ADVANCES 2012

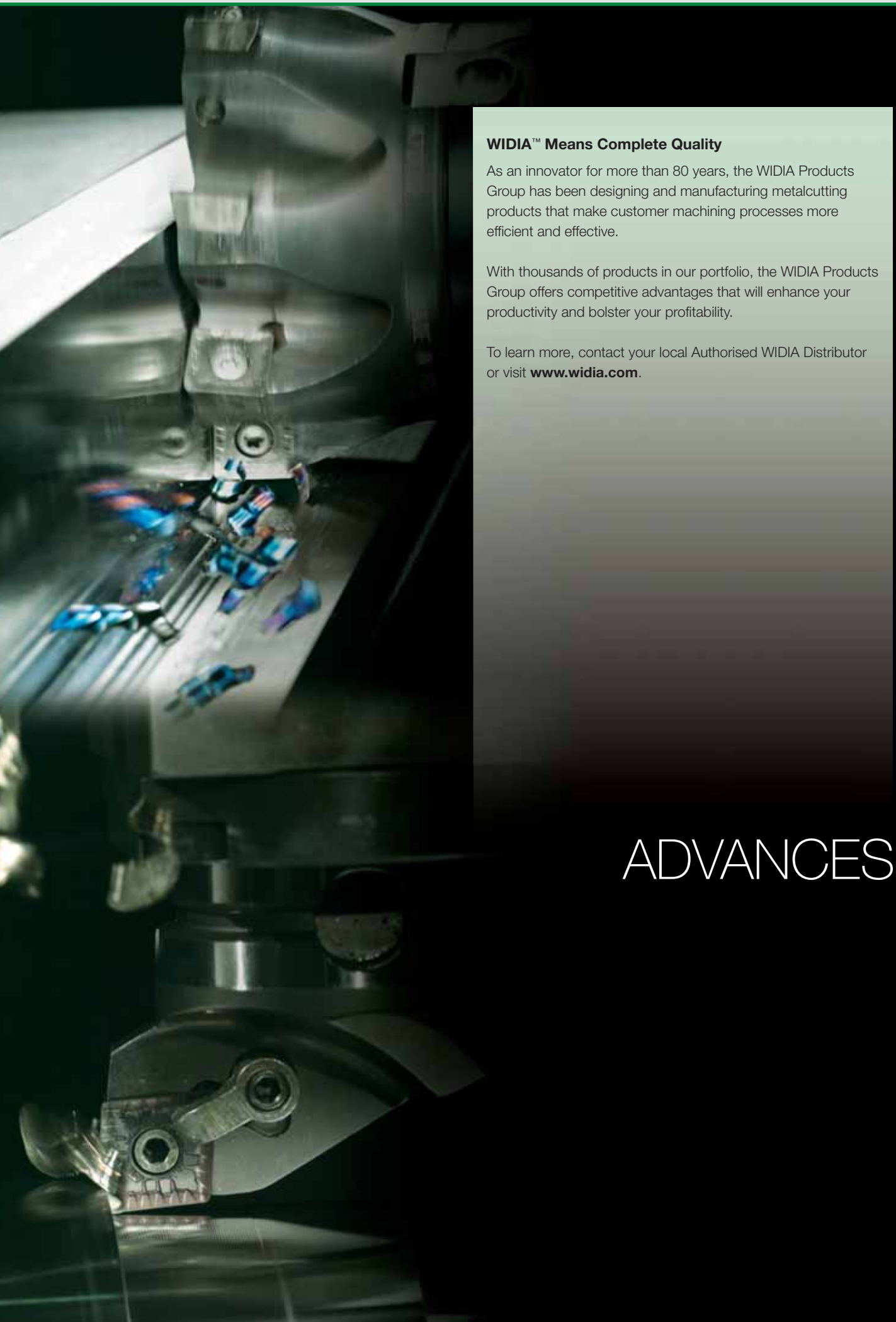
ADVANCES 2012

TAPPING & HOLEMAKING | INDEXABLE MILLING | SOLID END MILLING | TURNING | TOOLING SYSTEMS

WIDIA™

Metric

WIDIA™



WIDIA™ Means Complete Quality

As an innovator for more than 80 years, the WIDIA Products Group has been designing and manufacturing metalcutting products that make customer machining processes more efficient and effective.

With thousands of products in our portfolio, the WIDIA Products Group offers competitive advantages that will enhance your productivity and bolster your profitability.

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

ADVANCES

WIDIA

Advances

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WIDIA™ means complete quality

When you buy products from the WIDIA family of brands, you're not just buying speed, power, and precision — you're buying complete quality.

The WIDIA Products Group brands offer the most complete portfolio of precision-engineered products and custom solution services available today. With more than 14.000 turning, milling, and holemaking products in our portfolio and a skilled network of Authorised Distributor partners, you'll find everything you need from one single source.

80+ Years of Quality

1925
Application to register "WIDIA" as a trademark

1926
Tungsten carbide production begins

1930
WIDIA wins the Grand Prix at the world exposition EXPO in Liege

1962
First patent granted for coated carbide inserts

1968
Launch of first global coated grade

1987
Launch of the Widaflex™ tooling system for turning, holemaking, and milling

2000
QS 9000 TES and VDA 6.4 certification for the WIDIA operations in Essen and Lichtenau

2006
WIDIA celebrates 80 years

2009
Launch of the TN5100 and TN7100 Series grades for turning

Technical expertise
you can count on

WIDIA™ brand cutting tools are available exclusively through a specialised network of Authorised Distributor partners whom you can count on to deliver much more than products.

They will show you how to:

- Achieve measurable productivity improvements.
- Significantly reduce cycle time.
- Improve machine tool utilisation.
- Take advantage of proven supply chain solutions.
- Access local inventory and best-in-class technical support.
- Request onsite demonstrations of the latest tooling technology.

The most powerful
family of brands in the industry

The WIDIA family of brands is well served by a global network of the finest Authorised Distributors in the industry, selected for their specialised expertise in the areas of:

Turning, Holemaking, Indexable Milling, and Tooling Systems

WIDIA™ | WIDIA™ MANCHESTER™ | WIDIA™ CLAPPDICO™ | WIDIA™ CIRCLE™

Solid Carbide End Milling and Solid Carbide Drilling and Reaming

WIDIA™ HANITA™ | WIDIA™ RÜBIG™

Tapping Operations

WIDIA™ GTD™

Easy to order

Finding the right WIDIA™ products for your machining applications has never been easier. Our engineers and Authorised Distributor partners are experts in high-performance machining. They will work with you to determine the correct product for your application, then order, ship, and deliver the product with the attention to customer service you would expect from a world-leading brand.

Supply chain services

Whether your manufacturing enterprise involves batch processes or mass production, or your metalcutting machines are organised in lines, cells, or as standalone units, our supply chain services program will eliminate unnecessary overhead, ensure tooling availability, shorten setup times, and minimise costs by 30–90%.

In fact, our solutions often quickly pay for themselves by delivering savings that well exceed your annual spending on cutting tools and supplies.

Global manufacturing

WIDIA products are developed and manufactured at our Centers of Manufacturing Excellence in

- Essen, Germany
- Lichtenau, Germany
- Nabburg, Germany
- Johnson City, Tennessee, USA
- New Market, Virginia, USA
- Orwell, Ohio, USA
- Solon, Ohio, USA
- Bangalore, India
- Shlomi, Israel

Robust training programs

As a WIDIA™ customer, you can gain access to our exclusive online training program, where you'll find dozens of training courses on our newest products and services.

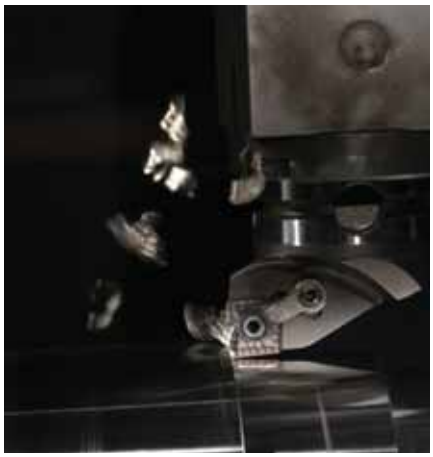
On the web

Visit our website to read up-to-the-minute information about new products, download electronic copies of product literature, and see a list of industry events in which we are participating. Visit www.widia.com and use the Distributor Finder to locate the Authorised Distributor nearest you.

When you think speed, power, and precision, think complete quality — think WIDIA.

To find the Authorised WIDIA Distributor nearest you, use the Distributor Finder at **www.widia.com**.

Solutions for
Holemaking, Milling, Turning, and Tooling Systems



We are dedicated to designing and developing holemaking, milling, turning, and tooling systems solutions for demanding operations and focused manufacturing. Our factory engineers, production experts, and field application engineers are available to work with you to design solutions to provide maximum productivity and throughput.

Unique advantages, such as in-house PVD high-quality coating facilities (TiN, TiCN, TiAlN, AlTiN, Z-coat), a wide range of raw materials (HSS, HSS-E, HSS-Powder; Solid Carbide, Brazed Carbide), and capabilities for a wide range of diameters 0,25–75mm, position WIDIA™ as the preferred brand for high-quality, application-specific tools.

We specialise in designing and manufacturing blueprint specials in the following tool styles:

- Complex geometries
- Toolholders and boring bars
- Form tools
- Modified standards
- Superabrasives (PCD and CBN)
- Tooling and inserts for:
  - Bar peeling
  - Heavy-duty turning
  - Railway wheel machining

Environmental responsibility

We are deeply committed to offering environmentally responsible products that deliver high performance and proven value. With decades of experience in tooling and manufacturing, combined with the synergy of superior engineering, we offer customers some of the most effective opportunities for sustainable manufacturing in the industry.

Sustainable engineering

Leading the way with innovation, engineering, and service in standard and custom tooling. A proven methodology and partnership.

Successful project engineering requires planning, teamwork, and disciplined execution. Through our extensive experience in developing and implementing new project engineering strategies, we have pioneered a proven methodology to help you manufacture new products and bring them to market quickly. Service deliverables are carefully outlined and jointly agreed to before the project begins. We formally evaluate progress and results with you throughout the project through our stage-gate management systems.

With our best-in-class process, you'll experience accelerated time to market, lower overall costs, and reduced risks to implement new technologies.

Vendor of choice

We serve every major industrial market throughout the world and are a brand of choice in the most demanding industries, including aerospace, die and mould, automotive, heavy equipment, medical, and general engineering. Throughout our more than 80-year history, we have achieved a reputation for providing our customers with a constant flow of new and unique products and services, specially designed for maximum efficiency and performance. We have enabled customers to become more competitive and more profitable in their own industries, producing parts in less time, with fewer tool changes and longer tool life.

We are committed to providing you with tools and services that deliver the ultimate in customer satisfaction, and we are pleased to feature some of our latest breakthroughs in this catalogue. For more information about how these products can impact your bottom line, please contact your local Authorised WIDIA™ Distributor today.

Greenfield Tap & Die

The brand name you've trusted since 1872 is now...

Greenfield Tap & Die, now WIDIA-GTD™, has been supplying the highest quality taps, dies, and gages to the industry for more than 139 years. From premium raw materials, put through a stringent ISO-certified production process, to carefully inspected, packaged, and shipped tools, WIDIA-GTD has consistently delivered quality products and services to you, our customer. Always committed to innovation, WIDIA-GTD continues to focus on developing products that enable you to achieve better production at lower costs.

139+ Years of Reliable Quality

1872
Wiley & Russell started to produce taps

1912
Greenfield Tap & Die (GTD) is formed

1915
GTD GUN™ tap patented

1982
Launched first PVD TiN coated taps (VTD)

1991
Greenfield acquires VTD and Lyndonville plant

A PRODUCT OF KENNAMETAL INC.

WIDIA-GTD™

2005
Launched new generation HP carbide tap line (GX series)

2011
WIDIA-GTD launches the new GT series of HP HSS-E-PM taps

1993
EM series tap launched

2010
GTD brand becomes part of WIDIA™ Products Group

WIDIA™ GTD™

WIDIA™
GTD™

Holemaking

High-Performance Taps **A4–A77**

Solid Carbide Taps • GX Series A6–A29

HSS-E-PM Taps • GT Series A30–A77

High-Performance Thread Mills • GTM Series **A78–A99**

Technical Information **A102–A120**

Solid Carbide Drills **A122–A203**

VariDrill A122–A154

TOP DRILL S for Steel and Cast Iron A156–A178

TOP DRILL S+ A180–A184

TOP DRILL G for Non-Ferrous Materials A186–A203

Spade Blades **A206–A212**

New Products

Our latest metalcutting advances are designed to deliver higher productivity, longer tool life, and increased application versatility compared with your current tooling.

VICTORY

Victory™ GX Series Taps

- Our best-performing, high-precision solid carbide taps.
- Run up to 4x faster and last up to 4x longer than conventional high-speed steel taps.
- Precision design delivers more accurately tapped holes.
- Cutting taps can be factory reconditioned to original patented specifications and tolerances.

VICTORY

Victory GT Series Taps

- New generation of high-performance, high-speed steel powdered-metal taps for material-specific tapping applications.
- Optimum combination of grades, geometries, and coatings to deliver higher quality threads and longer tool life.
- Boost your productivity with our unique, highly wear-resistant powdered-metal substrate, modified with a higher than standard cobalt content for greater heat resistance.

For more information about the latest products and services from WIDIA, please contact your WIDIA Representative or Authorised WIDIA Distributor, or visit www.widia.com.

VICTORY

Victory™ GT Series Wind Taps

- New high-performance, large-sized HSS-E-PM taps.
- Developed for manufacturing important wind turbine components like hubs, rings, and gearbox housing.
- For both conventional non-rigid and CNC-synchronous tapping machines.
- Can be used with precision round- or square-drive toolholders.
- An extra-long version is also available.

VICTORY

Victory GTM Series Thread Mills

- The new high-performance solid thread mills program is designed for maximum performance and reliability.
- Internal or external thread on 3-axis CNC machining.
- Produce thread on broad range of materials up to 63 HRC.
- GTM31 and GTM41 can drill the hole, countersink the hole, and cut the thread all at the same time, resulting in shorter cycle time and fewer tool changes.
- Short chips enable better evacuation and secure performance.

High-Performance Solid Carbide Taps

Solid carbide taps for high productivity and outstanding performance in a wide range of workpiece materials.

WIDIA-GTD™

- High-performance to surpass competitive taps.
- More production from a single tool.
- Available in various specifications.

Advanced WIDIA™ Technology

- Manufactured with ultra-fine-grain micrograin carbide for exceptional wear life.
- Ideal for long production runs where fewer tool changes mean greater productivity.
- Designed for outstanding tool life in cast iron, aluminium, and hardened materials.

Features

- Runs 5x faster and lasts 4x longer than conventional taps.
- Enhanced tap precision and design.
- Tap runout less than 10 microns (.0004").
- PVD nanolayer TiAlN/TiN coated carbide grade.
- Custom solutions available upon request.

Benefits

- Superior accuracy of product thread.
- Excellent thread quality and tap performance.
- High edge strength and wear resistance.
- Maximum chip control and free cutting in through holes.
- Can be factory reconditioned to original specifications and tolerances.

Application Information

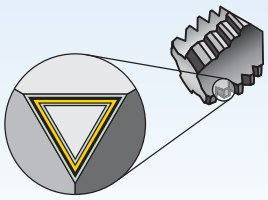
- For use on CNC machines with synchronous or rigid tapping control and precision toolholders.
- Straight-flute taps for sizes M16 and larger for ductile or cast iron.
- Use with turning centers equipped with precise and rigid hydraulic, shrink fit, or precision collet toolholders.

Victory™ GX Series HP Solid Carbide Taps and Solid Carbide Forming Taps • Metric

★ Good
★★ Better
★★★ Best

GX Series High-Performance Solid Carbide Taps	series	size min - max (size range (inch and metric))	hole	chamfer form	coolant	grade	shank
	GX32	M6 - M16				GP4535	6535 HA
	GX33	M6 - M16				GP4535	6535 HA
	GX34	M4 - M20				GP4535	6535 HA
	GX35	M4 - M16				GP4535	6535 HA
	GX46	M6 - M16				GN1515	6535 HA
	GX47	M6 - M16				GN1515	6535 HA
	GX10	M3 - M16				WH16PG	DIN 371,374,376
GX Series High-Performance Solid Carbide Forming Taps							
	GX38	M4 - M10				GP4535	6535 HA
	GX48	M4 - M12				GN1515	6535 HA
	GX39	M4 - M10				GP4535	6535 HA
	GX49	M4 - M12				GN1515	6535 HA

P				M	K		N			S				H			
1, 2, 3, 4, 6, 7	5, 9, 10, 11	12, 13.1	13.2	14.1, 14.2, 14.3, 14.4	15, 16, 17, 18, 19	20	21	22, 23, 24, 25	26, 27, 28	31, 32	33, 34, 35	36	37	38.1, 38.2, 40.1, 40.2, 41.1	39.1, 41.2		
Steel <35 HRC	Steel 36–48 HRC	PH & Ferriitic Stainless Steel <35 HRC	PH & Ferriitic Stainless Steel >35 HRC	Stainless Steel	Cast Iron		Wrought Aluminium	Cast Aluminium	Copper, Copper Alloys	Iron Based	Cobalt Based	Nickel Based	Titanium & Alloys	Hardened Steel 49–55 HRC	Hardened Steel 56–68 HRC	Page	Recommended Cutting Parameters
★★★					★	★										A12	A23
★★★					★	★										A13	A23
					★★★	★★★										A14	A23
					★★★	★★★										A15	A23
								★★★								A18	A23
								★★★								A19	A23
															★★★	A22	A23
★★★																A16	A23
							★★★	★★								A20	A23
★★★																A17	A23
							★★★	★★								A21	A23



Coatings are designed for optimised tapping performance in specific materials.

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

wear resistance ⟷ toughness

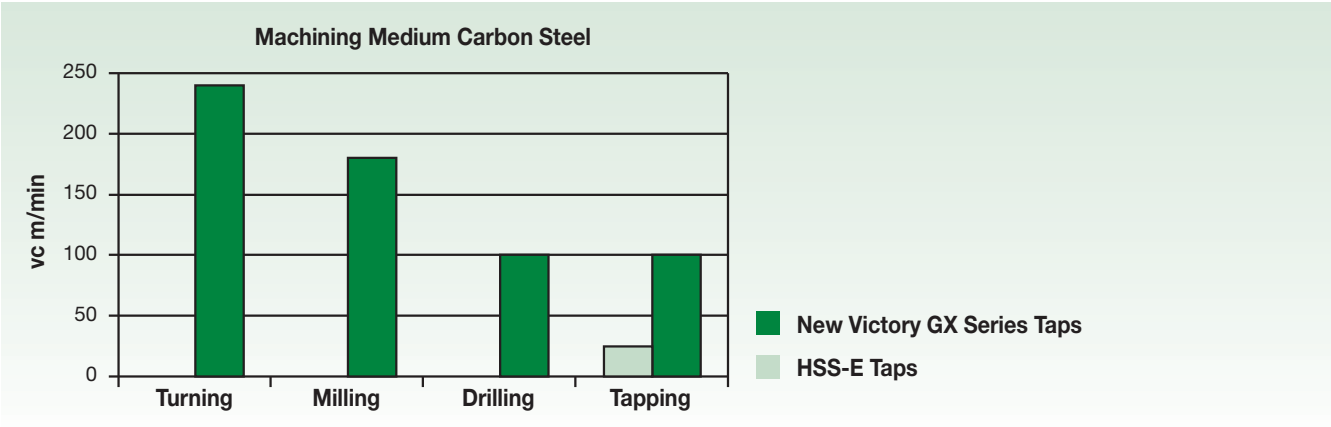
Coating	Grade Description	05	10	15	20	25	30	35	40	45
GP4535	Coated carbide, PVD multilayer coating with TiAlN and TiN over a high-strength carbide substrate specifically designed for tap application. Use in steel up to 32 HRC and cast iron at four times faster speeds than HSS-E-PM taps.	P, K	P, K	P, K						
GN1515	Coated carbide, PVD two-layer coating over fine-grain carbide. Coating consists of low-friction CrC/C over wear-resistant TiN. CrC/C resists galling of non-ferrous materials to the tap. Provides superior perfomance for tapping cast aluminium and other non-ferrous materials.	N	N	N						
NEW! WH16PG	Coated carbide, PVD two-layer coating with heat-resistant TiAlN base layer and low-friction MoS_2 top layer over carbide substrate. Use in hardened steel 55–63 HRC.	H			H	H	H			
NEW! GP6520	Coated HSS-E-PM, PVD heat- and wear-resistant high-vanadium cobalt powder metal HSS substrate coated with wear-resistant TiCN base layer. Use in steel, cast iron, and cast aluminium with silicon.	P, K			P	P, K	P, K	P, K		
NEW! WP31MG	Coated HSS-E-PM, PVD powder metal HSS-E substrate with TiN coating. Use for tapping steel 32–44 HRC and for forming threads in steel to 32 HRC.	P					P	P	P	
NEW! WH36MG	Coated HSS-E-PM, PVD powder metal HSS-E substrate coated with TiN base layer and low-friction MoS_2 top layer. Use in deep blind steel holes, 32–44 HRC.	P					P	P	P	
NEW! GM6515	Coated HSS-E-PM, PVD heat- and wear-resistant high-vanadium cobalt powder metal HSS substrate. Coating consists of low-friction CrC/C over wear-resistant TiN base layer. Use for tapping stainless steel and non-ferrous materials.	M, N			M	M, N	M, N	M, N		
NEW! WN38MG	Coated HSS-E-PM, PVD powder metal HSS-E substrate with DLC coating. Use for form tapping aluminium. Not recommended for steel.	N				N	N	N		
NEW! WN48EG	Coated HSS-E, PVD lower vanadium HSS-E substrate with DLC coating. Use for tapping non-ferrous materials with low cutting temperatures like wrought aluminium. Not recommended for steel.	N					N	N	N	
NEW! WN35MG	Coated HSS-E-PM, PVD powder metal HSS-E substrate with two-layer coating. TiN base layer and DLC top layer that resists galling of non-ferrous materials to the tap. Use for tapping titanium. Not recommended for steel.	S			S	S	S			
NEW! WS32MG	Coated HSS-E-PM, PVD heat- and wear-resistant high-vanadium cobalt powder metal HSS substrate with high-hardness TiCN coating. Use when tapping heat-treated steel 44–55 HRC and cobalt- or nickel-based heat-resistant alloys.	S, H		S, H	S, H	S, H				

WIN WITH WIDIA™

Victory™ GX HP Solid Carbide for the Ultimate High-Performance Tapping Line

Run up to 4x faster and last up to 4x longer than conventional high-speed steel taps.

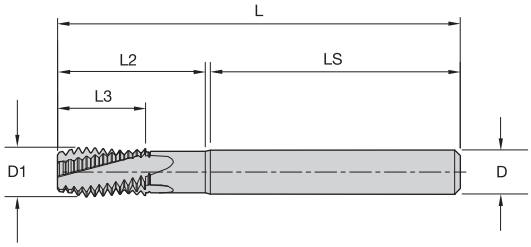
- Enhanced precision design delivers more accurately tapped holes.
- A full range of styles and grades for blind hole and through hole applications in ferrous and non-ferrous materials.
- After use, cutting taps can be factory reconditioned to original patented specifications and tolerances.



To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

WIDIA™

• GP4535 TiAlN + TiN for steel.

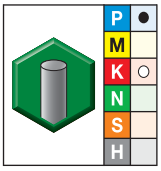


VICTORY

Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

■ GX32 • Form D Plug Chamfer • Metric

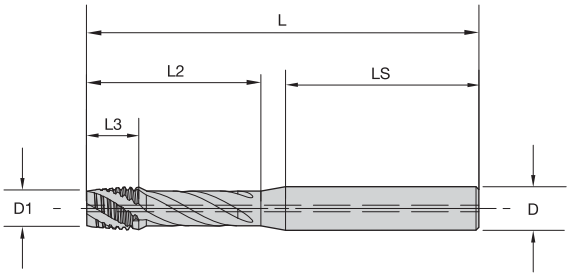


● first choice
○ alternate choice

GP4535	D1 size	L	L3	L2	LS	D	number of flutes	class of fit
12225	M6 X 1	70	12	23	43	6,0	3	6HX
12226	M8 X 1,25	80	15	28	47	8,0	3	6HX
12227	M10 X 1,5	90	18	33	51	10,0	4	6HX
12228	M12 X 1,75	100	21	40	54	12,0	4	6HX
12229	M14 X 2	110	24	47	61	12,0	4	6HX
12230	M16 X 2	110	24	53	55	14,0	4	6HX

Proprietary technology.

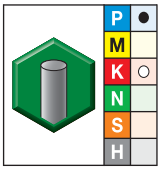
• GP4535 TiAlN + TiN for steel.



Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

■ GX33 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric

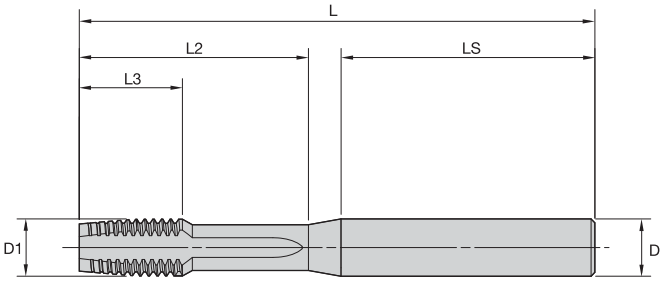


● first choice
○ alternate choice

GP4535	D1 size	L	L3	L2	LS	D	number of flutes	class of fit
12781	M6 X 1	70	8	24	42	6,0	3	6HX
12782	M8 X 1,25	80	10	32	43	8,0	3	6HX
12783	M10 X 1,5	90	12	40	44	10,0	4	6HX
12784	M10 X 1	90	12	40	44	10,0	4	6HX
12786	M12 X 1,5	100	14	48	46	12,0	4	6HX
12785	M12 X 1,75	100	14	48	46	12,0	4	6HX
12788	M14 X 1,5	110	16	56	52	12,0	4	6HX
12787	M14 X 2	110	16	56	52	12,0	4	6HX
12789	M16 X 2	110	16	64	44	14,0	4	6HX

Proprietary technology.

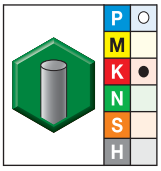
• GP4535 TiAlN + TiN for cast iron.



VICTORY

Shank Tolerance	
D	**Tolerance h6**
6	**+0, -0,008**
8–10	**+0, -0,009**
12–16	**+0, -0,011**

■ GX34 • Form D Plug Chamfer • Metric

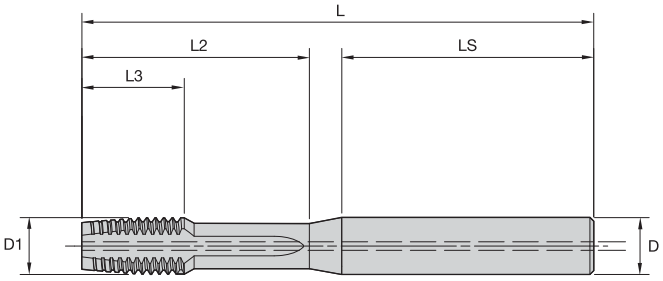


● first choice
○ alternate choice

GP4535	D1 size	L	L3	L2	LS	D	number of flutes	class of fit
12742	M4 X 0,7	60	6	16	36	6,0	3	6HX
12743	M5 X 0,8	60	7	20	34	6,0	3	6HX
12744	M6 X 1	70	12	23	43	6,0	4	6HX
12745	M8 X 1,25	80	15	28	47	8,0	4	6HX
12427	M10 X 1,5	90	18	33	51	10,0	4	6HX
12746	M10 X 1	90	18	33	51	10,0	4	6HX
12747	M12 X 1,5	100	21	40	54	12,0	4	6HX
12428	M12 X 1,75	100	21	40	54	12,0	4	6HX
12429	M14 X 2	110	24	47	61	12,0	4	6HX
12748	M14 X 1,5	110	24	47	61	12,0	4	6HX
12430	M16 X 2	110	24	53	55	14,0	4	6HX
12431	M18 X 2,5	125	30	59	62	16,0	5	6HX
12432	M20 X 2,5	140	30	66	—	18,0	5	6HX

Proprietary technology.

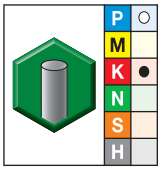
• GP4535 TiAlN + TiN for cast iron.



VICTORY

Shank Tolerance	
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

■ GX35 • Form E Bottoming Chamfer • Through Coolant M6 and Larger • Metric

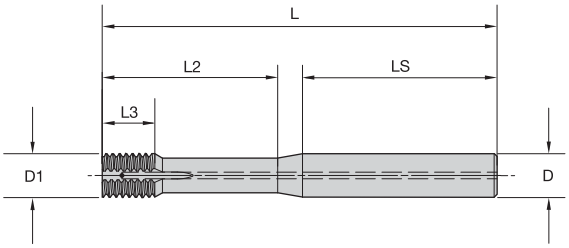


● first choice
○ alternate choice

GP4535	D1 size	L	L3	L2	LS	D	number of flutes	class of fit
12731	M4 X 0,7	60	6	16	36	6,0	3	6HX
12732	M5 X 0,8	60	7	20	34	6,0	3	6HX
12733	M6 X 1	70	12	23	43	6,0	4	6HX
12734	M8 X 1,25	80	15	28	47	8,0	4	6HX
12736	M10 X 1	90	18	33	51	10,0	4	6HX
12735	M10 X 1,5	90	18	33	51	10,0	4	6HX
12738	M12 X 1,5	100	21	40	54	12,0	4	6HX
12737	M12 X 1,75	100	21	40	54	12,0	4	6HX
12740	M14 X 1,5	110	24	47	61	12,0	4	6HX
12739	M14 X 2	110	24	47	61	12,0	4	6HX
12741	M16 X 2	110	24	53	55	14,0	4	6HX

Proprietary technology.

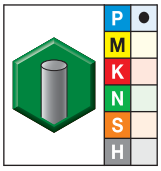
• GP4535 TiAlN + TiN for steel.



VICTORY

Shank Tolerance	
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

■ GX38 • Form D Plug Entry Taper • Through Coolant M6 and Larger • Metric

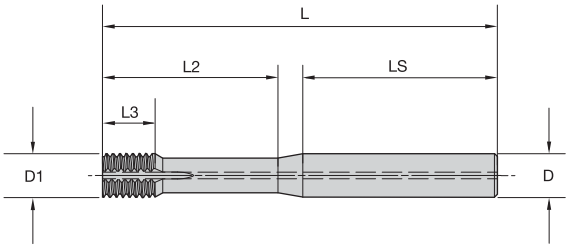


● first choice
○ alternate choice

GP4535	D1 size	L	L3	L2	LS	D	number of lube grooves	class of fit
12831	M4 X 0,7	60	6	16	36	6,0	2	6HX
12832	M5 X 0,8	60	7	20	34	6,0	2	6HX
12833	M6 X 1	70	8	24	42	6,0	2	6HX
12834	M8 X 1,25	80	10	32	43	8,0	2	6HX
12835	M10 X 1,5	90	12	40	44	10,0	3	6HX

Proprietary technology.
Form taps require a larger drilled hole size prior to tapping than corresponding cutting taps.

• GP4535 TiAlN + TiN for steel.

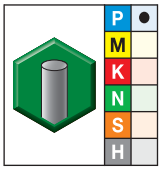


VICTORY

Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

■ GX39 • Form E Bottoming Entry Taper • Through Coolant M6 and Larger • Metric

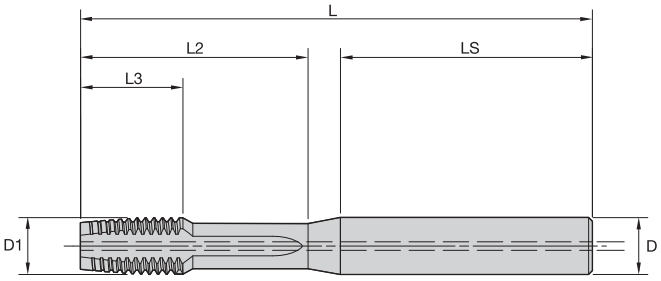


● first choice
○ alternate choice

GP4535	D1 size	L	L3	L2	LS	D	number of lube grooves	class of fit
12826	M4 X 0,7	60	6	16	36	6,0	2	6HX
12827	M5 X 0,8	60	7	20	34	6,0	2	6HX
12828	M6 X 1	70	8	24	42	6,0	2	6HX
12829	M8 X 1,25	80	10	32	43	8,0	2	6HX
12830	M10 X 1,5	90	12	40	44	10,0	3	6HX

Proprietary technology.
Form taps require a larger drilled hole size prior to tapping than corresponding cutting taps.

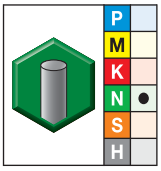
• GN1515 TiN + CrC/C for aluminium.



VICTORY

Shank Tolerance	
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

■ GX46 • Form D Plug Chamfer • Through Coolant M6 and Larger • Metric

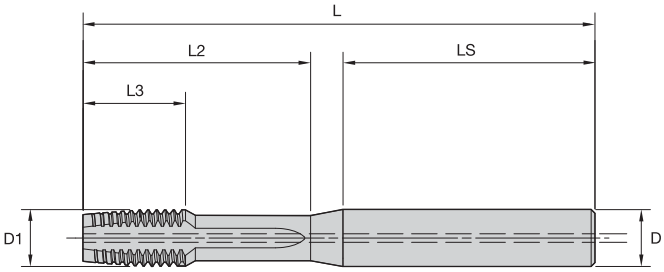


● first choice
○ alternate choice

GN1515	D1 size	L	L3	L2	LS	D	number of flutes	class of fit
12846	M6 X 1	70	12	24	42	6,0	3	6HX
12847	M8 X 1,25	80	15	32	43	8,0	3	6HX
12848	M10 X 1,5	90	18	40	44	10,0	3	6HX
12850	M10 X 1	90	18	40	44	10,0	3	6HX
12852	M12 X 1,5	100	21	48	46	12,0	3	6HX
12851	M12 X 1,75	100	21	48	46	12,0	3	6HX
12854	M14 X 1,5	110	24	56	52	12,0	4	6HX
12853	M14 X 2	110	24	56	52	12,0	4	6HX
12856	M16 X 1,5	110	24	64	44	14,0	4	6HX
12855	M16 X 2	110	24	64	44	14,0	4	6HX

Proprietary technology.

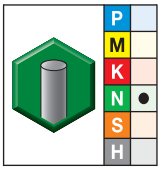
• GN1515 TiN + CrC/C for aluminium.



VICTORY

Shank Tolerance	
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

■ GX47 • Form E Bottoming Chamfer • Through Coolant M6 and Larger • Metric

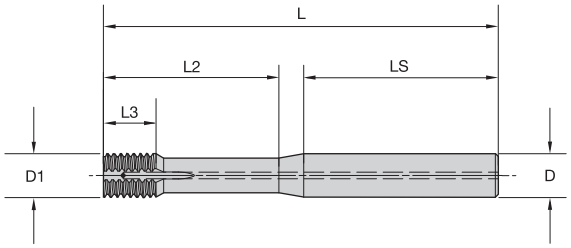


● first choice
○ alternate choice

GN1515	D1 size	L	L3	L2	LS	D	number of flutes	class of fit
12866	M6 X 1	70	12	24	42	6,0	3	6HX
12867	M8 X 1,25	80	15	32	43	8,0	3	6HX
12868	M10 X 1,5	90	18	40	44	10,0	3	6HX
12869	M10 X 1	90	18	40	44	10,0	3	6HX
12872	M12 X 1,5	100	21	48	46	12,0	3	6HX
12870	M12 X 1,75	100	21	48	46	12,0	3	6HX
12874	M14 X 1,5	110	24	56	52	12,0	4	6HX
12873	M14 X 2	110	24	56	52	12,0	4	6HX
12876	M16 X 1,5	110	24	64	44	14,0	4	6HX
12875	M16 X 2	110	24	64	44	14,0	4	6HX

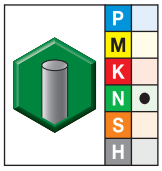
Proprietary technology.

• GN1515 TiN + CrC/C for aluminium.



Shank Tolerance	
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

■ GX48 • Form D Plug Entry Taper • Through Coolant M6 and Larger • Metric

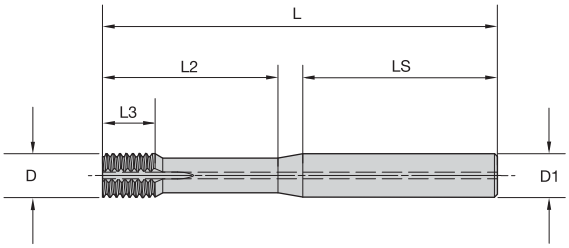


● first choice
○ alternate choice

GN1515	D1 size	L	L3	L2	LS	D	number of lube grooves	class of fit
12887	M4 X 0,7	60	6	16	36	6,0	2	6HX
12888	M5 X 0,8	60	7	20	34	6,0	2	6HX
12889	M6 X 1	70	8	24	42	6,0	2	6HX
12890	M8 X 1,25	80	10	32	43	8,0	2	6HX
12891	M10 X 1,5	90	12	40	44	10,0	3	6HX
12892	M10 X 1	90	12	40	44	10,0	3	6HX
12894	M12 X 1,5	100	14	48	46	12,0	3	6HX
12893	M12 X 1,75	100	14	48	46	12,0	3	6HX

Proprietary technology.
Form taps require a larger drilled hole size prior to tapping than corresponding cutting taps.

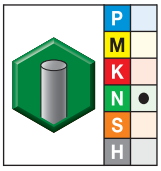
• GN1515 TiN + CrC/C for aluminium.



VICTORY

Shank Tolerance	
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

GX49 • Form E Bottoming Entry Taper • Through Coolant M6 and Larger • Metric

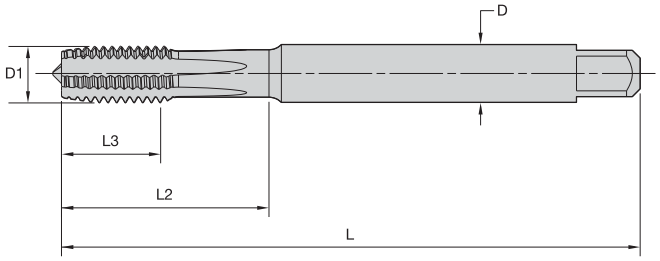


● first choice
○ alternate choice

GN1515	D1 size	L	L3	L2	LS	D	number of lube grooves	class of fit
12906	M4 X 0,7	60	6	16	36	6,0	2	6HX
12907	M5 X 0,8	60	7	20	34	6,0	2	6HX
12908	M6 X 1	70	8	24	42	6,0	2	6HX
12909	M8 X 1,25	80	10	32	43	8,0	2	6HX
12911	M10 X 1,5	90	12	40	44	10,0	3	6HX
12912	M10 X 1	90	12	40	44	10,0	3	6HX
12915	M12 X 1,5	100	14	48	46	12,0	3	6HX
12914	M12 X 1,75	100	14	48	46	12,0	3	6HX

Proprietary technology.
Form taps require a larger drilled hole size prior to tapping than corresponding cutting taps.

• WH16PG TiAlN/MoS_2 for steel 55–63 HRC.

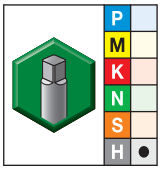


VICTORY

Shank Tolerance

D	tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

■ GX10 • Form C Semi-Bottoming Chamfer • Metric DIN 371, 374, and 376



● first choice
○ alternate choice

WH16PG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GX105001	M3 X 0,5	63	6	18	4,5	4	DIN 371	6HX
GX105002	M4 X 0,7	63	8	20	4,5	4	DIN 371	6HX
GX105003	M5 X 0,8	70	10	26	6,0	4	DIN 371	6HX
GX105004	M6 X 1	80	12	28	6,0	4	DIN 371	6HX
GX105009	M8 X 1	90	15	35	8,0	5	DIN 374	6HX
GX105005	M8 X 1,25	90	15	35	8,0	5	DIN 371	6HX
GX105010	M10 X 1	100	18	38	10,0	5	DIN 374	6HX
GX105006	M10 X 1,5	100	18	38	10,0	5	DIN 371	6HX
GX105011	M12 X 1,5	110	21	41	12,0	5	DIN 374	6HX
GX105007	M12 X 1,75	110	21	41	12,0	5	DIN 376	6HX
GX105012	M14 X 1,5	110	24	44	14,0	5	DIN 374	6HX
GX105008	M14 X 2	110	24	44	14,0	6	DIN 376	6HX
GX105013	M16 X 1,5	110	24	44	16,0	5	DIN 374	6HX

		Through Holes					Blind Holes				
				Range — m/min					Range — m/min		
	Group	Tap Style	Grade	min	Starting Value	max	Tap Style	Grade	min	Starting Value	max
P	1	GX32, GX38	GP4535	80	**100**	130	GX33, GX39	GP4535	50	**70**	90
	2	GX32, GX38	GP4535	70	**90**	120	GX33, GX39	GP4535	50	**60**	80
	3, 4, 6, 7	GX32, GX38	GP4535	60	**80**	100	GX33, GX39	GP4535	50	**60**	80
K	15,16	GX34	GP4535	80	**105**	140	GX35	GP4535	50	**70**	90
	17,18,19	GX34	GP4535	80	**100**	130	GX35	GP4535	50	**70**	90
	20	GX34	GP4535	70	**90**	120	GX35	GP4535	50	**60**	80
N	21	GX46, GX48	GN1515	90	**120**	160	GX47, GX49	GN1515	60	**80**	100
	22, 23, 24	GX46, GX48	GN1515	80	**100**	130	GX47, GX49	GN1515	50	**70**	90
	25	GX46, GX48	GN1515	70	**85**	110	GX47, GX49	GN1515	50	**60**	80
H	39.1, 41.2	GX10	WH16PG	1,2	**1,5**	2,0	GX10	WH16PG	0,8	**1,1**	1,4
	39.1	GX10	WH16PG	0,6	**0,8**	1,0	GX10	WH16PG	0,4	**0,5**	0,7

Steel

typical thread sizes				required tap drill diameter				P		
								Solid Carbide Taps		Solid Carbide Taps
cutting taps metric	cutting taps inch	forming taps metric	forming taps inch	mm	inch	fraction	wire	blind hole with coolant GX33_GP4535	through hole GX32_GP4535	forming blind hole with coolant GX39_GP4535
–	–	–	6-32	3,175	.1250	1/8	–	–	–	12801
M4,5 x 0,75	–	M4 x 0,70	–	3,700	.1457	–	–	–	–	12826
–	–	–	8-32	3,797	.1495	–	25	–	–	12802
–	–	–	10-24	4,366	.1719	11/64	–	–	–	12803
–	12-24	–	10-32	4,496	.1770	–	16	–	–	12804
–	–	M5 x 0,80	–	4,700	.1850	–	13	–	–	12827
M6 x 1,00	–	–	–	5,000	.1969	–	–	12781	12225	–
–	1/4-20	–	12-28	5,106	.2010	–	7	12761	12200	–
–	1/4-28	–	–	5,410	.2130	–	3	12762	12201	–
–	–	M6 x 1,00	–	5,600	.2205	–	–	–	–	12828
–	–	–	1/4-20	5,791	.2280	–	1	–	–	12805
–	–	–	1/4-28	5,944	.2340	–	A	–	–	12806
–	5/16-18	–	–	6,528	.2570	–	F	12763	12202	–
M8 x 1,25	–	–	–	6,700	.2638	–	–	12782	12226	–
–	5/16-24	–	–	6,909	.2720	–	I	–	12203	–
–	–	–	5/16-18	7,366	.2900	–	L	–	–	12807
–	–	M8 x 1,25	–	7,400	.2913	–	–	–	–	12829
–	3/8-16	–	–	7,938	.3125	5/16	–	12764	12204	–
–	3/8-24	–	–	8,433	.3320	–	Q	–	12205	–
M10 x 1,50	–	–	–	8,500	.3346	–	–	12783	12227	–
M10 x 1,00	–	–	–	9,000	.3543	–	–	12784	–	–
–	–	–	3/8-16	8,839	.3480	–	S	–	–	12808
–	7/16-14	–	3/8-24	9,093	.3580	–	T	12765	12206	–
–	–	M10 x 1,50	–	9,400	.3701	–	–	–	–	12830
M12 x 1,75	–	–	–	10,200	.4016	–	–	12785	12228	–
M12 x 1,50	–	–	–	10,500	.4134	–	–	12786		–
–	1/2-13	–	–	10,716	.4219	27/64	–	12766	12207	–
–	1/2-20	–	–	11,509	.4531	29/64	–	–	12208	–
M14 x 2,00	–	–	–	12,000	.4724	–	–	12787	12229	–
–	9/16-12	–	–	12,304	.4844	31/64	–	12767	12209	–
M14 x 1,50	–	–	–	12,500	.4921	–	–	12788		–
–	5/8-11	–	9/16-12	13,495	.5313	17/32	–	12768	12210	–
M16 x 2,00	–	–	–	14,000	.5512	–	–	12789	12230	–

P	P		All Materials	
Solid Carbide Taps	Recommended SC Drill		Alternate Tap Drill	
forming through hole with coolant GX38_GP4535	approximately 5 x D with coolant TDS402 WP20PD	approximately 5 x D non-coolant TDS202 WP20PD	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant VDS202A WU25PD
12809	TDS402A03175	TDS202A03175	VDS402A03175	VDS202A03175
12831	TDS402A03700	TDS202A03700	VDS402A03700	VDS202A03700
12810	TDS402A03797	TDS202A03797	VDS402A03797	VDS202A03797
12811	TDS402A04219	TDS202A04219	VDS402A04219	VDS202A04219
12812	TDS402A04496	TDS202A04496	VDS402A04496	VDS202A04496
12832	TDS402A04700	TDS202A04700	VDS402A04700	VDS202A04700
–	TDS402A05000	TDS202A05000	VDS402A05000	VDS202A05000
–	TDS402A05106	TDS202A05106	VDS402A05106	VDS202A05106
–	TDS402A05410	TDS202A05410	VDS402A05410	VDS202A05410
12833	TDS402A05600	TDS202A05600	VDS402A05600	VDS202A05600
12813	TDS402A05791	TDS202A05791	VDS402A05791	VDS202A05791
12814	TDS402A05944	TDS202A05944	VDS402A05944	VDS202A05944
–	TDS402A06528	TDS202A06528	VDS402A06528	VDS202A06528
–	TDS402A06700	TDS202A06700	VDS412A06700	VDS212A06700
–	TDS402A06906	TDS202A06906	VDS412A06906	VDS212A06906
12815	TDS402A07366	TDS202A07366	VDS412A07366	VDS212A07366
12834	TDS402A07400	TDS202A07400	VDS412A07400	VDS212A07400
–	TDS402A07938	TDS202A07938	VDS412A07938	VDS212A07938
–	TDS402A08433	TDS202A08433	VDS412A08433	VDS212A08433
–	TDS402A08500	TDS202A08500	VDS412A08500	VDS212A08500
–	TDS402A09000	TDS202A09000	VDS412A09000	VDS212A09000
12816	TDS402A08839	TDS202A08839	VDS412A08839	VDS212A08839
–	TDS402A09093	TDS202A09093	VDS412A09093	VDS212A09093
12835	TDS402A09400	TDS202A09400	VDS412A09400	VDS212A09400
–	TDS402A10200	TDS202A10200	VDS412A10200	VDS212A10200
–	TDS402A10500	TDS202A10500	VDS412A10500	VDS212A10500
–	TDS402A10716	TDS202A10716	VDS412A10716	VDS212A10716
–	TDS402A11509	TDS202A11509	VDS412A11509	VDS212A11509
–	TDS402A12000	TDS202A12000	VDS412A12000	VDS212A12000
–	TDS402A12304	TDS202A12304	VDS412A12304	VDS212A12304
–	TDS402A12500	TDS202A12500	VDS412A12500	VDS212A12500
–	TDS402A13495	TDS202A13495	VDS412A13495	VDS212A13495
–	TDS402A14000	TDS202A14000	VDS412A14000	VDS212A14000

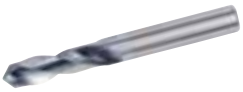
Cast Iron

typical thread sizes		required tap drill diameter				K		
						Solid Carbide Taps		Recommended SC Drill
cutting taps						blind hole with coolant	through hole	approximately 3 x D with coolant
metric	inch	mm	inch	fraction	wire	GX35_GP4535	GX34_GP4535	TDS411 WK15PD
–	6-32	2,705	.1065	–	36	12700	12713	TDS401A02705
M4 x 0,70	–	3,300	.1299	–	–	12731	12742	TDS401A03300
–	8-32 /8-36	3,454	.1360	–	29	12701	12714	TDS401A03454
–	10-24	3,734	.1470	–	26	12702	12715	TDS401A03734
–	10-32	4,039	.1590	–	21	12703	12716	TDS401A04039
M5 x 0,80	–	4,200	.1654	–	–	12732	12743	TDS401A04200
M6 x 1,00	–	5,000	.1969	–	–	12733	12744	TDS401A05000
–	1/4-20	5,106	.2010	–	7	12704	12717	TDS401A05106
–	1/4-28	5,410	.2130	–	3	12705	12718	TDS401A05410
–	5/16-18	6,528	.2570	–	F	12706	12719	TDS401A06528
M8 x 1,25	–	6,700	.2638	–	–	12734	12745	TDS411A06700
–	3/8-16	7,938	.3125	5/16	–	12707	12404	TDS411A07938
–	3/8-24	8,433	.3320	–	Q	–	12405	TDS411A08433
M10 x 1,50	–	8,500	.3346	–	–	12735	12427	TDS411A08500
M10 x 1,00	–	9,000	.3543	–	–	12736	12746	TDS411A09000
–	7/16-14	9,093	.3580	–	T	12708	12406	TDS411A09093
M12 x 1,75	–	10,200	.4016	–	–	12737	12428	TDS411A10200
M12 x 1,50	–	10,500	.4134	–	–	12738	12747	TDS411A10500
–	1/2-13	10,716	.4219	27/64	–	12709	12407	TDS411A10716
–	1/2-20	11,509	.4531	29/64	–	–	12408	TDS411A11509
M14 x 2,00	–	12,000	.4724	–	–	12739	12429	TDS411A12000
–	9/16-12	12,304	.4844	31/64	–	12710	12409	TDS411A12304
M14 x 1,50	–	12,500	.4921	–	–	12740	12748	TDS411A12500
–	5/8-11	13,495	.5313	17/32	–	12711	12410	TDS411A13495
M16 x 2,00	–	14,000	.5512	–	–	12741	12430	TDS411A14000
M18 x 2,50	–	15,500	.6102	–	–	–	12431	TDS411A15500
–	3/4-10	16,670	.6563	21/32	–	12712	12411	TDS411A16670
M20 x 2,50	–	17,500	.6890	–	–	–	12432	TDS411A17500

K		All Materials	
Recommended SC Drill		Alternate Tap Drill	
approximately 5 x D with coolant TDS412 WK15PD	approximately 5 x D non-coolant TDS212 WK15PD	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant VDS202A WU25PD
TDS402A02705	TDS212A02705	VDS402A02705	VDS202A02705
TDS402A03300	TDS212A03300	VDS402A03300	VDS202A03300
TDS402A03454	TDS212A03454	VDS402A03454	VDS202A03454
TDS402A03734	TDS212A03734	VDS402A03734	VDS202A03734
TDS402A04039	TDS212A04039	VDS402A04039	VDS202A04039
TDS402A04200	TDS212A04200	VDS402A04200	VDS202A04200
TDS402A05000	TDS212A05000	VDS402A05000	VDS202A05000
TDS402A05106	TDS212A05106	VDS402A05106	VDS202A05106
TDS402A05410	TDS212A05410	VDS402A05410	VDS202A05410
TDS402A06528	TDS212A06528	VDS402A06528	VDS202A06528
TDS412A06700	TDS212A06700	VDS412A06700	VDS212A06700
TDS412A07938	TDS212A07938	VDS412A07938	VDS212A07938
TDS412A08433	TDS212A08433	VDS412A08433	VDS212A08433
TDS412A08500	TDS212A08500	VDS412A08500	VDS212A08500
TDS412A09000	TDS212A09000	VDS412A09000	VDS212A09000
TDS412A09093	TDS212A09093	VDS412A09093	VDS212A09093
TDS412A10200	TDS212A10200	VDS412A10200	VDS212A10200
TDS412A10500	TDS212A10500	VDS412A10500	VDS212A10500
TDS412A10716	TDS212A10716	VDS412A10716	VDS212A10716
TDS412A11509	TDS212A11509	VDS412A11509	VDS212A11509
TDS412A12000	TDS212A12000	VDS412A12000	VDS212A12000
TDS412A12304	TDS212A12304	VDS412A12304	VDS212A12304
TDS412A12500	TDS212A12500	VDS412A12500	VDS212A12500
TDS412A13495	TDS212A13495	VDS412A13495	VDS212A13495
TDS412A14000	TDS212A14000	VDS412A14000	VDS212A14000
TDS412A15500	TDS212A15500	VDS412A15500	VDS212A15500
TDS412A16670	TDS212A16670	VDS412A16670	VDS212A16670
TDS412A17500	TDS212A17500	VDS412A17500	VDS212A17500

Aluminium

typical thread sizes				required tap drill diameter				N		
								Solid Carbide Taps		Solid Carbide Taps
cutting taps metric	cutting taps inch	forming taps metric	forming taps inch	mm	inch	fraction	wire	blind hole with coolant GX47_GN1515	through hole with coolant GX46_GN1515	forming blind hole with coolant GX49_GN1515
–	–	–	6-32	3,175	.1250	1/8	–	–	–	12895
M4,5 x 0,75	–	M4 x 0,70	–	3,700	.1457	–	–	–	–	12906
–	–	–	8-32	3,797	.1495	–	25	–	–	12896
–	–	–	10-24	4,366	.1719	11/64	–	–	–	12897
12-24	–	–	10-32	4,496	.1770	–	16	–	–	12898
–	–	M5 x 0,80	–	4,700	.1850	–	13	–	–	12907
M6 x 1,00	–	–	–	5,000	.1969	–	–	12866	12846	–
–	1/4-20	–	12-28	5,106	.2010	–	7	12858	12836	–
–	1/4-28	–	–	5,410	.2130	–	3	12859	12838	–
–	–	M6 x 1,00	–	5,600	.2205	–	–	–	–	12908
–	–	–	1/4-20	5,791	.2280	–	1	–	–	12899
–	–	–	1/4-28	5,944	.2340	–	A	–	–	12901
–	5/16-18	–	–	6,528	.2570	–	F	12860	12839	–
M8 x 1,25	–	–	–	6,700	.2638	–	–	12867	12847	–
–	–	–	5/16-18	7,366	.2900	–	L	–	–	12902
–	–	M8 x 1,25	–	7,400	.2913	–	–	–	–	12909
–	3/8-16	–	–	7,938	.3125	5/16	–	12861	12840	–
M10 x 1,50	–	–	–	8,500	.3346	–	–	12868	12848	–
M10 x 1,00	–	–	–	9,000	.3543	–	–	12869	12850	–
–	–	–	3/8-16	8,839	.3480	–	S	–	–	12903
7/16-14	–	–	3/8-24	9,093	.3580	–	T	12862	12841	–
–	–	M10 x 1,50	–	9,400	.3701	–	–	–	–	12911
M12 x 1,75	–	–	–	10,200	.4016	–	–	12870	12851	–
M12 x 1,50	–	–	–	10,500	.4134	–	–	12872	12852	–
–	1/2-13	–	–	10,716	.4219	27/64	–	12863	12843	–
M14 x 2,00	–	–	–	12,000	.4724	–	–	12873	12853	–
–	9/16-12	–	–	12,304	.4844	31/64	–	12864	12844	–
M14 x 1,50	–	–	–	12,500	.4921	–	–	12874	12854	–
–	5/8-11	–	9/16-12	13,495	.5313	17/32	–	12865	12845	–
M16 x 2,00	–	–	–	14,000	.5512	–	–	12875	12855	–
M16 x 1,50	–	–	–	14,500	.5709	–	–	12876	12856	–

	N		All Materials	
Solid Carbide Taps	Recommended SC Drill		Alternate Tap Drill	
				
forming through hole with coolant GX48_GN1515	approximately 3 x D with coolant WD 412522	approximately 5 x D with coolant WD 412527	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant VDS202A WU25PD
12877	TCM65903000	012535–00318	VDS402A03175	VDS202A03175
12887	TCM25903700	–	VDS402A03700	VDS202A03700
12878	–	–	VDS402A03797	VDS202A03797
12879	–	–	VDS402A04219	VDS202A04219
12880	–	–	VDS402A04496	VDS202A04496
12888	TCM25904700	–	VDS402A04700	VDS202A04700
–	TCM25909500	012535–00500	VDS402A05000	VDS202A05000
–	–	–	VDS402A05106	VDS202A05106
–	–	–	VDS402A05410	VDS202A05410
12889	TCM25905600	–	VDS402A05600	VDS202A05600
12881	–	–	VDS402A05791	VDS202A05791
12882	–	–	VDS402A05944	VDS202A05944
–	–	–	VDS402A06528	VDS202A06528
–	TCM25906700	–	VDS412A06700	VDS212A06700
12883	–	–	VDS412A07366	VDS212A07366
12890	TCM25907400	–	VDS412A07400	VDS212A07400
–	TCM65908000	012535–00793	VDS412A07938	VDS212A07938
–	TCM25908500	012535–00850	VDS412A08500	VDS212A08500
–	TCM25909000	012535–00900	VDS412A09000	VDS212A09000
12884	–	–	VDS412A08839	VDS212A08839
–	–	–	VDS412A09093	VDS212A09093
12891	TCM25909400	–	VDS412A09400	VDS212A09400
–	TCM25910200	012535–01020	VDS412A10200	VDS212A10200
–	TCM25910500	012535–01050	VDS412A10500	VDS212A10500
–	–	012535–01072	VDS412A10716	VDS212A10716
–	TCM25912000	012535–01200	VDS412A12000	VDS212A12000
–	TCM65912100	–	VDS412A12304	VDS212A12304
–	TCM25912500	012535–01250	VDS412A12500	VDS212A12500
–	–	–	VDS412A13495	VDS212A13495
–	TCM25914000	012535–01400	VDS412A14000	VDS212A14000
–	TCM25914500	012535–01450	VDS412A14500	VDS212A14500

High-Performance HSS-E-PM Taps

Our powdered metal taps deliver highly reliable threads and superior performance in blind and through hole applications. The HP HSS-E-PM is the optimum choice for customers looking for high productivity and long tool life in material-specific applications.

WIDIA-GTD™

- Enhanced design for reliable thread on different materials.
- More resistant to edge chipping than carbide.
- Better performance at high speeds.

Powdered Metal Taps

- Manufactured from high-speed steel and powder coated for thread forming and thread cutting in various applications.
- Offer performance advantages over other regular high-speed taps.
- Unmatched by competitive products.

Tap Functions

- High wear resistance and hot hardness without sacrificing edge strength.
- PVD multilayer coatings offer outstanding thermal stability, hot hardness, oxidation resistance, and low frictional coefficient.
- Spiral point feature pushes chips ahead in through holes.
- Chips stored in flutes or flushed out with straight flutes.
- Taps can be used in collet and hydraulic holders.
- Low runout of thread and chamfer.

Benefits

- Long tap life at up to 50% higher tapping speed.
- Excellent chip control.
- Greater thread strength.
- Exceptional thread quality and long life.

Victory™ GT Series HP HSS-E-PM Taps • DIN Metric

★ Good
★★ Better
★★★ Best

GT Series High-Performance HSS-E-PM Taps	series	size range (metric) size min - max	hole	chamfer form	coolant	grade	tap dimension
	GT00	M3 - M20	★	★	★	WP31MG	DIN 371,374,376
	GT02	M3 - M20	★	★	★	WP31MG	DIN 371,374,376
	GT04	M3 - M20	★	★	★	WH36MG	DIN 371,374,376
	GT06	M6 - M16	★ ★	★	★	WS32MG	DIN 371,374,376
	GT10	M3 - M20	★	★	★	WS32MG	DIN 371,374,376
	GT12	M3 - M20	★	★	★	WS32MG	DIN 371,374,376
	GT14	M3 - M12	★	★	★	WN35MG	DIN 371,376
	GT16	M3 - M12	★	★	★	WN35MG	DIN 371
	GT20	M3 - M42	★	★	★	GP6520	DIN 371,374,376,XL
	GT20	M3 - M20	★	★	★	GM6515	DIN 371,374,376
	GT21	M5 - M14	★	★	★	GP6520	DIN 371,376
	GT21	M5 - M14	★	★	★	GM6515	DIN 371,376
	GT22	M3 - M16	★ ★	★	★	WP31MG	DIN 371,374,376
	GT22	M3 - M16	★ ★	★	★	WN38MG	DIN 371,374,376
	GT23	M5 - M16	★ ★	★	★	WP31MG	DIN 371,374,376
	GT23	M5 - M16	★ ★	★	★	WN38MG	DIN 371,374,376
	GT30	M3 - M42	★	★	★	GP6520	DIN 371,374,376,XL
	GT30	M3 - M24	★	★	★	GM6515	DIN 371,374,376
	GT30	M3 - M16	★	★	★	GP6505	DIN 371,376
	GT31	M5 - M42	★	★	★	GP6520	DIN 371,376,XL
	GT31	M5 - M16	★	★	★	GM6515	DIN 371,376
	GT32	M5 - M16	★	★	★	GP6520	DIN 371,374,376
	GT33	M5 - M16	★	★	★	GP6520	DIN 371,374,376
	GT40	M4 - M22	★ ★	★	★	GP6520	DIN 371,376
	GT41	M4 - M20	★ ★	★	★	GP6520	DIN 371,376
	GT42	M5 - M16	★	★	★	GP6520	DIN 371,374,376
	GT43	M5 - M16	★	★	★	GP6520	DIN 371,374,376
	GT50	M24 - M42	★	★	★	GP6520	DIN 376,XL
	GT51	M24 - M42	★	★	★	GP6520	DIN 376,XL
	GT70	M3 - M16	★	★	★	WN48EG	DIN 371,376
	GT80	M3 - M20	★	★	★	WN48EG	DIN 371,376

P				M	K		N			S				H			
1, 2, 3, 4, 6, 7	5, 9, 10, 11	12, 13.1	13.2	14.1, 14.2, 14.3, 14.4	15, 16, 17, 18, 19	20	21	22, 23, 24, 25	26, 27, 28	31, 32	33, 34, 35	36	37	38.1, 38.2, 40.1, 40.2, 41.1	39.1, 41.2		
Steel <35 HRC	Steel 36–48 HRC	PH & Ferritic Stainless Steel <35 HRC	PH & Ferritic Stainless Steel >35 HRC	Stainless Steel	Cast Iron		Wrought Aluminium	Cast Aluminium	Copper, Copper Alloys	Iron Based	Cobalt Based	Nickel Based	Titanium & Alloys	Hardened Steel 49–55 HRC	Hardened Steel 56–68 HRC	Page(s)	Recommended Cutting Parameters
	★★★		★★★	★	★	★					★					A36	A62
	★★★		★★★		★	★					★					A44	A62
	★★★		★★★		★★★	★★★				★★	★★	★★				A46	A62
					★★★	★★★								★★★		A47	A62
											★★★	★★★				A38	A62
											★★★	★★★				A48	A62
									★				★★★			A39	A62
									★				★★★			A49	A62
★★★		★★★								★★★						A34, A57	A62
				★★★			★	★					★			A34	A62
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				★★★			★	★					★			A35	A62
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				★★★			★						★			A40	A62
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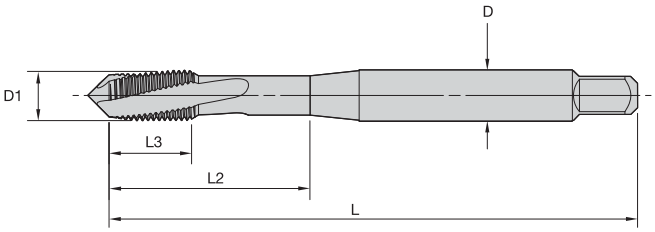
				★★★			★						★			A41	A62
★★★		★★★								★★★						A42	A62
★★★		★★★														A43	A62
					★★★	★★★		★★★	★★							A50	A62
					★★★	★★★		★★★	★★							A51	A62
					★★★	★★★		★★★	★★							A52	A62
					★★★	★★★		★★★	★★							A53	A62
★★★		★★		★												A60	A62
★★★		★★		★												A61	A62
							★★★	★	★							A37	A62
							★★★									A45	A62

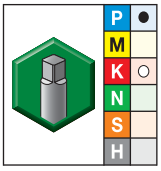
- GM6515 TiN + CrC/C for stainless steel.
- GP6520 TiCN for steel.

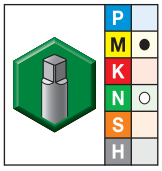


VICTORY

Shank Tolerance	
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

GT20 • Form D Plug Chamfer • Metric DIN 371, 374, and 376

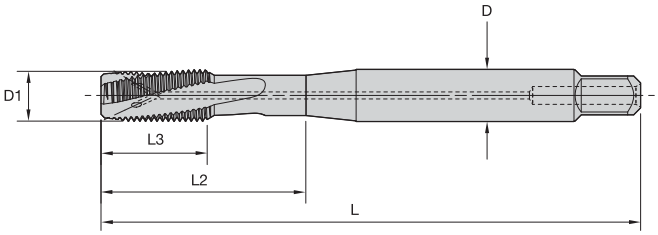




● first choice
○ alternate choice

GP6520	GM6515	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT205094	GT205077	M3 X 0,5	56	8	18	3,5	2	DIN 371	6HX
GT205095	GT205078	M4 X 0,7	63	10	21	4,5	2	DIN 371	6HX
GT205096	GT205079	M5 X 0,8	70	10	25	6,0	2	DIN 371	6HX
GT205097	GT205080	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
GT205104	GT205087	M8 X 1	90	13	35	6,0	3	DIN 374	6HX
GT205098	GT205081	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
GT205105	GT205088	M10 X 1	90	10	35	7,0	3	DIN 374	6HX
GT205106	GT205089	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
GT205099	GT205082	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
GT205107	GT205090	M12 X 1,5	100	15	39	9,0	3	DIN 374	6HX
GT205100	GT205083	M12 X 1,75	110	18	44	9,0	3	DIN 376	6HX
GT205108	GT205091	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
GT205101	GT205084	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT205109	GT205092	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
GT205102	GT205085	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
GT205110	GT205093	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX
GT205103	GT205086	M20 X 2,5	140	25	64	16,0	4	DIN 376	6HX

- GM6515 TiN+CrC/C for stainless steel.
- GP6520 TiCN for steel.

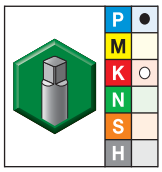


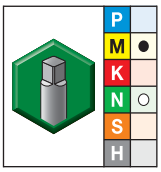
VICTORY

Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

GT21 • Form D Plug Chamfer • Through Coolant • Metric DIN 371 and 376

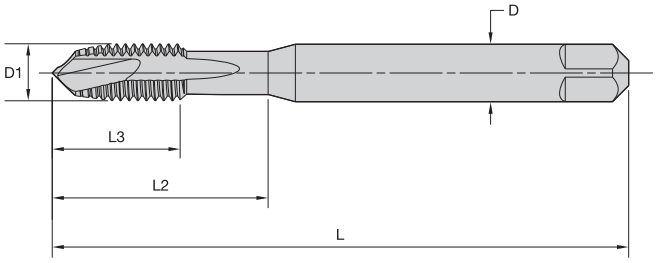




● first choice
○ alternate choice

GP6520	GM6515	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT215007	GT215001	M5 X 0,8	70	10	25	6,0	2	DIN 371	6HX
GT215008	GT215002	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
GT215009	GT215003	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
GT215010	GT215004	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
GT215011	GT215005	M12 X 1,75	110	18	44	9,0	3	DIN 376	6HX
GT215012	GT215006	M14 X 2	110	20	52	11,0	4	DIN 376	6HX

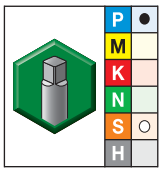
• WP31MG TiN for steel 32–44 HRC.



Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

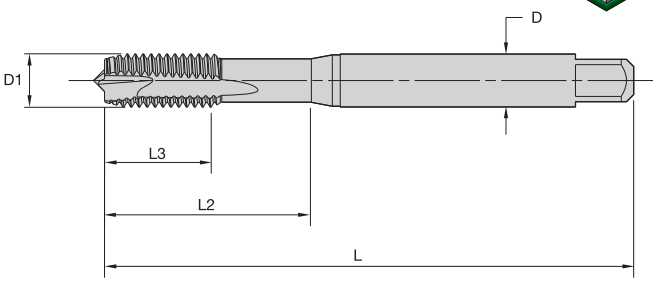
■ GT00 • Form B Plug Chamfer • Metric DIN 371, 374, and 376



● first choice
○ alternate choice

WP31MG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT005001	M3 X 0,5	56	11	18	3,5	2	DIN 371	6HX
GT005002	M4 X 0,7	63	13	21	4,5	2	DIN 371	6HX
GT005003	M5 X 0,8	70	15	25	6,0	2	DIN 371	6HX
GT005004	M6 X 1	80	17	30	6,0	3	DIN 371	6HX
GT005012	M8 X 1	90	17	—	6,0	3	DIN 374	6HX
GT005005	M8 X 1,25	90	20	35	8,0	3	DIN 371	6HX
GT005013	M10 X 1	90	18	—	7,0	3	DIN 374	6HX
GT005014	M10 X 1,25	100	22	—	7,0	3	DIN 374	6HX
GT005006	M10 X 1,5	100	22	39	10,0	3	DIN 371	6HX
GT005015	M12 X 1,25	100	22	—	9,0	3	DIN 374	6HX
GT005016	M12 X 1,5	100	22	—	9,0	3	DIN 374	6HX
GT005007	M12 X 1,75	110	24	—	9,0	3	DIN 376	6HX
GT005017	M14 X 1,5	100	22	—	11,0	3	DIN 374	6HX
GT005008	M14 X 2	110	26	—	11,0	3	DIN 376	6HX
GT005018	M16 X 1,5	100	22	—	12,0	4	DIN 374	6HX
GT005009	M16 X 2	110	27	—	12,0	4	DIN 376	6HX
GT005010	M18 X 2	125	30	—	14,0	4	DIN 376	6HX
GT005011	M20 X 2,5	140	32	—	16,0	4	DIN 376	6HX

• WN48EG DLC for aluminium.

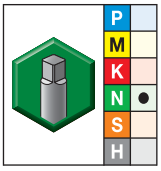


VICTORY

Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

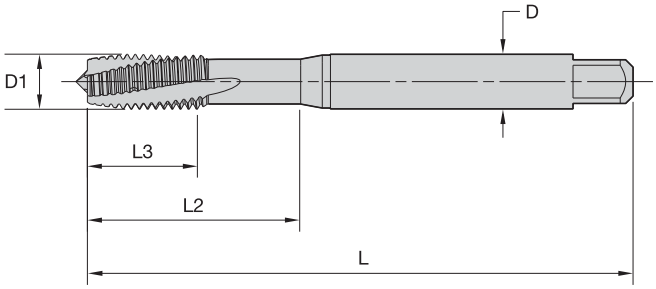
GT70 • Form B Plug Chamfer • Metric DIN 371 and 376



● first choice
○ alternate choice

WN48EG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT705001	M3 X 0,5	56	11	18	3,5	2	DIN 371	6H
GT705002	M4 X 0,7	63	13	21	4,5	2	DIN 371	6H
GT705003	M5 X 0,8	70	15	25	6,0	2	DIN 371	6H
GT705004	M6 X 1	80	17	30	6,0	2	DIN 371	6H
GT705005	M8 X 1,25	90	20	35	8,0	2	DIN 371	6H
GT705006	M10 X 1,5	100	22	39	10,0	2	DIN 371	6H
GT705007	M12 X 1,75	110	24	—	9,0	3	DIN 376	6H
GT705008	M16 X 2	110	27	—	12,0	3	DIN 376	6H

- WS32MG TiCN for nickel and nickel alloys.

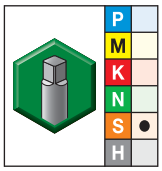


VICTORY

Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

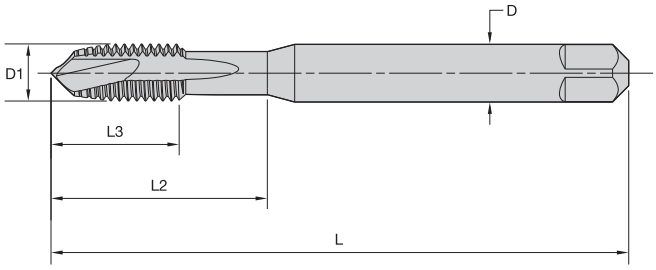
■ GT10 • Form D Plug Chamfer • Metric DIN 371 and 376



● first choice
○ alternate choice

WS32MG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT105001	M3 X 0,5	56	11	18	3,5	2	DIN 371	6HX
GT105002	M4 X 0,7	63	13	21	4,5	3	DIN 371	6HX
GT105003	M5 X 0,8	70	15	25	6,0	3	DIN 371	6HX
GT105004	M6 X 1	80	17	30	6,0	3	DIN 371	6HX
GT105005	M8 X 1,25	90	20	35	8,0	3	DIN 371	6HX
GT105006	M10 X 1,5	100	22	39	10,0	3	DIN 371	6HX
GT105007	M12 X 1,75	110	24	—	9,0	3	DIN 376	6HX
GT105008	M14 X 2	110	26	—	11,0	3	DIN 376	6HX
GT105009	M16 X 2	110	27	—	12,0	3	DIN 376	6HX
GT105010	M20 X 2,5	140	32	—	16,0	3	DIN 376	6HX

- WN35MG TiN/DLC for titanium and titanium alloys.

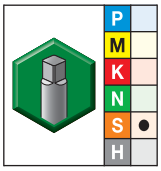


VICTORY

Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

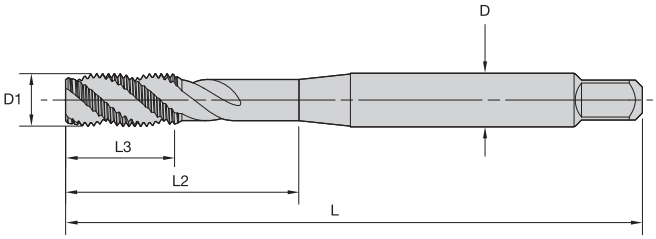
GT14 • Form B Plug Chamfer • Metric DIN 371 and 376



● first choice
○ alternate choice

WN35MG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT145001	M3 X 0,5	56	11	18	3,5	3	DIN 371	6HX
GT145002	M4 X 0,7	63	13	21	4,5	3	DIN 371	6HX
GT145003	M5 X 0,8	70	15	25	6,0	3	DIN 371	6HX
GT145004	M6 X 1	80	17	30	6,0	3	DIN 371	6HX
GT145005	M8 X 1,25	90	20	35	8,0	3	DIN 371	6HX
GT145006	M10 X 1,5	100	22	39	10,0	3	DIN 371	6HX
GT145007	M12 X 1,75	110	24	—	9,0	3	DIN 376	6HX

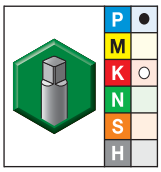
- GM6515 TiN + CrC/C for stainless steel.
- GP6520 TiCN for steel.
- GP6505 oxide for steel.

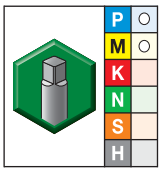


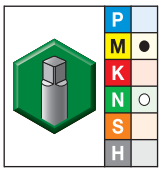
Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

GT30 • Form C Semi-Bottoming Chamfer • Metric DIN 371, 374, and 376



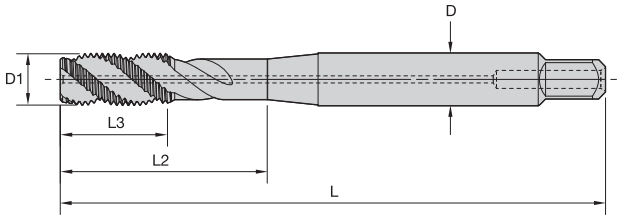




● first choice
○ alternate choice

GP6520	GP6505	GM6515	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT305097	GT305116	GT305148	M3 X 0,5	56	8	18	3,5	3	DIN 371	6HX
GT305098	GT305117	GT305079	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
GT305099	GT305118	GT305080	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT305100	GT305119	GT305081	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
GT305109	–	GT305090	M8 X 1	90	13	35	6,0	3	DIN 374	6HX
GT305101	GT305120	GT305082	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
GT305110	–	GT305091	M10 X 1	90	10	35	7,0	4	DIN 374	6HX
GT305111	–	GT305092	M10 X 1,25	100	15	39	7,0	4	DIN 374	6HX
GT305102	GT305121	GT305083	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
GT305112	–	GT305093	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
GT305103	GT305122	GT305084	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT305113	–	GT305094	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
GT305104	GT305123	GT305085	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT305114	–	GT305095	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX
GT305105	GT305124	GT305086	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
GT305115	–	GT305096	M18 X 1,5	110	15	50	14,0	4	DIN 374	6HX
GT305106	–	GT305087	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX
GT305107	–	GT305088	M22 X 2,5	140	25	70	18,0	4	DIN 376	6HX
GT305108	–	GT305089	M24 X 3	160	30	77	18,0	4	DIN 376	6HX

- GM6515 TiN + CrC/C for stainless steel.
- GP6520 TiCN for steel.

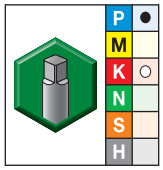


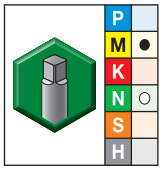
VICTORY

Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

GT31 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric DIN 371 and 376

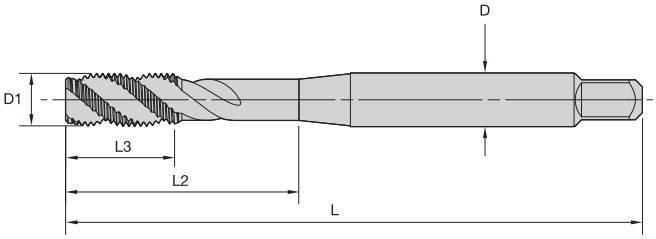


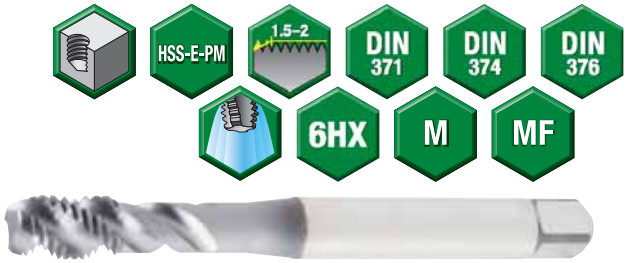


● first choice
○ alternate choice

GP6520	GM6515	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT315007	GT315001	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT315008	GT315002	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
GT315009	GT315003	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
GT315010	GT315004	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
GT315011	GT315005	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT315012	GT315006	M14 X 2	110	20	52	11,0	4	DIN 376	6HX

• GP6520 TiCN for steel.



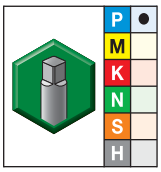


VICTORY

Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

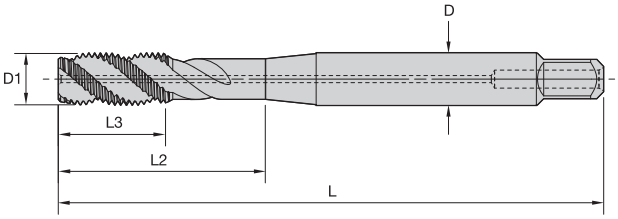
■ GT32 • Form E Bottoming Chamfer • Metric DIN 371, 374, and 376



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT325001	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT325002	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
GT325003	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
GT325004	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
GT325007	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
GT325005	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT325008	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
GT325006	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT325009	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX

• GP6520 TiCN for steel.



Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

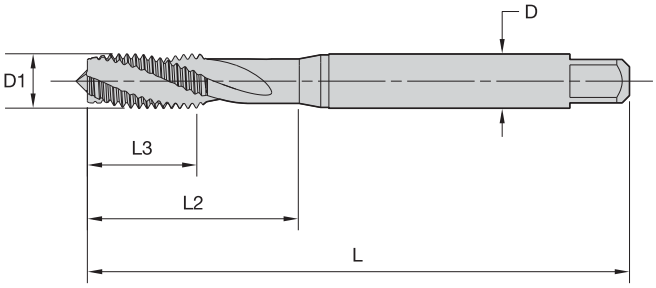
■ GT33 • Form E Bottoming Chamfer • Through Coolant • Metric DIN 371, 374, and 376

P	●
M	○
K	○
N	
S	
H	

● first choice
○ alternate choice

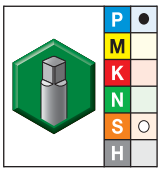
GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT335001	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT335002	M6 X 1	80	10	30	6,0	3	DIN 371	6HX
GT335003	M8 X 1,25	90	13	35	8,0	3	DIN 371	6HX
GT335004	M10 X 1,5	100	15	39	10,0	3	DIN 371	6HX
GT335007	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
GT335005	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT335008	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
GT335006	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT335009	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX

• WP31MG TiN for steel 32–44 HRC.



Shank Tolerance	
D	Tolerance h9
1-3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

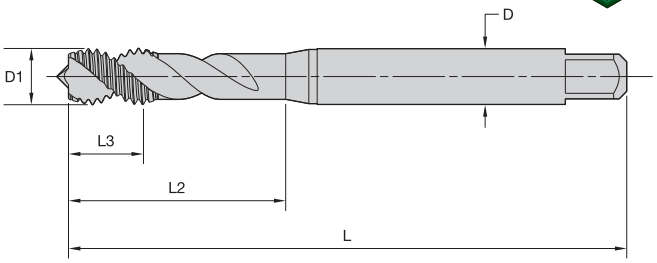
■ GT02 • Form C Semi-Bottoming Chamfer • Metric DIN 371, 374, and 376



● first choice
○ alternate choice

WP31MG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT025001	M3 X 0,5	56	11	18	3,5	3	DIN 371	6H
GT025002	M4 X 0,7	63	13	21	4,5	3	DIN 371	6H
GT025003	M5 X 0,8	70	15	25	6,0	3	DIN 371	6H
GT025004	M6 X 1	80	17	30	6,0	3	DIN 371	6H
GT025012	M8 X 1	90	17	—	6,0	3	DIN 374	6H
GT025005	M8 X 1,25	90	20	35	8,0	3	DIN 371	6H
GT025013	M10 X 1	90	18	—	7,0	3	DIN 374	6H
GT025014	M10 X 1,25	100	22	—	7,0	3	DIN 374	6H
GT025006	M10 X 1,5	100	22	39	10,0	3	DIN 371	6H
GT025015	M12 X 1,25	100	22	—	9,0	3	DIN 374	6H
GT025016	M12 X 1,5	100	22	—	9,0	3	DIN 374	6H
GT025007	M12 X 1,75	110	24	44	12,0	3	DIN 376	6H
GT025017	M14 X 1,5	100	22	—	11,0	3	DIN 374	6H
GT025008	M14 X 2	110	26	52	11,0	3	DIN 376	6H
GT025018	M16 X 1,5	100	22	—	12,0	3	DIN 374	6H
GT025009	M16 X 2	110	27	—	12,0	3	DIN 376	6H
GT025010	M18 X 2	125	30	—	14,0	4	DIN 376	6H
GT025011	M20 X 2,5	140	32	—	16,0	4	DIN 376	6H

• WN48EG DLC for aluminium.

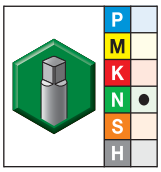


VICTORY

Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3.5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

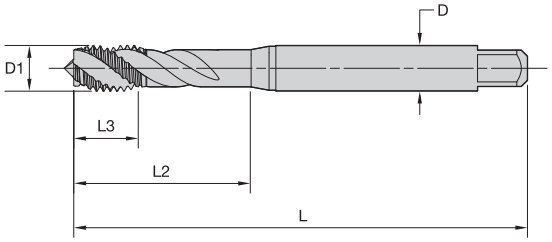
■ GT80 • Form C Semi-Bottoming Chamfer • Metric DIN 371 and 376



● first choice
○ alternate choice

WN48EG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT805001	M3 X 0,5	56	6	18	3,5	2	DIN 371	6H
GT805002	M4 X 0,7	63	7	21	4,5	2	DIN 371	6H
GT805003	M5 X 0,8	70	8	25	6,0	2	DIN 371	6H
GT805004	M6 X 1	80	10	30	6,0	2	DIN 371	6H
GT805005	M8 X 1,25	90	14	35	8,0	2	DIN 371	6H
GT805006	M10 X 1,5	100	16	39	10,0	2	DIN 371	6H
GT805007	M12 X 1,75	110	18	—	9,0	3	DIN 376	6H
GT805008	M16 X 2	110	22	—	12,0	3	DIN 376	6H
GT805009	M20 X 2,5	140	25	—	16,0	3	DIN 376	6H

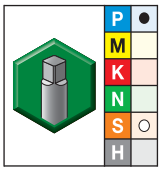
- WH36MG TiAlN/MoS_2 for steel 32–44 HRC (3 x D).



Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

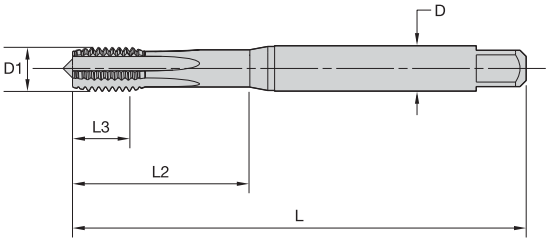
GT04 • Form C Semi-Bottoming Chamfer • Metric DIN 371, 374, and 376

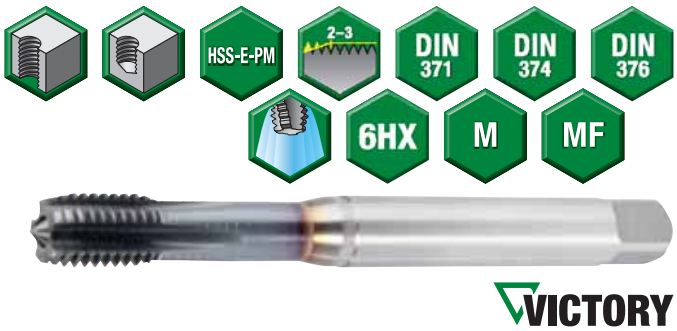


● first choice
○ alternate choice

WH36MG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT045001	M3 X 0,5	56	6	18	3,5	3	DIN 371	6H
GT045002	M4 X 0,7	63	7	21	4,5	3	DIN 371	6H
GT045003	M5 X 0,8	70	8	25	6,0	3	DIN 371	6H
GT045004	M6 X 1	80	10	30	6,0	3	DIN 371	6H
GT045012	M8 X 1	90	10	—	6,0	3	DIN 374	6H
GT045005	M8 X 1,25	90	14	35	8,0	3	DIN 371	6H
GT045013	M10 X 1	90	10	—	7,0	3	DIN 374	6H
GT045014	M10 X 1,25	100	16	—	7,0	3	DIN 374	6H
GT045006	M10 X 1,5	100	16	39	10,0	3	DIN 371	6H
GT045015	M12 X 1,25	100	15	—	9,0	4	DIN 374	6H
GT045016	M12 X 1,5	100	15	—	9,0	4	DIN 374	6H
GT045007	M12 X 1,75	110	18	—	9,0	4	DIN 376	6H
GT045017	M14 X 1,5	100	15	—	11,0	4	DIN 374	6H
GT045008	M14 X 2	110	20	—	11,0	4	DIN 376	6H
GT045018	M16 X 1,5	100	15	—	12,0	4	DIN 374	6H
GT045009	M16 X 2	110	22	—	12,0	4	DIN 376	6H
GT045010	M18 X 2	125	25	—	14,0	4	DIN 376	6H
GT045011	M20 X 2,5	140	25	—	16,0	4	DIN 376	6H

• WS32MG TiCN for steel 44–55 HRC.

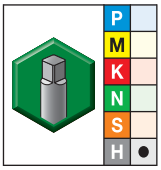




Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

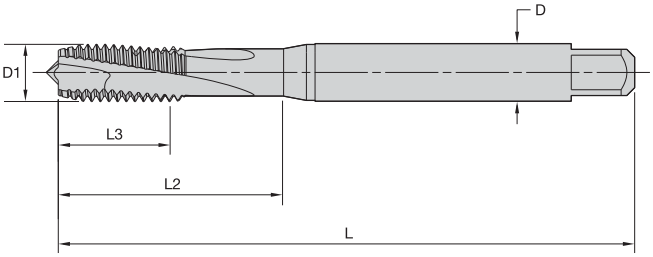
■ GT06 • Form C Semi-Bottoming Chamfer • Metric DIN 371, 374, and 376



● first choice
○ alternate choice

WS32MG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT065003	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
GT065006	M8 X 1	90	10	35	8,0	5	DIN 374	6HX
GT065001	M8 X 1,25	90	14	35	8,0	5	DIN 371	6HX
GT065008	M12 X 1,5	100	15	—	9,0	5	DIN 374	6HX
GT065004	M12 X 1,75	110	18	—	9,0	5	DIN 376	6HX
GT065007	M10 X 1	90	10	35	10,0	5	DIN 374	6HX
GT065002	M10 X 1,5	100	16	39	10,0	5	DIN 371	6HX
GT065009	M14 X 1,5	100	15	—	11,0	6	DIN 374	6HX
GT065010	M16 X 1,5	100	15	—	12,0	6	DIN 374	6HX
GT065005	M16 X 2	110	22	—	12,0	6	DIN 376	6HX

- WS32MG TiCN for nickel and nickel alloys.

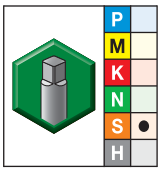


VICTORY

Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

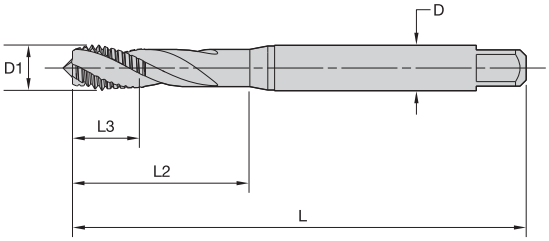
GT12 • Form C Semi-Bottoming Chamfer • Metric DIN 371 and 376



● first choice
○ alternate choice

WS32MG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT125001	M3 X 0,5	56	11	18	3,5	2	DIN 371	6HX
GT125002	M4 X 0,7	63	13	21	4,5	3	DIN 371	6HX
GT125003	M5 X 0,8	70	15	25	6,0	3	DIN 371	6HX
GT125004	M6 X 1	80	17	30	6,0	3	DIN 371	6HX
GT125005	M8 X 1,25	90	20	35	8,0	3	DIN 371	6HX
GT125006	M10 X 1,5	100	22	39	10,0	3	DIN 371	6HX
GT125007	M12 X 1,75	110	24	—	9,0	3	DIN 376	6HX
GT125008	M14 X 2	110	26	—	11,0	3	DIN 376	6HX
GT125009	M16 X 2	110	27	—	12,0	3	DIN 376	6HX
GT125010	M20 X 2,5	140	32	—	16,0	3	DIN 376	6HX

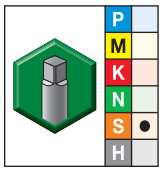
- WN35MG TiN/DLC for titanium and titanium alloys.



VICTORY

Shank Tolerance	
D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

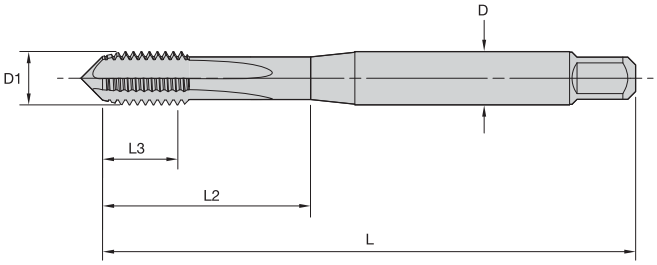
GT16 • Form C Semi-Bottoming Chamfer • Metric DIN 371

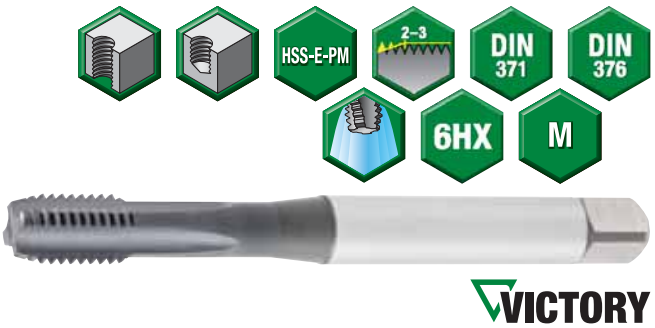


● first choice
○ alternate choice

WN35MG	D1 size	L	L3	L2	D	number of flutes	class of fit
GT165001	M3 X 0,5	56	6	18	3,5	3	6HX
GT165002	M4 X 0,7	63	7	21	4,5	3	6HX
GT165003	M5 X 0,8	70	8	25	6,0	3	6HX
GT165004	M6 X 1	80	10	30	6,0	3	6HX
GT165005	M8 X 1,25	90	14	35	8,0	3	6HX
GT165006	M10 X 1,5	100	16	39	10,0	3	6HX
GT165007	M12 X 1,75	110	18	44	12,0	3	6HX

• GP6520 TiCN for cast iron and cast aluminium.

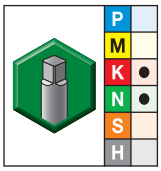




Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

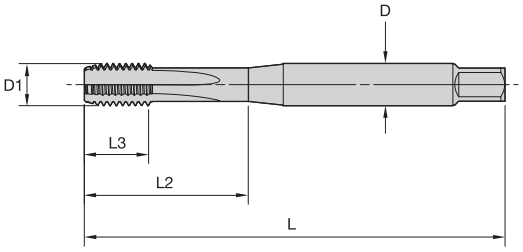
■ GT40 • Form C Semi-Bottoming Chamfer • Metric DIN 371 and 376

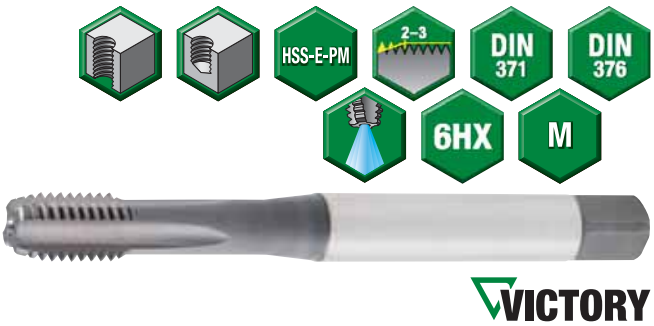


● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT405001	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
GT405002	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT405003	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
GT405004	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
GT405005	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
GT405006	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT405007	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT405008	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
GT405009	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX
GT405010	M20 X 2,5	140	25	64	16,0	4	DIN 376	6HX
GT405011	M22 X 2,5	140	25	70	18,0	4	DIN 376	6HX

• GP6520 TiCN for cast iron and cast aluminium.

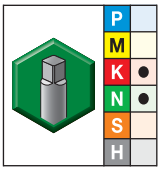




Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

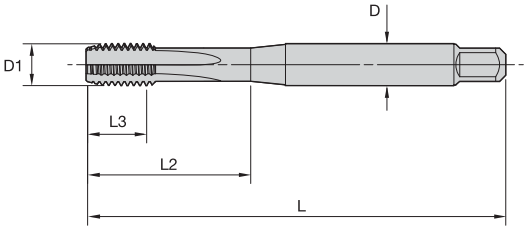
■ GT41 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric DIN 371 and 376



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT415001	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
GT415002	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT415003	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
GT415004	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
GT415005	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
GT415006	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT415007	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT415008	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
GT415009	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX
GT415010	M20 X 2,5	140	25	64	16,0	4	DIN 376	6HX

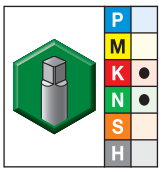
• GP6520 TiCN for cast iron and cast aluminium.



Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

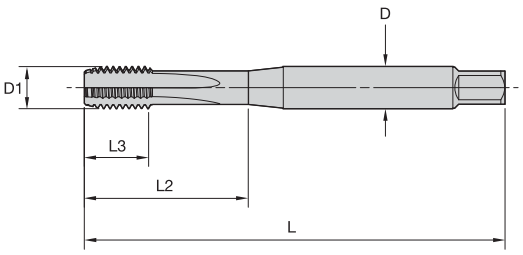
■ GT42 • Form E Bottoming Chamfer • Metric DIN 371, 374, and 376



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT425001	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT425002	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
GT425003	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
GT425004	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
GT425007	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
GT425005	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT425008	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
GT425006	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT425009	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX

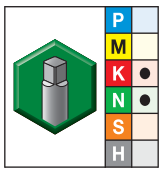
• GP6520 TiCN for cast iron and cast aluminium.



Shank Tolerance

D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–16	+0, -0,011

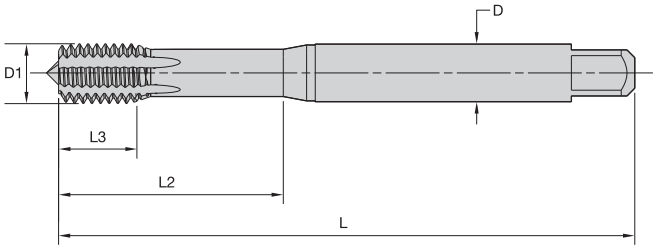
■ GT43 • Form E Bottoming Chamfer • Through Coolant • Metric DIN 371, 374, and 376



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT435001	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT435002	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
GT435003	M8 X 1,25	90	13	35	8,0	4	DIN 371	6HX
GT435004	M10 X 1,5	100	15	39	10,0	4	DIN 371	6HX
GT435007	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
GT435005	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT435008	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
GT435006	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT435009	M16 X 1,5	100	15	46	12,0	4	DIN 374	6HX

- WP31MG TiN for steel.
- WN38MG DLC for aluminium.



VICTORY

Shank Tolerance

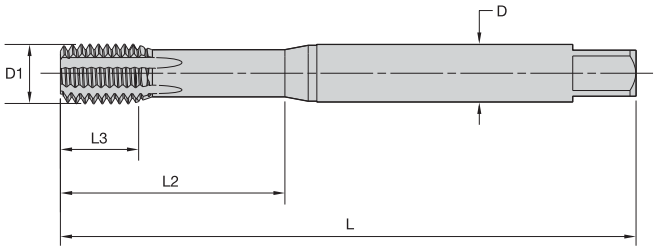
D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

GT22 • Form C Semi-Bottoming Entry Taper • Metric DIN 2174

● first choice
○ alternate choice

WP31MG	WN38MG	D1 size	L	L3	L2	D	number of lube grooves	class of fit
GT225016	GT225001	M3 X 0,5	56	6	18	3,5	4	6HX
GT225017	GT225002	M4 X 0,7	63	7	21	4,5	4	6HX
GT225018	GT225003	M5 X 0,8	70	8	25	6,0	4	6HX
GT225019	GT225004	M6 X 1	80	10	30	6,0	5	6HX
GT225024	GT225009	M8 X 1	90	10	35	8,0	5	6HX
GT225020	GT225005	M8 X 1,25	90	14	35	8,0	5	6HX
GT225025	GT225010	M10 X 1	90	10	35	10,0	5	6HX
GT225026	GT225011	M10 X 1,25	100	16	39	10,0	5	6HX
GT225021	GT225006	M10 X 1,5	100	16	39	10,0	5	6HX
GT225027	GT225012	M12 X 1,25	100	15	—	9,0	6	6HX
GT225028	GT225013	M12 X 1,5	100	15	—	9,0	6	6HX
GT225022	GT225007	M12 X 1,75	110	18	—	9,0	6	6HX
GT225029	GT225014	M14 X 1,5	100	15	—	11,0	6	6HX
GT225030	GT225015	M16 X 1,5	100	15	—	12,0	6	6HX
GT225023	GT225008	M16 X 2	110	22	—	12,0	6	6HX

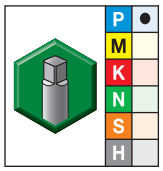
- WP31MG TiN for steel.
- WN38MG DLC for aluminium.

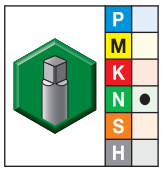


Shank Tolerance

D	Tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

■ GT23 • Form C Semi-Bottoming Entry Taper • Through Coolant • Metric DIN 2174





● first choice
○ alternate choice

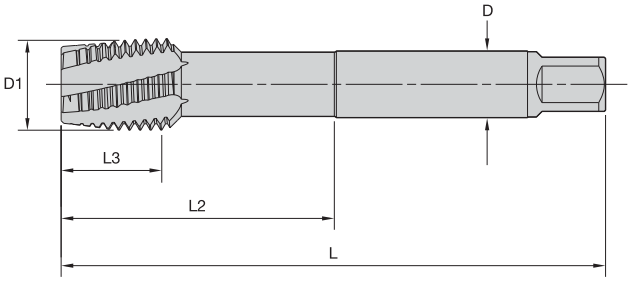
WP31MG	WN38MG	D1 size	L	L3	L2	D	number of lube grooves	class of fit
GT235012	GT235001	M5 X 0,8	70	8	25	6,0	4	6HX
GT235013	GT235002	M6 X 1	80	10	30	6,0	5	6HX
GT235018	GT235007	M8 X 1	90	10	35	8,0	5	6HX
GT235014	GT235003	M8 X 1,25	90	14	35	8,0	5	6HX
GT235019	GT235008	M10 X 1	90	10	35	10,0	5	6HX
GT235015	GT235004	M10 X 1,5	100	16	39	10,0	5	6HX
GT235020	GT235009	M12 X 1,5	100	15	—	9,0	6	6HX
GT235016	GT235005	M12 X 1,75	110	18	—	9,0	6	6HX
GT235021	GT235010	M14 X 1,5	100	15	—	11,0	6	6HX
GT235022	GT235011	M16 X 1,5	100	15	—	12,0	6	6HX
GT235017	GT235006	M16 X 2	110	22	—	12,0	6	6HX

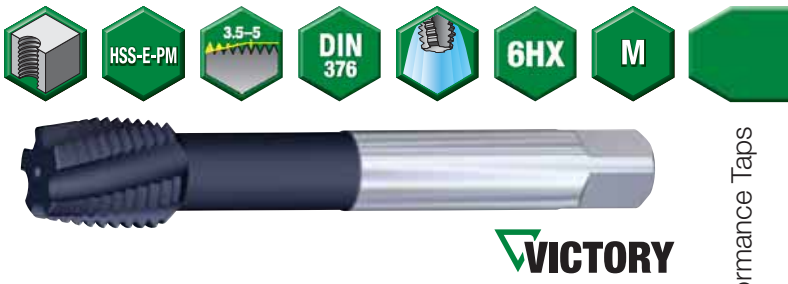
Victory™ GT HP HSS-E-PM Wind Taps

Boost productivity on large-sized components.

- Made with highly alloyed powdered metal HSS-E substrate that combines wear and heat resistance with toughness.
- GP6520™ Grade provides long tap life at high tapping speeds.
- Precision h6 shank results in exceptional thread quality and tool life due a very low runout.
- GT20 through holes.
- GT30 and GT31 for blind holes on vertical tapping.
- GT50 and GT51 for blind holes on horizontal tapping.
- All GT™ Series Wind Taps are available according to DIN 376 and extra-long lengths as standard.

• GP6520 TiCN for steel and cast iron.

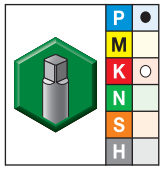




Shank Tolerance

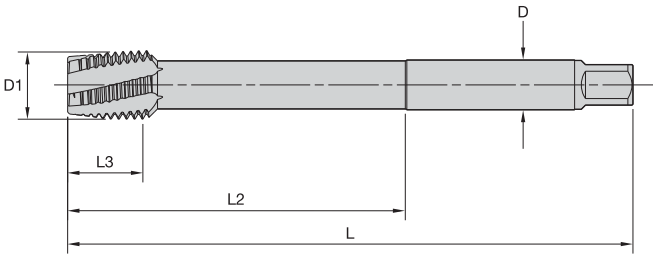
D	tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

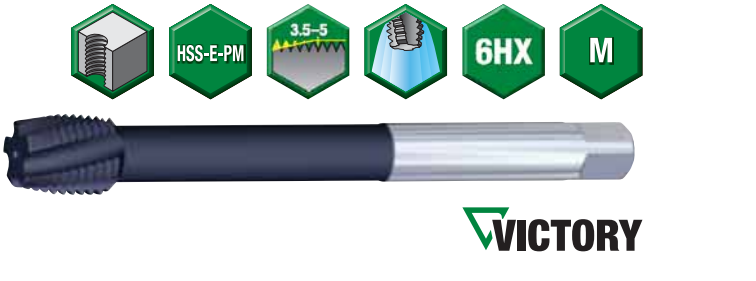
■ GT20 • Form D Plug Chamfer • Larger Sizes • Metric DIN 376



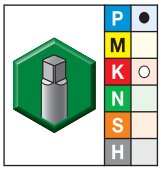
● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT205111	M24 X 3	160	30	77	18,0	5	6HX
GT205113	M30 X 3,5	180	35	91	22,0	5	6HX
GT205114	M33 X 3,5	180	35	100	25,0	5	6HX
GT205116	M36 X 4	200	40	110	28,0	6	6HX
GT205118	M42 X 4,5	200	45	120	32,0	6	6HX





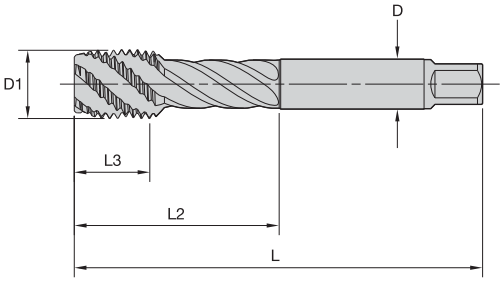
■ GT20 • Form D Plug Chamfer • Larger Sizes • Metric Extra Long



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT205122	M24 X 3	200	30	120	18,0	5	6HX
GT205124	M30 X 3,5	250	35	150	22,0	5	6HX
GT205125	M33 X 3,5	250	35	150	25,0	5	6HX
GT205127	M36 X 4	250	40	150	28,0	6	6HX
GT205129	M42 X 4,5	300	45	180	32,0	6	6HX

• GP6520 TiCN for steel and cast iron.

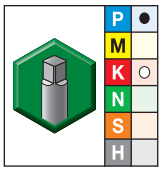


VICTORY

Shank Tolerance

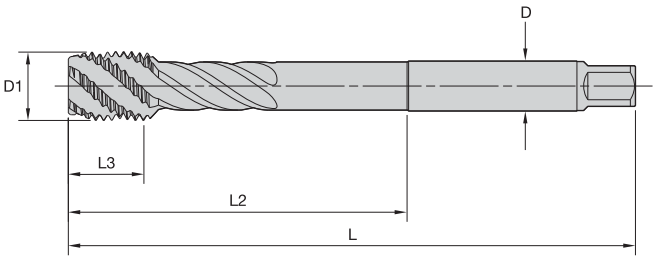
D	Tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

■ GT30 • Form C Semi-Bottoming Chamfer • Larger Sizes • Metric DIN 376



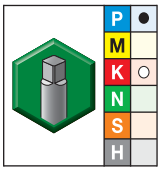
● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT305161	M24 X 3	160	30	77	18,0	5	6HX
GT305163	M30 X 3,5	180	35	91	22,0	5	6HX
GT305164	M33 X 3,5	180	35	100	25,0	5	6HX
GT305166	M36 X 4	200	40	110	28,0	5	6HX
GT305168	M42 X 4,5	200	45	120	32,0	5	6HX



VICTORY

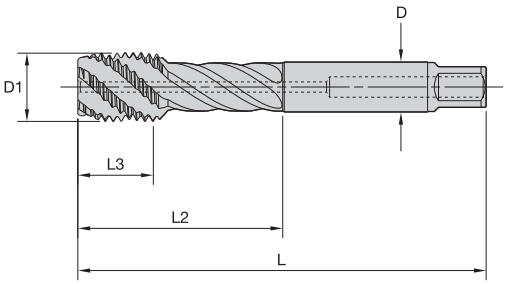
■ GT30 • Form C Semi-Bottoming Chamfer • Larger Sizes • Metric Extra Long



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT305151	M24 X 3	200	30	120	18,0	5	6HX
GT305153	M30 X 3,5	250	35	150	22,0	5	6HX
GT305154	M33 X 3,5	250	35	150	25,0	5	6HX
GT305156	M36 X 4	250	40	150	28,0	5	6HX
GT305158	M42 X 4,5	300	45	180	32,0	5	6HX

• GP6520 TiCN for steel and cast iron.

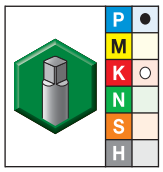


VICTORY

Shank Tolerance

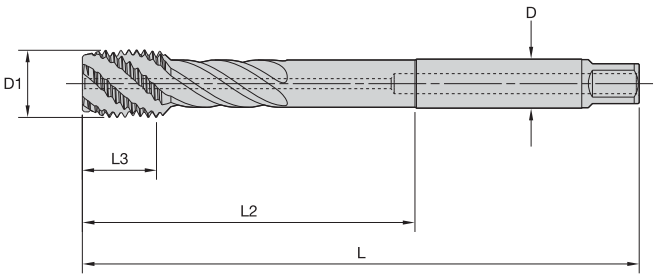
D	Tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

GT31 • Form C Semi-Bottoming Chamfer • Through Coolant • Larger Sizes • Metric DIN 376



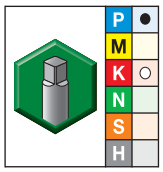
● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT315025	M24 X 3	160	30	77	18,0	5	6HX
GT315027	M30 X 3,5	180	35	91	22,0	5	6HX
GT315028	M33 X 3,5	180	35	100	25,0	5	6HX
GT315030	M36 X 4	200	40	110	28,0	5	6HX
GT315032	M42 X 4,5	200	45	120	32,0	5	6HX



VICTORY

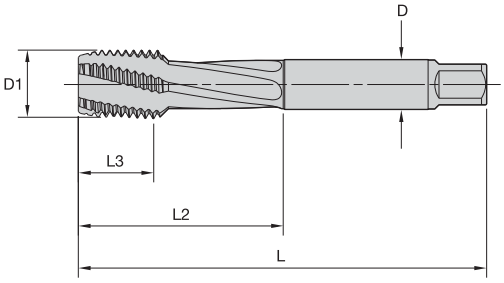
GT31 • Form C Semi-Bottoming Chamfer • Through Coolant • Larger Sizes • Metric Extra Long



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT315014	M24 X 3	200	30	120	18,0	5	6HX
GT315016	M30 X 3,5	250	35	150	22,0	5	6HX
GT315017	M33 X 3,5	250	35	150	25,0	5	6HX
GT315019	M36 X 4	250	40	150	28,0	5	6HX
GT315021	M42 X 4,5	300	45	180	32,0	5	6HX

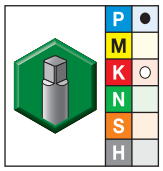
• GP6520 TiCN for steel and cast iron.



VICTORY

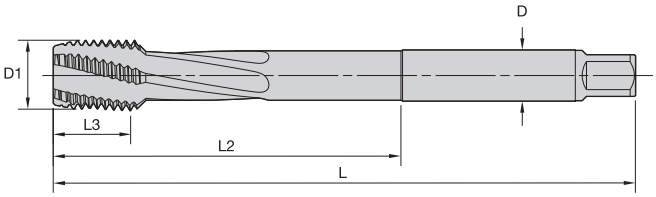
Shank Tolerance	
D	Tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

■ GT50 • Form C Semi-Bottoming Chamfer • Larger Sizes • Metric DIN 376



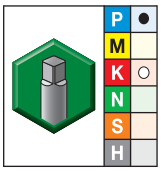
● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT505001	M24 X 3	160	30	77	18,0	4	6HX
GT505002	M30 X 3,5	180	35	91	22,0	5	6HX
GT505003	M33 X 3,5	180	35	100	25,0	5	6HX
GT505004	M36 X 4	200	40	110	28,0	5	6HX
GT505005	M42 X 4,5	200	45	120	32,0	6	6HX



VICTORY

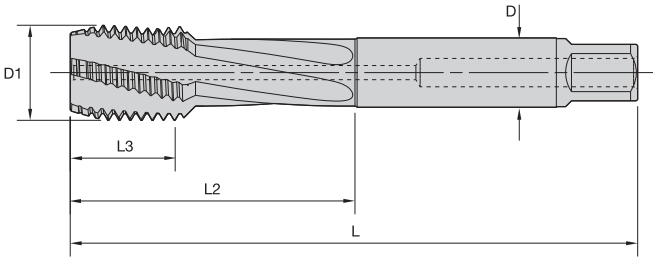
■ GT50 • Form C Semi-Bottoming Chamfer • Larger Sizes • Metric Extra Long



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT505006	M24 X 3	200	30	120	18,0	4	6HX
GT505007	M30 X 3,5	250	35	150	22,0	5	6HX
GT505008	M33 X 3,5	250	35	150	25,0	5	6HX
GT505009	M36 X 4	250	40	150	28,0	5	6HX
GT505010	M42 X 4,5	300	45	180	32,0	6	6HX

• GP6520 TiCN for steel and cast iron.

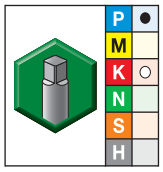


VICTORY

Shank Tolerance

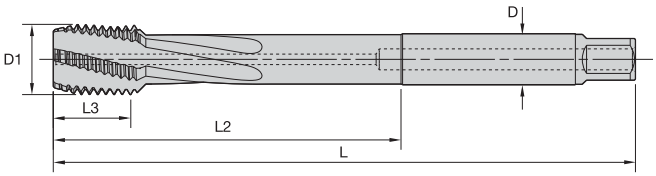
D	Tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

■ GT51 • Form C Semi-Bottoming Chamfer • Through Hole • Larger Sizes • Metric DIN 376



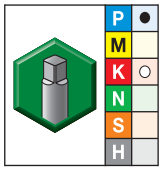
● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT515001	M24 X 3	160	30	77	18,0	4	6HX
GT515002	M30 X 3,5	180	35	91	22,0	5	6HX
GT515003	M33 X 3,5	180	35	100	25,0	5	6HX
GT515004	M36 X 4	200	40	110	28,0	5	6HX
GT515005	M42 X 4,5	200	45	120	32,0	6	6HX



VICTORY

■ GT51 • Form C Semi-Bottoming Chamfer • Through Coolant • Larger Sizes • Metric Extra Long



● first choice
○ alternate choice

GP6520	D1 size	L	L3	L2	D	number of flutes	class of fit
GT515006	M24 X 3	200	30	120	18,0	4	6HX
GT515007	M30 X 3,5	250	35	150	22,0	5	6HX
GT515008	M33 X 3,5	250	35	150	25,0	5	6HX
GT515009	M36 X 4	250	40	150	28,0	5	6HX
GT515010	M42 X 4,5	300	45	180	32,0	6	6HX

	Group	Through Holes					Blind Holes				
				Range — m/min					Range — m/min		
		Tap Style	Grade	min	Starting Value	max	Tap Style	Grade	min	Starting Value	max
P	1	GT20	GP6520	20	**30**	45	GT30, GT32, GT50	GP6520	14	**21**	32
		GT22	WP31MG	18	**30**	50	GT22	WP31MG	13	**21**	35
	2	GT20	GP6520	17	**25**	38	GT30, GT32, GT50	GP6520	12	**18**	26
		GT22	WP31MG	15	**25**	42	GT22	WP31MG	10	**18**	29
	2, 3, 4, 6, 7	GT20	GP6520	12	**15**	20	GT30, GT32, GT50	GP6520	8	**11**	14
	5, 9, 10, 11	GT00	WP31MG	5	**6**	8	GT02, GT04	WP31MG	3	**4**	5
	12, 13.1	GT20	GP6520	12	**15**	20	GT30, GT32, GT50	GP6520	8	**11**	14
	13.2	GT00	WP31MG	6	**8**	10	GT02, GT04	WP31MG	4	**6**	7
M	14.1	GT20	GM6515	12	**15**	20	GT30, GT32, GT50	GM6515	8	**11**	14
	14.3	GT20	GM6515	9	**12**	16	GT30, GT32, GT50	GM6515	6	**8**	11
	14.2, 14.4	GT20	GM6515	8	**10**	13	GT30, GT32, GT50	GM6515	5	**7**	9
K	15, 16	GT40	GP6520	35	**45**	59	GT40, GT42	GP6520	24	**32**	41
	17, 18, 19	GT40	GP6520	31	**40**	52	GT40, GT42	GP6520	22	**28**	36
	20	GT40	GP6520	23	**30**	39	GT40, GT42	GP6520	16	**21**	27
N	21	GT40	GP6520	38	**50**	65	GT40, GT42	GP6520	27	**35**	46
		GT22	WN38MG	33	**50**	75	GT22	WN38MG	23	**35**	53
	22, 23, 24	GT70	WN48EG	42	**55**	72	GT80	WN48EG	30	**39**	50
		GT22	WN48EG	37	**55**	83	GT22	WN48EG	26	**39**	58
	26, 27, 28	GT40	GP6520	4	**6**	9	GT40, GT42	GP6520	3	**4**	5
S	31, 32	GT20	GP6520	8	**12**	18	GT30, GT32	GP6520	6	**8**	11
	33, 34, 35	GT10	WS32MG	3	**5**	8	GT12	WS32MG	3	**4**	5
	36	GT10	WS32MG	3	**4**	6	GT12	WS32MG	2	**3**	4
	37	GT14	WN35MG	3	**4**	6	GT16	WN35MG	2	**3**	4
H	38.1, 40.1, 40.2	GT06	WN35MG	1,3	**2,0**	3,0	GT06	WN35MG	1,1	**1,4**	1,8
	38.2, 41.1	GT06	WN35MG	1,0	**1,5**	2,3	GT06	WN35MG	0,8	**1,1**	1,4

NOTE: Increase speed by up to 25% when using coolant taps (GT21, GT23, GT31, GT33, GT41, GT43, and GT51).
Use grade GP6505™ in steels. Use 50% of the recommended speed listed for grade KP6525™.

Victory™ GT HP HSS-E-PM Series Taps

We are launching a new era of high-quality threads for the best performance ever.

- Highly wear-resistant, high-alloy modified powder metal substrate provides higher speeds and longer tap life.
- Specific designs to achieve best performance on blind or through hole in a broad range of materials offers better chip control and reliable threads.
- Coatings are developed to maximise productivity for higher quality thread.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

WIDIA™

Steel <32 HRC • Selector

typical thread sizes		required tap drill diameter				P			
						HSS-E-PM Taps		HSS-E-PM Taps	
						ANSI		DIN 371, 374, 376	
cutting taps						blind hole	through hole	blind hole	through hole
metric	inch	mm	inch	fraction	wire	GT30_GP6520	GT20_GP6520	GT30_GP6520	GT20_GP6520
M3 x 0,50	–	2,500	.0984	–	–	GT305070	GT205069	GT305097	GT205094
–	6-32	2,705	.1065	–	36	GT305035	GT205037	–	–
M4 x 0,70	–	3,300	.1299	–	–	GT305071	GT205070	GT305098	GT205095
–	8-32	3,454	.1360	–	29	GT305036	GT205039	–	–
–	8-36	3,454	.1360	–	29	–	GT205052	–	–
–	10-24	3,734	.1470	–	26	–	GT205040	–	–
–	10-32	4,039	.1590	–	21	GT305053	GT205054	–	–
M5 x 0,80	–	4,200	.1654	–	–	GT305072	GT205071	GT305099	GT205096
M6 x 1,00	–	5,000	.1969	–	–	GT305073	GT205072	GT305100	GT205097
–	1/4-20	5,106	.2010	–	7	GT305039	GT205043	–	–
–	1/4-28	5,410	.2130	–	3	GT305055	GT205056	–	–
–	5/16-18	6,528	.2570	–	F	GT305041	GT205045	–	–
M8 x 1,25	–	6,700	.2638	–	–	GT305074	GT205074	GT305101	GT205098
–	5/16-24	6,909	.2720	–	I	GT305057	GT205057	–	–
M8 x 1,00	–	7,000	.2756	–	–	–	–	GT305109	GT205104
–	3/8-16	7,938	.3125	5/16	–	GT305043	GT205047	–	–
–	3/8-24	8,433	.3320	–	Q	GT305058	GT205058	–	–
M10 x 1,50	–	8,500	.3346	–	–	GT305075	GT205075	GT305102	GT205099
M10 x 1,25	–	8,700	.3425	–	–	–	–	GT305111	GT205106
M10 x 1,00	–	9,000	.3543	–	–	–	–	GT305110	GT205105
–	7/16-14	9,093	.3580	–	T	GT305044	GT205048	–	–
–	7/16-20	9,921	.3906	25/64	–	GT305059	GT205059	–	–
M12 x 1,75	–	10,200	.4016	–	–	GT305076	GT205076	GT305103	GT205100
M12 x 1,50	–	10,500	.4134	–	–	–	–	GT305112	GT205107
–	1/2-13	10,716	.4219	27/64	–	GT305046	GT205049	–	–
–	1/2-20	11,509	.4531	29/64	–	GT305060	GT205060	–	–
M14 x 2,00	–	12,000	.4724	–	–	GT305077	–	GT305104	GT205101
M14 x 1,50	–	12,500	.4921	–	–	–	–	GT305113	GT205108
–	5/8-11	13,495	.5313	17/32	–	GT305048	GT205050	–	–
M16 x 2,00	–	14,000	.5512	–	-	GT305078	–	GT305105	GT205102
M16 x 1,50	–	14,500	.5709	–	–	–	–	GT305114	GT205109
M18 x 2,50	–	15,500	.6102	–	–	–	–	GT305106	–
M18 x 1,50	–	16,500	.6496	–	–	–	–	GT305115	GT205110
–	3/4-10	16,670	.6563	21/32	–	GT305050	GT2050551	–	–
M20 x 2,50	–	17,500	.6890	–	–	–	–	–	GT205103
M22 x 2,50	–	19,500	.7677	–	–	–	–	GT305107	–
M24 x 3,00	–	21,000	.8268	–	–	–	–	GT305161	GT205111
–	1-8	22,225	.8750	7/8	–	GT305051	–	–	–

P		P		All Materials	
HSS-E-PM Taps		Recommended Drill		Alternate Tap Drill	
DIN 371, 374, 376					
blind hole with coolant GT31_GP6520	through hole with coolant GT21_GP6520	approximately 5 x D with coolant TDS402 WP20PD	approximately 5 x D non-coolant TDS202 WP20PD	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant VDS202A WU25PD
–	–	TDS402A02500	TDS202A02500	VDS402A02500	VDS202A02500
–	–	TDS402A02705	TDS202A02705	VDS402A02705	VDS202A02705
–	–	TDS402A03300	TDS202A03300	VDS402A03300	VDS202A03300
–	–	TDS402A03454	TDS202A03454	VDS402A03454	VDS202A03454
–	–	TDS402A03700	TDS202A03700	VDS402A03700	VDS202A03700
–	–	TDS402A03797	TDS202A03797	VDS402A03797	VDS202A03797
–	–	TDS402A04100	TDS202A04100	VDS402A04100	VDS202A04100
GT315007	GT215007	TDS402A04219	TDS202A04219	VDS402A04219	VDS202A04219
GT315008	GT215008	TDS402A05055	TDS202A05055	VDS402A05055	VDS202A05055
–	–	TDS402A05410	TDS202A05410	VDS402A05410	VDS202A05410
–	–	TDS402A05600	TDS202A05600	VDS402A05600	VDS202A05600
–	–	TDS402A06600	TDS202A06600	VDS412A06600	VDS212A06600
GT315009	GT215009	TDS402A06906	TDS202A06906	VDS412A06906	VDS212A06906
–	–	TDS402A07000	TDS202A07000	VDS412A07000	VDS212A07000
–	–	TDS402A07366	TDS202A07366	VDS412A07366	VDS212A07366
–	–	TDS402A08433	TDS202A08433	VDS412A08433	VDS212A08433
–	–	TDS402A08500	TDS202A08500	VDS412A08500	VDS212A08500
GT315010	GT215010	TDS402A08700	TDS202A08700	VDS412A08700	VDS212A08700
–	–	TDS402A09000	TDS202A09000	VDS412A09000	VDS212A09000
–	–	TDS402A08839	TDS202A08839	VDS412A08839	VDS212A08839
–	–	TDS402A09400	TDS202A09400	VDS412A09400	VDS212A09400
–	–	TDS402A10200	TDS202A10200	VDS412A10200	VDS212A10200
GT315011	GT215011	TDS402A10262	TDS202A10262	VDS412A10262	VDS212A10262
–	–	TDS402A10716	TDS202A10716	VDS412A10716	VDS212A10716
–	–	TDS402A10800	TDS202A10800	VDS412A10800	VDS212A10800
–	–	TDS402A11908	TDS202A11908	VDS412A11908	VDS212A11908
GT315012	GT215012	TDS402A12251	TDS202A12251	VDS412A12251	VDS212A12251
–	–	TDS402A12800	TDS202A12800	VDS412A12800	VDS212A12800
–	–	TDS402A13500	TDS202A13500	VDS412A13500	VDS212A13500
–	–	TDS402A14500	TDS202A14500	VDS412A14500	VDS212A14500
–	–	TDS402A14684	TDS202A14684	VDS412A14684	VDS212A14684
–	–	TDS402A16500	TDS202A16500	VDS412A16500	VDS212A16500
–	–	TDS402A16670	TDS202A16670	VDS412A16670	VDS212A16670
–	–	TDS402A17000	TDS202A17000	VDS412A17000	VDS212A17000
–	–	TDS402A17859	TDS202A17859	VDS412A17859	VDS212A17859
–	–	–	–	–	–
GT315025	–	TDM220R3SCF25M	TDM220R5SCF25M	–	–
–	–	TDM230R3SCF25M	TDM230R5SCF25M	–	–

Steel 32–44 HRC • Selector

typical thread sizes	required tap drill diameter		P		
			HSS-E-PM Taps — Tapping Steel 32–44 HRC		
				DIN 371, 374, 376	
cutting taps metric	mm	inch	blind hole GT02_WP31MG	blind hole (3 x D) GT04_WH36MG	through hole GT00_WP31MG
M3 x 0,50	2,500	.0984	GT025001	GT045001	GT005001
M4 x 0,70	3,300	.1299	GT025002	GT045002	GT005002
M5 x 0,80	4,200	.1654	GT025003	GT045003	GT005003
M6 x 1,00	5,000	.1969	GT025004	GT045004	GT005004
M8 x 1,25	6,700	.2638	GT025005	GT045005	GT005005
M8 x 1,00	7,000	.2756	GT025012	GT045012	GT005012
M10 x 1,50	8,500	.3346	GT025006	GT045006	GT005006
M10 x 1,25	8,700	.3425	GT025014	GT045014	GT005014
M10 x 1,00	9,000	.3543	GT025013	GT045013	GT005013
M12 x 1,75	10,200	.4016	GT025007	GT045007	GT005007
M12 x 1,50	10,500	.4134	GT025016	GT045016	GT005016
M12 x 1,25	10,800	.4252	GT025015	GT045015	GT005015
M14 x 2,00	12,000	.4724	GT025008	GT045008	GT005008
M14 x 1,50	12,500	.4921	GT025017	GT045017	GT005017
M16 x 2,00	14,000	.5512	GT025009	GT045009	GT005009
M16 x 1,50	14,500	.5709	GT025018	GT045018	GT005018
M18 x 2,50	15,500	.6102	GT025010	GT045010	GT005010
M18 x 1,50	16,500	.6496	GT025010	GT045010	GT005010
M20 x 2,50	17,500	.6890	GT025011	GT045011	GT005011

Steel • Selector

typical thread sizes	required tap drill diameter		P	
			Steel <32 HRC — Forming Tap	
				DIN 2174
cutting taps metric	mm	inch	blind and through hole GT22_WP31MG	blind and through hole with coolant GT23_WP31MG
M3 x 0,50	2,800	.1102	GT225016	–
M4 x 0,70	3,700	.1457	GT225017	–
M5 x 0,80	4,700	.1850	GT225018	GT235012
M6 x 1,00	5,600	.2205	GT225019	GT235013
M8 x 1,25	7,400	.2913	GT225020	GT235014
M8 x 1,00	7,600	.2992	GT225024	GT235018
M10 x 1,50	9,400	.3701	GT225021	GT235015
M10 x 1,25	9,500	.3740	GT225026	–
M10 x 1,00	9,500	.3740	GT225025	GT235019
M12 x 1,75	11,300	.4449	GT225022	GT235016
M12 x 1,50	11,300	.4449	GT225028	GT235020
M12 x 1,25	11,500	.4528	GT225027	–
M14 x 1,50	13,400	.5276	GT225029	GT235021
M16 x 2,00	15,200	.5984	GT225023	GT235017
M16 x 1,50	15,400	.6063	GT225030	GT235022

	P		All Materials	
	Recommended SC Drill		Alternate Tap Drill	
	approximately 5 x D with coolant TDS402 WP20PD	approximately 5 x D without coolant TDS202 WP20PD	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant VDS202A WU25PD
	TDS402A02500	TDS202A02500	VDS402A02500	VDS202A02500
	TDS402A03300	TDS202A03300	VDS402A03300	VDS202A03300
	TDS402A04219	TDS202A04219	VDS402A04219	VDS202A04219
	TDS402A05055	TDS202A05055	VDS402A05055	VDS202A05055
	TDS402A06906	TDS202A06906	VDS412A06906	VDS212A06906
	TDS402A07366	TDS202A07366	VDS412A07366	VDS212A07366
	TDS402A08700	TDS202A08700	VDS412A08700	VDS212A08700
	TDS402A09000	TDS202A09000	VDS412A09000	VDS212A09000
	TDS402A08839	TDS202A08839	VDS412A08839	VDS212A08839
	TDS402A10262	TDS202A10262	VDS412A10262	VDS212A10262
	TDS402A10716	TDS202A10716	VDS412A10716	VDS212A10716
	TDS402A11300	TDS202A11300	VDS412A11300	VDS212A11300
	TDS402A12251	TDS202A12251	VDS412A12251	VDS212A12251
	TDS402A12800	TDS202A12800	VDS412A12800	VDS212A12800
	TDS402A14500	TDS202A14500	VDS412A14500	VDS212A14500
	TDS402A14684	TDS202A14684	VDS412A14684	VDS212A14684
	TDS402A16500	TDS202A16500	VDS412A16500	VDS212A16500
	TDS402A16670	TDS202A16670	VDS412A16670	VDS212A16670
	TDS402A17859	TDS202A17859	VDS412A17859	VDS212A17859

	P		All Materials	
	Recommended SC Drill		Alternate Tap Drill	
	approximately 5 x D with coolant TDS402 WP20PD	approximately 5 x D without coolant TDS202 WP20PD	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant VDS202A WU25PD
	TDS402A02800	TDS202A02800	VDS402A02800	VDS202A02800
	TDS402A03734	TDS202A03734	VDS402A03734	VDS202A03734
	TDS402A05000	TDS202A05000	VDS402A05000	VDS202A05000
	TDS402A05791	TDS202A05791	VDS402A05791	VDS202A05791
	TDS402A07493	TDS202A07493	VDS412A07493	VDS212A07493
	TDS402A07938	TDS202A07938	VDS412A07938	VDS212A07938
	TDS402A09500	TDS202A09500	VDS412A09500	VDS212A09500
	TDS402A09500	TDS202A09500	VDS412A09500	VDS212A09500
	TDS402A09921	TDS202A09921	VDS412A09921	VDS212A09921
	TDS402A11300	TDS202A11300	VDS412A11300	VDS212A11300
	TDS402A11500	TDS202A11500	VDS412A11500	VDS212A11500
	TDS402A11509	TDS202A11509	VDS412A11509	VDS212A11509
	TDS402A13400	TDS202A13400	VDS412A13400	VDS212A13400
	TDS402A15250	TDS202A15250	VDS412A15250	VDS212A15250
	TDS402A15500	TDS202A15500	VDS412A15500	VDS212A15500

Stainless Steel • Selector

typical thread sizes		required tap drill diameter				M			
						HSS-E-PM Taps		HSS-E-PM Taps	
						ANSI		DIN 371, 374, 376	
cutting taps						blind hole	through hole	blind hole	through hole
metric	inch	mm	inch	fraction	wire	GT30_GM6515	GT20_GM6515	GT30_GM6515	GT20_GM6515
M3 x 0,50	–	2,500	.0984	–	–	GT305061	GT205061	GT305148	GT205077
–	6-32	2,705	.1065	–	36	GT305005	GT205007	–	–
M4 x 0,70	–	3,300	.1299	–	–	GT305062	GT205062	GT305079	GT205078
–	8-32	3,454	.1360	–	29	GT305006	GT205008	–	–
–	8-36	3,454	.1360	–	29	–	GT205022	–	–
–	10-24	3,734	.1470	–	26	GT305007	GT205010	–	–
–	10-32	4,039	.1590	–	21	GT305023	GT205024	–	–
M5 x 0,80	–	4,200	.1654	–	–	GT305063	GT205063	GT305080	GT205079
–	12-24	4,496	.1770	–	16	–	GT205011	–	–
M6 x 1,00		5,000	.1969	–	–	GT305064	GT205064	GT305081	GT205080
–	1/4-20	5,106	.2010	–	7	GT305009	GT205013	–	–
–	1/4-28	5,410	.2130	–	3	GT305025	GT205026	–	–
–	5/16-18	6,528	.2570	–	F	GT305011	GT205015	–	–
M8 x 1,25	–	6,700	.2638	–	–	GT305065	GT205066	GT305082	GT205081
–	5/16-24	6,909	.2720	–	I	GT305027	GT205027	–	–
M8 x 1,00	7.000	0,2756	–	–	–	–	GT305090	GT205087	–
–	3/8-16	7,938	.3125	5/16	–	GT305013	GT205017	–	–
–	3/8-24	8,433	.3320	–	Q	GT305028	GT205028	–	–
M10 x 1,50	–	8,500	.3346	–	–	GT305066	GT205067	GT305083	GT205082
M10 x 1,25	8.700	0,3425	–	–	–	–	GT305092	GT205089	–
M10 x 1,00	9.000	0,3543	–	–	–	–	GT305091	GT205088	–
–	7/16-14	9,093	.3580	–	T	GT305014	GT205018	–	–
–	7/16-20	9,921	.3906	25/64	–	GT305029	GT205029	–	–
M12 x 1,75	–	10,200	.4016	–	–	GT305067	GT205068	GT305084	GT205083
M12 x 1,50	–	10,500	.4134	–	–	–	–	GT305093	GT205090
–	1/2-13	10,716	.4219	27/64	–	GT305016	GT205019	–	–
–	1/2-20	11,509	.4531	29/64	–	GT305030	GT205030	–	–
M14 x 2,00	–	12,000	.4724	–	–	GT305068	–	GT305085	GT205084
M14 x 1,50	–	12,500	.4921	–	–	–	–	GT305094	GT205091
–	5/8-11	13,495	.5313	17/32	–	GT305018	GT205020	–	–
M16 x 2,00	–	14,000	.5512	–	–	GT305069	–	GT305086	GT205085
M16 x 1,50	–	14,500	.5709	–	–	–	–	GT305095	GT205092
M18 x 2,50	–	15,500	.6102	–	–	–	–	GT305087	–
M18 x 1,50	–	16,500	.6496	–	–	–	–	GT305096	GT205093
–	3/4-10	16,670	.6563	21/32	–	GT305020	GT205021	–	–
M20 x 2,50	–	17,500	.6890	–	–	–	–	–	GT205086
M22 x 2,50	–	19,500	.7677	–	–	–	–	GT305088	–
M24 x 3,00	–	21,000	.8268	–	–	–	–	GT305089	–
–	1–8	22,225	.8750	7/8	–	GT305021	–	–	–

		M		All Materials	
HSS-E-PM Taps		Recommended SC Drill		Alternate Tap Drill	
DIN 371, 374, 376					
blind hole with coolant GT31_GM6515	through hole with coolant GT21_GM6515	approximately 3 x D with coolant WD 412522	approximately 5 x D with coolant WD 412527	approximately 3 x D with coolant VDS401A WU25PD	approximately 5 x D with coolant VDS402A WU25PD
–	–	–	–	VDS401A02500	VDS402A02500
–	–	–	–	VDS401A02705	VDS402A02705
–	–	412522–00330	412527–00330	VDS401A03300	VDS402A03300
–	–	–	–	VDS401A03454	VDS402A03454
–	–	–	–	VDS401A03454	VDS402A03454
–	–	–	–	VDS401A03734	VDS402A03734
–	–	–	–	VDS401A04039	VDS402A04039
GT315001	GT215001	412522–00420	412527–00420	VDS401A04200	VDS402A04200
–	–	–	–	VDS401A04496	VDS402A04496
GT315002	GT215002	412522–00500	412527–00500	VDS401A05000	VDS402A05000
–	–	–	–	VDS401A05106	VDS402A05106
–	–	–	–	VDS401A05410	VDS402A05410
–	–	412522–00652	412527–00652	VDS401A06528	VDS402A06528
GT315003	GT215003	412522–00670	412527–00670	VDS411A06700	VDS412A06700
–	–	–	–	VDS411A06906	VDS412A06906
–	–	412522–00700	412527–00700	VDS411A07000	VDS412A07000
–	–	412522–00793	412527–00793	VDS411A07938	VDS412A07938
–	–	–	–	VDS411A08433	VDS412A08433
GT315004	GT215004	412522–00850	412527–00850	VDS411A08500	VDS412A08500
–	–	412522–00870	412527–00870	VDS411A08700	VDS412A08700
–	–	412522–00900	412527–00900	VDS411A09000	VDS412A09000
–	–	–	–	VDS411A09093	VDS412A09093
–	–	412522–00992	412527–00992	VDS411A09921	VDS412A09921
GT315005	GT215005	412522–01020	412527–01020	VDS411A10200	VDS412A10200
–	–	412522–01050	412527–01050	VDS411A10500	VDS412A10500
–	–	412522–01072	412527–01072	VDS411A10716	VDS412A10716
–	–	–	–	VDS411A11509	VDS412A11509
GT315006	GT215006	412522–01200	412527–01200	VDS411A12000	VDS412A12000
–	–	412522–01250	412527–01250	VDS411A12500	VDS412A12500
–	–	–	–	VDS411A13495	VDS412A13495
–	–	412522–01400	412527–01400	VDS411A14000	VDS412A14000
–	–	412522–01450	412527–01450	VDS411A14500	VDS412A14500
–	–	412522–01550	412527–01550	VDS411A15500	VDS412A15500
–	–	412522–01650	412527–01650	VDS411A16500	VDS412A16500
–	–	–	–	VDS411A16670	VDS412A16670
–	–	412522–01750	412527–01750	VDS411A17500	VDS412A17500
–	–	412522–01950	412527–01950	VDS411A19500	VDS412A19500
		Recommended Modular Drill			
		insert	tool body 3 x D		
–	–	TDM2100UPM	TDM210R3SCF25M	–	–
–	–	TDM2223UPM	TDM0886R3SS088	–	–

Cast Iron • Selector

typical thread sizes		required tap drill diameter				K			K
						HSS-E-PM Taps			Recommended SC Drill
						ANSI	DIN 371, 374, 376		
cutting taps						blind and through hole	blind and through hole	blind and through hole with coolant	approximately 3 x D with coolant
metric	inch	mm	inch	fraction	wire	GT40_GP6520	GT40_GP6520	GT41_GP6520	TDS411 WK15PD
M3 x 0,50	–	2,500	.0984	–	–	GT405030	–	–	TDS401A02500
M4 x 0,70	–	3,300	.1299	–	–	GT405031	GT405001	GT415001	TDS401A03300
–	10-24	3,734	.1470	–	26	GT405012	–	–	TDS401A03734
–	10-32	4,039	.1590	–	21	GT405013	–	–	TDS401A04039
M5 x 0,80	–	4,200	.1654	–	–	GT405032	GT405002	GT415002	TDS401A04200
M6 x 1,00	–	5,000	.1969	–	–	GT405033	GT405003	GT415003	TDS401A05000
–	1/4-20	5,106	.2010	–	7	GT405015	–	–	TDS401A05106
–	1/4-28	5,410	.2130	–	3	GT405017	–	–	TDS401A05410
–	5/16-18	6,528	.2570	–	F	GT405019	–	–	TDS401A06528
M8 x 1,25	–	6,700	.2638	–	–	GT405034	GT405004	GT415004	TDS411A06700
–	5/16-24	6,909	.2720	–	I	GT405020	–	–	TDS411A06906
–	3/8-16	7,938	.3125	5/16	–	GT405022	–	–	TDS411A07938
–	3/8-24	8,433	.3320	–	Q	GT405023	–	–	TDS411A08433
M10 x 1,50	–	8,500	.3346	–	–	GT405035	GT405005	GT415005	TDS411A08500
–	7/16-14	9,093	.3580	–	T	GT405024	–	–	TDS411A09093
–	7/16-20	9,921	.3906	25/64	–	GT405025	–	–	TDS411A09921
M12 x 1,75	–	10,200	.4016	–	–	GT405036	GT405006	GT415006	TDS411A10200
–	1/2-13	10,716	.4219	27/64	–	GT405026	–	–	TDS411A10716
–	1/2-20	11,509	.4531	29/64	–	GT405027	–	–	TDS411A11509
M14 x 2,00	–	12,000	.4724	–	–	GT405037	GT405007	GT415007	TDS411A12000
–	5/8-11	13,495	.5313	17/32	–	GT405028	–	–	TDS411A13495
M16 x 2,00	–	14,000	.5512	–	–	GT405038	GT405008	GT415008	TDS411A14000
M18 x 2,50	–	15,500	.6102	–	–	–	GT405009	GT415009	TDS411A15500
–	3/4-10	16,670	.6563	21/32	–	GT405029	–	–	TDS411A16670
M20 x 2,50	–	17,500	.6890	–	–	–	GT405010	GT415010	TDS411A17500
M22 x 2,50	–	19,500	.7677	–	–	–	GT405011	–	TDS411A19500

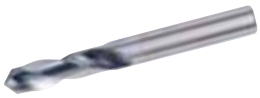
K		All Materials		
Recommended SC Drill		Alternate Tap Drill		
approximately 5 x D with coolant TDS412 WK15PD	approximately 5 x D non-coolant TDS212 WK15PD	approximately 3 x D with coolant VDS401A WU25PD	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant VDS202A WU25PD
TDS402A02500	TDS212A02500	VDS401A02500	VDS402A02500	VDS202A02500
TDS402A03300	TDS212A03300	VDS401A03300	VDS402A03300	VDS202A03300
TDS402A03734	TDS212A03734	VDS401A03734	VDS402A03734	VDS202A03734
TDS402A04039	TDS212A04039	VDS401A04039	VDS402A04039	VDS202A04039
TDS402A04200	TDS212A04200	VDS401A04200	VDS402A04200	VDS202A04200
TDS402A05000	TDS212A05000	VDS401A05000	VDS402A05000	VDS202A05000
TDS402A05106	TDS212A05106	VDS401A05106	VDS402A05106	VDS202A05106
TDS402A05410	TDS212A05410	VDS401A05410	VDS402A05410	VDS202A05410
TDS402A06528	TDS212A06528	VDS401A06528	VDS402A06528	VDS202A06528
TDS412A06700	TDS212A06700	VDS411A06700	VDS412A06700	VDS212A06700
TDS412A06906	TDS212A06906	VDS411A06906	VDS412A06906	VDS212A06906
TDS412A07938	TDS212A07938	VDS411A07938	VDS412A07938	VDS212A07938
TDS412A08433	TDS212A08433	VDS411A08433	VDS412A08433	VDS212A08433
TDS412A08500	TDS212A08500	VDS411A08500	VDS412A08500	VDS212A08500
TDS412A09093	TDS212A09093	VDS411A09093	VDS412A09093	VDS212A09093
TDS412A09921	TDS212A09921	VDS411A09921	VDS412A09921	VDS212A09921
TDS412A10200	TDS212A10200	VDS411A10200	VDS412A10200	VDS212A10200
TDS412A10716	TDS212A10716	VDS411A10716	VDS412A10716	VDS212A10716
TDS412A11509	TDS212A11509	VDS411A11509	VDS412A11509	VDS212A11509
TDS412A12000	TDS212A12000	VDS411A12000	VDS412A12000	VDS212A12000
TDS412A13495	TDS212A13495	VDS411A13495	VDS412A13495	VDS212A13495
TDS412A14000	TDS212A14000	VDS411A14000	VDS412A14000	VDS212A14000
TDS412A15500	TDS212A15500	VDS411A15500	VDS412A15500	VDS212A15500
TDS412A16670	TDS212A16670	VDS411A16670	VDS412A16670	VDS212A16670
TDS412A17500	TDS212A17500	VDS411A17500	VDS412A17500	VDS212A17500
TDS412A19500	TDS212A19500	VDS411A19500	VDS412A19500	VDS212A19500

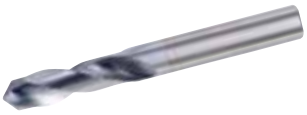
Aluminium • Selector

typical thread sizes		required tap drill diameter				N		
						HSS-E-PM Taps (Wrought, low Si)		HSS-E-PM Taps (Cast <12%)
						DIN 371, 374, 376		ANSI
cutting taps						blind hole	through hole	blind and through hole
metric	inch	mm	inch	fraction	wire	GT80_WN48EG	GT70_WN48EG	GT40_GP6520
M3 x 0,50	–	2,500	.0984	–	–	GT805001	GT705001	GT405030
M4 x 0,70	–	3,300	.1299	–	–	GT805002	GT705002	GT405031
–	10-24	3,734	.1470	–	26	–	–	GT405012
–	10-32	4,039	.1590	–	21	–	–	GT405013
M5 x 0,80	–	4,200	.1654	–	–	GT805003	GT705003	GT405032
M6 x 1,00	–	5,000	.1969	–	–	GT805004	GT705004	GT405033
–	1/4-20	5,106	.2010	–	7	–	–	GT405015
–	1/4-28	5,410	.2130	–	3	–	–	GT405017
–	5/16-18	6,528	.2570	–	F	–	–	GT405019
M8 x 1,25	–	6,700	.2638	–	–	GT805005	GT705005	GT405034
–	5/16-24	6,909	.2720	–	I	–	–	GT405020
–	3/8-16	7,938	.3125	5/16	–	–	–	GT405022
–	3/8-24	8,433	.3320	–	Q	–	–	GT405023
M10 x 1,50	–	8,500	.3346	–	–	GT805006	GT705006	GT405035
–	7/16-14	9,093	.3580	–	T	–	–	GT405024
–	7/16-20	9,921	.3906	25/64	–	–	–	GT405025
M12 x 1,75	–	10,200	.4016	–	–	GT805007	GT705007	GT405036
–	1/2-13	10,716	.4219	27/64	–	–	–	GT405026
–	1/2-20	11,509	.4531	29/64	–	–	–	GT405027
M14 x 2,00	–	12,000	.4724	–	–	–	–	GT405037
–	5/8-11	13,495	.5313	17/32	–	–	–	GT405028
M16 x 2,00	–	14,000	.5512	–	–	GT805008	GT705008	GT405038
M18 x 2,50	–	15,500	.6102	–	–	–	–	–
–	3/4-10	16,670	.6563	21/32	–	–	–	GT405029
M20 x 2,50	–	17,500	.6890	–	–	GT805009	–	–
M22 x 2,50	–	19,500	.7677	–	–	–	–	–

Aluminium • Forming Taps • Selector

typical thread sizes	required tap drill diameter		N	
			Forming Taps	
			DIN 2174	
cutting taps			blind and through hole	blind and through hole with coolant
metric	mm	inch	GT22 WN38MG	GT23 WN38MG
M3 x 0,50	2,800	.1102	GT225001	–
M4 x 0,70	3,734	.1470	GT225002	–
M5 x 0,80	4,700	.1850	GT225003	GT235001
M6 x 1,00	5,600	.2205	GT225004	GT235002
M8 x 1,25	7,400	.2913	GT225005	GT235003
M8 x 1,00	7,600	.2992	GT225009	GT235007
M10 x 1,50	9,400	.3701	GT225006	GT235004
M10 x 1,25	9,500	.3740	GT225011	–
M10 x 1,00	9,500	.3740	GT225010	GT235008
M12 x 1,75	11,300	.4449	GT225007	GT235005
M12 x 1,50	11,300	.4449	GT225013	GT235019
M12 x 1,25	11,500	.4528	GT225012	–
M14 x 1,50	13,400	.5276	GT225014	GT235010
M16 x 2,00	15,200	.5984	GT225008	GT235006
M16 x 1,50	15,400	.6063	GT225015	GT235011

N			All Materials	
HSS-E-PM Taps (Cast <12%)		Recommended SC Drill	Alternate Tap Drill	
				
DIN 371, 374, 376				
blind and through hole GT40_GP6520	blind and through hole with coolant GT41_GP6520	approximately 3 x D with coolant 259/659	approximately 3 x D with coolant VDS401A WU25PD	approximately 5 x D with coolant VDS402A WU25PD
–	–	–	VDS401A02500	VDS402A02500
GT405001	GT415001	TCM25903300	VDS401A03300	VDS402A03300
–	–	–	VDS401A03734	VDS402A03734
–	–	–	VDS401A04039	VDS402A04039
GT405002	GT415002	TCM25904200	VDS401A04200	VDS402A04200
GT405003	GT415003	TCM25905000	VDS401A05000	VDS402A05000
–	–	TCM25905100	VDS401A05106	VDS402A05106
–	–	TCM25905400	VDS401A05410	VDS402A05410
–	–	TCM25906500	VDS401A06528	VDS402A06528
GT405004	GT415004	TCM25906700	VDS411A06700	VDS412A06700
–	–	TCM25906900	VDS411A06906	VDS412A06906
–	–	TCM65908000	VDS411A07938	VDS412A07938
–	–	–	VDS411A08433	VDS412A08433
GT405005	GT415005	TCM25908500	VDS411A08500	VDS412A08500
–	–	TCM25909100	VDS411A09093	VDS412A09093
–	–	TCM25909900	VDS411A09921	VDS412A09921
GT405006	GT415006	TCM25910200	VDS411A10200	VDS412A10200
–	–	TCM65910500	VDS411A10716	VDS412A10716
–	–	TCM65911500	VDS411A11509	VDS412A11509
GT405007	GT415007	TCM25912000	VDS411A12000	VDS412A12000
–	–	TCM25913500	VDS411A13495	VDS412A13495
GT405008	GT415008	TCM25914000	VDS411A14000	VDS412A14000
GT405009	GT415009	TCM25915500	VDS411A15500	VDS412A15500
–	–	–	VDS411A16670	VDS412A16670
GT405010	GT415010	TCM25917500	VDS411A17500	VDS412A17500
GT405011	–	TCM25919500	VDS411A19500	VDS412A19500

	N	All Materials	
	Recommended SC Drill	Alternate Tap Drill	
			
	approximately 5 x D with coolant 259/659	approximately 3 x D with coolant VDS401A WU25PD	approximately 5 x D with coolant VDS401A WU25PD
	–	VDS401A02800	VDS402A02800
	–	VDS401A03734	VDS402A03734
	TCM25904700	VDS401A04700	VDS402A04700
	TCM25905600	VDS401A05600	VDS402A05600
	TCM25907400	VDS411A07400	VDS412A07400
	TCM25907600	VDS411A07600	VDS412A07600
	TCM25909400	VDS411A09400	VDS412A09400
	TCM25909500	VDS411A09500	VDS412A09500
	TCM25909500	VDS411A09500	VDS412A09500
	TCM25911300	VDS411A11300	VDS412A11300
	TCM25911300	VDS411A11300	VDS412A11300
	TCM25911500	VDS411A11500	VDS412A11500
	–	VDS411A13400	VDS412A13400
	–	VDS411A15200	VDS412A15200
	–	VDS411A15400	VDS412A15400

High-Temperature Alloys

typical thread sizes	required tap drill diameter		S		
			HSS-E-PM Taps — Titanium Alloys		HSS-E-PM Taps — Nickel and Cobalt Alloys
			DIN 371, 374, 376		DIN 371, 374, 376
			blind hole	through hole	blind hole
metric	mm	inch	GT16_WN35MG	GT14_WN35MG	GT12_WS32MG
M3 x 0,50	2,500	.0984	GT165001	GT145001	GT125001
M4 x 0,70	3,300	.1299	GT165002	GT145002	GT125002
M5 x 0,80	4,200	.1654	GT165003	GT145003	GT125003
M6 x 1,00	5,000	.1969	GT165004	GT145004	GT125004
M8 x 1,25	6,700	.2638	GT165005	GT145005	GT125005
M10 x 1,50	8,500	.3346	GT165006	GT145006	GT125006
M12 x 1,75	10,200	.4016	GT165007	GT145007	GT125007
M14 x 2,00	12,000	.4724	–	–	GT125008
M16 x 2,00	14,000	.5512	–	–	GT125009
M20 x 2,50	17,500	.6890	–	–	GT125010

Hard Material

typical thread sizes	required tap drill diameter		H	
			HSS-E-PM Taps — 44–55 HRC	HSS-E-PM Taps — 55–63 HRC
			DIN 371, 374, 376	
			blind and through hole	blind and through hole
metric	mm	inch	GT06_WS32MG	GX10_WH16PG
M3 x 0,50	2,500	.0984	–	GX105001
M4 x 0,70	3,300	.1299	–	GX105002
M5 x 0,80	4,200	.1654	–	GX105003
M6 x 1,00	5,000	.1969	GT065003	GX105004
M8 x 1,25	6,700	.2638	GT065001	GX105005
M8 x 1,00	7,000	.2756	GT065006	GX105009
M10 x 1,50	8,500	.3346	GT065002	GX105007
M10 x 1,00	9,000	.3543	GT065007	GX105010
M12 x 1,75	10,200	.4016	GT065004	GX105007
M12 x 1,50	10,500	.4134	GT065008	GX105011
M14 x 2,00	12,000	.4724	–	GX105008
M14 x 1,50	12,500	.4921	GT065009	GX105012
M16 x 2,00	14,000	.5512	GT065005	–
M16 x 1,50	14,500	.5709	GT065010	GX105013

	S		All Materials	
HSS-E-PM Taps — Nickel and Cobalt Alloys	Recommended SC Drill		Alternate Tap Drill	
DIN 371, 374, 376 through hole GT10_WS32MG	approximately 3 x D with coolant WD 412522	approximately 5 x D with coolant WD 412527	approximately 3 x D with coolant TDS+	approximately 5 x D with coolant TDS+5
GT105001	–	–	VDS401A02500	VDS402A02500
GT105002	412522-000330	412527-000330	17050103300	17050203300
GT105003	412522-000420	412527-000420	17050104200	17050204200
GT105004	412522-000500	412527-000500	17050105000	17050205000
GT105005	412522-000670	412527-000670	17050106700	17050206700
GT105006	412522-000850	412527-000850	17050108500	17050208500
GT105007	412522-001020	412527-001020	17050110200	17050210200
GT105008	412522-001200	412527-001200	17050112000	17050212000
GT105009	412522-001400	412527-001400	17050114000	17050214000
GT105010	412522-001750	412527-001750	17050117500	17050217500

	H		All Materials	
	Recommended SC Drill		Alternative Tap Drill	
	approximately 3 x D with coolant WIDIA-Hanita™ M155	approximately 5 x D with coolant WIDIA-Hanita™ M155	approximately 3 x D with coolant TDS+	approximately 5 x D with coolant TDS+
	WIDIA-Hanita M155 custom solution (special drill for hard materials)	WIDIA-Hanita M155 custom solution (special drill for hard materials)	–	–
			–	–
			17050104200	17050204200
			17050105000	17050205000
			17050106700	17050206700
			17050107000	17050207000
			17050108500	17050208500
			17050109000	17050209000
			17050110200	17050210200
			17050110500	17050210500
			17050112000	17050212000
			17050112500	17050212500
			17050114000	17050214000
			17050114500	17050214500

Steel • Selector

typical thread sizes	required tap drill diameter		P HSS-E-PM Taps		
cutting taps metric	mm	inch	blind hole GT30_GP6520	blind hole GT50_GP6520	through hole GT20_GP6520
M24 x 3,00	21,000	.8268	GT305161	GT505001	GT505111
M30 x 3,50	26,500	1.0433	GT305163	GT505002	GT505113
M33 x 3,50	29,500	1.1614	GT305164	GT505003	GT505114
M36 x 4,00	32,000	1.2598	GT305166	GT505004	GT505116
M42 x 4,50	37,500	1.4764	GT305168	GT505005	GT505118

Steel • Extra Long • Selector

typical thread sizes	required tap drill diameter		P HSS-E-PM Taps		
cutting taps metric	mm	inch	blind hole GT30_GP6520	blind hole GT50_GP6520	through hole GT20_GP6520
M24 x 3,00	21,000	.8268	GT305151	GT505006	GT205122
M30 x 3,50	26,500	1.0433	GT305153	GT505007	GT205124
M33 x 3,50	29,500	1.1614	GT305154	GT505008	GT205125
M36 x 4,00	32,000	1.2598	GT305156	GT505009	GT205127
M42 x 4,50	37,500	1.4764	GT305158	GT505010	GT205129

Cast Iron • Selector

typical thread sizes	required tap drill diameter		K HSS-E-PM Taps		
cutting taps metric	mm	inch	blind hole GT30_GP6520	blind hole GT50_GP6520	through hole GT20_GP6520
M24 x 3,00	21,000	.8268	GT305161	GT505001	GT505111
M30 x 3,50	26,500	1.0433	GT305163	GT505002	GT505113
M33 x 3,50	29,500	1.1614	GT305164	GT505003	GT505114
M36 x 4,00	32,000	1.2598	GT305166	GT505004	GT505116
M42 x 4,50	37,500	1.4764	GT305168	GT505005	GT505118

Cast Iron • Extra Long • Selector

typical thread sizes	required tap drill diameter		K HSS-E-PM Taps		
cutting taps metric	mm	inch	blind hole GT30_GP6520	blind hole GT50_GP6520	through hole GT20_GP6520
M24 x 3,00	21,000	.8268	GT305151	GT505006	GT205122
M30 x 3,50	26,500	1.0433	GT305153	GT505007	GT205124
M33 x 3,50	29,500	1.1614	GT305154	GT505008	GT205125
M36 x 4,00	32,000	1.2598	GT305156	GT505009	GT205127
M42 x 4,50	37,500	1.4764	GT305158	GT505010	GT205129

P		P	
HSS-E-PM Taps		Recommended Modular Drill	
blind hole with coolant GT31_GP6520	blind hole with coolant GT51_GP6520	TOP DRILL™ M1 insert	tool body 3 x D
GT315025	GT515001	TDM2100UPM	TDM210R3SCF25M
GT315027	GT515002	Top Cut Plus™ TN7015/XOMT-34 or WIDIA-Metcut™ Spade Blade Program	
GT315028	GT515003		
GT315030	GT515004		
GT315032	GT515005		

P		P	
HSS-E-PM Taps		Recommended Modular Drill	
blind hole with coolant GT31_GP6520	blind hole with coolant GT51_GP6520	TOP DRILL™ M1 insert	tool body 3 x D
GT315014	GT515006	TDM2100UPM	TDM210R3SCF25M
GT315016	GT515007	Top Cut Plus™ TN7015/XOMT-34 or WIDIA-Metcut™ Spade Blade Program	
GT315017	GT515008		
GT315019	GT515009		
GT315021	GT515010		

K		K	
HSS-E-PM Taps		Recommended Modular Drill	
blind hole with coolant GT31_GP6520	blind hole with coolant GT51_GP6520	TOP DRILL™ M1 insert	tool body 3 x D
GT315025	GT515001	TDM2100UPM	TDM210R3SCF25M
GT315027	GT515002	Top Cut Plus™ TN5515/XOMT-35 or WIDIA-Metcut™ Spade Blade Program	
GT315028	GT515003		
GT315030	GT515004		
GT315032	GT515005		

K		K	
HSS-E-PM Taps		Recommended Modular Drill	
blind hole with coolant GT31_GP6520	blind hole with coolant GT51_GP6520	TOP DRILL™ M1 insert	tool body 3 x D
GT315014	GT515006	TDM2100UPM	TDM210R3SCF25M
GT315016	GT515007	Top Cut Plus™ TN5515/XOMT-35 or WIDIA-Metcut™ Spade Blade Program	
GT315017	GT515008		
GT315019	GT515009		
GT315021	GT515010		

Thread Mills

Available for the first time, our solid thread mills are designed to be the highest quality thread milling solution.

WIDIA-GTD™

- Cut up to 63 HRC.
- Improved overall thread quality.

Unmatched Capabilities

- Capable of easily cutting most difficult materials.
- Carbide grades make threading easier and machining times shorter.
- High-quality internal and external threading on 3-axis CNC machines.
- Thread mills make interrupted cuts and short chips.
- Design offers a range of benefits to improve overall thread quality.
- Short, easily evacuated chips generate less heat and friction, so there is a lower risk of damage to threading.

Choose WIDIA-GTD™ Thread Mills

- Greater versatility than competitive products.
- Optimum surface quality for an excellent end product.
- Designed to eliminate chipping issues.
- No need to reverse the spindle.
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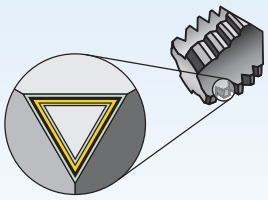
★ Good
★★ Better
★★★ Best

GTM Series Solid Thread Milling • Metric	series	size range (inch and metric) size min - max	hole	operation	coolant	grade	shank
	GTM11	M3 - M20	★★★	★★★	★★★	WU13PV	6535 HA
	GTM21	M5 - M16	★★★	★★	★★★	WU12PV	6535 HA
	GTM31	M4 - M16	★★★	★★★	★★★	WU12PV	6535 HA
	GTM41	M6 - M24	★★★	★★★	★★★	WU16PV	6535 HA
	GTM41LH	M6 - M12	★★★	★★★	★★★	WU16PV	6535 HA

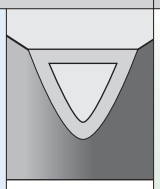
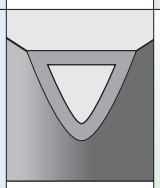
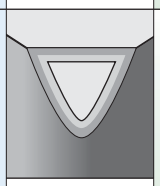
P				M	K		N			S				H			
1, 2, 3, 4, 6, 7	5, 9, 10, 11	12, 13.1	13.2	14.1, 14.2, 14.3, 14.4	15, 16, 17, 18, 19	20	21	22, 23, 24, 25	26, 27, 28	31, 32	33, 34, 35	36	37	38.1, 38.2, 40.1, 40.2, 41.1	39.1, 41.2		
Steel <35 HRC	Steel 36–48 HRC	PH & Ferriitic Stainless Steel <35 HRC	PH & Ferriitic Stainless Steel >35 HRC	Stainless Steel	Cast Iron		Wrought Aluminium	Cast Aluminium	Copper, Copper Alloys	Iron Based	Cobalt Based	Nickel Based	Titanium & Alloys	Hardened Steel 49–55 HRC	Hardened Steel 56–68 HRC	Page	Recommended Cutting Parameters
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★	★	★	★			A84	A90
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★			A85	A90
					★★★	★★★	★★★	★★★	★★★							A86	A91
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★					★★★	★★★	A87	A92
										★★★	★★★	★★★	★★★	★★★	★★★	A88	A92



Coatings are designed for optimised tapping performance in specific materials.

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

wear resistance ⟷ toughness

Grade	Coating	Grade Description	05	10	15	20	25	30	35	40	45
NEW! WU12PV		Coated carbide. PVD fine-grain carbide substrate with high-hardness TiCN coating. Universal grade for thread milling most materials.									
		P		■	■	■					
		M		■	■	■					
		K		■	■	■					
		N			■	■	■				
		S		■	■	■					
		H									
NEW! WU13PV		Coated carbide. PVD carbide substrate with heat-resistant TiAlN coating. Universal grade for thread milling most materials.									
		P			■	■	■	■			
		M			■	■	■	■			
		K		■	■	■	■				
		N				■	■	■	■		
		S			■	■	■	■			
		H									
NEW! WU16PV		Coated carbide. PVD two-layer coating with heat-resistant TiAlN base layer and low-friction MoS_2 top layer over carbide substrate. Use for thread milling most materials including high-hardness materials.									
		P				■	■	■	■		
		M				■	■	■	■		
		K			■	■	■	■			
		N			■	■	■	■			
		S				■	■	■	■		
		H					■	■	■	■	

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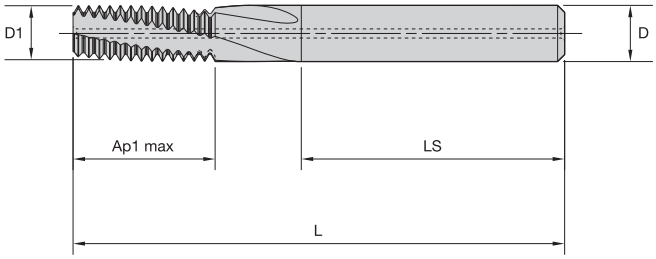
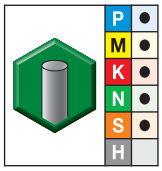


VICTORY

Shank Tolerance

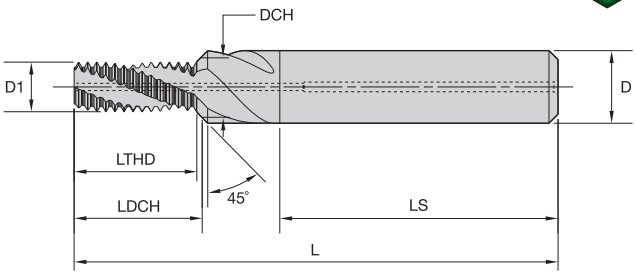
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–18	+0, -0,011
20–30	+0, -0,013

GTM11 • Through Coolant • Metric and Metric Fine



● first choice
○ alternate choice

WU13PV	D1 size	D1	Ap1 max	L	LS	D	cutting edges
GTM115001	M3X0.5	2,4	6	42	28	4,0	3
GTM115012	M4X0.5	3,4	8	55	36	6,0	3
GTM115002	M4X0.7	3,2	9	55	36	6,0	3
GTM115013	M5X0.5	4,3	10	55	36	6,0	3
GTM115003	M5X0.8	4,0	11	55	36	6,0	3
GTM115014	M6X0.75	5,0	12	55	36	6,0	3
GTM115004	M6X1	4,8	12	55	36	6,0	3
GTM115015	M8X0.75	5,9	17	63	36	6,0	3
GTM115016	M8X1	5,9	16	63	36	6,0	3
GTM115005	M8X1.25	5,9	17	63	36	6,0	3
GTM115017	M10X1	7,9	20	70	36	8,0	3
GTM115006	M10X1.5	7,9	20	70	36	8,0	3
GTM115018	M12X1	9,9	24	80	40	10,0	4
GTM115019	M12X1.5	9,9	25	80	40	10,0	4
GTM115007	M12X1.75	9,9	25	80	40	10,0	4
GTM115020	M14X1.5	9,9	29	80	40	10,0	4
GTM115008	M14X2	11,6	29	90	45	12,0	4
GTM115021	M16X1.5	11,9	32	90	45	12,0	4
GTM115009	M16X2	11,9	33	90	45	12,0	4
GTM115022	M18X1.5	13,9	37	90	45	14,0	4
GTM115010	M18X2.5	13,9	39	90	45	14,0	4
GTM115023	M20X1.5	13,9	41	90	45	14,0	4
GTM115011	M20X2.5	13,9	41	90	45	14,0	4

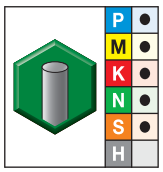


VICTORY

Shank Tolerance

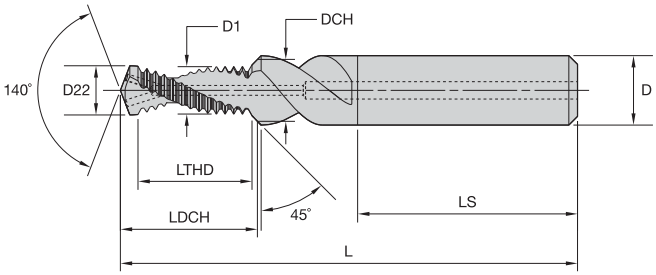
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–18	+0, -0,011
20–30	+0, -0,013

■ GTM21 • Through Coolant • Metric and Metric Fine



● first choice
○ alternate choice

WU12PV	D1 size	D1	DCH	LTHD	LDCH	L	LS	D	cutting edges
GTM215001	M5X0.8	4,0	5,3	10,82	11,40	55	36	6,0	3
GTM215008	M6X0.75	5,0	6,3	12,40	12,97	62	36	8,0	3
GTM215002	M6X1	4,8	6,3	12,52	13,19	62	36	8,0	3
GTM215009	M8X1	6,7	8,3	16,53	17,23	74	40	10,0	3
GTM215003	M8X1.25	6,5	8,3	16,91	17,71	74	40	10,0	3
GTM215010	M10X1	8,7	10,3	20,55	21,23	80	45	12,0	3
GTM215011	M10X1.25	8,4	10,3	20,67	21,50	80	45	12,0	3
GTM215004	M10X1.5	8,2	10,3	20,29	21,22	80	45	12,0	3
GTM215012	M12X1	10,6	12,3	24,56	25,27	90	45	14,0	4
GTM215013	M12X1.25	10,4	12,3	24,43	25,24	90	45	14,0	4
GTM215014	M12X1.5	10,1	12,3	24,80	25,76	90	45	14,0	4
GTM215005	M12X1.75	9,9	12,3	25,42	26,48	90	45	14,0	4
GTM215015	M14X1.5	12,1	14,3	29,31	30,25	100	48	16,0	4
GTM215006	M14X2	11,6	14,3	29,05	30,24	100	48	16,0	4
GTM215016	M16X1.5	14,0	16,3	32,31	33,30	102	48	18,0	4
GTM215007	M16X2	13,6	16,3	33,05	34,24	102	48	18,0	4

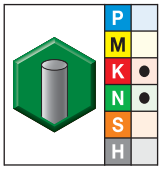


VICTORY

Shank Tolerance

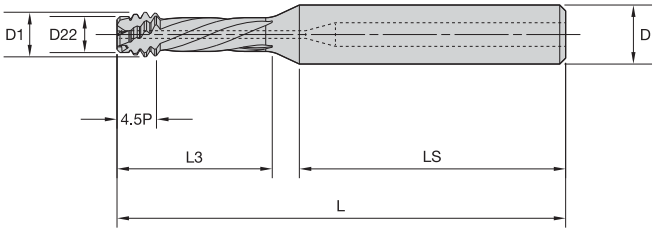
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–18	+0, -0,011
20–30	+0, -0,013

GTM31 • Through Coolant • Metric and Metric Fine



● first choice
○ alternate choice

WU12PV	D1 size	D1	D22	DCH	LTHD	LDCH	L	LS	D	cutting edges
GTM315001	M4X0.7	3,2	3,3	4,3	7,74	9,6	49	36	6,0	2
GTM315002	M5X0.8	4,0	4,2	5,3	9,65	11,8	55	36	6,0	2
GTM315009	M6X0.75	5,1	5,3	6,3	12,07	14,4	62	36	8,0	2
GTM315003	M6X1	4,8	5,0	6,3	12,06	14,7	62	36	8,0	2
GTM315010	M8X1	6,8	7,0	8,3	16,09	19,1	74	40	10,0	2
GTM315004	M8X1.25	6,5	6,8	8,3	15,08	18,4	74	40	10,0	2
GTM315012	M10X1.25	8,4	8,8	10,3	20,11	23,9	79	45	12,0	2
GTM315005	M10X1.5	8,2	8,5	10,3	19,59	23,7	79	45	12,0	2
GTM315014	M12X1.5	10,2	10,5	12,3	24,12	28,6	89	45	14,0	2
GTM315006	M12X1.75	9,9	10,3	12,3	22,86	27,6	89	45	14,0	2
GTM315011	M10X1	8,7	9,0	10,3	20,11	23,5	79	45	12,0	2
GTM315013	M12X1.25	10,4	10,8	12,3	23,88	28,0	89	45	14,0	2
GTM315015	M14X1.5	12,1	12,5	14,3	27,14	32,0	102	48	16,0	2
GTM315007	M14X2	11,6	12,0	14,3	28,12	33,6	102	48	16,0	2
GTM315016	M16X1.5	14,1	14,5	16,3	31,65	36,9	102	48	18,0	2
GTM315008	M16X2	13,6	14,0	16,3	32,13	38,0	102	48	18,0	2

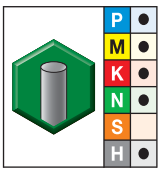


VICTORY

Shank Tolerance

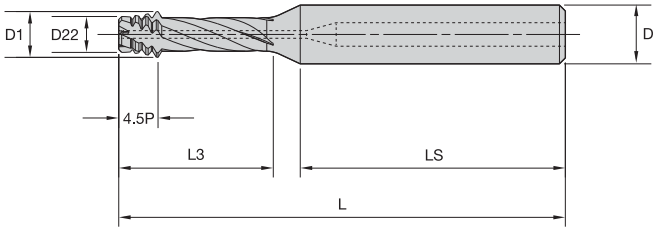
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–18	+0, -0,011
20–30	+0, -0,013

■ GTM41 • Through Coolant • Right Hand • Metric and Metric Fine



● first choice
○ alternate choice

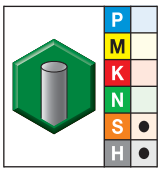
WU16PV	D1 size	D1	D22	L3	L	LS	D	cutting edges
GTM415001	M6X1	4,51	3,41	17	60	36	8,0	3
GTM415002	M7X1	4,51	3,41	17	60	36	8,0	3
GTM415013	M10X1.25	6,23	4,91	22	71	40	10,0	4
GTM415003	M8X1.25	6,23	4,91	22	71	40	10,0	4
GTM415004	M9X1.25	6,23	4,91	22	71	40	10,0	4
GTM415016	M10X1	6,23	5,13	22	71	40	10,0	4
GTM415014	M8X1	6,23	5,13	22	71	40	10,0	4
GTM415015	M9X1	6,23	5,13	22	71	40	10,0	4
GTM415005	M10X1.5	7,75	6,11	26	76	40	10,0	4
GTM415006	M11X1.5	7,75	6,11	26	76	40	10,0	4
GTM415007	M12X1.5	7,75	6,11	26	76	40	10,0	4
GTM415017	M12X1	9,15	8,06	30	86	45	12,0	4
GTM415018	M14X1	9,15	8,06	30	86	45	12,0	4
GTM415008	M12X1.75	9,16	7,21	32	86	45	12,0	4
GTM415019	M14X1.5	10,83	9,15	37	98	48	16,0	4
GTM415020	M16X1.5	10,83	9,15	37	98	48	16,0	4
GTM415009	M14X2	11,08	8,91	41	98	48	16,0	4
GTM415010	M16X2	11,08	8,91	41	98	48	16,0	4
GTM415011	M18X2.5	14,38	11,71	51	111	50	20,0	5
GTM415012	M20X2.5	14,38	11,71	51	111	50	20,0	5
GTM415021	M18X1.5	14,83	13,15	47	98	48	16,0	4
GTM415022	M20X1.5	14,83	13,15	47	98	48	16,0	4
GTM415023	M22X1.5	18,23	16,55	56	111	50	20,0	5
GTM415024	M24X1.5	18,23	16,55	56	111	50	20,0	5



VICTORY

Shank Tolerance	
D	Tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–18	+0, -0,011
20–30	+0, -0,013

GTM41 • Through Coolant • Left Hand • Metric and Metric Fine



● first choice
○ alternate choice

WU16PV	D1 size	D1	D22	L3	L	LS	D	cutting edges
GTM415041	M6X1	4,51	3,41	17	60	36	8,0	3
GTM415042	M7X1	4,51	3,41	17	60	36	8,0	3
GTM415043	M8X1.25	6,23	4,91	22	71	40	10,0	4
GTM415044	M9X1.25	6,23	4,91	22	71	40	10,0	4
GTM415045	M10X1.5	7,75	6,11	26	76	40	10,0	4
GTM415046	M11X1.5	7,75	6,11	26	76	40	10,0	4
GTM415047	M12X1.5	9,17	7,21	32	86	45	12,0	4

WIN WITH WIDIA™

WIDIA-GTD™

High-Performance Solid Carbide Taps for Aluminium Tapping

The first solid carbide tap specifically engineered for tapping cast silicon aluminium, wrought aluminium, and other non-ferrous materials!

- Tap at 2x the speed of conventional HSS-E taps — with 3x the tap life!
- Proprietary GN1515™ grade is highly resistant to galling and wear.
- Fully cylindrical shanks with h6 tolerance — use with hydraulic holders, shrink-fit holders, and precision collet holders.
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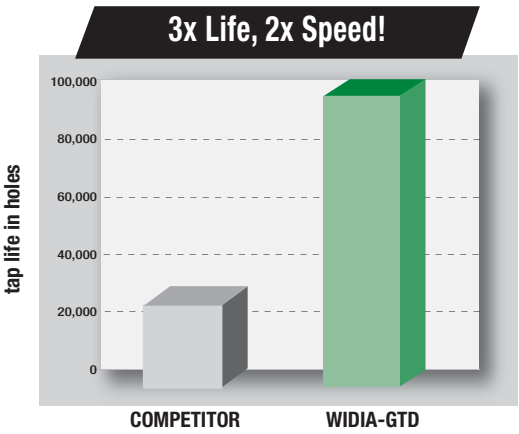
	COMPETITOR	WIDIA-GTD
tap:	HSS-E form tap	**GX49 Bottom Forming**
tap drill size:	9,5mm	9,5mm
speed:	47 m/min	94 m/min
coolant:	radial	radial
holder:	synchronous	ERICKSON™ Slim Line
tap life:	30.000 holes	**100.000 holes**



WIDIA VICTORY

		Thread Mill GTM11						Thread Mill • Chamfer GTM21					
		Cutting Speed — vc Range — m/min			Feed/Tooth by Diameter			Cutting Speed — vc Range — m/min			Feed/Tooth by Diameter		
Group		min	Starting Value	max		<10mm	>10mm	min	Starting Value	max		<10mm	>10mm
P	1	90	115	150	mm	**0,05**	0,08	140	185	240	mm	**0,06**	0,10
	2	90	115	150	mm	**0,05**	0,08	140	185	240	mm	**0,06**	0,10
	3	40	50	70	mm	**0,02**	0,03	70	90	120	mm	**0,03**	0,04
	4	—	—	—	—	**–**	—	70	90	120	mm	**0,03**	0,04
	5	60	80	100	mm	**0,04**	0,06	70	90	120	mm	**0,05**	0,08
	6	—	—	—	—	**–**	—	—	—	—	—	**–**	—
M	1	60	80	100	mm	**0,04**	0,06	70	90	120	mm	**0,05**	0,08
	2	60	80	100	mm	**0,04**	0,06	70	90	120	mm	**0,05**	0,08
	3	—	—	—	—	**–**	—	—	—	—	—	**–**	—
K	1	120	150	200	mm	**0,06**	0,10	130	170	220	mm	**0,06**	0,11
	2	120	150	200	mm	**0,06**	0,10	130	170	220	mm	**0,06**	0,11
	3	90	115	150	mm	**0,05**	0,07	110	140	180	mm	**0,05**	0,07
N	1	200	225	250	mm	**0,05**	0,06	270	300	330	mm	**0,08**	0,16
	2	170	190	210	mm	**0,04**	0,05	160	175	190	mm	**0,08**	0,16
	3	250	275	300	mm	**0,07**	0,09	270	300	330	mm	**0,08**	0,16
	4	250	275	300	mm	**0,07**	0,09	270	300	330	mm	**0,08**	0,16
	5	270	300	330	mm	**0,12**	0,13	250	275	300	mm	**0,11**	0,20
	6	170	190	210	mm	**0,05**	0,06	90	100	110	mm	**0,11**	0,20
S	1	60	80	100	mm	**0,04**	0,06	70	90	120	mm	**0,05**	0,08
	2	50	65	80	mm	**0,03**	0,04	50	60	80	mm	**0,03**	0,05
	3	50	65	80	mm	**0,03**	0,04	50	60	80	mm	**0,03**	0,05
	4	50	65	80	mm	**0,03**	0,04	50	60	80	mm	**0,03**	0,05

Drill • Chamfer • Thread Mill GTM31

Group		Cutting Speed — vc Range — m/min			Drilling Recommended Feed by Diameter				Milling Feed/Tooth by Diameter			
		min	Starting Value	max		<6mm	6–10mm	10–16mm		<6mm	6–10mm	10–16mm
K	1	130	175	230	mm/r	**0,10**	**0,16**	0,30	mm	**0,05**	**0,07**	0,10
N	1	270	300	330	mm/r	**0,15**	**0,25**	0,34	mm	**0,06**	**0,08**	0,12
	2	140	150	170	mm/r	**0,15**	**0,25**	0,34	mm	**0,06**	**0,08**	0,12
	4	270	300	330	mm/r	**0,15**	**0,25**	0,34	mm	**0,06**	**0,08**	0,12
	5	110	120	130	mm/r	**0,12**	**0,20**	0,32	mm	**0,06**	**0,08**	0,12

Mill • Chamfer • Thread Mill GTM41

Group		TM Style	Grade	Cutting Speed — vc Range — m/min min	Starting Value	max	Feed/Tooth by Diameter	<10mm	>10mm
P	1	GTM41 R	KCU36	170	**225**	290	mm	**0,05**	0,08
	2	GTM41 R	KCU36	170	**225**	290	mm	**0,05**	0,08
	3	GTM41 R	KCU36	120	**150**	200	mm	**0,03**	0,05
	4	GTM41 R	KCU36	100	**125**	160	mm	**0,03**	0,05
	5	GTM41 R	KCU36	120	**150**	200	mm	**0,03**	0,04
	6	GTM41 R	KCU36	60	**80**	100	mm	**0,03**	0,04
M	1	GTM41 R	KCU36	120	**150**	200	mm	**0,03**	0,04
	2	GTM41 R	KCU36	120	**150**	200	mm	**0,03**	0,04
	3	GTM41 R	KCU36	120	**150**	200	mm	**0,03**	0,04
K	1	GTM41 R	KCU36	190	**250**	330	mm	**0,06**	0,10
	2	GTM41 R	KCU36	190	**250**	330	mm	**0,06**	0,10
	3	GTM41 R	KCU36	140	**185**	240	mm	**0,04**	0,07
N	1	—	—	—	**–**	—	—	**–**	—
	2	GTM41 R	KCU36	180	**230**	300	mm	**0,06**	0,07
	3	—	—	—	**–**	—	—	**–**	—
	4	GTM41 R	KCU36	210	**275**	360	mm	**0,06**	0,07
	5	—	—	—	**–**	—	—	**–**	—
	6	GTM41 R	KCU36	210	**275**	360	mm	**0,06**	0,07
S	1	GTM41 L	KCU36	120	**150**	200	mm	**0,025**	0,045
	2	GTM41 L	KCU36	50	**60**	80	mm	**0,015**	0,025
	3	GTM41 L	KCU36	50	**60**	80	mm	**0,015**	0,025
	4	GTM41 L	KCU36	70	**90**	120	mm	**0,025**	0,035
H	1	GTM41	KCU36	80	**100**	130	mm	**0,030**	0,050
	2	GTM41	KCU36	80	**100**	130	mm	**0,030**	0,050
	3	GTM41	KCU36	50	**65**	80	mm	**0,020**	0,030
	4	GTM41	KCU36	50	**65**	80	mm	**0,020**	0,030

NOTE: For thread depths over 2 x D up to 3 x D, reduce speed by 25% and feed by 25%.

Thread Milling Methods

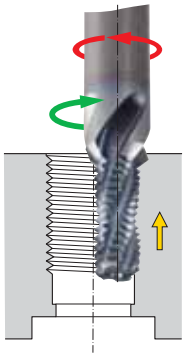
Climb Milling

Properties:

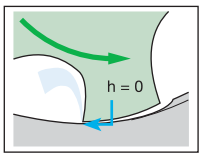
- Tool rotation direction clockwise
- Tool moves anti-clockwise
- Pitch upwards

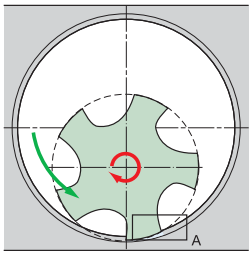
↓

- Right-hand thread



Climb milling is always when the cutting edge goes out of the material with a chip thickness h = 0





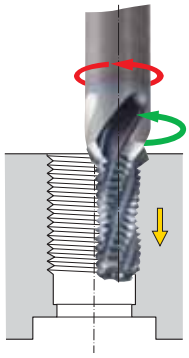
Conventional Milling

Properties:

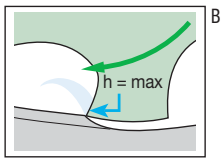
- Tool rotation direction clockwise
- Tool moves clockwise
- Pitch downwards

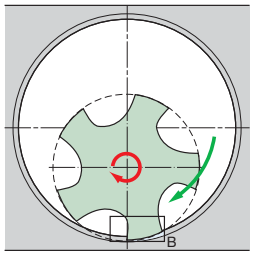
↓

- Right-hand thread



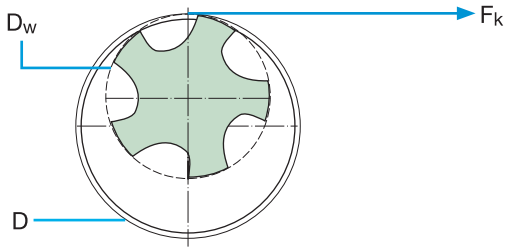
Conventional milling is always when the cutting edge goes out of the material with a chip thickness h = max





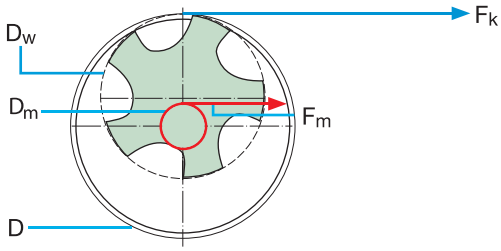
Counter Feed F_k

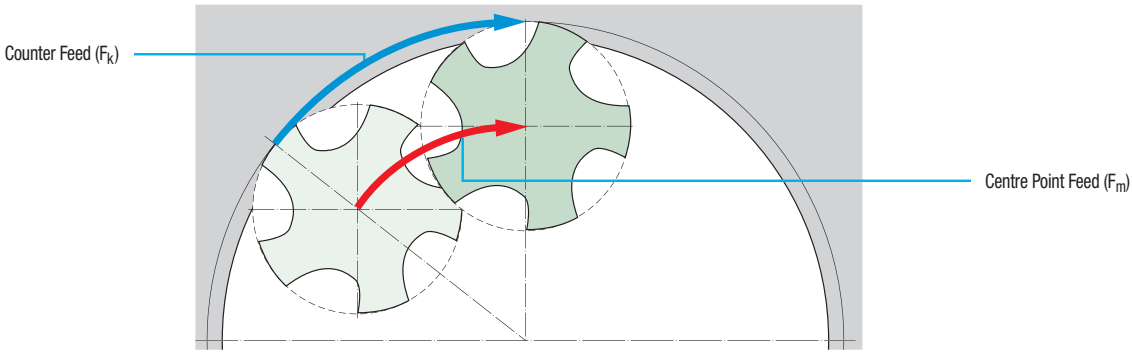
$$F_k = n \cdot f_z \cdot Z \text{ [mm/min]}$$



Centre Point Feed F_m

$$F_m = \frac{F_k \cdot (D-D_w)}{D} \text{ [mm/min]}$$



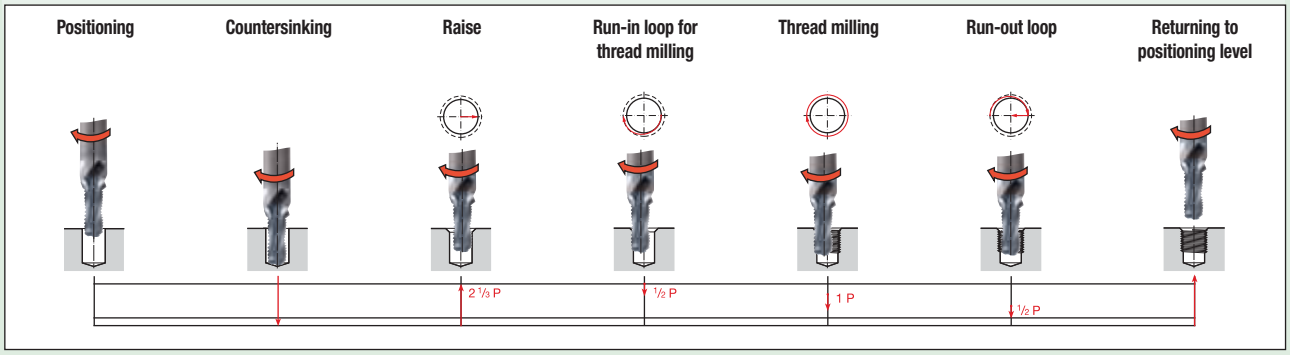


D_w = Tool diameter [mm]
n = RPM [min^{-1}]
f_z = Feed per tooth [mm]
Z = Number of teeth on tool (radial)
D = Nominal diameter of thread = Diameter of external contour [mm]
D_m = Diameter of the centre point ($D-D_w$) [mm]

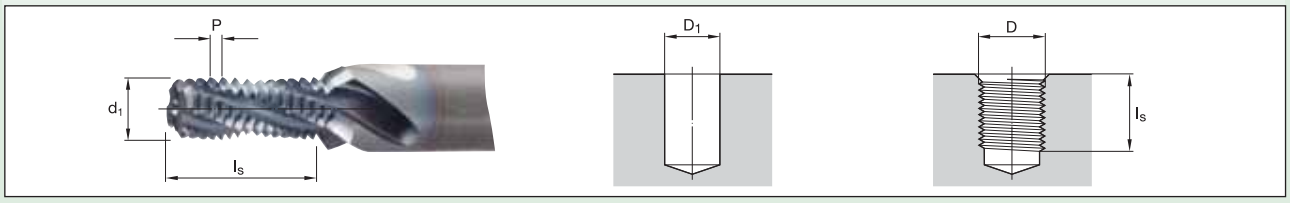
Thread Mill GTM21

Preparation	Drilling of thread hole
Process Principle	Countersinking, thread milling (conventional milling)

Cycle



Required Specification Values



Example

Size — M10-6H
Thread diameter D 10mm
Pitch.....1,5mm
Core hole diameter D_1 .....8,5mm

Material — Cast aluminium

Grade — WU12PV

Tool — GTM21
Catalogue number GTM215004
Number of teeth Z 3
Tool diameter d_1 .....8,2mm*
Tool radius compensation k [1] 0,1mm**
Tool radius to be programmed [2] 4mm***
Countersink depth l_s.....21,2mm
Cutting speed v_c.....250 m/min
Feed (countersinking) f_s.....0,3 mm/U
Feed (milling) f_z .....0,09 mm/tooth

*(measured on the cutting part) **(0,01 x D) ***(1/2 d_1 - k)

$N = \frac{V_c \cdot 1000}{d_1 \cdot \pi}$	S = 9709
$v_s = f_s \cdot n$	F = 2913 (countersinking)
$v_f = f_z \cdot Z \cdot n$	F = 2622 (contour)
$v_f = \frac{v_f \text{ contour} \cdot (D-d_1)}{D}$	F = 472 (centre point)

Program to DIN 66025 (conventional milling, on the contour, incremental)

Positioning the tool	N 10	G 54	G 90	G 00	X…	Y…	Z 2	S 9709	T01 [2]	M03
Advancing tool to full thread depth	N 20	G 91	Z-21.200							
Countersinking	N 30	G 01	Z-2	F 2913 (countersink)						
Raise	N 40	G 00	Z 3.450							
Moving sideways to the starting point	N 50	G 42	G01	X 4.250	F 1311 (milling, 1/2 contour)			[F 236] [3] (milling,1/2 centre point)		
Run-in loop in arc	N 60	G 02	X-9.25	Y 0.000	Z-0.750	I-4.625	J 0			
Thread milling	N 70	G 02	X 0	Y 0	Z-1.500	I 5	J 0.000	F2622 [F 472] [3] (centre point)		
Run-out loop in arc	N 80	G 02	X 9.25	Y 0.000	Z-0.750	I 4.625	J 0			
Exit	N 90	G 40	G 01	X-4.25						
Retracting tool to positioning level	N 100	G 90	G 00	Z 2						

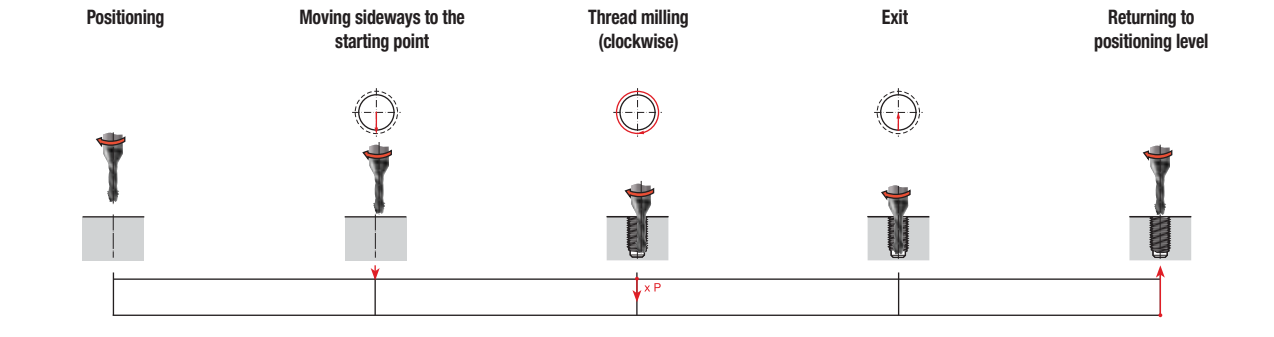
Cutting time t_h	**1,4 seconds**

NOTES:
[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).
[2] The cutter radius to be programmed is normally included in the tool memory.
[3] The feed values in brackets must be used for controllers, which do not calculate the centre point feed themselves.

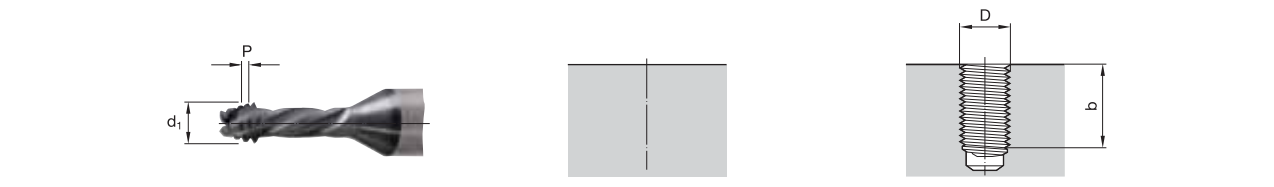
Drill Thread Mill GTM41 • Right Hand

Preparation	None
Process Principle	Milling thread and core hole, countersinking (conventional milling)

Cycle



Required Specification Values



Example

Size — M10-6H
Thread diameter D 10mm
Pitch.....1,5mm
Core hole diameter D_1 .....8,5mm

Material — Hard steel, 50 HRC

Grade — WU16PV

Tool — GTM41 Right Hand
Catalogue number GTM415005
Number of teeth Z 4
Tool diameter d_1 .....7,75mm*
Tool radius compensation k [1] 0,08mm**
Tool radius to be programmed [2].....3,795mm***
Thread depth b 20mm
Cutting speed v_c.....100 m/min
Feed (milling) f_z .....0,04 mm/tooth
Number of turns [5] 17

*(measured on the cutting part) **(0,01 x D; adjust to application) ***(1/2 d_1 - k)

$$N = \frac{V_c \cdot 1000}{d_1 \cdot \pi} \qquad S = 4109$$

$$v_f = f_z \cdot Z \cdot n \qquad F = 657 \text{ (contour)}$$

$$N = \frac{v_f \text{ contour} \cdot (D-d_1)}{D} \qquad F = 148 \text{ (centre point)}$$

Program to DIN 66025 (conventional milling, on the contour, incremental)

Positioning the tool	N 10	G 54	G 90	G 00	X…	Y…	Z 1.500	S 4109	T01 [2]	M03 [6]
Incremental programming	N 20	G 91								
Moving sideways to the starting point	N 30	G 42	G 01	X 0	Y-5	F 657 (contour)		[F 148] [4] (centre point)		
Thread milling	N 40	G 02		X 0	Y 0	Z-1.500	I 0	J 5.000		
Repeat thread milling	… [5]									
Exit	N 50	G 40	G 01	X 0	Y 5					
Retracting tool to positioning level	N 70	G 90	G 00	Z 2						

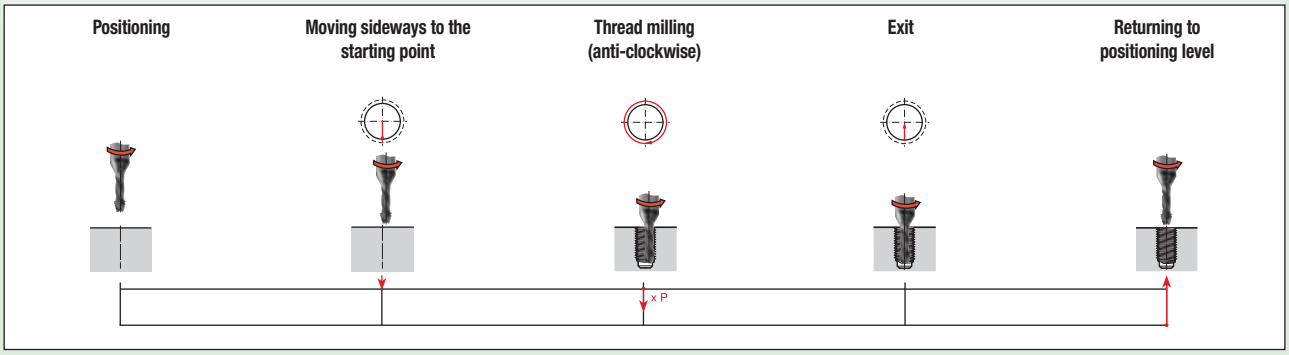
Cutting time t_h	**51,6 seconds**

NOTES:
[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).
[2] The cutter radius to be programmed is normally included in the tool memory.
[3] The thread depth b must be divisible by the thread pitch P.
[4] The feed values in brackets must be used for controllers, which do not calculate the centre point feed themselves.
[5] Set N40 must be repeated with the number of threads. Repetitions N = thread depth b/pitch P (rounded up to the nearest integer).

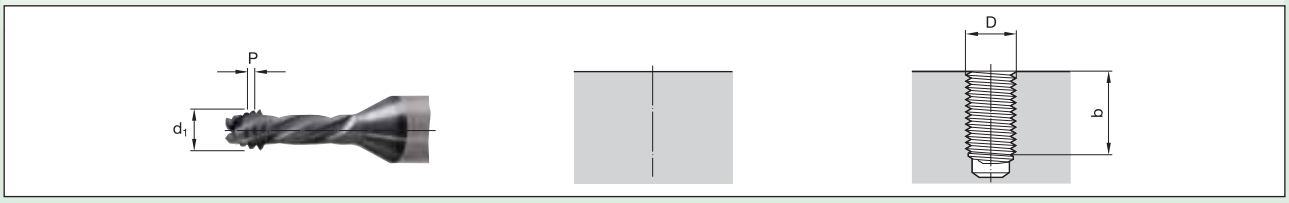
Drill Thread Mill GTM41 • Left Hand

Preparation	None
Process Principle	Milling thread and core hole, countersinking (climb milling)

Cycle



Required Specification Values



Example

Size — M10-6H
Thread diameter D 10mm
Pitch.....1,5mm
Core hole diameter D_1 .....8,5mm

Material — TiAl6V4 titanium

Grade — WU16PV

Tool — GTM41 Left Hand
Catalogue number GTM415045
Number of teeth Z 4
Tool diameter d_1 .....7,75mm*
Tool radius compensation k [1] 0,08mm**
Tool radius to be programmed [2].....3,795mm***
Drilling/countersink depth l_E 20mm
Cutting speed v_c.....100 m/min
Feed (milling) f_z .....0,03 mm/tooth
Number of turns [5] 17

*(measured on the cutting part) **(0,01 x D) ***(1/2 d_1 - k)

$$N = \frac{V_c \cdot 1000}{d_1 \cdot \pi}$$ **S = 4109**

$$v_f = f_z \cdot Z \cdot n$$ **F = 493 (contour)**

$$v_f = \frac{v_f \text{ contour} \cdot (D - d_1)}{D}$$ **F = 111 (centre point)**

Program to DIN 66025 (climb milling, on the contour, incremental)

Positioning the tool	N 10	G 54	G 90	G 00	X…	Y…	Z 1.500	S 4109	T01 [2]	M04
Incremental programming	N 20	G 91								
Moving sideways to the starting point	N 30	G 42	G 01	X 0	Y-5	F 493 (contour)		[F 111] [4] (centre point)		
Thread milling	N 40	G 02		X 0	Y 0	Z-1.500	I 0	J 5.000		
Repeat thread milling	… [5]									
Exit	N 50	G 40	G 01	X 0	Y 5					
Retracting tool to positioning level	N 70	G 90	G 00	Z 2						

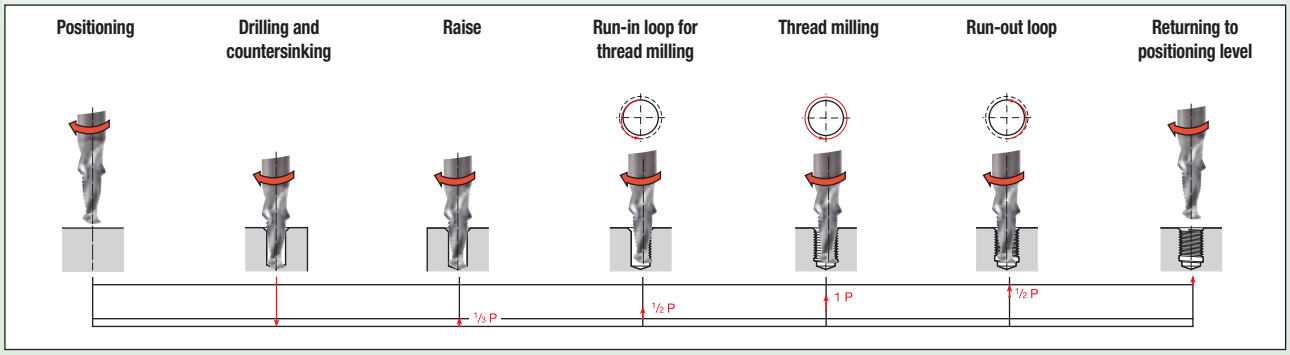
Cutting time t_h	**68,8 seconds**

NOTES:
[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).
[2] The cutter radius to be programmed is normally included in the tool memory.
[3] The thread depth b must be divisible by the thread pitch P.
[4] The feed values in brackets must be used for controllers, which do not calculate the centre point feed themselves.
[5] Set N40 must be repeated with the number of threads. Repetitions N = thread depth b/pitch P (rounded up to the nearest integer).

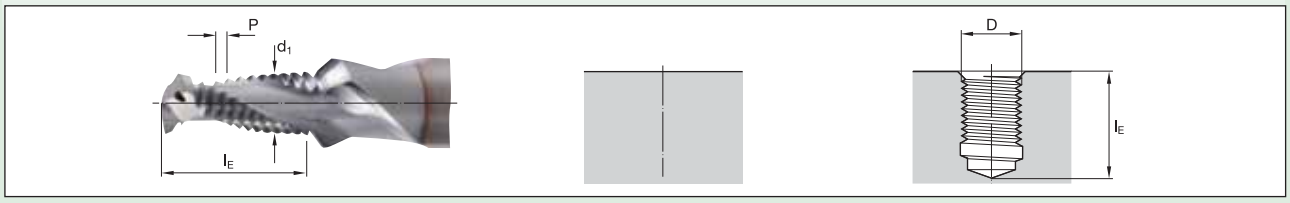
Drill Thread Mill GTM31

Preparation	None
Process Principle	Drilling, countersinking, thread milling (climb milling)

Cycle



Required Specification Values



Example

Size — M10-6H
Thread diameter D 10mm
Pitch.....1,5mm
Core hole diameter D_1 .....8,5mm

Material — Grey cast iron

Grade — WU12PV

Tool — GTM31
Catalogue number GTM315005
Number of teeth Z 2
Tool diameter d_1 .....8,2mm*
Tool radius compensation k [1] 0,1mm**
Tool radius to be programmed [2] 4mm***
Drilling/countersink depth l_E.....19,11mm
Cutting speed v_c.....250 m/min
Feed (drilling, countersinking) f_b .....0,25 mm/U
Feed (milling) f_z .....0,1 mm/tooth

*(measured on the cutting part) **(0,01 x D) ***(1/2 d_1 - k)

$N = \frac{V_c \cdot 1000}{d_1 \cdot \pi}$	S = 9709
$v_b = f_b \cdot n$	F = 2427 (drilling, countersinking)
$v_f = f_z \cdot Z \cdot n$	F = 1942 (contour)
$v_f = \frac{v_f \text{ contour} \cdot (D-d_1)}{D}$	F = 350 (centre point)

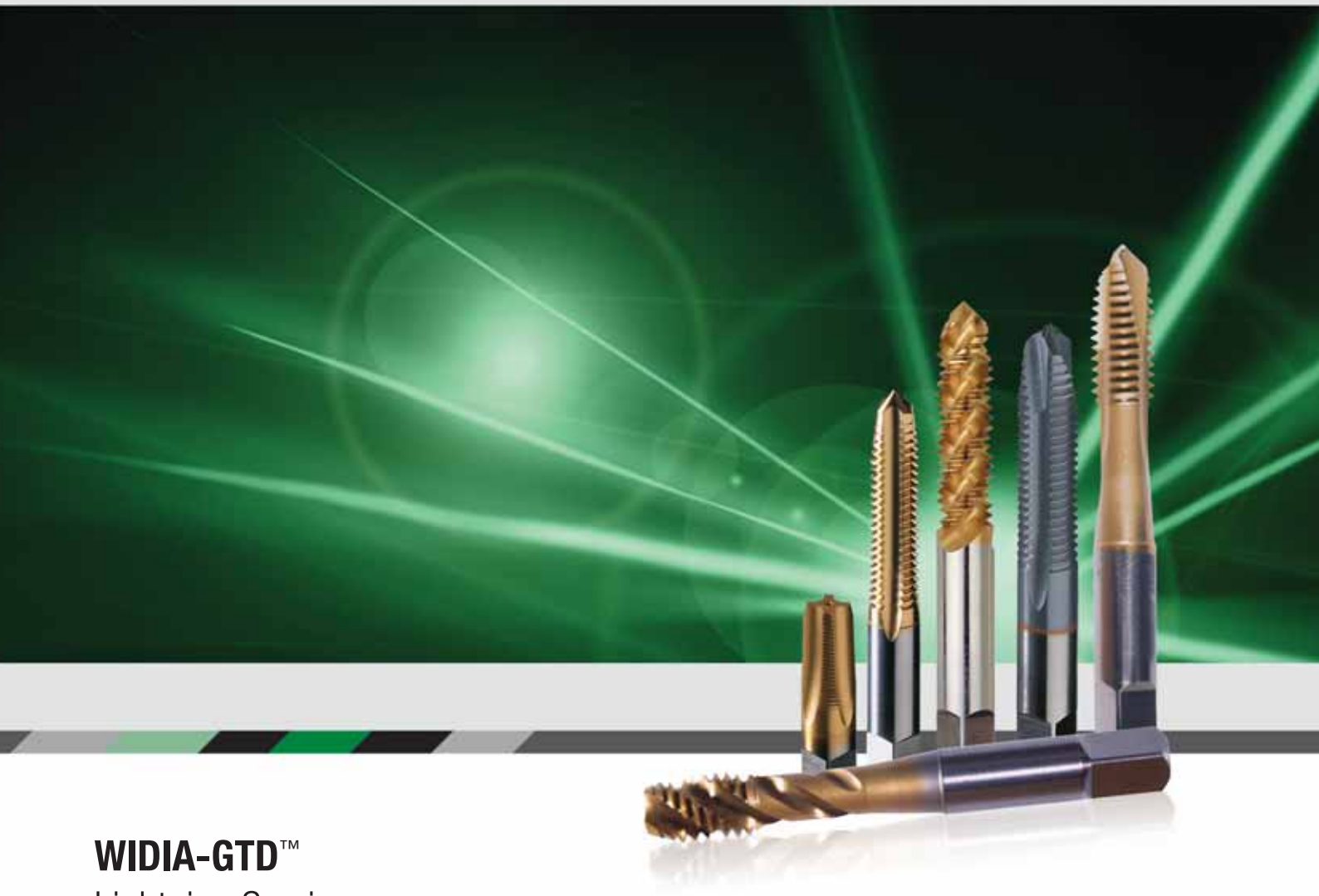
Program to DIN 66025 (climb milling, on the contour, incremental)

Positioning the tool	N 10	G 54	G 90	G 00	X…	Y…	Z 2	S 9709	T01 [2]	M03
Drilling and countersinking	N 20	G 91	G 01	Z-21.110	F 2427 (drill, countersink)					
Raise	N 30	G 01	Z 0.500							
Moving sideways to the starting point	N 40	G 41	Y-4.250	F 971 (milling, 1/2 contour)				[F 175] [3] (1/2 centre point)		
Run-in loop in arc	N 50	G 03	X 0	Y 9.250	Z 0.750	I 0	J 4.625			
Thread milling	N 60	G 03	X 0	Y 0	Z 1.500	I 0	J -5.000	F1942 [F 350] [3] (centre point)		
Run-out loop in arc	N 70	G 03	X 0	Y-9.250	Z 0.750	I 0	J- 4.625			
Exit	N 80	G 00	G 40	X 0	Y 4.250					
Retracting tool to positioning level	N 90	G 90	Z 2							

Cutting time t_h	**2,3 seconds**

NOTES:
[1] The cutter radius measured over the tooth crests of the threaded part must be reduced by the amount of the cutter radius compensation. This is necessary to achieve a depth of cut to the middle of the 6H/ISO2 nut tolerance. Please note, however, that this also depends on the radial deflection of the tool (tensile strength of the material, projecting length of the tool).
[2] The cutter radius to be programmed is normally included in the tool memory.
[3] The feed values in brackets must be used for controllers, which do not calculate the centre point feed themselves.

Lightning™ Services



WIDIA-GTD™

Lightning Services

Rely on our Lightning Services program to deliver the special taps you need, when and where you need them. Within minutes, we can quote, process, and release your order to the factory.

- Non-standard tap sizes, pitches, PDs, coatings, etc.
- Special taps can be used for tapping steel, cast iron, aluminium, or brass.
- Custom ordered taps can be designed to thread INCONEL®, titanium, and high-temp alloys.
- Always accurate thread pitch diameters and gage fits.

Let our Lightning Services program spark your production.
Contact your Authorised WIDIA Distributor.

Greenfield Lightning Services Available

WIDIA™

Taps Custom-Order Worksheet

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.

1. Start with the standard product most similar to your specifications:

catalogue number _____ **grade/coating** _____

2. Type of tap needed:

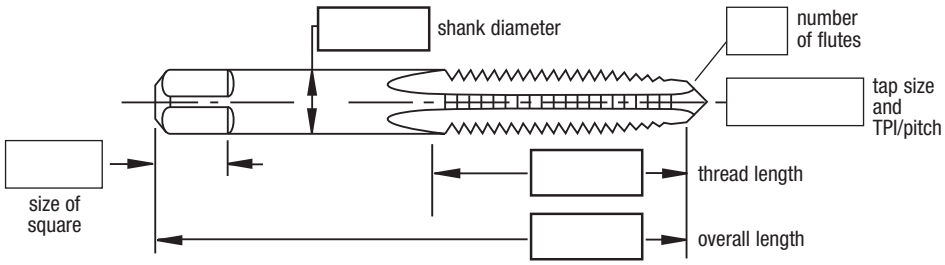
☐ solid carbide ☐ high-performance HSS ☐ general purpose ☐ spiral point
☐ hand ☐ forming ☐ spiral flute
_____ pipe (and style) _____ other

3. Direction of cut (circle one)**:** left hand right hand

4. Material overview:

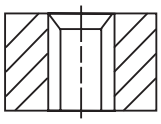
☐ ANSI ☐ DIN ☐ JIS ☐ other

5. Desired dimension:

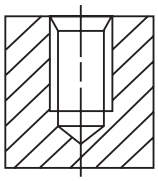


6. Choose one:

through hole:
hole diameter _____
hole depth _____



blind hole:
hole diameter _____
hole depth _____



7. Chamfer:

☐ taper: 7–10 pitch ☐ plug: 3–5 pitch ☐ semi-bottom: 2–3 pitch ☐ bottom: 1–2 pitch

8. Class of fit: **H limit** _____ **metric D limit** _____ **diameter pitch limit** _____

9. Workpiece material: _____

10. Hardness: _____

11. Number of taps required: _____

12. Price
Contact your Authorised WIDIA Distributor partners.

13. Other comments or special characteristics:

customer company name	**date**
address	**phone number**
city, state, zip	**fax number**
customer contact	**customer email address**
sales representative	

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Your complete satisfaction.

From turning, holemaking, and indexable milling to solid carbide end milling, solid carbide drilling, and tapping, the most powerful tools in the business now proudly wear WIDIA™ brands. When you buy WIDIA products, you're not just purchasing speed, power, and precision, you're investing in quality and complete satisfaction.

Match the most expansive portfolio of precision-engineered products and custom solution services available today with a global, specialised network of authorised distributor partners and you have the tools you need — and the power that only comes from WIDIA brands. For product information or to schedule an onsite demonstration, visit **www.widia.com**.

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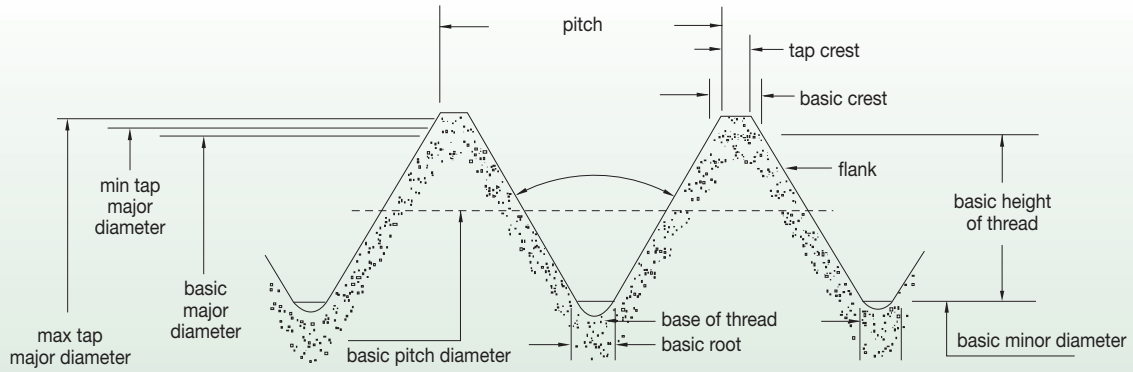
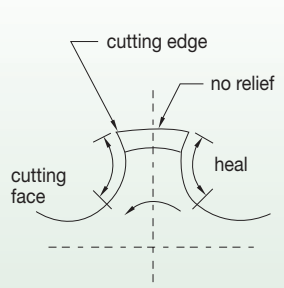
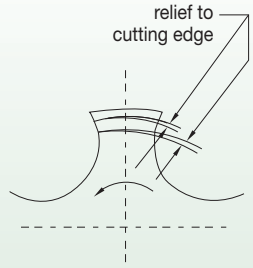
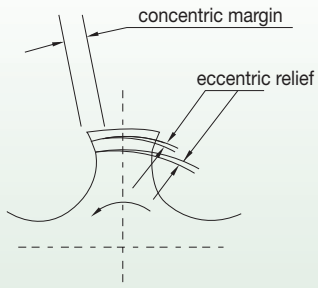




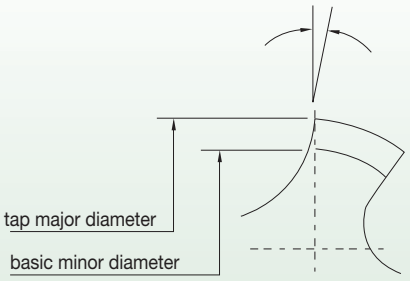
Concentric



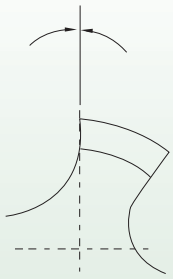
Eccentric Relief



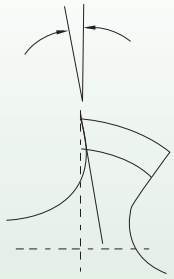
Con-Eccentric Relief



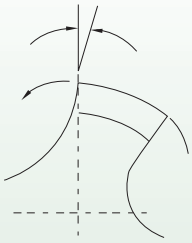
Negative Hook



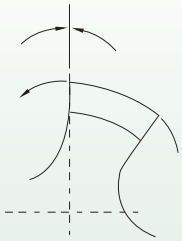
0º Hook



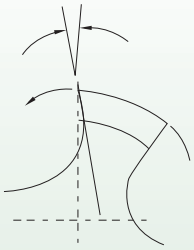
Positive Hook



Negative Rake



Radial Rake



Positive Rake

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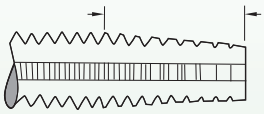
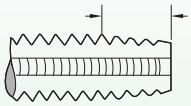
Tap Chamfers • DIN Taps

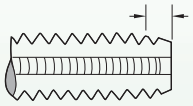
Taper Chamfer
7–10 Pitches



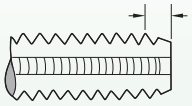
Plug Chamfer
3–5 Pitches



Modified Bottoming Chamfer
2–2,5 Pitches



Full Bottoming Chamfer
1–2 Pitches



Hand Tap Chamfers

Form A (6–8 pitches)

The Form A chamfer has the longest standard chamfer ensuring easier starting. It requires less tapping torque because of more working teeth.

Form B/D (3,5–5 pitches)

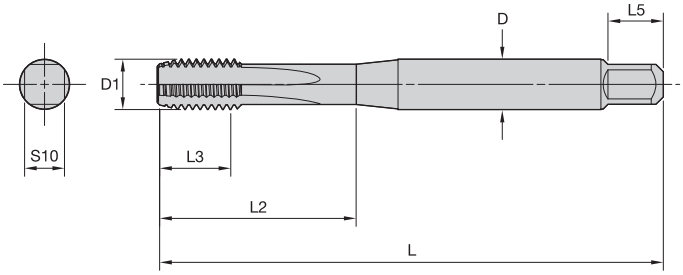
The most common chamfers for use by hand or machine in through or blind holes. Form B applies to spiral-point taps and Form D applies to straight-flute and spiral-flute taps. This chamfer is more efficient than a Form E or Form C chamfers.

Form C (2–2,5 pitches)

This short chamfer enables threading close to the bottom of blind holes. Due to the slightly longer chamfer and more working teeth, this chamfer is more efficient than a Form E chamfer.

Form E (1,5–2 pitches)

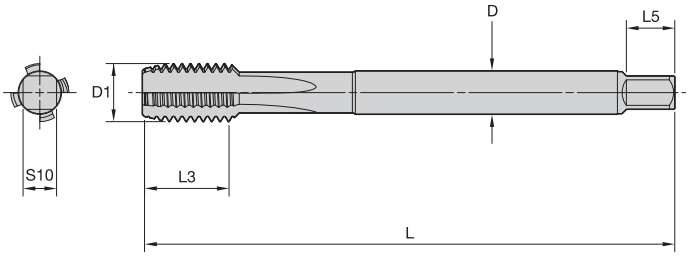
For threading close to the bottom of blind holes, the Form E chamfer is the least efficient chamfer available.



DIN 371

D1	pitch	D	L	L3*	L2	L5	S10
M3	0.5	3.5	56	11	18	6	2.7
M3.5	0.6	4	56	12	20	6	3
M4	0.7	4.5	63	13	21	6	3.4
M4.5	0.75	6	70	16	25	8	4.9
M5	0.8	6	70	16	25	8	4.9
M6	1	6	80	19	30	8	4.9
M7	1	7	80	19	30	8	5.5
M8	0.75	8	80	18	30	9	6.2
M8	1.25	8	90	22	35	9	6.2
M9	0.75	9	80	18	30	10	7
M9	1.25	9	90	22	35	10	7
M10	1	10	90	20	35	11	8
M10	1.5	10	100	24	39	11	8

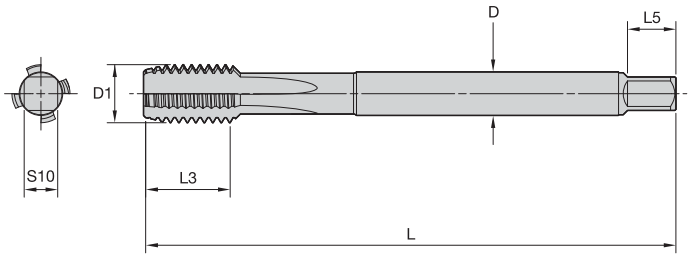
**Maximum*



DIN 376

D1	pitch	D	L	L3*	L5	S10
M8	1.25	6	90	22	8	4.9
M9	1.25	7	90	22	8	5.5
M10	1.5	7	100	24	8	5.5
M11	1.5	8	100	24	9	6.2
M12	1.75	9	110	28	10	7
M14	2	11	110	30	12	9
M16	2	12	110	32	12	9
M18	2.5	14	125	34	14	11
M20	2.5	16	140	34	15	12
M22	2.5	18	140	34	17	14.5
M24	3	18	160	38	17	14.5
M27	3	20	160	38	19	16
M30	3.5	22	180	45	21	18
M33	3.5	25	180	50	23	20
M36	4	28	200	56	25	22
M39	4	32	200	60	27	24
M42	4.5	32	200	60	27	24
M45	4.5	36	220	65	32	29

**Maximum*



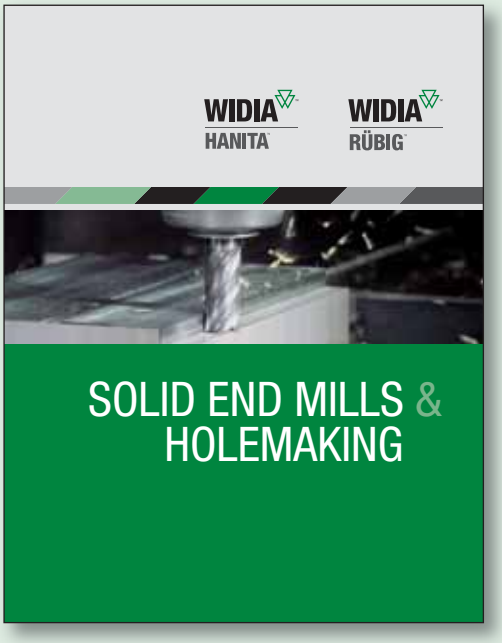
DIN 374

D1	pitch minimum	pitch maximum	D	L	L3*	L5	S10
M8	0.2	0.75	6	80	18	8	4.9
M8	–	1	6	90	22	8	4.9
M9	0.2	0.75	7	80	18	8	5.5
M9	–	1	7	90	22	8	5.5
M10	0.2	1	7	90	20	8	5.5
M10	–	1.25	7	100	24	8	5.5
M11	0.35	1	8	90	20	9	6.2
M12	0.35	1.5	9	100	22	10	7
M14	0.35	1.5	11	100	22	12	9
M16	0.35	1.5	12	100	22	12	9
M16	–	2	12	110	32	12	9
M18	0.35	1.5	14	110	25	14	11
M18	–	2	14	125	34	14	11
M20	0.35	1.5	16	125	25	15	12
M20	–	2	16	140	34	15	12
M22	0.35	1.5	18	125	25	17	14.5
M22	–	2	18	140	34	17	14.5
M24	0.35	2	18	140	28	17	14.5
M27	0.35	2	20	140	28	19	16
M30	0.35	2	22	150	28	21	18
M30	–	3	22	180	45	21	18

**Maximum*

Need More Information about Round Tool Solutions from WIDIA™?

For more information regarding WIDIA's complete line of round tool solutions, please refer to the WIDIA Solid End Mills and Holemaking Catalogue, contact your local Authorised WIDIA Distributor, or visit us today at www.widia.com.



Through Holes Push Chips

GUN® LHSF

- GUN™ (spiral point) or LHSF (Left-Hand Spiral Flute).
- Ideal for materials with long chips.

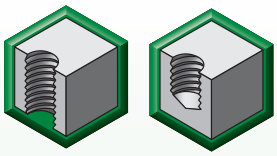
Blind Holes Pull Chips

RHSF

- RHSF (Right-Hand Spiral Flute).
- Ideal for materials with long chips.

Blind or Through Holes Store Chips

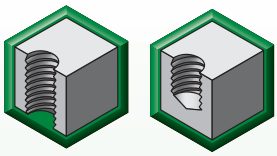
STFL



- STFL (Straight Flute).
- Ideal for materials with short chips.

Blind or Through Holes No Chips

TRU-LEDE®



- Forming.
- Ideal for ductile materials <32 HRC.

WIN WITH WIDIA™

WIDIA™ VariDrill™

WIDIA is pleased to announce the new VariDrill for a wide range of materials

The most extensive solid carbide drill line of the market today.

The VariDrill line is available as non-coolant drills in 3 x D and 5 x D, coolant drills in 3 x D, 5 x D, and 8 x D. “A” and “F” shanks available.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

WIDIA™

In addition to the nominal size and pitch of a tap, there is another important dimensional factor to be considered when selecting a ground thread tap for a given job. This factor is the pitch diameter tap limit, “H” and “L”. “H” represents (high) above basic pitch diameter; “L” (low) is below basic pitch diameter. Tap limits have been established to provide a choice in the selection of the tap size best suited to produce the class of thread desired.

Figure 1 Illustrates the numbering system and the .0005" diameter increment separation between successive limits. Because the starting point is basic pitch diameter, dividing the limit number by two establishes, in thousandths of an inch, the amount the maximum tap pitch diameter is above basic in the “H” series and the amount the minimum tap pitch diameter is under basic in the “L” series.

Figure 2 Illustrates the positioning of the tap limits in relation to the various classes of threads for a 1/4-20 size.

Figure 1

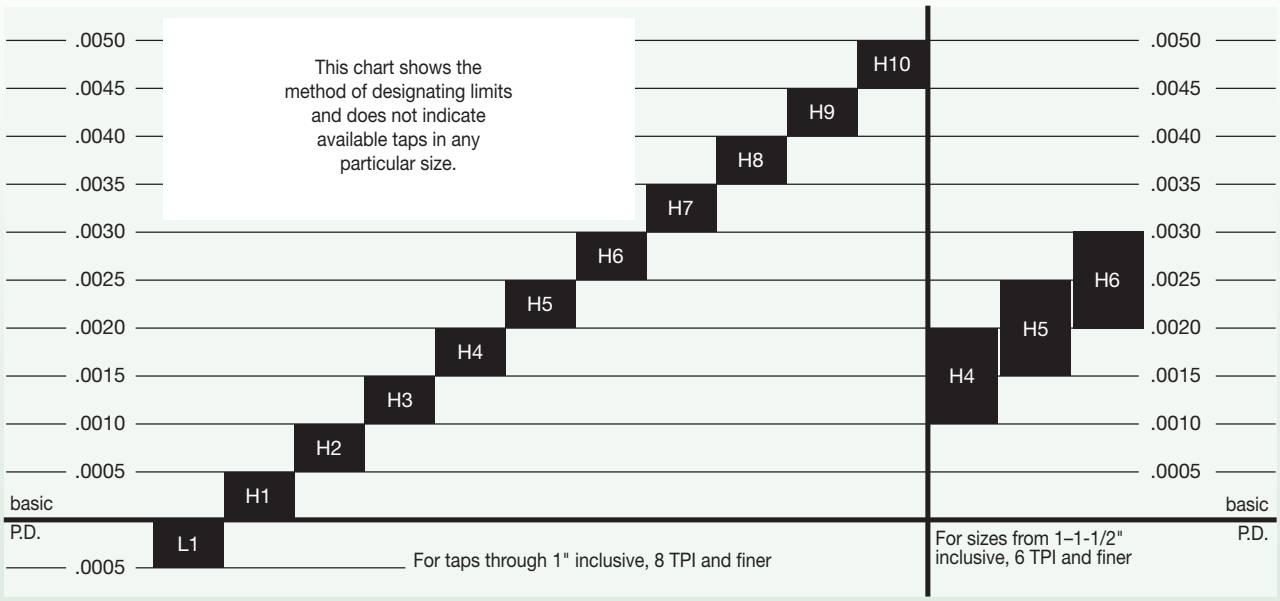
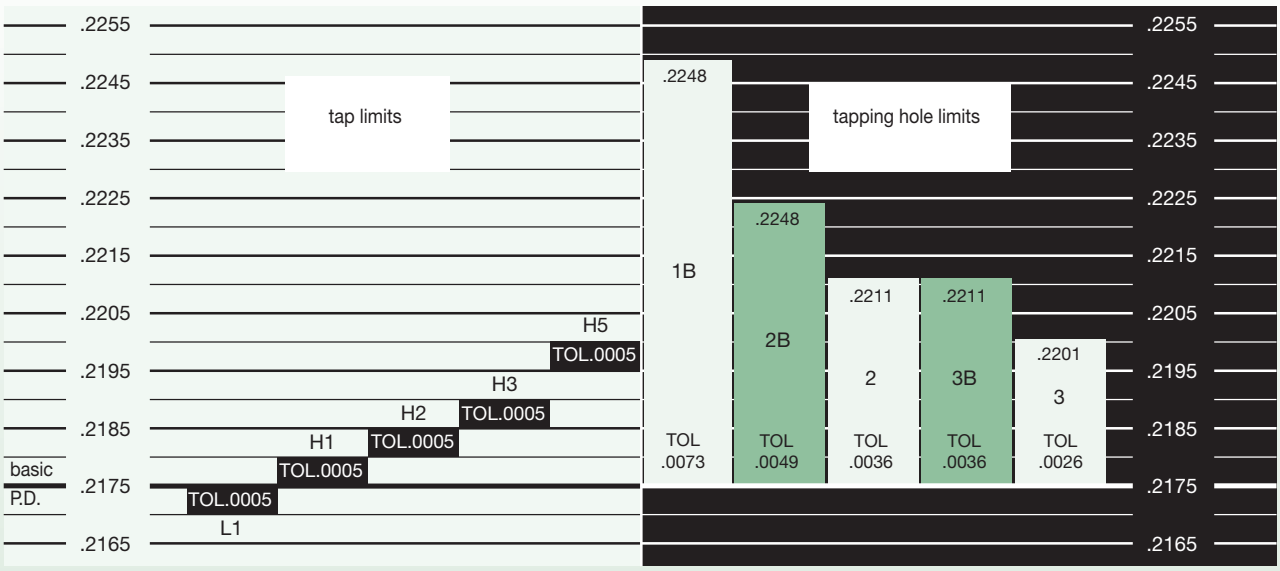
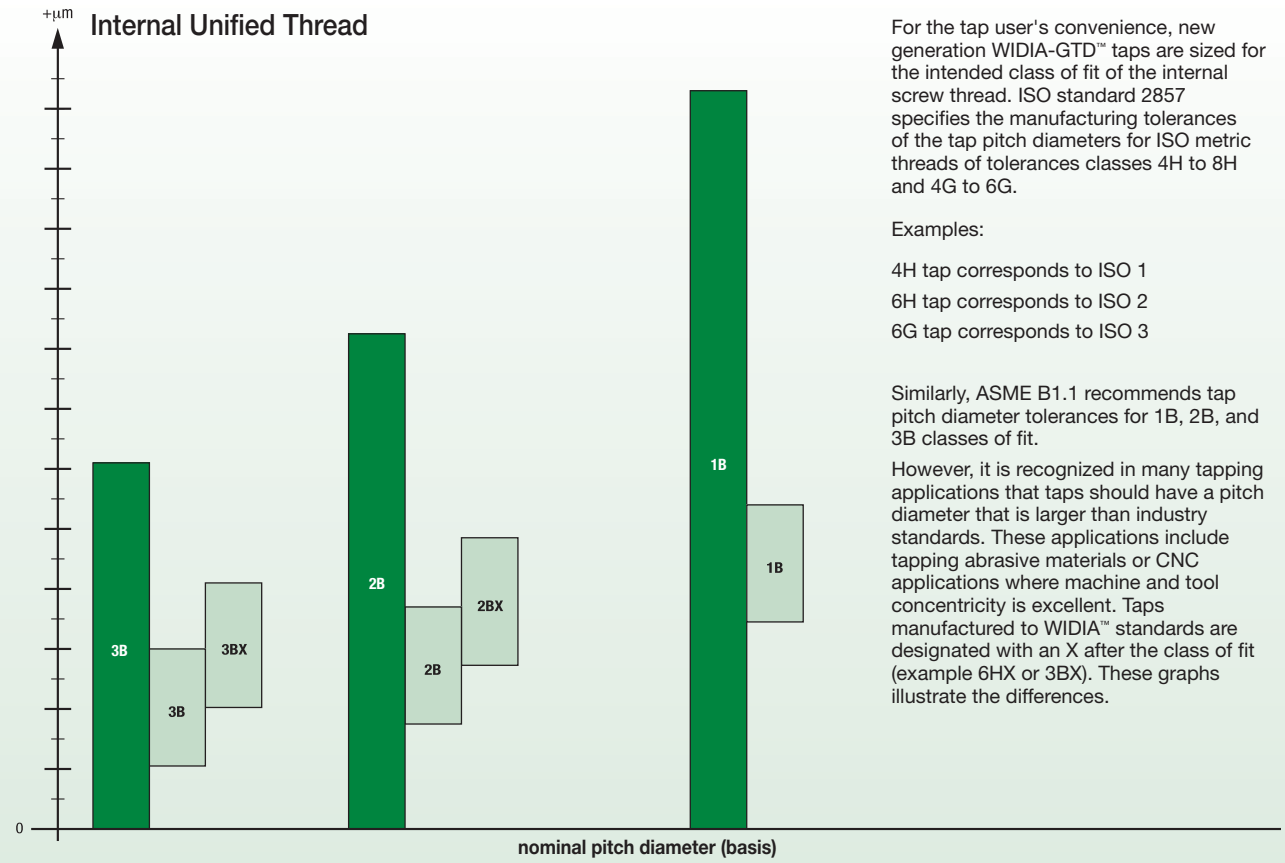


Figure 2

Class of Thread – 1/4 -20 UNC and NC





For the tap user's convenience, new generation WIDIA-GTD™ taps are sized for the intended class of fit of the internal screw thread. ISO standard 2857 specifies the manufacturing tolerances of the tap pitch diameters for ISO metric threads of tolerances classes 4H to 8H and 4G to 6G.

Examples:

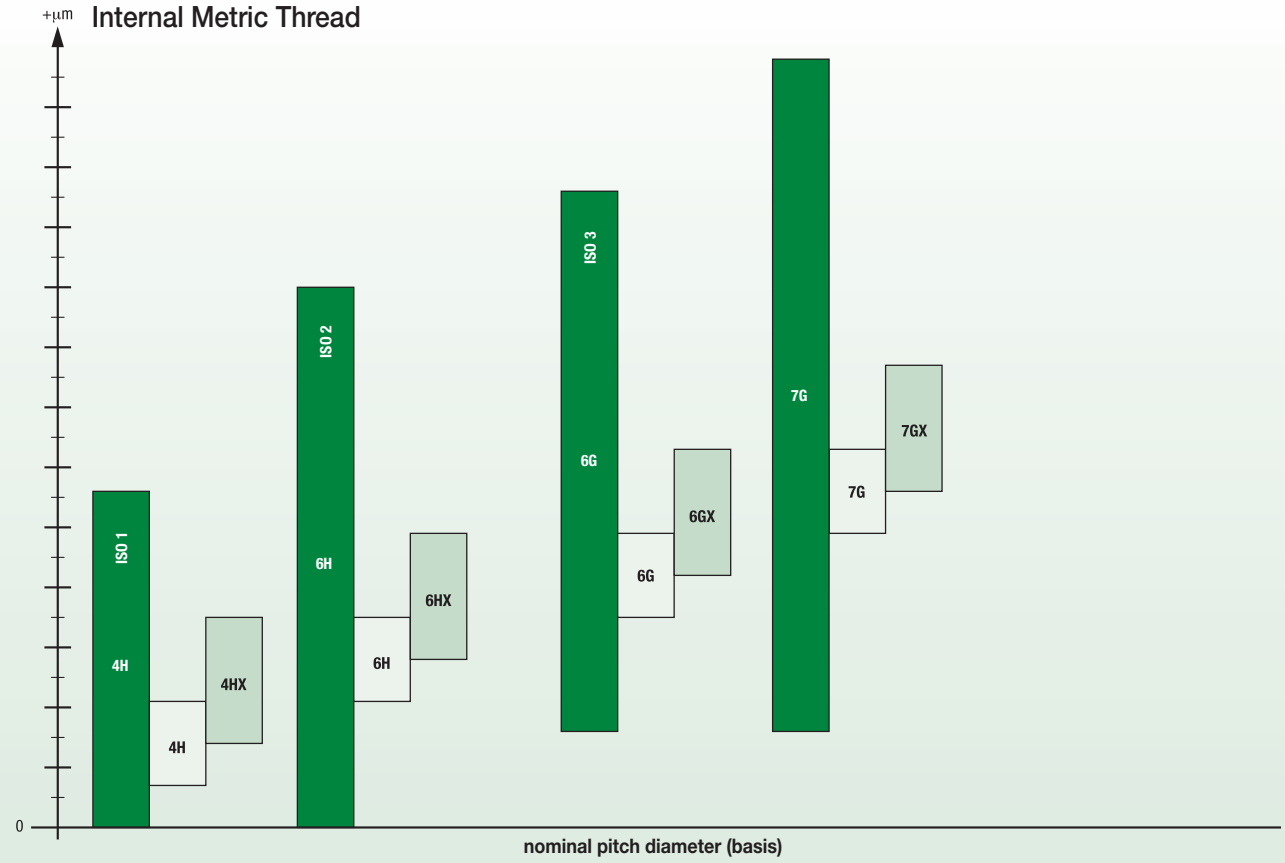
4H tap corresponds to ISO 1

6H tap corresponds to ISO 2

6G tap corresponds to ISO 3

Similarly, ASME B1.1 recommends tap pitch diameter tolerances for 1B, 2B, and 3B classes of fit.

However, it is recognized in many tapping applications that taps should have a pitch diameter that is larger than industry standards. These applications include tapping abrasive materials or CNC applications where machine and tool concentricity is excellent. Taps manufactured to WIDIA™ standards are designated with an X after the class of fit (example 6HX or 3BX). These graphs illustrate the differences.



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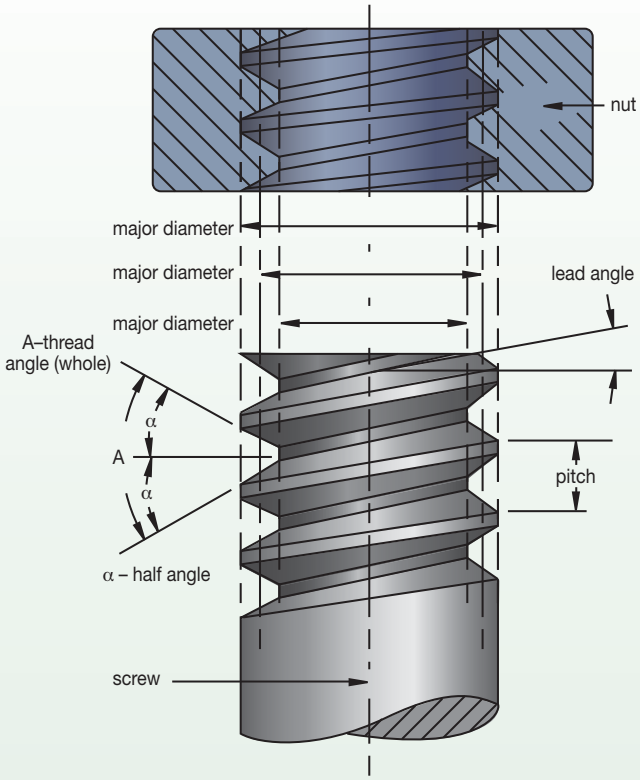
Our engineering departments are fully integrated with specialised production cells located in our focused factories throughout the world. ISO Certified manufacturing facilities with state-of-the-art CNC equipment, simulation capability, CAD/CAM production, and inspection processes ensure that customers receive the highest-quality product with accurate compliance to specifications and repeatability for future production.

Custom Solution Services:

- Blueprint specials
- Complex geometries
- Form tools
- Modified standards
- Application engineering and optimisation
- Tool design
- Project development

Contact your local Authorised Distributor for more information.

It is generally recognised that, in mass production, it is impossible to reproduce in exact detail the theoretically perfect product as laid out on the drawing board. The allowed slight variation between the theoretically perfect product drawing and each unit of the actual product is called the tolerance.



Allowance

An intentional difference in correlated dimensions of mating parts. It is the minimum clearance or maximum interference between such parts.

Angle of Thread

The angle included between the flanks of the thread measured in an axial plane

Half Angle of Thread

The angle included between a flank of the thread and the normal (90°) to the axis, measured in an axial plane.

Lead of Thread

The distance a screw thread advances axially in one turn. On a single-thread screw, the lead and pitch are identical. On a double thread, the lead is 2x pitch; on a triple thread, the lead is 3x pitch, etc.

Major Diameter

The largest diameter of a straight-screw thread.

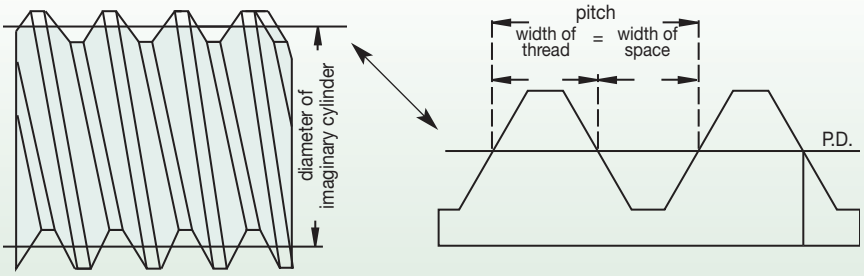
Minor Diameter

The smallest diameter of a straight-screw thread.

Pitch

The distance from a point on a screw thread to a corresponding point on the next thread measured parallel to the axis.

$$\text{The pitch in inches} = \frac{1}{\text{number of threads per inch}}$$



Pitch Diameter

On a straight-screw thread, the diameter of an imaginary cylinder that would pass through the threads at such points as to make equal the width of the threads and the width of the spaces cut by the surface of the cylinder.

Factors when trying to determine the best tapping speeds:

- Material to be tapped
- Length of chamfer on tap
- Percentage of full thread to be cut
- Length of hole (depth of thread)
- Pitch of thread
- Cutting fluids
- Machine equipment
- Horizontal or vertical tapping

The best and most efficient operating speeds for taps cannot be calculated with the same certainty, as for many other metalcutting tools.

With other tools, the feed per revolution can be set at any desired point and can be varied as conditions demand. Taps, on the other hand, must always be advanced at a rate equal to one pitch for every revolution. The style of tap may vary the conditions.

For example, with a bottoming tap, the first thread on each land cuts the full height of thread, while, with a taper or starting tap, a number of threads do their share of the cutting before the full height of thread is reached.

The depth of thread also varies, depending on the pitch. The coarser the thread, the greater the advance of the tap per revolution and the greater the amount of material removed.

The method of feeding the tap, and the type of equipment for driving, also influences the permissible speeds. If taps are mechanically fed at the proper rate of advance, they can be operated at higher speeds than if they are required to feed themselves and pull some part of the machine along with them.

Speeds may be modified to take into account any or all of these factors:

- Speeds must be lowered as length of thread increases because, in deep thread holes, the accumulated chips increase friction and interfere with lubrication.
- Bottoming taps must be run slower than plug taps.
- Tapping full height of thread calls for slower speed than if the commercial 75% height only is required.
- Coarse-thread taps in the larger diameters should be run more slowly than fine-thread taps of the same diameters.
- The quantity and quality of cutting fluid may affect the permissible speeds as much as 100%.
- Taper threaded taps, such as pipe taps, should be operated from 1/2–3/4 the speed of a straight thread tap of comparable major diameter.

RPM Formulas

SFM = Surface Feet per Minute

RPM = Revolutions per Minute

IPM = Inches per Minute

TPI = Threads per Inch

S m/m = Surface Metres per Minute

π = 3,1416

mm/min = millimetres per minute

P = Pitch (1/number of threads per inch)

Inch Sizes

$$\text{SFM} = \frac{\text{RPM x tool diameter}}{3.82} \quad \text{or} \quad 0.26 \text{ x RPM x tool diameter}$$

$$\text{RPM} = \frac{3.82 \text{ x SFM}}{\text{tool diameter}}$$

$$\text{IPM} = \frac{\text{RPM}}{\text{TPI*}} \quad \text{or} \quad \text{*P x RPM}$$

Metric Sizes

$$\text{S m/m} = \frac{\pi \text{ x tool diameter x RPM}}{1000}$$

$$\text{RPM} = \frac{\text{mm/min x 1000}}{\pi \text{ x tool diameter}}$$

$$\text{mm/min} = \text{mm P x RPM}$$

Metric

	vc = metres per minute																	
	1,5	3	4,5	6	7,5	10	12	15	18	21	24	27	30	33	36	39	42	45
metric taps	revolutions per minute (RPM)																	
M1	490	979	1469	1959	2449	2938	3918	4897	5877	6856	7836	8815	9795	10774	11754	12733	13713	14692
M2	242	484	725	967	1209	1451	1934	2418	2901	3385	3868	4352	4835	5319	5803	6286	6770	7253
M3	162	324	486	347	809	971	1295	1619	1942	2266	2590	2914	3237	3561	3885	4208	4532	4856
M3.5	138	277	415	554	692	830	1107	1384	1661	1938	2214	1491	2768	3045	3322	3599	3875	4152
M4	122	243	365	487	608	730	973	1217	1460	1703	1946	2190	2433	2676	2920	3163	3406	3650
M5	97	194	291	388	485	582	776	970	1163	1357	1551	1745	1939	2133	2327	2521	2715	2905
M6	81	162	243	324	405	486	647	809	971	1133	1295	1457	1619	1781	1942	2104	2266	2428
M7	69	138	208	277	346	415	554	692	830	969	1107	1246	1384	1522	1661	1799	1938	2076
M8	61	121	182	243	303	364	485	606	728	849	970	1091	1213	1334	1455	1577	1698	1819
M10	48	97	145	194	242	291	388	485	582	679	776	873	970	1067	1163	1260	1357	1454
M12	40	81	121	162	202	243	324	405	486	567	647	728	809	890	971	1052	1133	1214
M14	35	69	104	139	173	208	277	347	416	485	555	624	693	763	832	901	971	1040
M16	30	61	91	121	152	182	243	303	364	424	485	546	606	667	728	788	849	910
M18	27	54	81	108	135	162	216	269	323	377	431	485	539	593	647	700	754	808
M20	24	49	73	97	121	146	194	243	291	340	388	437	485	534	582	631	680	728
M22	22	44	66	88	110	132	176	221	265	309	353	397	441	485	529	573	618	662
M24	20	40	61	81	101	121	162	202	243	283	323	364	404	445	485	526	566	606
M27	18	36	54	72	90	108	144	180	216	252	287	323	359	395	431	467	503	539
M30	16	32	49	65	81	97	129	162	194	226	259	291	323	356	388	420	453	485

Partial List of Solutions to Tapping Problems

application	symptom	common cause	remedy
general	gage out of limits	tap size and gage mismatch	select tap size for gage
	oversize thread	alignment, spindle feed	correct
	oversize at top	runout or alignment	correct
	go gage binds part way	worn tool, tap cuts off lead	replace tap, synchronous holder
	thread shaving	feed error, high axial force	program, synchronous holder
	chipping	high cutting force, worn tap	tap geometry, replace tap
	breakage	chip jamming flutes	tap geometry, tapping depth
	–	worn tool, high torque	replace tap with new tool
	short life, low speed	excessive wear	SC or HSS-E-PM HP taps
steel	birdnest blind hole	long, ductile chips	GT30 GP6505 (oxide), peck feed
	chipping	high material hardness	GT00, GT02 WP31MG (TiN)
	breakage in blind holes	hole depth >2D, chip jamming	GT04 WH36MG (TiN/MoS_2)
stainless steel	oversize thread, low life	galling	GT20, GT30 GM6515 (TiN-CrC/C)
	short life	work hardened core hole	replace drill
cast iron	excessive wear	abrasion	GT40 GP6520 (TiCN)
aluminium, cast	excessive wear	high silicon	GT40 GP6520 (TiCN)
aluminium, wrought	oversize thread	galling	GT70, GT80 WN48EG (DLC)
nickel, cobalt alloys	short life	high cutting temperature	GT10, GT12 WS32MG (TiCN)
titanium	short life	high cutting temperature	GT14, GT16 WN35MG (TiN-DLC)

Thread Mills

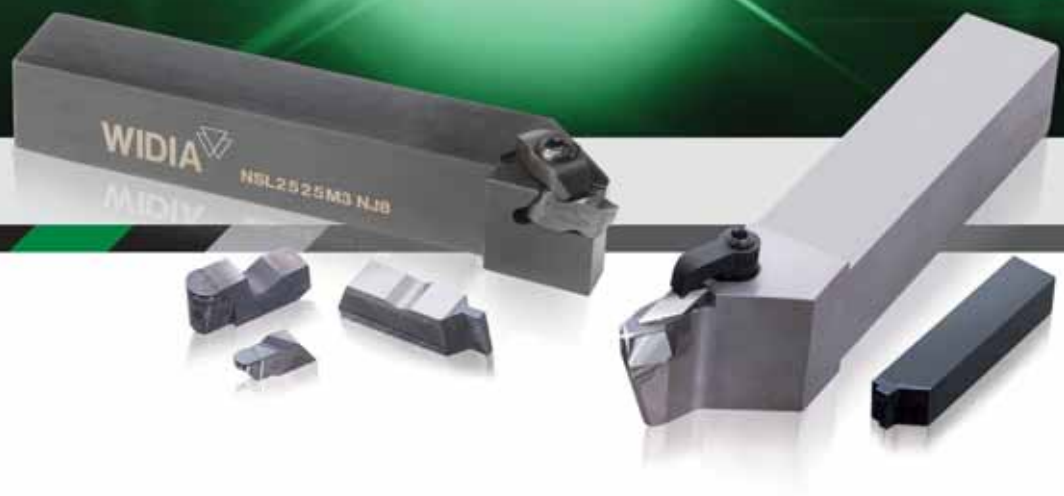
	vibration marks	major crest wear	edge chipping	cone shaped thread	entry marks
cutting speed	check	reduce	–	–	–
feed per tooth	check	increase	reduce	–	–
workpiece clamping	improve	improve	improve	–	improve
machine tool stability	improve	improve	improve	–	improve
cantilever arm	shorten	shorten	–	–	shorten
helix angle	increase	reduce	–	–	–
radial runout	check	check	–	–	–
coating	–	improve	improve	–	–
milling operation	–	climb mill	climb mill	climb mill	
line feed/ entry ramp	check	check	–	–	improve
coolant pressure	–	check (>20 bar, 290 psi)	check (>20 bar, 290 psi)	–	–

Knowing the hardness of the work material to be tapped is essential in selecting the best tap for the job.

10 mm/min ball 3000 kg	120° cone 150 kg	1/16" ball 100 kg	model C	1000 lb per sq. in.	10 mm/min ball 3000 kg	120° cone 150 kg	1/16" ball 100 kg	model C	1000 lb per sq. in.
Brinell	Rockwell C	Rockwell B	Shore Scleroscope	tensile strength	Brinell	Rockwell C	Rockwell B	Shore Scleroscope	tensile strength
800	72	—	100	—	276	30	105	42	136
780	71	—	99	—	269	29	104	41	132
760	70	—	98	—	261	28	103	40	129
745	68	—	97	367	258	27	102	39	127
725	67	—	96	357	255	26	102	39	125
712	66	—	95	350	249	25	101	38	123
682	65	—	93	337	245	24	100	37	119
668	64	—	91	326	240	23	99	36	117
652	63	—	89	318	237	23	99	35	115
626	62	—	87	306	229	22	98	34	113
614	61	—	85	299	224	21	97	33	110
601	60	—	83	292	217	20	96	33	107
590	59	—	81	290	211	19	95	32	104
576	57	—	79	281	206	18	94	32	102
552	56	—	76	270	203	17	94	31	100
545	55	—	75	268	200	16	93	31	98
529	54	—	74	259	196	15	92	30	96
514	53	120	72	254	191	14	92	30	94
502	52	119	70	247	187	13	91	29	92
495	51	119	69	244	185	12	91	29	91
477	49	118	67	233	183	11	90	28	90
461	48	117	66	227	180	10	89	28	89
451	47	117	65	223	175	9	88	27	86
444	46	116	64	219	170	7	87	27	84
427	46	115	62	209	167	6	87	27	82
415	44	115	60	204	165	5	86	26	81
401	43	114	58	196	163	4	85	26	80
388	42	114	57	191	160	3	84	25	78
375	41	113	55	184	156	2	83	25	76
370	40	112	54	182	154	1	82	25	75
362	39	111	53	179	152	—	82	24	74
351	38	111	51	173	150	—	81	24	74
346	37	110	50	170	147	—	80	24	72
341	37	110	49	168	145	—	79	23	71
331	36	109	47	163	143	—	79	23	70
323	35	109	46	158	141	—	78	23	69
311	34	108	46	153	140	—	77	22	69
301	33	107	45	148	135	—	75	22	67
293	32	106	44	144	130	—	72	22	65
285	31	105	43	140	—	—	—	—	—

WIN WITH WIDIA™

WIDIA



Best-in-Class Service and Support

With WIDIA™, you get it all — superior products, reliable performance, and unsurpassed support and programme services.

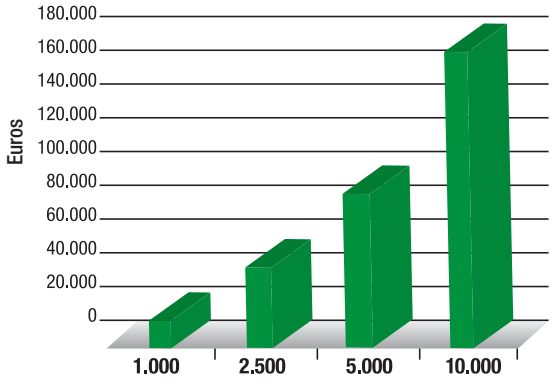
- Highly qualified Customer Service and Customer Application Support (CAS) teams support clients through strong product and market knowledge.
- Advanced engineering teams specialise in specific product groups to help customers optimise application productivity.
- Field Application Specialists work directly with distributors to recommend the best tools and provide training and support.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

WIDIA™

Get Cash or Credit for Your Used Carbide

Your Potential Annual Returns*



Carbide Scrap Kilos per Year*

**Actual returns may vary based on current market value for recycled carbide materials.*

Why recycle?

It's the right thing to do!

It's easy for your company to be environmentally conscious with our Carbide Recycling Programme.

By sending us your used carbide tools, you help preserve and protect the environment and ensure that these products are recycled responsibly.

It's profitable!

Not only does WIDIA™ make it easy for your company to be environmentally conscious, we offer an added incentive — it's profitable.

Through our Carbide Recycling Programme, get the full value of your investment in metalcutting tools, improve profitability, and reduce your overall tooling spend. When you send us your used carbide, we will reward you with cash or credit. *(Credit offer valid in U.S.A. only.)*

It's EASY!

Our Carbide Recycling Programme is available on the web and is easy to use. You can request a quote, arrange to send us your used carbide, and check the status of your shipment.

To find out more, please contact your Authorised Distributor.

Green Boxes for green companies

The Green Box™ programme is a safe and efficient way for you to package and ship your spent carbide tools to an authorised recycling location.

Qualified used carbide includes mixed coated and uncoated metalcutting tools free of chips, oil, and steel contamination. Material must be free of braze.

Anyone Can Regrind Your Tools — Only We Can Truly Recondition Them

Why recondition?

Our Reconditioning Services help optimise the total value of your metalcutting tools throughout their entire life cycle by giving them "like-new" performance characteristics — with rapid turnaround time — so the tools you need are always on-hand and perform just like new.

We recondition:

- Solid carbide drills
- Reamers
- Solid carbide taps
- Solid carbide end mills
- PCD/CBN tools

Reconditioning is an affordable way to make your tooling investment last longer and to achieve continued top performance of your drills and end mills.

By sending your worn drills and end mills for reconditioning, you will get:

- Proprietary geometry
- Certified coatings
- Superior quality
- Like-new performance
- Fast turnaround time
- Application support throughout the entire tool life cycle

Tools can often be reconditioned up to five times.

To use the WIDIA™ tool Reconditioning Services, follow these simple steps:

1. Contact the Customer Service center nearest you for instructions.
2. Package the tools in a sturdy box.
3. Find the reconditioning center nearest you:
   - North America
   - South America
   - Europe
   - Asia

   Ship the tools with the instructions from Customer Service.
4. Reconditioned tools will be returned to you from the reconditioning center.

Contact your local Authorised WIDIA Distributor to get started.

Taps Application Icons

Chamfer	Through Hole	Blind Hole	Tapered Hole
HSS Material	HSS-E Material	HSS-E-PM Material	Solid Carbide Material
Hole Depth	Flat-Bottom Hole	Drilled Hole	Cylindrical Shank
Cylindrical Shank with Square	6–8 Pitches	3–4 Pitches	2–3 Pitches
3,5–5 Pitches	1,5–2 Pitches	3–5 Pitches	2,5–3,5 Pitches
4–6 Pitches	1–2 Pitches	2B Class of Fit	3B Class of Fit
6H Class of Fit	6HX Class of Fit	2BX Class of Fit	3BX Class of Fit
ANSI Tap Dimensions	American National Standard Taper Pipe Tap	Dryseal American National Standard Taper Pipe Tap	Unified Inch Fine Pitch
Unified Inch Coarse Pitch	Metric Coarse Pitch	Metric Fine Pitch	DIN 371 Tap Dimensions
DIN 374 Tap Dimensions	DIN 376 Tap Dimensions	DIN 2174 Tap Dimensions	Internal Radial Coolant
Flood Coolant	Internal Axial Coolant		

DIN — German Institute for Standardisation

Our complete portfolio.
Your complete satisfaction.

From turning, holemaking, and indexable milling to solid carbide end milling, solid carbide drilling, and tapping, the most powerful tools in the business now proudly wear WIDIA™ brands. When you buy WIDIA products, you're not just purchasing speed, power, and precision, you're investing in quality and complete satisfaction.

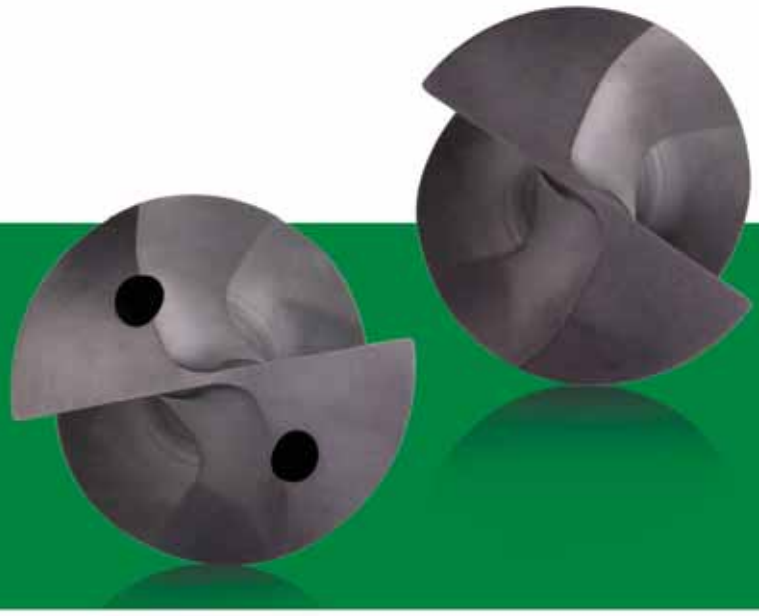
Match the most expansive portfolio of precision-engineered products and custom solution services available today with a global, specialised network of Authorised Distributor partners, and you have the tools you need — and the power that only comes from WIDIA brands. For product information, or to schedule an onsite demonstration, visit www.widia.com.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

WIDIA™

Multiple-Material Drilling •
WIDIA™ VariDrill™

The new VariDrill advanced point geometry design offers the ultimate solution for multipurpose drilling operations. It offers dependable tool life in *all* materials due to less chipping on the cutting edge.



VariDrill™

- Reduced chipping on cutting edge means longer tool life.
- New geometry design offers strength and versatility.
- Delivers proper surface finish across multiple materials: steel, stainless steel, cast iron, aluminium, and high-temp alloys.

Innovative Technology

VariDrill™ is a technologically advanced holemaking solution. These high-performance solid carbide drills were designed in Germany to provide the transportation, aerospace, general engineering, and energy industries with a tool that performs on multiple materials.

Elegance, Strength, and Versatility

WIDIA's engineers developed an innovative new design to deliver drilling performance. These Solid Carbide drills have a distinctive geometry and marginless design. The VariDrill point is versatile enough to work through steel, stainless steel, cast iron, aluminium, and a range of high-temp alloys.

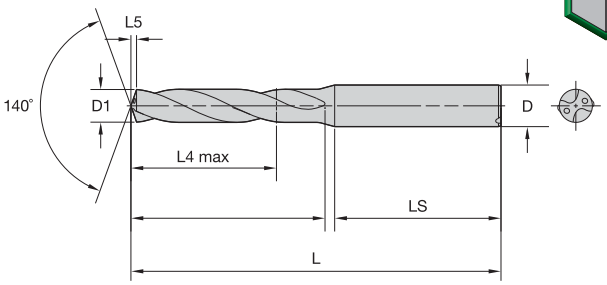
Optimum Hole Quality

The unique marginless design reduces chipping on the tool's edge and stabilises cutting forces. This unique tool geometry enables chips to roll smoothly and evacuate easily, resulting in noticeably less friction, heat, jamming, and scratching. By minimising these drilling issues, *VariDrill delivers an optimum surface finish with every hole — no matter the material.*

More Options and Longer Tool Life

Aside from its uniquely engineered design, VariDrill also offers a broad portfolio of drilling options. With more than 2,200 items, VariDrill offers more choices than any other drill for general engineering operations. And because most drills can be reconditioned, your tools will gain extended life.

VariDrill — innovatively designed and technologically advanced. Make VariDrill your go-to drill for hole after hole...after hole.



● first choice
○ alternate choice

VDS201A/VDS401A • 3 x D

VDS201A • WU25PD	VDS401A • WU25PD	D1 diameter mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201A01000	–	1,000	.0394	–	–	5	0,1	58	28	4
VDS201A01016	–	1,016	.0400	–	–	5	0,1	58	28	4
VDS201A01041	–	1,041	.0410	–	–	5	0,2	58	28	4
VDS201A01067	–	1,067	.0420	–	–	5	0,2	58	28	4
VDS201A01092	–	1,092	.0430	–	–	5	0,2	58	28	4
VDS201A01100	–	1,100	.0433	–	–	5	0,2	58	28	4
VDS201A01181	–	1,181	.0465	–	–	5	0,2	58	28	4
VDS201A01191	–	1,191	.0469	–	–	5	0,2	58	28	4
VDS201A01200	–	1,200	.0472	–	–	5	0,2	58	28	4
VDS201A01300	–	1,300	.0512	–	–	5	0,2	58	28	4
VDS201A01321	–	1,321	.0520	–	–	5	0,2	58	28	4
VDS201A01397	–	1,397	.0550	–	–	5	0,2	58	28	4
VDS201A01400	–	1,400	.0551	–	–	5	0,2	58	28	4
VDS201A01500	VDS401A01500	1,500	.0591	–	–	6	0,2	58	28	4
VDS201A01600	VDS401A01600	1,600	.0630	–	–	6	0,2	58	28	4
VDS201A01700	VDS401A01700	1,700	.0669	–	–	6	0,3	58	28	4
VDS201A01800	VDS401A01800	1,800	.0709	–	–	6	0,3	58	28	4
VDS201A01900	VDS401A01900	1,900	.0748	–	–	6	0,3	58	28	4
VDS201A01984	VDS401A01984	1,984	.0781	–	–	10	0,3	58	28	4
VDS201A02000	VDS401A02000	2,000	.0787	–	–	10	0,3	58	28	4
VDS201A02100	VDS401A02100	2,100	.0827	–	–	10	0,3	58	28	4
VDS201A02200	VDS401A02200	2,200	.0866	–	–	10	0,3	58	28	4
VDS201A02300	VDS401A02300	2,300	.0906	–	–	10	0,4	58	28	4
VDS201A02383	VDS401A02383	2,383	.0938	3/32	–	12	0,4	58	28	4
VDS201A02400	VDS401A02400	2,400	.0945	–	–	12	0,4	58	28	4
VDS201A02439	VDS401A02439	2,439	.0960	–	41	12	0,4	58	28	4
VDS201A02489	VDS401A02489	2,489	.0980	–	40	12	0,4	58	28	4
VDS201A02500	VDS401A02500	2,500	.0984	–	–	12	0,4	58	28	4
VDS201A02578	VDS401A02578	2,578	.1015	–	38	12	0,4	58	28	4
VDS201A02600	VDS401A02600	2,600	.1024	–	–	12	0,4	58	28	4
VDS201A02642	VDS401A02642	2,642	.1040	–	37	12	0,4	58	28	4
VDS201A02700	VDS401A02700	2,700	.1063	–	–	12	0,4	58	28	4
VDS201A02705	VDS401A02705	2,705	.1065	–	36	12	0,4	58	28	4
VDS201A02779	VDS401A02779	2,779	.1094	7/64	–	12	0,4	58	28	4
VDS201A02800	VDS401A02800	2,800	.1102	–	–	12	0,5	58	28	4
VDS201A02820	VDS401A02820	2,820	.1110	–	34	12	0,5	58	28	4
VDS201A02870	VDS401A02870	2,870	.1130	–	33	12	0,5	58	28	4
VDS201A02900	VDS401A02900	2,900	.1142	–	–	12	0,5	58	28	4
VDS201A02947	VDS401A02947	2,947	.1160	–	32	12	0,5	58	28	4
VDS201A03000	VDS401A03000	3,000	.1181	–	–	14	0,5	62	36	6

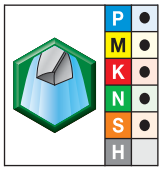
(continued)

(VDS201A/VDS401A • 3 x D continued)

P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS201A • WU25PD	VDS401A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201A03048	VDS401A03048	3,048	.1200	–	31	14	0,5	62	36	6
VDS201A03100	VDS401A03100	3,100	.1220	–	–	14	0,5	62	36	6
VDS201A03175	VDS401A03175	3,175	.1250	1/8	–	14	0,5	62	36	6
VDS201A03200	VDS401A03200	3,200	.1260	–	–	14	0,5	62	36	6
VDS201A03264	VDS401A03264	3,264	.1285	–	30	14	0,5	62	36	6
VDS201A03300	VDS401A03300	3,300	.1299	–	–	14	0,5	62	36	6
VDS201A03400	VDS401A03400	3,400	.1339	–	–	14	0,6	62	36	6
VDS201A03455	VDS401A03455	3,455	.1360	–	29	14	0,6	62	36	6
VDS201A03500	VDS401A03500	3,500	.1378	–	–	14	0,6	62	36	6
VDS201A03571	VDS401A03571	3,571	.1406	9/64	–	14	0,6	62	36	6
VDS201A03600	VDS401A03600	3,600	.1417	–	–	14	0,6	62	36	6
VDS201A03658	VDS401A03658	3,658	.1440	–	27	14	0,6	62	36	6
VDS201A03700	VDS401A03700	3,700	.1457	–	–	14	0,6	62	36	6
VDS201A03734	VDS401A03734	3,734	.1470	–	26	14	0,6	62	36	6
VDS201A03800	VDS401A03800	3,800	.1496	–	–	17	0,6	66	36	6
VDS201A03900	VDS401A03900	3,900	.1535	–	–	17	0,6	66	36	6
VDS201A03970	VDS401A03970	3,970	.1563	5/32	–	17	0,7	66	36	6
VDS201A04000	VDS401A04000	4,000	.1575	–	–	17	0,7	66	36	6
VDS201A04039	VDS401A04039	4,039	.1590	–	21	17	0,7	66	36	6
VDS201A04090	VDS401A04090	4,090	.1610	–	20	17	0,7	66	36	6
VDS201A04100	VDS401A04100	4,100	.1614	–	–	17	0,7	66	36	6
VDS201A04200	VDS401A04200	4,200	.1654	–	–	17	0,7	66	36	6
VDS201A04217	VDS401A04217	4,217	.1660	–	19	17	0,7	66	36	6
VDS201A04300	VDS401A04300	4,300	.1693	–	–	17	0,7	66	36	6
VDS201A04366	VDS401A04366	4,366	.1719	11/64	–	17	0,7	66	36	6
VDS201A04400	VDS401A04400	4,400	.1732	–	–	17	0,7	66	36	6
VDS201A04500	VDS401A04500	4,500	.1772	–	–	17	0,7	66	36	6
VDS201A04600	VDS401A04600	4,600	.1811	–	–	17	0,8	66	36	6
VDS201A04623	VDS401A04623	4,623	.1820	–	14	17	0,8	66	36	6
VDS201A04700	VDS401A04700	4,700	.1850	–	13	17	0,8	66	36	6
VDS201A04763	VDS401A04763	4,763	.1875	3/16	–	20	0,8	66	36	6
VDS201A04800	VDS401A04800	4,800	.1890	–	12	20	0,8	66	36	6
VDS201A04852	VDS401A04852	4,852	.1910	–	11	20	0,8	66	36	6
VDS201A04900	VDS401A04900	4,900	.1929	–	–	20	0,8	66	36	6
VDS201A05000	VDS401A05000	5,000	.1969	–	–	20	0,8	66	36	6
VDS201A05100	VDS401A05100	5,100	.2008	–	–	20	0,8	66	36	6
VDS201A05106	VDS401A05106	5,106	.2010	–	7	20	0,8	66	36	6
VDS201A05159	VDS401A05159	5,159	.2031	13/64	–	20	0,9	66	36	6
VDS201A05200	VDS401A05200	5,200	.2047	–	–	20	0,9	66	36	6
VDS201A05300	VDS401A05300	5,300	.2087	–	–	20	0,9	66	36	6
VDS201A05400	VDS401A05400	5,400	.2126	–	–	20	0,9	66	36	6
VDS201A05410	VDS401A05410	5,410	.2130	–	3	20	0,9	66	36	6
VDS201A05500	VDS401A05500	5,500	.2165	–	–	20	0,9	66	36	6
VDS201A05558	VDS401A05558	5,558	.2188	7/32	–	20	0,9	66	36	6

(continued)

(VDS201A/VDS401A • 3 x D continued)

		D1 diameter								
VDS201A • WU25PD	VDS401A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201A05600	VDS401A05600	5,600	.2205	–	–	20	0,9	66	36	6
VDS201A05616	VDS401A05616	5,616	.2211	–	2	20	0,9	66	36	6
VDS201A05700	VDS401A05700	5,700	.2244	–	–	20	1,0	66	36	6
VDS201A05800	VDS401A05800	5,800	.2283	–	–	20	1,0	66	36	6
VDS201A05900	VDS401A05900	5,900	.2323	–	–	20	1,0	66	36	6
VDS201A05954	VDS401A05954	5,954	.2344	15/64	–	20	1,0	66	36	6
VDS201A06000	VDS401A06000	6,000	.2362	–	–	20	1,0	66	36	6
VDS201A06100	VDS401A06100	6,100	.2402	–	–	24	1,0	79	36	8
VDS201A06200	VDS401A06200	6,200	.2441	–	–	24	1,0	79	36	8
VDS201A06300	VDS401A06300	6,300	.2480	–	–	24	1,1	79	36	8
VDS201A06350	VDS401A06350	6,350	.2500	1/4	E	24	1,1	79	36	8
VDS201A06400	VDS401A06400	6,400	.2520	–	–	24	1,1	79	36	8
VDS201A06500	VDS401A06500	6,500	.2559	–	–	24	1,1	79	36	8
VDS201A06528	VDS401A06528	6,528	.2570	–	F	24	1,1	79	36	8
VDS201A06600	VDS401A06600	6,600	.2598	–	–	24	1,1	79	36	8
VDS201A06630	VDS401A06630	6,630	.2610	–	G	24	1,1	79	36	8
VDS201A06700	VDS401A06700	6,700	.2638	–	–	24	1,1	79	36	8
VDS201A06746	VDS401A06746	6,746	.2656	17/64	–	24	1,1	79	36	8
VDS201A06800	VDS401A06800	6,800	.2677	–	–	24	1,1	79	36	8
VDS201A06900	VDS401A06900	6,900	.2717	–	–	24	1,2	79	36	8
VDS201A07000	VDS401A07000	7,000	.2756	–	–	24	1,2	79	36	8
VDS201A07100	VDS401A07100	7,100	.2795	–	–	29	1,2	79	36	8
VDS201A07145	VDS401A07145	7,145	.2813	9/32	–	29	1,2	79	36	8
VDS201A07200	VDS401A07200	7,200	.2835	–	–	29	1,2	79	36	8
VDS201A07300	VDS401A07300	7,300	.2874	–	–	29	1,2	79	36	8
VDS201A07400	VDS401A07400	7,400	.2913	–	–	29	1,3	79	36	8
VDS201A07500	VDS401A07500	7,500	.2953	–	–	29	1,3	79	36	8
VDS201A07541	VDS401A07541	7,541	.2969	19/64	–	29	1,3	79	36	8
VDS201A07600	VDS401A07600	7,600	.2992	–	–	29	1,3	79	36	8
VDS201A07700	VDS401A07700	7,700	.3031	–	–	29	1,3	79	36	8
VDS201A07800	VDS401A07800	7,800	.3071	–	–	29	1,3	79	36	8
VDS201A07900	VDS401A07900	7,900	.3110	–	–	29	1,3	79	36	8
VDS201A07938	VDS401A07938	7,938	.3125	5/16	–	29	1,3	79	36	8
VDS201A08000	VDS401A08000	8,000	.3150	–	–	29	1,4	79	36	8
VDS201A08100	VDS401A08100	8,100	.3189	–	–	35	1,4	89	40	10
VDS201A08200	VDS401A08200	8,200	.3228	–	–	35	1,4	89	40	10
VDS201A08300	VDS401A08300	8,300	.3268	–	–	35	1,4	89	40	10
VDS201A08334	VDS401A08334	8,334	.3281	21/64	–	35	1,4	89	40	10
VDS201A08400	VDS401A08400	8,400	.3307	–	–	35	1,4	89	40	10
VDS201A08433	VDS401A08433	8,433	.3320	–	Q	35	1,4	89	40	10
VDS201A08500	VDS401A08500	8,500	.3346	–	–	35	1,4	89	40	10
VDS201A08600	VDS401A08600	8,600	.3386	–	–	35	1,5	89	40	10
VDS201A08700	VDS401A08700	8,700	.3425	–	–	35	1,5	89	40	10
VDS201A08733	VDS401A08733	8,733	.3438	11/32	–	35	1,5	89	40	10
VDS201A08800	VDS401A08800	8,800	.3465	–	–	35	1,5	89	40	10
VDS201A08900	VDS401A08900	8,900	.3504	–	–	35	1,5	89	40	10

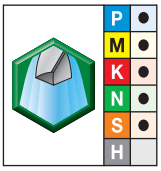
(continued)

(VDS201A/VDS401A • 3 x D continued)

P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS201A • WU25PD	VDS401A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201A09000	VDS401A09000	9,000	.3543	–	–	35	1,5	89	40	10
VDS201A09100	VDS401A09100	9,100	.3583	–	–	35	1,5	89	40	10
VDS201A09129	VDS401A09129	9,129	.3594	23/64	–	35	1,6	89	40	10
VDS201A09200	VDS401A09200	9,200	.3622	–	–	35	1,6	89	40	10
VDS201A09300	VDS401A09300	9,300	.3661	–	–	35	1,6	89	40	10
VDS201A09347	VDS401A09347	9,347	.3680	–	U	35	1,6	89	40	10
VDS201A09400	VDS401A09400	9,400	.3701	–	–	35	1,6	89	40	10
VDS201A09500	VDS401A09500	9,500	.3740	–	–	35	1,6	89	40	10
VDS201A09525	VDS401A09525	9,525	.3750	3/8	–	35	1,6	89	40	10
VDS201A09600	VDS401A09600	9,600	.3780	–	–	35	1,6	89	40	10
VDS201A09700	VDS401A09700	9,700	.3819	–	–	35	1,7	89	40	10
VDS201A09800	VDS401A09800	9,800	.3858	–	–	35	1,7	89	40	10
VDS201A09900	VDS401A09900	9,900	.3898	–	–	35	1,7	89	40	10
VDS201A09921	VDS401A09921	9,921	.3906	25/64	–	35	1,7	89	40	10
VDS201A10000	VDS401A10000	10,000	.3937	–	–	35	1,7	89	40	10
VDS201A10100	VDS401A10100	10,100	.3976	–	–	40	1,7	102	45	12
VDS201A10200	VDS401A10200	10,200	.4016	–	–	40	1,7	102	45	12
VDS201A10300	VDS401A10300	10,300	.4055	–	–	40	1,8	102	45	12
VDS201A10320	VDS401A10320	10,320	.4063	13/32	–	40	1,8	102	45	12
VDS201A10400	VDS401A10400	10,400	.4094	–	–	40	1,8	102	45	12
VDS201A10500	VDS401A10500	10,500	.4134	–	–	40	1,8	102	45	12
VDS201A10600	VDS401A10600	10,600	.4173	–	–	40	1,8	102	45	12
VDS201A10700	VDS401A10700	10,700	.4213	–	–	40	1,8	102	45	12
VDS201A10716	VDS401A10716	10,716	.4219	27/64	–	40	1,8	102	45	12
VDS201A10800	VDS401A10800	10,800	.4252	–	–	40	1,8	102	45	12
VDS201A10900	VDS401A10900	10,900	.4291	–	–	40	1,9	102	45	12
VDS201A11000	VDS401A11000	11,000	.4331	–	–	40	1,9	102	45	12
VDS201A11100	VDS401A11100	11,100	.4370	–	–	40	1,9	102	45	12
VDS201A11113	VDS401A11113	11,113	.4375	7/16	–	40	1,9	102	45	12
VDS201A11200	VDS401A11200	11,200	.4409	–	–	40	1,9	102	45	12
VDS201A11300	VDS401A11300	11,300	.4449	–	–	40	1,9	102	45	12
VDS201A11400	VDS401A11400	11,400	.4488	–	–	40	2,0	102	45	12
VDS201A11500	VDS401A11500	11,500	.4528	–	–	40	2,0	102	45	12
VDS201A11509	VDS401A11509	11,509	.4531	29/64	–	40	2,0	102	45	12
VDS201A11600	VDS401A11600	11,600	.4567	–	–	40	2,0	102	45	12
VDS201A11700	VDS401A11700	11,700	.4606	–	–	40	2,0	102	45	12
VDS201A11800	VDS401A11800	11,800	.4646	–	–	40	2,0	102	45	12
VDS201A11900	VDS401A11900	11,900	.4685	–	–	40	2,0	102	45	12
VDS201A11908	VDS401A11908	11,908	.4688	15/32	–	40	2,0	102	45	12
VDS201A12000	VDS401A12000	12,000	.4724	–	–	40	2,1	102	45	12
VDS201A12100	VDS401A12100	12,100	.4764	–	–	43	2,1	107	45	14
VDS201A12200	VDS401A12200	12,200	.4803	–	–	43	2,1	107	45	14
VDS201A12300	VDS401A12300	12,300	.4843	–	–	43	2,1	107	45	14
VDS201A12304	VDS401A12304	12,304	.4844	31/64	–	43	2,1	107	45	14
VDS201A12400	VDS401A12400	12,400	.4882	–	–	43	2,1	107	45	14
VDS201A12500	VDS401A12500	12,500	.4921	–	–	43	2,1	107	45	14

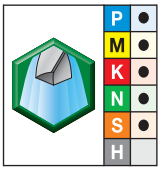
(continued)

(VDS201A/VDS401A • 3 x D continued)

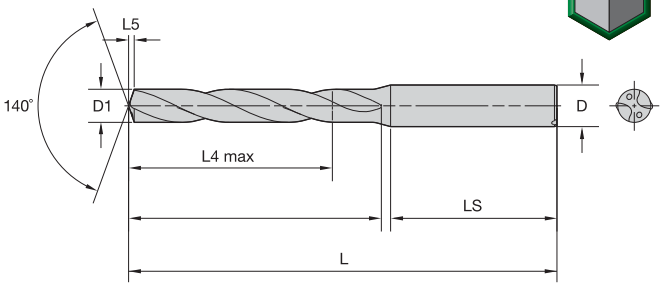
		D1 diameter								
VDS201A • WU25PD	VDS401A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201A12600	VDS401A12600	12,600	.4961	–	–	43	2,2	107	45	14
VDS201A12700	VDS401A12700	12,700	.5000	1/2	–	43	2,2	107	45	14
VDS201A12800	VDS401A12800	12,800	.5039	–	–	43	2,2	107	45	14
VDS201A12900	VDS401A12900	12,900	.5079	–	–	43	2,2	107	45	14
VDS201A13000	VDS401A13000	13,000	.5118	–	–	43	2,2	107	45	14
VDS201A13096	VDS401A13096	13,096	.5156	33/64	–	43	2,3	107	45	14
VDS201A13100	VDS401A13100	13,100	.5157	–	–	43	2,3	107	45	14
VDS201A13200	VDS401A13200	13,200	.5197	–	–	43	2,3	107	45	14
VDS201A13300	VDS401A13300	13,300	.5236	–	–	43	2,3	107	45	14
VDS201A13400	VDS401A13400	13,400	.5276	–	–	43	2,3	107	45	14
VDS201A13500	VDS401A13500	13,500	.5315	–	–	43	2,3	107	45	14
VDS201A13600	VDS401A13600	13,600	.5354	–	–	43	2,3	107	45	14
VDS201A13700	VDS401A13700	13,700	.5394	–	–	43	2,4	107	45	14
VDS201A13800	VDS401A13800	13,800	.5433	–	–	43	2,4	107	45	14
VDS201A13891	VDS401A13891	13,891	.5469	35/64	–	43	2,4	107	45	14
VDS201A13900	VDS401A13900	13,900	.5472	–	–	43	2,4	107	45	14
VDS201A14000	VDS401A14000	14,000	.5512	–	–	43	2,4	107	45	14
VDS201A14100	VDS401A14100	14,100	.5551	–	–	45	2,4	115	48	16
VDS201A14200	VDS401A14200	14,200	.5591	–	–	45	2,5	115	48	16
VDS201A14288	VDS401A14288	14,288	.5625	9/16	–	45	2,5	115	48	16
VDS201A14300	VDS401A14300	14,300	.5630	–	–	45	2,5	115	48	16
VDS201A14400	VDS401A14400	14,400	.5669	–	–	45	2,5	115	48	16
VDS201A14500	VDS401A14500	14,500	.5709	–	–	45	2,5	115	48	16
VDS201A14600	VDS401A14600	14,600	.5748	–	–	45	2,5	115	48	16
VDS201A14684	VDS401A14684	14,684	.5781	37/64	–	45	2,5	115	48	16
VDS201A14700	VDS401A14700	14,700	.5787	–	–	45	2,5	115	48	16
VDS201A14800	VDS401A14800	14,800	.5827	–	–	45	2,6	115	48	16
VDS201A14900	VDS401A14900	14,900	.5866	–	–	45	2,6	115	48	16
VDS201A15000	VDS401A15000	15,000	.5906	–	–	45	2,6	115	48	16
VDS201A15083	VDS401A15083	15,083	.5938	19/32	–	45	2,6	115	48	16
VDS201A15100	VDS401A15100	15,100	.5945	–	–	45	2,6	115	48	16
VDS201A15200	VDS401A15200	15,200	.5984	–	–	45	2,6	115	48	16
VDS201A15300	VDS401A15300	15,300	.6024	–	–	45	2,6	115	48	16
VDS201A15400	VDS401A15400	15,400	.6063	–	–	45	2,7	115	48	16
VDS201A15479	VDS401A15479	15,479	.6094	39/64	–	45	2,7	115	48	16
VDS201A15500	VDS401A15500	15,500	.6102	–	–	45	2,7	115	48	16
VDS201A15600	VDS401A15600	15,600	.6142	–	–	45	2,7	115	48	16
VDS201A15700	VDS401A15700	15,700	.6181	–	–	45	2,7	115	48	16
VDS201A15800	VDS401A15800	15,800	.6220	–	–	45	2,7	115	48	16
VDS201A15875	VDS401A15875	15,875	.6250	5/8	–	45	2,7	115	48	16
VDS201A15900	VDS401A15900	15,900	.6260	–	–	45	2,8	115	48	16
VDS201A16000	VDS401A16000	16,000	.6299	–	–	45	2,8	115	48	16
VDS201A16100	VDS401A16100	16,100	.6339	–	–	51	2,8	123	48	18
VDS201A16200	VDS401A16200	16,200	.6378	–	–	51	2,8	123	48	18
VDS201A16271	VDS401A16271	16,271	.6406	41/64	–	51	2,8	123	48	18
VDS201A16300	VDS401A16300	16,300	.6417	–	–	51	2,8	123	48	18

(continued)

(VDS201A/VDS401A • 3 x D continued)

		D1 diameter								
VDS201A • WU25PD	VDS401A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201A16400	VDS401A16400	16,400	.6457	–	–	51	2,8	123	48	18
VDS201A16500	VDS401A16500	16,500	.6496	–	–	51	2,9	123	48	18
VDS201A16600	VDS401A16600	16,600	.6535	–	–	51	2,9	123	48	18
VDS201A16670	VDS401A16670	16,670	.6563	21/32	–	51	2,9	123	48	18
VDS201A16700	VDS401A16700	16,700	.6575	–	–	51	2,9	123	48	18
VDS201A16800	VDS401A16800	16,800	.6614	–	–	51	2,9	123	48	18
VDS201A16900	VDS401A16900	16,900	.6654	–	–	51	2,9	123	48	18
VDS201A17000	VDS401A17000	17,000	.6693	–	–	51	2,9	123	48	18
VDS201A17100	VDS401A17100	17,100	.6732	–	–	51	3,0	123	48	18
VDS201A17200	VDS401A17200	17,200	.6772	–	–	51	3,0	123	48	18
VDS201A17300	VDS401A17300	17,300	.6811	–	–	51	3,0	123	48	18
VDS201A17400	VDS401A17400	17,400	.6850	–	–	51	3,0	123	48	18
VDS201A17463	VDS401A17463	17,463	.6875	11/16	–	51	3,0	123	48	18
VDS201A17500	VDS401A17500	17,500	.6890	–	–	51	3,0	123	48	18
VDS201A17600	VDS401A17600	17,600	.6929	–	–	51	3,1	123	48	18
VDS201A17700	VDS401A17700	17,700	.6969	–	–	51	3,1	123	48	18
VDS201A17800	VDS401A17800	17,800	.7008	–	–	51	3,1	123	48	18
VDS201A17859	VDS401A17859	17,859	.7031	45/64	–	51	3,1	123	48	18
VDS201A17900	VDS401A17900	17,900	.7047	–	–	51	3,1	123	48	18
VDS201A18000	VDS401A18000	18,000	.7087	–	–	51	3,1	123	48	18
VDS201A18100	VDS401A18100	18,100	.7126	–	–	55	3,1	131	50	20
VDS201A18200	VDS401A18200	18,200	.7165	–	–	55	3,2	131	50	20
VDS201A18258	VDS401A18258	18,258	.7188	23/32	–	55	3,2	131	50	20
VDS201A18300	VDS401A18300	18,300	.7205	–	–	55	3,2	131	50	20
VDS201A18400	VDS401A18400	18,400	.7244	–	–	55	3,2	131	50	20
VDS201A18500	VDS401A18500	18,500	.7283	–	–	55	3,2	131	50	20
VDS201A18600	VDS401A18600	18,600	.7323	–	–	55	3,2	131	50	20
VDS201A18654	VDS401A18654	18,654	.7344	47/64	–	55	3,2	131	50	20
VDS201A18700	VDS401A18700	18,700	.7362	–	–	55	3,2	131	50	20
VDS201A18800	VDS401A18800	18,800	.7402	–	–	55	3,3	131	50	20
VDS201A18900	VDS401A18900	18,900	.7441	–	–	55	3,3	131	50	20
VDS201A19000	VDS401A19000	19,000	.7480	–	–	55	3,3	131	50	20
VDS201A19050	VDS401A19050	19,050	.7500	3/4	–	55	3,3	131	50	20
VDS201A19100	VDS401A19100	19,100	.7520	–	–	55	3,3	131	50	20
VDS201A19200	VDS401A19200	19,200	.7559	–	–	55	3,3	131	50	20
VDS201A19300	VDS401A19300	19,300	.7598	–	–	55	3,4	131	50	20
VDS201A19400	VDS401A19400	19,400	.7638	–	–	55	3,4	131	50	20
VDS201A19500	VDS401A19500	19,500	.7677	–	–	55	3,4	131	50	20
VDS201A19600	VDS401A19600	19,600	.7717	–	–	55	3,4	131	50	20
VDS201A19700	VDS401A19700	19,700	.7756	–	–	55	3,4	131	50	20
VDS201A19800	VDS401A19800	19,800	.7795	–	–	55	3,4	131	50	20
VDS201A19900	VDS401A19900	19,900	.7835	–	–	55	3,5	131	50	20
VDS201A20000	VDS401A20000	20,000	.7874	–	–	55	3,5	131	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.



● first choice
○ alternate choice

VDS202A/VDS402A • 5 x D

VDS202A • WU25PD	VDS402A • WU25PD	D1 diameter mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202A01000	–	1,000	.0394	–	–	6	0,1	58	28	4
VDS202A01016	–	1,016	.0400	–	–	6	0,1	58	28	4
VDS202A01041	–	1,041	.0410	–	–	6	0,2	58	28	4
VDS202A01067	–	1,067	.0420	–	–	6	0,2	58	28	4
VDS202A01092	–	1,092	.0430	–	–	6	0,2	58	28	4
VDS202A01100	–	1,100	.0433	–	–	6	0,2	58	28	4
VDS202A01181	–	1,181	.0465	–	–	6	0,2	58	28	4
VDS202A01191	–	1,191	.0469	–	–	6	0,2	58	28	4
VDS202A01200	–	1,200	.0472	–	–	6	0,2	58	28	4
VDS202A01300	–	1,300	.0512	–	–	6	0,2	58	28	4
VDS202A01321	–	1,321	.0520	–	–	6	0,2	58	28	4
VDS202A01397	–	1,397	.0550	–	–	6	0,2	58	28	4
VDS202A01400	–	1,400	.0551	–	–	6	0,2	58	28	4
VDS202A01500	VDS402A01500	1,500	.0591	–	–	9	0,2	58	28	4
VDS202A01600	VDS402A01600	1,600	.0630	–	–	9	0,2	58	28	4
VDS202A01700	VDS402A01700	1,700	.0669	–	–	9	0,3	58	28	4
VDS202A01800	VDS402A01800	1,800	.0709	–	–	9	0,3	58	28	4
VDS202A01900	VDS402A01900	1,900	.0748	–	–	9	0,3	58	28	4
VDS202A01984	VDS402A01984	1,984	.0781	–	–	14	0,3	58	28	4
VDS202A02000	VDS402A02000	2,000	.0787	–	–	14	0,3	58	28	4
VDS202A02100	VDS402A02100	2,100	.0827	–	–	14	0,3	58	28	4
VDS202A02200	VDS402A02200	2,200	.0866	–	–	14	0,3	58	28	4
VDS202A02300	VDS402A02300	2,300	.0906	–	–	14	0,4	58	28	4
VDS202A02383	VDS402A02383	2,383	.0938	3/32	–	17	0,4	58	28	4
VDS202A02400	VDS402A02400	2,400	.0945	–	–	17	0,4	58	28	4
VDS202A02439	VDS402A02439	2,439	.0960	–	41	17	0,4	58	28	4
VDS202A02489	VDS402A02489	2,489	.0980	–	40	17	0,4	58	28	4
VDS202A02500	VDS402A02500	2,500	.0984	–	–	17	0,4	58	28	4
VDS202A02578	VDS402A02578	2,578	.1015	–	38	17	0,4	58	28	4
VDS202A02600	VDS402A02600	2,600	.1024	–	–	17	0,4	58	28	4
VDS202A02642	VDS402A02642	2,642	.1040	–	37	17	0,4	58	28	4
VDS202A02700	VDS402A02700	2,700	.1063	–	–	17	0,4	58	28	4
VDS202A02705	VDS402A02705	2,705	.1065	–	36	17	0,4	58	28	4
VDS202A02779	VDS402A02779	2,779	.1094	7/64	–	17	0,4	58	28	4
VDS202A02800	VDS402A02800	2,800	.1102	–	–	17	0,5	58	28	4
VDS202A02820	VDS402A02820	2,820	.1110	–	34	17	0,5	58	28	4
VDS202A02870	VDS402A02870	2,870	.1130	–	33	17	0,5	58	28	4
VDS202A02900	VDS402A02900	2,900	.1142	–	–	17	0,5	58	28	4
VDS202A02947	VDS402A02947	2,947	.1160	–	32	17	0,5	58	28	4
VDS202A03000	VDS402A03000	3,000	.1181	–	–	23	0,5	66	36	6

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(VDS202A/VDS402A • 5 x D continued)

P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS202A • WU25PD	VDS402A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202A03048	VDS402A03048	3,048	.1200	–	31	23	0,5	66	36	6
VDS202A03100	VDS402A03100	3,100	.1220	–	–	23	0,5	66	36	6
VDS202A03175	VDS402A03175	3,175	.1250	1/8	–	23	0,5	66	36	6
VDS202A03200	VDS402A03200	3,200	.1260	–	–	23	0,5	66	36	6
VDS202A03264	VDS402A03264	3,264	.1285	–	30	23	0,5	66	36	6
VDS202A03300	VDS402A03300	3,300	.1299	–	–	23	0,5	66	36	6
VDS202A03400	VDS402A03400	3,400	.1339	–	–	23	0,6	66	36	6
VDS202A03455	VDS402A03455	3,455	.1360	–	29	23	0,6	66	36	6
VDS202A03500	VDS402A03500	3,500	.1378	–	–	23	0,6	66	36	6
VDS202A03571	VDS402A03571	3,571	.1406	9/64	–	23	0,6	66	36	6
VDS202A03600	VDS402A03600	3,600	.1417	–	–	23	0,6	66	36	6
VDS202A03658	VDS402A03658	3,658	.1440	–	27	23	0,6	66	36	6
VDS202A03700	VDS402A03700	3,700	.1457	–	–	23	0,6	66	36	6
VDS202A03734	VDS402A03734	3,734	.1470	–	26	23	0,6	66	36	6
VDS202A03800	VDS402A03800	3,800	.1496	–	–	29	0,6	74	36	6
VDS202A03900	VDS402A03900	3,900	.1535	–	–	29	0,6	74	36	6
VDS202A03970	VDS402A03970	3,970	.1563	5/32	–	29	0,7	74	36	6
VDS202A04000	VDS402A04000	4,000	.1575	–	–	29	0,7	74	36	6
VDS202A04039	VDS402A04039	4,039	.1590	–	21	29	0,7	74	36	6
VDS202A04090	VDS402A04090	4,090	.1610	–	20	29	0,7	74	36	6
VDS202A04100	VDS402A04100	4,100	.1614	–	–	29	0,7	74	36	6
VDS202A04200	VDS402A04200	4,200	.1654	–	–	29	0,7	74	36	6
VDS202A04217	VDS402A04217	4,217	.1660	–	19	29	0,7	74	36	6
VDS202A04300	VDS402A04300	4,300	.1693	–	–	29	0,7	74	36	6
VDS202A04366	VDS402A04366	4,366	.1719	11/64	–	29	0,7	74	36	6
VDS202A04400	VDS402A04400	4,400	.1732	–	–	29	0,7	74	36	6
VDS202A04500	VDS402A04500	4,500	.1772	–	–	29	0,7	74	36	6
VDS202A04600	VDS402A04600	4,600	.1811	–	–	29	0,8	74	36	6
VDS202A04623	VDS402A04623	4,623	.1820	–	14	29	0,8	74	36	6
VDS202A04700	VDS402A04700	4,700	.1850	–	13	29	0,8	74	36	6
VDS202A04763	VDS402A04763	4,763	.1875	3/16	–	35	0,8	82	36	6
VDS202A04800	VDS402A04800	4,800	.1890	–	12	35	0,8	82	36	6
VDS202A04852	VDS402A04852	4,852	.1910	–	11	35	0,8	82	36	6
VDS202A04900	VDS402A04900	4,900	.1929	–	–	35	0,8	82	36	6
VDS202A05000	VDS402A05000	5,000	.1969	–	–	35	0,8	82	36	6
VDS202A05100	VDS402A05100	5,100	.2008	–	–	35	0,8	82	36	6
VDS202A05106	VDS402A05106	5,106	.2010	–	7	35	0,8	82	36	6
VDS202A05159	VDS402A05159	5,159	.2031	13/64	–	35	0,9	82	36	6
VDS202A05200	VDS402A05200	5,200	.2047	–	–	35	0,9	82	36	6
VDS202A05300	VDS402A05300	5,300	.2087	–	–	35	0,9	82	36	6
VDS202A05400	VDS402A05400	5,400	.2126	–	–	35	0,9	82	36	6
VDS202A05410	VDS402A05410	5,410	.2130	–	3	35	0,9	82	36	6
VDS202A05500	VDS402A05500	5,500	.2165	–	–	35	0,9	82	36	6
VDS202A05558	VDS402A05558	5,558	.2188	7/32	–	35	0,9	82	36	6

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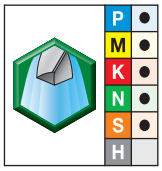
(VDS202A/VDS402A • 5 x D continued)

		D1 diameter								
VDS202A • WU25PD	VDS402A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202A05600	VDS402A05600	5,600	.2205	–	–	35	0,9	82	36	6
VDS202A05616	VDS402A05616	5,616	.2211	–	2	35	0,9	82	36	6
VDS202A05700	VDS402A05700	5,700	.2244	–	–	35	1,0	82	36	6
VDS202A05800	VDS402A05800	5,800	.2283	–	–	35	1,0	82	36	6
VDS202A05900	VDS402A05900	5,900	.2323	–	–	35	1,0	82	36	6
VDS202A05954	VDS402A05954	5,954	.2344	15/64	–	35	1,0	82	36	6
VDS202A06000	VDS402A06000	6,000	.2362	–	–	35	1,0	82	36	6
VDS202A06100	VDS402A06100	6,100	.2402	–	–	43	1,0	91	36	8
VDS202A06200	VDS402A06200	6,200	.2441	–	–	43	1,0	91	36	8
VDS202A06300	VDS402A06300	6,300	.2480	–	–	43	1,1	91	36	8
VDS202A06350	VDS402A06350	6,350	.2500	1/4	E	43	1,1	91	36	8
VDS202A06400	VDS402A06400	6,400	.2520	–	–	43	1,1	91	36	8
VDS202A06500	VDS402A06500	6,500	.2559	–	–	43	1,1	91	36	8
VDS202A06528	VDS402A06528	6,528	.2570	–	F	43	1,1	91	36	8
VDS202A06600	VDS402A06600	6,600	.2598	–	–	43	1,1	91	36	8
VDS202A06630	VDS402A06630	6,630	.2610	–	G	43	1,1	91	36	8
VDS202A06700	VDS402A06700	6,700	.2638	–	–	43	1,1	91	36	8
VDS202A06746	VDS402A06746	6,746	.2656	17/64	–	43	1,1	91	36	8
VDS202A06800	VDS402A06800	6,800	.2677	–	–	43	1,1	91	36	8
VDS202A06900	VDS402A06900	6,900	.2717	–	–	43	1,2	91	36	8
VDS202A07000	VDS402A07000	7,000	.2756	–	–	43	1,2	91	36	8
VDS202A07100	VDS402A07100	7,100	.2795	–	–	43	1,2	91	36	8
VDS202A07145	VDS402A07145	7,145	.2813	9/32	–	43	1,2	91	36	8
VDS202A07200	VDS402A07200	7,200	.2835	–	–	43	1,2	91	36	8
VDS202A07300	VDS402A07300	7,300	.2874	–	–	43	1,2	91	36	8
VDS202A07400	VDS402A07400	7,400	.2913	–	–	43	1,3	91	36	8
VDS202A07500	VDS402A07500	7,500	.2953	–	–	43	1,3	91	36	8
VDS202A07541	VDS402A07541	7,541	.2969	19/64	–	43	1,3	91	36	8
VDS202A07600	VDS402A07600	7,600	.2992	–	–	43	1,3	91	36	8
VDS202A07700	VDS402A07700	7,700	.3031	–	–	43	1,3	91	36	8
VDS202A07800	VDS402A07800	7,800	.3071	–	–	43	1,3	91	36	8
VDS202A07900	VDS402A07900	7,900	.3110	–	–	43	1,3	91	36	8
VDS202A07938	VDS402A07938	7,938	.3125	5/16	–	43	1,3	91	36	8
VDS202A08000	VDS402A08000	8,000	.3150	–	–	43	1,4	91	36	8
VDS202A08100	VDS402A08100	8,100	.3189	–	–	49	1,4	103	40	10
VDS202A08200	VDS402A08200	8,200	.3228	–	–	49	1,4	103	40	10
VDS202A08300	VDS402A08300	8,300	.3268	–	–	49	1,4	103	40	10
VDS202A08334	VDS402A08334	8,334	.3281	21/64	–	49	1,4	103	40	10
VDS202A08400	VDS402A08400	8,400	.3307	–	–	49	1,4	103	40	10
VDS202A08433	VDS402A08433	8,433	.3320	–	Q	49	1,4	103	40	10
VDS202A08500	VDS402A08500	8,500	.3346	–	–	49	1,4	103	40	10
VDS202A08600	VDS402A08600	8,600	.3386	–	–	49	1,5	103	40	10
VDS202A08700	VDS402A08700	8,700	.3425	–	–	49	1,5	103	40	10
VDS202A08733	VDS402A08733	8,733	.3438	11/32	–	49	1,5	103	40	10
VDS202A08800	VDS402A08800	8,800	.3465	–	–	49	1,5	103	40	10
VDS202A08900	VDS402A08900	8,900	.3504	–	–	49	1,5	103	40	10

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(VDS202A/VDS402A • 5 x D continued)

P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS202A • WU25PD	VDS402A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202A09000	VDS402A09000	9,000	.3543	–	–	49	1,5	103	40	10
VDS202A09100	VDS402A09100	9,100	.3583	–	–	49	1,5	103	40	10
VDS202A09129	VDS402A09129	9,129	.3594	23/64	–	49	1,6	103	40	10
VDS202A09200	VDS402A09200	9,200	.3622	–	–	49	1,6	103	40	10
VDS202A09300	VDS402A09300	9,300	.3661	–	–	49	1,6	103	40	10
VDS202A09347	VDS402A09347	9,347	.3680	–	U	49	1,6	103	40	10
VDS202A09400	VDS402A09400	9,400	.3701	–	–	49	1,6	103	40	10
VDS202A09500	VDS402A09500	9,500	.3740	–	–	49	1,6	103	40	10
VDS202A09525	VDS402A09525	9,525	.3750	3/8	–	49	1,6	103	40	10
VDS202A09600	VDS402A09600	9,600	.3780	–	–	49	1,6	103	40	10
VDS202A09700	VDS402A09700	9,700	.3819	–	–	49	1,7	103	40	10
VDS202A09800	VDS402A09800	9,800	.3858	–	–	49	1,7	103	40	10
VDS202A09900	VDS402A09900	9,900	.3898	–	–	49	1,7	103	40	10
VDS202A09921	VDS402A09921	9,921	.3906	25/64	–	49	1,7	103	40	10
VDS202A10000	VDS402A10000	10,000	.3937	–	–	49	1,7	103	40	10
VDS202A10100	VDS402A10100	10,100	.3976	–	–	56	1,7	118	45	12
VDS202A10200	VDS402A10200	10,200	.4016	–	–	56	1,7	118	45	12
VDS202A10300	VDS402A10300	10,300	.4055	–	–	56	1,8	118	45	12
VDS202A10320	VDS402A10320	10,320	.4063	13/32	–	56	1,8	118	45	12
VDS202A10400	VDS402A10400	10,400	.4094	–	–	56	1,8	118	45	12
VDS202A10500	VDS402A10500	10,500	.4134	–	–	56	1,8	118	45	12
VDS202A10600	VDS402A10600	10,600	.4173	–	–	56	1,8	118	45	12
VDS202A10700	VDS402A10700	10,700	.4213	–	–	56	1,8	118	45	12
VDS202A10716	VDS402A10716	10,716	.4219	27/64	–	56	1,8	118	45	12
VDS202A10800	VDS402A10800	10,800	.4252	–	–	56	1,8	118	45	12
VDS202A10900	VDS402A10900	10,900	.4291	–	–	56	1,9	118	45	12
VDS202A11000	VDS402A11000	11,000	.4331	–	–	56	1,9	118	45	12
VDS202A11100	VDS402A11100	11,100	.4370	–	–	56	1,9	118	45	12
VDS202A11113	VDS402A11113	11,113	.4375	7/16	–	56	1,9	118	45	12
VDS202A11200	VDS402A11200	11,200	.4409	–	–	56	1,9	118	45	12
VDS202A11300	VDS402A11300	11,300	.4449	–	–	56	1,9	118	45	12
VDS202A11400	VDS402A11400	11,400	.4488	–	–	56	2,0	118	45	12
VDS202A11500	VDS402A11500	11,500	.4528	–	–	56	2,0	118	45	12
VDS202A11509	VDS402A11509	11,509	.4531	29/64	–	56	2,0	118	45	12
VDS202A11600	VDS402A11600	11,600	.4567	–	–	56	2,0	118	45	12
VDS202A11700	VDS402A11700	11,700	.4606	–	–	56	2,0	118	45	12
VDS202A11800	VDS402A11800	11,800	.4646	–	–	56	2,0	118	45	12
VDS202A11900	VDS402A11900	11,900	.4685	–	–	56	2,0	118	45	12
VDS202A11908	VDS402A11908	11,908	.4688	15/32	–	56	2,0	118	45	12
VDS202A12000	VDS402A12000	12,000	.4724	–	–	56	2,1	118	45	12
VDS202A12100	VDS402A12100	12,100	.4764	–	–	60	2,1	124	45	14
VDS202A12200	VDS402A12200	12,200	.4803	–	–	60	2,1	124	45	14
VDS202A12300	VDS402A12300	12,300	.4843	–	–	60	2,1	124	45	14
VDS202A12304	VDS402A12304	12,304	.4844	31/64	–	60	2,1	124	45	14
VDS202A12400	VDS402A12400	12,400	.4882	–	–	60	2,1	124	45	14
VDS202A12500	VDS402A12500	12,500	.4921	–	–	60	2,1	124	45	14

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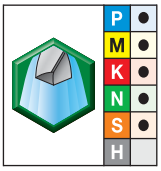
(VDS202A/VDS402A • 5 x D continued)

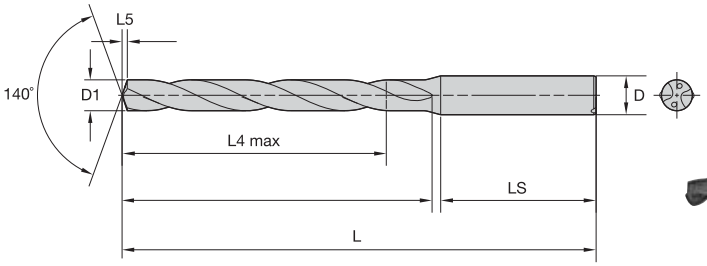
		D1 diameter								
VDS202A • WU25PD	VDS402A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202A12600	VDS402A12600	12,600	.4961	–	–	60	2,2	124	45	14
VDS202A12700	VDS402A12700	12,700	.5000	1/2	–	60	2,2	124	45	14
VDS202A12800	VDS402A12800	12,800	.5039	–	–	60	2,2	124	45	14
VDS202A12900	VDS402A12900	12,900	.5079	–	–	60	2,2	124	45	14
VDS202A13000	VDS402A13000	13,000	.5118	–	–	60	2,2	124	45	14
VDS202A13096	VDS402A13096	13,096	.5156	33/64	–	60	2,3	124	45	14
VDS202A13100	VDS402A13100	13,100	.5157	–	–	60	2,3	124	45	14
VDS202A13200	VDS402A13200	13,200	.5197	–	–	60	2,3	124	45	14
VDS202A13300	VDS402A13300	13,300	.5236	–	–	60	2,3	124	45	14
VDS202A13400	VDS402A13400	13,400	.5276	–	–	60	2,3	124	45	14
VDS202A13500	VDS402A13500	13,500	.5315	–	–	60	2,3	124	45	14
VDS202A13600	VDS402A13600	13,600	.5354	–	–	60	2,3	124	45	14
VDS202A13700	VDS402A13700	13,700	.5394	–	–	60	2,4	124	45	14
VDS202A13800	VDS402A13800	13,800	.5433	–	–	60	2,4	124	45	14
VDS202A13891	VDS402A13891	13,891	.5469	35/64	–	60	2,4	124	45	14
VDS202A13900	VDS402A13900	13,900	.5472	–	–	60	2,4	124	45	14
VDS202A14000	VDS402A14000	14,000	.5512	–	–	60	2,4	124	45	14
VDS202A14100	VDS402A14100	14,100	.5551	–	–	63	2,4	133	48	16
VDS202A14200	VDS402A14200	14,200	.5591	–	–	63	2,5	133	48	16
VDS202A14288	VDS402A14288	14,288	.5625	9/16	–	63	2,5	133	48	16
VDS202A14300	VDS402A14300	14,300	.5630	–	–	63	2,5	133	48	16
VDS202A14400	VDS402A14400	14,400	.5669	–	–	63	2,5	133	48	16
VDS202A14500	VDS402A14500	14,500	.5709	–	–	63	2,5	133	48	16
VDS202A14600	VDS402A14600	14,600	.5748	–	–	63	2,5	133	48	16
VDS202A14684	VDS402A14684	14,684	.5781	37/64	–	63	2,5	133	48	16
VDS202A14700	VDS402A14700	14,700	.5787	–	–	63	2,5	133	48	16
VDS202A14800	VDS402A14800	14,800	.5827	–	–	63	2,6	133	48	16
VDS202A14900	VDS402A14900	14,900	.5866	–	–	63	2,6	133	48	16
VDS202A15000	VDS402A15000	15,000	.5906	–	–	63	2,6	133	48	16
VDS202A15083	VDS402A15083	15,083	.5938	19/32	–	63	2,6	133	48	16
VDS202A15100	VDS402A15100	15,100	.5945	–	–	63	2,6	133	48	16
VDS202A15200	VDS402A15200	15,200	.5984	–	–	63	2,6	133	48	16
VDS202A15300	VDS402A15300	15,300	.6024	–	–	63	2,6	133	48	16
VDS202A15400	VDS402A15400	15,400	.6063	–	–	63	2,7	133	48	16
VDS202A15479	VDS402A15479	15,479	.6094	39/64	–	63	2,7	133	48	16
VDS202A15500	VDS402A15500	15,500	.6102	–	–	63	2,7	133	48	16
VDS202A15600	VDS402A15600	15,600	.6142	–	–	63	2,7	133	48	16
VDS202A15700	VDS402A15700	15,700	.6181	–	–	63	2,7	133	48	16
VDS202A15800	VDS402A15800	15,800	.6220	–	–	63	2,7	133	48	16
VDS202A15875	VDS402A15875	15,875	.6250	5/8	–	63	2,7	133	48	16
VDS202A15900	VDS402A15900	15,900	.6260	–	–	63	2,8	133	48	16
VDS202A16000	VDS402A16000	16,000	.6299	–	–	63	2,8	133	48	16
VDS202A16100	VDS402A16100	16,100	.6339	–	–	71	2,8	143	48	18
VDS202A16200	VDS402A16200	16,200	.6378	–	–	71	2,8	143	48	18
VDS202A16271	VDS402A16271	16,271	.6406	41/64	–	71	2,8	143	48	18
VDS202A16300	VDS402A16300	16,300	.6417	–	–	71	2,8	143	48	18

(continued)

(VDS202A/VDS402A • 5 x D continued)

P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS202A • WU25PD	VDS402A • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202A16400	VDS402A16400	16,400	.6457	–	–	71	2,8	143	48	18
VDS202A16500	VDS402A16500	16,500	.6496	–	–	71	2,9	143	48	18
VDS202A16600	VDS402A16600	16,600	.6535	–	–	71	2,9	143	48	18
VDS202A16670	VDS402A16670	16,670	.6563	21/32	–	71	2,9	143	48	18
VDS202A16700	VDS402A16700	16,700	.6575	–	–	71	2,9	143	48	18
VDS202A16800	VDS402A16800	16,800	.6614	–	–	71	2,9	143	48	18
VDS202A16900	VDS402A16900	16,900	.6654	–	–	71	2,9	143	48	18
VDS202A17000	VDS402A17000	17,000	.6693	–	–	71	2,9	143	48	18
VDS202A17100	VDS402A17100	17,100	.6732	–	–	71	3,0	143	48	18
VDS202A17200	VDS402A17200	17,200	.6772	–	–	71	3,0	143	48	18
VDS202A17300	VDS402A17300	17,300	.6811	–	–	71	3,0	143	48	18
VDS202A17400	VDS402A17400	17,400	.6850	–	–	71	3,0	143	48	18
VDS202A17463	VDS402A17463	17,463	.6875	11/16	–	71	3,0	143	48	18
VDS202A17500	VDS402A17500	17,500	.6890	–	–	71	3,0	143	48	18
VDS202A17600	VDS402A17600	17,600	.6929	–	–	71	3,1	143	48	18
VDS202A17700	VDS402A17700	17,700	.6969	–	–	71	3,1	143	48	18
VDS202A17800	VDS402A17800	17,800	.7008	–	–	71	3,1	143	48	18
VDS202A17859	VDS402A17859	17,859	.7031	45/64	–	71	3,1	143	48	18
VDS202A17900	VDS402A17900	17,900	.7047	–	–	71	3,1	143	48	18
VDS202A18000	VDS402A18000	18,000	.7087	–	–	71	3,1	143	48	18
VDS202A18100	VDS402A18100	18,100	.7126	–	–	77	3,1	153	50	20
VDS202A18200	VDS402A18200	18,200	.7165	–	–	77	3,2	153	50	20
VDS202A18258	VDS402A18258	18,258	.7188	23/32	–	77	3,2	153	50	20
VDS202A18300	VDS402A18300	18,300	.7205	–	–	77	3,2	153	50	20
VDS202A18400	VDS402A18400	18,400	.7244	–	–	77	3,2	153	50	20
VDS202A18500	VDS402A18500	18,500	.7283	–	–	77	3,2	153	50	20
VDS202A18600	VDS402A18600	18,600	.7323	–	–	77	3,2	153	50	20
VDS202A18654	VDS402A18654	18,654	.7344	47/64	–	77	3,2	153	50	20
VDS202A18700	VDS402A18700	18,700	.7362	–	–	77	3,2	153	50	20
VDS202A18800	VDS402A18800	18,800	.7402	–	–	77	3,3	153	50	20
VDS202A18900	VDS402A18900	18,900	.7441	–	–	77	3,3	153	50	20
VDS202A19000	VDS402A19000	19,000	.7480	–	–	77	3,3	153	50	20
VDS202A19050	VDS402A19050	19,050	.7500	3/4	–	77	3,3	153	50	20
VDS202A19100	VDS402A19100	19,100	.7520	–	–	77	3,3	153	50	20
VDS202A19200	VDS402A19200	19,200	.7559	–	–	77	3,3	153	50	20
VDS202A19300	VDS402A19300	19,300	.7598	–	–	77	3,4	153	50	20
VDS202A19400	VDS402A19400	19,400	.7638	–	–	77	3,4	153	50	20
VDS202A19500	VDS402A19500	19,500	.7677	–	–	77	3,4	153	50	20
VDS202A19600	VDS402A19600	19,600	.7717	–	–	77	3,4	153	50	20
VDS202A19700	VDS402A19700	19,700	.7756	–	–	77	3,4	153	50	20
VDS202A19800	VDS402A19800	19,800	.7795	–	–	77	3,4	153	50	20
VDS202A19900	VDS402A19900	19,900	.7835	–	–	77	3,5	153	50	20
VDS202A20000	VDS402A20000	20,000	.7874	–	–	77	3,5	153	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.



● first choice
○ alternate choice

VDS403A • 8 x D

VDS403A • WU25PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403A01500	1,500	.0591	–	–	58	15	0,2	28	4
VDS403A01600	1,600	.0630	–	–	58	15	0,2	28	4
VDS403A01700	1,700	.0669	–	–	58	15	0,3	28	4
VDS403A01800	1,800	.0709	–	–	58	15	0,3	28	4
VDS403A01900	1,900	.0748	–	–	58	15	0,3	28	4
VDS403A01984	1,984	.0781	–	–	66	22	0,3	28	4
VDS403A02000	2,000	.0787	–	–	66	22	0,3	28	4
VDS403A02100	2,100	.0827	–	–	66	22	0,3	28	4
VDS403A02200	2,200	.0866	–	–	66	22	0,3	28	4
VDS403A02300	2,300	.0906	–	–	66	22	0,4	28	4
VDS403A02383	2,383	.0938	3/32	–	66	25	0,4	28	4
VDS403A02400	2,400	.0945	–	–	66	25	0,4	28	4
VDS403A02439	2,439	.0960	–	41	66	25	0,4	28	4
VDS403A02489	2,489	.0980	–	40	66	25	0,4	28	4
VDS403A02500	2,500	.0984	–	–	66	25	0,4	28	4
VDS403A02578	2,578	.1015	–	38	66	25	0,4	28	4
VDS403A02600	2,600	.1024	–	–	66	25	0,4	28	4
VDS403A02642	2,642	.1040	–	37	66	25	0,4	28	4
VDS403A02700	2,700	.1063	–	–	66	25	0,4	28	4
VDS403A02705	2,705	.1065	–	36	66	25	0,4	28	4
VDS403A02779	2,779	.1094	7/64	–	66	25	0,4	28	4
VDS403A02800	2,800	.1102	–	–	66	25	0,5	28	4
VDS403A02820	2,820	.1110	–	34	66	25	0,5	28	4
VDS403A02870	2,870	.1130	–	33	66	25	0,5	28	4
VDS403A02900	2,900	.1142	–	–	66	25	0,5	28	4
VDS403A02947	2,947	.1160	–	32	66	25	0,5	28	4
VDS403A03000	3,000	.1181	–	–	78	33	0,5	36	6
VDS403A03264	3,264	.1285	–	30	78	33	0,5	36	6
VDS403A03400	3,400	.1339	–	–	78	33	0,6	36	6
VDS403A03048	3,048	.1200	–	31	78	33	0,5	36	6
VDS403A03200	3,200	.1260	–	–	78	33	0,5	36	6
VDS403A03300	3,300	.1299	–	30	78	33	0,5	36	6
VDS403A03100	3,100	.1220	–	–	78	33	0,5	36	6
VDS403A03175	3,175	.1250	1/8	–	78	33	0,5	36	6
VDS403A03734	3,734	.1470	–	26	78	33	0,6	36	6
VDS403A03900	3,900	.1535	–	–	87	41	0,6	36	6
VDS403A03600	3,600	.1417	–	–	78	33	0,6	36	6
VDS403A04000	4,000	.1575	–	–	87	41	0,7	36	6
VDS403A04039	4,039	.1590	–	21	87	41	0,7	36	6
VDS403A03700	3,700	.1457	–	–	78	33	0,6	36	6

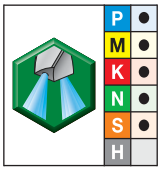
(continued)

(VDS403A • 8 x D continued)

P ● M ● K ● N ● S ● H	D1 diameter								
VDS403A • WU25PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403A04090	4,090	.1610	–	20	87	41	0,7	36	6
VDS403A03571	3,571	.1406	9/64	–	78	33	0,6	36	6
VDS403A03455	3,455	.1360	–	29	78	33	0,6	36	6
VDS403A03970	3,970	.1563	5/32	–	87	41	0,7	36	6
VDS403A03800	3,800	.1496	–	–	87	41	0,6	36	6
VDS403A03500	3,500	.1378	–	21	78	33	0,6	36	6
VDS403A03658	3,658	.1440	–	27	78	33	0,6	36	6
VDS403A04366	4,366	.1719	11/64	–	87	41	0,7	36	6
VDS403A04500	4,500	.1772	–	–	87	41	0,7	36	6
VDS403A04600	4,600	.1811	–	19	87	41	0,8	36	6
VDS403A04400	4,400	.1732	–	–	87	41	0,7	36	6
VDS403A04623	4,623	.1820	–	14	87	41	0,8	36	6
VDS403A04100	4,100	.1614	–	–	87	41	0,7	36	6
VDS403A04217	4,217	.1660	–	19	87	41	0,7	36	6
VDS403A04200	4,200	.1654	–	–	87	41	0,7	36	6
VDS403A04300	4,300	.1693	–	14	87	41	0,7	36	6
VDS403A04763	4,763	.1875	3/16	13	94	48	0,8	36	6
VDS403A04700	4,700	.1850	–	13	87	41	0,8	36	6
VDS403A05300	5,300	.2087	–	12	94	48	0,9	36	6
VDS403A05106	5,106	.2010	–	7	94	48	0,8	36	6
VDS403A05600	5,600	.2205	–	–	94	48	0,9	36	6
VDS403A04852	4,852	.1910	–	11	94	48	0,8	36	6
VDS403A05100	5,100	.2008	–	–	94	48	0,8	36	6
VDS403A05400	5,400	.2126	–	7	94	48	0,9	36	6
VDS403A05700	5,700	.2244	–	–	94	48	1,0	36	6
VDS403A05000	5,000	.1969	–	–	94	48	0,8	36	6
VDS403A04900	4,900	.1929	–	–	94	48	0,8	36	6
VDS403A05159	5,159	.2031	13/64	–	94	48	0,9	36	6
VDS403A05500	5,500	.2165	–	3	94	48	0,9	36	6
VDS403A04800	4,800	.1890	–	12	94	48	0,8	36	6
VDS403A05410	5,410	.2130	–	3	94	48	0,9	36	6
VDS403A05616	5,616	.2211	–	2	94	48	0,9	36	6
VDS403A05558	5,558	.2188	7/32	2	94	48	0,9	36	6
VDS403A05200	5,200	.2047	–	–	94	48	0,9	36	6
VDS403A06630	6,630	.2610	–	G	105	57	1,1	36	8
VDS403A06746	6,746	.2656	17/64	–	105	57	1,1	36	8
VDS403A06300	6,300	.2480	–	–	105	57	1,1	36	8
VDS403A05954	5,954	.2344	15/64	–	94	48	1,0	36	6
VDS403A06000	6,000	.2362	–	–	94	48	1,0	36	6
VDS403A06700	6,700	.2638	–	–	105	57	1,1	36	8
VDS403A05900	5,900	.2323	–	–	94	48	1,0	36	6
VDS403A06600	6,600	.2598	–	E	105	57	1,1	36	8
VDS403A06500	6,500	.2559	–	–	105	57	1,1	36	8
VDS403A06900	6,900	.2717	–	–	105	57	1,2	36	8

(continued)

(VDS403A • 8 x D continued)



VDS403A • WU25PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403A06200	6,200	.2441	–	F	105	57	1,0	36	8
VDS403A06400	6,400	.2520	–	–	105	57	1,1	36	8
VDS403A06350	6,350	.2500	1/4	E	105	57	1,1	36	8
VDS403A06528	6,528	.2570	–	F	105	57	1,1	36	8
VDS403A06100	6,100	.2402	–	–	105	57	1,0	36	8
VDS403A06800	6,800	.2677	–	–	105	57	1,1	36	8
VDS403A05800	5,800	.2283	–	–	94	48	1,0	36	6
VDS403A07145	7,145	.2813	9/32	–	110	61	1,2	36	8
VDS403A07300	7,300	.2874	–	–	110	61	1,2	36	8
VDS403A07100	7,100	.2795	–	–	110	61	1,2	36	8
VDS403A07400	7,400	.2913	–	–	110	61	1,3	36	8
VDS403A07000	7,000	.2756	–	–	105	57	1,2	36	8
VDS403A07200	7,200	.2835	–	–	110	61	1,2	36	8
VDS403A07541	7,541	.2969	19/64	–	110	61	1,3	36	8
VDS403A07500	7,500	.2953	–	–	110	61	1,3	36	8
VDS403A09000	9,000	.3543	–	–	122	68	1,5	40	10
VDS403A08800	8,800	.3465	–	–	122	68	1,5	40	10
VDS403A08400	8,400	.3307	–	–	122	68	1,4	40	10
VDS403A08733	8,733	.3438	11/32	–	122	68	1,5	40	10
VDS403A08700	8,700	.3425	–	–	122	68	1,5	40	10
VDS403A08900	8,900	.3504	–	–	122	68	1,5	40	10
VDS403A08300	8,300	.3268	–	–	122	68	1,4	40	10
VDS403A08600	8,600	.3386	–	–	122	68	1,5	40	10
VDS403A08000	8,000	.3150	–	–	110	61	1,4	36	8
VDS403A08200	8,200	.3228	–	–	122	68	1,4	40	10
VDS403A08100	8,100	.3189	–	–	122	68	1,4	40	10
VDS403A07938	7,938	.3125	5/16	Q	110	61	1,3	36	8
VDS403A07900	7,900	.3110	–	–	110	61	1,3	36	8
VDS403A08500	8,500	.3346	–	–	122	68	1,4	40	10
VDS403A07800	7,800	.3071	–	–	110	61	1,3	36	8
VDS403A08334	8,334	.3281	21/64	–	122	68	1,4	40	10
VDS403A07700	7,700	.3031	–	–	110	61	1,3	36	8
VDS403A07600	7,600	.2992	–	–	110	61	1,3	36	8
VDS403A08433	8,433	.3320	–	Q	122	68	1,4	40	10
VDS403A09900	9,900	.3898	–	–	122	68	1,7	40	10
VDS403A09921	9,921	.3906	25/64	–	122	68	1,7	40	10
VDS403A09800	9,800	.3858	–	–	122	68	1,7	40	10
VDS403A09347	9,347	.3680	–	U	122	68	1,6	40	10
VDS403A09600	9,600	.3780	–	U	122	68	1,6	40	10
VDS403A09525	9,525	.3750	3/8	–	122	68	1,6	40	10
VDS403A09500	9,500	.3740	–	–	122	68	1,6	40	10
VDS403A09300	9,300	.3661	–	–	122	68	1,6	40	10
VDS403A09200	9,200	.3622	–	–	122	68	1,6	40	10
VDS403A09129	9,129	.3594	23/64	–	122	68	1,6	40	10
VDS403A09100	9,100	.3583	–	–	122	68	1,5	40	10
VDS403A09700	9,700	.3819	–	–	122	68	1,7	40	10

(continued)

(VDS403A • 8 x D continued)

VDS403A • WU25PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403A09400	9,400	.3701	–	–	122	68	1,6	40	10
VDS403A10000	10,000	.3937	–	–	122	68	1,7	40	10
VDS403A10100	10,100	.3976	–	–	141	79	1,7	45	12
VDS403A10200	10,200	.4016	–	–	141	79	1,7	45	12
VDS403A10300	10,300	.4055	–	–	141	79	1,8	45	12
VDS403A10320	10,320	.4063	13/32	–	141	79	1,8	45	12
VDS403A10400	10,400	.4094	–	–	141	79	1,8	45	12
VDS403A10500	10,500	.4134	–	–	141	79	1,8	45	12
VDS403A10600	10,600	.4173	–	–	141	79	1,8	45	12
VDS403A10700	10,700	.4213	–	–	141	79	1,8	45	12
VDS403A10716	10,716	.4219	27/64	–	141	79	1,8	45	12
VDS403A10800	10,800	.4252	–	–	141	79	1,8	45	12
VDS403A10900	10,900	.4291	–	–	141	79	1,9	45	12
VDS403A11000	11,000	.4331	–	–	141	79	1,9	45	12
VDS403A11100	11,100	.4370	–	–	141	79	1,9	45	12
VDS403A11113	11,113	.4375	7/16	–	141	79	1,9	45	12
VDS403A11200	11,200	.4409	–	–	141	79	1,9	45	12
VDS403A11300	11,300	.4449	–	–	141	79	1,9	45	12
VDS403A11400	11,400	.4488	–	–	141	79	2,0	45	12
VDS403A11500	11,500	.4528	–	–	141	79	2,0	45	12
VDS403A11509	11,509	.4531	29/64	–	141	79	2,0	45	12
VDS403A11600	11,600	.4567	–	–	141	79	2,0	45	12
VDS403A11700	11,700	.4606	–	–	141	79	2,0	45	12
VDS403A11800	11,800	.4646	–	–	141	79	2,0	45	12
VDS403A11900	11,900	.4685	–	–	141	79	2,0	45	12
VDS403A11908	11,908	.4688	15/32	–	141	79	2,0	45	12
VDS403A12000	12,000	.4724	–	–	141	79	2,1	45	12
VDS403A12100	12,100	.4764	–	–	155	91	2,1	45	14
VDS403A12200	12,200	.4803	–	–	155	91	2,1	45	14
VDS403A12300	12,300	.4843	–	–	155	91	2,1	45	14
VDS403A12304	12,304	.4844	31/64	–	155	91	2,1	45	14
VDS403A12400	12,400	.4882	–	–	155	91	2,1	45	14
VDS403A12500	12,500	.4921	–	–	155	91	2,1	45	14
VDS403A12600	12,600	.4961	–	–	155	91	2,2	45	14
VDS403A12700	12,700	.5000	1/2	–	155	91	2,2	45	14
VDS403A12800	12,800	.5039	–	–	155	91	2,2	45	14
VDS403A12900	12,900	.5079	–	–	155	91	2,2	45	14
VDS403A13000	13,000	.5118	–	–	155	91	2,2	45	14
VDS403A13096	13,096	.5156	33/64	–	155	91	2,3	45	14
VDS403A13100	13,100	.5157	–	–	155	91	2,3	45	14
VDS403A13200	13,200	.5197	–	–	155	91	2,3	45	14
VDS403A13300	13,300	.5236	–	–	155	91	2,3	45	14
VDS403A13400	13,400	.5276	–	–	155	91	2,3	45	14
VDS403A13500	13,500	.5315	–	–	155	91	2,3	45	14
VDS403A13600	13,600	.5354	–	–	155	91	2,3	45	14
VDS403A13700	13,700	.5394	–	–	155	91	2,4	45	14

(continued)

(VDS403A • 8 x D continued)

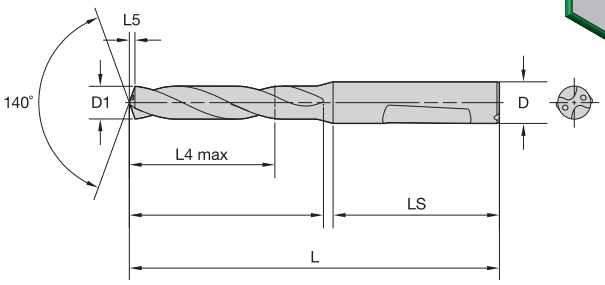
VDS403A • WU25PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403A13800	13,800	.5433	–	–	155	91	2,4	45	14
VDS403A13891	13,891	.5469	35/64	–	155	91	2,4	45	14
VDS403A13900	13,900	.5472	–	–	155	91	2,4	45	14
VDS403A14000	14,000	.5512	–	–	155	91	2,4	45	14
VDS403A14100	14,100	.5551	–	–	171	101	2,4	48	16
VDS403A14200	14,200	.5591	–	–	171	101	2,5	48	16
VDS403A14288	14,288	.5625	9/16	–	171	101	2,5	48	16
VDS403A14300	14,300	.5630	–	–	171	101	2,5	48	16
VDS403A14400	14,400	.5669	–	–	171	101	2,5	48	16
VDS403A14500	14,500	.5709	–	–	171	101	2,5	48	16
VDS403A14600	14,600	.5748	–	–	171	101	2,5	48	16
VDS403A14684	14,684	.5781	37/64	–	171	101	2,5	48	16
VDS403A14700	14,700	.5787	–	–	171	101	2,5	48	16
VDS403A14800	14,800	.5827	–	–	171	101	2,6	48	16
VDS403A14900	14,900	.5866	–	–	171	101	2,6	48	16
VDS403A15000	15,000	.5906	–	–	171	101	2,6	48	16
VDS403A15083	15,083	.5938	19/32	–	171	101	2,6	48	16
VDS403A15100	15,100	.5945	–	–	171	101	2,6	48	16
VDS403A15200	15,200	.5984	–	–	171	101	2,6	48	16
VDS403A15300	15,300	.6024	–	–	171	101	2,6	48	16
VDS403A15400	15,400	.6063	–	–	171	101	2,7	48	16
VDS403A15479	15,479	.6094	39/64	–	171	101	2,7	48	16
VDS403A15500	15,500	.6102	–	–	171	101	2,7	48	16
VDS403A15600	15,600	.6142	–	–	171	101	2,7	48	16
VDS403A15700	15,700	.6181	–	–	171	101	2,7	48	16
VDS403A15800	15,800	.6220	–	–	171	101	2,7	48	16
VDS403A15875	15,875	.6250	5/8	–	171	101	2,7	48	16
VDS403A15900	15,900	.6260	–	–	171	101	2,8	48	16
VDS403A16000	16,000	.6299	–	–	171	101	2,8	48	16
VDS403A16100	16,100	.6339	–	–	185	113	2,8	48	18
VDS403A16200	16,200	.6378	–	–	185	113	2,8	48	18
VDS403A16271	16,271	.6406	41/64	–	185	113	2,8	48	18
VDS403A16300	16,300	.6417	–	–	185	113	2,8	48	18
VDS403A16400	16,400	.6457	–	–	185	113	2,8	48	18
VDS403A16500	16,500	.6496	–	–	185	113	2,9	48	18
VDS403A16600	16,600	.6535	–	–	185	113	2,9	48	18
VDS403A16670	16,670	.6563	21/32	–	185	113	2,9	48	18
VDS403A16700	16,700	.6575	–	–	185	113	2,9	48	18
VDS403A16800	16,800	.6614	–	–	185	113	2,9	48	18
VDS403A16900	16,900	.6654	–	–	185	113	2,9	48	18
VDS403A17000	17,000	.6693	–	–	185	113	2,9	48	18
VDS403A17100	17,100	.6732	–	–	185	113	3,0	48	18
VDS403A17200	17,200	.6772	–	–	185	113	3,0	48	18
VDS403A17300	17,300	.6811	–	–	185	113	3,0	48	18
VDS403A17400	17,400	.6850	–	–	185	113	3,0	48	18
VDS403A17463	17,463	.6875	11/16	–	185	113	3,0	48	18

(continued)

(VDS403A • 8 x D continued)

P ● M ● K ● N ● S ● H	D1 diameter								
VDS403A • WU25PD	**mm**	**in**	**fraction**	**wire size**	**L**	**L4 max**	**L5**	**LS**	**D**
VDS403A17500	17,500	.6890	–	–	185	113	3,0	48	18
VDS403A17600	17,600	.6929	–	–	185	113	3,1	48	18
VDS403A17700	17,700	.6969	–	–	185	113	3,1	48	18
VDS403A17800	17,800	.7008	–	–	185	113	3,1	48	18
VDS403A17859	17,859	.7031	45/64	–	185	113	3,1	48	18
VDS403A17900	17,900	.7047	–	–	185	113	3,1	48	18
VDS403A18000	18,000	.7087	–	–	185	113	3,1	48	18
VDS403A18100	18,100	.7126	–	–	200	124	3,1	50	20
VDS403A18200	18,200	.7165	–	–	200	124	3,2	50	20
VDS403A18258	18,258	.7188	23/32	–	200	124	3,2	50	20
VDS403A18300	18,300	.7205	–	–	200	124	3,2	50	20
VDS403A18400	18,400	.7244	–	–	200	124	3,2	50	20
VDS403A18500	18,500	.7283	–	–	200	124	3,2	50	20
VDS403A18600	18,600	.7323	–	–	200	124	3,2	50	20
VDS403A18654	18,654	.7344	47/64	–	200	124	3,2	50	20
VDS403A18700	18,700	.7362	–	–	200	124	3,2	50	20
VDS403A18800	18,800	.7402	–	–	200	124	3,3	50	20
VDS403A18900	18,900	.7441	–	–	200	124	3,3	50	20
VDS403A19000	19,000	.7480	–	–	200	124	3,3	50	20
VDS403A19050	19,050	.7500	3/4	–	200	124	3,3	50	20
VDS403A19100	19,100	.7520	–	–	200	124	3,3	50	20
VDS403A19200	19,200	.7559	–	–	200	124	3,3	50	20
VDS403A19300	19,300	.7598	–	–	200	124	3,4	50	20
VDS403A19400	19,400	.7638	–	–	200	124	3,4	50	20
VDS403A19500	19,500	.7677	–	–	200	124	3,4	50	20
VDS403A19600	19,600	.7717	–	–	200	124	3,4	50	20
VDS403A19700	19,700	.7756	–	–	200	124	3,4	50	20
VDS403A19800	19,800	.7795	–	–	200	124	3,4	50	20
VDS403A19900	19,900	.7835	–	–	200	124	3,5	50	20
VDS403A20000	20,000	.7874	–	–	200	124	3,5	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.



● first choice
○ alternate choice

VDS201F/VDS401F • 3 x D

VDS201F • WU25PD	VDS401F • WU25PD	D1 diameter mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201F03000	VDS401F03000	3,000	.1181	–	–	14	0,5	62	36	6
VDS201F03100	VDS401F03100	3,100	.1220	–	–	14	0,5	62	36	6
VDS201F03200	VDS401F03200	3,200	.1260	–	–	14	0,5	62	36	6
VDS201F03300	VDS401F03300	3,300	.1299	–	–	14	0,5	62	36	6
VDS201F03400	VDS401F03400	3,400	.1339	–	–	14	0,6	62	36	6
VDS201F03500	VDS401F03500	3,500	.1378	–	–	14	0,6	62	36	6
VDS201F03600	VDS401F03600	3,600	.1417	–	–	14	0,6	62	36	6
VDS201F03700	VDS401F03700	3,700	.1457	–	–	14	0,6	62	36	6
VDS201F03800	VDS401F03800	3,800	.1496	–	–	17	0,6	66	36	6
VDS201F03900	VDS401F03900	3,900	.1535	–	–	17	0,6	66	36	6
VDS201F04000	VDS401F04000	4,000	.1575	–	–	17	0,7	66	36	6
VDS201F04100	VDS401F04100	4,100	.1614	–	–	17	0,7	66	36	6
VDS201F04200	VDS401F04200	4,200	.1654	–	–	17	0,7	66	36	6
VDS201F04300	VDS401F04300	4,300	.1693	–	–	17	0,7	66	36	6
VDS201F04400	VDS401F04400	4,400	.1732	–	–	17	0,7	66	36	6
VDS201F04500	VDS401F04500	4,500	.1772	–	–	17	0,7	66	36	6
VDS201F04600	VDS401F04600	4,600	.1811	–	–	17	0,8	66	36	6
VDS201F04700	VDS401F04700	4,700	.1850	–	13	17	0,8	66	36	6
VDS201F04800	VDS401F04800	4,800	.1890	–	12	20	0,8	66	36	6
VDS201F04900	VDS401F04900	4,900	.1929	–	–	20	0,8	66	36	6
VDS201F05000	VDS401F05000	5,000	.1969	–	–	20	0,8	66	36	6
VDS201F05100	VDS401F05100	5,100	.2008	–	–	20	0,8	66	36	6
VDS201F05200	VDS401F05200	5,200	.2047	–	–	20	0,9	66	36	6
VDS201F05300	VDS401F05300	5,300	.2087	–	–	20	0,9	66	36	6
VDS201F05400	VDS401F05400	5,400	.2126	–	–	20	0,9	66	36	6
VDS201F05500	VDS401F05500	5,500	.2165	–	–	20	0,9	66	36	6
VDS201F05600	VDS401F05600	5,600	.2205	–	–	20	0,9	66	36	6
VDS201F05700	VDS401F05700	5,700	.2244	–	–	20	1,0	66	36	6
VDS201F05800	VDS401F05800	5,800	.2283	–	–	20	1,0	66	36	6
VDS201F05900	VDS401F05900	5,900	.2323	–	–	20	1,0	66	36	6
VDS201F06000	VDS401F06000	6,000	.2362	–	–	20	1,0	66	36	6
VDS201F06100	VDS401F06100	6,100	.2402	–	–	24	1,0	79	36	8
VDS201F06200	VDS401F06200	6,200	.2441	–	–	24	1,0	79	36	8
VDS201F06300	VDS401F06300	6,300	.2480	–	–	24	1,1	79	36	8
VDS201F06400	VDS401F06400	6,400	.2520	–	–	24	1,1	79	36	8
VDS201F06500	VDS401F06500	6,500	.2559	–	–	24	1,1	79	36	8
VDS201F06600	VDS401F06600	6,600	.2598	–	–	24	1,1	79	36	8
VDS201F06700	VDS401F06700	6,700	.2638	–	–	24	1,1	79	36	8
VDS201F06800	VDS401F06800	6,800	.2677	–	–	24	1,1	79	36	8
VDS201F06900	VDS401F06900	6,900	.2717	–	–	24	1,2	79	36	8

(continued)

(VDS201F/VDS401F • 3 x D continued)

P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS201F • WU25PD	VDS401F • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201F07000	VDS401F07000	7,000	.2756	–	–	24	1,2	79	36	8
VDS201F07100	VDS401F07100	7,100	.2795	–	–	29	1,2	79	36	8
VDS201F07200	VDS401F07200	7,200	.2835	–	–	29	1,2	79	36	8
VDS201F07300	VDS401F07300	7,300	.2874	–	–	29	1,2	79	36	8
VDS201F07400	VDS401F07400	7,400	.2913	–	–	29	1,3	79	36	8
VDS201F07500	VDS401F07500	7,500	.2953	–	–	29	1,3	79	36	8
VDS201F07600	VDS401F07600	7,600	.2992	–	–	29	1,3	79	36	8
VDS201F07700	VDS401F07700	7,700	.3031	–	–	29	1,3	79	36	8
VDS201F07800	VDS401F07800	7,800	.3071	–	–	29	1,3	79	36	8
VDS201F07900	VDS401F07900	7,900	.3110	–	–	29	1,3	79	36	8
VDS201F08000	VDS401F08000	8,000	.3150	–	–	29	1,4	79	36	8
VDS201F08100	VDS401F08100	8,100	.3189	–	–	35	1,4	89	40	10
VDS201F08200	VDS401F08200	8,200	.3228	–	–	35	1,4	89	40	10
VDS201F08300	VDS401F08300	8,300	.3268	–	–	35	1,4	89	40	10
VDS201F08400	VDS401F08400	8,400	.3307	–	–	35	1,4	89	40	10
VDS201F08500	VDS401F08500	8,500	.3346	–	–	35	1,4	89	40	10
VDS201F08600	VDS401F08600	8,600	.3386	–	–	35	1,5	89	40	10
VDS201F08700	VDS401F08700	8,700	.3425	–	–	35	1,5	89	40	10
VDS201F08800	VDS401F08800	8,800	.3465	–	–	35	1,5	89	40	10
VDS201F08900	VDS401F08900	8,900	.3504	–	–	35	1,5	89	40	10
VDS201F09000	VDS401F09000	9,000	.3543	–	–	35	1,5	89	40	10
VDS201F09100	VDS401F09100	9,100	.3583	–	–	35	1,5	89	40	10
VDS201F09200	VDS401F09200	9,200	.3622	–	–	35	1,6	89	40	10
VDS201F09300	VDS401F09300	9,300	.3661	–	–	35	1,6	89	40	10
VDS201F09400	VDS401F09400	9,400	.3701	–	–	35	1,6	89	40	10
VDS201F09500	VDS401F09500	9,500	.3740	–	–	35	1,6	89	40	10
VDS201F09600	VDS401F09600	9,600	.3780	–	–	35	1,6	89	40	10
VDS201F09700	VDS401F09700	9,700	.3819	–	–	35	1,7	89	40	10
VDS201F09800	VDS401F09800	9,800	.3858	–	–	35	1,7	89	40	10
VDS201F09900	VDS401F09900	9,900	.3898	–	–	35	1,7	89	40	10
VDS201F10000	VDS401F10000	10,000	.3937	–	–	35	1,7	89	40	10
VDS201F10100	VDS401F10100	10,100	.3976	–	–	40	1,7	102	45	12
VDS201F10200	VDS401F10200	10,200	.4016	–	–	40	1,7	102	45	12
VDS201F10300	VDS401F10300	10,300	.4055	–	–	40	1,8	102	45	12
VDS201F10400	VDS401F10400	10,400	.4094	–	–	40	1,8	102	45	12
VDS201F10500	VDS401F10500	10,500	.4134	–	–	40	1,8	102	45	12
VDS201F10600	VDS401F10600	10,600	.4173	–	–	40	1,8	102	45	12
VDS201F10700	VDS401F10700	10,700	.4213	–	–	40	1,8	102	45	12
VDS201F10800	VDS401F10800	10,800	.4252	–	–	40	1,8	102	45	12
VDS201F10900	VDS401F10900	10,900	.4291	–	–	40	1,9	102	45	12
VDS201F11000	VDS401F11000	11,000	.4331	–	–	40	1,9	102	45	12
VDS201F11100	VDS401F11100	11,100	.4370	–	–	40	1,9	102	45	12
VDS201F11200	VDS401F11200	11,200	.4409	–	–	40	1,9	102	45	12
VDS201F11300	VDS401F11300	11,300	.4449	–	–	40	1,9	102	45	12
VDS201F11400	VDS401F11400	11,400	.4488	–	–	40	2,0	102	45	12
VDS201F11500	VDS401F11500	11,500	.4528	–	–	40	2,0	102	45	12
VDS201F11600	VDS401F11600	11,600	.4567	–	–	40	2,0	102	45	12
VDS201F11700	VDS401F11700	11,700	.4606	–	–	40	2,0	102	45	12

(continued)

(VDS201F/VDS401F • 3 x D continued)

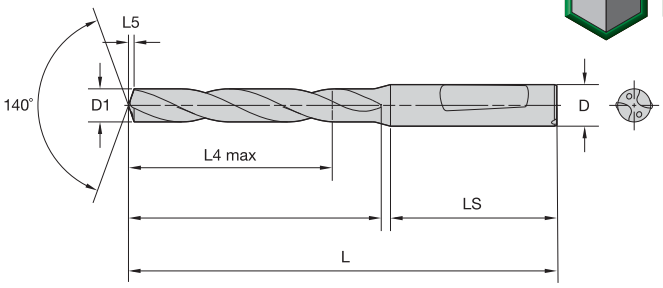
P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS201F • WU25PD	VDS401F • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201F11800	VDS401F11800	11,800	.4646	–	–	40	2,0	102	45	12
VDS201F11900	VDS401F11900	11,900	.4685	–	–	40	2,0	102	45	12
VDS201F12000	VDS401F12000	12,000	.4724	–	–	40	2,1	102	45	12
VDS201F12100	VDS401F12100	12,100	.4764	–	–	43	2,1	107	45	14
VDS201F12200	VDS401F12200	12,200	.4803	–	–	43	2,1	107	45	14
VDS201F12300	VDS401F12300	12,300	.4843	–	–	43	2,1	107	45	14
VDS201F12400	VDS401F12400	12,400	.4882	–	–	43	2,1	107	45	14
VDS201F12500	VDS401F12500	12,500	.4921	–	–	43	2,1	107	45	14
VDS201F12600	VDS401F12600	12,600	.4961	–	–	43	2,2	107	45	14
VDS201F12700	VDS401F12700	12,700	.5000	1/2	–	43	2,2	107	45	14
VDS201F12800	VDS401F12800	12,800	.5039	–	–	43	2,2	107	45	14
VDS201F12900	VDS401F12900	12,900	.5079	–	–	43	2,2	107	45	14
VDS201F13000	VDS401F13000	13,000	.5118	–	–	43	2,2	107	45	14
VDS201F13100	VDS401F13100	13,100	.5157	–	–	43	2,3	107	45	14
VDS201F13200	VDS401F13200	13,200	.5197	–	–	43	2,3	107	45	14
VDS201F13300	VDS401F13300	13,300	.5236	–	–	43	2,3	107	45	14
VDS201F13400	VDS401F13400	13,400	.5276	–	–	43	2,3	107	45	14
VDS201F13500	VDS401F13500	13,500	.5315	–	–	43	2,3	107	45	14
VDS201F13600	VDS401F13600	13,600	.5354	–	–	43	2,3	107	45	14
VDS201F13700	VDS401F13700	13,700	.5394	–	–	43	2,4	107	45	14
VDS201F13800	VDS401F13800	13,800	.5433	–	–	43	2,4	107	45	14
VDS201F13900	VDS401F13900	13,900	.5472	–	–	43	2,4	107	45	14
VDS201F14000	VDS401F14000	14,000	.5512	–	–	43	2,4	107	45	14
VDS201F14100	VDS401F14100	14,100	.5551	–	–	45	2,4	115	48	16
VDS201F14200	VDS401F14200	14,200	.5591	–	–	45	2,5	115	48	16
VDS201F14300	VDS401F14300	14,300	.5630	–	–	45	2,5	115	48	16
VDS201F14400	VDS401F14400	14,400	.5669	–	–	45	2,5	115	48	16
VDS201F14500	VDS401F14500	14,500	.5709	–	–	45	2,5	115	48	16
VDS201F14600	VDS401F14600	14,600	.5748	–	–	45	2,5	115	48	16
VDS201F14700	VDS401F14700	14,700	.5787	–	–	45	2,5	115	48	16
VDS201F14800	VDS401F14800	14,800	.5827	–	–	45	2,6	115	48	16
VDS201F14900	VDS401F14900	14,900	.5866	–	–	45	2,6	115	48	16
VDS201F15000	VDS401F15000	15,000	.5906	–	–	45	2,6	115	48	16
VDS201F15100	VDS401F15100	15,100	.5945	–	–	45	2,6	115	48	16
VDS201F15200	VDS401F15200	15,200	.5984	–	–	45	2,6	115	48	16
VDS201F15300	VDS401F15300	15,300	.6024	–	–	45	2,6	115	48	16
VDS201F15400	VDS401F15400	15,400	.6063	–	–	45	2,7	115	48	16
VDS201F15500	VDS401F15500	15,500	.6102	–	–	45	2,7	115	48	16
VDS201F15600	VDS401F15600	15,600	.6142	–	–	45	2,7	115	48	16
VDS201F15700	VDS401F15700	15,700	.6181	–	–	45	2,7	115	48	16
VDS201F15800	VDS401F15800	15,800	.6220	–	–	45	2,7	115	48	16
VDS201F15900	VDS401F15900	15,900	.6260	–	–	45	2,8	115	48	16
VDS201F16000	VDS401F16000	16,000	.6299	–	–	45	2,8	115	48	16
VDS201F16100	VDS401F16100	16,100	.6339	–	–	51	2,8	123	48	18
VDS201F16200	VDS401F16200	16,200	.6378	–	–	51	2,8	123	48	18
VDS201F16300	VDS401F16300	16,300	.6417	–	–	51	2,8	123	48	18
VDS201F16400	VDS401F16400	16,400	.6457	–	–	51	2,8	123	48	18
VDS201F16500	VDS401F16500	16,500	.6496	–	–	51	2,9	123	48	18

(continued)

(VDS201F/VDS401F • 3 x D continued)

VDS201F • WU25PD	VDS401F • WU25PD	D1 diameter mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS201F16600	VDS401F16600	16,600	.6535	–	–	51	2,9	123	48	18
VDS201F16700	VDS401F16700	16,700	.6575	–	–	51	2,9	123	48	18
VDS201F16800	VDS401F16800	16,800	.6614	–	–	51	2,9	123	48	18
VDS201F16900	VDS401F16900	16,900	.6654	–	–	51	2,9	123	48	18
VDS201F17000	VDS401F17000	17,000	.6693	–	–	51	2,9	123	48	18
VDS201F17100	VDS401F17100	17,100	.6732	–	–	51	3,0	123	48	18
VDS201F17200	VDS401F17200	17,200	.6772	–	–	51	3,0	123	48	18
VDS201F17300	VDS401F17300	17,300	.6811	–	–	51	3,0	123	48	18
VDS201F17400	VDS401F17400	17,400	.6850	–	–	51	3,0	123	48	18
VDS201F17500	VDS401F17500	17,500	.6890	–	–	51	3,0	123	48	18
VDS201F17600	VDS401F17600	17,600	.6929	–	–	51	3,1	123	48	18
VDS201F17700	VDS401F17700	17,700	.6969	–	–	51	3,1	123	48	18
VDS201F17800	VDS401F17800	17,800	.7008	–	–	51	3,1	123	48	18
VDS201F17900	VDS401F17900	17,900	.7047	–	–	51	3,1	123	48	18
VDS201F18000	VDS401F18000	18,000	.7087	–	–	51	3,1	123	48	18
VDS201F18100	VDS401F18100	18,100	.7126	–	–	55	3,1	131	50	20
VDS201F18200	VDS401F18200	18,200	.7165	–	–	55	3,2	131	50	20
VDS201F18300	VDS401F18300	18,300	.7205	–	–	55	3,2	131	50	20
VDS201F18400	VDS401F18400	18,400	.7244	–	–	55	3,2	131	50	20
VDS201F18500	VDS401F18500	18,500	.7283	–	–	55	3,2	131	50	20
VDS201F18600	VDS401F18600	18,600	.7323	–	–	55	3,2	131	50	20
VDS201F18700	VDS401F18700	18,700	.7362	–	–	55	3,2	131	50	20
VDS201F18800	VDS401F18800	18,800	.7402	–	–	55	3,3	131	50	20
VDS201F18900	VDS401F18900	18,900	.7441	–	–	55	3,3	131	50	20
VDS201F19000	VDS401F19000	19,000	.7480	–	–	55	3,3	131	50	20
VDS201F19100	VDS401F19100	19,100	.7520	–	–	55	3,3	131	50	20
VDS201F19200	VDS401F19200	19,200	.7559	–	–	55	3,3	131	50	20
VDS201F19300	VDS401F19300	19,300	.7598	–	–	55	3,4	131	50	20
VDS201F19400	VDS401F19400	19,400	.7638	–	–	55	3,4	131	50	20
VDS201F19500	VDS401F19500	19,500	.7677	–	–	55	3,4	131	50	20
VDS201F19600	VDS401F19600	19,600	.7717	–	–	55	3,4	131	50	20
VDS201F19700	VDS401F19700	19,700	.7756	–	–	55	3,4	131	50	20
VDS201F19800	VDS401F19800	19,800	.7795	–	–	55	3,4	131	50	20
VDS201F19900	VDS401F19900	19,900	.7835	–	–	55	3,5	131	50	20
VDS201F20000	VDS401F20000	20,000	.7874	–	–	55	3,5	131	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.



● first choice
○ alternate choice

VDS202F/VDS402F • 5 x D

VDS202F • WU25PD	VDS402F • WU25PD	D1 diameter mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202F03000	VDS402F03000	3,000	.1181	–	–	23	0,5	66	36	6
VDS202F03100	VDS402F03100	3,100	.1220	–	–	23	0,5	66	36	6
VDS202F03200	VDS402F03200	3,200	.1260	–	–	23	0,5	66	36	6
VDS202F03300	VDS402F03300	3,300	.1299	–	–	23	0,5	66	36	6
VDS202F03400	VDS402F03400	3,400	.1339	–	–	23	0,6	66	36	6
VDS202F03500	VDS402F03500	3,500	.1378	–	–	23	0,6	66	36	6
VDS202F03600	VDS402F03600	3,600	.1417	–	–	23	0,6	66	36	6
VDS202F03700	VDS402F03700	3,700	.1457	–	–	23	0,6	66	36	6
VDS202F03800	VDS402F03800	3,800	.1496	–	–	29	0,6	74	36	6
VDS202F03900	VDS402F03900	3,900	.1535	–	–	29	0,6	74	36	6
VDS202F04000	VDS402F04000	4,000	.1575	–	–	29	0,7	74	36	6
VDS202F04100	VDS402F04100	4,100	.1614	–	–	29	0,7	74	36	6
VDS202F04200	VDS402F04200	4,200	.1654	–	–	29	0,7	74	36	6
VDS202F04300	VDS402F04300	4,300	.1693	–	–	29	0,7	74	36	6
VDS202F04400	VDS402F04400	4,400	.1732	–	–	29	0,7	74	36	6
VDS202F04500	VDS402F04500	4,500	.1772	–	–	29	0,7	74	36	6
VDS202F04600	VDS402F04600	4,600	.1811	–	–	29	0,8	74	36	6
VDS202F04700	VDS402F04700	4,700	.1850	–	13	29	0,8	74	36	6
VDS202F04800	VDS402F04800	4,800	.1890	–	12	35	0,8	82	36	6
VDS202F04900	VDS402F04900	4,900	.1929	–	–	35	0,8	82	36	6
VDS202F05000	VDS402F05000	5,000	.1969	–	–	35	0,8	82	36	6
VDS202F05100	VDS402F05100	5,100	.2008	–	–	35	0,8	82	36	6
VDS202F05200	VDS402F05200	5,200	.2047	–	–	35	0,9	82	36	6
VDS202F05300	VDS402F05300	5,300	.2087	–	–	35	0,9	82	36	6
VDS202F05400	VDS402F05400	5,400	.2126	–	–	35	0,9	82	36	6
VDS202F05500	VDS402F05500	5,500	.2165	–	–	35	0,9	82	36	6
VDS202F05600	VDS402F05600	5,600	.2205	–	–	35	0,9	82	36	6
VDS202F05700	VDS402F05700	5,700	.2244	–	–	35	1,0	82	36	6
VDS202F05800	VDS402F05800	5,800	.2283	–	–	35	1,0	82	36	6
VDS202F05900	VDS402F05900	5,900	.2323	–	–	35	1,0	82	36	6
VDS202F06000	VDS402F06000	6,000	.2362	–	–	35	1,0	82	36	6
VDS202F06100	VDS402F06100	6,100	.2402	–	–	43	1,0	91	36	8
VDS202F06200	VDS402F06200	6,200	.2441	–	–	43	1,0	91	36	8
VDS202F06300	VDS402F06300	6,300	.2480	–	–	43	1,1	91	36	8
VDS202F06400	VDS402F06400	6,400	.2520	–	–	43	1,1	91	36	8
VDS202F06500	VDS402F06500	6,500	.2559	–	–	43	1,1	91	36	8
VDS202F06600	VDS402F06600	6,600	.2598	–	–	43	1,1	91	36	8
VDS202F06700	VDS402F06700	6,700	.2638	–	–	43	1,1	91	36	8
VDS202F06800	VDS402F06800	6,800	.2677	–	–	43	1,1	91	36	8
VDS202F06900	VDS402F06900	6,900	.2717	–	–	43	1,2	91	36	8

(continued)

(VDS202F/VDS402F • 5 x D continued)

P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS202F • WU25PD	VDS402F • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202F07000	VDS402F07000	7,000	.2756	–	–	43	1,2	91	36	8
VDS202F07100	VDS402F07100	7,100	.2795	–	–	43	1,2	91	36	8
VDS202F07200	VDS402F07200	7,200	.2835	–	–	43	1,2	91	36	8
VDS202F07300	VDS402F07300	7,300	.2874	–	–	43	1,2	91	36	8
VDS202F07400	VDS402F07400	7,400	.2913	–	–	43	1,3	91	36	8
VDS202F07500	VDS402F07500	7,500	.2953	–	–	43	1,3	91	36	8
VDS202F07600	VDS402F07600	7,600	.2992	–	–	43	1,3	91	36	8
VDS202F07700	VDS402F07700	7,700	.3031	–	–	43	1,3	91	36	8
VDS202F07800	VDS402F07800	7,800	.3071	–	–	43	1,3	91	36	8
VDS202F07900	VDS402F07900	7,900	.3110	–	–	43	1,3	91	36	8
VDS202F08000	VDS402F08000	8,000	.3150	–	–	43	1,4	91	36	8
VDS202F08100	VDS402F08100	8,100	.3189	–	–	49	1,4	103	40	10
VDS202F08200	VDS402F08200	8,200	.3228	–	–	49	1,4	103	40	10
VDS202F08300	VDS402F08300	8,300	.3268	–	–	49	1,4	103	40	10
VDS202F08400	VDS402F08400	8,400	.3307	–	–	49	1,4	103	40	10
VDS202F08500	VDS402F08500	8,500	.3346	–	–	49	1,4	103	40	10
VDS202F08600	VDS402F08600	8,600	.3386	–	–	49	1,5	103	40	10
VDS202F08700	VDS402F08700	8,700	.3425	–	–	49	1,5	103	40	10
VDS202F08800	VDS402F08800	8,800	.3465	–	–	49	1,5	103	40	10
VDS202F08900	VDS402F08900	8,900	.3504	–	–	49	1,5	103	40	10
VDS202F09000	VDS402F09000	9,000	.3543	–	–	49	1,5	103	40	10
VDS202F09100	VDS402F09100	9,100	.3583	–	–	49	1,5	103	40	10
VDS202F09200	VDS402F09200	9,200	.3622	–	–	49	1,6	103	40	10
VDS202F09300	VDS402F09300	9,300	.3661	–	–	49	1,6	103	40	10
VDS202F09400	VDS402F09400	9,400	.3701	–	–	49	1,6	103	40	10
VDS202F09500	VDS402F09500	9,500	.3740	–	–	49	1,6	103	40	10
VDS202F09600	VDS402F09600	9,600	.3780	–	–	49	1,6	103	40	10
VDS202F09700	VDS402F09700	9,700	.3819	–	–	49	1,7	103	40	10
VDS202F09800	VDS402F09800	9,800	.3858	–	–	49	1,7	103	40	10
VDS202F09900	VDS402F09900	9,900	.3898	–	–	49	1,7	103	40	10
VDS202F10000	VDS402F10000	10,000	.3937	–	–	49	1,7	103	40	10
VDS202F10100	VDS402F10100	10,100	.3976	–	–	56	1,7	118	45	12
VDS202F10200	VDS402F10200	10,200	.4016	–	–	56	1,7	118	45	12
VDS202F10300	VDS402F10300	10,300	.4055	–	–	56	1,8	118	45	12
VDS202F10400	VDS402F10400	10,400	.4094	–	–	56	1,8	118	45	12
VDS202F10500	VDS402F10500	10,500	.4134	–	–	56	1,8	118	45	12
VDS202F10600	VDS402F10600	10,600	.4173	–	–	56	1,8	118	45	12
VDS202F10700	VDS402F10700	10,700	.4213	–	–	56	1,8	118	45	12
VDS202F10800	VDS402F10800	10,800	.4252	–	–	56	1,8	118	45	12
VDS202F10900	VDS402F10900	10,900	.4291	–	–	56	1,9	118	45	12
VDS202F11000	VDS402F11000	11,000	.4331	–	–	56	1,9	118	45	12
VDS202F11100	VDS402F11100	11,100	.4370	–	–	56	1,9	118	45	12
VDS202F11200	VDS402F11200	11,200	.4409	–	–	56	1,9	118	45	12
VDS202F11300	VDS402F11300	11,300	.4449	–	–	56	1,9	118	45	12
VDS202F11400	VDS402F11400	11,400	.4488	–	–	56	2,0	118	45	12
VDS202F11500	VDS402F11500	11,500	.4528	–	–	56	2,0	118	45	12
VDS202F11600	VDS402F11600	11,600	.4567	–	–	56	2,0	118	45	12
VDS202F11700	VDS402F11700	11,700	.4606	–	–	56	2,0	118	45	12

(continued)

(VDS202F/VDS402F • 5 x D continued)

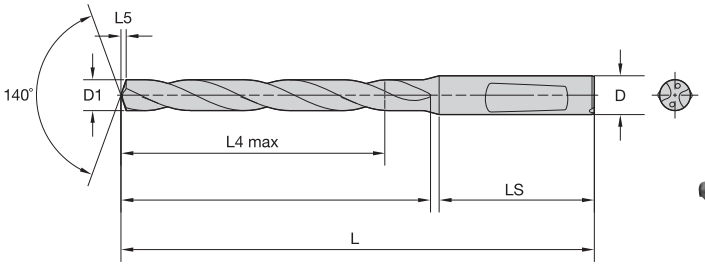
P ● M ● K ● N ● S ● H	P ● M ● K ● N ● S ● H	D1 diameter								
VDS202F • WU25PD	VDS402F • WU25PD	mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202F11800	VDS402F11800	11,800	.4646	–	–	56	2,0	118	45	12
VDS202F11900	VDS402F11900	11,900	.4685	–	–	56	2,0	118	45	12
VDS202F12000	VDS402F12000	12,000	.4724	–	–	56	2,1	118	45	12
VDS202F12100	VDS402F12100	12,100	.4764	–	–	60	2,1	124	45	14
VDS202F12200	VDS402F12200	12,200	.4803	–	–	60	2,1	124	45	14
VDS202F12300	VDS402F12300	12,300	.4843	–	–	60	2,1	124	45	14
VDS202F12400	VDS402F12400	12,400	.4882	–	–	60	2,1	124	45	14
VDS202F12500	VDS402F12500	12,500	.4921	–	–	60	2,1	124	45	14
VDS202F12600	VDS402F12600	12,600	.4961	–	–	60	2,2	124	45	14
VDS202F12700	VDS402F12700	12,700	.5000	1/2	–	60	2,2	124	45	14
VDS202F12800	VDS402F12800	12,800	.5039	–	–	60	2,2	124	45	14
VDS202F12900	VDS402F12900	12,900	.5079	–	–	60	2,2	124	45	14
VDS202F13000	VDS402F13000	13,000	.5118	–	–	60	2,2	124	45	14
VDS202F13100	VDS402F13100	13,100	.5157	–	–	60	2,3	124	45	14
VDS202F13200	VDS402F13200	13,200	.5197	–	–	60	2,3	124	45	14
VDS202F13300	VDS402F13300	13,300	.5236	–	–	60	2,3	124	45	14
VDS202F13400	VDS402F13400	13,400	.5276	–	–	60	2,3	124	45	14
VDS202F13500	VDS402F13500	13,500	.5315	–	–	60	2,3	124	45	14
VDS202F13600	VDS402F13600	13,600	.5354	–	–	60	2,3	124	45	14
VDS202F13700	VDS402F13700	13,700	.5394	–	–	60	2,4	124	45	14
VDS202F13800	VDS402F13800	13,800	.5433	–	–	60	2,4	124	45	14
VDS202F13900	VDS402F13900	13,900	.5472	–	–	60	2,4	124	45	14
VDS202F14000	VDS402F14000	14,000	.5512	–	–	60	2,4	124	45	14
VDS202F14100	VDS402F14100	14,100	.5551	–	–	63	2,4	133	48	16
VDS202F14200	VDS402F14200	14,200	.5591	–	–	63	2,5	133	48	16
VDS202F14300	VDS402F14300	14,300	.5630	–	–	63	2,5	133	48	16
VDS202F14400	VDS402F14400	14,400	.5669	–	–	63	2,5	133	48	16
VDS202F14500	VDS402F14500	14,500	.5709	–	–	63	2,5	133	48	16
VDS202F14600	VDS402F14600	14,600	.5748	–	–	63	2,5	133	48	16
VDS202F14700	VDS402F14700	14,700	.5787	–	–	63	2,5	133	48	16
VDS202F14800	VDS402F14800	14,800	.5827	–	–	63	2,6	133	48	16
VDS202F14900	VDS402F14900	14,900	.5866	–	–	63	2,6	133	48	16
VDS202F15000	VDS402F15000	15,000	.5906	–	–	63	2,6	133	48	16
VDS202F15100	VDS402F15100	15,100	.5945	–	–	63	2,6	133	48	16
VDS202F15200	VDS402F15200	15,200	.5984	–	–	63	2,6	133	48	16
VDS202F15300	VDS402F15300	15,300	.6024	–	–	63	2,6	133	48	16
VDS202F15400	VDS402F15400	15,400	.6063	–	–	63	2,7	133	48	16
VDS202F15500	VDS402F15500	15,500	.6102	–	–	63	2,7	133	48	16
VDS202F15600	VDS402F15600	15,600	.6142	–	–	63	2,7	133	48	16
VDS202F15700	VDS402F15700	15,700	.6181	–	–	63	2,7	133	48	16
VDS202F15800	VDS402F15800	15,800	.6220	–	–	63	2,7	133	48	16
VDS202F15900	VDS402F15900	15,900	.6260	–	–	63	2,8	133	48	16
VDS202F16000	VDS402F16000	16,000	.6299	–	–	63	2,8	133	48	16
VDS202F16100	VDS402F16100	16,100	.6339	–	–	71	2,8	143	48	18
VDS202F16200	VDS402F16200	16,200	.6378	–	–	71	2,8	143	48	18
VDS202F16300	VDS402F16300	16,300	.6417	–	–	71	2,8	143	48	18
VDS202F16400	VDS402F16400	16,400	.6457	–	–	71	2,8	143	48	18
VDS202F16500	VDS402F16500	16,500	.6496	–	–	71	2,9	143	48	18

(continued)

(VDS202F/VDS402F • 5 x D continued)

VDS202F • WU25PD	VDS402F • WU25PD	D1 diameter mm	in	fraction	wire size	L4 max	L5	L	LS	D
VDS202F16600	VDS402F16600	16,600	.6535	–	–	71	2,9	143	48	18
VDS202F16700	VDS402F16700	16,700	.6575	–	–	71	2,9	143	48	18
VDS202F16800	VDS402F16800	16,800	.6614	–	–	71	2,9	143	48	18
VDS202F16900	VDS402F16900	16,900	.6654	–	–	71	2,9	143	48	18
VDS202F17000	VDS402F17000	17,000	.6693	–	–	71	2,9	143	48	18
VDS202F17100	VDS402F17100	17,100	.6732	–	–	71	3,0	143	48	18
VDS202F17200	VDS402F17200	17,200	.6772	–	–	71	3,0	143	48	18
VDS202F17300	VDS402F17300	17,300	.6811	–	–	71	3,0	143	48	18
VDS202F17400	VDS402F17400	17,400	.6850	–	–	71	3,0	143	48	18
VDS202F17500	VDS402F17500	17,500	.6890	–	–	71	3,0	143	48	18
VDS202F17600	VDS402F17600	17,600	.6929	–	–	71	3,1	143	48	18
VDS202F17700	VDS402F17700	17,700	.6969	–	–	71	3,1	143	48	18
VDS202F17800	VDS402F17800	17,800	.7008	–	–	71	3,1	143	48	18
VDS202F17900	VDS402F17900	17,900	.7047	–	–	71	3,1	143	48	18
VDS202F18000	VDS402F18000	18,000	.7087	–	–	71	3,1	143	48	18
VDS202F18100	VDS402F18100	18,100	.7126	–	–	77	3,1	153	50	20
VDS202F18200	VDS402F18200	18,200	.7165	–	–	77	3,2	153	50	20
VDS202F18300	VDS402F18300	18,300	.7205	–	–	77	3,2	153	50	20
VDS202F18400	VDS402F18400	18,400	.7244	–	–	77	3,2	153	50	20
VDS202F18500	VDS402F18500	18,500	.7283	–	–	77	3,2	153	50	20
VDS202F18600	VDS402F18600	18,600	.7323	–	–	77	3,2	153	50	20
VDS202F18700	VDS402F18700	18,700	.7362	–	–	77	3,2	153	50	20
VDS202F18800	VDS402F18800	18,800	.7402	–	–	77	3,3	153	50	20
VDS202F18900	VDS402F18900	18,900	.7441	–	–	77	3,3	153	50	20
VDS202F19000	VDS402F19000	19,000	.7480	–	–	77	3,3	153	50	20
VDS202F19100	VDS402F19100	19,100	.7520	–	–	77	3,3	153	50	20
VDS202F19200	VDS402F19200	19,200	.7559	–	–	77	3,3	153	50	20
VDS202F19300	VDS402F19300	19,300	.7598	–	–	77	3,4	153	50	20
VDS202F19400	VDS402F19400	19,400	.7638	–	–	77	3,4	153	50	20
VDS202F19500	VDS402F19500	19,500	.7677	–	–	77	3,4	153	50	20
VDS202F19600	VDS402F19600	19,600	.7717	–	–	77	3,4	153	50	20
VDS202F19700	VDS402F19700	19,700	.7756	–	–	77	3,4	153	50	20
VDS202F19800	VDS402F19800	19,800	.7795	–	–	77	3,4	153	50	20
VDS202F19900	VDS402F19900	19,900	.7835	–	–	77	3,5	153	50	20
VDS202F20000	VDS402F20000	20,000	.7874	–	–	77	3,5	153	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.



● first choice
○ alternate choice

VDS403F • 8 x D

VDS403F • WU25PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403F03000	3,000	.1181	–	–	78	33	0,5	36	6
VDS403F03100	3,100	.1220	–	–	78	33	0,5	36	6
VDS403F03200	3,200	.1260	–	–	78	33	0,5	36	6
VDS403F03300	3,300	.1299	–	–	78	33	0,5	36	6
VDS403F03400	3,400	.1339	–	–	78	33	0,6	36	6
VDS403F03500	3,500	.1378	–	–	78	33	0,6	36	6
VDS403F03600	3,600	.1417	–	–	78	33	0,6	36	6
VDS403F03700	3,700	.1457	–	–	78	33	0,6	36	6
VDS403F03800	3,800	.1496	–	–	87	41	0,6	36	6
VDS403F03900	3,900	.1535	–	–	87	41	0,6	36	6
VDS403F04000	4,000	.1575	–	–	87	41	0,7	36	6
VDS403F04100	4,100	.1614	–	–	87	41	0,7	36	6
VDS403F04200	4,200	.1654	–	–	87	41	0,7	36	6
VDS403F04300	4,300	.1693	–	–	87	41	0,7	36	6
VDS403F04400	4,400	.1732	–	–	87	41	0,7	36	6
VDS403F04500	4,500	.1772	–	–	87	41	0,7	36	6
VDS403F04600	4,600	.1811	–	–	87	41	0,8	36	6
VDS403F04700	4,700	.1850	–	13	87	41	0,8	36	6
VDS403F04800	4,800	.1890	–	12	94	48	0,8	36	6
VDS403F04900	4,900	.1929	–	–	94	48	0,8	36	6
VDS403F05000	5,000	.1969	–	–	94	48	0,8	36	6
VDS403F05100	5,100	.2008	–	–	94	48	0,8	36	6
VDS403F05200	5,200	.2047	–	–	94	48	0,9	36	6
VDS403F05300	5,300	.2087	–	–	94	48	0,9	36	6
VDS403F05400	5,400	.2126	–	–	94	48	0,9	36	6
VDS403F05500	5,500	.2165	–	–	94	48	0,9	36	6
VDS403F05600	5,600	.2205	–	–	94	48	0,9	36	6
VDS403F05700	5,700	.2244	–	–	94	48	1,0	36	6
VDS403F05800	5,800	.2283	–	–	94	48	1,0	36	6
VDS403F05900	5,900	.2323	–	–	94	48	1,0	36	6
VDS403F06000	6,000	.2362	–	–	94	48	1,0	36	6
VDS403F06100	6,100	.2402	–	–	105	57	1,0	36	8
VDS403F06200	6,200	.2441	–	–	105	57	1,0	36	8
VDS403F06300	6,300	.2480	–	–	105	57	1,1	36	8
VDS403F06400	6,400	.2520	–	–	105	57	1,1	36	8
VDS403F06500	6,500	.2559	–	–	105	57	1,1	36	8
VDS403F06600	6,600	.2598	–	–	105	57	1,1	36	8
VDS403F06700	6,700	.2638	–	–	105	57	1,1	36	8
VDS403F06800	6,800	.2677	–	–	105	57	1,1	36	8
VDS403F06900	6,900	.2717	–	–	105	57	1,2	36	8

(continued)

(VDS403F • 8 x D continued)

P ● M ● K ● N ● S ● H	D1 diameter								
VDS403F • WU25PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403F07000	7,000	.2756	–	–	105	57	1,2	36	8
VDS403F07100	7,100	.2795	–	–	110	61	1,2	36	8
VDS403F07200	7,200	.2835	–	–	110	61	1,2	36	8
VDS403F07300	7,300	.2874	–	–	110	61	1,2	36	8
VDS403F07400	7,400	.2913	–	–	110	61	1,3	36	8
VDS403F07500	7,500	.2953	–	–	110	61	1,3	36	8
VDS403F07600	7,600	.2992	–	–	110	61	1,3	36	8
VDS403F07700	7,700	.3031	–	–	110	61	1,3	36	8
VDS403F07800	7,800	.3071	–	–	110	61	1,3	36	8
VDS403F07900	7,900	.3110	–	–	110	61	1,3	36	8
VDS403F08000	8,000	.3150	–	–	110	61	1,4	36	8
VDS403F08100	8,100	.3189	–	–	122	68	1,4	40	10
VDS403F08200	8,200	.3228	–	–	122	68	1,4	40	10
VDS403F08300	8,300	.3268	–	–	122	68	1,4	40	10
VDS403F08400	8,400	.3307	–	–	122	68	1,4	40	10
VDS403F08500	8,500	.3346	–	–	122	68	1,4	40	10
VDS403F08600	8,600	.3386	–	–	122	68	1,5	40	10
VDS403F08700	8,700	.3425	–	–	122	68	1,5	40	10
VDS403F08800	8,800	.3465	–	–	122	68	1,5	40	10
VDS403F08900	8,900	.3504	–	–	122	68	1,5	40	10
VDS403F09000	9,000	.3543	–	–	122	68	1,5	40	10
VDS403F09100	9,100	.3583	–	–	122	68	1,5	40	10
VDS403F09200	9,200	.3622	–	–	122	68	1,6	40	10
VDS403F09300	9,300	.3661	–	–	122	68	1,6	40	10
VDS403F09400	9,400	.3701	–	–	122	68	1,6	40	10
VDS403F09500	9,500	.3740	–	–	122	68	1,6	40	10
VDS403F09600	9,600	.3780	–	–	122	68	1,6	40	10
VDS403F09700	9,700	.3819	–	–	122	68	1,7	40	10
VDS403F09800	9,800	.3858	–	–	122	68	1,7	40	10
VDS403F09900	9,900	.3898	–	–	122	68	1,7	40	10
VDS403F10000	10,000	.3937	–	–	122	68	1,7	40	10
VDS403F10100	10,100	.3976	–	–	141	79	1,7	45	12
VDS403F10200	10,200	.4016	–	–	141	79	1,7	45	12
VDS403F10300	10,300	.4055	–	–	141	79	1,8	45	12
VDS403F10400	10,400	.4094	–	–	141	79	1,8	45	12
VDS403F10500	10,500	.4134	–	–	141	79	1,8	45	12
VDS403F10600	10,600	.4173	–	–	141	79	1,8	45	12
VDS403F10700	10,700	.4213	–	–	141	79	1,8	45	12
VDS403F10800	10,800	.4252	–	–	141	79	1,8	45	12
VDS403F10900	10,900	.4291	–	–	141	79	1,9	45	12
VDS403F11000	11,000	.4331	–	–	141	79	1,9	45	12
VDS403F11100	11,100	.4370	–	–	141	79	1,9	45	12
VDS403F11200	11,200	.4409	–	–	141	79	1,9	45	12
VDS403F11300	11,300	.4449	–	–	141	79	1,9	45	12
VDS403F11400	11,400	.4488	–	–	141	79	2,0	45	12
VDS403F11500	11,500	.4528	–	–	141	79	2,0	45	12
VDS403F11600	11,600	.4567	–	–	141	79	2,0	45	12
VDS403F11700	11,700	.4606	–	–	141	79	2,0	45	12

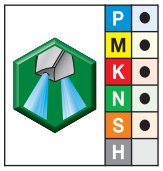
(continued)

(VDS403F • 8 x D continued)

P ● M ● K ● N ● S ● H	D1 diameter								
VDS403F • WU25PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403F11800	11,800	.4646	–	–	141	79	2,0	45	12
VDS403F11900	11,900	.4685	–	–	141	79	2,0	45	12
VDS403F12000	12,000	.4724	–	–	141	79	2,1	45	12
VDS403F12100	12,100	.4764	–	–	155	91	2,1	45	14
VDS403F12200	12,200	.4803	–	–	155	91	2,1	45	14
VDS403F12300	12,300	.4843	–	–	155	91	2,1	45	14
VDS403F12400	12,400	.4882	–	–	155	91	2,1	45	14
VDS403F12500	12,500	.4921	–	–	155	91	2,1	45	14
VDS403F12600	12,600	.4961	–	–	155	91	2,2	45	14
VDS403F12700	12,700	.5000	1/2	–	155	91	2,2	45	14
VDS403F12800	12,800	.5039	–	–	155	91	2,2	45	14
VDS403F12900	12,900	.5079	–	–	155	91	2,2	45	14
VDS403F13000	13,000	.5118	–	–	155	91	2,2	45	14
VDS403F13100	13,100	.5157	–	–	155	91	2,3	45	14
VDS403F13200	13,200	.5197	–	–	155	91	2,3	45	14
VDS403F13300	13,300	.5236	–	–	155	91	2,3	45	14
VDS403F13400	13,400	.5276	–	–	155	91	2,3	45	14
VDS403F13500	13,500	.5315	–	–	155	91	2,3	45	14
VDS403F13600	13,600	.5354	–	–	155	91	2,3	45	14
VDS403F13700	13,700	.5394	–	–	155	91	2,4	45	14
VDS403F13800	13,800	.5433	–	–	155	91	2,4	45	14
VDS403F13900	13,900	.5472	–	–	155	91	2,4	45	14
VDS403F14000	14,000	.5512	–	–	155	91	2,4	45	14
VDS403F14100	14,100	.5551	–	–	171	101	2,4	48	16
VDS403F14200	14,200	.5591	–	–	171	101	2,5	48	16
VDS403F14300	14,300	.5630	–	–	171	101	2,5	48	16
VDS403F14400	14,400	.5669	–	–	171	101	2,5	48	16
VDS403F14500	14,500	.5709	–	–	171	101	2,5	48	16
VDS403F14600	14,600	.5748	–	–	171	101	2,5	48	16
VDS403F14700	14,700	.5787	–	–	171	101	2,5	48	16
VDS403F14800	14,800	.5827	–	–	171	101	2,6	48	16
VDS403F14900	14,900	.5866	–	–	171	101	2,6	48	16
VDS403F15000	15,000	.5906	–	–	171	101	2,6	48	16
VDS403F15100	15,100	.5945	–	–	171	101	2,6	48	16
VDS403F15200	15,200	.5984	–	–	171	101	2,6	48	16
VDS403F15300	15,300	.6024	–	–	171	101	2,6	48	16
VDS403F15400	15,400	.6063	–	–	171	101	2,7	48	16
VDS403F15500	15,500	.6102	–	–	171	101	2,7	48	16
VDS403F15600	15,600	.6142	–	–	171	101	2,7	48	16
VDS403F15700	15,700	.6181	–	–	171	101	2,7	48	16
VDS403F15800	15,800	.6220	–	–	171	101	2,7	48	16
VDS403F15900	15,900	.6260	–	–	171	101	2,8	48	16
VDS403F16000	16,000	.6299	–	–	171	101	2,8	48	16
VDS403F16100	16,100	.6339	–	–	185	113	2,8	48	18
VDS403F16200	16,200	.6378	–	–	185	113	2,8	48	18
VDS403F16300	16,300	.6417	–	–	185	113	2,8	48	18
VDS403F16400	16,400	.6457	–	–	185	113	2,8	48	18
VDS403F16500	16,500	.6496	–	–	185	113	2,9	48	18

(continued)

(VDS403F • 8 x D continued)



VDS403F • WU25PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
VDS403F16600	16,600	.6535	–	–	185	113	2,9	48	18
VDS403F16700	16,700	.6575	–	–	185	113	2,9	48	18
VDS403F16800	16,800	.6614	–	–	185	113	2,9	48	18
VDS403F16900	16,900	.6654	–	–	185	113	2,9	48	18
VDS403F17000	17,000	.6693	–	–	185	113	2,9	48	18
VDS403F17100	17,100	.6732	–	–	185	113	3,0	48	18
VDS403F17200	17,200	.6772	–	–	185	113	3,0	48	18
VDS403F17300	17,300	.6811	–	–	185	113	3,0	48	18
VDS403F17400	17,400	.6850	–	–	185	113	3,0	48	18
VDS403F17500	17,500	.6890	–	–	185	113	3,0	48	18
VDS403F17600	17,600	.6929	–	–	185	113	3,1	48	18
VDS403F17700	17,700	.6969	–	–	185	113	3,1	48	18
VDS403F17800	17,800	.7008	–	–	185	113	3,1	48	18
VDS403F17900	17,900	.7047	–	–	185	113	3,1	48	18
VDS403F18000	18,000	.7087	–	–	185	113	3,1	48	18
VDS403F18100	18,100	.7126	–	–	200	124	3,1	50	20
VDS403F18200	18,200	.7165	–	–	200	124	3,2	50	20
VDS403F18300	18,300	.7205	–	–	200	124	3,2	50	20
VDS403F18400	18,400	.7244	–	–	200	124	3,2	50	20
VDS403F18500	18,500	.7283	–	–	200	124	3,2	50	20
VDS403F18600	18,600	.7323	–	–	200	124	3,2	50	20
VDS403F18700	18,700	.7362	–	–	200	124	3,2	50	20
VDS403F18800	18,800	.7402	–	–	200	124	3,3	50	20
VDS403F18900	18,900	.7441	–	–	200	124	3,3	50	20
VDS403F19000	19,000	.7480	–	–	200	124	3,3	50	20
VDS403F19100	19,100	.7520	–	–	200	124	3,3	50	20
VDS403F19200	19,200	.7559	–	–	200	124	3,3	50	20
VDS403F19300	19,300	.7598	–	–	200	124	3,4	50	20
VDS403F19400	19,400	.7638	–	–	200	124	3,4	50	20
VDS403F19500	19,500	.7677	–	–	200	124	3,4	50	20
VDS403F19600	19,600	.7717	–	–	200	124	3,4	50	20
VDS403F19700	19,700	.7756	–	–	200	124	3,4	50	20
VDS403F19800	19,800	.7795	–	–	200	124	3,4	50	20
VDS403F19900	19,900	.7835	–	–	200	124	3,5	50	20
VDS403F20000	20,000	.7874	–	–	200	124	3,5	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.

Tolerance		
Nominal Size Range	D1 Tolerance	D Tolerance h6
1–3	0,000/-0,014 (h8)	0,000/-0,006
>3–6	0,000/-0,012 (h7)	0,000/-0,008
>6–10	0,000/-0,015 (h7)	0,000/-0,009
>10–18	0,000/-0,018 (h7)	0,000/-0,011
>18–20	0,000/-0,021 (h7)	0,000/-0,013

VariDrill • VDS20_ Series • WU25PD • Flood Coolant • Metric

	Group	Cutting Speed — vc Range — m/min min	max	Tool Diameter	Recommended Feed Rate (fz) 1,0	2,0	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	1	60	100	mm/r	0,04 - 0,09	0,05 - 0,12	0,07 - 0,14	0,08 - 0,16	0,11 - 0,22	0,13 - 0,26	0,15 - 0,31	0,18 - 0,35	0,22 - 0,42	0,28 - 0,54
	2, 3, 4, 6, 7	50	90	mm/r	0,05 - 0,10	0,06 - 0,13	0,08 - 0,15	0,09 - 0,17	0,13 - 0,23	0,15 - 0,28	0,19 - 0,33	0,22 - 0,38	0,26 - 0,47	0,34 - 0,59
	5, 9, 10, 11	50	100	mm/r	0,05 - 0,10	0,06 - 0,13	0,07 - 0,15	0,08 - 0,17	0,12 - 0,23	0,14 - 0,28	0,17 - 0,33	0,19 - 0,38	0,23 - 0,47	0,29 - 0,59
	12, 13	30	60	mm/r	0,03 - 0,05	0,04 - 0,06	0,05 - 0,08	0,06 - 0,10	0,08 - 0,14	0,10 - 0,18	0,13 - 0,22	0,14 - 0,24	0,18 - 0,32	0,23 - 0,41
M	14.1	30	50	mm/r	0,02 - 0,05	0,03 - 0,06	0,04 - 0,07	0,05 - 0,09	0,08 - 0,11	0,09 - 0,12	0,10 - 0,14	0,12 - 0,16	0,14 - 0,18	0,16 - 0,20
	14.3	40	60	mm/r	0,02 - 0,06	0,03 - 0,07	0,04 - 0,08	0,06 - 0,10	0,08 - 0,12	0,09 - 0,14	0,10 - 0,16	0,12 - 0,18	0,14 - 0,20	0,16 - 0,22
	14.2, 14.4	30	50	mm/r	0,02 - 0,05	0,03 - 0,06	0,04 - 0,07	0,06 - 0,09	0,08 - 0,11	0,09 - 0,12	0,10 - 0,14	0,12 - 0,16	0,14 - 0,18	0,16 - 0,20
K	15, 16	70	150	mm/r	0,06 - 0,13	0,07 - 0,14	0,09 - 0,18	0,10 - 0,19	0,13 - 0,25	0,16 - 0,30	0,18 - 0,35	0,20 - 0,39	0,25 - 0,48	0,30 - 0,59
	17, 18, 19	90	120	mm/r	0,08 - 0,11	0,09 - 0,12	0,10 - 0,13	0,10 - 0,15	0,13 - 0,20	0,16 - 0,25	0,18 - 0,29	0,20 - 0,32	0,25 - 0,38	0,30 - 0,48
	20	80	120	mm/r	0,04 - 0,10	0,06 - 0,12	0,06 - 0,14	0,07 - 0,15	0,10 - 0,20	0,11 - 0,24	0,14 - 0,28	0,15 - 0,32	0,19 - 0,38	0,24 - 0,48
N	21	90	270	mm/r	0,05 - 0,12	0,06 - 0,13	0,08 - 0,14	0,10 - 0,16	0,12 - 0,20	0,16 - 0,24	0,20 - 0,28	0,24 - 0,32	0,28 - 0,40	0,32 - 0,48
	22, 23, 24	90	270	mm/r	0,04 - 0,08	0,06 - 0,12	0,08 - 0,16	0,10 - 0,20	0,12 - 0,24	0,16 - 0,28	0,20 - 0,32	0,24 - 0,36	0,28 - 0,44	0,32 - 0,52
	25	90	225	mm/r	0,10 - 0,13	0,11 - 0,14	0,12 - 0,14	0,13 - 0,16	0,14 - 0,20	0,16 - 0,24	0,20 - 0,28	0,24 - 0,32	0,28 - 0,40	0,32 - 0,44
	26, 27, 28	90	270	mm/r	0,04 - 0,08	0,06 - 0,12	0,08 - 0,16	0,10 - 0,20	0,12 - 0,24	0,16 - 0,28	0,20 - 0,32	0,24 - 0,36	0,28 - 0,40	0,32 - 0,48
S	31, 32	20	30	mm/r	0,01 - 0,04	0,02 - 0,05	0,03 - 0,06	0,04 - 0,08	0,06 - 0,10	0,08 - 0,12	0,09 - 0,13	0,10 - 0,14	0,12 - 0,16	0,14 - 0,18
	33, 34, 35	10	30	mm/r	0,01 - 0,03	0,02 - 0,03	0,02 - 0,04	0,03 - 0,06	0,05 - 0,08	0,07 - 0,10	0,08 - 0,11	0,09 - 0,12	0,10 - 0,14	0,11 - 0,16
	36	20	40	mm/r	0,01 - 0,03	0,02 - 0,03	0,02 - 0,04	0,02 - 0,05	0,04 - 0,07	0,06 - 0,09	0,07 - 0,10	0,08 - 0,11	0,09 - 0,13	0,10 - 0,15
	37	20	50	mm/r	0,01 - 0,03	0,02 - 0,03	0,02 - 0,04	0,03 - 0,06	0,05 - 0,08	0,07 - 0,10	0,08 - 0,11	0,09 - 0,12	0,10 - 0,14	0,11 - 0,16

VariDrill • VDS40_ Series • WU25PD • Through Coolant • Metric

	Group	Cutting Speed — vc Range — m/min min	max	Tool Diameter	Recommended Feed Rate (fz) 1,0	2,0	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
P	1	70	140	mm/r	0,04 - 0,09	0,05 - 0,12	0,07 - 0,14	0,08 - 0,16	0,11 - 0,22	0,13 - 0,26	0,15 - 0,31	0,18 - 0,35	0,22 - 0,42	0,28 - 0,54
	2, 3, 4, 6, 7	60	100	mm/r	0,05 - 0,10	0,06 - 0,13	0,08 - 0,15	0,09 - 0,17	0,13 - 0,23	0,15 - 0,28	0,19 - 0,33	0,22 - 0,38	0,26 - 0,47	0,34 - 0,59
	5, 9, 10, 11	50	100	mm/r	0,05 - 0,10	0,06 - 0,13	0,07 - 0,15	0,08 - 0,17	0,12 - 0,23	0,14 - 0,28	0,17 - 0,33	0,19 - 0,38	0,23 - 0,47	0,29 - 0,59
	12, 13	40	70	mm/r	0,03 - 0,05	0,04 - 0,06	0,05 - 0,08	0,06 - 0,10	0,08 - 0,14	0,10 - 0,18	0,13 - 0,22	0,14 - 0,24	0,18 - 0,32	0,23 - 0,41
M	14.1	30	50	mm/r	0,02 - 0,05	0,03 - 0,06	0,04 - 0,07	0,05 - 0,09	0,08 - 0,11	0,09 - 0,12	0,10 - 0,14	0,12 - 0,16	0,14 - 0,18	0,16 - 0,20
	14.3	40	60	mm/r	0,02 - 0,06	0,03 - 0,07	0,04 - 0,08	0,06 - 0,10	0,08 - 0,12	0,09 - 0,14	0,10 - 0,16	0,12 - 0,18	0,14 - 0,20	0,16 - 0,22
	14.2, 14.4	30	50	mm/r	0,02 - 0,05	0,03 - 0,06	0,04 - 0,07	0,06 - 0,09	0,08 - 0,11	0,09 - 0,12	0,10 - 0,14	0,12 - 0,16	0,14 - 0,18	0,16 - 0,20
K	15, 16	80	160	mm/r	0,07 - 0,14	0,08 - 0,15	0,10 - 0,20	0,11 - 0,22	0,14 - 0,28	0,18 - 0,34	0,21 - 0,40	0,23 - 0,44	0,28 - 0,54	0,34 - 0,67
	17, 18, 19	90	140	mm/r	0,09 - 0,13	0,10 - 0,14	0,11 - 0,14	0,12 - 0,17	0,14 - 0,23	0,18 - 0,28	0,21 - 0,32	0,23 - 0,36	0,28 - 0,43	0,34 - 0,54
	20	80	130	mm/r	0,05 - 0,12	0,06 - 0,14	0,07 - 0,15	0,08 - 0,17	0,11 - 0,23	0,13 - 0,27	0,15 - 0,32	0,17 - 0,36	0,22 - 0,43	0,27 - 0,54
N	21	90	315	mm/r	0,05 - 0,12	0,06 - 0,13	0,08 - 0,14	0,10 - 0,16	0,12 - 0,20	0,16 - 0,24	0,20 - 0,28	0,24 - 0,32	0,28 - 0,40	0,32 - 0,48
	22, 23, 24	90	270	mm/r	0,04 - 0,08	0,06 - 0,12	0,08 - 0,16	0,10 - 0,20	0,12 - 0,24	0,16 - 0,28	0,20 - 0,32	0,24 - 0,36	0,28 - 0,44	0,32 - 0,52
	25	90	270	mm/r	0,10 - 0,13	0,11 - 0,14	0,12 - 0,14	0,13 - 0,16	0,14 - 0,20	0,16 - 0,24	0,20 - 0,28	0,24 - 0,32	0,28 - 0,40	0,32 - 0,44
	26, 27, 28	90	270	mm/r	0,04 - 0,08	0,06 - 0,12	0,08 - 0,16	0,10 - 0,20	0,12 - 0,24	0,16 - 0,28	0,20 - 0,32	0,24 - 0,36	0,28 - 0,40	0,32 - 0,48
S	31, 32	20	30	mm/r	0,01 - 0,04	0,02 - 0,05	0,03 - 0,06	0,04 - 0,08	0,06 - 0,10	0,08 - 0,12	0,09 - 0,13	0,10 - 0,14	0,12 - 0,16	0,14 - 0,18
	33, 34, 35	10	30	mm/r	0,01 - 0,03	0,02 - 0,03	0,02 - 0,04	0,03 - 0,06	0,05 - 0,08	0,07 - 0,10	0,08 - 0,11	0,09 - 0,12	0,10 - 0,14	0,11 - 0,16
	36	10	40	mm/r	0,01 - 0,03	0,02 - 0,03	0,02 - 0,04	0,02 - 0,05	0,04 - 0,07	0,06 - 0,09	0,07 - 0,10	0,08 - 0,11	0,09 - 0,13	0,10 - 0,15
	37	10	40	mm/r	0,01 - 0,03	0,02 - 0,03	0,02 - 0,04	0,03 - 0,06	0,05 - 0,08	0,07 - 0,10	0,08 - 0,11	0,09 - 0,12	0,10 - 0,14	0,11 - 0,16

WIN WITH WIDIA™

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For solid carbide performance at an economical price, the TOP DRILL M1 modular drills are the ideal choice for of all your steel and cast iron general drilling applications.

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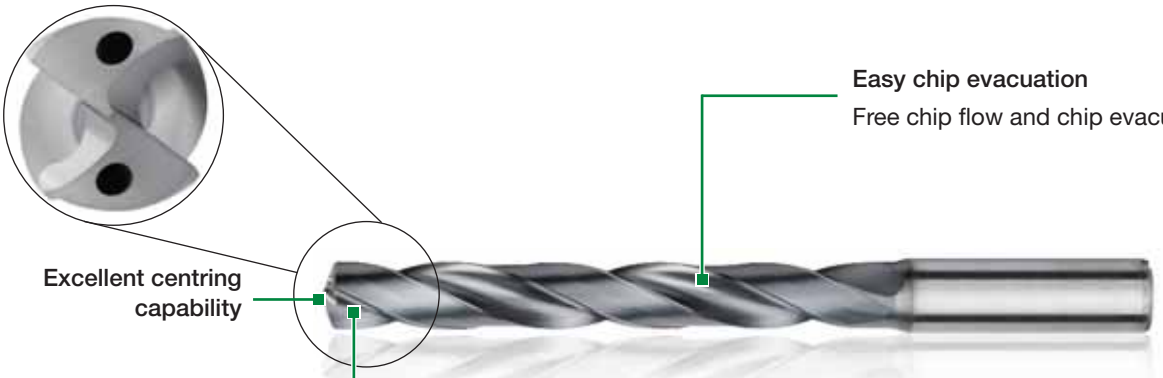
WIDIA™ TOP DRILL S™ for Steel and Cast Iron

TOP DRILL S is WIDIA's newest line of Solid Carbide Drills engineered to provide maximum performance and superior finish for application-specific tasks. Available in two material applications, TDS for steel and cast iron are each specially designed and coated to maximise output and increase tool life — offering less cost per hole and greater productivity.

TOP DRILL S™

- Designed for maximum productivity and longer tool life for steel and cast iron.
- Easy to choose and apply.
- One of the broadest ranges on the market for diameter selection, length series, and coolant options.
- Highest metal removal rates possible without sacrificing tool life.
- New Victory grades from WIDIA.



Easy chip evacuation
Free chip flow and chip evacuation.

Excellent centring capability

Minimise chip jamming
Special gash and flute form for effective chip formation.

TOP DRILL S™ for Steel

TOP DRILL S for steel is a high-performance solid carbide drill with an application-specific design. Although the point geometry is strong enough to drill stainless steel and cast iron, it is engineered to maximise performance when drilling steel. The WP20PD™ Grade, designed to resist high heat and wear, is the latest in WIDIA™ technology. The two-margin design facilitates excellent hole quality and less friction when drilling steel at high speeds.

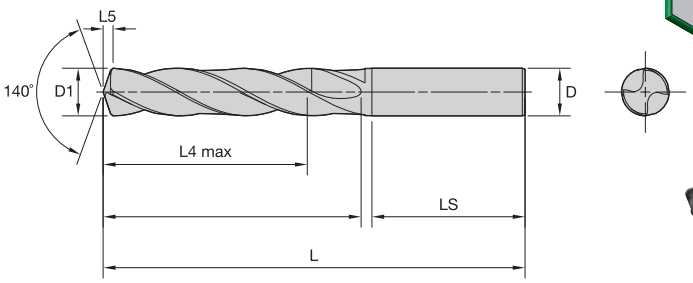
TOP DRILL S for Cast Iron

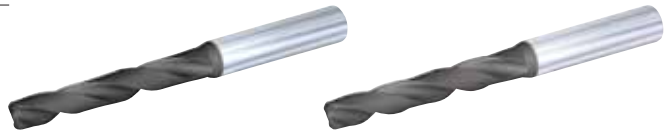
TOP DRILL S for cast iron is designed with application-specific point geometry for maximum performance in cast iron materials. The point features corner chamfers that minimise breakout on exit holes. A four-margin design improves hole straightness, increasing tool life and extending cross hole and inclined exit capabilities when drilling tough cast iron. The technologically advanced WK15PD™ Grade is specially engineered to withstand high wear.

WIDIA Advantage

- Application-specific geometry with the latest WIDIA grade technology.
- Lower cost per hole due to high MRR and long tool life.
- Consistent performance from internally controlled supply chain:

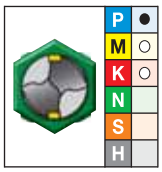
  Powder > Rod > Grinding > Coating
- Part of the complete WIDIA holemaking solution.
- Broad range of standard lengths, diameters, and coolant options in one line, including extensive intermediate metric, inch, fraction, and wire sizes.

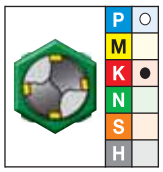




● first choice
○ alternate choice

■ TDS202A • TDS212A • 5 x D

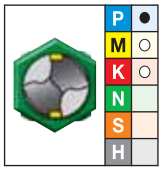




TDS202A • WP20PD	TDS212A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS202A03000	TDS212A03000	3,000	.1181	–	–	66	23	0,5	36	6
TDS202A03048	TDS212A03048	3,048	.1200	–	31	66	23	0,5	36	6
TDS202A03100	TDS212A03100	3,100	.1220	–	–	66	23	0,5	36	6
TDS202A03175	TDS212A03175	3,175	.1250	1/8	–	66	23	0,5	36	6
TDS202A03200	TDS212A03200	3,200	.1260	–	–	66	23	0,5	36	6
TDS202A03264	TDS212A03264	3,264	.1285	–	30	66	23	0,5	36	6
TDS202A03300	TDS212A03300	3,300	.1299	–	–	66	23	0,5	36	6
TDS202A03400	TDS212A03400	3,400	.1339	–	–	66	23	0,6	36	6
TDS202A03455	TDS212A03455	3,455	.1360	–	29	66	23	0,6	36	6
TDS202A03500	TDS212A03500	3,500	.1378	–	–	66	23	0,6	36	6
TDS202A03571	TDS212A03571	3,571	.1406	9/64	–	66	23	0,6	36	6
TDS202A03600	TDS212A03600	3,600	.1417	–	–	66	23	0,6	36	6
TDS202A03658	TDS212A03658	3,658	.1440	–	27	66	23	0,6	36	6
TDS202A03700	TDS212A03700	3,700	.1457	–	–	66	23	0,6	36	6
TDS202A03734	TDS212A03734	3,734	.1470	–	26	66	23	0,6	36	6
TDS202A03800	TDS212A03800	3,800	.1496	–	–	74	29	0,6	36	6
TDS202A03900	TDS212A03900	3,900	.1535	–	–	74	29	0,6	36	6
TDS202A03970	TDS212A03970	3,970	.1563	5/32	–	74	29	0,7	36	6
TDS202A04000	TDS212A04000	4,000	.1575	–	–	74	29	0,7	36	6
TDS202A04039	TDS212A04039	4,039	.1590	–	21	74	29	0,7	36	6
TDS202A04090	TDS212A04090	4,090	.1610	–	20	74	29	0,7	36	6
TDS202A04100	TDS212A04100	4,100	.1614	–	–	74	29	0,7	36	6
TDS202A04200	TDS212A04200	4,200	.1654	–	–	74	29	0,7	36	6
TDS202A04217	TDS212A04217	4,217	.1660	–	19	74	29	0,7	36	6
TDS202A04300	TDS212A04300	4,300	.1693	–	–	74	29	0,7	36	6
TDS202A04366	TDS212A04366	4,366	.1719	11/64	–	74	29	0,7	36	6
TDS202A04400	TDS212A04400	4,400	.1732	–	–	74	29	0,7	36	6
TDS202A04500	TDS212A04500	4,500	.1772	–	–	74	29	0,7	36	6
TDS202A04600	TDS212A04600	4,600	.1811	–	–	74	29	0,8	36	6
TDS202A04623	TDS212A04623	4,623	.1820	–	14	74	29	0,8	36	6
TDS202A04700	TDS212A04700	4,700	.1850	–	13	74	29	0,8	36	6
TDS202A04763	TDS212A04763	4,763	.1875	3/16	–	82	35	0,8	36	6
TDS202A04800	TDS212A04800	4,800	.1890	–	12	82	35	0,8	36	6
TDS202A04852	TDS212A04852	4,852	.1910	–	11	82	35	0,8	36	6
TDS202A04900	TDS212A04900	4,900	.1929	–	–	82	35	0,8	36	6
TDS202A05000	TDS212A05000	5,000	.1969	–	–	82	35	0,8	36	6
TDS202A05100	TDS212A05100	5,100	.2008	–	–	82	35	0,8	36	6
TDS202A05106	TDS212A05106	5,106	.2010	–	7	82	35	0,8	36	6
TDS202A05159	TDS212A05159	5,159	.2031	13/64	–	82	35	0,9	36	6
TDS202A05200	TDS212A05200	5,200	.2047	–	–	82	35	0,9	36	6

(continued)

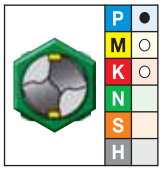
(TDS202A • TDS212A • 5 x D continued)



TDS202A • WP20PD	TDS212A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS202A05300	TDS212A05300	5,300	.2087	–	–	82	35	0,9	36	6
TDS202A05400	TDS212A05400	5,400	.2126	–	–	82	35	0,9	36	6
TDS202A05410	TDS212A05410	5,410	.2130	–	3	82	35	0,9	36	6
TDS202A05500	TDS212A05500	5,500	.2165	–	–	82	35	0,9	36	6
TDS202A05558	TDS212A05558	5,558	.2188	7/32	–	82	35	0,9	36	6
TDS202A05600	TDS212A05600	5,600	.2205	–	–	82	35	0,9	36	6
TDS202A05616	TDS212A05616	5,616	.2211	–	2	82	35	0,9	36	6
TDS202A05700	TDS212A05700	5,700	.2244	–	–	82	35	1,0	36	6
TDS202A05800	TDS212A05800	5,800	.2283	–	–	82	35	1,0	36	6
TDS202A05900	TDS212A05900	5,900	.2323	–	–	82	35	1,0	36	6
TDS202A05954	TDS212A05954	5,954	.2344	15/64	–	82	35	1,0	36	6
TDS202A06000	TDS212A06000	6,000	.2362	–	–	82	35	1,0	36	6
TDS202A06100	TDS212A06100	6,100	.2402	–	–	91	43	1,0	36	8
TDS202A06200	TDS212A06200	6,200	.2441	–	–	91	43	1,0	36	8
TDS202A06300	TDS212A06300	6,300	.2480	–	–	91	43	1,1	36	8
TDS202A06350	TDS212A06350	6,350	.2500	1/4	E	91	43	1,1	36	8
TDS202A06400	TDS212A06400	6,400	.2520	–	–	91	43	1,1	36	8
TDS202A06500	TDS212A06500	6,500	.2559	–	–	91	43	1,1	36	8
TDS202A06528	TDS212A06528	6,528	.2570	–	F	91	43	1,1	36	8
TDS202A06600	TDS212A06600	6,600	.2598	–	–	91	43	1,1	36	8
TDS202A06630	TDS212A06630	6,630	.2610	–	G	91	43	1,1	36	8
TDS202A06700	TDS212A06700	6,700	.2638	–	–	91	43	1,1	36	8
TDS202A06746	TDS212A06746	6,746	.2656	17/64	–	91	43	1,1	36	8
TDS202A06800	TDS212A06800	6,800	.2677	–	–	91	43	1,1	36	8
TDS202A06900	TDS212A06900	6,900	.2717	–	–	91	43	1,2	36	8
TDS202A07000	TDS212A07000	7,000	.2756	–	–	91	43	1,2	36	8
TDS202A07100	TDS212A07100	7,100	.2795	–	–	91	43	1,2	36	8
TDS202A07145	TDS212A07145	7,145	.2813	9/32	–	91	43	1,2	36	8
TDS202A07200	TDS212A07200	7,200	.2835	–	–	91	43	1,2	36	8
TDS202A07300	TDS212A07300	7,300	.2874	–	–	91	43	1,2	36	8
TDS202A07400	TDS212A07400	7,400	.2913	–	–	91	43	1,3	36	8
TDS202A07500	TDS212A07500	7,500	.2953	–	–	91	43	1,3	36	8
TDS202A07541	TDS212A07541	7,541	.2969	19/64	–	91	43	1,3	36	8
TDS202A07600	TDS212A07600	7,600	.2992	–	–	91	43	1,3	36	8
TDS202A07700	TDS212A07700	7,700	.3031	–	–	91	43	1,3	36	8
TDS202A07800	TDS212A07800	7,800	.3071	–	–	91	43	1,3	36	8
TDS202A07900	TDS212A07900	7,900	.3110	–	–	91	43	1,3	36	8
TDS202A07938	TDS212A07938	7,938	.3125	5/16	–	91	43	1,3	36	8
TDS202A08000	TDS212A08000	8,000	.3150	–	–	91	43	1,4	36	8
TDS202A08100	TDS212A08100	8,100	.3189	–	–	103	49	1,4	40	10
TDS202A08200	TDS212A08200	8,200	.3228	–	–	103	49	1,4	40	10
TDS202A08300	TDS212A08300	8,300	.3268	–	–	103	49	1,4	40	10
TDS202A08334	TDS212A08334	8,334	.3281	21/64	–	103	49	1,4	40	10
TDS202A08400	TDS212A08400	8,400	.3307	–	–	103	49	1,4	40	10
TDS202A08433	TDS212A08433	8,433	.3320	–	Q	103	49	1,4	40	10
TDS202A08500	TDS212A08500	8,500	.3346	–	–	103	49	1,4	40	10
TDS202A08600	TDS212A08600	8,600	.3386	–	–	103	49	1,5	40	10
TDS202A08700	TDS212A08700	8,700	.3425	–	–	103	49	1,5	40	10
TDS202A08733	TDS212A08733	8,733	.3438	11/32	–	103	49	1,5	40	10
TDS202A08800	TDS212A08800	8,800	.3465	–	–	103	49	1,5	40	10

(continued)

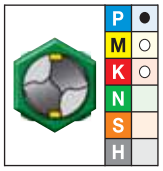
(TDS202A • TDS212A • 5 x D continued)



TDS202A • WP20PD	TDS212A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS202A08900	TDS212A08900	8,900	.3504	–	–	103	49	1,5	40	10
TDS202A09000	TDS212A09000	9,000	.3543	–	–	103	49	1,5	40	10
TDS202A09100	TDS212A09100	9,100	.3583	–	–	103	49	1,5	40	10
TDS202A09129	TDS212A09129	9,129	.3594	23/64	–	103	49	1,6	40	10
TDS202A09200	TDS212A09200	9,200	.3622	–	–	103	49	1,6	40	10
TDS202A09300	TDS212A09300	9,300	.3661	–	–	103	49	1,6	40	10
TDS202A09347	TDS212A09347	9,347	.3680	–	U	103	49	1,6	40	10
TDS202A09400	TDS212A09400	9,400	.3701	–	–	103	49	1,6	40	10
TDS202A09500	TDS212A09500	9,500	.3740	–	–	103	49	1,6	40	10
TDS202A09525	TDS212A09525	9,525	.3750	3/8	–	103	49	1,6	40	10
TDS202A09600	TDS212A09600	9,600	.3780	–	–	103	49	1,6	40	10
TDS202A09700	TDS212A09700	9,700	.3819	–	–	103	49	1,7	40	10
TDS202A09800	TDS212A09800	9,800	.3858	–	–	103	49	1,7	40	10
TDS202A09900	TDS212A09900	9,900	.3898	–	–	103	49	1,7	40	10
TDS202A09921	TDS212A09921	9,921	.3906	25/64	–	103	49	1,7	40	10
TDS202A10000	TDS212A10000	10,000	.3937	–	–	103	49	1,7	40	10
TDS202A10100	TDS212A10100	10,100	.3976	–	–	118	56	1,7	45	12
TDS202A10200	TDS212A10200	10,200	.4016	–	–	118	56	1,7	45	12
TDS202A10300	TDS212A10300	10,300	.4055	–	–	118	56	1,8	45	12
TDS202A10320	TDS212A10320	10,320	.4063	13/32	–	118	56	1,8	45	12
TDS202A10400	TDS212A10400	10,400	.4094	–	–	118	56	1,8	45	12
TDS202A10500	TDS212A10500	10,500	.4134	–	–	118	56	1,8	45	12
TDS202A10600	TDS212A10600	10,600	.4173	–	–	118	56	1,8	45	12
TDS202A10700	TDS212A10700	10,700	.4213	–	–	118	56	1,8	45	12
TDS202A10716	TDS212A10716	10,716	.4219	27/64	–	118	56	1,8	45	12
TDS202A10800	TDS212A10800	10,800	.4252	–	–	118	56	1,8	45	12
TDS202A10900	TDS212A10900	10,900	.4291	–	–	118	56	1,9	45	12
TDS202A11000	TDS212A11000	11,000	.4331	–	–	118	56	1,9	45	12
TDS202A11100	TDS212A11100	11,100	.4370	–	–	118	56	1,9	45	12
TDS202A11113	TDS212A11113	11,113	.4375	7/16	–	118	56	1,9	45	12
TDS202A11200	TDS212A11200	11,200	.4409	–	–	118	56	1,9	45	12
TDS202A11300	TDS212A11300	11,300	.4449	–	–	118	56	1,9	45	12
TDS202A11400	TDS212A11400	11,400	.4488	–	–	118	56	2,0	45	12
TDS202A11500	TDS212A11500	11,500	.4528	–	–	118	56	2,0	45	12
TDS202A11509	TDS212A11509	11,509	.4531	29/64	–	118	56	2,0	45	12
TDS202A11600	TDS212A11600	11,600	.4567	–	–	118	56	2,0	45	12
TDS202A11700	TDS212A11700	11,700	.4606	–	–	118	56	2,0	45	12
TDS202A11800	TDS212A11800	11,800	.4646	–	–	118	56	2,0	45	12
TDS202A11900	TDS212A11900	11,900	.4685	–	–	118	56	2,0	45	12
TDS202A11908	TDS212A11908	11,908	.4688	15/32	–	118	56	2,0	45	12
TDS202A12000	TDS212A12000	12,000	.4724	–	–	118	56	2,1	45	12
TDS202A12100	TDS212A12100	12,100	.4764	–	–	124	60	2,1	45	14
TDS202A12200	TDS212A12200	12,200	.4803	–	–	124	60	2,1	45	14
TDS202A12300	TDS212A12300	12,300	.4843	–	–	124	60	2,1	45	14
TDS202A12304	TDS212A12304	12,304	.4844	31/64	–	124	60	2,1	45	14
TDS202A12400	TDS212A12400	12,400	.4882	–	–	124	60	2,1	45	14
TDS202A12500	TDS212A12500	12,500	.4921	–	–	124	60	2,1	45	14
TDS202A12600	TDS212A12600	12,600	.4961	–	–	124	60	2,2	45	14
TDS202A12700	TDS212A12700	12,700	.5000	1/2	–	124	60	2,2	45	14
TDS202A12800	TDS212A12800	12,800	.5039	–	–	124	60	2,2	45	14
TDS202A12900	TDS212A12900	12,900	.5079	–	–	124	60	2,2	45	14

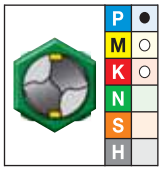
(continued)

(TDS202A • TDS212A • 5 x D continued)

		D1 diameter								
TDS202A • WP20PD	TDS212A • WK15PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS202A13000	TDS212A13000	13,000	.5118	–	–	124	60	2,2	45	14
TDS202A13096	TDS212A13096	13,096	.5156	33/64	–	124	60	2,3	45	14
TDS202A13100	TDS212A13100	13,100	.5157	–	–	124	60	2,3	45	14
TDS202A13200	TDS212A13200	13,200	.5197	–	–	124	60	2,3	45	14
TDS202A13300	TDS212A13300	13,300	.5236	–	–	124	60	2,3	45	14
TDS202A13400	TDS212A13400	13,400	.5276	–	–	124	60	2,3	45	14
TDS202A13500	TDS212A13500	13,500	.5315	–	–	124	60	2,3	45	14
TDS202A13600	TDS212A13600	13,600	.5354	–	–	124	60	2,3	45	14
TDS202A13700	TDS212A13700	13,700	.5394	–	–	124	60	2,4	45	14
TDS202A13800	TDS212A13800	13,800	.5433	–	–	124	60	2,4	45	14
TDS202A13891	TDS212A13891	13,891	.5469	35/64	–	124	60	2,4	45	14
TDS202A13900	TDS212A13900	13,900	.5472	–	–	124	60	2,4	45	14
TDS202A14000	TDS212A14000	14,000	.5512	–	–	124	60	2,4	45	14
TDS202A14100	TDS212A14100	14,100	.5551	–	–	133	63	2,4	48	16
TDS202A14200	TDS212A14200	14,200	.5591	–	–	133	63	2,5	48	16
TDS202A14288	TDS212A14288	14,288	.5625	9/16	–	133	63	2,5	48	16
TDS202A14300	TDS212A14300	14,300	.5630	–	–	133	63	2,5	48	16
TDS202A14400	TDS212A14400	14,400	.5669	–	–	133	63	2,5	48	16
TDS202A14500	TDS212A14500	14,500	.5709	–	–	133	63	2,5	48	16
TDS202A14600	TDS212A14600	14,600	.5748	–	–	133	63	2,5	48	16
TDS202A14684	TDS212A14684	14,684	.5781	37/64	–	133	63	2,5	48	16
TDS202A14700	TDS212A14700	14,700	.5787	–	–	133	63	2,5	48	16
TDS202A14800	TDS212A14800	14,800	.5827	–	–	133	63	2,6	48	16
TDS202A14900	TDS212A14900	14,900	.5866	–	–	133	63	2,6	48	16
TDS202A15000	TDS212A15000	15,000	.5906	–	–	133	63	2,6	48	16
TDS202A15083	TDS212A15083	15,083	.5938	19/32	–	133	63	2,6	48	16
TDS202A15100	TDS212A15100	15,100	.5945	–	–	133	63	2,6	48	16
TDS202A15200	TDS212A15200	15,200	.5984	–	–	133	63	2,6	48	16
TDS202A15300	TDS212A15300	15,300	.6024	–	–	133	63	2,6	48	16
TDS202A15400	TDS212A15400	15,400	.6063	–	–	133	63	2,7	48	16
TDS202A15479	TDS212A15479	15,479	.6094	39/64	–	133	63	2,7	48	16
TDS202A15500	TDS212A15500	15,500	.6102	–	–	133	63	2,7	48	16
TDS202A15600	TDS212A15600	15,600	.6142	–	–	133	63	2,7	48	16
TDS202A15700	TDS212A15700	15,700	.6181	–	–	133	63	2,7	48	16
TDS202A15800	TDS212A15800	15,800	.6220	–	–	133	63	2,7	48	16
TDS202A15875	TDS212A15875	15,875	.6250	5/8	–	133	63	2,7	48	16
TDS202A15900	TDS212A15900	15,900	.6260	–	–	133	63	2,8	48	16
TDS202A16000	TDS212A16000	16,000	.6299	–	–	133	63	2,8	48	16
TDS202A16100	TDS212A16100	16,100	.6339	–	–	143	71	2,8	48	18
TDS202A16200	TDS212A16200	16,200	.6378	–	–	143	71	2,8	48	18
TDS202A16271	TDS212A16271	16,271	.6406	41/64	–	143	71	2,8	48	18
TDS202A16300	TDS212A16300	16,300	.6417	–	–	143	71	2,8	48	18
TDS202A16400	TDS212A16400	16,400	.6457	–	–	143	71	2,8	48	18
TDS202A16500	TDS212A16500	16,500	.6496	–	–	143	71	2,9	48	18
TDS202A16600	TDS212A16600	16,600	.6535	–	–	143	71	2,9	48	18
TDS202A16670	TDS212A16670	16,670	.6563	21/32	–	143	71	2,9	48	18
TDS202A16700	TDS212A16700	16,700	.6575	–	–	143	71	2,9	48	18
TDS202A16800	TDS212A16800	16,800	.6614	–	–	143	71	2,9	48	18
TDS202A16900	TDS212A16900	16,900	.6654	–	–	143	71	2,9	48	18
TDS202A17000	TDS212A17000	17,000	.6693	–	–	143	71	2,9	48	18

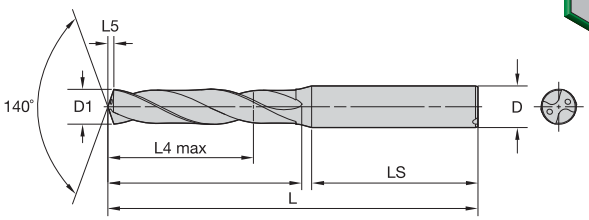
(continued)

(TDS202A • TDS212A • 5 x D continued)



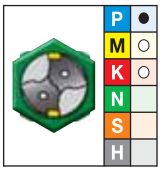
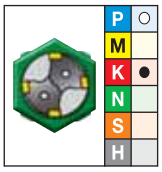
TDS202A • WP20PD	TDS212A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS202A17100	TDS212A17100	17,100	.6732	–	–	143	71	3,0	48	18
TDS202A17200	TDS212A17200	17,200	.6772	–	–	143	71	3,0	48	18
TDS202A17300	TDS212A17300	17,300	.6811	–	–	143	71	3,0	48	18
TDS202A17400	TDS212A17400	17,400	.6850	–	–	143	71	3,0	48	18
TDS202A17463	TDS212A17463	17,463	.6875	11/16	–	143	71	3,0	48	18
TDS202A17500	TDS212A17500	17,500	.6890	–	–	143	71	3,0	48	18
TDS202A17600	TDS212A17600	17,600	.6929	–	–	143	71	3,1	48	18
TDS202A17700	TDS212A17700	17,700	.6969	–	–	143	71	3,1	48	18
TDS202A17800	TDS212A17800	17,800	.7008	–	–	143	71	3,1	48	18
TDS202A17859	TDS212A17859	17,859	.7031	45/64	–	143	71	3,1	48	18
TDS202A17900	TDS212A17900	17,900	.7047	–	–	143	71	3,1	48	18
TDS202A18000	TDS212A18000	18,000	.7087	–	–	143	71	3,1	48	18
TDS202A18100	TDS212A18100	18,100	.7126	–	–	153	77	3,1	50	20
TDS202A18200	TDS212A18200	18,200	.7165	–	–	153	77	3,2	50	20
TDS202A18258	TDS212A18258	18,258	.7188	23/32	–	153	77	3,2	50	20
TDS202A18300	TDS212A18300	18,300	.7205	–	–	153	77	3,2	50	20
TDS202A18400	TDS212A18400	18,400	.7244	–	–	153	77	3,2	50	20
TDS202A18500	TDS212A18500	18,500	.7283	–	–	153	77	3,2	50	20
TDS202A18600	TDS212A18600	18,600	.7323	–	–	153	77	3,2	50	20
TDS202A18654	TDS212A18654	18,654	.7344	47/64	–	153	77	3,2	50	20
TDS202A18700	TDS212A18700	18,700	.7362	–	–	153	77	3,2	50	20
TDS202A18800	TDS212A18800	18,800	.7402	–	–	153	77	3,3	50	20
TDS202A18900	TDS212A18900	18,900	.7441	–	–	153	77	3,3	50	20
TDS202A19000	TDS212A19000	19,000	.7480	–	–	153	77	3,3	50	20
TDS202A19050	TDS212A19050	19,050	.7500	3/4	–	153	77	3,3	50	20
TDS202A19100	TDS212A19100	19,100	.7520	–	–	153	77	3,3	50	20
TDS202A19200	TDS212A19200	19,200	.7559	–	–	153	77	3,3	50	20
TDS202A19300	TDS212A19300	19,300	.7598	–	–	153	77	3,4	50	20
TDS202A19400	TDS212A19400	19,400	.7638	–	–	153	77	3,4	50	20
TDS202A19500	TDS212A19500	19,500	.7677	–	–	153	77	3,4	50	20
TDS202A19600	TDS212A19600	19,600	.7717	–	–	153	77	3,4	50	20
TDS202A19700	TDS212A19700	19,700	.7756	–	–	153	77	3,4	50	20
TDS202A19800	TDS212A19800	19,800	.7795	–	–	153	77	3,4	50	20
TDS202A19900	TDS212A19900	19,900	.7835	–	–	153	77	3,5	50	20
TDS202A20000	TDS212A20000	20,000	.7874	–	–	153	77	3,5	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.



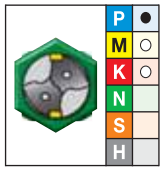
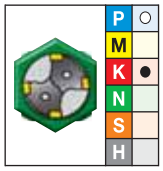
● first choice
○ alternate choice

■ TDS401A • TDS411A • 3 x D

 TDS401A • WP20PD	 TDS411A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS401A03000	TDS411A03000	3,000	.1181	–	–	62	14	0,5	36	6
TDS401A03048	TDS411A03048	3,048	.1200	–	31	62	14	0,5	36	6
TDS401A03100	TDS411A03100	3,100	.1220	–	–	62	14	0,5	36	6
TDS401A03175	TDS411A03175	3,175	.1250	1/8	–	62	14	0,5	36	6
TDS401A03200	TDS411A03200	3,200	.1260	–	–	62	14	0,5	36	6
TDS401A03264	TDS411A03264	3,264	.1285	–	30	62	14	0,5	36	6
TDS401A03300	TDS411A03300	3,300	.1299	–	–	62	14	0,5	36	6
TDS401A03400	TDS411A03400	3,400	.1339	–	–	62	14	0,6	36	6
TDS401A03455	TDS411A03455	3,455	.1360	–	29	62	14	0,6	36	6
TDS401A03500	TDS411A03500	3,500	.1378	–	–	62	14	0,6	36	6
TDS401A03571	TDS411A03571	3,571	.1406	9/64	–	62	14	0,6	36	6
TDS401A03600	TDS411A03600	3,600	.1417	–	–	62	14	0,6	36	6
TDS401A03658	TDS411A03658	3,658	.1440	–	27	62	14	0,6	36	6
TDS401A03700	TDS411A03700	3,700	.1457	–	–	62	14	0,6	36	6
TDS401A03734	TDS411A03734	3,734	.1470	–	26	62	14	0,6	36	6
TDS401A03800	TDS411A03800	3,800	.1496	–	–	66	17	0,6	36	6
TDS401A03900	TDS411A03900	3,900	.1535	–	–	66	17	0,6	36	6
TDS401A03970	TDS411A03970	3,970	.1563	5/32	–	66	17	0,7	36	6
TDS401A04000	TDS411A04000	4,000	.1575	–	–	66	17	0,7	36	6
TDS401A04039	TDS411A04039	4,039	.1590	–	21	66	17	0,7	36	6
TDS401A04090	TDS411A04090	4,090	.1610	–	20	66	17	0,7	36	6
TDS401A04100	TDS411A04100	4,100	.1614	–	–	66	17	0,7	36	6
TDS401A04200	TDS411A04200	4,200	.1654	–	–	66	17	0,7	36	6
TDS401A04217	TDS411A04217	4,217	.1660	–	19	66	17	0,7	36	6
TDS401A04300	TDS411A04300	4,300	.1693	–	–	66	17	0,7	36	6
TDS401A04366	TDS411A04366	4,366	.1719	11/64	–	66	17	0,7	36	6
TDS401A04400	TDS411A04400	4,400	.1732	–	–	66	17	0,7	36	6
TDS401A04500	TDS411A04500	4,500	.1772	–	–	66	17	0,7	36	6
TDS401A04600	TDS411A04600	4,600	.1811	–	–	66	17	0,8	36	6
TDS401A04623	TDS411A04623	4,623	.1820	–	14	66	17	0,8	36	6
TDS401A04700	TDS411A04700	4,700	.1850	–	13	66	17	0,8	36	6
TDS401A04763	TDS411A04763	4,763	.1875	3/16	–	66	20	0,8	36	6
TDS401A04800	TDS411A04800	4,800	.1890	–	12	66	20	0,8	36	6
TDS401A04852	TDS411A04852	4,852	.1910	–	11	66	20	0,8	36	6
TDS401A04900	TDS411A04900	4,900	.1929	–	–	66	20	0,8	36	6
TDS401A05000	TDS411A05000	5,000	.1969	–	–	66	20	0,8	36	6
TDS401A05100	TDS411A05100	5,100	.2008	–	–	66	20	0,8	36	6
TDS401A05106	TDS411A05106	5,106	.2010	–	7	66	20	0,8	36	6
TDS401A05159	TDS411A05159	5,159	.2031	13/64	–	66	20	0,9	36	6
TDS401A05200	TDS411A05200	5,200	.2047	–	–	66	20	0,9	36	6

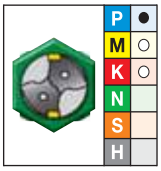
(continued)

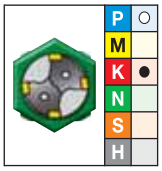
(TDS401A • TDS411A • 3 x D continued)

		D1 diameter								
TDS401A • WP20PD	TDS411A • WK15PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS401A05300	TDS411A05300	5,300	.2087	–	–	66	20	0,9	36	6
TDS401A05400	TDS411A05400	5,400	.2126	–	–	66	20	0,9	36	6
TDS401A05410	TDS411A05410	5,410	.2130	–	3	66	20	0,9	36	6
TDS401A05500	TDS411A05500	5,500	.2165	–	–	66	20	0,9	36	6
TDS401A05558	TDS411A05558	5,558	.2188	7/32	–	66	20	0,9	36	6
TDS401A05600	TDS411A05600	5,600	.2205	–	–	66	20	0,9	36	6
TDS401A05616	TDS411A05616	5,616	.2211	–	2	66	20	0,9	36	6
TDS401A05700	TDS411A05700	5,700	.2244	–	–	66	20	1,0	36	6
TDS401A05800	TDS411A05800	5,800	.2283	–	–	66	20	1,0	36	6
TDS401A05900	TDS411A05900	5,900	.2323	–	–	66	20	1,0	36	6
TDS401A05954	TDS411A05954	5,954	.2344	15/64	–	66	20	1,0	36	6
TDS401A06000	TDS411A06000	6,000	.2362	–	–	66	20	1,0	36	6
TDS401A06100	TDS411A06100	6,100	.2402	–	–	79	24	1,0	36	8
TDS401A06200	TDS411A06200	6,200	.2441	–	–	79	24	1,0	36	8
TDS401A06300	TDS411A06300	6,300	.2480	–	–	79	24	1,1	36	8
TDS401A06350	TDS411A06350	6,350	.2500	1/4	E	79	24	1,1	36	8
TDS401A06400	TDS411A06400	6,400	.2520	–	–	79	24	1,1	36	8
TDS401A06500	TDS411A06500	6,500	.2559	–	–	79	24	1,1	36	8
TDS401A06528	TDS411A06528	6,528	.2570	–	F	79	24	1,1	36	8
TDS401A06600	TDS411A06600	6,600	.2598	–	–	79	24	1,1	36	8
TDS401A06630	TDS411A06630	6,630	.2610	–	G	79	24	1,1	36	8
TDS401A06700	TDS411A06700	6,700	.2638	–	–	79	24	1,1	36	8
TDS401A06746	TDS411A06746	6,746	.2656	17/64	–	79	24	1,1	36	8
TDS401A06800	TDS411A06800	6,800	.2677	–	–	79	24	1,1	36	8
TDS401A06900	TDS411A06900	6,900	.2717	–	–	79	24	1,2	36	8
TDS401A07000	TDS411A07000	7,000	.2756	–	–	79	24	1,2	36	8
TDS401A07100	TDS411A07100	7,100	.2795	–	–	79	29	1,2	36	8
TDS401A07145	TDS411A07145	7,145	.2813	9/32	–	79	29	1,2	36	8
TDS401A07200	TDS411A07200	7,200	.2835	–	–	79	29	1,2	36	8
TDS401A07300	TDS411A07300	7,300	.2874	–	–	79	29	1,2	36	8
TDS401A07400	TDS411A07400	7,400	.2913	–	–	79	29	1,3	36	8
TDS401A07500	TDS411A07500	7,500	.2953	–	–	79	29	1,3	36	8
TDS401A07541	TDS411A07541	7,541	.2969	19/64	–	79	29	1,3	36	8
TDS401A07600	TDS411A07600	7,600	.2992	–	–	79	29	1,3	36	8
TDS401A07700	TDS411A07700	7,700	.3031	–	–	79	29	1,3	36	8
TDS401A07800	TDS411A07800	7,800	.3071	–	–	79	29	1,3	36	8
TDS401A07900	TDS411A07900	7,900	.3110	–	–	79	29	1,3	36	8
TDS401A07938	TDS411A07938	7,938	.3125	5/16	–	79	29	1,3	36	8
TDS401A08000	TDS411A08000	8,000	.3150	–	–	79	29	1,4	36	8
TDS401A08100	TDS411A08100	8,100	.3189	–	–	89	35	1,4	40	10
TDS401A08200	TDS411A08200	8,200	.3228	–	–	89	35	1,4	40	10
TDS401A08300	TDS411A08300	8,300	.3268	–	–	89	35	1,4	40	10
TDS401A08334	TDS411A08334	8,334	.3281	21/64	–	89	35	1,4	40	10
TDS401A08400	TDS411A08400	8,400	.3307	–	–	89	35	1,4	40	10
TDS401A08433	TDS411A08433	8,433	.3320	–	Q	89	35	1,4	40	10
TDS401A08500	TDS411A08500	8,500	.3346	–	–	89	35	1,4	40	10
TDS401A08600	TDS411A08600	8,600	.3386	–	–	89	35	1,5	40	10
TDS401A08700	TDS411A08700	8,700	.3425	–	–	89	35	1,5	40	10
TDS401A08733	TDS411A08733	8,733	.3438	11/32	–	89	35	1,5	40	10
TDS401A08800	TDS411A08800	8,800	.3465	–	–	89	35	1,5	40	10
TDS401A08900	TDS411A08900	8,900	.3504	–	–	89	35	1,5	40	10
TDS401A09000	TDS411A09000	9,000	.3543	–	–	89	35	1,5	40	10

(continued)

(TDS401A • TDS411A • 3 x D continued)

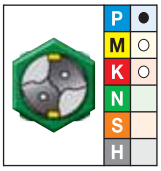


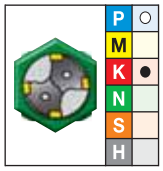


TDS401A • WP20PD	TDS411A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS401A09100	TDS411A09100	9,100	.3583	–	–	89	35	1,5	40	10
TDS401A09129	TDS411A09129	9,129	.3594	23/64	–	89	35	1,6	40	10
TDS401A09200	TDS411A09200	9,200	.3622	–	–	89	35	1,6	40	10
TDS401A09300	TDS411A09300	9,300	.3661	–	–	89	35	1,6	40	10
TDS401A09347	TDS411A09347	9,347	.3680	–	U	89	35	1,6	40	10
TDS401A09400	TDS411A09400	9,400	.3701	–	–	89	35	1,6	40	10
TDS401A09500	TDS411A09500	9,500	.3740	–	–	89	35	1,6	40	10
TDS401A09525	TDS411A09525	9,525	.3750	3/8	–	89	35	1,6	40	10
TDS401A09600	TDS411A09600	9,600	.3780	–	–	89	35	1,6	40	10
TDS401A09700	TDS411A09700	9,700	.3819	–	–	89	35	1,7	40	10
TDS401A09800	TDS411A09800	9,800	.3858	–	–	89	35	1,7	40	10
TDS401A09900	TDS411A09900	9,900	.3898	–	–	89	35	1,7	40	10
TDS401A09921	TDS411A09921	9,921	.3906	25/64	–	89	35	1,7	40	10
TDS401A10000	TDS411A10000	10,000	.3937	–	–	89	35	1,7	40	10
TDS401A10100	TDS411A10100	10,100	.3976	–	–	102	40	1,7	45	12
TDS401A10200	TDS411A10200	10,200	.4016	–	–	102	40	1,7	45	12
TDS401A10300	TDS411A10300	10,300	.4055	–	–	102	40	1,8	45	12
TDS401A10320	TDS411A10320	10,320	.4063	13/32	–	102	40	1,8	45	12
TDS401A10400	TDS411A10400	10,400	.4094	–	–	102	40	1,8	45	12
TDS401A10500	TDS411A10500	10,500	.4134	–	–	102	40	1,8	45	12
TDS401A10600	TDS411A10600	10,600	.4173	–	–	102	40	1,8	45	12
TDS401A10700	TDS411A10700	10,700	.4213	–	–	102	40	1,8	45	12
TDS401A10716	TDS411A10716	10,716	.4219	27/64	–	102	40	1,8	45	12
TDS401A10800	TDS411A10800	10,800	.4252	–	–	102	40	1,8	45	12
TDS401A10900	TDS411A10900	10,900	.4291	–	–	102	40	1,9	45	12
TDS401A11000	TDS411A11000	11,000	.4331	–	–	102	40	1,9	45	12
TDS401A11100	TDS411A11100	11,100	.4370	–	–	102	40	1,9	45	12
TDS401A11113	TDS411A11113	11,113	.4375	7/16	–	102	40	1,9	45	12
TDS401A11200	TDS411A11200	11,200	.4409	–	–	102	40	1,9	45	12
TDS401A11300	TDS411A11300	11,300	.4449	–	–	102	40	1,9	45	12
TDS401A11400	TDS411A11400	11,400	.4488	–	–	102	40	2,0	45	12
TDS401A11500	TDS411A11500	11,500	.4528	–	–	102	40	2,0	45	12
TDS401A11509	TDS411A11509	11,509	.4531	29/64	–	102	40	2,0	45	12
TDS401A11600	TDS411A11600	11,600	.4567	–	–	102	40	2,0	45	12
TDS401A11700	TDS411A11700	11,700	.4606	–	–	102	40	2,0	45	12
TDS401A11800	TDS411A11800	11,800	.4646	–	–	102	40	2,0	45	12
TDS401A11900	TDS411A11900	11,900	.4685	–	–	102	40	2,0	45	12
TDS401A11908	TDS411A11908	11,908	.4688	15/32	–	102	40	2,0	45	12
TDS401A12000	TDS411A12000	12,000	.4724	–	–	102	40	2,1	45	12
TDS401A12100	TDS411A12100	12,100	.4764	–	–	107	43	2,1	45	14
TDS401A12200	TDS411A12200	12,200	.4803	–	–	107	43	2,1	45	14
TDS401A12300	TDS411A12300	12,300	.4843	–	–	107	43	2,1	45	14
TDS401A12304	TDS411A12304	12,304	.4844	31/64	–	107	43	2,1	45	14
TDS401A12400	TDS411A12400	12,400	.4882	–	–	107	43	2,1	45	14
TDS401A12500	TDS411A12500	12,500	.4921	–	–	107	43	2,1	45	14
TDS401A12600	TDS411A12600	12,600	.4961	–	–	107	43	2,2	45	14
TDS401A12700	TDS411A12700	12,700	.5000	1/2	–	107	43	2,2	45	14
TDS401A12800	TDS411A12800	12,800	.5039	–	–	107	43	2,2	45	14
TDS401A12900	TDS411A12900	12,900	.5079	–	–	107	43	2,2	45	14
TDS401A13000	TDS411A13000	13,000	.5118	–	–	107	43	2,2	45	14
TDS401A13096	TDS411A13096	13,096	.5156	33/64	–	107	43	2,3	45	14
TDS401A13100	TDS411A13100	13,100	.5157	–	–	107	43	2,3	45	14

(continued)

(TDS401A • TDS411A • 3 x D continued)

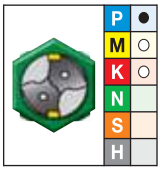
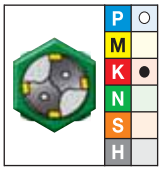




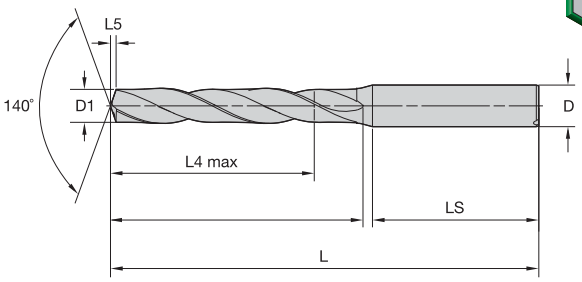
TDS401A • WP20PD	TDS411A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS401A13200	TDS411A13200	13,200	.5197	–	–	107	43	2,3	45	14
TDS401A13300	TDS411A13300	13,300	.5236	–	–	107	43	2,3	45	14
TDS401A13400	TDS411A13400	13,400	.5276	–	–	107	43	2,3	45	14
TDS401A13500	TDS411A13500	13,500	.5315	–	–	107	43	2,3	45	14
TDS401A13600	TDS411A13600	13,600	.5354	–	–	107	43	2,3	45	14
TDS401A13700	TDS411A13700	13,700	.5394	–	–	107	43	2,4	45	14
TDS401A13800	TDS411A13800	13,800	.5433	–	–	107	43	2,4	45	14
TDS401A13891	TDS411A13891	13,891	.5469	35/64	–	107	43	2,4	45	14
TDS401A13900	TDS411A13900	13,900	.5472	–	–	107	43	2,4	45	14
TDS401A14000	TDS411A14000	14,000	.5512	–	–	107	43	2,4	45	14
TDS401A14100	TDS411A14100	14,100	.5551	–	–	115	45	2,4	48	16
TDS401A14200	TDS411A14200	14,200	.5591	–	–	115	45	2,5	48	16
TDS401A14288	TDS411A14288	14,288	.5625	9/16	–	115	45	2,5	48	16
TDS401A14300	TDS411A14300	14,300	.5630	–	–	115	45	2,5	48	16
TDS401A14400	TDS411A14400	14,400	.5669	–	–	115	45	2,5	48	16
TDS401A14500	TDS411A14500	14,500	.5709	–	–	115	45	2,5	48	16
TDS401A14600	TDS411A14600	14,600	.5748	–	–	115	45	2,5	48	16
TDS401A14684	TDS411A14684	14,684	.5781	37/64	–	115	45	2,5	48	16
TDS401A14700	TDS411A14700	14,700	.5787	–	–	115	45	2,5	48	16
TDS401A14800	TDS411A14800	14,800	.5827	–	–	115	45	2,6	48	16
TDS401A14900	TDS411A14900	14,900	.5866	–	–	115	45	2,6	48	16
TDS401A15000	TDS411A15000	15,000	.5906	–	–	115	45	2,6	48	16
TDS401A15083	TDS411A15083	15,083	.5938	19/32	–	115	45	2,6	48	16
TDS401A15100	TDS411A15100	15,100	.5945	–	–	115	45	2,6	48	16
TDS401A15200	TDS411A15200	15,200	.5984	–	–	115	45	2,6	48	16
TDS401A15300	TDS411A15300	15,300	.6024	–	–	115	45	2,6	48	16
TDS401A15400	TDS411A15400	15,400	.6063	–	–	115	45	2,7	48	16
TDS401A15479	TDS411A15479	15,479	.6094	39/64	–	115	45	2,7	48	16
TDS401A15500	TDS411A15500	15,500	.6102	–	–	115	45	2,7	48	16
TDS401A15600	TDS411A15600	15,600	.6142	–	–	115	45	2,7	48	16
TDS401A15700	TDS411A15700	15,700	.6181	–	–	115	45	2,7	48	16
TDS401A15800	TDS411A15800	15,800	.6220	–	–	115	45	2,7	48	16
TDS401A15875	TDS411A15875	15,875	.6250	5/8	–	115	45	2,7	48	16
TDS401A15900	TDS411A15900	15,900	.6260	–	–	115	45	2,8	48	16
TDS401A16000	TDS411A16000	16,000	.6299	–	–	115	45	2,8	48	16
TDS401A16100	TDS411A16100	16,100	.6339	–	–	123	51	2,8	48	18
TDS401A16200	TDS411A16200	16,200	.6378	–	–	123	51	2,8	48	18
TDS401A16271	TDS411A16271	16,271	.6406	41/64	–	123	51	2,8	48	18
TDS401A16300	TDS411A16300	16,300	.6417	–	–	123	51	2,8	48	18
TDS401A16400	TDS411A16400	16,400	.6457	–	–	123	51	2,8	48	18
TDS401A16500	TDS411A16500	16,500	.6496	–	–	123	51	2,9	48	18
TDS401A16600	TDS411A16600	16,600	.6535	–	–	123	51	2,9	48	18
TDS401A16670	TDS411A16670	16,670	.6563	21/32	–	123	51	2,9	48	18
TDS401A16700	TDS411A16700	16,700	.6575	–	–	123	51	2,9	48	18
TDS401A16800	TDS411A16800	16,800	.6614	–	–	123	51	2,9	48	18
TDS401A16900	TDS411A16900	16,900	.6654	–	–	123	51	2,9	48	18
TDS401A17000	TDS411A17000	17,000	.6693	–	–	123	51	2,9	48	18
TDS401A17100	TDS411A17100	17,100	.6732	–	–	123	51	3,0	48	18

(continued)

(TDS401A • TDS411A • 3 x D continued)

		D1 diameter								
TDS401A • WP20PD	TDS411A • WK15PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS401A17200	TDS411A17200	17,200	.6772	—	—	123	51	3,0	48	18
TDS401A17300	TDS411A17300	17,300	.6811	—	—	123	51	3,0	48	18
TDS401A17400	TDS411A17400	17,400	.6850	—	—	123	51	3,0	48	18
TDS401A17463	TDS411A17463	17,463	.6875	11/16	—	123	51	3,0	48	18
TDS401A17500	TDS411A17500	17,500	.6890	—	—	123	51	3,0	48	18
TDS401A17600	TDS411A17600	17,600	.6929	—	—	123	51	3,1	48	18
TDS401A17700	TDS411A17700	17,700	.6969	—	—	123	51	3,1	48	18
TDS401A17800	TDS411A17800	17,800	.7008	—	—	123	51	3,1	48	18
TDS401A17859	TDS411A17859	17,859	.7031	45/64	—	123	51	3,1	48	18
TDS401A17900	TDS411A17900	17,900	.7047	—	—	123	51	3,1	48	18
TDS401A18000	TDS411A18000	18,000	.7087	—	—	123	51	3,1	48	18
TDS401A18100	TDS411A18100	18,100	.7126	—	—	131	55	3,1	50	20
TDS401A18200	TDS411A18200	18,200	.7165	—	—	131	55	3,2	50	20
TDS401A18258	TDS411A18258	18,258	.7188	23/32	—	131	55	3,2	50	20
TDS401A18300	TDS411A18300	18,300	.7205	—	—	131	55	3,2	50	20
TDS401A18400	TDS411A18400	18,400	.7244	—	—	131	55	3,2	50	20
TDS401A18500	TDS411A18500	18,500	.7283	—	—	131	55	3,2	50	20
TDS401A18600	TDS411A18600	18,600	.7323	—	—	131	55	3,2	50	20
TDS401A18654	TDS411A18654	18,654	.7344	47/64	—	131	55	3,2	50	20
TDS401A18700	TDS411A18700	18,700	.7362	—	—	131	55	3,2	50	20
TDS401A18800	TDS411A18800	18,800	.7402	—	—	131	55	3,3	50	20
TDS401A18900	TDS411A18900	18,900	.7441	—	—	131	55	3,3	50	20
TDS401A19000	TDS411A19000	19,000	.7480	—	—	131	55	3,3	50	20
TDS401A19050	TDS411A19050	19,050	.7500	3/4	—	131	55	3,3	50	20
TDS401A19100	TDS411A19100	19,100	.7520	—	—	131	55	3,3	50	20
TDS401A19200	TDS411A19200	19,200	.7559	—	—	131	55	3,3	50	20
TDS401A19300	TDS411A19300	19,300	.7598	—	—	131	55	3,4	50	20
TDS401A19400	TDS411A19400	19,400	.7638	—	—	131	55	3,4	50	20
TDS401A19500	TDS411A19500	19,500	.7677	—	—	131	55	3,4	50	20
TDS401A19600	TDS411A19600	19,600	.7717	—	—	131	55	3,4	50	20
TDS401A19700	TDS411A19700	19,700	.7756	—	—	131	55	3,4	50	20
TDS401A19800	TDS411A19800	19,800	.7795	—	—	131	55	3,4	50	20
TDS401A19900	TDS411A19900	19,900	.7835	—	—	131	55	3,5	50	20
TDS401A20000	TDS411A20000	20,000	.7874	—	—	131	55	3,5	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.



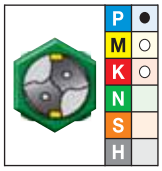
● first choice
○ alternate choice

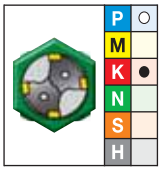
■ TDS402A • TDS412A • 5 x D

TDS402A • WP20PD	TDS412A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS402A03000	TDS412A03000	3,000	.1181	—	—	66	23	0,5	36	6
TDS402A03048	TDS412A03048	3,048	.1200	—	31	66	23	0,5	36	6
TDS402A03100	TDS412A03100	3,100	.1220	—	—	66	23	0,5	36	6
TDS402A03175	TDS412A03175	3,175	.1250	1/8	—	66	23	0,5	36	6
TDS402A03200	TDS412A03200	3,200	.1260	—	—	66	23	0,5	36	6
TDS402A03264	TDS412A03264	3,264	.1285	—	30	66	23	0,5	36	6
TDS402A03300	TDS412A03300	3,300	.1299	—	—	66	23	0,5	36	6
TDS402A03400	TDS412A03400	3,400	.1339	—	—	66	23	0,6	36	6
TDS402A03455	TDS412A03455	3,455	.1360	—	29	66	23	0,6	36	6
TDS402A03500	TDS412A03500	3,500	.1378	—	—	66	23	0,6	36	6
TDS402A03571	TDS412A03571	3,571	.1406	9/64	—	66	23	0,6	36	6
TDS402A03600	TDS412A03600	3,600	.1417	—	—	66	23	0,6	36	6
TDS402A03658	TDS412A03658	3,658	.1440	—	27	66	23	0,6	36	6
TDS402A03700	TDS412A03700	3,700	.1457	—	—	66	23	0,6	36	6
TDS402A03734	TDS412A03734	3,734	.1470	—	26	66	23	0,6	36	6
TDS402A03800	TDS412A03800	3,800	.1496	—	—	74	29	0,6	36	6
TDS402A03900	TDS412A03900	3,900	.1535	—	—	74	29	0,6	36	6
TDS402A03970	TDS412A03970	3,970	.1563	5/32	—	74	29	0,7	36	6
TDS402A04000	TDS412A04000	4,000	.1575	—	—	74	29	0,7	36	6
TDS402A04039	TDS412A04039	4,039	.1590	—	21	74	29	0,7	36	6
TDS402A04090	TDS412A04090	4,090	.1610	—	20	74	29	0,7	36	6
TDS402A04100	TDS412A04100	4,100	.1614	—	—	74	29	0,7	36	6
TDS402A04200	TDS412A04200	4,200	.1654	—	—	74	29	0,7	36	6
TDS402A04217	TDS412A04217	4,217	.1660	—	19	74	29	0,7	36	6
TDS402A04300	TDS412A04300	4,300	.1693	—	—	74	29	0,7	36	6
TDS402A04366	TDS412A04366	4,366	.1719	11/64	—	74	29	0,7	36	6
TDS402A04400	TDS412A04400	4,400	.1732	—	—	74	29	0,7	36	6
TDS402A04500	TDS412A04500	4,500	.1772	—	—	74	29	0,7	36	6
TDS402A04600	TDS412A04600	4,600	.1811	—	—	74	29	0,8	36	6
TDS402A04623	TDS412A04623	4,623	.1820	—	14	74	29	0,8	36	6
TDS402A04700	TDS412A04700	4,700	.1850	—	13	74	29	0,8	36	6
TDS402A04763	TDS412A04763	4,763	.1875	3/16	—	82	35	0,8	36	6
TDS402A04800	TDS412A04800	4,800	.1890	—	12	82	35	0,8	36	6
TDS402A04852	TDS412A04852	4,852	.1910	—	11	82	35	0,8	36	6
TDS402A04900	TDS412A04900	4,900	.1929	—	—	82	35	0,8	36	6
TDS402A05000	TDS412A05000	5,000	.1969	—	—	82	35	0,8	36	6
TDS402A05100	TDS412A05100	5,100	.2008	—	—	82	35	0,8	36	6
TDS402A05106	TDS412A05106	5,106	.2010	—	7	82	35	0,8	36	6
TDS402A05159	TDS412A05159	5,159	.2031	13/64	—	82	35	0,9	36	6
TDS402A05200	TDS412A05200	5,200	.2047	—	—	82	35	0,9	36	6
TDS402A05300	TDS412A05300	5,300	.2087	—	—	82	35	0,9	36	6
TDS402A05400	TDS412A05400	5,400	.2126	—	—	82	35	0,9	36	6

(continued)

(TDS402A • TDS412A • 5 x D continued)

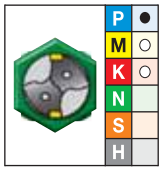
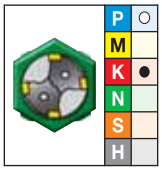




TDS402A • WP20PD	TDS412A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS402A05410	TDS412A05410	5,410	.2130	–	3	82	35	0,9	36	6
TDS402A05500	TDS412A05500	5,500	.2165	–	–	82	35	0,9	36	6
TDS402A05558	TDS412A05558	5,558	.2188	7/32	–	82	35	0,9	36	6
TDS402A05600	TDS412A05600	5,600	.2205	–	–	82	35	0,9	36	6
TDS402A05616	TDS412A05616	5,616	.2211	–	2	82	35	0,9	36	6
TDS402A05700	TDS412A05700	5,700	.2244	–	–	82	35	1,0	36	6
TDS402A05800	TDS412A05800	5,800	.2283	–	–	82	35	1,0	36	6
TDS402A05900	TDS412A05900	5,900	.2323	–	–	82	35	1,0	36	6
TDS402A05954	TDS412A05954	5,954	.2344	15/64	–	82	35	1,0	36	6
TDS402A06000	TDS412A06000	6,000	.2362	–	–	82	35	1,0	36	6
TDS402A06100	TDS412A06100	6,100	.2402	–	–	91	43	1,0	36	8
TDS402A06200	TDS412A06200	6,200	.2441	–	–	91	43	1,0	36	8
TDS402A06300	TDS412A06300	6,300	.2480	–	–	91	43	1,1	36	8
TDS402A06350	TDS412A06350	6,350	.2500	1/4	E	91	43	1,1	36	8
TDS402A06400	TDS412A06400	6,400	.2520	–	–	91	43	1,1	36	8
TDS402A06500	TDS412A06500	6,500	.2559	–	–	91	43	1,1	36	8
TDS402A06528	TDS412A06528	6,528	.2570	–	F	91	43	1,1	36	8
TDS402A06600	TDS412A06600	6,600	.2598	–	–	91	43	1,1	36	8
TDS402A06630	TDS412A06630	6,630	.2610	–	G	91	43	1,1	36	8
TDS402A06700	TDS412A06700	6,700	.2638	–	–	91	43	1,1	36	8
TDS402A06746	TDS412A06746	6,746	.2656	17/64	–	91	43	1,1	36	8
TDS402A06800	TDS412A06800	6,800	.2677	–	–	91	43	1,1	36	8
TDS402A06900	TDS412A06900	6,900	.2717	–	–	91	43	1,2	36	8
TDS402A07000	TDS412A07000	7,000	.2756	–	–	91	43	1,2	36	8
TDS402A07100	TDS412A07100	7,100	.2795	–	–	91	43	1,2	36	8
TDS402A07145	TDS412A07145	7,145	.2813	9/32	–	91	43	1,2	36	8
TDS402A07200	TDS412A07200	7,200	.2835	–	–	91	43	1,2	36	8
TDS402A07300	TDS412A07300	7,300	.2874	–	–	91	43	1,2	36	8
TDS402A07400	TDS412A07400	7,400	.2913	–	–	91	43	1,3	36	8
TDS402A07500	TDS412A07500	7,500	.2953	–	–	91	43	1,3	36	8
TDS402A07541	TDS412A07541	7,541	.2969	19/64	–	91	43	1,3	36	8
TDS402A07600	TDS412A07600	7,600	.2992	–	–	91	43	1,3	36	8
TDS402A07700	TDS412A07700	7,700	.3031	–	–	91	43	1,3	36	8
TDS402A07800	TDS412A07800	7,800	.3071	–	–	91	43	1,3	36	8
TDS402A07900	TDS412A07900	7,900	.3110	–	–	91	43	1,3	36	8
TDS402A07938	TDS412A07938	7,938	.3125	5/16	–	91	43	1,3	36	8
TDS402A08000	TDS412A08000	8,000	.3150	–	–	91	43	1,4	36	8
TDS402A08100	TDS412A08100	8,100	.3189	–	–	103	49	1,4	40	10
TDS402A08200	TDS412A08200	8,200	.3228	–	–	103	49	1,4	40	10
TDS402A08300	TDS412A08300	8,300	.3268	–	–	103	49	1,4	40	10
TDS402A08334	TDS412A08334	8,334	.3281	21/64	–	103	49	1,4	40	10
TDS402A08400	TDS412A08400	8,400	.3307	–	–	103	49	1,4	40	10
TDS402A08433	TDS412A08433	8,433	.3320	–	Q	103	49	1,4	40	10
TDS402A08500	TDS412A08500	8,500	.3346	–	–	103	49	1,4	40	10
TDS402A08600	TDS412A08600	8,600	.3386	–	–	103	49	1,5	40	10
TDS402A08700	TDS412A08700	8,700	.3425	–	–	103	49	1,5	40	10
TDS402A08733	TDS412A08733	8,733	.3438	11/32	–	103	49	1,5	40	10
TDS402A08800	TDS412A08800	8,800	.3465	–	–	103	49	1,5	40	10
TDS402A08900	TDS412A08900	8,900	.3504	–	–	103	49	1,5	40	10
TDS402A09000	TDS412A09000	9,000	.3543	–	–	103	49	1,5	40	10
TDS402A09100	TDS412A09100	9,100	.3583	–	–	103	49	1,5	40	10
TDS402A09129	TDS412A09129	9,129	.3594	23/64	–	103	49	1,6	40	10

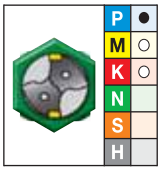
(continued)

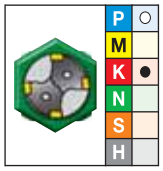
(TDS402A • TDS412A • 5 x D continued)

		D1 diameter								
TDS402A • WP20PD	TDS412A • WK15PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS402A09200	TDS412A09200	9,200	.3622	—	—	103	49	1,6	40	10
TDS402A09300	TDS412A09300	9,300	.3661	—	—	103	49	1,6	40	10
TDS402A09347	TDS412A09347	9,347	.3680	—	U	103	49	1,6	40	10
TDS402A09400	TDS412A09400	9,400	.3701	—	—	103	49	1,6	40	10
TDS402A09500	TDS412A09500	9,500	.3740	—	—	103	49	1,6	40	10
TDS402A09525	TDS412A09525	9,525	.3750	3/8	—	103	49	1,6	40	10
TDS402A09600	TDS412A09600	9,600	.3780	—	—	103	49	1,6	40	10
TDS402A09700	TDS412A09700	9,700	.3819	—	—	103	49	1,7	40	10
TDS402A09800	TDS412A09800	9,800	.3858	—	—	103	49	1,7	40	10
TDS402A09900	TDS412A09900	9,900	.3898	—	—	103	49	1,7	40	10
TDS402A09921	TDS412A09921	9,921	.3906	25/64	—	103	49	1,7	40	10
TDS402A10000	TDS412A10000	10,000	.3937	—	—	103	49	1,7	40	10
TDS402A10100	TDS412A10100	10,100	.3976	—	—	118	56	1,7	45	12
TDS402A10200	TDS412A10200	10,200	.4016	—	—	118	56	1,7	45	12
TDS402A10300	TDS412A10300	10,300	.4055	—	—	118	56	1,8	45	12
TDS402A10320	TDS412A10320	10,320	.4063	13/32	—	118	56	1,8	45	12
TDS402A10400	TDS412A10400	10,400	.4094	—	—	118	56	1,8	45	12
TDS402A10500	TDS412A10500	10,500	.4134	—	—	118	56	1,8	45	12
TDS402A10600	TDS412A10600	10,600	.4173	—	—	118	56	1,8	45	12
TDS402A10700	TDS412A10700	10,700	.4213	—	—	118	56	1,8	45	12
TDS402A10716	TDS412A10716	10,716	.4219	27/64	—	118	56	1,8	45	12
TDS402A10800	TDS412A10800	10,800	.4252	—	—	118	56	1,8	45	12
TDS402A10900	TDS412A10900	10,900	.4291	—	—	118	56	1,9	45	12
TDS402A11000	TDS412A11000	11,000	.4331	—	—	118	56	1,9	45	12
TDS402A11100	TDS412A11100	11,100	.4370	—	—	118	56	1,9	45	12
TDS402A11113	TDS412A11113	11,113	.4375	7/16	—	118	56	1,9	45	12
TDS402A11200	TDS412A11200	11,200	.4409	—	—	118	56	1,9	45	12
TDS402A11300	TDS412A11300	11,300	.4449	—	—	118	56	1,9	45	12
TDS402A11400	TDS412A11400	11,400	.4488	—	—	118	56	2,0	45	12
TDS402A11500	TDS412A11500	11,500	.4528	—	—	118	56	2,0	45	12
TDS402A11509	TDS412A11509	11,509	.4531	29/64	—	118	56	2,0	45	12
TDS402A11600	TDS412A11600	11,600	.4567	—	—	118	56	2,0	45	12
TDS402A11700	TDS412A11700	11,700	.4606	—	—	118	56	2,0	45	12
TDS402A11800	TDS412A11800	11,800	.4646	—	—	118	56	2,0	45	12
TDS402A11900	TDS412A11900	11,900	.4685	—	—	118	56	2,0	45	12
TDS402A11908	TDS412A11908	11,908	.4688	15/32	—	118	56	2,0	45	12
TDS402A12000	TDS412A12000	12,000	.4724	—	—	118	56	2,1	45	12
TDS402A12100	TDS412A12100	12,100	.4764	—	—	124	60	2,1	45	14
TDS402A12200	TDS412A12200	12,200	.4803	—	—	124	60	2,1	45	14
TDS402A12300	TDS412A12300	12,300	.4843	—	—	124	60	2,1	45	14
TDS402A12304	TDS412A12304	12,304	.4844	31/64	—	124	60	2,1	45	14
TDS402A12400	TDS412A12400	12,400	.4882	—	—	124	60	2,1	45	14
TDS402A12500	TDS412A12500	12,500	.4921	—	—	124	60	2,1	45	14
TDS402A12600	TDS412A12600	12,600	.4961	—	—	124	60	2,2	45	14
TDS402A12700	TDS412A12700	12,700	.5000	1/2	—	124	60	2,2	45	14
TDS402A12800	TDS412A12800	12,800	.5039	—	—	124	60	2,2	45	14
TDS402A12900	TDS412A12900	12,900	.5079	—	—	124	60	2,2	45	14
TDS402A13000	TDS412A13000	13,000	.5118	—	—	124	60	2,2	45	14
TDS402A13096	TDS412A13096	13,096	.5156	33/64	—	124	60	2,3	45	14
TDS402A13100	TDS412A13100	13,100	.5157	—	—	124	60	2,3	45	14
TDS402A13200	TDS412A13200	13,200	.5197	—	—	124	60	2,3	45	14
TDS402A13300	TDS412A13300	13,300	.5236	—	—	124	60	2,3	45	14

(continued)

(TDS402A • TDS412A • 5 x D continued)

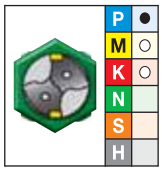


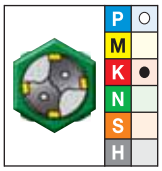


TDS402A • WP20PD	TDS412A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS402A13400	TDS412A13400	13,400	.5276	–	–	124	60	2,3	45	14
TDS402A13500	TDS412A13500	13,500	.5315	–	–	124	60	2,3	45	14
TDS402A13600	TDS412A13600	13,600	.5354	–	–	124	60	2,3	45	14
TDS402A13700	TDS412A13700	13,700	.5394	–	–	124	60	2,4	45	14
TDS402A13800	TDS412A13800	13,800	.5433	–	–	124	60	2,4	45	14
TDS402A13891	TDS412A13891	13,891	.5469	35/64	–	124	60	2,4	45	14
TDS402A13900	TDS412A13900	13,900	.5472	–	–	124	60	2,4	45	14
TDS402A14000	TDS412A14000	14,000	.5512	–	–	124	60	2,4	45	14
TDS402A14100	TDS412A14100	14,100	.5551	–	–	133	63	2,4	48	16
TDS402A14200	TDS412A14200	14,200	.5591	–	–	133	63	2,5	48	16
TDS402A14288	TDS412A14288	14,288	.5625	9/16	–	133	63	2,5	48	16
TDS402A14300	TDS412A14300	14,300	.5630	–	–	133	63	2,5	48	16
TDS402A14400	TDS412A14400	14,400	.5669	–	–	133	63	2,5	48	16
TDS402A14500	TDS412A14500	14,500	.5709	–	–	133	63	2,5	48	16
TDS402A14600	TDS412A14600	14,600	.5748	–	–	133	63	2,5	48	16
TDS402A14684	TDS412A14684	14,684	.5781	37/64	–	133	63	2,5	48	16
TDS402A14700	TDS412A14700	14,700	.5787	–	–	133	63	2,5	48	16
TDS402A14800	TDS412A14800	14,800	.5827	–	–	133	63	2,6	48	16
TDS402A14900	TDS412A14900	14,900	.5866	–	–	133	63	2,6	48	16
TDS402A15000	TDS412A15000	15,000	.5906	–	–	133	63	2,6	48	16
TDS402A15083	TDS412A15083	15,083	.5938	19/32	–	133	63	2,6	48	16
TDS402A15100	TDS412A15100	15,100	.5945	–	–	133	63	2,6	48	16
TDS402A15200	TDS412A15200	15,200	.5984	–	–	133	63	2,6	48	16
TDS402A15300	TDS412A15300	15,300	.6024	–	–	133	63	2,6	48	16
TDS402A15400	TDS412A15400	15,400	.6063	–	–	133	63	2,7	48	16
TDS402A15479	TDS412A15479	15,479	.6094	39/64	–	133	63	2,7	48	16
TDS402A15500	TDS412A15500	15,500	.6102	–	–	133	63	2,7	48	16
TDS402A15600	TDS412A15600	15,600	.6142	–	–	133	63	2,7	48	16
TDS402A15700	TDS412A15700	15,700	.6181	–	–	133	63	2,7	48	16
TDS402A15800	TDS412A15800	15,800	.6220	–	–	133	63	2,7	48	16
TDS402A15875	TDS412A15875	15,875	.6250	5/8	–	133	63	2,7	48	16
TDS402A15900	TDS412A15900	15,900	.6260	–	–	133	63	2,8	48	16
TDS402A16000	TDS412A16000	16,000	.6299	–	–	133	63	2,8	48	16
TDS402A16100	TDS412A16100	16,100	.6339	–	–	143	71	2,8	48	18
TDS402A16200	TDS412A16200	16,200	.6378	–	–	143	71	2,8	48	18
TDS402A16271	TDS412A16271	16,271	.6406	41/64	–	143	71	2,8	48	18
TDS402A16300	TDS412A16300	16,300	.6417	–	–	143	71	2,8	48	18
TDS402A16400	TDS412A16400	16,400	.6457	–	–	143	71	2,8	48	18
TDS402A16500	TDS412A16500	16,500	.6496	–	–	143	71	2,9	48	18
TDS402A16600	TDS412A16600	16,600	.6535	–	–	143	71	2,9	48	18
TDS402A16670	TDS412A16670	16,670	.6563	21/32	–	143	71	2,9	48	18
TDS402A16700	TDS412A16700	16,700	.6575	–	–	143	71	2,9	48	18
TDS402A16800	TDS412A16800	16,800	.6614	–	–	143	71	2,9	48	18
TDS402A16900	TDS412A16900	16,900	.6654	–	–	143	71	2,9	48	18
TDS402A17000	TDS412A17000	17,000	.6693	–	–	143	71	2,9	48	18
TDS402A17100	TDS412A17100	17,100	.6732	–	–	143	71	3,0	48	18
TDS402A17200	TDS412A17200	17,200	.6772	–	–	143	71	3,0	48	18
TDS402A17300	TDS412A17300	17,300	.6811	–	–	143	71	3,0	48	18

(continued)

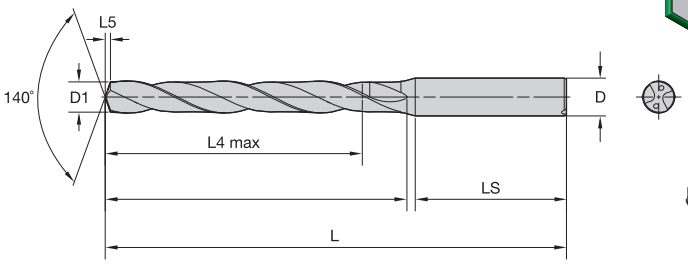
(TDS402A • TDS412A • 5 x D continued)

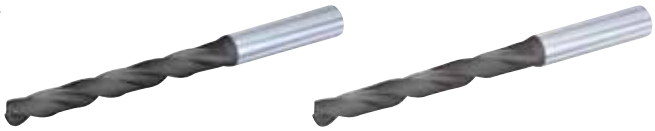




TDS402A • WP20PD	TDS412A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS402A17400	TDS412A17400	17,400	.6850	–	–	143	71	3,0	48	18
TDS402A17463	TDS412A17463	17,463	.6875	11/16	–	143	71	3,0	48	18
TDS402A17500	TDS412A17500	17,500	.6890	–	–	143	71	3,0	48	18
TDS402A17600	TDS412A17600	17,600	.6929	–	–	143	71	3,1	48	18
TDS402A17700	TDS412A17700	17,700	.6969	–	–	143	71	3,1	48	18
TDS402A17800	TDS412A17800	17,800	.7008	–	–	143	71	3,1	48	18
TDS402A17859	TDS412A17859	17,859	.7031	45/64	–	143	71	3,1	48	18
TDS402A17900	TDS412A17900	17,900	.7047	–	–	143	71	3,1	48	18
TDS402A18000	TDS412A18000	18,000	.7087	–	–	143	71	3,1	48	18
TDS402A18100	TDS412A18100	18,100	.7126	–	–	153	77	3,1	50	20
TDS402A18200	TDS412A18200	18,200	.7165	–	–	153	77	3,2	50	20
TDS402A18258	TDS412A18258	18,258	.7188	23/32	–	153	77	3,2	50	20
TDS402A18300	TDS412A18300	18,300	.7205	–	–	153	77	3,2	50	20
TDS402A18400	TDS412A18400	18,400	.7244	–	–	153	77	3,2	50	20
TDS402A18500	TDS412A18500	18,500	.7283	–	–	153	77	3,2	50	20
TDS402A18600	TDS412A18600	18,600	.7323	–	–	153	77	3,2	50	20
TDS402A18654	TDS412A18654	18,654	.7344	47/64	–	153	77	3,2	50	20
TDS402A18700	TDS412A18700	18,700	.7362	–	–	153	77	3,2	50	20
TDS402A18800	TDS412A18800	18,800	.7402	–	–	153	77	3,3	50	20
TDS402A18900	TDS412A18900	18,900	.7441	–	–	153	77	3,3	50	20
TDS402A19000	TDS412A19000	19,000	.7480	–	–	153	77	3,3	50	20
TDS402A19050	TDS412A19050	19,050	.7500	3/4	–	153	77	3,3	50	20
TDS402A19100	TDS412A19100	19,100	.7520	–	–	153	77	3,3	50	20
TDS402A19200	TDS412A19200	19,200	.7559	–	–	153	77	3,3	50	20
TDS402A19300	TDS412A19300	19,300	.7598	–	–	153	77	3,4	50	20
TDS402A19400	TDS412A19400	19,400	.7638	–	–	153	77	3,4	50	20
TDS402A19500	TDS412A19500	19,500	.7677	–	–	153	77	3,4	50	20
TDS402A19600	TDS412A19600	19,600	.7717	–	–	153	77	3,4	50	20
TDS402A19700	TDS412A19700	19,700	.7756	–	–	153	77	3,4	50	20
TDS402A19800	TDS412A19800	19,800	.7795	–	–	153	77	3,4	50	20
TDS402A19900	TDS412A19900	19,900	.7835	–	–	153	77	3,5	50	20
TDS402A20000	TDS412A20000	20,000	.7874	–	–	153	77	3,5	50	20

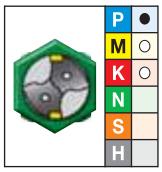
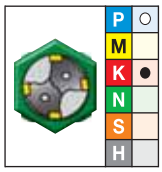
NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.





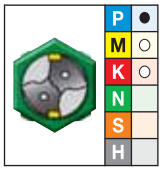
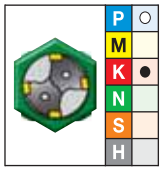
● first choice
○ alternate choice

■ TDS403A • TDS413A • 8 x D

 P ● M ○ K ○ N S H	 P ○ M K ● N S H	D1 diameter								
TDS403A • WP20PD	TDS413A • WK15PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS403A03000	TDS413A03000	3,000	.1181	–	–	78	33	0,5	36	6
TDS403A03048	TDS413A03048	3,048	.1200	–	31	78	33	0,5	36	6
TDS403A03100	TDS413A03100	3,100	.1220	–	–	78	33	0,5	36	6
TDS403A03175	TDS413A03175	3,175	.1250	1/8	–	78	33	0,5	36	6
TDS403A03200	TDS413A03200	3,200	.1260	–	–	78	33	0,5	36	6
TDS403A03264	TDS413A03264	3,264	.1285	–	30	78	33	0,5	36	6
TDS403A03300	TDS413A03300	3,300	.1299	–	–	78	33	0,5	36	6
TDS403A03400	TDS413A03400	3,400	.1339	–	–	78	33	0,6	36	6
TDS403A03455	TDS413A03455	3,455	.1360	–	29	78	33	0,6	36	6
TDS403A03500	TDS413A03500	3,500	.1378	–	–	78	33	0,6	36	6
TDS403A03571	TDS413A03571	3,571	.1406	9/64	–	78	33	0,6	36	6
TDS403A03600	TDS413A03600	3,600	.1417	–	–	78	33	0,6	36	6
TDS403A03658	TDS413A03658	3,658	.1440	–	27	78	33	0,6	36	6
TDS403A03700	TDS413A03700	3,700	.1457	–	–	78	33	0,6	36	6
TDS403A03734	TDS413A03734	3,734	.1470	–	26	78	33	0,6	36	6
TDS403A03800	TDS413A03800	3,800	.1496	–	–	87	41	0,6	36	6
TDS403A03900	TDS413A03900	3,900	.1535	–	–	87	41	0,6	36	6
TDS403A03970	TDS413A03970	3,970	.1563	5/32	–	87	41	0,7	36	6
TDS403A04000	TDS413A04000	4,000	.1575	–	–	87	41	0,7	36	6
TDS403A04039	TDS413A04039	4,039	.1590	–	21	87	41	0,7	36	6
TDS403A04090	TDS413A04090	4,090	.1610	–	20	87	41	0,7	36	6
TDS403A04100	TDS413A04100	4,100	.1614	–	–	87	41	0,7	36	6
TDS403A04200	TDS413A04200	4,200	.1654	–	–	87	41	0,7	36	6
TDS403A04217	TDS413A04217	4,217	.1660	–	19	87	41	0,7	36	6
TDS403A04300	TDS413A04300	4,300	.1693	–	–	87	41	0,7	36	6
TDS403A04366	TDS413A04366	4,366	.1719	11/64	–	87	41	0,7	36	6
TDS403A04400	TDS413A04400	4,400	.1732	–	–	87	41	0,7	36	6
TDS403A04500	TDS413A04500	4,500	.1772	–	–	87	41	0,7	36	6
TDS403A04600	TDS413A04600	4,600	.1811	–	–	87	41	0,8	36	6
TDS403A04623	TDS413A04623	4,623	.1820	–	14	87	41	0,8	36	6
TDS403A04700	TDS413A04700	4,700	.1850	–	13	87	41	0,8	36	6
TDS403A04763	TDS413A04763	4,763	.1875	3/16	–	94	48	0,8	36	6
TDS403A04800	TDS413A04800	4,800	.1890	–	12	94	48	0,8	36	6
TDS403A04852	TDS413A04852	4,852	.1910	–	11	94	48	0,8	36	6
TDS403A04900	TDS413A04900	4,900	.1929	–	–	94	48	0,8	36	6
TDS403A05000	TDS413A05000	5,000	.1969	–	–	94	48	0,8	36	6
TDS403A05100	TDS413A05100	5,100	.2008	–	–	94	48	0,8	36	6
TDS403A05106	TDS413A05106	5,106	.2010	–	7	94	48	0,8	36	6
TDS403A05159	TDS413A05159	5,159	.2031	13/64	–	94	48	0,9	36	6
TDS403A05200	TDS413A05200	5,200	.2047	–	–	94	48	0,9	36	6

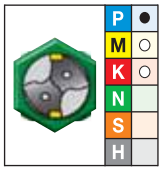
(continued)

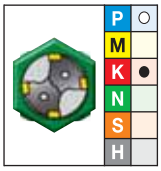
(TDS403A • TDS413A • 8 x D continued)

		D1 diameter								
TDS403A • WP20PD	TDS413A • WK15PD	mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS403A05300	TDS413A05300	5,300	.2087	—	—	94	48	0,9	36	6
TDS403A05400	TDS413A05400	5,400	.2126	—	—	94	48	0,9	36	6
TDS403A05410	TDS413A05410	5,410	.2130	—	3	94	48	0,9	36	6
TDS403A05500	TDS413A05500	5,500	.2165	—	—	94	48	0,9	36	6
TDS403A05558	TDS413A05558	5,558	.2188	7/32	—	94	48	0,9	36	6
TDS403A05600	TDS413A05600	5,600	.2205	—	—	94	48	0,9	36	6
TDS403A05616	TDS413A05616	5,616	.2211	—	2	94	48	0,9	36	6
TDS403A05700	TDS413A05700	5,700	.2244	—	—	94	48	1,0	36	6
TDS403A05800	TDS413A05800	5,800	.2283	—	—	94	48	1,0	36	6
TDS403A05900	TDS413A05900	5,900	.2323	—	—	94	48	1,0	36	6
TDS403A05954	TDS413A05954	5,954	.2344	15/64	—	94	48	1,0	36	6
TDS403A06000	TDS413A06000	6,000	.2362	—	—	94	48	1,0	36	6
TDS403A06100	TDS413A06100	6,100	.2402	—	—	105	57	1,0	36	8
TDS403A06200	TDS413A06200	6,200	.2441	—	—	105	57	1,0	36	8
TDS403A06300	TDS413A06300	6,300	.2480	—	—	105	57	1,1	36	8
TDS403A06350	TDS413A06350	6,350	.2500	1/4	E	105	57	1,1	36	8
TDS403A06400	TDS413A06400	6,400	.2520	—	—	105	57	1,1	36	8
TDS403A06500	TDS413A06500	6,500	.2559	—	—	105	57	1,1	36	8
TDS403A06528	TDS413A06528	6,528	.2570	—	F	105	57	1,1	36	8
TDS403A06600	TDS413A06600	6,600	.2598	—	—	105	57	1,1	36	8
TDS403A06630	TDS413A06630	6,630	.2610	—	G	105	57	1,1	36	8
TDS403A06700	TDS413A06700	6,700	.2638	—	—	105	57	1,1	36	8
TDS403A06746	TDS413A06746	6,746	.2656	17/64	—	105	57	1,1	36	8
TDS403A06800	TDS413A06800	6,800	.2677	—	—	105	57	1,1	36	8
TDS403A06900	TDS413A06900	6,900	.2717	—	—	105	57	1,2	36	8
TDS403A07000	TDS413A07000	7,000	.2756	—	—	105	57	1,2	36	8
TDS403A07100	TDS413A07100	7,100	.2795	—	—	110	61	1,2	36	8
TDS403A07145	TDS413A07145	7,145	.2813	9/32	—	110	61	1,2	36	8
TDS403A07200	TDS413A07200	7,200	.2835	—	—	110	61	1,2	36	8
TDS403A07300	TDS413A07300	7,300	.2874	—	—	110	61	1,2	36	8
TDS403A07400	TDS413A07400	7,400	.2913	—	—	110	61	1,3	36	8
TDS403A07500	TDS413A07500	7,500	.2953	—	—	110	61	1,3	36	8
TDS403A07541	TDS413A07541	7,541	.2969	19/64	—	110	61	1,3	36	8
TDS403A07600	TDS413A07600	7,600	.2992	—	—	110	61	1,3	36	8
TDS403A07700	TDS413A07700	7,700	.3031	—	—	110	61	1,3	36	8
TDS403A07800	TDS413A07800	7,800	.3071	—	—	110	61	1,3	36	8
TDS403A07900	TDS413A07900	7,900	.3110	—	—	110	61	1,3	36	8
TDS403A07938	TDS413A07938	7,938	.3125	5/16	—	110	61	1,3	36	8
TDS403A08000	TDS413A08000	8,000	.3150	—	—	110	61	1,4	36	8
TDS403A08100	TDS413A08100	8,100	.3189	—	—	122	68	1,4	40	10
TDS403A08200	TDS413A08200	8,200	.3228	—	—	122	68	1,4	40	10
TDS403A08300	TDS413A08300	8,300	.3268	—	—	122	68	1,4	40	10
TDS403A08334	TDS413A08334	8,334	.3281	21/64	—	122	68	1,4	40	10
TDS403A08400	TDS413A08400	8,400	.3307	—	—	122	68	1,4	40	10
TDS403A08433	TDS413A08433	8,433	.3320	—	Q	122	68	1,4	40	10
TDS403A08500	TDS413A08500	8,500	.3346	—	—	122	68	1,4	40	10
TDS403A08600	TDS413A08600	8,600	.3386	—	—	122	68	1,5	40	10
TDS403A08700	TDS413A08700	8,700	.3425	—	—	122	68	1,5	40	10
TDS403A08733	TDS413A08733	8,733	.3438	11/32	—	122	68	1,5	40	10
TDS403A08800	TDS413A08800	8,800	.3465	—	—	122	68	1,5	40	10
TDS403A08900	TDS413A08900	8,900	.3504	—	—	122	68	1,5	40	10
TDS403A09000	TDS413A09000	9,000	.3543	—	—	122	68	1,5	40	10

(continued)

(TDS403A • TDS413A • 8 x D continued)

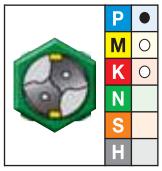


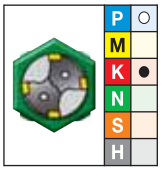


TDS403A • WP20PD	TDS413A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS403A09100	TDS413A09100	9,100	.3583	–	–	122	68	1,5	40	10
TDS403A09129	TDS413A09129	9,129	.3594	23/64	–	122	68	1,6	40	10
TDS403A09200	TDS413A09200	9,200	.3622	–	–	122	68	1,6	40	10
TDS403A09300	TDS413A09300	9,300	.3661	–	–	122	68	1,6	40	10
TDS403A09347	TDS413A09347	9,347	.3680	–	U	122	68	1,6	40	10
TDS403A09400	TDS413A09400	9,400	.3701	–	–	122	68	1,6	40	10
TDS403A09500	TDS413A09500	9,500	.3740	–	–	122	68	1,6	40	10
TDS403A09525	TDS413A09525	9,525	.3750	3/8	–	122	68	1,6	40	10
TDS403A09600	TDS413A09600	9,600	.3780	–	–	122	68	1,6	40	10
TDS403A09700	TDS413A09700	9,700	.3819	–	–	122	68	1,7	40	10
TDS403A09800	TDS413A09800	9,800	.3858	–	–	122	68	1,7	40	10
TDS403A09900	TDS413A09900	9,900	.3898	–	–	122	68	1,7	40	10
TDS403A09921	TDS413A09921	9,921	.3906	25/64	–	122	68	1,7	40	10
TDS403A10000	TDS413A10000	10,000	.3937	–	–	122	68	1,7	40	10
TDS403A10100	TDS413A10100	10,100	.3976	–	–	141	79	1,7	45	12
TDS403A10200	TDS413A10200	10,200	.4016	–	–	141	79	1,7	45	12
TDS403A10300	TDS413A10300	10,300	.4055	–	–	141	79	1,8	45	12
TDS403A10320	TDS413A10320	10,320	.4063	13/32	–	141	79	1,8	45	12
TDS403A10400	TDS413A10400	10,400	.4094	–	–	141	79	1,8	45	12
TDS403A10500	TDS413A10500	10,500	.4134	–	–	141	79	1,8	45	12
TDS403A10600	TDS413A10600	10,600	.4173	–	–	141	79	1,8	45	12
TDS403A10700	TDS413A10700	10,700	.4213	–	–	141	79	1,8	45	12
TDS403A10716	TDS413A10716	10,716	.4219	27/64	–	141	79	1,8	45	12
TDS403A10800	TDS413A10800	10,800	.4252	–	–	141	79	1,8	45	12
TDS403A10900	TDS413A10900	10,900	.4291	–	–	141	79	1,9	45	12
TDS403A11000	TDS413A11000	11,000	.4331	–	–	141	79	1,9	45	12
TDS403A11100	TDS413A11100	11,100	.4370	–	–	141	79	1,9	45	12
TDS403A11113	TDS413A11113	11,113	.4375	7/16	–	141	79	1,9	45	12
TDS403A11200	TDS413A11200	11,200	.4409	–	–	141	79	1,9	45	12
TDS403A11300	TDS413A11300	11,300	.4449	–	–	141	79	1,9	45	12
TDS403A11400	TDS413A11400	11,400	.4488	–	–	141	79	2,0	45	12
TDS403A11500	TDS413A11500	11,500	.4528	–	–	141	79	2,0	45	12
TDS403A11509	TDS413A11509	11,509	.4531	29/64	–	141	79	2,0	45	12
TDS403A11600	TDS413A11600	11,600	.4567	–	–	141	79	2,0	45	12
TDS403A11700	TDS413A11700	11,700	.4606	–	–	141	79	2,0	45	12
TDS403A11800	TDS413A11800	11,800	.4646	–	–	141	79	2,0	45	12
TDS403A11900	TDS413A11900	11,900	.4685	–	–	141	79	2,0	45	12
TDS403A11908	TDS413A11908	11,908	.4688	15/32	–	141	79	2,0	45	12
TDS403A12000	TDS413A12000	12,000	.4724	–	–	141	79	2,1	45	12
TDS403A12100	TDS413A12100	12,100	.4764	–	–	155	91	2,1	45	14
TDS403A12200	TDS413A12200	12,200	.4803	–	–	155	91	2,1	45	14
TDS403A12300	TDS413A12300	12,300	.4843	–	–	155	91	2,1	45	14
TDS403A12304	TDS413A12304	12,304	.4844	31/64	–	155	91	2,1	45	14
TDS403A12400	TDS413A12400	12,400	.4882	–	–	155	91	2,1	45	14
TDS403A12500	TDS413A12500	12,500	.4921	–	–	155	91	2,1	45	14
TDS403A12600	TDS413A12600	12,600	.4961	–	–	155	91	2,2	45	14
TDS403A12700	TDS413A12700	12,700	.5000	1/2	–	155	91	2,2	45	14
TDS403A12800	TDS413A12800	12,800	.5039	–	–	155	91	2,2	45	14
TDS403A12900	TDS413A12900	12,900	.5079	–	–	155	91	2,2	45	14
TDS403A13000	TDS413A13000	13,000	.5118	–	–	155	91	2,2	45	14
TDS403A13096	TDS413A13096	13,096	.5156	33/64	–	155	91	2,3	45	14

(continued)

(TDS403A • TDS413A • 8 x D continued)

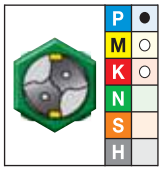


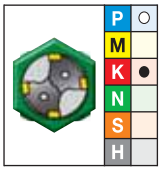


TDS403A • WP20PD	TDS413A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS403A13100	TDS413A13100	13,100	.5157	–	–	155	91	2,3	45	14
TDS403A13200	TDS413A13200	13,200	.5197	–	–	155	91	2,3	45	14
TDS403A13300	TDS413A13300	13,300	.5236	–	–	155	91	2,3	45	14
TDS403A13400	TDS413A13400	13,400	.5276	–	–	155	91	2,3	45	14
TDS403A13500	TDS413A13500	13,500	.5315	–	–	155	91	2,3	45	14
TDS403A13600	TDS413A13600	13,600	.5354	–	–	155	91	2,3	45	14
TDS403A13700	TDS413A13700	13,700	.5394	–	–	155	91	2,4	45	14
TDS403A13800	TDS413A13800	13,800	.5433	–	–	155	91	2,4	45	14
TDS403A13891	TDS413A13891	13,891	.5469	35/64	–	155	91	2,4	45	14
TDS403A13900	TDS413A13900	13,900	.5472	–	–	155	91	2,4	45	14
TDS403A14000	TDS413A14000	14,000	.5512	–	–	155	91	2,4	45	14
TDS403A14100	TDS413A14100	14,100	.5551	–	–	171	101	2,4	48	16
TDS403A14200	TDS413A14200	14,200	.5591	–	–	171	101	2,5	48	16
TDS403A14288	TDS413A14288	14,288	.5625	9/16	–	171	101	2,5	48	16
TDS403A14300	TDS413A14300	14,300	.5630	–	–	171	101	2,5	48	16
TDS403A14400	TDS413A14400	14,400	.5669	–	–	171	101	2,5	48	16
TDS403A14500	TDS413A14500	14,500	.5709	–	–	171	101	2,5	48	16
TDS403A14600	TDS413A14600	14,600	.5748	–	–	171	101	2,5	48	16
TDS403A14684	TDS413A14684	14,684	.5781	37/64	–	171	101	2,5	48	16
TDS403A14700	TDS413A14700	14,700	.5787	–	–	171	101	2,5	48	16
TDS403A14800	TDS413A14800	14,800	.5827	–	–	171	101	2,6	48	16
TDS403A14900	TDS413A14900	14,900	.5866	–	–	171	101	2,6	48	16
TDS403A15000	TDS413A15000	15,000	.5906	–	–	171	101	2,6	48	16
TDS403A15083	TDS413A15083	15,083	.5938	19/32	–	171	101	2,6	48	16
TDS403A15100	TDS413A15100	15,100	.5945	–	–	171	101	2,6	48	16
TDS403A15200	TDS413A15200	15,200	.5984	–	–	171	101	2,6	48	16
TDS403A15300	TDS413A15300	15,300	.6024	–	–	171	101	2,6	48	16
TDS403A15400	TDS413A15400	15,400	.6063	–	–	171	101	2,7	48	16
TDS403A15479	TDS413A15479	15,479	.6094	39/64	–	171	101	2,7	48	16
TDS403A15500	TDS413A15500	15,500	.6102	–	–	171	101	2,7	48	16
TDS403A15600	TDS413A15600	15,600	.6142	–	–	171	101	2,7	48	16
TDS403A15700	TDS413A15700	15,700	.6181	–	–	171	101	2,7	48	16
TDS403A15800	TDS413A15800	15,800	.6220	–	–	171	101	2,7	48	16
TDS403A15875	TDS413A15875	15,875	.6250	5/8	–	171	101	2,7	48	16
TDS403A15900	TDS413A15900	15,900	.6260	–	–	171	101	2,8	48	16
TDS403A16000	TDS413A16000	16,000	.6299	–	–	171	101	2,8	48	16
TDS403A16100	TDS413A16100	16,100	.6339	–	–	185	113	2,8	48	18
TDS403A16200	TDS413A16200	16,200	.6378	–	–	185	113	2,8	48	18
TDS403A16271	TDS413A16271	16,271	.6406	41/64	–	185	113	2,8	48	18
TDS403A16300	TDS413A16300	16,300	.6417	–	–	185	113	2,8	48	18
TDS403A16400	TDS413A16400	16,400	.6457	–	–	185	113	2,8	48	18
TDS403A16500	TDS413A16500	16,500	.6496	–	–	185	113	2,9	48	18
TDS403A16600	TDS413A16600	16,600	.6535	–	–	185	113	2,9	48	18
TDS403A16670	TDS413A16670	16,670	.6563	21/32	–	185	113	2,9	48	18
TDS403A16700	TDS413A16700	16,700	.6575	–	–	185	113	2,9	48	18
TDS403A16800	TDS413A16800	16,800	.6614	–	–	185	113	2,9	48	18
TDS403A16900	TDS413A16900	16,900	.6654	–	–	185	113	2,9	48	18
TDS403A17000	TDS413A17000	17,000	.6693	–	–	185	113	2,9	48	18
TDS403A17100	TDS413A17100	17,100	.6732	–	–	185	113	3,0	48	18
TDS403A17200	TDS413A17200	17,200	.6772	–	–	185	113	3,0	48	18
TDS403A17300	TDS413A17300	17,300	.6811	–	–	185	113	3,0	48	18
TDS403A17400	TDS413A17400	17,400	.6850	–	–	185	113	3,0	48	18

(continued)

(TDS403A • TDS413A • 8 x D continued)





TDS403A • WP20PD	TDS413A • WK15PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS403A17463	TDS413A17463	17,463	.6875	11/16	–	185	113	3,0	48	18
TDS403A17500	TDS413A17500	17,500	.6890	–	–	185	113	3,0	48	18
TDS403A17600	TDS413A17600	17,600	.6929	–	–	185	113	3,1	48	18
TDS403A17700	TDS413A17700	17,700	.6969	–	–	185	113	3,1	48	18
TDS403A17800	TDS413A17800	17,800	.7008	–	–	185	113	3,1	48	18
TDS403A17859	TDS413A17859	17,859	.7031	45/64	–	185	113	3,1	48	18
TDS403A17900	TDS413A17900	17,900	.7047	–	–	185	113	3,1	48	18
TDS403A18000	TDS413A18000	18,000	.7087	–	–	185	113	3,1	48	18
TDS403A18100	TDS413A18100	18,100	.7126	–	–	200	124	3,1	50	20
TDS403A18200	TDS413A18200	18,200	.7165	–	–	200	124	3,2	50	20
TDS403A18258	TDS413A18258	18,258	.7188	23/32	–	200	124	3,2	50	20
TDS403A18300	TDS413A18300	18,300	.7205	–	–	200	124	3,2	50	20
TDS403A18400	TDS413A18400	18,400	.7244	–	–	200	124	3,2	50	20
TDS403A18500	TDS413A18500	18,500	.7283	–	–	200	124	3,2	50	20
TDS403A18600	TDS413A18600	18,600	.7323	–	–	200	124	3,2	50	20
TDS403A18654	TDS413A18654	18,654	.7344	47/64	–	200	124	3,2	50	20
TDS403A18700	TDS413A18700	18,700	.7362	–	–	200	124	3,2	50	20
TDS403A18800	TDS413A18800	18,800	.7402	–	–	200	124	3,3	50	20
TDS403A18900	TDS413A18900	18,900	.7441	–	–	200	124	3,3	50	20
TDS403A19000	TDS413A19000	19,000	.7480	–	–	200	124	3,3	50	20
TDS403A19050	TDS413A19050	19,050	.7500	3/4	–	200	124	3,3	50	20
TDS403A19100	TDS413A19100	19,100	.7520	–	–	200	124	3,3	50	20
TDS403A19200	TDS413A19200	19,200	.7559	–	–	200	124	3,3	50	20
TDS403A19300	TDS413A19300	19,300	.7598	–	–	200	124	3,4	50	20
TDS403A19400	TDS413A19400	19,400	.7638	–	–	200	124	3,4	50	20
TDS403A19500	TDS413A19500	19,500	.7677	–	–	200	124	3,4	50	20
TDS403A19600	TDS413A19600	19,600	.7717	–	–	200	124	3,4	50	20
TDS403A19700	TDS413A19700	19,700	.7756	–	–	200	124	3,4	50	20
TDS403A19800	TDS413A19800	19,800	.7795	–	–	200	124	3,4	50	20
TDS403A19900	TDS413A19900	19,900	.7835	–	–	200	124	3,5	50	20
TDS403A20000	TDS413A20000	20,000	.7874	–	–	200	124	3,5	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.

Tolerance

Nominal Size Range	D1 Tolerance	D Tolerance h6
1–3	0,000/-0,014 (h8)	0,000/-0,006
>3–6	0,000/-0,012 (h7)	0,000/-0,008
>6–10	0,000/-0,015 (h7)	0,000/-0,009
>10–18	0,000/-0,018 (h7)	0,000/-0,011
>18–20	0,000/-0,021 (h7)	0,000/-0,013

TOP DRILL S • TDS202 Series • WP20PD • Flood Coolant

	Group	Cutting Speed — vc Range — m/min min	max	Tool Diameter	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
					Recommended Feed Rate (fz)							
P	1	70	140	mm/r	0,08 - 0,15	0,10 - 0,18	0,12 - 0,25	0,15 - 0,30	0,15 - 0,34	0,20 - 0,38	0,23 - 0,45	0,28 - 0,55
P	2, 3, 4, 6, 7	70	140	mm/r	0,08 - 0,16	0,10 - 0,19	0,12 - 0,25	0,15 - 0,30	0,19 - 0,34	0,22 - 0,38	0,28 - 0,48	0,34 - 0,60
P	5, 9, 10, 11	60	120	mm/r	0,08 - 0,16	0,10 - 0,19	0,12 - 0,25	0,14 - 0,30	0,17 - 0,33	0,20 - 0,38	0,24 - 0,48	0,29 - 0,60
P	12, 13.1, 13.2	40	60	mm/r	0,06 - 0,10	0,08 - 0,12	0,10 - 0,20	0,10 - 0,22	0,13 - 0,24	0,14 - 0,27	0,18 - 0,32	0,24 - 0,42
M	14.1	30	50	mm/r	0,05 - 0,09	0,06 - 0,11	0,08 - 0,13	0,09 - 0,15	0,10 - 0,17	0,12 - 0,20	0,14 - 0,22	0,16 - 0,25
M	14.3	40	60	mm/r	0,05 - 0,10	0,07 - 0,12	0,09 - 0,13	0,10 - 0,18	0,10 - 0,20	0,12 - 0,22	0,14 - 0,25	0,16 - 0,28
M	14.2, 14.4	30	50	mm/r	0,05 - 0,09	0,07 - 0,11	0,08 - 0,12	0,09 - 0,15	0,10 - 0,17	0,12 - 0,19	0,14 - 0,21	0,16 - 0,25

TOP DRILL S • TDS401/TDS402/TDS403 Series • WP20PD • Through Coolant

	Group	Cutting Speed — vc Range — m/min min	max	Tool Diameter	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
					Recommended Feed Rate (fz)							
P	1	80	180	mm/r	0,08 - 0,16	0,11 - 0,19	0,13 - 0,26	0,16 - 0,32	0,16 - 0,36	0,21 - 0,40	0,24 - 0,47	0,29 - 0,58
P	2, 3, 4, 6, 7	80	160	mm/r	0,09 - 0,17	0,11 - 0,20	0,13 - 0,26	0,16 - 0,32	0,20 - 0,36	0,23 - 0,40	0,29 - 0,50	0,36 - 0,63
P	5, 9, 10, 11	80	140	mm/r	0,08 - 0,17	0,11 - 0,20	0,12 - 0,26	0,15 - 0,32	0,18 - 0,35	0,21 - 0,40	0,25 - 0,50	0,30 - 0,63
P	12, 13.1, 13.2	50	80	mm/r	0,06 - 0,11	0,08 - 0,13	0,11 - 0,21	0,10 - 0,23	0,13 - 0,25	0,14 - 0,28	0,29 - 0,33	0,25 - 0,44
M	14.1	40	60	mm/r	0,05 - 0,09	0,06 - 0,12	0,08 - 0,14	0,09 - 0,16	0,11 - 0,18	0,13 - 0,21	0,15 - 0,23	0,17 - 0,26
M	14.3	40	70	mm/r	0,05 - 0,11	0,07 - 0,13	0,09 - 0,14	0,11 - 0,19	0,11 - 0,21	0,13 - 0,23	0,15 - 0,26	0,17 - 0,29
M	14.2, 14.4	35	50	mm/r	0,05 - 0,09	0,07 - 0,12	0,08 - 0,13	0,09 - 0,16	0,11 - 0,18	0,13 - 0,20	0,15 - 0,22	0,17 - 0,26

TOP DRILL S • TDS212 Series • WK15PD • Flood Coolant

	Group	Cutting Speed — vc Range — m/min min	max	Tool Diameter	1,0	2,0	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
					Recommended Feed Rate (fz)									
K	15,16	70	170	mm/r	0,11 - 0,22	0,12 - 0,24	0,16 - 0,31	0,20 - 0,38	0,23 - 0,44	0,25 - 0,49	0,31 - 0,60	0,38 - 0,74	0,31 - 0,60	0,38 - 0,74
K	17, 18, 19	80	140	mm/r	0,12 - 0,16	0,13 - 0,19	0,16 - 0,25	0,20 - 0,31	0,23 - 0,36	0,25 - 0,40	0,31 - 0,48	0,38 - 0,60	0,31 - 0,48	0,38 - 0,60
K	20	70	130	mm/r	0,08 - 0,17	0,09 - 0,19	0,12 - 0,25	0,14 - 0,30	0,17 - 0,35	0,19 - 0,40	0,24 - 0,48	0,30 - 0,60	0,24 - 0,48	0,30 - 0,60

TOP DRILL S • TDS411/TDS412/TDS413 Series • WK15PD • Through Coolant

	Group	Cutting Speed — vc Range — m/min min	max	Tool Diameter	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
					Recommended Feed Rate (fz)							
K	15,16	80	190	mm/r	0,11 - 0,22	0,12 - 0,24	0,16 - 0,31	0,20 - 0,38	0,23 - 0,44	0,25 - 0,49	0,31 - 0,60	0,38 - 0,74
K	17, 18, 19	90	170	mm/r	0,12 - 0,16	0,13 - 0,19	0,16 - 0,25	0,20 - 0,31	0,23 - 0,36	0,25 - 0,40	0,31 - 0,48	0,38 - 0,60
K	20	80	150	mm/r	0,08 - 0,17	0,09 - 0,19	0,12 - 0,25	0,14 - 0,30	0,17 - 0,35	0,19 - 0,40	0,24 - 0,48	0,30 - 0,60

WIN WITH WIDIA™

WIDIA TOP DRILL S+™ Solid Carbide Drills

Series 170500 3 x D Non-Coolant | Series 170501 3 x D Through Coolant |
Series 170502 5 x D Through Coolant | Series 170503 8 x D Through Coolant

Serving a wide variety of applications, the versatile, reliable TOP DRILL S+ offers the highest speed and feed rates in the industry.

- The universal application profile makes the drill ideal for small- and medium-sized shops.
- One tool for a variety of applications reduces tool change times and the number of drills on the shelves of the customer.
- PVD coating increases tool life and wear resistance.
- Solid carbide drill technology for superior strength and performance.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

WIDIA™

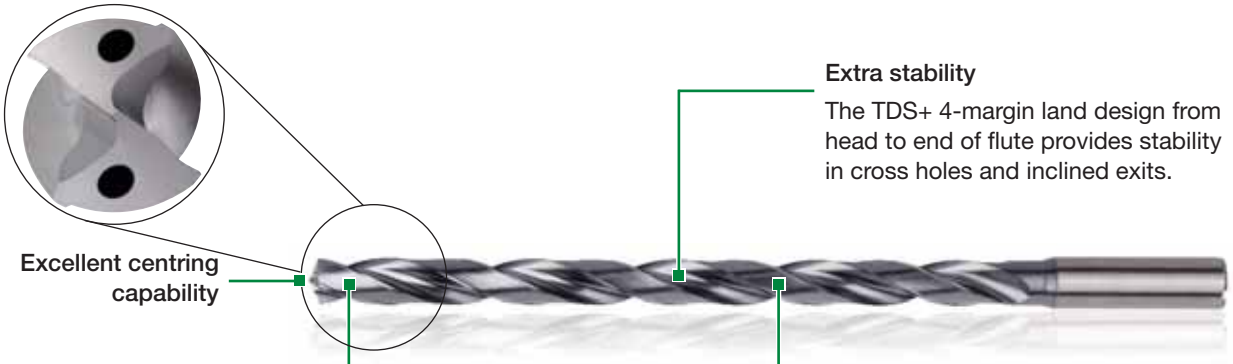
Superior Deep Hole Drilling • WIDIA™ TOP DRILL S+™ 12 x D

The versatile TOP DRILL S+ provides reliable performance across a broad scope of applications, including alloyed and unalloyed steel, cast iron, and some stainless steels and high-temperature alloys. TDS+ is now available in 12 x D, adding to its already wide range of options from 3–8 x D.

TDS+ 12 x D is capable of drilling an array of materials. The 4-margin land configuration offers stability, minimises chipping and jamming, and promotes chip evacuation. Because TDS+ 12 x D does not require a pilot drill, it increases efficiency by reducing the number of steps required for basic applications.

TOP DRILL S+™ 12 x D

- 12 x D fits the gap between 8 x D and 15 x D.
- One drill that covers all materials.
- Can be used without a pilot.



Extra stability

The TDS+ 4-margin land design from head to end of flute provides stability in cross holes and inclined exits.

Excellent centring capability

Minimised chip jamming

Special gash and flute form for effective chip formation across a variety of materials.

Easy chip evacuation

The TDS+ utilises the same technology developed for WIDIA-Rübig™ deep hole drills. The polished surface enables effective chip evacuation from deep holes.

Improved Productivity

- Excellent centring capability — the new TDS+ 12 x D point is engineered to provide excellent centring capability.
- No pilot drill required — save time and money by reducing the number of steps required for your 12 x D application.

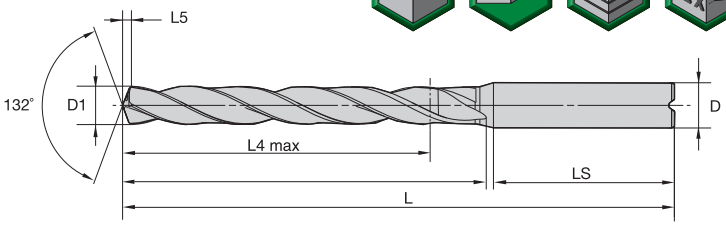
Increased Tool Life

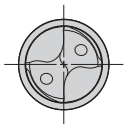
- Minimised runout — cylindrical body design provides guidance, and precision h6 shank is standard for better runout and less breakage.
- New WU20PD™ Grade — designed specifically for long tool life.
- Factory regrind service — available through your WIDIA™ reconditioning service.

WIDIA Advantage

- Lower cost per hole due to high MRR and long tool life.
- Consistent performance from internally controlled supply chain:

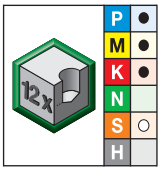
  Powder > Rod > Grinding > Coating
- Part of the complete WIDIA holemaking solution.
- Get more predictable results from local regrind services using OEM standards to recondition, ensuring value throughout the entire life of the drill.
- Broad range of standard lengths, diameters, and coolant options in one line. Includes extensive intermediate metric, inch, fraction, and wire size, including tap drill sizes.





TDS504A • 12 x D

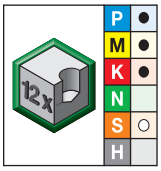
● first choice
○ alternate choice



TDS504A • WU20PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS504A03000	3,000	.1181	–	–	93	44	0,6	36	6
TDS504A03175	3,175	.1250	1/8	–	93	44	0,7	36	6
TDS504A03264	3,264	.1285	–	30	93	44	0,7	36	6
TDS504A03455	3,455	.1360	–	29	93	44	0,7	36	6
TDS504A03500	3,500	.1378	–	–	93	44	0,7	36	6
TDS504A03734	3,734	.1470	–	26	93	45	0,8	36	6
TDS504A03970	3,970	.1563	5/32	–	107	56	0,8	36	6
TDS504A04000	4,000	.1575	–	–	107	56	0,8	36	6
TDS504A04500	4,500	.1772	–	–	107	56	0,9	36	6
TDS504A04600	4,600	.1811	–	–	107	57	1,0	36	6
TDS504A04763	4,763	.1875	3/16	–	125	69	1,0	36	6
TDS504A04800	4,800	.1890	–	12	125	69	1,0	36	6
TDS504A05000	5,000	.1969	–	–	125	70	1,1	36	6
TDS504A05100	5,100	.2008	–	–	125	70	1,1	36	6
TDS504A05200	5,200	.2047	–	–	125	70	1,1	36	6
TDS504A05300	5,300	.2087	–	–	125	71	1,1	36	6
TDS504A05410	5,410	.2130	–	3	125	71	1,1	36	6
TDS504A05500	5,500	.2165	–	–	125	71	1,2	36	6
TDS504A05558	5,558	.2188	7/32	–	125	71	1,2	36	6
TDS504A05600	5,600	.2205	–	–	125	72	1,2	36	6
TDS504A05700	5,700	.2244	–	–	125	72	1,2	36	6
TDS504A05800	5,800	.2283	–	–	125	71	1,2	36	6
TDS504A06000	6,000	.2362	–	–	125	72	1,3	36	6
TDS504A06200	6,200	.2441	–	–	139	82	1,3	36	8
TDS504A06350	6,350	.2500	1/4	E	139	83	1,3	36	8
TDS504A06500	6,500	.2559	–	–	139	83	1,4	36	8
TDS504A06528	6,528	.2570	–	F	139	83	1,4	36	8
TDS504A06600	6,600	.2598	–	–	139	84	1,4	36	8
TDS504A06746	6,746	.2656	17/64	–	139	83	1,4	36	8
TDS504A06800	6,800	.2677	–	–	139	83	1,4	36	8
TDS504A06909	6,909	.2720	–	I	139	84	1,5	36	8
TDS504A07000	7,000	.2756	–	–	139	84	1,5	36	8
TDS504A07145	7,145	.2813	9/32	–	153	94	1,5	36	8
TDS504A07500	7,500	.2953	–	–	153	95	1,6	36	8
TDS504A07541	7,541	.2969	19/64	–	153	95	1,6	36	8
TDS504A07700	7,700	.3031	–	–	153	96	1,6	36	8
TDS504A07800	7,800	.3071	–	–	153	95	1,7	36	8
TDS504A07938	7,938	.3125	5/16	–	153	96	1,7	36	8
TDS504A08000	8,000	.3150	–	–	153	96	1,7	36	8
TDS504A08100	8,100	.3189	–	–	185	116	1,7	40	10
TDS504A08334	8,334	.3281	21/64	–	185	117	1,8	40	10
TDS504A08433	8,433	.3320	–	Q	185	117	1,8	40	10

(continued)

(TDS504A • 12 x D continued)



TDS504A • WU20PD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDS504A08500	8,500	.3346	–	–	185	117	1,8	40	10
TDS504A08700	8,700	.3425	–	–	185	118	1,9	40	10
TDS504A08733	8,733	.3438	11/32	–	185	117	1,9	40	10
TDS504A09000	9,000	.3543	–	–	185	118	1,9	40	10
TDS504A09100	9,100	.3583	–	–	185	118	1,9	40	10
TDS504A09129	9,129	.3594	23/64	–	185	118	1,9	40	10
TDS504A09347	9,347	.3680	–	U	185	119	2,0	40	10
TDS504A09500	9,500	.3740	–	–	185	119	2,0	40	10
TDS504A09525	9,525	.3750	3/8	–	185	119	2,0	40	10
TDS504A09921	9,921	.3906	25/64	–	185	120	2,1	40	10
TDS504A10000	10,000	.3937	–	–	185	120	2,1	40	10
TDS504A10200	10,200	.4016	–	–	218	140	2,2	45	12
TDS504A10300	10,300	.4055	–	–	218	141	2,2	45	12
TDS504A10320	10,320	.4063	13/32	–	218	141	2,2	45	12
TDS504A10500	10,500	.4134	–	–	218	141	2,2	45	12
TDS504A10716	10,716	.4219	27/64	–	218	142	2,3	45	12
TDS504A10800	10,800	.4252	–	–	218	141	2,3	45	12
TDS504A11000	11,000	.4331	–	–	218	142	2,4	45	12
TDS504A11113	11,113	.4375	7/16	–	218	142	2,4	45	12
TDS504A11500	11,500	.4528	–	–	218	143	2,5	45	12
TDS504A11800	11,800	.4646	–	–	218	143	2,5	45	12
TDS504A12000	12,000	.4724	–	–	218	144	2,6	45	12
TDS504A12100	12,100	.4764	–	–	246	164	2,6	45	14
TDS504A12304	12,304	.4844	31/64	–	246	165	2,6	45	14
TDS504A12700	12,700	.5000	1/2	–	246	166	2,7	45	14
TDS504A13000	13,000	.5118	–	–	246	166	2,8	45	14
TDS504A13100	13,100	.5157	–	–	246	166	2,8	45	14
TDS504A13500	13,500	.5315	–	–	246	167	2,9	45	14
TDS504A14000	14,000	.5512	–	–	246	168	3,0	45	14
TDS504A14100	14,100	.5551	–	–	277	188	3,0	48	16
TDS504A14288	14,288	.5625	9/16	–	277	188	3,1	48	16
TDS504A14500	14,500	.5709	–	–	277	189	3,1	48	16
TDS504A14684	14,684	.5781	37/64	–	277	190	3,2	48	16
TDS504A15000	15,000	.5906	–	–	277	190	3,2	48	16
TDS504A15500	15,500	.6102	–	–	277	191	3,3	48	16
TDS504A15875	15,875	.6250	5/8	–	277	192	3,4	48	16
TDS504A16000	16,000	.6299	–	–	277	192	3,4	48	16
TDS504A16500	16,500	.6496	–	–	305	213	3,6	48	18
TDS504A17000	17,000	.6693	–	–	305	214	3,7	48	18
TDS504A17463	17,463	.6875	11/16	–	305	215	3,8	48	18
TDS504A17500	17,500	.6890	–	–	305	215	3,8	48	18
TDS504A18000	18,000	.7087	–	–	305	216	3,9	48	18
TDS504A18500	18,500	.7283	–	–	334	237	4,0	50	20
TDS504A19000	19,000	.7480	–	–	334	238	4,1	50	20
TDS504A19050	19,050	.7500	3/4	–	334	239	4,1	50	20
TDS504A19500	19,500	.7677	–	–	334	239	4,2	50	20
TDS504A20000	20,000	.7874	–	–	334	240	4,3	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimeter measurements.

TOP DRILL S+ • TDS504_ Series • WU20PD • Through Coolant • Metric

Group		Cutting Speed – vc Range – m/min min	max	Tool Diameter	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
					Recommended Feed Rate (fz)							
P	1	90	140	mm/r	0,11 - 0,16	0,13 - 0,21	0,16 - 0,02	0,19 - 0,27	0,22 - 0,31	0,24 - 0,38	0,25 - 0,47	0,31 - 0,52
	2, 3, 4, 6, 7	70	110	mm/r	0,11 - 0,16	0,11 - 0,19	0,13 - 0,24	0,21 - 0,30	0,22 - 0,35	0,25 - 0,47	0,31 - 0,59	0,36 - 0,70
	5, 9, 10, 11	70	110	mm/r	0,11 - 0,16	0,13 - 0,21	0,16 - 0,02	0,19 - 0,27	0,27 - 0,31	0,21 - 0,38	0,25 - 0,47	0,31 - 0,52
	12, 13	60	90	mm/r	0,08 - 0,13	0,10 - 0,19	0,13 - 0,19	0,16 - 0,21	0,16 - 0,24	0,19 - 0,31	0,21 - 0,38	0,24 - 0,42
M	14.1	60	50	mm/r	0,11 - 0,16	0,20 - 0,28	0,28 - 0,39	0,35 - 0,39	0,35 - 0,49	0,41 - 0,56	0,50 - 0,70	0,56 - 0,77
	14.3	50	60	mm/r	0,11 - 0,16	0,19 - 0,24	0,27 - 0,36	0,33 - 0,42	0,35 - 0,50	0,42 - 0,56	0,47 - 0,64	0,52 - 0,70
K	15, 16	80	140	mm/r	0,10 - 0,14	0,14 - 0,20	0,21 - 0,30	0,27 - 0,36	0,31 - 0,42	0,33 - 0,47	0,39 - 0,53	0,42 - 0,58
	17, 18, 19	70	120	mm/r	0,03 - 0,07	0,06 - 0,09	0,07 - 0,11	0,09 - 0,15	0,10 - 0,17	0,11 - 0,19	0,14 - 0,24	0,18 - 0,27
	20	70	130	mm/r	0,03 - 0,07	0,06 - 0,13	0,07 - 0,18	0,10 - 0,20	0,12 - 0,21	0,13 - 0,22	0,15 - 0,24	0,18 - 0,27
N	21	100	300	mm/r	0,10 - 0,18	0,12 - 0,20	0,15 - 0,25	0,20 - 0,30	0,25 - 0,35	0,30 - 0,40	0,35 - 0,50	0,40 - 0,60
	22, 23, 24	100	300	mm/r	0,10 - 0,20	0,12 - 0,25	0,15 - 0,30	0,20 - 0,35	0,25 - 0,40	0,30 - 0,45	0,35 - 0,55	0,40 - 0,65
	25	100	300	mm/r	0,15 - 0,18	0,16 - 0,20	0,18 - 0,25	0,20 - 0,30	0,25 - 0,35	0,30 - 0,40	0,35 - 0,50	0,40 - 0,55
	26, 27, 28	100	250	mm/r	0,10 - 0,20	0,12 - 0,25	0,15 - 0,30	0,20 - 0,35	0,25 - 0,40	0,30 - 0,45	0,35 - 0,50	0,40 - 0,60

Tolerance

Nominal Size Range	D1 Tolerance m7	D Tolerance h6
>3–6	0,004/0,016	0,000/-0,008
>6–10	0,006/0,021	0,000/-0,009
>10–18	0,007/0,025	0,000/-0,011
>18–25,4	0,008/0,029	0,000/-0,013

	vintage series	Replacement		vintage series	Replacement		Deep Hole Drilling
bold = standard non-bold = simple special	*WIDIA-Rübig™ **WIDIA-Hanita™ †WIDIA Metal Removal™	WIDIA™ VariDrill™	WIDIA TOP DRILL™ S/S+/G	*WIDIA-Rübig **WIDIA-Hanita	WIDIA VariDrill	WIDIA TOP DRILL S/S+/G	WIDIA WIDIA-Rübig
P — Steel		3 x D - VDS201A 3 x D - VDS201F 5 x D - VDS202A 5 x D - VDS202F	3 x D - 170500 5 x D - TDS202A		3 x D - VDS401A 3 x D - VDS401F 5 x D - VDS402A 5 x D - VDS402F 8 x D - VDS403A 8 x D - VDS403F	3 x D - TDS401A 5 x D - TDS402A 8 x D - TDS403A	12 x D - TDS504A 15 x D - H101* 20 x D - H102* 25 x D - H103* 30 x D - H104*
M — Stainless Steel		3 x D - VDS201A 3 x D - VDS201F 5 x D - VDS202A 5 x D - VDS202F	3 x D - 170500 5 x D - TDS202A	3 x D - 412522 (A)* 3 x D - 412520 (F)* 5 x D - 412527 (A)* 5 x D - 412525 (F)* 8 x D - 412834 (A)* 8 x D - 412833 (F)*	3 x D - VDS401A 3 x D - VDS401F 5 x D - VDS402A 5 x D - VDS402F 8 x D - VDS403A 8 x D - VDS403F	3 x D - TDS401A 5 x D - TDS402A 8 x D - TDS403A	12 x D - TDS504A 15 x D - H101* 20 x D - H102* 25 x D - H103* 30 x D - H104*
K — Cast Iron	Series A 3-flute*	3 x D - VDS201A 3 x D - VDS201F 5 x D - VDS202A 5 x D - VDS202F	3 x D - 170500 5 x D - TDS212A		3 x D - VDS401A 3 x D - VDS401F 5 x D - VDS402A 5 x D - VDS402F 8 x D - VDS403A 8 x D - VDS403F	3 x D - TDS411A 5 x D - TDS412A 8 x D - TDS413A	12 x D - TDS504A 15 x D - H101* 20 x D - H102* 25 x D - H103* 30 x D - H104*
N — Non-Ferrous	3 x D - M159** 5 x D - M169** 3 x D - 517113 *Type WDT** Series A 3-flute†	3 x D - VDS201A 3 x D - VDS201F 5 x D - VDS202A 5 x D - VDS202F		3 x D - M259** 5 x D - M269**	3 x D - VDS401A 3 x D - VDS401F 5 x D - VDS402A 5 x D - VDS402F 8 x D - VDS403A 8 x D - VDS403F	5 x D - TDG531A 8 x D - TDG532A 12 x D - TDG533A	H10 uncoated, sharp
S — Heat-Resistant Alloys, Titanium Alloys		3 x D - VDS201A 3 x D - VDS201F 5 x D - VDS202A 5 x D - VDS202F	3 x D - 170500	3 x D - 412522 (A)* 3 x D - 412520 (F)* 5 x D - 412527 (A)* 5 x D - 412525 (F)* 8 x D - 412834 (A)* 8 x D - 412833 (F)*	3 x D - VDS401A 3 x D - VDS401F 5 x D - VDS402A 5 x D - VDS402F 8 x D - VDS403A 8 x D - VDS403F	3 x D - 170501 5 x D - 170502 8 x D - 170503	12 x D - TDS504A 15 x D - H101* 20 x D - H102* 25 x D - H103* 30 x D - H104*
H — Hard Materials	3 x D - M155**			7 x D - 412518 (A)*			

Difficult Drilling Applications • WIDIA™ TOP DRILL G™

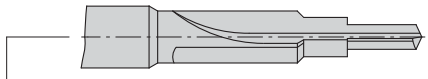
TOP DRILL G is WIDIA's solution for difficult drilling applications. Designed specifically for non-ferrous materials, TDG can be used on challenging applications with tighter hole tolerance, inclined planes, intersecting holes, and cored holes. The design of these drills also makes them appropriate for drilling custom aluminium applications.

TOP DRILL G™

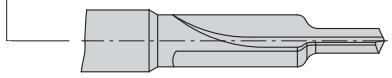
- Next generation of GGX WIDIA-Rübig™ series.
- Targeted for aluminium and non-ferrous materials.
- Can be used in challenging conditions.
- Good for multistep drills.

Eliminate operations

Special designs possible for multistage drilling and tight tolerance capabilities.



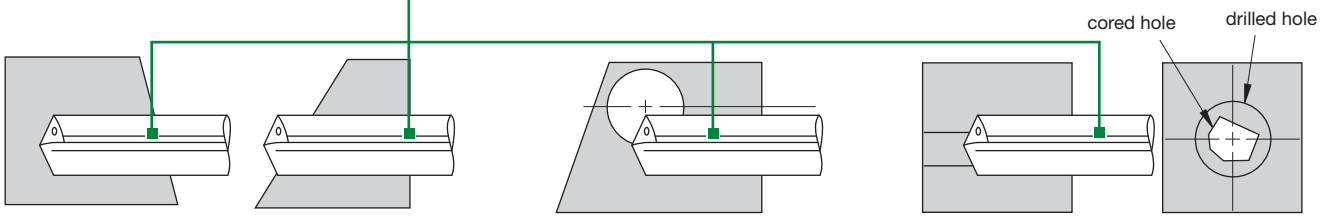
multistage drill (special)



profile drilling tools (special)

Excellent stability

The TDG design enables it to be used for even the toughest non-ferrous drilling applications.



inclined plane

intersecting hole

cored hole

TOP DRILL G Design

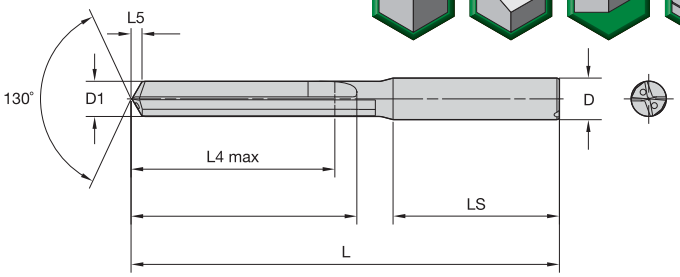
TDG is designed to handle the toughest non-ferrous drilling applications. The WK10HD™ Grade is the latest in application-specific technology. This advanced grade, combined with the TDG's optimal concentricity and safe transmission of torque, give it long tool life and extreme repeatability.

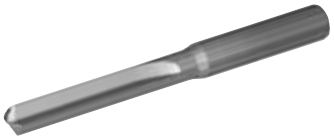
The design of TDG is optimised to evacuate "sticky" chips that result from drilling non-ferrous materials. Easily evacuating these difficult-to-remove chips results in better hole quality due to less heat and friction while drilling.

WIDIA™ Advantage

- Lower cost per hole due to high MRR and long tool life.
- Consistent performance from internally controlled supply chain:

  Powder > Rod > Grinding > Coating
- Part of the complete WIDIA holemaking solution.
- Get more predictable results from a local regrind services using OEM standards to recondition ensuring value throughout the entire life of the drill.
- Broad range of standard lengths, diameters, and coolant options in one line. Includes extensive intermediate metric, inch, fraction, and wire sizes, including tap drill sizes.





● first choice
○ alternate choice

■ TDG532A • 5 x D

TDG532A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG532A03000	3,000	.1181	–	–	66	23	0,7	36	6
TDG532A03048	3,048	.1200	–	31	66	23	0,7	36	6
TDG532A03100	3,100	.1220	–	–	66	23	0,7	36	6
TDG532A03175	3,175	.1250	1/8	–	66	23	0,7	36	6
TDG532A03200	3,200	.1260	–	–	66	23	0,7	36	6
TDG532A03264	3,264	.1285	–	30	66	23	0,8	36	6
TDG532A03300	3,300	.1299	–	–	66	23	0,8	36	6
TDG532A03400	3,400	.1339	–	–	66	23	0,8	36	6
TDG532A03455	3,455	.1360	–	29	66	23	0,8	36	6
TDG532A03500	3,500	.1378	–	–	66	23	0,8	36	6
TDG532A03571	3,571	.1406	9/64	–	66	23	0,8	36	6
TDG532A03600	3,600	.1417	–	–	66	23	0,8	36	6
TDG532A03658	3,658	.1440	–	27	66	23	0,9	36	6
TDG532A03700	3,700	.1457	–	–	66	23	0,9	36	6
TDG532A03734	3,734	.1470	–	26	66	23	0,9	36	6
TDG532A03800	3,800	.1496	–	–	74	29	0,9	36	6
TDG532A03900	3,900	.1535	–	–	74	29	0,9	36	6
TDG532A03970	3,970	.1563	5/32	–	74	29	0,9	36	6
TDG532A04000	4,000	.1575	–	–	74	29	0,9	36	6
TDG532A04039	4,039	.1590	–	21	74	29	0,9	36	6
TDG532A04090	4,090	.1610	–	20	74	29	1,0	36	6
TDG532A04100	4,100	.1614	–	–	74	29	1,0	36	6
TDG532A04200	4,200	.1654	–	–	74	29	1,0	36	6
TDG532A04217	4,217	.1660	–	19	74	29	1,0	36	6
TDG532A04300	4,300	.1693	–	–	74	29	1,0	36	6
TDG532A04366	4,366	.1719	11/64	–	74	29	1,0	36	6
TDG532A04400	4,400	.1732	–	–	74	29	1,0	36	6
TDG532A04500	4,500	.1772	–	–	74	29	1,0	36	6
TDG532A04600	4,600	.1811	–	–	74	29	1,1	36	6
TDG532A04623	4,623	.1820	–	14	74	29	1,1	36	6
TDG532A04700	4,700	.1850	–	13	74	29	1,1	36	6
TDG532A04763	4,763	.1875	3/16	–	82	35	1,1	36	6
TDG532A04800	4,800	.1890	–	12	82	35	1,1	36	6
TDG532A04852	4,852	.1910	–	11	82	35	1,1	36	6
TDG532A04900	4,900	.1929	–	–	82	35	1,1	36	6
TDG532A05000	5,000	.1969	–	–	82	35	1,2	36	6
TDG532A05100	5,100	.2008	–	–	82	35	1,2	36	6
TDG532A05106	5,106	.2010	–	7	82	35	1,2	36	6
TDG532A05159	5,159	.2031	13/64	–	82	35	1,2	36	6
TDG532A05200	5,200	.2047	–	–	82	35	1,2	36	6

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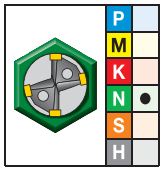
(TDG532A • 5 x D continued)



TDG532A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG532A05300	5,300	.2087	–	–	82	35	1,2	36	6
TDG532A05400	5,400	.2126	–	–	82	35	1,3	36	6
TDG532A05410	5,410	.2130	–	3	82	35	1,3	36	6
TDG532A05500	5,500	.2165	–	–	82	35	1,3	36	6
TDG532A05558	5,558	.2188	7/32	–	82	35	1,3	36	6
TDG532A05600	5,600	.2205	–	–	82	35	1,3	36	6
TDG532A05616	5,616	.2211	–	2	82	35	1,3	36	6
TDG532A05700	5,700	.2244	–	–	82	35	1,3	36	6
TDG532A05800	5,800	.2283	–	–	82	35	1,4	36	6
TDG532A05900	5,900	.2323	–	–	82	35	1,4	36	6
TDG532A05954	5,954	.2344	15/64	–	82	35	1,4	36	6
TDG532A06000	6,000	.2362	–	–	82	35	1,4	36	6
TDG532A06100	6,100	.2402	–	–	91	43	1,4	36	8
TDG532A06200	6,200	.2441	–	–	91	43	1,4	36	8
TDG532A06300	6,300	.2480	–	–	91	43	1,5	36	8
TDG532A06350	6,350	.2500	1/4	E	91	43	1,5	36	8
TDG532A06400	6,400	.2520	–	–	91	43	1,5	36	8
TDG532A06500	6,500	.2559	–	–	91	43	1,5	36	8
TDG532A06528	6,528	.2570	–	F	91	43	1,5	36	8
TDG532A06600	6,600	.2598	–	–	91	43	1,5	36	8
TDG532A06630	6,630	.2610	–	G	91	43	1,5	36	8
TDG532A06700	6,700	.2638	–	–	91	43	1,6	36	8
TDG532A06746	6,746	.2656	17/64	–	91	43	1,6	36	8
TDG532A06800	6,800	.2677	–	–	91	43	1,6	36	8
TDG532A06900	6,900	.2717	–	–	91	43	1,6	36	8
TDG532A07000	7,000	.2756	–	–	91	43	1,6	36	8
TDG532A07100	7,100	.2795	–	–	91	43	1,7	36	8
TDG532A07145	7,145	.2813	9/32	–	91	43	1,7	36	8
TDG532A07200	7,200	.2835	–	–	91	43	1,7	36	8
TDG532A07300	7,300	.2874	–	–	91	43	1,7	36	8
TDG532A07400	7,400	.2913	–	–	91	43	1,7	36	8
TDG532A07500	7,500	.2953	–	–	91	43	1,7	36	8
TDG532A07541	7,541	.2969	19/64	–	91	43	1,8	36	8
TDG532A07600	7,600	.2992	–	–	91	43	1,8	36	8
TDG532A07700	7,700	.3031	–	–	91	43	1,8	36	8
TDG532A07800	7,800	.3071	–	–	91	43	1,8	36	8
TDG532A07900	7,900	.3110	–	–	91	43	1,8	36	8
TDG532A07938	7,938	.3125	5/16	–	91	43	1,9	36	8
TDG532A08000	8,000	.3150	–	–	91	43	1,9	36	8
TDG532A08100	8,100	.3189	–	–	103	49	1,9	40	10
TDG532A08200	8,200	.3228	–	–	103	49	1,9	40	10
TDG532A08300	8,300	.3268	–	–	103	49	1,9	40	10
TDG532A08334	8,334	.3281	21/64	–	103	49	1,9	40	10
TDG532A08400	8,400	.3307	–	–	103	49	2,0	40	10
TDG532A08433	8,433	.3320	–	Q	103	49	2,0	40	10
TDG532A08500	8,500	.3346	–	–	103	49	2,0	40	10
TDG532A08600	8,600	.3386	–	–	103	49	2,0	40	10
TDG532A08700	8,700	.3425	–	–	103	49	2,0	40	10

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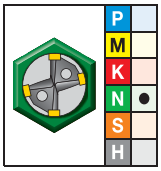
(TDG532A • 5 x D continued)



TDG532A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG532A08733	8,733	.3438	11/32	–	103	49	2,0	40	10
TDG532A08800	8,800	.3465	–	–	103	49	2,1	40	10
TDG532A08900	8,900	.3504	–	–	103	49	2,1	40	10
TDG532A09000	9,000	.3543	–	–	103	49	2,1	40	10
TDG532A09100	9,100	.3583	–	–	103	49	2,1	40	10
TDG532A09129	9,129	.3594	23/64	–	103	49	2,1	40	10
TDG532A09200	9,200	.3622	–	–	103	49	2,1	40	10
TDG532A09300	9,300	.3661	–	–	103	49	2,2	40	10
TDG532A09347	9,347	.3680	–	U	103	49	2,2	40	10
TDG532A09400	9,400	.3701	–	–	103	49	2,2	40	10
TDG532A09500	9,500	.3740	–	–	103	49	2,2	40	10
TDG532A09525	9,525	.3750	3/8	–	103	49	2,2	40	10
TDG532A09600	9,600	.3780	–	–	103	49	2,2	40	10
TDG532A09700	9,700	.3819	–	–	103	49	2,3	40	10
TDG532A09800	9,800	.3858	–	–	103	49	2,3	40	10
TDG532A09900	9,900	.3898	–	–	103	49	2,3	40	10
TDG532A09921	9,921	.3906	25/64	–	103	49	2,3	40	10
TDG532A10000	10,000	.3937	–	–	103	49	2,3	40	10
TDG532A10100	10,100	.3976	–	–	118	56	2,4	45	12
TDG532A10200	10,200	.4016	–	–	118	56	2,4	45	12
TDG532A10300	10,300	.4055	–	–	118	56	2,4	45	12
TDG532A10320	10,320	.4063	13/32	–	118	56	2,4	45	12
TDG532A10400	10,400	.4094	–	–	118	56	2,4	45	12
TDG532A10500	10,500	.4134	–	–	118	56	2,4	45	12
TDG532A10600	10,600	.4173	–	–	118	56	2,5	45	12
TDG532A10700	10,700	.4213	–	–	118	56	2,5	45	12
TDG532A10716	10,716	.4219	27/64	–	118	56	2,5	45	12
TDG532A10800	10,800	.4252	–	–	118	56	2,5	45	12
TDG532A10900	10,900	.4291	–	–	118	56	2,5	45	12
TDG532A11000	11,000	.4331	–	–	118	56	2,6	45	12
TDG532A11100	11,100	.4370	–	–	118	56	2,6	45	12
TDG532A11113	11,113	.4375	7/16	–	118	56	2,6	45	12
TDG532A11200	11,200	.4409	–	–	118	56	2,6	45	12
TDG532A11300	11,300	.4449	–	–	118	56	2,6	45	12
TDG532A11400	11,400	.4488	–	–	118	56	2,7	45	12
TDG532A11500	11,500	.4528	–	–	118	56	2,7	45	12
TDG532A11509	11,509	.4531	29/64	–	118	56	2,7	45	12
TDG532A11600	11,600	.4567	–	–	118	56	2,7	45	12
TDG532A11700	11,700	.4606	–	–	118	56	2,7	45	12
TDG532A11800	11,800	.4646	–	–	118	56	2,8	45	12
TDG532A11900	11,900	.4685	–	–	118	56	2,8	45	12
TDG532A11908	11,908	.4688	15/32	–	118	56	2,8	45	12
TDG532A12000	12,000	.4724	–	–	118	56	2,8	45	12
TDG532A12100	12,100	.4764	–	–	124	60	2,8	45	14
TDG532A12200	12,200	.4803	–	–	124	60	2,8	45	14
TDG532A12300	12,300	.4843	–	–	124	60	2,9	45	14
TDG532A12304	12,304	.4844	31/64	–	124	60	2,9	45	14
TDG532A12400	12,400	.4882	–	–	124	60	2,9	45	14

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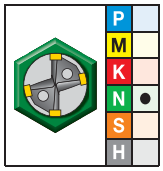
(TDG532A • 5 x D continued)



TDG532A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG532A12500	12,500	.4921	–	–	124	60	2,9	45	14
TDG532A12600	12,600	.4961	–	–	124	60	2,9	45	14
TDG532A12700	12,700	.5000	1/2	–	124	60	3,0	45	14
TDG532A12800	12,800	.5039	–	–	124	60	3,0	45	14
TDG532A12900	12,900	.5079	–	–	124	60	3,0	45	14
TDG532A13000	13,000	.5118	–	–	124	60	3,0	45	14
TDG532A13096	13,096	.5156	33/64	–	124	60	3,1	45	14
TDG532A13100	13,100	.5157	–	–	124	60	3,1	45	14
TDG532A13200	13,200	.5197	–	–	124	60	3,1	45	14
TDG532A13300	13,300	.5236	–	–	124	60	3,1	45	14
TDG532A13400	13,400	.5276	–	–	124	60	3,1	45	14
TDG532A13490	13,490	.5311	–	–	124	60	3,1	45	14
TDG532A13500	13,500	.5315	–	–	124	60	3,1	45	14
TDG532A13600	13,600	.5354	–	–	124	60	3,2	45	14
TDG532A13700	13,700	.5394	–	–	124	60	3,2	45	14
TDG532A13800	13,800	.5433	–	–	124	60	3,2	45	14
TDG532A13891	13,891	.5469	35/64	–	124	60	3,2	45	14
TDG532A13900	13,900	.5472	–	–	124	60	3,2	45	14
TDG532A14000	14,000	.5512	–	–	124	60	3,3	45	14
TDG532A14100	14,100	.5551	–	–	133	63	3,3	48	16
TDG532A14200	14,200	.5591	–	–	133	63	3,3	48	16
TDG532A14288	14,288	.5625	9/16	–	133	63	3,3	48	16
TDG532A14300	14,300	.5630	–	–	133	63	3,3	48	16
TDG532A14400	14,400	.5669	–	–	133	63	3,4	48	16
TDG532A14500	14,500	.5709	–	–	133	63	3,4	48	16
TDG532A14600	14,600	.5748	–	–	133	63	3,4	48	16
TDG532A14684	14,684	.5781	37/64	–	133	63	3,4	48	16
TDG532A14700	14,700	.5787	–	–	133	63	3,4	48	16
TDG532A14800	14,800	.5827	–	–	133	63	3,5	48	16
TDG532A14900	14,900	.5866	–	–	133	63	3,5	48	16
TDG532A15000	15,000	.5906	–	–	133	63	3,5	48	16
TDG532A15083	15,083	.5938	19/32	–	133	63	3,5	48	16
TDG532A15100	15,100	.5945	–	–	133	63	3,5	48	16
TDG532A15200	15,200	.5984	–	–	133	63	3,5	48	16
TDG532A15300	15,300	.6024	–	–	133	63	3,6	48	16
TDG532A15400	15,400	.6063	–	–	133	63	3,6	48	16
TDG532A15479	15,479	.6094	39/64	–	133	63	3,6	48	16
TDG532A15500	15,500	.6102	–	–	133	63	3,6	48	16
TDG532A15600	15,600	.6142	–	–	133	63	3,6	48	16
TDG532A15700	15,700	.6181	–	–	133	63	3,7	48	16
TDG532A15800	15,800	.6220	–	–	133	63	3,7	48	16
TDG532A15875	15,875	.6250	5/8	–	133	63	3,7	48	16
TDG532A15900	15,900	.6260	–	–	133	63	3,7	48	16
TDG532A16000	16,000	.6299	–	–	133	63	3,7	48	16
TDG532A16100	16,100	.6339	–	–	143	71	3,8	48	18
TDG532A16200	16,200	.6378	–	–	143	71	3,8	48	18
TDG532A16271	16,271	.6406	41/64	–	143	71	3,8	48	18
TDG532A16300	16,300	.6417	–	–	143	71	3,8	48	18

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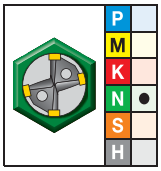
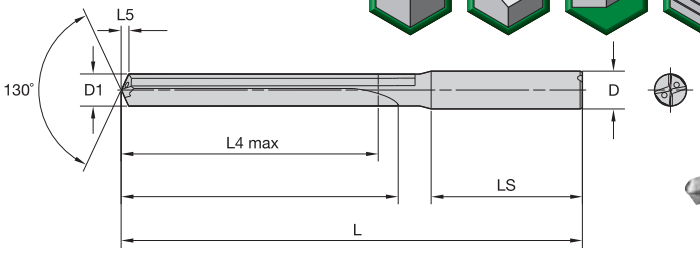
(TDG532A • 5 x D continued)



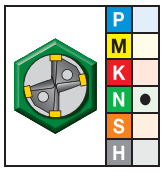
TDG532A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG532A16400	16,400	.6457	–	–	143	71	3,8	48	18
TDG532A16500	16,500	.6496	–	–	143	71	3,8	48	18
TDG532A16600	16,600	.6535	–	–	143	71	3,9	48	18
TDG532A16670	16,670	.6563	21/32	–	143	71	3,9	48	18
TDG532A16700	16,700	.6575	–	–	143	71	3,9	48	18
TDG532A16800	16,800	.6614	–	–	143	71	3,9	48	18
TDG532A16900	16,900	.6654	–	–	143	71	3,9	48	18
TDG532A17000	17,000	.6693	–	–	143	71	4,0	48	18
TDG532A17100	17,100	.6732	–	–	143	71	4,0	48	18
TDG532A17200	17,200	.6772	–	–	143	71	4,0	48	18
TDG532A17300	17,300	.6811	–	–	143	71	4,0	48	18
TDG532A17400	17,400	.6850	–	–	143	71	4,1	48	18
TDG532A17463	17,463	.6875	11/16	–	143	71	4,1	48	18
TDG532A17500	17,500	.6890	–	–	143	71	4,1	48	18
TDG532A17600	17,600	.6929	–	–	143	71	4,1	48	18
TDG532A17700	17,700	.6969	–	–	143	71	4,1	48	18
TDG532A17800	17,800	.7008	–	–	143	71	4,2	48	18
TDG532A17859	17,859	.7031	45/64	–	143	71	4,2	48	18
TDG532A17900	17,900	.7047	–	–	143	71	4,2	48	18
TDG532A18000	18,000	.7087	–	–	143	71	4,2	48	18
TDG532A18100	18,100	.7126	–	–	153	77	4,2	50	20
TDG532A18200	18,200	.7165	–	–	153	77	4,2	50	20
TDG532A18258	18,258	.7188	23/32	–	153	77	4,3	50	20
TDG532A18300	18,300	.7205	–	–	153	77	4,3	50	20
TDG532A18400	18,400	.7244	–	–	153	77	4,3	50	20
TDG532A18500	18,500	.7283	–	–	153	77	4,3	50	20
TDG532A18600	18,600	.7323	–	–	153	77	4,3	50	20
TDG532A18654	18,654	.7344	47/64	–	153	77	4,3	50	20
TDG532A18700	18,700	.7362	–	–	153	77	4,4	50	20
TDG532A18800	18,800	.7402	–	–	153	77	4,4	50	20
TDG532A18900	18,900	.7441	–	–	153	77	4,4	50	20
TDG532A19000	19,000	.7480	–	–	153	77	4,4	50	20
TDG532A19050	19,050	.7500	3/4	–	153	77	4,4	50	20
TDG532A19100	19,100	.7520	–	–	153	77	4,5	50	20
TDG532A19200	19,200	.7559	–	–	153	77	4,5	50	20
TDG532A19300	19,300	.7598	–	–	153	77	4,5	50	20
TDG532A19400	19,400	.7638	–	–	153	77	4,5	50	20
TDG532A19500	19,500	.7677	–	–	153	77	4,5	50	20
TDG532A19600	19,600	.7717	–	–	153	77	4,6	50	20
TDG532A19700	19,700	.7756	–	–	153	77	4,6	50	20
TDG532A19800	19,800	.7795	–	–	153	77	4,6	50	20
TDG532A19900	19,900	.7835	–	–	153	77	4,6	50	20
TDG532A20000	20,000	.7874	–	–	153	77	4,7	50	20
TDG532A21000	21,000	.8268	–	–	167	85	4,9	50	20
TDG532A22000	22,000	.8661	–	–	167	85	5,1	50	20
TDG532A23000	23,000	.9055	–	–	184	98	5,4	56	25

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.



● first choice
○ alternate choice

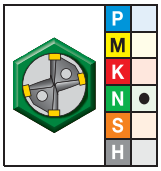
■ TDG533A • 8 x D



TDG533A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG533A03000	3,000	.1181	–	–	78	33	0,7	36	6
TDG533A03048	3,048	.1200	–	31	78	33	0,7	36	6
TDG533A03100	3,100	.1220	–	–	78	33	0,7	36	6
TDG533A03175	3,175	.1250	1/8	–	78	33	0,7	36	6
TDG533A03200	3,200	.1260	–	–	78	33	0,7	36	6
TDG533A03264	3,264	.1285	–	30	78	33	0,8	36	6
TDG533A03300	3,300	.1299	–	–	78	33	0,8	36	6
TDG533A03400	3,400	.1339	–	–	78	33	0,8	36	6
TDG533A03455	3,455	.1360	–	29	78	33	0,8	36	6
TDG533A03500	3,500	.1378	–	–	78	33	0,8	36	6
TDG533A03571	3,571	.1406	9/64	–	78	33	0,8	36	6
TDG533A03600	3,600	.1417	–	–	78	33	0,8	36	6
TDG533A03658	3,658	.1440	–	27	78	33	0,9	36	6
TDG533A03700	3,700	.1457	–	–	78	33	0,9	36	6
TDG533A03734	3,734	.1470	–	26	78	33	0,9	36	6
TDG533A03800	3,800	.1496	–	–	87	41	0,9	36	6
TDG533A03900	3,900	.1535	–	–	87	41	0,9	36	6
TDG533A03970	3,970	.1563	5/32	–	87	41	0,9	36	6
TDG533A04000	4,000	.1575	–	–	87	41	0,9	36	6
TDG533A04039	4,039	.1590	–	21	87	41	0,9	36	6
TDG533A04090	4,090	.1610	–	20	87	41	1,0	36	6
TDG533A04100	4,100	.1614	–	–	87	41	1,0	36	6
TDG533A04200	4,200	.1654	–	–	87	41	1,0	36	6
TDG533A04217	4,217	.1660	–	19	87	41	1,0	36	6
TDG533A04300	4,300	.1693	–	–	87	41	1,0	36	6
TDG533A04366	4,366	.1719	11/64	–	87	41	1,0	36	6
TDG533A04400	4,400	.1732	–	–	87	41	1,0	36	6
TDG533A04500	4,500	.1772	–	–	87	41	1,0	36	6
TDG533A04600	4,600	.1811	–	–	87	41	1,1	36	6
TDG533A04623	4,623	.1820	–	14	87	41	1,1	36	6
TDG533A04700	4,700	.1850	–	13	87	41	1,1	36	6
TDG533A04763	4,763	.1875	3/16	–	94	48	1,1	36	6
TDG533A04800	4,800	.1890	–	12	94	48	1,1	36	6
TDG533A04852	4,852	.1910	–	11	94	48	1,1	36	6
TDG533A04900	4,900	.1929	–	–	94	48	1,1	36	6
TDG533A05000	5,000	.1969	–	–	94	48	1,2	36	6
TDG533A05100	5,100	.2008	–	–	94	48	1,2	36	6
TDG533A05106	5,106	.2010	–	7	94	48	1,2	36	6
TDG533A05159	5,159	.2031	13/64	–	94	48	1,2	36	6
TDG533A05200	5,200	.2047	–	–	94	48	1,2	36	6

(continued)

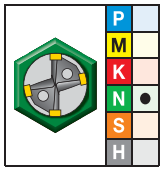
(TDG533A • 8 x D continued)



TDG533A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG533A05300	5,300	.2087	–	–	94	48	1,2	36	6
TDG533A05400	5,400	.2126	–	–	94	48	1,3	36	6
TDG533A05410	5,410	.2130	–	3	94	48	1,3	36	6
TDG533A05500	5,500	.2165	–	–	94	48	1,3	36	6
TDG533A05558	5,558	.2188	7/32	–	94	48	1,3	36	6
TDG533A05600	5,600	.2205	–	–	94	48	1,3	36	6
TDG533A05616	5,616	.2211	–	2	94	48	1,3	36	6
TDG533A05700	5,700	.2244	–	–	94	48	1,3	36	6
TDG533A05800	5,800	.2283	–	–	94	48	1,4	36	6
TDG533A05900	5,900	.2323	–	–	94	48	1,4	36	6
TDG533A05954	5,954	.2344	15/64	–	94	48	1,4	36	6
TDG533A06000	6,000	.2362	–	–	94	48	1,4	36	6
TDG533A06100	6,100	.2402	–	–	105	57	1,4	36	8
TDG533A06200	6,200	.2441	–	–	105	57	1,4	36	8
TDG533A06300	6,300	.2480	–	–	105	57	1,5	36	8
TDG533A06350	6,350	.2500	1/4	E	105	57	1,5	36	8
TDG533A06400	6,400	.2520	–	–	105	57	1,5	36	8
TDG533A06500	6,500	.2559	–	–	105	57	1,5	36	8
TDG533A06528	6,528	.2570	–	F	105	57	1,5	36	8
TDG533A06600	6,600	.2598	–	–	105	57	1,5	36	8
TDG533A06630	6,630	.2610	–	G	105	57	1,5	36	8
TDG533A06700	6,700	.2638	–	–	105	57	1,6	36	8
TDG533A06746	6,746	.2656	17/64	–	105	57	1,6	36	8
TDG533A06800	6,800	.2677	–	–	105	57	1,6	36	8
TDG533A06900	6,900	.2717	–	–	105	57	1,6	36	8
TDG533A07000	7,000	.2756	–	–	105	57	1,6	36	8
TDG533A07100	7,100	.2795	–	–	110	61	1,7	36	8
TDG533A07145	7,145	.2813	9/32	–	110	61	1,7	36	8
TDG533A07200	7,200	.2835	–	–	110	61	1,7	36	8
TDG533A07300	7,300	.2874	–	–	110	61	1,7	36	8
TDG533A07400	7,400	.2913	–	–	110	61	1,7	36	8
TDG533A07500	7,500	.2953	–	–	110	61	1,7	36	8
TDG533A07541	7,541	.2969	19/64	–	110	61	1,8	36	8
TDG533A07600	7,600	.2992	–	–	110	61	1,8	36	8
TDG533A07700	7,700	.3031	–	–	110	61	1,8	36	8
TDG533A07800	7,800	.3071	–	–	110	61	1,8	36	8
TDG533A07900	7,900	.3110	–	–	110	61	1,8	36	8
TDG533A07938	7,938	.3125	5/16	–	110	61	1,9	36	8
TDG533A08000	8,000	.3150	–	–	110	61	1,9	36	8
TDG533A08100	8,100	.3189	–	–	122	68	1,9	40	10
TDG533A08200	8,200	.3228	–	–	122	68	1,9	40	10
TDG533A08300	8,300	.3268	–	–	122	68	1,9	40	10
TDG533A08334	8,334	.3281	21/64	–	122	68	1,9	40	10
TDG533A08400	8,400	.3307	–	–	122	68	2,0	40	10
TDG533A08433	8,433	.3320	–	Q	122	68	2,0	40	10
TDG533A08500	8,500	.3346	–	–	122	68	2,0	40	10
TDG533A08600	8,600	.3386	–	–	122	68	2,0	40	10
TDG533A08700	8,700	.3425	–	–	122	68	2,0	40	10

(continued)

(TDG533A • 8 x D continued)



TDG533A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG533A08733	8,733	.3438	11/32	–	122	68	2,0	40	10
TDG533A08800	8,800	.3465	–	–	122	68	2,1	40	10
TDG533A08900	8,900	.3504	–	–	122	68	2,1	40	10
TDG533A09000	9,000	.3543	–	–	122	68	2,1	40	10
TDG533A09100	9,100	.3583	–	–	122	68	2,1	40	10
TDG533A09129	9,129	.3594	23/64	–	122	68	2,1	40	10
TDG533A09200	9,200	.3622	–	–	122	68	2,1	40	10
TDG533A09300	9,300	.3661	–	–	122	68	2,2	40	10
TDG533A09347	9,347	.3680	–	U	122	68	2,2	40	10
TDG533A09400	9,400	.3701	–	–	122	68	2,2	40	10
TDG533A09500	9,500	.3740	–	–	122	68	2,2	40	10
TDG533A09525	9,525	.3750	3/8	–	122	68	2,2	40	10
TDG533A09600	9,600	.3780	–	–	122	68	2,2	40	10
TDG533A09700	9,700	.3819	–	–	122	68	2,3	40	10
TDG533A09800	9,800	.3858	–	–	122	68	2,3	40	10
TDG533A09900	9,900	.3898	–	–	122	68	2,3	40	10
TDG533A09921	9,921	.3906	25/64	–	122	68	2,3	40	10
TDG533A10000	10,000	.3937	–	–	122	68	2,3	40	10
TDG533A10100	10,100	.3976	–	–	141	79	2,4	45	12
TDG533A10200	10,200	.4016	–	–	141	79	2,4	45	12
TDG533A10300	10,300	.4055	–	–	141	79	2,4	45	12
TDG533A10320	10,320	.4063	13/32	–	141	79	2,4	45	12
TDG533A10400	10,400	.4094	–	–	141	79	2,4	45	12
TDG533A10500	10,500	.4134	–	–	141	79	2,4	45	12
TDG533A10600	10,600	.4173	–	–	141	79	2,5	45	12
TDG533A10700	10,700	.4213	–	–	141	79	2,5	45	12
TDG533A10716	10,716	.4219	27/64	–	141	79	2,5	45	12
TDG533A10800	10,800	.4252	–	–	141	79	2,5	45	12
TDG533A10900	10,900	.4291	–	–	141	79	2,5	45	12
TDG533A11000	11,000	.4331	–	–	141	79	2,6	45	12
TDG533A11100	11,100	.4370	–	–	141	79	2,6	45	12
TDG533A11113	11,113	.4375	7/16	–	141	79	2,6	45	12
TDG533A11200	11,200	.4409	–	–	141	79	2,6	45	12
TDG533A11300	11,300	.4449	–	–	141	79	2,6	45	12
TDG533A11400	11,400	.4488	–	–	141	79	2,7	45	12
TDG533A11500	11,500	.4528	–	–	141	79	2,7	45	12
TDG533A11509	11,509	.4531	29/64	–	141	79	2,7	45	12
TDG533A11600	11,600	.4567	–	–	141	79	2,7	45	12
TDG533A11700	11,700	.4606	–	–	141	79	2,7	45	12
TDG533A11800	11,800	.4646	–	–	141	79	2,8	45	12
TDG533A11900	11,900	.4685	–	–	141	79	2,8	45	12
TDG533A11908	11,908	.4688	15/32	–	141	79	2,8	45	12
TDG533A12000	12,000	.4724	–	–	141	79	2,8	45	12
TDG533A12100	12,100	.4764	–	–	155	91	2,8	45	14
TDG533A12200	12,200	.4803	–	–	155	91	2,8	45	14
TDG533A12300	12,300	.4843	–	–	155	91	2,9	45	14
TDG533A12304	12,304	.4844	31/64	–	155	91	2,9	45	14
TDG533A12400	12,400	.4882	–	–	155	91	2,9	45	14

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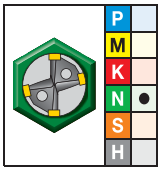
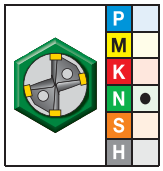
(TDG533A • 8 x D continued)



TDG533A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG533A12500	12,500	.4921	–	–	155	91	2,9	45	14
TDG533A12600	12,600	.4961	–	–	155	91	2,9	45	14
TDG533A12700	12,700	.5000	1/2	–	155	91	3,0	45	14
TDG533A12800	12,800	.5039	–	–	155	91	3,0	45	14
TDG533A12900	12,900	.5079	–	–	155	91	3,0	45	14
TDG533A13000	13,000	.5118	–	–	155	91	3,0	45	14
TDG533A13096	13,096	.5156	33/64	–	155	91	3,1	45	14
TDG533A13100	13,100	.5157	–	–	155	91	3,1	45	14
TDG533A13200	13,200	.5197	–	–	155	91	3,1	45	14
TDG533A13300	13,300	.5236	–	–	155	91	3,1	45	14
TDG533A13400	13,400	.5276	–	–	155	91	3,1	45	14
TDG533A13490	13,490	.5311	–	–	155	91	3,1	45	14
TDG533A13500	13,500	.5315	–	–	155	91	3,1	45	14
TDG533A13600	13,600	.5354	–	–	155	91	3,2	45	14
TDG533A13700	13,700	.5394	–	–	155	91	3,2	45	14
TDG533A13800	13,800	.5433	–	–	155	91	3,2	45	14
TDG533A13891	13,891	.5469	35/64	–	155	91	3,2	45	14
TDG533A13900	13,900	.5472	–	–	155	91	3,2	45	14
TDG533A14000	14,000	.5512	–	–	155	91	3,3	45	14
TDG533A14100	14,100	.5551	–	–	171	101	3,3	48	16
TDG533A14200	14,200	.5591	–	–	171	101	3,3	48	16
TDG533A14288	14,288	.5625	9/16	–	171	101	3,3	48	16
TDG533A14300	14,300	.5630	–	–	171	101	3,3	48	16
TDG533A14400	14,400	.5669	–	–	171	101	3,4	48	16
TDG533A14500	14,500	.5709	–	–	171	101	3,4	48	16
TDG533A14600	14,600	.5748	–	–	171	101	3,4	48	16
TDG533A14684	14,684	.5781	37/64	–	171	101	3,4	48	16
TDG533A14700	14,700	.5787	–	–	171	101	3,4	48	16
TDG533A14800	14,800	.5827	–	–	171	101	3,5	48	16
TDG533A14900	14,900	.5866	–	–	171	101	3,5	48	16
TDG533A15000	15,000	.5906	–	–	171	101	3,5	48	16
TDG533A15083	15,083	.5938	19/32	–	171	101	3,5	48	16
TDG533A15100	15,100	.5945	–	–	171	101	3,5	48	16
TDG533A15200	15,200	.5984	–	–	171	101	3,5	48	16
TDG533A15300	15,300	.6024	–	–	171	101	3,6	48	16
TDG533A15400	15,400	.6063	–	–	171	101	3,6	48	16
TDG533A15479	15,479	.6094	39/64	–	171	101	3,6	48	16
TDG533A15500	15,500	.6102	–	–	171	101	3,6	48	16
TDG533A15600	15,600	.6142	–	–	171	101	3,6	48	16
TDG533A15700	15,700	.6181	–	–	171	101	3,7	48	16
TDG533A15800	15,800	.6220	–	–	171	101	3,7	48	16
TDG533A15875	15,875	.6250	5/8	–	171	101	3,7	48	16
TDG533A15900	15,900	.6260	–	–	171	101	3,7	48	16
TDG533A16000	16,000	.6299	–	–	171	101	3,7	48	16
TDG533A16100	16,100	.6339	–	–	185	113	3,8	48	18
TDG533A16200	16,200	.6378	–	–	185	113	3,8	48	18
TDG533A16271	16,271	.6406	41/64	–	185	113	3,8	48	18
TDG533A16300	16,300	.6417	–	–	185	113	3,8	48	18

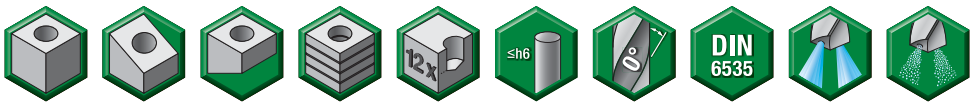
(continued)

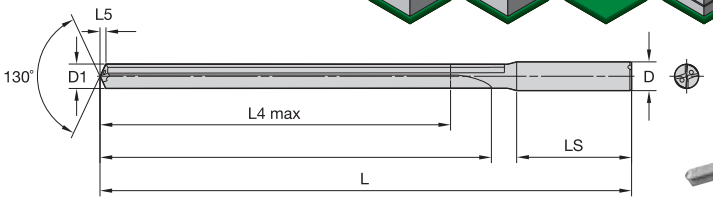
(TDG533A • 8 x D continued)



TDG533A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG533A16400	16,400	.6457	–	–	185	113	3,8	48	18
TDG533A16500	16,500	.6496	–	–	185	113	3,8	48	18
TDG533A16600	16,600	.6535	–	–	185	113	3,9	48	18
TDG533A16670	16,670	.6563	21/32	–	185	113	3,9	48	18
TDG533A16700	16,700	.6575	–	–	185	113	3,9	48	18
TDG533A16800	16,800	.6614	–	–	185	113	3,9	48	18
TDG533A16900	16,900	.6654	–	–	185	113	3,9	48	18
TDG533A17000	17,000	.6693	–	–	185	113	4,0	48	18
TDG533A17100	17,100	.6732	–	–	185	113	4,0	48	18
TDG533A17200	17,200	.6772	–	–	185	113	4,0	48	18
TDG533A17300	17,300	.6811	–	–	185	113	4,0	48	18
TDG533A17400	17,400	.6850	–	–	185	113	4,1	48	18
TDG533A17463	17,463	.6875	11/16	–	185	113	4,1	48	18
TDG533A17500	17,500	.6890	–	–	185	113	4,1	48	18
TDG533A17600	17,600	.6929	–	–	185	113	4,1	48	18
TDG533A17700	17,700	.6969	–	–	185	113	4,1	48	18
TDG533A17800	17,800	.7008	–	–	185	113	4,2	48	18
TDG533A17859	17,859	.7031	45/64	–	185	113	4,2	48	18
TDG533A17900	17,900	.7047	–	–	185	113	4,2	48	18
TDG533A18000	18,000	.7087	–	–	185	113	4,2	48	18
TDG533A18100	18,100	.7126	–	–	200	124	4,2	50	20
TDG533A18200	18,200	.7165	–	–	200	124	4,2	50	20
TDG533A18258	18,258	.7188	23/32	–	200	124	4,3	50	20
TDG533A18300	18,300	.7205	–	–	200	124	4,3	50	20
TDG533A18400	18,400	.7244	–	–	200	124	4,3	50	20
TDG533A18500	18,500	.7283	–	–	200	124	4,3	50	20
TDG533A18600	18,600	.7323	–	–	200	124	4,3	50	20
TDG533A18654	18,654	.7344	47/64	–	200	124	4,3	50	20
TDG533A18700	18,700	.7362	–	–	200	124	4,4	50	20
TDG533A18800	18,800	.7402	–	–	200	124	4,4	50	20
TDG533A18900	18,900	.7441	–	–	200	124	4,4	50	20
TDG533A19000	19,000	.7480	–	–	200	124	4,4	50	20
TDG533A19050	19,050	.7500	3/4	–	200	124	4,4	50	20
TDG533A19100	19,100	.7520	–	–	200	124	4,5	50	20
TDG533A19200	19,200	.7559	–	–	200	124	4,5	50	20
TDG533A19300	19,300	.7598	–	–	200	124	4,5	50	20
TDG533A19400	19,400	.7638	–	–	200	124	4,5	50	20
TDG533A19500	19,500	.7677	–	–	200	124	4,5	50	20
TDG533A19600	19,600	.7717	–	–	200	124	4,6	50	20
TDG533A19700	19,700	.7756	–	–	200	124	4,6	50	20
TDG533A19800	19,800	.7795	–	–	200	124	4,6	50	20
TDG533A19900	19,900	.7835	–	–	200	124	4,6	50	20
TDG533A20000	20,000	.7874	–	–	200	124	4,7	50	20

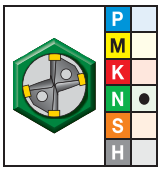
NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.





● first choice
○ alternate choice

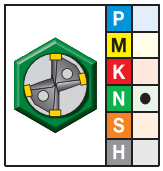
TDG534A • 12 x D



TDG534A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG534A03000	3,000	.1181	–	–	93	44	0,7	36	6
TDG534A03048	3,048	.1200	–	31	93	44	0,7	36	6
TDG534A03100	3,100	.1220	–	–	93	44	0,7	36	6
TDG534A03175	3,175	.1250	1/8	–	93	44	0,7	36	6
TDG534A03200	3,200	.1260	–	–	93	43	0,7	36	6
TDG534A03264	3,264	.1285	–	30	93	44	0,8	36	6
TDG534A03300	3,300	.1299	–	–	93	44	0,8	36	6
TDG534A03400	3,400	.1339	–	–	93	44	0,8	36	6
TDG534A03455	3,455	.1360	–	29	93	44	0,8	36	6
TDG534A03500	3,500	.1378	–	–	93	44	0,8	36	6
TDG534A03571	3,571	.1406	9/64	–	93	45	0,8	36	6
TDG534A03600	3,600	.1417	–	–	93	45	0,8	36	6
TDG534A03658	3,658	.1440	–	27	93	45	0,9	36	6
TDG534A03700	3,700	.1457	–	–	93	45	0,9	36	6
TDG534A03734	3,734	.1470	–	26	93	45	0,9	36	6
TDG534A03800	3,800	.1496	–	–	107	55	0,9	36	6
TDG534A03900	3,900	.1535	–	–	107	56	0,9	36	6
TDG534A03970	3,970	.1563	5/32	–	107	56	0,9	36	6
TDG534A04000	4,000	.1575	–	–	107	56	0,9	36	6
TDG534A04039	4,039	.1590	–	21	107	56	0,9	36	6
TDG534A04090	4,090	.1610	–	20	107	55	1,0	36	6
TDG534A04100	4,100	.1614	–	–	107	55	1,0	36	6
TDG534A04200	4,200	.1654	–	–	107	56	1,0	36	6
TDG534A04217	4,217	.1660	–	19	107	56	1,0	36	6
TDG534A04300	4,300	.1693	–	–	107	56	1,0	36	6
TDG534A04366	4,366	.1719	11/64	–	107	56	1,0	36	6
TDG534A04400	4,400	.1732	–	–	107	56	1,0	36	6
TDG534A04500	4,500	.1772	–	–	107	56	1,0	36	6
TDG534A04600	4,600	.1811	–	–	107	57	1,1	36	6
TDG534A04623	4,623	.1820	–	14	107	57	1,1	36	6
TDG534A04700	4,700	.1850	–	13	107	57	1,1	36	6
TDG534A04763	4,763	.1875	3/16	–	125	69	1,1	36	6
TDG534A04800	4,800	.1890	–	12	125	69	1,1	36	6
TDG534A04852	4,852	.1910	–	11	125	69	1,1	36	6
TDG534A04900	4,900	.1929	–	–	125	69	1,1	36	6
TDG534A05000	5,000	.1969	–	–	125	70	1,2	36	6
TDG534A05100	5,100	.2008	–	–	125	70	1,2	36	6
TDG534A05106	5,106	.2010	–	7	125	70	1,2	36	6
TDG534A05159	5,159	.2031	13/64	–	125	70	1,2	36	6
TDG534A05200	5,200	.2047	–	–	125	70	1,2	36	6

(continued)

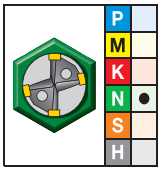
(TDG534A • 12 x D continued)



TDG534A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG534A05300	5,300	.2087	–	–	125	71	1,2	36	6
TDG534A05400	5,400	.2126	–	–	125	71	1,3	36	6
TDG534A05410	5,410	.2130	–	3	125	71	1,3	36	6
TDG534A05500	5,500	.2165	–	–	125	71	1,3	36	6
TDG534A05558	5,558	.2188	7/32	–	125	71	1,3	36	6
TDG534A05600	5,600	.2205	–	–	125	72	1,3	36	6
TDG534A05616	5,616	.2211	–	2	125	72	1,3	36	6
TDG534A05700	5,700	.2244	–	–	125	72	1,3	36	6
TDG534A05800	5,800	.2283	–	–	125	71	1,4	36	6
TDG534A05900	5,900	.2323	–	–	125	71	1,4	36	6
TDG534A05954	5,954	.2344	15/64	–	125	72	1,4	36	6
TDG534A06000	6,000	.2362	–	–	125	72	1,4	36	6
TDG534A06100	6,100	.2402	–	–	139	82	1,4	36	8
TDG534A06200	6,200	.2441	–	–	139	82	1,4	36	8
TDG534A06300	6,300	.2480	–	–	139	83	1,5	36	8
TDG534A06350	6,350	.2500	1/4	E	139	83	1,5	36	8
TDG534A06400	6,400	.2520	–	–	139	83	1,5	36	8
TDG534A06500	6,500	.2559	–	–	139	83	1,5	36	8
TDG534A06528	6,528	.2570	–	F	139	83	1,5	36	8
TDG534A06600	6,600	.2598	–	–	139	84	1,5	36	8
TDG534A06630	6,630	.2610	–	G	139	84	1,5	36	8
TDG534A06700	6,700	.2638	–	–	139	84	1,6	36	8
TDG534A06746	6,746	.2656	17/64	–	139	83	1,6	36	8
TDG534A06800	6,800	.2677	–	–	139	83	1,6	36	8
TDG534A06900	6,900	.2717	–	–	139	83	1,6	36	8
TDG534A07000	7,000	.2756	–	–	139	84	1,6	36	8
TDG534A07100	7,100	.2795	–	–	153	94	1,7	36	8
TDG534A07145	7,145	.2813	9/32	–	153	94	1,7	36	8
TDG534A07200	7,200	.2835	–	–	153	94	1,7	36	8
TDG534A07300	7,300	.2874	–	–	153	95	1,7	36	8
TDG534A07400	7,400	.2913	–	–	153	95	1,7	36	8
TDG534A07500	7,500	.2953	–	–	153	95	1,7	36	8
TDG534A07541	7,541	.2969	19/64	–	153	95	1,8	36	8
TDG534A07600	7,600	.2992	–	–	153	96	1,8	36	8
TDG534A07700	7,700	.3031	–	–	153	96	1,8	36	8
TDG534A07800	7,800	.3071	–	–	153	95	1,8	36	8
TDG534A07900	7,900	.3110	–	–	153	95	1,8	36	8
TDG534A07938	7,938	.3125	5/16	–	153	96	1,9	36	8
TDG534A08000	8,000	.3150	–	–	153	96	1,9	36	8
TDG534A08100	8,100	.3189	–	–	185	116	1,9	40	10
TDG534A08200	8,200	.3228	–	–	185	116	1,9	40	10
TDG534A08300	8,300	.3268	–	–	185	117	1,9	40	10
TDG534A08334	8,334	.3281	21/64	–	185	117	1,9	40	10
TDG534A08400	8,400	.3307	–	–	185	117	2,0	40	10
TDG534A08433	8,433	.3320	–	Q	185	117	2,0	40	10
TDG534A08500	8,500	.3346	–	–	185	117	2,0	40	10
TDG534A08600	8,600	.3386	–	–	185	118	2,0	40	10
TDG534A08700	8,700	.3425	–	–	185	118	2,0	40	10

(continued)

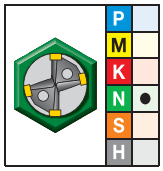
(TDG534A • 12 x D continued)



TDG534A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG534A08733	8,733	.3438	11/32	–	185	117	2,0	40	10
TDG534A08800	8,800	.3465	–	–	185	117	2,1	40	10
TDG534A08900	8,900	.3504	–	–	185	117	2,1	40	10
TDG534A09000	9,000	.3543	–	–	185	118	2,1	40	10
TDG534A09100	9,100	.3583	–	–	185	118	2,1	40	10
TDG534A09129	9,129	.3594	23/64	–	185	118	2,1	40	10
TDG534A09200	9,200	.3622	–	–	185	118	2,1	40	10
TDG534A09300	9,300	.3661	–	–	185	119	2,2	40	10
TDG534A09347	9,347	.3680	–	U	185	119	2,2	40	10
TDG534A09400	9,400	.3701	–	–	185	119	2,2	40	10
TDG534A09500	9,500	.3740	–	–	185	119	2,2	40	10
TDG534A09525	9,525	.3750	3/8	–	185	119	2,2	40	10
TDG534A09600	9,600	.3780	–	–	185	120	2,2	40	10
TDG534A09700	9,700	.3819	–	–	185	120	2,3	40	10
TDG534A09800	9,800	.3858	–	–	185	119	2,3	40	10
TDG534A09900	9,900	.3898	–	–	185	119	2,3	40	10
TDG534A09921	9,921	.3906	25/64	–	185	120	2,3	40	10
TDG534A10000	10,000	.3937	–	–	185	120	2,3	40	10
TDG534A10100	10,100	.3976	–	–	218	140	2,4	45	12
TDG534A10200	10,200	.4016	–	–	218	140	2,4	45	12
TDG534A10300	10,300	.4055	–	–	218	141	2,4	45	12
TDG534A10320	10,320	.4063	13/32	–	218	141	2,4	45	12
TDG534A10400	10,400	.4094	–	–	218	141	2,4	45	12
TDG534A10500	10,500	.4134	–	–	218	141	2,4	45	12
TDG534A10600	10,600	.4173	–	–	218	142	2,5	45	12
TDG534A10700	10,700	.4213	–	–	218	142	2,5	45	12
TDG534A10716	10,716	.4219	27/64	–	218	142	2,5	45	12
TDG534A10800	10,800	.4252	–	–	218	141	2,5	45	12
TDG534A10900	10,900	.4291	–	–	218	141	2,5	45	12
TDG534A11000	11,000	.4331	–	–	218	142	2,6	45	12
TDG534A11100	11,100	.4370	–	–	218	142	2,6	45	12
TDG534A11113	11,113	.4375	7/16	–	218	142	2,6	45	12
TDG534A11200	11,200	.4409	–	–	218	142	2,6	45	12
TDG534A11300	11,300	.4449	–	–	218	143	2,6	45	12
TDG534A11400	11,400	.4488	–	–	218	143	2,7	45	12
TDG534A11500	11,500	.4528	–	–	218	143	2,7	45	12
TDG534A11509	11,509	.4531	29/64	–	218	143	2,7	45	12
TDG534A11600	11,600	.4567	–	–	218	144	2,7	45	12
TDG534A11700	11,700	.4606	–	–	218	144	2,7	45	12
TDG534A11800	11,800	.4646	–	–	218	143	2,8	45	12
TDG534A11900	11,900	.4685	–	–	218	143	2,8	45	12
TDG534A11908	11,908	.4688	15/32	–	218	143	2,8	45	12
TDG534A12000	12,000	.4724	–	–	218	144	2,8	45	12
TDG534A12100	12,100	.4764	–	–	246	164	2,8	45	14
TDG534A12200	12,200	.4803	–	–	246	164	2,8	45	14
TDG534A12300	12,300	.4843	–	–	246	165	2,9	45	14
TDG534A12304	12,304	.4844	31/64	–	246	165	2,9	45	14
TDG534A12400	12,400	.4882	–	–	246	165	2,9	45	14

(continued)

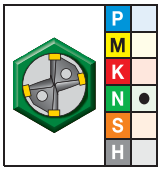
(TDG534A • 12 x D continued)



TDG534A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG534A12500	12,500	.4921	–	–	246	165	2,9	45	14
TDG534A12600	12,600	.4961	–	–	246	165	2,9	45	14
TDG534A12700	12,700	.5000	1/2	–	246	166	3,0	45	14
TDG534A12800	12,800	.5039	–	–	246	166	3,0	45	14
TDG534A12900	12,900	.5079	–	–	246	165	3,0	45	14
TDG534A13000	13,000	.5118	–	–	246	166	3,0	45	14
TDG534A13096	13,096	.5156	33/64	–	246	166	3,1	45	14
TDG534A13100	13,100	.5157	–	–	246	166	3,1	45	14
TDG534A13200	13,200	.5197	–	–	246	166	3,1	45	14
TDG534A13300	13,300	.5236	–	–	246	167	3,1	45	14
TDG534A13400	13,400	.5276	–	–	246	167	3,1	45	14
TDG534A13490	13,490	.5311	–	–	246	167	3,1	45	14
TDG534A13500	13,500	.5315	–	–	246	167	3,1	45	14
TDG534A13600	13,600	.5354	–	–	246	167	3,2	45	14
TDG534A13700	13,700	.5394	–	–	246	168	3,2	45	14
TDG534A13800	13,800	.5433	–	–	246	168	3,2	45	14
TDG534A13891	13,891	.5469	35/64	–	246	167	3,2	45	14
TDG534A13900	13,900	.5472	–	–	246	167	3,2	45	14
TDG534A14000	14,000	.5512	–	–	246	168	3,3	45	14
TDG534A14100	14,100	.5551	–	–	277	188	3,3	48	16
TDG534A14200	14,200	.5591	–	–	277	188	3,3	48	16
TDG534A14288	14,288	.5625	9/16	–	277	188	3,3	48	16
TDG534A14300	14,300	.5630	–	–	277	188	3,3	48	16
TDG534A14400	14,400	.5669	–	–	277	189	3,4	48	16
TDG534A14500	14,500	.5709	–	–	277	189	3,4	48	16
TDG534A14600	14,600	.5748	–	–	277	189	3,4	48	16
TDG534A14684	14,684	.5781	37/64	–	277	190	3,4	48	16
TDG534A14700	14,700	.5787	–	–	277	190	3,4	48	16
TDG534A14800	14,800	.5827	–	–	277	190	3,5	48	16
TDG534A14900	14,900	.5866	–	–	277	190	3,5	48	16
TDG534A15000	15,000	.5906	–	–	277	190	3,5	48	16
TDG534A15083	15,083	.5938	19/32	–	277	190	3,5	48	16
TDG534A15100	15,100	.5945	–	–	277	190	3,5	48	16
TDG534A15200	15,200	.5984	–	–	277	190	3,5	48	16
TDG534A15300	15,300	.6024	–	–	277	191	3,6	48	16
TDG534A15400	15,400	.6063	–	–	277	191	3,6	48	16
TDG534A15479	15,479	.6094	39/64	–	277	191	3,6	48	16
TDG534A15500	15,500	.6102	–	–	277	191	3,6	48	16
TDG534A15600	15,600	.6142	–	–	277	191	3,6	48	16
TDG534A15700	15,700	.6181	–	–	277	192	3,7	48	16
TDG534A15800	15,800	.6220	–	–	277	192	3,7	48	16
TDG534A15875	15,875	.6250	5/8	–	277	192	3,7	48	16
TDG534A15900	15,900	.6260	–	–	277	192	3,7	48	16
TDG534A16000	16,000	.6299	–	–	277	192	3,7	48	16
TDG534A16100	16,100	.6339	–	–	305	212	3,8	48	18
TDG534A16200	16,200	.6378	–	–	305	212	3,8	48	18
TDG534A16271	16,271	.6406	41/64	–	305	212	3,8	48	18
TDG534A16300	16,300	.6417	–	–	305	212	3,8	48	18

(continued)

(TDG534A • 12 x D continued)



TDG534A • WN10HD	D1 diameter mm	in	fraction	wire size	L	L4 max	L5	LS	D
TDG534A16400	16,400	.6457	–	–	305	213	3,8	48	18
TDG534A16500	16,500	.6496	–	–	305	213	3,8	48	18
TDG534A16600	16,600	.6535	–	–	305	213	3,9	48	18
TDG534A16670	16,670	.6563	21/32	–	305	214	3,9	48	18
TDG534A16700	16,700	.6575	–	–	305	214	3,9	48	18
TDG534A16800	16,800	.6614	–	–	305	214	3,9	48	18
TDG534A16900	16,900	.6654	–	–	305	214	3,9	48	18
TDG534A17000	17,000	.6693	–	–	305	214	4,0	48	18
TDG534A17100	17,100	.6732	–	–	305	214	4,0	48	18
TDG534A17200	17,200	.6772	–	–	305	214	4,0	48	18
TDG534A17300	17,300	.6811	–	–	305	214	4,0	48	18
TDG534A17400	17,400	.6850	–	–	305	215	4,1	48	18
TDG534A17463	17,463	.6875	11/16	–	305	215	4,1	48	18
TDG534A17500	17,500	.6890	–	–	305	215	4,1	48	18
TDG534A17600	17,600	.6929	–	–	305	215	4,1	48	18
TDG534A17700	17,700	.6969	–	–	305	216	4,1	48	18
TDG534A17800	17,800	.7008	–	–	305	216	4,2	48	18
TDG534A17859	17,859	.7031	45/64	–	305	216	4,2	48	18
TDG534A17900	17,900	.7047	–	–	305	216	4,2	48	18
TDG534A18000	18,000	.7087	–	–	305	216	4,2	48	18
TDG534A18100	18,100	.7126	–	–	334	237	4,2	50	20
TDG534A18200	18,200	.7165	–	–	334	236	4,2	50	20
TDG534A18258	18,258	.7188	23/32	–	334	236	4,3	50	20
TDG534A18300	18,300	.7205	–	–	334	236	4,3	50	20
TDG534A18400	18,400	.7244	–	–	334	237	4,3	50	20
TDG534A18500	18,500	.7283	–	–	334	237	4,3	50	20
TDG534A18600	18,600	.7323	–	–	334	237	4,3	50	20
TDG534A18654	18,654	.7344	47/64	–	334	237	4,3	50	20
TDG534A18700	18,700	.7362	–	–	334	237	4,4	50	20
TDG534A18800	18,800	.7402	–	–	334	238	4,4	50	20
TDG534A18900	18,900	.7441	–	–	334	238	4,4	50	20
TDG534A19000	19,000	.7480	–	–	334	238	4,4	50	20
TDG534A19050	19,050	.7500	3/4	–	334	239	4,4	50	20
TDG534A19100	19,100	.7520	–	–	334	239	4,5	50	20
TDG534A19200	19,200	.7559	–	–	334	238	4,5	50	20
TDG534A19300	19,300	.7598	–	–	334	238	4,5	50	20
TDG534A19400	19,400	.7638	–	–	334	239	4,5	50	20
TDG534A19500	19,500	.7677	–	–	334	239	4,5	50	20
TDG534A19600	19,600	.7717	–	–	334	239	4,6	50	20
TDG534A19700	19,700	.7756	–	–	334	239	4,6	50	20
TDG534A19800	19,800	.7795	–	–	334	240	4,6	50	20
TDG534A19900	19,900	.7835	–	–	334	240	4,6	50	20
TDG534A20000	20,000	.7874	–	–	334	240	4,7	50	20

NOTE: L4 max, L5, L, LS, and D table columns reflect millimetre measurements.

TOP DRILL G • TDG532/TDG533/TDG534 Series • WN10HD • Through Coolant

	Group	Cutting Speed – vc Range – m/min min	max	Tool Diameter	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
					Recommended Feed Rate (fz)							
K	15, 16	70	120	mm/r	0,11 - 0,20	0,12 - 0,24	0,15 - 0,28	0,18 - 0,33	0,20 - 0,38	0,23 - 0,44	0,30 - 0,53	0,34 - 0,65
N	21	100	450	mm/r	0,16 - 0,25	0,19 - 0,29	0,23 - 0,35	0,27 - 0,42	0,31 - 0,50	0,36 - 0,57	0,44 - 0,69	0,52 - 0,82
	22, 23, 24	100	300	mm/r	0,15 - 0,23	0,17 - 0,28	0,21 - 0,34	0,25 - 0,39	0,30 - 0,46	0,34 - 0,54	0,42 - 0,67	0,52 - 0,82
	26	100	250	mm/r	0,16 - 0,28	0,15 - 0,32	0,19 - 0,36	0,23 - 0,40	0,25 - 0,44	0,28 - 0,48	0,32 - 0,56	0,35 - 0,63

TOP DRILL G • TDG542/TDG543/TDG544 Series • WK10PD • Through Coolant

	Group	Cutting Speed – vc Range – m/min min	max	Tool Diameter	3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
					Recommended Feed Rate (fz)							
K	15, 16	80	140	mm/r	0,11 - 0,20	0,12 - 0,24	0,15 - 0,28	0,18 - 0,33	0,20 - 0,38	0,23 - 0,44	0,30 - 0,53	0,34 - 0,65
	17, 18	60	110	mm/r	0,10 - 0,16	0,11 - 0,20	0,13 0,23	0,17 - 0,28	0,18 - 0,32	0,23 - 0,38	0,28 - 0,47	0,32 - 0,59

Tolerance

Nominal Size Range	D1 Tolerance m7	D Tolerance h6
>3–6	0,004/0,016	0,000/-0,008
>6–10	0,006/0,021	0,000/-0,009
>10–18	0,007/0,025	0,000/-0,011
>18–25,4	0,008/0,029	0,000/-0,013

WIDIA™ Victory™ TOP DRILL M1™

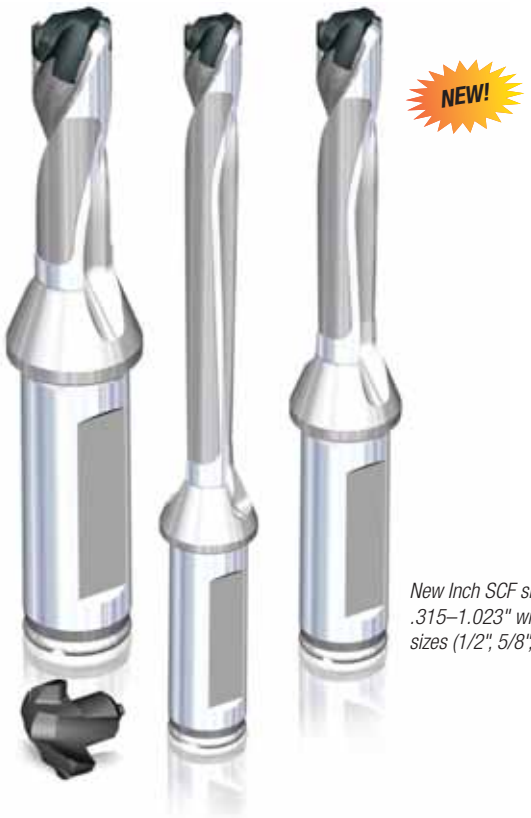
The TOP DRILL M1 modular drills offer quality and performance in one versatile, economical package.

Choose the Victory TOP DRILL M1 for:

Performance — Hole quality and metal removal rates comparable to solid carbide drills and superior to traditional indexable style drills.

Convenience — Insert is easy to change from the front without any small screws, clamps, or need to remove from the machine.

Reliability — Replaceable tip design ensures consistent performance without the issues and logistics associated with reconditioning.



New Inch SCF shank line. Covers .315–1.023" with only four shank sizes (1/2", 5/8", 3/4", and 1").

Achieve Victory with the WIDIA™ Modular Drill Family

WIDIA-Metcut™ Spade Blades

are the perfect compliment to TOP DRILL M1 for an extensive portfolio of modular drilling.

WIDIA™ provides the complete modular holemaking solution portfolio from 8mm (.315") to 114mm (4.5") to cover a wide range of machining environments and materials.

- Fast penetration rates, less downtime, lower variability.
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- Standard and special drill body/holder offering, including porting tool configurations.

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- Cast iron and aluminium workpieces.
- Machining environments where rigidity, coolant supply, or speed and feed rates are limiting factors.
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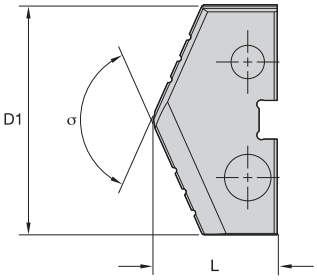
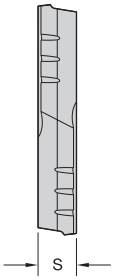
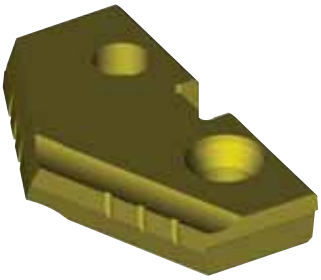
To learn more, contact your local Authorised Distributor or visit **www.widia.com.**

WIDIA™







Seat Size Z

● first choice
○ alternate choice

P M K N S H	P M K N S H	D1		L		S		
TiN	TiAlN	mm	in	mm	in	mm	in	σ
7FZ-0438T	7FZ-0438A	11,11	.438	9,19	.362	2,39	.094	132
7FZ-0453T	7FZ-0453A	11,51	.453	9,19	.362	2,39	.094	132
7FZ-0469T	7FZ-0469A	11,91	.469	9,19	.362	2,39	.094	132
–	7FZ-0472A	12,00	.472	9,19	.362	2,39	.094	132
7FZ-0484T	7FZ-0484A	12,30	.484	9,19	.362	2,39	.094	132
–	7FZ-0492A	12,50	.492	9,19	.362	2,39	.094	132
7FZ-0500T	7FZ-0500A	12,70	.500	9,19	.362	2,39	.094	132

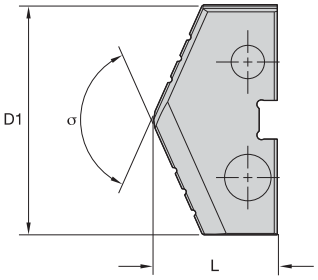
Toolholders available upon request as an Engineered Solution.

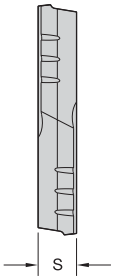
Seat Size 0

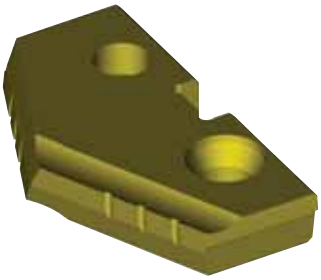
● first choice
○ alternate choice

P M K N S H	P M K N S H	D1		L		S		
TiN	TiAlN	mm	in	mm	in	mm	in	σ
7F0-0512T	–	13,00	.512	10,80	.425	3,18	.125	132
7F0-0516T	7F0-0516A	13,10	.516	10,80	.425	3,18	.125	132
7F0-0531T	7F0-0531A	13,50	.531	10,80	.425	3,18	.125	132
7F0-0547T	7F0-0547A	13,89	.547	10,80	.425	3,18	.125	132
7F0-0551T	7F0-0551A	14,00	.551	10,80	.425	3,18	.125	132
7F0-0563T	7F0-0563A	14,29	.563	10,80	.425	3,18	.125	132
7F0-0571T	7F0-0571A	14,50	.571	10,80	.425	3,18	.125	132
7F0-0578T	7F0-0578A	14,68	.578	10,80	.425	3,18	.125	132
7F0-0591T	7F0-0591A	15,00	.591	10,80	.425	3,18	.125	132
7F0-0594T	7F0-0594A	15,08	.594	10,80	.425	3,18	.125	132
7F0-0609T	7F0-0609A	15,48	.609	10,80	.425	3,18	.125	132
–	7F0-0610A	15,50	.610	10,80	.425	3,18	.125	132
7F0-0625T	7F0-0625A	15,88	.625	10,80	.425	3,18	.125	132
7F0-0630T	7F0-0630A	16,00	.630	10,80	.425	3,18	.125	132
7F0-0641T	7F0-0641A	16,27	.641	10,80	.425	3,18	.125	132
7F0-0650T	7F0-0650A	16,50	.650	10,80	.425	3,18	.125	132
7F0-0656T	7F0-0656A	16,67	.656	10,80	.425	3,18	.125	132
7F0-0669T	7F0-0669A	17,00	.669	10,80	.425	3,18	.125	132
7F0-0672T	7F0-0672A	17,07	.672	10,80	.425	3,18	.125	132
7F0-0688T	7F0-0688A	17,46	.688	10,80	.425	3,18	.125	132
–	7F0-0689A	17,50	.689	10,80	.425	3,18	.125	132

Toolholders available upon request as an Engineered Solution.





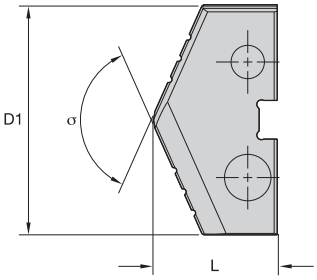


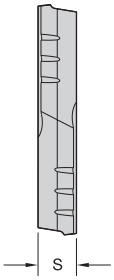
Seat Size 1

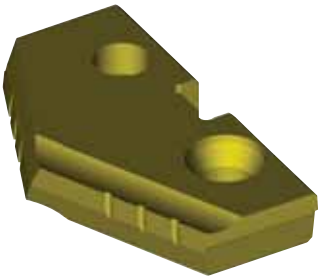
● first choice
○ alternate choice

P M K N S H	P M K N S H	D1		L		S		
TiN	TiAlN	mm	in	mm	in	mm	in	σ
7F1-0703T	7F1-0703A	17,86	.703	13,84	.545	3,96	.156	132
7F1-0709T	7F1-0709A	18,00	.709	13,84	.545	3,96	.156	132
7F1-0719T	7F1-0719A	18,26	.719	13,84	.545	3,96	.156	132
7F1-0728T	7F1-0728A	18,50	.728	13,84	.545	3,96	.156	132
7F1-0734T	7F1-0734A	18,65	.734	13,84	.545	3,96	.156	132
7F1-0748T	7F1-0748A	19,00	.748	13,84	.545	3,96	.156	132
7F1-0750T	7F1-0750A	19,05	.750	13,84	.545	3,96	.156	132
7F1-0766T	7F1-0766A	19,45	.766	13,84	.545	3,96	.156	132
7F1-0768T	7F1-0768A	19,50	.768	13,84	.545	3,96	.156	132
7F1-0781T	7F1-0781A	19,85	.781	13,84	.545	3,96	.156	132
7F1-0787T	7F1-0787A	20,00	.787	13,84	.545	3,96	.156	132
7F1-0797T	7F1-0797A	20,24	.797	13,84	.545	3,96	.156	132
–	7F1-0806A	20,47	.806	13,84	.545	3,96	.156	132
7F1-0807T	7F1-0807A	20,50	.807	13,84	.545	3,96	.156	132
7F1-0813T	7F1-0813A	20,64	.813	13,84	.545	3,96	.156	132
7F1-0827T	7F1-0827A	21,00	.827	13,84	.545	3,96	.156	132
7F1-0828T	7F1-0828A	21,03	.828	13,84	.545	3,96	.156	132
7F1-0844T	7F1-0844A	21,43	.844	13,84	.545	3,96	.156	132
7F1-0859T	7F1-0859A	21,83	.859	13,84	.545	3,96	.156	132
7F1-0866T	7F1-0866A	22,00	.866	13,84	.545	3,96	.156	132
7F1-0875T	7F1-0875A	22,23	.875	13,84	.545	3,96	.156	132
7F1-0891T	7F1-0891A	22,62	.891	13,84	.545	3,96	.156	132
7F1-0906T	7F1-0906A	23,02	.906	13,84	.545	3,96	.156	132
7F1-0922T	7F1-0922A	23,42	.922	13,84	.545	3,96	.156	132
7F1-0938T	7F1-0938A	23,81	.938	13,84	.545	3,96	.156	132
7F1-0945T	7F1-0945A	24,00	.945	13,84	.545	3,96	.156	132
7F1-0953T	7F1-0953A	24,21	.953	13,84	.545	3,96	.156	132
7F1-0960T	–	24,40	.960	13,84	.545	3,96	.156	132

Toolholders available upon request as an Engineered Solution.







Seat Size 2

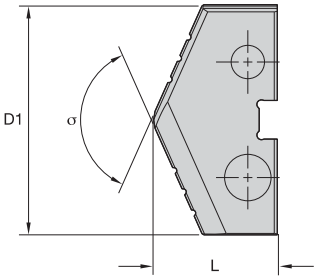
P	●
M	
K	○
N	
S	
H	

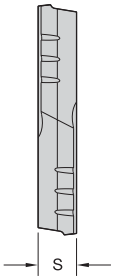
P	●
M	
K	○
N	
S	
H	

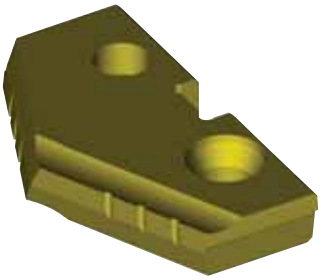
● first choice
○ alternate choice

TiN	TiAlN	D1 mm	D1 in	L mm	L in	S mm	S in	σ
7F2-0969T	7F2-0969A	24,61	.969	16,13	.635	4,76	.188	132
–	7F2-0981A	24,92	.981	16,13	.635	4,76	.188	132
7F2-0984T	7F2-0984A	25,00	.984	16,13	.635	4,76	.188	132
7F2-1000T	7F2-1000A	25,40	1.000	16,13	.635	4,76	.188	132
7F2-1016T	7F2-1016A	25,80	1.016	16,13	.635	4,76	.188	132
7F2-1024T	7F2-1024A	26,00	1.024	16,13	.635	4,76	.188	132
7F2-1031T	7F2-1031A	26,20	1.031	16,13	.635	4,76	.188	132
7F2-1047T	7F2-1047A	26,59	1.047	16,13	.635	4,76	.188	132
7F2-1063T	7F2-1063A	26,99	1.063	16,13	.635	4,76	.188	132
7F2-1078T	7F2-1078A	27,61	1.078	16,13	.635	4,76	.188	132
7F2-1094T	7F2-1094A	27,78	1.094	16,13	.635	4,76	.188	132
7F2-1102T	7F2-1102A	28,00	1.102	16,13	.635	4,76	.188	132
–	7F2-1106A	28,10	1.106	16,13	.635	4,76	.188	132
7F2-1109T	7F2-1109A	28,17	1.109	16,13	.635	4,76	.188	132
7F2-1125T	7F2-1125A	28,58	1.125	16,13	.635	4,76	.188	132
7F2-1141T	7F2-1141A	28,97	1.141	16,13	.635	4,76	.188	132
7F2-1142T	7F2-1142A	29,00	1.142	16,13	.635	4,76	.188	132
7F2-1156T	7F2-1156A	29,37	1.156	16,13	.635	4,76	.188	132
7F2-1181T	7F2-1181A	30,00	1.181	16,13	.635	4,76	.188	132
7F2-1188T	7F2-1188A	30,16	1.188	16,13	.635	4,76	.188	132
7F2-1203T	–	30,56	1.203	16,13	.635	4,76	.188	132
7F2-1219T	7F2-1219A	30,96	1.219	16,13	.635	4,76	.188	132
7F2-1221T	7F2-1221A	31,00	1.221	16,13	.635	4,76	.188	132
–	7F2-1231A	31,27	1.231	16,13	.635	4,76	.188	132
7F2-1234T	–	31,35	1.234	16,13	.635	4,76	.188	132
7F2-1250T	7F2-1250A	31,75	1.250	16,13	.635	4,76	.188	132
7F2-1260T	7F2-1260A	32,00	1.260	16,13	.635	4,76	.188	132
7F2-1266T	7F2-1266A	32,15	1.266	16,13	.635	4,76	.188	132
7F2-1281T	7F2-1281A	32,55	1.281	16,13	.635	4,76	.188	132
7F2-1299T	7F2-1299A	33,00	1.299	16,13	.635	4,76	.188	132
7F2-1313T	7F2-1313A	33,34	1.313	16,13	.635	4,76	.188	132
7F2-1328T	7F2-1328A	33,73	1.328	16,13	.635	4,76	.188	132
7F2-1339T	7F2-1339A	34,00	1.339	16,13	.635	4,76	.188	132
7F2-1344T	7F2-1344A	34,13	1.344	16,13	.635	4,76	.188	132
7F2-1359T	–	34,53	1.359	16,13	.635	4,76	.188	132
7F2-1375T	7F2-1375A	34,93	1.375	16,13	.635	4,76	.188	132
7F2-1378T	7F2-1378A	35,00	1.378	16,13	.635	4,76	.188	132

Toolholders available upon request as an Engineered Solution.







Seat Size 3

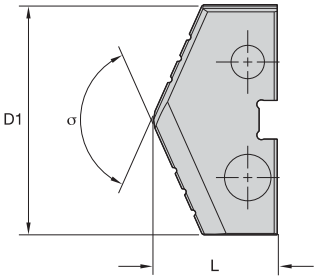
P	●
M	
K	○
N	
S	
H	

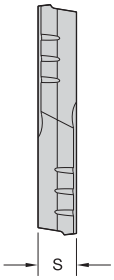
P	●
M	
K	○
N	
S	
H	

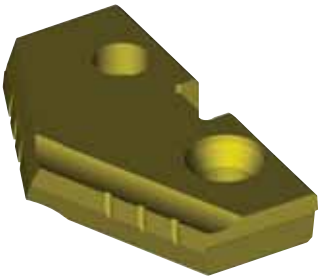
● first choice
○ alternate choice

TiN	TiAlN	D1 mm	D1 in	L mm	L in	S mm	S in	σ
7F3-1391T	–	35,32	1.391	20,45	.805	6,35	.250	132
7F3-1406T	7F3-1406A	35,72	1.406	20,45	.805	6,35	.250	132
7F3-1417T	7F3-1417A	36,00	1.417	20,45	.805	6,35	.250	132
7F3-1438T	7F3-1438A	36,51	1.438	20,45	.805	6,35	.250	132
7F3-1457T	7F3-1457A	37,00	1.457	20,45	.805	6,35	.250	132
7F3-1469T	7F3-1469A	37,31	1.469	20,45	.805	6,35	.250	132
7F3-1484T	7F3-1484A	37,70	1.484	20,45	.805	6,35	.250	132
7F3-1496T	7F3-1496A	38,00	1.496	20,45	.805	6,35	.250	132
7F3-1500T	7F3-1500A	38,10	1.500	20,45	.805	6,35	.250	132
7F3-1516T	7F3-1516A	38,50	1.516	20,45	.805	6,35	.250	132
–	7F3-1525A	38,74	1.525	20,45	.805	6,35	.250	132
7F3-1531T	7F3-1531A	38,90	1.531	20,45	.805	6,35	.250	132
7F3-1535T	7F3-1535A	39,00	1.535	20,45	.805	6,35	.250	132
7F3-1563T	7F3-1563A	39,69	1.563	20,45	.805	6,35	.250	132
7F3-1575T	7F3-1575A	40,00	1.575	20,45	.805	6,35	.250	132
7F3-1578T	–	40,08	1.578	20,45	.805	6,35	.250	132
7F3-1594T	7F3-1594A	40,48	1.594	20,45	.805	6,35	.250	132
7F3-1614T	7F3-1614A	41,00	1.614	20,45	.805	6,35	.250	132
7F3-1625T	7F3-1625A	41,28	1.625	20,45	.805	6,35	.250	132
7F3-1654T	7F3-1654A	42,00	1.654	20,45	.805	6,35	.250	132
7F3-1656T	7F3-1656A	42,07	1.656	20,45	.805	6,35	.250	132
7F3-1688T	7F3-1688A	42,86	1.688	20,45	.805	6,35	.250	132
7F3-1693T	7F3-1693A	43,00	1.693	20,45	.805	6,35	.250	132
7F3-1703T	–	43,26	1.703	20,45	.805	6,35	.250	132
7F3-1719T	7F3-1719A	43,66	1.719	20,45	.805	6,35	.250	132
7F3-1732T	7F3-1732A	44,00	1.732	9,19	.362	2,39	.094	132
7F3-1750T	7F3-1750A	44,45	1.750	20,45	.805	6,35	.250	132
7F3-1766T	–	44,85	1.766	20,45	.805	6,35	.250	132
7F3-1772T	7F3-1772A	45,00	1.772	20,45	.805	6,35	.250	132
7F3-1781T	7F3-1781A	45,25	1.781	20,45	.805	6,35	.250	132
–	7F3-1793A	45,54	1.793	20,45	.805	6,35	.250	132
7F3-1811T	7F3-1811A	46,00	1.811	20,45	.805	6,35	.250	132
7F3-1813T	7F3-1813A	46,04	1.813	20,45	.805	6,35	.250	132
7F3-1828T	–	46,43	1.828	20,45	.805	6,35	.250	132
7F3-1844T	7F3-1844A	46,83	1.844	20,45	.805	6,35	.250	132
7F3-1850T	–	47,00	1.850	20,45	.805	6,35	.250	132
7F3-1875T	7F3-1875A	47,63	1.875	20,45	.805	6,35	.250	132

Toolholders available upon request as an Engineered Solution.







Seat Size 4

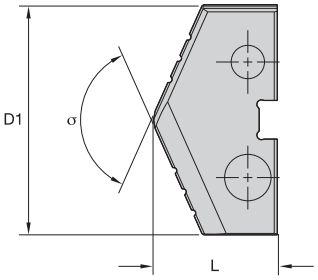
P	●
M	
K	○
N	
S	
H	

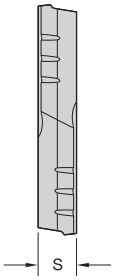
P	●
M	
K	○
N	
S	
H	

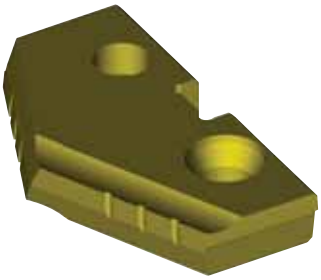
● first choice
○ alternate choice

TiN	TiAlN	D1 mm	D1 in	L mm	L in	S mm	S in	σ
7F4-1880T	–	47,75	1.880	23,62	.930	7,95	.313	132
7F4-1890T	7F4-1890A	48,00	1.890	23,62	.930	7,95	.313	132
7F4-1906T	7F4-1906A	48,42	1.906	23,62	.930	7,95	.313	132
7F4-1929T	7F4-1929A	49,00	1.929	23,62	.930	7,95	.313	132
7F4-1938T	7F4-1938A	49,21	1.938	23,62	.930	7,95	.313	132
7F4-1969T	7F4-1969A	50,00	1.969	23,62	.930	7,95	.313	132
7F4-2000T	7F4-2000A	50,80	2.000	23,62	.930	7,95	.313	132
7F4-2008T	–	51,00	2.008	23,62	.930	7,95	.313	132
7F4-2016T	–	51,20	2.016	23,62	.930	7,95	.313	132
7F4-2031T	7F4-2031A	51,60	2.031	23,62	.930	7,95	.313	132
7F4-2047T	7F4-2047A	52,00	2.047	23,62	.930	7,95	.313	132
7F4-2063T	7F4-2063A	52,39	2.063	23,62	.930	7,95	.313	132
7F4-2087T	7F4-2087A	53,00	2.087	23,62	.930	7,95	.313	132
7F4-2094T	7F4-2094A	53,18	2.094	23,62	.930	7,95	.313	132
7F4-2125T	7F4-2125A	53,98	2.125	23,62	.930	7,95	.313	132
–	7F4-2126A	54,00	2.126	23,62	.930	7,95	.313	132
7F4-2156T	–	54,77	2.156	23,62	.930	7,95	.313	132
7F4-2188T	7F4-2188A	55,56	2.188	23,62	.930	7,95	.313	132
7F4-2205T	7F4-2205A	56,00	2.205	23,62	.930	7,95	.313	132
7F4-2219T	7F4-2219A	56,36	2.219	23,62	.930	7,95	.313	132
7F4-2244T	7F4-2244A	57,00	2.244	23,62	.930	7,95	.313	132
7F4-2250T	7F4-2250A	57,15	2.250	23,62	.930	7,95	.313	132
7F4-2281T	7F4-2281A	57,95	2.281	23,62	.930	7,95	.313	132
–	7F4-2284A	58,00	2.284	23,62	.930	7,95	.313	132
7F4-2313T	7F4-2313A	58,74	2.313	23,62	.930	7,95	.313	132
7F4-2323T	7F4-2323A	59,00	2.323	23,62	.930	7,95	.313	132
7F4-2344T	7F4-2344A	59,53	2.344	23,62	.930	7,95	.313	132
7F4-2362T	–	60,00	2.362	23,62	.930	7,95	.313	132
7F4-2375T	7F4-2375A	60,33	2.375	23,62	.930	7,95	.313	132
7F4-2391T	–	60,72	2.391	23,62	.930	7,95	.313	132
–	7F4-2402A	61,00	2.402	23,62	.930	7,95	.313	132
7F4-2406T	7F4-2406A	61,12	2.406	23,62	.930	7,95	.313	132
7F4-2438T	7F4-2438A	61,91	2.438	23,62	.930	7,95	.313	132
–	7F4-2441A	62,00	2.441	23,62	.930	7,95	.313	132
7F4-2469T	7F4-2469A	62,71	2.469	23,62	.930	7,95	.313	132
7F4-2480T	7F4-2480A	63,00	2.480	23,62	.930	7,95	.313	132
7F4-2500T	7F4-2500A	63,50	2.500	23,62	.930	7,95	.313	132
–	7F4-2520A	64,00	2.520	23,62	.930	7,95	.313	132
7F4-2531T	7F4-2531A	64,30	2.531	23,62	.930	7,95	.313	132
–	7F4-2559A	65,00	2.559	23,62	.930	7,95	.313	132
7F4-2563T	7F4-2563A	65,09	2.563	23,62	.930	7,95	.313	132

Toolholders available upon request as an Engineered Solution.







Seat Size 5

P	M	K	N	S	H
●		○			

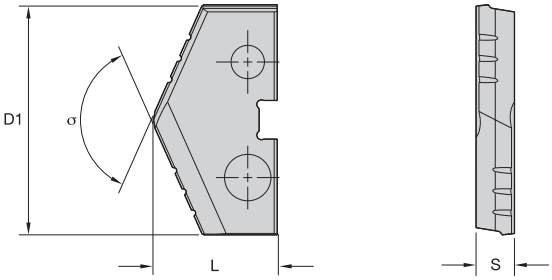
● first choice
○ alternate choice

TiN	TiAlN	D1 mm	D1 in	L mm	L in	S mm	S in	σ
7F5-2500T	7F5-2500A	63,50	2.500	31,50	1.240	11,13	.438	144
7F5-2520T	–	64,00	2.520	31,50	1.240	11,13	.438	144
–	7F5-2531A	64,30	2.531	31,50	1.240	11,13	.438	144
7F5-2563T	7F5-2563A	65,09	2.563	31,50	1.240	11,13	.438	144
7F5-2598T	7F5-2598A	66,00	2.598	31,50	1.240	11,13	.438	144
7F5-2625T	7F5-2625A	66,68	2.625	31,50	1.240	11,13	.438	144
7F5-2656T	–	67,47	2.656	31,50	1.240	11,13	.438	144
7F5-2677T	7F5-2677A	68,00	2.677	31,50	1.240	11,13	.438	144
7F5-2688T	7F5-2688A	68,26	2.688	31,50	1.240	11,13	.438	144
7F5-2719T	7F5-2719A	69,06	2.719	31,50	1.240	11,13	.438	144
7F5-2750T	7F5-2750A	69,85	2.750	31,50	1.240	11,13	.438	144
7F5-2756T	7F5-2756A	70,00	2.756	31,50	1.240	11,13	.438	144
7F5-2781T	7F5-2781A	70,65	2.781	31,50	1.240	11,13	.438	144
7F5-2813T	7F5-2813A	71,44	2.813	31,50	1.240	11,13	.438	144
7F5-2835T	7F5-2835A	72,00	2.835	31,50	1.240	11,13	.438	144
–	7F5-2844A	72,23	2.844	31,50	1.240	11,13	.438	144
7F5-2875T	7F5-2875A	73,03	2.875	31,50	1.240	11,13	.438	144
7F5-2906T	7F5-2906A	73,82	2.906	31,50	1.240	11,13	.438	144
7F5-2913T	7F5-2913A	74,00	2.913	31,50	1.240	11,13	.438	144
7F5-2938T	7F5-2938A	74,61	2.938	31,50	1.240	11,13	.438	144
7F5-2969T	7F5-2969A	75,41	2.969	31,50	1.240	11,13	.438	144
–	7F5-2992A	76,00	2.992	31,50	1.240	11,13	.438	144
7F5-3000T	7F5-3000A	76,20	3.000	31,50	1.240	11,13	.438	144

Toolholders available upon request as an Engineered Solution.

Indexable Milling

Victory M1200 Series **B2–B27**
M1200 Mini B2–B21
M1200 HD B22–B27
M690 Series **B28–B32**
M270 Series **B34–B40**
M370 Series **B42–B49**
M4000 . . . . . **B50–B53**
Additional Inserts • ISO **B54–B58**



Seat Size 6

P ● M K ○ N S H

P ● M K ○ N S H

● first choice
○ alternate choice

TiN	TiAlN	D1 mm	D1 in	L mm	L in	S mm	S in	σ
7F6-3063T	7F6-3063A	77,79	3.063	31,50	1.240	11,13	.438	144
–	7F6-3071A	78,00	3.071	31,50	1.240	11,13	.438	144
7F6-3125T	7F6-3125A	79,38	3.125	31,50	1.240	11,13	.438	144
–	7F6-3150A	80,00	3.150	31,50	1.240	11,13	.438	144
7F6-3188T	–	80,96	3.188	31,50	1.240	11,13	.438	144
7F6-3228T	7F6-3228A	82,00	3.228	31,50	1.240	11,13	.438	144
7F6-3250T	7F6-3250A	82,55	3.250	31,50	1.240	11,13	.438	144
7F6-3313T	7F6-3313A	84,14	3.313	31,50	1.240	11,13	.438	144
7F6-3375T	7F6-3375A	85,73	3.375	31,50	1.240	11,13	.438	144
7F6-3438T	7F6-3438A	87,31	3.438	31,50	1.240	11,13	.438	144
7F6-3500T	7F6-3500A	88,90	3.500	31,50	1.240	11,13	.438	144

Toolholders available upon request as an Engineered Solution.

Seat Size 7

P ● M K ○ N S H

P ● M K ○ N S H

● first choice
○ alternate choice

TiN	TiAlN	D1 mm	D1 in	L mm	L in	S mm	S in	σ
7F7-3543T	–	90,00	3.543	31,50	1.240	11,13	.438	144
7F7-3563T	–	90,49	3.563	31,50	1.240	11,13	.438	144
7F7-3625T	7F7-3625A	92,08	3.625	31,50	1.240	11,13	.438	144
7F7-3688T	–	93,66	3.688	31,50	1.240	11,13	.438	144
7F7-3750T	7F7-3750A	95,25	3.750	31,50	1.240	11,13	.438	144
–	7F7-3813A	96,84	3.813	31,50	1.240	11,13	.438	144
7F7-3875T	7F7-3875A	98,43	3.875	31,50	1.240	11,13	.438	144
7F7-3938T	7F7-3938A	96,00	3.938	31,50	1.240	11,13	.438	144
7F7-4000T	7F7-4000A	101,60	4.000	31,50	1.240	11,13	.438	144

Toolholders available upon request as an Engineered Solution.

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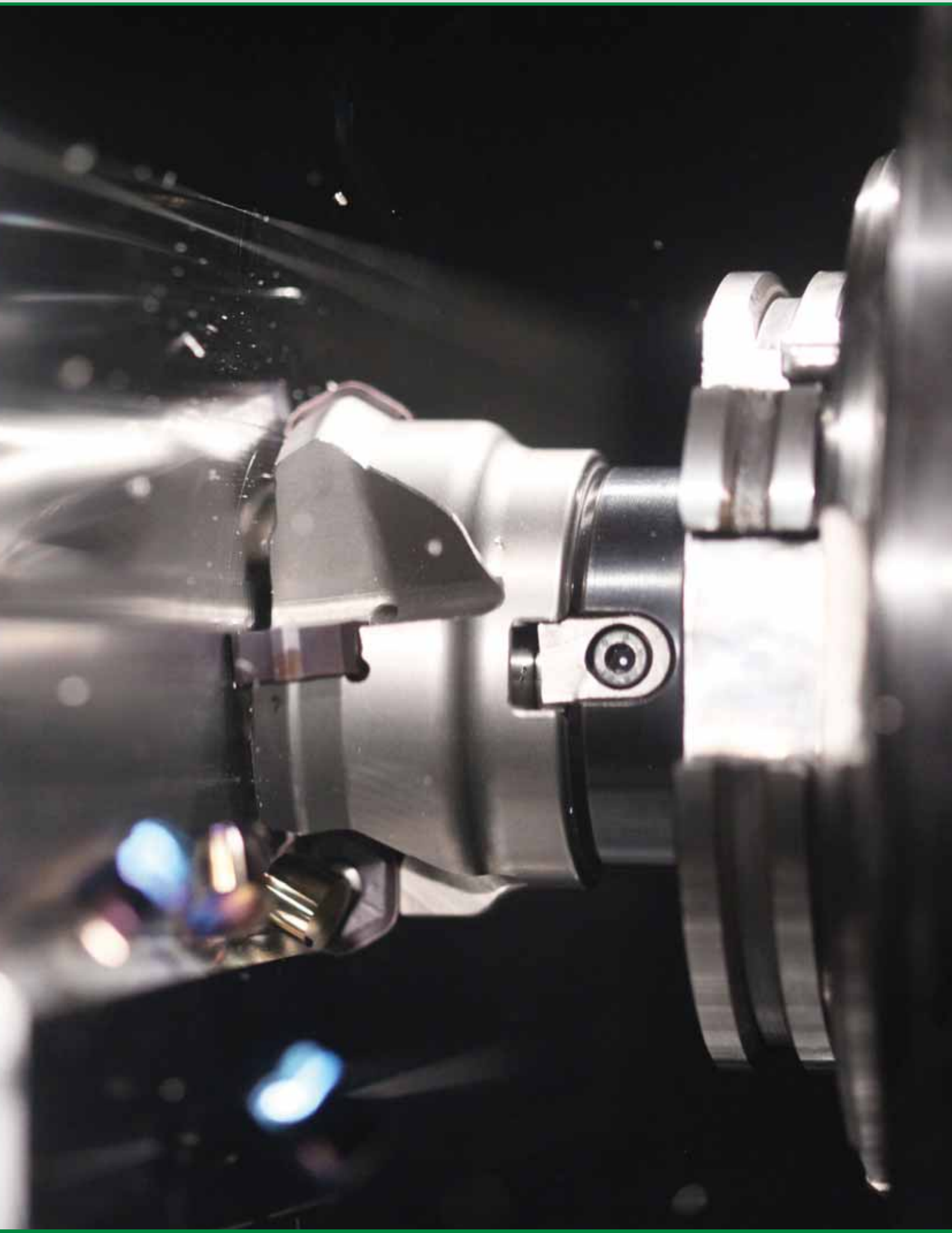

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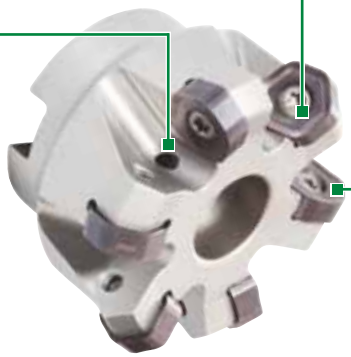
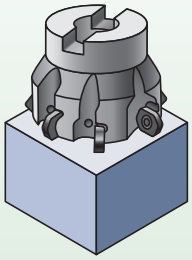
- M1200 Mini 15°, 45°, and 60° lead.
- WIDIA premium milling grades.
- Up to 35% better tool life from light to heavy machining.
- Up to 40% shorter machining cycle time.



Face Mills



Victory™ M1200 Mini

Max depth of cut: 4,7mm

Indexes per insert: 12
Diameter: 25mm–125mm

Pages: B4–B21

P
M
K
N
S

Insert Geometry		Recommended Use
	LDJ	First choice for aluminium and non-ferrous machining. Periphery ground with polished rake face.
	LD	First choice for light machining and machining stainless steels.
	32LD	Optimisation for light machining when greater corner protection required. Strong corner radius in place of wiper facet.

Insert Geometry		Recommended Use
	GD	First choice for general machining in steel and cast iron. Best option for general-purpose use.
	HD	First choice for heavy machining.
	32HD	Optimisation for heavy machining when greater protection required. Strong corner radius in place of wiper facet.
	LDJ3W	Wiper insert for finishing aluminium and non-ferrous materials.
	LD3W	Wiper insert for finishing steel, stainless steel, and cast iron.

M1200 Mini High-Feed (HP)

12 True Cutting Edges

15° Lead

Insert HNGJ0704
HNPJ0704

Ap1 max = 1,7mm

M1200 Mini HF can be loaded with all M1200 Mini standard inserts, except wiper inserts.

M1200 Mini 45°

12 True Cutting Edges

45° Lead

Insert HNGJ0704
HNPJ0704

Ap1 max = 3,5mm

Best-in-class leader in face milling up to Ap1 max = 3,5mm. Excellent choice for near net shape strategies and driven tools.

M1200 Mini HD 60°

12 True Cutting Edges

60° Lead

Insert HNGJ0704
HNPJ0704

Ap1 max = 4,7mm

Achieve a higher axial depth-of-cut capabiltiy up to Ap1 = 4,7mm with standard M1200 Mini inserts.

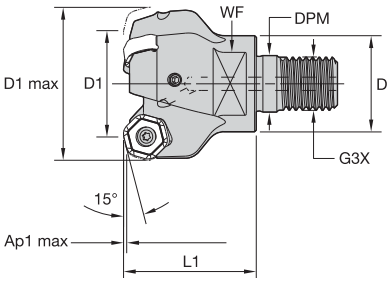
M1200 Mini HF High-Feed

First choice for long reach face milling applications or light fixtures.

Chip thinning effect due to lead angle 14,5°. Tremendous enlargement of feed rate and MRR.

Up to 40% shorter machining cycle time.

- Twelve cutting edges.
- First choice for low depth-of-cut face milling.
- High-Feed capability.



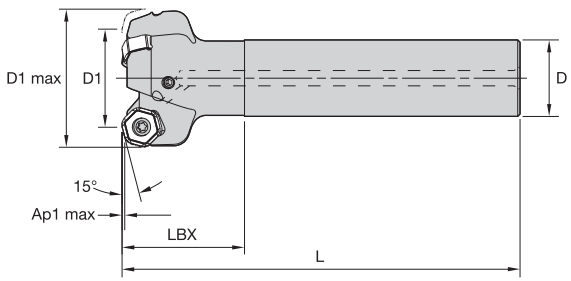
M1200 Mini HF High-Feed • Screw-On

order number	catalogue number	D1	D1 max	D	DPM	G3X	L1	WF	Ap1 max	Z	max RPM	coolant supply	kg
4136874	**M1200HF025Z02M16HN07**	25	39	29	17,0	M16	32	22	1,7	2	20000	Yes	0,2
4136875	**M1200HF025Z03M16HN07**	25	39	29	17,0	M16	32	22	1,7	3	20000	Yes	0,2
4136876	**M1200HF032Z03M16HN07**	32	46	29	17,0	M16	40	22	1,7	3	17600	Yes	0,3
4136877	**M1200HF032Z04M16HN07**	32	46	29	17,0	M16	40	22	1,7	4	17600	Yes	0,3
4136878	**M1200HF040Z04M16HN07**	40	54	29	17,0	M16	40	22	1,7	4	15800	Yes	0,3
4136879	**M1200HF040Z05M16HN07**	40	54	29	17,0	M16	40	22	1,7	5	15800	Yes	0,3

Spare Parts

D1	insert screw	Nm	Torx driver
25	**12146034500**	3,5	**12148082400**
32	**12146034500**	3,5	**12148082400**
40	**12146034500**	3,5	**12148082400**

- Twelve cutting edges.
- First choice for low depth-of-cut face milling.
- High-Feed capability.



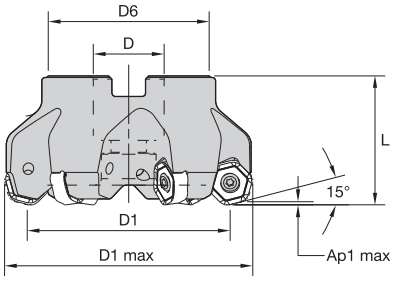
M1200 Mini HF High Feed • Cylindrical Shank

order number	catalogue number	D1	D1 max	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	kg
4136880	**M1200HF025Z02A20HN07L120**	25	39	20	120	32	1,7	2	20000	Yes	0,3
4136881	**M1200HF025Z03A20HN07L120**	25	39	20	120	32	1,7	3	20000	Yes	0,3
4136882	**M1200HF032Z03A25HN07L130**	32	46	25	130	40	1,7	3	17600	Yes	0,5
4136883	**M1200HF032Z04A25HN07L130**	32	46	25	130	40	1,7	4	17600	Yes	0,5

Spare Parts

D1	insert screw	Nm	Torx driver
25	**12146034500**	3,5	**12148082400**
32	**12146034500**	3,5	**12148082400**

- Twelve cutting edges.
- First choice for low depth-of-cut face milling.
- High-Feed capability.

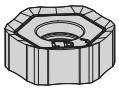


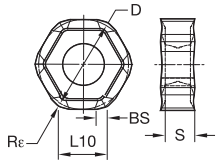
M1200 Mini HF High-Feed • Shell Mills

order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	max RPM	coolant supply	kg
4136884	**M1200HF040Z05HN07**	40	54	22	38	40	1,7	5	15800	Yes	0,3
4136885	**M1200HF050Z05HN07**	50	64	22	38	40	1,7	5	12700	Yes	0,4
4136886	**M1200HF063Z06HN07**	63	77	22	50	40	1,7	6	10100	Yes	0,7
4136887	**M1200HF080Z08HN07**	80	94	27	60	50	1,7	8	7900	Yes	1,3

Spare Parts

D1	insert screw	Nm	Torx driver
40	**12146034500**	3,5	**12148082400**
50	**12146034500**	3,5	**12148082400**
63	**12146034500**	3,5	**12148082400**
80	**12146034500**	3,5	**12148082400**



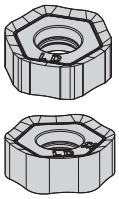


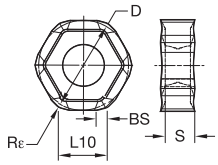
● first choice
○ alternate choice

P	
M	
K	
N	● ●
S	
H	

■ HNGJ-LDJ

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN6501	THM-U
HNGJ0704ANFNLDJ	12	12,70	6,80	4,48	1,60	1,2	0,08	●	●



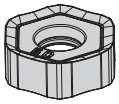


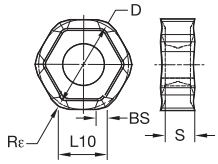
● first choice
○ alternate choice

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

■ HNGJ-LD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6505	TN6510	TN6520	TN6525	TN6540
HNGJ0704ANENLD	12	12,70	6,80	4,43	1,60	1,2	0,08	●	●	●	●	●	●
HNGJ070432ANENLD	12	12,70	6,80	4,48	—	3,2	0,08			●		●	●



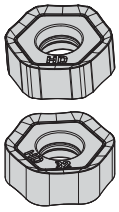


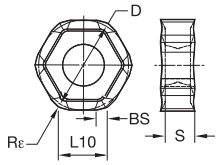
● first choice
○ alternate choice

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

■ HNPJ-GD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6510	TN6520	TN6540	TN7535
HNPJ0704ANSNGD	12	12,70	6,80	4,45	1,27	1,2	0,10	●	●	●	●	●





● first choice
○ alternate choice

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

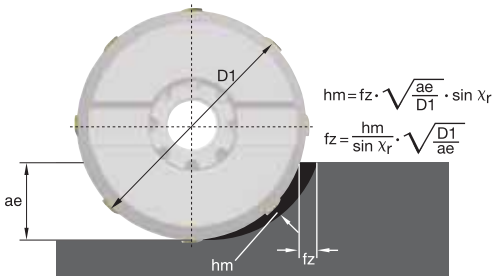
■ HNPJ-HD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6510	TN6520	TN6540	TN7535
HNPJ0704ANSNHD	12	12,70	6,80	4,41	1,25	1,2	0,14	●	●	●	●	●
HNPJ070432ANSNHD	12	12,70	6,80	4,42	—	3,2	0,14		●	●	●	●

		TN5515			TN6501			TN6505			TN6510			TN6520		
Edge Geometry		feed per tooth fz (mm)														
	..LDJ				0,14	**0,30**	0,70									
	..LD	0,23	**0,42**	0,68				0,26	**0,46**	0,76	0,26	**0,46**	0,76	0,26	**0,49**	0,80
	..GD	0,35	**0,60**	0,82							0,39	**0,67**	0,89	0,42	**0,70**	0,91
	..HD	0,46	**0,84**	1,19							0,49	**0,91**	1,32	0,53	**0,95**	1,33
Material Group		vc (m/min)														
P	1							460	**350**	300						
	2							310	**230**	210						
	3							260	**200**	170						
	4							270	**210**	170						
	5							220	**170**	140						
	6							300	**220**	180						
	7							220	**170**	160						
	8							200	**160**	130						
	9							170	**130**	100						
	10							220	**180**	170						
	11							160	**120**	90						
	12							290	**220**	180						
	13.1							250	**180**	160						
	13.2							130	**90**	80						
M	14.1															
	14.2															
	14.3															
	14.4															
K	15	530	**390**	280	—	—	—	—	—	—	480	**350**	250	380	**280**	200
	16	410	**310**	230	—	—	—	—	—	—	370	**280**	210	300	**220**	170
	17	460	**310**	230	—	—	—	310	**230**	210	420	**280**	210	340	**220**	170
	18	300	**220**	170	—	—	—	260	**200**	170	270	**200**	150	220	**160**	120
	19	370	**290**	220	—	—	—	—	—	—	340	**260**	200	270	**210**	160
	20	310	**230**	180	—	—	—	—	—	—	280	**210**	160	220	**170**	130
N	21				2000	**1050**	650									
	22				980	**550**	450									
	23				1800	**950**	600									
	24				1050	**650**	500									
	25				750	**500**	350									
	26				—	—	—									
	27				—	—	—									
	28				—	—	—									
	29				—	—	—									
	30				—	—	—									
S	31															
	32															
	33															
	34															
	35															
	36															
	37															
H	38.1															
	38.2															
	39.1															
	39.2															

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

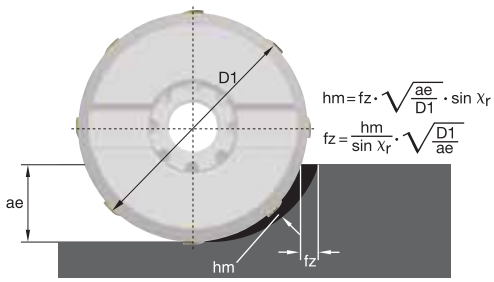
ae/D1 =	0,1	0,2	0,3	0,4
fz-Factor	2,0	1,5	1,3	1,0
vc-Factor	1,4	1,3	1,2	1,1



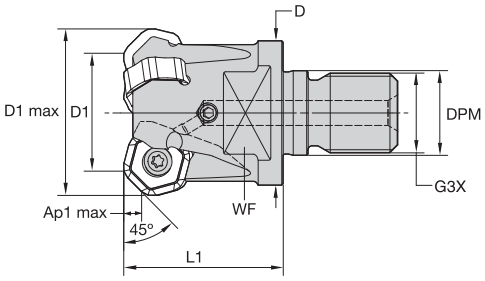
		TN6525			TN6540			TN7535			THM-U		
Edge Geometry		feed per tooth fz (mm)											
..LDJ											0,14	**0,30**	0,70
..LD		0,20	**0,36**	0,60	0,26	**0,49**	0,80	0,23	**0,42**	0,68			
..GD		0,28	**0,53**	0,75	0,39	**0,70**	0,91	0,35	**0,60**	0,82			
..HD		0,39	**0,70**	0,95	0,49	**0,91**	1,33	0,46	**0,84**	1,20			
Material Group		vc (m/min)											
P	1	350	**270**	228	290	**220**	190	360	**280**	240			
	2	240	**180**	160	200	**150**	130	250	**190**	165			
	3	200	**150**	130	170	**130**	110	210	**160**	140			
	4	210	**160**	130	170	**130**	110	215	**165**	140			
	5	170	**130**	110	140	**100**	90	180	**130**	110			
	6	228	**170**	140	190	**140**	120	240	**180**	150			
	7	170	**130**	120	140	**110**	100	180	**140**	120			
	8	150	**120**	100	130	**100**	80	160	**120**	100			
	9	130	**100**	80	110	**80**	60	140	**100**	80			
	10	170	**140**	130	140	**120**	100	180	**145**	130			
	11	120	**90**	70	100	**70**	60	120	**90**	70			
	12	220	**170**	140	180	**140**	120	230	**175**	150			
	13.1	190	**140**	120	160	**120**	100	200	**145**	120			
	13.2	96	**70**	60	80	**60**	50	100	**75**	60			
M	14.1	190	**120**	90	160	**100**	70	200	**120**	90			
	14.2	150	**90**	70	130	**80**	60	160	**95**	70			
	14.3	120	**70**	50	100	**60**	40	120	**70**	55			
	14.4	100	**60**	40	80	**50**	40	100	**60**	45			
K	15	—	—	—	—	—	—	—	—	—			
	16	—	—	—	—	—	—	—	—	—			
	17	240	**180**	160	200	**150**	130	250	**190**	165			
	18	200	**150**	130	170	**130**	110	210	**160**	140			
	19	—	—	—	—	—	—	—	—	—			
	20	—	—	—	—	—	—	—	—	—			
N	21										1800	**950**	590
	22										880	**500**	405
	23										1600	**860**	540
	24										950	**590**	450
	25										680	**450**	315
	26										670	**500**	310
	27										700	**610**	500
	28										750	**660**	540
	29										750	**650**	530
	30										700	**655**	500
S	31				60	**50**	45						
	32				50	**40**	35						
	33				35	**25**	20						
	34				30	**20**	15						
	35				30	**20**	15						
	36				80	**50**	40						
	37				70	**45**	35						
H	38.1												
	38.2												
	39.1												
	39.2												

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	0,1	0,2	0,3	0,4
fz-Factor	2,0	1,5	1,3	1,0
vc-Factor	1,4	1,3	1,2	1,1



- Twelve cutting edges.
- First choice for low depth-of-cut face milling.
- Maximum number of teeth per diameter.



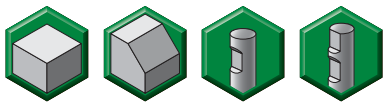
Victory M1200 Mini

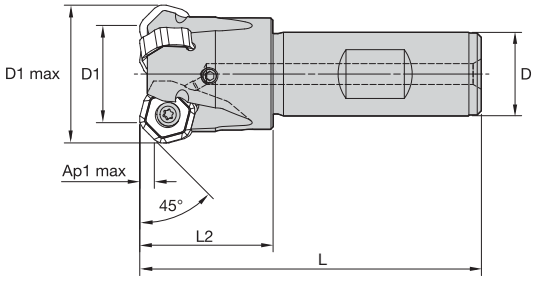
order number	catalogue number	D1	D1 max	D	DPM	G3X	L1	WF	Ap1 max	Z	max RPM	coolant supply	kg
3957839	**M1200D025Z02M16HN07**	25	34	29	17,0	M16	32	22	3,5	2	20000	Yes	0,1
3957840	**M1200D025Z03M16HN07**	25	34	29	17,0	M16	32	22	3,5	3	20000	Yes	0,1
3957842	**M1200D032Z04M16HN07**	32	41	29	17,0	M16	40	22	3,5	4	17600	Yes	0,2
3957841	**M1200D032Z03M16HN07**	32	41	29	17,0	M16	40	22	3,5	3	17600	Yes	0,2
3957963	**M1200D040Z04M16HN07**	40	49	29	17,0	M16	40	22	3,5	4	15800	Yes	0,2
3957964	**M1200D040Z05M16HN07**	40	49	29	17,0	M16	40	22	3,5	5	15800	Yes	0,3

Spare Parts

D1	insert screw	Nm	Torx driver
25	**12146034500**	3,5	**12148082400**
32	**12146034500**	3,5	**12148082400**
40	**12146034500**	3,5	**12148082400**

- Twelve cutting edges.
- First choice for low depth-of-cut face milling.
- Maximum number of teeth per diameter.





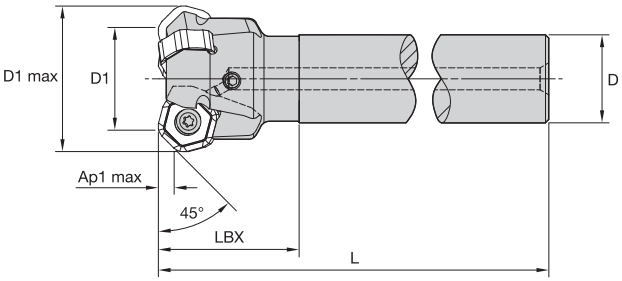
Victory M1200 Mini

order number	catalogue number	D1	D1 max	D	L	L2	Ap1 max	Z	max RPM	coolant supply	kg
3958011	**M1200D025Z02B20HN07**	25	34	20	82	32	3,5	2	20000	Yes	0,2
3958012	**M1200D025Z03B20HN07**	25	34	20	82	32	3,5	3	20000	Yes	0,2
3958023	**M1200D032Z03B25HN07**	32	41	25	97	40	3,5	3	17600	Yes	0,4
3958024	**M1200D032Z04B25HN07**	32	41	25	97	40	3,5	4	17600	Yes	0,4

Spare Parts

D1	insert screw	Nm	Torx driver
25	**12146034500**	3,5	**12148082400**
32	**12146034500**	3,5	**12148082400**

- Twelve cutting edges.
- First choice for low depth-of-cut face milling.
- Maximum number of teeth per diameter.



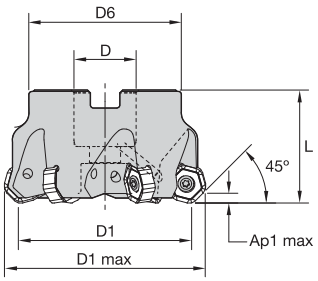
Victory M1200 Mini

order number	catalogue number	D1	D1 max	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	kg
3958025	M1200D025Z02A20HN07L120	25	34	20	120	32	3,5	2	20000	Yes	0,3
3958026	M1200D025Z03A20HN07L120	25	34	20	120	32	3,5	3	20000	Yes	0,3
3958029	M1200D025Z02A25HN07L200	25	34	25	200	32	3,5	2	20000	Yes	0,7
3958030	M1200D025Z03A25HN07L200	25	34	25	200	32	3,5	3	20000	Yes	0,7
3958027	M1200D032Z03A25HN07L130	32	41	25	130	40	3,5	3	17600	Yes	0,5
3958028	M1200D032Z04A25HN07L130	32	41	25	130	40	3,5	4	17600	Yes	0,5

Spare Parts

D1	insert screw	Nm	Torx driver
25	12146034500	3,5	12148082400
32	12146034500	3,5	12148082400

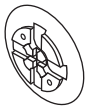
- Twelve cutting edges.
- First choice for low depth-of-cut face milling.
- Maximum number of teeth per diameter.



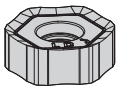
Victory M1200 Mini

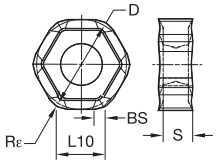
order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	max RPM	coolant supply	kg
3957995	M1200D040Z04HN07	40	49	22	38	40	3,5	4	15800	Yes	0,3
3957996	M1200D040Z05HN07	40	49	22	38	40	3,5	5	15800	Yes	0,3
3957997	M1200D050Z04HN07	50	59	22	38	40	3,5	4	12700	Yes	0,4
3957998	M1200D050Z05HN07	50	59	22	38	40	3,5	5	12700	Yes	0,4
3957999	M1200D050Z06HN07	50	59	22	38	40	3,5	6	12700	Yes	0,4
3958000	M1200D063Z04HN07	63	72	22	50	40	3,5	4	10100	Yes	0,6
3958001	M1200D063Z06HN07	63	72	22	50	40	3,5	6	10100	Yes	0,7
3958002	M1200D063Z08HN07	63	72	22	50	40	3,5	8	10100	Yes	0,6
3958003	M1200D080Z05HN07	80	89	27	60	50	3,5	5	7900	Yes	1,1
3958004	M1200D080Z08HN07	80	89	27	60	50	3,5	8	7900	Yes	1,2
3958005	M1200D080Z10HN07	80	89	27	60	50	3,5	10	7900	Yes	1,2
3958006	M1200D100Z06HN07	100	109	32	80	50	3,5	6	6300	Yes	1,7
3958007	M1200D100Z09HN07	100	109	32	80	50	3,5	9	6300	Yes	1,8
3958008	M1200D100Z12HN07	100	109	32	80	50	3,5	12	6300	Yes	1,8
4138470	M1200D125Z08HN07	125	134	40	90	63	3,5	8	5050	Yes	2,8
4138471	M1200D125Z12HN07	125	134	40	90	63	3,5	12	5050	Yes	3,0
4138472	M1200D125Z16HN07	125	134	40	90	63	3,5	16	5050	Yes	3,0

Spare Parts



D1	insert screw	Nm	Torx driver	socket-head cap screw	socket-head cap screw with coolant groove	coolant lock screw assembly	coolant lock screw	coolant shower plate
40	12146034500	3,5	12148082400	–	12146109200	–	–	–
50	12146034500	3,5	12148082400	12146120500	–	–	–	–
63	12146034500	3,5	12148082400	12146120500	–	–	–	–
80	12146034500	3,5	12148082400	12748701000	–	–	–	–
100	12146034500	3,5	12148082400	–	–	12146109400	–	–
125	12146034500	3,5	12148082400	–	–	–	12146107000	12146111000



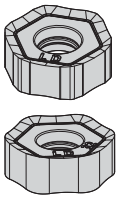


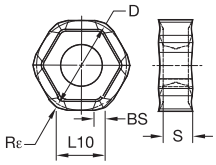
● first choice
○ alternate choice

■ HNGJ-LDJ

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN6501	THM-U
HNGJ0704ANFNLDJ	12	12,70	6,80	4,48	1,60	1,2	0,08	●	●

	TN6501	THM-U
P		
M		
K		
N	●	●
S		
H		



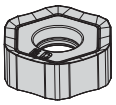


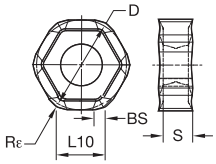
● first choice
○ alternate choice

■ HNGJ-LD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6505	TN6510	TN6520	TN6525	TN6540
HNGJ0704ANENLD	12	12,70	6,80	4,43	1,60	1,2	0,08	●	●	●	●	●	●
HNGJ070432ANENLD	12	12,70	6,80	4,48	—	3,2	0,08			●		●	●

	TN5515	TN6505	TN6510	TN6520	TN6525	TN6540
P		●			●	●
M					○	●
K	●	●	●	●	○	○
N						
S						●
H						



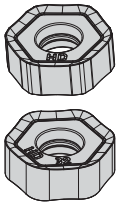


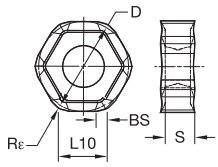
● first choice
○ alternate choice

■ HNPJ-GD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6510	TN6520	TN6540	TN7535
HNPJ0704ANSNGD	12	12,70	6,80	4,45	1,27	1,2	0,10	●	●	●	●	●

	TN5515	TN6510	TN6520	TN6540	TN7535
P				●	●
M				●	○
K	●	●	●	○	○
N					
S				●	
H					



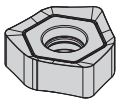


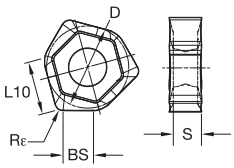
● first choice
○ alternate choice

	TN5515	TN6510	TN6520	TN6540	TN7535
P				●	●
M				●	○
K	●	●	●	○	○
N					
S				●	
H					

■ HNPJ-HD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6510	TN6520	TN6540	TN7535
HNPJ0704ANSNHD	12	12,70	6,80	4,41	1,25	1,2	0,14	●	●	●	●	●
HNPJ070432ANSNHD	12	12,70	6,80	4,42	—	3,2	0,14		●	●	●	●





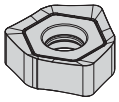
● first choice
○ alternate choice

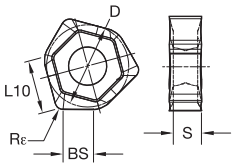
	TN6501	THM-U
P		
M		
K		
N	●	●
S		
H		

■ XNGJ-LDJ-3 Wiper

catalogue number	cutting edges *	D	L10	S	BS	Rε	TN6501	THM-U
XNGJ0704ANFNLDJ3W	3	12,70	6,78	4,47	6,78	1,3	●	●

**3 RH and 3 LH cutting edges.*





● first choice
○ alternate choice

	TN5515	TN6510	TN6520	TN6525	TN6540
P				●	●
M				○	●
K	●	●	●	○	○
N					
S					●
H					

■ XNGJ-LD3 Wiper

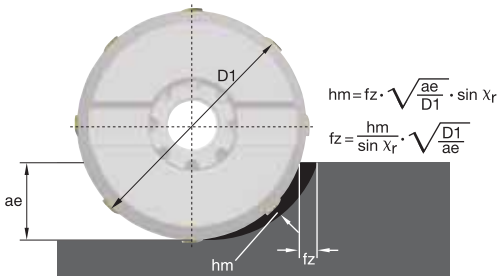
catalogue number	cutting edges *	D	L10	S	BS	Rε	TN5515	TN6510	TN6520	TN6525	TN6540
XNGJ0704ANENLD3W	3	12,70	6,78	4,47	6,78	1,3	●	●	●	●	●

**3 RH and 3 LH cutting edges.*

		TN5515			TN6501			TN6505			TN6510			TN6520		
Edge Geometry		feed per tooth fz (mm)														
..LDJ					0,06	**0,10**	0,30									
..LD		0,08	**0,15**	0,25				0,08	**0,10**	0,25	0,09	**0,17**	0,28	0,09	**0,17**	0,29
..GD		0,12	**0,20**	0,35							0,13	**0,22**	0,39	0,14	**0,23**	0,40
..HD		0,18	**0,25**	0,55							0,20	**0,28**	0,61	0,21	**0,29**	0,64
Material Group		vc (m/min)														
P	1							460	**350**	300						
	2							310	**230**	210						
	3							260	**200**	170						
	4							270	**210**	170						
	5							220	**170**	140						
	6							300	**220**	180						
	7							220	**170**	160						
	8							200	**160**	130						
	9							170	**130**	100						
	10							220	**180**	170						
	11							160	**120**	90						
	12							290	**220**	180						
	13.1							250	**180**	160						
	13.2							130	**90**	80						
M	14.1															
	14.2															
	14.3															
	14.4															
K	15	530	**390**	280				—	—	—	480	**350**	250	380	**280**	200
	16	410	**310**	230				—	—	—	370	**280**	210	300	**220**	170
	17	460	**310**	230				310	**230**	210	420	**280**	210	340	**220**	170
	18	300	**220**	170				260	**200**	170	270	**200**	150	220	**160**	120
	19	370	**290**	220				—	—	—	340	**260**	200	270	**210**	160
	20	310	**230**	180				—	—	—	280	**210**	160	220	**170**	130
N	21				2000	**1050**	650									
	22				980	**550**	450									
	23				1800	**950**	600									
	24				1050	**650**	500									
	25				750	**500**	350									
	26				—	—	—									
	27				—	—	—									
	28				—	—	—									
	29				—	—	—									
	30				—	—	—									
S	31															
	32															
	33															
	34															
	35															
	36															
	37															
H	38.1															
	38.2															
	39.1															
	39.2															

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

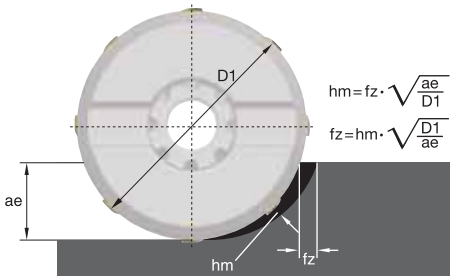
ae/D1 =	0,1	0,2	0,3	0,4
fz-Factor	2,0	1,5	1,3	1,0
vc-Factor	1,4	1,3	1,2	1,1



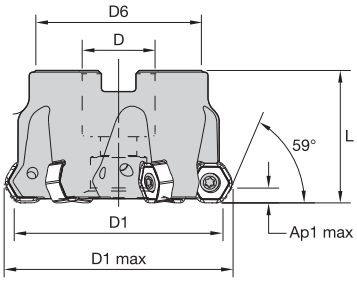
		TN6525			TN6540			TN7535			THM-U		
Edge Geometry		feed per tooth fz (mm)											
..LDJ											0,06	**0,10**	0,30
..LD		0,08	**0,12**	0,25	0,11	**0,17**	0,33	0,10	**0,15**	0,30			
..GD		0,10	**0,17**	0,29	0,13	**0,22**	0,39	0,12	**0,20**	0,35			
..HD		0,15	**0,21**	0,50	0,20	**0,28**	0,66	0,18	**0,25**	0,60			
Material Group		vc (m/min)											
P	1	350	**270**	228	290	**220**	190	360	**280**	240			
	2	240	**180**	160	200	**150**	130	250	**190**	165			
	3	200	**150**	130	170	**130**	110	210	**160**	140			
	4	210	**160**	130	170	**130**	110	215	**165**	140			
	5	170	**130**	110	140	**100**	90	180	**130**	110			
	6	228	**170**	140	190	**140**	120	240	**180**	150			
	7	170	**130**	120	140	**110**	100	180	**140**	120			
	8	150	**120**	100	130	**100**	80	160	**120**	100			
	9	130	**100**	80	110	**80**	60	140	**100**	80			
	10	170	**140**	130	140	**120**	100	180	**145**	130			
	11	120	**90**	70	100	**70**	60	120	**90**	70			
	12	220	**170**	140	180	**140**	120	230	**175**	150			
	13.1	190	**140**	120	160	**120**	100	200	**145**	120			
	13.2	96	**70**	60	80	**60**	50	100	**75**	60			
M	14.1	190	**120**	90	160	**100**	70	200	**120**	90			
	14.2	150	**90**	70	130	**80**	60	160	**95**	70			
	14.3	120	**70**	50	100	**60**	40	120	**70**	55			
	14.4	100	**60**	40	80	**50**	40	100	**60**	45			
K	15	—	—	—	—	—	—	—	—	—			
	16	—	—	—	—	—	—	—	—	—			
	17	240	**180**	160	200	**150**	130	250	**190**	165			
	18	200	**150**	130	170	**130**	110	210	**160**	140			
	19	—	—	—	—	—	—	—	—	—			
	20	—	—	—	—	—	—	—	—	—			
N	21										1800	**950**	590
	22										880	**500**	405
	23										1600	**860**	540
	24										950	**590**	450
	25										680	**450**	315
	26										670	**500**	310
	27										700	**610**	500
	28										750	**660**	540
	29										750	**650**	530
	30										700	**655**	500
S	31				60	**50**	45						
	32				50	**40**	35						
	33				35	**25**	20						
	34				30	**20**	15						
	35				30	**20**	15						
	36				80	**50**	40						
	37				70	**45**	35						
H	38.1												
	38.2												
	39.1												
	39.2												

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	0,1	0,2	0,3	0,4
fz-Factor	2,0	1,5	1,3	1,0
vc-Factor	1,4	1,3	1,2	1,1



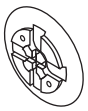
- Twelve cutting edges.
- First choice for low depth-of-cut face milling.
- Maximum number of teeth per diameter.



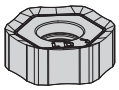
M1200 Mini 60° • Shell Mills

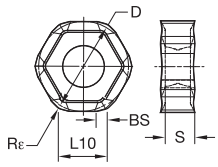
order number	catalogue number	D1	D1 max	D	D6	L	Ap1 max	Z	max RPM	coolant supply	kg
4136482	M1200HD040Z04HN07	40	47	22	38	40	4,7	4	15800	Yes	0,2
4136863	M1200HD040Z05HN07	40	47	22	38	40	4,7	5	15800	Yes	0,2
4136864	M1200HD050Z04HN07	50	57	22	38	40	4,7	4	12700	Yes	0,3
4136865	M1200HD050Z05HN07	50	57	22	38	40	4,7	5	12700	Yes	0,3
4136866	M1200HD063Z04HN07	63	70	22	50	40	4,7	4	10100	Yes	0,6
4136867	M1200HD063Z06HN07	63	70	22	50	40	4,7	6	10100	Yes	0,6
4136868	M1200HD080Z05HN07	80	87	27	60	50	4,7	5	7900	Yes	1,1
4136869	M1200HD080Z08HN07	80	87	27	60	50	4,7	8	7900	Yes	1,2
4136870	M1200HD100Z06HN07	100	107	32	80	50	4,7	6	6300	Yes	1,7
4136871	M1200HD100Z09HN07	100	107	32	80	50	4,7	9	6300	Yes	1,7
4136872	M1200HD125Z08HN07	125	132	40	90	63	4,7	8	5050	Yes	2,9
4136873	M1200HD125Z12HN07	125	132	40	90	63	4,7	12	5050	Yes	2,9

Spare Parts



D1	insert screw	Nm	Torx driver	socket-head cap screw with coolant groove	coolant lock screw assembly	coolant lock screw	coolant shower plate
40	12146034500	3,5	12148082400	12146109200	–	–	–
50	12146034500	3,5	12148082400	–	–	–	–
63	12146034500	3,5	12148082400	–	–	–	–
80	12146034500	3,5	12148082400	–	–	–	–
100	12146034500	3,5	12148082400	–	12146109400	–	–
125	12146034500	3,5	12148082400	–	–	12146107000	12146111000



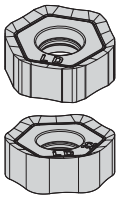


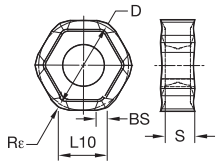
● first choice
○ alternate choice

P	
M	
K	
N	● ●
S	
H	

■ HNGJ-LDJ

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN6501	THM-U
HNGJ0704ANFNLDJ	12	12,70	6,80	4,48	1,60	1,2	0,08	●	●



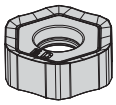


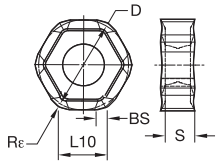
● first choice
○ alternate choice

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

■ HNGJ-LD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6505	TN6510	TN6520	TN6525	TN6540
HNGJ0704ANENLD	12	12,70	6,80	4,43	1,60	1,2	0,08	●	●	●	●	●	●
HNGJ070432ANENLD	12	12,70	6,80	4,48	—	3,2	0,08			●		●	●



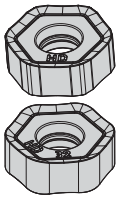


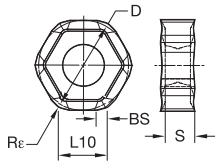
● first choice
○ alternate choice

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

■ HNPJ-GD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6510	TN6520	TN6540	TN7535
HNPJ0704ANSNGD	12	12,70	6,80	4,45	1,27	1,2	0,10	●	●	●	●	●





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

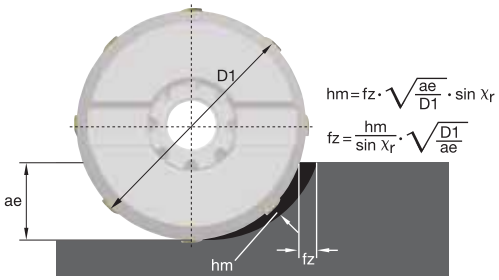
■ HNPJ-HD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6510	TN6520	TN6540	TN7535
HNPJ0704ANSNHD	12	12,70	6,80	4,41	1,25	1,2	0,14	●	●	●	●	●
HNPJ070432ANSNHD	12	12,70	6,80	4,42	—	3,2	0,14		●	●	●	●

		TN5515			TN6501			TN6505			TN6510			TN6520		
Edge Geometry		feed per tooth fz (mm)														
..LDJ					0,06	**0,10**	0,30									
..LD		0,08	**0,15**	0,25				0,08	**0,10**	0,25	0,09	**0,17**	0,28	0,09	**0,17**	0,29
..GD		0,12	**0,20**	0,35							0,13	**0,22**	0,39	0,14	**0,23**	0,40
..HD		0,18	**0,25**	0,55							0,20	**0,28**	0,61	0,21	**0,29**	0,64
Material Group		vc (m/min)														
P	1							460	**350**	300						
	2							310	**230**	210						
	3							260	**200**	170						
	4							270	**210**	170						
	5							220	**170**	140						
	6							300	**220**	180						
	7							220	**170**	160						
	8							200	**160**	130						
	9							170	**130**	100						
	10							220	**180**	170						
	11							160	**120**	90						
	12							290	**220**	180						
	13.1							250	**180**	160						
	13.2							130	**90**	80						
M	14.1															
	14.2															
	14.3															
	14.4															
K	15	530	**390**	280				—	—	—	480	**350**	250	380	**280**	200
	16	410	**310**	230				—	—	—	370	**280**	210	300	**220**	170
	17	460	**310**	230				310	**230**	210	420	**280**	210	340	**220**	170
	18	300	**220**	170				260	**200**	170	270	**200**	150	220	**160**	120
	19	370	**290**	220				—	—	—	340	**260**	200	270	**210**	160
	20	310	**230**	180				—	—	—	280	**210**	160	220	**170**	130
N	21				2000	**1050**	650									
	22				980	**550**	450									
	23				1800	**950**	600									
	24				1050	**650**	500									
	25				750	**500**	350									
	26				—	—	—									
	27				—	—	—									
	28				—	—	—									
	29				—	—	—									
	30				—	—	—									
S	31															
	32															
	33															
	34															
	35															
	36															
	37															
H	38.1															
	38.2															
	39.1															
	39.2															

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

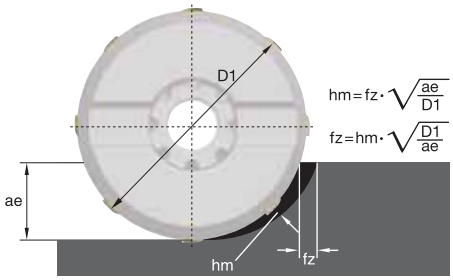
ae/D1 =	0,1	0,2	0,3	0,4
fz-Factor	2,0	1,5	1,3	1,0
vc-Factor	1,4	1,3	1,2	1,1



		TN6525			TN6540			TN7535			THM-U		
Edge Geometry		feed per tooth fz (mm)											
..LDJ											0,06	**0,10**	0,30
..LD		0,08	**0,12**	0,25	0,11	**0,17**	0,33	0,10	**0,15**	0,30			
..GD		0,10	**0,17**	0,29	0,13	**0,22**	0,39	0,12	**0,20**	0,35			
..HD		0,15	**0,21**	0,50	0,20	**0,28**	0,66	0,18	**0,25**	0,60			
Material Group		vc (m/min)											
P	1	350	**270**	228	290	**220**	190	360	**280**	240			
	2	240	**180**	160	200	**150**	130	250	**190**	165			
	3	200	**150**	130	170	**130**	110	210	**160**	140			
	4	210	**160**	130	170	**130**	110	215	**165**	140			
	5	170	**130**	110	140	**100**	90	180	**130**	110			
	6	228	**170**	140	190	**140**	120	240	**180**	150			
	7	170	**130**	120	140	**110**	100	180	**140**	120			
	8	150	**120**	100	130	**100**	80	160	**120**	100			
	9	130	**100**	80	110	**80**	60	140	**100**	80			
	10	170	**140**	130	140	**120**	100	180	**145**	130			
	11	120	**90**	70	100	**70**	60	120	**90**	70			
	12	220	**170**	140	180	**140**	120	230	**175**	150			
	13.1	190	**140**	120	160	**120**	100	200	**145**	120			
	13.2	96	**70**	60	80	**60**	50	100	**75**	60			
M	14.1	190	**120**	90	160	**100**	70	200	**120**	90			
	14.2	150	**90**	70	130	**80**	60	160	**95**	70			
	14.3	120	**70**	50	100	**60**	40	120	**70**	55			
	14.4	100	**60**	40	80	**50**	40	100	**60**	45			
K	15	—	—	—	—	—	—	—	—	—			
	16	—	—	—	—	—	—	—	—	—			
	17	240	**180**	160	200	**150**	130	250	**190**	165			
	18	200	**150**	130	170	**130**	110	210	**160**	140			
	19	—	—	—	—	—	—	—	—	—			
	20	—	—	—	—	—	—	—	—	—			
N	21										1800	**950**	590
	22										880	**500**	405
	23										1600	**860**	540
	24										950	**590**	450
	25										680	**450**	315
	26										670	**500**	310
	27										700	**610**	500
	28										750	**660**	540
	29										750	**650**	530
	30										700	**655**	500
S	31				60	**50**	45						
	32				50	**40**	35						
	33				35	**25**	20						
	34				30	**20**	15						
	35				30	**20**	15						
	36				80	**50**	40						
	37				70	**45**	35						
H	38.1												
	38.2												
	39.1												
	39.2												

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	0,1	0,2	0,3	0,4
fz-Factor	2,0	1,5	1,3	1,0
vc-Factor	1,4	1,3	1,2	1,1



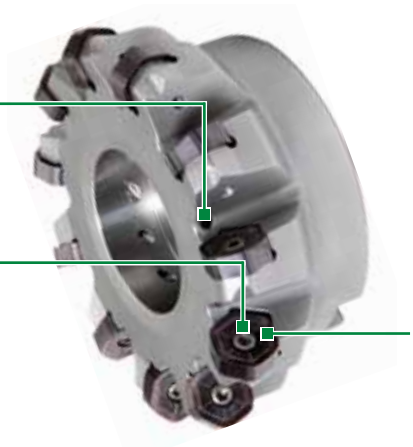
One Series Meets Every Face Milling Need •
WIDIA™ M1200 HD 60°

Increased Ap1 max capability with standard M1200 inserts.

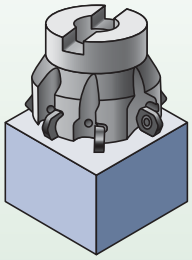
WIDIA VICTORY
Win with WIDIA™

M1200 HD

- Low cost per edge and high productivity.
- 60° lead angle.
- Increased Ap1 max capability with standard M1200 inserts.
- One series meets every face milling need.
- WIDIA premium milling grades.
- Up to 35% better tool life from light to heavy machining.



Face Mills



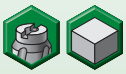
M1200 HD 60° Heavy Duty

Max depth of cut: 6mm

Lead angle: 60°
Indexes per insert: 12
Diameter: 50mm–160mm

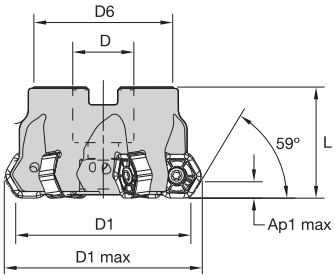
Pages: B24–B27

P
M
K
N
S



Insert Geometry		Recommended Use
	LDJ	First choice for non-ferrous materials. Periphery ground with polished rake face.
	GD	First choice for high-feed face milling in stainless steel and super alloys.
	HD	Alternate choice for high-feed face milling in steel and cast iron.
	43HD	First choice for high-feed face milling in steel and cast iron. Strong corner radius. Best option for general-purpose use.

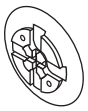
- Twelve cutting edges.
- Higher Ap1 max with standard insert.



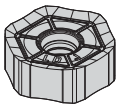
M1200 HD • 60° • Shell Mills

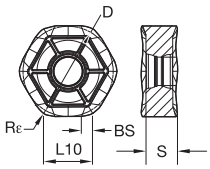
order number	catalogue number	D1	D1 max	D	D4	D6	L	Ap1 max	Z	max RPM	coolant supply	kg
4152113	**M1200HD050Z04HN09**	50	58	22	–	38	40	6,1	4	12700	Yes	0,3
4152114	**M1200HD050Z05HN09**	50	58	22	–	38	40	6,1	5	12700	Yes	0,3
4152115	**M1200HD063Z04HN09**	63	71	22	–	50	40	6,1	4	10100	Yes	0,5
4152116	**M1200HD063Z06HN09**	63	71	22	–	50	40	6,1	6	10100	Yes	0,6
4152117	**M1200HD080Z05HN09**	80	88	27	–	60	50	6,1	5	7900	Yes	1,1
4152118	**M1200HD080Z08HN09**	80	88	27	–	60	50	6,1	8	7900	Yes	1,1
4152119	**M1200HD100Z06HN09**	100	108	32	–	80	50	6,1	6	6300	Yes	1,6
4152120	**M1200HD100Z08HN09**	100	108	32	–	80	50	6,1	8	6300	Yes	1,6
4152121	**M1200HD125Z08HN09**	125	133	40	–	90	63	6,1	8	5050	Yes	2,8
4152122	**M1200HD125Z10HN09**	125	133	40	–	90	63	6,1	10	5050	Yes	2,8
4152123	**M1200HD160Z09HN09**	160	168	40	66,7	110	63	6,1	9	3900	Yes	4,6
4152124	**M1200HD160Z12HN09**	160	168	40	66,7	110	63	6,1	12	3900	Yes	4,8

Spare Parts



D1	insert screw	Nm	Torx driver	coolant lock screw assembly	coolant lock screw	coolant shower plate
50	**12146034500**	3,5	**12148082400**	–	–	–
63	**12146034500**	3,5	**12148082400**	–	–	–
80	**12146034500**	3,5	**12148082400**	–	–	–
100	**12146034500**	3,5	**12148082400**	**12146109400**	–	–
125	**12146034500**	3,5	**12148082400**	–	**12146107000**	**12146111000**
160	**12146034500**	3,5	**12148082400**	–	**12146107000**	**12146111000**



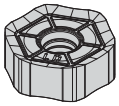


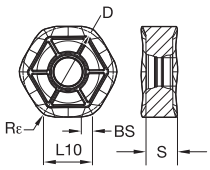
● first choice
○ alternate choice

P	
M	
K	
N	● ●
S	
H	

■ HNGJ-LDJ

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN6501	THM-U
HNGJ0905ANFNLDJ	12	15,88	9,00	5,56	1,80	1,2	0,08	●	●



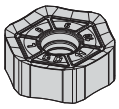


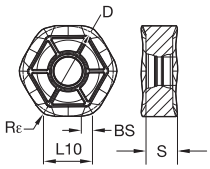
● first choice
○ alternate choice

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

■ HNGJ-LD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6520	TN6525	TN6540	TN7535
HNGJ0905ANENLD	12	15,88	9,00	5,56	1,80	1,2	0,10	●	●	●	●	●



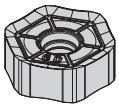


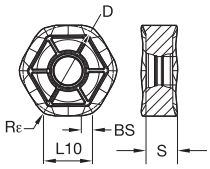
● first choice
○ alternate choice

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

■ HNPJ-GD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6520	TN6540	TN7535
HNPJ0905ANSNGD	12	15,88	8,58	5,56	1,80	1,2	0,15	●	●	●	●



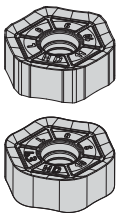


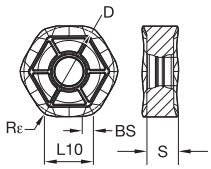
● first choice
○ alternate choice

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

■ HNGJ-GD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6520	TN6525	TN6540	TN7535
HNGJ0905ANSNGD	12	15,88	9,00	5,56	1,80	1,2	0,15	●	●	●	●	●



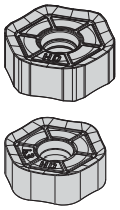


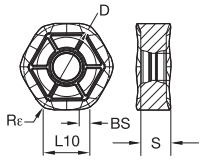
● first choice
○ alternate choice

P			●
M			●
K	●	●	○
N			
S			●
H			

■ HNPJ-HD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6520	TN6540
HNPJ0905ANSNHD	12	15,88	8,59	5,46	1,66	1,2	0,20	●	●	●
HNPJ090543ANSNHD	12	15,88	8,50	5,44	—	4,3	0,20		●	●





● first choice
○ alternate choice

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

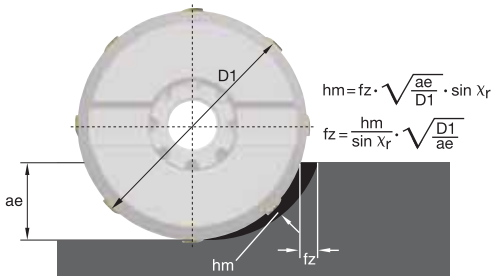
■ HNGJ-HD

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6520	TN6525	TN6540
HNGJ0905ANSNHD	12	15,88	8,59	5,46	1,66	1,2	0,20	●	●	●	●
HNGJ090543ANSNHD	12	15,88	8,50	5,44	—	4,4	0,20		●	●	●

		TN5515	TN6501	TN6510	TN6520	TN6525	TN6540	TN7535	THM-U
Edge Geometry		feed per tooth fz (mm)							
	..LDJ		0,08 **0,12** 0,30						0,08 **0,12** 0,30
	..LD	0,12 **0,20** 0,40		0,13 **0,22** 0,44	0,14 **0,23** 0,46	0,10 **0,17** 0,33	0,13 **0,22** 0,44	0,12 **0,20** 0,40	
	..GD	0,15 **0,25** 0,50		0,17 **0,28** 0,55	0,17 **0,29** 0,58	0,12 **0,21** 0,41	0,17 **0,28** 0,55	0,15 **0,25** 0,50	
	..HD	0,20 **0,30** 0,60		0,22 **0,33** 0,66	0,23 **0,35** 0,69	0,17 **0,25** 0,50	0,22 **0,33** 0,66	0,20 **0,30** 0,60	
Material Group		vc (m/min)							
P	1					350 **270** 230	290 **220** 190	360 **280** 240	
	2					240 **180** 160	200 **150** 130	250 **190** 165	
	3					200 **150** 130	170 **130** 110	210 **160** 140	
	4					210 **160** 130	170 **130** 110	215 **165** 140	
	5					170 **130** 110	140 **100** 90	180 **130** 110	
	6					228 **170** 140	190 **140** 120	240 **180** 150	
	7					170 **130** 120	140 **110** 100	180 **140** 120	
	8					150 **120** 100	130 **100** 80	160 **120** 100	
	9					130 **100** 80	110 **80** 60	140 **100** 80	
	10					170 **140** 130	140 **120** 100	180 **145** 130	
	11					120 **90** 70	100 **70** 60	120 **90** 70	
	12					220 **170** 140	180 **140** 120	230 **175** 150	
	13.1					190 **140** 120	160 **120** 100	200 **145** 120	
	13.2					96 **70** 60	80 **60** 50	100 **75** 60	
M	14.1					190 **120** 90	160 **100** 70	200 **120** 90	
	14.2					150 **90** 70	130 **80** 60	160 **95** 70	
	14.3					120 **70** 50	100 **60** 40	120 **70** 55	
	14.4					100 **60** 40	80 **50** 40	100 **60** 45	
K	15	530 **390** 280		480 **350** 250	380 **280** 200	— — —	— — —	— — —	
	16	410 **310** 230		370 **280** 210	300 **220** 170	— — —	— — —	— — —	
	17	460 **310** 230		420 **280** 210	340 **220** 170	240 **180** 160	200 **150** 130	250 **190** 165	
	18	300 **220** 170		270 **200** 150	220 **160** 120	200 **150** 130	170 **130** 110	210 **160** 140	
	19	370 **290** 220		340 **260** 200	270 **210** 160	— — —	— — —	— — —	
	20	310 **230** 180		280 **210** 160	220 **170** 130	— — —	— — —	— — —	
N	21		2000 **1050** 650						1800 **950** 590
	22		980 **550** 450						880 **500** 405
	23		1800 **950** 600						1600 **860** 540
	24		1050 **650** 500						950 **590** 450
	25		750 **500** 350						680 **450** 315
	26		— — —						670 **500** 310
	27		— — —						700 **610** 500
	28		— — —						750 **660** 540
	29		— — —						750 **650** 530
	30		— — —						700 **655** 500
S	31						60 **50** 45		
	32						50 **40** 35		
	33						35 **25** 20		
	34						30 **20** 15		
	35						30 **20** 15		
	36						80 **50** 40		
	37						70 **45** 35		
H	38.1								
	38.2								
	39.1								
	39.2								

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	0,1	0,2	0,3	0,4
fz-Factor	2,0	1,5	1,3	1,0
vc-Factor	1,4	1,3	1,2	1,1



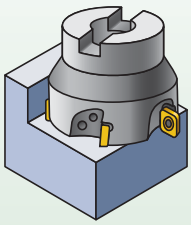
First Choice for Economical Shoulder Milling • **M690 Series 90° Shoulder Mills**

Designed to streamline even your most challenging milling operations, the M690 Series provides optimal chip evacuation, excellent shoulder finish, free cutting action, and solid tool design for optimal insert support.

M690

- New SDMX inserts — helical cutting edges for smooth cutting.
- Strong insert and tool design for maximum productivity.
- Four cutting edges enable excellent machining economy.

90° Shoulder Mills



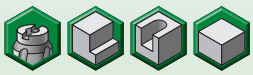
M690 SD1204..

Max depth of cut: 10,0mm

Lead angle: 90°
Indexes per insert: 4
Diameter: 50mm–160mm

Pages: B30–B32

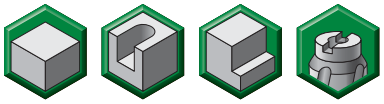
P
M
K
S

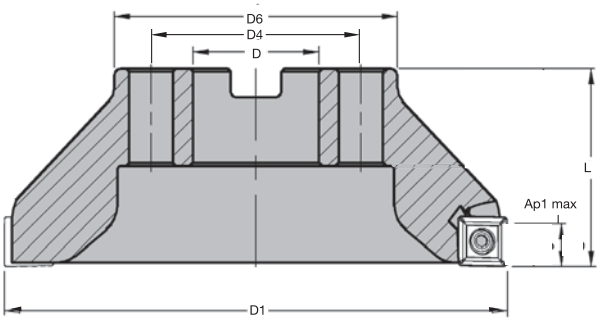


Insert Geometry		Recommended Use
	MM	New geometry designed to provide protection and soft cutting. First choice for general machining in all materials.
	MH	New geometry designed to provide the highest protection with soft cutting action. First choice for heavy machining in steel and cast iron.

For more information on M690 and SDMX15 for larger depth of cut, please visit www.widia.com or see catalogue A-09-02081.

- Four cutting edges.
- 90° shoulders.
- Excellent for slot and profile milling.





M690

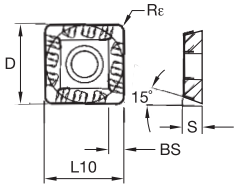
order number	catalogue number	D1	D	D4	D6	L	Ap1 max	Z	max RPM	coolant supply	kg
2003556	12396953800	50	22	—	47	40	10,0	4	22400	Yes	0,3
2003557	12396954000	50	22	—	47	40	10,0	5	22400	Yes	0,3
2003573	12396954200	63	22	—	50	40	10,0	5	20000	Yes	0,5
2003574	12396954400	63	22	—	50	40	10,0	6	20000	Yes	0,5
2003580	12396954600	80	27	—	60	50	10,0	6	17700	Yes	1,0
2003581	12396954800	80	27	—	60	50	10,0	8	17700	Yes	1,1
2003596	12396955000	100	32	—	78	50	10,0	8	15800	No	1,5
2003597	12396955200	100	32	—	78	50	10,0	10	15800	No	1,6
2003693	12396955400	125	40	—	89	63	10,0	9	14200	No	3,0
2003694	12396955600	125	40	—	89	63	10,0	12	14200	No	3,0
2003793	12396955800	160	40	66,7	90	63	10,0	12	12500	No	3,6
2003794	12396956000	160	40	66,7	90	63	10,0	15	12500	No	3,6

Spare Parts

D1	insert screw	Nm	Torx driver
50	12148037700	4,0	12148000600
63	12148037700	4,0	12148000600
80	12148037700	4,0	12148000600
100	12148037700	4,0	12148000600
125	12148037700	4,0	12148000600
160	12148037700	4,0	12148000600

NOTE: Standard milling cutters will accept insert nose radius up to 2mm without modification. For larger radii, clearance must be added.

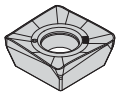
■ SDMX-MM



● first choice
○ alternate choice

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

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6520	TN6525	TN6540	TN7525	TN7535
SDMX120408RMM	4	12,70	12,70	4,76	1,93	0,8	0,10			●	●	●	●
SDMX120412RMM	4	12,70	12,70	4,76	1,54	1,2	0,10	●		●	●	●	●
NEW! SDMX120416RMM	4	12,70	12,70	4,76	1,50	1,6	0,10	●	●	●	●		●
SDMX120424RMM	4	12,70	12,70	4,76	0,60	2,4	0,10				●		●
SDMX120432RMM	4	12,70	12,70	4,76	–	3,2	0,10				●		●



■ SDMX-MH

● first choice
○ alternate choice

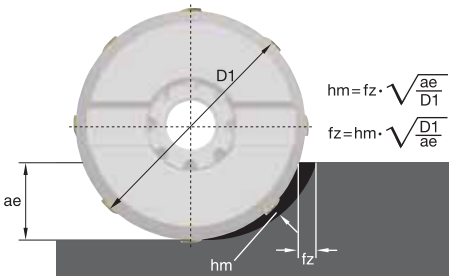
P			●	●	●	●	
M			○	●	○	○	
K	●	●	○	○		○	
N							
S				●			
H							

catalogue number	cutting edges	D	L10	S	BS	Rε	hm	TN5515	TN6520	TN6525	TN6540	TN7525	TN7535
SDMX120408RMH	4	12,70	12,70	4,76	1,93	0,8	0,14	●			●	●	●
SDMX120412RMH	4	12,70	12,70	4,76	1,54	1,2	0,14	●	●	●	●	●	●
SDMX120416RMH	4	12,70	12,70	4,76	1,50	1,6	0,14	●			●		●

		TN5515			TN6520			TN6525			TN6540			TN7525			TN7535		
Edge Geometry		feed per tooth fz (mm)																	
..MM		0,10	**0,17**	0,25				0,08	**0,14**	0,21	0,11	**0,19**	0,28	0,08	**0,14**	0,20	0,10	**0,17**	0,25
..MH		0,14	**0,24**	0,34	0,16	**0,28**	0,39	0,12	**0,20**	0,28	0,15	**0,26**	0,37	0,11	**0,19**	0,27	0,14	**0,24**	0,34
Material Group		vc (m/min)																	
P	1							300	**230**	190	250	**200**	170	330	**250**	210	280	**220**	190
	2							230	**180**	150	170	**140**	120	250	**200**	170	190	**150**	130
	3							190	**140**	130	140	**110**	100	210	**160**	150	160	**120**	110
	4							200	**150**	140	150	**120**	100	220	**170**	150	165	**130**	110
	5							170	**120**	110	130	**90**	80	190	**130**	120	140	**100**	85
	6							220	**170**	140	170	**130**	100	240	**190**	150	185	**140**	115
	7							170	**140**	110	130	**100**	80	190	**150**	120	140	**110**	90
	8							140	**110**	100	110	**80**	70	160	**120**	110	120	**90**	80
	9							140	**100**	80	100	**70**	60	150	**110**	90	110	**80**	70
	10							170	**140**	120	130	**100**	90	190	**150**	130	140	**110**	100
	11							110	**90**	60	80	**60**	50	120	**95**	70	90	**70**	60
	12							220	**160**	140	160	**120**	100	240	**180**	150	180	**135**	115
	13.1							190	**140**	110	140	**100**	80	210	**150**	120	155	**110**	90
	13.2							100	**70**	50	70	**50**	40	110	**75**	60	80	**55**	45
M	14.1							190	**120**	80	140	**90**	60	210	**130**	90	160	**100**	70
	14.2							150	**100**	60	120	**70**	50	170	**110**	70	130	**80**	60
	14.3							120	**80**	50	90	**50**	45	130	**85**	60	100	**60**	50
	14.4							100	**60**	45	80	**45**	35	110	**65**	50	90	**50**	40
K	15	330	**240**	200	290	**210**	170	—	—	—	—	—	—				—	—	—
	16	255	**190**	165	220	**160**	140	—	—	—	—	—	—				—	—	—
	17	275	**210**	165	240	**180**	150	230	**180**	150	170	**140**	120				190	**150**	130
	18	210	**120**	90	180	**110**	80	190	**140**	130	140	**110**	100				160	**120**	110
	19	275	**165**	145	240	**140**	120	—	—	—	—	—	—				—	—	—
	20	220	**140**	100	190	**120**	90	—	—	—	—	—	—				—	—	—
N	21																		
	22																		
	23																		
	24																		
	25																		
	26																		
	27																		
	28																		
	29																		
	30																		
S	31										50	**40**	35						
	32										40	**30**	25						
	33										25	**15**	10						
	34										20	**15**	5						
	35										35	**25**	15						
	36										70	**40**	30						
	37										60	**30**	25						
H	38.1																		
	38.2																		
	39.1																		
	39.2																		

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	0,02	0,05	0,1	0,2	0,4
fz-Factor	3,5	3	2	1,5	1,0
vc-Factor	1,6	1,5	1,4	1,3	1,1



WIN WITH WIDIA™

WIDIA M690 90° Shoulder Mill Series

M690 SD1204.. | **M690 SD1506..**

Strong and specially designed to streamline most milling operations, M690 Series 90º shoulder mills enable excellent shoulder finishes, enhanced chip evacuation, and optimal insert support.

- Sturdy tool design for maximum safety and productivity.
- Four cutting edges for economical and reliable machining.
- Superior shoulder finishes and smooth cutting action.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

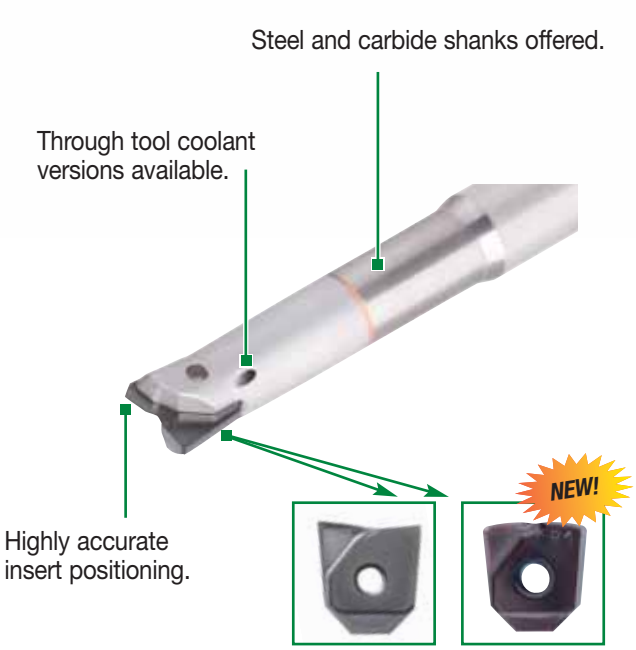
WIDIA™

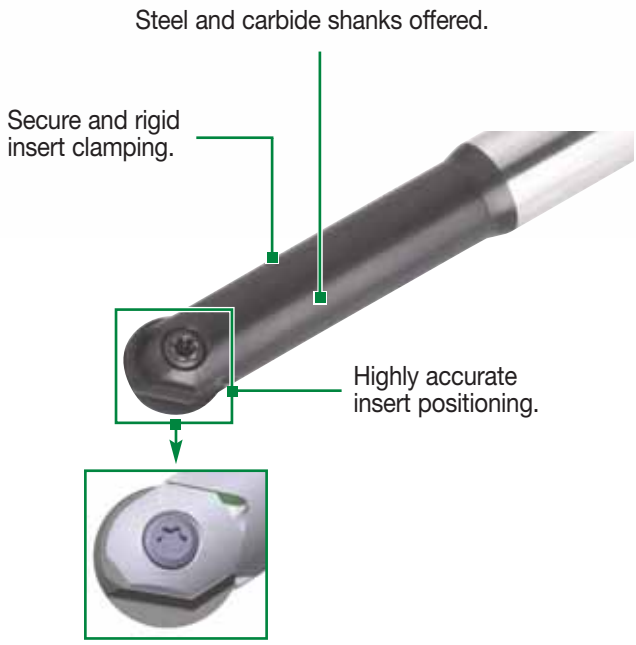
For Secure and Rigid Insert Clamping • **M270 Series**

With precision engineered ball nose, toroidal, and new high-feed inserts, the M270 Series provides the highest accuracy and insert stability for exceptional reliability and performance.

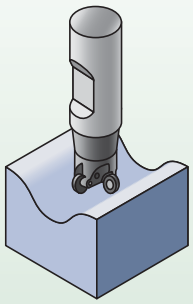
- New performance-boosting High-Feed (HF) inserts offered standard and are now available in grade TN6525™ for steel optimisation.
- Ball nose and toroidal tools for semi-finishing through finishing are also available.
- V-shaped contact faces enable maximum rigidity and accuracy.

M270





Copy Mills



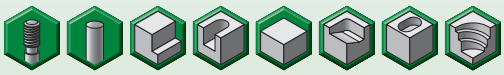
M270 High-Feed

Max depth of cut:
0,6mm–1,1mm

Diameter: 10mm–20mm

Pages: B36–B39

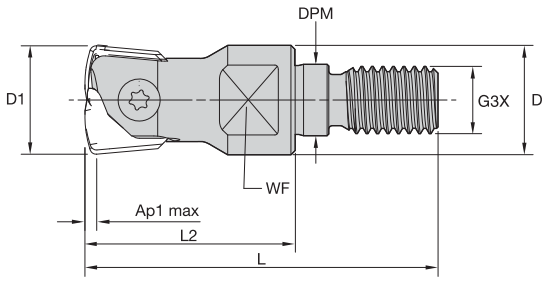
P
M
K
S
H



Insert Geometry		Recommended Use
	HF	High-Feed geometry for roughing and semi-finishing applications at maximum feed rates. Exceptional stability, even when long overhang is required.

For M270 ball nose and toroidal offerings, please visit www.widia.com or see catalogue A-09-02081.

- High metal removal rates.
- Excellent in long reach applications.
- Rough and semi-finish applications.



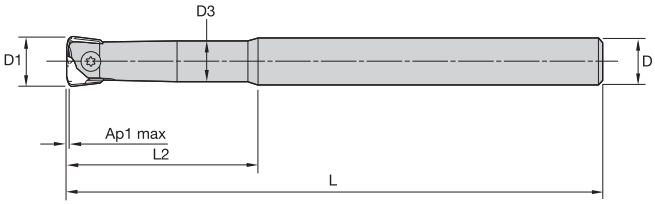
M270 High-Feed

order number	catalogue number	D1	D	DPM	G3X	L	L2	WF	Ap1 max	Z	Z U	insert 1	insert 2 *	max RPM	coolant supply	kg
3926546	**M270TD012M08**	12	13	8,5	M8	42	25	10	0,6	1	2	M270HF12	M270HF13	55000	Yes	0,02
3926547	**M270TD016M08**	16	13	8,5	M8	47	30	10	0,9	1	2	M270HF16	M270HF17	53000	Yes	0,09
3926548	**M270TD020M10**	20	18	10,5	M10	59	40	14	1,1	1	2	M270HF20	—	52000	Yes	0,07

**D1 = 13mm when using M270HF13; D1 = 17mm when using M270HF17.*

Spare Parts

D1	insert screw	Nm	Torx driver
12	**12748610600**	2,0	**12148788900**
16	**12748610700**	5,0	**12148099300**
20	**12748610800**	5,0	**12148099300**



M270 High-Feed

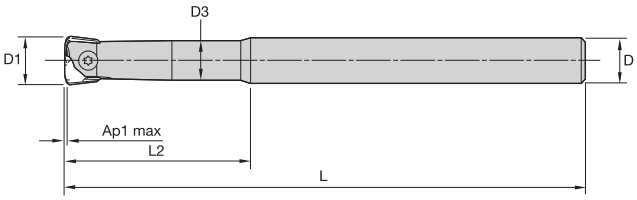
order number	catalogue number	D1	D	D3	L	L2	Ap1 max	Z	Z U	insert 1	insert 2 *	max RPM	coolant supply	kg
3926514	**M270TD010A10L120**	10	10	9	120	45	0,6	1	2	M270HF10	—	57000	Yes	0,1
3926515	**M270TD012A12L140**	12	12	11	140	50	0,6	1	2	M270HF12	M270HF13	55000	Yes	0,1
3926516	**M270TD016A16L160**	16	16	14	160	57	0,9	1	2	M270HF16	M270HF17	53000	Yes	0,2
3926517	**M270TD020A20L180**	20	20	18	180	70	1,1	1	2	M270HF20	—	52000	Yes	0,4

**D1 = 13mm when using M270HF13; D1 = 17mm when using M270HF17.*

Spare Parts

D1	insert screw	Nm	Torx driver
10	**12748610500**	2,0	**12148788900**
12	**12748610600**	2,0	**12148788900**
16	**12748610700**	5,0	**12148099300**
20	**12748610800**	5,0	**12148099300**

- High metal removal rates.
- Excellent in long reach applications.
- Carbide shank.



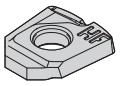
M270 High-Feed

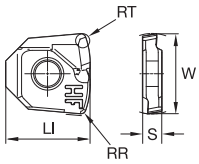
order number	catalogue number	D1	D	D3	L	L2	Ap1 max	Z	Z U	insert 1	insert 2 *	max RPM	coolant supply	kg
3926518	**M270TD010A10L120C**	10	10	9	120	45	0,6	1	2	M270HF10	—	57000	Yes	0,1
3926519	**M270TD010A10L150C**	10	10	9	150	45	0,6	1	2	M270HF10	—	57000	Yes	0,1
3926520	**M270TD012A12L120C**	12	12	11	120	50	0,6	1	2	M270HF12	M270HF13	55000	Yes	0,2
3926521	**M270TD012A12L160C**	12	12	11	160	50	0,6	1	2	M270HF12	M270HF13	55000	Yes	0,2
3926522	**M270TD016A16L140C**	16	16	14	140	57	0,9	1	2	M270HF16	M270HF17	53000	Yes	0,3
3926543	**M270TD016A16L180C**	16	16	14	180	57	0,9	1	2	M270HF16	M270HF17	53000	Yes	0,4
3926544	**M270TD020A20L150C**	20	20	18	150	70	1,1	1	2	M270HF20	—	52000	Yes	0,5
3926545	**M270TD020A20L200C**	20	20	18	200	70	1,1	1	2	M270HF20	—	52000	Yes	0,7

**D1 = 13mm when using M270HF13; D1 = 17mm when using M270HF17.*

Spare Parts

D1	insert screw	Nm	Torx driver
10	**12748610500**	2,0	**12148788900**
12	**12748610600**	2,0	**12148788900**
16	**12748610700**	5,0	**12148099300**
20	**12748610800**	5,0	**12148099300**





● first choice
○ alternate choice

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

M270 High-Feed

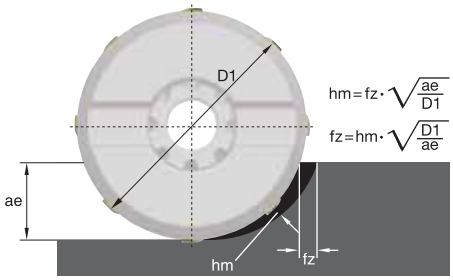
catalogue number	W	LI	S	RR	RT	TN2505	TN6525	TN6540
M270HF10	10	10,50	2,38	0,63	1,15	●	●	●
M270HF12	12	12,40	3,18	0,75	1,40	●	●	●
M270HF13	13	12,40	3,18	0,75	1,40	●	●	●
M270HF16	16	16,70	4,76	1,00	1,90	●	●	●
M270HF17	17	16,70	4,76	1,00	1,90	●	●	●
M270HF20	20	20,70	4,76	1,25	2,30	●	●	●

NOTE: RT = Programming Radius.

		TN2505			TN6525			TN6540		
Insert Diameter		**feed per tooth fz (mm)**								
10		0,15	**0,25**	0,28	0,15	**0,25**	0,28	0,15	**0,30**	0,50
12/13		0,15	**0,30**	0,35	0,15	**0,30**	0,35	0,15	**0,40**	0,50
16/17		0,15	**0,40**	0,45	0,15	**0,40**	0,45	0,15	**0,50**	0,60
20		0,15	**0,50**	0,55	0,15	**0,50**	0,55	0,15	**0,60**	0,70
Material Group		**vc (m/min)**								
P	1	—	—	—	350	**270**	230	290	**225**	190
	2	—	—	—	240	**180**	160	200	**150**	130
	3	—	—	—	200	**150**	130	170	**130**	110
	4	—	—	—	210	**160**	130	170	**130**	110
	5	—	—	—	170	**130**	110	145	**105**	90
	6	—	—	—	230	**170**	140	190	**145**	120
	7	—	—	—	170	**130**	120	145	**110**	95
	8	—	—	—	150	**120**	100	130	**95**	80
	9	—	—	—	130	**100**	80	110	**80**	65
	10	170	**140**	130	170	**140**	130	145	**115**	105
	11	110	**80**	70	120	**90**	70	95	**70**	55
	12	220	**170**	140	220	**170**	140	185	**140**	120
	13.1	190	**140**	110	190	**140**	120	160	**115**	95
	13.2	100	**70**	60	100	**70**	60	80	**60**	50
M	14.1				190	**120**	90	160	**95**	70
	14.2				150	**90**	70	130	**75**	55
	14.3				120	**70**	50	95	**55**	45
	14.4				100	**60**	40	80	**50**	35
K	15	—	—	—	—	—	—	—	—	—
	16	—	—	—	—	—	—	—	—	—
	17	240	**180**	160	240	**180**	160	200	**150**	130
	18	200	**160**	130	200	**150**	130	170	**130**	110
	19	—	—	—	—	—	—	—	—	—
	20	—	—	—	—	—	—	—	—	—
N	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									
S	31							60	**50**	45
	32							50	**40**	35
	33							35	**25**	20
	34							30	**20**	15
	35							30	**20**	15
	36							80	**50**	40
	37							70	**45**	35
H	38.1	160	**120**	80	120	**90**	70			
	38.2	160	**120**	80	—	—	—			
	39.1	120	**100**	60	—	—	—			
	39.2	120	**100**	60	—	—	—			

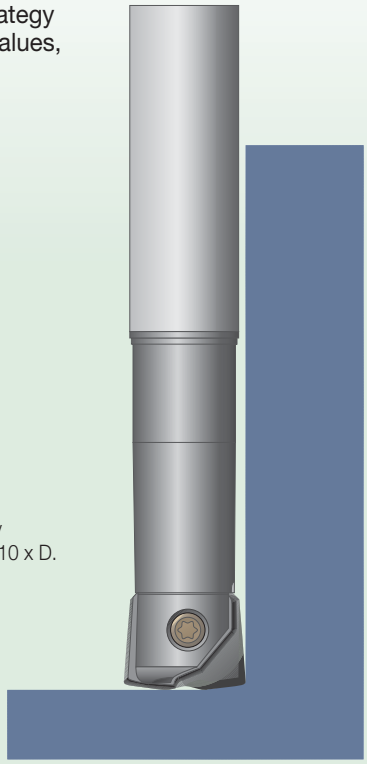
*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	≤0,2	0,3	0,4
fz-Factor	1,5	1,3	1
vc-Factor	1,3	1,2	1,1

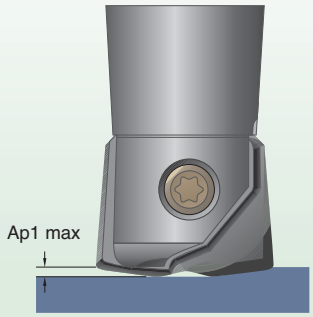


Applying High-Feed Tools

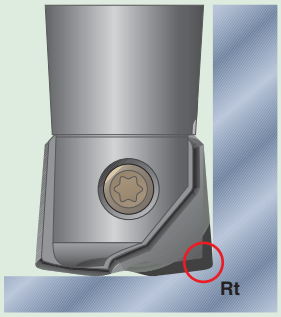
The High-Feed concept bases its strategy on small depth of cut and higher fz values, which result in a higher MRR and productivity with low radial forces.



Recommended when long overhang is necessary due to lower radial forces. Maximum L/D ratio of 10 x D.



Small Ap1 values and higher feed rates generate lower cutting forces versus traditional milling strategies.



For CAM programming, the tools can be programmed as a toroidal tool type by using the Rt value as the insert radius.

L/D ratio	% of Ap1 max to reduce	% of vc to reduce
<4	0%	0%
4<L/D<7	55–65%	10–15%
>8	65–75%	20–30%

General Programming Information for Applying M270 High-Feed

tool diameter	Ø10	Ø12	Ø13	Ø16	Ø17	Ø20
recommended starting Ap1 (mm)	0,40	0,40	0,40	0,60	0,60	0,75
Rt CAM programming	1,15	1,40	1,40	1,90	1,90	2,30
fz recommended for general purpose	0,45	0,55	0,55	0,60	0,60	0,70
fz recommended for 45 HRC (approximately)	0,40	0,45	0,45	0,55	0,55	0,65
fz recommended for 55 HRC (approximately)	0,30	0,35	0,35	0,45	0,45	0,50

Use two effective teeth for feed calculations.
For materials above 45 HRC, we recommend adjusting the ae max to 55% of cutting diameter and using no more than 50% of Ap1 max.
While centre cutting is possible, we recommend using a ramp angle of 0,5°–1,0° to ensure smooth operation.

TOOLING SYSTEMS

ERICKSON™ Toolholders

WIDIA™ proudly offers premium quality Erickson toolholder products, so you can be sure that you're buying the best the industry has to offer. The entire portfolio — including steep taper, HSK, straight shank extensions, collets, sleeves, and accompanying products — offers high productivity, increased accuracy, and application flexibility.

Designed for both manual and automatic tool changing, Erickson interfaces are ideally suited for most machine tools and feature a compact and rigid construction guaranteed to handle high torque and deliver optimal metal removal rates.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

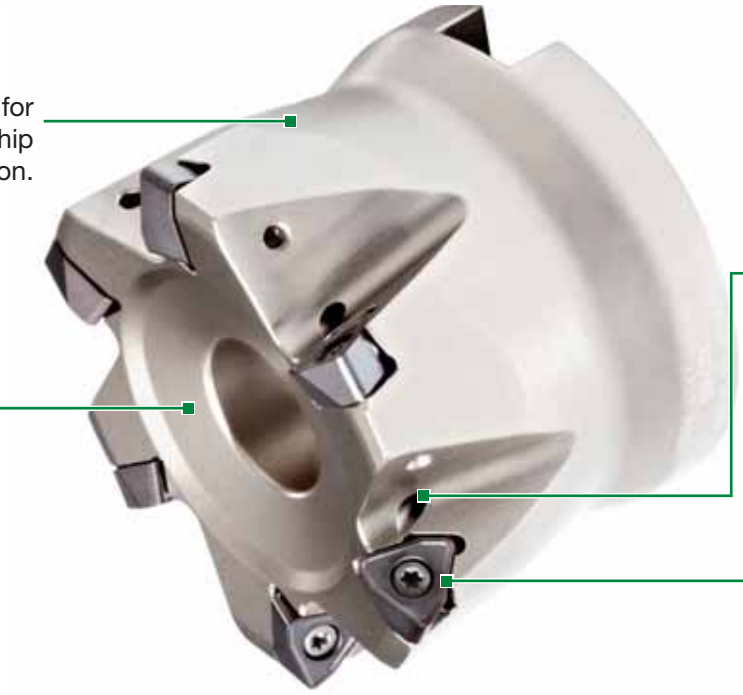
ERICKSON™

High-Feed Applications • **M370™ Series**

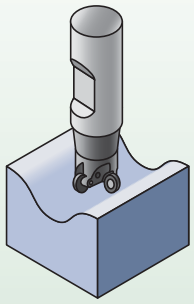
Designed for high feed rate productivity, M370 Series provides the latest insert technology with outstanding performance and reliability. Its double-sided concept and six cutting edges provide security and optimal metal removal with an efficient cost per edge.

M370™

- Double-sided design offers six cutting edges per insert.
- Extremely high metal removal rates.
- First choice for high-feed roughing applications.



Copy Mills



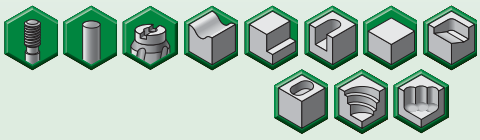
M370™

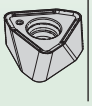
Max depth of cut:
1,25mm

Diameter: 25mm–80mm

Pages: B44–B49

P
M
K
H



Insert Geometry		Recommended Use
	MH	First choice for high-feed roughing in steel and cast iron materials.
	MM	First choice for soft steel and stainless steel. Lower cutting forces.

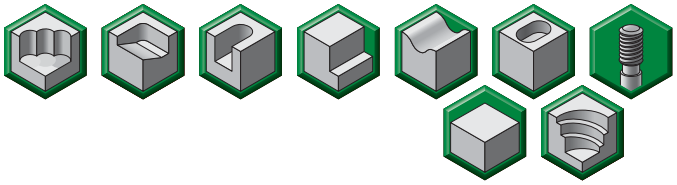
M370 Application Example:

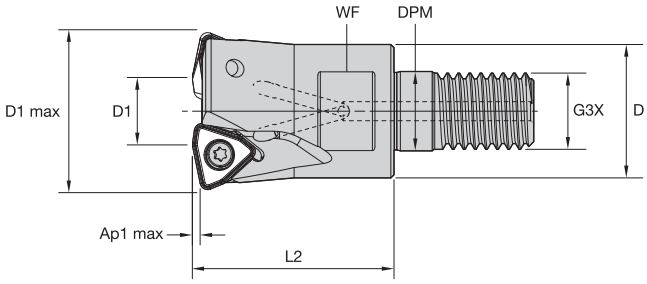
M370 MH geometry versus conventional High-Feed cutter

- Application: pocketing and face milling
- Material: 1.2311
- Component: injection mould
- Holder: 80mm
- Workpiece dimensions:
  400mm x 300mm x 400mm

Tool:	Diameter 32; M370D032Z04M16WO08
Insert:	W0EJ080412SRMH TN6525
vc:	200 m/min
fz:	1,5mm per tooth
Ap:	0,5mm
ae:	80–100%
vf:	12.000 mm/min
Coolant:	MQL
Comment:	25% higher tool life versus 3-edged, single-sided competitor, plus M370 offers 2x the number of edges with our unique double-sided design.

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.





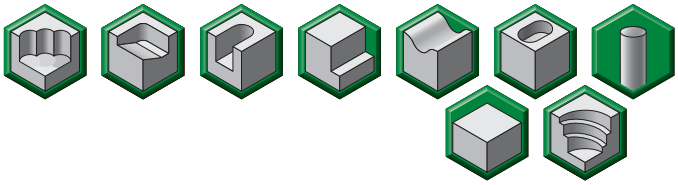
M370

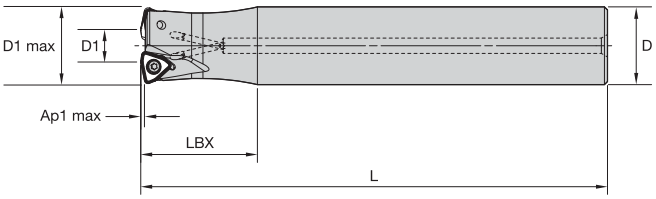
order number	catalogue number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max RPM	coolant supply	kg
4056186	**M370D025Z02M12WO08**	25	11	21	12,5	M12	35	17	1,25	2	46000	Yes	0,09
4170918	**M370D025Z03M12WO08**	25	11	21	12,5	M12	35	17	1,25	3	46000	Yes	0,09
4056187	**M370D032Z04M16WO08**	32	18	29	17,0	M16	43	24	1,25	4	38700	Yes	0,21
4056188	**M370D042Z05M16WO08**	42	28	29	17,0	M16	43	24	1,25	5	32500	Yes	0,57

Spare Parts

D1 max	insert screw	Nm	wrench
25	**MS1966**	1,8	**170.028**
32	**MS1966**	1,8	**170.028**
42	**MS1966**	1,8	**170.028**

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.





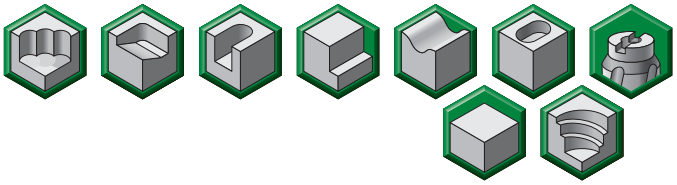
M370

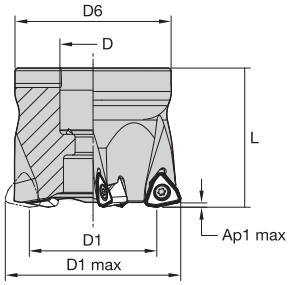
order number	catalogue number	D1 max	D1	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	kg
4008281	M370D025Z02A25WO08L200	25	11	25	200	50	1,25	2	46000	Yes	0,68
4170920	M370D025Z02A25WO08L300	25	11	25	300	40	1,25	2	46000	Yes	1,08
4056189	M370D025Z03A25WO08L150	25	11	25	150	40	1,25	3	46000	Yes	0,50
4170919	M370D025Z03A25WO08L200	25	11	25	200	40	1,25	3	46000	Yes	0,69
4056190	M370D028Z03A25WO08L200	28	14	25	200	40	1,25	3	42400	Yes	0,70
4170921	M370D032Z03A32WO08L300	32	18	32	300	40	1,25	3	38700	Yes	0,84
4056191	M370D032Z04A32WO08L150	32	18	32	150	40	1,25	4	38700	Yes	0,84
4056192	M370D032Z04A32WO08L200	32	18	32	200	50	1,25	4	38700	Yes	1,14

Spare Parts

D1 max	insert screw	Nm	wrench
25	MS1966	1,8	170.028
28	MS1966	1,8	170.028
32	MS1966	1,8	170.028

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



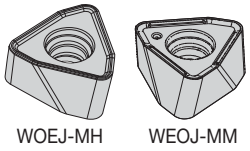


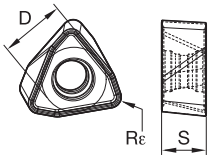
M370

order number	catalogue number	D1 max	D1	D	D6	L	Ap1 max	Z	max RPM	coolant supply	kg
4056193	**M370D040Z04WO08**	40	26	16	37	40	1,25	4	33500	Yes	0,19
4170922	**M370D040Z05WO08**	40	26	16	37	40	1,25	5	33500	Yes	0,19
4008276	**M370D050Z05WO08**	50	36	22	44	40	1,25	5	29200	Yes	0,29
4171223	**M370D050Z06WO08**	50	36	22	44	40	1,25	6	29200	Yes	0,29
4056194	**M370D052Z05WO08**	52	38	22	44	50	1,25	5	28600	Yes	0,41
4171224	**M370D052Z06WO08**	52	38	22	44	50	1,25	6	28600	Yes	0,40
4056195	**M370D063Z06WO08.**	63	49	22	60	50	1,25	6	25500	Yes	0,74
4008277	**M370D066Z06WO08**	66	52	27	60	50	1,25	6	24900	Yes	0,77
4171225	**M370D080Z07WO08**	80	66	27	60	50	1,25	7	24900	Yes	2,36

Spare Parts

D1 max	insert screw	Nm	wrench	socket-head cap screw	socket-head cap screw with coolant groove
40	**MS1966**	1,8	**170.028**	**125.825**	**MS1294CG**
50	**MS1966**	1,8	**170.028**	**12146120500**	**12146101000**
52	**MS1966**	1,8	**170.028**	**12146120500**	**12146101000**
63	**MS1966**	1,8	**170.028**	**12146120500**	**12146101000**
66	**MS1966**	1,8	**170.028**	**MS2038**	**MS2038CG**
80	**MS1966**	1,8	**170.028**	**MS2038**	**MS2038CG**





● first choice
○ alternate choice

■ WOEJ-MH and -MM

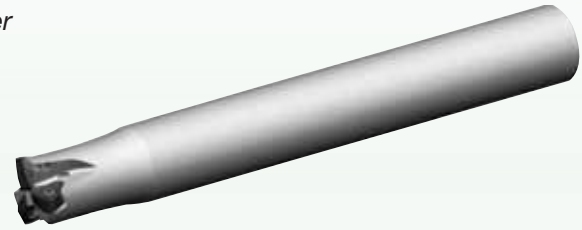
catalogue number	cutting edges	D	S	Rε	TN5515	TN6520	TN6525	TN6540
WOEJ080412SRMH	6	7,79	4,75	1,22	●	●	●	●
WOEJ080412SRMM	6	7,79	4,70	1,22		●	●	●

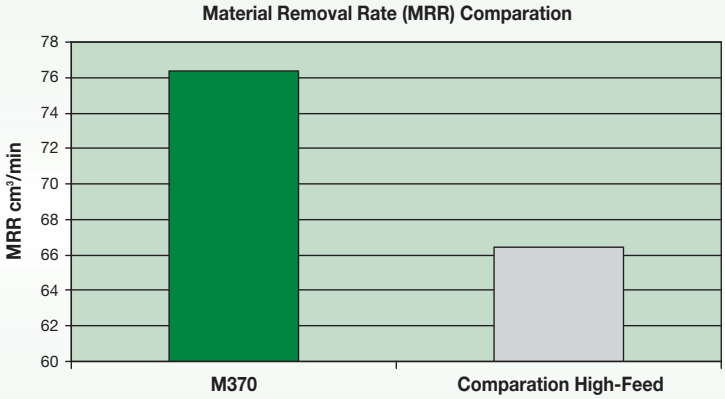
	TN5515	TN6520	TN6525	TN6540
P		○	●	●
M			○	●
K	●	●	○	○
N				
S				
H			○	

M370 Application Example:

M370 MM geometry versus conventional High-Feed cutter

- Application: pocketing — roughing
- Material: P5 high-alloy steel, 300HB
- Component: forging die
- Machine: BT40 vertical milling centre





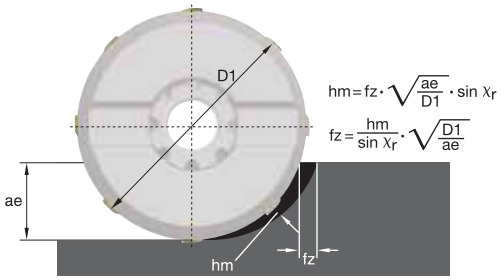
M370 improves tool life and productivity in comparison to conventional single-sided High-Feed platforms.

Tool:	M370D025Z03A25WO08L150
Insert:	WOEJ080412SRMM TN6540
vc:	160 m/min
fz:	0,9mm
Ap:	0,5mm
ae:	Variable
vf:	6.150 mm/min
Coolant:	Dry
Comment:	Considering the weakness from the machine, M370 achieves 32% longer tool life operating with higher cutting condition, improving productivity by 20%.

		TN5515			TN6520			TN6525			TN6540		
Edge Geometry		feed per tooth fz (mm)											
..-MM		0,35	**0,8**	1,5	0,35	**0,8**	1,5	0,35	**0,8**	1,5	0,35	**0,9**	1,6
..-MH		0,35	**1,1**	1,8	0,35	**1,0**	1,6	0,35	**1,0**	1,6	0,35	**1,1**	1,8
Material Group		vc (m/min)											
P	1				—	—	—	350	**270**	230	290	**220**	190
	2				—	—	—	240	**180**	160	200	**150**	130
	3				—	—	—	200	**150**	130	170	**130**	110
	4				—	—	—	210	**160**	130	170	**130**	110
	5				—	—	—	170	**130**	110	140	**100**	90
	6				230	**170**	140	230	**170**	140	190	**140**	120
	7				170	**130**	120	170	**130**	120	140	**110**	100
	8				150	**120**	100	150	**120**	100	130	**100**	80
	9				130	**100**	80	130	**100**	80	110	**80**	60
	10				170	**140**	130	170	**140**	130	140	**120**	100
	11				120	**90**	70	120	**90**	70	100	**70**	60
	12				—	—	—	220	**170**	140	180	**140**	120
	13.1				—	—	—	190	**140**	120	160	**120**	100
	13.2				—	—	—	100	**70**	60	80	**60**	50
M	14.1							190	**120**	90	160	**100**	70
	14.2							150	**90**	70	130	**80**	60
	14.3							120	**70**	50	100	**60**	40
	14.4							100	**60**	40	80	**50**	40
K	15	530	**390**	280	380	**280**	200	—	—	—	—	—	—
	16	410	**310**	230	300	**220**	170	—	—	—	—	—	—
	17	460	**310**	230	340	**220**	170	240	**180**	160	200	**150**	130
	18	300	**220**	170	220	**160**	120	200	**150**	130	170	**130**	110
	19	370	**290**	220	270	**210**	160	—	—	—	—	—	—
	20	310	**230**	180	220	**170**	130	—	—	—	—	—	—
N	21												
	22												
	23												
	24												
	25												
	26												
	27												
	28												
	29												
	30												
S	31												
	32												
	33												
	34												
	35												
	36												
	37												
H	38.1							120	**90**	70			
	38.2							—	—	—			
	39.1							—	—	—			
	39.2							—	—	—			

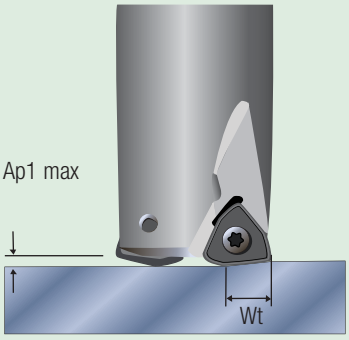
*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	0,2	0,3	0,4
fz-Factor	1,5	1,3	1,0
vc-Factor	1,3	1,2	1,1

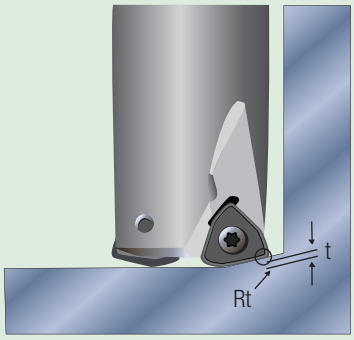


Applying High-Feed Tools

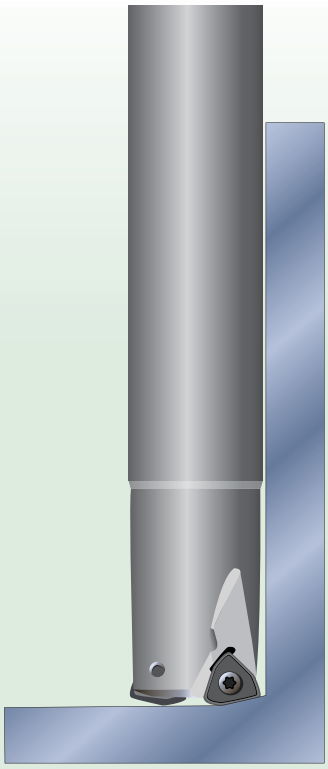
The High-Feed concept bases its strategy on small depth of cut and higher fz values, which result in a higher MRR and productivity with low radial forces.



Small Ap1 values and higher feed rates generate lower cutting forces versus traditional milling strategies.



For CAM programming, the tools can be programmed as a toroidal tool type by using the Rt value as the insert radius.



Recommended when long overhang is necessary due to lower radial forces. Maximum L/D ratio of 10 x D.

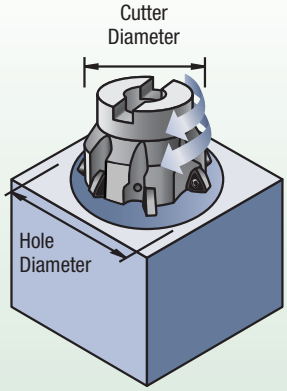
General Programming Information for Applying M370

L/D ratio	starting Ap1	starting fz range
<3	0,9mm	1mm–1,3mm
>3–<5	0,6mm	1mm–1,3mm
>5–<7	0,4mm	0,6mm–1mm

Rt	t	Wt
2,5mm	1mm	7,5mm

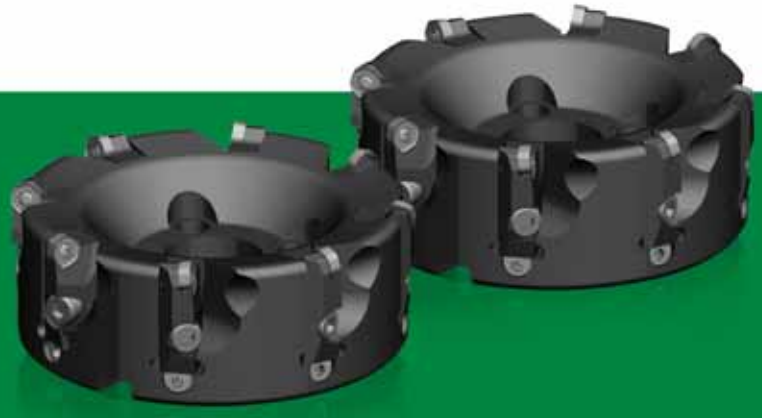
Maximum Linear Ramping and Helical Interpolation from Solid

cutter diameter	max linear ramp angle (straight line)	min hole diameter	max hole diameter	Ap1 max per revolution
25	3,1°	30,2	49,5	1,25
28	2,6°	36,1	55,5	1,25
32	2,9°	44,1	63,5	1,25
40	1,6°	60,0	79,5	1,25
42	1,5°	64,0	83,5	1,25
50	1,3°	80,0	99,5	1,25
52	1,2°	84,0	103,5	1,25
63	1,0°	106,0	125,5	1,25
66	1,0°	112,0	131,5	1,25
80	0,8°	140.0	155.5	1.25



Roughing and Finishing in One Tool • **WIDIA M4000**

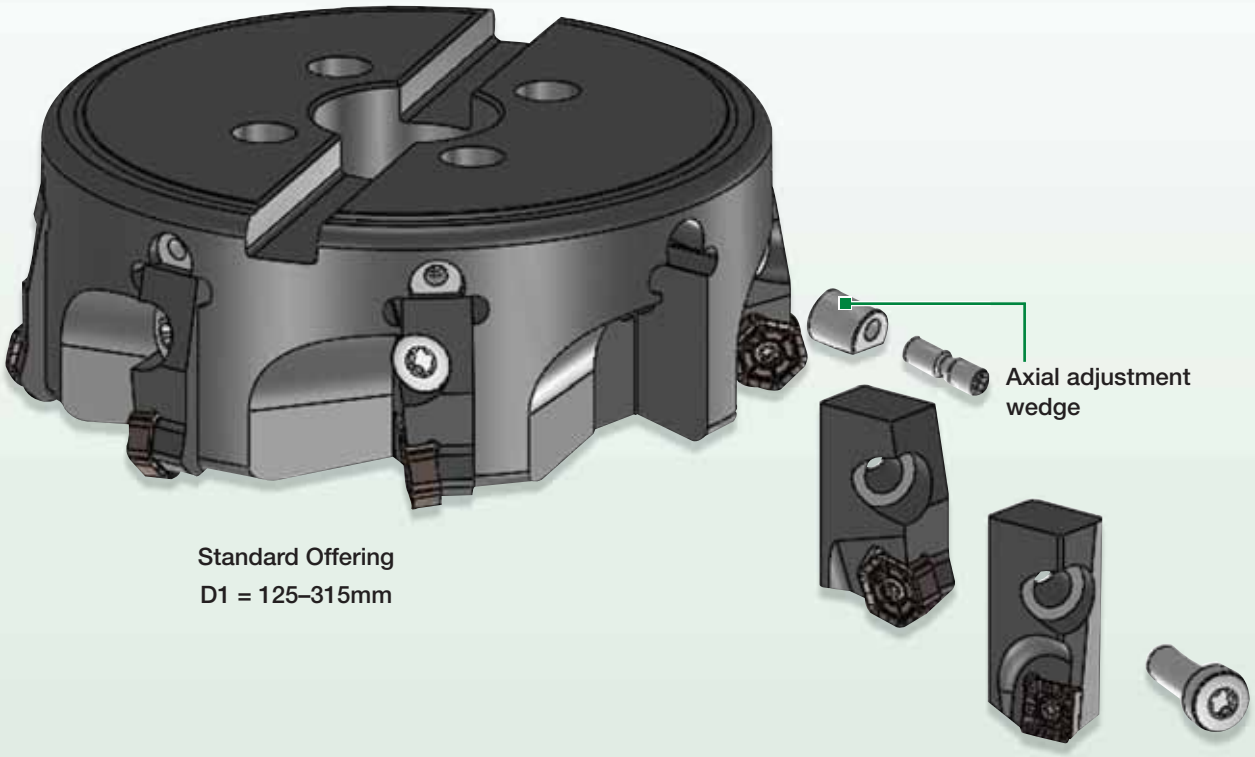
Cartridges with different insert styles and lead angles can be changed easily.



M4000

- Roughing and finishing solution with a single tool.
- Adjustable pockets and cartridge stop feature.
- Easily change cartridges with different insert styles and lead angles.
- Best-in-class flexibility for less money.
- Easy runout adjustment.
- Perfect floor surface for finishing operations.

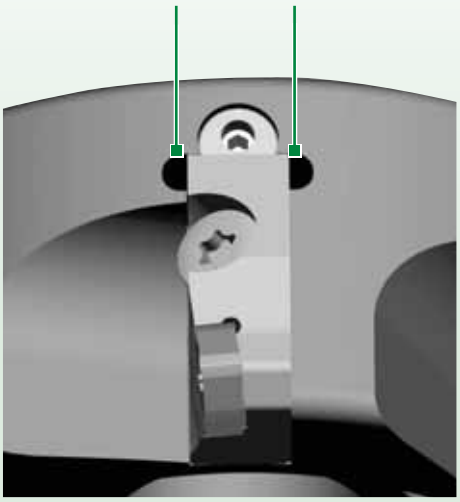
Roughing and Finishing with a Single Tool



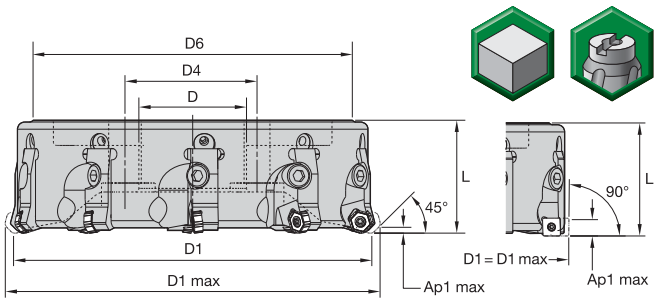
Standard Offering
D1 = 125–315mm

Quick Cartridge Stop

Ready to go in a minute with
no adjustment for roughing.



- Roughing and finishing with a single tool.
- Quick cartridge stop feature.
- Easy runout adjustment.
- Easy change of cartridges with different insert styles and lead angles.



Face Mills • M4000 Series Metric

M4000 Cartridge Milling System

order number	catalogue number	D1	D	D4	D6	L	number of cartridges	coolant supply	kg
4136343	M4000D125Z06ADJ	125	40	—	108	63	6	No	3,45
4136344	M4000D125Z08ADJ	125	40	—	80	63	8	No	3,18
4136345	M4000D160Z08ADJ	160	40	67	137	63	8	No	5,52
4136346	M4000D160Z12ADJ	160	40	67	137	63	12	No	5,28
4136347	M4000D200Z10ADJ	200	60	102	178	63	10	No	8,87
4136348	M4000D200Z14ADJ	200	60	102	178	63	14	No	8,31
4136349	M4000D250Z12ADJ	250	60	102	228	63	12	No	14,75
4136350	M4000D250Z18ADJ	250	60	102	228	63	18	No	13,90
4136351	M4000D315Z16ADJ	315	60	102	293	80	16	No	30,92
4136352	M4000D315Z22ADJ	315	60	102	293	80	22	No	30,07

Spare Parts • Diameter 125–315mm

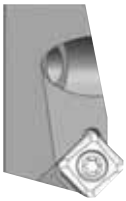
D1	cartridge screw	Nm	wedge	adjusting screw
125	MS1294	20,0	12748308500	12748600900

Cartridges

order number	catalogue number	insert style	master platform *	Ap1 max
4159022	M4000CA-AD1505	AD.T1505	—	14
4159020	M4000CA-AP1003	AP.T1003	—	8
4159021	M4000CA-AP1604	AP.T1604	—	15
3968124	M4000CA-HN07	HN.J0704/XNGJ0704	M1200 Mini	3,5
4159018	M4000CA-HN07HD	HN.J0704	M1200 Mini	4,7
4159017	M4000CA-HN07HF	HN.J0704	M1200 Mini	1,6
3126691	M4000CA-HN09	HN.J0905/XNGJ0905	M1200	4,5
4159019	M4000CA-HN09HD	HN.J0905	M1200	6,1
3954792	M4000CA-HN09HF	HN.J0905	M1200	2,2
2511344	M4000CA-HP06	HP.T06T3	M640	4,8
2006361	M4000CA-MDHX10	MDHX1004	—	0,7
2006346	M4000CA-RC1606	RC.T1606	M100	8,0
2067492	M4000CA-SD1204	SDM.1204	M690	10
2006359	M4000CA-SD1506	SDM.1506	M690	12
2006374	M4000CA-SE1203	SE.N1203/SE.R1203	M68	6
2033495	M4000CA-SE1204	SE.N1204/SE.R1204	M68	6
2006377	M4000CA-SE1504	SE.N1504/SE.R1504	M68	8
2006348	M4000CA-SN12	SN.T1205/XNKT1205	M660	6,4
2006357	M4000CA-SN12RC	SN.T1205	M660	6,4
2006360	M4000CA-SN15	SN.T1505	M660	8
2006362	M4000CA-SP12	121358680	M40 Wiper	0,5
2006373	M4000CA-SP1203	SP.N1203/SP.R1203	M40	9
2006376	M4000CA-SP1504	SP.N1504	M40	12
2033496	M4000CA-TP1603	TP.N1603/TP.R1603	M40	12
2006379	M4000CA-TP2204	TP.N2204/TP.R2204	M40	18
2006347	M4000CA-XP16	XP.T1604	M680	14

** For all details regarding insert offering and cutting conditions, please refer to the master platforms.*

	M4000CA-MDHX10CA	M4000CA-HN07HF	M4000CA-HN07	M4000CA-HN07HD	M4000CA-HN09HF	M4000CA-HN09	M4000CA-HN09HD	M4000CA-HP06
	order number 2006361	order number 4159017	order number 3968124	order number 4159018	order number 3954792	order number 3126691	order number 4159019	order number 2511344
D1	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**
125	125	139	134	132	143	136	133	131,4
160	160	174	169	167	178	171	168	166,4
200	200	214	209	207	218	211	208	206,4
250	250	264	259	257	268	261	258	256,4
315	315	329	324	322	333	326	323	321,4

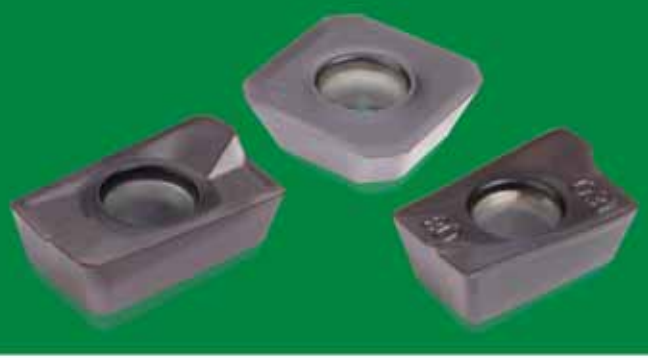
	 M4000CA-SN12	M4000CA-SN12RC	M4000CA-SN15	M4000CA-XP16	M4000CA-AP1003	M4000CA-AD1505	M4000CA-AP1604	M4000CA-SD1204	M4000CA-SD1506
	order number 2006348	order number 2006357	order number 2006360	order number 2006347	order number 4159020	order number 4159022	order number 4159021	order number 2067492	order number 2006359
D1	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**
125	139,3	139,3	143	125	125	125	125	125	125
160	174,3	174,3	178	160	160	160	160	160	160
200	214,3	214,3	218	200	200	200	200	200	200
250	264,3	264,3	268	250	250	250	250	250	250
315	329,3	329,3	333	315	315	315	315	315	315

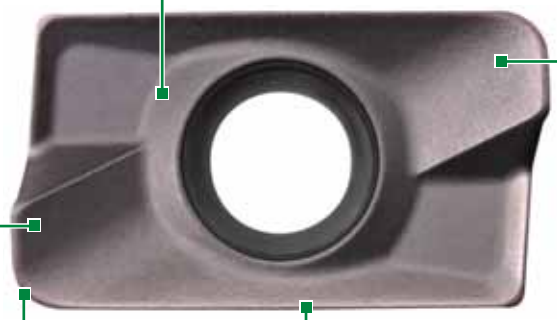
	M4000CA-RC1606	M4000CA-SE1203	M4000CA-SE1204	M4000CA-SE1504	M4000CA-SP1203	M4000CA-SP12 Wiper	M4000CA-SP1504	M4000CA-TP1603	M4000CA-TP2204
	order number 2006346	order number 2006374	order number 2033495	order number 2006377	order number 2006373	order number 2006362	order number 2006376	order number 2033496	order number 2006379
D1	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**	**D1max**
125	125	139	139	143	130,6	132,2	132,2	125	125
160	160	174	174	178	165,6	167,2	167,2	160	160
200	200	214	214	218	205,6	207,2	207,2	200	200
250	250	264	264	268	255,6	257,2	257,2	250	250
315	315	329	329	333	320,6	322,2	322,2	315	315

Industry Standard Inserts Available in Premium WIDIA™ Grades • **WIDIA ISO Insert Additions**

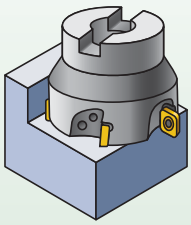
Now offering a simple choice for direct replacement inserts in tools commonly used in the market place. We created universal geometries providing performance, long tool life, low cutting forces, and high reliability to provide a winning WIDIA option.

ISO





90° Shoulder Mills



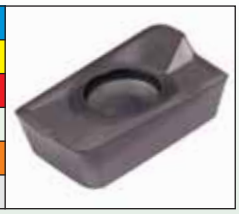
APPT1604..

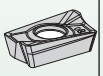
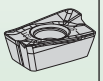
Max depth of cut: 15mm

Lead angle: 90°
Indexes per insert: 2

Pages: B56–B58

P
M
K
S



Insert Geometry		Recommended Use
	ERMM	First choice for general machining in stainless steel and low carbon steels.
	SRMM	First choice for general machining in steel and cast iron materials. Best option for general-purpose use.

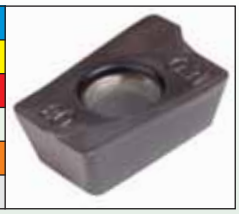
ADPT1505..

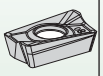
Max depth of cut: 14mm

Lead angle: 90°
Indexes per insert: 2

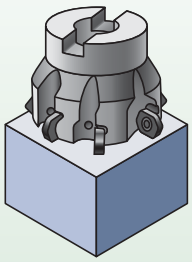
Pages: B56–B58

P
M
K
S



Insert Geometry		Recommended Use
	ERMM	First choice for general machining. Best option for general-purpose use.

Face Mills



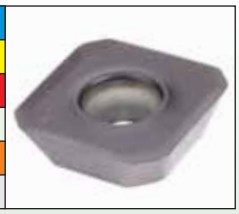
SEPT13T3..

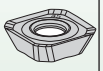
Max depth of cut: 6mm

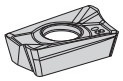
Lead angle: 45°
Indexes per insert: 4

Pages: B56–B58

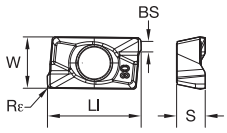
P
M
K
S



Insert Geometry		Recommended Use
	MM	First choice for general machining. Best option for general-purpose use.



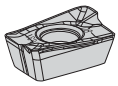
APPT



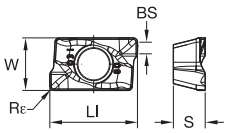
● first choice
○ alternate choice

P		●	●
M		○	●
K	●	○	○
N			
S			●
H			

catalogue number	cutting edges	W	Ll	S	BS	Rε	TN6520	TN6525	TN6540
APPT160408PDERMM	2	9,43	17,24	5,26	1,47	0,8		●	●
APPT160408PDSRMM	2	9,43	17,22	5,26	1,43	0,8	●	●	●
APPT160416PDERMM	2	9,43	17,22	5,27	1,43	1,6		●	●
APPT160416PDSRMM	2	9,43	17,22	5,27	1,43	1,6	●	●	●
APPT160424PDERMM	2	9,43	17,10	5,27	1,16	2,4			●
APPT160432PDERMM	2	9,43	16,87	5,26	—	3,2		●	●



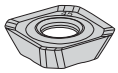
ADPT



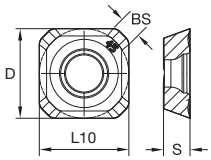
● first choice
○ alternate choice

P		●	●
M		○	●
K	●	○	○
N			
S			●
H			

catalogue number	cutting edges	W	Ll	S	BS	Rε	TN6520	TN6525	TN6540
ADPT150508ERMM	2	9,65	16,12	5,84	2,13	0,8	●	●	●
ADPT150516ERMM	2	9,65	16,12	5,84	1,34	1,6	●	●	●
ADPT150524ERMM	2	9,65	15,55	5,84	0,87	2,4			●
ADPT150532ERMM	2	9,65	15,41	5,84	—	3,2			●



SEPT



● first choice
○ alternate choice

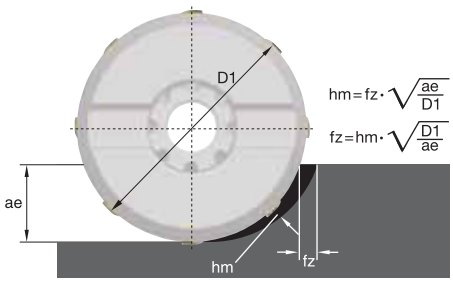
P		●	●
M		○	●
K	●	○	○
N			
S			●
H			

catalogue number	cutting edges	D	L10	S	BS	TN6520	TN6525	TN6540
SEPT13T3AGENMM	4	13,41	13,41	3,96	2,50	●	●	●

		TN6520			TN6525			TN6540		
Edge Geometry		**feed per tooth fz (mm)**								
..ERMM		0,10	**0,20**	0,30	0,80	**0,14**	0,20	0,09	**0,18**	0,25
..SRMM		0,13	**0,25**	0,36	0,10	**0,20**	0,25	0,11	**0,25**	0,36
Material Group		**vc (m/min)**								
P	1				300	**230**	190	250	**200**	170
	2				230	**180**	150	170	**140**	120
	3				190	**140**	130	140	**110**	100
	4				200	**150**	140	150	**120**	100
	5				170	**120**	110	130	**90**	80
	6				220	**170**	140	170	**130**	100
	7				170	**140**	110	130	**100**	80
	8				140	**110**	100	110	**80**	70
	9				140	**100**	80	100	**70**	60
	10				170	**140**	120	130	**100**	90
	11				110	**90**	60	80	**60**	50
	12				220	**160**	140	160	**120**	100
	13.1				190	**140**	110	140	**100**	80
	13.2				100	**70**	50	70	**50**	40
M	14.1				190	**120**	80	140	**90**	60
	14.2				150	**100**	60	120	**70**	50
	14.3				120	**80**	50	90	**50**	45
	14.4				100	**60**	45	80	**45**	35
K	15	290	**210**	170	—	—	—	—	—	—
	16	220	**160**	140	—	—	—	—	—	—
	17	240	**180**	150	230	**180**	150	170	**140**	120
	18	180	**110**	80	190	**140**	130	140	**110**	100
	19	240	**140**	120	—	—	—	—	—	—
	20	190	**120**	90	—	—	—	—	—	—
N	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									
S	31							50	**40**	35
	32							40	**30**	25
	33							25	**15**	10
	34							20	**15**	5
	35							35	**25**	15
	36							70	**40**	30
	37							60	**30**	25
H	38.1									
	38.2									
	39.1									
	39.2									

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

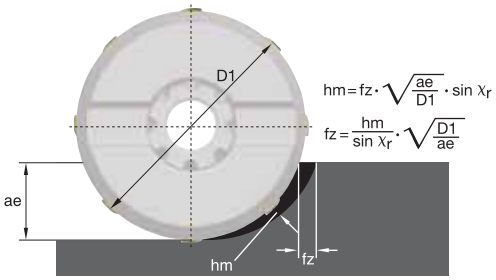
ae/D1 =	0,02	0,05	0,1	0,2	0,4
fz-Factor	3,5	3	2	1,5	1,0
vc-Factor	1,6	1,5	1,4	1,3	1,1



		TN6520			TN6525			TN6540		
Edge Geometry		feed per tooth fz (mm)								
..ENMM		0,15	**0,28**	0,46	0,10	**0,20**	0,30	0,15	**0,25**	0,36
Material Group		vc (m/min)								
P	1				350	**270**	230	290	**220**	190
	2				240	**180**	160	200	**150**	130
	3				200	**150**	130	170	**130**	110
	4				210	**160**	130	170	**130**	110
	5				170	**130**	110	140	**100**	90
	6				228	**170**	140	190	**140**	120
	7				170	**130**	120	140	**110**	100
	8				150	**120**	100	130	**100**	80
	9				130	**100**	80	110	**80**	60
	10				170	**140**	130	140	**120**	100
	11				120	**90**	70	100	**70**	60
	12				220	**170**	140	180	**140**	120
	13.1				190	**140**	120	160	**120**	100
	13.2				96	**70**	60	80	**60**	50
M	14.1				190	**120**	90	160	**100**	70
	14.2				150	**90**	70	130	**80**	60
	14.3				120	**70**	50	100	**60**	40
	14.4				100	**60**	40	80	**50**	40
K	15	380	**280**	200	—	—	—	—	—	—
	16	300	**220**	170	—	—	—	—	—	—
	17	340	**220**	170	240	**180**	160	200	**150**	130
	18	220	**160**	120	200	**150**	130	170	**130**	110
	19	270	**210**	160	—	—	—	—	—	—
	20	220	**170**	130	—	—	—	—	—	—
N	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									
S	31							60	**50**	45
	32							50	**40**	35
	33							35	**25**	20
	34							30	**20**	15
	35							30	**20**	15
	36							80	**50**	40
	37							70	**45**	35
H	38.1									
	38.2									
	39.1									
	39.2									

*First choice starting feed (fz) is in **bold** type.*
Use corresponding speed (vc).
fz and vc are valid for ae ≥0,4 D1.
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	0,1	0,2	0,3	0,4
fz-Factor	2,0	1,5	1,3	1,0
vc-Factor	1,4	1,3	1,2	1,1



WIN WITH WIDIA™

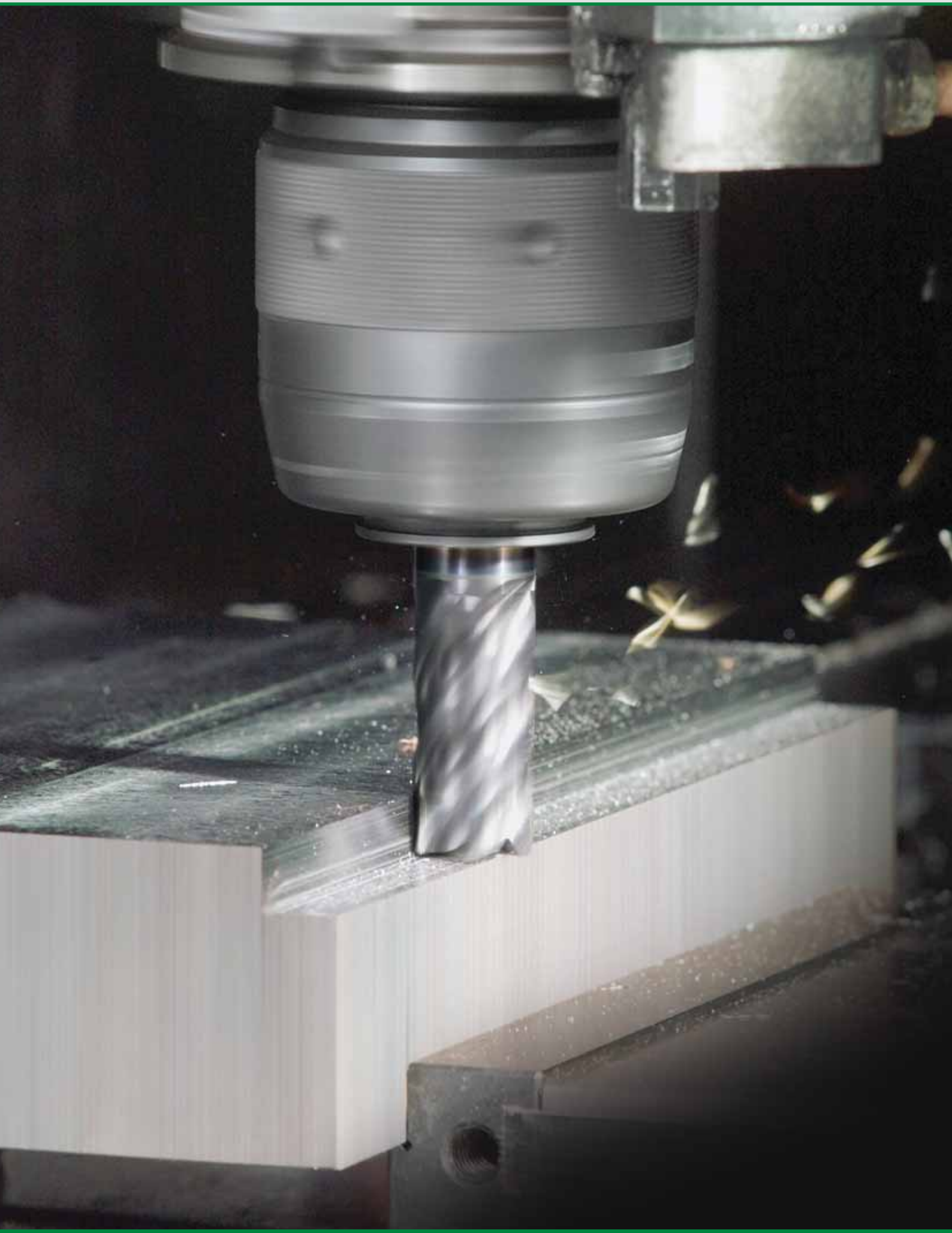
WIDIA™ M370™ Series

Designed for high-feed productivity, the WIDIA M370 Series provides the latest insert technology with outstanding performance and reliability.
Its double-sided concept and six cutting edges provide you with security and optimal metal removal for an efficient cost per edge.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

WIDIA™

WIDIA



Solid End Milling

High-Performance Solid Carbide End Mills • VariMill **C2–C5**

Application Data C5

For semi-finishing and finishing operations •

WIDIA™ VariMill II™ Long Line

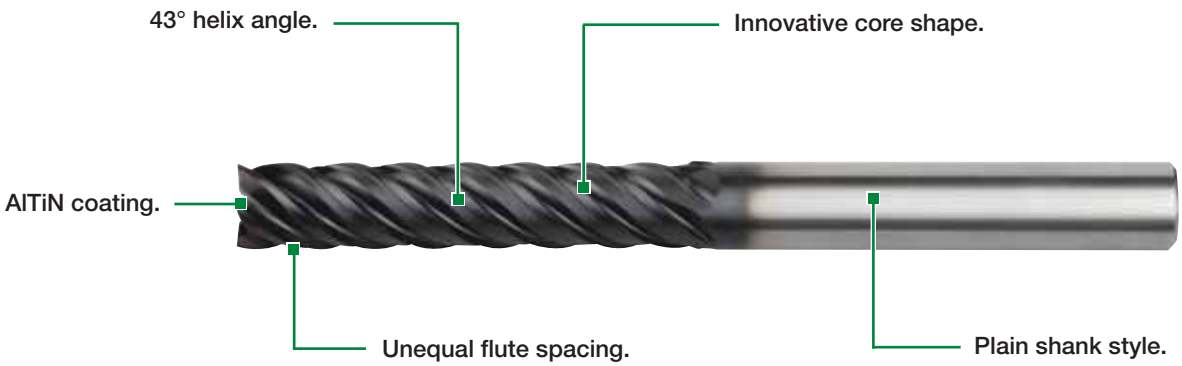
WIDIA is proud to introduce the next expansion of our well known VariMill II line. The new VariMill II long portfolio is covering the 4 x D length of cut from stock. This product line is designed to work on titanium, stainless steels, and steels.

VariMill II™ Long

Features	Functions
Unequal flute spacing.	Less vibration.
4 x D length of cut.	Maximise axial cutting depth.
AlTiN coating.	Heat absorption into the chips.
43° helix angle.	Smooth cut.
Innovative core shape.	Maximum stability of the tool.

WIDIA™ VariMill II™ Long Line

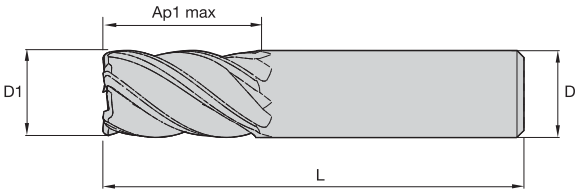
- Excellent surface finish.
- Recommended for thin wall machining.



Benefits

- Better surface finish and tool life.
- Reduce number of cuts.
- Improved tool life.
- Excellent surface finish at maximum MRR.
- Excellent for thin wall semi-finishing and finishing operations.

- Unequal flute spacing.
- Non-centre cutting.
- Standard items listed. Additional styles and coatings made to order.
- For information about Reconditioning Services, see page F4.



End Mill Tolerances

D1	Tolerance e8 + / -	D	Tolerance h6 + / -
≤3	0/0,006	≤3	0/0,006
>3–6	0/0,008	>3–6	0/0,008
>6–10	0/0,009	>6–10	0/0,009
>10–18	0/0,011	>10–18	0/0,011
>18–30	0/0,013	>18–30	0/0,013

	P						M			K			S				H
	1	2	3	4	5	6	1	2	3	1	2	3	1	2	3	4	1
AlTiN	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

P — Steel *K — Cast Iron* *S — High-Temp Alloys*

M — Stainless Steel *N — Non-Ferrous Materials* *H — Hard Materials*

For application data, see page C5.

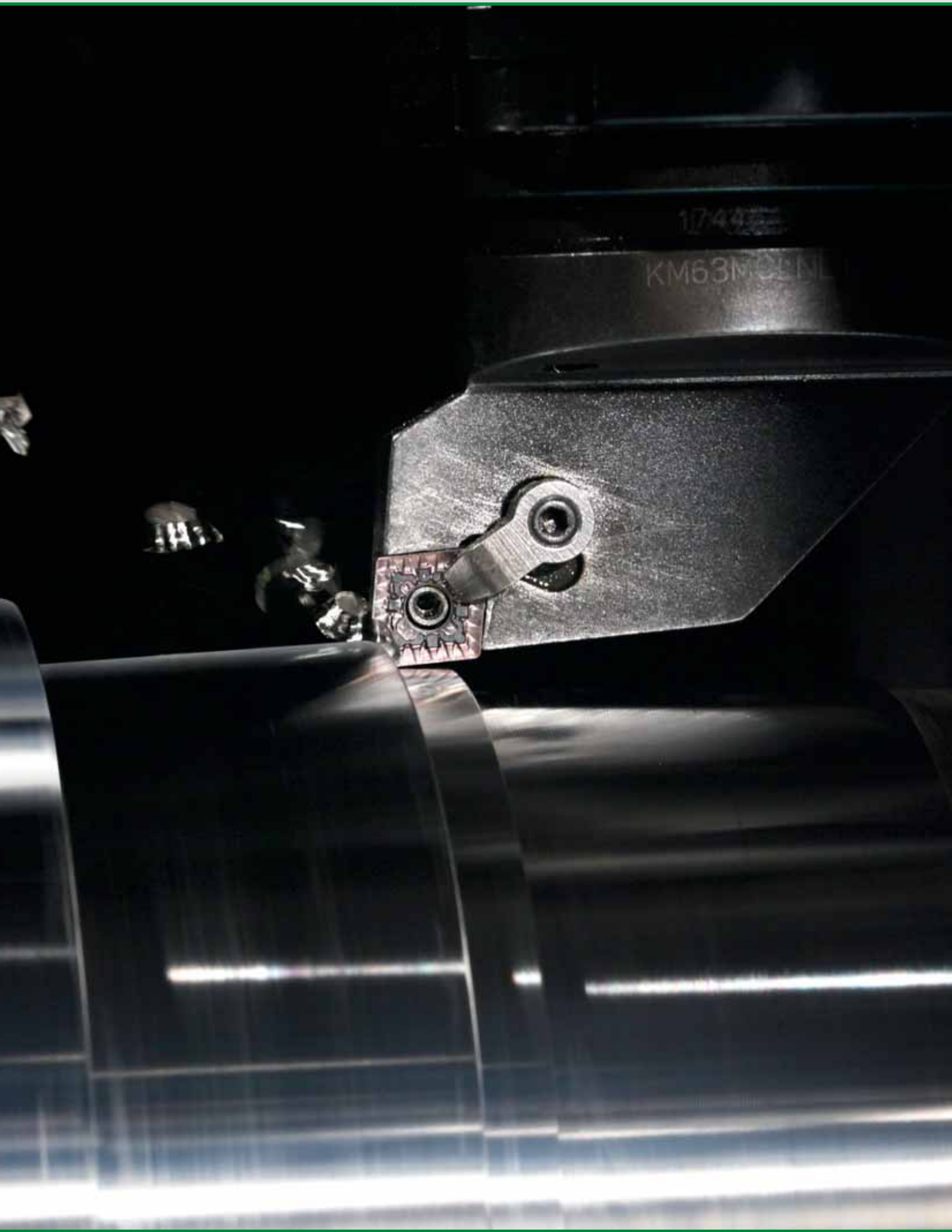
List 5718 • VariMill II Long

AlTiN-MT	D1	D	length of cut Ap1 max	length L
571810004MT	10,0	10	40,00	100
571812005MT	12,0	12	48,00	125
571814014MT	14,0	14	56,00	120
571816006MT	16,0	16	64,00	141
571818018MT	18,0	18	72,00	150
571820007MT	20,0	20	80,00	150
571825008MT	25,0	25	100,00	170

Group		A		AlTiN-MT		Feed per tooth — fz info is for side milling (A). For slotting (B), reduce fz by 20%							
				Cutting Speed—vc m/min			D1 — Diameter						
		ap	ae	min	max	mm	10,0	12,0	14,0	16,0	18,0	20,0	25,0
P	1	Ap1 max	0,05 x D*	300	400	fz	0,060	0,072	0,083	0,092	0,101	0,114	0,124
	2	Ap1 max	0,05 x D*	280	380	fz	0,060	0,072	0,083	0,092	0,101	0,114	0,124
	3	Ap1 max	0,05 x D*	240	320	fz	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	4	Ap1 max	0,05 x D*	180	300	fz	0,045	0,054	0,062	0,070	0,077	0,088	0,098
	5	Ap1 max	0,05 x D*	120	200	fz	0,040	0,048	0,056	0,063	0,070	0,081	0,091
	6	Ap1 max	0,05 x D*	100	150	fz	0,034	0,040	0,047	0,052	0,057	0,065	0,071
M	1	Ap1 max	0,05 x D*	180	230	fz	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	2	Ap1 max	0,05 x D*	120	160	fz	0,040	0,048	0,056	0,063	0,070	0,081	0,091
	3	Ap1 max	0,05 x D*	120	140	fz	0,034	0,040	0,047	0,052	0,057	0,065	0,071
K	1	Ap1 max	0,05 x D*	240	300	fz	0,060	0,072	0,083	0,092	0,101	0,114	0,124
	2	Ap1 max	0,05 x D*	220	260	fz	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	3	Ap1 max	0,05 x D*	200	260	fz	0,040	0,048	0,056	0,063	0,070	0,081	0,091
S	1	Ap1 max	0,05 x D*	100	180	fz	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	2	Ap1 max	0,05 x D*	100	180	fz	0,050	0,061	0,070	0,079	0,087	0,101	0,114
	3	Ap1 max	0,05 x D*	50	80	fz	0,026	0,032	0,037	0,042	0,046	0,054	0,061
	4	Ap1 max	0,05 x D*	100	120	fz	0,037	0,045	0,052	0,058	0,064	0,074	0,084
H	1	Ap1 max	0,05 x D*	160	140	fz	0,045	0,054	0,062	0,070	0,077	0,088	0,098

** For the above cutting data, do not exceed an overall ae of 0,8mm.*
Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machinining centers, please adjust parameters accordingly on >0,5mm diameter.

WIDIA



Turning

WIDIA Victory **D2–D42**
Grades and Grade Descriptions D4
Chipbreaker Geometries D5–D6
Catalogue Numbering System D8–D9
Speed and Feed Chart • Negative Inserts D10
Speed and Feed Chart • Positive Inserts D11
Carbide Inserts D12–D42
WMT Grooving, Cut-Off, Turning, and Profiling **D45–D59**
Choose the Correct WMT Tooling D48–D51
Grades and Grade Descriptions D52
Catalogue Numbering System D53
Speed and Feed Chart D54
Inserts D56–D59
GT and GF Cut-Off Inserts **D61–D63**
WIDIA Value **D64–D86**
Speed and Feed Chart • Negative Inserts D66
Speed and Feed Chart • Positive Inserts D67
Chipbreaker Geometries D68
Grades and Grade Description D69
Catalogue Numbering System D70–D71
Inserts D72–D86

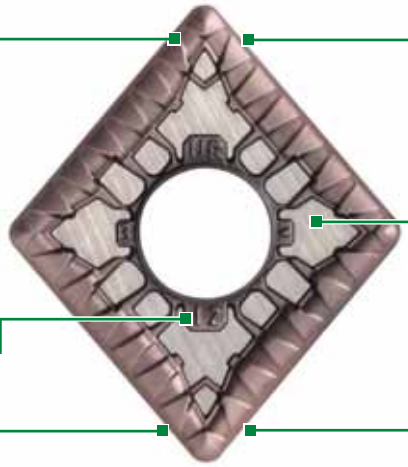
New WIDIA™ Victory™ Turning Grades and New Geometries

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

Victory™

- Reduce cycle times — high speed and feed capability.
- Long tool life — new multilayer coating provides better wear resistance.
- Proven seating — smooth and secure seating surface.
- New violet coating easily identifies flank wear.

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

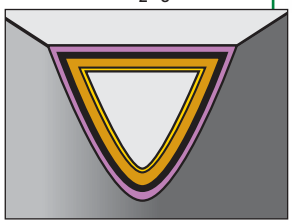


Improved edge toughness
- Provides smooth outer surface to reduce forces, friction, and workpiece sticking.

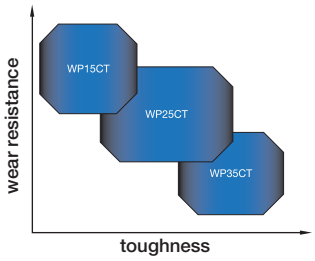
Post-coat grinding
- Provides secure seating surface.

New geometry identification system

MT-CVD/CVD–TiN-TiCN-Al_2O_3-ZrCN

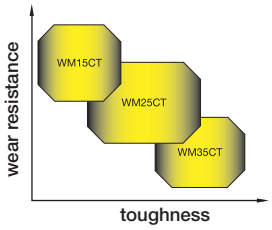


Alpha alumina layer
- Provides coating integrity at elevated speeds.
- Higher productivity and dependability at high cutting temperatures.



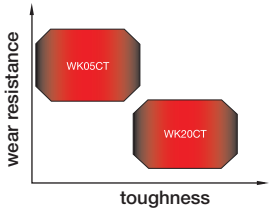
WP Grades for Steel

- Three grades and 11 geometries for use in roughing to finishing operations.
- Increase cutting speed and/or feed rate to gain productivity.



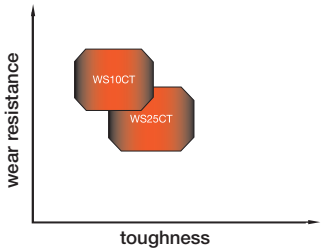
WM Grades for Stainless Steel

- Three grades across 11 geometries for use in roughing to finishing operations.
- Very good balance of wear resistance and toughness for long predictable tool life.



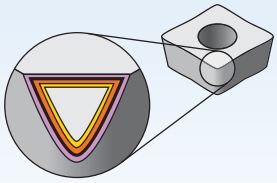
WK Grades for Cast Iron

- Two grades to cover all of your cast iron turning operations.
- Increase cutting speed and/or feed rate by up to 30% over similar competitive grades.



WS Grades for High-Temp Alloys

- Two grades for your rough and finish turning operations.
- Very good wear resistance for longer tool life.



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

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

wear resistance ⟷ toughness

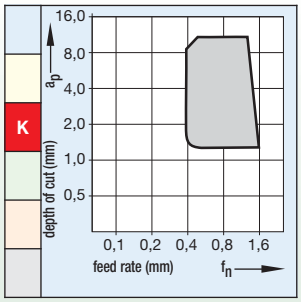
Grade

Coating		Grade Description	05	10	15	20	25	30	35	40	45
WP15CT	HC-P15	Coated carbide. MT-CVD/CVD — TiN-TiCN-Al_2O_3-ZrCN. Good balance of wear resistance and toughness properties. Light and medium machining. For steels.	P	P	P	P					
WP25CT	HC-P25	Coated carbide. MT-CVD/CVD — TiN-TiCN-Al_2O_3-ZrCN. Good toughness properties. Medium and heavy machining. For steels.	P, M			M	M	M			
WP35CT	HC-P35	Coated carbide. MT-CVD/CVD — TiN-TiCN-Al_2O_3-ZrCN. Proven on all roughing and heavy roughing operations, wet or dry, on interrupted and non-interrupted cuts.	P					P	P	P	
WM15CT	HC-M15	Coated carbide. MT-CVD/CVD — TiN-TiCN-Al_2O_3-ZrCN. High degree of wear resistance and good resistance to depth-of-cut notching for long tool life in finishing to medium turning applications.	M	M	M	M					
WM25CT	HC-M25	Coated carbide. MT-CVD/CVD — TiN-TiCN-Al_2O_3-ZrCN. Good balance of wear resistance and toughness properties. Light and medium machining. For austenitic stainless steel AISI series.	M			M	M	M			
WM35CT	HC-M35	Coated carbide. MT-CVD/CVD — TiN-TiCN-Al_2O_3-ZrCN. Good toughness and wear resistance balance. For medium to roughing operations with light and heavily interrupted cuts.	M				M	M	M		
WK05CT	HC-K05	Coated carbide. MT-CVD/CVD — TiN-TiCN-Al_2O_3. Increased wear resistance for long tool life at high cutting speeds. Enhanced edge strength against depth-of-cut notching in interrupted cuts.	K	K	K	K					
WK20CT	HC-K20	Coated carbide. MT-CVD/CVD — TiN-TiCN-Al_2O_3. Light and medium machining. For cast irons.	K		K	K	K				
WS10PT	HC-S10	Coated carbide. PVD — TiAlN Nano-multilayer. Light machining. For difficult-to-machine alloys and stainless steels.	M, S	M, S	M, S	M, S					
WS25PT	HC-S25	Coated carbide. PVD — TiAlN Nano-multilayer. Light and medium machining. For difficult-to-machine alloys and stainless steels.	M, S			M, S	M, S	M, S			

Negative Inserts

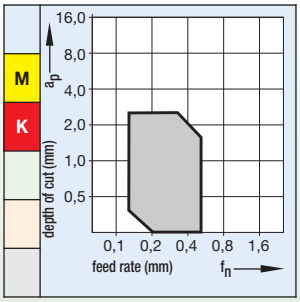
..MA

Flat top geometry for machining cast iron. For finishing to roughing applications.



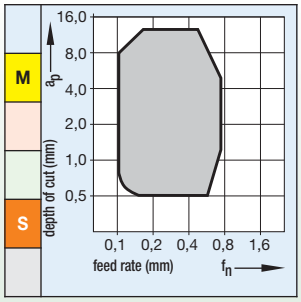
FW

Wiper geometry for finishing, when good surface finish is needed using high feed rates. First choice for high-performance finishing.



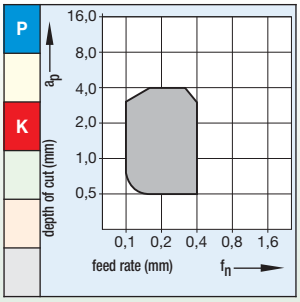
.NMP

For medium duty machining of tough work materials, such as chrome- and nickel-based alloys. Minimises tendency for materials to adhere to insert.



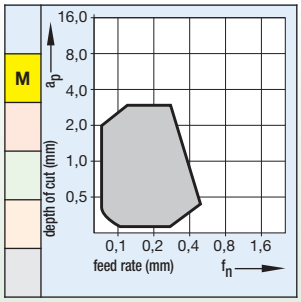
ML

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



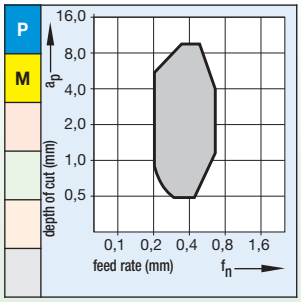
CT

Designed for outward copy turning. Where other geometries produce long chips, the unique distribution of the cut results in good chip control.



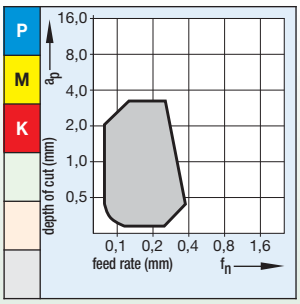
MR

For medium to light roughing of steels, difficult-to-machine high-alloy titanium, and aluminium materials. High strength to deal with heavy chip deformation.



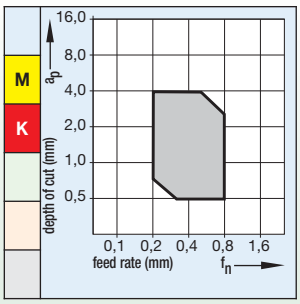
FF

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



MW

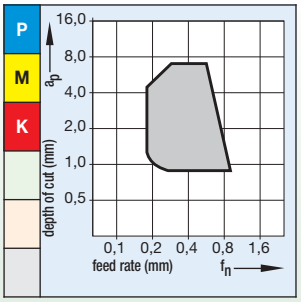
Wiper geometry for light to medium turning with high feed rates. Feed twice as high as with edges with full corner radii to produce same surface finish.



Negative Inserts

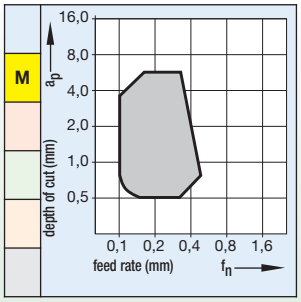
RH

For medium-duty to roughing. Outstanding chip control. High edge strength for interrupted cuts, forging skin, or scale. Preferred for all cast iron such as grey, malleable, and nodular.



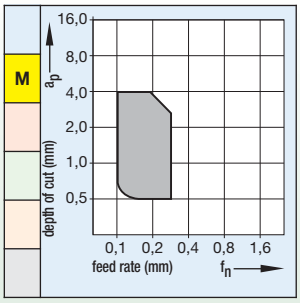
UM

For medium-duty turning operations. Soft-cutting chipbreaker. Used in applications producing varying chip sections, such as profile or copy turning. Good dimensional accuracy. For soft steel materials and stainless steels.



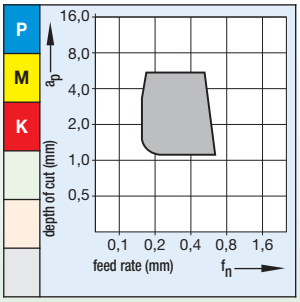
UF

For finishing with a positive cutting edge for reduced cutting forces and superior surface quality.



UR

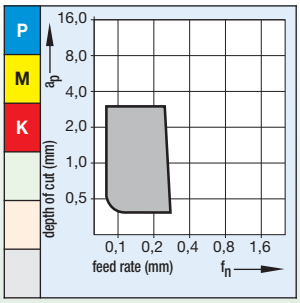
Roughing geometry with smooth chip forming and improved coolant flow for increased tool life. Positive geometry reduces cutting forces and improves depth-of-cut notching resistance. Ideally suitable for stainless steel applications and for smooth machining of steel.



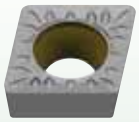
Positive Inserts

FP

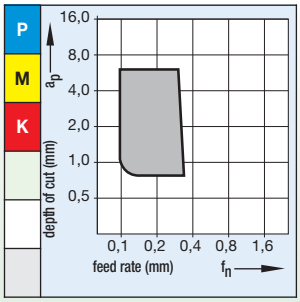
For finishing to medium turning operations with optimal chip control over a wide range of cutting conditions and workpiece materials.



MP



For medium to rough turning with reduced cutting forces and improved chip control for high feed rates. Suitable for high metal removal rates and spindling applications.



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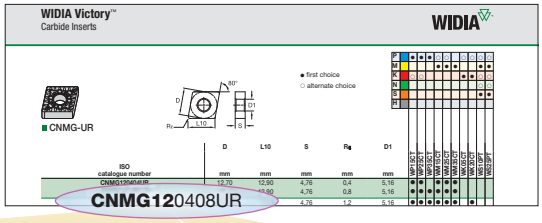
How Do Catalogue Numbers Work?

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



C — Insert Shape

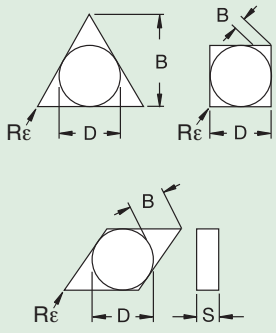
H	Hexagon 120°	
O	Octagon 135°	
P	Pentagon 108°	
R	Round —	
S	Square 90°	
T	Triangular 60°	
C D E M V	Rhomboid 80° 55° 75° 86° 35°	
W	Trigon 80° with enlarged corner angles	
L	Rectangular 90°	
A B N/K	Parallelogram 85° 82° 55°	

N — Insert Clearance Angle

A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Indicated for other clearance angles requiring descriptions.

M — Tolerance Class

Tolerances apply prior to edge prep and coating



D = Theoretical diameter of the insert inscribed circle
S = Thickness
B = See figures below

tolerance class	tolerance on "D"	tolerance on "B"	tolerance on "S"
C	±0,025	±0,013	±0,025
H	±0,013	±0,013	±0,025
E	±0,025	±0,025	±0,025
G	±0,025	±0,025	±0,13
M	See tables in size column		±0,13
U	See tables in size column		±0,13

G — Insert Features

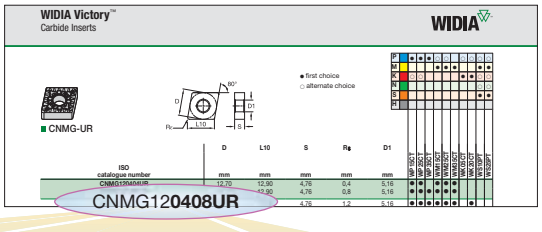
N	
R	
F	
A	
M	
G	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special Design

12 — Size

Code for metric cutting edge length "L10"

"D" mm	C	D	R	S	T	V	W
3,97	S4	04	03	03	06	–	–
4,76	04	05	04	04	08	08	S3
5,56	05	06	05	05	09	09	03
6,00	–	–	06	–	–	–	–
6,35	06	07	06	06	11	11	04
7,94	08	09	07	07	13	13	05
8,00	–	–	08	–	–	–	–
9,52	09	11	09	09	16	16	06
10,00	–	–	10	–	–	–	–
11,11	11	13	11	11	19	19	07
12,00	–	–	12	–	–	–	–
12,70	12	15	12	12	22	22	08
14,29	14	17	14	14	24	24	09
15,88	16	19	15	15	27	27	10
16,00	–	–	16	–	–	–	–
17,46	17	21	17	17	30	30	11
19,05	19	23	19	19	33	33	13
20,00	–	–	20	–	–	–	–
22,22	22	27	22	22	38	38	15
25,00	–	–	25	–	–	–	–
25,40	25	31	25	25	44	44	17
31,75	32	38	31	31	54	54	21
32,00	–	–	32	–	–	–	–

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



04
Thickness
S

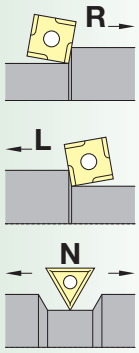
symbol mm	thickness mm
–	0,79
T0	1,00
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52
11	11,11
12	12,70

08
Corner
Radius "Rε"

symbol mm	corner radius mm
X0	0,04
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
28	2,8
32	3,2
00	round insert
M0	

Hand of Insert
(optional)

R = Right hand
L = Left hand
N = Neutral



Cutting Edge
(optional)

F Sharp
E Rounded
T Chamfered
S Chamfered and Rounded
K Double-Chamfered
P Double-Chamfered and Rounded

UR
Chipbreaker
(optional)

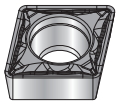
13	Railroad Light	**FW**	Finish Wiper	**RH**	Roughing Heavy	**UR**	Universal Roughing
CT	Copy Turning	**ML**	Medium Light	**T**	Negative Land	**.NMP**	Sharp Medium
FF	Fine Finishing	**MR**	Medium Roughing	**UF**	Universal Finishing		
FP	Finishing Positive	**MW**	Medium Wiper	**UM**	Universal Medium		

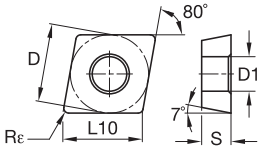
DIN ISO 513	VDI 3323	A Finishing (ap x f = 1 x 0,10)			B Medium (ap x f = 2 x 0,20)						C Roughing (ap x f = 4 x 0,25)						D Heavy Roughing (ap x f = 6 x 0,60)					
Material Group		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	Geometry	FF • ML			ML • UR • MR						UR • MR • RH						RH					
	ap [mm]	0,2 – 2,0			0,8 – 5,0						1,0 – 8,0						2,0 – 15,0					
	f [mm]	0,05 – 0,20			0,16 – 0,40						0,20 – 0,60						0,40 – 1,00					
		WP15CT			WP15CT			WP25CT			WP15CT			WP25CT			WP25CT			WP35CT		
	1	340	**490**	590	280	**400**	480	250	**360**	430	200	**290**	350	180	**260**	310	150	**220**	260	150	**210**	250
	2	340	**480**	580	260	**370**	440	240	**340**	410	190	**270**	320	130	**190**	230	110	**160**	190	110	**150**	180
	3	290	**420**	500	180	**260**	310	170	**240**	290	160	**230**	280	130	**180**	220	110	**150**	180	100	**140**	170
	4	260	**370**	440	190	**270**	320	180	**250**	300	130	**190**	230	110	**150**	180	90	**130**	160	70	**100**	120
	5	200	**280**	340	140	**200**	240	130	**190**	230	90	**130**	160	75	**110**	130	65	**90**	110	55	**80**	95
	6	270	**390**	470	200	**290**	350	190	**270**	320	140	**200**	240	110	**160**	190	90	**130**	160	75	**110**	130
	7	260	**370**	440	190	**270**	320	180	**250**	300	130	**190**	230	110	**150**	180	85	**120**	140	70	**100**	120
	8	220	**320**	380	160	**230**	280	150	**210**	250	110	**150**	180	85	**120**	140	70	**100**	120	65	**90**	110
	9	200	**280**	340	140	**200**	240	130	**190**	230	90	**130**	160	75	**110**	130	65	**90**	110	55	**80**	95
	10	270	**390**	470	200	**290**	350	190	**270**	320	140	**200**	240	110	**160**	190	90	**130**	160	75	**110**	130
	11	200	**280**	340	130	**190**	230	120	**170**	200	90	**130**	160	75	**110**	130	65	**90**	110	55	**80**	95
	12	150	**220**	260	140	**200**	240	130	**180**	220	120	**170**	200	110	**160**	190	110	**150**	180	100	**140**	170
	13.1	130	**190**	230	120	**170**	200	110	**150**	180	100	**140**	170	90	**130**	160	85	**120**	140	75	**110**	130
	13.2	65	**95**	115	60	**85**	100	55	**75**	90	50	**70**	85	45	**65**	80	45	**60**	70	40	**55**	65
M	Geometry	FF • UF • FW			UF • UM • MW • .NMP						UM • .NMP • UR • RH						RH					
	ap [mm]	0,2 – 2,0			0,6 – 5,0						0,5 – 6,0						4,0 – 15,0					
	f [mm]	0,05 – 0,20			0,12 – 0,40						0,10 – 0,60						0,4 – 1,0					
		WM15CT			WM15CT			WM25CT			WM25CT			WM35CT			WM35CT					
	14.1	180	**250**	300	150	**220**	260	140	**190**	230	140	**200**	240	110	**150**	180	110	**150**	180			
	14.2	140	**200**	240	130	**180**	220	110	**160**	190	110	**160**	190	85	**120**	140	85	**120**	140			
	14.3	110	**150**	180	100	**140**	170	85	**120**	140	85	**120**	140	65	**90**	110	65	**90**	110			
	14.4	90	**130**	160	75	**110**	130	70	**95**	110	70	**100**	120	55	**80**	95	60	**80**	95			
K	Geometry	FF • FW			MW • .NMA • ML						UR • .NMA • RH						UR • RH • .NMA					
	ap [mm]	0,2 – 2,0			1,0 – 8,0						1,0 – 8,0						2,0 – 15,0					
	f [mm]	0,05 – 0,20			0,20 – 0,60						0,2 – 0,6						0,25 – 1,20					
		WK05CT/WK20CT /WS10PT			WK05CT/WK20CT /WS10PT						WK05CT/WK20CT						WK05CT/WK20CT					
	15	290	**410**	490	230	**330**	400				180	**260**	310				160	**230**	280			
	16	230	**330**	400	180	**250**	300				140	**200**	240				120	**170**	200			
	17	250	**360**	430	210	**300**	360				180	**250**	300				150	**220**	260			
	18	240	**340**	410	190	**270**	320				150	**210**	250				130	**180**	220			
	19	340	**490**	590	290	**410**	490				240	**340**	410				220	**310**	370			
	20	290	**410**	490	230	**330**	400				180	**260**	310				160	**230**	280			
S	Geometry	.NMP			.NMP • UM						.NMP • UR											
	ap [mm]	0,5 – 4,0			0,5 – 4,0						0,5 – 6,0											
	f [mm]	0,10 – 0,50			0,10 – 0,50						0,10 – 0,60											
		WS10PT/WS25PT			WS10PT/WS25PT /WM25CT						WM25CT											
	21	55	**80**	95	49	**70**	85				42	**60**	70									
	22	46	**65**	80	42	**60**	70				34	**49**	60									
	23	34	**48**	60	30	**43**	50				25	**36**	43									
	24	21	**30**	36	19	**27**	32				16	**23**	27									
	25	22	**32**	38	20	**29**	35				17	**24**	29									
	26																					
	27	42	**60**	70	39	**55**	65				32	**45**	55									

DIN ISO 513	VDI 3323	A Finishing (ap x f = 1 x 0,10)			B Medium (ap x f = 2 x 0,20)						C Roughing (ap x f = 4 x 0,25)					
Material Group		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	Geometry	FP			FP • MP						MP					
	ap [mm]	0,2 – 2,0			0,3 – 4,5						0,7 – 5,0					
	f [mm]	0,05 – 0,20			0,08 – 0,35						0,12 – 0,40					
		WP15CT			WP15CT			WP15CT/WP25CT			WP25CT			WP35CT		
	1	340	**490**	590	280	**400**	480	250	**360**	430	200	**290**	350	180	**260**	310
	2	340	**480**	580	260	**370**	440	240	**340**	410	190	**270**	320	130	**190**	230
	3	290	**420**	500	180	**260**	310	170	**240**	290	160	**230**	280	130	**180**	220
	4	260	**370**	440	190	**270**	320	180	**250**	300	130	**190**	230	110	**150**	180
	5	200	**280**	340	140	**200**	240	130	**190**	230	90	**130**	160	75	**110**	130
	6	270	**390**	470	200	**290**	350	190	**270**	320	140	**200**	240	110	**160**	190
	7	260	**370**	440	190	**270**	320	180	**250**	300	130	**190**	230	110	**150**	180
	8	220	**320**	380	160	**230**	280	150	**210**	250	110	**150**	180	85	**120**	140
	9	200	**280**	340	140	**200**	240	130	**190**	230	90	**130**	160	75	**110**	130
	10	270	**390**	470	200	**290**	350	190	**270**	320	140	**200**	240	110	**160**	190
	11	200	**280**	340	130	**190**	230	120	**170**	200	90	**130**	160	75	**110**	130
	12	150	**220**	260	140	**200**	240	130	**180**	220	120	**170**	200	110	**160**	190
	13.1	130	**190**	230	120	**170**	200	110	**150**	180	100	**140**	170	90	**130**	160
	13.2	65	**95**	115	60	**85**	100	55	**75**	90	50	**70**	85	45	**65**	80
M	Geometry	FP			FP • MP						MP					
	ap [mm]	0,2 – 2,0			0,3 – 4,5						0,3 – 4,5					
	f [mm]	0,05 – 0,20			0,08 – 0,35						0,08 – 0,35					
		WM15CT			WM15CT			WM25CT			WM25CT			WM35CT		
	14.1	180	**250**	300	150	**220**	260	140	**190**	230	140	**200**	240	110	**150**	180
	14.2	140	**200**	240	130	**180**	220	110	**160**	190	110	**160**	190	85	**120**	140
	14.3	110	**150**	180	100	**140**	170	85	**120**	140	85	**120**	140	65	**90**	110
	14.4	90	**130**	160	75	**110**	130	70	**95**	110	70	**100**	120	55	**80**	95
K	Geometry	FP			FP • MP • .CMW						MP • .CMW					
	ap [mm]	0,2 – 2,0			0,3 – 4,5						1,0 – 8,0					
	f [mm]	0,05 – 0,20			0,08 – 0,35						0,1 – 0,5					
		WK05CT/WK20CT			WK05CT/WK20CT						WK20CT					
	15	290	**410**	490	230	**330**	400				180	**260**	310			
	16	230	**330**	400	180	**250**	300				140	**200**	240			
	17	250	**360**	430	210	**300**	360				180	**250**	300			
	18	240	**340**	410	190	**270**	320				150	**210**	250			
	19	340	**490**	590	290	**410**	490				240	**340**	410			
	20	290	**410**	490	230	**330**	400				180	**260**	310			

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

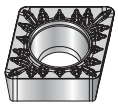
● first choice
○ alternate choice

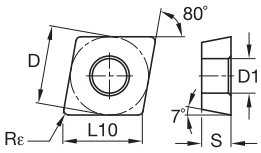




■ CCMT-FP

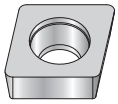
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CCMT060202FP	6,35	6,45	2,38	0,2	2,80	●	●			●					
CCMT060204FP	6,35	6,45	2,38	0,4	2,80	●	●		●	●			●		
CCMT060208FP	6,35	6,45	2,38	0,8	2,80	●	●		●	●			●		
CCMT09T302FP	9,53	9,67	3,97	0,2	4,40		●			●					
CCMT09T304FP	9,53	9,67	3,97	0,4	4,40	●	●		●	●			●		
CCMT09T308FP	9,53	9,67	3,97	0,8	4,40	●	●		●	●			●		
CCMT120404FP	12,70	12,90	4,76	0,4	5,50	●	●		●	●			●		
CCMT120408FP	12,70	12,90	4,76	0,8	5,50	●	●		●	●			●		
CCMT120412FP	12,70	12,90	4,76	1,2	5,50	●	●			●			●		

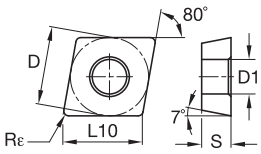




■ CCMT-MP

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CCMT060204MP	6,35	6,45	2,38	0,4	2,80	●	●		●	●			●		
CCMT09T304MP	9,53	9,67	3,97	0,4	4,40	●	●		●	●			●		
CCMT09T308MP	9,53	9,67	3,97	0,8	4,40	●	●		●	●			●		
CCMT09T312MP	9,53	9,67	3,97	1,2	4,40		●			●					
CCMT120408MP	12,70	12,90	4,76	0,8	5,50	●	●		●	●			●		
CCMT120412MP	12,70	12,90	4,76	1,2	5,50		●		●	●			●		



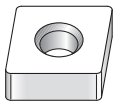


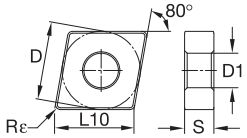
■ CCMW

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CCMW060204	6,35	6,45	2,38	0,4	2,80							●	●		
CCMW090304	9,53	9,67	3,18	0,4	4,40							●	●		
CCMW090308	9,53	9,67	3,18	0,8	4,40							●	●		
CCMW09T304	9,53	9,67	3,97	0,4	4,40							●	●		
CCMW09T308	9,53	9,67	3,97	0,8	4,40							●	●		
CCMW120404	12,70	12,90	4,76	0,4	5,50							●	●		
CCMW120408	12,70	12,90	4,76	0,8	5,50							●	●		

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

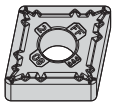
● first choice
○ alternate choice

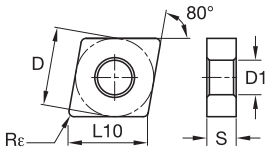




■ CNMA

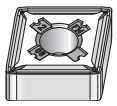
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMA120404	12,70	12,90	4,76	0,4	5,16							●	●		
CNMA120408	12,70	12,90	4,76	0,8	5,16							●	●		
CNMA120412	12,70	12,90	4,76	1,2	5,16							●	●		
CNMA120416	12,70	12,90	4,76	1,6	5,16							●	●		
CNMA160608	15,88	16,12	6,35	0,8	6,35								●		
CNMA160612	15,88	16,12	6,35	1,2	6,35							●	●		
CNMA160616	15,88	16,12	6,35	1,6	6,35							●	●		
CNMA190608	19,05	19,34	6,35	0,8	7,93							●	●		
CNMA190612	19,05	19,34	6,35	1,2	7,93							●	●		
CNMA190616	19,05	19,34	6,35	1,6	7,93							●	●		

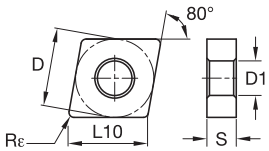




■ CNMG-FF

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120404FF	12,70	12,90	4,76	0,4	5,16	●				●			●		
CNMG120408FF	12,70	12,90	4,76	0,8	5,16	●				●			●		
CNMG120412FF	12,70	12,90	4,76	1,2	5,16	●				●			●		



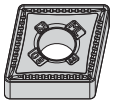


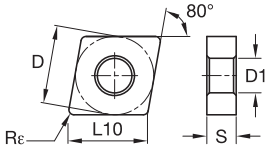
■ CNMG-FW

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120404FW	12,70	12,90	4,76	0,4	5,16				●	●		●			
CNMG120408FW	12,70	12,90	4,76	0,8	5,16				●	●		●			
CNMG120412FW	12,70	12,90	4,76	1,2	5,16				●	●		●			

● first choice
○ alternate choice

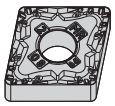
	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

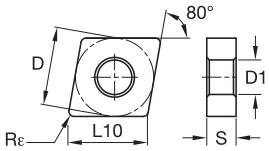




■ CNMG-ML

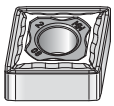
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120404ML	12,70	12,90	4,76	0,4	5,16	●	●					●	●		
CNMG120408ML	12,70	12,90	4,76	0,8	5,16	●	●					●	●		
CNMG120412ML	12,70	12,90	4,76	1,2	5,16	●	●					●	●		
CNMG120416ML	12,70	12,90	4,76	1,6	5,16								●		

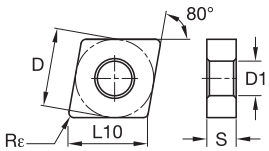




■ CNMG-MR

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120404MR	12,70	12,90	4,76	0,4	5,16	●	●	●							
CNMG120408MR	12,70	12,90	4,76	0,8	5,16	●	●	●		●	●				
CNMG120412MR	12,70	12,90	4,76	1,2	5,16	●	●	●		●	●				
CNMG120416MR	12,70	12,90	4,76	1,6	5,16	●				●	●				
CNMG160608MR	15,88	16,12	6,35	0,8	6,35	●	●			●	●				
CNMG160612MR	15,88	16,12	6,35	1,2	6,35	●	●	●		●	●				
CNMG160616MR	15,88	16,12	6,35	1,6	6,35	●	●	●		●	●				
CNMG190612MR	19,05	19,34	6,35	1,2	7,93	●	●	●		●	●				
CNMG190616MR	19,05	19,34	6,35	1,6	7,93	●	●	●		●	●				



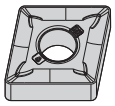


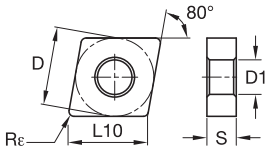
■ CNMG-MW

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120408MW	12,70	12,90	4,76	0,8	5,16					●		●			
CNMG120412MW	12,70	12,90	4,76	1,2	5,16					●		●			

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

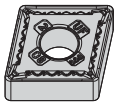
● first choice
○ alternate choice

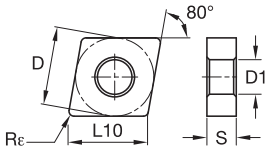




■ CNMG-RH

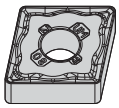
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120408RH	12,70	12,90	4,76	0,8	5,16	●	●			●			●		
CNMG120412RH	12,70	12,90	4,76	1,2	5,16	●	●	●		●			●		
CNMG120416RH	12,70	12,90	4,76	1,6	5,16	●	●	●		●			●		
CNMG160608RH	15,88	16,12	6,35	0,8	6,35	●	●	●		●			●		
CNMG160612RH	15,88	16,12	6,35	1,2	6,35	●	●	●		●			●		
CNMG160616RH	15,88	16,12	6,35	1,6	6,35	●	●	●		●			●		
CNMG190608RH	19,05	19,34	6,35	0,8	7,93	●	●	●		●			●		
CNMG190612RH	19,05	19,34	6,35	1,2	7,93	●	●	●		●			●		
CNMG190616RH	19,05	19,34	6,35	1,6	7,93	●	●	●		●			●		
CNMG190624RH	19,05	19,34	6,35	2,4	7,93	●	●	●		●					

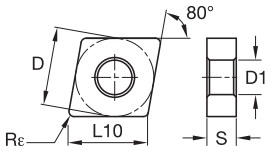




■ CNMG-UF

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120404UF	12,70	12,90	4,76	0,4	5,16				●	●					
CNMG120408UF	12,70	12,90	4,76	0,8	5,16				●	●					
CNMG120412UF	12,70	12,90	4,76	1,2	5,16				●	●					



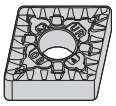


■ CNMG-UM

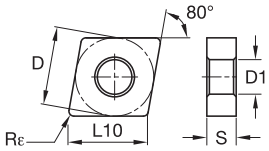
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120404UM	12,70	12,90	4,76	0,4	5,16				●	●	●				
CNMG120408UM	12,70	12,90	4,76	0,8	5,16				●	●	●				
CNMG120412UM	12,70	12,90	4,76	1,2	5,16				●	●	●				

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

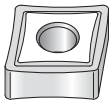
● first choice
○ alternate choice



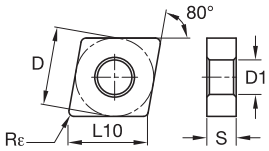
■ CNMG-UR



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMG120404UR	12,70	12,90	4,76	0,4	5,16	●	●		●	●	●				
CNMG120408UR	12,70	12,90	4,76	0,8	5,16	●	●	●	●	●	●				
CNMG120412UR	12,70	12,90	4,76	1,2	5,16	●	●	●	●	●	●		●		
CNMG120416UR	12,70	12,90	4,76	1,6	5,16	●	●		●	●	●		●		
CNMG160608UR	15,88	16,12	6,35	0,8	6,35	●	●		●	●	●		●		
CNMG160612UR	15,88	16,12	6,35	1,2	6,35	●	●	●	●	●	●		●		
CNMG160616UR	15,88	16,12	6,35	1,6	6,35	●	●	●		●	●		●		
CNMG190612UR	19,05	19,34	6,35	1,2	7,93	●	●	●	●	●	●		●		
CNMG190616UR	19,05	19,34	6,35	1,6	7,93	●	●	●	●	●	●		●		

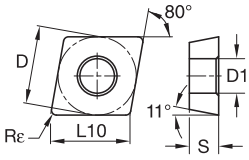


■ CNMP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CNMP120404	12,70	12,90	4,76	0,4	5,16				●	●	●			●	
CNMP120408	12,70	12,90	4,76	0,8	5,16				●	●	●			●	●
CNMP120412	12,70	12,90	4,76	1,2	5,16				●	●	●			●	●
CNMP160608	15,88	16,12	6,35	0,8	6,35				●	●	●				
CNMP160612	15,88	16,12	6,35	1,2	6,35				●	●	●			●	
CNMP190612	19,05	19,34	6,35	1,2	7,93									●	
CNMP190616	19,05	19,34	6,35	1,6	7,93				●	●	●				

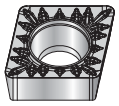
■ CPMT-FP



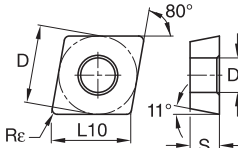
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CPMT060202FP	6,35	6,45	2,38	0,2	2,80	●	●			●					
CPMT060204FP	6,35	6,45	2,38	0,4	2,80	●	●		●	●			●		
CPMT060208FP	6,35	6,45	2,38	0,8	2,80	●	●		●	●			●		
CPMT09T302FP	9,53	9,67	3,97	0,2	4,40					●					
CPMT09T304FP	9,53	9,67	3,97	0,4	4,40	●	●		●	●			●		
CPMT09T308FP	9,53	9,67	3,97	0,8	4,40	●	●		●	●			●		

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

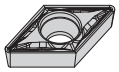
● first choice
○ alternate choice



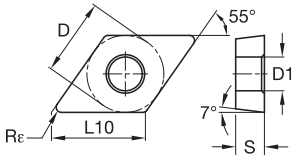
■ CPMT-MP



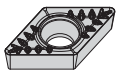
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
CPMT060208MP	6,35	6,45	2,38	0,8	2,80	●	●								
CPMT09T308MP	9,53	9,67	3,97	0,8	4,40	●	●		●	●			●		
CPMT09T312MP	9,53	9,67	3,97	1,2	4,40		●		●				●		



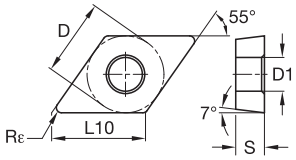
■ DCMT-FP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DCMT070202FP	6,35	7,75	2,38	0,2	2,80		●			●					
DCMT070204FP	6,35	7,75	2,38	0,4	2,80	●	●		●	●			●		
DCMT070208FP	6,35	7,75	2,38	0,8	2,80		●			●					
DCMT11T302FP	9,53	11,63	3,97	0,2	4,40	●	●			●					
DCMT11T304FP	9,53	11,63	3,97	0,4	4,40	●	●		●	●			●		
DCMT11T308FP	9,53	11,63	3,97	0,8	4,40	●	●		●	●			●		
DCMT11T312FP	9,53	11,63	3,97	1,2	4,40	●	●								
DCMT150404FP	12,70	15,50	4,76	0,4	5,50	●	●			●					
DCMT150408FP	12,70	15,50	4,76	0,8	5,50	●	●			●			●		



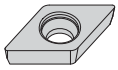
■ DCMT-MP



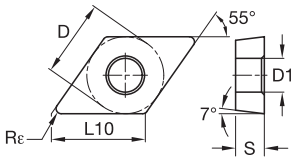
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DCMT11T304MP	9,53	11,63	3,97	0,4	4,40	●	●						●		
DCMT11T308MP	9,53	11,63	3,97	0,8	4,40	●	●		●	●			●		
DCMT11T312MP	9,53	11,63	3,97	1,2	4,40	●	●								

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

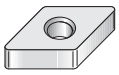
● first choice
○ alternate choice



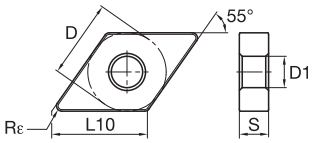
■ DCMW



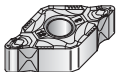
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DCMW070204	6,35	7,75	2,38	0,4	2,80							●	●		
DCMW11T304	9,53	11,63	3,97	0,4	4,40							●	●		
DCMW150408	12,70	15,50	4,76	0,8	5,50							●	●		



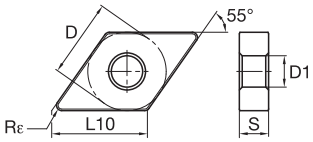
■ DNMA



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMA110408	9,53	11,63	4,76	0,8	3,81							●	●		
DNMA110412	9,53	11,63	4,76	1,2	3,81								●		
DNMA150408	12,70	15,50	4,76	0,8	5,16							●	●		
DNMA150412	12,70	15,50	4,76	1,2	5,16							●	●		
DNMA150416	12,70	15,50	4,76	1,6	5,16								●		
DNMA150608	12,70	15,50	6,35	0,8	5,16							●	●		
DNMA150612	12,70	15,50	6,35	1,2	5,16							●	●		
DNMA150616	12,70	15,50	6,35	1,6	5,16								●		



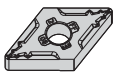
■ DNMG-CT



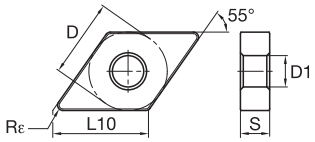
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG150604CT	12,70	15,50	6,35	0,3	5,16				●	●					
DNMG150608CT	12,70	15,50	6,35	0,7	5,16				●	●					
DNMG150612CT	12,70	15,50	6,35	1,1	5,16				●	●					

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

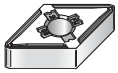
● first choice
○ alternate choice



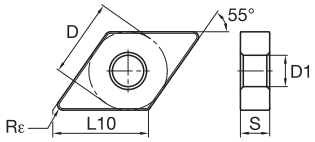
■ DNMG-FF



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG110404FF	9,53	11,63	4,76	0,4	3,81	●				●			●		
DNMG110408FF	9,53	11,63	4,76	0,8	3,81	●				●			●		
DNMG110412FF	9,53	11,63	4,76	1,2	3,81					●					
DNMG150404FF	12,70	15,50	4,76	0,4	5,16	●				●					
DNMG150408FF	12,70	15,50	4,76	0,8	5,16	●				●			●		
DNMG150412FF	12,70	15,50	4,76	1,2	5,16								●		
DNMG150604FF	12,70	15,50	6,35	0,4	5,16	●				●			●		
DNMG150608FF	12,70	15,50	6,35	0,8	5,16	●				●			●		
DNMG150612FF	12,70	15,50	6,35	1,2	5,16	●				●			●		

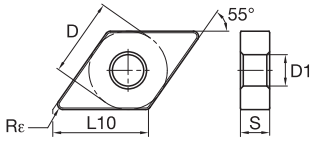


■ DNMG-FW



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG150404FW	12,70	15,50	4,76	0,4	5,16				●	●		●			
DNMG150408FW	12,70	15,50	4,76	0,4	5,16				●	●		●			
DNMG150604FW	12,70	15,50	6,35	0,4	5,16				●	●		●			
DNMG150608FW	12,70	15,50	6,35	0,4	5,16				●	●		●			

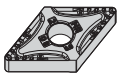
■ DNMG-ML

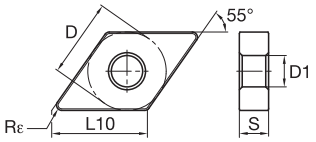


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG120412ML	9,53	11,63	4,76	0,4	3,81	●	●					●	●		
DNMG110408ML	9,53	11,63	4,76	0,8	3,81	●	●					●	●		
DNMG110412ML	9,53	11,63	4,76	1,2	3,81	●									
DNMG150404ML	12,70	15,50	4,76	0,4	5,16	●	●					●	●		
DNMG150408ML	12,70	15,50	4,76	0,8	5,16	●	●					●	●		
DNMG150412ML	12,70	15,50	4,76	1,2	5,16	●						●	●		
DNMG150604ML	12,70	15,50	6,35	0,4	5,16	●	●					●	●		
DNMG150608ML	12,70	15,50	6,35	0,8	5,16	●	●					●	●		
DNMG150612ML	12,70	15,50	6,35	1,2	5,16	●	●					●	●		

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

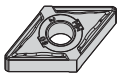
● first choice
○ alternate choice

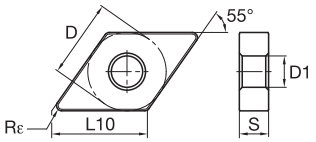




■ DNMG-MR

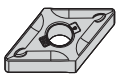
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG110408MR	9,53	11,63	4,76	0,8	3,81	●	●	●							
DNMG150404MR	12,70	15,50	4,76	0,4	5,16	●	●	●							
DNMG150408MR	12,70	15,50	4,76	0,8	5,16	●	●	●							
DNMG150412MR	12,70	15,50	4,76	1,2	5,16	●	●	●							
DNMG150604MR	12,70	15,50	6,35	0,4	5,16	●	●	●							
DNMG150608MR	12,70	15,50	6,35	0,8	5,16	●	●	●		●	●				
DNMG150612MR	12,70	15,50	6,35	1,2	5,16	●	●	●		●	●				

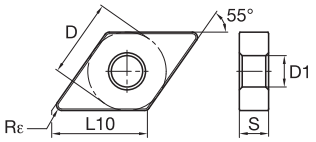




■ DNMG-MW

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG150408MW	12,70	15,50	4,76	0,4	5,16					●		●			
DNMG150412MW	12,70	15,50	4,76	1,2	5,16					●		●			
DNMG150608MW	12,70	15,50	6,35	0,4	5,16					●		●			
DNMG150612MW	12,70	15,50	6,35	1,2	5,16					●		●			





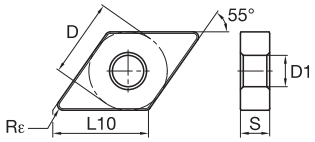
■ DNMG-RH

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG150408RH	12,70	15,50	4,76	0,8	5,16	●	●	●		●			●		
DNMG150412RH	12,70	15,50	4,76	1,2	5,16	●	●	●					●		
DNMG150608RH	12,70	15,50	6,35	0,8	5,16	●	●	●		●			●		
DNMG150612RH	12,70	15,50	6,35	1,2	5,16	●	●	●		●			●		
DNMG150616RH	12,70	15,50	6,35	1,6	5,16	●	●	●		●			●		
DNMG190612RH	15,88	19,38	6,35	1,2	6,35	●	●	●							

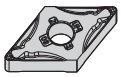
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

● first choice
○ alternate choice

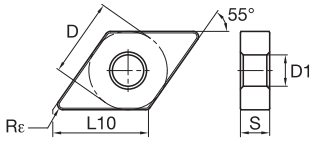
■ DNMG-UF



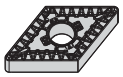
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG110404UF	9,53	11,63	4,76	0,4	3,81				●	●					
DNMG110408UF	9,53	11,63	4,76	0,8	3,81				●	●					
DNMG150404UF	12,70	15,50	4,76	0,4	5,16				●	●					
DNMG150408UF	12,70	15,50	4,76	0,8	5,16				●	●					
DNMG150412UF	12,70	15,50	4,76	1,2	5,16				●	●					
DNMG150604UF	12,70	15,50	6,35	0,4	5,16				●	●					
DNMG150608UF	12,70	15,50	6,35	0,8	5,16				●	●					
DNMG150612UF	12,70	15,50	6,35	1,2	5,16				●	●					



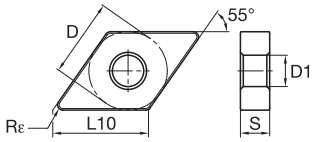
■ DNMG-UM



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG110404UM	9,53	11,63	4,76	0,4	3,81				●	●	●				
DNMG110408UM	9,53	11,63	4,76	0,8	3,81				●	●	●				
DNMG110412UM	9,53	11,63	4,76	1,2	3,81				●	●	●				
DNMG150404UM	12,70	15,50	4,76	0,4	5,16				●	●	●				
DNMG150408UM	12,70	15,50	4,76	0,8	5,16				●	●	●				
DNMG150412UM	12,70	15,50	4,76	1,2	5,16				●	●	●				
DNMG150604UM	12,70	15,50	6,35	0,4	5,16				●	●	●				
DNMG150608UM	12,70	15,50	6,35	0,8	5,16				●	●	●				
DNMG150612UM	12,70	15,50	6,35	1,2	5,16				●	●	●				
DNMG150616UM	12,70	15,50	6,35	1,6	5,16					●	●				



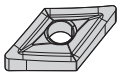
■ DNMG-UR



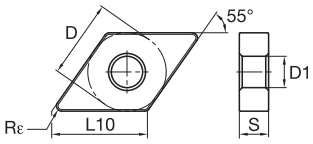
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMG110408UR	9,53	11,63	4,76	0,8	3,81	●	●	●	●	●	●		●		
DNMG110412UR	9,53	11,63	4,76	1,2	3,81	●	●		●				●		
DNMG150408UR	12,70	15,50	4,76	0,8	5,16	●	●	●	●	●	●		●		
DNMG150412UR	12,70	15,50	4,76	1,2	5,16	●	●	●		●	●		●		
DNMG150416UR	12,70	15,50	4,76	1,6	5,16						●		●		
DNMG150608UR	12,70	15,50	6,35	0,8	5,16	●	●	●	●	●	●		●		
DNMG150612UR	12,70	15,50	6,35	1,2	5,16	●	●	●	●	●	●		●		
DNMG150616UR	12,70	15,50	6,35	1,6	5,16	●	●	●			●		●		

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

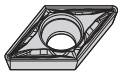
● first choice
○ alternate choice



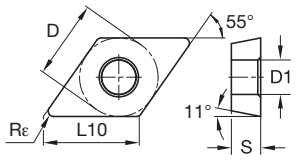
■ DNMP



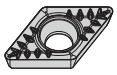
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DNMP150404	12,70	15,50	4,76	0,4	5,16				●	●	●			●	
DNMP150408	12,70	15,50	4,76	0,8	5,16				●	●	●			●	
DNMP150412	12,70	15,50	4,76	1,2	5,16				●	●	●				
DNMP150604	12,70	15,50	6,35	0,4	5,16				●	●	●			●	
DNMP150608	12,70	15,50	6,35	0,8	5,16				●	●	●			●	●
DNMP150612	12,70	15,50	6,35	1,2	5,16				●	●	●			●	●



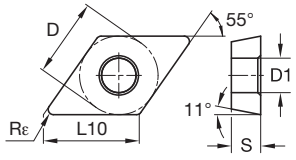
■ DPMT-FP



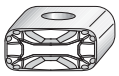
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DPMT070204FP	6,35	7,75	2,38	0,4	2,80	●	●		●	●					
DPMT11T304FP	9,53	11,63	3,97	0,4	4,40	●	●		●	●					
DPMT11T308FP	9,53	11,63	3,97	0,8	4,40	●	●			●			●		



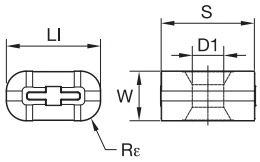
■ DPMT-MP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
DPMT11T308MP	9,53	11,63	3,97	0,8	4,40		●						●		



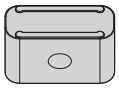
■ LNUX-13



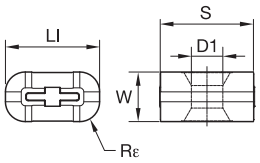
ISO catalogue number	W mm	LI mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
LNUX19194013	10,00	19,05	19,05	4,0	6,35								●		
LNUX30194013	12,00	30,00	19,05	4,0	6,35								●		

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

● first choice
○ alternate choice

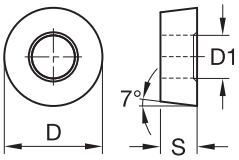


■ LNUX-T



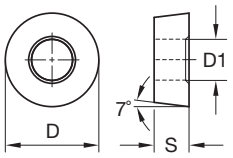
ISO catalogue number	W mm	LI mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
LNUX191940T	10,00	19,05	19,05	4,0	6,35								●		
LNUX301940T	12,00	30,00	19,05	4,0	6,35								●		

■ RCMT

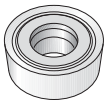


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
RCMT0602M0	6,00	–	2,38	–	2,80	●	●						●		
RCMT0803M0	8,00	–	3,18	–	3,40	●	●						●		
RCMT10T3M0	10,00	–	3,97	–	4,40	●	●	●					●		
RCMT1204M0	12,00	–	4,76	–	4,40	●	●	●					●		
RCMT1606M0	16,00	–	6,35	–	5,50	●		●					●		

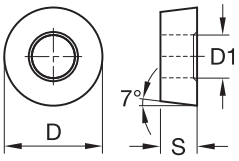
■ RCMT-T



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
RCMT1606M0T	16,00	–	6,35	–	5,50		●								



■ RCMX

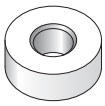


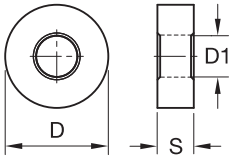
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
RCMX2006M0T	20,00	–	6,35	–	6,50	●	●	●					●		
RCMX2507M0T	25,00	–	7,94	–	7,40	●	●	●					●		
RCMX3209M0T	32,00	–	9,53	–	9,50	●									

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

● first choice
○ alternate choice

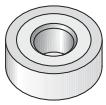
■ RNMA

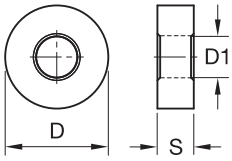




ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
RNMA120400	12,70	–	4,76	–	5,16							●	●		

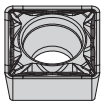
■ RNMG-RH

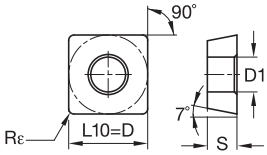




ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
RNMG090300RH	9,53	–	3,18	–	3,81	●	●								
RNMG120400RH	12,70	–	4,76	–	5,16	●	●	●							
RNMG190600RH	19,05	–	6,35	–	7,93	●	●	●					●		

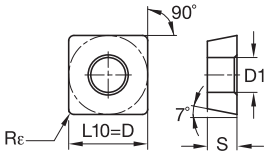
■ SCMT-FP





ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SCMT09T304FP	9,53	9,53	3,97	0,4	4,40	●	●		●	●			●		
SCMT09T308FP	9,53	9,53	3,97	0,8	4,40	●	●		●	●			●		
SCMT120404FP	12,70	12,70	4,76	0,4	5,50		●			●					
SCMT120408FP	12,70	12,70	4,76	0,8	5,50	●	●		●	●			●		
SCMT120412FP	12,70	12,70	4,76	1,2	5,50	●	●			●			●		

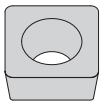
■ SCMT-MP



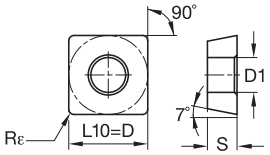
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SCMT09T304MP	9,53	9,53	3,97	0,4	4,40		●		●	●			●		
SCMT09T308MP	9,53	9,53	3,97	0,8	4,40	●	●		●	●			●		
SCMT120404MP	12,70	12,70	4,76	0,4	5,50		●		●	●			●		
SCMT120408MP	12,70	12,70	4,76	0,8	5,50	●	●		●	●			●		
SCMT120412MP	12,70	12,70	4,76	1,2	5,50		●		●	●			●		

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

● first choice
○ alternate choice

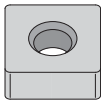


■ SCMW

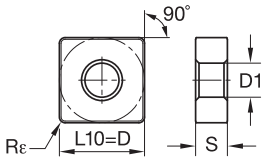


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm
SCMW090304	9,53	9,53	3,18	0,4	4,40
SCMW09T308	9,53	9,53	3,97	0,8	4,40
SCMW120408	12,70	12,70	4,76	0,8	5,50

ISO catalogue number	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SCMW090304							●	●		
SCMW09T308								●		
SCMW120408							●	●		

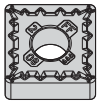


■ SNMA

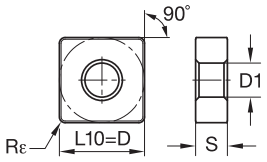


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm
SNMA120408	12,70	12,70	4,76	0,8	5,16
SNMA120412	12,70	12,70	4,76	1,2	5,16
SNMA120416	12,70	12,70	4,76	1,6	5,16
SNMA150608	15,88	15,88	6,35	0,8	6,35
SNMA150612	15,88	15,88	6,35	1,2	6,35
SNMA150616	15,88	15,88	6,35	1,6	6,35
SNMA190612	19,05	19,05	6,35	1,2	7,93
SNMA190616	19,05	19,05	6,35	1,6	7,93

ISO catalogue number	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMA120408							●	●		
SNMA120412							●	●		
SNMA120416							●	●		
SNMA150608								●		
SNMA150612							●	●		
SNMA150616							●	●		
SNMA190612							●	●		
SNMA190616							●	●		



■ SNMG-FF



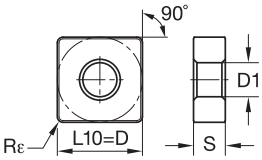
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm
SNMG090304FF	9,53	9,53	3,18	0,4	3,81
SNMG090308FF	9,53	9,53	3,18	0,8	3,81
SNMG120404FF	12,70	12,70	4,76	0,4	5,16
SNMG120408FF	12,70	12,70	4,76	0,8	5,16
SNMG120412FF	12,70	12,70	4,76	1,2	5,16
SNMG120416FF	12,70	12,70	4,76	1,6	5,16

ISO catalogue number	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMG090304FF	●							●		
SNMG090308FF	●				●			●		
SNMG120404FF	●				●			●		
SNMG120408FF	●				●			●		
SNMG120412FF	●				●			●		
SNMG120416FF					●					

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

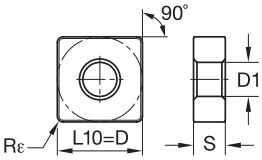
● first choice
○ alternate choice

■ SNMG-ML



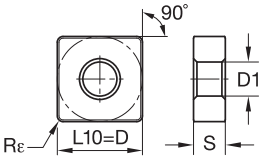
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMG090304ML	9,53	9,53	3,18	0,4	3,81	●									
SNMG090308ML	9,53	9,53	3,18	0,8	3,81	●	●					●	●		
SNMG120404ML	12,70	12,70	4,76	0,4	5,16								●		
SNMG120408ML	12,70	12,70	4,76	0,8	5,16	●	●					●	●		
SNMG120412ML	12,70	12,70	4,76	1,2	5,16	●	●					●	●		
SNMG120416ML	12,70	12,70	4,76	1,6	5,16								●		

■ SNMG-MR



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMG120408MR	12,70	12,70	4,76	0,8	5,16	●	●	●		●	●				
SNMG120412MR	12,70	12,70	4,76	1,2	5,16					●	●				
SNMG120416MR	12,70	12,70	4,76	1,6	5,16					●	●				
SNMG150608MR	15,88	15,88	6,35	0,8	6,35					●	●				
SNMG150612MR	15,88	15,88	6,35	1,2	6,35	●				●	●				
SNMG150616MR	15,88	15,88	6,35	1,6	6,35					●	●				
SNMG190612MR	19,05	19,05	6,35	1,2	7,93	●	●	●		●	●				
SNMG190616MR	19,05	19,05	6,35	1,6	7,93	●				●	●				

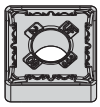
■ SNMG-RH



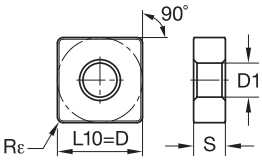
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMG120408RH	12,70	12,70	4,76	0,8	5,16	●	●	●		●			●		
SNMG120412RH	12,70	12,70	4,76	1,2	5,16	●	●	●		●			●		
SNMG120416RH	12,70	12,70	4,76	1,6	5,16	●	●	●		●			●		
SNMG150608RH	15,88	15,88	6,35	0,8	6,35	●	●	●		●			●		
SNMG150612RH	15,88	15,88	6,35	1,2	6,35	●	●	●		●			●		
SNMG150616RH	15,88	15,88	6,35	1,6	6,35	●	●	●		●			●		
SNMG190608RH	19,05	19,05	6,35	0,8	7,93	●	●	●		●			●		
SNMG190612RH	19,05	19,05	6,35	1,2	7,93	●	●	●		●			●		
SNMG190616RH	19,05	19,05	6,35	1,6	7,93	●	●	●		●			●		

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

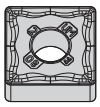
● first choice
○ alternate choice



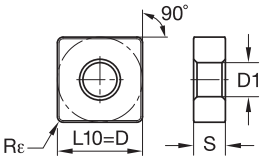
■ SNMG-UF



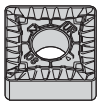
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMG120404UF	12,70	12,70	4,76	0,4	5,16				●	●					
SNMG120408UF	12,70	12,70	4,76	0,8	5,16				●	●					
SNMG120412UF	12,70	12,70	4,76	1,2	5,16				●	●					



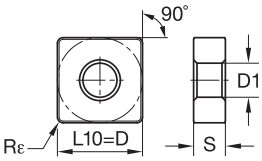
■ SNMG-UM



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMG120404UM	12,70	12,70	4,76	0,4	5,16				●	●	●				
SNMG120408UM	12,70	12,70	4,76	0,8	5,16				●	●	●				
SNMG120412UM	12,70	12,70	4,76	1,2	5,16				●	●	●				



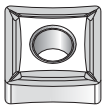
■ SNMG-UR



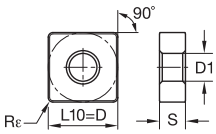
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMG120408UR	12,70	12,70	4,76	0,8	5,16	●	●	●	●	●	●		●		
SNMG120412UR	12,70	12,70	4,76	1,2	5,16	●	●	●	●	●	●		●		
SNMG120416UR	12,70	12,70	4,76	1,6	5,16	●				●	●		●		
SNMG150612UR	15,88	15,88	6,35	1,2	6,35	●	●	●	●	●	●		●		
SNMG150616UR	15,88	15,88	6,35	1,6	6,35	●	●	●	●	●	●		●		
SNMG190612UR	19,05	19,05	6,35	1,2	7,93	●	●	●	●	●	●		●		
SNMG190616UR	19,05	19,05	6,35	1,6	7,93	●	●	●		●	●		●		

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

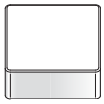
● first choice
○ alternate choice



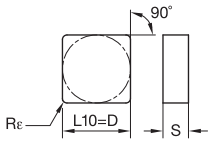
■ SNMP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNMP120408	12,70	12,70	4,76	0,8	5,16				●	●	●			●	●
SNMP120412	12,70	12,70	4,76	1,2	5,16				●	●	●			●	●
SNMP150608	15,88	15,88	6,35	0,8	6,35				●	●	●				●
SNMP150612	15,88	15,88	6,35	1,2	6,35				●	●	●				●
SNMP150616	15,88	15,88	6,35	1,6	6,35				●	●	●				●
SNMP190616	19,05	19,05	6,35	1,6	7,93				●	●	●				

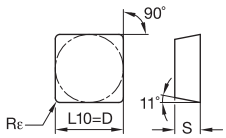


■ SNU

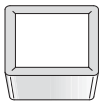


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SNUN120408	12,70	12,70	4,76	0,8	—								●		
SNUN120412	12,70	12,70	4,76	1,2	—								●		

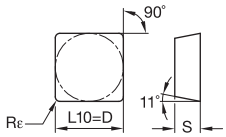
■ SPG



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SPGN090308	9,53	9,53	3,18	0,8	—								●		
SPGN120308	12,70	12,70	3,18	0,8	—								●		
SPGN120312	12,70	12,70	3,18	1,2	—								●		



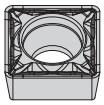
■ SPMR



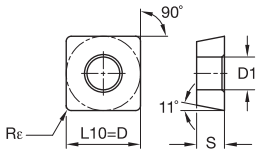
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SPMR090308	9,53	9,53	3,18	0,8	—			●					●		
SPMR120304	12,70	12,70	3,18	0,4	—	●		●					●		
SPMR120308	12,70	12,70	3,18	0,8	—	●		●					●		
SPMR120312	12,70	12,70	3,18	1,2	—	●		●					●		

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

● first choice
○ alternate choice

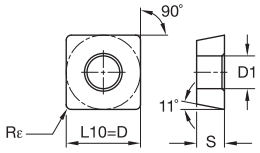


■ SPMT-FP



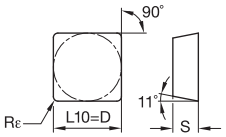
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SPMT09T304FP	9,53	9,53	3,97	0,4	4,40	●	●			●			●		
SPMT09T308FP	9,53	9,53	3,97	0,8	4,40	●	●			●			●		

■ SPMT-MP

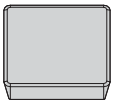


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SPMT09T308MP	9,53	9,53	3,97	0,8	4,40		●		●				●		
SPMT120408MP	12,70	12,70	4,76	0,8	5,50		●						●		

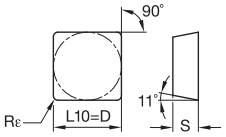
■ SPU



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SPUN120304	12,70	12,70	3,18	0,4	–	●									
SPUN120308	12,70	12,70	3,18	0,8	–	●							●		
SPUN120312	12,70	12,70	3,18	1,2	–								●		



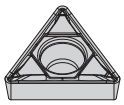
■ SPU-T



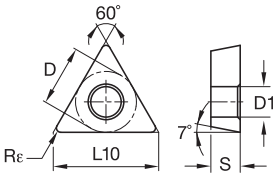
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
SPUN250620T	25,40	25,40	6,35	2,0	–	●									

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

● first choice
○ alternate choice

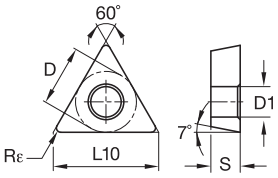


■ TCMT-FP

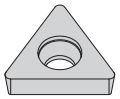


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TCMT110202FP	6,35	11,00	2,38	0,2	2,90					●					
TCMT110204FP	6,35	11,00	2,38	0,4	2,80	●	●		●	●			●		
TCMT110208FP	6,35	11,00	2,38	0,8	2,80	●	●		●	●			●		
TCMT16T304FP	9,53	16,50	3,97	0,4	4,40	●	●		●	●			●		
TCMT16T308FP	9,53	16,50	3,97	0,8	4,40	●	●		●	●			●		
TCMT16T312FP	9,53	16,50	3,97	1,2	4,40	●				●			●		
TCMT220408FP	12,70	22,00	4,76	0,8	5,50	●	●			●			●		

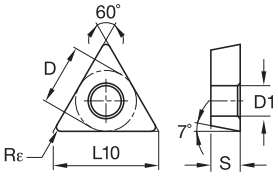
■ TCMT-MP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TCMT110208MP	6,35	11,00	2,38	0,8	2,80		●						●		
TCMT16T304MP	9,53	16,50	3,97	0,4	4,40		●		●	●			●		
TCMT16T308MP	9,53	16,50	3,97	0,8	4,40	●	●		●	●			●		
TCMT16T312MP	9,53	16,50	3,97	1,2	4,40		●			●			●		



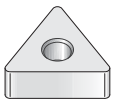
■ TCMW

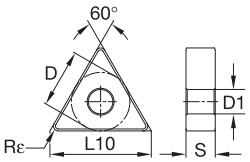


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TCMW110204	6,35	11,00	2,38	0,4	2,80							●	●		
TCMW16T304	9,53	16,50	3,97	0,4	4,40							●	●		

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

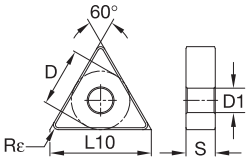
● first choice
○ alternate choice





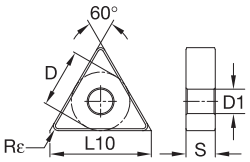
■ TNMA

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMA160408	9,53	16,50	4,76	0,8	3,81							●	●		
TNMA160412	9,53	16,50	4,76	1,2	3,81							●	●		
TNMA160416	9,53	16,50	4,76	1,6	3,81								●		
TNMA220408	12,70	22,00	4,76	0,8	5,16							●	●		
TNMA220412	12,70	22,00	4,76	1,2	5,16							●	●		
TNMA220416	12,70	22,00	4,76	1,6	5,16							●	●		
TNMA270616	15,88	27,50	6,35	1,6	6,35								●		



■ TNMG-FF

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMG110304FF	6,35	11,00	3,18	0,4	2,26								●		
TNMG110308FF	6,35	11,00	3,18	0,8	2,26								●		
TNMG160404FF	9,53	16,50	4,76	0,4	3,81	●				●			●		
TNMG160408FF	9,53	16,50	4,76	0,8	3,81	●				●			●		
TNMG160412FF	9,53	16,50	4,76	1,2	3,81	●				●			●		

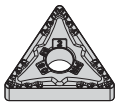


■ TNMG-ML

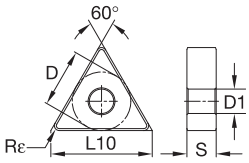
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMG110304ML	6,35	11,00	3,18	0,4	2,26								●		
TNMG110308ML	6,35	11,00	3,18	0,8	2,26								●		
TNMG160404ML	9,53	16,50	4,76	0,4	3,81	●	●					●	●		
TNMG160408ML	9,53	16,50	4,76	0,8	3,81	●	●					●	●		
TNMG160412ML	9,53	16,50	4,76	1,2	3,81	●	●					●	●		
TNMG220404ML	12,70	22,00	4,76	0,4	5,16								●		
TNMG220408ML	12,70	22,00	4,76	0,8	5,16	●	●								

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

● first choice
○ alternate choice

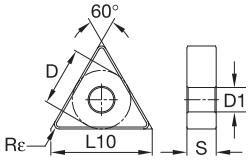


■ TNMG-MR



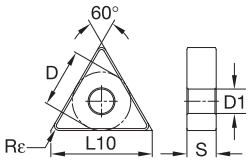
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMG160404MR	9,53	16,50	4,76	0,4	3,81	●	●	●							
TNMG160408MR	9,53	16,50	4,76	0,8	3,81	●	●	●							
TNMG160412MR	9,53	16,50	4,76	1,2	3,81	●	●	●							
TNMG220404MR	12,70	22,00	4,76	0,4	5,16	●	●	●							
TNMG220408MR	12,70	22,00	4,76	0,8	5,16	●	●	●							
TNMG220412MR	12,70	22,00	4,76	1,2	5,16	●	●	●							
TNMG220416MR	12,70	22,00	4,76	1,6	5,16	●	●	●							

■ TNMG-RH



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMG160408RH	9,53	16,50	4,76	0,8	3,81	●	●	●		●			●		
TNMG160412RH	9,53	16,50	4,76	1,2	3,81	●	●	●		●			●		
TNMG220408RH	12,70	22,00	4,76	0,8	5,16	●	●	●		●			●		
TNMG220412RH	12,70	22,00	4,76	1,2	5,16	●	●	●		●			●		
TNMG220416RH	12,70	22,00	4,76	1,6	5,16	●	●	●		●			●		
TNMG270612RH	15,88	27,50	6,35	1,2	6,35	●	●	●							
TNMG270616RH	15,88	27,50	6,35	1,6	6,35	●	●	●							
TNMG330924RH	19,05	33,00	9,53	2,4	7,93	●	●	●							

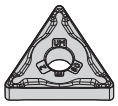
■ TNMG-UF

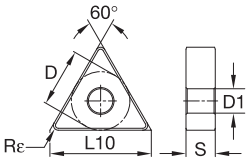


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMG160404UF	9,53	16,50	4,76	0,4	3,81				●	●					
TNMG160408UF	9,53	16,50	4,76	0,8	3,81				●	●					
TNMG160412UF	9,53	16,50	4,76	1,2	3,81				●	●					
TNMG220404UF	12,70	22,00	4,76	0,4	5,16				●	●					
TNMG220408UF	12,70	22,00	4,76	0,8	5,16				●	●					

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

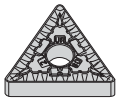
● first choice
○ alternate choice

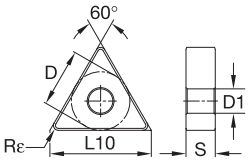




■ TNMG-UM

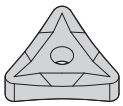
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMG160404UM	9,53	16,50	4,76	0,4	3,81				●	●	●				
TNMG160408UM	9,53	16,50	4,76	0,8	3,81				●	●	●				
TNMG160412UM	9,53	16,50	4,76	1,2	3,81				●	●	●				
TNMG160416UM	9,53	16,50	4,76	1,6	3,81					●	●				
TNMG220404UM	12,70	22,00	4,76	0,4	5,16				●	●	●				
TNMG220408UM	12,70	22,00	4,76	0,8	5,16				●	●	●				
TNMG220412UM	12,70	22,00	4,76	1,2	5,16				●	●					

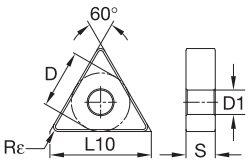




■ TNMG-UR

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMG160408UR	9,53	16,50	4,76	0,8	3,81	●	●	●	●	●			●		
TNMG160412UR	9,53	16,50	4,76	1,2	3,81	●	●			●	●		●		
TNMG160416UR	9,53	16,50	4,76	1,6	3,81	●				●			●		
TNMG220408UR	12,70	22,00	4,76	0,8	5,16	●	●	●	●	●	●		●		
TNMG220412UR	12,70	22,00	4,76	1,2	5,16	●	●	●	●	●	●		●		
TNMG220416UR	12,70	22,00	4,76	1,6	5,16	●	●			●	●		●		
TNMG270612UR	15,88	27,50	6,35	1,2	6,35	●	●		●	●	●		●		
TNMG270616UR	15,88	27,50	6,35	1,6	6,35	●	●		●	●	●		●		



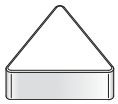


■ TNMP

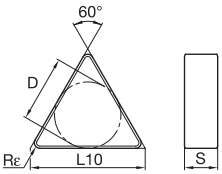
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNMP160404	9,53	16,50	4,76	0,4	3,81				●	●	●			●	
TNMP160408	9,53	16,50	4,76	0,8	3,81				●	●	●			●	●
TNMP160412	9,53	16,50	4,76	1,2	3,81				●	●	●			●	●
TNMP220404	12,70	22,00	4,76	0,4	5,16				●	●	●			●	
TNMP220408	12,70	22,00	4,76	0,8	5,16				●	●	●			●	●
TNMP220412	12,70	22,00	4,76	1,2	5,16				●	●	●			●	●

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

● first choice
○ alternate choice

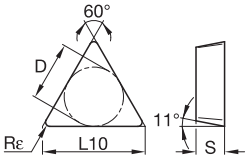


■ TNU

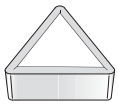


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TNUN160408	9,53	16,50	4,76	0,8	—								●		

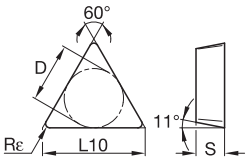
■ TPG



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TPGN110308	6,35	11,00	3,18	0,8	—								●		
TPGN160308	9,53	16,50	3,18	0,8	—								●		



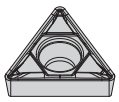
■ TPMR



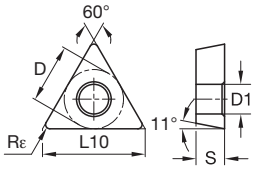
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TPMR110304	6,35	11,00	3,18	0,4	—	●		●							
TPMR110308	6,35	11,00	3,18	0,8	—	●		●					●		
TPMR160304	9,53	16,50	3,18	0,4	—	●		●					●		
TPMR160308	9,53	16,50	3,18	0,8	—	●		●					●		
TPMR160312	9,53	16,50	3,18	1,2	—	●		●					●		

● first choice
○ alternate choice

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

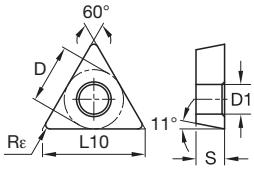


■ TPMT-FP



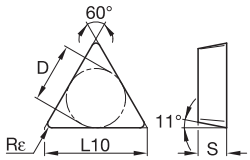
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TPMT090208FP	5,56	9,63	2,38	0,8	2,50	●	●		●	●			●		
TPMT110204FP	6,35	11,00	2,38	0,4	2,80	●	●		●	●			●		
TPMT110208FP	6,35	11,00	2,38	0,8	2,80	●	●		●	●			●		
TPMT16T304FP	9,53	16,50	3,97	0,4	4,40	●	●			●			●		
TPMT16T308FP	9,53	16,50	3,97	0,8	4,40	●	●			●			●		
TPMT16T312FP	9,53	16,50	3,97	1,2	4,40					●					
TPMT220408FP	12,70	22,00	4,76	0,8	5,50		●								

■ TPMT-MP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TPMT110208MP	6,35	11,00	2,38	0,8	2,80		●						●		
TPMT16T308MP	9,53	16,50	3,97	0,8	4,40		●						●		
TPMT16T312MP	9,53	16,50	3,97	1,2	4,40		●						●		

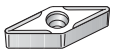
■ TPU



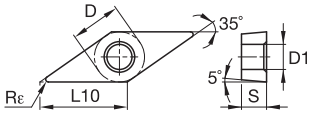
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
TPUN110304	6,35	11,00	3,18	0,4	–	●		●							
TPUN110308	6,35	11,00	3,18	0,8	–	●									
TPUN160304	9,53	16,50	3,18	0,4	–	●	●						●		
TPUN160308	9,53	16,50	3,18	0,8	–	●	●						●		
TPUN160312	9,53	16,50	3,18	1,2	–		●						●		
TPUN220408	12,70	22,00	4,76	0,8	–	●	●	●							
TPUN220412	12,70	22,00	4,76	1,2	–		●	●					●		

● first choice
○ alternate choice

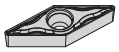
	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										



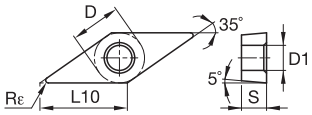
■ VBMT



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VBMT160404	9,53	16,61	4,76	0,4	4,40	●	●	●							
VBMT160408	9,53	16,61	4,76	0,8	4,40	●	●	●							
VBMT160412	9,53	16,61	4,76	1,2	4,40	●	●	●							

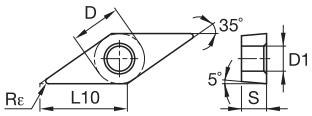


■ VBMT-FP

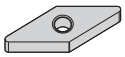


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VBMT110302FP	6,35	11,07	3,18	0,2	2,80		●								
VBMT110304FP	6,35	11,07	3,18	0,4	2,80	●	●		●	●					
VBMT110308FP	6,35	11,07	3,18	0,8	2,80		●		●	●					
VBMT160402FP	9,53	16,61	4,76	0,2	4,40		●			●					
VBMT160404FP	9,53	16,61	4,76	0,4	4,40	●	●		●	●			●		
VBMT160408FP	9,53	16,61	4,76	0,8	4,40	●	●		●	●			●		
VBMT160412FP	9,53	16,61	4,76	1,2	4,40		●								

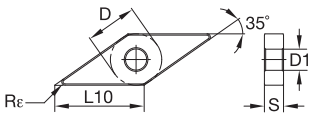
■ VBMT-MP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VBMT160404MP	9,53	16,61	4,76	0,4	4,40		●			●			●		
VBMT160408MP	9,53	16,61	4,76	0,8	4,40		●			●			●		



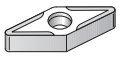
■ VNMA



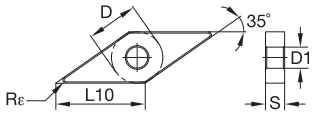
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMA160408	9,53	16,61	4,76	0,8	3,81							●	●		

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

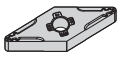
● first choice
○ alternate choice



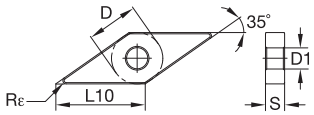
■ VNMG



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMG12T308	7,14	12,45	3,97	0,8	3,65								●		

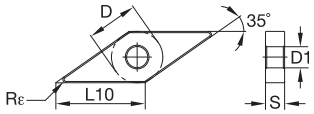


■ VNMG-FF

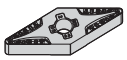


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMG160404FF	9,53	16,61	4,76	0,4	3,81	●				●					
VNMG160408FF	9,53	16,61	4,76	0,8	3,81	●				●					

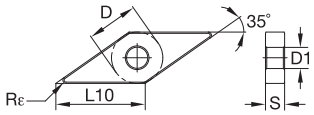
■ VNMG-ML



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMG160404ML	9,53	16,61	4,76	0,4	3,81	●	●					●	●		
VNMG160408ML	9,53	16,61	4,76	0,8	3,81	●	●					●	●		



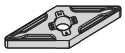
■ VNMG-MR



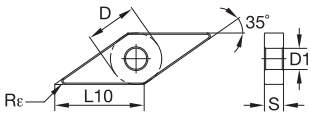
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMG160408MR	9,53	16,61	4,76	0,8	3,81	●	●	●							

● first choice
○ alternate choice

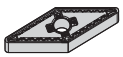
	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										



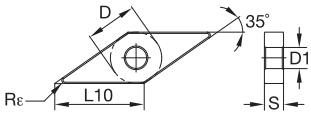
■ VNMG-RH



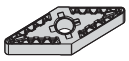
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMG160408RH	9,53	16,61	4,76	0,8	3,81	●	●	●							
VNMG220408RH	12,70	22,14	4,76	0,8	5,16	●	●	●							
VNMG220412RH	12,70	22,14	4,76	1,2	5,16	●	●	●							



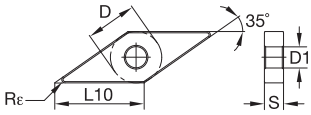
■ VNMG-UF



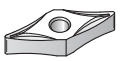
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMG160404UF	9,53	16,61	4,76	0,4	3,81				●	●					
VNMG160408UF	9,53	16,61	4,76	0,8	3,81				●	●					



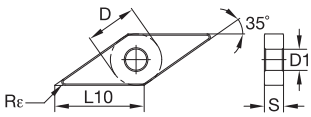
■ VNMG-UR



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMG160408UR	9,53	16,61	4,76	0,8	3,81	●	●	●	●	●	●		●		
VNMG160412UR	9,53	16,61	4,76	1,2	3,81	●	●		●	●			●		



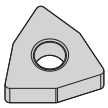
■ VNMP



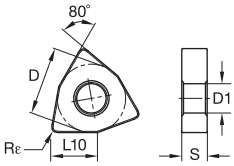
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
VNMP160404	9,53	16,61	4,76	0,4	3,81									●	
VNMP160408	9,53	16,61	4,76	0,8	3,81									●	

● first choice
○ alternate choice

	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

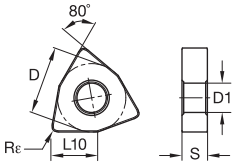


■ WNMA



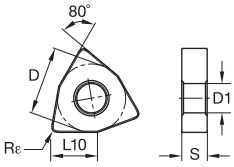
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMA060408	9,53	6,52	4,76	0,8	3,81							●	●		
WNMA060412	9,53	6,52	4,76	1,2	3,81								●		
WNMA080408	12,70	8,69	4,76	0,8	5,16							●	●		
WNMA080412	12,70	8,69	4,76	1,2	5,16							●	●		
WNMA080416	12,70	8,69	4,76	1,6	5,16							●	●		

■ WNMG-FF



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG060404FF	9,53	6,52	4,76	0,4	3,81	●				●			●		
WNMG060408FF	9,53	6,52	4,76	0,8	3,81	●							●		
WNMG080404FF	12,70	8,69	4,76	0,4	5,16	●				●					
WNMG080408FF	12,70	8,69	4,76	0,8	5,16	●				●					

■ WNMG-FW

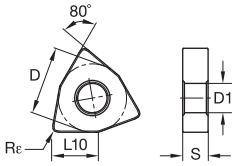


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG080404FW	12,70	8,69	4,76	0,4	5,16				●	●		●			
WNMG080408FW	12,70	8,69	4,76	0,8	5,16				●	●		●			
WNMG080412FW	12,70	8,69	4,76	1,2	5,16				●	●		●			

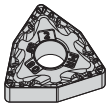
P	●	●	●	○	○		○	○	○	○
M				●	●	●			●	●
K	○	○					●	●	○	○
N									○	○
S									●	●
H										

● first choice
○ alternate choice

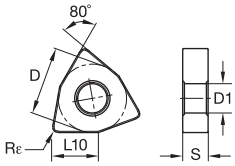
■ WNMG-ML



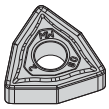
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG060404ML	9,53	6,52	4,76	0,4	3,81	●						●	●		
WNMG060408ML	9,53	6,52	4,76	0,8	3,81	●	●					●	●		
WNMG080404ML	12,70	8,69	4,76	0,4	5,16	●	●					●	●		
WNMG080408ML	12,70	8,69	4,76	0,8	5,16	●	●					●	●		



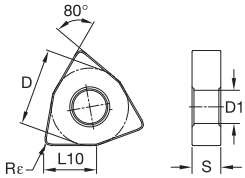
■ WNMG-MR



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG080408MR	12,70	8,69	4,76	0,8	5,16	●	●	●		●	●				
WNMG080412MR	12,70	8,69	4,76	1,2	5,16	●	●	●		●	●				
WNMG080416MR	12,70	8,69	4,76	1,6	5,16	●	●								



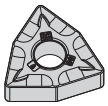
■ WNMG-MW



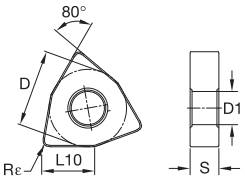
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG080408MW	12,70	8,69	4,76	0,8	5,16					●		●			
WNMG080412MW	12,70	8,69	4,76	1,2	5,16					●		●			

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

● first choice
○ alternate choice

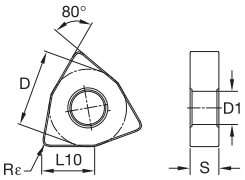


■ WNMG-RH

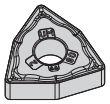


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG060408RH	9,53	6,52	4,76	0,8	3,81	●	●	●		●					
WNMG080408RH	12,70	8,69	4,76	0,8	5,16	●	●	●		●			●		
WNMG080412RH	12,70	8,69	4,76	1,2	5,16	●	●	●		●			●		
WNMG080416RH	12,70	8,69	4,76	1,6	5,16	●	●	●		●			●		

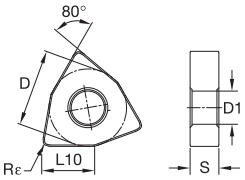
■ WNMG-UF



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG060404UF	9,53	6,52	4,76	0,4	3,81				●	●					
WNMG060408UF	9,53	6,52	4,76	0,8	3,81				●	●					
WNMG080404UF	12,70	8,69	4,76	0,4	5,16				●	●					
WNMG080408UF	12,70	8,69	4,76	0,8	5,16				●	●					
WNMG080412UF	12,70	8,69	4,76	1,2	5,16				●	●					



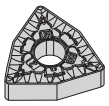
■ WNMG-UM

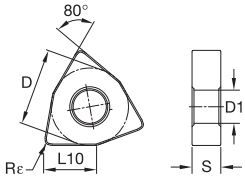


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG060404UM	9,53	6,52	4,76	0,4	3,81				●	●	●				
WNMG060408UM	9,53	6,52	4,76	0,8	3,81				●	●	●				
WNMG060412UM	9,53	6,52	4,76	1,2	3,81					●	●				
WNMG080404UM	12,70	8,69	4,76	0,4	5,16				●	●	●				
WNMG080408UM	12,70	8,69	4,76	0,8	5,16				●	●	●				
WNMG080412UM	12,70	8,69	4,76	1,2	5,16				●	●	●				
WNMG080416UM	12,70	8,69	4,76	1,6	5,16					●	●				

		WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
P		●	●	●	○	○		○	○	○	○
M					●	●	●			●	●
K		○	○					●	●	○	○
N										○	○
S										●	●
H											

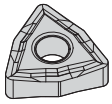
● first choice
○ alternate choice

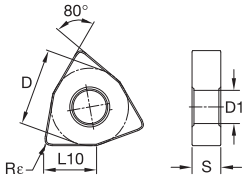




■ WNMG-UR

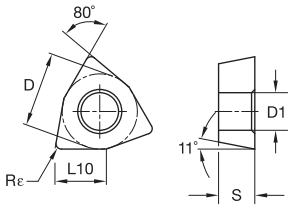
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	WP15CT	WP25CT	WP35CT	WM15CT	WM25CT	WM35CT	WK05CT	WK20CT	WS10PT	WS25PT
WNMG060408UR	9,53	6,52	4,76	0,8	3,81	●	●	●	●	●			●		
WNMG060412UR	9,53	6,52	4,76	1,2	3,81	●	●						●		
WNMG080408UR	12,70	8,69	4,76	0,8	5,16	●	●	●	●	●	●		●		
WNMG080412UR	12,70	8,69	4,76	1,2	5,16	●	●	●	●	●	●		●		
WNMG080416UR	12,70	8,69	4,76	1,6	5,16	●	●	●		●	●		●		





■ WNMP

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm										
WNMP080408	12,70	8,69	4,76	0,8	5,16									●	
WNMP080412	12,70	8,69	4,76	1,2	5,16									●	



■ WPMT-FP

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm										
WPMTS3T104FP	4,76	3,25	1,98	0,4	2,15		●			●					
WPMT040204FP	6,35	4,34	2,38	0,4	2,80		●								
WPMT06T304FP	9,53	6,52	3,97	0,4	4,40	●			●	●					
WPMT06T308FP	9,53	6,52	3,97	0,8	4,40	●	●			●					

WIN WITH WIDIA™

CBN Inserts for Hard Turning

CBN Inserts are available in a wide range of grades, making them ideal for all your continuous to heavily interrupted turning applications.

- Best choice for hardened steels and powdered metals.
- Coated grades for increased tool life and consistent results.
- Uncoated grades for superior surface finish in close-tolerance machining.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

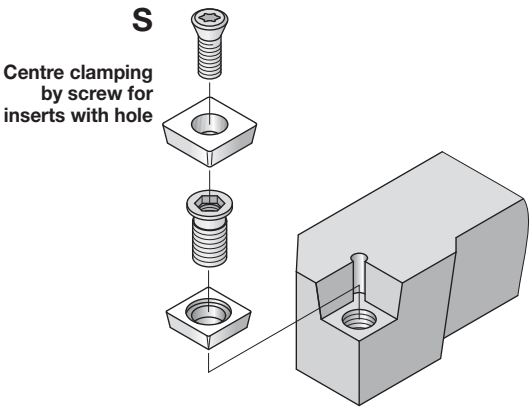
WIDIA™

WIN WITH WIDIA™

S-Style Toolholders Now Available

An expanded selection of S-Style toolholders and boring bars (steel and carbide) are now available from WIDIA™.

- Screw clamping system for positive indexable inserts CPMT, DPMT, and TPMT (included in the new WIDIA Victory™ carbide insert line).
- Compact design for simplicity, high reliability, and cost effectiveness.
- A carbide shim provides additional tool protection. Toolholders with cutting edge heights upwards of 16mm and insert ICs from 9,52mm are secured by means of a threaded bushing.
- Qualified to current ISO standards.
- Visit us at www.widia.com for a complete listing of these new tools.



WIDIA VICTORY
Win with WIDIA™

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

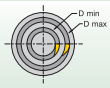
WIDIA

WMT™ System

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

Integral Toolholders

WMT	A	R	2525	M	6	19	–	070-100
Tooling System WMT = Groove and Turn (WMT Insert)	Tool Style S = Straight C = Straight with circular support E = End mount A = Straight, face grooving inboard sweep B = Straight, face grooving outboard sweep	Hand R = Right hand L = Left hand	Shank Size Height x Width, in mm	Tool Length H = 100 J = 110 K = 125 L = 140 M = 150 P = 170	Seat Size 1 2 2B 3 4 5 6 8	Max Grooving Depth CD max in mm	D min – D max in mm e.g. 070–100 = 70 mm D min 100 mm D max	Face Grooving Diameter diameters are min and max for outer face groove diameter 999 = unlimited D max



Modular Blades

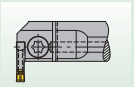
WMT	SLS	R	6	19	B	070-100
Tooling System	Connection Type	Hand R = Right hand L = Left hand	Seat Size	Max Grooving Depth	Tool Style	Face Grooving Diameter

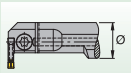
Modular Toolholders

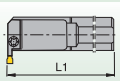
SLS	S	R	2525
Tooling System	Tool Style	Hand R = Right hand L = Left hand	Shank Size

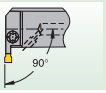
Integral Boring Bars

A	16	R	WMT	E	R	6	12	M
Bar Type	Bar Diameter	Bar Length	Tooling System	Tool Style	Hand R = Right hand L = Left hand	Seat Size	Max Grooving Depth	Tool Units



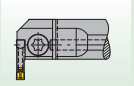


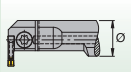


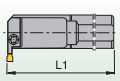


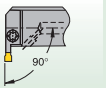
Modular Boring Bars

M	16	R	SLS	E	R	M
Bar Type	Bar Diameter	Bar Length	Tooling System	Tool Style	Hand R = Right hand L = Left hand	Tool Units









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For more detailed information about our new nomenclature system, visit us at **www.widia.com/WMT**.

One System for Turning, Grooving, Cut-Off, and Profiling • **WMT™ System**

The WIDIA™ line of WMT toolholders is the economical and reliable option for all your turning, grooving, cut-off, 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.

Exceptional versatility in one tool for all your O.D. and I.D. applications.

Extra-long clamping area for unsurpassed grooving and turning stability.

Interchangeable grooving and cut-off inserts designed for excellent chip control.

Versatile and Well Constructed

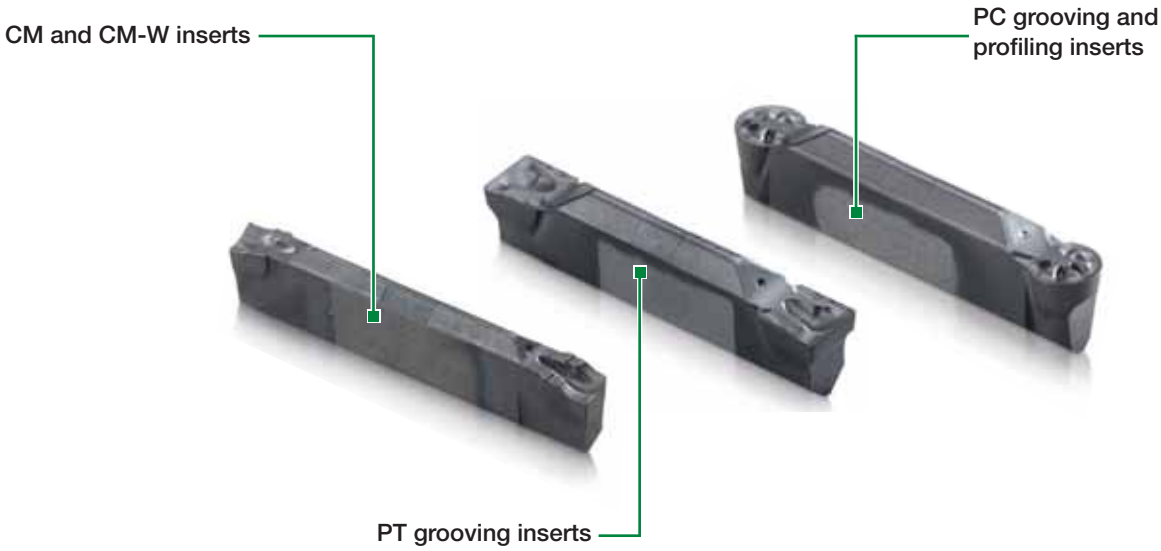
- Specifically designed to increase speeds and feeds.
- Excellent geometry for even the most demanding deep grooving applications.
- The WMT™ system enables heavy stock removal in turning applications.
- Ensures finer surface finishes and a long, reliable tool life.

WMT Toolholders

- Outstanding system rigidity and clamping capabilities.
- Guarantees fast cycles times and limited turret indexes.
- Precise insert positioning for accurate machining.
- Double-V shape means operator-friendly insert indexing and optimum insert positioning.

WMT SLS

- Modular Serrated Locking System (SLS) accepts CM, CM-W, and PT/PC inserts.
- Replaceable cartridge makes changing applications quick and easy.
- Adaptable and easy to use, it reduces setup time and downtime between jobs.
- A variety of insert widths available to meet your specific needs.



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!

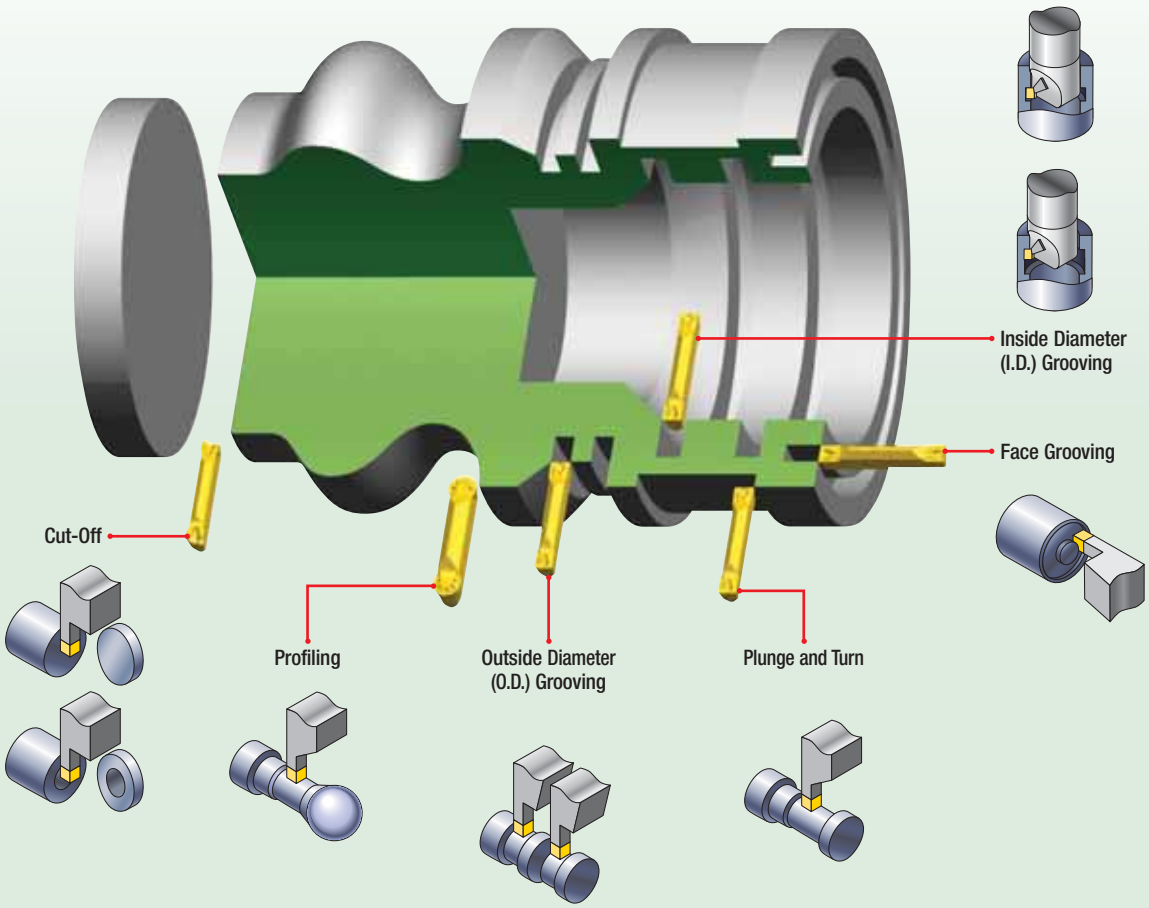
The WMT system, with its extra-long clamping area and precise insert positioning, ensures exceptionally fast and accurate machining, all-in-one tool, for your most demanding turning, grooving, cut-off, and profiling applications.

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 Materials
S	High-Temp Alloys
H	Hardened Materials

3 **Select your toolholder based on the application:**

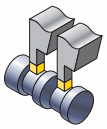
A Choose the appropriate width "W" required for the application.

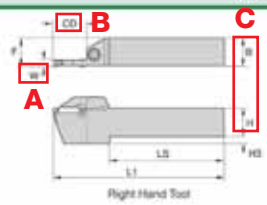
B Choose the shortest cutting depth "CD" dimension for increased tool rigidity.

C Select the largest toolholder shank "H" and "B" dimensions for maximum rigidity.

WMT™ Turning, Grooving, and Cut-Off
Integral Toolholders

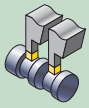
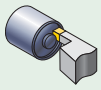
WIDIA MANCHESTER





■ OD Grooving

order number	catalogue number	W (A)	CD (B)	F	H (C)	B (C)	H3	L1	LS	clamp screw
	Right hand									
3650516	250409	1,50	17	25	25	25	–	150	116	606249
3650456	250205	2,00	17	16	16	16	8	125	101	606249
3650458	250207	2,00	17	20	20	20	–	125	92	606249
3650506	250295	2,00	17	25	25	25	–	150	116	606249
3650460	250217	3,00	11	16	16	16	–	125	92	619205
3650462	250219	3,00	22	16	16	16	5	125	83	619205
3650468	250227	3,00	11	20	20	20	–	125	92	619205
3650470	250229	3,00	22	20	20	20	5	125	83	619205
3650479	250241	3,00	11	25	25	25	–	150	117	619205
3650481	250243	3,00	22	25	25	25	–	150	109	619205
3650464	250221	4,00	22	16	16	16	5	125	83	619205
3653751	250231	4,00	20	–	20	–	–	125	83	619205
3650483	250245	4,00	22	25	25	25	–	150	109	619205
3650502	250281	4,00	11	16	16	16	–	125	92	619205
3650504	250283	4,00	11	20	20	20	–	125	92	619205
3653752	250285	4,00	11	25	25	25	–	150	117	619205
3650466	250223	5,00	14	16	16	15	–	125	88	619168
3650473	250233	5,00	14	20	20	19	–	125	88	619168
3650475	250235	5,00	15	20	20	19	5	140	93	619168
3650485	250247	5,00	14	25	25	24	–	150	113	619168
3650487	250249	5,00	25	25	25	24	–	150	104	619168
3650477	250237	6,00	14	20	20	19	–	140	103	619168
3650489	250251	6,00	14	25	25	24	–	150	114	619168
3650491	250253	6,00	25	25	25	24	–	150	104	619168
3650494	250255	6,00	14	25	25	24	–	150	113	619168
3650496	250257	6,00	25	25	25	24	–	150	104	619168
3650498	250275	8,00	14	32	32	31	–	150	113	619168
3650500	250277	8,00	25	32	32	31	–	150	104	619168

	application	conventional toolholders	modular blades
	O.D. Grooving and Cut-Off	pages D10–D12	pages D16–D17
	Face Grooving	pages D13–D14	pages D18–D19
	I.D. Grooving	—	pages D20–D21
	Plunge and Turn	pages D10–D12	pages D16–D17

NOTE: Referenced pages are from the WIDIA Turning Catalogue, A-09-02078.
*Visit **www.widia.com/WMT** for more information on toolholders.*

4 Select chipbreaker style for the application:

CM	Cut-off
CM-W	Cut-off with wipers
PT	Grooving and turning
PC	Profiling and turning

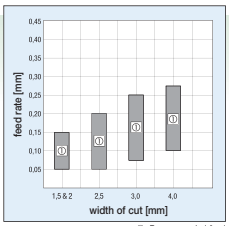
NOTE: Chart shows recommended starting feed rates.

WMT™ Inserts
Feed Valves for Grooving

WIDIA MANCHESTER

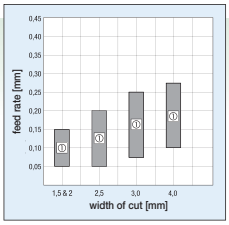
CM

- 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.



① Recommended feed

CM-W

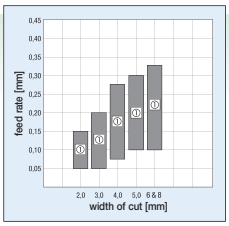


① Recommended feed

- 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.

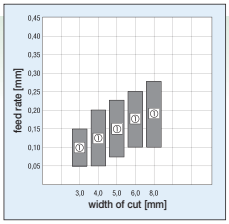
PT Grooving Inserts

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



① Recommended feed

PC Grooving and Profiling Inserts



① Recommended feed

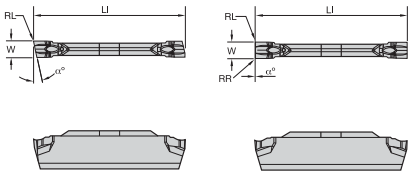
- Full nose radius geometry for plunge and contour operations.
- Effective cutting edge geometry exceeds 180° for increased versatility.
- Superior chip control.

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

B Select the required corner radius value "RR".

WMT™ Turning, Grooving, and Cut-Off
Cut-Off Inserts

WIDIA



RR = RL on neutral inserts

● first choice
○ alternate choice

	WU25PT
P	●
M	●
K	○
N	●
S	●
H	

Grooving, and Cut-Off

■ WMT-CM

catalogue number	seat size	W (A) mm	RR (B) mm	LI mm	α°	hand	WU25PT
WMTC015N00CM08	1	1,50	0,08	19,30	–	N - Neutral	●
WMTC020N00CM08	2	2,00	0,08	19,21	–	N - Neutral	●
WMTC094N00CM13	2B	2,39	0,13	22,32	–	N - Neutral	●
WMTC030N00CM17	3	3,00	0,17	25,38	–	N - Neutral	●
WMTC125N00CM17	3	3,17	0,17	25,41	–	N - Neutral	●
WMTC040N00CM17	4	4,00	0,17	25,40	–	N - Neutral	●

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		WP10CT	WU10PT	WP10CT	WU10PT	WU10PT	WU10PT
varying depth of cut, casting, or forging skin		WP10CT	WU10PT	WP10CT	WP10CT	WP10CT	WP10CT
lightly interrupted cut		WP25CT	WU25PT	WP25CT	WU25PT	WU25PT	WU25PT
heavily interrupted cut		WP25PT	WU25PT	WP25CT	WU25PT	WU25PT	WU25PT

See page D52 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**.

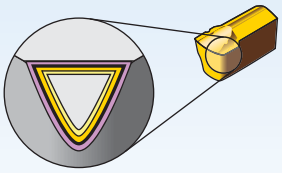
See page D54 for cutting data.

WMT™ Turning, Grooving, and Cut-Off

Recommended Cutting Speed Starting Conditions • Metric

WIDIA

ANSI ISO 513	VDI 3323	Cutting Speed • vc m/min														
Material Group		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
P	1	100	**100**	110	190	**200**	210	170	**175**	180	210	**225**	240	170	**175**	180
	2	100	**100**	110	190	**200**	210	170	**175**	180	240	**250**	260	210	**225**	240
	3	100	A **100**	110	170	**175**	180	140	**150**	160	190	**200**	210	170	**175**	180
	4	100	**100**	110	170	**175**	180	140	**150**	160	B 190	**225**	240	190	**200**	210
	5	100	**100**	110	170	**175**	180	140	**150**	160	190	**200**	210	170	**175**	180
	6	100	**100**	110	170	**175**	180	140	**150**	160	210	**225**	240	190	**200**	210
	7	70	**75**	80	190	**200**	210	170	**175**	180	190	**200**	210	170	**175**	180
	8	70	**75**	80	170	**175**	180	140	**150**	160	170	**175**	180	140	**150**	160
	9	50	**50**	50	170	**175**	180	140	**150**	160	120	**125**	130	100	**100**	110
	10	70	**75**	80	170	**175**	180	140	**150**	160	140	**150**	160	120	**125**	130
	11	50	**50**	50	140	**150**	160	120	**125**	130	100	**100**	110	100	**100**	110
	12	100	**100**	110	170	**175**	180	140	**150**	160	190	**200**	210	170	**175**	180
	13.1	70	**75**	80	170	**175**	180	140	**150**	160	170	**175**	180	140	**150**	160
	13.2	50	**50**	50	140	**150**	160	120	**125**	130	70	**75**	80	70	**75**	80
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
M	14.1	70	**75**	80	120	**125**	130	120	**125**	130						
	14.2	50	**50**	50	120	**125**	130	100	**100**	110						
	14.3	50	**50**	50	100	**100**	110	70	**75**	80						
	14.4	50	**50**	50	70	**75**	80	70	**75**	80						
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
K	15	100	**100**	110	210	**225**	240	170	**175**	180	240	**250**	260	190	**200**	210
	16	70	**75**	80	170	**175**	180	140	**150**	160	190	**200**	210	170	**175**	180
	17	70	**75**	80	170	**175**	180	140	**150**	160	210	**225**	240	190	**200**	210
	18	50	**50**	50	170	**175**	180	140	**150**	160	170	**175**	180	140	**150**	160
	19	100	**100**	110	210	**225**	240	190	**200**	210	240	**250**	260	190	**200**	210
	20	70	**75**	80	170	**175**	180	140	**150**	160	210	**225**	240	190	**200**	210
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
N	21	70	**75**	80	140	**150**	160	110	**120**	130						
	22	70	**75**	79	140	**150**	79	110	**120**	79						
	23	70	**75**	79	140	**150**	79	110	**120**	79						
	24	70	**75**	79	140	**150**	79	110	**120**	79						
	25	70	**75**	79	140	**150**	79	110	**120**	79						
	26	70	**75**	79	140	**150**	79	110	**120**	79						
	27	70	**75**	79	140	**150**	79	110	**120**	79						
	28	70	**75**	79	140	**150**	79	110	**120**	79						
	29	70	**75**	79	140	**150**	79	110	**120**	79						
	30	70	**75**	79	140	**150**	79	110	**120**	79						
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
S	31	20	**25**	30	70	**75**	80	70	**75**	80						
	32	20	**25**	30	70	**75**	80	50	**50**	50						
	33	20	**25**	30	70	**75**	80	50	**50**	50						
	34	20	**25**	30	50	**50**	50	50	**50**	50						
	35	20	**25**	30	70	**75**	80	50	**50**	50						
	36	50	**50**	50	100	**100**	110	70	**75**	80						
	37	20	**25**	30	70	**75**	80	50	**50**	50						



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

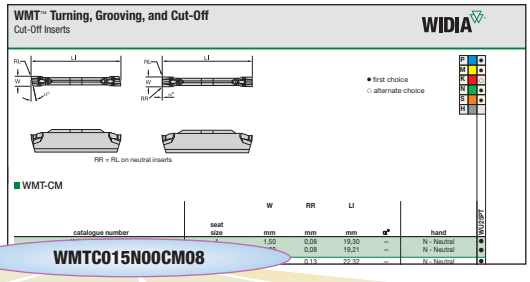
P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-Ferrous Materials
S	High-Temp Alloys
H	Hardened Materials

wear resistance ⟷ toughness

Grade

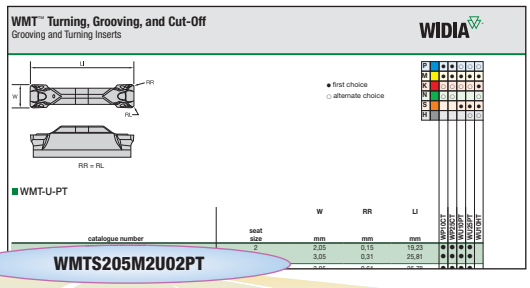
Coating		Grade Description	05	10	15	20	25	30	35	40	45
WU10PT	HC-P15	An advanced PVD TiAlN coating over a very deformation-resistant unalloyed carbide substrate. The WU10PT grade's new and improved coating enables speeds to be increased by 50–100%. The WU10PT grade is ideal for finishing to general machining 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								
			M								
			K								
			N								
			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								
			M								
			K								
			N								
			S								
WU10HT	HW-K15	A hard, low binder content, unalloyed WC/Co fine-grained 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								
			K								
			N								
			S								
WP10CT	HC-P10	A specially engineered, patented, 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. For rougher cutting, use the WP10CT grade.									
			P								
			K								
WP25CT	HC-P25	A tough cobalt-enriched carbide grade with a newly designed multilayer K-MTCVD TiCN-Al_2O_3-TiCN-TiN 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. The WP25CT grade performs well in moderately heavy roughing to semi-finishing cuts. Use the WP25CT grade for finishing cuts.									
			P								
			K								

WMT Identification System



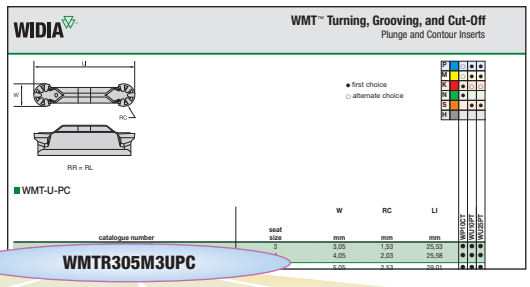
Cut-Off

WMT	C	015	N	00	CM	08
Tooling System	Cut-Off	W in mm*10 inch*1000	Hand of Insert	Main Cutting Edge Lead Angle	Chipbreaker Geometry **CM** = Cut-Off **CM-W** = Cut-Off with Wiper	Corner Radius in mm*10



Grooving

WMT	S	205	M	2	U	02	PT
Tooling System	Square	mm*10 inch*1000	Unit of Measurement for Width **m** = mm	Seat Size	**U** = Moulded or **P** = Ground	Corner Radius in mm * 10	Chipbreaker Geometry



Plunge • Contour

WMT	R	305	M	3	U	PC
Tooling System	Full Radius	mm*10 inch*1000	Unit of Measurement for Width **m** = mm	Seat Size	**U** = Moulded or **P** = Ground	Chipbreaker Geometry

WIDIA

ANSI ISO 513	VDI 3323															
Material Group		Cutting Speed • vc m/min														
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
P	1	100	**100**	110	190	**200**	210	170	**175**	180	210	**225**	240	170	**175**	180
	2	100	**100**	110	190	**200**	210	170	**175**	180	240	**250**	260	210	**225**	240
	3	100	**100**	110	170	**175**	180	140	**150**	160	190	**200**	210	170	**175**	180
	4	100	**100**	110	170	**175**	180	140	**150**	160	210	**225**	240	190	**200**	210
	5	100	**100**	110	170	**175**	180	140	**150**	160	190	**200**	210	170	**175**	180
	6	100	**100**	110	170	**175**	180	140	**150**	160	210	**225**	240	190	**200**	210
	7	70	**75**	80	190	**200**	210	170	**175**	180	190	**200**	210	170	**175**	180
	8	70	**75**	80	170	**175**	180	140	**150**	160	170	**175**	180	140	**150**	160
	9	50	**50**	50	170	**175**	180	140	**150**	160	120	**125**	130	100	**100**	110
	10	70	**75**	80	170	**175**	180	140	**150**	160	140	**150**	160	120	**125**	130
	11	50	**50**	50	140	**150**	160	120	**125**	130	100	**100**	110	100	**100**	110
	12	100	**100**	110	170	**175**	180	140	**150**	160	190	**200**	210	170	**175**	180
	13.1	70	**75**	80	170	**175**	180	140	**150**	160	170	**175**	180	140	**150**	160
	13.2	50	**50**	50	140	**150**	160	120	**125**	130	70	**75**	80	70	**75**	80
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
M	14.1	70	**75**	80	120	**125**	130	120	**125**	130						
	14.2	50	**50**	50	120	**125**	130	100	**100**	110						
	14.3	50	**50**	50	100	**100**	110	70	**75**	80						
	14.4	50	**50**	50	70	**75**	80	70	**75**	80						
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
K	15	100	**100**	110	210	**225**	240	170	**175**	180	240	**250**	260	190	**200**	210
	16	70	**75**	80	170	**175**	180	140	**150**	160	190	**200**	210	170	**175**	180
	17	70	**75**	80	170	**175**	180	140	**150**	160	210	**225**	240	190	**200**	210
	18	50	**50**	50	170	**175**	180	140	**150**	160	170	**175**	180	140	**150**	160
	19	100	**100**	110	210	**225**	240	190	**200**	210	240	**250**	260	190	**200**	210
	20	70	**75**	80	170	**175**	180	140	**150**	160	210	**225**	240	190	**200**	210
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
N	21	70	**75**	80	140	**150**	160	110	**120**	130						
	22	70	**75**	79	140	**150**	79	110	**120**	79						
	23	70	**75**	79	140	**150**	79	110	**120**	79						
	24	70	**75**	79	140	**150**	79	110	**120**	79						
	25	70	**75**	79	140	**150**	79	110	**120**	79						
	26	70	**75**	79	140	**150**	79	110	**120**	79						
	27	70	**75**	79	140	**150**	79	110	**120**	79						
	28	70	**75**	79	140	**150**	79	110	**120**	79						
	29	70	**75**	79	140	**150**	79	110	**120**	79						
	30	70	**75**	79	140	**150**	79	110	**120**	79						
		WU10HT			WU10PT			WU25PT			WP10CT			WP25CT		
S	31	20	**25**	30	70	**75**	80	70	**75**	80						
	32	20	**25**	30	70	**75**	80	50	**50**	50						
	33	20	**25**	30	70	**75**	80	50	**50**	50						
	34	20	**25**	30	50	**50**	50	50	**50**	50						
	35	20	**25**	30	70	**75**	80	50	**50**	50						
	36	50	**50**	50	100	**100**	110	70	**75**	80						
	37	20	**25**	30	70	**75**	80	50	**50**	50						

WIN WITH WIDIA™

WMT™ System

The WIDIA™ WMT System is the economical and reliable option for all of 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.

WMT Toolholders

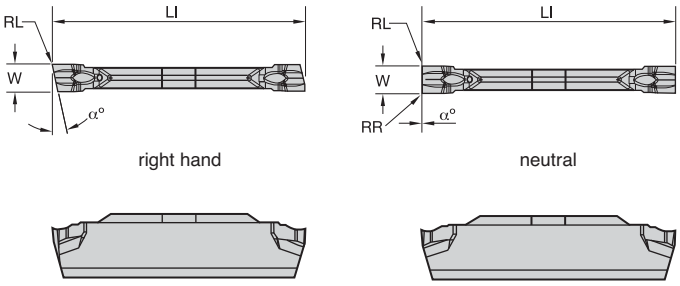
- Guarantees fast cycle times and limited turret indexes.
- Precise insert positioning for accurate machining.

WMT SLS

- A variety of insert widths available to meet your specific needs.
- Integral and modular serrated locking system (SLS) accepts CM, CM-W, and PT/PC inserts.

WIDIA VICTORY
Win with WIDIA™

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.



right hand

neutral

RR = RL on neutral inserts

P	●
M	●
K	○
N	●
S	●
H	

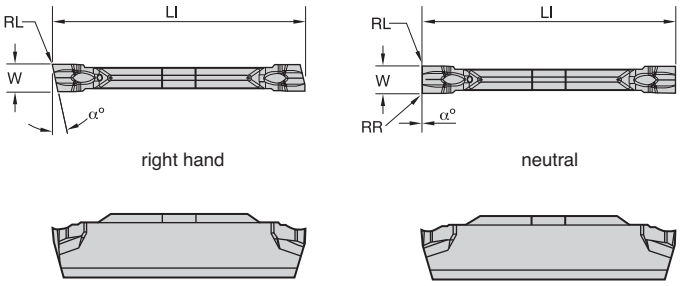
● first choice
○ alternate choice

WMT-CM

catalogue number	seat size	W mm	RR mm	LI mm	α°	hand	WU25PT
WMTC015N00CM08	1	1,50	0,08	19,30	—	N - Neutral	●
WMTC020N00CM08	2	2,00	0,08	19,21	—	N - Neutral	●
WMTC094N00CM13	2B	2,39	0,13	22,32	—	N - Neutral	●
WMTC030N00CM17	3	3,00	0,17	25,38	—	N - Neutral	●
WMTC125N00CM17	3	3,17	0,17	25,41	—	N - Neutral	●
WMTC040N00CM17	4	4,00	0,17	25,40	—	N - Neutral	●

catalogue number	seat size	W mm	RR mm	LI mm	α°	hand	
WMTC015L05CM08	1	1,50	0,08	19,31	5	L - Left	●
WMTC020L05CM08	2	2,00	0,08	19,20	5	L - Left	●
WMTC020L12CM08	2	2,00	0,08	19,25	12	L - Left	●
WMTC030L05CM17	3	3,00	0,17	25,34	5	L - Left	●
WMTC030L12CM17	3	3,00	0,17	25,40	12	L - Left	●
WMTC040L12CM17	4	4,00	0,17	25,40	12	L - Left	●
WMTC040L05CM17	4	4,00	0,17	25,40	5	L - Left	●

catalogue number	seat size	W mm	RL mm	LI mm	α°	hand	
WMTC015R12CM08	1	1,50	0,08	19,28	12	R - Right	●
WMTC015R05CM08	1	1,50	0,08	19,31	5	R - Right	●
WMTC020R05CM08	2	2,00	0,08	19,26	5	R - Right	●
WMTC020R12CM08	2	2,00	0,08	19,26	12	R - Right	●
WMTC094R12CM13	2B	2,39	0,13	22,28	12	R - Right	●
WMTC094R05CM13	2B	2,39	0,13	22,32	5	R - Right	●
WMTC030R05CM17	3	3,00	0,17	25,34	5	R - Right	●
WMTC030R12CM17	3	3,00	0,17	25,40	12	R - Right	●
WMTC125R05CM17	3	3,17	0,17	25,40	5	R - Right	●
WMTC125R12CM17	3	3,18	0,17	25,40	12	R - Right	●
WMTC040R05CM17	4	4,00	0,17	25,40	5	R - Right	●
WMTC040R12CM17	4	4,00	0,17	25,40	12	R - Right	●



RR = RL on neutral inserts

● first choice
○ alternate choice

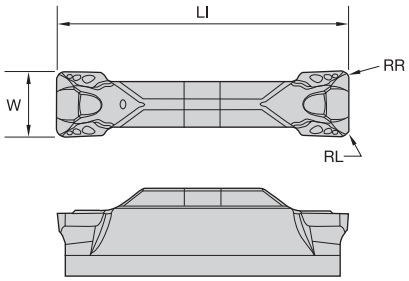
P	●
M	●
K	○
N	●
S	●
H	

WMT-CM-W

catalogue number	seat size	W mm	RR mm	LI mm	α°	hand	WU25PT
WMTC015N00CMW08	1	1,50	0,08	19,30	—	N - Neutral	●
WMTC020N00CMW08	2	2,00	0,08	19,21	—	N - Neutral	●
WMTC094N00CMW13	2B	2,39	0,13	22,32	—	N - Neutral	●
WMTC030N00CMW17	3	3,00	0,17	25,38	—	N - Neutral	●
WMTC125N00CMW17	3	3,18	0,17	25,41	—	N - Neutral	●
WMTC040N00CMW17	4	4,00	0,17	25,40	—	N - Neutral	●

catalogue number	seat size	W mm	RR mm	LI mm	α°	hand	
WMTC020L12CMW08	2	2,00	0,08	19,27	12	L - Left	●
WMTC030L05CMW17	3	3,00	0,17	25,35	5	L - Left	●
WMTC030L12CMW17	3	3,00	0,17	25,40	12	L - Left	●

catalogue number	seat size	W mm	RL mm	LI mm	α°	hand	
WMTC020R05CMW08	2	2,00	0,08	19,20	5	R - Right	●
WMTC020R12CMW08	2	2,00	0,08	19,27	12	R - Right	●
WMTC094R12CMW13	2B	2,39	0,13	22,29	12	R - Right	●
WMTC094R05CMW13	2B	2,39	0,13	22,32	5	R - Right	●
WMTC030R05CMW17	3	2,00	0,17	25,35	5	R - Right	●
WMTC030R12CMW17	3	2,00	0,17	25,40	12	R - Right	●
WMTC125R05CMW17	3	3,17	0,17	25,41	5	R - Right	●
WMTC125R12CMW17	3	3,17	0,17	25,41	12	R - Right	●



RR = RL

● first choice
○ alternate choice

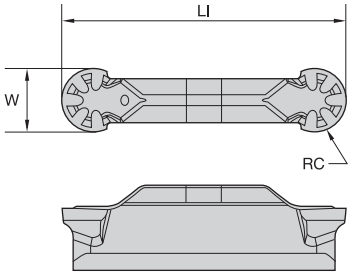
	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
P	●	●	○	○	○
M	●	●	●	●	●
K	○	○	○	○	●
N	○	○			○
S			●	●	●
H				○	○

WMT-U-PT • Moulded

catalogue number	seat size	W mm	RR mm	LI mm	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS205M2U02PT	2	2,05	0,15	19,23	●	●	●	●	
WMTS305M3U03PT	3	3,05	0,31	25,81	●	●	●	●	
WMTS305M3U06PT	3	3,05	0,61	25,78	●	●	●	●	
WMTS405M4U03PT	4	4,05	0,31	25,53	●	●	●	●	
WMTS405M4U06PT	4	4,05	0,61	25,53	●	●	●	●	
WMTS505M5U03PT	5	5,05	0,31	28,69	●	●	●	●	
WMTS505M5U06PT	5	5,05	0,61	28,69	●	●	●	●	
WMTS605M6U03PT	6	6,05	0,30	28,76	●	●	●	●	
WMTS605M6U06PT	6	6,05	0,59	28,76	●	●	●	●	
WMTS805M8U06PT	8	8,05	0,61	28,70	●	●	●	●	
WMTS805M8U15PT	8	8,05	1,50	28,71	●	●	●	●	

WMT-P-PT • Precision

catalogue number	seat size	W mm	RR mm	LI mm	WP10CT	WP25CT	WU10PT	WU25PT	WU10HT
WMTS200M2P02PT	2	2,00	0,15	19,10			●	●	
WMTS094I2BP02PT	2B	2,38	0,15	22,15			●	●	
WMTS094I2BP04PT	2B	2,38	0,38	22,14			●	●	
WMTS300M3P03PT	3	3,00	0,31	25,65			●	●	●
WMTS300M3P06PT	3	3,00	0,61	25,65			●	●	
WMTS125I3P03PT	3	3,17	0,23	25,40			●	●	
WMTS125I3P08PT	3	3,17	0,76	25,40			●	●	
WMTS400M4P03PT	4	4,00	0,31	25,40			●	●	●
WMTS400M4P06PT	4	4,00	0,60	25,40			●	●	
WMTS188I5P03PT	5	4,76	0,26	28,63			●	●	
WMTS188I5P08PT	5	4,77	0,76	28,63			●	●	
WMTS500M5P03PT	5	5,00	0,30	28,63			●	●	●
WMTS500M5P06PT	5	5,00	0,61	28,63			●	●	
WMTS600M6P03PT	6	6,00	0,30	28,63			●	●	
WMTS600M6P06PT	6	6,00	0,58	28,63			●	●	
WMTS250I6P08PT	6	6,34	0,76	28,63			●	●	
WMTS250I6P03PT	6	6,35	0,25	28,63			●	●	
WMTS800M8P06PT	8	8,00	0,61	28,57			●	●	
WMTS800M8P15PT	8	8,00	1,50	28,57			●	●	



RR = RL

● first choice
○ alternate choice

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

■ WMT-U-PC • Moulded

catalogue number	seat size	W mm	RC mm	LI mm	WP10CT	WU10PT	WU25PT
WMTR305M3UPC	3	3,05	1,53	25,53	●	●	●
WMTR405M4UPC	4	4,05	2,03	25,58	●	●	●
WMTR505M5UPC	5	5,05	2,53	29,01	●	●	●
WMTR605M6UPC	6	6,05	3,03	28,77	●	●	●
WMTR805M8UPC	8	8,05	4,03	29,22	●	●	●

● first choice
○ alternate choice

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

■ WMT-P-PC • Precision

catalogue number	seat size	W mm	RC mm	LI mm	WU10PT	WU25PT	WU10HT
WMTR300M3PPC	3	3,00	1,50	25,40	●	●	●
WMTR125I3PPC	3	3,17	1,59	25,58	●	●	
WMTR400M4PPC	4	4,00	2,00	25,45	●	●	●
WMTR188I5PPC	5	4,78	2,39	28,65	●	●	
WMTR500M5PPC	5	5,00	2,50	28,88	●	●	
WMTR600M6PPC	6	6,00	3,00	28,65	●	●	
WMTR250I6PPC	6	6,36	3,18	29,01	●	●	
WMTR312I8PPC	8	7,94	3,96	29,00	●	●	
WMTR800M8PPC	8	8,00	4,00	29,08	●	●	

WIN WITH WIDIA™

ProGroove™

With easy-to-change inserts available in multiple high-performance carbide grades, the ProGroove system ensures accurate, reliable, and reproducible cutting edge performance.

ProGroove Grooving and Cut-Off

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

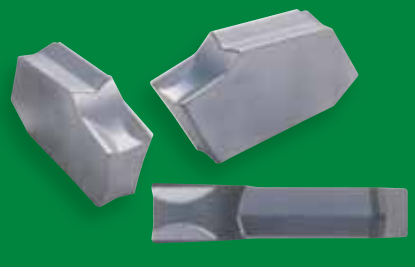
To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

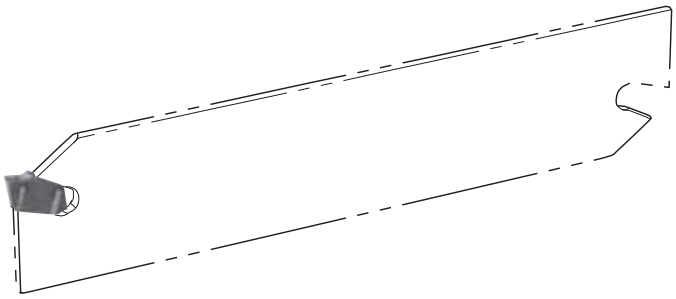
WIDIA™
Win with WIDIA™

GT and GF Cut-Off Inserts

GT and GF inserts specifically designed to fit SELF-GRIP® toolholders available from Iscar®.
For traditional cut-off applications, the original GT-style inserts are available in widths ranging from 2,25–4,80mm. For increased stability in large diameter cut-off applications, the GF geometry is available in widths ranging from 1,60–9,50mm.

GT & GF



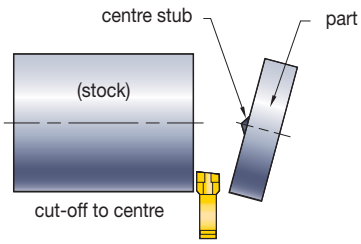


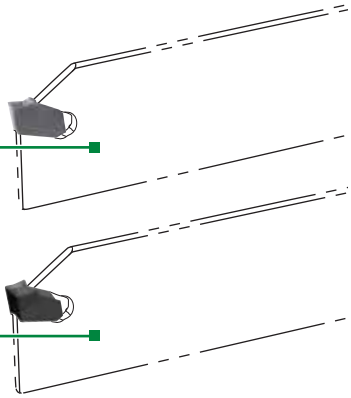
GT inserts

- GT inserts are T-Type with no stopper.
  The GT inserts replace single-end cutting inserts.

GF inserts

- Single-side insert for cut-off applications.
  This insert has a hard stop that seats insert securely into the pocket.





GT

GT inserts fit into all T-cut integral and blade toolholders.

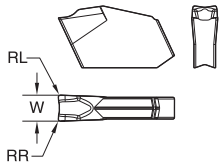
GF

GF inserts fit into all F-type integral and blade toolholders.

P	
M	○
K	
N	
S	○
H	

● first choice
○ alternate choice

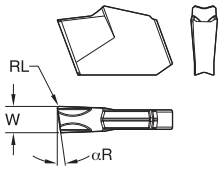
GT-N



RR = RL on neutral inserts

catalogue number	W mm	RL mm	TN6025
GTN2	2,25	0,18	●
GTN24	2,40	0,18	●
GTN3J	3,05	0,22	●
GTN3	3,05	0,22	●
GTN6	6,45	0,28	●
GTN3W	3,05	0,22	●
GTN5	5,05	0,26	●
GTN4	4,05	0,24	●
GTN48	4,80	0,26	●

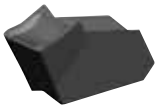
GT-R



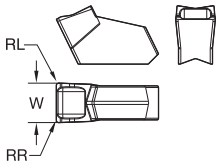
catalogue number	W mm	αR	RL mm	
GTR28D	2,25	8	0,18	●
GTR24D	2,25	4	0,18	●
GTR248D	2,40	8	0,18	●
GTR244D	2,40	4	0,18	●
GTR38D	3,05	8	0,22	●
GTR34D	3,05	4	0,22	●
GTR44D	4,05	4	0,24	●

P	
M	○
K	
N	
S	○
H	

● first choice
○ alternate choice

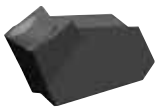


GF-N

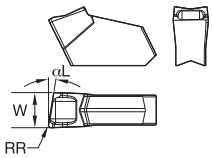


RR = RL on neutral inserts

catalogue number	W mm	RL mm	TN6025
GFN16	1,60	0,16	●
GFN2J	2,00	0,16	●
GFN2	2,20	0,16	●
GFN24	2,40	0,16	●
GFN3	3,00	0,25	●
GFN3J	3,00	0,25	●
GFN3M	3,03	0,20	●
GFN4J	4,00	0,25	●
GFN4B	4,10	0,40	●
GFN4	4,10	0,28	●
GFN48	4,80	0,28	●
GFN6	6,39	0,35	●
GFN9	9,50	0,47	●

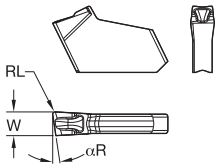


GF-L



catalogue number	W mm	αL	RR mm	
GFL38D	2,99	8	0,25	●
GFL48D	4,09	8	0,28	●

GF-R



catalogue number	W mm	αR	RL mm	
GFR168D	1,60	8	0,16	●
GFR248D	2,39	8	0,16	●
GFR315D	2,98	15	0,25	●
GFR38D	2,99	8	0,25	●
GFR34D	3,00	4	0,25	●

The Gold Standard for Value •
WIDIA™ Value

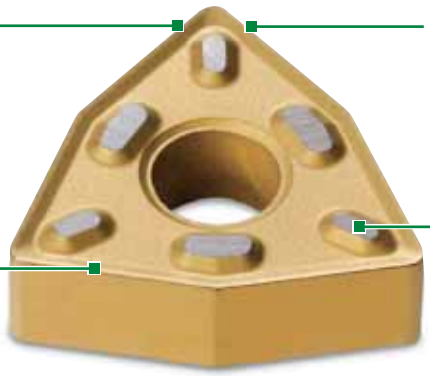
WIDIA Value is the cost-effective line of inserts from the brand you already know and trust for quality. Each insert is 100% manufactured by WIDIA to outperform competitive inserts when cutting steel, stainless steel, cast iron, and high-temperature alloys. With a simple grade selection method, and because these inserts can be used in an astounding 80% of all applications, WIDIA Value is perfect for small and midsize turning operations.

WIDIA™ Value

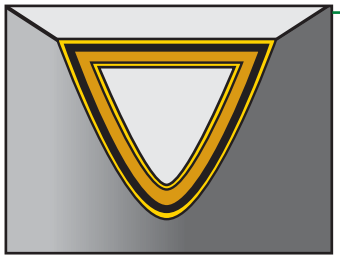
- Engineered to optimise performance.
- Gold coating on every insert.
- Proven grade technologies.

Post-coat treatment
- Improves edge toughness.
- Wide range of applications.

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



MT-CVD/CVD–TiN-TiCN-Al_2O_3-TiN



Post-coat grinding
- Provides secure seating surface.

Getting the Most from Every Insert

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

Save up to 50%

WIDIA Value inserts were developed to make it easy for small and midsize turning operations to utilise an affordable, quality product. With greater durability than competitively listed products, WIDIA Value inserts ensure an overall reduction of tooling costs. Locate the lowest prices for these inserts by purchasing through our distributor partners or online, where savings can be as much as 50%.

WIDIA Value Options

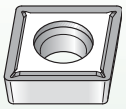
The WIDIA Value platform offers a simple geometry selection system. This versaltile line offers eight grades to chose from, and eight geometries, including negative rake and screw-on. With this many options, it's no wonder WIDIA Value inserts cover 80% of all general turning applications.

DIN ISO 513	VDI 3323	A • Finishing (ap x f = 1 x 0,1)						B • Medium (ap x f = 2 x 0,2)			C • Roughing (ap x f = 4 x 0,25)			D • Heavy roughing (ap x f = 6 x 0,6)					
Material Group		Cutting Speed • vc m/min																	
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
	Geometry	2P						2P • 6P			6P • 7N			7N					
	ap [mm]	0,20 – 2,00						0,80 – 5,00			1,00 – 8,00			2,00 – 15,00					
	f [mm]	0,05 – 0,20						0,16 – 0,40			0,20 – 0,60			0,40 – 1,00					
		TN10P						TN10P			TN20P			TN20P			TN30P		
P	1	340	**490**	590				280	**400**	480	180	**260**	310	150	**220**	260	150	**210**	250
P	2	340	**480**	580				260	**370**	440	130	**190**	230	110	**160**	190	110	**150**	180
P	3	290	**420**	500				180	**260**	310	130	**180**	220	110	**150**	180	100	**140**	170
P	4	260	**370**	440				190	**270**	320	110	**150**	180	90	**130**	160	70	**100**	120
P	5	200	**280**	340				140	**200**	240	75	**110**	130	65	**90**	110	55	**80**	95
P	6	270	**390**	470				200	**290**	350	110	**160**	190	90	**130**	160	75	**110**	130
P	7	260	**370**	440				190	**270**	320	110	**150**	180	85	**120**	140	70	**100**	120
P	8	220	**320**	380				160	**230**	280	85	**120**	140	70	**100**	120	65	**90**	110
P	9	200	**280**	340				140	**200**	240	75	**110**	130	65	**90**	110	55	**80**	95
P	10	270	**390**	470				200	**290**	350	110	**160**	190	90	**130**	160	75	**110**	130
P	11	200	**280**	340				130	**190**	230	75	**110**	130	65	**90**	110	55	**80**	95
P	12	150	**220**	260				140	**200**	240	110	**160**	190	110	**150**	180	100	**140**	170
P	13.1	130	**190**	230				120	**170**	200	90	**130**	160	85	**120**	140	75	**110**	130
P	13.2	65	**95**	115				60	**85**	100	45	**65**	80	45	**60**	70	40	**55**	65
	Geometry	2P						2P • 4P			4P • 7N								
	ap [mm]	0,20 – 2,00						0,60 – 5,00			0,50 – 6,00								
	f [mm]	0,05 – 0,20						0,12 – 0,40			0,10 – 0,60								
		TN30M						TN30M			TN30M								
M	14.1	180	**250**	300				150	**220**	260	140	**200**	240						
M	14.2	140	**200**	240				130	**180**	220	110	**160**	190						
M	14.3	110	**150**	180				100	**140**	170	85	**120**	140						
M	14.4	90	**130**	160				75	**110**	130	70	**100**	120						
	Geometry	2P						2P • 6P • ..MA			6P • 7P • ..MA			7N					
	ap [mm]	0,20 – 2,00						1,00 – 8,00			1,00 – 8,00			2,00 – 15,00					
	f [mm]	0,05 – 0,20						0,20 – 0,60			0,20 – 0,60			0,25 – 1,20					
		TN20K						TN20K			TN20K			TN20K					
K	15	290	**410**	490				230	**330**	400	180	**260**	310	160	**230**	280			
K	16	230	**330**	400				180	**250**	300	140	**200**	240	120	**170**	200			
K	17	250	**360**	430				210	**300**	360	180	**250**	300	150	**220**	260			
K	18	240	**340**	410				190	**270**	320	150	**210**	250	130	**180**	220			
K	19	340	**490**	590				290	**410**	490	240	**340**	410	220	**310**	370			
K	20	290	**410**	490				230	**330**	400	180	**260**	310	160	**230**	280			
	Geometry	2P						2P • .NGP			4P			4P • 6P					
	ap [mm]	0,50 – 4,00						0,50 – 4,00			0,50 – 4,00			0,50 – 6,00					
	f [mm]	0,10 – 0,50						0,10 – 0,50			0,10 – 0,50			0,10 – 0,60					
		TN15U			TN10U			T10U			TN15U			TN15U					
S	31	49	**70**	85	55	**80**	95	49	**70**	85	55	**80**	95	42	**60**	70			
S	32	39	**55**	65	46	**65**	80	42	**60**	70	46	**65**	80	34	**49**	60			
S	33	31	**44**	55	34	**48**	60	30	**43**	50	34	**48**	60	25	**36**	43			
S	34	18	**26**	31	21	**30**	36	19	**27**	32	21	**30**	36	16	**23**	27			
S	35	20	**28**	34	22	**32**	38	20	**29**	35	22	**32**	38	17	**24**	29			
S	36																		
S	37	39	**55**	65	42	**60**	70	39	**55**	65	42	**60**	70	32	**45**	55			

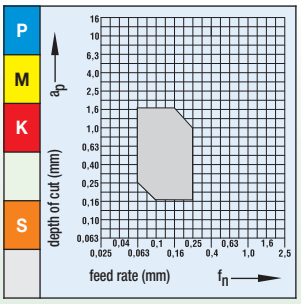
DIN ISO 513	VDI 3323	A • Finishing (ap x f = 1x 0,1)						B • Medium (ap x f = 2 x 0,2)						C • Roughing (ap x f = 4 x 0,25)					
Material Group		Cutting Speed • vc m/min																	
		min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max	min	Start	max
P	Geometry	1P						1P						1P					
	ap [mm]	0,20 – 2,00						0,30 – 4,50						0,70 – 5,00					
	f [mm]	0,05 – 0,20						0,08 – 0,35						0,12 – 0,40					
		TN10P						TN10P						TN20P					
	1	340	**490**	590				280	**400**	480				180	**260**	310			
	2	340	**480**	580				260	**370**	440				130	**190**	230			
	3	290	**420**	500				180	**260**	310				130	**180**	220			
	4	260	**370**	440				190	**270**	320				110	**150**	180			
	5	200	**280**	340				140	**200**	240				75	**110**	130			
	6	270	**390**	470				200	**290**	350				110	**160**	190			
	7	260	**370**	440				190	**270**	320				110	**150**	180			
	8	220	**320**	380				160	**230**	280				85	**120**	140			
	9	200	**280**	340				140	**200**	240				75	**110**	130			
	10	270	**390**	470				200	**290**	350				110	**160**	190			
	11	200	**280**	340				130	**190**	230				75	**110**	130			
	12	150	**220**	260				140	**200**	240				110	**160**	190			
	13.1	130	**190**	230				120	**170**	200				90	**130**	160			
	13.2	65	**95**	115				60	**85**	100				45	**65**	80			
M	Geometry	1P						1P						1P			1P		
	ap [mm]	0,20 – 2,00						0,30 – 4,50						0,30 – 4,50			0,30 – 4,50		
	f [mm]	0,05 – 0,20						0,08 – 0,35						0,08 – 0,35			0,08 – 0,35		
		TN30M						TN30M			TN15U			TN30M			TN15U		
	14.1	180	**250**	300				150	**220**	260	140	**190**	230	140	**200**	240	110	**150**	180
	14.2	140	**200**	240				130	**180**	220	110	**160**	190	110	**160**	190	85	**120**	140
	14.3	110	**150**	180				100	**140**	170	85	**120**	140	85	**120**	140	65	**90**	110
	14.4	90	**130**	160				75	**110**	130	70	**95**	110	70	**100**	120	55	**80**	95
K	Geometry	1P						1P						1P					
	ap [mm]	0,20 – 2,00						0,30 – 4,50						1,00 – 8,00					
	f [mm]	0,05 – 0,20						0,08 – 0,35						0,10 – 0,50					
		TN20K						TN20K						TN20K					
	15	290	**410**	490				230	**330**	400				180	**260**	310			
	16	230	**330**	400				180	**250**	300				140	**200**	240			
	17	250	**360**	430				210	**300**	360				180	**250**	300			
	18	240	**340**	410				190	**270**	320				150	**210**	250			
	19	340	**490**	590				290	**410**	490				240	**340**	410			
	20	290	**410**	490				230	**330**	400				180	**260**	310			
S	Geometry	1P						1P						1P					
	ap [mm]	0,30 – 2,00						0,30 – 4,50						0,30 – 4,50					
	f [mm]	0,08 – 0,20						0,08 – 0,35						0,08 – 0,35					
		TN15U			TN10U			TN15U			TN10U			TN15U					
	31	49	**70**	85	55	**80**	95	46	**65**	80	49	**70**	85	42	**60**	70			
	32	39	**55**	65	46	**65**	80	35	**50**	60	42	**60**	70	34	**49**	60			
	33	31	**44**	55	34	**48**	60	28	**40**	48	30	**43**	50	25	**36**	43			
	34	18	**26**	31	21	**30**	36	16	**23**	28	19	**27**	32	16	**23**	27			
	35	20	**28**	34	22	**32**	38	18	**25**	30	20	**29**	35	17	**24**	29			
	36																		
	37	39	**55**	65	42	**60**	70	35	**50**	60	39	**55**	65	32	**45**	55			

Positive and Negative Inserts

1P

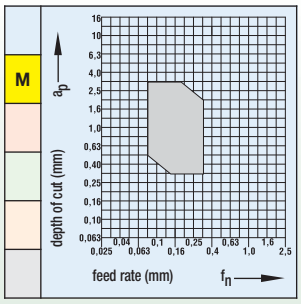


Preferred for light finishing. Low cutting forces and reduced power requirements due to positive rake angle. Good chip control over a wide range.

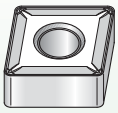


4P

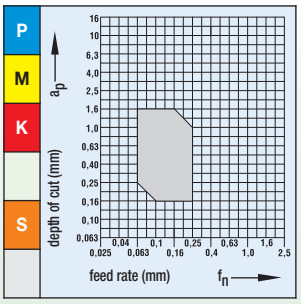
For medium-duty turning operations. Soft-cutting chipbreaker. Used in applications producing varying chip sections, such as profile or copy turning. Good dimensional accuracy. For soft steel materials and stainless steels



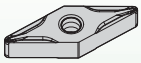
2P



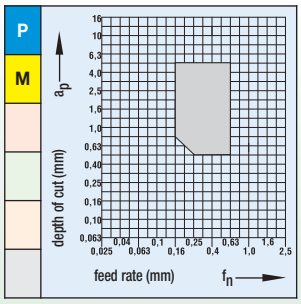
For finish turning, producing smooth, accurate surfaces. Very good chip control, especially at low depths of cut.



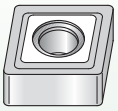
6P



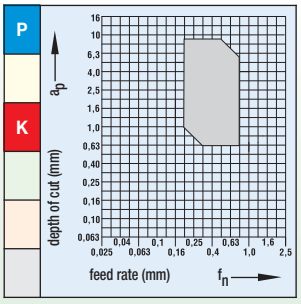
For medium to rough turning. Outstanding chip control due to specially configured chipbreaker element in corner area. Good chip forming with low depths of cut.



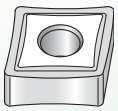
7N



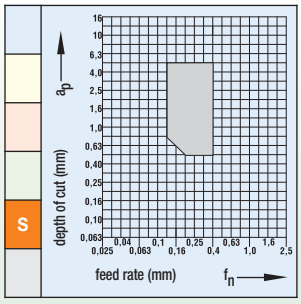
For medium-duty to roughing. Outstanding chip control. High edge strength for interrupted cuts, forging skin or scale. Preferred for all cast iron such as grey, malleable, and nodular.



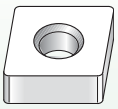
..GP



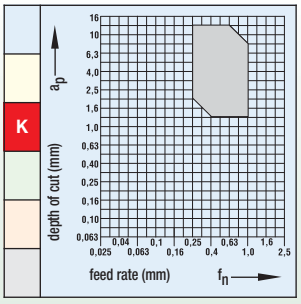
For light machining to light roughing.

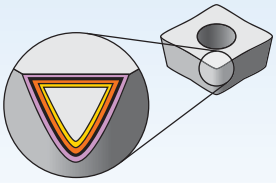


..MA



Flat top geometry for machining cast iron. For finishing to roughing applications.





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

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

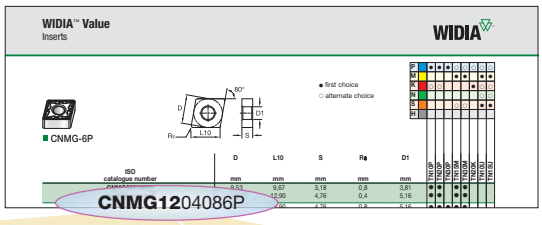
wear resistance ⟷ toughness

Grade

Coating		Grade Description	05	10	15	20	25	30	35	40	45
TN10P	HC-P10	Coated carbide. MTCVD-TiN-TiCN-Al_2O_3-TiN. Ideal for light finishing to medium machining applications. Superior wear resistance.	P, K	P, K	P, K	P, K					
TN20P	HC-P20	Coated carbide. MTCVD-TiN-TiCN-Al_2O_3-TiN. Great general-purpose turning grade for steels. Ideal for semi-finishing to moderately heavy roughing.	P, K				P, K	P, K	P, K		
TN30P	HC-P30	Coated carbide. MTCVD-TiN-TiCN-Al_2O_3-TiN. Tough carbide grade. Ideal for roughing and heavy roughing applications.	P					P	P	P	P
TN15M	HC-M15	Coated carbide. MTCVD-TiN-TiCN-Al_2O_3-TiN. Ideal for finishing to medium machining of austentic stainless steels.	P, M		P, M	P, M	P, M				
TN30M	HC-M30	Coated carbide. MTCVD-TiN-TiCN-Al_2O_3-TiN. Ideal for general-purpose machining of stainless steels.	P, M				M	P, M	P, M	P, M	
TN20K	HC-K20	Coated carbide. MTCVD-TiN-TiCN-Al_2O_3-TiN. Great when used for straight or lightly interrupted cut applications of ductile and cast irons.	P, K		P, K	P, K	P, K				
TN10U	HC-S10	Coated carbide. PVD-TiAlN-TiN. Ideal for finishing of difficult to machine alloys and stainless steels.	P, M, K, N, S, H		P, M, K, N, S	P, M, K, N, S					
TN15U	HW-P15	Uncoated carbide. Excellent abarasion resistance for machining cast irons, austentic stainless steels, and most high-temperature alloys.	P, M, K, N, S		P, M, K, N, S	P, M, K, N, S					

How Do Catalogue Numbers Work?

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



C — Insert Shape

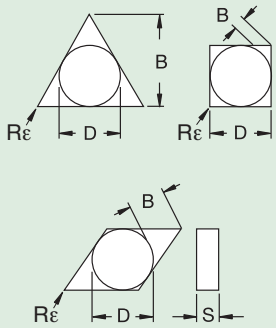
H	Hexagon 120°	
O	Octagon 135°	
P	Pentagon 108°	
R	Round —	
S	Square 90°	
T	Triangular 60°	
C	Rhomboid 80°	
D	55°	
E	75°	
M	86°	
V	35°	
W	Trigon 80° with enlarged corner angles	
L	Rectangular 90°	
A	Parallelogram 85°	
B	82°	
N/K	55°	

N — Insert Clearance Angle

A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Indicated for other clearance angles requiring descriptions.

M — Tolerance Class

Tolerances apply prior to edge prep and coating



D = Theoretical diameter of the insert inscribed circle
S = Thickness
B = See figures below

tolerance class	tolerance on "D"	tolerance on "B"	tolerance on "S"
C	±0,025	±0,013	±0,025
H	±0,013	±0,013	±0,025
E	±0,025	±0,025	±0,025
G	±0,025	±0,025	±0,13
M	See tables in size column		±0,13
U	See tables in size column		±0,13

G — Insert Features

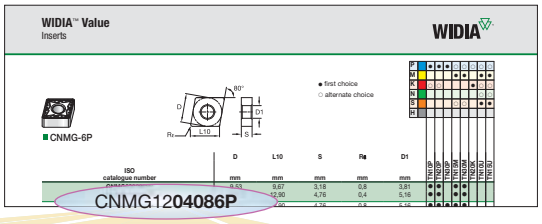
N	
R	
F	
A	
M	
G	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special Design

12 — Size

Code for metric cutting edge length "L10"

"D" mm	C	D	R	S	T	V	W
3,97	S4	04	03	03	06	–	–
4,76	04	05	04	04	08	08	S3
5,56	05	06	05	05	09	09	03
6,00	–	–	06	–	–	–	–
6,35	06	07	06	06	11	11	04
7,94	08	09	07	07	13	13	05
8,00	–	–	08	–	–	–	–
9,52	09	11	09	09	16	16	06
10,00	–	–	10	–	–	–	–
11,11	11	13	11	11	19	19	07
12,00	–	–	12	–	–	–	–
12,70	12	15	12	12	22	22	08
14,29	14	17	14	14	24	24	09
15,88	16	19	15	15	27	27	10
16,00	–	–	16	–	–	–	–
17,46	17	21	17	17	30	30	11
19,05	19	23	19	19	33	33	13
20,00	–	–	20	–	–	–	–
22,22	22	27	22	22	38	38	15
25,00	–	–	25	–	–	–	–
25,40	25	31	25	25	44	44	17
31,75	32	38	31	31	54	54	21
32,00	–	–	32	–	–	–	–

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



04
Thickness
S

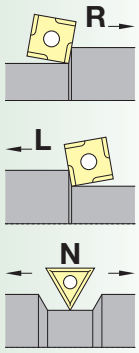
symbol mm	thickness mm
–	0,79
T0	1,00
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52
11	11,11
12	12,70

08
Corner
Radius "Rε"

symbol mm	corner radius mm
X0	0,04
01	0,1
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
24	2,4
28	2,8
32	3,2
00	round insert
M0	

Hand of Insert
(optional)

R = Right hand
L = Left hand
N = Neutral



Cutting Edge
(optional)

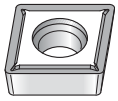
F Sharp
E Rounded
T Chamfered
S Chamfered and Rounded
K Double-Chamfered
P Double-Chamfered and Rounded

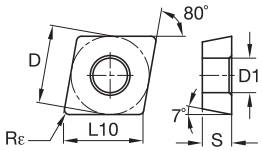
6P
Chipbreaker
(optional)

1P Finishing
2P Finishing
..GP Medium Machining
4P Medium Machining
6P Medium Roughing
..MA Roughing
7N Heavy Roughing

● first choice
○ alternate choice

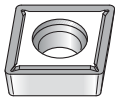
		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

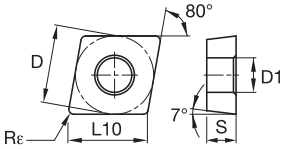




■ CCGT-1P

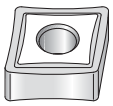
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
CCGT0602021P	6,35	6,45	2,38	0,2	2,80							●	●
CCGT0602041P	6,35	6,45	2,38	0,4	2,80							●	●
CCGT0602081P	6,35	6,45	2,38	0,8	2,80							●	
CCGT09T3011P	9,53	9,67	3,97	0,1	4,40							●	●
CCGT09T3021P	9,53	9,67	3,97	0,2	4,40							●	●
CCGT09T3041P	9,53	9,67	3,97	0,4	4,40							●	●
CCGT09T3081P	9,53	9,67	3,97	0,8	4,40							●	●

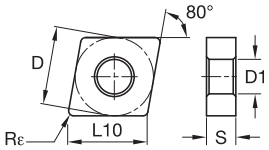




■ CCMT-1P

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
CCMT0602021P	6,35	6,45	2,38	0,2	2,80	●			●	●	●	●	●
CCMT0602041P	6,35	6,45	2,38	0,4	2,80	●	●		●	●	●	●	●
CCMT0602081P	6,35	6,45	2,38	0,8	2,80	●	●		●	●	●	●	
CCMT09T3021P	9,53	9,67	3,97	0,2	4,40							●	●
CCMT09T3041P	9,53	9,67	3,97	0,4	4,40	●	●		●	●	●	●	●
CCMT09T3081P	9,53	9,67	3,97	0,8	4,40	●	●		●	●	●	●	●
CCMT1204041P	12,70	12,90	4,76	0,4	5,50	●	●		●	●	●	●	
CCMT1204081P	12,70	12,90	4,76	0,8	5,50	●	●		●	●	●	●	



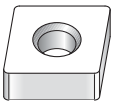


■ CNGP

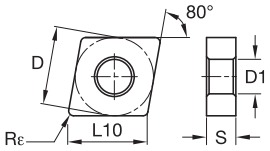
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
CNGP120401	12,70	12,90	4,76	0,1	5,16							●	
CNGP120402	12,70	12,90	4,76	0,2	5,16							●	
CNGP120404	12,70	12,90	4,76	0,4	5,16							●	●
CNGP120408	12,70	12,90	4,76	0,8	5,16							●	●
CNGP120412	12,70	12,90	4,76	1,2	5,16							●	●

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

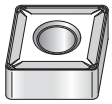
● first choice
○ alternate choice



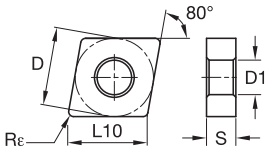
■ CNMA



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
CNMA120404	12,70	12,90	4,76	0,4	5,16						●		
CNMA120408	12,70	12,90	4,76	0,8	5,16						●		
CNMA120412	12,70	12,90	4,76	1,2	5,16						●		
CNMA120416	12,70	12,90	4,76	1,6	5,16						●		
CNMA160612	15,88	16,12	6,35	1,2	6,35						●		
CNMA160616	15,88	16,12	6,35	1,6	6,35						●		
CNMA190612	19,05	19,34	6,35	1,2	7,93						●		
CNMA190616	19,05	19,34	6,35	1,6	7,93						●		

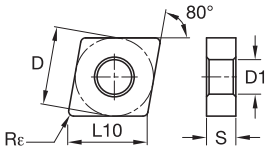


■ CNMG-2P



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
CNMG1204042P	12,70	12,90	4,76	0,4	5,16	●	●		●	●	●	●	●
CNMG1204082P	12,70	12,90	4,76	0,8	5,16	●	●		●	●	●	●	●
CNMG1204122P	12,70	12,90	4,76	1,2	5,16	●	●		●		●	●	

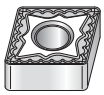
■ CNMG-4P

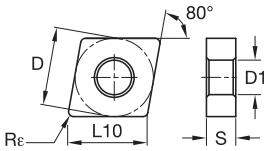


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
CNMG1204044P	12,70	12,90	4,76	0,4	5,16				●	●			
CNMG1204084P	12,70	12,90	4,76	0,8	5,16				●	●			
CNMG1204124P	12,70	12,90	4,76	1,2	5,16				●	●			
CNMG1606124P	15,88	16,12	6,35	1,2	6,35				●	●			
CNMG1906124P	19,05	19,34	6,35	1,2	7,93				●	●			

		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

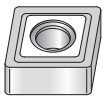
● first choice
○ alternate choice

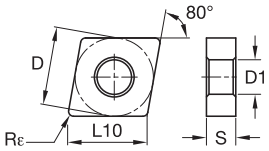




■ CNMG-6P

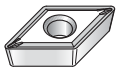
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
CNMG0903086P	9,53	9,67	3,18	0,8	3,81	●	●		●	●			
CNMG1204046P	12,70	12,90	4,76	0,4	5,16	●	●		●	●			
CNMG1204086P	12,70	12,90	4,76	0,8	5,16	●	●	●	●	●			
CNMG1204126P	12,70	12,90	4,76	1,2	5,16	●	●	●	●	●			
CNMG1606126P	15,88	16,12	6,35	1,2	6,35		●	●	●	●			
CNMG1906126P	19,05	19,34	6,35	1,2	7,93		●	●	●	●			

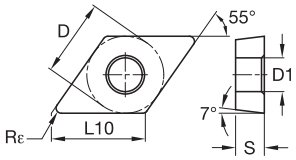




■ CNMG-7N

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
CNMG1204047N	12,70	12,90	4,76	0,4	5,16	●	●				●		
CNMG1204087N	12,70	12,90	4,76	0,8	5,16	●	●	●			●		
CNMG1204127N	12,70	12,90	4,76	1,2	5,16	●	●	●			●		
CNMG1204167N	12,70	12,90	4,76	1,6	5,16	●	●				●		
CNMG1606127N	15,88	16,12	6,35	1,2	6,35	●	●	●			●		
CNMG1606167N	15,88	16,12	6,35	1,6	6,35	●	●				●		
CNMG1906087N	19,05	19,34	6,35	0,8	7,93	●					●		
CNMG1906127N	19,05	19,34	6,35	1,2	7,93	●	●	●			●		
CNMG1906167N	19,05	19,34	6,35	1,6	7,93	●	●	●			●		
CNMG2509247N	25,40	25,79	9,53	2,4	9,12			●					



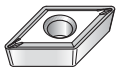


■ DCGT-1P

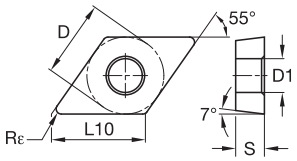
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
DCGT0702011P	6,35	7,75	2,38	0,1	2,80							●	●
DCGT11T3011P	9,53	11,63	3,97	0,1	4,40							●	●
DCGT1504081P	12,70	15,50	4,76	0,8	5,50							●	

	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P	●	●	●	○	○	○	○	○
M				●	●		●	●
K						●	○	○
N							○	○
S				○	○		●	●
H								

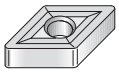
● first choice
○ alternate choice



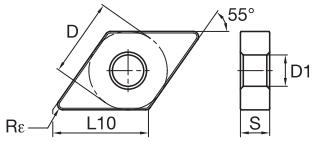
■ DCMT-1P



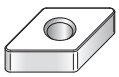
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
DCMT0702021P	6,35	7,75	2,38	0,2	2,80							●	●
DCMT0702041P	6,35	7,75	2,38	0,4	2,80	●	●		●	●	●	●	●
DCMT11T3021P	9,53	11,63	3,97	0,2	4,40							●	●
DCMT11T3041P	9,53	11,63	3,97	0,4	4,40	●	●		●	●	●	●	●
DCMT11T3081P	9,53	11,63	3,97	0,8	4,40	●	●		●	●	●	●	
DCMT11T3121P	9,53	11,63	3,97	1,2	4,40	●			●		●	●	
DCMT1504041P	12,70	15,50	4,76	0,4	5,50	●	●				●		
DCMT1504081P	12,70	15,50	4,76	0,8	5,50	●	●				●		



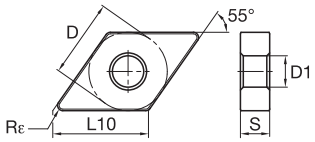
■ DNGP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
DNGP150401	12,70	15,50	4,76	0,1	5,16							●	
DNGP150402	12,70	15,50	4,76	0,2	5,16							●	●
DNGP150404	12,70	15,50	4,76	0,4	5,16							●	●
DNGP150408	12,70	15,50	4,76	0,8	5,16							●	●



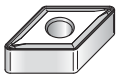
■ DNMA



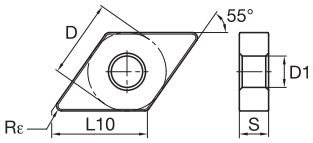
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
DNMA150408	12,70	15,50	4,76	0,8	5,16						●		
DNMA150412	12,70	15,50	4,76	1,2	5,16						●		
DNMA150608	12,70	15,50	6,35	0,8	5,16						●		
DNMA150612	12,70	15,50	6,35	1,2	5,16						●		

		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

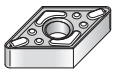
● first choice
○ alternate choice



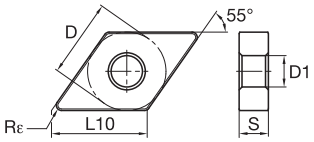
■ DNMG-2P



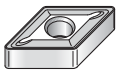
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
DNMG1504042P	12,70	15,50	4,76	0,4	5,16	●	●		●	●	●	●	●
DNMG1504082P	12,70	15,50	4,76	0,8	5,16	●	●		●	●	●	●	●
DNMG1506042P	12,70	15,50	6,35	0,4	5,16	●	●		●		●	●	●
DNMG1506082P	12,70	15,50	6,35	0,8	5,16	●	●		●		●	●	●
DNMG1506122P	12,70	15,50	6,35	1,2	5,16	●	●		●	●	●	●	



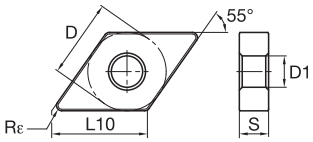
■ DNMG-4P



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
DNMG1504044P	12,70	15,50	4,76	0,4	5,16				●	●			
DNMG1504084P	12,70	15,50	4,76	0,8	5,16				●	●			
DNMG1506044P	12,70	15,50	6,35	0,4	5,16				●	●			
DNMG1506084P	12,70	15,50	6,35	0,8	5,16				●	●			
DNMG1506124P	12,70	15,50	6,35	1,2	5,16				●	●			



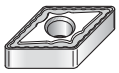
■ DNMG-6P



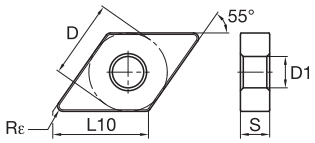
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
DNMG1104086P	9,53	11,63	4,76	0,8	3,81	●	●			●			
DNMG1504046P	12,70	15,50	4,76	0,4	5,16	●	●		●	●			
DNMG1504086P	12,70	15,50	4,76	0,8	5,16	●	●	●	●	●			
DNMG1504126P	12,70	15,50	4,76	1,2	5,16	●	●		●	●			
DNMG1506046P	12,70	15,50	6,35	0,4	5,16	●	●		●	●			
DNMG1506086P	12,70	15,50	6,35	0,8	5,16	●	●	●	●	●			
DNMG1506126P	12,70	15,50	6,35	1,2	5,16	●	●	●	●	●			
DNMG1906126P	15,88	19,38	6,35	1,2	6,35			●					

		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

● first choice
○ alternate choice

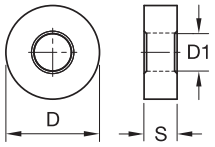


■ DNMG-7N



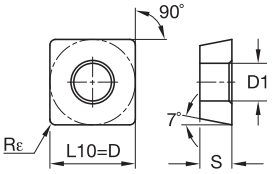
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
DNMG1504047N	12,70	15,50	4,76	0,4	5,16	●	●						
DNMG1504087N	12,70	15,50	4,76	0,8	5,16	●	●	●			●		
DNMG1504127N	12,70	15,50	4,76	1,2	5,16	●	●	●			●		
DNMG1506087N	12,70	15,50	6,35	0,8	5,16	●	●	●			●		
DNMG1506127N	12,70	15,50	6,35	1,2	5,16	●	●	●			●		
DNMG1906127N	15,88	19,38	6,35	1,2	6,35		●	●					

■ RNMG-7N



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
RNMG12047N	12,70	–	4,76	–	5,16		●				●		
RNMG19067N	19,05	–	6,35	–	7,93	●	●						

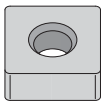
■ SCMT-1P

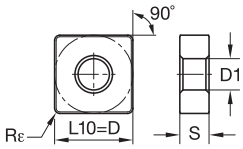


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
SCMT09T3041P	9,53	9,53	3,97	0,4	4,40	●	●		●	●	●	●	
SCMT09T3081P	9,53	9,53	3,97	0,8	4,40	●	●		●	●	●	●	
SCMT1204041P	12,70	12,70	4,76	0,4	5,50							●	
SCMT1204081P	12,70	12,70	4,76	0,8	5,50	●	●		●	●	●	●	

● first choice
○ alternate choice

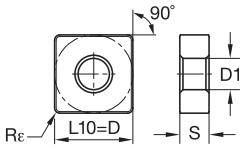
	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P	●	●	●	○	○	○	○	○
M				●	●		●	●
K	○	○				●	○	○
N							○	○
S				○	○		●	●
H								





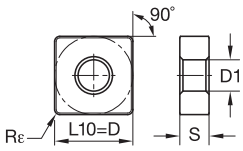
■ SNMA

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
SNMA120408	12,70	12,70	4,76	0,8	5,16						●		
SNMA120412	12,70	12,70	4,76	1,2	5,16						●		
SNMA150612	15,88	15,88	6,35	1,2	6,35						●		
SNMA190612	19,05	19,05	6,35	1,2	7,93						●		



■ SNMG-2P

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
SNMG0903082P	9,53	9,53	3,18	0,8	3,81	●	●				●	●	
SNMG1204082P	12,70	12,70	4,76	0,8	5,16	●	●		●		●	●	●



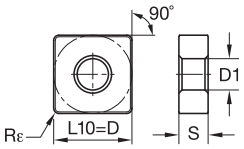
■ SNMG-4P

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
SNMG1204084P	12,70	12,70	4,76	0,8	5,16				●	●			
SNMG1204124P	12,70	12,70	4,76	1,2	5,16				●	●			

		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

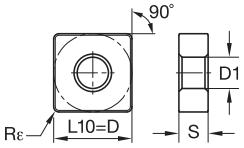
● first choice
○ alternate choice

■ SNMG-6P

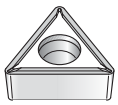


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
SNMG0903086P	9,53	9,53	3,18	0,8	3,81	●	●						
SNMG1204046P	12,70	12,70	4,76	0,4	5,16	●	●		●	●			
SNMG1204086P	12,70	12,70	4,76	0,8	5,16	●	●	●	●	●			
SNMG1204126P	12,70	12,70	4,76	1,2	5,16	●	●	●	●	●			
SNMG1906126P	19,05	19,05	6,35	1,2	7,93		●	●	●	●			

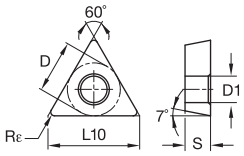
■ SNMG-7N



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
SNMG1204087N	12,70	12,70	4,76	0,8	5,16	●	●				●		
SNMG1204127N	12,70	12,70	4,76	1,2	5,16	●	●	●			●		
SNMG1204167N	12,70	12,70	4,76	1,6	5,16	●	●	●			●		
SNMG1506127N	15,88	15,88	6,35	1,2	6,35		●	●			●		
SNMG1506167N	15,88	15,88	6,35	1,6	6,35		●	●			●		
SNMG1906127N	19,05	19,05	6,35	1,2	7,93		●	●			●		
SNMG1906167N	19,05	19,05	6,35	1,6	7,93		●	●			●		



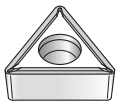
■ TCGT-1P



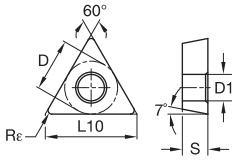
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
TCGT1102011P	6,35	11,00	2,38	0,1	2,80							●	●
TCGT1102041P	6,35	11,00	2,38	0,4	2,80							●	●
TCGT16T3021P	9,53	16,50	3,97	0,2	4,40							●	
TCGT16T3041P	9,53	16,50	3,97	0,4	4,40							●	●
TCGT16T3081P	9,53	16,50	3,97	0,8	4,40							●	

● first choice
○ alternate choice

	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P	●	●	●	○	○	○	○	○
M				●	●		●	●
K	○	○				●	○	○
N							○	○
S				○	○		●	●
H								

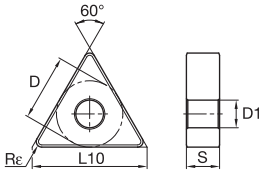


■ TCMT-1P

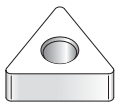


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
TCMT1102021P	6,35	11,00	2,38	0,2	2,90	●					●	●	
TCMT1102041P	6,35	11,00	2,38	0,4	2,80	●	●		●	●	●	●	
TCMT1102081P	6,35	11,00	2,38	0,8	2,80	●	●				●	●	
TCMT16T3021P	9,53	16,50	3,97	0,2	4,40							●	
TCMT16T3041P	9,53	16,50	3,97	0,4	4,40	●	●		●	●	●	●	
TCMT16T3081P	9,53	16,50	3,97	0,8	4,40	●	●		●	●	●	●	
TCMT16T3121P	9,53	16,50	3,97	1,2	4,40							●	
TCMT2204081P	12,70	22,00	4,76	0,8	5,50	●	●		●	●	●	●	

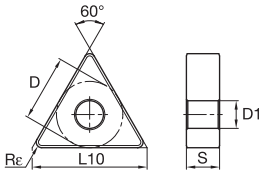
■ TNGP



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
TNGP160402	9,53	16,50	4,76	0,2	3,81							●	●
TNGP160404	9,53	16,50	4,76	0,4	3,81							●	●
TNGP160408	9,53	16,50	4,76	0,8	3,81							●	



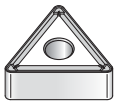
■ TNMA

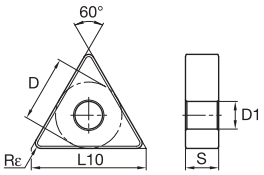


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
TNMA160408	9,53	16,50	4,76	0,8	3,81						●		
TNMA160412	9,53	16,50	4,76	1,2	3,81						●		
TNMA220408	12,70	22,00	4,76	0,8	5,16						●		

		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

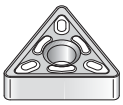
● first choice
○ alternate choice

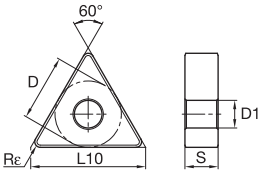




■ TNMG-2P

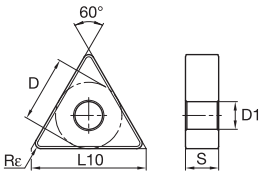
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
TNMG1604042P	9,53	16,50	4,76	0,4	3,81	●	●		●	●	●	●	●
TNMG1604082P	9,53	16,50	4,76	0,8	3,81	●	●		●		●	●	●
TNMG1604122P	9,53	16,50	4,76	1,2	3,81	●	●		●	●	●	●	
TNMG2204082P	12,70	22,00	4,76	0,8	5,16	●	●		●		●	●	●





■ TNMG-4P

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
TNMG1604044P	9,53	16,50	4,76	0,4	3,81				●	●			
TNMG1604084P	9,53	16,50	4,76	0,8	3,81				●	●			
TNMG1604124P	9,53	16,50	4,76	1,2	3,81				●	●			
TNMG2204044P	12,70	22,00	4,76	0,4	5,16				●	●			
TNMG2204084P	12,70	22,00	4,76	0,8	5,16				●	●			

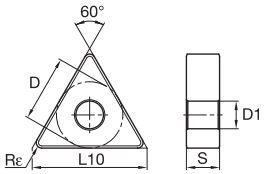


■ TNMG-6P

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
TNMG1604046P	9,53	16,50	4,76	0,4	3,81	●	●		●	●			
TNMG1604086P	9,53	16,50	4,76	0,8	3,81	●	●	●	●	●			
TNMG1604126P	9,53	16,50	4,76	1,2	3,81	●	●		●	●			
TNMG2204046P	12,70	22,00	4,76	0,4	5,16	●	●		●	●			
TNMG2204086P	12,70	22,00	4,76	0,8	5,16	●	●	●	●	●			

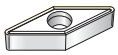
● first choice
○ alternate choice

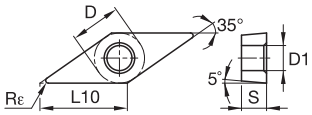
	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P	●	●	●	○	○	○	○	○
M				●	●		●	●
K	○	○				●	○	○
N							○	○
S				○	○		●	●
H								



■ TNMG-7N

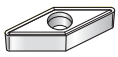
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
TNMG1604047N	9,53	16,50	4,76	0,4	3,81		●						
TNMG1604087N	9,53	16,50	4,76	0,8	3,81	●	●	●			●		
TNMG1604127N	9,53	16,50	4,76	1,2	3,81	●	●	●			●		
TNMG2204047N	12,70	22,00	4,76	0,4	5,16	●	●						
TNMG2204087N	12,70	22,00	4,76	0,8	5,16	●	●	●			●		
TNMG2204127N	12,70	22,00	4,76	1,2	5,16		●	●			●		
TNMG2706127N	15,88	27,50	6,35	1,2	6,35	●	●	●			●		
TNMG3309247N	19,05	33,00	9,53	2,4	7,93	●	●	●			●		

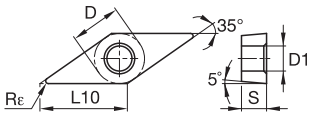




■ VBGT-1P

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
VBGT1103011P	6,35	11,07	3,18	0,1	2,80							●	●
VBGT1103021P	6,35	11,07	3,18	0,2	2,80							●	●
VBGT1103041P	6,35	11,07	3,18	0,4	2,80							●	
VBGT1604011P	9,53	16,61	4,76	0,1	4,40							●	
VBGT1604021P	9,53	16,61	4,76	0,2	4,40							●	●
VBGT1604041P	9,53	16,61	4,76	0,4	4,40							●	●



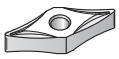


■ VBMT-1P

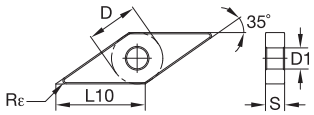
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
VBMT1103021P	6,35	11,07	3,18	0,2	2,80							●	●
VBMT1103041P	6,35	11,07	3,18	0,4	2,80	●	●		●	●	●	●	●
VBMT1103081P	6,35	11,07	3,18	0,8	2,80	●	●		●		●	●	
VBMT1604021P	9,53	16,61	4,76	0,2	4,40	●				●	●	●	●
VBMT1604041P	9,53	16,61	4,76	0,4	4,40	●	●		●	●	●	●	●
VBMT1604081P	9,53	16,61	4,76	0,8	4,40	●	●		●	●	●	●	●

		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

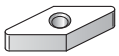
● first choice
○ alternate choice



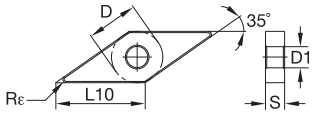
■ VNGP



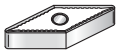
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
VNGP160401	9,53	16,61	4,76	0,1	3,81							●	●
VNGP160402	9,53	16,61	4,76	0,2	3,81							●	
VNGP220404	12,70	22,14	4,76	0,4	5,16							●	●
VNGP220408	12,70	22,14	4,76	0,8	5,16							●	●



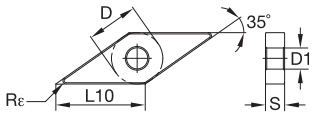
■ VNMA



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
VNMA160408	9,53	16,61	4,76	0,8	3,81						●		



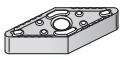
■ VNMG-2P



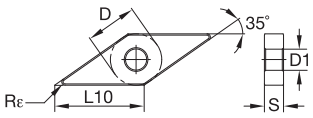
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
VNMG1604042P	9,53	16,61	4,76	0,4	3,81	●	●		●	●	●	●	●
VNMG1604082P	9,53	16,61	4,76	0,8	3,81	●	●		●		●	●	●

● first choice
○ alternate choice

		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

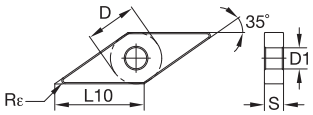


■ VNMG-4P

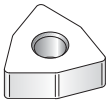


ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
VNMG1604044P	9,53	16,61	4,76	0,4	3,81				●	●			
VNMG1604084P	9,53	16,61	4,76	0,8	3,81				●	●			

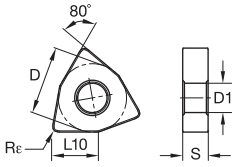
■ VNMG-6P



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
VNMG1604086P	9,53	16,61	4,76	0,8	3,81	●	●		●	●			



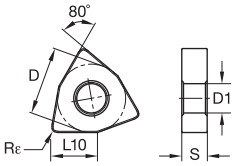
■ WNMA



ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
WNMA060408	9,53	6,52	4,76	0,8	3,81						●		
WNMA080408	12,70	8,69	4,76	0,8	5,16						●		
WNMA080412	12,70	8,69	4,76	1,2	5,16						●		

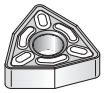
		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

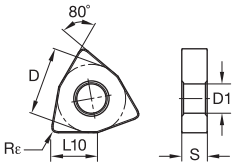
● first choice
○ alternate choice



■ WNMG-2P

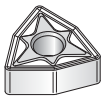
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
WNMG0804042P	12,70	8,69	4,76	0,4	5,16	●	●		●	●	●	●	●
WNMG0804082P	12,70	8,69	4,76	0,8	5,16	●	●		●		●	●	●

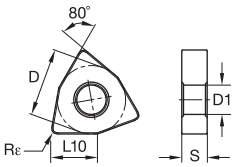




■ WNMG-4P

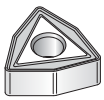
ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
WNMG0804044P	12,70	8,69	4,76	0,4	5,16				●	●			
WNMG0804084P	12,70	8,69	4,76	0,8	5,16				●	●			
WNMG0804124P	12,70	8,69	4,76	1,2	5,16					●			



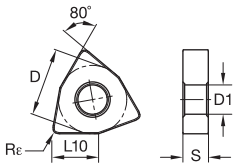


■ WNMG-6P

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
WNMG0604086P	9,53	6,52	4,76	0,8	3,81	●	●		●	●			
WNMG0804086P	12,70	8,69	4,76	0,8	5,16	●	●	●	●	●			
WNMG0804126P	12,70	8,69	4,76	1,2	5,16	●	●	●	●	●			



■ WNMG-7N



● first choice
○ alternate choice

		TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
P		●	●	●	○	○	○	○	○
M					●	●		●	●
K		○	○				●	○	○
N								○	○
S					○	○		●	●
H									

ISO catalogue number	D mm	L10 mm	S mm	Rε mm	D1 mm	TN10P	TN20P	TN30P	TN15M	TN30M	TN20K	TN10U	TN15U
WNMG0804087N	12,70	8,69	4,76	0,8	5,16	●	●	●			●		
WNMG0804127N	12,70	8,69	4,76	1,2	5,16	●	●	●			●		
WNMG0804167N	12,70	8,69	4,76	1,6	5,16		●	●			●		

WIN WITH WIDIA™

WIDIA-CIRCLE™ Small-Hole Tooling Series

The WIDIA™ line of small-hole boring tools is an excellent, economical choice for a wide range of applications. Our solid carbide bars provide exceptional machining versatility and rupture strength. Indexable inserts are available in both steel and carbide shanks.

A/B Series

- Unique locking system enables quick, accurate insert changes.

Quadralock™

- V-slots and limit-stop bolts for increased indexability.

Micro Boring Bars

- Free cutting action, better surface finishes, and greater chip evacuation.

Solid Carbide Bars

- Accurate, quick-change tooling and toolholders are ideal for small parts machining applications.

To learn more about our innovations, contact your local Authorised Distributor or visit **www.widia.com**.

WIDIA™

WIDIA

SHRINKER®

Tooling Systems

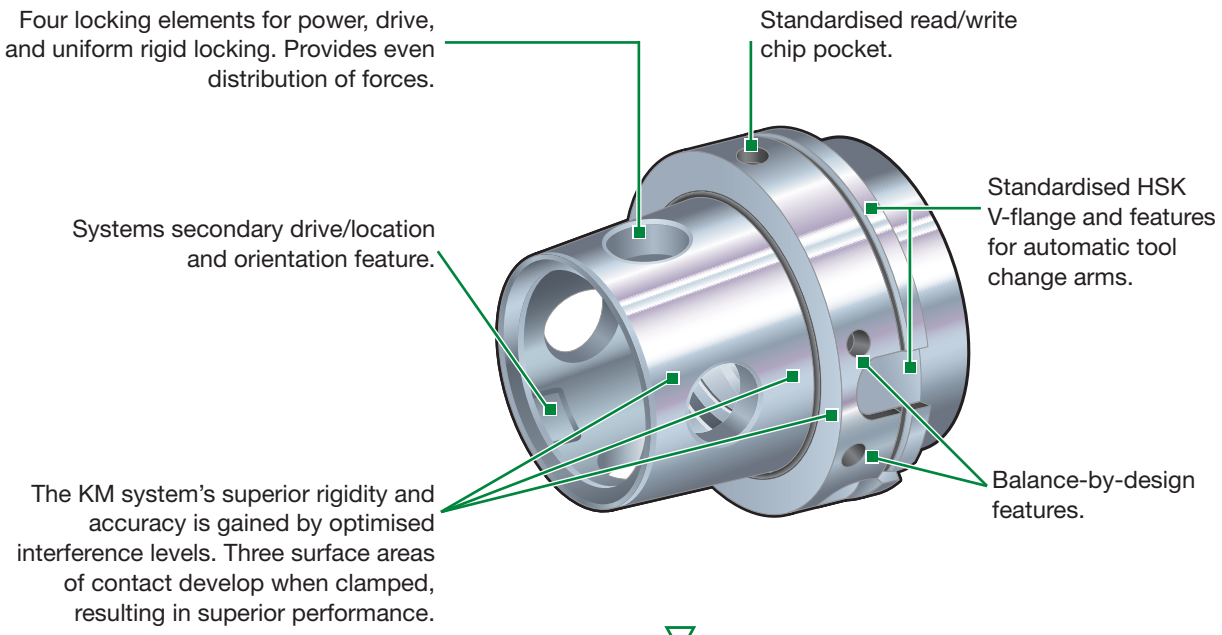
KM4X 100 Shank Tools E2–E14

WIDIA™ KM4X™

The KM4X 4-ball spindle interface provides 3x more bending capability than comparable systems. The greater bending capacity enables customers to fully utilise the capabilities of their machine and cutting tools when working with tough materials like titanium or during heavy machining. Increased metal removal rates optimise machine production and decreases overall manufacturing cost.

KM4X™

- Heavy-duty, rigid configuration.
- 3x more bending capability.
- Increased metal removal rates.
- Full utilisation of machine tools.
- Decreased manufacturing costs.
- Balanced-by-design for higher spindle speeds.



KM4X™ Spindle Interface

KM4X is the latest version of the KM™ spindle interface targeted at heavy-duty machining operations and is a top choice for machining large, structural tough-to-machine materials like titanium for the aerospace industry.

Portfolio

The portfolio consists of rotating adaptors and static tooling to support the tough and heavy machining markets. Additional products to include spindle component packages as well as static clamping units to support turning and mill/turn opportunities.

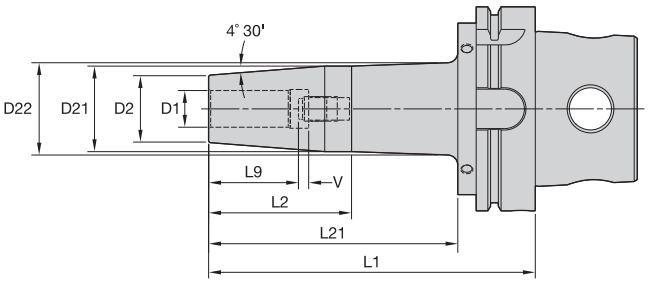
The Latest Innovation in Spindle Interface Technology

- KM4X offers the most rigid connection able to withstand extremely high bending due to a combination of high interference and high clamping forces.
- KM4X provides 3x more bending capacity than comparable face contact systems.
- KM is the only connection that maintains stiffness at elevated rotational speeds and is suitable for a range of applications from low speeds with high torque to very high spindle speeds.
- KM4X maintains a better balance between bending and torsion capabilities.
- The ability to retrofit KM4X to an existing machine tool offers the added advantage of increasing throughput.

Design Advantages

- The new screw-on KM4X is designed for high stability.
- Universal design enables old-style tools to be used interchangeably with new styles and many competitor screw-on cutters and extensions.
- Clamping method utilises face contact to create a rigid connection.

KM



- Balanceable — fine tune with optional M6 set screws.
- Suitable for carbide and HSS cutting tools.

Cutting Tool Shank Requirements
metric (ISO standard)

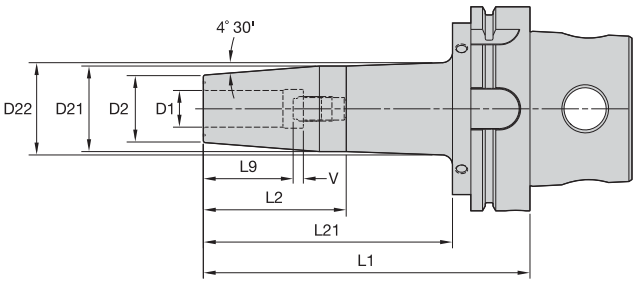
cutting tool shank diameter	tolerance	
6	h6	0,000/-0,008
8 & 10	h6	0,000/-0,009
12, 14, 16, & 18	h6	0,000/-0,011
20 & 25	h6	0,000/-0,013
32, 40, & 50	h6	0,000/-0,016

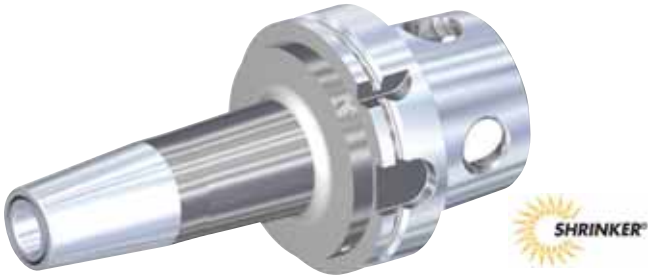
TT GP HPV MM-KM4X

order number	catalogue number	D1	D2	D21	D22	L1	L2	L9	L21	V	stop screw	wrench size stop screw
4156046	KM4X100HPVTT06085M	6	21	27	—	85	56	26	—	10	TTSS05014M	2,5mm
4156047	KM4X100HPVTT06160M	6	21	27	32	160	50	26	122	10	TTSS05014M	2,5mm
4156048	KM4X100HPVTT08085M	8	21	27	—	85	56	26	—	10	TTSS06014M	3mm
4156049	KM4X100HPVTT08160M	8	21	27	32	160	50	26	122	10	TTSS06014M	3mm
4156050	KM4X100HPVTT10090M	10	24	32	—	90	61	31	—	10	TTSS08014M	4mm
4156051	KM4X100HPVTT10160M	10	24	32	36	160	63	31	122	10	TTSS08014M	4mm
4156052	KM4X100HPVTT12095M	12	24	32	—	95	66	36	—	10	TTSS10014M	5mm
4156113	KM4X100HPVTT12160M	12	24	32	36	160	63	36	122	10	TTSS10014M	5mm
4156114	KM4X100HPVTT14095M	14	27	34	—	95	66	36	—	10	TTSS10014M	5mm
4156115	KM4X100HPVTT14160M	14	27	34	38	160	57	36	122	10	TTSS10014M	5mm
4156116	KM4X100HPVTT16100M	16	27	34	—	100	71	39	—	10	TTSS12014M	6mm
4156117	KM4X100HPVTT16160M	16	27	34	38	160	57	39	122	10	TTSS12014M	6mm
4156118	KM4X100HPVTT18100M	18	33	42	—	100	71	39	—	10	TTSS12014M	6mm
4156119	KM4X100HPVTT18160M	18	33	42	46	160	69	39	122	10	TTSS12014M	6mm
4156120	KM4X100HPVTT20105M	20	33	42	—	105	76	41	—	10	TTSS16014M	8mm
4156121	KM4X100HPVTT20160M	20	33	42	46	160	69	41	122	10	TTSS16014M	8mm
4156122	KM4X100HPVTT25115M	25	44	53	—	115	86	47	—	10	TTSS16014M	8mm
4156123	KM4X100HPVTT25160M	25	44	53	57	160	69	47	122	10	TTSS16014M	8mm
4156124	KM4X100HPVTT32120M	32	44	53	—	120	91	51	—	10	TTSS16014M	8mm
4156125	KM4X100HPVTT32160M	32	44	53	57	160	69	51	122	10	TTSS16014M	8mm

NOTE: Do not overheat. Overheating will destroy the accuracy and functionality of the toolholder.
Supplied with stop screw.
Optional M6~1.0P x 5 lg fine-balancing screw set (10 pieces) available. Order number: MS1276PKG. Must be ordered separately.

KM





- 30–50% higher clamping torque compaired to GP line.
- Balanceable — fine tune with optional M6 set screws.
- Suitable for carbide only, designated by groove in front face.
- 10 kW power or greater shrink fit device must be used.

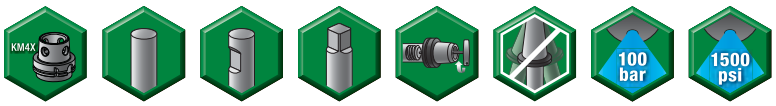
Cutting Tool Shank Requirements metric (ISO standard)

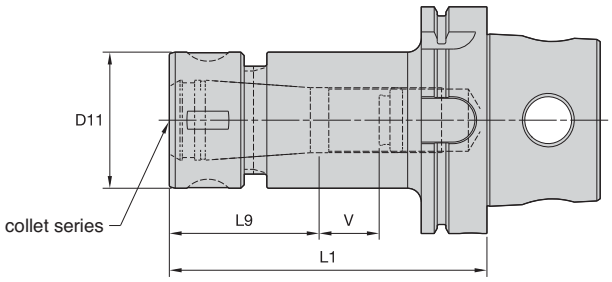
cutting tool shank diameter	tolerance	
12, 14, 16, & 18	h6	0,000/-0,011
20 & 25	h6	0,000/-0,013
32, 40, & 50	h6	0,000/-0,016

TT HT HPV MM-KM4X

order number	catalogue number	D1	D2	D21	L1	L2	L9	V	stop screw	wrench size stop screw
4156182	**KM4X100HPVTTHT12095M**	12	24	31,9	95	66	36	10	**TTSS10014M**	5mm
4156193	**KM4X100HPVTTHT14095M**	14	27	33,9	95	66	36	10	**TTSS10014M**	5mm
4156194	**KM4X100HPVTTHT16100M**	16	27	33,9	100	71	39	10	**TTSS12014M**	6mm
4156195	**KM4X100HPVTTHT18100M**	18	33	41,9	100	71	39	10	**TTSS12014M**	6mm
4156196	**KM4X100HPVTTHT20105M**	20	33	41,9	105	76	41	10	**TTSS16014M**	8mm
4156197	**KM4X100HPVTTHT25115M**	25	44	52,9	115	86	47	10	**TTSS16014M**	8mm
4156198	**KM4X100HPVTTHT32120M**	32	44	52,9	120	91	51	10	**TTSS16014M**	8mm

NOTE: Do not overheat. Overheating will destroy the accuracy and functionality of the toolholder.
Supplied with stop screw.
Optional M6~1.0P x 5 lg fine-balancing screw set (10 pieces) available. Order number: MS1276PKG. Must be ordered separately.





- Tremendous Grip (3:1 advantage).

Collet Capacity

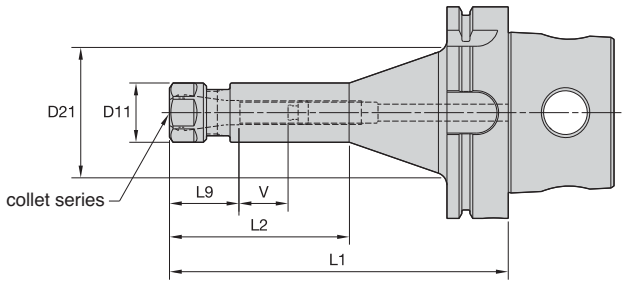
TG collet series	mm min	mm max	inch min	inch max
TG50	1,1	13,5	1/32	17/32
TG75	2,6	20,0	3/64	3/4
TG100	2,6	25,5	5/64	1
TG150	11,6	40,0	23/64	1-1/2

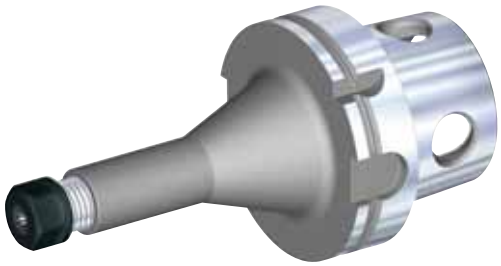
TG Round-KM4X

order number	catalogue number	collet series	D11	L1	L9	V	locknut	locknut wrench	Nm	stop screw	wrench size stop screw
4156445	**KM4X100TG050105M**	TG50	38	105	42	40	**LNA050M**	**HSW34M**	68	**SS056041G**	4mm & 5/32
4156446	**KM4X100TG050160M**	TG50	38	160	42	58	**LNA050M**	**HSW34M**	68	**SS056041G**	4mm & 5/32
4156447	**KM4X100TG075120M**	TG75	50	120	54	46	**LNA075M**	**HSW45M**	136	**SS081041G**	4mm & 5/32
4156448	**KM4X100TG100140M**	TG100	60	140	70	45	**LNA100M**	**HSW58M**	203	**SS112041G**	4mm & 5/32
4156449	**KM4X100TG150165M**	TG150	85	165	84	46	**LNA150M**	**HSW80M**	271	**SS162062G**	4mm & 5/32

NOTE: First, load collet into locknut. Before loading into the chuck body, insert cutting tool, then tighten to recommended tightening torque.
Supplied with locknut and stop screw.
Locknut wrench must be ordered separately.

KM





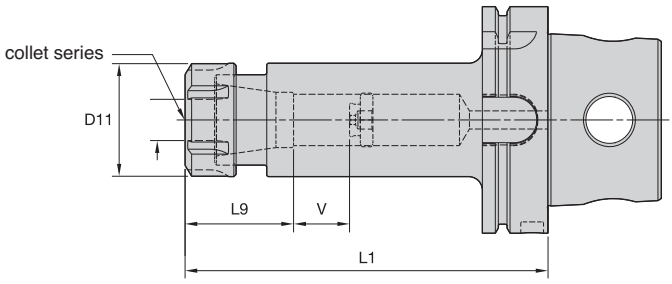
- Grip (2:1 advantage).

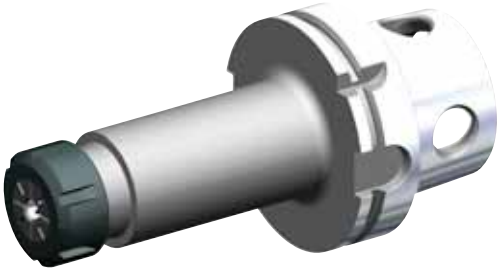
Collet Capacity

ER collet series	mm min	mm max	inch min	inch max
ER16	0,5	10,0	.02	.41
ER20	0,5	13,0	.02	.50
ER25	1,0	16,0	.04	.63
ER32	2,0	20,0	.08	.81
ER40	3,0	26,0	.12	1.00

ER Hex-KM4X

order number	catalogue number	collet series	D11	D21	L1	L2	L9	V	locknut	locknut wrench	Nm	stop screw	wrench size stop screw
4159999	KM4X100ER16100M	ER16	28	—	100	—	32	53	LNHSER16M	OEW25M	56	SS044038G	4mm & 5/32
4160000	KM4X100ER16160M	ER16	28	60	160	85	32	68	LNHSER16M	OEW25M	56	SS044038G	4mm & 5/32
4160001	KM4X100ER20100M	ER20	34	—	100	—	36	35	LNHSER20M	OEW30M	80	SS056041G	4mm & 5.32

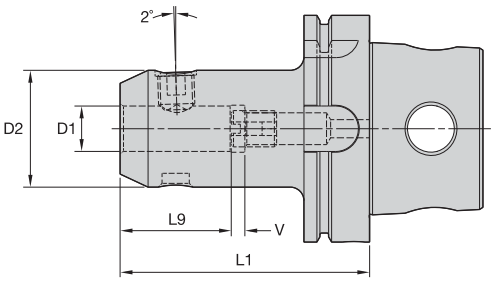




ER Round-KM4X

order number	catalogue number	collet series	D11	L1	L9	V	locknut	locknut wrench	Nm	stop screw	wrench size stop screw
4160002	KM4X100ER25100M	ER25	42	100	40	33	LNSER25M	ER25WM	104	SS075041G	4mm & 5/32
4160043	KM4X100ER32100M	ER32	50	100	45	32	LNSER32M	ER32WM	136	SS094041G	4mm & 5/32
4160044	KM4X100ER32160M	ER32	50	160	45	92	LNSER32M	ER32WM	136	SS094041G	4mm & 5/32
4160045	KM4X100ER40120M	ER40	63	120	52	38	LNSER40M	ER40WM	175	SS112041G	4mm & 5/32

NOTE: First, load collet into locknut. Before loading into the chuck body, insert cutting tool, then tighten to recommended tightening torque.
Supplied with locknut and stop screw.
Locknut wrench must be ordered separately.

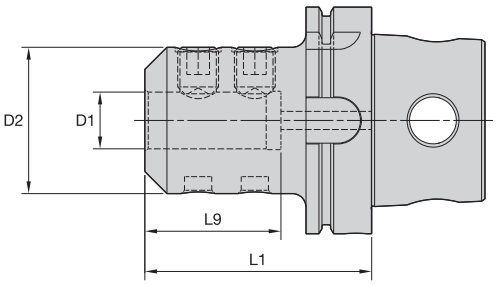


WN MM-KM4X

order number	catalogue number	D1	D2	L1	L9	V	clamp screw	wrench size clamp screw	Nm	stop screw	wrench size stop screw
4160047	**KM4X100WN06090M**	6	24,5	90	30	10	**SS03M012**	3mm	7	**571.060**	2,5mm
4160048	**KM4X100WN08090M**	8	27,5	90	30	10	**SS03M014**	4mm	15	**571.067**	3mm
4160049	**KM4X100WN10090M**	10	34,5	90	35	10	**SS03M018**	5mm	25	**571.068**	4mm
4160050	**KM4X100WN12100M**	12	41,5	100	40	10	**SS03M023**	6mm	35	**571.074**	5mm
4160051	**KM4X100WN14100M**	14	43,5	100	40	10	**SS03M023**	6mm	35	**571.074**	5mm
4160052	**KM4X100WN16100M**	16	47,5	100	43	10	**SS03M025**	6mm	50	**571.069**	6mm
4160073	**KM4X100WN18100M**	18	49,5	100	43	10	**SS03M025**	6mm	50	**571.069**	6mm
4160074	**KM4X100WN20110M**	20	51,5	110	45	10	**SS03M026**	8mm	95	**571.076**	6mm
4160075	**KM4X100WN25120M**	25	64,5	120	50	10	**SS03M027**	10mm	135	**571.077**	6mm
4160076	**KM4X100WN32120M**	32	71,5	120	54	10	**SS03M029**	10mm	160	**571.077**	6mm

NOTE: Do not overtighten clamp screw; use torque recommendations above.
Supplied with clamp screw and stop screw.
Clamp screw and stop screw wrenches not included.

KM

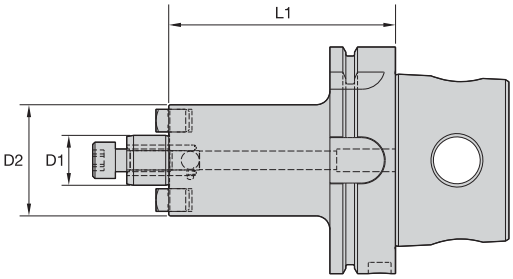


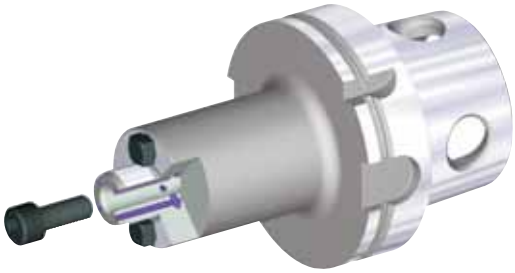
EM MM-KM4X

order number	catalogue number	D1	D2	L1	L9	clamp screw	wrench size clamp screw	Nm
4160510	KM4X100EM06080M	6	24,5	80	52	SS03M012	3mm	7
4160511	KM4X100EM08080M	8	27,5	80	52	SS03M014	4mm	15
4160512	KM4X100EM10080M	10	34,5	80	52	SS03M018	5mm	25
4160533	KM4X100EM12080M	12	41,5	80	49	SS03M023	6mm	35
4160534	KM4X100EM14080M	14	43,5	80	49	SS03M023	6mm	35
4160535	KM4X100EM16100M	16	47,5	100	53	SS03M025	6mm	50
4160536	KM4X100EM18100M	18	49,5	100	53	SS03M025	6mm	50
4160537	KM4X100EM20100M	20	51,5	100	55	SS03M026	8mm	95
4160538	KM4X100EM25100M	25	64,5	100	60	SS03M027	10mm	135
4160539	KM4X100EM32100M	32	71,5	100	65	SS03M029	10mm	160
4160540	KM4X100EM40120M	40	89,5	120	75	SS03M032	10mm	160
4160541	KM4X100EM50130M	50	99,5	130	85	SS03M030	12mm	200

NOTE: Do not overtighten clamp screw; use torque recommendations above.
Supplied with clamp screw.
Clamp screw wrench not included.

KM



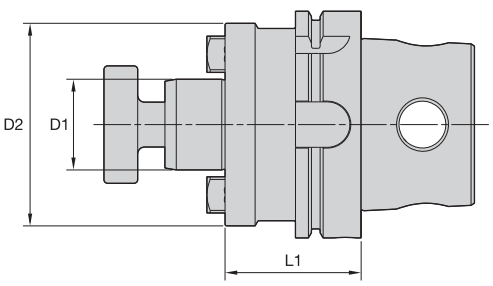


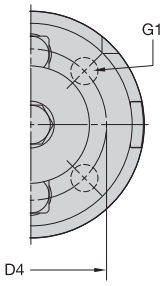
SMC CAP MM-KM4X

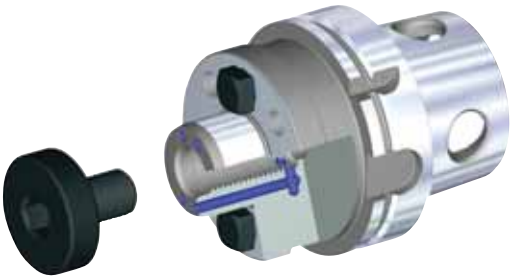
order number	catalogue number	D1	D2	L1	lock screw	wrench size lock screw
4160335	**KM4X100SMC22050M**	22	49	50	**MS1234**	8mm
4160337	**KM4X100SMC22100M**	22	49	100	**MS1234**	8mm
4160338	**KM4X100SMC22160M**	22	49	160	**MS1234**	8mm

NOTE: Do not overtighten lock screw; use torque recommendations above.
Supplied with lock screw and drive keys.
Lock screw wrench not included.

KM



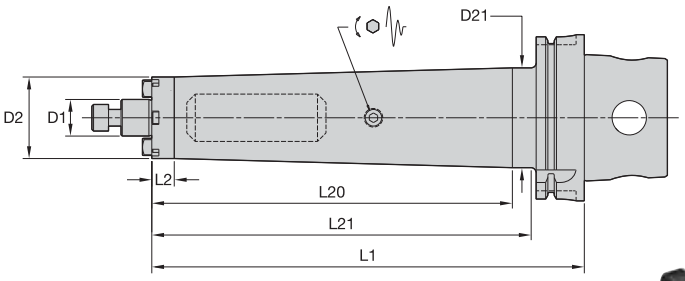




SMC Lock MM-KM4X

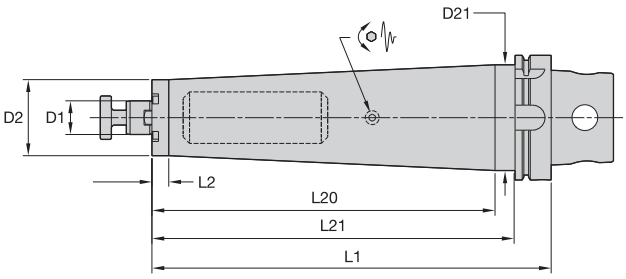
order number	catalogue number	D1	D2	D4	G1	L1	lock screw	wrench size lock screw
4160340	KM4X100SMC27050M	27	60	–	–	50	KLSS27M	10mm
4160341	KM4X100SMC27100M	27	60	–	–	100	KLSS27M	10mm
4160342	KM4X100SMC27160M	27	60	–	–	160	KLSS27M	10mm
4160343	KM4X100SMC32050M	32	78	–	–	50	KLSS32M	14mm
4160344	KM4X100SMC32100M	32	78	–	–	100	KLSS32M	14mm
4160345	KM4X100SMC32160M	32	78	–	–	160	KLSS32M	14mm
4160346	KM4X100SMC40060M	40	89	67	M12x1,75	60	KLSS40M	17mm
4160347	KM4X100SMC40100M	40	89	67	M12x1,75	100	KLSS40M	17mm
4160348	KM4X100SMC40160M	40	89	67	M12x1,75	160	KLSS40M	17mm
4160350	KM4X100SMC50070M	50	98	–	–	70	KLS50M	SMW50M
4160351	KM4X100SMC50100M	50	98	–	–	100	KLS50M	SMW50M
4160352	KM4X100SMC50160M	50	98	–	–	160	KLS50M	SMW50M
4160353	KM4X100SMC60070M	60	129	102	M16x2,0	70	–	–
4160354	KM4X100SMC60100M	60	129	102	M16x2,0	100	–	–
4160355	KM4X100SMC60160M	60	129	102	M16x2,0	160	–	–

NOTE: Do not overtighten lock screw; use torque recommendations above.
Supplied with lock screw and drive keys.
Lock screw wrench not included.



SMC TD CAP MM-KM4X

order number	catalogue number	D1	D2	D21	L1	L2	L20	L21	lock screw	wrench size lock screw
4169583	KM4X100TDSMC22260M	22	49	65	260	13,5	215	231	MS-1234	8mm

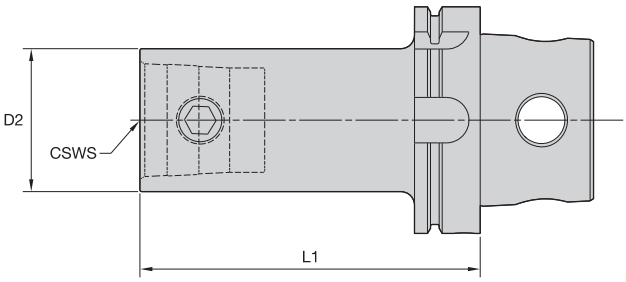


SMC TD Lock MM-KM4X

order number	catalogue number	D1	D2	D21	L1	L2	L20	L21	lock screw	wrench size lock screw
4169584	KM4X100TDSMC27320M	27	61	85	320	13,5	275	291	KLSS27M	10mm
4169585	KM4X100TDSMC32330M	32	78	—	330	299	—	—	KLSS32M	14mm

NOTE: Do not overtighten lock screw; use torque recommendations above.
Supplied with lock screw and drive keys.
Lock screw wrench not included.

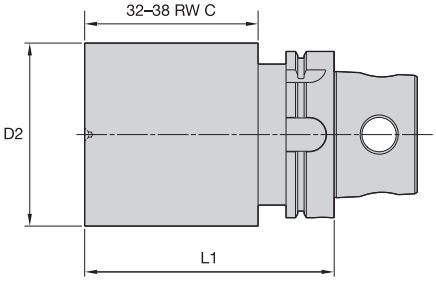
KM



KM-KM4X

order number	catalogue number	CSWS	D2	L1	spare parts package	wrench size actuation screw	Nm
4161856	KM4X100KM32075M	32	32	75	KM32PKGS	5mm	8 - 11
4161858	KM4X100KM40080M	40	40	80	KM40PKGS	6mm	12 - 16
4161859	KM4X100KM40100M	40	40	100	KM40PKGS	6mm	12 - 16
4161860	KM4X100KM40150M	40	40	150	KM40PKGS	6mm	12 - 16
4161861	KM4X100KM50100M	50	50	100	KM50PKGS	10mm	27 - 34
4161862	KM4X100KM50150M	50	50	150	KM50PKGS	10mm	27 - 34
4161863	KM4X100KM50200M	50	50	200	KM50PKGS	10mm	27 - 34
4161864	KM4X100KM63100M	63	63	100	KM63PKGS	12mm	47 - 54
4161865	KM4X100KM63150M	63	63	150	KM63PKGS	12mm	47 - 54
4161866	KM4X100KM63200M	63	63	200	KM63PKGS	12mm	47 - 54
4161867	KM4X100KM80100M	80	80	100	KM80PKGS	14mm	79 - 85
4161868	KM4X100KM80150M	80	80	150	KM80PKGS	14mm	79 - 85
4161869	KM4X100KM80200M	80	80	200	KM80PKGS	14mm	79 - 85

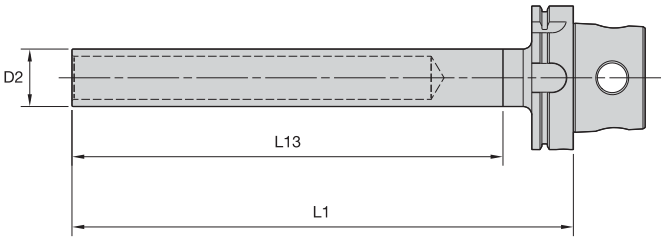
NOTE: Do not overtorque actuation screw; use recommended torques referenced above.
Supplied with KM actuation mechanism.

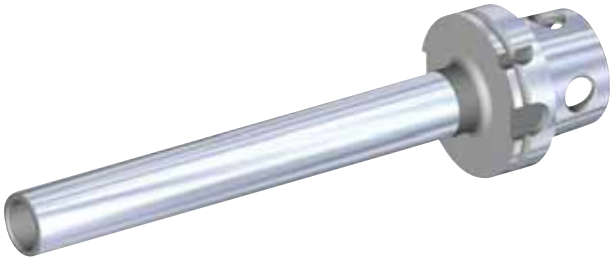


- Machinable front 32–38 RW C.

BB-KM4X

order number	catalogue number	D2	L1
4160571	KM4X100BN080150M	80	150
4160572	KM4X100BN110150M	110	150
4160613	KM4X100BN130200M	130	200





- For acceptance testing on machine tool spindles.
- 0,003mm (.0001") maximum TIR.
- Precision ground.

GB-KM4X

order number	catalogue number	D2	L1	L13
4160529	KM4X100GB40349M	40	349	330

Our complete portfolio.
Your complete satisfaction.

From turning, holemaking, and indexable milling to solid carbide end milling, solid carbide drilling, and tapping, the most powerful tools in the business now proudly wear WIDIA brands. When you buy WIDIA products, you're not just purchasing speed, power, and precision, you're investing in quality and complete satisfaction.

Match the most expansive portfolio of precision-engineered products and custom solution services available today with a global, specialised network of Authorised Distributor partners, and you have the tools you need — and the power that only comes from WIDIA brands. For product information, or to schedule an onsite demonstration, visit www.widia.com.

WIDIA™
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Services and Support

WIDIA ToolBoss F2
Advanced Tool Management Software (ATMS) F3
WIDIA Services F4–F7
Customer Application Support F8–F9
WIDIA Shop F10–F13

WIDIA™ ToolBOSS™ Secure, high-capacity solutions.

Combined with our powerful WIDIA ToolBOSS Management Software, the 28 LEVEL cabinet provides a versatile, high-capacity solution to meet the unpredictable challenges of logistics and supply chain management.

- Cut tooling inventory.
- 24/7 stock availability.
- Unique reconfiguring.
- Decrease tooling spend.
- Reduce administrative costs.
- Accountability.
- Reduced cost per location.

Drawer Options
19 different drawer sizes available.

Compatibility
Fully compatible with existing ToolBOSS units.

Diagnostics
Built-in tray diagnostic port, facilitating improved remote system support, diagnosis, and repair.

Efficiency
Multiple drawers can be selected in one transaction, minimising the time required to manage large stock volumes.

Future-Port
USB interface, as well as a DCS expansion port, for use with RFID and other ancillary equipment.

High-Speed Access
Rapid search and selection of an item is enhanced with LED identification system, guiding users to the correct drawer.

Traceability
Software provides a complete audit trail, tracking component usage details.

Expandability
Expandable up to 10 units per system, providing up to 1.121 secure locations.

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

Maximise uptime. Increase output.

ATMS is a powerful, cost effective software solution for the management and control of all tool types. It's an all-inclusive package, providing full tool management with inventory control, purchasing, and full audit trail.

Increase Productivity

- Eliminate downtime from stock-outs.
- Achieve up to 66% setup time reduction.

Improve Your Bottom Line

- Reduce on-hand inventory up to 55% in six months.
- Slash tool consumption up to 30%.
- Reduce acquisition costs up to 90%.

atms

ADVANCED TOOL MANAGEMENT SOFTWARE

Standard and Custom Reporting
An extensive suite of user-friendly standard and customisable reports.

Requesting and Purchasing
The purchasing facility enables internal requisitions to be raised and passed electronically to a business system.

Rework Control
Controls the full rework cycle, including internal and external rework departments.

Inspection Management
Tracks and trends data to identify tool and calibration maintenance needs.

Unlimited Points of Issue
Access to full reporting, ordering, and data management by location and point of issue.

Vending Machine Consolidation and Order Control
Streamlines data entry process consolidation for an unlimited amount of linked vending machines.

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

Anyone Can Regrind Your Tools — Only We Can Truly Recondition Them

Why recondition?

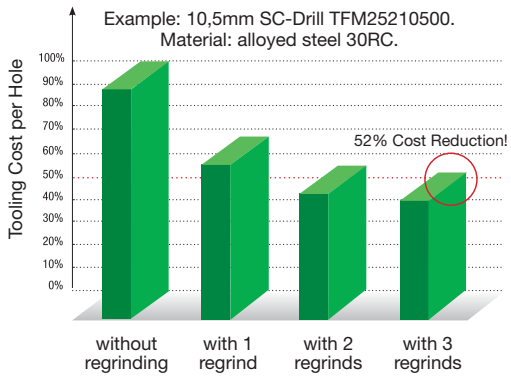
Our Reconditioning Services help optimise the total value of your metalcutting tools throughout their entire life cycle by giving them “like-new” performance characteristics — with rapid turnaround time — so the tools you need are always on-hand and perform just like new.

By sending your worn drills and end mills for reconditioning, you will get:

- Proprietary geometry.
- Certified coatings.
- Superior quality.
- Like-new performance.
- Fast turnaround time.
- Application support throughout the entire tool life cycle.

Tools can often be reconditioned up to five times.

Reduce Tooling Costs by More than 50%



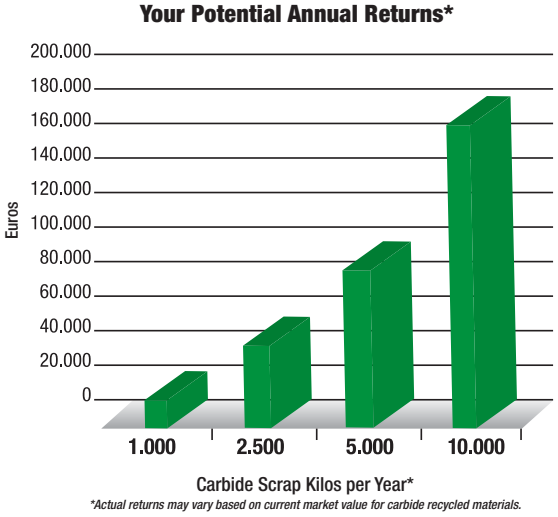
Reconditioning Services make perfect sense

Our Reconditioning Services deliver considerable savings throughout the life of your cutting tools and can reduce your overall tooling costs by more than 50%.

Contact your Authorised Distributor to get started.

For facilities or to find the nearest Authorised Distributor, visit www.widia.com.

Get Cash or Credit for Your Used Carbide



Why recycle?

It's the right thing to do!

It's easy for your company to be environmentally conscious with our Carbide Recycling Programme.

By sending us your used carbide tools, you help preserve and protect the environment and ensure that these products are recycled responsibly.

It's profitable!

Not only does WIDIA make it easy for your company to be environmentally conscious, we offer an added incentive — it is profitable.

Through our Carbide Recycling Programme, get the full value of your investment in metalcutting tools, improve profitability, and reduce your overall tooling spend. When you send us your used carbide, we will reward you with cash or credit. (Credit offer valid in U.S.A. only.)

It's EASY!

Our Carbide Recycling Programme is available on the web and is easy to use. You can request a quote, arrange to send us your used carbide, and check the status of your shipment. To find out more, please contact your Authorised Distributor.

Green Boxes for green companies

The Green Box™ programme is a safe and efficient way for you to package and ship your spent carbide tools to an authorised recycling location.

Qualified used carbide includes mixed coated and uncoated metalcutting tools free of chips, oil, and steel contamination. Material must be free of braze.

Sustainable Engineering

Environmental Responsibility

We are deeply committed to designing and manufacturing environmentally responsible products that deliver high performance and proven value. With decades of experience in tooling and manufacturing, and the synergies of superior engineering, leading technology, and customised solutions, we offer some of the most effective opportunities for sustainable manufacturing in the industry. Our comprehensive range of products and excellent customer service make us your complete supplier of sustainable tooling solutions.

Sustainable Engineering

Leading the way with innovation, engineering, and service in standard and custom tooling — a proven methodology and partnership.

Successful project engineering requires planning, teamwork, and disciplined execution. Through our extensive experience in developing and implementing new project engineering strategies, we have pioneered a proven methodology to help you manufacture new products and bring them to market quickly. Service deliverables are carefully outlined and jointly agreed to before the project begins. We formally evaluate progress and results with you throughout the project through our stage-gate management systems.

We can provide your engineering teams and machine tool builders with process engineering support, advanced metalcutting technologies, and project management expertise to help you achieve your sustainability goals. With our best-in-class process, you will experience accelerated time-to-market, lower overall costs, and reduced risks to implement new technologies.

On the Web

Fast, Free, and Easy Registration

You can easily register with www.widia.com to obtain full access to the features of the site.

Find a Local Authorised WIDIA™ Distributor in Your Area

The WIDIA Products Group offers world-class products and services globally. Our distributors know us, and more importantly, they know you. They know better than anyone in the industry how to put the global power of WIDIA to work for you — in your industry, in your region, and for your business.

Contact Us

Our customers are important to us. We want to provide you the best customer service in the industry.
If you have a comment or question, please send it to us. We strive to respond to all enquiries within 24 hours.

WIDIA Products

Whether your operation is turning, milling, or holemaking, WIDIA brands are the high-performance tooling you need.
We offer standard and custom solutions for the general engineering market.

Customer Application Support

Get fast and reliable answers to your toughest metalcutting problems.

Our Customer Application Support (CAS) Team is the metalworking industry's leading help desk resource for tooling application solutions and problem resolution!

- Easy access to proven metalworking expertise.
- Service level excellence.
- Best-in-class application support tools and technology.

Service Level Excellence:

- Fast telephone response.
- Quick technical solutions.
- Efficient case management.

Services Provided:

- Tooling selection.
- Operating parameters.
- Troubleshooting.
- Process optimisation.
- Hardware support.

Best-in-Class Support Tools and Technology:

- Tooling performance experts.
- Materials database.
- Application calculators.

Customer Application Support

Easy access to proven metalworking expertise!

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

Convenient Access Options:

Originating Country	Language	Phone	Fax	E-mail
Australia	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
Austria	German	0800 291630*	0800 291631*	eu.techsupport@widia.com
Belgium	English/French	0800 80410*	0800 80411*	eu.techsupport@widia.com
China	Chinese	440-889-2237	+86-21-58999985	w-cn.techsupport@widia.com
Denmark	English	808 89295*	808 89297*	na.techsupport@widia.com
Finland	English	0800 919413*	0800 919415*	na.techsupport@widia.com
France	French	080 5540 379*	080 5540 029*	eu.techsupport@widia.com
Germany	German	0800 1015774*	0800 0007531*	eu.techsupport@widia.com
India	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
Israel	English	1809 449907	1809 439845	na.techsupport@widia.com
Italy	Italian	800 916568*	800 917749*	eu.techsupport@widia.com
Japan	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
Korea (South)	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
Malaysia	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
Netherlands	English	0800 0201131*	0800 0201135*	na.techsupport@widia.com
New Zealand	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
Norway	English	800 10081*	800 10001*	na.techsupport@widia.com
Poland	Polish	00800 4411943*	00800 4411940*	eu.techsupport@widia.com
Singapore	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
South Africa	English	0800 981644*	0800 981645*	na.techsupport@widia.com
Sweden	English	020798794	020790477	na.techsupport@widia.com
Taiwan	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
Thailand	English	001-724-539-6921	001-724-539-6830	ap.techsupport@widia.com
United Kingdom	English	0800 028 2996*	0800 028 5721*	na.techsupport@widia.com
USA	English	888-539-5145*	724-539-6830	na.techsupport@widia.com

** Toll-free number.*

WIDIA Merchandise

Introducing a new line of WIDIA merchandise made available to you, our customer. Place your order for any of the following quality products with your Authorised WIDIA Distributor or visit www.widia.com.

Ordering Information

Use the order numbers shown in the tables below to order your WIDIA merchandise. For apparel, you can mix and match sizes. For the greatest value, order in quantities based on the minimum order quantities. These products are made to order, so no returns will be accepted.

Men's Performance Polo

100% polyester. Moisture wicking, antimicrobial, and raglan sleeves.

- Colour: black/black silk

size	minimum order quantity	order number
S	12	5047847
M	12	5047848
L	12	5047849
XL	12	5047850
XXL	12	5047851
XXXL*	12	5047852

**XXXL sizes include a surcharge.*

Available in Austrailia, Canada, Germany, Malaysia, Singapore, Thailand, UK, and USA.

Solid Performance Polo

100% polyester. No curl/rib-knit jacquard collar. Antimicrobial.

- Colour: olive green

size	minimum order quantity	order number
S	1	5047853
M	1	5047854
L	1	5047855
XL	1	5047856
XXL	1	5047857
XXXL*	1	5047858

**XXXL sizes include a surcharge.*

Discounts available for minimum orders of 6 or more.

Available in Austrailia, Canada, Germany, Malaysia, Singapore, Thailand, UK, and USA.

Clique Softshell Jacket

Clique by Cutter & Buck®. Softshell 98% polyester, 2% spandex. Bonded polyester microfleece lining, reflective piping, velcro cuffs, and inside zip pocket.

- Colour: black

size	minimum order quantity	order number
S	12	5047871
M	12	5047872
L	12	5047873
XL	12	5047874
XXL	12	5047875
XXXL*	12	5047876

**XXXL sizes include a surcharge.*

Available in Austrailia, Canada, Germany, Malaysia, Singapore, Thailand, UK, and USA.

1/4-Zip Pullover

98% polyester, 2% spandex. Moisture wicking. 6.5 oz.

- Colour: stone/graphite

size	minimum order quantity	order number
S	1	5047877
M	1	5047878
L	1	5047879
XL	1	5047880
XXL	1	5047881
XXXL*	1	5047882

**XXXL sizes include a surcharge.*

Discounts available for minimum orders of 6 or more.

Available in Austrailia, Canada, Germany, Malaysia, Singapore, Thailand, UK, and USA.

Pinnacle Cap

Unstructured cap made of laundered cotton for a soft, comfortable fit. The contrast stitching and contrast underbill give this cap added styling. Pre-curved visor, six sewn eyelets, and hook-and-loop closure.

- Colour: black/khaki

size	minimum order quantity	order number
one size	24	5047895

Available in Australia, Canada, Germany, Malaysia, Singapore, Thailand, UK, and USA.

Atlas Sport Bag

Durable, rugged sport bag features top bungee cord for extra storage. Adjustable, removable shoulder strap and top grab handles with handle wrap, and mesh zippered side pocket for water bottle (water bottle not included). Large main compartment for spacious storage and removable floor board for extra durability. Front zippered gusset pocket.

- Colour: black

size	minimum order quantity	order number
one size	13	5047896

Available in Australia, Canada, Germany, Malaysia, Singapore, Thailand, UK, and USA.

14 oz. Lucent Co-Moulded Tumbler

Dual-wall construction with a SAN liner and rubberised SAN outer shell. FDA-compliant materials feature a stainless steel rim with twist action. Spill-resistant lid and a non-skid bottom for stability. BPA free.

- Colour: green/black

size	minimum order quantity	order number
one size	48	5047900

Available in Canada, China, Germany, India, Malaysia, Singapore, UK, and USA.

Titleist® DT SoLo® Golf Balls

The New DT SoLo golf ball will appeal to a broad range of golfers seeking the combination of long distance, exceptional feel, responsive short game control, and cut-proof cover durability.

- Colour: white

size	minimum order quantity	order number
one size	6	5047897

**1 box = 12 balls.*

Available in Australia, Canada, China, Germany, India, Malaysia, Singapore, Thailand, UK, and USA.

Metro Pen

Clip color matches grip. Comfort grip for easy writing. Medium point. Black ink.

- Colour: green

size	minimum order quantity	order number
one size	250	5047898

Available in Australia, Canada, China, Germany, India, Malaysia, Singapore, Thailand, UK, and USA.

Franklin Covey® by A.T. Cross® — Norwich Ballpoint Pen

Contemporary detailing and a rubberised grip make the sporty Franklin Covey Norwich a unique blend of style and function. The Norwich is engineered to sit comfortably in your hand providing hours of effortless writing. Backed by a lifetime mechanical guarantee, the Norwich will be there to get you through even the most arduous projects.

- Colour: satin chrome

size	minimum order quantity	order number
one size	50	5047899

Available in Australia, Canada, China, Germany, India, Malaysia, Singapore, Thailand, UK, and USA.

Order No.	Catalogue No.	Page(s)
1137216	125.825	B46
1138465	170.028	B44-46
1188700	HSK100ASM50070M	E11-12
1841782	MS2038	B46
1905810	MS1294	B52
1906441	MS1966	B44-46
1926120	7F1-0875A	A207
1926121	7F2-1375A	A208
1988432	7F0-0656T	A206
2003556	12396953800 W	B30
2003557	12396954000 W	B30
2003573	12396954200 W	B30
2003574	12396954400 W	B30
2003580	12396954600 W	B30
2003581	12396954800 W	B30
2003596	12396955000 W	B30
2003597	12396955200 W	B30
2003693	12396955400 W	B30
2003694	12396955600 W	B30
2003793	12396955800 W	B30
2003794	12396956000 W	B30
2006346	12394090000 W	B52
2006347	12394090200 W	B52
2006348	12394090400 W	B52
2006357	12394092200 W	B52
2006359	12394092600 W	B52
2006360	12394092800 W	B52
2006361	12394093000 W	B52
2006362	12394094200 W	B52
2006373	12394094400 W	B52
2006374	12394094600 W	B52
2006376	12394095000 W	B52
2006377	12394095200 W	B52
2006379	12394095600 W	B52
2006399	12748308500 W	B52
2018539	12148037700 W	B30
2029478	12148000600	B30
2029596	12148082400	B24
2029604	12148099300	B36-37
2029712	12148788900 W	B36-37
2032259	12748600900 W	B52
2033495	12394094800 W	B52
2033496	12394095400 W	B52
2067492	12394093200 W	B52
2109972	12748610500 W	B36-37
2109974	12748610600 W	B36-37
2109976	12748610700 W	B36-37
2109978	12748610800 W	B36-37
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2255810	7F1-0806A	A207
2261849	7F2-1078A	A208
2387228	7F1-0750T	A207
2420100	7F2-1109A	A208
2511344	12394096800 W	B52
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2759588	7FZ-0492A	A206
2759589	7FZ-0484T	A206
2759592	7FZ-0484A	A206
2759599	7FZ-0472A	A206
2759600	7FZ-0469T	A206
2759602	7FZ-0469A	A206
2759610	7FZ-0453T	A206
2759613	7FZ-0453A	A206
2759618	7FZ-0438T	A206
2759621	7FZ-0438A	A206
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2759688	7F7-3938T	A212
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2759718	7F6-3375T	A212
2759721	7F6-3375A	A212
2759723	7F6-3313T	A212
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2759729	7F6-3228T	A212
2759731	7F6-3188T	A212
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2759794	7F5-2625A	A211
2759795	7F5-2598T	A211
2759797	7F5-2598A	A211
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2759806	7F5-2520T	A211
2759808	7F5-2500T	A211
2759810	7F5-2500A	A211
2759811	7F4-2563T	A210
2759813	7F4-2563A	A210
2759816	7F4-2531T	A210
2759817	7F4-2531A	A210
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2759822	7F4-2500A	A210
2759823	7F4-2480T	A210
2759825	7F4-2480A	A210
2759826	7F4-2469T	A210
2759828	7F4-2469A	A210
2759830	7F4-2441A	A210
2759831	7F4-2438T	A210
2759833	7F4-2438A	A210
2759834	7F4-2406T	A210
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2759837	7F4-2402A	A210
2759840	7F4-2375T	A210
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2759845	7F4-2362T	A210
2759848	7F4-2344T	A210
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2759854	7F4-2313A	A210
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2759858	7F4-2281T	A210
2759859	7F4-2281A	A210
2759862	7F4-2250T	A210
2759865	7F4-2250A	A210
2759866	7F4-2244T	A210
2759868	7F4-2244A	A210
2759870	7F4-2219T	A210
2759872	7F4-2219A	A210
2759873	7F4-2205T	A210
2759874	7F4-2205A	A210
2759876	7F4-2188T	A210
2759878	7F4-2188A	A210
2759882	7F4-2156T	A210
2759887	7F4-2126A	A210
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2759894	7F4-2094A	A210
2759895	7F4-2087T	A210
2759896	7F4-2063T	A210
2759899	7F4-2063A	A210
2759900	7F4-2047T	A210
2759901	7F4-2047A	A210
2759902	7F4-2031T	A210
2759904	7F4-2031A	A210
2759911	7F4-2008T	A210
2759913	7F4-2000T	A210
2759916	7F4-2000A	A210
2759919	7F4-1969T	A210
2759921	7F4-1969A	A210
2759925	7F4-1938T	A210
2759927	7F4-1938A	A210
2759928	7F4-1929T	A210
2759930	7F4-1929A	A210
2759932	7F4-1906T	A210
2759934	7F4-1906A	A210
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DIN ISO 513	VDI 3323	Material		Condition	Rm N/mm²	Hardness HB 30	Examples
P	1	Unalloyed steel/cast steel	C<0,25%	G	420	125	9 SMn 28, St 37.3, C 10, Ck 22, GS-16 Mn 5
	2		0,25≤C<0,55%	G	650	190	35 S 20, GS-45, GS-52, St 52.3, C 25, C 45, Ck 45, Cf 53
	3	Free cutting steel		V	850	250	35 S 20, GS-45, GS-52, St 52.3, C 25, C 45, Ck 45, Cf 53
	4		0,55%≤C	G	750	220	GS-60, 60 S 20, C 60, Ck 67, C 60 W, Ck 75, C 105 W 1, C 110 W
	5			V	1000	300	GS-60, 60 S 20, C 60, Ck 67, C 60 W, Ck 75, C 105 W 1, C 110 W
	6	Low-alloyed steel/cast steel		G	600	180	15 Cr 3, 16 MnCr 5, 17 CrNiMo 6, 25 CrMo 4, 29 CrMoV 9, 30 CrNiMo8
	7			V	930	275	31 CrV 3, 42 CrMo 4, 51 CrV 4, 62 SiMnCr 4, 100 Cr 6, G-105 W 1,
	8			V	1000	300	105 WCr 6
	9			V	1200	350	105 WCr 6
	10	High-alloyed steel/cast steel		G	680	200	X 210 Cr 12, X 40 CrMoV 5 1, X 30 WCrV 9 3, X 85 CrMoV 18 2,
	11	Tool steel		V	1100	325	X 38 CrMoV 5 3, X 23 CrNi 17, X 155 CrVMo 12 1, S 6-5-2-5
	12	Stainless steel/cast steel		FE/MA	680	200	1.4000, 1.4005, 1.4021, 1.4109, 1.4119, 1.4120, 1.4313, 1.4510, 1.4512, 1.4523
	13.1			MA	820	240	1.4000, 1.4002, 1.4005, 1.4006, 1.4024, 1.4119, 1.4120, 1.4313, 1.4510, 1.4512, 1.4523
	13.2			MA-PH	1060	330	1.4542, 1.4548, 1.4923
M	14.1	Stainless steel/cast steel		AU	600	180	1.4301, 1.4401, 1.4436, 1.4541, 1.4550, 1.4568, 1.4571, 1.4573, 1.4580
	14.2			DU	740	230	1.4362, 1.4417, 1.4410, 1.4460, 1.4462, 1.4575, 1.4582
	14.3			S-AU	680	200	1.4465, 1.4505, 1.4506, 1.4529 (254SMO), 1.4539, 1.4563, 1.4577, 1.4586, 654SMO
	14.4			AU-PH	1060	330	1.4504, 1.4568
K	15	Grey iron GG		FE/PE		180	GG-10, GG-15, GG-170 HB
	16			PE		260	GG20, GG-25, GG-30, GG-25Cr
	17	Nodular iron GGG		FE		160	GGG-35.3, GGG-40, GGG-50, GGV-30
	18			PE		250	≥GGG-60, GGV-40
	19	Malleable iron GTS/GTW		FE		130	GTS-35-10, GTS-45-06, GTW-S-38-12
	20			PE		230	GTW-35-04, GTS-55-04, GTS-65-02
N	21	Wrought aluminium alloys		NAG		60	Al 99,5, AlMg 1
	22			AG		100	AlCuMg 1, AlMgSiPb, AlMgSi 1
	23	Cast aluminuim alloys	Si<12%	NAG		75	G-AlSi 10 Mg, G-AlSi12
	24			AG		90	G-AlCu 5 Si 3
	25		Si>12%			130	G-AlSi 17, G-AlSi 23
	26	Copper/copper alloys	Pb>1%			110	Free cutting brass, CuNi 18 Zn 19 Pb
	27					90	Brass, red brass, CuZn33, CuZn-/CuSnZn-alloys
	28					100	Bronze, electrolytic copper, CuNi 3 Si, CuSn-alloys
	29	Non-metals					Thermosetting plastics, FVK, Fiber reinforced plastics, Bakelit
	30						Hard rubber
S	31	High-temperature alloys	Fe-based	G		200	1.4864, 1.4865, 1.4876
	32			AG		280	1.4864, 1.4865, 1.4876
	33		Ni-/Co-based	G		250	INCONEL® 718, Nimonic 80 A, Hasteloy, Udimet
	34			AG		350	INCONEL 718, Nimonic 80 A, Hasteloy, Udimet
	35			GO		320	INCONEL 718, Nimonic 80 A, Hasteloy, Udimet
	36	Titanium/titanium alloys, Alpha-/Beta-alloys			400		Titanium
	37			AG	1050		TiAl 6 V 4
H	38.1	Steel		H		45 HRC	90 MnV 8, Hardox 400
	38.2			H		55 HRC	Hardox 500
	39.1			H		60 HRC	HSS, 90 MnV 8
	39.2			H		>62 HRC	HSS, 90 MnV 8
	40.1	Chilled cast iron		GO		400	G-X 260 Cr 27, G-X 260 NiCr 42, G-X 300 CrNiSi 9 5 2, G-X 330 NiCr 42
	40.2			GO		>440	G-X 260 Cr 27, G-X 260 NiCr 42, G-X 300 CrNiSi 9 5 2, G-X 330 NiCr 42
	41.1	Cast iron		H		55 HRC	G-X 300 NiMo 3 Mg
	41.2			H		>57 HRC	G-X 300 NiMo 3 Mg

Material Groups and Condition

Many materials — mostly steels — can be available in various microstructures that differ in their machinability significantly. Those materials are part of several material groups depending on their actual conditions.

AG — Aged
AU — Austenitic
BF — Heat treated to specified strength
BG — Heat treated to specified microstructure
BY — Heat treated to improved machinability
DU — Stainless steel duplex (austenitic-ferritic)
FE — Ferritic
G — Annealed
GG — Grey cast iron
GGG — Nodular cast iron
GO — Cast
H — Hardened
MA — Martensitic
N — Normalised
NAG — Non-aged (non-aging)
PH — Precipitation hardened
S-AU — Superaustenitic
U — Untreated
V — Heat treated
var1 — Variable

Notes

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Metalcutting Safety

IMPORTANT SAFETY INSTRUCTIONS

Read before using the tools in this catalogue!

Projectile and Fragmentation Hazards

Modern metalcutting operations involve high spindle and cutter speeds and high temperatures and cutting forces. Hot metal chips may fly off the workpiece during metalcutting. Although cutting tools are designed and manufactured to withstand high cutting forces and temperatures, they can sometimes fragment, particularly if they are subjected to over-stress, severe impact, or other abuse.

To avoid injury:

- Always wear appropriate personal protective equipment, including safety goggles, when operating metalcutting machines or working nearby.
- Always make sure all machine guards are in place.

Breathing and Skin Contact Hazards:

Grinding carbide or other advanced cutting tool materials produce dust or mist containing metallic particles. Breathing this dust or mist — especially over an extended period — can cause temporary or permanent lung disease or make existing medical conditions worse. Contact with this dust or mist can irritate eyes, skin, and mucous membranes and may make existing skin conditions worse.

To avoid injury:

- Always wear breathing protection and safety goggles when grinding.
- Provide ventilation control and collect and properly dispose of dust, mist, or sludge from grinding.
- Avoid skin contact with dust or mist.

For more information, read the applicable Material Safety Data Sheet provided by Kennametal and consult General Industry Safety and Health Regulations, Part 1910, Title 29 of the Code of Federal Regulations.

These safety instructions are general guidelines. Many variables affect machining operations. It is impossible to cover every specific situation. The technical information included in this catalogue and recommendations on machining practices may not apply to your particular operation. For more information, consult Kennametal's Metalcutting Safety booklet, available free from Kennametal at 724.539.5747 or fax 724.539.5439. For specific product safety and environmental questions, contact our Corporate Environmental Health and Safety Office at 724.539.5066 or fax 724.539.5372.

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Application, Geometry, and Feature Icons

Counter Sinking/ Stroke Chamfering	Tapping Through Hole	Blind Hole	Tapered Hole
Threading Through Hole	Threading Blind Hole	HSS Material	HSS-E Material
HSS-E-PM Material	Solid Carbide Material	Pocketing	Hole Depth
Hole Depth	Hole Depth	Hole Depth	Hole Depth
Drilling	Drilling: Inclined Entry	Drilling: Inclined Exit	Flat Bottom Hole
Drilling: Stacked Plates	Drilled Hole	Face Milling	Helical Milling
Plunge Milling	Ramping: Blank	Slotting: Square End	Shoulder Milling: Square End
Side Milling: Square End with AE/AP	Chamfer Milling	Shoulder Milling: Square End	3D Profiling
Corner Style: Square End	Plain Shank	Plain Shank ≤H6	Shell Mill Shank
Shank: KM-TS (ISO 26622)	Square Shank	Weldon Shank	Weldon Shank ≤H6
Weldon® Shank: 2 Flat	KM4X Shank	Whistle Notch Shank	Whistle Notch Shank ≤H6
Whistle Notch® Shank 2°	Flat Shank	Screw-On Shank	Helix Angle 0°
Helix Angle 43°	Helix Angle 30°	Chamfer Form A (6–8)	Chamfer Form 3–4

Application, Geometry, and Feature Icons

2–3 Chamfer Form C (2–3)	3.5–5 Chamfer Form D (3,5–5)	1.5–2 Chamfer Form E (1,5–2)	3–5 Chamfer Form: Plug Chamfer (3–5)
2.5–3.5 Chamfer Form (2,5–3,5)	4–6 Chamfer Form 4–6	1–2 Chamfer Form 1–2	Axial Adjustments: End
Tool Dimensions: 2 Flute/4 Margin/Coolant	Tool Dimensions: 2 Flute/4 Margin/X/Coolant	2B 2B Class of Fit	3B 3B Class of Fit
6H 6H Class of Fit	6HX 6HX Class of Fit	2BX 2BX Class of Fit	3BX 3BX Class of Fit
ANSI UNC ANSI Tap Dimensions	ANSI NPT American National Standard Taper Pipe Tap	ANSI UNF ANSI UNF	ANSI NPTF Dryseal American National Standard Taper Pipe Tap
ANSI M ANSI M	ANSI MF ANSI MF	UNF Unified Inch Fine Pitch	UNC Unified Inch Coarse Pitch
M Metric Coarse Pitch	MF Metric Fine Pitch	Balance	G 2.5 15,000 min-1 Balance/G 2.5 (G 2.5/15,000) Combined
Tunable Bar/Milling	DIN 371 DIN 371 Tap Dimensions	DIN 6535 DIN 6535 Tap Dimensions	DIN 374 DIN 374 Tap Dimensions
DIN 1835/E DIN 1835/E Tap Dimensions	DIN 1835/B DIN 1835/B Tap Dimensions	DIN 6499 ER Collet and DIN 6499 Combined	DIN 2174 DIN 2174 Tap Dimensions
DIN 376 DIN 376 Tap Dimensions	DIN 6537 DIN 6537 Tap Dimensions	≤3µm Runout ≤3	Through Coolant: Radial: Drilling
Through Coolant: Radial: Tapping	Through Coolant: Radial: Indexable Milling	Flood Coolant: Drilling	Flood Coolant: Tapping
Through Coolant: MQL (Minimum Quantity Lubricant): Drilling	Through Coolant: Axial: Tapping	100 bar Through Coolant: 100 Bar	1500 psi Through Coolant: 1500 psi
ZU=5 Tool Dimensions: Flute Configuration: 5			

DIN — German Institute for Standardisation

Мы с удовольствием ответим на Ваши вопросы!

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