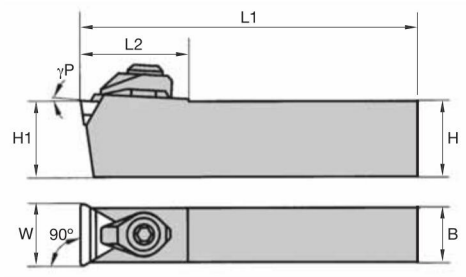
order number	catalogue number	seat size	W	CD	H	B	F	L1	H1
right hand									
2022446	**12250110100**	1	8,00	20,0	32	25,0	25,5	170	32
2008147	**12250110300**	1	10,00	20,0	32	25,0	25,5	170	32
2021719	**12250110500**	1	12,00	25,0	40	32,0	33,0	200	40
2021721	**12250110700**	1	14,00	28,0	40	32,0	33,0	200	40
2008521	**12250110900**	1	16,00	32,0	40	32,0	33,0	200	40
left hand									
2022447	**12250110200**	1	8,00	20,0	32	25,0	25,5	170	32
2008144	**12250110400**	1	10,00	20,0	32	25,0	25,5	170	32
2021718	**12250110600**	1	12,00	25,0	40	32,0	33,0	200	40
2021720	**12250110800**	–	14,00	28,0	40	32,0	33,0	200	40
2021722	**12250111000**	1	16,00	32,0	40	32,0	33,0	200	40

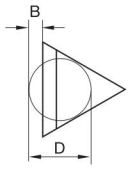
Spare Parts

catalogue number	clamping bolt	wedge clamp	clamping screw	wrench for clamp screw	wrench for clamp screw	wrench for clamping bolt
right hand						
12250110100	**12148060600**	**12148094300**	**12148574100**	**12148041000**	–	**12148046000**
12250110300	**12148060600**	**12148094400**	**12148574900**	–	**12148041100**	**12148046000**
12250110500	**12148060700**	**12148094500**	**12148574900**	–	**12148041100**	**12148040900**
12250110700	**12148060700**	**12148094600**	**12148574000**	–	**12148041200**	**12148040900**
12250110900	**12148060800**	**12148094700**	**12148574000**	**12148041000**	**12148041200**	–
left hand						
12250110200	**12148060600**	**12148094300**	**12148574100**	**12148041000**	–	**12148046000**
12250110400	**12148060600**	**12148094400**	**12148574900**	–	**12148041100**	**12148046000**
12250110600	**12148060700**	**12148094500**	**12148574900**	–	**12148041100**	**12148040900**
12250110800	**12148060700**	**12148094600**	**12148574000**	–	**12148041200**	**12148040900**
12250111000	**12148060800**	**12148094700**	**12148574000**	**12148041000**	**12148041200**	–



1. Clamping bolt
2. Wedge clamp
3. Clamping screw





Grooving

order number	W	H1	H	B	L1	L2	γP°	gage insert
2022921	10,40	20	20	9,5	125	21	3	TP..1103../TP..22..
2007414	15,30	20	20	13,0	150	27	3	TP..1603../TP..32..
2022922	15,30	25	25	13,0	150	27	3	TP..1603../TP..32..
2058066	20,20	25	25	18,0	150	35	3	TP..2204../TP..43..
2022923	20,20	32	32	18,0	180	35	3	TP..2204../TP..43..

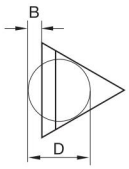
NOTE: Gage inserts listed are ISO-/ANSI-style inserts.
Holders are supplied without chipbreaker. For chipbreaker order numbers, see below.

For Grooving without Chipbreaker

catalogue number	clamp	clamp screw	clamp screw	shim	shim screw	shim screw	washer	wrench
12191061900	12148589200	12148589800	–	12148032586	–	12148021900	–	–
12191062086	12148586800	–	12148586000	12148031686	12148024100	–	12148024200	–
12191062586	12148586800	–	12148586000	12148031686	12148024100	–	12148024200	–
12191062686	12148586900	–	12148021100	12148032086	12148024500	–	12148024800	–
12191063286	12148586900	–	12148021100	12148032086	12148024500	–	12148024800	–

For Grooving with Chipbreaker (Order Additional Clamp and Chipbreaker)

inserts	clamp with chipbreaker	D	chipbreakers B – edge width 0,4mm	1,2mm	1,8mm	2,5mm	3,2mm	4,0mm
TP...1103...	12148589200	6,35	12148591011	12148588211	12148588311	12148588411	–	–
TP...1603...	12148589300	9,52	12148591111	12148586611	12148587011	12148587111	12148580011	435101
TP...2204...	12148586900	12,70	–	–	12148580411	12148580511PKG	12148580611	12148582511



Separator™ for Cut-Off

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

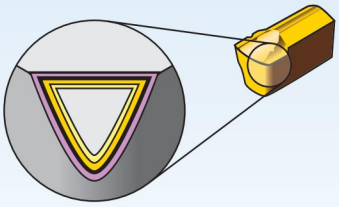
Separator

Features

- Insert widths 2–4mm.
- Toolholder shank sizes 10–31, 75mm.
- Cut-off up to 76mm bar capacity.

Benefits

- Quick, reliable insert indexing.
- Positive mechanical clamping.
- CNC square shank, screw machine, and PL blade-style toolholders.

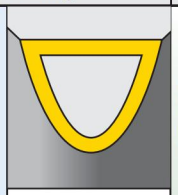
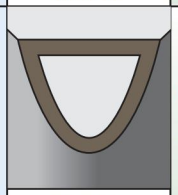
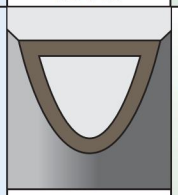
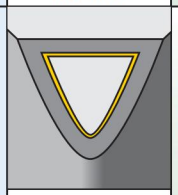
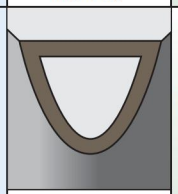


Coatings provide high-speed capability and are engineered for finishing to light roughing.

- Reduce cycle times — high speed and feed capability.
- Longer tool life — new multilayer coating provides better wear resistance.

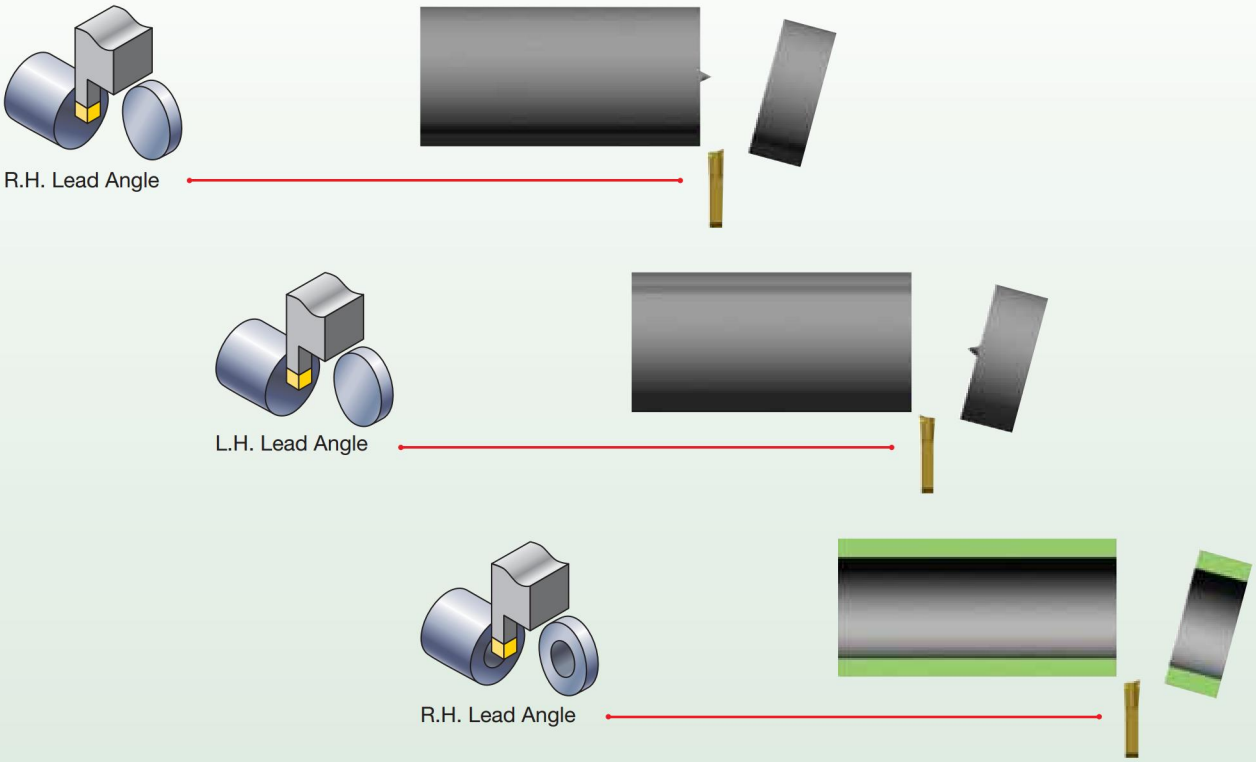
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous
S	High-Temp Alloys
H	Hardened Materials

wear resistance ← → toughness

Grade	Coating	Grade Description		05	10	15	20	25	30	35	40	45
M40	 HC-P35	A premium, single-phase PVD TiN coating over a tough, specially formulated substrate that performs well under extremely low to moderate speed conditions found on screw machines. Ideal for carbon steels, alloy steels, most stainless steels, and many high-temperature alloys.	P						■	■	■	
			M							■	■	
			K							■	■	
			N						■	■	■	
			S							■	■	
M43	 HC-P25	PVD-TiAlN multilayer coating over a tough, shock-resistant, fine-grained carbide substrate with increased oxidation resistance. Recommended on low to medium cutting speeds when good toughness properties are required.	P				■	■	■	■		
			M					■	■	■		
			K					■	■	■		
			N					■	■	■		
			S					■	■	■		
M433B	 HC-M30	PVD-TiAlN single-layer coating over a superiorly tough, fine-grained carbide substrate. Outstanding temperature properties with excellent resistance to avoid built-up edges. Medium to high speeds and feeds. For stainless steels and high-temperature alloys.	P					■	■	■		
			M					■	■	■		
			N					■	■	■		
			S				■	■	■			
M45	 HC-P30	A premium PVD-TiCN coated, shock-resistant carbide designed for low to moderate speeds. Excellent resistance to welding and BUE, along with improved abrasion resistance make this an ideal grade for austenitic stainless steel, low carbon steel, and high-temperature alloys.	P					■	■	■	■	
			M						■	■	■	
			K						■	■	■	
			N						■	■	■	
			S						■	■	■	
M93	 HC-P20	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.	P			■	■	■				
			M			■	■	■				
			K			■	■	■				
			N			■	■	■				
			S				■	■				

1 Choose the application to be performed:

Choose lead angle of insert for application.



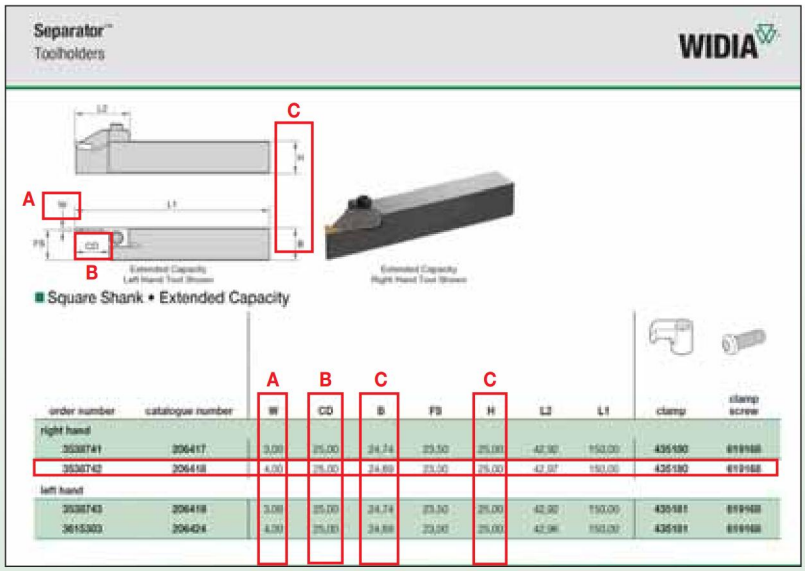
2 Identify the material to be machined:

Each tool has a material grid marked with a letter indicating the materials that can be machined.

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

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 “CD” dimension for increased tool rigidity.
- **C** Select the largest toolholder shank “H” and “B” dimensions for maximum rigidity.



4 Select chipbreaker style for the application:

See the application guide on page E112 for a complete list of insert styles.

insert type	steel	stainless steel	cast iron	non-ferrous metals	high-temp alloys	hardened materials
first choice	X²-Ultra (X² has wipers)	X²-Ultra	X²-Ultra	X²-Ultra	X²-Ultra	–
second choice	S²-Ultra	S²-Ultra	Classic	S²-Ultra	S²-Ultra	X²

5 Select grade:

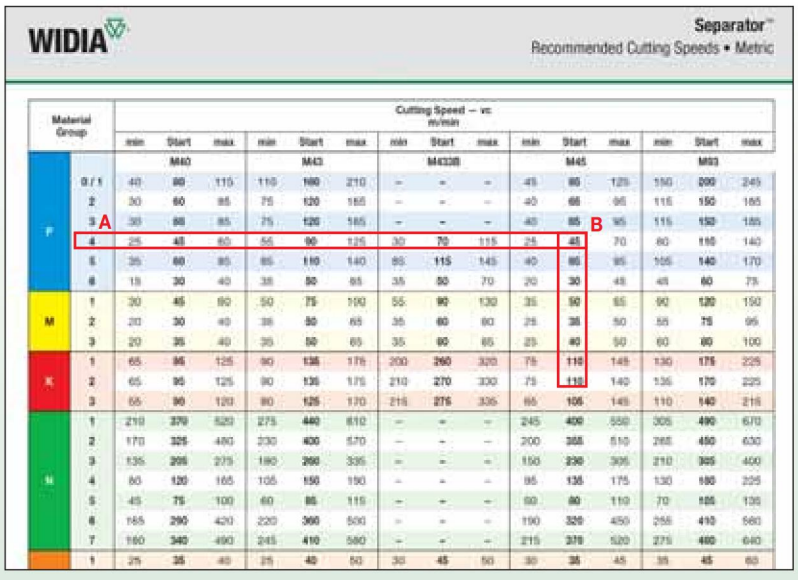
	Recommended Grades					
machining condition	steel	stainless steel	cast iron	non-ferrous metals	high-temp alloys	hardened materials
high performance for optimal conditions (clean cuts, good machine condition, higher speed capability)	M93	M433B	M93	M93	M433B	–
	–	M93	–	–	M93	–
general purpose (1st choice for general machining)	M43	M43	M43	M43	M43	M93
unfavourable conditions (interrupted cuts, low speeds, etc.)	M45	M45	M45	M45	M45	–
	M40	M40	M40	M40	M40	–

See page E109 for Grades and Grade Descriptions.

6 Determine cutting data:

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

See page E113 for cutting data.


WIDIA
Separator™
Recommended Cutting Speeds • Metric

Material Group		Cutting Speed – vc m/min														
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
		M40			M43			M433B			M45			M93		
P	0 / 1	40	80	110	110	160	210	–	–	–	45	80	125	150	200	245
	2	30	60	85	75	120	165	–	–	–	40	65	95	115	150	185
	3 A	30	60	85	75	120	165	–	–	–	40	65 B	95	115	150	185
	4	25	45	60	55	90	125	30	70	115	25	45	70	80	110	140
	5	35	60	85	85	110	140	85	115	145	40	65	95	105	140	170
	6	15	30	40	35	50	65	35	50	70	20	30	45	45	60	75
M	1	30	45	60	50	75	100	55	90	130	35	50	65	90	120	150
	2	20	30	40	35	50	65	35	60	80	25	35	50	55	75	95
	3	20	35	40	35	50	65	35	60	85	25	40	50	60	80	100
K	1	65	95	125	90	135	175	200	260	320	75	110	145	130	175	225
	2	65	95	125	90	135	175	210	270	330	75	110	140	135	170	225
	3	55	90	120	80	125	170	215	275	335	65	105	145	110	140	215
N	1	210	370	520	275	440	610	–	–	–	245	400	550	305	490	670
	2	170	325	480	230	400	570	–	–	–	200	355	510	265	450	630
	3	135	295	275	190	360	335	–	–	–	150	230	305	210	305	400
	4	80	120	165	105	150	190	–	–	–	95	135	175	130	180	225
	5	45	75	100	60	85	115	–	–	–	60	80	110	70	105	135
	6	165	290	420	220	360	500	–	–	–	190	320	450	255	410	560
	7	160	340	490	245	410	580	–	–	–	215	370	520	275	460	640
	1	25	35	40	25	40	50	30	45	50	30	35	45	35	45	60

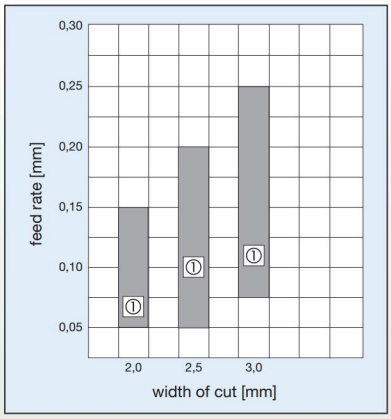
Separator • X^2 and X^2-Ultra

X^2

This insert has the same geometry as the WMT-SX™. Chip control geometry offers the widest range of speed and feed capabilities and provides excellent flatness and finish. This chipbreaker 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.

X^2-Ultra

This insert has the same geometry as the WMT-SX-Ultra. The X^2-Ultra is an enhanced version of the X^2 and is ideal for stainless steels, nickel-based alloys, tool steel, INCONEL®, and titanium.



① Recommended Starting Feed

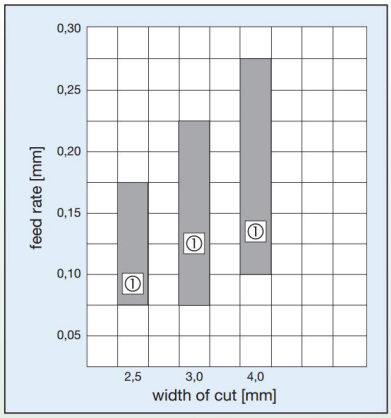
Separator • S^2 and S^2-Ultra

S^2

High positive rake with a more 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 also available with sharp corners. Its greatest strengths can be seen on stainless steels and soft gummy steels.

S^2-Ultra

The S^2-Ultra is an enhanced version of the S^2 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

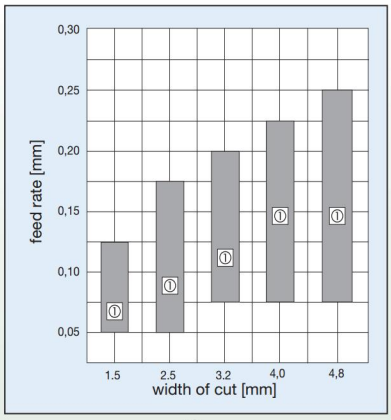
Separator • Classic and F^2

Classic

A good general-purpose insert for carbon steels, alloy steels, and most stainless steels. The Separator Classic chipbreaker is designed to perform well at moderate to slow speeds and feeds. The Classic provides standard high lead angles and sharp corners, making it the first choice when choosing an insert for nib-free cut-off.

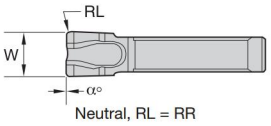
F^2

This insert provides superior flatness and finish on a wide variety of materials Ideal for thick wall parts or cutting off larger diameter parts to centre. The Separator F^2 performs well at slow to moderate speeds and feeds.

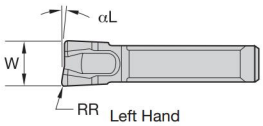


① Recommended Starting Feed

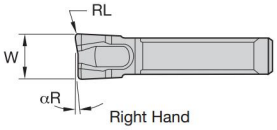
Material Group		Cutting Speed — vc m/min														
		M40			M43			M433B			M45			M93		
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	0/1	40	**80**	115	110	**160**	210	–	**–**	–	45	**85**	125	150	**200**	245
	2	30	**60**	85	75	**120**	165	–	**–**	–	40	**65**	95	115	**150**	185
	3	30	**60**	85	75	**120**	165	–	**–**	–	40	**65**	95	115	**150**	185
	4	25	**45**	60	55	**90**	125	30	**70**	115	25	**45**	70	80	**110**	140
	5	35	**60**	85	85	**110**	140	85	**115**	145	40	**65**	95	105	**140**	170
	6	15	**30**	40	35	**50**	65	35	**50**	70	20	**30**	45	45	**60**	75
M	1	30	**45**	60	50	**75**	100	55	**90**	130	35	**50**	65	90	**120**	150
	2	20	**30**	40	35	**50**	65	35	**60**	80	25	**35**	50	55	**75**	95
	3	20	**35**	40	35	**50**	65	35	**60**	85	25	**40**	50	60	**80**	100
K	1	65	**95**	125	90	**135**	175	200	**260**	320	75	**110**	145	130	**175**	225
	2	65	**95**	125	90	**135**	175	210	**270**	330	75	**110**	140	135	**170**	225
	3	55	**90**	120	80	**125**	170	215	**275**	335	65	**105**	145	110	**140**	215
N	1	210	**370**	520	275	**440**	610	–	**–**	–	245	**400**	550	305	**490**	670
	2	170	**325**	480	230	**400**	570	–	**–**	–	200	**355**	510	265	**450**	630
	3	135	**205**	275	180	**260**	335	–	**–**	–	150	**230**	305	210	**305**	400
	4	80	**120**	165	105	**150**	190	–	**–**	–	95	**135**	175	130	**180**	225
	5	45	**75**	100	60	**85**	115	–	**–**	–	50	**80**	110	70	**105**	135
	6	165	**290**	420	220	**360**	500	–	**–**	–	190	**320**	450	255	**410**	560
	7	180	**340**	490	245	**410**	580	–	**–**	–	215	**370**	520	275	**460**	640
S	1	25	**35**	40	25	**40**	50	30	**45**	50	30	**35**	45	35	**45**	60
	2	10	**15**	20	15	**20**	25	15	**20**	25	10	**15**	20	20	**25**	30
	3	35	**45**	60	35	**50**	65	40	**55**	70	35	**50**	65	55	**65**	80
	4	15	**25**	30	25	**30**	35	25	**30**	40	20	**25**	35	30	**35**	45
H	1	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–	–	**–**	–



Neutral, RL = RR



Left Hand



Right Hand

● first choice
○ alternate choice

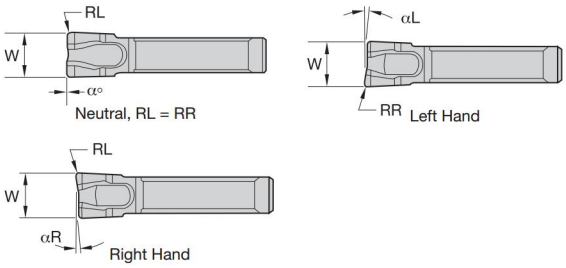
P		●	●	●	●	●
M		●	●	●	●	●
K		○				
N			●	●		
S		○	●	●	●	○
H						○

X²

catalogue number	insert size	W	RR	hand	M40	M43	M433B	M45	M93
507305	2	2,39	0,14	N - Neutral	ı	ı	ı	3540872	3540873
507308	3	3,20	0,17	N - Neutral	ı	3540878	ı	3540879	3540880

catalogue number	insert size	W	RR	αL	hand	M40	M43	M433B	M45	M93
507307	2	2,39	0,14	5	L - Left	ı	ı	ı	3540876	3540877
507310	3	3,20	0,17	5	L - Left	ı	ı	ı	3540884	3540885

catalogue number	insert size	W	RL	αR	hand	M40	M43	M433B	M45	M93
507306	2	2,39	0,14	5	R - Right	ı	ı	ı	3540874	3540875
507309	3	3,20	0,17	5	R - Right	ı	ı	ı	3540882	3540883



● first choice
○ alternate choice

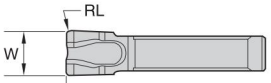
P		●	●	●	●	●
M		●	●	●	●	●
K		○				
N			●	●		
S		○	●	●	●	○
H						○

X² Ultra

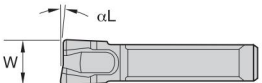
catalogue number	insert size	W	RR	hand	M40	M43	M433B	M45	M93
507354	2	2,39	0,15	N - Neutral	'	'	3540926	'	'
507357	3	3,20	0,15	N - Neutral	'	'	3540929	'	'

catalogue number	insert size	W	RR	αL	hand	M40	M43	M433B	M45	M93
507356	2	2,39	0,13	5	L - Left	'	'	3540928	'	'
507359	3	3,20	0,15	5	L - Left	'	'	3540931	'	'

catalogue number	insert size	W	RL	αR	hand	M40	M43	M433B	M45	M93
507355	2	2,39	0,13	5	R - Right	'	'	3540927	'	'
507358	3	3,20	0,15	5	R - Right	'	'	3540930	'	'



Neutral, RL = RR



Left Hand

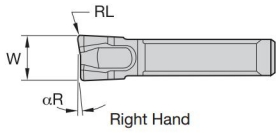
● first choice
○ alternate choice

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

■ S²

catalogue number	insert size	W	RR	hand	M40	M43	M433B	M45	M93
507275	2	2,39	0,20	N - Neutral	3540807	3540803	-	3540805	3540806
507295	3	3,00	0,25	N - Neutral	-	3540857	-	3540858	3540859
507278	3	3,20	0,25	N - Neutral	3540822	3540818	-	3540820	3540821
507378	4	4,00	0,25	N - Neutral	-	3540951	-	3540952	3540953
507281	5	4,78	0,25	N - Neutral	-	3540833	-	3540835	3540836

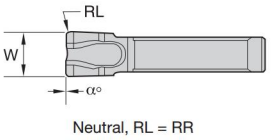
catalogue number	insert size	W	RR	αL	hand	M40	M43	M433B	M45	M93
507277	2	2,39	0,20	5	L - Left	-	-	-	3540815	3540816
507297	3	3,00	0,20	5	L - Left	-	3540863	-	-	3540865
507280	3	3,20	0,20	5	L - Left	-	-	-	3540830	-
507283	5	4,78	0,20	5	L - Left	-	-	-	-	3540846



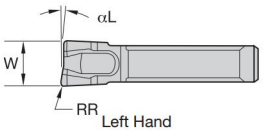
● first choice
○ alternate choice

		M40	M43	M433B	M45	M93
P		●	●	●	●	●
M		●	●	●	●	●
K		○				
N			●	●		
S		○	●	●	●	○
H						○

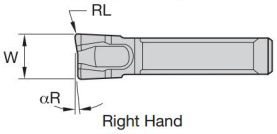
catalogue number	insert size	W	RL	αR	hand	M40	M43	M433B	M45	M93
507276	2	2,39	0,20	5	R - Right	3540812	3540808	-	3540810	3540811
507301	2	2,39	—	5	R - Right	-	-	-	3540870	-
507296	3	3,00	0,20	5	R - Right	-	3540860	-	3540861	3540862
507279	3	3,20	0,20	5	R - Right	3540827	3540823	-	3540825	3540826
507298	3	3,20	—	5	R - Right	-	3540866	-	3540867	3540868
507379	4	4,00	0,25	5	R - Right	-	3540954	-	3540955	-
507282	5	4,78	0,20	5	R - Right	-	3540838	-	3540840	3540841



Neutral, RL = RR



Left Hand



Right Hand

● first choice
○ alternate choice

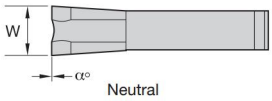
		M40	M43	M433B	M45	M93
P		●	●	●	●	●
M		●	●	●	●	●
K		○				
N			●	●		
S		○	●	●	●	○
H						○

■ S² Ultra

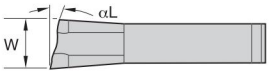
catalogue number	insert size	W	RR	hand	M40	M43	M433B	M45	M93
507329	2	2,39	0,15	N - Neutral	■	■	3540907	■	■
507332	3	3,18	0,15	N - Neutral	■	■	3540910	■	■

catalogue number	insert size	W	RR	αL	hand	M40	M43	M433B	M45	M93
507331	2	2,39	0,15	5	L - Left	■	■	3540909	■	■
507334	3	3,18	0,15	5	L - Left	■	■	3540912	■	■

catalogue number	insert size	W	RL	αR	hand	M40	M43	M433B	M45	M93
507330	2	2,39	0,15	5	R - Right	■	■	3540908	■	■
507333	3	3,18	0,15	5	R - Right	■	■	3540911	■	■



Neutral



Left Hand

● first choice
○ alternate choice

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

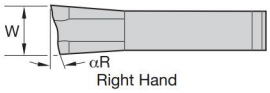
Classic

catalogue number	insert size	W	hand	M40	M43	M433B	M45	M93
507196	2	1,60	N - Neutral	3540664	'	'	3540663	'
507140	2	2,39	N - Neutral	3540530	'	'	3540528	3540529
507117	3	3,20	N - Neutral	3540461	'	'	3540459	3540460
507116	5	4,78	N - Neutral	3540449	'	'	3540447	'

catalogue number	insert size	W	αL	hand	M40	M43	M433B	M45	M93
507152	2	2,36	12	L - Left	3540594	'	'	'	'
507144	2	2,39	4	L - Left	3540554	'	'	3540553	'
507154	3	3,15	12	L - Left	3540598	'	'	3540597	'
507129	3	3,20	4	L - Left	3540510	'	'	3540509	'
507125	5	4,78	4	L - Left	3540487	'	'	'	'

(continued)

(Classic — continued)

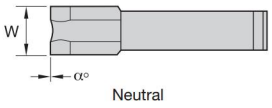


● first choice
○ alternate choice

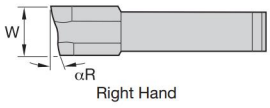
P		●	●	●	●	●				
M		●	●	●	●	●				
K		○								
N			●	●						
S		○	●	●	●	○				
H						○				

catalogue number	insert size	W	αR	hand	M40	M43	M433B	M45	M93
507197	2	1,60	4	R - Right	3540666	-	-	-	-
507214	2	1,60	12	R - Right	3540692	-	-	3540691	-
507207	2	2,31	4	R - Right	-	-	-	3540685	-
507151	2	2,36	12	R - Right	3540589	3540585	-	3540587	-
507143	2	2,39	4	R - Right	3540544	-	-	3540542	3540543
507161	2	2,39	18	R - Right	3540613	-	-	3540612	-
507171	3	3,12	6	R - Right	3540628	-	-	-	-
507146	3	3,15	12	R - Right	3540562	-	-	3540560	-
507155	3	3,15	18	R - Right	3540603	-	-	3540602	-
507128	3	3,20	4	R - Right	3540498	-	-	3540496	3540497
507224	3	3,20	4	R - Right	3540700	-	-	3540698	-
507176	5	4,72	12	R - Right	3540634	-	-	3540633	-
507124	5	4,78	4	R - Right	3540479	-	-	3540477	3540478

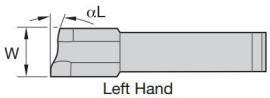
NOTE: 507207 and 507224 have a modified aggressive chip control design.



Neutral



Right Hand



Left Hand

● first choice
○ alternate choice

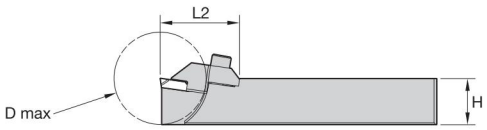
P	●	●	●	●	●	
M	●	●	●	●	●	
K	○					
N		●	●			
S	○	●	●	●	○	
H					○	

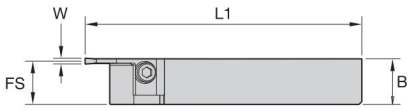
F²

catalogue number	insert size	W	hand	M40	M43	M433B	M45	M93
507240	2	2,39	N - Neutral	3540744	-	-	3540743	-
507244	3	3,20	N - Neutral	3540756	-	-	3540755	-

catalogue number	insert size	W	αL	hand	M40	M43	M433B	M45	M93
507255	2	2,39	12	L - Left	3540781	-	-	-	-
507257	3	3,18	4	L - Left	-	-	-	3540784	-

catalogue number	insert size	W	αR	hand	M40	M43	M433B	M45	M93
507241	2	2,39	4	R - Right	3540747	-	-	3540746	-
507242	2	2,39	12	R - Right	3540750	-	-	3540749	-
507243	2	2,39	18	R - Right	3540753	-	-	3540752	-
507245	3	3,18	4	R - Right	3540759	-	-	3540758	-
507246	3	3,18	12	R - Right	3540762	-	-	3540761	-
507247	3	3,18	18	R - Right	3540764	-	-	3540763	-
507252	5	4,75	4	R - Right	3540774	-	-	3540773	-
507253	5	4,78	12	R - Right	3540777	-	-	3540776	-

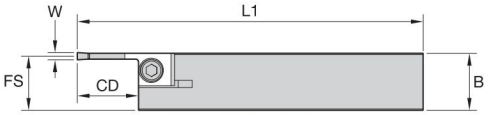




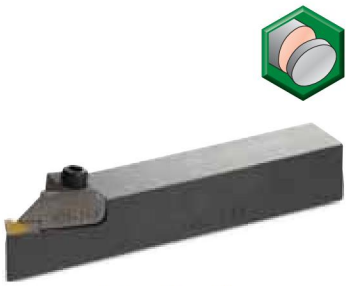
Square Shank

order number	catalogue number	W	D max	B	FS	H	L2	L1	clamp	clamp screw
right hand										
3614290	**206445**	2,00	20,00	9,86	9,00	10,00	21,55	75,00	**435200**	**MS318**
3538751	**206446**	2,00	20,00	11,86	11,00	12,00	21,55	90,00	**435200**	**MS318**
3538752	**206447**	2,00	26,00	9,86	9,00	10,00	24,83	150,00	**435201**	**MS318**
3587590	**206448**	2,00	26,00	11,86	11,00	12,00	24,83	150,00	**435201**	**MS318**
3615308	**206449**	2,00	38,00	15,86	15,00	16,00	32,83	100,00	**435202**	**MS412**
3538753	**206450**	2,00	38,00	19,86	19,00	20,00	32,84	125,00	**435202**	**MS412**
3538706	**206265**	2,50	20,00	11,74	10,81	12,00	21,51	89,95	**435170**	**MS318**
3538718	**206279**	2,50	26,00	9,75	8,81	10,00	24,80	150,00	**435152**	**MS318**
3538719	**206280**	2,50	26,00	11,73	10,80	12,00	24,80	150,00	**435152**	**MS318**
3538721	**206282**	2,50	38,00	15,75	14,81	16,00	32,80	100,00	**435140**	**MS412**
3538723	**206284**	2,50	38,00	19,74	18,80	20,00	32,80	125,00	**435140**	**MS412**
3538720	**206281**	3,00	26,00	11,68	10,39	12,00	23,62	150,00	**435130**	**MS318**
3538722	**206283**	3,00	38,00	15,70	14,40	16,00	32,85	100,00	**435126**	**MS412**
3565364	**206285**	3,00	38,00	19,68	18,39	20,00	32,85	125,00	**435126**	**MS412**
left hand										
3614291	**206451**	2,00	20,00	9,86	9,00	10,00	21,55	75,00	**435203**	**MS318**
3538754	**206452**	2,00	20,00	11,86	11,00	12,00	21,55	90,00	**435203**	**MS318**
3614292	**206453**	2,00	26,00	9,86	9,00	10,00	24,83	150,00	**435204**	**MS318**
3538755	**206454**	2,00	26,00	11,00	11,00	12,00	24,83	150,00	**435204**	**MS318**
3538756	**206455**	2,00	38,00	15,86	15,00	16,00	32,83	100,00	**435205**	**MS412**
3615309	**206456**	2,01	38,00	19,86	19,00	20,00	32,84	125,00	**435205**	**MS412**
3538705	**206264**	2,50	20,00	9,75	8,80	10,00	21,51	74,96	**435171**	**MS318**
3538707	**206266**	2,50	20,00	11,74	10,81	12,00	21,51	89,95	**435171**	**MS318**
3538711	**206272**	2,50	26,00	9,75	8,81	10,00	24,80	150,00	**435153**	**MS318**
3538712	**206273**	2,50	26,00	11,73	10,80	12,00	24,80	150,00	**435153**	**MS318**
3538714	**206275**	2,50	38,00	15,75	14,81	16,00	32,80	100,00	**435141**	**MS412**
3538716	**206277**	2,50	38,00	19,74	18,80	20,00	32,80	125,00	**435141**	**MS412**
3538713	**206274**	3,00	26,00	11,68	10,39	12,00	23,62	150,00	**435131**	**MS318**
3538715	**206276**	3,00	38,00	15,70	14,40	16,00	32,85	100,00	**435127**	**MS412**
3538717	**206278**	3,00	38,00	19,68	18,39	20,00	32,85	125,00	**435127**	**MS412**

NOTE: Above toolholders are supplied with clamp and clamp screw.



Extended Capacity
Left Hand Tool Shown

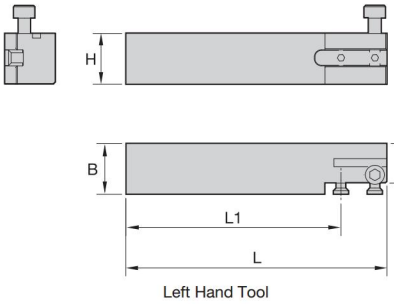


Extended Capacity
Right Hand Tool Shown

■ Square Shank • Extended Capacity

order number	catalogue number	W	CD	B	FS	H	L2	L1	clamp	clamp screw
right hand										
3538741	**206417**	3,00	25,00	24,74	23,50	25,00	42,92	150,00	**435180**	**619168**
3538742	**206418**	4,00	25,00	24,69	23,00	25,00	42,97	150,00	**435180**	**619168**
left hand										
3538743	**206419**	3,00	25,00	24,74	23,50	25,00	42,92	150,00	**435181**	**619168**
3615303	**206424**	4,00	25,00	24,69	23,00	25,00	42,96	150,00	**435181**	**619168**

NOTE: Above toolholders are supplied with clamp and clamp screw.



Left Hand Tool

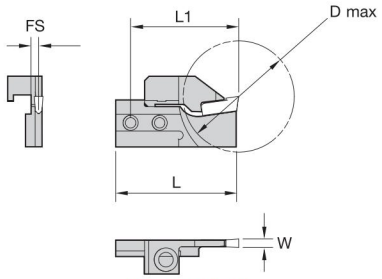
Left Hand Tool

Right Hand Tool

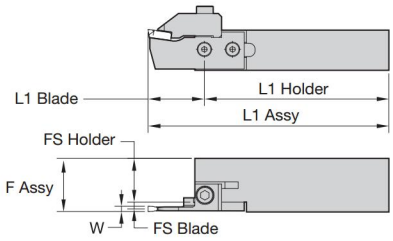
12mm and 20mm Shank Toolholders

order number	catalogue number	H	B	B2	L	L1	H2	F	support blade screw	clamp screw
right hand										
3538772	**206518**	12,00	11,53	24,99	102,77	84,68	19,05	20,55	**606247**	**MS1495**
3614344	**206522**	20,00	20,00	—	102,77	84,68	—	15,55	**606247**	**MS1495**
left hand										
3538773	**206519**	12,00	11,53	24,99	102,77	84,68	19,05	20,55	**606247**	**MS1495**
3538774	**206523**	20,00	20,00	—	102,77	84,68	—	15,55	**606247**	**MS1495**

Support Blade Assembly



Right Hand Tool

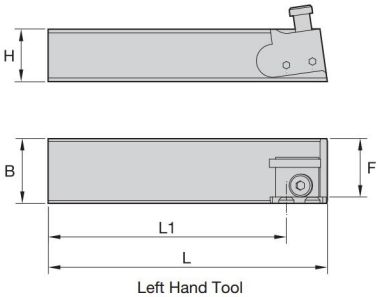


L1 Assy = L1 (Holder) + L1 (Blade)
F Assy = F (Holder) + FS (Blade) + W/2

12mm and 20mm Shank Blades

order number	catalogue number	W	D max	FS	L	L1	clamp
right hand							
3539515	**333101**	2,50	41,28	3,25	44,88	40,13	**435154**
3539516	**333102**	3,00	41,28	2,84	44,88	40,13	**435155**
3539522	**333111**	2,00	41,28	3,40	44,88	40,13	**435194**
left hand							
3539517	**333103**	2,50	41,28	3,25	44,88	40,13	**435156**
3539518	**333104**	3,00	41,28	2,84	44,88	40,13	**435157**

NOTE: Clamps do not ship with blades. Order clamps separately.



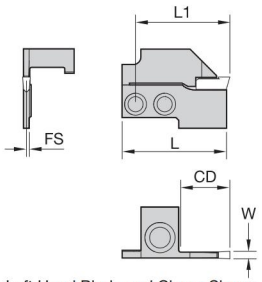
Left Hand Tool


Right Hand Tool

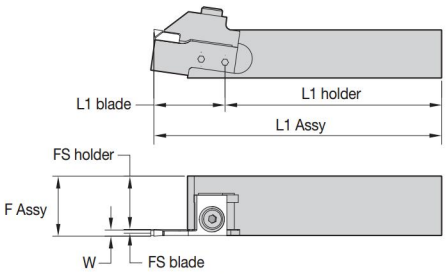
25mm and 32mm Shank Toolholders

order number	catalogue number	H	B	L	L1	F	support blade screw	clamp screw	clamp screw
right hand									
3538772	**206518**	12,00	11,53	102,77	84,68	20,55	**606247**	–	**MS1495**
3614344	**206522**	20,00	20,00	102,77	84,68	15,55	**606247**	–	**MS1495**
3538710	**206271**	25,00	24,61	131,90	112,16	21,41	**MS1073**	**MS1071**	–
left hand									
3538773	**206519**	12,00	11,53	102,77	84,68	20,55	**606247**	–	**MS1495**
3538774	**206523**	20,00	20,00	102,77	84,68	15,55	**606247**	–	**MS1495**
3615305	**206440**	32,00	31,60	132,03	112,18	28,42	**MS1073**	**MS1071**	–

Support Blade Assembly



Left Hand Blade and Clamp Shown

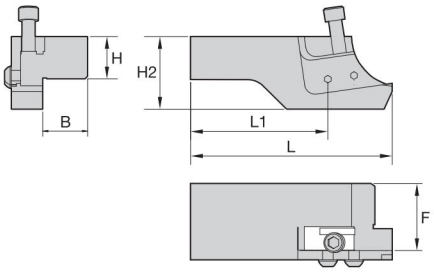


L1 Assy = L1 (holder) + L1 (blade)
F Assy = F (holder) + FS (blade) + W/2

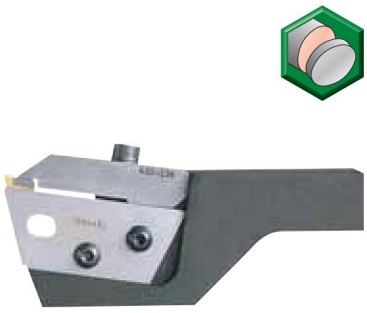
25mm and 32mm Shank Blades

order number	catalogue number	W	CD	FS	L	L1	clamp
right hand							
3563591	**331117**	2,50	12,70	2,39	36,03	29,60	**435142**
3539504	**331101**	3,00	20,64	1,98	43,80	37,63	**435128**
3539508	**331109**	4,00	20,64	1,98	43,80	37,63	**435128**
left hand							
3539510	**331118**	2,50	12,70	2,39	36,03	29,60	**435143**
3539505	**331102**	3,00	20,64	1,98	43,80	37,63	**435129**
3539509	**331110**	4,00	20,64	1,98	43,80	37,63	**435129**

NOTE: Clamps do not ship with blades. Order clamps separately.



Left Hand Tool


Right Hand Tool

Universal Style Toolholder • 56mm Bar Capacity

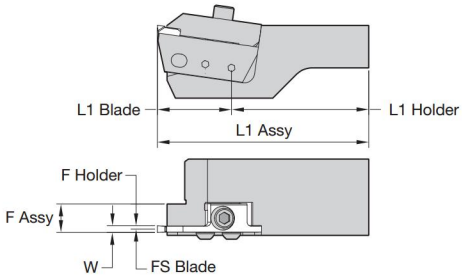
order number	catalogue number	B	H	H2	F	L1	L	clamp screw
right hand								
3614289	**206408**	26,97	25,00	43,66	40,16	105,46	144,14	**MS1294**

NOTE: Support blade requires two screws.
Order blades separately.

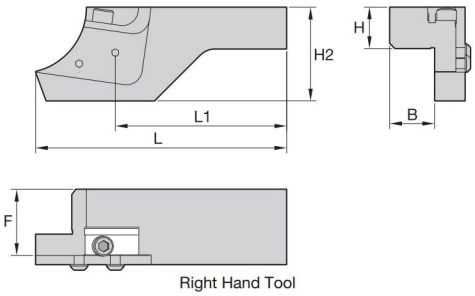
Components

W	L1	FS	left hand clamp for 206410	left hand clamp for 206442	support blade	right hand clamp for 206441	right hand clamp for 206408
2.5	44,50	0,91	**435149**	**435151**	**310109**	**435150**	**435148**
3.0	44,50	1,27	**435104**	**435110**	**310102**	**435116**	**435101**
4.0	44,50	1,84	**435105**	**435109**	**310108**	**435117**	**435102**

NOTE: All components ship separately.



L1 Assy = L1 (holder) + L1 (blade)
F Assy = F (holder) + FS (blade) + W/2



Right Hand Tool

Universal Style Toolholder • 76mm Bar Capacity

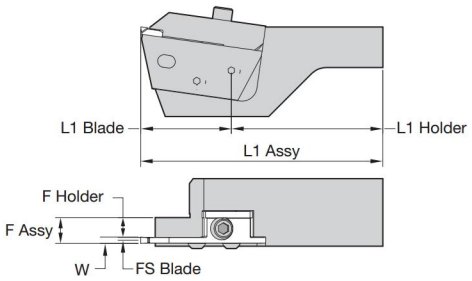
order number	catalogue number	B	H	H2	F	L1	L	support blade screw	clamp screw
right hand									
3538739	**206411**	27,00	25,00	56,36	39,78	102,96	150,85	**MS1072**	**MS352**
3615306	**206443**	27,00	32,00	56,36	39,78	102,96	150,85	**MS1072**	**MS1294**

NOTE: Support blade requires two screws.
Order blades separately.

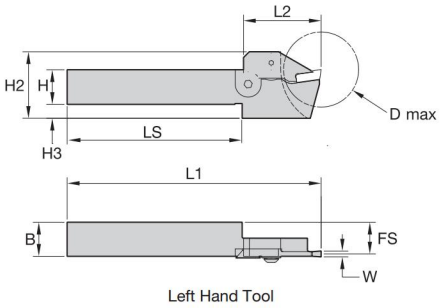
Components

W	L1	FS	left hand clamp	support blade	right hand clamp
3.0	57,05	1,27	**435137**	**309111**	**435136**
4.0	57,05	1,84	**435106**	**309105**	**435103**

NOTE: All components ship separately.



L1 Assy = L1 (holder) + L1 (blade)
F Assy = F (holder) + FS (blade) + W/2



Left Hand Tool

Sub-Spindle




order number	catalogue number	W	D max	B	FS	H	H2	H3	L1	LS	L2	button-head cap screw	clamp	flat-head cap screw	washer
right hand															
3538766	**206506**	3,00	66,70	24,76	23,50	25,00	44,45	9,52	150,00	89,05	60,31	**MS518**	**409182**	**606243**	**613139**
left hand															
3538769	**206509**	2,50	42,00	19,75	18,80	20,00	37,65	7,62	140,00	96,57	42,66	**MS518**	**409185**	**606244**	**613139**
3538767	**206507**	3,00	66,70	24,76	23,50	25,00	44,45	9,52	150,00	89,05	60,32	**MS518**	**409183**	**606243**	**613139**

WIDIA™ Victory™ High-Temp Turning

The new -FS and -MS geometries from WIDIA are specifically designed for use in high-temperature alloys, nickel-based (INCONEL®, Udimet®, Rene) materials, cobalt-based (Haynes®), Fe-based (Airmet 100) materials, titanium and titanium alloys, as well as difficult-to-machine stainless (460SS, duplex, high-alloy stainless), cobalt-chrome, and stainless-based powdered metals.

..GG-FS Geometry

- All ..GG-FS 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 utilising the higher speed capability provided by the latest in PVD coating technology and optimised post-coat treatment.
- Achieve better tool life through the high positive rake angle which reduces cutting forces and built-up edge.

..MG-MS 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 near sharp cutting edge with optimised edge treatment.
- Improved chipbreaking at various depths of cut due to variable land width, which improves impact strength.
- All MG-MS inserts are moulded, which supports increased tool life due to the elimination of grinding stress.

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

WIDIA VICTORY

Definitions and Guidelines

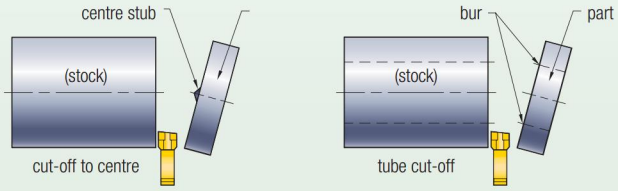
1. Width of cut (W) = width of the insert.
2. Lead angle = 0° (neutral); 4°, 5°, 12°, 18° (RH or LH).

Reduce bur of cut-off faces:

- Use lead angle-type inserts (Figures 1 and 2). Lead angle on a cut-off insert reduces the bur that remains on the part but decreases tool life and increases tool side deflection and possibly cycle time.

Figure 1

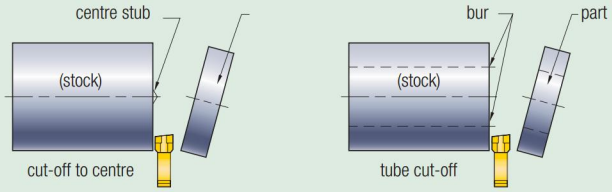
Insert selection **left-hand lead**



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

Figure 2

Insert selection **right-hand lead**

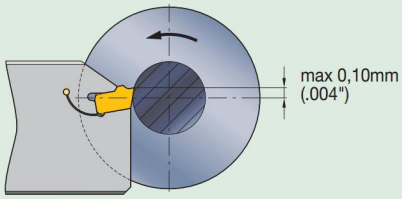


Right-hand lead insert leaves centre stub or bur on stock and produces clean part surface.

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

Figure 3

Above centre



- If 0° lead angle is mandatory, use the narrowest possible cut-off insert and blade. This will minimise the centre stub or cut-off bur length. Decrease the feed rate to maximum 0,05mm or less at the point where diameter equals insert width.
- On tubing-type parts that require a chamfer on the I.D., align I.D. chamfer tool with cut-off surface. This will enable the chamfering operation to actually separate the part from the bar (see Figure 4). Note the part may drop onto the chamfering bar, which, in this case, will act like a catcher for the part.

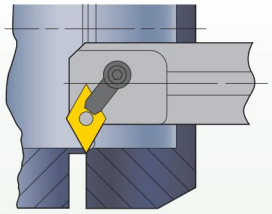


Figure 4

Internal chamfer line up

Improve surface finish of cut-off faces:

- Use insert with 0° lead angle.
- Increase coolant flow or improve application technique, as shown in Figure 5.
- Decrease the feed rate near the break-through point of the cut.
- Check that the grooving tool is set at the correct angle.
- Use blades with the greatest possible face height and smallest possible cutting width.
- Increase the speed.

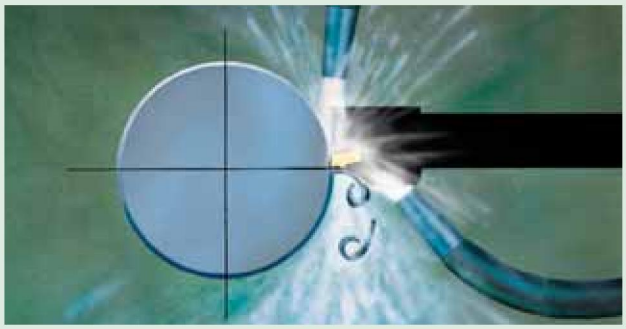


Figure 5

Preferred method for applying coolant

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

Improve chip control:

- Adjust feed rate up or down to accommodate chip formation.
- Use a 0° or smallest lead available.
- Use ample amounts of well-directed coolant (see Figure A).
- Maintain sharp cutting edge and corners.

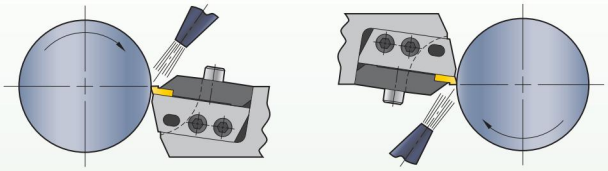
Improve flatness of cut-off surfaces:

- Maintain 90° position (perpendicular alignment) between cut-off tool and workpiece.
- For low to moderate speed (sfpm), use Separator F².
- For moderate to high speed (sfpm), use Separator S² or X².
- Use strongest toolholder system possible.
- Use 0° lead angle inserts when possible. If lead angle inserts are needed, reduce the feed 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 (RPM).
- Use ample amounts of well-directed coolant (see Figure A).
- Maintain proper tool centre height 0–0,1mm above centre (see Figure B).

Improve surface finish:

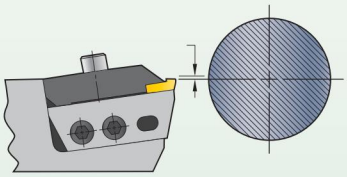
- For low to moderate speed (sfpm), use Separator F².
- For moderate to high speed (sfpm), use Separator S² or X².
- Avoid overly aggressive chip control.
- Increase speed.
- Reduce lead angle and feed rate.
- Determine if corner radius is too large or small.
- Use a coated grade.
- Use coolant (see Figure A).

Figure A



Coolant on cut-off tool | Preferred method of applying coolant

Figure B



Minimise edge chipping:

- Check to see if tool is significantly above or below centre.
- Reduce feed prior to part drop-off.
- Use Separator S² or X².
- Choose the proper speed associated with the insert grade used.
- Call Technical Support to see if a larger hone size is needed.
- Eliminate chatter.
- Avoid chip re-cutting.
- Check for these part and machine problems:
  - Slide is loose.
  - Slide travel is irregular.
  - Bar/tube I.D. and/or O.D. is out of round.
  - Bar/tube is bent.
  - Thin wall collapses (deforms) in the cut.
  - Part is unstable.
  - Cut-off through unturned stock.
  - Excessive tool overhang.
  - Bent or partly attached flash ring.

(continued)

(continued)

Eliminate chatter:

- Minimise tool blade and holder overhang.
- Minimise part overhang.
- Use strongest toolholder system.
- Use a more narrow width of insert.
- Chipbreaker 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 centre.
- Avoid machine dwell.
- Use S^2 or X^2 to reduce cutting forces.

Reduce cut-off nib on solid bar or I.D. bur on tubing:

- Check tool height. Insert cutting edge should be on centre to 0,05mm above centreline 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-side deflection.
- Use the narrowest possible cut-off insert to minimise the cut-off bur length.
- Reduce feed rate at the end of a cut.
- On most tubing-type parts, a 4° or 5° lead angle will be sufficient.
- Add support to a long slender-type part.
- Maintain proper sub-spindle alignment.
- If nib or bur persists, call Technical Support about reducing hone size.
- Use small- or no-corner radius.

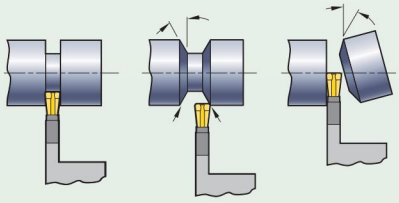
Eliminate built-up edge:

- Select proper grade for insert.
- Increase speed (RPM).
- Increase the feed rate.
- Use ample amounts of well-directed coolant (see Figure A on page E131).

Chamfer and cut-off operations:

- Use Separator S^2 or X^2.
- Groove or breakdown workpiece surface being machined.
- Machine the chamfer.
- For jobs requiring a chamfer on both ends of the part, begin by plunging to a depth just beyond the depth of the chamfers. Then, return to the part O.D. and profile each chamfer individually. Finish the cut-off after completion of the second chamfer.
- Cut off the workpiece (see Figure C).

Figure C



Modifications for Increased Depth of Cut

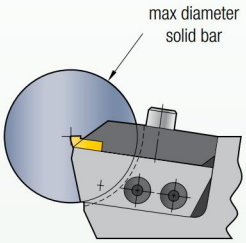


Figure 1
Standard bar capacity shown

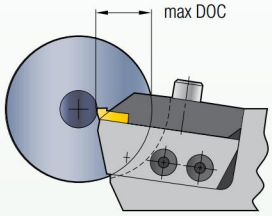


Figure 2
Larger bar diameter shown

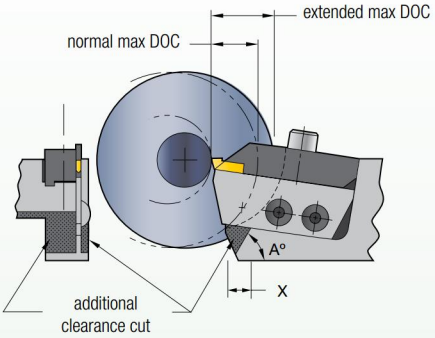


Figure 3
Modified toolholder with larger bar diameter shown

Capacity Chart for 57,15mm Diameter Bar Capacity Tooling								
bar diameter	63,50	76,20	88,90	101,60	114,30	127,00	152,40	**NOTE**
max DOC	23,88	19,05	15,75	14,22	12,70	11,94	11,18	**with no modification on toolholder**
	28,45	26,16	24,64	24,64	22,10	21,34	19,81	**with no modification on toolholder X = 10,16mm A = 1270mm**

Capacity Chart for 76,2mm Diameter Bar Capacity Tooling						
bar diameter	88,90	101,60	114,30	127,00	152,40	**NOTE**
max DOC	28,45	25,40	22,35	19,81	17,53	**with no modification on toolholder**
	36,58	34,80	33,27	31,75	28,45	**with no modification on toolholder X = 10,16mm A = 1270mm**