ADVANCES

MASTER CATALOGUE 2015 | Tapping Preview

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**.

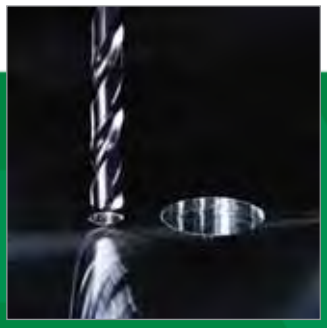
TAPPING & TOOLING SYSTEMS

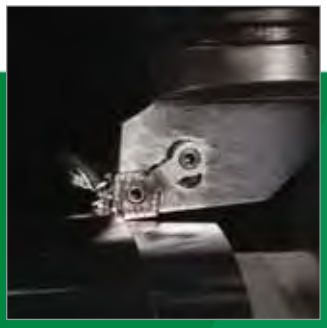
WIDIA Tapping

WIDIA™

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 solutions. With thousands of milling, turning, holemaking, and tooling systems products available through 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

2011
Launch KM™ and ERICKSON™ Portfolio

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:

- Significantly reduce cycle time.
- Improve machine tool utilisation.
- Achieve measurable productivity improvements.
- 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™ | WIDIA METCUT™

Solid Carbide End Milling and Solid Carbide Drilling and Reaming

WIDIA HANITA™ | WIDIA RÜBIG™ | WIDIA METAL REMOVAL™

Tapping Operations

WIDIA GTD™

New Products

Our latest Metalcutting Innovations are designed to deliver higher productivity, longer tool life, and increased application versatility.

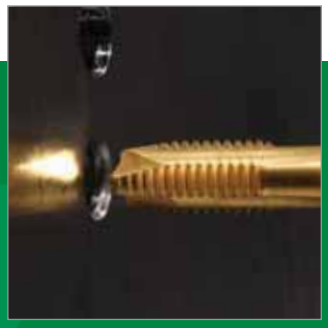
For more information about the latest products and services from WIDIA™, please contact your WIDIA Representative or Authorised WIDIA Distributor, or visit www.widia.com.

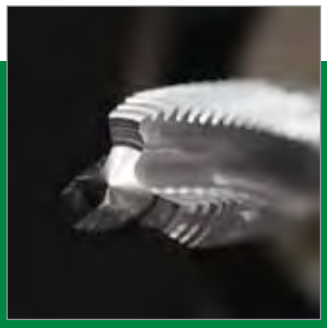
VariTap™ Series

- Ideal for customers who have a variety of materials to machine.
- Manufactured from high-vanadium HSS-E to provide long and consistent life.
- Geometry designed to enable tapping of a wide variety of ductile materials: carbon and alloy steels, stainless steels, ductile iron, and cast aluminium.
- Unique spiral point geometry provides low tapping torque while pushing chips ahead of the tap in through holes.

High-Performance HSS-E-PM Victory™ Taps

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





High-Performance Solid Carbide Taps

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

Synchro Plus™ Holders

- New line of Synchro Plus holders minimises axial forces resulting in longer cutting tool life; see pages B6–B9.

ToolBOSS™

Secure point of use solutions — tooling at the right place at the right time.

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.

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

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**.*

Recondition

Anyone can regrind your tools — only we truly recondition them.

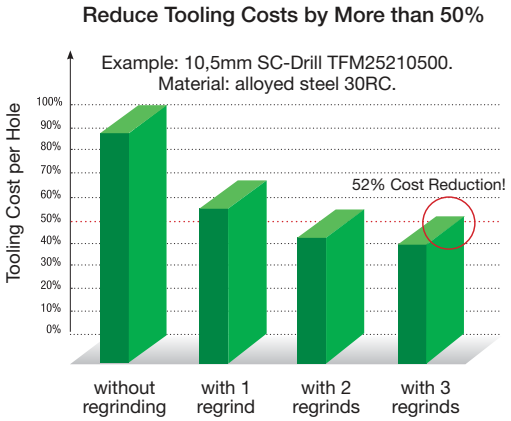
Why recondition?
Our Reconditioning Services help optimise the total value of your metalcutting tools throughout their entire life cycle by giving them “like-new” performance characteristics — with rapid turnaround time — so the tools you need are always on-hand and perform just like new.

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

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

Most tooling can be reconditioned up to five times.

Our Reconditioning Services deliver considerable savings throughout the life of your cutting tools and can reduce your overall tooling costs by more than 50%.



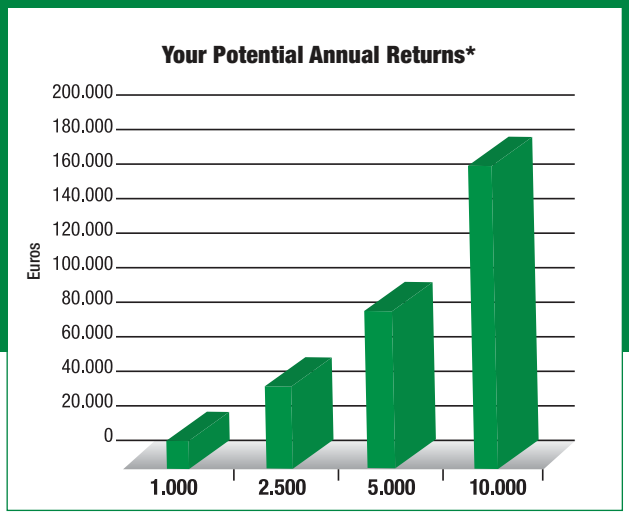
To learn more about our Reconditioning Programme, contact your local Authorised Distributor or visit ***www.widia.com****.*

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.

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.



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

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.

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

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. 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. 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.

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

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 inquiries 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.

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

Customer Application Support

Customer Application Support — get fast and reliable answers to your toughest metalcutting problems.



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.

Service Level Excellence:
- Fast telephone response.
- Quick technical solutions.
- Efficient case management.

Best-in-Class Support Tools and Technology:
- Tooling performance experts.
- Materials database.
- Application calculators.

Services Provided:
- Tooling selection.
- Operating parameters.
- Troubleshooting.
- Process optimisation.
- Hardware support.

To learn more about Customer Application Support, contact your local Authorised Distributor or visit ***www.widia.com****.*

CAS

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.

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	400-889-2237	021-58342200	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	001-724539-6921*	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	001-724539-6921*	001-724-539-6830*	ap.techsupport@widia.com
Korea (South)	English	001-724539-6921*	001-724-539-6830*	ap.techsupport@widia.com
Malaysia	English	001-724539-6921*	001-724-539-6830*	ap.techsupport@widia.com
Netherlands	English	0800 0201131	0800 0201135	na.techsupport@widia.com
New Zealand	English	001-724539-6921*	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	001-724539-6921*	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	001-724539-6921*	001-724-539-6830*	ap.techsupport@widia.com
Thailand	English	001-724539-6921*	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	001-724-539-6830*	na.techsupport@widia.com

**Noted phone and fax numbers are not toll free.*

To learn more about Customer Application Support, contact your local Authorised Distributor or visit ***www.widia.com****.*

WIDIA™ Branded Merchandise

SHOP. BUY. PROMOTE.

New WIDIA Branded Merchandise Available! Place Your Order Today!

Introducing a new line of WIDIA merchandise. Place an order for any of the following quality products with your Authorised WIDIA Distributor or visit www.widia.corpmerchandise.com.

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

Global Online Ordering Made Simple.

Shopping for Branded Merchandise products online is safe, secure, and easy.
Just follow these simple steps:

- Browse through the Branded Merchandise eStore by clicking on a department and then clicking on the products that interest you.
- Add items to your Cart.
- Register or verify your shopper information.
- Select your payment method and submit your order.
- Print your View Cart page or your Receipt.

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

WIDIA™ Social Media

Join our conversation.

Connect with us to get the latest information on our new products and promotions, read success stories, and view product videos.

https://www.facebook.com/WIDIAProductGrp

https://twitter.com/WIDIAProductGrp

http://www.linkedin.com/company/widia-product-group

http://www.youtube.com/user/WidiaSolutions

WIDIA blogs can be read at http://word.widia.com.

WIDIA™ Tapping Centers of Excellence

WIDIA is one of the largest producers of taps in world. Our modern manufacturing footprint is backed by three ISO-certified plants, all dedicated to upholding the high quality standards synonymous with WIDIA. With our own coating facility and centers focused on round tools, we can mass produce standard products — and custom manufacture special taps for your unique needs.

Greenfield Tap Plant (Massachusetts, USA)
- Capacity: 6 million pieces per year.
- Mass production of standard taps.

Lyndonville Tap Plant (Vermont, USA)
- Capacity: 2.5 million pieces per year.
- Standard taps; simple and complex special taps.

Asheboro Tap Plant (North Carolina, USA)
- Capacity: 600,000 pieces per year and increasing.
- Carbide taps; high-performance HSS-E-PM taps; and HSS-E, standard, and special taps.

State-of-the-art tap manufacturing equipment

To learn more about our Tapping Centers of Excellence, contact your local Authorised Distributor or visit ***www.widia.com****.*

Tapping

★ Good
★★ Better
★★★ Best

series	hole		thread		coolant		size range min–max	grade/ coating	material				chamfer		helix angle	dimension
	through	blind	cutting	forming	flood	through			Carbide	HSS-E-PM	HSS-E	HSS	type	form		
GX Series Carbide Taps																
GX32	X		X		X		M6–M16	GP4535	X				plug	D	L15°	HA6535
GX33		X	X			X	M6–M16	GP4535	X				semi-bottom	C	45°	HA6535
GX35		X	X			X	M4–M16	GP4535	X				bottom-ing	E	0°	HA6535
GX39		X		X		X	M4–M10	GP4535	X				bottom-ing	E	—	HA6535
GX49		X		X		X	M4–M12	GN1515	X				bottom-ing	E	—	HA6535
GX10	X	X	X		X		M3–M16	WH16PG	X				semi-bottom	C	0°	HA6535
GT Series High-Performance Taps																
GT00	X		X		X		M3–M20	WP31MG		X			plug	B	0°	DIN 371, 374,376
GT02		X	X		X		M3–M20	WP31MG		X			semi-bottom	C	25°	DIN 371, 374,376
GT04		X	X		X		M3–M20	WP36MG		X			semi-bottom	C	42°	DIN 371, 374,376
GT06	X	X	X		X		M3–M16	WS32MG		X			semi-bottom	C	0°	DIN 371, 374,376
GT10	X		X		X		M3–M20	WS32MG		X			plug	D	L8°	DIN 371, 376
GT12		X	X		X		M3–M20	WS32MG		X			semi-bottom	C	10°	DIN 371, 376
GT14	X		X		X		M3–M12	WN35MG		X			plug	B	0°	DIN 371, 376
GT16		X	X		X		M3–M12	WN35MG		X			semi-bottom	C	30°	DIN 371
GT20	X		X		X		M3–M42	GP6520, GM6515		X			plug	D	L15°	DIN 371, 374, 376
GT20	X		X		X		M24–M42	GP6520		X			plug	D	L15°	DIN 376, XL
GT21	X		X			X	M5–M16	GP6520, GM6515		X			plug	D	L15°	DIN 371, 376
GT22	X	X		X	X		M3–M16	WP31MG, WN38MG		X			semi-bottom	C	—	DIN 2174

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	page	recommended cutting parameters
Steel <35 HRC	Steel 36–48 HRC	PH and Ferritic Stainless Steel <35 HRC	PH and Ferritic Stainless Steel >35 HRC	Stainless Steel	Grey Cast Iron	Ductile Cast Iron	Wrought Aluminium	Cast Aluminium	Copper, Copper Alloys	Iron Based	Cobalt Based	Nickel Based	Titanium Alloys	Hardened Steels 49–55 HRC	Hardened Steels 56–68 HRC		
GX Series Carbide Taps *(continued)*																	
★★★					★	★★										A76	A82
★★★					★	★★										A77	A82
					★★★	★★★										A78	A82
★★★																A79	A82
							★★★	★★								A80	A82
															★★★	A81	A82
GT Series High-Performance Taps *(continued)*																	
	★★★		★★★	★	★	★					★					A30	A57
	★★★		★★★	★	★	★					★					A31	A57
	★★★		★★★											★★★		A32	A57
														★★★		A33	A57
											★★★	★★★				A34	A57
											★★★	★★★				A35	A57
													★★★			A36	A57
													★★★			A37	A57
★★★		★★★		★★★		★★	★	★		★★						A38	A57
★★★		★★★		★★★		★★	★	★		★★						A52	A57
★★★		★★★		★★★		★★	★	★		★★						A39	A57
★★★							★★★	★★								A40	A57

★ Good
★★ Better
★★★ Best

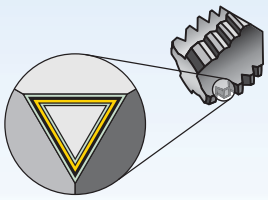
series	hole		thread		coolant		size range min–max	grade/ coating	material				chamfer		helix angle	dimension
	through	blind	cutting	forming	flood	through			carbide	HSS-E-PM	HSS-E	HSS	type	form		
GT Series High-Performance Taps *(continued)*																
GT23	X	X		X		X	M5–M16	WP31MG, WN38MG		X			semi-bottom	C	—	DIN 2174
GT30		X	X		X		M3–M42	GP6520, GM6515, GP6505		X			semi-bottom	C	45°	DIN 371, 374, 376
GT30		X	X		X		M24–M42	GP6520		X			semi-bottom	C	45°	DIN 376, XL
GT31		X	X			X	M5–M16	GP6520, GM6515		X			semi-bottom	C	45°	DIN 371, 376
GT31		X	X			X	M24–M42	GP6520		X			semi-bottom	C	45°	DIN 376, XL
GT32		X	X		X		M5–M16	GP6520		X			bottoming	E	45°	DIN 371, 374,376
GT33		X	X			X	M5–M16	GP6520		X			bottoming	E	45°	DIN 371, 374,376
GT40	X	X	X		X		M4–M22	GP6520		X			semi-bottom	C	0°	DIN 371, 376
GT41	X	X	X			X	M4–M20	GP6520		X			semi-bottom	C	0°	DIN 371, 376
GT42		X	X		X		M5–M16	GP6520		X			bottoming	E	0°	DIN 371, 374,376
GT43		X	X			X	M5–M16	GP6520		X			bottoming	E	0°	DIN 371, 374,376
GT50		X	X		X		M24–M42	GP6520		X			semi-bottom	C	15°	DIN 376, XL
GT51		X	X			X	M24–M42	GP6520		X			semi-bottom	C	15°	DIN 376, XL
GT70	X		X		X		M3–M16	WN48EG		X			plug	B	0°	DIN 371, 376
GT80		X	X		X		M3–M20	WN48EG		X			semi-bottom	C	45°	DIN 371, 376
VariTap™ High-Performance Multiapplication Taps																
VTSP060	X		X		X		#4-1"	WP49EG, WU41EG			X		plug	B	0°	DIN 371, 376
VTSP065	X		X		X		M2–M36	WP42EG, WU41EG, WP49EG, WU40EG			X		plug	B	0°	DIN 371, 374,376
VTSP075	X		X		X		M3–M20	WU41EG, WU40EG			X		plug	B	0°	JIS
VTSFT60		X	X		X		#4-1"	WP49EG, WU41EG			X		semi-bottom	C	45°	DIN 371, 376
VTSFT65		X	X		X		M2–M36	WP42EG, WU41EG, WP49EG, WU40EG			X		semi-bottom	C	45°	DIN 371, 374,376
VTSFT65		X	X		X		M3–M20	WP42EG			X		bottoming	E	45°	DIN 371, 374,376
VTSFT75		X	X		X		M3–M20	WU41EG, WU40EG			X		semi-bottom	C	45°	JIS

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	page	recommended cutting parameters
Steel <35 HRC	Steel 36–48 HRC	PH and Ferritic Stainless Steel <35 HRC	PH and Ferritic Stainless Steel >35 HRC	Stainless Steel	Grey Cast Iron	Ductile Cast Iron	Wrought Aluminium	Cast Aluminium	Copper, Copper Alloys	Iron Based	Cobalt Based	Nickel Based	Titanium Alloys	Hardened Steels 49–55 HRC	Hardened Steels 56–68 HRC		
GT Series High-Performance Taps *(continued)*																	
★★★							★★★	★★								A41	A57
★★★		★★★		★★★		★★	★	★		★★						A42	A57
★★★		★★★		★★★		★★	★	★		★★						A53	A57
★★★		★★★		★★★		★★	★	★		★★						A43	A57
★★★		★★★		★★★		★★	★	★		★★						A54	A57
★★★		★★★		★★★		★★	★	★		★★						A44	A57
★★★		★★★		★★★		★★	★	★		★★						A45	A57
					★★★	★★★		★★★	★★							A46	A57
					★★★	★★★		★★★	★★							A47	A57
					★★★	★★★		★★★	★★							A48	A57
					★★★	★★★		★★★	★★							A49	A57
★★★		★★★				★★										A55	A57
★★★		★★★				★★										A56	A57
							★★★	★	★							A50	A57
							★★★									A51	A57
VariTap™ High-Performance Multiapplication Taps *(continued)*																	
★★	★	★		★★	★	★★	★	★★	★★	★						A13–A14	A26
★★	★	★		★★	★	★★	★	★★	★★	★						A15–A16	A26
★★	★	★		★★	★	★★	★	★★	★★	★						A17	A26
★★	★	★		★★	★	★★	★	★★	★★	★						A19–A21	A26
★★	★	★		★★	★	★★	★	★★	★★	★						A22–A23	A26
★★	★	★		★★	★	★★	★	★★	★★	★						A24	A26
★★	★	★		★★	★	★★	★	★★	★★	★						A25	A26

★ Good
★★ Better
★★★ Best

Series	hole: through	hole: blind	thread: cutting	thread: forming	coolant: flood	coolant: through	size range min–max	grade/ coating	material: carbide	material: HSS-E-PM	material: HSS-E	material: HSS	chamfer: type	chamfer: form	helix angle	dimension
GTD Series Solid Thread Milling																
GTM11 	X	X	X			X	M3–M20	6535 HA	X				—	—	WU13PG	HA6535
GTM21 	X	X	X			X	#10–5/8"	6535 HA	X				—	—	WU12PV	HA6535
GTM21 	X	X	X			X	M5–M16	6535 HA	X				—	—	WU12PV	HA6535
GTM31 	X	X	X			X	1/4–5/8"	6535 HA	X				—	—	WU12PV	HA6535
GTM31 	X	X	X			X	M4–M16	6535 HA	X				—	—	WU12PV	HA6535
GTM41 	X	X	X			X	1/4–3/4"	6535 HA	X				—	—	WU16PV	HA6535
GTM41 	X	X	X			X	M6–M24	6535 HA	X				—	—	WU16PV	HA6535
GTM41LH 	X	X	X			X	M6–M12	6535 HA	X				—	—	WU16PV	HA6535

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	page	recommended cutting parameters
Steel <35 HRC	Steel 36–48 HRC	PH and Ferritic Stainless Steel <35 HRC	PH and Ferritic Stainless Steel >35 HRC	Stainless Steel	Grey Cast Iron	Ductile Cast Iron	Wrought Aluminium	Cast Aluminium	Copper, Copper Alloys	Iron Based	Cobalt Based	Nickel Based	Titanium Alloys	Hardened Steels 49–55 HRC	Hardened Steels 56–68 HRC		
GTD Series Solid Thread Milling *(continued)*																	
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★	★	★	★			A96	A104
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★			A97	A104
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★			A98	A104
					★★★	★★★	★★★	★★★								A99	A104
					★★★	★★★	★★★	★★★								A100	A104
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★					★★★	★★★	A101	A105
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★					★★★	★★★	A102	A105
										★★★	★★★	★★★	★★★	★★★	★★★	A103	A105



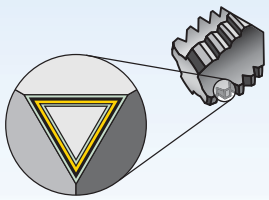
Coatings are designed for optimised tapping performance in specific materials.

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

wear resistance ⟷ toughness

Grade

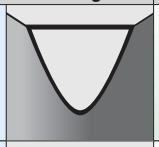
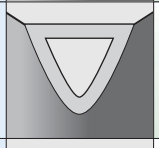
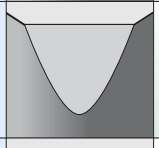
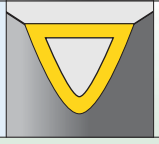
Coating	Description	05 10 15 20 25 30 35 40 45
GM6515	Coated HSS-E-PM, PVD heat- and wear-resistant high-vanadium cobalt powder metal HSS substrate. Coating consists of low-friction CrC/C over wear-resistant TiN base layer. Use for tapping stainless steel and non-ferrous materials.	M, N
GN1515	Coated 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 performance for tapping cast aluminium and other non-ferrous materials.	N
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
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
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
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
WN38MG	Coated HSS-E-PM, PVD powder metal HSS-E substrate with DLC coating. Use for form tapping aluminium. Not recommended for steel.	N
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
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
NEW! WP42EG	Coated HSS-E substrate with TiCN PVD layer. Use in multiple applications, including steel, stainless steel, ductile cast iron, and cast aluminium. WP42EG is more abrasion resistant than WU41EG.	P, M, K, N



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	Description	05	10	15	20	25	30	35	40	45
NEW! WP49EG		HSS-E substrate with black oxide surface treatment. Use in a variety of materials, including steel, stainless steel, and ductile iron. Not recommended for non-ferrous materials.	P	P	P	P	P	P	P	P	P
			M	M	M	M	M	M	M	M	M
			K	K	K	K	K	K	K	K	K
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	S	S	S	S	S	S	S	S
			H	H	H	H	H	H	H	H	H
NEW! WU40EG		Uncoated HSS-E grade with bright surface. Use in easy-to-machine, general-purpose applications.	P	P	P	P	P	P	P	P	P
			M	M	M	M	M	M	M	M	M
			K	K	K	K	K	K	K	K	K
			N	N	N	N	N	N	N	N	N
NEW! WU41EG		Coated HSS-E substrate with TiN PVD layer. Use in multiple applications, including steel, stainless steel, ductile cast iron, and cast aluminium.	P	P	P	P	P	P	P	P	P
			M	M	M	M	M	M	M	M	M
			K	K	K	K	K	K	K	K	K
			N	N	N	N	N	N	N	N	N

High-Performance Solution for Multipurpose Tapping • **VariTap™**

VariTap is the new high-performance multipurpose tapping solution from WIDIA™. The VariTap has an optimised geometry and is capable of working with a wide variety of ductile materials — including carbon and alloy steels, stainless steels, ductile iron, and cast aluminium. This new tool reduces inventory costs without losing the benefit of high-quality, consistent tool life in threading and tapping.

VariTap

- Ideal for customers who have a variety of materials to machine.
- Manufactured from high-vanadium HSS-E to provide long and consistent life.
- Geometry designed to allow tapping of a wide variety of ductile materials: carbon and alloy steels, stainless steels, ductile iron, and cast aluminium.
- Unique spiral point geometry provides low tapping torque while pushing chips ahead of the tap in through holes.

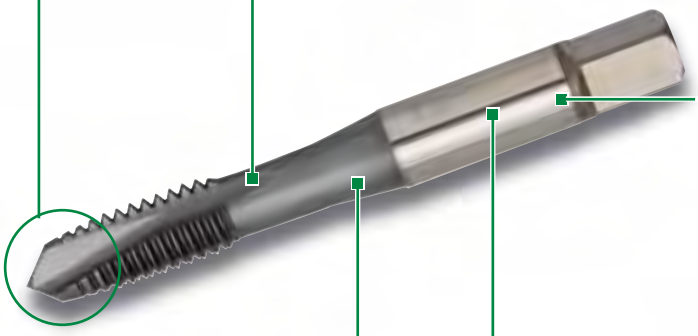
With a wide range of inch and metric standard sizes, pitch diameter limits, classes of fit, chamfer styles, and coatings, the new VariTap™ offers the most expansive portfolio of multipurpose taps available in the market.

- Spiral flute geometry optimised to provide efficient chip ejection in blind holes.
- Can be used on both synchronous and non-synchronous tapping machines.
- Proprietary PVD coatings deposited in a state-of-the-art in-house coating center yield reliable performance.

Multipurpose Tap for Steel, Stainless Steel, Cast Aluminium, and Ductile Iron

Unique spiral point design
Cutting edge angles and positive rake face straight flute optimised for tapping multiple materials.

Multiple tap dimension options
ANSI, DIN, JIS, and DIN/ANSI.



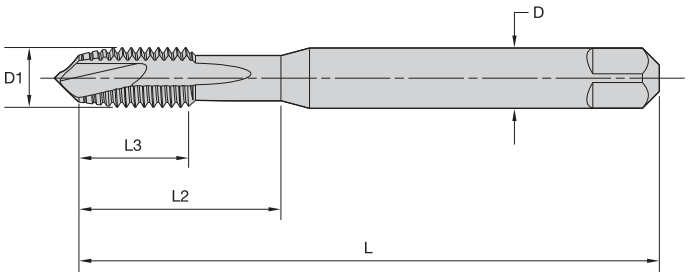
Precision ground shanks
Low runout.

High-vanadium HSS-E
Improved wear characteristics and longer tool life.

PVD coatings and surface treatments
For use with various workpiece materials:

WP42EG	WP41EG	WP49EG	WU40EG
TiCN	TiN	Oxide	Bright

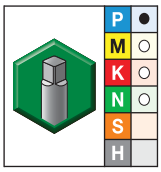
- WU41EG TiN
- WP49EG oxide

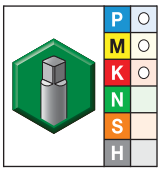


● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

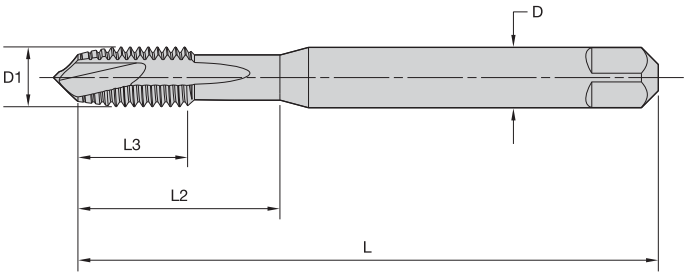
■ VT-SPO • Form B Plug Chamfer • Machine Screw and Fractional • DIN 371 and 376





		metric dimensions							
WU41EG	WP49EG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
VTSPO6005	VTSPO6005	4 - 40	56	8	18	3,5	2	DIN 371	2B
VTSPO6007	VTSPO6007	5 - 40	56	9	20	4,0	2	DIN 371	2B
VTSPO6008	VTSPO6008	6 - 32	56	9	20	4,0	2	DIN 371	2B
VTSPO6010	VTSPO6010	6 - 40	56	9	20	4,0	2	DIN 371	2B
VTSPO6011	VTSPO6011	8 - 32	63	11	21	4,5	2	DIN 371	2B
VTSPO6013	VTSPO6013	10 - 24	70	12	25	6,0	2	DIN 371	2B
VTSPO6014	VTSPO6014	10 - 32	70	12	25	6,0	2	DIN 371	2B
VTSPO6016	VTSPO6016	1/4 - 20	80	15	30	7,0	3	DIN 371	2B
VTSPO6017	VTSPO6017	1/4 - 28	80	15	30	7,0	3	DIN 371	2B
VTSPO6019	VTSPO6019	5/16 - 18	90	15	35	8,0	3	DIN 371	2B
VTSPO6020	VTSPO6020	5/16 - 24	90	15	35	8,0	3	DIN 371	2B
VTSPO6022	VTSPO6022	3/8 - 16	100	19	39	10,0	3	DIN 371	2B
VTSPO6023	VTSPO6023	3/8 - 24	100	19	39	10,0	3	DIN 371	2B
VTSPO6025	VTSPO6025	7/16 - 14	100	18	41	8,0	3	DIN 376	2B
VTSPO6026	VTSPO6026	7/16 - 20	100	18	41	8,0	3	DIN 376	2B
VTSPO6028	VTSPO6028	1/2 - 13	110	23	47	9,0	3	DIN 376	2B
VTSPO6029	VTSPO6029	1/2 - 20	110	23	47	9,0	3	DIN 376	2B
VTSPO6031	VTSPO6031	9/16 - 12	110	25	53	11,0	3	DIN 376	2B
VTSPO6032	VTSPO6032	9/16 - 18	110	25	53	11,0	3	DIN 376	2B
VTSPO6033	VTSPO6033	5/8 - 11	110	24	51	12,0	3	DIN 376	2B
VTSPO6034	VTSPO6034	5/8 - 18	110	24	51	12,0	3	DIN 376	2B
VTSPO6035	VTSPO6035	3/4 - 10	140	30	64	16,0	3	DIN 376	2B
VTSPO6036	VTSPO6036	3/4 - 16	140	30	64	16,0	3	DIN 376	2B
VTSPO6037	VTSPO6037	7/8 - 9	140	34	71	18,0	3	DIN 376	2B
VTSPO6038	VTSPO6038	7/8 - 14	140	34	71	18,0	3	DIN 376	2B
VTSPO6039	VTSPO6039	1 - 8	160	38	81	18,0	3	DIN 376	2B
VTSPO6040	VTSPO6040	1 - 12	160	38	81	18,0	3	DIN 376	2B

- WU41EG TiN
- WP49EG oxide

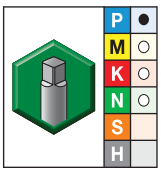


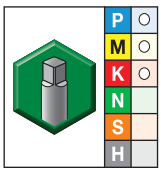
● first choice
○ alternate choice

Shank Tolerance

D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

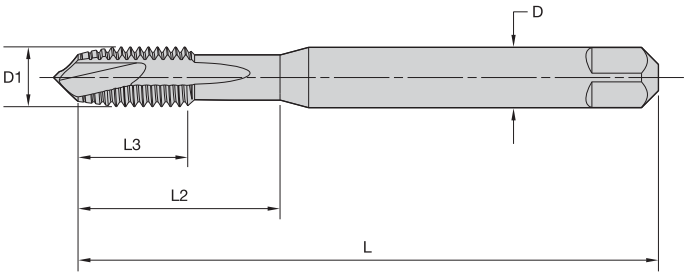
■ VT-SPO • Form B Plug Chamfer • UNJC/UNJF • Inch DIN 371 and 376





WU41EG	WP49EG	metric dimensions D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
VTSPO6006	VTSPO6006	4 - 40	56	8	18	3,5	2	DIN 371	3B
VTSPO6009	VTSPO6009	6 - 32	56	9	20	4,0	2	DIN 371	3B
VTSPO6012	VTSPO6012	8 - 32	63	11	21	4,5	2	DIN 371	3B
VTSPO6015	VTSPO6015	10 - 32	70	12	25	6,0	2	DIN 371	3B
VTSPO6018	VTSPO6018	1/4 - 28	80	15	30	7,0	3	DIN 371	3B
VTSPO6021	VTSPO6021	5/16 - 24	90	15	35	8,0	3	DIN 371	3B
VTSPO6024	VTSPO6024	3/8 - 24	100	19	39	10,0	3	DIN 371	3B
VTSPO6027	VTSPO6027	7/16 - 20	100	18	41	8,0	3	DIN 376	3B
VTSPO6030	VTSPO6030	1/2 - 20	110	23	47	9,0	3	DIN 376	3B

- WP42EG TiCN
- WU41EG TiN
- WP49EG oxide
- WU40EG bright

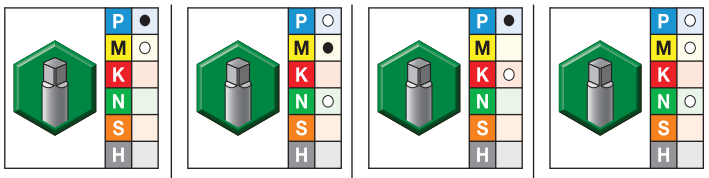


● first choice
○ alternate choice

Shank Tolerance

D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

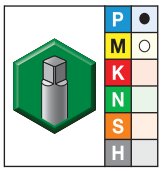
■ VT-SPO • Form B Plug Chamfer • Metric DIN 371, 374, and 376

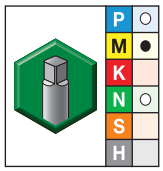


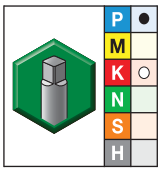
WP42EG	WU41EG	WP49EG	WU40EG	D1 size	metric dimensions L	L3	L2	D	number of flutes	dimension standard	class of fit
–	–	VTSPO6506	–	M2 X 0,4	45	7	13	2,8	2	DIN 371	6G
VTSPO6505	VTSPO6505	VTSPO6505	VTSPO6505	M2 X 0,4	45	7	13	2,8	2	DIN 371	6H
–	–	VTSPO6507	–	M2,2 X 0,45	45	7	13	2,8	2	DIN 371	6H
–	–	VTSPO6509	–	M2,5 X 0,45	50	7	15	2,8	2	DIN 371	6G
–	VTSPO6508	VTSPO6508	VTSPO6508	M2,5 X 0,45	50	7	15	2,8	2	DIN 371	6H
–	–	VTSPO6545	VTSPO6545	M3 X 0,35	56	8	–	2,2	2	DIN 374	6H
–	–	VTSPO6511	–	M3 X 0,5	56	8	18	3,5	2	DIN 371	6G
VTSPO6510	VTSPO6510	VTSPO6510	VTSPO6510	M3 X 0,5	56	8	18	3,5	2	DIN 371	6H
–	VTSPO6525	VTSPO6525	VTSPO6525	M3 X 0,5	56	8	–	2,2	2	DIN 376	6H
–	VTSPO6512	VTSPO6512	VTSPO6512	M3,5 X 0,6	56	9	20	4,0	2	DIN 371	6H
–	–	VTSPO6546	VTSPO6546	M4 X 0,5	63	10	21	2,8	2	DIN 374	6H
–	–	VTSPO6514	–	M4 X 0,7	63	11	21	4,5	2	DIN 371	6G
VTSPO6513	VTSPO6513	VTSPO6513	VTSPO6513	M4 X 0,7	63	11	21	4,5	2	DIN 371	6H
–	VTSPO6526	VTSPO6526	VTSPO6526	M4 X 0,7	63	10	21	2,8	2	DIN 376	6H
–	–	VTSPO6547	VTSPO6547	M5 X 0,5	70	12	25	3,5	2	DIN 374	6H
–	–	VTSPO6516	–	M5 X 0,8	70	12	25	6,0	2	DIN 371	6G
VTSPO6515	VTSPO6515	VTSPO6515	VTSPO6515	M5 X 0,8	70	12	25	6,0	2	DIN 371	6H
–	VTSPO6527	VTSPO6527	VTSPO6527	M5 X 0,8	70	12	25	3,5	2	DIN 376	6H
–	–	VTSPO6548	VTSPO6548	M6 X 0,5	80	12	30	4,5	3	DIN 374	6H
–	–	VTSPO6549	VTSPO6549	M6 X 0,75	80	12	30	4,5	3	DIN 374	6H
–	–	VTSPO6518	–	M6 X 1	80	12	30	6,0	3	DIN 371	6G
VTSPO6517	VTSPO6517	VTSPO6517	VTSPO6517	M6 X 1	80	12	30	6,0	3	DIN 371	6H
–	VTSPO6528	VTSPO6528	VTSPO6528	M6 X 1	80	12	30	4,5	3	DIN 376	6H
–	–	VTSPO6550	VTSPO6550	M7 X 0,75	80	12	30	5,5	3	DIN 374	6H
–	–	VTSPO6520	–	M7 X 1	80	12	30	7,0	3	DIN 371	6G
VTSPO6519	VTSPO6519	VTSPO6519	VTSPO6519	M7 X 1	80	12	30	7,0	3	DIN 371	6H
–	–	VTSPO6551	VTSPO6551	M8 X 0,75	80	12	30	6,0	3	DIN 374	6H
–	–	VTSPO6552	VTSPO6552	M8 X 1	90	15	35	6,0	3	DIN 374	6H
–	–	VTSPO6522	–	M8 X 1,25	90	15	35	8,0	3	DIN 371	6G
VTSPO6521	VTSPO6521	VTSPO6521	VTSPO6521	M8 X 1,25	90	15	35	8,0	3	DIN 371	6H
–	VTSPO6529	VTSPO6529	VTSPO6529	M8 X 1,25	90	15	35	6,0	3	DIN 376	6H
–	–	VTSPO6553	VTSPO6553	M10 X 0,75	90	15	35	7,0	3	DIN 374	6H

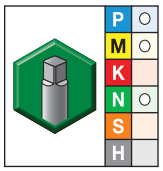
(continued)

(VT-SPO • Form B Plug Chamfer • Metric DIN 371, 374, and 376 continued)



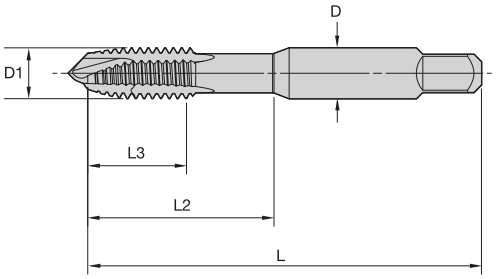






WP42EG	WU41EG	WP49EG	WU40EG	D1 size	metric dimensions L	L3	L2	D	number of flutes	dimension standard	class of fit
–	–	**VTSPO6554**	**VTSPO6554**	M10 X 1	90	15	35	7,0	3	DIN 374	6H
–	–	**VTSPO6555**	**VTSPO6555**	M10 X 1,25	100	18	39	7,0	3	DIN 374	6H
–	–	**VTSPO6524**	–	M10 X 1,5	100	18	39	10,0	3	DIN 371	6G
VTSPO6523	**VTSPO6523**	**VTSPO6523**	**VTSPO6523**	M10 X 1,5	100	18	39	10,0	3	DIN 371	6H
–	**VTSPO6530**	**VTSPO6530**	**VTSPO6530**	M10 X 1,5	100	18	39	7,0	3	DIN 376	6H
–	–	**VTSPO6556**	**VTSPO6556**	M11 X 1	90	15	36	8,0	3	DIN 374	6H
–	–	**VTSPO6557**	**VTSPO6557**	M12 X 1	100	21	39	9,0	3	DIN 374	6H
–	–	**VTSPO6558**	**VTSPO6558**	M12 X 1,25	100	21	39	9,0	3	DIN 374	6H
–	–	**VTSPO6559**	**VTSPO6559**	M12 X 1,5	100	21	39	9,0	3	DIN 374	6H
–	–	**VTSPO6532**	–	M12 X 1,75	110	21	44	9,0	3	DIN 376	6G
VTSPO6531	**VTSPO6531**	**VTSPO6531**	**VTSPO6531**	M12 X 1,75	110	21	44	9,0	3	DIN 376	6H
–	–	**VTSPO6560**	**VTSPO6560**	M14 X 1	100	21	47	11,0	3	DIN 374	6H
–	–	**VTSPO6561**	**VTSPO6561**	M14 X 1,25	100	21	47	11,0	3	DIN 374	6H
–	–	**VTSPO6562**	**VTSPO6562**	M14 X 1,5	100	21	47	11,0	3	DIN 374	6H
–	–	**VTSPO6534**	–	M14 X 2	110	24	52	11,0	3	DIN 376	6G
VTSPO6533	**VTSPO6533**	**VTSPO6533**	**VTSPO6533**	M14 X 2	110	24	52	11,0	3	DIN 376	6H
–	–	**VTSPO6563**	**VTSPO6563**	M16 X 1	100	21	46	12,0	3	DIN 374	6H
–	–	**VTSPO6564**	**VTSPO6564**	M16 X 1,5	100	21	46	12,0	3	DIN 374	6H
–	–	**VTSPO6536**	–	M16 X 2	110	24	51	12,0	3	DIN 376	6G
VTSPO6535	**VTSPO6535**	**VTSPO6535**	**VTSPO6535**	M16 X 2	110	24	51	12,0	3	DIN 376	6H
–	–	**VTSPO6565**	**VTSPO6565**	M18 X 1	110	21	50	14,0	3	DIN 374	6H
–	–	**VTSPO6566**	**VTSPO6566**	M18 X 1,5	110	21	50	14,0	3	DIN 374	6H
–	–	**VTSPO6567**	**VTSPO6567**	M18 X 2	125	30	58	14,0	3	DIN 374	6H
VTSPO6537	**VTSPO6537**	**VTSPO6537**	**VTSPO6537**	M18 X 2,5	125	30	58	14,0	3	DIN 376	6H
–	–	**VTSPO6568**	**VTSPO6568**	M20 X 1	125	24	56	16,0	3	DIN 374	6H
–	–	**VTSPO6569**	**VTSPO6569**	M20 X 1,5	125	24	56	16,0	3	DIN 374	6H
–	–	**VTSPO6570**	**VTSPO6570**	M20 X 2	140	30	64	16,0	3	DIN 374	6H
VTSPO6538	**VTSPO6538**	**VTSPO6538**	**VTSPO6538**	M20 X 2,5	140	30	64	16,0	3	DIN 376	6H
–	–	**VTSPO6571**	**VTSPO6571**	M22 X 1,5	125	24	62	18,0	3	DIN 374	6H
–	–	–	**VTSPO6572**	M22 X 2	140	30	70	18,0	3	DIN 374	6H
VTSPO6539	**VTSPO6539**	**VTSPO6539**	**VTSPO6539**	M22 X 2,5	140	30	70	18,0	3	DIN 376	6H
–	–	**VTSPO6573**	**VTSPO6573**	M24 X 1,5	140	28	67	18,0	3	DIN 374	6H
–	–	–	**VTSPO6574**	M24 X 2	140	30	67	18,0	3	DIN 374	6H
VTSPO6540	**VTSPO6540**	**VTSPO6540**	**VTSPO6540**	M24 X 3	160	36	77	18,0	3	DIN 376	6H
–	**VTSPO6541**	**VTSPO6541**	**VTSPO6541**	M27 X 3	160	36	82	20,0	4	DIN 376	6H
–	–	–	**VTSPO6575**	M30 X 2	150	28	80	22,0	4	DIN 374	6H
–	**VTSPO6542**	**VTSPO6542**	**VTSPO6542**	M30 X 3,5	180	42	91	22,0	4	DIN 376	6H
–	–	**VTSPO6543**	–	M33 X 3,5	180	42	100	25,0	4	DIN 376	6H
–	–	**VTSPO6544**	–	M36 X 4	200	48	110	28,0	4	DIN 376	6H

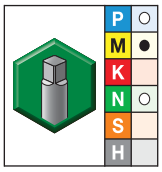
- WU41EG TiN
- WU40EG bright

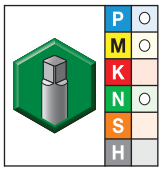


● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

■ VT-SPO • Form B Plug Chamfer • Metric • JIS



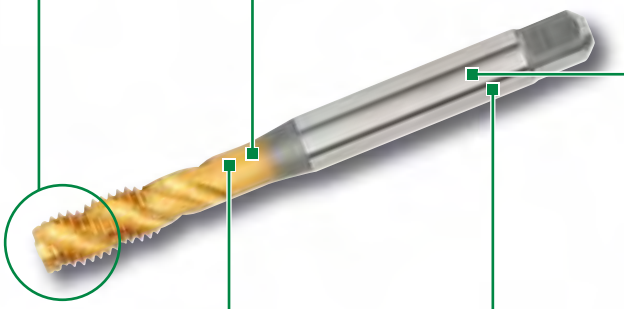


WU41EG	WU40EG	metric dimensions D1 size	L	L3	L2	D	number of flutes	dimension standard	tap class
VTSPO7505	**VTSPO7505**	M3 X 0,5	46	11	19	4,0	2	JIS	ISO 2
VTSPO7506	**VTSPO7506**	M4 X 0,7	52	13	21	5,0	2	JIS	ISO 2
VTSPO7507	**VTSPO7507**	M5 X 0,8	60	16	24	5,5	2	JIS	ISO 2
VTSPO7508	**VTSPO7508**	M6 X 1	62	19	29	6,0	3	JIS	ISO 2
VTSPO7509	**VTSPO7509**	M8 X 1,25	70	22	37	6,2	3	JIS	ISO 2
VTSPO7510	**VTSPO7510**	M10 X 1,5	75	24	41	7,0	3	JIS	ISO 2
–	**VTSPO7511**	M12 X 1,25	82	29	48	8,5	3	JIS	ISO 2
–	**VTSPO7512**	M12 X 1,75	82	29	48	8,5	3	JIS	ISO 2
–	**VTSPO7513**	M12 X 1,5	82	29	48	8,5	3	JIS	ISO 2
–	**VTSPO7514**	M14 X 2	88	30	48	10,5	3	JIS	ISO 2
–	**VTSPO7515**	M14 X 1,5	88	30	48	10,5	3	JIS	ISO 2
–	**VTSPO7516**	M16 X 2	95	32	52	12,5	3	JIS	ISO 2
–	**VTSPO7517**	M16 X 1,5	95	32	52	12,5	3	JIS	ISO 2
–	**VTSPO7518**	M18 X 2,5	100	37	55	14,0	3	JIS	ISO 2
–	**VTSPO7519**	M20 X 2,5	105	37	60	15,0	3	JIS	ISO 2

Multipurpose Tap for Steel, Stainless Steel, Cast Aluminium, and Ductile Iron

Advanced spiral flute design
Smooth ejection of chips to reduce or eliminate bird-nesting.

Multiple tap dimension options
ANSI, DIN, JIS, and DIN/ANSI.



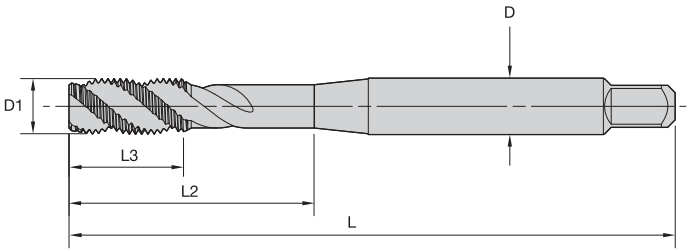
Precision ground shanks
Low runout.

High-vanadium HSS-E
Improved wear resistance and longer life.

PVD coatings and surface treatments
For use with various workpiece materials:

WP42EG	WP41EG	WP49EG	WU40EG
TiCN	TiN	Oxide	Bright

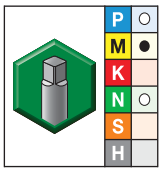
- WU41EG TiN
- WP49EG oxide

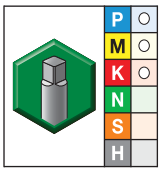


● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

VT-SFT • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • DIN 371 and 376

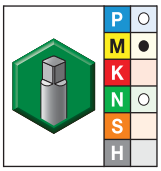


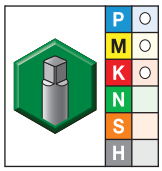


		metric dimensions							
WU41EG	WP49EG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
VTSFT6005	**VTSFT6005**	4 - 40	56	8	18	3,5	2	DIN 371	2B
VTSFT6007	**VTSFT6007**	5 - 40	56	9	20	4,0	2	DIN 371	2B
VTSFT6008	**VTSFT6008**	6 - 32	56	9	20	4,0	2	DIN 371	2B
VTSFT6010	**VTSFT6010**	6 - 40	56	9	20	4,0	2	DIN 371	2B
VTSFT6011	**VTSFT6011**	8 - 32	63	11	21	4,5	3	DIN 371	2B
VTSFT6013	**VTSFT6013**	10 - 24	70	12	25	6,0	3	DIN 371	2B
VTSFT6014	**VTSFT6014**	10 - 32	70	12	25	6,0	3	DIN 371	2B
VTSFT6016	**VTSFT6016**	1/4 - 20	80	15	30	7,0	3	DIN 371	2B
VTSFT6017	**VTSFT6017**	1/4 - 28	80	15	30	7,0	3	DIN 371	2B
VTSFT6019	**VTSFT6019**	5/16 - 18	90	15	35	8,0	3	DIN 371	2B
VTSFT6020	**VTSFT6020**	5/16 - 24	90	15	35	8,0	3	DIN 371	2B
VTSFT6022	**VTSFT6022**	3/8 - 16	100	19	39	10,0	3	DIN 371	2B
VTSFT6023	**VTSFT6023**	3/8 - 24	100	19	39	10,0	3	DIN 371	2B
VTSFT6025	**VTSFT6025**	7/16 - 14	100	18	41	8,0	3	DIN 371	2B
VTSFT6026	**VTSFT6026**	7/16 - 20	100	18	41	8,0	3	DIN 376	2B
VTSFT6028	**VTSFT6028**	1/2 - 13	110	23	40	9,0	3	DIN 376	2B
VTSFT6029	**VTSFT6029**	1/2 - 20	110	23	40	9,0	3	DIN 376	2B
VTSFT6031	**VTSFT6031**	9/16 - 12	110	25	32	11,0	3	DIN 376	2B
VTSFT6032	**VTSFT6032**	9/16 - 18	110	25	32	11,0	3	DIN 376	2B

(continued)

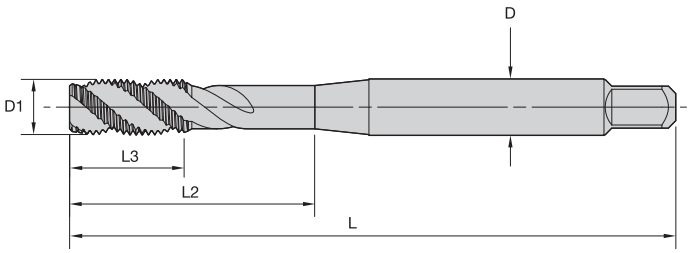
(VT-SFT • Form C Semi-Bottoming Chamfer • Machine Screw and Fractional • DIN 371 and 376 continued)





		metric dimensions							
WU41EG	**WP49EG**	**D1 size**	**L**	**L3**	**L2**	**D**	**number of flutes**	**dimension standard**	**class of fit**
VTSFT6033	**VTSFT6033**	5/8 - 11	110	24	35	12,0	3	DIN 376	2B
VTSFT6034	**VTSFT6034**	5/8 - 18	110	24	35	12,0	3	DIN 376	2B
VTSFT6035	**VTSFT6035**	3/4 - 10	140	30	46	16,0	4	DIN 376	2B
VTSFT6036	**VTSFT6036**	3/4 - 16	140	30	46	16,0	4	DIN 376	2B
VTSFT6037	**VTSFT6037**	7/8 - 9	140	34	35	18,0	4	DIN 376	2B
VTSFT6038	**VTSFT6038**	7/8 - 14	140	34	35	18,0	4	DIN 376	2B
VTSFT6039	**VTSFT6039**	1 - 8	160	38	41	18,0	4	DIN 376	2B
VTSFT6040	**VTSFT6040**	1 - 12	160	38	41	18,0	4	DIN 376	2B

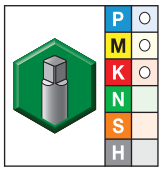
• WP49EG oxide



● first choice
○ alternate choice

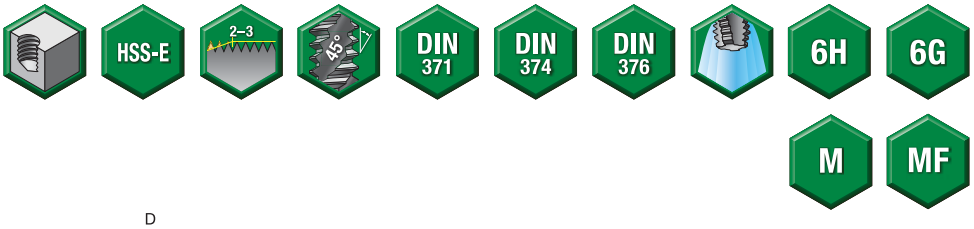
Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

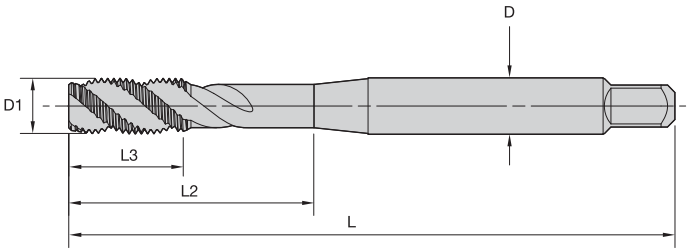
■ VT-SFT • Form C Semi-Bottoming Chamfer • UNJC/UNJF • Inch DIN 371 and 376



	metric dimensions							
WP49EG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
VTSFT6006	4 - 40	56	8	18	3,5	2	DIN 371	3B
VTSFT6009	6 - 32	56	9	20	4,0	2	DIN 371	3B
VTSFT6012	8 - 32	63	11	21	4,5	3	DIN 371	3B
VTSFT6015	10 - 32	70	12	25	6,0	3	DIN 371	3B
VTSFT6018	1/4 - 28	80	15	30	7,0	3	DIN 371	3B
VTSFT6021	5/16 - 24	90	15	35	8,0	3	DIN 371	3B
VTSFT6024	3/8 - 24	100	19	39	10,0	3	DIN 371	3B
VTSFT6027	7/16 - 20	100	18	41	8,0	3	DIN 376	3B
VTSFT6030	1/2 - 20	110	23	40	9,0	3	DIN 376	3B

- WP42EG TiCN
- WU41EG TiN
- WP49EG oxide
- WU40EG bright



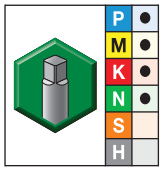


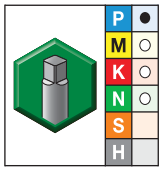
● first choice
○ alternate choice

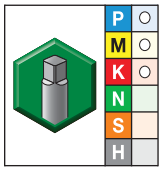
Shank Tolerance

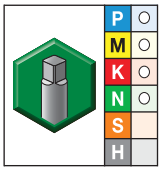
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

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





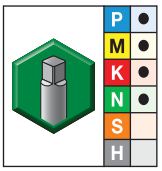




WP42EG	WU41EG	WP49EG	WU40EG	D1 size	metric dimensions L	L3	L2	D	number of flutes	dimension standard	class of fit
–	–	VTSFT6507	–	M2 X 0,4	45	7	13	2,8	2	DIN 371	6G
VTSFT6506	VTSFT6506	VTSFT6506	VTSFT6506	M2 X 0,4	45	7	13	2,8	2	DIN 371	6H
–	–	VTSFT6508	–	M2,2 X 0,45	45	7	13	2,8	2	DIN 371	6H
–	–	VTSFT6510	–	M2,5 X 0,45	50	7	15	2,8	2	DIN 371	6G
–	VTSFT6509	VTSFT6509	VTSFT6509	M2,5 X 0,45	50	7	15	2,8	2	DIN 371	6H
–	–	VTSFT6545	–	M3 X 0,35	56	8	–	2,2	2	DIN 374	6H
–	–	VTSFT6512	–	M3 X 0,5	56	8	18	3,5	2	DIN 371	6G
VTSFT6511	VTSFT6511	VTSFT6511	VTSFT6511	M3 X 0,5	56	8	18	3,5	2	DIN 371	6H
–	–	VTSFT6525	VTSFT6525	M3 X 0,5	56	8	–	2,2	2	DIN 376	6H
–	VTSFT6513	VTSFT6513	VTSFT6513	M3,5 X 0,6	56	9	20	4,0	2	DIN 371	6H
–	–	VTSFT6515	–	M4 X 0,7	63	11	21	4,5	3	DIN 371	6G
–	–	VTSFT6546	VTSFT6546	M4 X 0,5	63	10	21	2,8	2	DIN 374	6H
VTSFT6514	VTSFT6514	VTSFT6514	VTSFT6514	M4 X 0,7	63	11	21	4,5	3	DIN 371	6H
–	–	VTSFT6526	VTSFT6526	M4 X 0,7	63	10	21	2,8	3	DIN 376	6H
–	–	VTSFT6547	VTSFT6547	M5 X 0,5	70	12	25	3,5	2	DIN 374	6H
–	–	VTSFT6517	–	M5 X 0,8	70	12	25	6,0	3	DIN 371	6G
VTSFT6516	VTSFT6516	VTSFT6516	VTSFT6516	M5 X 0,8	70	12	25	6,0	3	DIN 371	6H
–	–	VTSFT6527	VTSFT6527	M5 X 0,8	70	12	25	3,5	3	DIN 376	6H
–	–	VTSFT6548	–	M6 X 0,5	80	12	30	4,5	2	DIN 374	6H
–	–	VTSFT6549	VTSFT6549	M6 X 0,75	80	12	30	4,5	2	DIN 374	6H
–	–	VTSFT6519	–	M6 X 1	80	12	30	6,0	3	DIN 371	6G
VTSFT6518	VTSFT6518	VTSFT6518	VTSFT6518	M6 X 1	80	12	30	6,0	3	DIN 371	6H
–	–	VTSFT6528	VTSFT6528	M6 X 1	80	12	30	4,5	3	DIN 376	6H
–	–	VTSFT6520	VTSFT6520	M7 X 1	80	12	30	7,0	3	DIN 371	6H
–	–	VTSFT6550	VTSFT6550	M8 X 0,75	80	12	30	6,0	2	DIN 374	6H
VTSFT6551	–	VTSFT6551	VTSFT6551	M8 X 1	90	15	35	6,0	2	DIN 374	6H
–	–	VTSFT6522	–	M8 X 1,25	90	15	35	8,0	3	DIN 371	6G
VTSFT6521	VTSFT6521	VTSFT6521	VTSFT6521	M8 X 1,25	90	15	35	8,0	3	DIN 371	6H
–	–	VTSFT6529	VTSFT6529	M8 X 1,25	90	15	35	6,0	3	DIN 376	6H
–	–	–	VTSFT6552	M10 X 0,75	90	15	35	7,0	2	DIN 374	6H
–	–	VTSFT6553	VTSFT6553	M10 X 1	90	15	35	7,0	2	DIN 374	6H
VTSFT6554	–	VTSFT6554	VTSFT6554	M10 X 1,25	100	18	39	7,0	2	DIN 374	6H

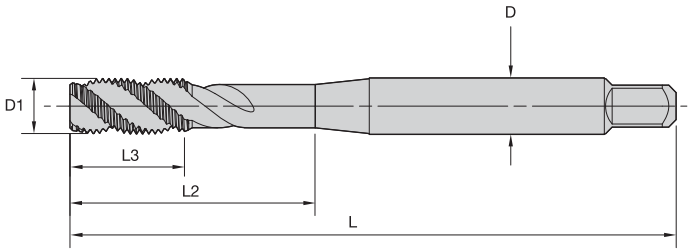
(continued)

(VT-SFT • Form C Semi-Bottoming Chamfer • Metric DIN 371, 374, and 376 continued)



WP42EG	WU41EG	WP49EG	WU40EG	D1 size	metric dimensions L	L3	L2	D	number of flutes	dimension standard	class of fit
–	–	VTSFT6524	–	M10 X 1,5	100	18	39	10,0	3	DIN 371	6G
VTSFT6523	VTSFT6523	VTSFT6523	VTSFT6523	M10 X 1,5	100	18	39	10,0	3	DIN 371	6H
–	–	VTSFT6530	VTSFT6530	M10 X 1,5	100	18	39	7,0	3	DIN 376	6H
–	–	VTSFT6555	VTSFT6555	M12 X 1	100	21	39	9,0	2	DIN 374	6H
–	–	VTSFT6556	VTSFT6556	M12 X 1,25	100	21	39	9,0	2	DIN 374	6H
VTSFT6557	–	VTSFT6557	VTSFT6557	M12 X 1,5	100	21	39	9,0	2	DIN 374	6H
–	–	VTSFT6532	–	M12 X 1,75	110	21	44	9,0	3	DIN 376	6G
VTSFT6531	VTSFT6531	VTSFT6531	VTSFT6531	M12 X 1,75	110	21	44	9,0	3	DIN 376	6H
–	–	–	VTSFT6558	M14 X 1	100	21	47	11,0	2	DIN 374	6H
–	–	–	VTSFT6559	M14 X 1,25	100	21	47	11,0	2	DIN 374	6H
VTSFT6560	–	VTSFT6560	VTSFT6560	M14 X 1,5	100	21	47	11,0	2	DIN 374	6H
–	–	VTSFT6534	–	M14 X 2	110	24	52	11,0	3	DIN 376	6G
VTSFT6533	VTSFT6533	VTSFT6533	VTSFT6533	M14 X 2	110	24	52	11,0	3	DIN 376	6H
–	–	–	VTSFT6561	M16 X 1	100	21	46	12,0	2	DIN 374	6H
–	–	VTSFT6562	VTSFT6562	M16 X 1,5	100	21	46	12,0	2	DIN 374	6H
–	–	VTSFT6536	–	M16 X 2	110	24	51	12,0	3	DIN 376	6G
–	VTSFT6535	VTSFT6535	VTSFT6535	M16 X 2	110	24	51	12,0	3	DIN 376	6H
–	–	–	VTSFT6563	M18 X 1	110	21	50	14,0	2	DIN 374	6H
–	–	VTSFT6564	VTSFT6564	M18 X 1,5	110	21	50	14,0	2	DIN 374	6H
–	–	–	VTSFT6565	M18 X 2	125	30	58	14,0	2	DIN 374	6H
–	VTSFT6537	VTSFT6537	VTSFT6537	M18 X 2,5	125	30	58	14,0	4	DIN 376	6H
–	–	–	VTSFT6566	M20 X 1	125	24	56	16,0	2	DIN 374	6H
–	–	VTSFT6567	VTSFT6567	M20 X 1,5	125	24	56	16,0	2	DIN 374	6H
–	–	–	VTSFT6568	M20 X 2	140	30	64	16,0	2	DIN 374	6H
–	VTSFT6538	VTSFT6538	VTSFT6538	M20 X 2,5	140	30	64	16,0	4	DIN 376	6H
–	–	VTSFT6569	VTSFT6569	M22 X 1,5	125	24	62	18,0	2	DIN 374	6H
–	–	–	VTSFT6570	M22 X 2	140	30	70	18,0	2	DIN 374	6H
–	VTSFT6539	VTSFT6539	VTSFT6539	M22 X 2,5	140	30	70	18,0	4	DIN 376	6H
–	–	VTSFT6571	VTSFT6571	M24 X 1,5	140	28	67	18,0	2	DIN 374	6H
–	–	–	VTSFT6572	M24 X 2	140	28	67	18,0	2	DIN 374	6H
–	VTSFT6540	VTSFT6540	VTSFT6540	M24 X 3	160	36	77	18,0	4	DIN 376	6H
–	VTSFT6541	VTSFT6541	VTSFT6541	M27 X 3	160	36	82	20,0	4	DIN 376	6H
–	–	–	VTSFT6573	M30 X 2	150	28	80	22,0	2	DIN 374	6H
–	VTSFT6542	VTSFT6542	VTSFT6542	M30 X 3,5	180	42	91	22,0	4	DIN 376	6H
–	–	VTSFT6543	VTSFT6543	M33 X 3,5	180	42	100	25,0	4	DIN 376	6H
–	–	VTSFT6544	VTSFT6544	M36 X 4	200	48	110	28,0	5	DIN 376	6H

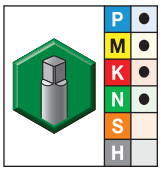
- WP42EG TiCN
- WP49EG oxide

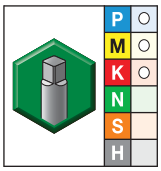


● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

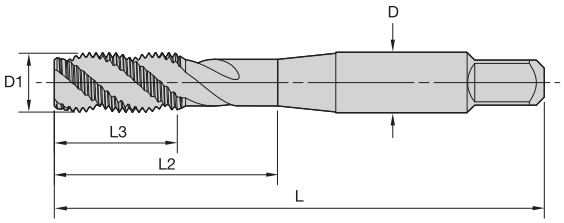
VT-SFT • Form E Bottoming Chamfer • Metric DIN 371, 374, and 376





		metric dimensions							
WP42EG	WP49EG	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
VTSFT6574	VTSFT6574	M3 X 0,5	56	8	18	3,5	2	DIN 371	6H
VTSFT6575	VTSFT6575	M4 X 0,7	63	11	21	4,5	3	DIN 371	6H
VTSFT6576	VTSFT6576	M5 X 0,8	70	12	25	6,0	3	DIN 371	6H
VTSFT6577	VTSFT6577	M6 X 1	80	12	30	6,0	3	DIN 371	6H
VTSFT6585	VTSFT6585	M8 X 1	90	15	35	6,0	3	DIN 374	6H
VTSFT6578	VTSFT6578	M8 X 1,25	90	15	35	8,0	3	DIN 371	6H
VTSFT6586	VTSFT6586	M10 X 1,25	100	18	39	7,0	3	DIN 374	6H
VTSFT6579	VTSFT6579	M10 X 1,5	100	18	39	10,0	3	DIN 371	6H
VTSFT6587	VTSFT6587	M12 X 1,5	110	21	44	9,0	3	DIN 374	6H
VTSFT6580	VTSFT6580	M12 X 1,75	110	21	44	9,0	3	DIN 376	6H
VTSFT6588	VTSFT6588	M14 X 1,5	110	24	52	11,0	3	DIN 374	6H
VTSFT6581	VTSFT6581	M14 X 2	110	24	52	11,0	3	DIN 376	6H
–	VTSFT6582	M16 X 2	110	24	51	12,0	3	DIN 376	6H
VTSFT6583	VTSFT6583	M18 X 2,5	125	30	58	14,0	4	DIN 376	6H
VTSFT6584	VTSFT6584	M20 X 2,5	140	30	64	16,0	4	DIN 376	6H

- WU41EG TiN
- WU40EG bright

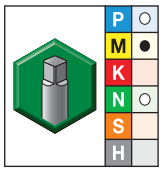


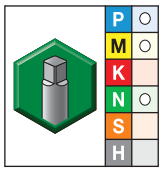
● first choice
○ alternate choice

Shank Tolerance

D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

VT-SFT • Form C Semi-Bottoming Chamfer • Metric • JIS





WU41EG	WU40EG	metric dimensions D1 size	L	L3	L2	D	number of flutes	dimension standard	tap class
VTSFT7505	**VTSFT7505**	M3 X 0,5	46	11	19	4,0	2	JIS	ISO 2
VTSFT7506	**VTSFT7506**	M4 X 0,7	52	13	21	5,0	3	JIS	ISO 2
VTSFT7507	**VTSFT7507**	M5 X 0,8	60	16	24	5,5	3	JIS	ISO 2
VTSFT7508	**VTSFT7508**	M6 X 1	62	19	29	6,0	3	JIS	ISO 2
VTSFT7509	**VTSFT7509**	M8 X 1,25	70	22	37	6,2	3	JIS	ISO 2
VTSFT7510	**VTSFT7510**	M10 X 1,5	75	24	41	7,0	3	JIS	ISO 2
–	**VTSFT7511**	M12 X 1,25	82	29	48	8,5	3	JIS	ISO 2
–	**VTSFT7512**	M12 X 1,75	82	29	48	8,5	3	JIS	ISO 2
–	**VTSFT7513**	M12 X 1,5	82	29	48	8,5	3	JIS	ISO 2
–	**VTSFT7514**	M14 X 2	88	30	48	10,5	3	JIS	ISO 2
–	**VTSFT7515**	M14 X 1,5	88	30	48	10,5	3	JIS	ISO 2
–	**VTSFT7516**	M16 X 2	95	32	52	12,5	3	JIS	ISO 2
–	**VTSFT7517**	M16 X 1,5	95	32	52	12,5	3	JIS	ISO 2
–	**VTSFT7518**	M18 X 2,5	100	37	55	14,0	4	JIS	ISO 2
–	**VTSFT7519**	M20 X 2,5	105	37	60	15,0	4	JIS	ISO 2

■ VariTap • HSS-E • Metric

VariTap HSS-E												
		 Through Holes						 Blind Holes				
				Range — m/min					Range — m/min			
Material Group	VDI 3323	Tap Style	Grade*	min	Starting Value	max	Tap Style	Grade*	min	Starting Value	max
P	1	VT-SPO	WP42EG, WU41EG	25	34	42	VT-SFT	WP42EG, WU41EG	17	24	35
		VT-SPO	WP49EG, WU40EG	14	18	23	VT-SFT	WP49EG, WU40EG	9	13	18
	2, 3, 4, 5	VT-SPO	WP42EG, WU41EG	18	24	30	VT-SFT	WP42EG, WU41EG	11	15	22
		VT-SPO	WP49EG, WU40EG	10	14	17	VT-SFT	WP49EG, WU40EG	6	9	13
	6, 7, 8, 10	VT-SPO	WP42EG, WU41EG	11	15	19	VT-SFT	WP42EG, WU41EG	9	12	17
		VT-SPO	WP49EG, WU40EG	7	9	11	VT-SFT	WP49EG, WU40EG	5	7	10
	9	VT-SPO	WP42EG, WU41EG	11	15	19	VT-SFT	WP42EG, WU41EG	6	9	13
		VT-SPO	WP49EG, WU40EG	6	8	10	VT-SFT	WP49EG, WU40EG	4	5	8
M	14.1, 14.3	VT-SPO	WP42EG, WU41EG	16	21	27	VT-SFT	WP42EG, WU41EG	11	15	22
		VT-SPO	WP49EG, WU40EG	9	12	15	VT-SFT	WP49EG, WU40EG	6	9	13
	14.2	VT-SPO	WP42EG, WU41EG	11	15	19	VT-SFT	WP42EG, WU41EG	9	12	17
		VT-SPO	WP49EG, WU40EG	7	9	11	VT-SFT	WP49EG, WU40EG	4	6	9
K	15, 16	—	—	—	—	—	—	—	—	—	—
		—	—	—	—	—	—	—	—	—	—
	17, 18, 19	VT-SPO	WP42EG, WU41EG	16	21	27	VT-SFT	WP42EG, WU41EG	11	15	22
		VT-SPO	WP49EG, WU40EG	9	12	15	VT-SFT	WP49EG, WU40EG	6	9	12
N	21, 22	VT-SPO	WP42EG, WU41EG	37	49	61	VT-SFT	WP42EG, WU41EG	26	37	52
		VT-SPO	WU40EG	21	27	34	VT-SFT	WU40EG	14	20	28
	23, 24	VT-SPO	WP42EG, WU41EG	30	40	50	VT-SFT	WP42EG, WU41EG	19	27	39
		VT-SPO	WU40EG	16	21	27	VT-SFT	WU40EG	11	15	22
	26, 27, 28	VT-SPO	WP42EG, WU41EG	37	49	61	VT-SFT	WP42EG, WU41EG	23	34	48
		VT-SPO	WU40EG	21	27	34	VT-SFT	WU40EG	13	18	26

** Grades: WP42EG = TiCN*
WU41EG = TiN
WP49EG = oxide
WU40EG = bright

WIN WITH WIDIA™

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 to very low runout.
- GT20 for through holes.
- GT30 and GT31 for blind holes in vertical tapping.
- GT50 and GT51 for blind holes in horizontal tapping.
- All GT™ Series Wind Taps are available according to DIN 376 and extra-length standards.

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

WIDIA™

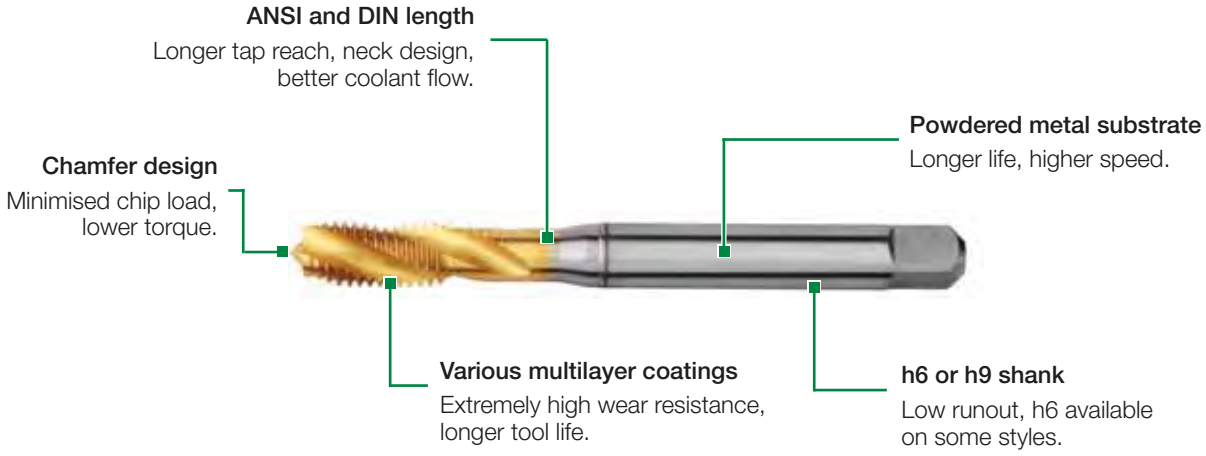
High-Performance HSS-E-PM Victory™ Taps • **WIDIA-GTD™**

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.

Line Expansion

WIDIA-GTD

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



Powdered Metal Taps

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

Tap Functions

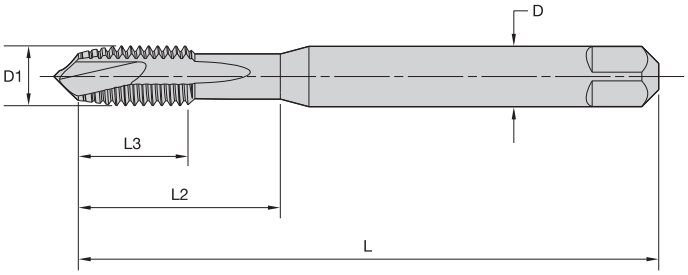
- High wear resistance and hot hardness without sacrificing edge strength.
- PVD coatings offer outstanding thermal stability, hot hardness, oxidation resistance, and low coefficient of friction.
- Left-hand spiral fluted taps push chips ahead in through holes.
- Optimised spiral flute designs enables deep blind holes to be threaded.
- Straight flute taps store chips in hole or are flushed out with internal coolant.
- 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.
- Reliable performance.
- Exceptional thread quality.

WIDIA VICTORY

• WP31MG TiN for steel 32–44 HRC



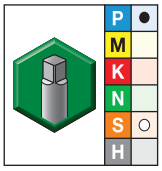
VICTORY

● first choice
○ alternate choice

Shank Tolerance

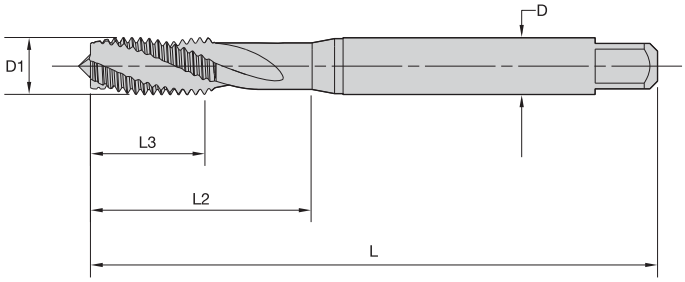
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

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



WP31MG	metric dimensions 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

• WP31MG TiN for steel 32–44 HRC

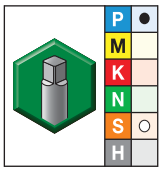


VICTORY

● first choice
○ alternate choice

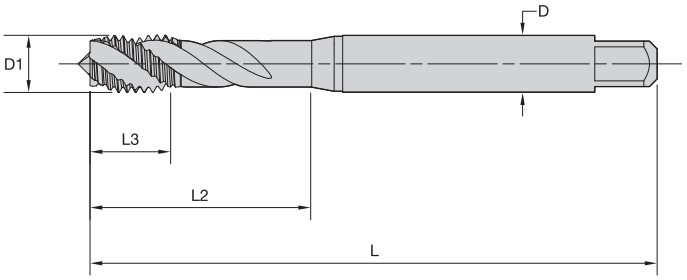
Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

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



	metric dimensions							
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

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

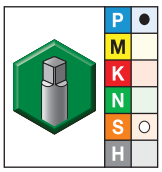


VICTORY

● first choice
○ alternate choice

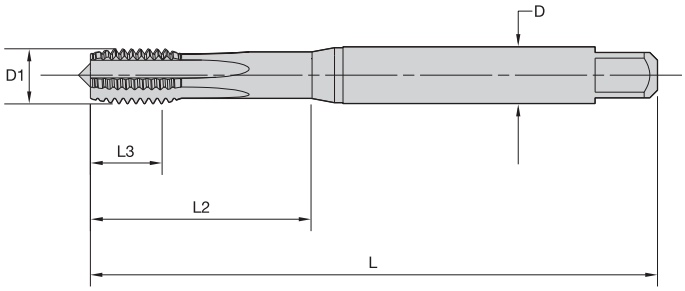
Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

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



	metric dimensions							
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

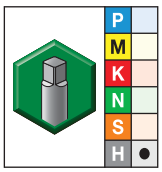


VICTORY

● first choice
○ alternate choice

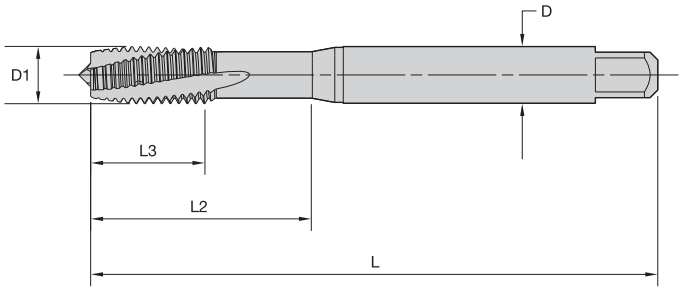
Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

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



		metric dimensions						
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



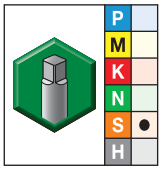
VICTORY

● first choice
○ alternate choice

Shank Tolerance

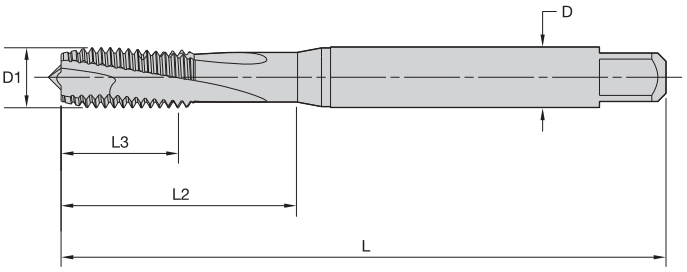
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

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



	metric dimensions							
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

• WS32MG TiCN for nickel and nickel alloys

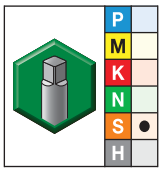


VICTORY

● first choice
○ alternate choice

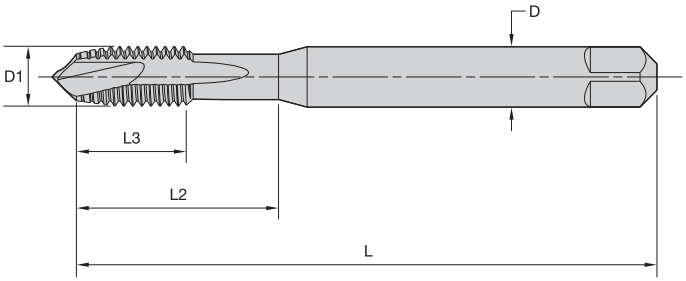
Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

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



	metric dimensions							
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

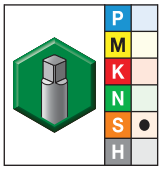


VICTORY

● first choice
○ alternate choice

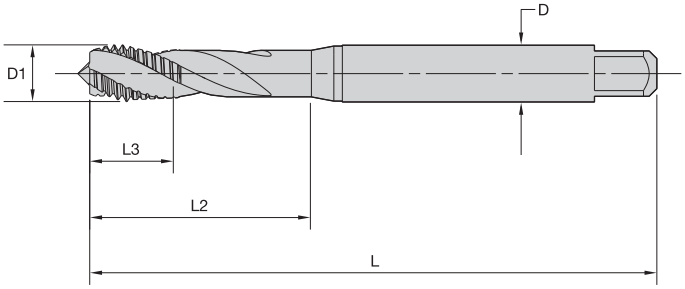
Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

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



	metric dimensions							
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

• WN35MG TiN/DLC for titanium and titanium alloys

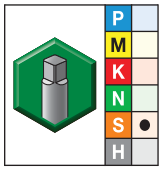


VICTORY

Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

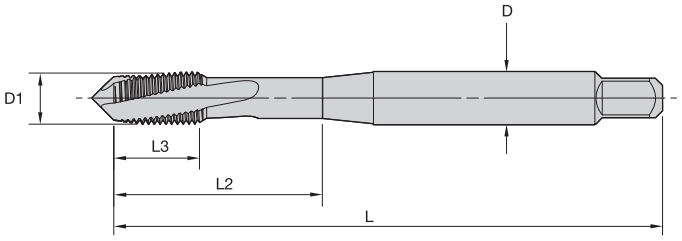
● first choice
○ alternate choice

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



		metric dimensions					
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

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

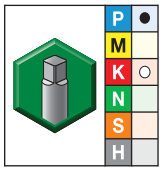


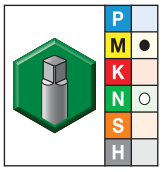
VICTORY

● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

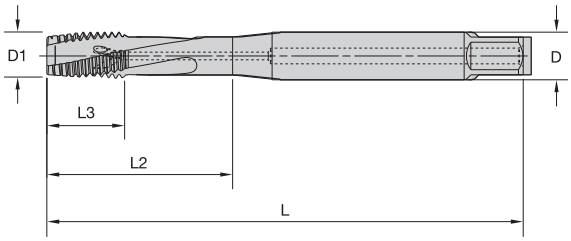
GT20 • Form D Plug Chamfer • Metric DIN 371, 374, and 376





			metric dimensions						
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
GT205111	**–**	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
GT205113	**–**	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
GT205114	**–**	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
GT205116	**–**	M36 X 4	200	40	110	28,0	6	DIN 376	6HX
GT205118	**–**	M42 X 4,5	200	45	120	32,0	6	DIN 376	6HX

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

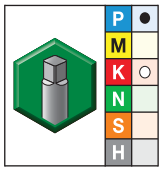


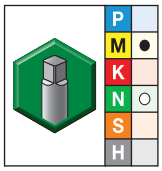
VICTORY

● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

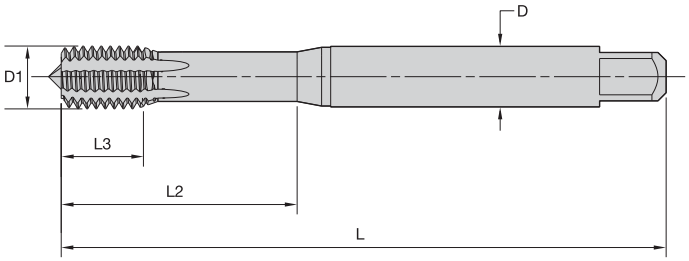
GT21 • Form D Plug Chamfer • Through Coolant • Metric DIN 371 and 376





			metric dimensions						
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
- WN38MG DLC for aluminium

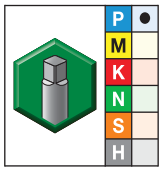


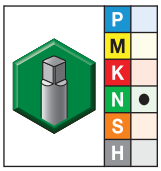
VICTORY

● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

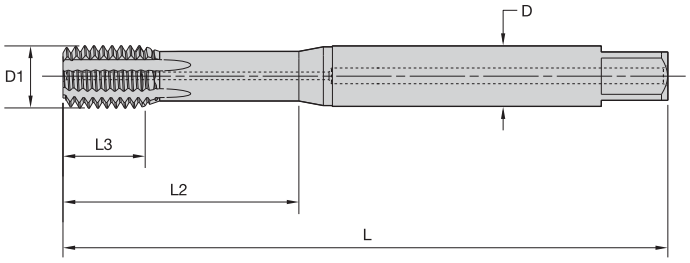
GT22 • Form C Semi-Bottoming Entry Taper • Metric DIN 2174





		metric dimensions							
WP31MG	WN38MG	D1 size	L	L3	L2	D	number of lube grooves	dimension standard	class of fit
GT225016	GT225001	M3 X 0,5	56	6	18	3,5	4	DIN 2174	6HX
GT225017	GT225002	M4 X 0,7	63	7	21	4,5	4	DIN 2174	6HX
GT225018	GT225003	M5 X 0,8	70	8	25	6,0	4	DIN 2174	6HX
GT225019	GT225004	M6 X 1	80	10	30	6,0	5	DIN 2174	6HX
GT225024	GT225009	M8 X 1	90	10	35	8,0	5	DIN 2174	6HX
GT225020	GT225005	M8 X 1,25	90	14	35	8,0	5	DIN 2174	6HX
GT225025	GT225010	M10 X 1	90	10	35	10,0	5	DIN 2174	6HX
GT225026	GT225011	M10 X 1,25	100	16	39	10,0	5	DIN 2174	6HX
GT225021	GT225006	M10 X 1,5	100	16	39	10,0	5	DIN 2174	6HX
GT225027	GT225012	M12 X 1,25	100	15	–	9,0	6	DIN 2174	6HX
GT225028	GT225013	M12 X 1,5	100	15	–	9,0	6	DIN 2174	6HX
GT225022	GT225007	M12 X 1,75	110	18	–	9,0	6	DIN 2174	6HX
GT225029	GT225014	M14 X 1,5	100	15	–	11,0	6	DIN 2174	6HX
GT225030	GT225015	M16 X 1,5	100	15	–	12,0	6	DIN 2174	6HX
GT225023	GT225008	M16 X 2	110	22	–	12,0	6	DIN 2174	6HX

- WP31MG TiN for steel
- WN38MG DLC for aluminium

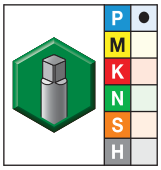


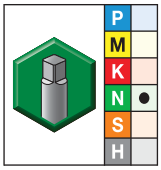
VICTORY

● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h9
1–3	+0, -0,025
>3–6	+0, -0,030
>6–10	+0, -0,036
>10–18	+0, -0,043
>18–30	+0, -0,052

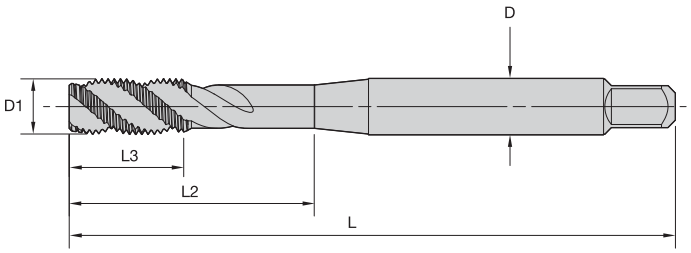
GT23 • Form C Semi-Bottoming Entry Taper • Through Coolant • Metric DIN 2174





		metric dimensions							
WP31MG	WN38MG	D1 size	L	L3	L2	D	number of lube grooves	dimension standard	class of fit
GT235012	GT235001	M5 X 0,8	70	8	25	6,0	4	DIN 2174	6HX
GT235013	GT235002	M6 X 1	80	10	30	6,0	5	DIN 2174	6HX
GT235018	GT235007	M8 X 1	90	10	35	8,0	5	DIN 2174	6HX
GT235014	GT235003	M8 X 1,25	90	14	35	8,0	5	DIN 2174	6HX
GT235019	GT235008	M10 X 1	90	10	35	10,0	5	DIN 2174	6HX
GT235015	GT235004	M10 X 1,5	100	16	39	10,0	5	DIN 2174	6HX
GT235020	GT235009	M12 X 1,5	100	15	–	9,0	6	DIN 2174	6HX
GT235016	GT235005	M12 X 1,75	110	18	–	9,0	6	DIN 2174	6HX
GT235021	GT235010	M14 X 1,5	100	15	–	11,0	6	DIN 2174	6HX
GT235022	GT235011	M16 X 1,5	100	15	–	12,0	6	DIN 2174	6HX
GT235017	GT235006	M16 X 2	110	22	–	12,0	6	DIN 2174	6HX

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

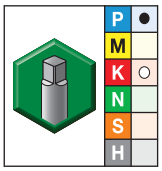


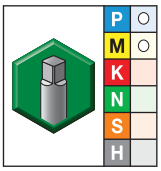
VICTORY

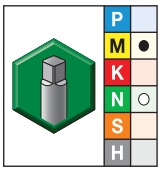
Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

● first choice
○ alternate choice

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

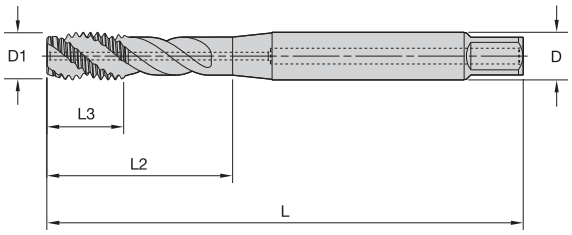






GP6520	GP6505	GM6515	metric dimensions D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT305097	GT305116	GT305148	M3 X 0,5	56	8	18	3,5	3	DIN 371	6HX
GT305098	GT305117	GT305079	M4 X 0,7	63	10	21	4,5	3	DIN 371	6HX
GT305099	GT305118	GT305080	M5 X 0,8	70	10	25	6,0	3	DIN 371	6HX
GT305100	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	3	DIN 374	6HX
GT305111	–	GT305092	M10 X 1,25	100	15	39	7,0	3	DIN 374	6HX
GT305102	GT305121	GT305083	M10 X 1,5	100	15	39	10,0	3	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
GT305161	–	–	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
GT305163	–	–	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
GT305164	–	–	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
GT305166	–	–	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
GT305168	–	–	M42 X 4,5	200	45	120	32,0	5	DIN 376	6HX

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



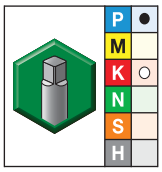
VICTORY

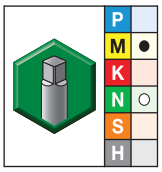
● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

New Sizes Available

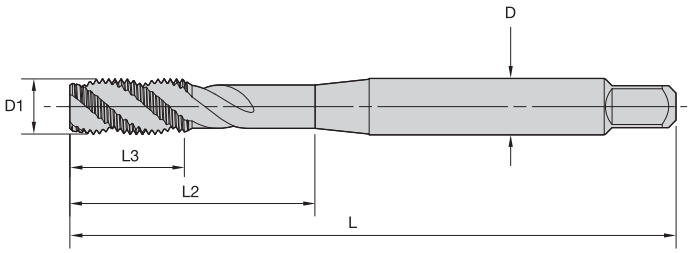
GT31 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric DIN 371 and 376





GP6520	GM6515	metric dimensions 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
GT315033	–	M16 X 2	110	20	51	12,0	4	DIN 376	6HX
GT315034	–	M18 X 2,5	125	25	58	14,0	4	DIN 376	6HX
GT315035	–	M20 X 2,5	140	25	64	16,0	4	DIN 376	6HX
GT315025	–	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
GT315027	–	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
GT315028	–	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
GT315030	–	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
GT315032	–	M42 X 4,5	200	45	120	32,0	5	DIN 376	6HX

• GP6520 TiCN for steel

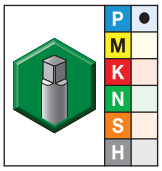


VICTORY

● first choice
○ alternate choice

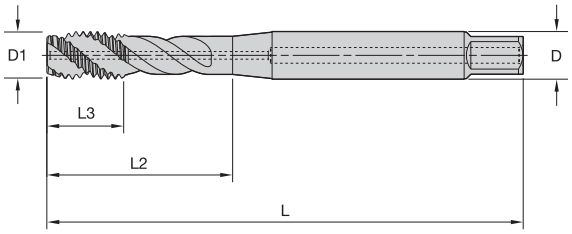
Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

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



	metric dimensions							
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

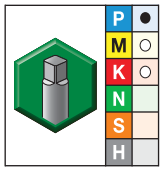


VICTORY

● first choice
○ alternate choice

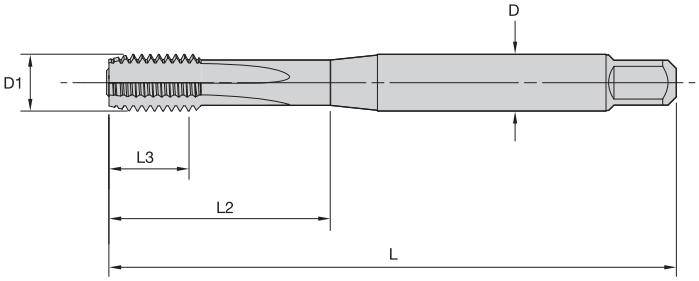
Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

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



	metric dimensions							
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

• GP6520 TiCN for cast iron and cast aluminium



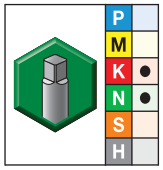
VICTORY

● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

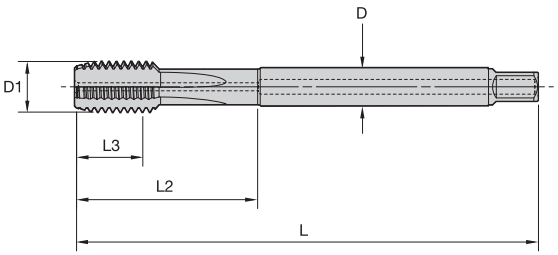
New Sizes Available

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



	metric dimensions							
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
GT405003	M6 X 1	80	10	30	6,0	4	DIN 371	6HX
GT405002	M5 X 0,8	70	10	25	6,0	3	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
GT405057	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
GT405006	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT405058	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
GT405007	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT405059	M16 X 1,5	100	15	46	12,0	4	DIN 374	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



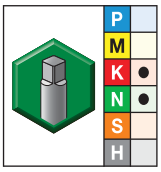
VICTORY

● first choice
○ alternate choice

Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

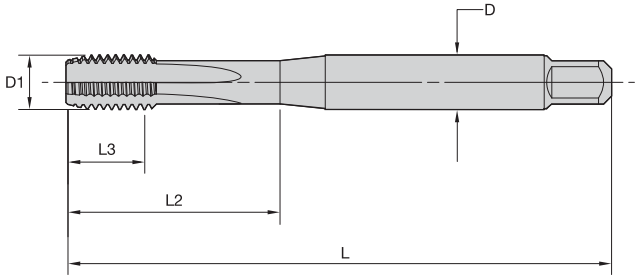
New Sizes Available

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



GP6520	metric dimensions 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
GT415021	M12 X 1,5	100	15	39	9,0	4	DIN 374	6HX
GT415006	M12 X 1,75	110	18	44	9,0	4	DIN 376	6HX
GT415022	M14 X 1,5	100	15	47	11,0	4	DIN 374	6HX
GT415007	M14 X 2	110	20	52	11,0	4	DIN 376	6HX
GT415023	M16 X 1,5	100	15	46	12,0	4	DIN 374	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

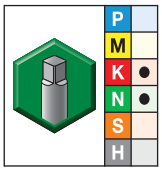


VICTORY

Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

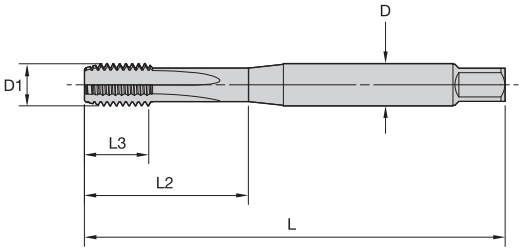
● first choice
○ alternate choice

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



		metric dimensions						
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

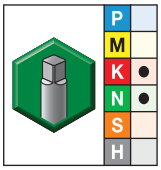


VICTORY

● first choice
○ alternate choice

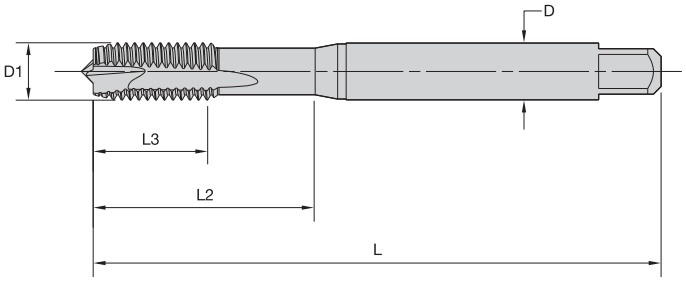
Shank Tolerance	
D mm	tolerance h6
>3–6	+0, -0,008
>6–10	+0, -0,009
>10–18	+0, -0,011
>18–30	+0, -0,013
>30–50	+0, -0,016

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



	metric dimensions							
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

• WN48EG DLC for aluminium

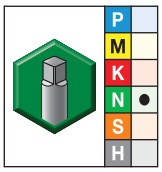


VICTORY

● first choice
○ alternate choice

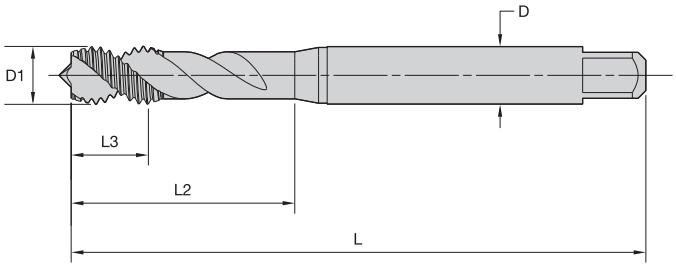
Shank Tolerance	
D	tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

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



		metric dimensions						
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

• WN48EG DLC for aluminium

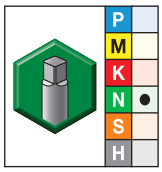


VICTORY

● first choice
○ alternate choice

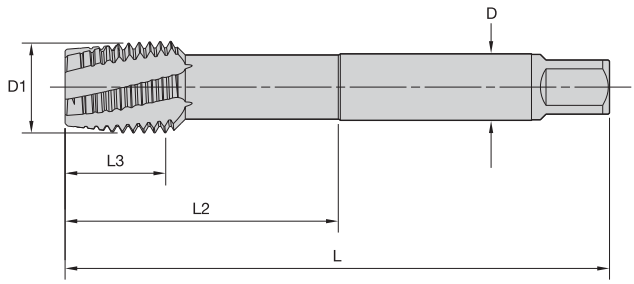
Shank Tolerance	
D	tolerance h9
1–3	+0, -0,025
3,5–6	+0, -0,030
7–10	+0, -0,036
11–18	+0, -0,043

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



	metric dimensions							
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

• GP6520 TiCN for steel and cast iron

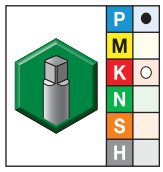


VICTORY

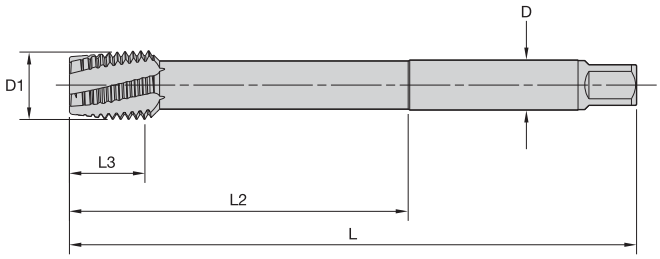
● first choice
○ alternate choice

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



GP6520	D1 size	metric dimensions L	L3	L2	D	number of flutes	dimension standard	class of fit
GT205111	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
GT205113	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
GT205114	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
GT205116	M36 X 4	200	40	110	28,0	6	DIN 376	6HX
GT205118	M42 X 4,5	200	45	120	32,0	6	DIN 376	6HX

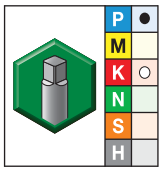


VICTORY

● first choice
○ alternate choice

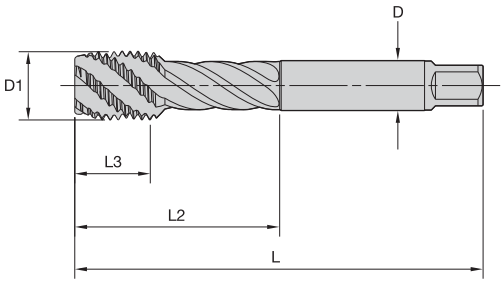
Shank Tolerance	
D	tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

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



GP6520	D1 size	metric dimensions 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

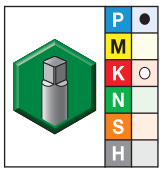


VICTORY

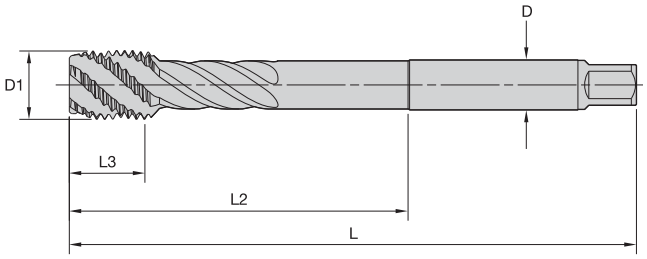
● first choice
○ alternate choice

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



	metric dimensions							
GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT305161	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
GT305163	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
GT305164	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
GT305166	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
GT305168	M42 X 4,5	200	45	120	32,0	5	DIN 376	6HX

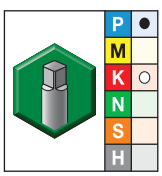


VICTORY

● first choice
○ alternate choice

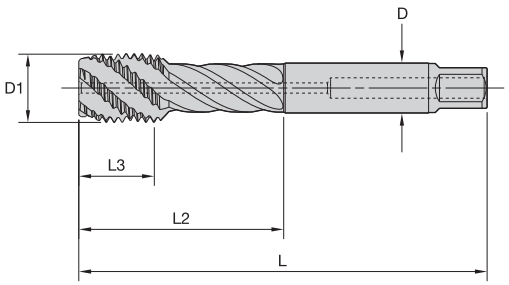
Shank Tolerance	
D	tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

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



	metric dimensions						
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

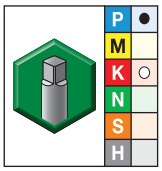


VICTORY

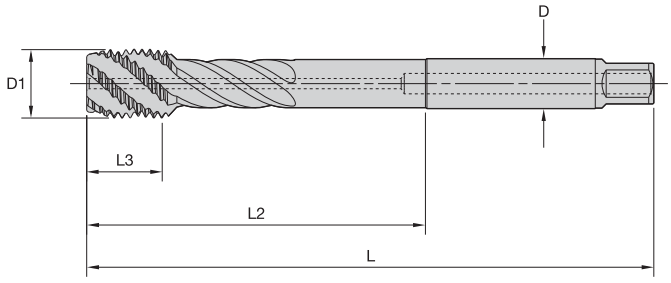
● first choice
○ alternate choice

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



		metric dimensions						
GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT315025	M24 X 3	160	30	77	18,0	5	DIN 376	6HX
GT315027	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
GT315028	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
GT315030	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
GT315032	M42 X 4,5	200	45	120	32,0	5	DIN 376	6HX

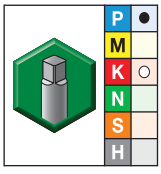


VICTORY

● first choice
○ alternate choice

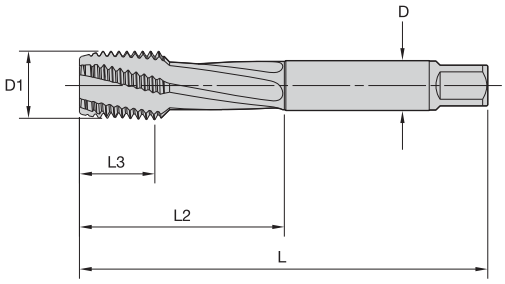
Shank Tolerance	
D	tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

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



		metric dimensions					
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

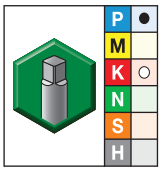


VICTORY

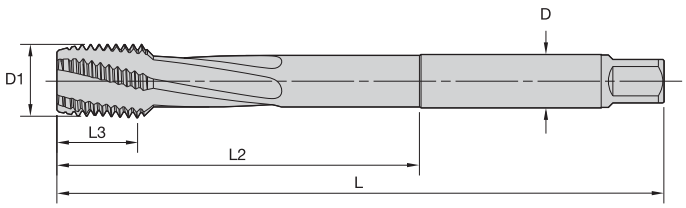
● first choice
○ alternate choice

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



GP6520	metric dimensions D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT505001	M24 X 3	160	30	77	18,0	4	DIN 376	6HX
GT505002	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
GT505003	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
GT505004	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
GT505005	M42 X 4,5	200	45	120	32,0	6	DIN 376	6HX

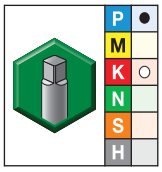


VICTORY

● first choice
○ alternate choice

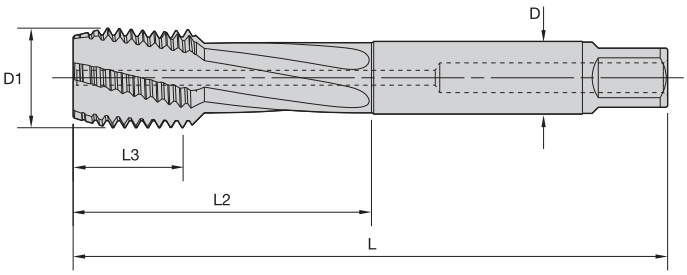
Shank Tolerance	
D	tolerance h6
12–18	+0, -0,011
20–30	+0, -0,013
32–36	+0, -0,016

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



GP6520	metric dimensions 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

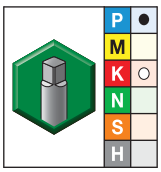


VICTORY

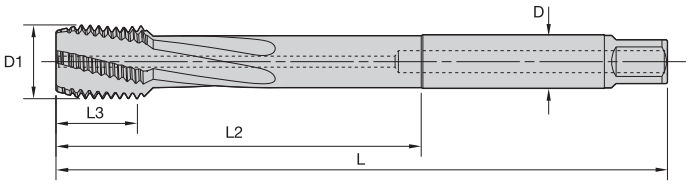
● first choice
○ alternate choice

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 Coolant • Larger Sizes • Metric DIN 376



		metric dimensions						
GP6520	D1 size	L	L3	L2	D	number of flutes	dimension standard	class of fit
GT515001	M24 X 3	160	30	77	18,0	4	DIN 376	6HX
GT515002	M30 X 3,5	180	35	91	22,0	5	DIN 376	6HX
GT515003	M33 X 3,5	180	35	100	25,0	5	DIN 376	6HX
GT515004	M36 X 4	200	40	110	28,0	5	DIN 376	6HX
GT515005	M42 X 4,5	200	45	120	32,0	6	DIN 376	6HX

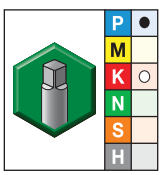


VICTORY

● first choice
○ alternate choice

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 Coolant • Larger Sizes • Metric Extra Long



		metric dimensions					
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

HSS-E-PM Taps • Metric

HSS-E-PM Taps • Metric												
		Through Holes					Blind Holes					
		Range — m/min					Range — m/min					
Material Group	VDI 3323	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, 3, 4, 5	GT20	GP6520	17	**25**	38	GT30,GT32,GT50	GP6520	12	**18**	26
		GT22	WP31MG	15	**25**	42	GT22	WP31MG	10	**18**	29
	6, 7, 8, 10	GT20	GP6520	12	**15**	20	GT30,GT32,GT50	GP6520	8	**11**	14
	9	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	5	**6**	8	GT02, GT04	WP31MG	3	**4**	5
M	14,1, 14,3	GT20	GM6515	12	**15**	20	GT30,GT32,GT50	GM6515	8	**11**	14
	14,2	GT20	GM6515	9	**12**	16	GT30,GT32,GT50	GM6515	6	**8**	11
	14,4	GT00	WP31MG	4	**5**	7	GT02, GT04	WP31MG	3	**4**	5
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
N	21, 22	GT70	WN48EG	42	**55**	72	GT80	WN48EG	30	**39**	50
		GT22	WN48EG	37	**55**	83	GT22	WN48EG	26	**39**	58
	23, 24	GT40	GP6520	38	**50**	65	GT40, GT42	GP6520	27	**35**	46
		GT22	WN38MG	33	**50**	75	GT22	WN38MG	23	**35**	53
	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, 37	GT14	WN35MG	3	**4**	6	GT16	WN35MG	2	**3**	4
H	38,1	GT06	WN35MG	1,3	**2,0**	3,0	GT06	WN35MG	1,1	**1,4**	1,8
	38,2	GT06	WN35MG	1,0	**1,5**	2,3	GT06	WN35MG	0,8	**1,1**	1,4
	40,1, 40,2	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 GP6520™.

GT20 Series • **Bearing Hub** • 1070

Challenge: Improve productivity and tool life, and reduce cost per hole.

P (Steel)	1070 Forged (38 Rc)	
Machine Centre:	CNC Horizontal (Flexible Tension/Compression Tap Holder)	
Tool Manufacturer:	**COMPETITOR**	**WIDIA-GTD™**
Tap Size and Pitch:	M14 x 1.50 H6	M14 x 1.50 6HX
Tap Part ID:	Special	GT205108
Tap Material and Coating:	HSS-E/Nitride-Oxide	GP6520™
Coolant and Delivery:	External Emulsion	External Emulsion
Speed (RPM):	398	416
Thread Depth:	14mm	14mm
Number of Holes Tapped:	3.360	5.450
Cost per Hole:	0,0085 €	**0,007 €**

GT30 Series • **Coupling** • 1045

Challenge: Improve productivity and tool life, and reduce cost per hole.

P (Steel)	1045 Annealed (23 Rc)	
Machine Centre:	CNC Vertical (Flexible Tension/Compression. Tap Holder)	
Tool Manufacturer:	**COMPETITOR**	**WIDIA-GTD™**
Tap Size and Pitch:	1/2-20 H5	1/2-20 3BX
Tap Part ID:	2942601	GT305147
Tap Material and Coating:	HSS-E/Oxide	GP6505™
Coolant and Delivery:	External Emulsion	External Emulsion
Speed (RPM):	611	764
Thread Depth:	28mm	28mm
Number of Holes Tapped:	9.900	17.820
Cost per Hole:	0,0022 €	**0,0019 €**

GT30 Series • **Manifold** • 304 SS

Challenge: Improve productivity and tool life, and reduce cost per hole.

M (Stainless Steel)	304 SS Casting	
Machine Centre:	CNC Vertical (Rigid Tap Holder)	
Tool Manufacturer:	**COMPETITOR**	**WIDIA-GTD™**
Tap Size and Pitch:	M6 x 1.0 6HX	M6 x 1.0 6HX
Tap Part ID:	—	GT305064
Tap Material and Coating:	HSS-E-PM/Oxide	GM6515™
Coolant and Delivery:	External Emulsion	External Emulsion
Speed (RPM):	212	796
Thread Depth:	12mm	12mm
Number of Holes Tapped:	7.200	13.008
Cost per Hole:	0,005 €	**0,0023 €**

GT43 Series • **Wheel Hub** • Grey Cast Iron

Challenge: Improve productivity without sacrificing thread finish or scrapping parts due to tap breakage.

K (Cast Iron)	A48-55 B Grey Cast Iron	
Machine Centre:	CNC Horizontal (Rigid Tap Holder)	
Tool Manufacturer:	**COMPETITOR**	**WIDIA-GTD™**
Tap Size and Pitch:	M8 x 1.25 D5	M8 x 1.25 6HX
Tap Part ID:	1105200208	GT435003
Tap Material and Coating:	HSS-E-PM/TiCN	GP6520™
Coolant and Delivery:	Internal Emulsion	Internal Emulsion
Speed (RPM):	728	1334
Thread Depth:	11,5mm	11,5mm
Number of Holes Tapped:	4.389	7.680
Cost per Hole:	0,005 €	**0,004 €**

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 SC 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 • Forming Taps • Selector

typical thread sizes	required tap drill diameter		P Steel <32 HRC — Forming Taps		
					
				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	–	–	–

HSS-E-PM Taps		M		All Materials	
		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									
metric	inch	mm	inch	fraction	wire	blind and through hole GT40_GP6520	blind and through hole GT40_GP6520	blind and through hole with coolant GT41_GP6520	approximately 3 x D with coolant 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

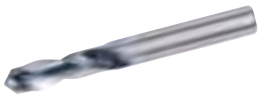
K		All Materials		
Recommended SC Drill		Alternate Tap Drill		
				
approximately 5 x D with coolant TDS412 WK15PD	approximately 5 x D non-coolant TDS212 WK15PD	approximately 3 x D with coolant VDS401A WU25PD	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant VDS202A WU25PD
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

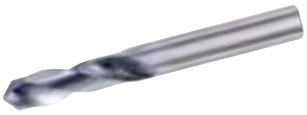
Aluminium • Selector

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 metric	inch	mm	inch	fraction	wire	blind hole GT80_WN48EG	through hole GT70_WN48EG	blind and through hole 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 metric	mm	inch	blind and through hole GT22 WN38MG	blind and through hole with coolant 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
metric	mm	inch	blind hole GT16_WN35MG	through hole GT14_WN35MG	blind hole 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	
metric	mm	inch	blind and through hole GT06_WS32MG	blind and through hole 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	approximately 3 x D with coolant	approximately 5 x D with coolant	approximately 3 x D with coolant	approximately 5 x D with coolant
GT10_WS32MG	WD 412522	WD 412527	TDS+	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

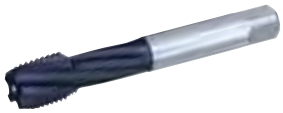
typical thread sizes	required tap drill diameter		K HSS-E-PM Taps		
					
cutting taps metric	mm	inch	blind hole GT30_GP6520	blind hole GT50_GP6520	through hole GT20_GP6520
M24 x 3,00	21,000	.8268	GT305161	GT505001	GT505111
M30 x 3,50	26,500	1.0433	GT305163	GT505002	GT505113
M33 x 3,50	29,500	1.1614	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		
GT315028	GT515003	Top Cut Plus™ TN7015/XOMT-34 or WIDIA-Metcut™ Spade Blade Program	
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		
GT315017	GT515008	Top Cut Plus™ TN7015/XOMT-34 or WIDIA-Metcut™ Spade Blade Program	
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		
GT315028	GT515003	Top Cut Plus™ TN5515/XOMT-35 or WIDIA-Metcut™ Spade Blade Program	
GT315030	GT515004		
GT315032	GT515005		

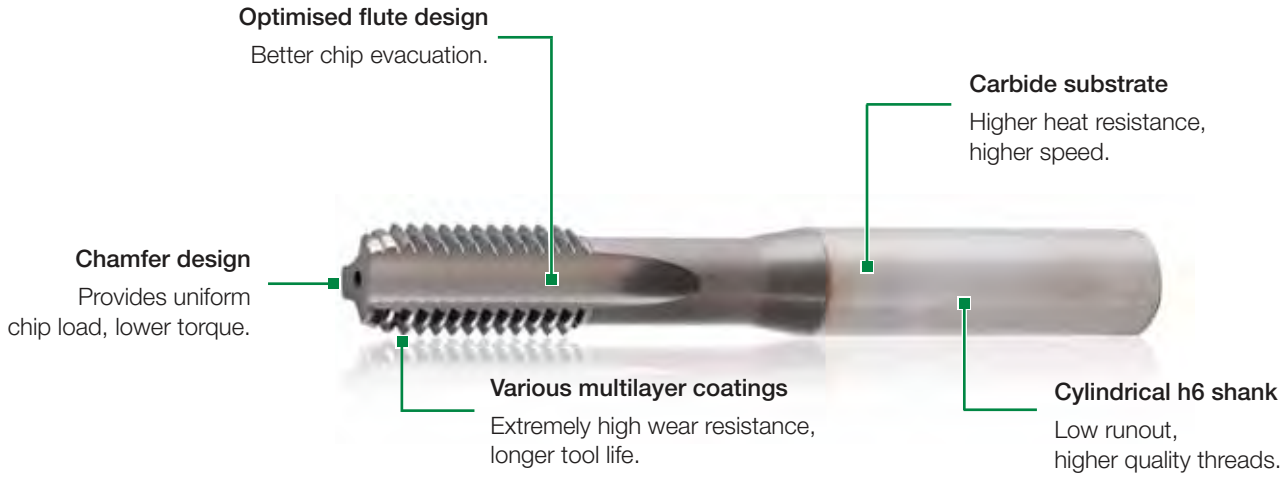
K		K	
HSS-E-PM Taps		Recommended Modular Drill	
			
blind hole with coolant GT31_GP6520	blind hole with coolant GT51_GP6520	TOP DRILL™ M1 insert	tool body 3 x D
GT315014	GT515006	TDM2100UPM	TDM210R3SCF25M
GT315016	GT515007		
GT315017	GT515008	Top Cut Plus™ TN5515/XOMT-35 or WIDIA-Metcut™ Spade Blade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

High-Performance Solid Carbide Taps • **WIDIA-GTD**™

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

Solid Carbide Taps

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



Advanced WIDIA™ Technology

- Manufactured with 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 steel, cast iron, aluminium, and hardened materials.

Features

- Runs 4x faster and lasts 4x longer than conventional taps.
- Enhanced tap precision and design.
- Tap runout less than 10 microns (.0004").
- PVD coatings tailored to specific applications.
- Custom solutions available upon request.

Benefits

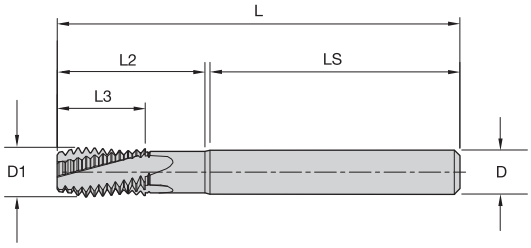
- Superior accuracy of product thread.
- Excellent thread quality and tap performance.
- High edge strength and wear resistance.
- Maximum chip control.
- Can be factory reconditioned to original specifications and tolerances.

Application Information

- For use on CNC machines with synchronous or rigid tapping control and precision toolholders.
- Use with machining centres equipped with precise and rigid hydraulic, Shrink Fit, or precision collet toolholders.

WIDIA VICTORY

• GP4535 TiAlN + TiN for steel

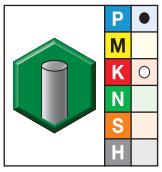


VICTORY

● first choice
○ alternate choice

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

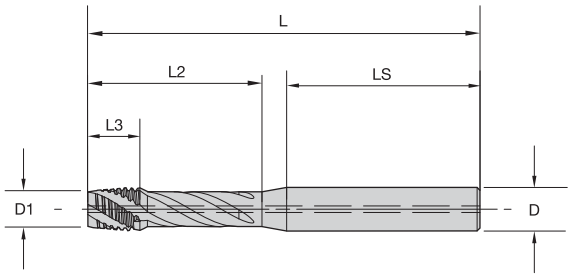
■ GX32 • Form D Plug Chamfer • Metric



GP4535	metric dimensions 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

NOTE: Proprietary technology.

• GP4535 TiAlN + TiN for steel

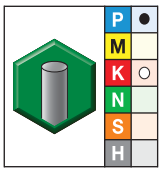


VICTORY

● first choice
○ alternate choice

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

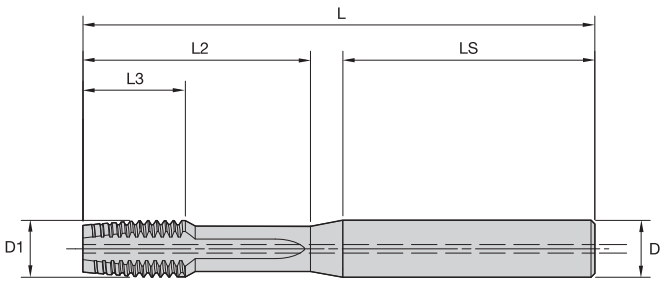
■ GX33 • Form C Semi-Bottoming Chamfer • Through Coolant • Metric



GP4535	metric dimensions 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
12784	M10 X 1	90	12	40	44	10,0	4	6HX
12783	M10 X 1,5	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

NOTE: Proprietary technology.

• GP4535 TiAlN + TiN for cast iron

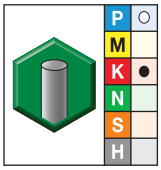


VICTORY

● first choice
○ alternate choice

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

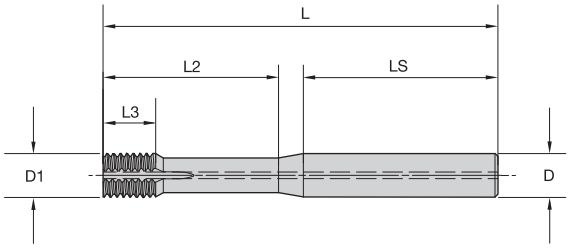
■ GX35 • Form E Bottoming Chamfer • Through Coolant M6 and Larger • Metric



		metric dimensions						
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

NOTE: Proprietary technology.

• GP4535 TiAlN + TiN for steel

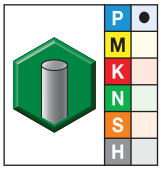


VICTORY

● first choice
○ alternate choice

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

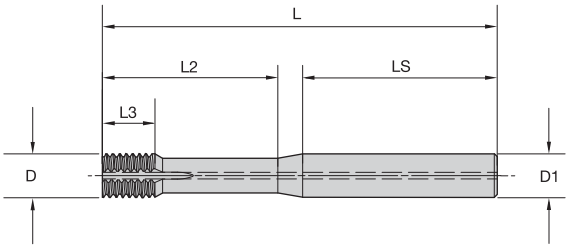
■ GX39 • Form E Bottoming Entry Taper • Through Coolant M6 and Larger • Metric



GP4535	metric dimensions 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

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

• GN1515 TiN + CrC/C for aluminium

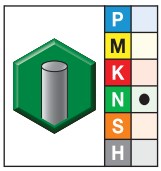


VICTORY

● first choice
○ alternate choice

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

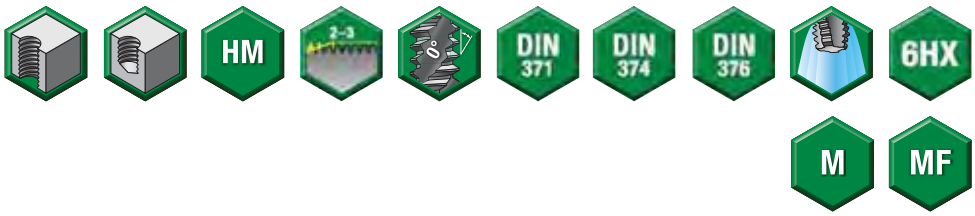
GX49 • Form E Bottoming Entry Taper • Through Coolant M6 and Larger • Metric

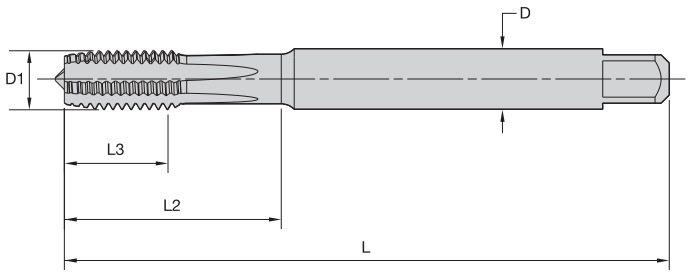


GN1515	metric dimensions D1 size	L	L3	L2	LS	D	number of lube grooves	class of fit
12906	M4 X 0,7	60	6	16	36	6,0	2	6HX
12907	M5 X 0,8	60	7	20	34	6,0	2	6HX
12908	M6 X 1	70	8	24	42	6,0	2	6HX
12909	M8 X 1,25	80	10	32	43	8,0	2	6HX
12912	M10 X 1	90	12	40	44	10,0	3	6HX
12911	M10 X 1,5	90	12	40	44	10,0	3	6HX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

NOTE: 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



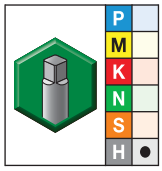


VICTORY

● first choice
○ alternate choice

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



		metric dimensions						
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

Carbide Taps • Metric

Material 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	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

WIN WITH WIDIA™

Solid Carbide Thread Mills

Features:

- Helical carbide thread mills with PVD TiAlN coating.
- One tool for right- or left-hand threads for both internal and external threading applications.
- For fine or coarse pitch threads.

Benefits:

- Excellent resistance to wear and shock loading.
- Ensures accurate thread form alignment.
- Machines all materials.
- Produce threads in materials up to 62 Rc.

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

WIDIA™

Steel

typical thread sizes		required tap drill diameter	P		
			Solid Carbide Taps		Solid Carbide Forming Taps
					
cutting taps metric	forming taps metric	mm	blind hole with coolant GX33_GP4535	through hole GX32_GP4535	forming blind hole with coolant GX39_GP4535
–	–	3,175	–	–	12801
M4,5 x 0,75	M4 x 0,70	3,700	–	–	12826
–	–	3,797	–	–	12802
–	–	4,366	–	–	12803
–	–	4,496	–	–	12804
–	M5 x 0,80	4,700	–	–	12827
M6 x 1,00	–	5,000	12781	12225	–
–	M6 x 1,00	5,600	–	–	12828
–	–	5,791	–	–	12805
–	–	5,944	–	–	12806
M8 x 1,25	–	6,700	12782	12226	–
–	–	6,909	–	12203	–
–	–	7,366	–	–	12807
–	M8 x 1,25	7,400	–	–	12829
–	–	8,433	–	12205	–
M10 x 1,50	–	8,500	12783	12227	–
M10 x 1,00	–	9,000	12784	–	–
–	–	8,839	–	–	12808
–	M10 x 1,50	9,400	–	–	12830
M12 x 1,75	–	10,200	12785	12228	–
M12 x 1,50	–	10,500	12786	–	–
–	–	10,716	12766	12207	–
–	–	11,509	–	12208	–
M14 x 2,00	–	12,000	12787	12229	–
M14 x 1,50	–	12,500	12788	–	–
M16 x 2,00	–	14,000	12789	12230	–

P	P		All Materials	
Solid Carbide Forming 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
12833	TDS402A05600	TDS202A05600	VDS402A05600	VDS202A05600
12813	TDS402A05791	TDS202A05791	VDS402A05791	VDS202A05791
12814	TDS402A05944	TDS202A05944	VDS402A05944	VDS202A05944
–	TDS402A06700	TDS202A06700	VDS412A06700	VDS212A06700
–	TDS402A06906	TDS202A06906	VDS412A06906	VDS212A06906
12815	TDS402A07366	TDS202A07366	VDS412A07366	VDS212A07366
12834	TDS402A07400	TDS202A07400	VDS412A07400	VDS212A07400
–	TDS402A08433	TDS202A08433	VDS412A08433	VDS212A08433
–	TDS402A08500	TDS202A08500	VDS412A08500	VDS212A08500
–	TDS402A09000	TDS202A09000	VDS412A09000	VDS212A09000
12816	TDS402A08839	TDS202A08839	VDS412A08839	VDS212A08839
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
–	TDS402A12500	TDS202A12500	VDS412A12500	VDS212A12500
–	TDS402A14000	TDS202A14000	VDS412A14000	VDS212A14000

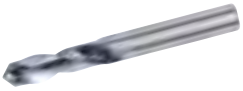
Cast Iron

typical thread sizes	required tap drill diameter	K		
		Solid Carbide Taps		Recommended SC Drill
				
cutting taps metric	mm	blind hole with coolant GX35_GP4535	through hole GX34_GP4535	approximately 3 x D with coolant TDS411 WK15PD
–	2,705	12700	12713	TDS401A02705
M4 x 0,70	3,300	12731	12742	TDS401A03300
–	3,454	12701	12714	TDS401A03454
–	3,734	12702	12715	TDS401A03734
–	4,039	12703	12716	TDS401A04039
M5 x 0,80	4,200	12732	12743	TDS401A04200
M6 x 1,00	5,000	12733	12744	TDS401A05000
–	5,106	12704	12717	TDS401A05106
–	5,410	12705	12718	TDS401A05410
–	6,528	12706	12719	TDS401A06528
M8 x 1,25	6,700	12734	12745	TDS411A06700
–	7,938	12707	12404	TDS411A07938
–	8,433	–	12405	TDS411A08433
M10 x 1,50	8,500	12735	12427	TDS411A08500
M10 x 1,00	9,000	12736	12746	TDS411A09000
–	9,093	12708	12406	TDS411A09093
M12 x 1,75	10,200	12737	12428	TDS411A10200
M12 x 1,50	10,500	12738	12747	TDS411A10500
–	10,716	12709	12407	TDS411A10716
–	11,509	–	12408	TDS411A11509
M14 x 2,00	12,000	12739	12429	TDS411A12000
–	12,304	12710	12409	TDS411A12304
M14 x 1,50	12,500	12740	12748	TDS411A12500
–	13,495	12711	12410	TDS411A13495
M16 x 2,00	14,000	12741	12430	TDS411A14000
M18 x 2,50	15,500	–	12431	TDS411A15500
–	16,670	12712	12411	TDS411A16670
M20 x 2,50	17,500	–	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 Forming Taps
				 
cutting taps metric	forming taps metric	mm	blind hole with coolant GX47_GN1515	through hole with coolant GX46_GN1515	forming blind hole with coolant GX49_GN1515
–	–	3,175	–	–	12895
M4,5 x 0,75	M4 x 0,70	3,700	–	–	12906
–	–	3,797	–	–	12896
–	–	4,366	–	–	12897
12-24	–	4,496	–	–	12898
–	M5 x 0,80	4,700	–	–	12907
M6 x 1,00	–	5,000	12866	12846	–
–	–	5,106	12858	12836	–
–	–	5,410	12859	12838	–
–	M6 x 1,00	5,600	–	–	12908
–	–	5,791	–	–	12899
–	–	5,944	–	–	12901
–	–	6,528	12860	12839	–
M8 x 1,25	–	6,700	12867	12847	–
–	–	7,366	–	–	12902
–	M8 x 1,25	7,400	–	–	12909
–	–	7,938	12861	12840	–
M10 x 1,50	–	8,500	12868	12848	–
M10 x 1,00	–	9,000	12869	12850	–
–	–	8,839	–	–	12903
7/16-14	–	9,093	12862	12841	–
–	M10 x 1,50	9,400	–	–	12911
M12 x 1,75	–	10,200	12870	12851	–
M12 x 1,50	–	10,500	12872	12852	–
–	–	10,716	12863	12843	–
M14 x 2,00	–	12,000	12873	12853	–
–	–	12,304	12864	12844	–
M14 x 1,50	–	12,500	12874	12854	–
–	–	13,495	12865	12845	–
M16 x 2,00	–	14,000	12875	12855	–
M16 x 1,50	–	14,500	12876	12856	–

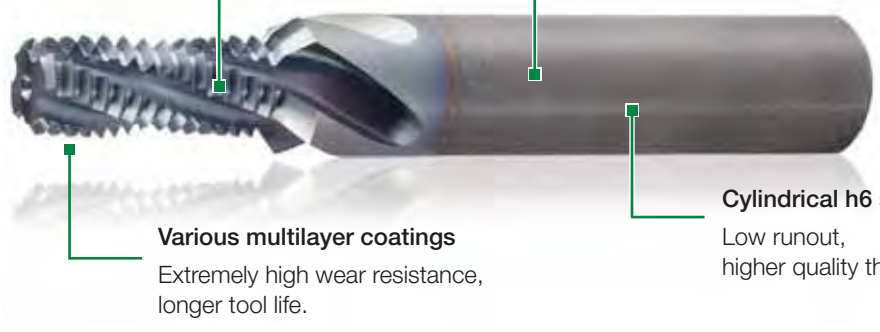
	N		All Materials	
Solid Carbide Forming Taps	Recommended SC Drill		Alternate Tap Drill	
				
forming through hole with coolant GX48_GN1515	approximately 3 x D with coolant WD 412522	approximately 5 x D with coolant WD 412527	approximately 5 x D with coolant VDS402A WU25PD	approximately 5 x D non-coolant 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

Thread Mills • **WIDIA-GTD™**

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

Thread Mills

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



Unmatched Capabilities

- Capable of easily cutting most difficult materials.
- Carbide grades make threading easier and reduce machining times.
- 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.
- Fewer machining problems means more production safety.

Victory™ GTM Series HP Solid Carbide Thread Mills • Metric

★ Good
★★ Better
★★★ Best

GTM Series Solid Thread Milling • Metric	series	size range (inch and metric) 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

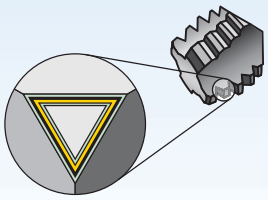
Victory GTM Series HP Solid Carbide Thread Mills • Inch

★ Good
★★ Better
★★★ Best

GTM Series Solid Thread Milling • Inch	series	size range (inch and metric) min - max	hole	operation	coolant	grade	shank
	GTM21	#10 - 5/8"	★★★	★★	★★★	WU12PV	6535 HA
	GTM31	1/4" - 5/8"	★★★	★★★	★★★	WU12PV	6535 HA
	GTM41	1/4" - 3/4"	★★★	★★★	★★★	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 and Ferritic Stainless Steel <35 HRC	PH and 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 Steels 49–55 HRC	Hardened Steels 56–68 HRC	page	recommended cutting parameters
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★	★	★	★			A96	A104
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★			A98	A104
					★★★	★★★	★★★	★★★	★★★							A100	A104
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★					★★★	★★★	A102	A105
										★★★	★★★	★★★	★★★	★★★	★★★	A103	A105

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 and Ferritic Stainless Steel <35 HRC	PH and 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 Steels 49–55 HRC	Hardened Steels 56–68 HRC	page	recommended cutting parameters
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★			A97	A104
					★★★	★★★	★★★	★★★	★★★							A99	A104
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★					★★★	★★★	A101	A105

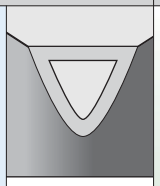
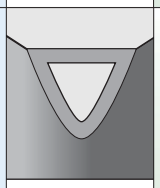
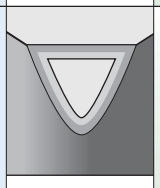


Coatings are designed for optimised tapping performance in specific materials.

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

wear resistance ⟷ toughness

Grade

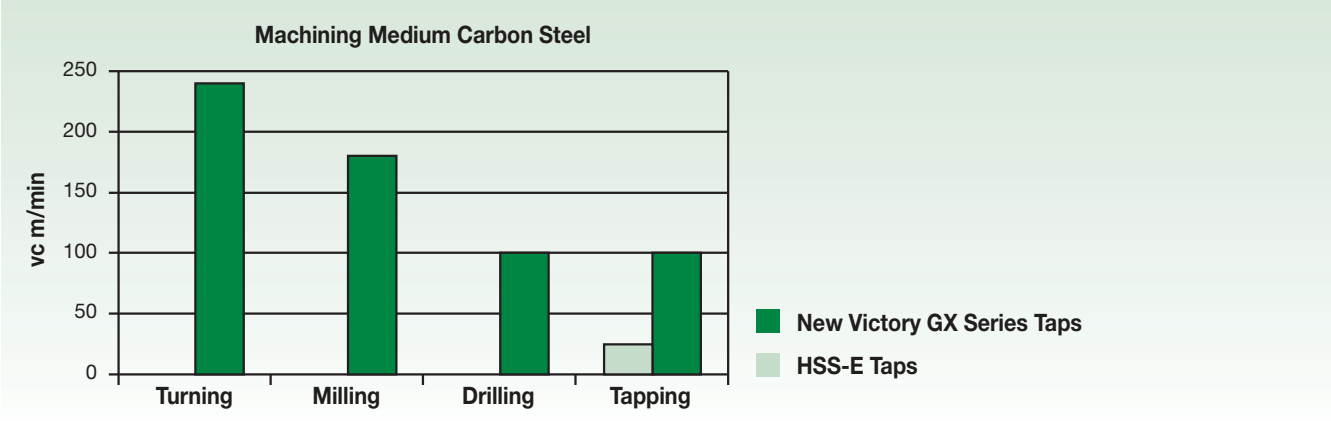
Coating		Grade Description	05	10	15	20	25	30	35	40	45
WU12PV		Coated carbide. PVD fine-grain carbide substrate with high-hardness TiCN coating. Universal grade for thread milling most materials.	P	P	P	P					
			M	M	M	M					
			K	K	K	K					
			N		N	N	N				
			S	S	S	S					
WU13PV		Coated carbide. PVD carbide substrate with heat-resistant TiAlN coating. Universal grade for thread milling most materials.	P		P	P	P	P			
			M		M	M	M	M			
			K	K	K	K	K				
			N			N	N	N	N		
			S		S	S	S	S			
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			P	P	P	P		
			M			M	M	M	M		
			K		K	K	K	K			
			N		N	N	N	N			
			S			S	S	S	S		
			H				H	H	H	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 proprietary specifications and tolerances.



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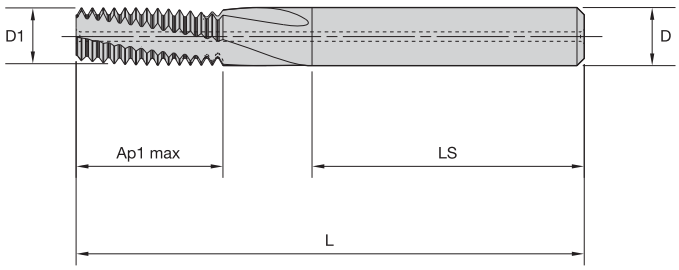
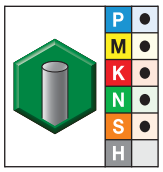


VICTORY

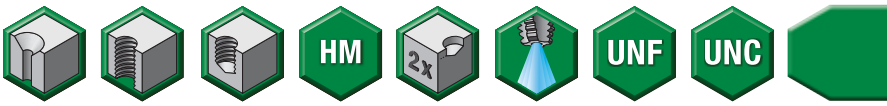
● first choice
○ alternate choice

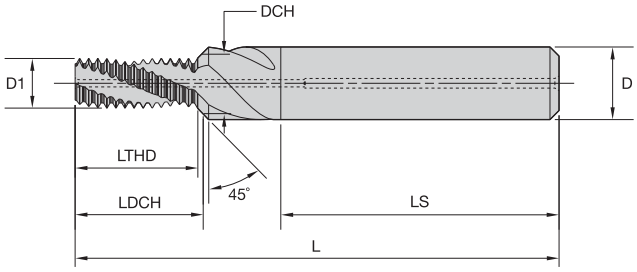
Shank Tolerance	
D	tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–18	+0, -0,011
20–30	+0, -0,013

■ GTM11 • Through Coolant • Metric and Metric Fine



WU13PV	metric dimensions						cutting edges
	D1 size	D1	Ap1 max	L	LS	D	
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



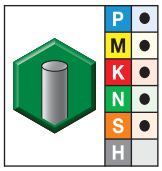


VICTORY

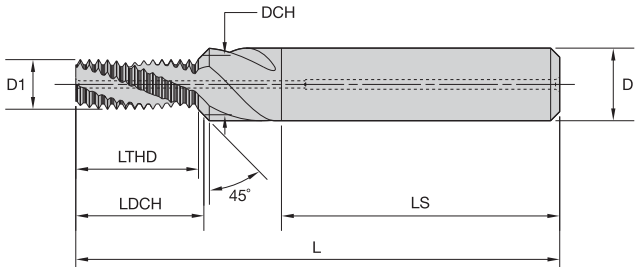
● first choice
○ alternate choice

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 • Inch UNC and UNF



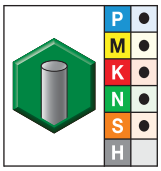
WU12PV	metric dimensions								cutting edges
	D1 TPI	D1	DCH	LTHD	LDCH	L	LS	D	
GTM215024	#10-32	3,8	5,13	9,95	10,53	55	36	6,0	3
GTM215017	1/4-20	4,7	6,65	13,36	14,23	62	36	8,0	3
GTM215025	1/4-28	5,2	6,65	13,19	13,84	62	36	8,0	3
GTM215018	5/16-18	6,2	8,25	16,26	17,19	74	40	10,0	3
GTM215026	5/16-24	6,6	8,25	16,44	17,15	74	40	10,0	3
GTM215019	3/8-16	7,7	9,83	19,89	20,85	80	45	12,0	3
GTM215027	3/8-24	8,2	9,83	19,62	20,31	80	45	12,0	3
GTM215020	7/16-14	9,0	11,43	22,72	23,79	80	45	12,0	3
GTM215028	7/16-20	9,6	11,43	22,28	23,08	80	45	12,0	3
GTM215021	1/2-13	10,4	13,00	26,43	27,60	90	45	14,0	4
GTM215029	1/2-20	11,1	13,00	26,10	26,89	90	45	14,0	4
GTM215022	9/16-12	11,8	14,61	30,75	31,99	100	48	16,0	4
GTM215030	9/16-18	12,5	14,61	28,99	29,88	100	48	16,0	4
GTM215023	5/8-11	13,1	16,18	33,54	34,89	102	48	18,0	4
GTM215031	5/8-18	14,1	16,18	33,24	34,09	102	48	18,0	4



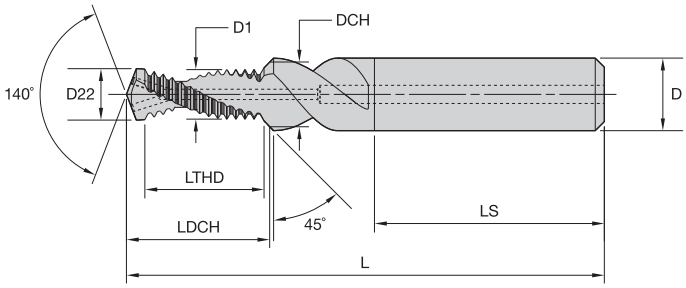
● first choice
○ alternate choice

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



WU12PV	metric dimensions								cutting edges
	D1 size	D1	DCH	LTHD	LDCH	L	LS	D	
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

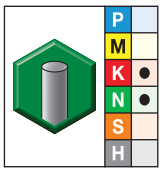


VICTORY

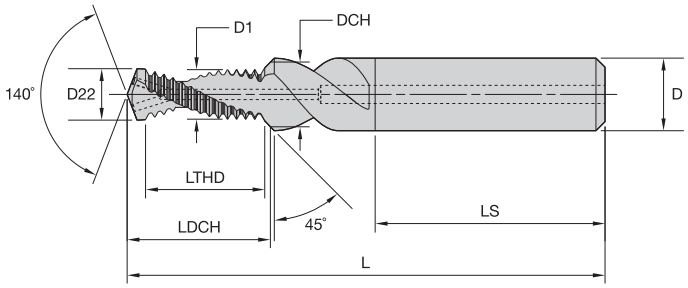
Shank Tolerance	
D	tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–18	+0, -0,011
20–30	+0, -0,013

● first choice
○ alternate choice

■ GTM31 • Through Coolant • Inch UNC and UNF



WU12PV	metric dimensions									cutting edges
	D1 TPI	D22	D1	DCH	LTHD	LDCH	L	LS	D	
GTM315021	1/4-20	5,2	4,9	6,7	12,80	15,87	62	36	8,0	2
GTM315028	1/4-28	5,5	5,3	6,7	12,79	15,35	62	36	8,0	2
GTM315023	5/16-18	6,6	6,3	8,3	15,63	19,19	74	40	10,0	2
GTM315030	5/16-24	6,9	6,6	8,3	15,98	19,07	74	40	10,0	2
GTM315017	3/8-16	8,0	7,7	9,8	19,16	23,25	79	45	12,0	2
GTM315024	3/8-24	8,5	8,2	9,8	19,16	22,54	79	45	12,0	2
GTM315018	7/16-14	9,4	9,0	11,4	21,89	26,58	79	45	12,0	2
GTM315025	7/16-20	9,9	9,6	11,4	21,72	25,69	79	45	12,0	2
GTM315019	1/2-13	10,8	10,4	13,0	25,52	30,71	89	45	14,0	2
GTM315026	1/2-20	11,5	11,1	13,0	25,55	29,82	89	45	14,0	2
GTM315020	9/16-12	12,3	11,8	14,6	27,66	33,37	102	48	16,0	2
GTM315027	9/16-18	12,9	12,5	14,6	28,37	33,15	102	48	16,0	2
GTM315022	5/8-11	13,5	13,1	16,2	30,14	36,40	102	48	18,0	2
GTM315029	5/8-18	14,5	14,1	16,2	31,21	36,25	102	48	18,0	2

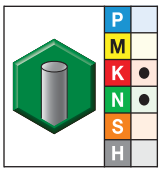


VICTORY

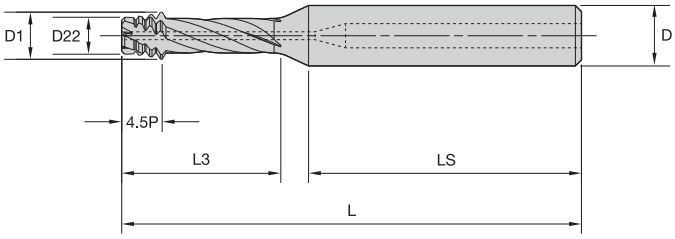
● first choice
○ alternate choice

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



		metric dimensions								
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

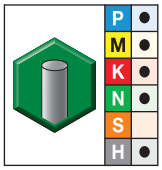


VICTORY

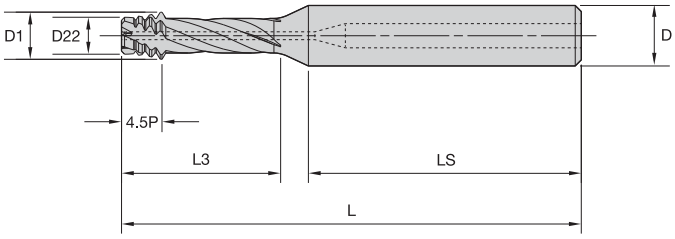
● first choice
○ alternate choice

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 • Inch UNC and UNF



WU16PV	metric dimensions							cutting edges
	D1 TPI	D1	D22	L3	L	LS	D	
GTM415025	1/4-20	4,64	3,34	17,0	60	36	8,0	3
GTM415033	1/4-28	4,66	3,62	17,0	60	36	8,0	3
GTM415026	5/16-18	5,64	4,12	21,9	76	40	10,0	4
GTM415034	5/16-24	5,64	4,48	21,9	76	40	10,0	4
GTM415035	3/8-24	7,14	6,00	26,3	76	40	10,0	4
GTM415027	3/8-16	7,16	5,42	26,3	76	40	10,0	4
GTM415037	1/2-20	8,45	7,06	33,0	86	45	12,0	4
GTM415036	7/16-20	8,45	7,06	33,0	86	45	12,0	4
GTM415028	7/16/14	8,47	6,49	31,0	86	45	12,0	4
GTM415029	1/2-13	10,08	7,95	33,4	86	45	12,0	4
GTM415038	9/16-18	11,27	9,72	41,0	98	48	16,0	4
GTM415030	9/16-12	11,28	8,98	41,0	98	48	16,0	4
GTM415039	5/8-18	12,38	10,83	42,0	98	48	16,0	4
GTM415031	5/8-11	12,89	10,40	42,0	98	48	16,0	4
GTM415040	3/4-16	15,38	13,65	51,3	111	50	20,0	5
GTM415032	3/4-10	15,50	12,77	51,3	111	50	20,0	5

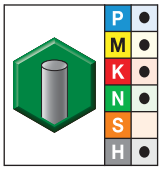


VICTORY

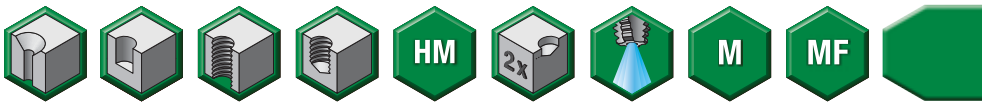
● first choice
○ alternate choice

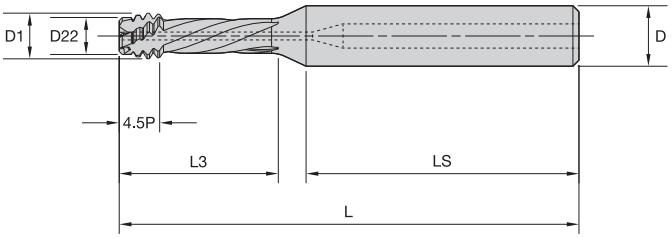
Shank Tolerance	
D	tolerance h6
6	+0, -0,008
8–10	+0, -0,009
12–18	+0, -0,011
20–30	+0, -0,013

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



WU16PV	metric dimensions							cutting edges
	D1 size	D1	D22	L3	L	LS	D	
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



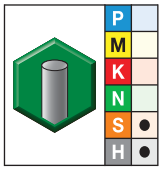


VICTORY

● first choice
○ alternate choice

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



WU16PV	metric dimensions							cutting edges
	D1 size	D1	D22	L3	L	LS	D	
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

GTM11 and GTM21 • Metric

Thread Mill GTM11

Thread Mill • Chamfer GTM21

Material Group		Cutting Speed — vc Range — m/min			Feed/Tooth by Diameter			Cutting Speed — vc Range — m/min			Feed/Tooth by Diameter		
		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

GTM31 • Metric

Drill • Chamfer • Thread Mill GTM31

Material 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

Universal Thread Mills • GTM41 • Metric

Mill • Chamfer • Thread Mill GTM41

Material 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 and up to 3 x D, reduce speed by 25% and feed by 25%.

Thread Milling Methods

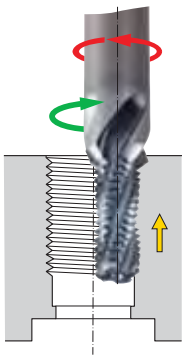
Climb Milling

Properties:

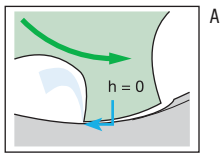
- Tool rotation direction clockwise
- Tool moves anti-clockwise
- Pitch upwards

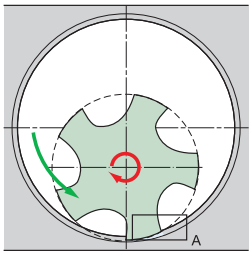
↓

- Right-hand thread



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





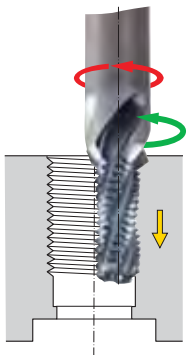
Conventional Milling

Properties:

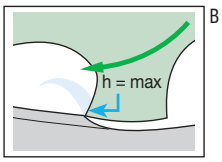
- Tool rotation direction clockwise
- Tool moves clockwise
- Pitch downwards

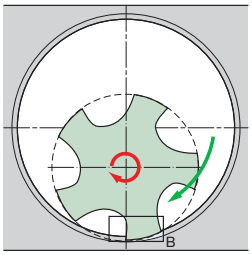
↓

- Right-hand thread



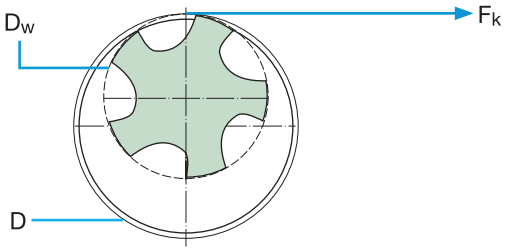
Conventional milling is always when the cutting edge goes out of the material with a chip thickness h = max





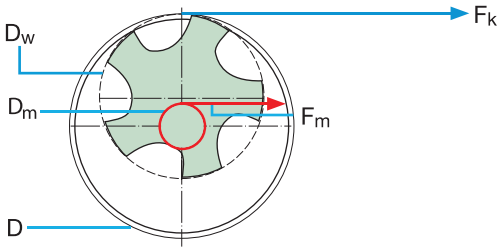
Counter Feed F_k

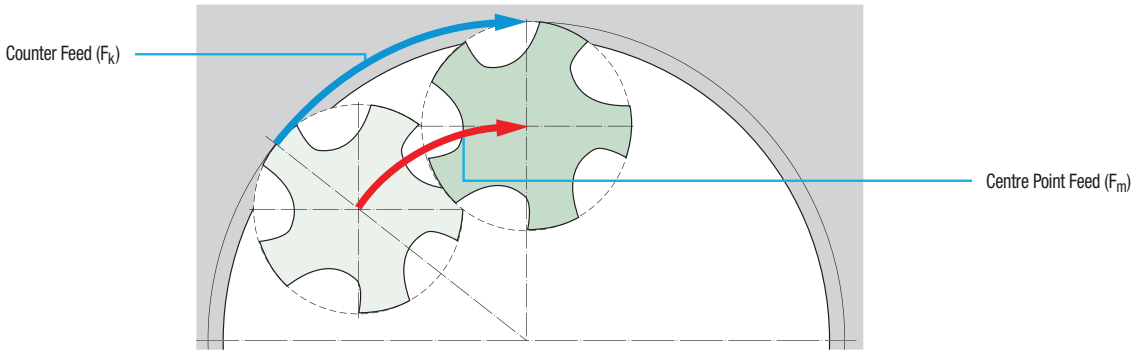
$$F_k = n \cdot f_z \cdot Z \text{ [mm/min]}$$



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

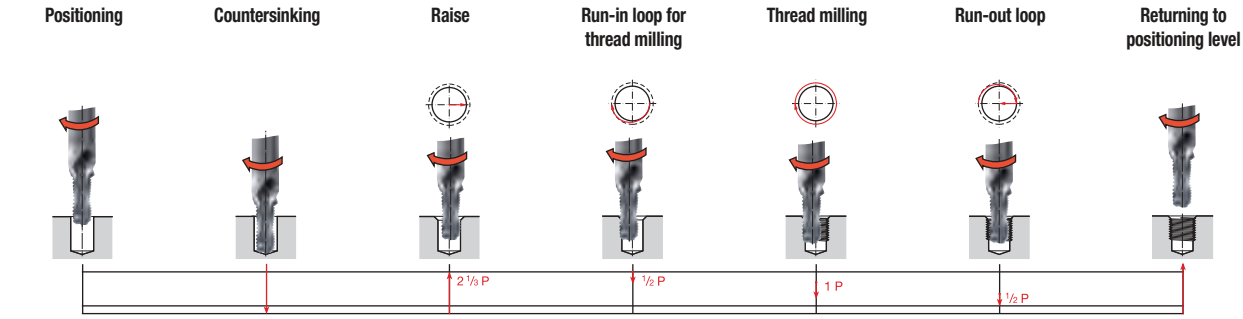
Preparation

Drilling of thread hole

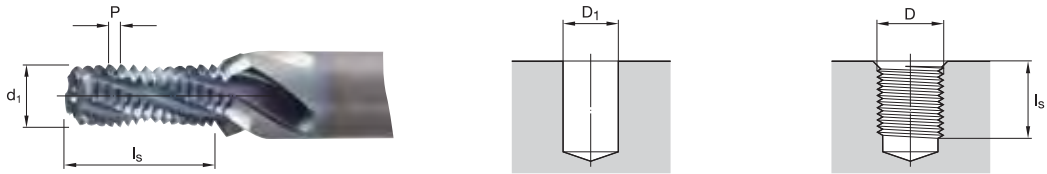
Process Principle

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)

$$N = \frac{V_c \cdot 1000}{d_1 \cdot \pi} \qquad S = 9709$$

$$v_s = f_s \cdot n \qquad F = 2913 \text{ (countersinking)}$$

$$v_f = f_z \cdot Z \cdot n \qquad F = 2622 \text{ (contour)}$$

$$v_f = \frac{v_f \text{ contour} \cdot (D-d_1)}{D} \qquad F = 472 \text{ (centre point)}$$

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

Positioning the tool	N 10	G 54	G 90	G 00	X…	Y…	Z 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

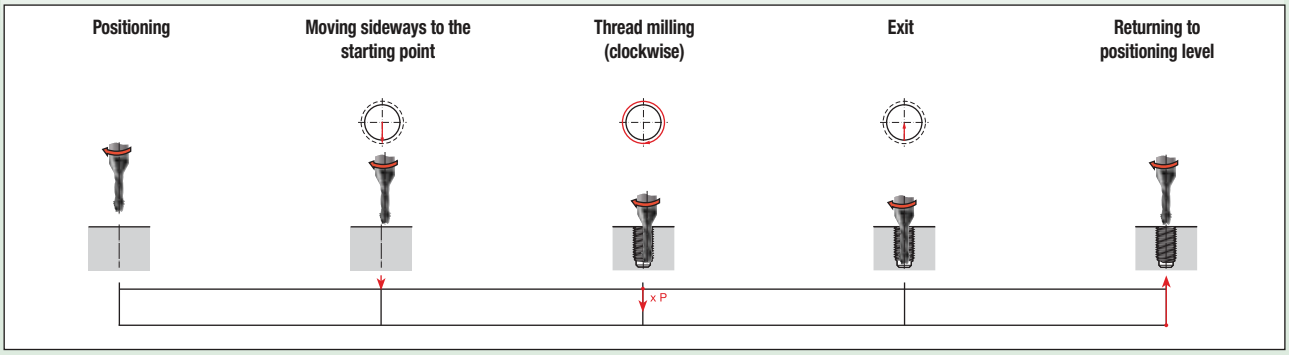
1.4 seconds

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.

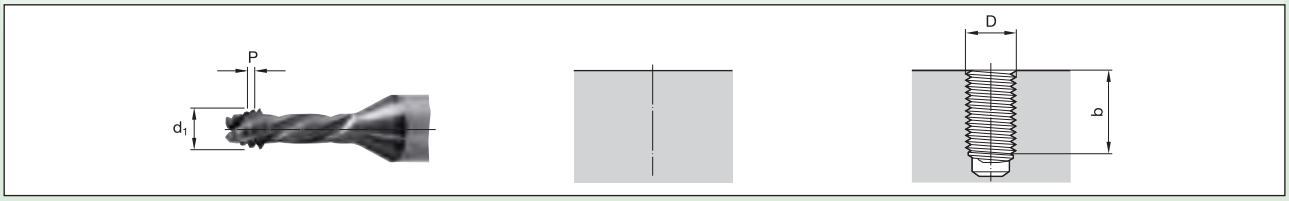
Drill Thread Mill GTM41 • Right Hand

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)

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

$$v_f = f_z \cdot Z \cdot n$$ **F = 657 (contour)**

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

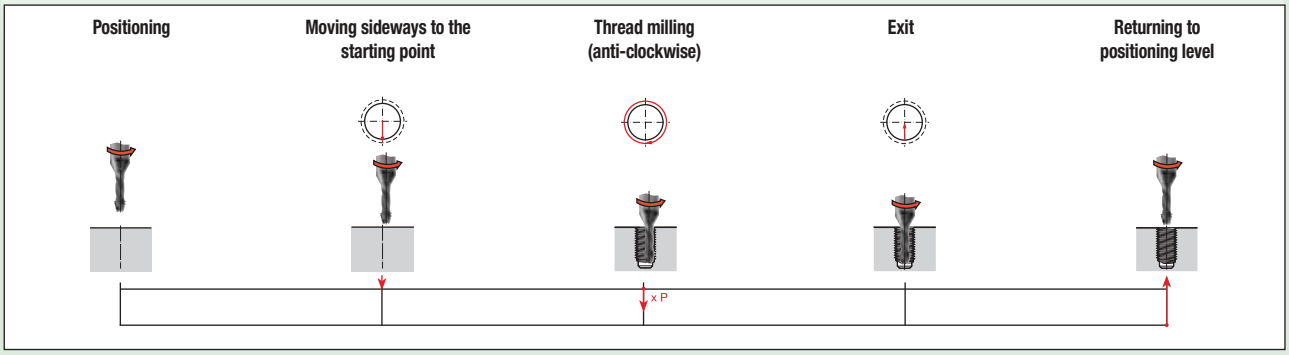
Cutting time t_h	**51.6 seconds**

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).

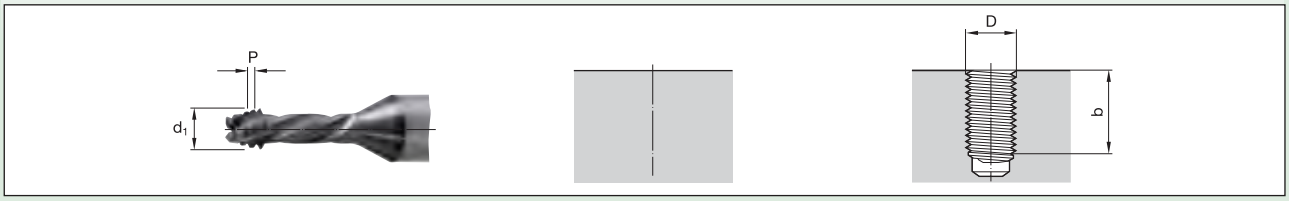
Drill Thread Mill GTM41 • Left Hand

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)

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

$$v_f = f_z \cdot Z \cdot n \qquad F = 493 \text{ (contour)}$$

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

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						

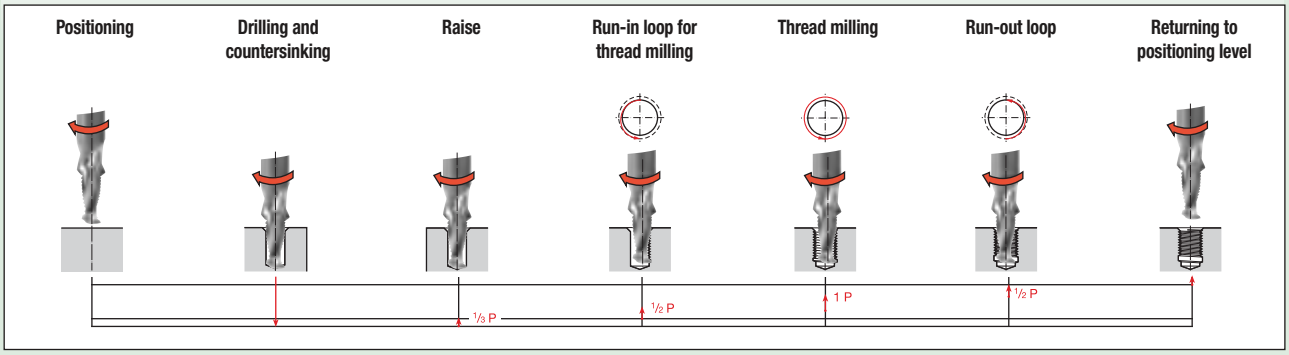
Cutting time t_h	**68.8 seconds**

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).

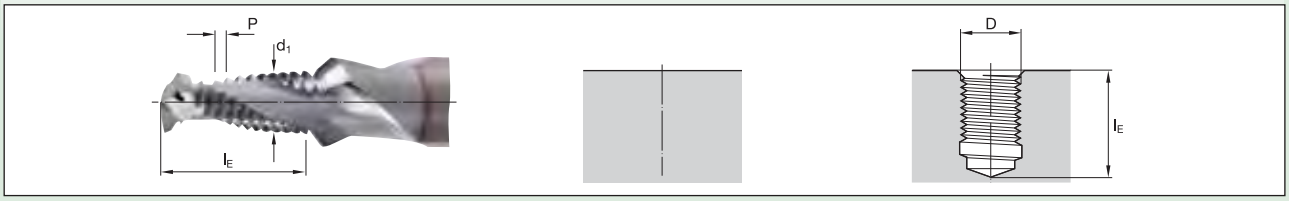
Drill Thread Mill GTM31

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 center point feed themselves.

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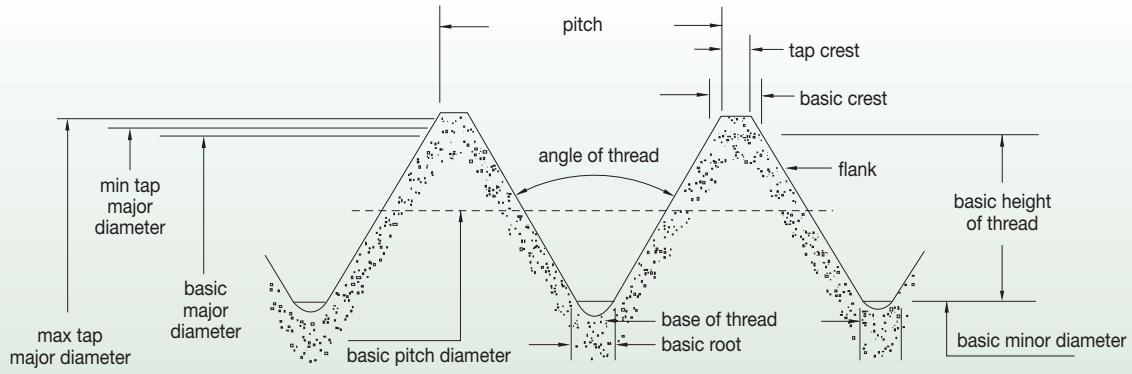
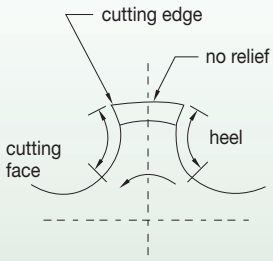
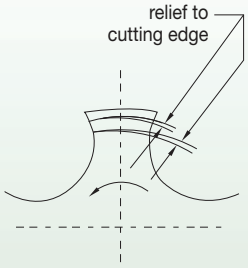
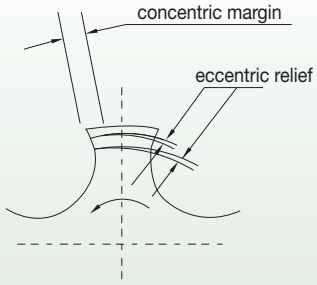




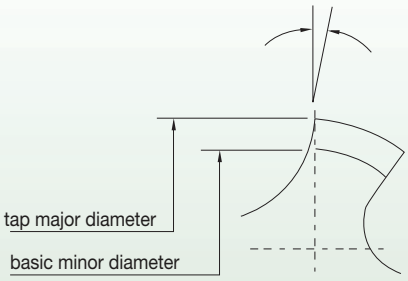
Concentric



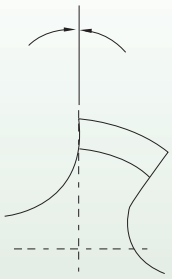
Eccentric Relief



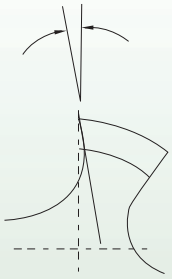
Con-Eccentric Relief



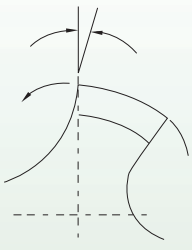
Negative Hook



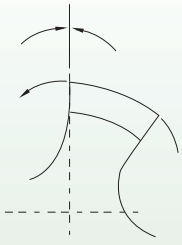
0º Hook



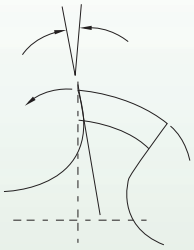
Positive Hook



Negative Rake



Radial Rake



Positive Rake

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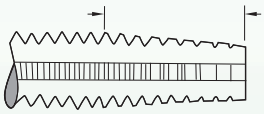
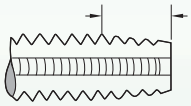
Tap Chamfers • DIN Taps

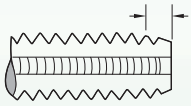
Taper Chamfer
7–10 Pitches



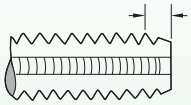
Plug Chamfer
3–5 Pitches



Modified Bottoming Chamfer
2–2-1/2 Pitches



Full Bottoming Chamfer
1–2 Pitches



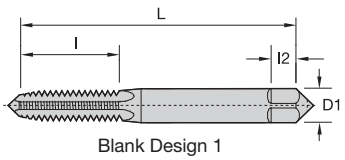
Hand Tap Chamfers

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.

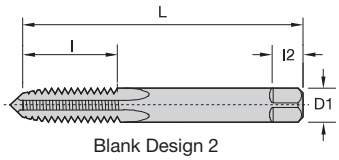
Form B/D (3.5–5 pitches)
The most common chamfers for use by hand or machine in through or blind holes. Form B applies to spiral-point taps and Form D applies to straight-flute and spiral-flute taps. This chamfer is more efficient than a Form E or Form C chamfers.

Form C (2–2-1/2 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.

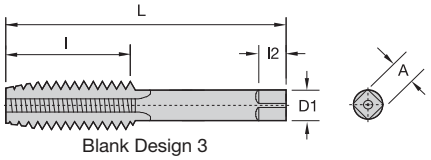
Form E (1.5–2 pitches)
For threading close to the bottom of blind holes, the Form E chamfer is the least efficient chamfer available.



Blank Design 1



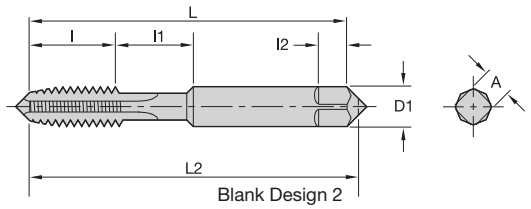
Blank Design 2



Blank Design 3

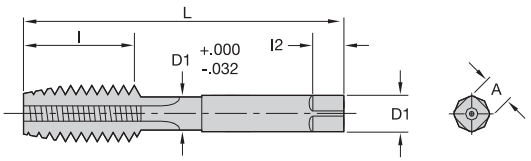
nominal diameter range (in)	machine screw size number (in)	nominal fractional diameter (in)	nominal metric diameter mm (in)	blank design number	overall length L	thread length l	square length l2	shank diameter D1	square size A
.052–.065	0 (.0600)	—	M1.6 (.0630)	1	1.63	.31	.19	.1410	.110
.065–.078	1 (.0730)		M1.8 (.0709)	1	1.69	.38	.19	.1410	.110
.078–.091	2 (.0860)	—	M2 (0787), M2.2 (.0866)	1	1.75	.44	.19	.1410	.110
.091–.104	3 (.0990)		M2.5 (.0984)	1	1.81	.50	.19	.1410	.110
.104–.117	4 (.1120)	—		1	1.88	.56	.19	.1410	.110
.117–.130	5 (.1250)		M3 (.1181)	1	1.94	.63	.19	.1410	.110
.130–.145	6 (.1380)	—	M3.5 (.1378)	1	2.00	.69	.19	.1410	.110
.145–.171	8 (.1640)		M4 (.1575)	1	2.13	.75	.25	.1680	.131
.171–.197	10 (.1900)	—	M4.5 (.1772), M5 (.1969)	1	2.38	.88	.25	.1940	.152
.197–.223	12 (.2160)			1	2.38	.94	.28	.2200	.165
.223–.260	—	1/4 (.2500)	M6 (.2362)	2	2.50	1.00	.31	.2550	.191
.260–.323		5/16 (.3125)	M7 (.2756), M8 (.3150)	2	2.72	1.13	.38	.3180	.238
.323–.395	—	3/8 (.3750)	M10 (.3937)	2	2.94	1.25	.44	.3810	.286
.395–.448		7/16 (.4375)		3	3.16	1.44	.41	.3230	.242
.448–.510	—	1/2 (.5000)	M12 (.4724)	3	3.38	1.66	.44	.3670	.275
.510–.573		9/16 (.5625)	M14 (.5512)	3	3.59	1.66	.50	.4290	.322
.573–.635	—	5/8 (.6250)	M16 (.6299)	3	3.81	1.81	.56	.4800	.360
.635–.709		11/16 (.6875)	M18 (.7087)	3	4.03	1.81	.63	.5420	.406
.709–.760	—	3/4 (.7500)		3	4.25	2.00	.69	.5900	.442
.760–.823		13/16 (.8125)	M20 (.7874)	3	4.47	2.00	.69	.6520	.489
.823–.885	—	7/8 (.8750)	M22 (.8661)	3	4.69	2.22	.75	.6970	.523
.885–.948		15/16 (.9375)	M24 (.9449)	3	4.91	2.22	.75	.7600	.570
.948–1.010	—	1 (1.0000)	M25 (.9843)	3	5.13	2.50	.81	.8000	.600
1.010–1.073		1-1/16 (1.0625)	M27 (1.0630)	3	5.13	2.50	.88	.8960	.672
1.073–1.135	—	1-1/8 (1.1250)		3	5.44	2.56	.88	.8960	.672
1.135–1.198		1-3/16 (1.1875)	M30 (1.1811)	3	5.44	2.56	1.00	1.0210	.766
1.198–1.260	—	1-1/4 (1.2500)		3	5.75	2.56	1.00	1.0210	.766
1.260–1.323		1-5/16 (1.3125)	M33 (1.2992)	3	5.75	2.56	1.06	1.1080	.831
1.323–1.385	—	1-3/8 (1.3750)		3	6.06	3.00	1.06	1.1080	.831
1.358–1.448		1-7/16 (1.4375)	M36 (1.4173)	3	6.06	3.00	1.13	1.2330	.925
1.448–1.510	—	1-1/2 (1.5000)		3	6.38	3.00	1.13	1.2330	.925
1.510–1.635		1-5/8 (1.6250)	M39 (1.5354)	3	6.69	3.19	1.13	1.3050	.979
1.635–1.760	—	1-3/4 (1.7500)	M42 (1.6535)	3	7.00	3.19	1.25	1.4300	1.072
1.760–1.885		1-7/8 (1.8750)		3	7.31	3.56	1.25	1.5190	1.139
1.885–2.010	—	2 (2.0000)	M48 (1.8898)	3	7.63	3.56	1.38	1.6440	1.233
2.010–2.135		2-1/8 (2.1250)		3	8.00	3.56	1.38	1.7690	1.327
2.135–2.260	—	2-1/4 (2.2500)	M56 (2.2047)	3	8.25	3.56	1.44	1.8940	1.420
2.260–2.385		2-3/8 (2.3750)		3	8.50	4.00	1.44	2.0190	1.514
2.385–2.510	—	2-1/2 (2.5000)		3	8.75	4.00	1.50	2.1000	1.575
2.510–2.635		2-5/8 (2.6250)	M64 (2.5197)	3	8.75	4.00	1.50	2.2250	1.669
2.635–2.760	—	2-3/4 (2.7500)		3	9.25	4.00	1.56	2.3500	1.762
2.760–2.885		2-7/8 (2.8750)	M72 (2.8346)	3	9.25	4.00	1.56	2.4750	1.856
2.885–3.010	—	3 (3.0000)		3	9.75	4.56	1.63	2.5430	1.907
3.010–3.135		3-1/8 (3.1250)		3	9.75	4.56	1.63	2.6680	2.001
3.135–3.260	—	3-1/4 (3.2500)	M80 (3.1496)	3	10.00	4.56	1.75	2.7930	2.095
3.260–3.385		3-3/8 (3.3750)		3	10.00	4.56	1.75	2.8830	2.162
3.385–3.510	—	3-1/2 (3.5000)		3	10.25	4.94	2.00	3.0080	2.256
3.510–3.635		3-5/8 (3.6250)	M90 (3.5433)	3	10.25	4.94	2.00	3.1330	2.350
3.635–3.760	—	3-3/4 (3.7500)		3	10.50	5.31	2.13	3.2170	2.413
3.760–3.885		3-7/8 (3.8750)		3	10.50	5.31	2.13	3.3420	2.506
3.885–4.010	—	4 (4.0000)	M100 (3.9370)	3	10.75	5.31	2.25	3.4670	2.600

Blank Design 1



Blank Design 2

Blank Design 3



General Dimensions

nominal diameter range (in)		machine screw size number (in)		nominal fractional diameter (in)		nominal metric diameter mm (in)		blank design number	Tap Dimensions — Inches overall length L	thread length l	neck length l1	square length l2	shank diameter D1	square size A
.104	.117	4	(.1120)	—		—		1	1.88	.31	.25	.19	.1410	.110
.117	.130	5	(.1250)			M3	(.1181)	1	1.94	.31	.31	.19	.1410	.110
.130	.145	6	(.1380)	—		M3.5	(.1378)	1	2.00	.38	.31	.19	.1410	.110
.145	.171	8	(.1640)			M4	(.1575)	1	2.13	.38	.38	.25	.1680	.131
.171	.197	10	(.1900)	—		M4.5	(.1772)	1	2.38	.50	.38	.25	.1940	.152
						M5	(.1969)							
.197	.223	12	(.2160)			—		1	2.38	.50	.44	.28	.2200	.165
.223	.260			1/4	(.2500)	M6	(.2362)	2	2.50	.63	.38	.31	.2550	.191
.260	.323	—		5/16	(.3125)	M7(.2756),	M8(.3150)	2	2.72	.69	.44	.38	.3180	.238
.323	.395			3/8	(.3750)	M10	(.3937)	2	2.94	.75	.50	.44	.3810	.286
.395	.448	—		7/16	(.4375)	—		3	3.16	.88	–	.41	.3230	.242
.448	.510			1/2	(.5000)	M12	(.4724)	3	3.38	.94	–	.44	.3670	.275
.510	.573	—		9/16	(.5625)	M14	(.5541)	3	3.59	1.00	–	.50	.4290	.322
.573	.635			5/8	(.6250)	M16	(.6299)	3	3.81	1.09	–	.56	.4800	.360
.635	.709	—		11/16	(.6875)	M18	(.7087)	3	4.03	1.09	–	.63	.5420	.406
.709	.760			3/4	(.7500)	—		3	4.25	1.22	–	.69	.5900	.442
.760	.823	—		13/16	(.8125)	M20	(.7874)	3	4.47	1.22	–	.69	.6520	.489
.823	.885			7/8	(.8750)	M22	(.8661)	3	4.69	1.34	–	.75	.3670	.523
.885	.948	—		15/16	(.9375)	M24	(.9449)	3	4.91	1.34	–	.75	.7600	.570
.948	1.010			1	(1.0000)	M25	(.9843)	3	5.13	1.50	–	.81	.8000	.600

NOTE: Thread length l is based on a length of 12 pitches of the UNC thread series. Thread length "l" is a minimum value and has no tolerance. When thread length "l" is added to neck length "l1", the total shall be no less than the minimum USCTI Table 302 thread length "l". Unless otherwise specified, all tolerances are in accordance with USCTI Table 302. For eccentricity tolerances, see USCTI Table 317. Table 302 is provided for reference only. WIDIA-GTD™ tap dimensions may differ.

Tolerances

element	nominal diameter range (in)	direction	tolerance (in)
length overall — L	.0520–1.0100	plus or minus	.031
	1.0100–4.0100	plus or minus	.063
length of thread — l	.0520–.2230	plus or minus	.047
	.2230–.5100	plus or minus	.063
	.5100–1.5100	plus or minus	.094
	1.5100–4.0100	plus or minus	.125
length of square — l2	.0520–1.0100	plus or minus	.031
	1.0100–4.0100	plus or minus	.063
diameter of shank — d1	.0520–.2230	minus	.0015
	.2230–.6350	minus	.0015
	.6350–1.0100	minus	.0020
	1.0100–1.5100	minus	.0020
	1.5100–2.0100	minus	.0030
	2.0100–4.0100	minus	.0030
size of square — A	.0520–.5100	minus	.004
	.5100–1.0100	minus	.006
	1.0100–2.0100	minus	.008
	2.0100–4.0100	minus	.010

Special Taps

Unless otherwise specified:

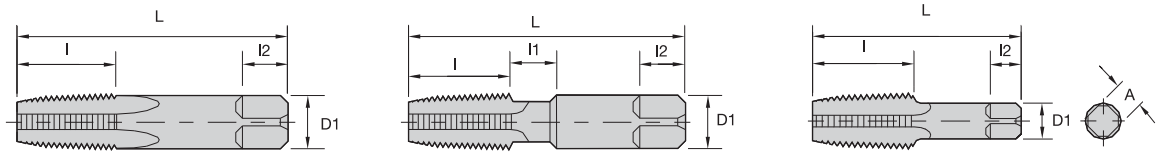
Special taps over 1.010–1.510" diameter inclusive, having 14 or more threads per inch or 1,75mm pitch and finer, and sizes over 1.510" diameter with 10 or more threads per inch or 2,5mm pitch and finer, are made to general dimensions shown in USCTI Table 303.

Special tap thread limits are determined using the formulas shown in USCTI Table 331 for Unified Inch Screw Threads and USCTI Table 341 for metric m-profile screw threads.

NOTE:
Tap sizes .395" and smaller have an external centre on the thread end (may be removed on bottoming taps). Sizes .125" and smaller have an external centre on the shank end. Sizes .224–.395" have truncated partial cone centres on the shank end (length of cone approximately 1/4 of diameter of shank). Sizes over .395" have internal centres on both the thread and shank ends.

For standard thread limits and tolerances for Unified Inch Screw Threads, see USCTI Table 327, and for metric threads, see USCTI Table 337.

For eccentricity tolerances of tap elements, see USCTI Table 317.



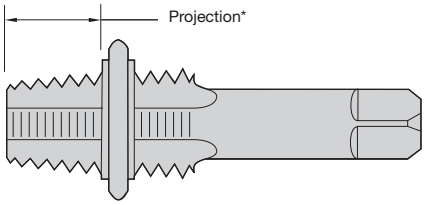
General Dimensions

	dimensions (in)					
nominal size (in)	overall length L	thread length l	square length l2	shank diameter D1	square size A	optional neck length l1
1/16	2.13	.69	.38	.3125	.234	.375
1/8	2.13	.75	.38	.3125	.234	–
1/8	2.13	.75	.38	.4375	.328	.375
1/4	2.44	1.06	.44	.5625	.421	.375
3/8	2.56	1.06	.50	.7000	.531	.375
1/2	3.13	1.38	.63	.6875	.515	–
3/4	3.25	1.38	.69	.9063	.679	–
1	3.75	1.75	.81	1.1250	.843	–
1-1/4	4.00	1.75	.94	1.3125	.984	–
1-1/2	4.25	1.75	1.00	1.5000	1.125	–
2	4.25	1.75	1.13	1.8750	1.406	–
2-1/2	5.50	2.56	1.25	2.2500	1.687	–
3	6.00	2.63	1.38	2.6250	1.968	–
3-1/2	6.50	2.69	1.50	2.8125	2.108	–
4	6.75	2.75	1.56	3.0000	2.250	–

Tolerances

element	range	direction	tolerance
length overall — L	1/16–3/4 inc.	plus/minus	.031
	1–4 inc.	plus/minus	.063
length of thread — l	1/16–3/4 inc.	plus/minus	.063
	1–1-1/4 inc.	plus/minus	.094
	1-1/2–4	plus/minus	.125
length of square — l2	1/16–3/4 inc.	plus/minus	.031
	1–4 inc.	plus/minus	.063
diameter of shank — d1	1/16–1/8	minus	.0015
	1/4–1 inc.	minus	.0020
	1-1/4–4 inc.	minus	.0030
size of square — a	1/16–1/8	minus	.004
	1/4–3/4 inc.	minus	.006
	1–4 inc.	minus	.008

American National Standard Taper Pipe Thread Form (NPT)
Aeronautical National Taper Pipe Thread Form (ANPT)
Dryseal American National Standard Taper Pipe Thread Form (NPTF)



nominal size (in)	threads per inch	projection* (in)	projection tolerance + / –	taper per foot limits min	taper per foot limits max	length L1	tap drill size** NPT, ANPT, NFTF
1/16	27	.312	.063	.719	.781	.160	C
1/8	27	.312	.063	.719	.781	.1615	Q
1/4	18	.459	.063	.719	.781	.2278	7/16
3/8	18	.454	.063	.719	.781	.240	9/16
1/2	14	.579	.063	.719	.781	.320	45/64
3/4	14	.565	.063	.719	.781	.339	29/32
1	11-1/2	.678	.094	.719	.781	.400	1-9/64
1-1/4	11-1/2	.686	.094	.719	.781	.420	1-31/64
1-1/2	11-1/2	.699	.094	.719	.781	.420	1-23/32
2	11-1/2	.667	.094	.719	.781	.436	2-3/16
2-1/2	8	.925	.094	.734	.781	.682	2-39/64
3	8	.925	.094	.734	.781	.766	3-15/64
3-1/2	8	.938	.125	.734	.781	.821	—
4	8	.950	.125	.734	.781	.844	—

**Distance small end of tap projects through L1 taper thread ring gage.*
***Recommended size given permits direct tapping without reaming the hole, but only gives a full thread for approximately the L1 length.*

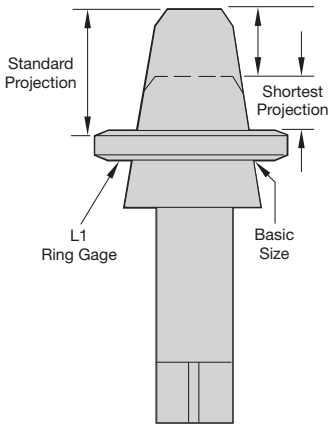
Pipe Taps

General-purpose pipe taps are appropriate for threading a wide variety of materials, both ferrous and non-ferrous.

Ground thread pipe taps are standard in American Standard Pipe Form (NPT) and American Standard Dryseal Pipe Form (NPFT). NPT threads require the use of a sealer, like Teflon® tape or pipe compound. Dryseal taps are used to tap fittings, which will give a pressure-tight joint without the use of a sealer.

The nominal size of a pipe tap is that of the pipe fitting to be tapped, not the actual size of the tap. The thread tapers 3/4" per foot.

All pipe taps are furnished with 2-1/2–3-1/2 thread chamfer.

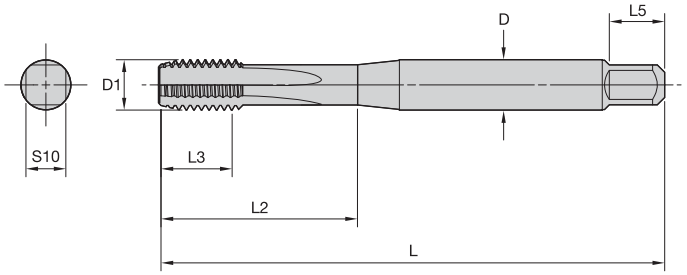


Short projection pipe taps are made with a projection shorter than standard for taper pipe tapping where the depth of tapping is limited.

Special short projection taper pipe taps can be furnished with American National Standard Taper Pipe thread (ANPT) or Dryseal American National Standard Taper Pipe thread (NPTF, PTF-SAE Short, or PTF-SPL Extra Short).

For information on short projection pipe taps and hole preparation for NPT, NPTF, and ANPT internal pipe threads, consult WIDIA-GTD Technical Bulletins.

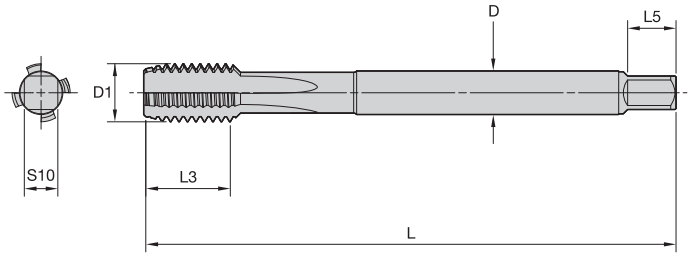
Special short projection pipe taps and left-hand pipe taps are available through Lightning Service.



DIN 371

metric dimensions

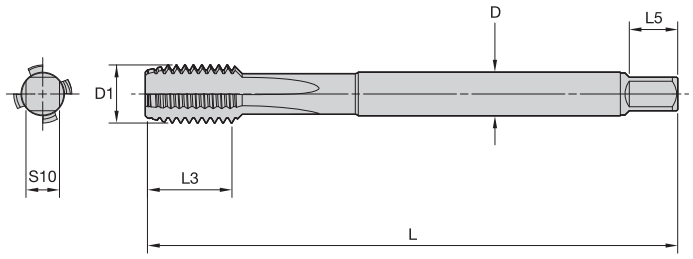
machine screw size number	nominal fraction diameter (in)	D	L	L3	L2	L5	S10
4	–	3,5	56	8	18	6	2,7
5	–	4,0	56	9	20	6	3,0
6	–	4,0	56	9	20	6	3,0
8	–	4,5	63	11	21	6	3,4
10	–	6,0	70	12	25	8	4,9
–	1/4	7,0	80	15	30	8	5,5
–	5/16	8,0	90	15	35	9	6,2
–	3/8	10,0	100	19	39	11	8,0



DIN 376

metric dimensions

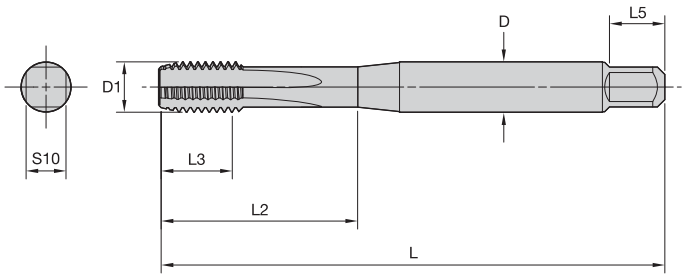
nominal fraction diameter (in)	D	L	L3	L5	S10
7/16	8	100	18	9	6,2
1/2	9	110	23	10	7,0
9/16	11	110	25	12	9,0
5/8	12	110	24	12	9,0
3/4	16	140	30	15	12,0
7/8	18	140	34	17	14,5
1	18	160	38	17	14,5



DIN 374

	pitch		metric dimensions				
D1	minimum	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

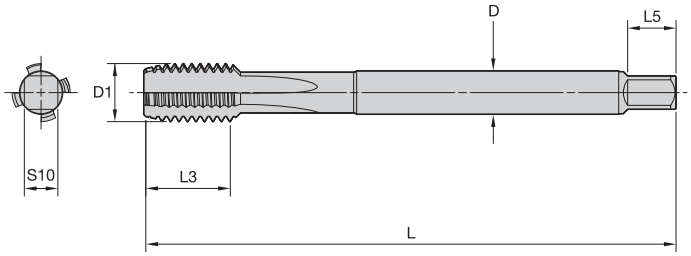
** Maximum*



JIS Type 2 Metric Coarse

metric dimensions

D1	pitch	D	L	L3	L2	L5	S10
M3	0.5	4	46	11	19	6	3.2
M3.5	0.6	4	48	13	20	6	3.2
M4	0.7	5	52	13	21	7	4
M4.5	0.75	5	55	13	21	7	4
M5	0.8	5.5	60	16	24	7	4.5
M6	1	6	62	19	29	7	4.5



JIS Type 3 Metric Coarse

metric dimensions

D1	pitch	D	L	L3	L5	S10
M8	1.25	6.2	70	22	8	5
M9	1.25	7	72	22	8	5.5
M10	1.5	7	75	24	8	5.5
M11	1.5	8	80	25	9	6
M12	1.75	8.5	82	29	9	6.5
M14	2	10.5	88	30	11	8
M16	2	12.5	95	32	13	10
M18	2.5	14	100	37	14	11
M20	2.5	15	105	37	15	12
M22	2.5	17	115	38	16	13
M24	3	19	120	45	18	15

Through Holes Push Chips

GUN™

LHSF

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

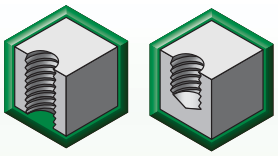
Blind Holes Pull Chips

RHSF

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

Blind or Through Holes Store Chips

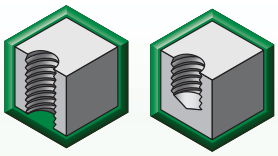
STFL



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

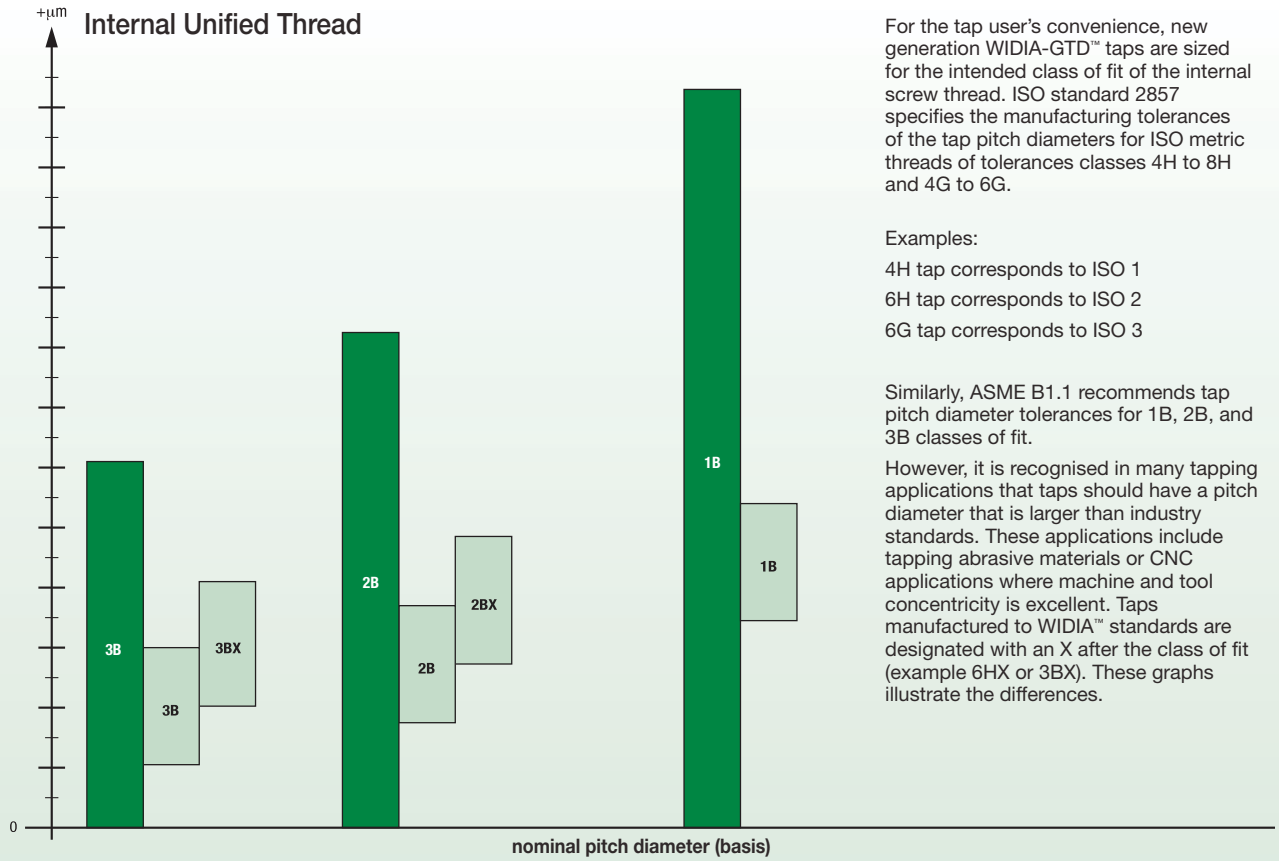
Blind or Through Holes No Chips

Forming Taps



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

Internal Unified Thread



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

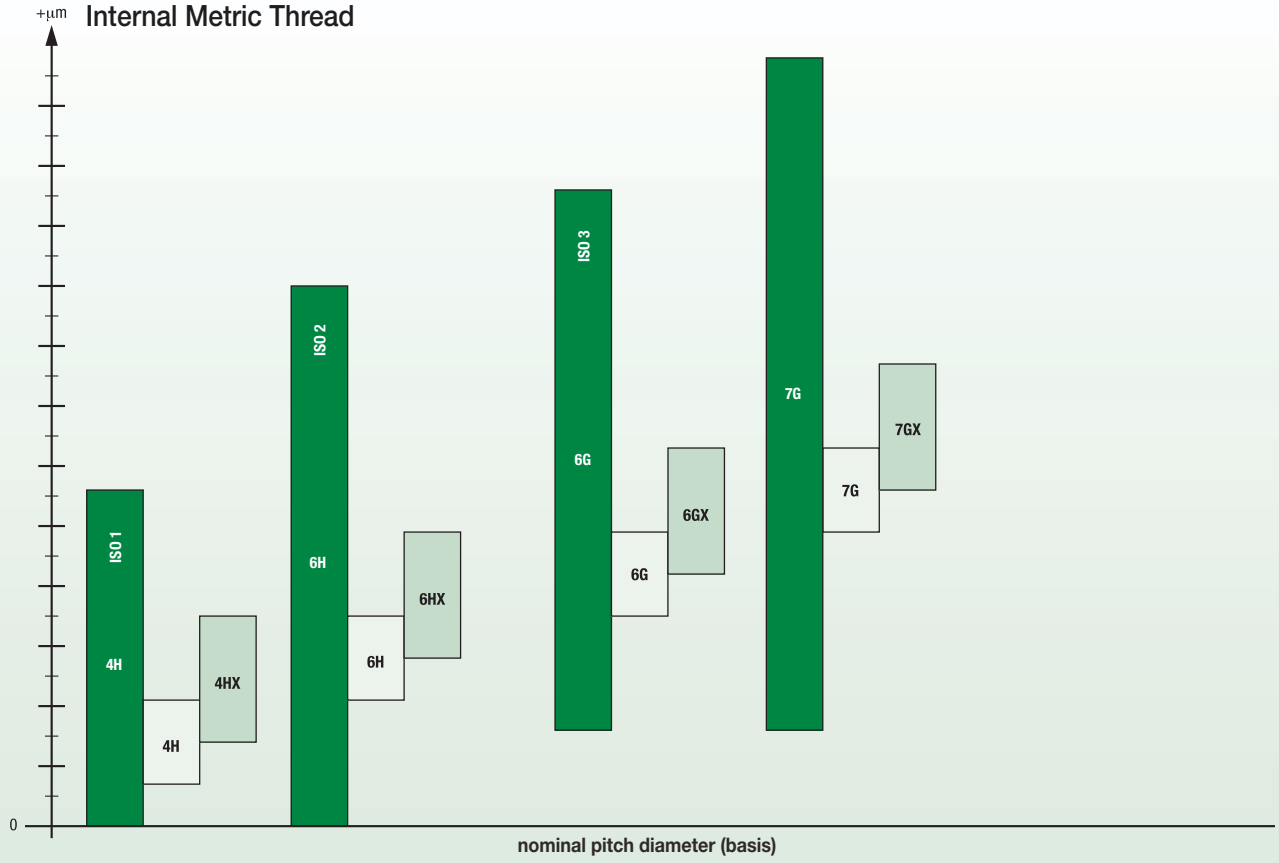
6H tap corresponds to ISO 2

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 recognised 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.

Internal Metric Thread



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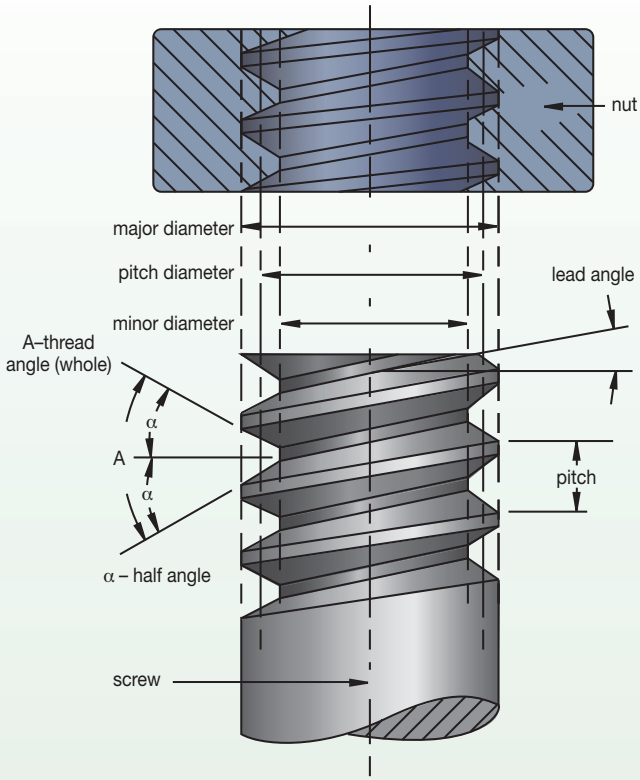
A123

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.

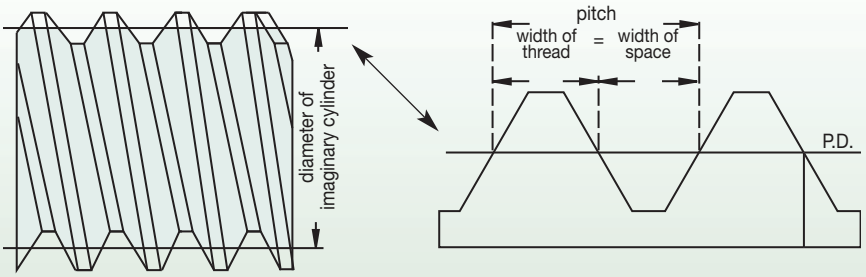
Minor Diameter

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.

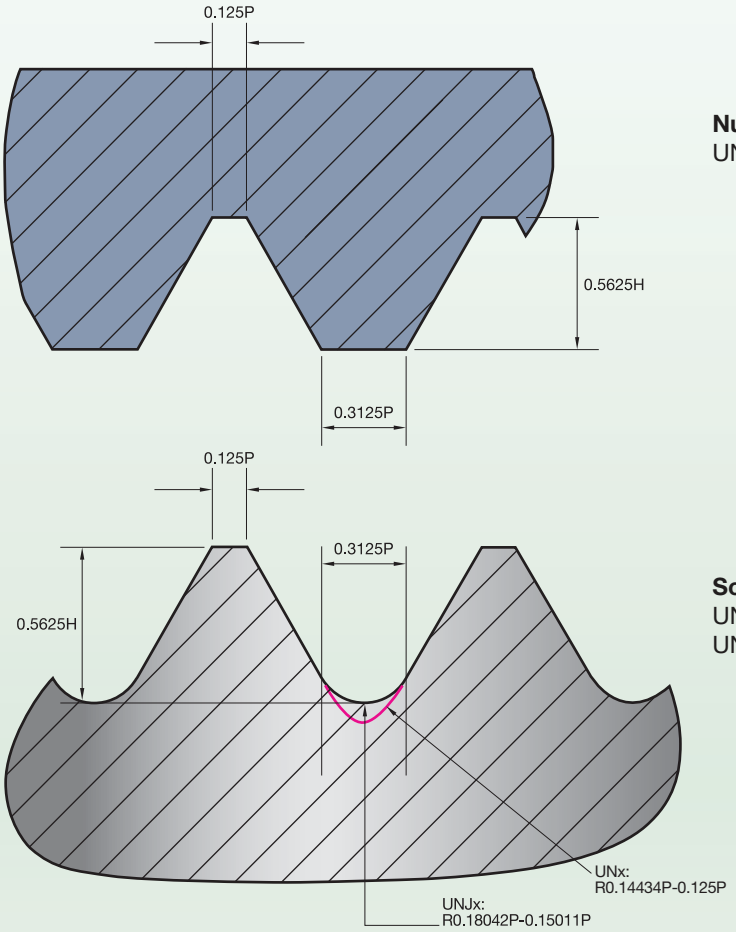
The pitch in inches = $\frac{1}{\text{number of threads per inch}}$



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.

A thread system is available for aerospace and other applications where high fatigue strength is required. The UNJ thread form is defined by ASME B1.15 and is similar to Military Specification MIL-S-8879. Screw thread assemblies consist of external and internal threads. In order to minimise the stress on the external UNJ thread, a controlled root radius is required that is equal to 0.15011P to 0.18042P, where P is the thread pitch. Internal UNJ threads are not required to have a radius at either the major or minor diameters.



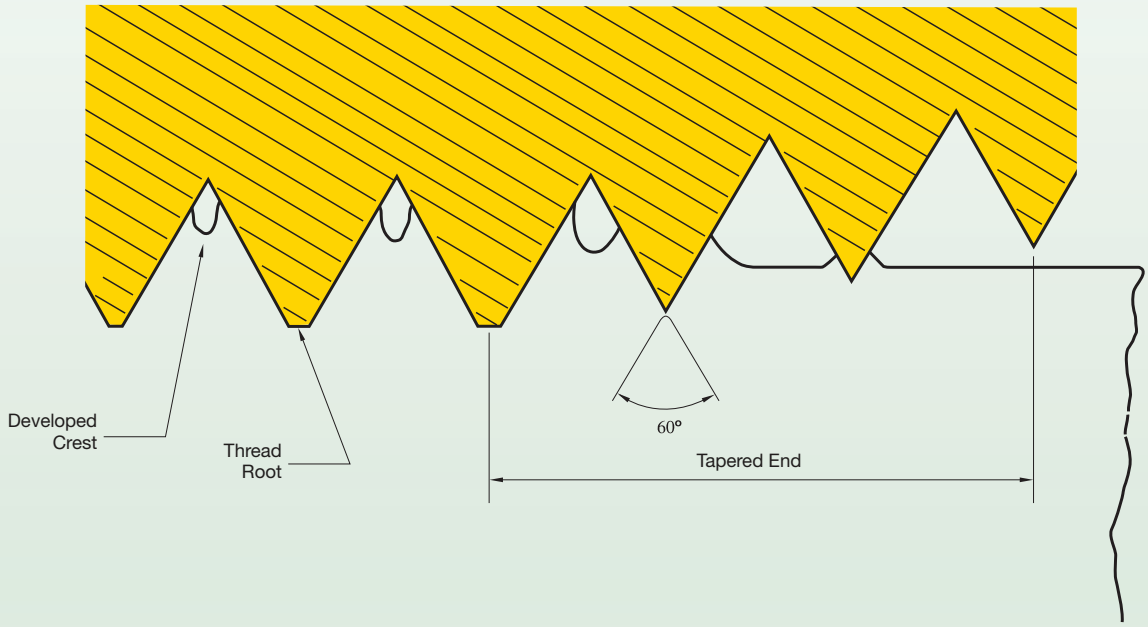
Nut:
UNx/UNJx

Screw:
UNx
UNJx

Because external UNJ threads must be produced with a defined root radius, standard UN tooling may not be used. However, internal UNF threads may be produced with ground thread UN taps sized to produce the proper class of fit. The tap does not need to be marked with a letter J. Attention must be paid to the tap drill since the minor diameter has to be specified so as to provide clearance with the root radius on the external thread.

For UNJ thread specifications, the reader is referred to ASME B1.15. Please note this standard includes Class 3 and Class 2 UNJ screw threads. However, only Class 3 UNJ threads meet the requirements of Military Specification MIL-S-8879. For Unified Inch (UN) thread specifications, refer to ASME B1.1.

Unlike cutting taps, which remove material, forming taps generate an internal screw thread by displacing material and forming it into the V-shaped thread. A common misconception is that a thread rolling action occurs. Instead, the threads are formed over the tapered entry section of the tap as the tap rotates into the hole. A succession of deeper penetrating lobes over the entry plastically displaces material radially between the tap's thread flanks until the entry length is reached. At this point, the thread is fully formed at the correct thread height.



Forming taps have numerous advantages over cutting taps. The most obvious advantage is that forming taps do not create chips. There are no chip removal problems. Bird nesting is a situation that occurs when chips wrap around the shank of spiral fluted taps when tapping blind holes in long chipping materials. Forming taps help this to be avoided. Since forming taps avoid this problem, they are stronger and more resistant to breakage. Another misconception is that forming taps produce stronger threads. Although the forming process strain hardens the thread flanks, it has very little effect on the major diameter, the location where internal threads strip.

Forming taps can only be used in ductile materials. Due to increased friction relative to cutting, forming taps require higher torque than cutting taps. In some situations, oil-based lubrications are required, and this might not be convenient on CNC machining centers that use water soluble coolant. In this situation, the lubricant concentration should be increased.

Since forming taps displace material, larger diameter pre-tap holes are required. This is especially important when converting from cutting taps to forming taps. If a cutting tap hole size is used, the displaced material will over-fill the tap's threads and breakage will result. Please consult hole size charts for forming taps.

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

$\pi = 3.1416$

mm/min = millimetres per minute

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

Inch Sizes

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

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

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

Metric Sizes

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

$$RPM = \frac{mm/m \times 1000}{\pi \times \text{tool diameter}}$$

$$mm/min = mm\ P \times RPM$$

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)	–	–

drill size	decimal (in)	drill size	decimal (in)	drill size	decimal (in)	drill size	decimal (in)	drill size	decimal (in)	drill size	decimal (in)
0,30mm	.0118	54	.0550	3,10mm	.1220	5,50mm	.2165	8,50mm	.3346	9/16	.5625
0,32mm	.0126	1,40mm	.0551	1/18	.1250	7/32	.2188	8,60mm	.3386	14,50mm	.5709
80	.0135	1,45mm	.0571	3,20mm	.1260	5,60mm	.2205	R	.3390	37/64	.5781
0,35mm	.0138	1,50mm	.0591	30	.1285	2	.2210	8,70mm	.3425	14,75mm	.5807
79	.0145	53	.0595	3,30mm	.1299	5,70mm	.2244	11/32	.3438	15,00mm	.5906
0,38mm	.0150	1,55mm	.0610	3,40mm	.1339	1	.2280	8,80mm	.3465	19/32	.5938
1/64	.0156	1/16	.0625	29	.1360	5,80mm	.2283	S	.3480	15,25mm	.6004
0,40mm	.0157	1,60mm	.0630	3,50mm	.1378	5,90mm	.2323	8,90mm	.3504	39/64	.6094
78	.0160	52	.0635	28	.1405	A	.2340	9,00mm	.3543	15,50mm	.6102
0,42mm	.0165	1,65mm	.0650	9/64	.1406	15/64	.2344	T	.3580	15,75mm	.6201
0,45mm	.0177	1,70mm	.0669	3,60mm	.1417	6,00mm	.2362	9,10mm	.3583	5/8	.6250
77	.0180	51	.0670	27	.1440	B	.2380	23/64	.3594	16,00mm	.6299
0,48mm	.0189	1,75mm	.0689	3,70mm	.1457	6,10mm	.2402	9,20mm	.3622	16,25mm	.6398
0,50mm	.0197	50	.0700	26	.1470	C	.2420	9,30mm	.3661	41/64	.6406
76	.0200	1,80mm	.0709	25	.1495	6,20mm	.2441	U	.3680	16,50mm	.6496
75	.0210	1,85mm	.0728	3,80mm	.1496	D	.2460	9,40mm	.3701	21/32	.6562
0,55mm	.0217	49	.0730	24	.1520	6,30mm	.2480	9,50mm	.3740	16,75mm	.6594
74	.0225	1,90mm	.0748	3,90mm	.1535	1/4, E	.2500	3/8	.3750	17,00mm	.6693
0,60mm	.0236	48	.0760	23	.1540	6,40mm	.2520	V	.3770	43/64	.6719
73	.0240	1,95mm	.0768	5/32	.1562	6,50mm	.2559	9,60mm	.3780	17,25mm	.6791
0,62mm	.0244	5/64	.0781	22	.1570	F	.2570	9,70mm	.3819	11/16	.6875
72	.0250	47	.0785	4,00mm	.1575	6,60mm	.2598	9,80mm	.3858	17,50mm	.6890
0,65mm	.0256	2,00mm	.0787	21	.1590	G	.2610	W	.3860	45/64	.7031
71	.0260	2,05mm	.0807	20	.1610	6,70mm	.2638	9,90mm	.3898	18,00mm	.7087
0,70mm	.0276	46	.0810	4,10mm	.1614	17/64	.2656	25/64	.3906	23/32	.7188
70	.0280	45	.0820	4,20mm	.1654	H	.2660	10,00mm	.3937	18,50mm	.7283
69	.0292	2,10mm	.0827	19	.1660	6,80mm	.2677	X	.3970	47/64	.7344
0,75mm	.0295	2,15mm	.0846	4,30mm	.1693	6,90mm	.2717	10,20mm	.4016	19,00mm	.7480
68	.0310	44	.0860	18	.1695	I	.2720	Y	.4040	3/4	.7500
1/32	.0312	2,20mm	.0866	11/64	.1719	7,00mm	.2756	13/32	.4062	49/64	.7656
0,80mm	.0315	2,25mm	.0886	17	.1730	J	.2770	Z	.4130	19,50mm	.7677
67	.0320	43	.0890	4,40mm	.1732	7,10mm	.2795	10,50mm	.4134	25/32	.7812
66	.0330	2,30mm	.0906	16	.1770	K	.2810	27/64	.4219	20,00mm	.7874
0,85mm	.0335	2,35mm	.0925	4,50mm	.1772	9/32	.2812	10,80mm	.4252	51/64	.7969
65	.0350	42	.0935	15	.1800	7,20mm	.2835	11,00mm	.4331	20,50mm	.8071
0,90mm	.0354	3/32	.0938	4,60mm	.1811	7,30mm	.2874	7/16	.4375	13/16	.8125
64	.0360	2,40mm	.0945	14	.1820	L	.2900	11,20mm	.4409	21,00mm	.8268
63	.0370	41	.0960	4,70mm, 13	.1850	7,40mm	.2913	11,50mm	.4528	53/64	.8281
0,95mm	.0374	2,45mm	.0965	3/16	.1875	M	.2950	29/64	.4531	27/32	.8438
62	.0380	40	.0980	4,80mm, 12	.1890	7,50mm	.2953	11,80mm	.4646	21,50mm	.8465
61	.0390	2,50mm	.0984	11	.1910	19/64	.2969	15/32	.4688	55/64	.8594
1,00mm	.0394	39	.0995	4,90mm	.1929	7,60mm	.2992	12,00mm	.4724	22,00mm	.8661
60	.0400	38	.1015	10	.1935	N	.3020	12,20mm	.4803	7/8	.8750
59	.0410	2,60mm	.1024	9	.1960	7,70mm	.3031	31/64	.4844	22,50mm	.8858
1,05mm	.0413	37	.1040	5,00mm	.1969	7,80mm	.3071	12,50mm	.4921	57/64	.8906
58	.0420	2,70mm	.1063	8	.1990	7,90mm	.3110	1/2	.5000	23,00mm	.9055
57	.0430	36	.1065	5,10mm	.2008	5/16	.3125	12,80mm	.5039	29/32	.9062
1,10mm	.0433	7/64	.1094	7	.2010	8,00mm	.3150	13,00mm	.5118	59/64	.9219
1,15mm	.0453	35	.1100	13/64	.2031	O	.3160	33/64	.5156	23,50mm	.9252
56	.0465	2,80mm	.1102	6	.2040	8,10mm	.3189	13,20mm	.5197	15/16	.9375
3/64	.0469	34	.1110	5,20mm	.2047	8,20mm	.3228	17/32	.5312	24,00mm	.9449
1,20mm	.0472	33	.1130	5	.2055	P	.3230	13,50mm	.5315	61/64	.9531
1,25mm	.0492	2,90mm	.1142	5,30mm	.2087	8,30mm	.3268	13,80mm	.5433	24,50mm	.9646
1,30mm	.0512	32	.1160	4	.2090	21/64	.3281	35/64	.5469	31/32	.9688
55	.0520	3,00mm	.1181	5,40mm	.2126	8,40mm	.3307	14,00mm	.5512	25,00mm	.9843
1,35mm	.0531	31	.1200	3	.2130	Q	.3320	14,25mm	.5610	63/64	.9844
										1"	1.0000

Metric Fractional Wire gage Letter size

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	—	—	—	—	—

material number	DIN EN - D	AFNOR - F	BS - UK	JIS
0.6010	GG10	—	Grade 100	FC 100
0.6015	GG15	FGL 150	Grade 150	FC 150
0.6020	GG20	FGL 200	Grade 220	FC 200
0.6025	GG25	FGL 250	Grade 250, 260	FC 250
0.6030	GG30	FGL 300	Grade 300	FC 300
0.6035	GG35	FGL 350	Grade 350	FC 350
0.6655	—	L-NUC 15 6 2	F1	—
0.6656	—	L-NUC 15 6 3	F1	—
0.6660	—	L-NC 20 2	F2	—
0.6661	—	L-NC 20 3	F2	—
0.6676	—	L-NC 30 3	F3	—
0.7040	GGG40	FGS 400-15	Grade 420/12	FCD 400
0.7043	GGG40.3	FGS 370-17	Grade 370/12	FCD 370
0.7050	GGG50	FGS 500-7	Grade 500/7	FCD 500
0.7060	GGG60	FGS 600-3	Grade 600/3	FCD 600
0.7070	GGG70	FGS 700-2	Grade 700/2	FCD 700
0.7080	GGG80	FGS 800-2	Grade 800/2	FCD 800
0.7652	—	S-NM 13 7	S 6	—
0.7660	—	S-NC 20 2	S 2	—
0.7661	—	S-NC 20 3	S 2	—
0.7670	—	S-N 22	S 2 C	—
0.7673	—	S-NM 23 4	S 2 M	—
0.7676	—	S-NC 30 3	S 3	—
0.7677	—	S-NC 30 1	S 3	—
0.8035	GTW35	MB 35-7	W 35-04	FCMW 330
0.8038	—	MB 380-12	—	—
0.8040	GTW40	MB 400-5	W 40-05	FCMW 370
0.8045	GTW45	MB 450-7	W 45-07	FCMWP 440
0.8135	GTS35	MN 350-10	B 35-12	FCMB 340
0.8145	GTS45	MP 50-5	P 45-06	—
0.8155	GTS55	MP 60-3	P 55-04	—
0.8165	GTS65	—	P 65-02	FCMP 540
0.8170	GTS70	MP 70-2	P 70-02	FCMP 690
0.9620	G-X 260 NiCr 4-2	—	Grade 2 A	—
0.9625	G-X 330 NiCr 4-2	—	Grade 2 B	—
0.9630	G-X 300 CrNiSi 9-5-2	—	Grade 2 C, D, E	—
0.9635	G-X 300 CrMo 15-3	—	Grade 3 A, B	—
0.9640	G-X 300 CrMoNi 15-2-1	—	Grade 3 A, B	—
0.9645	G-X 260 CrMoNi 20-2-1	—	Grade 3 C	—
0.9650	G-X 260 Cr 27	—	Grade 3 D	—
0.9655	G-X 300 CrMo 27-1	—	Grade 3 E	—
0.xxx	GGV - 30	—	—	FCV 300
0.xxx	GGV - 40	—	—	FCV 400
1.0301	C 10	XC 10	045 M 10040 A 10	S 10 C
1.0401	C 15	XC 12, XC 18	080 M 15	S 15 C
1.0402	C 22	1 C 22, XC 18, XC 25	1 C 22, 070 M 20	S 20 C, S 2 C
1.0406	C 25	1 C 25	070 M 26	S 25 C
1.0501	C 35	XC 38, 1 C 35	080 M 36, 1 C 35	S 35 C
1.0503	C 45	1 C 45, XC 48 H 1	1 C 45, 080 M 46	S 45 C
1.0511	C 40	1 C 40, XC 42 H 1	080 M 40, 1 C 40	S 40 C
1.0528	C 30	—	1 C 30, XC 32	S 30 C
1.0535	C 55	1 C 55, XC 55 H 1	1 C 55, 070 M 55	S 55 C
1.0540	C 50	1 C 50	1 C 50, 080 M50	S 50 C
1.0570	S355J2G3	E 36-3, E 36-4	Fe 510 D1 FF, 50/35	SM 490 _, SM 520 B
1.0601	C 60	1 C 60, AF 70 C 55	1 C 60, 080 A 67	S 58 C
1.0715	9 SMn 28	S 250	080 M 15, 230 M 07	SUM 22
1.0718	9 SMnPb 28	S 250 Pb	—	SUM 22 L, SUM 23 L
1.0721	10 S 20	13 MF 4, 10 F 1	210 M 15	—
1.0722	10 SPb 20	CC 10 Pb, 10 PbF 2	—	SUM 12
1.0726	35 S 20	35 MF 6	212 M 36	SUM 41
1.0727	45 S 20	45 MF 61, 45 MF 4	212 M 36	SUM 42
1.0728	60 S 20	—	—	—
1.0736	9 SMn 36	S 300	240 M 07	SUM 25
1.0737	9 SMnPb 36	S 300 Pb	—	SUM 24 L
1.1121	Ck 10 (C 10 E)	XC 10	045 M 10, 040 A 10	S 9 CK, S 10 C
1.1141	Ck 15 (C 15 E)	XC 12, XC 15	080 M 15, 040 A 15	S 15, S 15 Ck
1.1151	C 22 E	2 C 22, XC 18/25	055 M 15	S 20 C, S 20 CK, S 22 C
1.1157	40 Mn 4	35 M 5, 40 M 5	150 M 36	—
1.1158	C 25 E	2 C 25, XC 25	070 M 26	S 25 C, S 28 C

UNI - I	UNE - E	AISI - US	condition	material group
G 10	FG 10	Class 20 B	U	15
G 15	FG 15	Class 25 B	U	15
G 20	FG 20	Class 30 B	U	16
G 25	FG 25	Class 40 B	U	16
G 30	FG 30	Class 45 B	U	16
G 35	FG 35	Class 50 B	U	16
—	—	—	GG/AU	17
—	—	—	GG/AU	17
—	—	—	GG/AU	17
—	—	—	GG/AU	18
—	—	—	GG/AU	31
GS 400-12	—	Grade 60-40-18	U	17
—	—	—	U	17
GS 500-7	—	Grade 65-45-12	U	17
GS 600-3	—	Grade 80-55-06	U	18
GS 700-2	—	Grade 100-70-03	U	18
GS 800-2	—	Grade120-90-02	U	18
—	—	—	GGG/AU	17
—	—	—	GGG/AU	17
—	—	—	GGG/AU	18
—	—	—	GGG/AU	17
—	—	—	GGG/AU	17
—	—	—	GGG/AU	31
—	—	—	GGG/AU	31
—	—	—	G	20
W 38-12	—	—	G	19
W 40-05	—	—	G	19
W 45-07	—	—	G	19
B 35-10	Type A	Grade 22010, 32510	G	19
P 45-06	Type E	—	G	19
P 55-04	Type C	—	G	20
P 65-02	—	—	G	20
P 70-02	—	—	G	20
—	—	—	GO	40
—	—	—	GO	40
—	—	—	GO	40
—	—	—	GO	40
—	—	—	GO	40
—	—	—	GO	40
—	—	—	GO	40
—	—	—	GO	40
—	—	—	GO	17
—	—	—	GO	18
C 10	F. 1511	1010	—	1
C 15, C 16	F. 111	1015	—	1
1 C 22, C 20, C 21	1 C 22, F. 112	1020, 1023	—	1
C 25, 1 C 25	—	1025	var[1]	2–3
C 35, 1 C 35	1 C 35, F. 113	1035	var[1]	2–3
C 45, 1 C 45	1 C 45, F. 114	1045	var[1]	2–3
1 C 40	1 C 40, F. 114.A	1040	var[1]	2–3
1 C 30	1 C 30	1030	var[1]	2–3
C 55, 1 C 55	1 C 55	1055	var[1]	4–5
1 C 50	1 C 50	1050	var[1]	2–3
Fe 510 C FN	AE 355 D, Fe 510 D1 FF	—	—	2
C 60, 1 C 60	1 C 60	1060	var[1]	4–5
CF 9 SMn 28, CF 9 M 07	F. 2111	1213	1	—
CF 9 SMnPb 28	F. 2112	12 L 14, 12 L 13	—	1
CF 10 S 20	F. 2121	1102, 1108, 1109	—	1
CF 10 SPb 20	F. 2122	1108, 11 L 08	—	1
CF 35 SMn 10	F. 2131, F. 210.G	1141, 1140	var[1]	2–3
CF 44 SMn 28	F. 2133	1146	var[1]	2–3
—	—	1151	var[1]	4–5
CF 9 SMn 36	F. 2113	1215	—	1
CF 9 SMnPb 36	F. 2114	12 L 14	—	1
C10, 2 C 10	F. 1510, C 10 k	1010	—	1
C 15, C 16	F. 1110, F. 1511	1015	—	1
C 20, C 25	F. 1120	1020, 1023	—	1
—	—	1035, 1041	var[1]	2–3
C 25	F. 1120	1025	var[1]	2–3

material number	DIN EN - D	AFNOR - F	BS - UK	JIS
1.1170	28 Mn 6	28 Mn 6, 35 M 5	28 Mn 6, 150 M 19	SMn 433
1.1178	C 30 E	—	2 C 30, XC 32	S 30 C
1.1181	C 35 E	2 C 35, XC 38 H 1	080 M 36	S 35 C
1.1183	Cf 35	XC 42 TS	080 A 35	S 35 C
1.1186	C 40 E	2 C 40, XC42 H 1	2 C 40, 080 M 40	S 40 C
1.1191	C 45 E	XC 48 H 1, 2 C 45	2 C 45, 080 M 46	S 45 C
1.1193	Cf 45	XC 42 TS	060 A 47	S 45 C
1.1203	C 55 E	2 C 55, XC 55 H 1	2 C 55, 070 M 55	S 55 C
1.1206	C 50 E	2 C 50	2 C 50, 080 M 50	S 50 C
1.1213	Cf 53	42 M 4 TS	060 A 57	S 50 C
1.1221	C 60 E	2 C 60	2 C 60, 060 A 62	S 58 C
1.2241	51 CrV 4	50 CV 4	735 A 51	SUP 10
1.2369	81 MoCrV 42-16	—	—	—
1.3505	100 Cr 6	100 C 6	535 A 99	SUJ 2
1.3520	100 CrMn 6	—	535 A 99	SUJ 3
1.3533	17 NiCrMo 14	16 NCD 13	—	—
1.3536	100 CrMo 7-3	—	—	—
1.3537	100 CrMo 7	100 CD 7	—	SUJ 4
1.3541	X 45 Cr 13	—	—	—
1.3543	X 102 CrMo 17	Z 100 CD 17	—	SUS440 C
1.3551	80 MoCrV 42-16	80 DCV 40	—	—
1.3553	X 82 WMoCrV 6-5-4	Z 85 WDCV 6	BM 2	SKH 51
1.3558	X 75 WCrV 18-4-1	—	BT 1	SKH 2
1.4000	X 6 Cr 13	Z 6 C 13	403 S 17	SUS 410 S
1.4002	X 6 CrAl 13	Z6 CA 13	405 S 17	SUS 405
1.4005	X 12 CrS 13	Z12 CF 13	416 S 21	SUS 416
1.4006	X 12 Cr 13 (X 10 Cr 13)	Z 10 C 13, Z 12 C 13	410 S 21	SUS 410
1.4007	X 35 Cr 14	—	—	SUS 420
1.4016	X 6 Cr 17	Z 8 C 17	430 S 17	SUS 430
1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	SUS 420
1.4024	X 15 Cr 13	—	403 S 17	—
1.4028	X 30 Cr 13	Z 30 C 13, Z 33 C 13	420 S 45	SUS 420
1.4034	X 46 Cr 13	Z 40 C 14	420 S 45	SUS 420
1.4057	X 20 CrNi 17-2	Z 15 CN 16-02	431 S 29	SUS 431
1.4104	X 12 CrMoS 17	Z 10 CF 17	441 S 29	SUS 430 F
1.411	X 90 CrMoV 1	—	—	SUS 440 B
1.4113	X 6 CrMo 17-1	Z 8 CD 17-01	434 S 17	SUS 434
1.4125	X 105 CrMo 17	Z100 CD 17	—	SUS 440 C
1.4301	X 5 CrNi 18-10 (X 4 CrNi 18-10)	Z 6 CN 18-09	304 S 16	SUS 304
1.4303	X 5 CrNi 18-12 (X 4 CrNi 18-12)	Z 8 CN 18-12	305 S 19	—
1.4305	X 10 CrNiS 18-9	Z 10 CNF 18-09	303 S 21	SUS 303
1.4306	X 2 CrNi 19-11	Z 2 CN 18-10	304 S 11	SUS 304 L
1.4307	X 2 CrNi 18-9	Z 3 CN 18-10	304S11	SUS 304 L
1.4310	X 12 CrNi 17-7	Z 11 CN 18-08	301 S 21	SUS 301
1.4311	X 2 CrNiN 18-10	Z 3 CN 18-10 Az	304 S 61	SUS 304 LN
1.4362	X 2 CrNiN 23-4	Z 3 CN 23-04 Az	—	—
1.4372	X 12 CrMnNiN 17-7-5	Z 12 CMN 17-07 Az	—	—
1.4401	X 5 CrNiMo 17-12-2 (X 4 CrNiMo 17-12-2)	Z 6 CND 17-11	316 S 31	SUS 316
1.4404	X 2 CrNiMo 17-13-2 (X 2 CrNiMo 17-12-2)	Z 2 CND 17-12	316 S 11	SUS 316 L
1.4406	X 2 CrNiMoN 17-11-2 (X 2 CrNiMoN 17-11-2)	Z 2 CND 17-11 Az	316 S 62	SUS 316 LN
1.4410	X 2 CrNiMoN 25-7-4	Z 3 CND 25-06 Az	—	—
1.4418	X 4 CrNiMo 16-5	Z 6 CND 16 05 1	—	—
1.4429	X 2 CrNiMoN 17-13-3	Z 2 CND 17-13 Az	—	SUS 316 LN
1.4432	X 2 CrNiMo 17-12-3	Z 3 CND 17-12-03	316 S 13	SUS 316 L
1.4434	X 2 CrNiMoN 17-12-3	Z 3 CND 19-14 Az	—	SUS 317 LN
1.4435	X 2 CrNiMo 18-14-3	Z 2 CND 17-13	316 S 13	SUS 316 L
1.4436	X 5 CrNiMo 17-13-3 (X 4 CrNiMo 17-13-3)	Z 6 CND 17-12	316 S 33	SUS 316
1.4438	X 2 CrNiMo 18-16-4 (X 2 CrNiMo 18-15-4)	Z 2 CND 19-15	317 S 12	SUS 317 L
1.4439	X 2 CrNiMoN 17-13-5	Z 3 CND 18-14-05 Az	—	—
1.4441	X 2 CrNiMo 18-15-3	Z 3 CND 18-14-13	316 S 13	—
1.4460	X 4 CrNiMoN 27-5-2 (X 3 CrNiMoN 27-5-2)	25 CND 27-05 A2	—	SUS 329
1.4462	X 2 CrNiMoN 22-5-3	Z2 CND 22-05 Az	—	—
1.4466	X 1 CrNiMoN 25-22-2 (X 2 CrNiMoN 25-22-2)	—	—	—
1.4504	[X 8 CrNiAl 17-7]	Z 8 CNA 17-07	316 S 111	17-7 PH
1.4510	X 6 CrTi 17 (X 3 CrTi 17)	Z 8 CT 17	—	—
1.4512	X 6 CrTi 12 (X 2 CrTi 12)	Z 3 CT 12	409 S 19	SUH 409
1.4532	X 7 CrNiMoAl 15-7 (X 8 CrNiMoAl 15-7-2)	Z 8 CNDA 15-7	—	—
1.4540	X 4 CrNiCuNb 16-4	Z 6 CNU 17-04	—	SUS 630
1.4541	X 6 CrNiTi 18-10	Z 6 CNT 18-10	321 S 12	SUS 321

UNI - I	UNE - E	AISI - US	condition	material group
28 Mn 6	28 Mn 6, 36 Mn 6	1330	var[1]	2–3
2 C 30, 080 M 30	2 C 30	—	var[1]	2–3
2 C 35, C 35	2 C 35, C 35 k	—	var[1]	2–3
C 36	C 38 k	1035	var[1]	2–3
2 C 40, C40	2 C 40, C 42 k	1040	var[1]	2–3
2 C 45, C 45	2 C 45, C 45 k	—	var[1]	2–3
C 43	C 42 k	1045	var[1]	2–3
2 C 55, C 55	2 C 55, C 55 k	—	var[1]	4–5
2 C 50, C 50	2 C 50, C 55 k	1050	var[1]	2–3
C 48	C 48 k	1050	var[1]	2–3
2 C 60, C 60	2 C 60	—	var[1]	4–5
50 CrV 4	F.1430	6150	var[1]	6–9
—	—	613	var[1]	10–11
100 Cr 6	—	52100	var[1]	6–9
100 CrMo 7	—	A 485/2	var[1]	6–9
—	—	E-3310	var[1]	6–9
—	—	5120	var[1]	6–9
100 CrMo 7	—	A 485/3	var[1]	6–9
X 45 Cr 13	—	—	var[1]	10–11
X 105 CrMo 17	—	440 C	var[1]	10–11
X 80 MoCrV 44	—	—	var[1]	10–11
X 82 WMoV 6 5	—	M2 regular C	var[1]	10–11
X 75 WCrV 18	—	T 1	var[1]	10–11
X5 Cr 13	—	410 S	FE	12
X 6 CrA 13	—	405	FE	12
X 12 CrS 13	—	416	FE	12
X 12 Cr 13	—	410	MA	12
—	—	420	MA	12
X 8 Cr 17	—	430	FE	12
X 20 Cr 13	—	420	MA	12
—	—	403	MA	12
—	—	420	MA	13.1
—	—	420	MA	13.1
X 15 CrNi 16	—	431	MA	13.1
X 10 CrS 17	—	430 F	MA	13.1
—	—	440 B	MA	13.1
X 8 CrMo 17	—	434	MA	13.1
—	—	440 C	MA	13.1
X 5 CrNi 18 10	—	304	AU	14.1
X 8 CrNi 18 12	—	305	AU	14.1
X 10 CrNiS 18 09	—	303	AU	14.1
X 2 CrNi 18 11	—	304 L	AU	14.1
—	—	304 L	AU	14.1
X 12 CrNi 17 07	—	301	AU	14.1
—	—	304 LN	AU	14.1
—	—	—	DU	14.2
—	—	201	DU	14.2
X 5 CrNiMo 17 12	—	316	AU	14.1
X 2 CrNiMo 17 12	—	316 L	AU	14.1
X 2 CrNiMoN	—	316 LN	AU	14.1
—	—	—	DU	14.2
—	—	—	MA	13.1
X 2 CrNiMoN 17 13	—	316 LN	AU	14.1
—	—	316 L	AU	14.1
—	—	317 LN	AU	14.1
X 2 CrNiMo 17 13	—	316 L	AU	14.1
X 5 CrNiMo 17 13	—	316	AU	14.1
X 2 CrNiMo 18 16	—	317 L	AU	14.1
—	—	—	AU	14.1
—	—	316 LVM	AU	14.1
—	—	329	DU	14.2
—	—	2205	DU	14.2
—	—	310 mod	S-AU	14.3
X 2 CrNiMo 17.12	—	17-7 PH	AU-PH	14.4
—	—	439, 430 Ti	FE	12
—	—	409	FE	12
—	—	632	AU	14.1
—	—	630	AU	14.1
X 6 CrNiTi 18 11	—	321	AU	14.1

material number	DIN EN - D	AFNOR - F	BS - UK	JIS
1.4542	X 5 CrNiCuNb 17-4	Z 6 CNU 17-04, Z 7 CNNb 17-07	—	SUS 630
1.4548	X 5 CrNiCuNb 17-4-4	Z 7 CNNb 17-07	—	SUS 630
1.4550	X 6 CrNiNb 18-10	Z 6 CNNB 18-10	347 S 17	SUS 347
1.4552	GX 5 CrNiNb 19-10 (G-X 5 CrNiNb 18-9)	Z 6 CNNb 18.10 M	347 C 17	SCS 21
1.4567	X 3 CrNiCu 18-9 (X 3 CrNiCu 18-9-4)	Z 3 CNU 18-09 FF	—	—
1.4568	X 7 CrNiAl 17-7	Z 8 CNA 17-7	316 S 111	17-7 PH
1.4571	X 6 CrNiMoTi 17-12-2	Z 6 CNDT 17-12	320 S 31	SUS 316 Ti
1.4573	X 10 CrNiMoTi 18-12	Z 6 CNDT 17-13	320 S 33	—
1.4580	X 6 CrNiMoNb 17-12-2	Z 6 CNDNb 17-12	—	—
1.4581	GX 5 CrNiMoNb 19-11 (G-X 5 CrNiMoNb 18-10)	Z 4 CNDNb 18.12 M	318 C 17	SCS 22
1.4583	X 10 CrNiMoNb 18-12	Z 6 CNDNb 17-13	—	—
1.4713	X 10 CrAl 7	Z 8 CA 7	—	—
1.4718	X 45 CrSi 9-3	Z 45 CS 9	401 S 45	SUH 1
1.4720	X 7 CrTi 12	Z 6 CT 12	—	SUS 409
1.4724	X 10 CrAl 13	Z 10 C 13	403 S 17	SUS 405
1.4731	X 40 CrSiMo 10-2	Z 40 CSD 10	—	SUH 3
1.4742	X 10 CrAl 18	Z 12 CAS 18, Z 10 CAS 18	430 S 17	SUS 430
1.4748	X 85 CrMoV 18-2	Z 85 CDV 18.02	—	—
1.4762	X 10 CrAl 24	Z10 CAS 24	—	SCH446
1.4821	X 20 CrNiSi 25-4	Z 20 CNS 25.04	—	—
1.4828	X 15 CrNiSi 20-12 Z	15 CN 23-13, Z 15 CNS 20-12	309 S 24	SUS 309 S
1.4833	X 7 CrNi 23-14	Z 15 CN 23.13, Z 15 CN 24.13	309 S 16	SUH 309
1.4841	X 15 CrNiSi 25-20	Z 15 CNS 25-20, Z 12 CNS 25-20	310 S 24	SUS310
1.4845	X 12 CrNi 25-21	Z 12 CN 26.21, Z 12 CN 25.20	310 S 31	SUH 310
1.4864	X 12 NiCrSi 36-16	Z 20 NCS 33.16, Z 12 NCS 35.16	—	SUH 330
1.4871	X 53 CrMnNiN 21-9	Z 53 CMN 21.09 Az	349 S 54	SUH 35
1.4873	X 45 CrNiW 18-9	Z 35 CNWS 14.14	331 S 40	SUH 31
1.4875	X 55 CrMnNiN 20-8	Z 55 CMN 20.08 Az	—	—
1.4876	X 10 NiCrAlTi 32-20	Z 8 NC 33.21, Z 8 NC 32.21	—	—
1.487	X 12 CrNiTi 18-9	Z 6 CNT 18.12, Z 6 CNT 18.10	321 S 12, 321 S 51	SUS 321
1.4948	X 6 CrNi 18-11	Z 6 CN 18-09	304 S 51	SUS304
1.5023	38 Si 7	46 S 7	—	—
1.5092	60 SiCr 7	61 SC 7	251 A 61	SUP 7
1.5919	15 CrNi 6	16 NC 6	815 M 17	SNC 15
1.5920	18 CrNi 8	20 NC 6	822 M17	SNCM 616
1.6511	36 CrNiMo 4	36 CrNiMo 4	36 CrNiMo 4, 817 A 37	SNCM 439
1.6580	30 CrNiMo 8	30 CrNiMo 8, 30 CND 8	30 CrNiMo 8	SNCM 630
1.6582	34 CrNiMo 6	34 CrNiMo 6	34 CrNiMo 6, 817 M 40	SNCM 447
1.6587	17 CrNiMo 6	18 NCD 6	820 M 17	SNCM 815
1.7003	38 Cr 2	38 Cr 2	38 Cr 2, 120 M 36	SMn 438
1.7003	46 Cr 2	46 Cr 2, 42 C 2	46 Cr 2, 605 M 36	SMn 443
1.7030	28 Cr 4	30 CD 4	530 A 30	—
1.7033	34 Cr 4	34 Cr 4, 32 C 4	34 Cr 4, 530 A 32	SCr 430
1.7034	37 Cr 4	37 Cr 4, 38 C 4	37 Cr 4, 530 A 36	SCr 435
1.7035	41 Cr 4	41 Cr 4, 42 C 4	41 Cr 4, 530 M 40	41 Cr 4SCr 440
1.7037	34 CrS 4	34 CrS 4, 32 C 4	34 CrS 4, 530 A 32	—
1.7038	37 CrS 4	37 CrS 4, 38 C 4	37 CrS 4, 530 A 36	—
1.7039	41 CrS 4	41 CrS 4, 42 C 4	41 CrS 4, 530 M 40	—
1.7102	54 SiCr 6	51 S 7	251 A 58	SKD12
1.7131	16 MnCr 5	16 MC 5	527 M 17	—
1.7147	20 MnCr 5	20 MC 5	—	SMnC 420
1.7176	55 Cr 3	55 C 3	525 A 60	SUP 9
1.7213	25 CrMoS 4	25 CrMoS 4, 25 CD 4	25 CrMoS 4, 708 A 25	—
1.7218	25 CrMo 4	25 CrMo 4, 25 CD 4	25 CrMo 4, 708 A 25	SCM 430
1.7220	34 CrMo 4	34 CrMo 4, 34 CD 4	34 CrMo 4, 708 A 37	SCM 435
1.7225	42 CrMo 4	42 CrMo 4, 42 CD 4	42 CrMo 4, 708 M 40	SCM440
1.7226	34 CrMoS 4	34 CrMoS 4, 34 CD 4	34 CrMoS 4708 A 37	—
1.7227	42 CrMoS 4	42 CrMoS 4, 42 CD 4	42 CrMoS 4, 708 M 40	—
1.7228	50 CrMo 4	50 CrMo 4	50 CrMo 4, 708 A 47	—
1.7321	20 MoCr 4	—	805 M 20	SNCM 220
1.7325	25 MoCr 4	18 CD 4	—	—
1.7361	32 CrMo 12	30 CD 12	722 M 24	—
1.7701	51 CrMoV 4	51 CDV 4	—	SUP 13
1.8159	51 CrV 4	51 CrV 4, 50 CV 4	51 CrV 4	SUP 10
1.8507	34 CrAlMo 5	—	—	—
1.8509	41 CrAlMo 7	40 CAD 6 12	905 M 39	—
1.8515	31 CrMo 12	30 CD 12	722 M 24	—
1.8523	39 CrMoV 13-9	—	897 M 39	—
1.8550	34 CrAlNi 7	—	—	—

UNI - I	UNE - E	AISI - US	condition	material group
—	—	630	AU-PH	14.4
—	—	630	AU-PH	14.4
X 8 CrNiNb 18 11	—	347	AU	14.1
—	—	—	AU	14.1
—	—	302 HQ	AU	14.1
X 2 CrNiMo 17.12	—	17-07 PH	AU-PH	14.4
X 6 CrNiMoTi 17 12	—	316 Ti	AU	14.1
X 6 CrNiMoTi 17 12	—	(316 Ti)	AU	14.1
X 6 CrNiMoNb 17 12	—	316 Cb	AU	14.1
GX 6 CrNiMoNb 20 11	—	—	AU	14.1
X 6 CrNiMoNb 17 13	—	316 Cb, (318)	AU	14.1
—	—	—	FE	10–11
X 45 CS 8	—	HNV 3	—	31–32
—	—	409	—	31–32
X 10 CrAl 12	X 10 CrAl 13	405	FE	12
—	—	—	—	12
X 8 Cr 17	X 10 CrAl 18	430	—	12
—	—	—	—	31–32
X 16 Cr 26	—	446	—	12
—	X 15 CrNiSi 25 04	—	DU	14.2
—	X 10 CrNiSi 20	309	AU	14.1
X 6 CrNi 23 14	—	309 S	AU	14.1
X 16 CrNiSi 25 20	X 15 CrNiSi 25 20	310	AU	14.1
—	—	310 S	AU	14.1
—	X 12 NiCrSi 36 16	330	—	31–32
—	—	EV 8	—	10
X 45 CrNiW 18 9	—	EV 9	—	31–32
—	—	EV 11	—	31–32
—	X 10 NiCrAlTi 32 20	—	S-AU	31–32
X 6 CrNiTi 18 11	—	321, 321 H	—	31–32
—	—	304H	AU	14.1
—	—	—	var[1]	6–9
60 SiCr 8	F.1442	9260	var[1]	6–9
—	F.1581	4320	var[1]	6–9
16 NiCrMo 12	F.1525	—	var[1]	6–9
36 CrNiMo 4, 39 NiCrMo 3 1	36 CrNiMo 4, 40 NiCrMo 4	—	var[1]	6–9
SNCM 630	30 CrNiMo 8, 32 NiCrMo 16	—	var[1]	6–9
34 CrNiMo 6	34 CrNiMo 6	4340	var[1]	6–9
18 NiCrMo 12	F.1560	—	var[1]	6–9
38 Cr 2	38 Cr 2, 38 Cr 3	—	var[1]	6–9
46 Cr 2	46 Cr 2	—	var[1]	6–9
—	—	—	var[1]	6–9
34 Cr 4	34 Cr 4	5132	var[1]	6–9
37 Cr 4	37 Cr 4, 38 Cr 4	5135	var[1]	6–9
41 Cr 4	41 Cr 4, 42 Cr 4	5140	var[1]	6–9
34 CrS 4	34 CrS 4	—	var[1]	6–9
37 CrS 4	37 Cr 4, 38 Cr 4-1	—	var[1]	6–9
41 CrS 4	41 CrS 4, 42 Cr 4-1	—	var[1]	6–9
48 Si 7	F.1450	9260	var[1]	6–9
16 MnCr 5	F.1516	—	var[1]	6–9
20 MnCr 5	F.1523	—	var[1]	6–9
55 Cr 3	—	5155	var[1]	6–9
25 CrMoS 4, 25 CrMo 4	25 CrMoS 4, 30 CrMo 4-1	—	var[1]	6–9
25 CrMo 4	25 CrMo 4, 30 CrMo 4	4130	var[1]	6–9
34 CrMo 4, 35 CrMo 4	34 CrMo 4, 35 CrMo 4	4137	var[1]	6–9
42 CrMo 4	42 CrMo 4	—	var[1]	6–9
34 CrMoS 4, 35 CrMo 4	34 CrMoS 4, 35 CrMo 4	—	var[1]	6–9
42 CrMoS 4, 42 CrMo 4	42 CrMoS 4, 40 CrMo 4-1	—	var[1]	6–9
50 CrMo 4	50 CrMo 4	4150	var[1]	6–9
16 NiCrMo 2	F.1523	8620	var[1]	6–9
20 NiCrMo 2	—	8625	var[1]	6–9
—	—	—	var[1]	6–9
51 CrMoV 4	—	—	var[1]	6–9
51 CrV 4, 50 CrV 4	51 CrV 4	6150	var[1]	6–9
—	35 CrAlMo 5	A 355/D	var[1]	6–9
41 CrAlMo 7	41 CrAlMo 7	A 355/A	var[1]	6–9
31 CrMo 12	31 CrMo 12	—	var[1]	6–9
36 CrMoV 12	—	—	var[1]	6–9
—	—	A 355/C	var[1]	6–9

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	1010, 1015, 1020, 1023, 1102, 1108, 1109, 1213, 1215
	2		0.25≤C<0.55%	G	650	190	1025, 1030, 1035, 1040, 1041, 1045, 1050, 1140, 1141, 1146, 1330
	3	Free cutting steel		V	850	250	1025, 1030, 1035, 1040, 1041, 1045, 1050, 1140, 1141, 1146, 1330
	4		0.55%≤C	G	750	220	1055, 1060,1151
	5			V	1000	300	1055, 1060,1151
	6	Low-alloyed steel/cast steel		G	600	180	4130, 4140, 4150, 4320, 4340, 5120, 5132, 5135, 5140, 5155, 6150, 8620, 8625, 9260, A 355/A, A 355/C, A 355/D, A485/2, A 485/3, E-3310
	7			V	930	275	
	8			V	1000	300	
	9			V	1200	350	
	10	High-alloyed steel/cast steel		G	680	200	440 C, 613, EV 8, M2 regular C, T1
	11	Tool steel		V	1100	325	440 C, 613, EV 8, M2 regular C, T1
	12	Stainless steel/cast steel		FE/MA	680	200	403, 405, 409, 410, 410 S, 416, 420, 430, 430 Ti, 439, 446,
	13.1			MA	820	240	420, 430 F, 431, 434, 440 B, 440 C
	13.2			MA-PH	1060	330	630, 630
M	14.1	Stainless steel/cast steel		AU	600	180	301, 303, 304, 304 L, 304 LN, 305, 309 S, 316, 316 L, 316 LN, 317 L, 317 LN
	14.2			DU	740	230	201, 329, 2205
	14.3			S-AU	680	200	310 mod
	14.4			AU-PH	1060	330	17-7 PH, 630
K	15	Grey iron GG		FE/PE		180	Class 20 B, Class 25 B,
	16			PE		260	Class 30 B, Class 40 B, Class 45 B, Class 50 B
	17	Nodular iron GGG		FE		160	Class 50 B, Grade 60-40-18, Grade 65-45-12
	18			PE		250	Grade 80-55-06, Grade 100-70-03, Grade120-90-02
	19	Malleable iron GTS/GTW		FE		130	Grade 22010, 32510
	20			PE		230	GTW-35-04, GTS-55-04, GTS-65-02
N	21	Wrought aluminium alloys		NAG		60	6061, 2014-T6, 2011-T3, 2024-T4, A2, 7075, 1000, AlMg 1, AlCuMg 1, AlMgSiPb, AlMgSi 1
	22			AG		100	6061, 2014-T6, 2011-T3, 2024-T4, A2, 7075, 1000, AlMg 1, AlCuMg 1, AlMgSiPb, AlMgSi 1
	23	Cast aluminium alloys	Si<12%	NAG		75	A380-1, A280, A390-1, G-AlSi 10 Mg, G-AlSi12, G-AlCu 5 Si 3, G-AlSi 17, G-AlSi 23
	24			AG		90	A380-1, A280, A390-1, G-AlSi 10 Mg, G-AlSi12, G-AlCu 5 Si 3, G-AlSi 17, G-AlSi 23
	25		Si>12%			130	A380-1, A280, A390-1, G-AlSi 10 Mg, G-AlSi12, G-AlCu 5 Si 3, 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	A-286, 321, 321 H, 330, 409, EV 9, EV11, HNV3
	32			AG		280	A-286, 321, 321 H, 330, 409, EV 9, EV11, HNV3
	33		Ni-/Co-based	G		250	INCONEL® 601/617/625/700/706/718, NIMONIC® 80 A, Hastelloy®, UDIMET®, Haynes® 25, Waspaloy, Rene41, Stelite®
	34			AG		350	INCONEL® 601/617/625/700/706/718, NIMONIC® 80 A, Hastelloy®, UDIMET®, Haynes® 25, Waspaloy, Rene41, Stelite®
	35			GO		320	INCONEL® 601/617/625/700/706/718, NIMONIC® 80 A, Hastelloy®, UDIMET®, Haynes® 25, Waspaloy, Rene41, Stelite®
	36	Titanium/titanium alloys, Alpha-/Beta-alloys			400		Titanium
	37			AG	1050		TiAl 64 V
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 Conditions

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, AISI 300
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, AISI 400
G — Annealed
GG — Grey cast iron
GGG — Nodular cast iron
GO — Cast
H — Hardened
MA — Martensitic, AISI 400
N — Normalised
NAG — Non-aged (non-aging)
PH — Precipitation hardened
S-AU — Superaustenitic, AISI 300
U — Untreated
V — Heat treated
var1 — Variable

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 aluminium 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, Hastelloy®, UDIMET®
	34			AG		350	INCONEL® 718, NIMONIC® 80 A, Hastelloy®, UDIMET®
	35			GO		320	INCONEL® 718, NIMONIC® 80 A, Hastelloy®, 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

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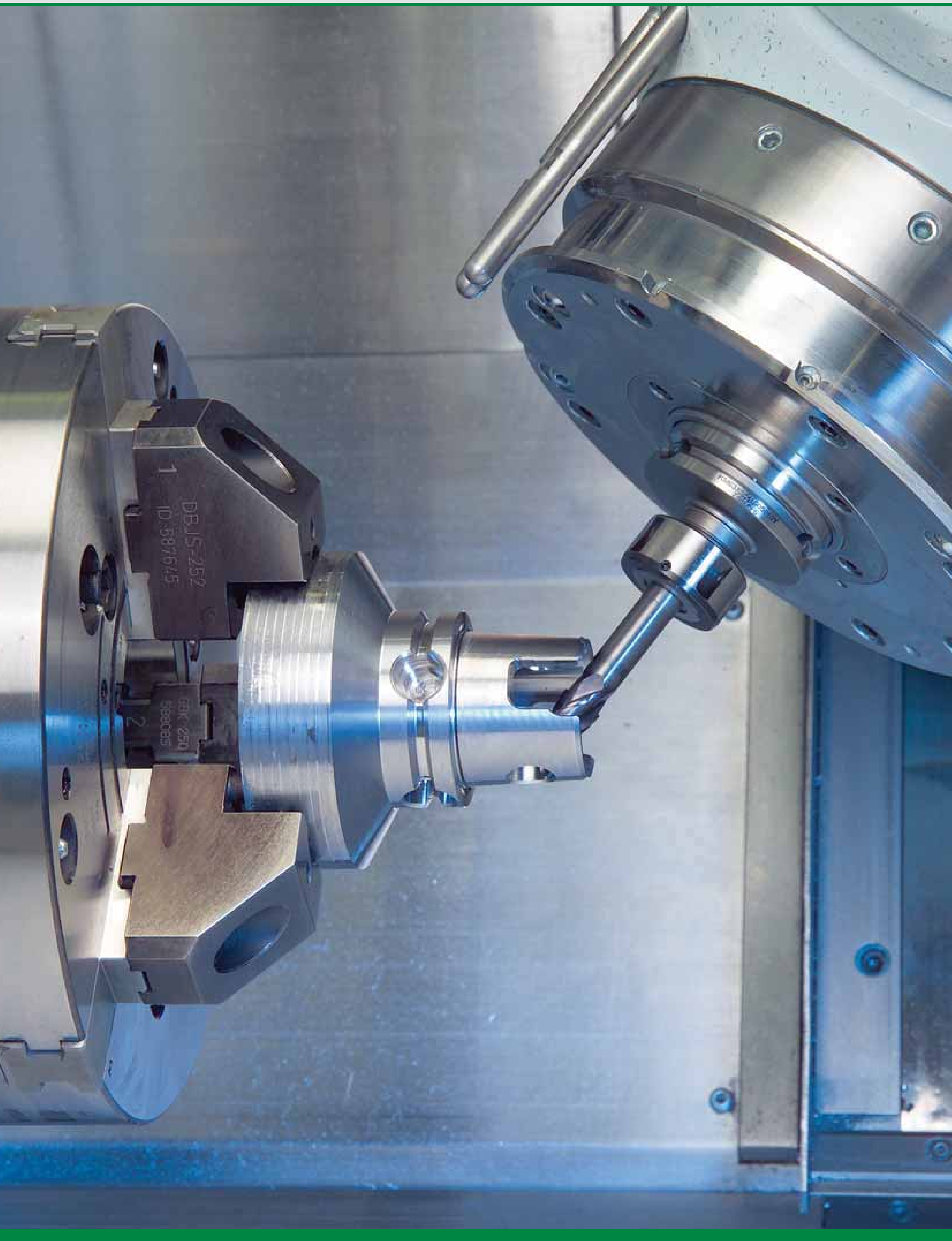
GO — Cast
H — Hardened
MA — Martensitic
N — Normalised
NAG — Non-aged (non-aging)
PH — Precipitation hardened
S-AU — Superaustenitic
U — Untreated
V — Heat treated
var1 — Variable

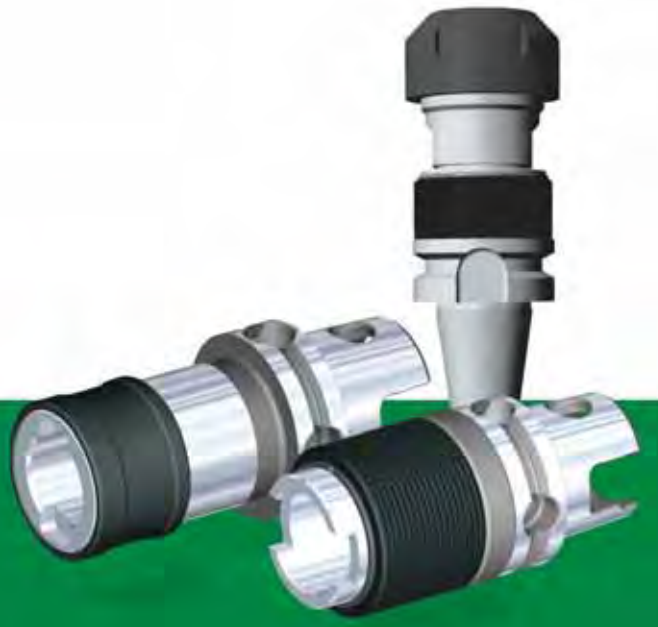
WIDIA



Tooling Systems

Tooling Systems for Taps · Chucks, Collets, and Adaptors

ERICKSON™ tap holders are uniquely designed to provide the highest productivity and longest life from your thread-cutting tools and taps. The addition of the Synchro Plus™ gives WIDIA™ the capability to optimise performance on machines with synchronous tapping cycles in the fast-growing synchronous-tap market.



Tap Holder Systems

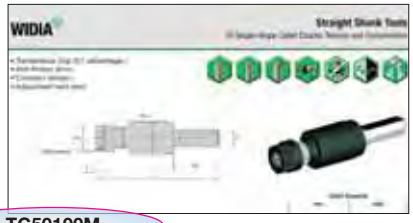
Introducing the new Synchro Plus Tapping System:

- Designed to optimise tool life in synchronous tapping.
- Reduces axial cutting forces up to 50%.
- Modular design increases application flexibility.
- Through coolant capability up to 50 bar.
- Uses standard ER tap collets.
- Applicable for use with cylindrical shank tools.
- For use with taps from 4–20mm (3/16–1/2").

See pages B6–B9 for the Synchro Plus Tapping Systems.

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.

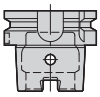
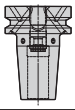
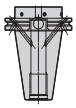


TG50100M

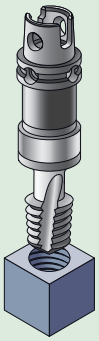
TG	50	100	M
Toolholder Style	Toolholder Size	Gage Length	Identification Values
	TG = Collet series xx (50), xxx (100) **EM** = I.D. size: metric — xx = xx, (20); inch — xxx = x.xx, (075) **SM** = O.D. size: metric — xx = xx, (20); inch — xxx = x.xx, (075)	(Taper gage line to front of tool) **metric** xxx = xxx **inch** xxx = x.xx	**(blank)** = Tool built to inch values **M** = Tool built to metric values

BB = Bar blank	**HSK** = HSK modular adaptor	**SSF** = Adaptor for straight shanks with flat (drills)
CS = Combination shell mill and slotting cutter adaptor	**JT** = Jacobs modular taper adaptor	**ST** = Screw-On adaptors
DA = Double-angle collet chuck	**KM** = KM™ adapter	**STRC** = Rapid Change — solid tapping adaptor chuck
DC = Drill chuck	**KR** = Romicron™ boring adaptors	**SWN** = Whistle Notch™ 2° — short — (not to DIN standard)
EM = End mill adaptor	**MT** = Morse taper adaptor	**TA** = Tap chuck adaptor
ER = DIN 6499 single-angle collet chuck	**RC** = Rapid Change — T&C tapping adaptor chuck	**TG** = Tremendous Grip single-angle collet chuck
GB = Gage bar	**SA** = Slotting cutter adaptor	**TT** = Shrink Fit thermo toolholder
HC = Hydraulic chuck — Standard Line	**SFHDTT** = **SAFE-LOCK**™ heavy-duty Shrink Fit thermo toolholder	**TTHT** = Shrink Fit thermo toolholder — high torque
HCB = Hydraulic chuck — Basic Line	**SFTT** = **SAFE-LOCK**™ Shrink Fit thermo toolholder	**WD** = Whistle Notch with drive
HCSL = Hydraulic chuck — Slim Line	**SM2C** = Shell mill adaptor with coolant and small diameter	**WN** = Whistle Notch (2° metric; 5° inch)
HCSLT = Hydraulic chuck — Slim Line — Trend	**SMC** = Shell mill adaptor with coolant	
HCT = Hydraulic chuck — Trend Line	**SS** = Adaptor for straight shanks (drills)	
HPMC = Bearing milling chuck — high performance		

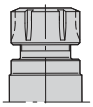
ERICKSON Toolholder Options

HSK40A • HSK50A • HSK63T HSK63A • HSK80A • HSK100A	HSK32C • HSK40C HSK50C • HSK63C	HSK40E • HSK50E	HSK63FP • HSK80FP	BTKV40 • BTKV50	CVKV40 • CVKV50
					

Tapping

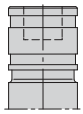


Synchro Plus™ • ER20 and ER32



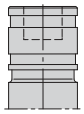
HSK40A	▽	HSK40E	▽	BT50	▽
HSK50A		HSK50E		CV40	
HSK63T		HSK63F		CV50	
HSK63A	Page: B6	HSK80F		DV40	
HSK80A	▽	BTKV40		DV50	
HSK100A	Page: B7	BTKV50		QC30	
HSK32C	▽	CVKV40		QC40	
HSK40C		CVKV50		QC50	
HSK50C		BT30	Page: B9	R8	
HSK63C		BT40	▽	Straight Shanks	Page: B8

RC Rapid Change • Tension and Compression



HSK40A	▽	HSK40E	▽	BT50	Page: B16
HSK50A		HSK50E		CV40	Page: B17
HSK63T		HSK63F		CV50	Page: B18
HSK63A	Page: B13	HSK80F		DV40	Page: B19
HSK80A	▽	BTKV40		DV50	Page: B20
HSK100A	Page: B14	BTKV50		QC30	▽
HSK32C	▽	CVKV40		QC40	
HSK40C		CVKV50		QC50	
HSK50C		BT30		R8	
HSK63C		BT40	Page: B15	Straight Shanks	

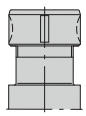
RC Rapid Change • Solid*



HSK40A	▽	HSK40E	▽	BT50	Page: D87*
HSK50A		HSK50E		CV40	Page: E34*
HSK63T		HSK63F		CV50	Page: E76*
HSK63A		HSK80F		DV40	Page: F34*
HSK80A		BTKV40		DV50	Page: F67*
HSK100A		BTKV50		QC30	▽
HSK32C		CVKV40		QC40	
HSK40C		CVKV50		QC50	
HSK50C		BT30		R8	
HSK63C		BT40	Page: D54*	Straight Shanks	

**Page numbers refer to WIDIA™ Tooling Systems catalogue (A-09-02122).*

TG Collet Chucks*

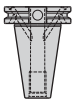
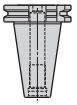
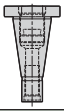
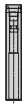


HSK40A	Page: B34*	HSK40E	▽	BT50	Page: D72*
HSK50A	Page: B45*	HSK50E		CV40	Pages: E16–E18*
HSK63T	▽	HSK63F		CV50	Pages: E52–E56*
HSK63A	Page: B73*	HSK80F		DV40	Pages: F14–F15*
HSK80A	Page: B100*	BTKV40	Page: C8*	DV50	Pages: F49–F50*
HSK100A	Page: B121*	BTKV50	Page: C26*	QC30	Page: G4*
HSK32C	▽	CVKV40	Page: C45*	QC40	Page: G11*
HSK40C		CVKV50	Page: C58*	QC50	Page: G19*
HSK50C		BT30	Page: D9*	R8	▽
HSK63C		BT40	Page: D32*	Straight Shanks	Pages: H6–H7*

**Page numbers refer to WIDIA Tooling Systems catalogue (A-09-02122).*

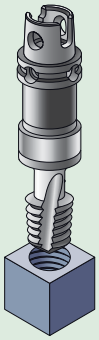
(continued)

▽ Indicates "Not Available".

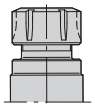
BT30 • BT40 • BT50	CV40 • CV50	DV40 • DV50	QC30 • QC40 • QC50	R8	SS
					

ERICKSON Toolholder Options

Tapping *(continued)*



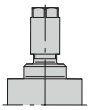
ER Collet Chucks*



HSK40A	Page: B35*	HSK40E	Page: B168*	BT50	Pages: D73–D75*
HSK50A	Pages: B46–B47*	HSK50E	▽	CV40	Pages: E19–E21*
HSK63T	▽	HSK63F	Page: B178*	CV50	Pages: E57–E59*
HSK63A	Pages: B74–B75*	HSK80F	Page: B182*	DV40	Pages: F16–F19*
HSK80A	Pages: B102–B103*	BTKV40	Pages: C10–C11*	DV50	Pages: F51–F53*
HSK100A	Pages: B122–B123*	BTKV50	Pages: C28–C29*	QC30	▽
HSK32C	Page: B140*	CVKV40	Pages: C46–C47*	QC40	
HSK40C	Page: B147*	CVKV50	Pages: C60–C61*	QC50	
HSK50C	Page: B153*	BT30	Pages: D10–D11*	R8	
HSK63C	Page: B159*	BT40	Pages: D33–D35*	Straight Shanks	Pages: H8–H11*

**Page numbers refer to WIDIA™ Tooling Systems catalogue (A-09-02122).*

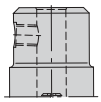
DA Collet Chucks*



HSK40A	▽	HSK40E	▽	BT50	Page: D76*
HSK50A		HSK50E		CV40	Page: E22*
HSK63T		HSK63F		CV50	Page: E60*
HSK63A		HSK80F		DV40	Pages: F20–F23*
HSK80A		BTKV40		DV50	Pages: F54–F55*
HSK100A		BTKV50		QC30	Page: G5*
HSK32C		CVKV40		QC40	Page: G12*
HSK40C		CVKV50		QC50	▽
HSK50C		BT30	Pages: D12–D13*	R8	Page: G26*
HSK63C		BT40	Pages: D36–D37*	Straight Shanks	Pages: H12–H22*

**Page numbers refer to WIDIA Tooling Systems catalogue (A-09-02122).*

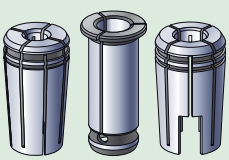
TA Adaptors*

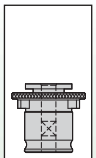


HSK40A	▽	HSK40E	▽	BT50	Page: D78*
HSK50A		HSK50E		CV40	Page: E25*
HSK63T		HSK63F		CV50	▽
HSK63A		HSK80F		DV40	
HSK80A		BTKV40		DV50	
HSK100A		BTKV50		QC30	
HSK32C		CVKV40		QC40	
HSK40C		CVKV50		QC50	
HSK50C		BT30		R8	
HSK63C		BT40	Page: D40*	Straight Shanks	

**Page numbers refer to WIDIA Tooling Systems catalogue (A-09-02122).*

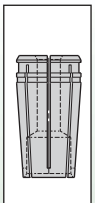
Tapping Collets and Adaptors





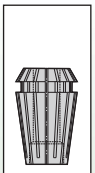
RC Rapid Change Adaptors

Pages: B34–B37



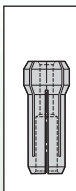
TG Collets

Pages: B21–B28



ER Collets

Pages: B29–B31

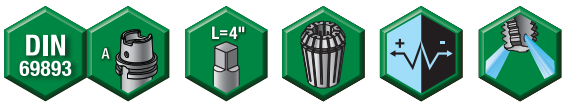


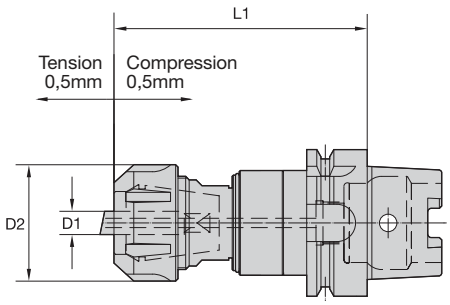
DA Collets*

Pages: I65–I75*

**Page numbers refer to WIDIA Tooling Systems catalogue (A-09-0212).*

▽ Indicates "Not Available".





HSK63 Synchro Plus • Metric

order number	catalogue number	collet size	D1	D2	L1	tap size
5525685	**HSK63ASYTER20095M**	ER20	4,5–10	34,00	99,10	M4 - M12
5525686	**HSK63ASYTER32108M**	ER32	4,5–16	45,00	112,40	M4 - M20

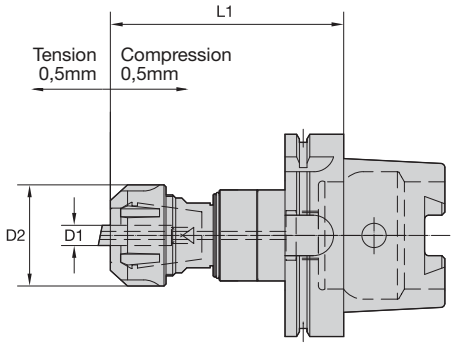
NOTE: For ER Collets, see the WIDIA™ Tooling Systems catalogue (A-09-02122) pages I58–I59.
Coolant tube must be ordered separately; see the WIDIA Tooling Systems catalogue (A-09-02122) page J32.
Need two adjustment wrenches to properly tighten; option to use tightening device with new torque wrench possible.
Adjustment screws ordered seperately.
Adjustment range for length adjusting screw is +2mm for both ER20 and ER32.

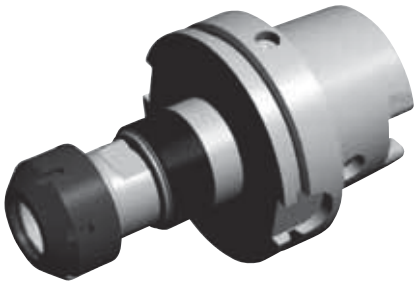
Length Adjustment

	clamping range	catalogue number	adjustment screw wrench
ER 20:	6–7mm	**ASER20006M**	TWASER20
	8–9mm	**ASER20008M**	TWASER20
	10mm	**ASER20010M**	TWASER20
ER 32:	9mm	**ASER32009M**	TWASER32
	10–12mm	**ASER32010M**	TWASER32
	14–16mm	**ASER32014M**	TWASER32

Optional Accessories

holder description	locknut	adjustment wrench set	tightening device	torque wrench	torque wrench adaptor	HSK coolant tube	HSK wrench
HSK63ER20	1859410	CWER20SYT -SET	TFSYT	TWTF2	TWAHEX	1132145	1134161
HSK63ER32	1128857	CWER32SYT -SET	TFSYT	TWTF2	TWAROUND	1132145	1134161





HSK100 Synchro Plus • Metric

order number	catalogue number	collet size	D1	D2	L1	tap size
5525687	**HSK100ASYTER20102M**	ER20	4,5–10	34,00	105,60	M4 - M12
5525688	**HSK100ASYTER32115M**	ER32	4,5–16	45,00	118,90	M4 - M20

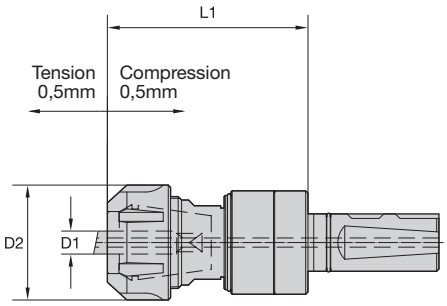
NOTE: For ER Collets, see the WIDIA™ Tooling Systems catalogue (A-09-02122) pages I58–I59.
Coolant tube must be ordered separately; see the WIDIA Tooling Systems catalogue (A-09-02122) page J32.
Need two adjustment wrenches to properly tighten; option to use tightening device with new torque wrench possible.
Adjustment screws ordered seperately.
Adjustment range for length adjusting screw is +2mm for both ER20 and ER32.

Length Adjustment

	clamping range	catalogue number	adjustment screw wrench
ER 20:	6–7mm	**ASER20006M**	TWASER20
	8–9mm	**ASER20008M**	TWASER20
	10mm	**ASER20010M**	TWASER20
ER 32:	9mm	**ASER32009M**	TWASER32
	10–12mm	**ASER32010M**	TWASER32
	14–16mm	**ASER32014M**	TWASER32

Optional Accessories

holder description	locknut	adjustment wrench set	tightening device	torque wrench	torque wrench adaptor	HSK coolant tube	HSK wrench
HSK100ER20	1859410	CWER20SYT -SET	TFSYT	TWTF2	TWAHEX	1132147	1132993
HSK100ER32	1128857	CWER32SYT -SET	TFSYT	TWTF2	TWAROUND	1132147	1132993



Straight Shank Synchro Plus • Metric

order number	catalogue number	collet size	D1	D2	L1	tap size
5525781	**SS25SYTER20073M**	ER20	4,5–10	34,00	76,60	M4 - M12
5525782	**SS25SYTER32087M**	ER32	4,5–16	45,00	90,90	M4 - M20

NOTE: For ER Collets, see the WIDIA™ Tooling Systems catalogue (A-09-02122) pages I58–I59.
Coolant tube must be ordered separately; see the WIDIA Tooling Systems catalogue (A-09-02122) page J32.
Need two adjustment wrenches to properly tighten; option to use tightening device with new torque wrench possible.
Adjustment screws ordered seperately.
Adjustment range for length adjusting screw is +2mm for both ER20 and ER32.

Shank Adaptors

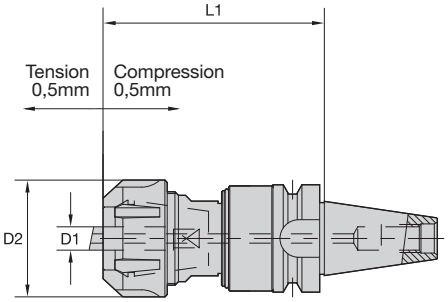
spindle connection	Whistle Notch adaptor catalogue number	WIDIA Tooling Systems catalogue page
BT40	1126479	D40
BT50	1134607	D78
CV40	1549330	E24
CV50	1804515	E62
DV40	1135273	F25
DV40 • Short	1134537	F26
DV50	1137558	F57
DV50 • Short	1134539	F58

Optional Accessories

holder description	locknut	adjustment wrenches	tightening device	torque wrench	torque wrench adaptor
SS25ER20	1859410	CWER20SYT -SET	TFSYT	TWTF2	TWAHEX
SS25ER32	1128857	CWER32SYT -SET	TFSYT	TWTF2	TWAROUND

Length Adjustment

	clamping range	catalogue number	adjustment screw wrench
ER 20:	6–7mm	**ASER20006M**	TWASER20
	8–9mm	**ASER20008M**	TWASER20
	10mm	**ASER20010M**	TWASER20
ER 32:	9mm	**ASER32009M**	TWASER32
	10–12mm	**ASER32010M**	TWASER32
	14–16mm	**ASER32014M**	TWASER32



BT Synchro Plus • Metric

order number	catalogue number	collet size	D1	D2	L1	tap size
5525689	**BT30BSYTER20085M**	ER20	4,5–10	34,00	90,10	M4 - M12
5525780	**BT30BSYTER32073M**	ER32	4,5–16	45,00	98,40	M4 - M20

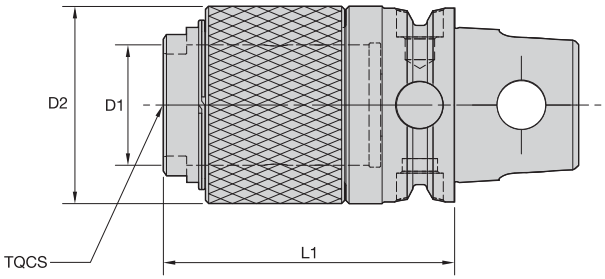
NOTE: For ER Collets, see the WIDIA™ Tooling Systems catalogue (A-09-02122) pages I58–I59.
Coolant tube must be ordered separately; see the WIDIA Tooling Systems catalogue (A-09-02122) page J32.
Need two adjustment wrenches to properly tighten; option to use tightening device with new torque wrench possible.
Adjustment screws ordered seperately.
Adjustment range for length adjusting screw is +2mm for both ER20 and ER32.

Optional Accessories

holder description	locknut	adjustment wrenches	tightening device	torque wrench	torque wrench adaptor
BT30ER20	1859410	CWER20SYT -SET	TFSYT	TWTF2	TWAHEX
BT30ER32	1128857	CWER32SYT -SET	TFSYT	TWTF2	TWAROUND

Length Adjustment

	clamping range	catalogue number	adjustment screw wrench
ER 20:	6–7mm	**ASER20006M**	TWASER20
	8–9mm	**ASER20008M**	TWASER20
	10mm	**ASER20010M**	TWASER20
ER 32:	9mm	**ASER32009M**	TWASER32
	10–12mm	**ASER32010M**	TWASER32
	14–16mm	**ASER32014M**	TWASER32

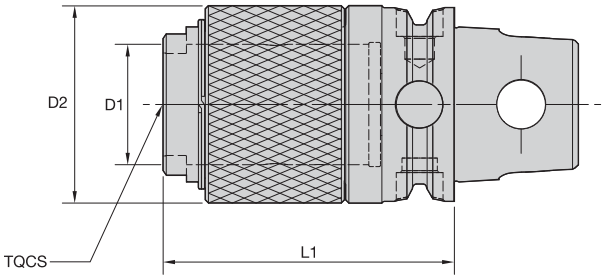


KM QUICK CHANGE

ST • Solid Tap Chuck

order number	catalogue number	TQCS adaptor size	D1 mm	D1 in	D2 mm	D2 in	L1 mm	L1 in	kg	lbs
3964071	**KM40TSST1045M**	1	19	.749	35	1.375	45	1.774	0,30	.65
3964072	**KM40TSST2070M**	2	31	1.222	51	2.000	70	2.758	0,71	1.56

NOTE: Quick-change tap adaptors available and ordered separately; see page B32.

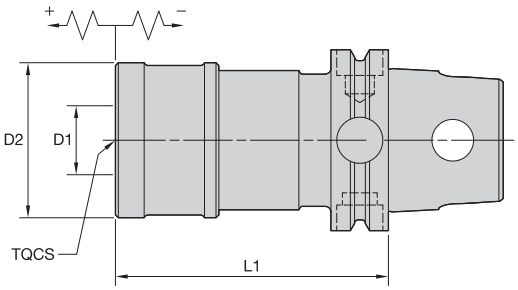


KM QUICK CHANGE

ST • Solid Tap Chuck

order number	catalogue number	TQCS adaptor size	D1 mm	D1 in	D2 mm	D2 in	L1 mm	L1 in	kg	lbs
3964133	KM50TSST1050M	1	19	.749	35	1.375	50	1.971	0,48	1.06
3964134	KM50TSST2075M	2	31	1.222	51	2.000	75	2.955	0,89	1.95

NOTE: Quick-change tap adaptors available and must be ordered separately; see page B32.



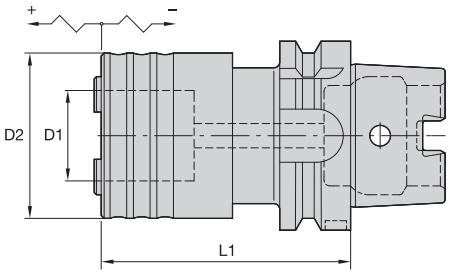
KM QUICK CHANGE

TC • Tension and Compression

order number	catalogue number	TQCS adaptor size	D1 mm	D1 in	D2 mm	D2 in	L1 mm	L1 in	kg	lbs
1126271	**KM63TSTC2095M**	2	31	1.220	53	2.090	95	3.740	0,96	2.12
1126272	**KM63TSTC3147M**	3	48	1.890	78	3.070	147	5.790	1,97	4.34

NOTE: Quick-change tap adaptors available and must be ordered separately; see page B32.

• Rapid Change style.

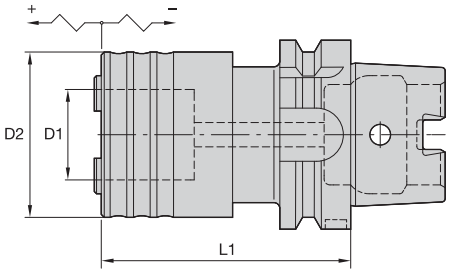


ERICKSON

RC-HSK Form A

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	tension	compression	kg
1520637	**HSK63ACHRC1105M**	1	M1.0 - M14	#0 - 9/16	19	39	105	7,5	7,5	1,30
1520639	**HSK63ACHRC2140M**	2	M4.5 - M24	5/16 - 7/8	31	60	140	10,0	10,0	2,20
1520641	**HSK63ACHRC3203M**	3	M14.0 - M36	13/16 - 1 3/8	48	86	203	17,5	17,5	4,90

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.
HSK coolant unit and wrench are available and must be ordered separately.
For HSK adaptors to DIN 69893-1.
Form A or Form C coolant pipe must be removed.

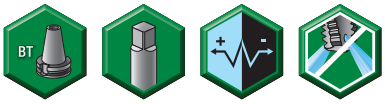


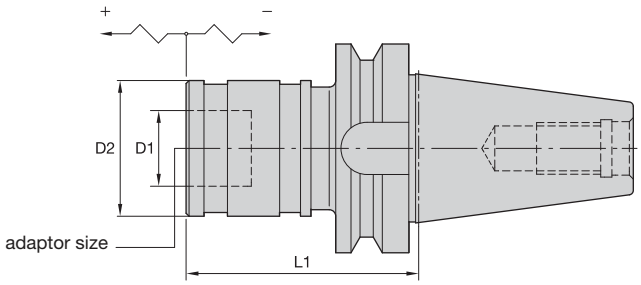
ERICKSON

RC-HSK Form A

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	tension	compression	kg
1520643	**HSK100ACHRC1112M**	1	M1.0 - M14	#0 - 9/16	19	39	112	7,5	7,5	3,60
1520644	**HSK100ACHRC2144M**	2	M4.5 - M24	5/16 - 7/8	31	60	144	10,0	10,0	4,10
1520645	**HSK100ACHRC3210M**	3	M14.0 - M36	13/16 - 1 3/8	48	86	210	17,5	17,5	6,90

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.
HSK coolant unit and wrench are available and must be ordered separately.



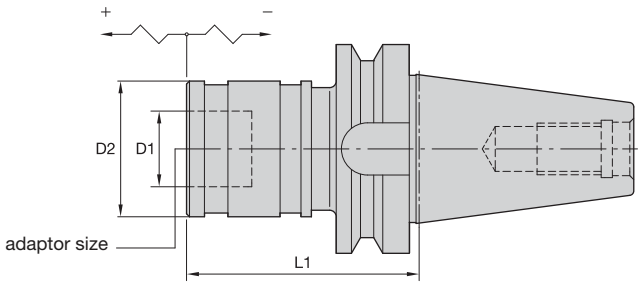


ERICKSON

RC-BT Form A

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	tension	compression	kg
1125829	**BT40RC1067M**	1	M1 - M14	#0 - 9/16	19	36	67	7,5	7,5	2,00
1125812	**BT40RC2094M**	2	M5 - M24	5/16 - 7/8	31	53	94	12,5	12,5	2,20

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.



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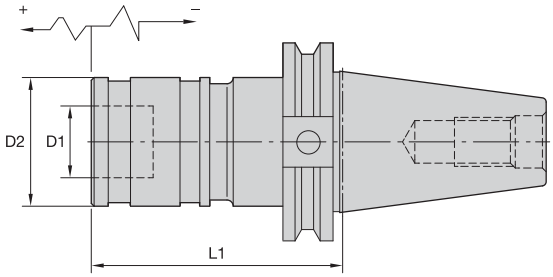
RC-BT Form A

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	tension	compression	kg
1778908	**BT50RC1075M**	1	M1 - M14	#0 - 9/16	19	36	73	7,5	7,5	3,10
1127889	**BT50RC2102M**	2	M5 - M24	5/16 - 7/8	31	53	102	12,5	12,5	3,90
1135816	**BT50RC3141M**	3	M14 - M27	13/16 - 1 3/8	48	78	141	20,0	20,0	4,70

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.

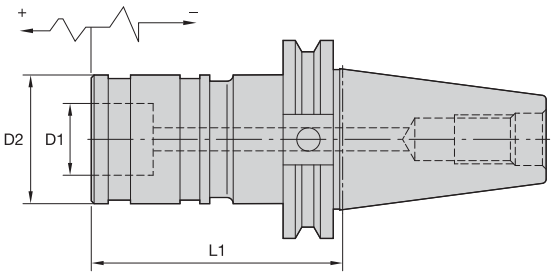


ERICKSON

RC-CV Form A

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	tension	compression	kg
1615978	**CV40TCRC1297**	1	M1 - M14	#0 - 9/16	19	36	75	15,0	15,0	1,21
1615979	**CV40TCRC2393**	2	M5 - M24	5/16 - 7/8	31	53	98	25,0	25,0	1,62

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.



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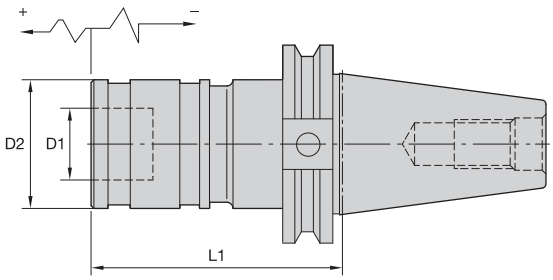
RC Cool-CV Form AD

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	tension	compression	kg
1615986	**CV40CHTCRC1382**	1	M1 - M14	#0 - 9/16	19	36	97	15,0	15,0	1,41
1615987	**CV40CHTCRC2524**	2	M5 - M24	5/16 - 7/8	31	53	133	20,0	20,0	2,40

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.

• Rapid Change style.

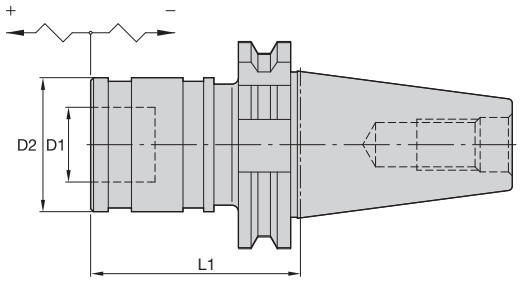


ERICKSON

RC-CV Form A

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	lbs
1615981	**CV50TCRC1297**	1	M1 - M14	#0 - 9/16	.75	1.42	2.96	7.22
1615982	**CV50TCRC2393**	2	M5 - M24	5/16 - 7/8	1.22	2.09	3.86	8.00
1615983	**CV50TCRC3516**	3	M14 - M27	13/16 - 1 3/8	1.89	3.07	5.16	9.60

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.

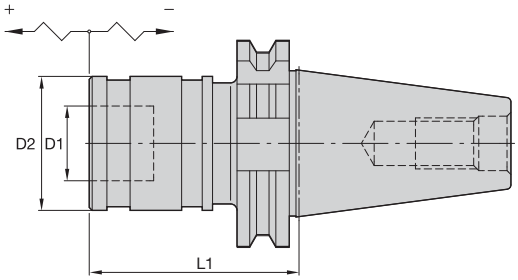


ERICKSON

RC-DV Form A

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	tension	compression	kg
1777397	**DV40RC1060M**	1	M1 - M14	#0 - 9/16	19	36	60	7,5	7,5	1,80
1777380	**DV40RC2098M**	2	M5 - M24	5/16 - 7/8	31	53	98	12,5	12,5	2,00
1777381	**DV40RC3150M**	3	M14 - M27	13/16 - 1 3/8	48	78	150	20,0	20,0	2,70

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.



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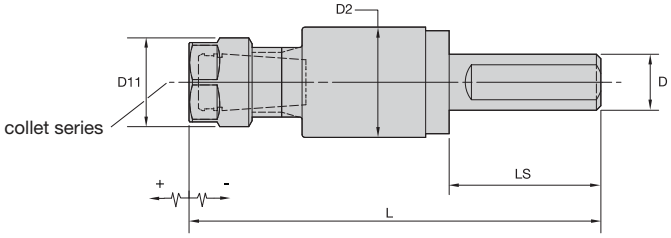
RC-DV Form A

order number	catalogue number	adaptor size	tap size mm	tap size in	D1	D2	L1	tension	compression	kg
1777453	**DV50RC1075M**	1	M1 - M14	#0 - 9/16	19	36	75	7,5	7,5	2,90
1777455	**DV50RC2084M**	2	M5 - M24	5/16 - 7/8	31	53	85	12,5	12,5	3,70
1777540	**DV50RC3139M**	3	M14 - M27	13/16 - 1 3/8	48	78	139	20,0	20,0	4,50

NOTE: Quick-change tap adaptors are available and must be ordered separately; see page B32.

- Tremendous Grip (3:1 advantage).
- Anti-friction drive.
- Compact design.
- Adjustment hard start.



	Collet Capacity			
	mm		inch	
TG collet series	min	max	min	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

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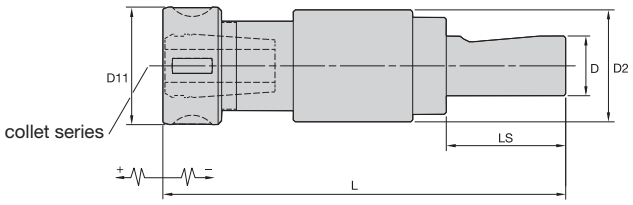
TG Hex Tap T&C-SS IN

order number	catalogue number	collet series	D	D11	D2	L	LS	tension	compression	hex assembly	OEW	ft. lbs.	lbs
1288221	**SS075TCTG050**	TG50	3/4	1.22	1.48	5.48	2.00	.25	.30	**NPA050**	**OEW106**	75	.68

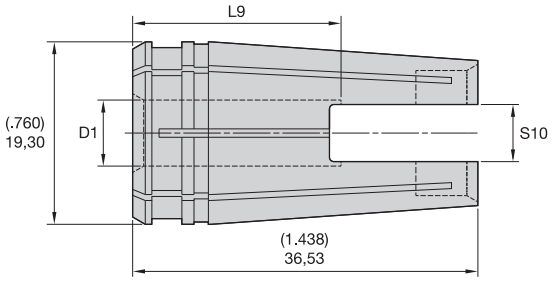


TG Round Tap T&C-SS IN

order number	catalogue number	collet series	D	D11	D2	L	LS	tension	compression	locknut	wrench	ft. lbs.	lbs
1288256	**SS100TCTG075**	TG75	1	1.97	1.88	6.79	2.20	.40	.43	**LNA075M**	**HSW45M**	100	1.50
1017625	**SS150TCTG100756**	TG100	1 1/2	2.36	2.50	7.56	2.68	.50	.13	**LNA100M**	**HSW58M**	150	2.12

NOTE: Collet must be loaded into locknut first. Before loading into the chuck body, insert the cutting tool, then tighten to the recommended tightening torque.
Supplied with locknut.
Locknut wrench must be ordered separately.
Interchangeable locknuts, coolant-style locknuts, and coolant disks are available and must be ordered separately.

- For 50TGSTC, rubber-filled slots seal collet for coolant-fed tool applications.
- Can be used in all standard TG collet chucks.
- Provides Tremendous Grip (3:1 advantage) and accuracy for tapping applications.
- Slot in back of collets acts as a drive for the tap square.
- Industry-standard ERICKSON™ single-angle collet system.
- Manufactured to DIN 6499 Class 2 accuracy.



ERICKSON™

TG50 Solid Tap Collet • Metric DIN and ISO

tap size	50TGST solid tap — non-coolant/external coolant	collet series	D1	S10	L9
M1 & M1,8 & M3 & M3,5	**50TGST025021M**	TG50	2,5	2,1	17,0
M2,5 & M4	**50TGST028021M**	TG50	2,8	2,1	17,0
M3 & M4	**50TGST032025M**	TG50	3,2	2,5	17,0
M3 & M5	**50TGST035027M**	TG50	3,5	2,7	17,0
M4 & M5	**50TGST040032M**	TG50	4,0	3,2	17,0
M4 & M6	**50TGST045034M**	TG50	4,5	3,4	17,0
M5	**50TGST050040M**	TG50	5,0	4,0	17,0
M5 & M6 & M7 & M8	**50TGST060049M**	TG50	6,0	4,9	17,0
M6	**50TGST063050M**	TG50	6,3	4,9	17,0
M10	**50TGST070055M**	TG50	7,0	5,5	17,0
M7	**50TGST071056M**	TG50	7,1	5,6	17,0
M8	**50TGST080062M**	TG50	8,0	6,2	17,0
M12	**50TGST090070M**	TG50	9,0	7,0	17,0
M10	**50TGST100080M**	TG50	10,0	8,0	17,0
M14	**50TGST110090M**	TG50	11,0	9,0	17,0
M16	**50TGST120090M**	TG50	12,0	9,0	17,0

(continued)

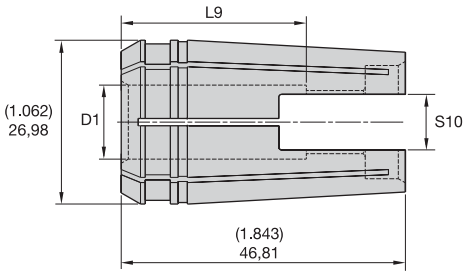
(TG50 Single-Angle Solid Tap Collets continued)

TG50 Solid Tap Collet • Inch/Metric ANSI

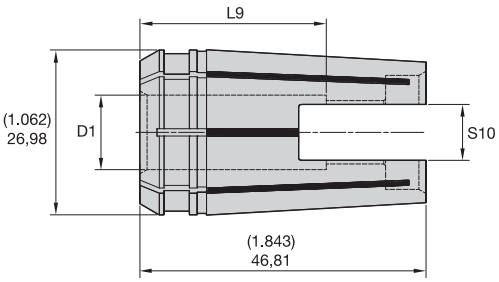
tap size		50TGST solid tap — non-coolant/external coolant	50TGSTC solid tap — internal coolant supply	collet series	D1	S10	L9
mm	in						
M3 & M3,15 & M3,5	#0-#6 & 1/8	**50TGST6**	—	TG50	.141	.110	.775
M4	#8 & 5/32	**50TGST8**	—	TG50	.168	.131	.775
M4,5 & M5	#10 & 3/16	**50TGST10**	—	TG50	.194	.152	.900
—	#12 & 7/32	**50TGST12**	—	TG50	.220	.165	.807
M6 & M6,3	#14 & 1/4	**50TGST025**	**50TGSTC025**	TG50	.255	.191	.838
—	1/16P & 1/8P(SS)	**50TGST006P**	—	TG50	.313	.234	.775
M7 & M8	5/16	**50TGST031**	**50TGSTC031**	TG50	.318	.238	.868
—	7/16	**50TGST043**	**50TGSTC043**	TG50	.323	.242	.963
M12 & M12,5	1/2	**50TGST050**	**50TGSTC050**	TG50	.367	.275	.932
M10	3/8	**50TGST037**	**50TGSTC037**	TG50	.381	.286	.900
M14	9/16	**50TGST056**	**50TGSTC056**	TG50	.429	.322	.937
—	1/8P(LS)	**50TGST012P**	—	TG50	.438	.328	.775
M16	5/8	**50TGST062**	—	TG50	.480	.360	.876

NOTE: Inserting the cutting tool less than 2/3 of the gripping length into the collet can influence the coolant sealing performance and permanently damage the collet.
Full length of the gripping bore needs to be maintained to achieve maximum accuracy and safety.
Collet accuracies are based on size-for-size conditions.
Using the collapsible range can influence the accuracy and gripping powers.
Never try to stretch the collets by clamping oversized cutting tools.

- For 75TGSTC, rubber-filled slots seal collet for coolant-fed tool applications.
- Can be used in all standard TG collet chucks.
- Provides Tremendous Grip (3:1 advantage) and accuracy for all drilling applications.
- Industry-standard ERICKSON™ single-angle collet system.
- 0,13mm (.005") range of collapse.
- Grips on back taper and margin of drill for maximum feed rates and more accurate holes.
- Slot in back of collets acts as a drive for the tap square.
- Manufactured to DIN 6499 Class 2 accuracy.



Coolant Type (Bonded)



ERICKSON™

■ TG75 Solid Tap Collet • Solid Tap Coolant • Inch/Metric ANSI

tap size mm	tap size in	75TGST solid tap	75TGSTC solid tap — internal coolant supply	collet series	D1	S10	L9
M3 & M3,15 & M3,5	#0-#6 & 1/8	**75TGST6**	—	TG75	.141	.110	.775
M4	#8 & 5/32	**75TGST8**	—	TG75	.168	.131	.775
M4,5 & M5	#10 & 3/16	**75TGST10**	—	TG75	.194	.152	.900
—	#12 & 7/32	**75TGST12**	—	TG75	.220	.165	.807
M6 & M6,3	#14 & 1/4	**75TGST025**	**75TGSTC025**	TG75	.255	.191	.838
—	1/16P & 1/8P(SS)	**75TGST006P**	—	TG75	.313	.234	.775
M7 & M8	5/16	**75TGST031**	**75TGSTC031**	TG75	.318	.238	.868
—	7/16	**75TGST043**	**75TGSTC043**	TG75	.323	.242	.963

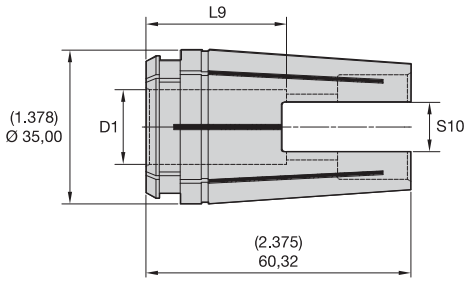
(continued)

(TG75 Single-Angle Solid Tap Collets continued)

tap size mm	tap size in	75TGST solid tap	75TGSTC solid tap — internal coolant supply	collet series	D1	S10	L9
M12 & M12,5	1/2	**75TGST050**	**75TGSTC050**	TG75	.367	.275	.932
M10	3/8	**75TGST037**	**75TGSTC037**	TG75	.381	.286	.900
M14	9/16	**75TGST056**	—	TG75	.429	.322	1.087
—	1/8P(LS)	**75TGST012P**	—	TG75	.438	.328	.775
M16	5/8	**75TGST062**	**75TGSTC062**	TG75	.480	.360	1.031
M18	11/16	**75TGST068**	**75TGSTC068**	TG75	.542	.406	.968
—	1/4P	**75TGST025P**	—	TG75	.563	.421	.775
—	3/4	**75TGST075**	**75TGSTC075**	TG75	.590	.442	.906
M20	13/16	**75TGST081**	—	TG75	.652	.489	.906
—	1/2P	**75TGST050P**	—	TG75	.688	.515	.775
M22	7/8	**75TGST087**	**75TGSTC087**	TG75	.697	.523	.843
—	3/8P	**75TGST037P**	—	TG75	.700	.531	.775

NOTE: Inserting the cutting tool less than 2/3 of the gripping length into the collet can influence the coolant sealing performance and permanently damage the collet.
Full length of the gripping bore needs to be maintained to achieve maximum accuracy and safety.
Collet accuracies are based on size-for-size conditions.
Using the collapsible range can influence the accuracy and gripping powers.
Never try to stretch the collets by clamping oversized cutting tools.

- For 100TGSTC, rubber-filled slots seal collet for coolant-fed tool applications.
- Can be used in all standard TG collet chucks.
- Provides Tremendous Grip (3:1 advantage) and accuracy for tapping applications.
- Slot in back of collets acts as a drive for the tap square.
- Industry-standard ERICKSON™ single-angle collet system.
- Manufactured to DIN 6499 Class 2 accuracy.



ERICKSON™

TG100 Solid Tap Collet • Metric DIN and ISO

tap size	catalogue number	collet series	D1	S10	L9
M9 & M12	**100TGST090071M**	TG100	9,0	7,1	30,0
M10	**100TGST100080M**	TG100	10,0	8,0	30,0
M14	**100TGST110090M**	TG100	11,0	9,0	30,0
M16	**100TGST120090M**	TG100	12,0	9,0	30,0
M18	**100TGST140110M**	TG100	14,0	11,0	30,0
M20	**100TGST160120M**	TG100	16,0	12,0	30,0
M22 & M24	**100TGST180145M**	TG100	18,0	14,5	30,0

TG100 Solid Tap Collet • Solid Tap Coolant • Inch/Metric ANSI

tap size		100TGST solid tap	100TGSTC solid tap — internal coolant supply	collet series	D1	S10	L9
mm	in						
M3 & M3,15 & M3,5	#0-#6 & 1/8	**100TGST6**	—	TG100	.141	.110	.141
M4	#8 & 5/32	**100TGST8**	—	TG100	.168	.131	.168
M4,5 & M5	#10 & 3/16	**100TGST10**	—	TG100	.194	.152	.194
—	#12 & 7/32	**100TGST12**	—	TG100	.220	.165	.220
M6 & M6,3	#14 & 1/4	**100TGST025**	—	TG100	.255	.191	.812
—	1/16P & 1/8P(SS)	**100TGST006P**	—	TG100	.313	.234	.812
M7 & M8	5/16	**100TGST031**	**100TGSTC031**	TG100	.318	.238	.868
—	7/16	**100TGST043**	**100TGSTC043**	TG100	.323	.242	.963
M12 & M12,5	1/2	**100TGST050**	**100TGSTC050**	TG100	.367	.275	.932
M10	3/8	**100TGST037**	**100TGSTC037**	TG100	.381	.286	.900
M14	9/16	**100TGST056**	—	TG100	.429	.322	1.087
—	1/8P(LS)	**100TGST012P**	—	TG100	.438	.328	.812
M16	5/8	**100TGST062**	**100TGSTC062**	TG100	.480	.360	1.087
M18	11/16	**100TGST068**	—	TG100	.542	.406	1.244

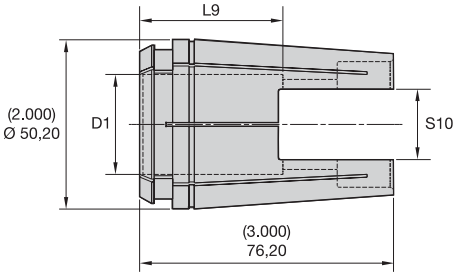
(continued)

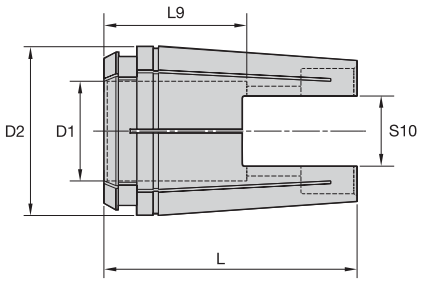
(TG100 Single-Angle Solid Tap Collets continued)

tap size		100TGST	100TGSTC	collet			
mm	in	solid tap	solid tap — internal coolant supply	series	D1	S10	L9
—	1/4P	**100TGST025P**	—	TG100	.563	.421	.812
—	3/4	**100TGST075**	**100TGSTC075**	TG100	.590	.442	1.213
M20	13/16	**100TGST081**	—	TG100	.652	.489	.652
—	1/2P	**100TGST050P**	—	TG100	.688	.515	.812
M22	7/8	**100TGST087**	—	TG100	.697	.523	.697
M22	7/8	—	**100TGSTC087**	TG100	.697	.523	1.369
—	3/8P	**100TGST037P**	—	TG100	.700	.531	.812
M24	15/16	**100TGST094**	—	TG100	.760	.570	.760
M25	1	—	**100TGSTC100**	TG100	.800	.600	1.313
M25	1	**100TGST100**	—	TG100	.800	.600	.800
M27	1 1/16 & 1 1/8	**100TGST112**	—	TG100	.896	.672	.896
—	3/4P	**100TGST075P**	—	TG100	.906	.679	.812

NOTE: Inserting the cutting tool less than 2/3 of the gripping length into the collet can influence the coolant sealing performance and permanently damage the collet.
Full length of the gripping bore needs to be maintained to achieve maximum accuracy and safety.
Collet accuracies are based on size-for-size conditions.
Using the collapsible range can influence the accuracy and gripping powers.
Never try to stretch the collets by clamping oversized cutting tools.

- Can be used in all standard TG collet chucks.
- Provides Tremendous Grip (3:1 advantage) and accuracy for tapping applications.
- Slot in back of collets acts as a drive for the tap square.
- Industry-standard ERICKSON™ single-angle collet system.





ERICKSON™

TG150 Solid Tap Collet • Metric DIN and ISO

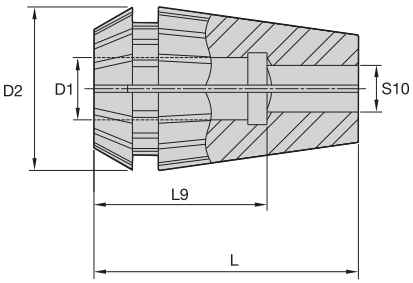
**** Metric DIN and ISO only available in TG50 and TG100 series; see pages B22 and B26. ****

TG150 Solid Tap Collet • Inch/Metric ANSI

tap size		150TGST	collet			
mm	in	solid tap	series	D1	S10	L9
–	3/4	**150TGST075**	TG150	.590	.442	1.213
–	1/2P	**150TGST050P**	TG150	.688	.515	.812
–	3/8P	**150TGST037P**	TG150	.700	.531	.812
M25	1	**150TGST100**	TG150	.800	.600	1.463
M27	1 1/16 & 1 1/8	**150TGST112**	TG150	.896	.672	1.650
–	3/4P	**150TGST075P**	TG150	.906	.679	.906
M30	1 3/16 & 1 1/4	**150TGST125**	TG150	1.021	.766	1.750
M33	1 5/16 & 1 3/8	**150TGST137**	TG150	1.108	.831	1.687
–	1P	**150TGST100P**	TG150	1.125	2.142	.906
M36	1 7/16 & 1 1/2	**150TGST150**	TG150	1.233	.925	1.625
M39	1 5/8	**150TGST162**	TG150	1.305	.979	1.625
–	1 1/4P	**150TGST125P**	TG150	1.313	2.085	.963
M42	1 3/4	**150TGST175**	TG150	1.430	1.072	1.500
–	1 1/2P	**150TGST150P**	TG150	1.500	1.898	1.150

NOTE: Inserting the cutting tool less than 2/3 of the gripping length into the collet can influence the coolant sealing performance and permanently damage the collet.
Full length of the gripping bore needs to be maintained to achieve maximum accuracy and safety.
Collet accuracies are based on size-for-size conditions.
Using the collapsible range can influence the accuracy and gripping powers.
Never try to stretch the collets by clamping oversized cutting tools.

- Square in back of collet acts as a drive for the tap square.
- Can be used in all standard ER collet chucks.
- Available in metric and inch sizes.



ERICKSON

ER Solid Tap Collet • Metric DIN and ISO

tap size	ER16 D2 = 17mm L = 27,5mm	ER20 D2 = 21mm L = 31,5mm	ER25 D2 = 26mm L = 34mm	ER32 D2 = 33mm L = 40mm	ER40 D2 = 41mm L = 46mm	D1	S10	L9
M4 & M6	**16ERTC045034M**	**20ERTC045034M**	**25ERTC045034M**	**32ERTC045034M**	–	4,5	3,4	18
–	**16ERTC055043M**	**20ERTC055043M**	**25ERTC055043M**	**32ERTC055043M**	–	5,5	4,3	18
M5 & M6 & M7 & M8	**16ERTC060049M**	**20ERTC060049M**	**25ERTC060049M**	**32ERTC060049M**	–	6,0	4,9	18
M10	**16ERTC070055M**	**20ERTC070055M**	**25ERTC070055M**	**32ERTC070055M**	**40ERTC070055M**	7,0	5,5	18
M8	**16ERTC080062M**	**20ERTC080062M**	**25ERTC080062M**	**32ERTC080062M**	**40ERTC080062M**	8,0	6,2	22
M12	**16ERTC090070M**	**20ERTC090070M**	**25ERTC090070M**	**32ERTC090070M**	**40ERTC090070M**	9,0	7,0	22
M10	–	**20ERTC100080M**	**25ERTC100080M**	**32ERTC100080M**	**40ERTC100080M**	10,0	8,0	25
M14	–	**20ERTC110090M**	**25ERTC110090M**	**32ERTC110090M**	**40ERTC110090M**	11,0	9,0	25
M16	–	–	**25ERTC120090M**	**32ERTC120090M**	**40ERTC120090M**	12,0	9,0	25
M18	–	–	–	**32ERTC140110M**	**40ERTC140110M**	14,0	11,0	25
–	–	–	**25ERTC140110M**	–	–	14,0	11,0	25
M20	–	–	–	**32ERTC160120M**	–	16,0	12,0	25
–	–	–	**25ERTC160120M**	–	–	16,0	12,0	25
M20	–	–	–	–	**40ERTC160120M**	16,0	12,0	25
M22 & M24	–	–	–	**32ERTC180145M**	**40ERTC180145M**	18,0	14,5	25
M27 & M30	–	–	–	**32ERTC200160M**	**40ERTC200160M**	20,0	16,0	28
M30	–	–	–	–	**40ERTC220180M**	22,0	18,0	28

(continued)

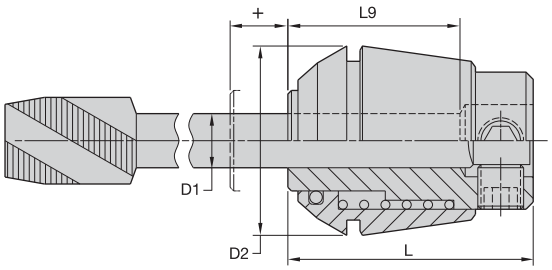
(ER Single-Angle Solid Tap Collets continued)

ER Solid Tap Collet • Inch/Metric ANSI

tap size mm	tap size in	ER16 D2 = .669 L = 1.083	ER20 D2 = .827 L = 1.240	ER25 D2 = 1.024 L = 1.339	ER32 D2 = 1.299 L = 1.575	ER40 D2 = 1.614 L = 1.811	D1	S10	L9
M4	#8 & 5/32	**16ERTC8**	**20ERTC8**	**25ERTC8**	**32ERTC8**	—	.168	.131	.710
M4,5 & M5	#10 & 3/16	**16ERTC10**	**20ERTC10**	**25ERTC10**	**32ERTC10**	—	.194	.152	.710
—	#12 & 7/32	**16ERTC12**	**20ERTC12**	**25ERTC12**	**32ERTC12**	—	.220	.165	.710
M6 & M6,3	#14 & 1/4	**16ERTC025**	**20ERTC025**	**25ERTC025**	**32ERTC025**	**40ERTC025**	.255	.191	.710
M7 & M8	5/16	—	**20ERTC031**	**25ERTC031**	**32ERTC031**	**40ERTC031**	.318	.238	.866
—	7/16	—	**20ERTC043**	**25ERTC043**	**32ERTC043**	**40ERTC043**	.323	.242	.866
M12 & M12,5	1/2	—	**20ERTC050**	**25ERTC050**	**32ERTC050**	**40ERTC050**	.367	.275	.866
M10	3/8	—	**20ERTC037**	**25ERTC037**	**32ERTC037**	**40ERTC037**	.381	.286	.866
M14	9/16	—	—	**25ERTC056**	**32ERTC056**	**40ERTC056**	.429	.322	.984
M16	5/8	—	—	**25ERTC062**	**32ERTC062**	**40ERTC062**	.480	.360	.984
M18	11/16	—	—	—	**32ERTC069**	**40ERTC069**	.542	.406	.984
—	3/4	—	—	—	**32ERTC075**	—	.590	.422	.984
—	3/4	—	—	—	—	**40ERTC075**	.590	.442	.984
M20	13/16	—	—	—	**32ERTC081**	**40ERTC081**	.652	.489	.984
M22	7/8	—	—	—	—	**40ERTC087**	.697	.523	.984
M24	15/16	—	—	—	—	**40ERTC093**	.760	.570	1.100
M25	1	—	—	—	—	**40ERTC100**	.800	.600	1.100

NOTE: Inserting the cutting tool less than 2/3 the gripping length into the collet can permanently damage the collet.
Full length of the gripping bore must be maintained to achieve maximum accuracy and safety.
Collet accuracies are based on size-for-size conditions.
Using the collapsible range can influence the accuracy and gripping powers.
Never try to stretch the collets by clamping oversized cutting tools.

- Tension feature for applications that need synchronised tapping.
- Adjustable screws in back of collet act as a drive for the tap square.
- Can be used in all standard ER collet chucks.
- Available in inch sizes.



collet series	+	L9
12ER	5,5	18
16ER	7,0	22
20ER	7,0	24
25ER	8,0	26
32ER	10,0	33
40ER	13,0	42

ERICKSON

ER T-Only Tap Collet • Inch/Metric ANSI

tap size mm	tap size in	ER12 D2 = 11,4mm L = 21,5mm	ER16 D2 = 17mm L = 27,5mm	ER20 D2 = 21mm L = 31,5mm	ER25 D2 = 26mm L = 34mm	ER32 D2 = 33mm L = 40mm	ER40 D2 = 41mm L = 46mm	D1 mm	D1 in
M3 & M3,15 & M3,5	#0-#6 & 1/8	**12ERTCT6**	**16ERTCT6**	**20ERTCT6**	**25ERTCT6**	–	–	3,58	.141
M4	#8 & 5/32	–	**16ERTCT8**	**20ERTCT8**	**25ERTCT8**	**32ERTCT8**	–	4,27	.168
M4,5 & M5	#10 & 3/16	–	**16ERTCT10**	**20ERTCT10**	**25ERTCT10**	**32ERTCT10**	–	4,93	.194
–	#12 & 7/32	–	–	**20ERTCT12**	**25ERTCT12**	**32ERTCT12**	–	5,59	.220
M6 & M6,3	#14 & 1/4	–	–	**20ERTCT025**	**25ERTCT025**	**32ERTCT025**	**40ERTCT025**	6,48	.255
M7 & M8	5/16	–	–	–	**25ERTCT031**	**32ERTCT031**	**40ERTCT031**	8,08	.318
–	7/16	–	–	–	**25ERTCT043**	**32ERTCT043**	**40ERTCT043**	8,20	.323
M12 & M12,5	1/2	–	–	–	**25ERTCT050**	**32ERTCT050**	**40ERTCT050**	9,32	.367
M10	3/8	–	–	–	**25ERTCT037**	**32ERTCT037**	**40ERTCT037**	9,68	.381
M14	9/16	–	–	–	–	**32ERTCT056**	**40ERTCT056**	10,90	.429
–	1/8P(LS)	–	–	–	–	**32ERTCT012P**	–	11,10	.437
M16	5/8	–	–	–	–	**32ERTCT062**	**40ERTCT062**	12,19	.480
M18	11/16	–	–	–	–	–	**40ERTCT069**	13,77	.542
–	3/4	–	–	–	–	–	**40ERTCT075**	14,99	.590
M20	13/16	–	–	–	–	–	**40ERTCT081**	16,56	.652
M22	7/8	–	–	–	–	–	**40ERTCT087**	17,70	.697

NOTE: 12ERTCT6 fits ER11 chucks.
Full length of the gripping bore must be maintained to achieve maximum accuracy and safety.

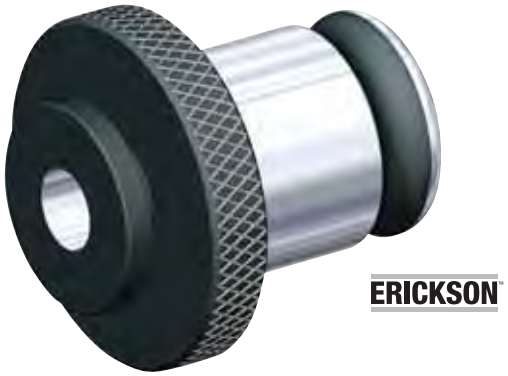
ERICKSON™ RC Rapid Quick-Change Tap Adaptors • **Tapping**

ERICKSON RC Rapid Quick-Change Tap Adaptors are convenient for hand changes with taps within seconds. No wrenches or locknuts are required. For this positive drive tap adaptor, simply hold the tap in place with internal locking balls and drive on the tap square.

RC

Features and Benefits

- Compact Rapid Change by hand design.
- Solid positive drive.
- Coolant through the tap design.

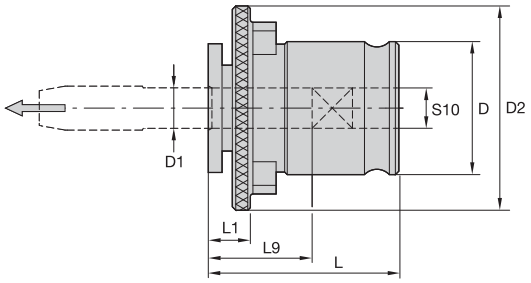


- Rapid Change style.
- Solid-positive drive.
- Coolant capability by using cutting tool with coolant feature.
- For taps with DIN, ISO, and ANSI specifications.

ERICKSON

RC1	TA	025	021	M	010
System Size	Collet Style	Collet Bore Size	Collet Drive Size	Identification Value	Tap Size
RC1 = RC1 **RC2** = RC2 **RC3** = RC3	**TA** = Tap Adaptor	**metric (xx.x)** **025** = 2,5mm **110** = 11mm **245** = 24,5mm **inch (x.xxx)** **0125** = 1/8" **0500** = 1/2"	**metric (xx.x)** **010** = 1mm **160** = 16mm **245** = 24,5mm **inch (x.xxx)** **0125** = 1/8" **0500** = 1/2" **1000** = 1"	**M** = Sleeve bore size built to metric values **IN** = Sleeve bore size built to inch values	**metric (xx.x)** **010** = 1mm **160** = 16mm **245** = 24,5mm **inch (x.xxx)** **0125** = 1/8" **0500** = 1/2" **1000** = 1"

- Rapid Change style.
- Solid-positive drive.
- Coolant capability by using cutting tool with coolant feature.
- For taps with DIN, ISO, and ANSI specifications.



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RC Solid Tap Adaptor • Metric DIN

tap size DIN	RC1 D = 19mm D2 = 30mm L = 28mm L1 = 7mm L9 = 17mm	RC2 D = 31mm D2 = 48mm L = 46mm L1 = 11mm L9 = 30mm	RC3 D = 48mm D2 = 70mm L = 70mm L1 = 14mm L9 = 44mm	D1	S10
M1 & M1.8 & M3 & M3.5	**RC1TA025021M010**	–	–	2,5	2,1
M2.5 & M4	**RC1TA028021M020**	–	–	2,8	2,1
M3 & M5	**RC1TA035027M030**	–	–	3,5	2,7
M3.5	**RC1TA040030M035**	–	–	4,0	3,0
M4 & M6	**RC1TA045034M040**	–	–	4,5	3,4
M4	–	**RC2TA045034M040**	–	4,5	3,4
M5 & M6 & M7 & M8	**RC1TA060049M050**	**RC2TA060049M050**	–	6,0	4,9
M10	**RC1TA070055M100**	**RC2TA070055M100**	–	7,0	5,5
M8	**RC1TA080062M080**	**RC2TA080062M080**	–	8,0	6,2
M12	**RC1TA090070M120**	**RC2TA090070M120**	–	9,0	7,0
M10	**RC1TA100080M100**	**RC2TA100080M100**	–	10,0	8,0
M14	**RC1TA110090M140**	**RC2TA110090M140**	**RC3TA110090M140**	11,0	9,0
M16	–	–	**RC3TA120090M160**	12,0	9,0
M16	–	**RC2TA120090M160**	–	12,9	9,0
M18	–	**RC2TA140110M180**	**RC3TA140110M180**	14,0	11,0
M20	–	**RC2TA160120M200**	**RC3TA160120M200**	16,0	12,0
M22 & M24	–	**RC2TA180145M220**	–	18,0	4,5
–	–	–	**RC3TA180140M240**	18,0	14,0
M22 & M24	–	–	**RC3TA180145M240**	18,0	14,5
M27	–	–	**RC3TA200160M300**	20,0	16,0
M30	–	–	**RC3TA220180M300**	22,0	18,0
M33	–	–	**RC3TA250200M360**	25,0	20,0
M36	–	–	**RC3TA280220M360**	28,0	22,0

(continued)

(RC-Style Solid Tap Adaptors continued)

RC Solid Tap Adaptor • Metric ISO

tap size	RC1 D = 19mm D2 = 30mm L = 28mm L1 = 7mm L9 = 17mm	RC2 D = 31mm D2 = 48mm L = 46mm L1 = 11mm L9 = 30mm	RC3 D = 48mm D2 = 70mm L = 70mm L1 = 14mm L9 = 44mm	D1	S10
M3	**RC1TA023018M030**	–	–	2,24	1,80
M2.2 & M2.5	**RC1TA028023M025**	–	–	2,80	2,24
M3 & M4	**RC1TA032025M030**	–	–	3,15	2,50
M3.5 & M4.5	**RC1TA036028M035**	–	–	3,55	2,80
M4 & M5	**RC1TA040032M040**	–	–	4,00	3,15
M4.5 & M6	**RC1TA045036M060**	**RC2TA045036M060**	–	4,50	3,55
M5	**RC1TA050040M050**	**RC2TA050040M050**	–	5,00	4,00
–	**RC1TA056045M000**	–	–	5,60	4,50
M6 & M8	**RC1TA063050M060**	**RC2TA063050M060**	–	6,30	5,00
M7	**RC1TA071056M070**	**RC2TA071056M070**	–	7,10	5,60
M8 & M10 & M11	**RC1TA080063M080**	**RC2TA080063M080**	–	8,00	6,30
M9 & M12	**RC1TA090071M090**	–	–	9,00	7,10
M9 & M12	–	**RC2TA090071M090**	–	9,00	7,10
M14	**RC1TA112090M140**	**RC2TA112090M140**	**RC3TA112090M140**	11,20	9,00
M16	–	**RC2TA125100M160**	–	12,50	10,00
M18 & M20	–	**RC2TA140112M180**	–	14,00	11,20
M22	–	**RC2TA160125M220**	**RC3TA160125M220**	16,00	12,50
M24	–	**RC2TA180140M240**	–	18,00	14,00
M33	–	–	**RC3TA224180M330**	22,40	18,00

(continued)

(RC-Style Solid Tap Adaptors continued)

RC Solid Tap Adaptor • Inch/Metric ANSI

tap size mm	tap size in	RC1 D = .750 D2 = 1.180 L = 1.100 L1 = .280	RC2 D = 1.220 D2 = 1.890 L = 1.810 L1 = .430	RC3 D = 1.890 D2 = 2.760 L = 2.760 L1 = .550	D1	S10
M3 & M3.18 & M3.5	#0 - #6 UNC/UNF	**T11006**	–	–	.141	.110
M4	#8 UNC/UNF	**T11007**	–	–	.168	.131
M4.5 & M5	#10 UNC/UNF	**T11008**	–	–	.194	.152
–	#12 UNC/UNF	**T11009**	–	–	.220	.165
M6 & M6.3	1/4 UNC/UNF	**T11010**	–	–	.255	.191
–	–	**T110166**	–	–	.313	.234
M7 & M8	5/16 UNC/UNF	**T11012**	**T21018**	–	.318	.238
–	7/16 UNC/UNF	**T11014**	**T21020**	–	.323	.242
M12 & M12.5	1/2 UNC/UNF	**T11015**	**T21021**	–	.367	.275
M10	3/8 UNC/UNF	**T11013**	**T21019**	–	.381	.286
M14	9/16 UNC/UNF	**T110155**	**T21022**	–	.429	.322
–	–	**T110177**	–	–	.438	.328
M16	5/8 UNC/UNF	–	**T21023**	–	.480	.360
M18	11/16 UNC/UNF	–	**T21024**	–	.542	.406
–	–	–	**T210288**	–	.563	.421
–	3/4 UNC/UNF	–	**T21025**	–	.590	.442
M20	13/16 UNC/UNF	–	**T21026**	**T31031**	.652	.489
–	–	–	**T210300**	**T310387**	.688	.515
M22	7/8 UNC/UNF	–	**T21027**	**T31032**	.697	.523
–	–	–	**T210299**	–	.700	.531
M24	15/16 UNC/UNF	–	–	**T31033**	.760	.570
M25	1 UNC/UNF	–	–	**T31034**	.800	.600
M27	1 1/8 UNC/UNF	–	–	**T31035**	.896	.672
–	–	–	–	**T310388**	.906	.679
–	1 1/4 UNC/UNF	–	–	**T31036**	1.021	.766
M30	1 3/8 UNC/UNF	–	–	**T31037**	1.108	.831
–	–	–	–	**T310389**	1.125	.843

- An economical way to purchase a set of RC tap adaptors.
- Rapid Change style.
- Solid-positive drive.
- Coolant capability by using cutting tool with coolant feature.

ERICKSON

RC Solid Tap Adaptor Set • Inch

catalogue number	series	quantity	dimensional range
T1SET	RC1	10	#0 - 9/16
T2SET	RC2	10	5/16 - 7/8

Order No.	Catalogue No.	Page(s)
4138499	GTM115009 WU13PV	A96
4138500	GTM115010 WU13PV	A96
4138501	GTM115011 WU13PV	A96
4138502	GTM115012 WU13PV	A96
4138503	GTM115013 WU13PV	A96
4138504	GTM115014 WU13PV	A96
4138505	GTM115015 WU13PV	A96
4138506	GTM115016 WU13PV	A96
4138507	GTM115017 WU13PV	A96
4138508	GTM115018 WU13PV	A96
4138509	GTM115019 WU13PV	A96
4138510	GTM115020 WU13PV	A96
4138511	GTM115021 WU13PV	A96
4138512	GTM115022 WU13PV	A96
4138513	GTM115023 WU13PV	A96
4138514	GTM215001 WU12PV	A98
4138515	GTM215002 WU12PV	A98
4138516	GTM215003 WU12PV	A98
4138517	GTM215004 WU12PV	A98
4138518	GTM215005 WU12PV	A98
4138519	GTM215006 WU12PV	A98
4138520	GTM215007 WU12PV	A98
4138521	GTM215008 WU12PV	A98
4138522	GTM215009 WU12PV	A98
4138523	GTM215010 WU12PV	A98
4138524	GTM215011 WU12PV	A98
4138525	GTM215012 WU12PV	A98
4138526	GTM215013 WU12PV	A98
4138527	GTM215014 WU12PV	A98
4138528	GTM215015 WU12PV	A98
4138529	GTM215016 WU12PV	A98
4138530	GTM215017 WU12PV	A97
4138531	GTM215018 WU12PV	A97
4138532	GTM215019 WU12PV	A97
4138533	GTM215020 WU12PV	A97
4138534	GTM215021 WU12PV	A97
4138535	GTM215022 WU12PV	A97
4138536	GTM215023 WU12PV	A97
4138537	GTM215024 WU12PV	A97
4138538	GTM215025 WU12PV	A97
4138539	GTM215026 WU12PV	A97
4138540	GTM215027 WU12PV	A97
4138541	GTM215028 WU12PV	A97
4138542	GTM215029 WU12PV	A97
4138543	GTM215030 WU12PV	A97
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Tapping Icons

 Countersinking/ Stroke Chamfering	 Drilling: Flat Bottom	 Drilling: Blind	 Reaming: Through Hole
 Reaming: Blind Hole	 Tapping: Through Hole	 Tapping: Blind Hole	 Threading: Through Hole
 Threading: Blind Hole	 HSS-E	 HSS-E-PM	 HM
 Drilling Depth: 2x	 Chamfer Form: Form C (2–3)	 Chamfer Form: Form D (3,5–5)	 Chamfer Form: Form E (1,5–2)
 Chamfer Form: Plug Chamfer (3–5)	 Tapping Helix Angle: 0°	 Tapping Helix Angle: 10°	 Tapping Helix Angle: L8°
 Tapping Helix Angle: 15°	 Tapping Helix Angle: L15°	 Tapping Helix Angle: 25°	 Tapping Helix Angle: 30°
 Tapping Helix Angle: 42°	 Tapping Helix Angle: 45°	 DIN number 371	 DIN number 374
 DIN number 376	 DIN number 2174	 Through Coolant: Radial: Tapping	 Flood Coolant: Tapping
 Through Coolant: Axial: Tapping	 Manufacturer's Specs: ISO 2	 Manufacturer's Specs: JIS	 Manufacturer's Specs: Class of Fit: 2B
 Manufacturer's Specs: Class of Fit: 3B	 Manufacturer's Specs: Class of Fit: 6H	 Manufacturer's Specs: Class of Fit: 6HX	 Manufacturer's Specs: Class of Fit: 6G
 Manufacturer's Specs: UNF	 Manufacturer's Specs: UNC	 Manufacturer's Specs: UNJC	 Manufacturer's Specs: UNJF
 Manufacturer's Specs: M	 Manufacturer's Specs: MF		

Tooling Systems Icons

 Shank: Cylindrical Plain	 Shank: Cylindrical Weldon®	 Shank: Weldon: 2 Flat	 Shank: Whistle Notch™
 Shank: Whistle Notch 2°	 Shank: SK BT (MAS-403-BT)	 Shank: SK DV (DIN 69871)	 Shank: SK CAT Drawbar Thread
 Shank: SK Shank: CAT Drawbar Thread: 1"–8 unc	 Shank: HSK Shank: A/DIN Number 69893	 Shank: HSK A/DIN 69893	 Shank: KM-TS™ (ISO 26622)
 Shank: Square Shank: L=4"	 Shank: Square	 Axial Adjustments: End	 Balance-by-Design
 Collet: ER DIN 6499	 ER Collet	 Drawbar Thread Size: M16	 Drawbar Thread Size: M24
 Tension: Tension & Compression	 Tension: Tension Only	 Through Coolant: Radial: Drilling	 Through Coolant: Radial: Tapping
 Through Coolant: Radial: Tapping/50 bar, 725 psi	 Through Coolant: No Through Coolant: Radial: Tapping	 Axial: Drilling	 Through Coolant: 1500 psi
 ISO 26622			

DIN — German Institute for Standardisation

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140+ 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

1993 EM series tap launched

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

2010 GTD brand becomes part of WIDIA™ Products Group

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

2013 New VariTap™ series launched

WIDIA GTD™

WIDIA™

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- Unique spiral point geometry provides low tapping torque, while pushing chips ahead of the tap in through holes.
- Superior thread finish.

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WIDIA™

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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