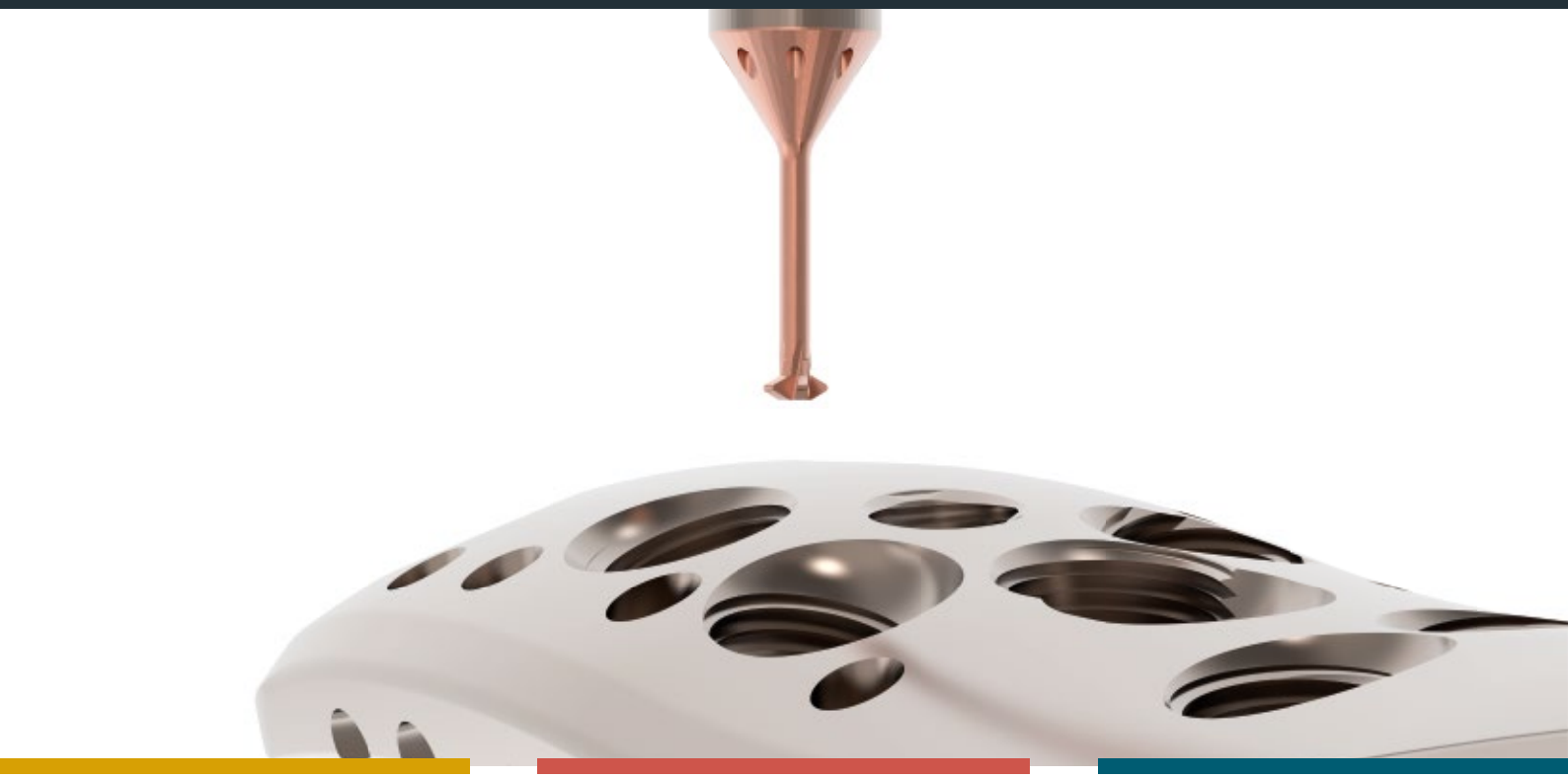
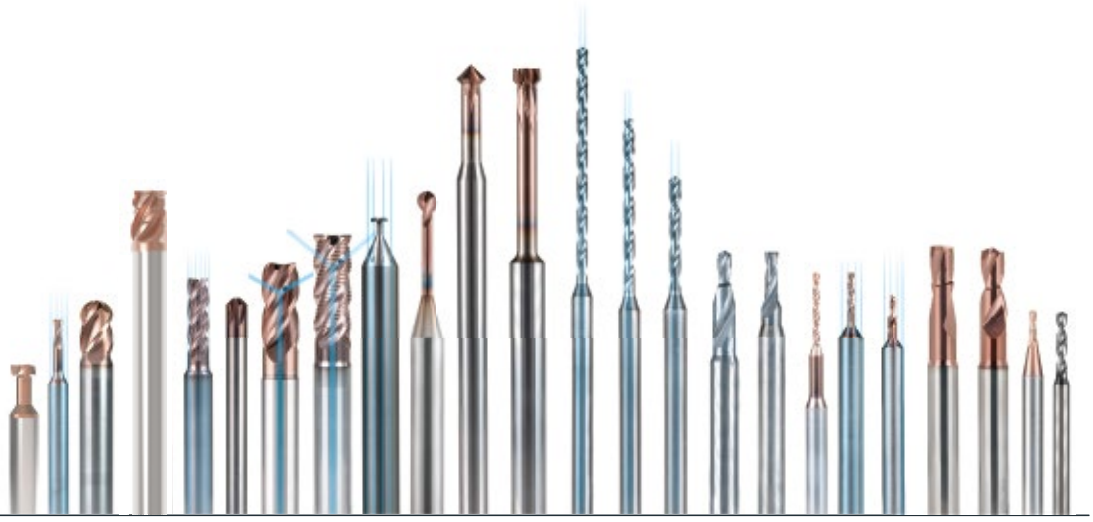
CUTTING TOOLS 2025

HB microtec
ACTIONTOOLS & ENGINEERING



ACTION TOOLS
by HB microtec

TARGET TOOLS
by HB microtec



ACTIONDRILL® by HB microtec

TARGETDRILL® by HB microtec

ACTIONMILL® by HB microtec

TARGETMILL® by HB microtec

Standard Range

As specialists in machining, we consistently present pioneering manufacturing processes and tools for medical technology, aerospace, tool and mold making, as well as for the hydraulics and automotive industries – especially when components need to be manufactured from hard, heat-resistant, and abrasive materials such as cobalt-chrome, nickel, and titanium alloys.

Our new standard tools make this process significantly more economical and reliable than ever before.

Customers can rely on our outstanding expertise. Our highly trained and motivated specialists focus their knowledge and skills on developing innovative and forward-looking machining solutions – and implementing them for the benefit of our customers.

Together with our customers, we develop future oriented tool technologies. We carefully match substrates, geometries, and coatings to specific requirements. Our focus is on rotationally symmetrical tools ranging from 0.1 mm to 12 mm in diameter.

Maximum machining precision and process reliability are our top priorities.

Our standard program includes tools for milling, drilling, and deburring. Our mission is to create measurable added value for our customers with our tools. We continuously enhance these tools and expand our product lines with additional variants and new developments.

Consulting and Service

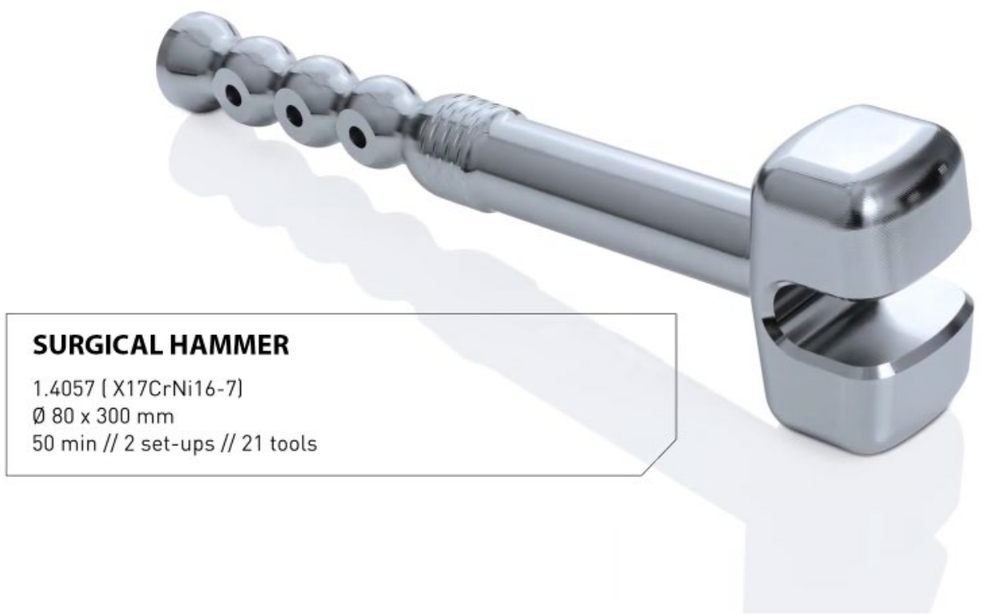
We provide practical advice to our customers on the entire manufacturing process – from selecting the right drilling, turning, milling, and deburring tools to machining strategies and programming. With our process oriented and holistic solutions – and comprehensive machining services – we are your ideal partner. Our extensive services also make us a reliable OEM partner for machine tools.

Core Competencies

- Comprehensive Engineering
- Design of machining processes and cutting tools
- Concepts, project planning, design, and production of special tools
- Optimization of machining processes and strategies for process reliability, reduced cycle times, and precision
- CNC and CAM programming (Solid CAM)
- Expert seminars on turning, milling and drilling
- Foundational technological trials for drilling, milling or turning
- Practice based feasibility studies and testing
- Contract grinding and prototype production of medical tools

We support you with sound technical expertise.Benefit from our comprehensive know-how. We tackle every challenge with passion and find the right solution for any machining task!

Technical consulting included in the price!



With our ACTIONTOOLS® and TARGETTOOLS®, you get more than just a „micro" tool catalog from us.

Expert consulting is in demand – and this is precisely where the specialists at HB microtec shine.

We possess extensive expertise in machining and solid training in the application of "ACTION" & "TARGET" tools on a wide variety of machine types.

Whether it's CNC machining centers, single- or multi-spindle automatic lathes, short- or long-turning machines, or transfer machines – we work with you to define the necessary requirements to establish the best possible conditions for optimal results.

For us, customer satisfaction means more than just delivering a quality tool – it means that everything adds up and performs perfectly in the end.

This includes not just an excellent price-performance ratio, but also expert advice during tool selection and on-site support for machine setup and programming.

Our consulting process begins with questions such as:

- What material are you machining?
- What coolant are you using?
- What is your machine's maximum spindle speed?
- What type of Machine tool types are you using?
- What are the kinematic conditions in your process? (Vibrations, strategy)
- What programming system do you use? (Control unit? CAM?)
- What clamping devices are used? (For the tool and the workpiece)
- What are the required tolerances for the drill hole?
- What batch size are you machining?

Why HB microtec?

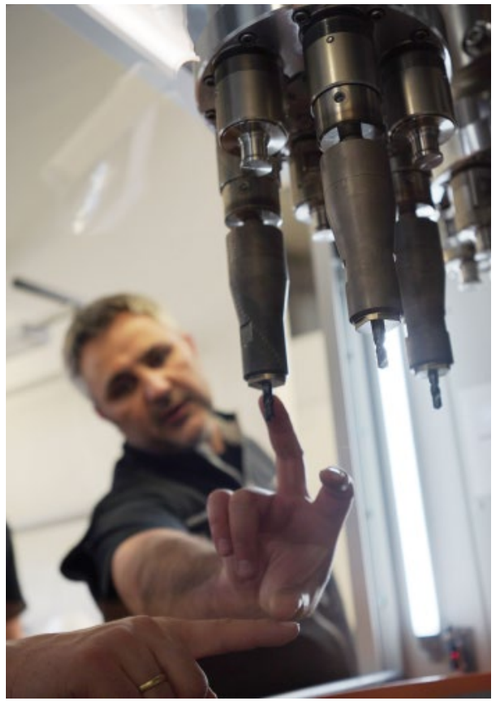
“Install and ACTION!”
That’s exactly what the ACTIONDRILL® product line provides: carefree cutting tools. Alternatively, you can hit the mark with absolute precision thanks to tools from the TARGETDRILL® series.

High performance down to the last micron!

This ensures a perfectly optimized cost-benefit ratio for you. Demanding and innovative high-performance drills in the premium quality segment require consistency not only in production, but throughout the entire HB microtec team.

Repeatable precision!

This includes the entire process chain: from geometry development and design, to the edge preparation, coating, and finishing of the surfaces, all the way to the quality assurance of our ACTIONDRILL® and TARGETDRILL® as well as ACTIONMILL® and TARGETMILL® tools.



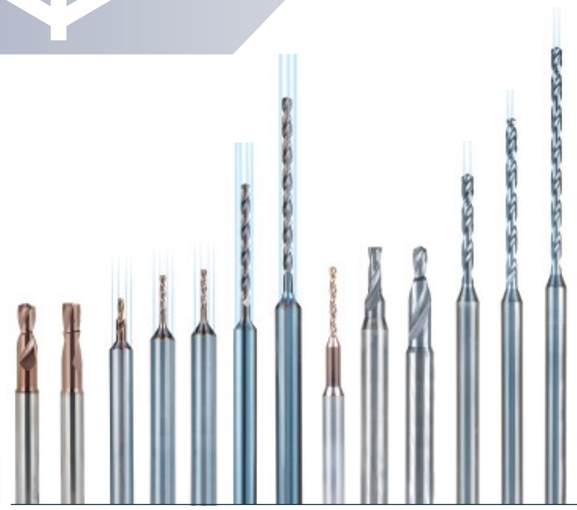
What to expect from the entire HB microtec team:

- Innovative specialists in “micro” machining
- State-of-the-art manufacturing equipment and measuring instruments, enabling production in the micron range
- Motivation and passion for technical challenges
- Repeatable precision at micron level
- Practical service: the HB microtec team supports you through every phase and throughout the entire life cycle of your product
- High tool performance and strong service expertise
- Ideas for customer-specific solutions, such as combination tools that often eliminate the need for several individual tools and shorten machining time
- Maximum product quality standards
- Guaranteed series tool reliability and traceability (ISO 9001 certified)

Contents

ACTIONDRILL® by HB microtec

TARGETDRILL® by HB microtec



Standard drilling tools

ACTIONDRILL INOX 170°-Pilot
Ø 0,3 - Ø 6,0

Overview:

- 2xD 170° step drill
- 45° step
- The 170° tip geometry allows drilling on inclined, round or curved surfaces with maximum positioning accuracy
- With this drill, “mirroring” with an additional tool is no longer necessary
- Centering, drilling, countersinking with one tool

Page 14

ACTIONDRILL INOX-Pilot
Ø 1,0 - Ø 6,0

Overview:

- 2xD 140° step drill
- 45° step
- Can be used as a short drill or pilot drill
- Centering, drilling, countersinking with one tool

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ACTIONDRILL INOX-3xD-Pilot cooled
Ø 0,3 - Ø 2,0 integrated cooling

Overview:

- 3xD 140° step drill
- 45° step
- Can be used as a short drill or pilot drill
- Centering, drilling, countersinking with one tool
- Integrated cooling on a pitch circle through the shank
- Winding chips are efficiently flushed away

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ACTIONDRILL INOX-6xD cooled
Ø 0,3 - Ø 2,0 integrated cooling

Overview:

- 6xD “micro” drill
- 140° INOX point geometry
- Integrated cooling on a pitch circle through the shank
- Winding chips are efficiently flushed away

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Standard drilling tools

ACTIONDRILL INOX-8xD cooled
Ø 0,3 - Ø 2,0 integrated cooling

Overview:

- 8xD “micro” drill bit
- 140° INOX point geometry
- Integrated cooling on a pitch circle through the shank
- Winding chips are flushed away efficiently

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ACTIONDRILL INOX-12xD cooled
Ø 0,3 - Ø 2,0 integrated cooling

Overview:

- 12xD “micro” drills
- 140° INOX point geometry
- Integrated cooling on a pitch circle through the shank
- Winding chips are efficiently flushed away

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ACTIONDRILL INOX-18xD cooled
Ø 0,3 - Ø 2,0 integrated cooling

Overview:

- 18xD “micro” drills
- 140° INOX point geometry
- Integrated cooling on a pitch circle through the shaft
- Winding chips are efficiently flushed away

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TARGETDRILL micro-INOX 3xD | 5xD | 8xD
Ø 0,1 - Ø 3,0

Overview:

- 3xD | 5xD | 8xD micro-INOX drills
- In steps of 0.01mm
- Reinforced shank
- Available coated or bare

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Standard drilling tools

TARGETDRILL INOX-Pilot 130°
Ø 1,0 - Ø6,0

Overview:

- 2xD 130° step drill
- 45° chamfer
- Can be used as short drill or pilot drill
- Centering, drilling, countersinking with one tool

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TARGETDRILL INOX-6xD cooled
Ø 1,0 - Ø 6,0 IK

Overview:

- 6xD - Drill
- 130° - INOX point geometry
- With internal cooling
- Drill with 4 margin lands
- α - INOXcronos high-performance coating

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TARGETDRILL INOX-12xD cooled
Ø 1,0 - Ø 6,0 IK

Overview:

- 12xD - Drill
- 130° - INOX point geometry
- With internal cooling
- Drill with 4 margin lands
- α - INOXcronos high performance coating

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TARGETDRILL INOX-18xD cooled
Ø 1,0 - Ø 6,0 IK

Overview:

- 18xD - Drill
- 130° - INOX point geometry
- With internal cooling
- Drill with 4 margin lands
- α - INOXcronos high-performance coating

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Standard drilling tools

TARGETDRILL INOX-Flatdrill 180°
Ø 0,8 - Ø 6,0

Overview:

- 3,5xD flat drill
- 180° INOX point geometry (flat at the bottom)
- Pilot drill or short drill
- The 180° point geometry allows drilling on inclined, round or curved surfaces with maximum positioning accuracy
- “Mirroring” with an additional tool is no longer necessary with this drill

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Customized special tools

- *Step reamer + flat surface with external chamfer*

- *Short drill + chamfer + countersink*

- *Step drill reamer, centring, drilling, reaming and countersinking*

- *„micro“- reamer*

- *Shaping drill*

- *Drill reamer*

INOX-170Pilot

170° α-INOX high-performance tip geometry, 2x faster drilling on inclined surfaces compared to 180° flat drill

from Ø 0,3 k6 to Ø 6,0 k6

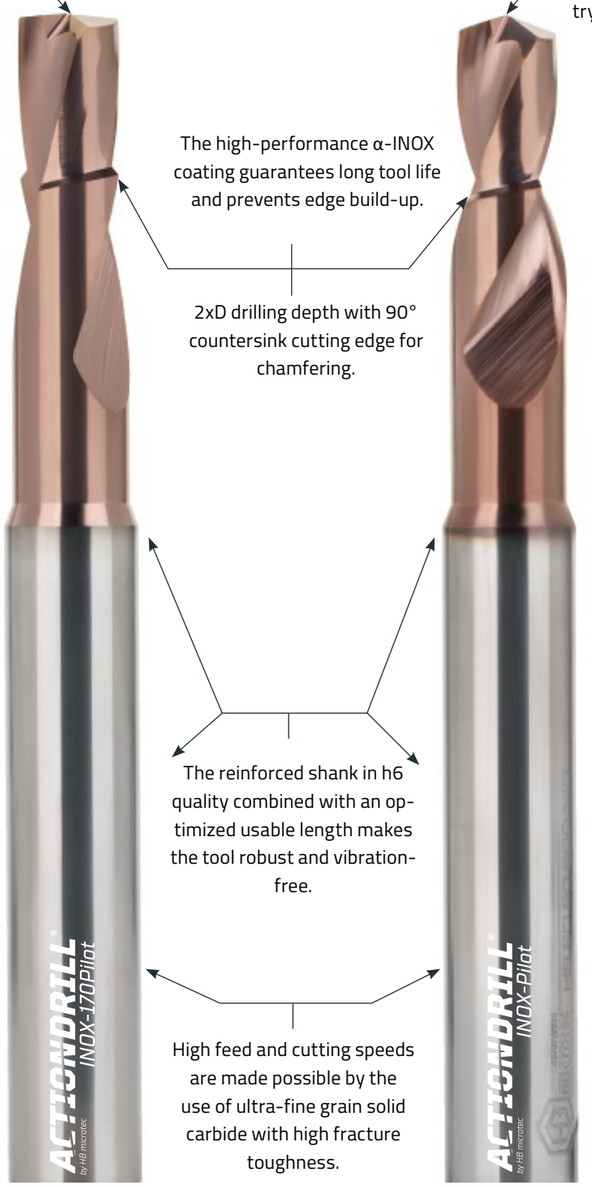
In steps of 0,05 mm from Ø 0,3 to Ø 3,0
In steps of 0,1 mm from Ø3,0 to Ø 6,0

INOX-Pilot

140°$^{+4°}_{+2°}$ α-INOX high-performance tip geometry, self-centering

from Ø 1,0 k6 to Ø 6,0 k6

In steps of 0,05 mm from Ø 1,0 to Ø 3,0
In steps of 0,1 mm from Ø3,0 to Ø 6,0

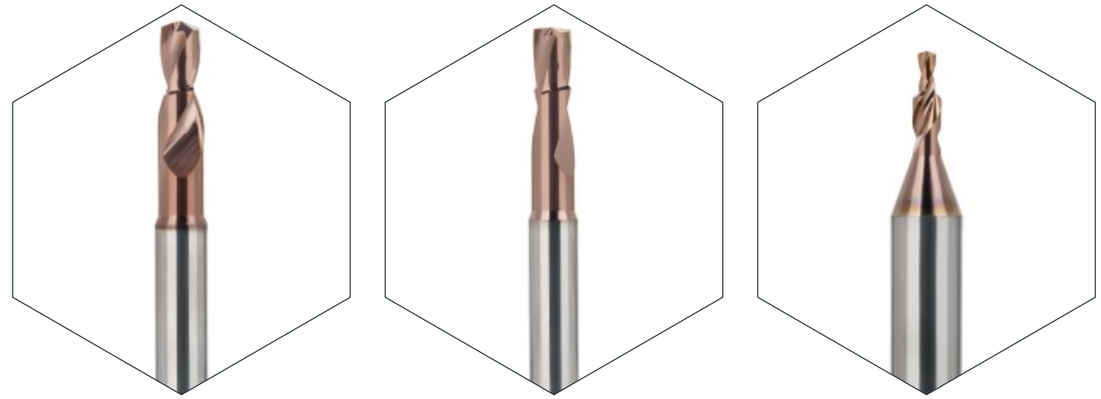


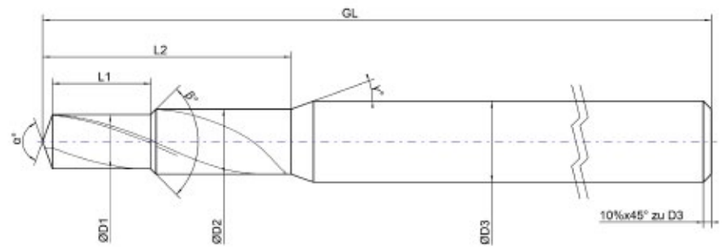
The high-performance α-INOX coating guarantees long tool life and prevents edge build-up.

2xD drilling depth with 90° countersink cutting edge for chamfering.

The reinforced shank in h6 quality combined with an optimized usable length makes the tool robust and vibration-free.

High feed and cutting speeds are made possible by the use of ultra-fine grain solid carbide with high fracture toughness.





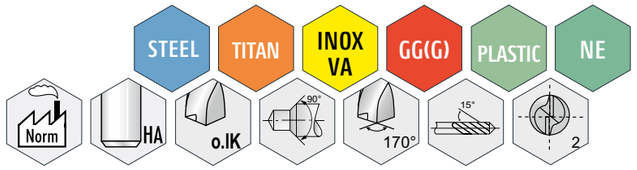
☐ **Inquiry**

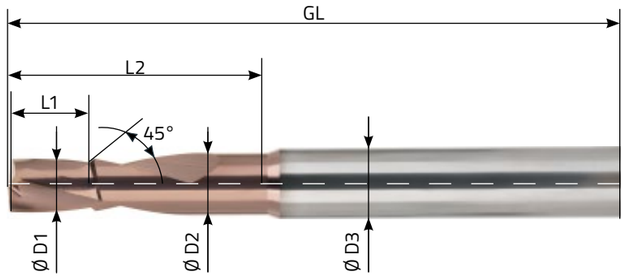
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ γ: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

INOX-170Pilot





- α-INOX coated

5 PRO's of the ACTIONDRILL:

- Direct drilling on inclined surfaces
- For surfaces with an inclination angle up to 61°
- Combination tool: drilling + chamfering
- Perfect positional accuracy
- Shorter process times and high process reliability

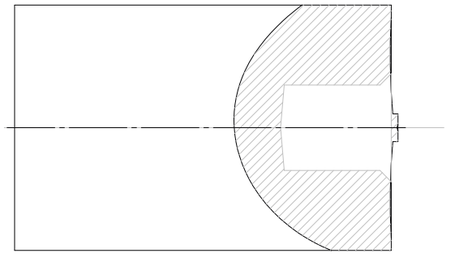
Article number	D1 k6 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AD.90.030.170	Ø 0,30	-	Ø 0,70	Ø 4,00	0,60	2,30	55,00
AD.90.035.170	Ø 0,35	-	Ø 0,75	Ø 4,00	0,70	2,55	55,00
AD.90.040.170	Ø 0,40	-	Ø 0,80	Ø 4,00	0,80	2,80	55,00
AD.90.045.170	Ø 0,45	-	Ø 0,85	Ø 4,00	0,90	3,05	55,00
AD.90.050.170	Ø 0,50	-	Ø 0,90	Ø 4,00	1,00	3,30	55,00
AD.90.055.170	Ø 0,55	-	Ø 0,95	Ø 4,00	1,10	3,55	55,00
AD.90.060.170	Ø 0,60	-	Ø 1,00	Ø 4,00	1,20	3,80	55,00
AD.90.065.170	Ø 0,65	-	Ø 1,05	Ø 4,00	1,30	4,05	55,00
AD.90.070.170	Ø 0,70	-	Ø 1,10	Ø 4,00	1,40	4,30	55,00
AD.90.075.170	Ø 0,75	-	Ø 1,15	Ø 4,00	1,50	4,55	55,00
AD.90.080.170	Ø 0,80	-	Ø 1,20	Ø 4,00	1,60	4,80	55,00
AD.90.085.170	Ø 0,85	-	Ø 1,25	Ø 4,00	1,70	5,05	55,00
AD.90.090.170	Ø 0,90	-	Ø 1,30	Ø 4,00	1,80	5,30	55,00
AD.90.095.170	Ø 0,95	-	Ø 1,35	Ø 4,00	1,90	5,55	55,00
AD.90.100.170	Ø 1,00	-	Ø 1,60	Ø 4,00	2,00	6,70	55,00
AD.90.105.170	Ø 1,05	-	Ø 1,65	Ø 4,00	2,10	6,80	55,00
AD.90.110.170	Ø 1,10	-	Ø 1,70	Ø 4,00	2,20	7,00	55,00
AD.90.115.170	Ø 1,15	-	Ø 1,75	Ø 4,00	2,30	7,10	55,00
AD.90.120.170	Ø 1,20	-	Ø 1,80	Ø 4,00	2,40	7,20	55,00
AD.90.125.170	Ø 1,25	-	Ø 1,85	Ø 4,00	2,50	8,20	55,00
AD.90.130.170	Ø 1,30	-	Ø 1,90	Ø 4,00	2,60	8,30	55,00
AD.90.135.170	Ø 1,35	-	Ø 1,95	Ø 4,00	2,70	8,40	55,00
AD.90.140.170	Ø 1,40	-	Ø 2,00	Ø 4,00	2,80	8,50	55,00
AD.90.145.170	Ø 1,45	-	Ø 2,05	Ø 4,00	2,90	8,60	55,00
AD.90.150.170	Ø 1,50	-	Ø 2,10	Ø 4,00	3,00	9,60	55,00
AD.90.155.170	Ø 1,55	-	Ø 2,15	Ø 4,00	3,10	9,70	55,00
AD.90.1587.170	Ø1,587	1/16"	Ø 2,20	Ø 4,00	3,17	9,80	55,00
AD.90.160.170	Ø 1,60	-	Ø 2,20	Ø 4,00	3,20	9,80	55,00
AD.90.165.170	Ø 1,65	-	Ø 2,25	Ø 4,00	3,30	9,90	55,00
AD.90.170.170	Ø 1,70	-	Ø 2,30	Ø 4,00	3,40	10,10	55,00
AD.90.175.170	Ø 1,75	-	Ø 2,35	Ø 4,00	3,50	10,20	55,00
AD.90.180.170	Ø 1,80	-	Ø 2,40	Ø 4,00	3,60	11,10	55,00
AD.90.185.170	Ø 1,85	-	Ø 2,45	Ø 4,00	3,70	11,30	55,00
AD.90.190.170	Ø 1,90	-	Ø 2,50	Ø 4,00	3,80	11,40	55,00
AD.90.195.170	Ø 1,95	-	Ø 2,55	Ø 4,00	3,90	11,50	55,00
AD.90.200.170	Ø 2,00	-	Ø 2,60	Ø 4,00	4,00	11,60	60,00
AD.90.205.170	Ø 2,05	-	Ø 2,85	Ø 4,00	4,10	11,70	60,00
AD.90.210.170	Ø 2,10	-	Ø 2,90	Ø 4,00	4,20	11,80	60,00
AD.90.215.170	Ø 2,15	-	Ø 2,95	Ø 4,00	4,30	11,90	60,00
AD.90.220.170	Ø 2,20	-	Ø 3,00	Ø 4,00	4,40	13,80	60,00
AD.90.225.170	Ø 2,25	-	Ø 3,05	Ø 4,00	4,50	13,90	60,00
AD.90.230.170	Ø 2,30	-	Ø 3,10	Ø 4,00	4,60	14,00	60,00
AD.90.235.170	Ø 2,35	-	Ø 3,15	Ø 4,00	4,70	14,10	60,00
AD.90.2381.170	Ø2,381	3/32"	Ø 3,20	Ø 4,00	4,76	14,20	60,00

Article number	D1 k6 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AD.90.240.170	Ø 2,40	-	Ø 3,20	Ø 4,00	4,80	14,20	60,00
AD.90.245.170	Ø 2,45	-	Ø 3,25	Ø 4,00	4,90	14,40	60,00
AD.90.250.170	Ø 2,50	-	Ø 3,30	Ø 4,00	5,00	14,50	60,00
AD.90.255.170	Ø 2,55	-	Ø 3,35	Ø 4,00	5,10	14,60	60,00
AD.90.260.170	Ø 2,60	-	Ø 3,40	Ø 4,00	5,20	14,70	60,00
AD.90.265.170	Ø 2,65	-	Ø 3,45	Ø 4,00	5,30	15,70	60,00
AD.90.270.170	Ø 2,70	-	Ø 3,50	Ø 4,00	5,40	15,80	60,00
AD.90.275.170	Ø 2,75	-	Ø 3,55	Ø 4,00	5,50	15,90	60,00
AD.90.280.170	Ø 2,80	-	Ø 3,60	Ø 4,00	5,60	16,00	60,00
AD.90.285.170	Ø 2,85	-	Ø 3,65	Ø 4,00	5,70	16,10	60,00
AD.90.290.170	Ø 2,90	-	Ø 3,70	Ø 4,00	5,80	16,20	60,00
AD.90.295.170	Ø 2,95	-	Ø 6,75	Ø 4,00	5,90	16,40	60,00
AD.90.300.170	Ø 3,00	-	Ø 3,80	Ø 4,00	6,00	17,20	65,00
AD.90.310.170	Ø 3,10	-	Ø 3,90	Ø 4,00	6,20	17,40	65,00
AD.90.3175.170	Ø 3,175	1/8“	Ø 4,00	Ø 4,00	6,35	17,70	65,00
AD.90.320.170	Ø 3,20	-	Ø 4,00	Ø 4,00	6,40	17,70	65,00
AD.90.330.170	Ø 3,30	-	Ø 4,10	Ø 6,00	6,60	17,90	65,00
AD.90.340.170	Ø 3,40	-	Ø 4,20	Ø 6,00	6,80	18,10	65,00
AD.90.350.170	Ø 3,50	-	Ø 4,30	Ø 6,00	7,00	18,30	65,00
AD.90.360.170	Ø 3,60	-	Ø 4,40	Ø 6,00	7,20	18,60	65,00
AD.90.370.170	Ø 3,70	-	Ø 4,50	Ø 6,00	7,40	18,80	65,00
AD.90.380.170	Ø 3,80	-	Ø 4,60	Ø 6,00	7,60	19,00	65,00
AD.90.390.170	Ø 3,90	-	Ø 4,70	Ø 6,00	7,80	19,20	65,00
AD.90.3968.170	Ø 3,968	5/32“	Ø 4,80	Ø 6,00	7,94	19,50	65,00
AD.90.400.170	Ø 4,00	-	Ø 4,80	Ø 6,00	8,00	19,50	65,00
AD.90.410.170	Ø 4,10	-	Ø 5,10	Ø 6,00	8,20	21,30	65,00
AD.90.420.170	Ø 4,20	-	Ø 5,20	Ø 6,00	8,40	21,00	65,00
AD.90.430.170	Ø 4,30	-	Ø 5,30	Ø 6,00	8,60	21,60	65,00
AD.90.440.170	Ø 4,40	-	Ø 5,40	Ø 6,00	8,80	21,70	65,00
AD.90.450.170	Ø 4,50	-	Ø 5,50	Ø 6,00	9,00	27,00	70,00
AD.90.460.170	Ø 4,60	-	Ø 5,60	Ø 6,00	9,20	27,10	70,00
AD.90.470.170	Ø 4,70	-	Ø 5,70	Ø 6,00	9,40	27,30	70,00
AD.90.4762.170	Ø 4,762	3/16“	Ø 5,80	Ø 6,00	9,52	27,40	70,00
AD.90.480.170	Ø 4,80	-	Ø 5,80	Ø 6,00	9,60	27,40	70,00
AD.90.490.170	Ø 4,90	-	Ø 5,90	Ø 6,00	9,80	27,60	70,00
AD.90.500.170	Ø 5,00	-	Ø 6,00	Ø 6,00	10,00	27,70	70,00
AD.90.510.170	Ø 5,10	-	Ø 6,10	Ø 8,00	10,20	27,90	70,00
AD.90.520.170	Ø 5,20	-	Ø 6,20	Ø 8,00	10,40	28,00	70,00
AD.90.530.170	Ø 5,30	-	Ø 6,30	Ø 8,00	10,60	28,10	70,00
AD.90.540.170	Ø 5,40	-	Ø 6,40	Ø 8,00	10,80	28,30	70,00
AD.90.550.170	Ø 5,50	-	Ø 6,50	Ø 8,00	11,00	28,40	70,00
AD.90.5556.170	Ø 5,556	7/32“	Ø 6,60	Ø 8,00	11,12	28,60	70,00
AD.90.560.170	Ø 5,60	-	Ø 6,60	Ø 8,00	11,20	28,60	70,00
AD.90.570.170	Ø 5,70	-	Ø 6,70	Ø 8,00	11,40	28,70	70,00

Article number	D1 k6 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AD.90.580.170	Ø 5,80	-	Ø 6,80	Ø 8,00	11,60	28,90	70,00
AD.90.590.170	Ø 5,90	-	Ø 6,90	Ø 8,00	11,80	29,00	70,00
AD.90.600.170	Ø 6,00	-	Ø 7,00	Ø 8,00	12,00	29,10	70,00
AD.90.6350.170	Ø 6,350	1/4“	Ø 7,40	Ø 8,00	12,70	30,00	70,00

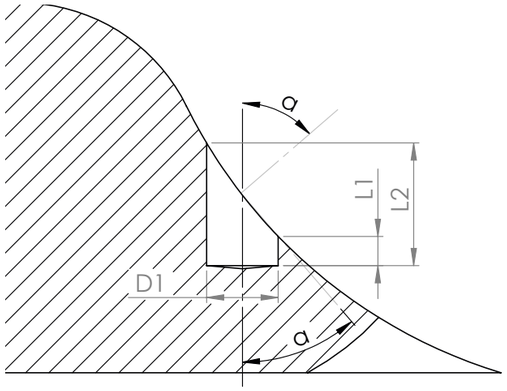
Available from stock

Positional accurate piloting / drilling despite “burrs” or uneven surfaces



This ensures that the drilling no longer deviates.

Piloting/pre-drilling on the incline
without having to spot with a mill



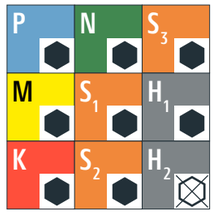
Calculation of the “short web width”:
Formula: L1 = 2 x D – D x tan(α)

Calculation example:
Incline at 45°; drill Ø 1.85
L1 = 2 x 1.85 mm – 1.85 mm x tan(45°) = 1.85 mm

Cutting data - ACTIONDRILL INOX-170 Pilot

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONDRILL® by HB microtec INOX-170Pilot



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

Ø 0,3 - 0,4 mm		Ø 0,5 - 0,8 mm		Ø 1,0 - 1,2 mm		Ø 1,5 - 1,8 mm		Ø 2,0 - 2,5 mm		Ø 3,0 mm		Ø 4,0 - 6,0 mm	
vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]
80	0,004 - 0,006	80	0,008 - 0,012	80	0,013 - 0,015	80	0,022 - 0,028	80	0,030 - 0,032	100	0,028 - 0,032	100	0,040 - 0,08
60	0,003 - 0,005	60	0,008 - 0,012	60	0,012 - 0,014	60	0,020 - 0,022	70	0,028 - 0,030	70	0,028 - 0,042	70	0,03 - 0,040
50	0,003 - 0,005	50	0,007 - 0,010	50	0,013 - 0,015	50	0,013 - 0,015	60	0,010 - 0,020	60	0,014 - 0,018	60	0,035 - 0,045
50	0,003 - 0,005	50	0,004 - 0,006	50	0,010 - 0,012	50	0,010 - 0,012	50	0,010 - 0,020	50	0,012 - 0,014	50	0,035 - 0,045
80	0,004 - 0,008	80	0,007 - 0,01	80	0,01 - 0,015	80	0,01 - 0,015	80	0,026 - 0,030	80	0,03 - 0,045	80	0,045 - 0,06
120	0,008 - 0,01	120	0,010 - 0,018	120	0,015 - 0,02	120	0,016 - 0,022	140	0,032 - 0,04	140	0,036 - 0,042	140	0,036 - 0,05
80	0,008 - 0,01	80	0,012 - 0,018	80	0,018 - 0,020	80	0,018 - 0,022	80	0,032 - 0,04	80	0,034 - 0,044	80	0,036 - 0,05
80	0,008 - 0,01	80	0,010 - 0,016	80	0,016 - 0,02	80	0,016 - 0,022	80	0,032 - 0,04	80	0,032 - 0,042	80	0,036 - 0,05
40	0,002 - 0,003	40	0,006 - 0,008	40	0,007 - 0,01	40	0,009 - 0,010	40	0,010 - 0,012	40	0,012 - 0,016	40	0,014 - 0,018
40	0,003 - 0,005	40	0,006 - 0,008	40	0,007 - 0,01	40	0,018 - 0,020	40	0,010 - 0,012	40	0,012 - 0,018	40	0,014 - 0,018
20	0,002 - 0,003	20	0,002 - 0,004	20	0,007 - 0,01	20	0,009 - 0,010	20	0,010 - 0,012	25	0,012 - 0,018	25	0,014 - 0,018
20	0,003 - 0,005	20	0,002 - 0,004	20	0,003 - 0,004	20	0,003 - 0,005	20	0,003 - 0,007	20	0,009 - 0,014	20	0,004 - 0,018
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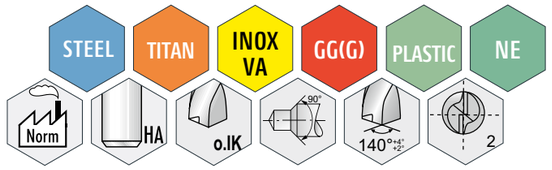
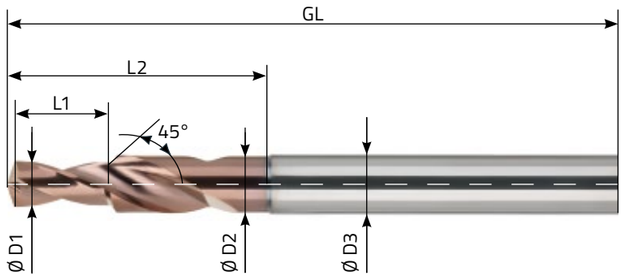
INOX-Pilot





- α-INOX coated

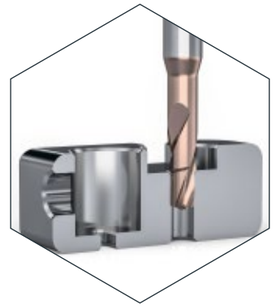
5 PRO's of the ACTIONDRILL:

- Combination tool: centering + drilling + chamfering
- Perfect positional accuracy
- 2xD drilling + chamfering
- Pilot drill (tolerance Øk6) for deep-hole drilling
- Shorter process times and high process reliability

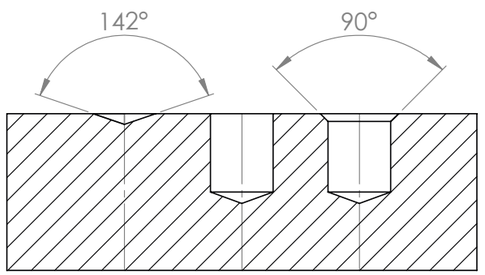
Article number	D1 k6 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AD.90.100.140	Ø 1,00	-	Ø 1,60	Ø 4,00	2,00	6,70	55,00
AD.90.105.140	Ø 1,05	-	Ø 1,65	Ø 4,00	2,10	6,80	55,00
AD.90.110.140	Ø 1,10	-	Ø 1,70	Ø 4,00	2,20	7,00	55,00
AD.90.115.140	Ø 1,15	-	Ø 1,75	Ø 4,00	2,30	7,10	55,00
AD.90.120.140	Ø 1,20	-	Ø 1,80	Ø 4,00	2,40	7,20	55,00
AD.90.125.140	Ø 1,25	-	Ø 1,85	Ø 4,00	2,50	8,20	55,00
AD.90.130.140	Ø 1,30	-	Ø 1,90	Ø 4,00	2,60	8,30	55,00
AD.90.135.140	Ø 1,35	-	Ø 1,95	Ø 4,00	2,70	8,40	55,00
AD.90.140.140	Ø 1,40	-	Ø 2,00	Ø 4,00	2,80	8,50	55,00
AD.90.145.140	Ø 1,45	-	Ø 2,05	Ø 4,00	2,90	8,60	55,00
AD.90.150.140	Ø 1,50	-	Ø 2,10	Ø 4,00	3,00	9,60	55,00
AD.90.155.140	Ø 1,55	-	Ø 2,15	Ø 4,00	3,10	9,70	55,00
AD.90.1587.140	Ø 1,587	1/16"	Ø 2,20	Ø 4,00	3,17	9,80	55,00
AD.90.160.140	Ø 1,60	-	Ø 2,20	Ø 4,00	3,20	9,80	55,00
AD.90.165.140	Ø 1,65	-	Ø 2,25	Ø 4,00	3,30	9,90	55,00
AD.90.170.140	Ø 1,70	-	Ø 2,30	Ø 4,00	3,40	10,10	55,00
AD.90.175.140	Ø 1,75	-	Ø 2,35	Ø 4,00	3,50	10,20	55,00
AD.90.180.140	Ø 1,80	-	Ø 2,40	Ø 4,00	3,60	11,10	55,00
AD.90.185.140	Ø 1,85	-	Ø 2,45	Ø 4,00	3,70	11,30	55,00
AD.90.190.140	Ø 1,90	-	Ø 2,50	Ø 4,00	3,80	11,40	55,00
AD.90.195.140	Ø 1,95	-	Ø 2,55	Ø 4,00	3,90	11,50	55,00
AD.90.200.140	Ø 2,00	-	Ø 2,60	Ø 4,00	4,00	11,60	60,00
AD.90.205.140	Ø 2,05	-	Ø 2,85	Ø 4,00	4,10	11,70	60,00
AD.90.210.140	Ø 2,10	-	Ø 2,90	Ø 4,00	4,20	11,80	60,00
AD.90.215.140	Ø 2,15	-	Ø 2,95	Ø 4,00	4,30	11,90	60,00
AD.90.220.140	Ø 2,20	-	Ø 3,00	Ø 4,00	4,40	13,80	60,00
AD.90.225.140	Ø 2,25	-	Ø 3,05	Ø 4,00	4,50	13,90	60,00
AD.90.230.140	Ø 2,30	-	Ø 3,10	Ø 4,00	4,60	14,00	60,00
AD.90.235.140	Ø 2,35	-	Ø 3,15	Ø 4,00	4,70	14,10	60,00
AD.90.2381.140	Ø2,381	3/32"	Ø 3,20	Ø 4,00	4,76	14,20	60,00
AD.90.240.140	Ø 2,40	-	Ø 3,20	Ø 4,00	4,80	14,20	60,00
AD.90.245.140	Ø 2,45	-	Ø 3,25	Ø 4,00	4,90	14,40	60,00
AD.90.250.140	Ø 2,50	-	Ø 3,30	Ø 4,00	5,00	14,50	60,00
AD.90.255.140	Ø 2,55	-	Ø 3,35	Ø 4,00	5,10	14,60	60,00
AD.90.260.140	Ø 2,60	-	Ø 3,40	Ø 4,00	5,20	14,70	60,00
AD.90.265.140	Ø 2,65	-	Ø 3,45	Ø 4,00	5,30	15,70	60,00
AD.90.270.140	Ø 2,70	-	Ø 3,50	Ø 4,00	5,40	15,80	60,00
AD.90.275.140	Ø 2,75	-	Ø 3,55	Ø 4,00	5,50	15,90	60,00
AD.90.280.140	Ø 2,80	-	Ø 3,60	Ø 4,00	5,60	16,00	60,00
AD.90.285.140	Ø 2,85	-	Ø 3,65	Ø 4,00	5,70	16,10	60,00
AD.90.290.140	Ø 2,90	-	Ø 3,70	Ø 4,00	5,80	16,20	60,00
AD.90.295.140	Ø 2,95	-	Ø 3,75	Ø 4,00	5,90	16,40	60,00
AD.90.300.140	Ø 3,00	-	Ø 3,80	Ø 4,00	6,00	17,20	65,00
AD.90.310.140	Ø 3,10	-	Ø 3,90	Ø 4,00	6,20	17,40	65,00

Article number	D1 k6 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AD.90.3175.140	Ø 3,175	1/8"	Ø 4,00	Ø 4,00	6,35	17,70	65,00
AD.90.320.140	Ø 3,20	-	Ø 4,00	Ø 4,00	6,40	17,70	65,00
AD.90.330.140	Ø 3,30	-	Ø 4,10	Ø 6,00	6,60	17,90	65,00
AD.90.340.140	Ø 3,40	-	Ø 4,20	Ø 6,00	6,80	18,10	65,00
AD.90.350.140	Ø 3,50	-	Ø 4,30	Ø 6,00	7,00	18,30	65,00
AD.90.360.140	Ø 3,60	-	Ø 4,40	Ø 6,00	7,20	18,60	65,00
AD.90.370.140	Ø 3,70	-	Ø 4,50	Ø 6,00	7,40	18,80	65,00
AD.90.380.140	Ø 3,80	-	Ø 4,60	Ø 6,00	7,60	19,00	65,00
AD.90.390.140	Ø 3,90	-	Ø 4,70	Ø 6,00	7,80	19,20	65,00
AD.90.3968.140	Ø 3,968	5/32"	Ø 4,80	Ø 6,00	7,94	19,50	65,00
AD.90.400.140	Ø 4,00	-	Ø 4,80	Ø 6,00	8,00	19,50	65,00
AD.90.410.140	Ø 4,10	-	Ø 5,10	Ø 6,00	8,20	21,30	65,00
AD.90.420.140	Ø 4,20	-	Ø 5,20	Ø 6,00	8,40	21,00	65,00
AD.90.430.140	Ø 4,30	-	Ø 5,30	Ø 6,00	8,60	21,60	65,00
AD.90.440.140	Ø 4,40	-	Ø 5,40	Ø 6,00	8,80	21,70	65,00
AD.90.450.140	Ø 4,50	-	Ø 5,50	Ø 6,00	9,00	27,00	70,00
AD.90.460.140	Ø 4,60	-	Ø 5,60	Ø 6,00	9,20	27,10	70,00
AD.90.470.140	Ø 4,70	-	Ø 5,70	Ø 6,00	9,40	27,30	70,00
AD.90.4762.140	Ø 4,762	3/16"	Ø 5,80	Ø 6,00	9,52	27,40	70,00
AD.90.480.140	Ø 4,80	-	Ø 5,80	Ø 6,00	9,60	27,40	70,00
AD.90.490.140	Ø 4,90	-	Ø 5,90	Ø 6,00	9,80	27,60	70,00
AD.90.500.140	Ø 5,00	-	Ø 6,00	Ø 6,00	10,00	27,70	70,00
AD.90.510.140	Ø 5,10	-	Ø 6,10	Ø 8,00	10,20	27,90	70,00
AD.90.520.140	Ø 5,20	-	Ø 6,20	Ø 8,00	10,40	28,00	70,00
AD.90.530.140	Ø 5,30	-	Ø 6,30	Ø 8,00	10,60	28,10	70,00
AD.90.540.140	Ø 5,40	-	Ø 6,40	Ø 8,00	10,80	28,30	70,00
AD.90.550.140	Ø 5,50	-	Ø 6,50	Ø 8,00	11,00	28,40	70,00
AD.90.5556.140	Ø 5,556	7/32"	Ø 6,60	Ø 8,00	11,12	28,60	70,00
AD.90.560.140	Ø 5,60	-	Ø 6,60	Ø 8,00	11,20	28,60	70,00
AD.90.570.140	Ø 5,70	-	Ø 6,70	Ø 8,00	11,40	28,70	70,00
AD.90.580.140	Ø 5,80	-	Ø 6,80	Ø 8,00	11,60	28,90	70,00
AD.90.590.140	Ø 5,90	-	Ø 6,90	Ø 8,00	11,80	29,00	70,00
AD.90.600.140	Ø 6,00	-	Ø 7,00	Ø 8,00	12,00	29,10	70,00
AD.90.6350.140	Ø 6,350	1/4"	Ø 7,40	Ø 8,00	12,70	30,00	70,00

Available from stock



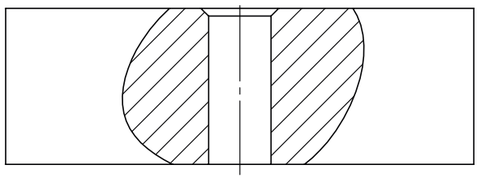
Conventional machining with 3 tools



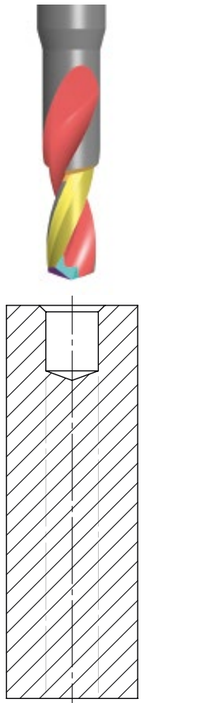
1. Centering
2. Drilling
3. Chamfering

Three machining operations with just one tool!

Centering, drilling + chamfering!



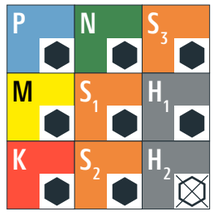
- Short drilling 2xD + chamfer



- Pilot drilling (k6)
- 2xD + chamfer
- For deep-hole drilling

Cutting data - ACTIONDRILL INOX-Pilot

ACTIONDRILL® by HB microtec INOX-Pilot



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation ⬢ Very well suited ⬡ Conditionally suited ⊠ Not recommended

Ø 1,0 - 1,2 mm		Ø 1,5 - 1,8 mm		Ø 2,0 - 2,5 mm		Ø 3,0 mm		Ø 4,0 - 6,0 mm	
vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]
60-130	0,042- 0,066	60-130	0,122 - 0,128	60-130	0,130 - 0,182	60-140	0,128 - 0,232	60-160	0,220 - 0,280
60-120	0,042- 0,056	60-120	0,120 - 0,122	60-130	0,130 - 0,182	60-120	0,128 - 0,202	60-150	0,200 - 0,260
50-120	0,025 - 0,04	50-120	0,043 - 0,055	50-120	0,060 - 0,080	50-100	0,074 - 0,098	50-120	0,115 - 0,185
50-80	0,02 - 0,038	50-80	0,040 - 0,068	50-90	0,050 - 0,070	50-90	0,072 - 0,084	50-100	0,115 - 0,175
80-140	0,030 - 0,042	80-140	0,06 - 0,115	80-160	0,126 - 0,135	80-160	0,100 - 0,145	80-180	0,145 - 0,210
80-160	0,042 - 0,066	80-160	0,096 - 0,122	80-160	0,132 - 0,18	80-160	0,136 - 0,172	80-180	0,200 - 0,250
80-140	0,046 - 0,088	80-140	0,098 - 0,122	80-160	0,132 - 0,210	80-160	0,134 - 0,164	80-180	0,200 - 0,252
80-120	0,032 - 0,088	80-120	0,066 - 0,122	80-140	0,085 - 0,120	80-120	0,132 - 0,162	80-160	0,195 - 0,242
15 - 50	0,025 - 0,045	15 - 50	0,049 - 0,060	15 - 60	0,060 - 0,072	15 - 70	0,062 - 0,076	15 - 80	0,080 - 0,098
15 - 50	0,025 - 0,045	15 - 50	0,048 - 0,060	15 - 60	0,060 - 0,072	15 - 70	0,062 - 0,078	15 - 80	0,080 - 0,098
15 - 50	0,020 - 0,024	15 - 50	0,05 - 0,060	15 - 50	0,055 - 0,072	15 - 60	0,052 - 0,08	15 - 75	0,076 - 0,098
15-32	0,006 - 0,009	15-32	0,006 - 0,010	15-32	0,006 - 0,012	15-35	0,009 - 0,014	15-40	0,009 - 0,018
No data entered									

ACTIONDRILL®
by HB microtec

INOX cooled

Pilotdrill	Drill from 6xD to 18xD
from Ø 0,3 k6 to Ø 2,0 k6	from Ø 0,3 k6 to Ø 2,0 k6
In steps of 0,05 mm from Ø 0,3 to Ø 2,0	In steps of 0,05 mm from Ø 0,3 to Ø 2,0

140° $^{+0°}_{-2°}$α-INOX
High-performance point geometry

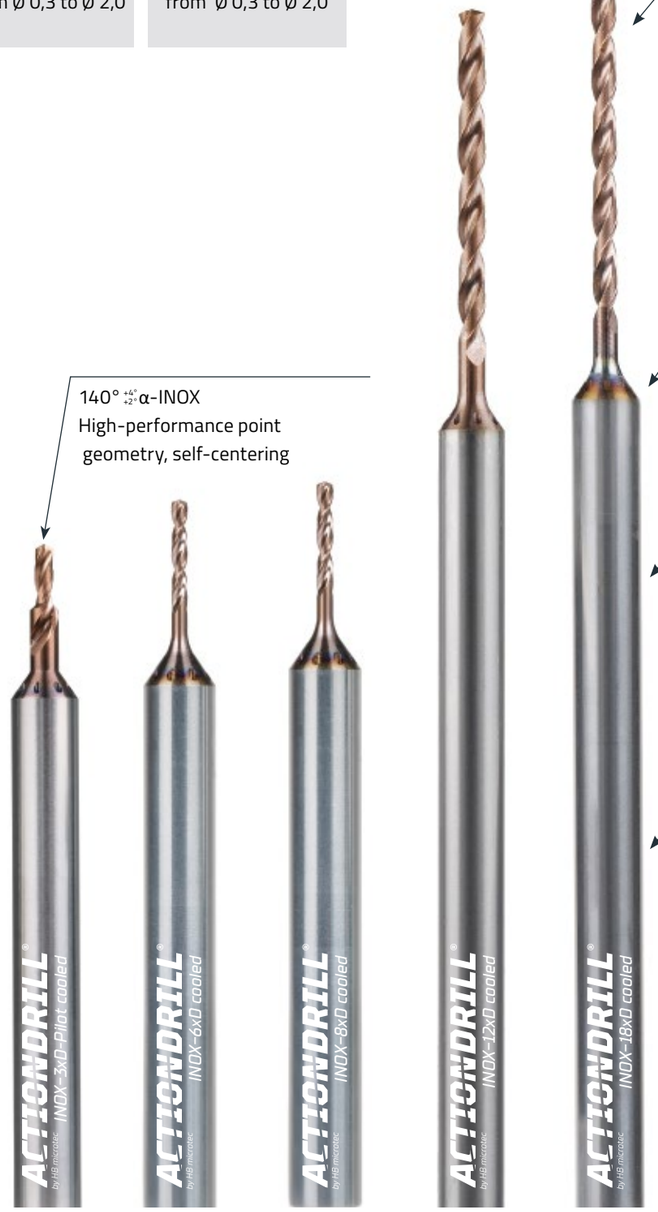
The high-performance α-INOX coating guarantees long tool life and prevents edge build-up.

Integrated cooling channels protect the tool from overheating and flush out all chips.

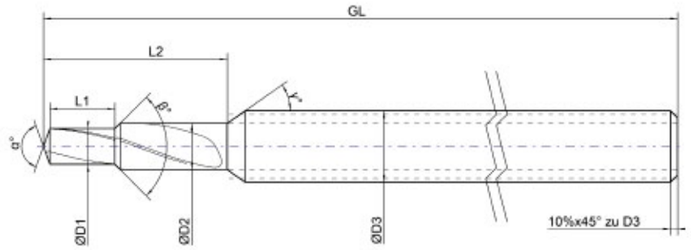
The reinforced shank in h5 quality combined with an optimized usable length makes the tool robust and vibration-free.

High feed and cutting speeds are enabled by the use of ultra-fine grain solid carbide with high fracture toughness.

140° $^{+4°}_{+2°}$α-INOX
High-performance point geometry, self-centering



HB microtec®
ACTIONTOOLS & ENGINEERING



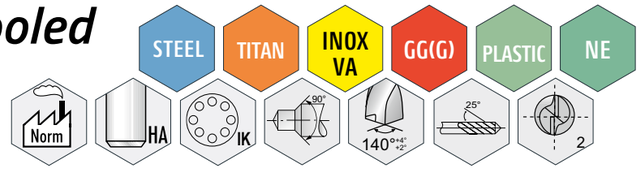
☐ **Inquiry**

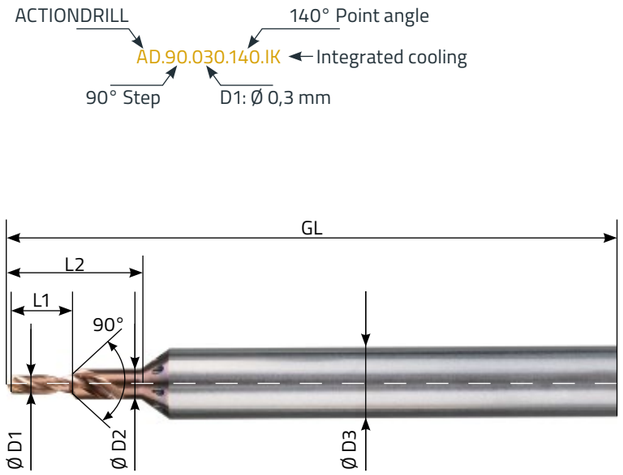
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions:	**Coating:**	**Cooling channels:**
D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ γ: _____ Z: _____	☐ Coated*: _____ ☐ Uncoated	☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

INOX-3xD-Pilot cooled





- α-INOX coated

5 PRO's of the ACTIONDRILL:

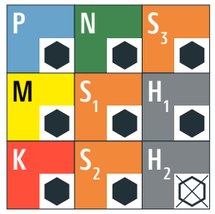
- Combination tool: centering + drilling + chamfering
- High performance & positional accuracy
- "Micro" step drill with integrated cooling
- 3xD pilot drill for your deep-hole application
- Spiral chips are flushed away efficiently

Article number	D1 k6 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AD.90.030.140.IK	Ø 0,30	-	Ø 0,70	Ø 4,00	0,90	3,30	40,00
AD.90.035.140.IK	Ø 0,35	-	Ø 0,75	Ø 4,00	1,05	3,40	40,00
AD.90.040.140.IK	Ø 0,40	-	Ø 0,80	Ø 4,00	1,20	3,60	40,00
AD.90.045.140.IK	Ø 0,45	-	Ø 0,85	Ø 4,00	1,35	3,80	40,00
AD.90.050.140.IK	Ø 0,50	-	Ø 0,90	Ø 4,00	1,50	4,00	40,00
AD.90.055.140.IK	Ø 0,55	-	Ø 0,95	Ø 4,00	1,65	4,20	40,00
AD.90.060.140.IK	Ø 0,60	-	Ø 1,00	Ø 4,00	1,80	4,40	40,00
AD.90.065.140.IK	Ø 0,65	-	Ø 1,05	Ø 4,00	1,95	4,70	40,00
AD.90.070.140.IK	Ø 0,70	-	Ø 1,10	Ø 4,00	2,10	5,00	40,00
AD.90.075.140.IK	Ø 0,75	-	Ø 1,15	Ø 4,00	2,25	5,30	40,00
AD.90.080.140.IK	Ø 0,80	-	Ø 1,20	Ø 4,00	2,40	5,60	40,00
AD.90.085.140.IK	Ø 0,85	-	Ø 1,25	Ø 4,00	2,55	6,00	40,00
AD.90.090.140.IK	Ø 0,90	-	Ø 1,30	Ø 4,00	2,70	6,30	40,00
AD.90.095.140.IK	Ø 0,95	-	Ø 1,35	Ø 4,00	2,85	6,70	40,00
AD.90.100.140.IK	Ø 1,00	-	Ø 1,60	Ø 4,00	3,00	7,10	50,00
AD.90.105.140.IK	Ø 1,05	-	Ø 1,65	Ø 4,00	3,15	7,40	50,00
AD.90.110.140.IK	Ø 1,10	-	Ø 1,70	Ø 4,00	3,30	7,60	50,00
AD.90.115.140.IK	Ø 1,15	-	Ø 1,75	Ø 4,00	3,45	8,00	50,00
AD.90.120.140.IK	Ø 1,20	-	Ø 1,80	Ø 4,00	3,60	8,40	50,00
AD.90.125.140.IK	Ø 1,25	-	Ø 1,85	Ø 4,00	3,75	8,80	50,00
AD.90.130.140.IK	Ø 1,30	-	Ø 1,90	Ø 4,00	3,90	9,10	50,00
AD.90.135.140.IK	Ø 1,35	-	Ø 1,95	Ø 4,00	4,05	9,30	50,00
AD.90.140.140.IK	Ø 1,40	-	Ø 2,00	Ø 4,00	4,20	9,40	50,00
AD.90.145.140.IK	Ø 1,45	-	Ø 2,05	Ø 4,00	4,35	9,60	50,00
AD.90.150.140.IK	Ø 1,50	-	Ø 2,10	Ø 4,00	4,50	9,70	50,00
AD.90.155.140.IK	Ø 1,55	-	Ø 2,15	Ø 4,00	4,65	10,00	50,00
AD.90.1587.140.IK	Ø 1,587	1/16"	Ø 2,20	Ø 4,00	4,76	10,20	50,00
AD.90.160.140.IK	Ø 1,60	-	Ø 2,20	Ø 4,00	4,80	10,20	50,00
AD.90.165.140.IK	Ø 1,65	-	Ø 2,25	Ø 4,00	4,95	10,50	50,00
AD.90.170.140.IK	Ø 1,70	-	Ø 2,30	Ø 4,00	5,10	10,80	50,00
AD.90.175.140.IK	Ø 1,75	-	Ø 2,35	Ø 4,00	5,25	11,10	50,00
AD.90.180.140.IK	Ø 1,80	-	Ø 2,40	Ø 4,00	5,40	11,40	50,00
AD.90.185.140.IK	Ø 1,85	-	Ø 2,45	Ø 4,00	5,55	11,70	50,00
AD.90.190.140.IK	Ø 1,90	-	Ø 2,50	Ø 4,00	5,70	12,00	50,00
AD.90.195.140.IK	Ø 1,95	-	Ø 2,55	Ø 4,00	5,85	12,30	50,00
AD.90.200.140.IK	Ø 2,00	-	Ø 2,60	Ø 4,00	6,00	12,60	50,00
AD.90.2381.140.IK	Ø 2,381	3/32"	Ø 3,20	Ø 4,00	7,14	15,00	60,00

Available from stock

Cutting data - ACTIONDRILL INOX-3xD-Pilot cooled

ACTIONDRILL®
by HB microtec
INOX-3xD-Pilot cooled

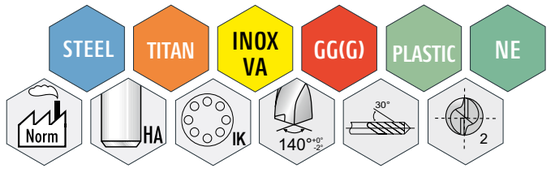


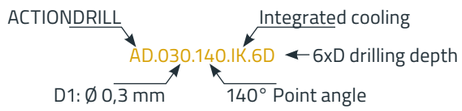
Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

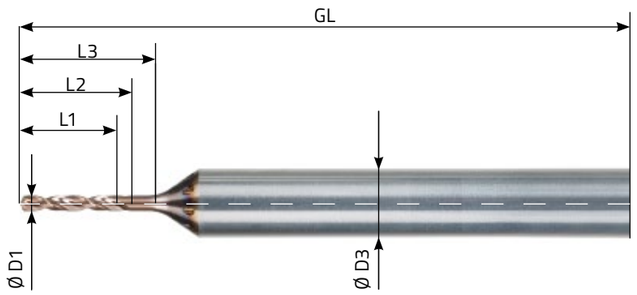
Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

Ø 0,3 - 0,4 mm		Ø 0,5 - 0,8 mm		Ø 1,0 - 1,2 mm		Ø 1,5 - 2,0 mm	
vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]
60-120	0,008 - 0,01	60-120	0,022- 0,046	60-130	0,042- 0,066	60-130	0,090 - 0,182
60-100	0,08 - 0,01	60-100	0,018- 0,026	60-120	0,042- 0,056	60-130	0,090 - 0,182
50-100	0,08 - 0,01	50-100	0,009 - 0,016	50-120	0,025 - 0,04	50-120	0,060 - 0,080
50-80	0,08 - 0,01	50-80	0,008 - 0,020	50-80	0,02 - 0,038	50-90	0,050 - 0,070
80-140	0,010 - 0,014	80-140	0,030 - 0,042	80-140	0,030 - 0,042	80-160	0,096 - 0,135
80-160	0,012 - 0,016	80-160	0,032 - 0,046	80-160	0,042 - 0,066	80-160	0,132 - 0,18
80-140	0,012 - 0,016	80-140	0,036 - 0,068	80-140	0,046 - 0,088	80-160	0,132 - 0,210
80-120	0,012 - 0,014	80-120	0,030 - 0,048	80-120	0,032 - 0,088	80-140	0,085 - 0,120
15 - 50	0,08 - 0,01	15 - 50	0,025 - 0,045	15 - 50	0,025 - 0,045	15 - 60	0,060 - 0,092
15 - 50	0,08 - 0,01	15 - 50	0,025 - 0,045	15 - 50	0,025 - 0,045	15 - 60	0,060 - 0,120
15 - 50	0,08 - 0,01	15 - 50	0,020 - 0,024	15 - 50	0,020 - 0,024	15 - 50	0,055 - 0,092
15-32	0,006 - 0,009	15-32	0,006 - 0,009	15-32	0,006 - 0,009	15-32	0,006 - 0,012
No data entered							

INOX-6xD cooled







- α-INOX coated

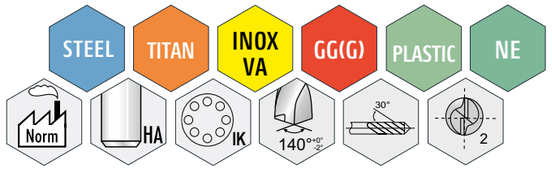
5 PRO's of the ACTIONDRILL:

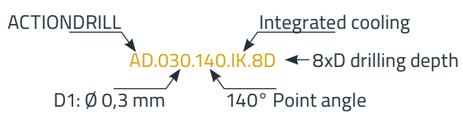
- 6xD "micro" drill with integrated cooling from Ø 0.3
- Matched to our INOX-3xD Pilot cooled
- Perfect positional accuracy
- Shorter process times and high process reliability
- Long chips are flushed out through the integrated cooling channels without retracting

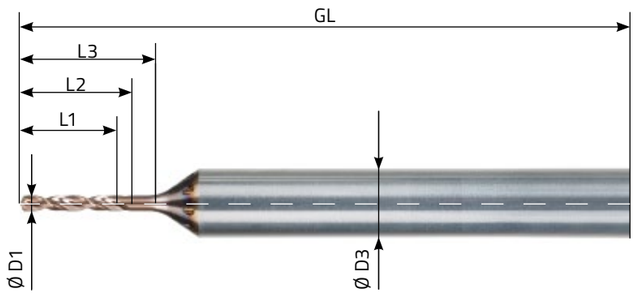
Article number	D1 k5 (mm)	D1 (inch)	D3 h5 (mm)	L1 (6xD1 / mm)	L2 (7xD1 / mm)	L3 (9xD1 / mm)	GL (mm)
AD.030.140.IK.6D	Ø 0,300	-	Ø 4,00	1,80	2,10	2,70	40,00
AD.035.140.IK.6D	Ø 0,350	-	Ø 4,00	2,10	2,45	3,15	40,00
AD.040.140.IK.6D	Ø 0,400	-	Ø 4,00	2,40	2,80	3,60	40,00
AD.045.140.IK.6D	Ø 0,450	-	Ø 4,00	2,70	3,15	4,05	40,00
AD.050.140.IK.6D	Ø 0,500	-	Ø 4,00	3,00	3,50	4,50	40,00
AD.055.140.IK.6D	Ø 0,550	-	Ø 4,00	3,30	3,85	4,95	40,00
AD.060.140.IK.6D	Ø 0,600	-	Ø 4,00	3,60	4,20	5,40	40,00
AD.065.140.IK.6D	Ø 0,650	-	Ø 4,00	3,90	4,55	5,85	40,00
AD.070.140.IK.6D	Ø 0,700	-	Ø 4,00	4,20	4,90	6,30	40,00
AD.075.140.IK.6D	Ø 0,750	-	Ø 4,00	4,50	5,25	6,75	40,00
AD.080.140.IK.6D	Ø 0,800	-	Ø 4,00	4,80	5,60	7,20	40,00
AD.085.140.IK.6D	Ø 0,850	-	Ø 4,00	5,10	5,95	7,65	40,00
AD.090.140.IK.6D	Ø 0,900	-	Ø 4,00	5,40	6,30	8,10	40,00
AD.095.140.IK.6D	Ø 0,950	-	Ø 4,00	5,70	6,65	8,55	40,00
AD.100.140.IK.6D	Ø 1,000	-	Ø 4,00	6,00	7,00	9,00	50,00
AD.105.140.IK.6D	Ø 1,050	-	Ø 4,00	6,30	7,35	9,45	50,00
AD.110.140.IK.6D	Ø 1,100	-	Ø 4,00	6,60	7,70	9,90	50,00
AD.115.140.IK.6D	Ø 1,150	-	Ø 4,00	6,90	8,05	10,35	50,00
AD.120.140.IK.6D	Ø 1,200	-	Ø 4,00	7,20	8,40	10,80	50,00
AD.125.140.IK.6D	Ø 1,250	-	Ø 4,00	7,50	8,75	11,25	50,00
AD.130.140.IK.6D	Ø 1,300	-	Ø 4,00	7,80	9,10	11,70	50,00
AD.135.140.IK.6D	Ø 1,350	-	Ø 4,00	8,10	9,45	12,15	50,00
AD.140.140.IK.6D	Ø 1,400	-	Ø 4,00	8,40	9,80	12,60	50,00
AD.145.140.IK.6D	Ø 1,450	-	Ø 4,00	8,70	10,15	13,05	50,00
AD.150.140.IK.6D	Ø 1,500	-	Ø 4,00	9,00	10,50	13,50	50,00
AD.155.140.IK.6D	Ø 1,550	-	Ø 4,00	9,30	10,85	13,95	50,00
AD.1587.140.IK.6D	Ø 1,587	1/16"	Ø 4,00	9,52	11,11	14,28	50,00
AD.160.140.IK.6D	Ø 1,600	-	Ø 4,00	9,60	11,20	14,40	50,00
AD.165.140.IK.6D	Ø 1,650	-	Ø 4,00	9,90	11,55	14,85	50,00
AD.170.140.IK.6D	Ø 1,700	-	Ø 4,00	10,20	11,90	15,30	50,00
AD.175.140.IK.6D	Ø 1,750	-	Ø 4,00	10,50	12,25	15,75	50,00
AD.180.140.IK.6D	Ø 1,800	-	Ø 4,00	10,80	12,60	16,20	50,00
AD.185.140.IK.6D	Ø 1,850	-	Ø 4,00	11,10	12,95	16,65	50,00
AD.190.140.IK.6D	Ø 1,900	-	Ø 4,00	11,40	13,30	17,10	50,00
AD.195.140.IK.6D	Ø 1,950	-	Ø 4,00	11,70	13,65	17,55	50,00
AD.200.140.IK.6D	Ø 2,000	-	Ø 4,00	12,00	14,00	18,00	50,00
AD.2381.140.IK.6D	Ø 2,381	3/32"	Ø 4,00	14,30	16,70	21,50	60,00

Available from stock

INOX-8xD cooled







- α-INOX coated

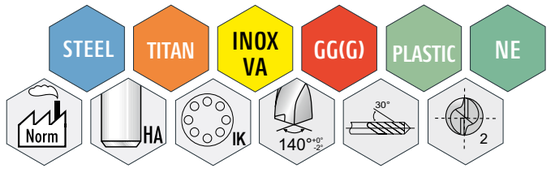
5 PRO's of the ACTIONDRILL:

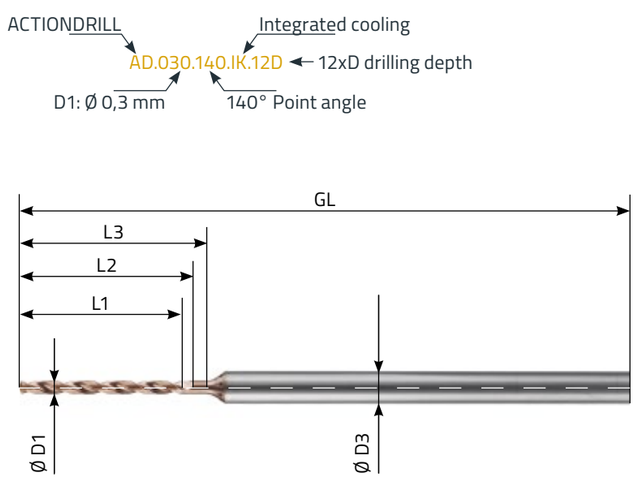
- 8xD "micro" drill with integrated cooling from Ø 0.3
- Matched to our INOX-3xD Pilot cooled
- Perfect positional accuracy
- Shorter process times and high process reliability
- Long chips are flushed out through the integrated cooling channels without retracting

Article number	D1 k5 (mm)	D1 (inch)	D3 h5 (mm)	L1 (8xD1 / mm)	L2 (9xD1 / mm)	L3 (10xD1 / mm)	GL (mm)
AD.030.140.IK.8D	Ø 0,300	-	Ø 4,00	2,40	2,70	3,00	40,00
AD.035.140.IK.8D	Ø 0,350	-	Ø 4,00	2,80	3,15	3,50	40,00
AD.040.140.IK.8D	Ø 0,400	-	Ø 4,00	3,20	3,60	4,00	40,00
AD.045.140.IK.8D	Ø 0,450	-	Ø 4,00	3,60	4,05	4,50	40,00
AD.050.140.IK.8D	Ø 0,500	-	Ø 4,00	4,00	4,50	5,00	40,00
AD.055.140.IK.8D	Ø 0,550	-	Ø 4,00	4,40	4,95	5,50	40,00
AD.060.140.IK.8D	Ø 0,600	-	Ø 4,00	4,80	5,40	6,00	40,00
AD.065.140.IK.8D	Ø 0,650	-	Ø 4,00	5,20	5,85	6,50	40,00
AD.070.140.IK.8D	Ø 0,700	-	Ø 4,00	5,60	6,30	7,00	40,00
AD.075.140.IK.8D	Ø 0,750	-	Ø 4,00	6,00	6,75	7,50	40,00
AD.080.140.IK.8D	Ø 0,800	-	Ø 4,00	6,40	7,20	8,00	40,00
AD.085.140.IK.8D	Ø 0,850	-	Ø 4,00	6,80	7,65	8,50	40,00
AD.090.140.IK.8D	Ø 0,900	-	Ø 4,00	7,20	8,10	9,00	40,00
AD.095.140.IK.8D	Ø 0,950	-	Ø 4,00	7,60	8,55	9,50	40,00
AD.100.140.IK.8D	Ø 1,000	-	Ø 4,00	8,00	9,00	10,00	50,00
AD.105.140.IK.8D	Ø 1,050	-	Ø 4,00	8,40	9,45	10,50	50,00
AD.110.140.IK.8D	Ø 1,100	-	Ø 4,00	8,80	9,90	11,00	50,00
AD.115.140.IK.8D	Ø 1,150	-	Ø 4,00	9,20	10,35	11,50	50,00
AD.120.140.IK.8D	Ø 1,200	-	Ø 4,00	9,60	10,80	12,00	50,00
AD.125.140.IK.8D	Ø 1,250	-	Ø 4,00	10,00	11,25	12,50	50,00
AD.130.140.IK.8D	Ø 1,300	-	Ø 4,00	10,40	11,70	13,00	50,00
AD.135.140.IK.8D	Ø 1,350	-	Ø 4,00	10,80	12,15	13,50	50,00
AD.140.140.IK.8D	Ø 1,400	-	Ø 4,00	11,20	12,60	14,00	50,00
AD.145.140.IK.8D	Ø 1,450	-	Ø 4,00	11,60	13,05	14,50	50,00
AD.150.140.IK.8D	Ø 1,500	-	Ø 4,00	12,00	13,50	15,00	50,00
AD.155.140.IK.8D	Ø 1,550	-	Ø 4,00	12,40	13,95	15,50	50,00
AD.1587.140.IK.8D	Ø 1,587	1/16"	Ø 4,00	12,70	14,28	15,87	50,00
AD.160.140.IK.8D	Ø 1,600	-	Ø 4,00	12,80	14,40	16,00	50,00
AD.165.140.IK.8D	Ø 1,650	-	Ø 4,00	13,20	14,85	16,50	50,00
AD.170.140.IK.8D	Ø 1,700	-	Ø 4,00	13,60	15,30	17,00	50,00
AD.175.140.IK.8D	Ø 1,750	-	Ø 4,00	14,00	15,75	17,50	50,00
AD.180.140.IK.8D	Ø 1,800	-	Ø 4,00	14,40	16,20	18,00	50,00
AD.185.140.IK.8D	Ø 1,850	-	Ø 4,00	14,80	16,65	18,50	50,00
AD.190.140.IK.8D	Ø 1,900	-	Ø 4,00	15,20	17,10	19,00	50,00
AD.195.140.IK.8D	Ø 1,950	-	Ø 4,00	15,60	17,55	19,50	50,00
AD.200.140.IK.8D	Ø 2,000	-	Ø 4,00	16,00	18,00	20,00	60,00
AD.2381.140.IK.8D	Ø 2,381	3/32"	Ø 4,00	19,05	21,50	24,00	60,00

Available from stock

INOX-12xD cooled





- α-INOX coated

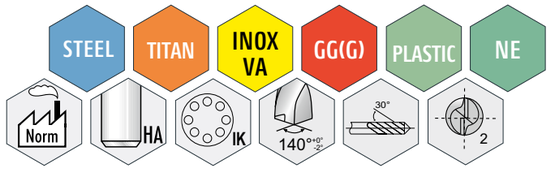
5 PRO's of the ACTIONDRILL:

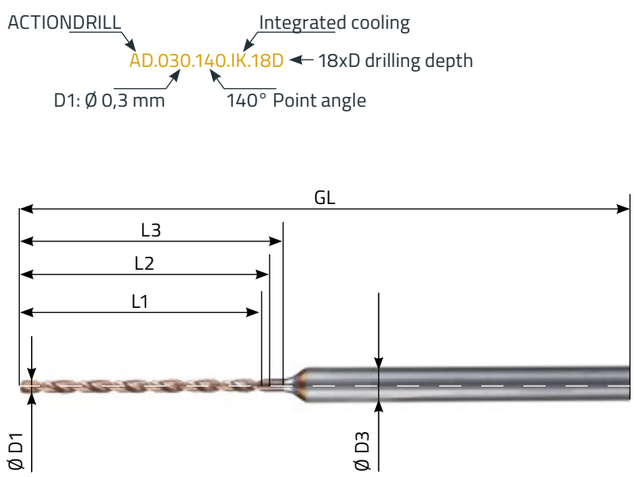
- 12xD "micro" drill with integrated cooling from Ø 0.3
- Matched to our pilot drill INOX-3xD Pilot cooled
- Perfect positional accuracy
- Shorter process times and high process reliability
- Long chips are flushed out through the integrated cooling channels without retracting

Article number	D1 k5 (mm)	D1 (inch)	D3 h5 (mm)	L1 (12xD1/mm)	L2 (13xD1/mm)	L3 (14xD1/mm)	GL (mm)
AD.030.140.IK.12D	Ø 0,30	-	Ø 4,00	3,60	3,90	4,20	50,00
AD.035.140.IK.12D	Ø 0,35	-	Ø 4,00	4,20	4,55	4,90	50,00
AD.040.140.IK.12D	Ø 0,40	-	Ø 4,00	4,80	5,20	5,60	50,00
AD.045.140.IK.12D	Ø 0,45	-	Ø 4,00	5,40	5,85	6,30	50,00
AD.050.140.IK.12D	Ø 0,50	-	Ø 4,00	6,00	6,50	7,00	50,00
AD.055.140.IK.12D	Ø 0,55	-	Ø 4,00	6,60	7,15	7,70	50,00
AD.060.140.IK.12D	Ø 0,60	-	Ø 4,00	7,20	7,80	8,40	50,00
AD.065.140.IK.12D	Ø 0,65	-	Ø 4,00	7,80	8,45	9,10	50,00
AD.070.140.IK.12D	Ø 0,70	-	Ø 4,00	8,40	9,10	9,80	50,00
AD.075.140.IK.12D	Ø 0,75	-	Ø 4,00	9,00	9,75	10,50	50,00
AD.080.140.IK.12D	Ø 0,80	-	Ø 4,00	9,60	10,40	11,20	50,00
AD.085.140.IK.12D	Ø 0,85	-	Ø 4,00	10,20	11,05	11,90	60,00
AD.090.140.IK.12D	Ø 0,90	-	Ø 4,00	10,80	11,70	12,60	60,00
AD.095.140.IK.12D	Ø 0,95	-	Ø 4,00	11,40	12,35	13,30	60,00
AD.100.140.IK.12D	Ø 1,00	-	Ø 4,00	12,00	13,00	14,00	60,00
AD.105.140.IK.12D	Ø 1,05	-	Ø 4,00	12,60	13,65	14,70	60,00
AD.110.140.IK.12D	Ø 1,10	-	Ø 4,00	13,20	14,30	15,40	60,00
AD.115.140.IK.12D	Ø 1,15	-	Ø 4,00	13,80	14,95	16,10	60,00
AD.120.140.IK.12D	Ø 1,20	-	Ø 4,00	14,40	15,60	16,80	80,00
AD.125.140.IK.12D	Ø 1,25	-	Ø 4,00	15,00	16,25	17,50	80,00
AD.130.140.IK.12D	Ø 1,30	-	Ø 4,00	15,60	16,90	18,20	80,00
AD.135.140.IK.12D	Ø 1,35	-	Ø 4,00	16,20	17,55	18,90	80,00
AD.140.140.IK.12D	Ø 1,40	-	Ø 4,00	16,80	18,20	19,60	80,00
AD.145.140.IK.12D	Ø 1,45	-	Ø 4,00	17,40	18,85	20,30	80,00
AD.150.140.IK.12D	Ø 1,50	-	Ø 4,00	18,00	19,50	21,00	80,00
AD.155.140.IK.12D	Ø 1,55	-	Ø 4,00	18,60	20,15	21,70	80,00
AD.1587.140.IK.12D	Ø 1,59	1/16"	Ø 4,00	19,04	20,63	22,22	80,00
AD.160.140.IK.12D	Ø 1,60	-	Ø 4,00	19,20	20,80	22,40	80,00
AD.165.140.IK.12D	Ø 1,65	-	Ø 4,00	19,80	21,45	23,10	80,00
AD.170.140.IK.12D	Ø 1,70	-	Ø 4,00	20,40	22,10	23,80	80,00
AD.175.140.IK.12D	Ø 1,75	-	Ø 4,00	21,00	22,75	24,50	80,00
AD.180.140.IK.12D	Ø 1,80	-	Ø 4,00	21,60	23,40	25,20	80,00
AD.185.140.IK.12D	Ø 1,85	-	Ø 4,00	22,20	24,05	25,90	80,00
AD.190.140.IK.12D	Ø 1,90	-	Ø 4,00	22,80	24,70	26,60	80,00
AD.195.140.IK.12D	Ø 1,95	-	Ø 4,00	23,40	25,35	27,30	80,00
AD.200.140.IK.12D	Ø 2,00	-	Ø 4,00	24,00	26,00	28,00	80,00

Available from stock

INOX-18xD cooled





- α-INOX coated

5 PRO's of the ACTIONDRILL:

- 18xD "micro" drill with integrated cooling from Ø 0.3
- Matched to our pilot drill INOX-3xD Pilot cooled
- Perfect positional accuracy
- Shorter process times and high process reliability
- Long chips are flushed out through the integrated cooling channels without retracting

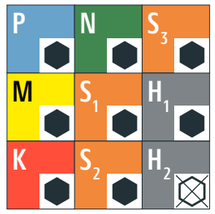
Article number	D1 k5 (mm)	D1 (inch)	D3 h5 (mm)	L1 (18xD/mm)	L2 (19xD/mm)	L3 (20xD/mm)	GL (mm)
AD.030.140.IK.18D	0,30	-	4,00	5,40	5,70	6,00	60,00
AD.035.140.IK.18D	0,35	-	4,00	6,30	6,65	7,00	60,00
AD.040.140.IK.18D	0,40	-	4,00	7,20	7,60	8,00	60,00
AD.045.140.IK.18D	0,45	-	4,00	8,10	8,55	9,00	60,00
AD.050.140.IK.18D	0,50	-	4,00	9,00	9,50	10,00	60,00
AD.055.140.IK.18D	0,55	-	4,00	9,90	10,45	11,00	60,00
AD.060.140.IK.18D	0,60	-	4,00	10,80	11,40	12,00	60,00
AD.065.140.IK.18D	0,65	-	4,00	11,70	12,35	13,00	60,00
AD.070.140.IK.18D	0,70	-	4,00	12,60	13,30	14,00	60,00
AD.075.140.IK.18D	0,75	-	4,00	13,50	14,25	15,00	60,00
AD.080.140.IK.18D	0,80	-	4,00	14,40	15,20	16,00	60,00
AD.085.140.IK.18D	0,85	-	4,00	15,30	16,15	17,00	80,00
AD.090.140.IK.18D	0,90	-	4,00	16,20	17,10	18,00	80,00
AD.095.140.IK.18D	0,95	-	4,00	17,10	18,05	19,00	80,00
AD.100.140.IK.18D	1,00	-	4,00	18,00	19,00	20,00	80,00
AD.105.140.IK.18D	1,05	-	4,00	18,90	19,95	21,00	80,00
AD.110.140.IK.18D	1,10	-	4,00	19,80	20,90	22,00	80,00
AD.115.140.IK.18D	1,15	-	4,00	20,70	21,85	23,00	80,00
AD.120.140.IK.18D	1,20	-	4,00	21,60	22,80	24,00	80,00
AD.125.140.IK.18D	1,25	-	4,00	22,50	23,75	25,00	80,00
AD.130.140.IK.18D	1,30	-	4,00	23,40	24,70	26,00	80,00
AD.135.140.IK.18D	1,35	-	4,00	24,30	25,65	27,00	80,00
AD.140.140.IK.18D	1,40	-	4,00	25,20	26,60	28,00	80,00
AD.145.140.IK.18D	1,45	-	4,00	26,10	27,55	29,00	80,00
AD.150.140.IK.18D	1,50	-	4,00	27,00	28,50	30,00	80,00
AD.155.140.IK.18D	1,55	-	4,00	27,90	29,45	31,00	80,00
AD.1587.140.IK.18D	1,59	1/16"	4,00	28,62	30,21	31,80	80,00
AD.160.140.IK.18D	1,60	-	4,00	28,80	30,40	32,00	80,00
AD.165.140.IK.18D	1,65	-	4,00	29,70	31,35	33,00	80,00
AD.170.140.IK.18D	1,70	-	4,00	30,60	32,30	34,00	80,00
AD.175.140.IK.18D	1,75	-	4,00	31,50	33,25	35,00	80,00
AD.180.140.IK.18D	1,80	-	4,00	32,40	34,20	36,00	80,00
AD.185.140.IK.18D	1,85	-	4,00	33,30	35,15	37,00	80,00
AD.190.140.IK.18D	1,90	-	4,00	34,20	36,10	38,00	80,00
AD.195.140.IK.18D	1,95	-	4,00	35,10	37,05	39,00	80,00
AD.200.140.IK.18D	2,00	-	4,00	36,00	38,00	40,00	80,00

Available from stock

Cutting data - ACTIONDRILL INOX-cooled

ACTIONDRILL®
by HB microtec

INOX-6xD cooled
INOX-8xD cooled
INOX-12xD cooled
INOX-18xD cooled

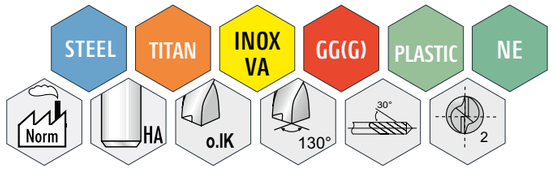


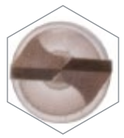
Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

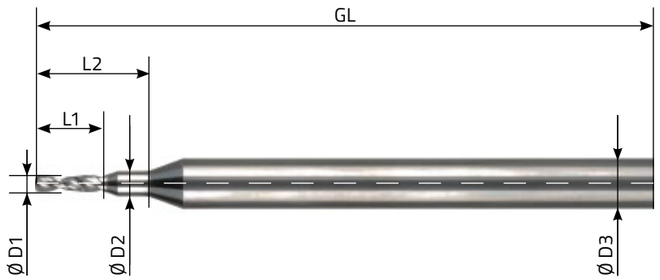
Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

Ø 0,3 - 0,4 mm		Ø 0,5 - 0,8 mm		Ø 1,0 - 1,2 mm		Ø 1,5 - 2,0 mm	
vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]
60-120	0,008 - 0,01	60-120	0,012- 0,046	60-130	0,042- 0,066	60-130	0,040 - 0,12
60-100	0,08 - 0,01	60-100	0,018- 0,026	60-120	0,042- 0,056	60-130	0,040 - 0,12
50-100	0,08 - 0,01	50-100	0,009 - 0,016	50-120	0,025 - 0,04	50-120	0,040 - 0,080
50-80	0,08 - 0,01	50-80	0,008 - 0,020	50-80	0,02 - 0,038	50-90	0,040 - 0,070
80-140	0,010 - 0,014	80-140	0,012 - 0,042	80-140	0,030 - 0,042	80-160	0,08 - 0,135
80-160	0,012 - 0,016	80-160	0,012 - 0,046	80-160	0,042 - 0,066	80-160	0,08 - 0,18
80-140	0,012 - 0,016	80-140	0,026 - 0,068	80-140	0,046 - 0,088	80-160	0,08 - 0,210
80-120	0,012 - 0,014	80-120	0,024 - 0,048	80-120	0,032 - 0,088	80-140	0,085 - 0,120
15 - 50	0,08 - 0,01	15 - 50	0,025 - 0,045	15 - 50	0,025 - 0,045	15 - 60	0,060 - 0,092
15 - 50	0,08 - 0,01	15 - 50	0,025 - 0,045	15 - 50	0,025 - 0,045	15 - 60	0,060 - 0,120
15 - 50	0,08 - 0,01	15 - 50	0,020 - 0,024	15 - 50	0,020 - 0,024	15 - 50	0,055 - 0,092
15-32	0,006 - 0,009	15-32	0,006 - 0,009	15-32	0,006 - 0,009	15-32	0,006 - 0,012
No data entered							

VHM micro-INOX 3xD





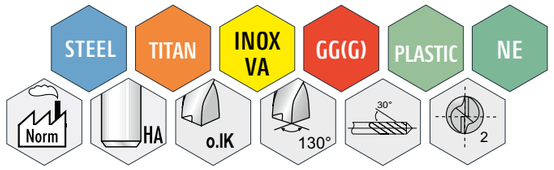


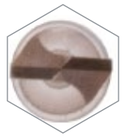
- α-INOX coated with suffix .01 or blank
- D1 +0/-0,004 blank & D1 +0/-0,002 coated

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.010.3D	.01	Ø 0,10	1,00	3,00	0,30	3,00	38,00
TD.MI.015.3D	.01	Ø 0,15	1,00	3,00	0,45	3,00	38,00
TD.MI.020.3D	.01	Ø 0,20	1,00	3,00	0,60	3,00	38,00
TD.MI.025.3D	.01	Ø 0,25	1,00	3,00	0,75	3,00	38,00
TD.MI.030.3D	.01	Ø 0,30	1,00	3,00	0,90	3,00	38,00
TD.MI.035.3D	.01	Ø 0,35	1,00	3,00	1,05	3,00	38,00
TD.MI.040.3D	.01	Ø 0,40	1,00	3,00	1,20	3,00	38,00
TD.MI.045.3D	.01	Ø 0,45	1,00	3,00	1,35	3,00	38,00
TD.MI.050.3D	.01	Ø 0,50	1,50	3,00	1,50	6,00	38,00
TD.MI.055.3D	.01	Ø 0,55	1,50	3,00	1,80	6,00	38,00
TD.MI.060.3D	.01	Ø 0,60	1,50	3,00	1,80	6,00	38,00
TD.MI.065.3D	.01	Ø 0,65	1,50	3,00	2,10	6,00	38,00
TD.MI.070.3D	.01	Ø 0,70	1,50	3,00	2,10	6,00	38,00
TD.MI.075.3D	.01	Ø 0,75	1,50	3,00	2,40	6,00	38,00
TD.MI.080.3D	.01	Ø 0,80	1,50	3,00	2,40	6,00	38,00
TD.MI.085.3D	.01	Ø 0,85	1,50	3,00	2,70	6,00	38,00
TD.MI.090.3D	.01	Ø 0,90	1,50	3,00	2,70	6,00	38,00
TD.MI.095.3D	.01	Ø 0,95	1,50	3,00	3,00	6,00	38,00
TD.MI.100.3D	.01	Ø 1,00	2,00	3,00	3,00	6,00	38,00
TD.MI.105.3D	.01	Ø 1,05	2,00	3,00	3,30	6,00	38,00
TD.MI.110.3D	.01	Ø 1,10	2,00	3,00	3,30	6,00	38,00
TD.MI.115.3D	.01	Ø 1,15	2,00	3,00	3,60	6,00	38,00
TD.MI.120.3D	.01	Ø 1,20	2,00	3,00	3,60	6,00	38,00
TD.MI.125.3D	.01	Ø 1,25	2,00	3,00	3,90	6,00	38,00
TD.MI.130.3D	.01	Ø 1,30	2,00	3,00	3,90	6,00	38,00
TD.MI.135.3D	.01	Ø 1,35	2,00	3,00	4,20	6,00	38,00
TD.MI.140.3D	.01	Ø 1,40	2,00	3,00	4,20	6,00	38,00
TD.MI.145.3D	.01	Ø 1,45	2,00	3,00	4,50	6,00	38,00
TD.MI.150.3D	.01	Ø 1,50	-	3,00	4,50	-	38,00
TD.MI.155.3D	.01	Ø 1,55	-	3,00	4,80	-	38,00
TD.MI.160.3D	.01	Ø 1,60	-	3,00	4,80	-	38,00
TD.MI.165.3D	.01	Ø 1,65	-	3,00	5,10	-	38,00
TD.MI.170.3D	.01	Ø 1,70	-	3,00	5,10	-	38,00
TD.MI.175.3D	.01	Ø 1,75	-	3,00	5,40	-	38,00
TD.MI.180.3D	.01	Ø 1,80	-	3,00	5,40	-	38,00
TD.MI.185.3D	.01	Ø 1,85	-	3,00	5,70	-	38,00
TD.MI.190.3D	.01	Ø 1,90	-	3,00	5,70	-	38,00
TD.MI.195.3D	.01	Ø 1,95	-	3,00	6,00	-	38,00
TD.MI.200.3D	.01	Ø 2,00	-	3,00	6,00	-	38,00
TD.MI.205.3D	.01	Ø 2,05	-	3,00	6,30	-	38,00
TD.MI.210.3D	.01	Ø 2,10	-	3,00	6,30	-	38,00
TD.MI.215.3D	.01	Ø 2,15	-	3,00	6,60	-	38,00
TD.MI.220.3D	.01	Ø 2,20	-	3,00	6,60	-	38,00
TD.MI.225.3D	.01	Ø 2,25	-	3,00	6,90	-	38,00
TD.MI.230.3D	.01	Ø 2,30	-	3,00	6,90	-	38,00
TD.MI.235.3D	.01	Ø 2,35	-	3,00	7,20	-	38,00
TD.MI.240.3D	.01	Ø 2,40	-	3,00	7,20	-	38,00
TD.MI.245.3D	.01	Ø 2,45	-	3,00	7,50	-	38,00
TD.MI.250.3D	.01	Ø 2,50	-	3,00	7,50	-	38,00
TD.MI.255.3D	.01	Ø 2,55	-	3,00	7,80	-	38,00
TD.MI.260.3D	.01	Ø 2,60	-	3,00	7,80	-	38,00
TD.MI.265.3D	.01	Ø 2,65	-	3,00	8,10	-	38,00
TD.MI.270.3D	.01	Ø 2,70	-	3,00	8,10	-	38,00
TD.MI.275.3D	.01	Ø 2,75	-	3,00	8,40	-	38,00
TD.MI.280.3D	.01	Ø 2,80	-	3,00	8,40	-	38,00
TD.MI.285.3D	.01	Ø 2,85	-	3,00	8,70	-	38,00
TD.MI.290.3D	.01	Ø 2,90	-	3,00	8,70	-	38,00
TD.MI.295.3D	.01	Ø 2,95	-	3,00	9,00	-	38,00
TD.MI.300.3D	.01	Ø 3,00	-	3,00	9,00	-	38,00

Available from stock

VHM micro-INOX 5xD





- α-INOX coated with suffix .01 or blank
- D1 +0/-0,004 blank & D1 +0/-0,002 coated

5 PRO's of the TARGETDRILL:

- Available from stock; In steps of 0.01mm from Ø0.1 up to Ø3.0
- 5xD micro-INOX drill
- Reinforced shank
- Available coated and uncoated
- Excellent price-performance ratio

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.010.5D	.01	Ø 0,10	1,00	3,00	0,50	5,00	38,00
TD.MI.011.5D	.01	Ø 0,11	1,00	3,00	0,60	5,00	38,00
TD.MI.012.5D	.01	Ø 0,12	1,00	3,00	0,70	5,00	38,00
TD.MI.013.5D	.01	Ø 0,13	1,00	3,00	0,80	5,00	38,00
TD.MI.014.5D	.01	Ø 0,14	1,00	3,00	0,90	5,00	38,00
TD.MI.015.5D	.01	Ø 0,15	1,00	3,00	1,00	5,00	38,00
TD.MI.016.5D	.01	Ø 0,16	1,00	3,00	1,25	5,00	38,00
TD.MI.017.5D	.01	Ø 0,17	1,00	3,00	1,50	5,00	38,00
TD.MI.018.5D	.01	Ø 0,18	1,00	3,00	1,75	5,00	38,00
TD.MI.019.5D	.01	Ø 0,19	1,00	3,00	2,00	5,00	38,00
TD.MI.020.5D	.01	Ø 0,20	1,00	3,00	2,25	5,00	38,00
TD.MI.021.5D	.01	Ø 0,21	1,00	3,00	2,25	5,00	38,00
TD.MI.022.5D	.01	Ø 0,22	1,00	3,00	2,25	5,00	38,00
TD.MI.023.5D	.01	Ø 0,23	1,00	3,00	2,25	5,00	38,00
TD.MI.024.5D	.01	Ø 0,24	1,00	3,00	2,25	5,00	38,00
TD.MI.025.5D	.01	Ø 0,25	1,00	3,00	2,25	5,00	38,00
TD.MI.026.5D	.01	Ø 0,26	1,00	3,00	2,25	5,00	38,00
TD.MI.027.5D	.01	Ø 0,27	1,00	3,00	2,25	5,00	38,00
TD.MI.028.5D	.01	Ø 0,28	1,00	3,00	2,25	5,00	38,00
TD.MI.029.5D	.01	Ø 0,29	1,00	3,00	2,25	5,00	38,00
TD.MI.030.5D	.01	Ø 0,30	1,00	3,00	2,25	5,00	38,00
TD.MI.031.5D	.01	Ø 0,31	1,00	3,00	2,25	5,00	38,00
TD.MI.032.5D	.01	Ø 0,32	1,00	3,00	2,25	5,00	38,00
TD.MI.033.5D	.01	Ø 0,33	1,00	3,00	2,25	5,00	38,00
TD.MI.034.5D	.01	Ø 0,34	1,00	3,00	2,25	5,00	38,00
TD.MI.035.5D	.01	Ø 0,35	1,00	3,00	2,25	5,00	38,00
TD.MI.036.5D	.01	Ø 0,36	1,00	3,00	2,25	5,00	38,00
TD.MI.037.5D	.01	Ø 0,37	1,00	3,00	2,25	5,00	38,00
TD.MI.038.5D	.01	Ø 0,38	1,00	3,00	2,25	5,00	38,00
TD.MI.039.5D	.01	Ø 0,39	1,00	3,00	2,25	5,00	38,00
TD.MI.040.5D	.01	Ø 0,40	1,00	3,00	2,25	5,00	38,00
TD.MI.041.5D	.01	Ø 0,41	1,00	3,00	2,25	5,00	38,00
TD.MI.042.5D	.01	Ø 0,42	1,00	3,00	2,25	5,00	38,00
TD.MI.043.5D	.01	Ø 0,43	1,00	3,00	2,25	5,00	38,00
TD.MI.044.5D	.01	Ø 0,44	1,00	3,00	2,25	5,00	38,00
TD.MI.045.5D	.01	Ø 0,45	1,00	3,00	2,25	5,00	38,00
TD.MI.046.5D	.01	Ø 0,46	1,00	3,00	2,25	5,00	38,00
TD.MI.047.5D	.01	Ø 0,47	1,00	3,00	2,25	5,00	38,00
TD.MI.048.5D	.01	Ø 0,48	1,00	3,00	2,25	5,00	38,00
TD.MI.049.5D	.01	Ø 0,49	1,00	3,00	2,25	5,00	38,00
TD.MI.050.5D	.01	Ø 0,50	1,50	3,00	2,50	10,00	38,00
TD.MI.051.5D	.01	Ø 0,51	1,50	3,00	3,00	10,00	38,00
TD.MI.052.5D	.01	Ø 0,52	1,50	3,00	3,00	10,00	38,00
TD.MI.053.5D	.01	Ø 0,53	1,50	3,00	3,00	10,00	38,00

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.054.5D	.01	Ø 0,54	1,50	3,00	3,00	10,00	38,00
TD.MI.055.5D	.01	Ø 0,55	1,50	3,00	3,00	10,00	38,00
TD.MI.056.5D	.01	Ø 0,56	1,50	3,00	3,00	10,00	38,00
TD.MI.057.5D	.01	Ø 0,57	1,50	3,00	3,00	10,00	38,00
TD.MI.058.5D	.01	Ø 0,58	1,50	3,00	3,00	10,00	38,00
TD.MI.059.5D	.01	Ø 0,59	1,50	3,00	3,00	10,00	38,00
TD.MI.060.5D	.01	Ø 0,60	1,50	3,00	3,00	10,00	38,00
TD.MI.061.5D	.01	Ø 0,61	1,50	3,00	3,50	10,00	38,00
TD.MI.062.5D	.01	Ø 0,62	1,50	3,00	3,50	10,00	38,00
TD.MI.063.5D	.01	Ø 0,63	1,50	3,00	3,50	10,00	38,00
TD.MI.064.5D	.01	Ø 0,64	1,50	3,00	3,50	10,00	38,00
TD.MI.065.5D	.01	Ø 0,65	1,50	3,00	3,50	10,00	38,00
TD.MI.066.5D	.01	Ø 0,66	1,50	3,00	3,50	10,00	38,00
TD.MI.067.5D	.01	Ø 0,67	1,50	3,00	3,50	10,00	38,00
TD.MI.068.5D	.01	Ø 0,68	1,50	3,00	3,50	10,00	38,00
TD.MI.069.5D	.01	Ø 0,69	1,50	3,00	3,50	10,00	38,00
TD.MI.070.5D	.01	Ø 0,70	1,50	3,00	3,50	10,00	38,00
TD.MI.071.5D	.01	Ø 0,71	1,50	3,00	4,00	10,00	38,00
TD.MI.072.5D	.01	Ø 0,72	1,50	3,00	4,00	10,00	38,00
TD.MI.073.5D	.01	Ø 0,73	1,50	3,00	4,00	10,00	38,00
TD.MI.074.5D	.01	Ø 0,74	1,50	3,00	4,00	10,00	38,00
TD.MI.075.5D	.01	Ø 0,75	1,50	3,00	4,00	10,00	38,00
TD.MI.076.5D	.01	Ø 0,76	1,50	3,00	4,00	10,00	38,00
TD.MI.077.5D	.01	Ø 0,77	1,50	3,00	4,00	10,00	38,00
TD.MI.078.5D	.01	Ø 0,78	1,50	3,00	4,00	10,00	38,00
TD.MI.079.5D	.01	Ø 0,79	1,50	3,00	4,00	10,00	38,00
TD.MI.080.5D	.01	Ø 0,80	1,50	3,00	4,00	10,00	38,00
TD.MI.081.5D	.01	Ø 0,81	1,50	3,00	4,50	10,00	38,00
TD.MI.082.5D	.01	Ø 0,82	1,50	3,00	4,50	10,00	38,00
TD.MI.083.5D	.01	Ø 0,83	1,50	3,00	4,50	10,00	38,00
TD.MI.084.5D	.01	Ø 0,84	1,50	3,00	4,50	10,00	38,00
TD.MI.085.5D	.01	Ø 0,85	1,50	3,00	4,50	10,00	38,00
TD.MI.086.5D	.01	Ø 0,86	1,50	3,00	4,50	10,00	38,00
TD.MI.087.5D	.01	Ø 0,87	1,50	3,00	4,50	10,00	38,00
TD.MI.088.5D	.01	Ø 0,88	1,50	3,00	4,50	10,00	38,00
TD.MI.089.5D	.01	Ø 0,89	1,50	3,00	4,50	10,00	38,00
TD.MI.090.5D	.01	Ø 0,90	1,50	3,00	4,50	10,00	38,00
TD.MI.091.5D	.01	Ø 0,91	1,50	3,00	5,00	10,00	38,00
TD.MI.092.5D	.01	Ø 0,92	1,50	3,00	5,00	10,00	38,00
TD.MI.093.5D	.01	Ø 0,93	1,50	3,00	5,00	10,00	38,00
TD.MI.094.5D	.01	Ø 0,94	1,50	3,00	5,00	10,00	38,00
TD.MI.095.5D	.01	Ø 0,95	1,50	3,00	5,00	10,00	38,00
TD.MI.096.5D	.01	Ø 0,96	1,50	3,00	5,00	10,00	38,00
TD.MI.097.5D	.01	Ø 0,97	1,50	3,00	5,00	10,00	38,00

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.098.5D	.01	Ø 0,98	1,50	3,00	5,00	10,00	38,00
TD.MI.099.5D	.01	Ø 0,99	1,50	3,00	5,00	10,00	38,00
TD.MI.100.5D	.01	Ø 1,00	2,00	3,00	5,00	10,00	38,00
TD.MI.101.5D	.01	Ø 1,01	2,00	3,00	5,50	10,00	38,00
TD.MI.102.5D	.01	Ø 1,02	2,00	3,00	5,50	10,00	38,00
TD.MI.103.5D	.01	Ø 1,03	2,00	3,00	5,50	10,00	38,00
TD.MI.104.5D	.01	Ø 1,04	2,00	3,00	5,50	10,00	38,00
TD.MI.105.5D	.01	Ø 1,05	2,00	3,00	5,50	10,00	38,00
TD.MI.106.5D	.01	Ø 1,06	2,00	3,00	5,50	10,00	38,00
TD.MI.107.5D	.01	Ø 1,07	2,00	3,00	5,50	10,00	38,00
TD.MI.108.5D	.01	Ø 1,08	2,00	3,00	5,50	10,00	38,00
TD.MI.109.5D	.01	Ø 1,09	2,00	3,00	5,50	10,00	38,00
TD.MI.110.5D	.01	Ø 1,10	2,00	3,00	5,50	10,00	38,00
TD.MI.111.5D	.01	Ø 1,11	2,00	3,00	6,00	10,00	38,00
TD.MI.112.5D	.01	Ø 1,12	2,00	3,00	6,00	10,00	38,00
TD.MI.113.5D	.01	Ø 1,13	2,00	3,00	6,00	10,00	38,00
TD.MI.114.5D	.01	Ø 1,14	2,00	3,00	6,00	10,00	38,00
TD.MI.115.5D	.01	Ø 1,15	2,00	3,00	6,00	10,00	38,00
TD.MI.116.5D	.01	Ø 1,16	2,00	3,00	6,00	10,00	38,00
TD.MI.117.5D	.01	Ø 1,17	2,00	3,00	6,00	10,00	38,00
TD.MI.118.5D	.01	Ø 1,18	2,00	3,00	6,00	10,00	38,00
TD.MI.119.5D	.01	Ø 1,19	2,00	3,00	6,00	10,00	38,00
TD.MI.120.5D	.01	Ø 1,20	2,00	3,00	6,00	10,00	38,00
TD.MI.121.5D	.01	Ø 1,21	2,00	3,00	6,00	10,00	38,00
TD.MI.122.5D	.01	Ø 1,22	2,00	3,00	6,00	10,00	38,00
TD.MI.123.5D	.01	Ø 1,23	2,00	3,00	6,00	10,00	38,00
TD.MI.124.5D	.01	Ø 1,24	2,00	3,00	6,00	10,00	38,00
TD.MI.125.5D	.01	Ø 1,25	2,00	3,00	6,00	10,00	38,00
TD.MI.126.5D	.01	Ø 1,26	2,00	3,00	6,00	10,00	38,00
TD.MI.127.5D	.01	Ø 1,27	2,00	3,00	6,00	10,00	38,00
TD.MI.128.5D	.01	Ø 1,28	2,00	3,00	6,00	10,00	38,00
TD.MI.129.5D	.01	Ø 1,29	2,00	3,00	6,00	10,00	38,00
TD.MI.130.5D	.01	Ø 1,30	2,00	3,00	6,00	10,00	38,00
TD.MI.131.5D	.01	Ø 1,31	2,00	3,00	7,00	10,00	38,00
TD.MI.132.5D	.01	Ø 1,32	2,00	3,00	7,00	10,00	38,00
TD.MI.133.5D	.01	Ø 1,33	2,00	3,00	7,00	10,00	38,00
TD.MI.134.5D	.01	Ø 1,34	2,00	3,00	7,00	10,00	38,00
TD.MI.135.5D	.01	Ø 1,35	2,00	3,00	7,00	10,00	38,00
TD.MI.136.5D	.01	Ø 1,36	2,00	3,00	7,00	10,00	38,00
TD.MI.137.5D	.01	Ø 1,37	2,00	3,00	7,00	10,00	38,00
TD.MI.138.5D	.01	Ø 1,38	2,00	3,00	7,00	10,00	38,00
TD.MI.139.5D	.01	Ø 1,39	2,00	3,00	7,00	10,00	38,00
TD.MI.140.5D	.01	Ø 1,40	2,00	3,00	7,00	10,00	38,00
TD.MI.141.5D	.01	Ø 1,41	2,00	3,00	7,50	10,00	38,00

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.142.5D	.01	Ø 1,42	2,00	3,00	7,50	10,00	38,00
TD.MI.143.5D	.01	Ø 1,43	2,00	3,00	7,50	10,00	38,00
TD.MI.144.5D	.01	Ø 1,44	2,00	3,00	7,50	10,00	38,00
TD.MI.145.5D	.01	Ø 1,45	2,00	3,00	7,50	10,00	38,00
TD.MI.146.5D	.01	Ø 1,46	2,00	3,00	7,50	10,00	38,00
TD.MI.147.5D	.01	Ø 1,47	2,00	3,00	7,50	10,00	38,00
TD.MI.148.5D	.01	Ø 1,48	2,00	3,00	7,50	10,00	38,00
TD.MI.149.5D	.01	Ø 1,49	2,00	3,00	7,50	10,00	38,00
TD.MI.150.5D	.01	Ø 1,50	-	3,00	7,50	-	38,00
TD.MI.151.5D	.01	Ø 1,51	-	3,00	8,00	-	38,00
TD.MI.152.5D	.01	Ø 1,52	-	3,00	8,00	-	38,00
TD.MI.153.5D	.01	Ø 1,53	-	3,00	8,00	-	38,00
TD.MI.154.5D	.01	Ø 1,54	-	3,00	8,00	-	38,00
TD.MI.155.5D	.01	Ø 1,55	-	3,00	8,00	-	38,00
TD.MI.156.5D	.01	Ø 1,56	-	3,00	8,00	-	38,00
TD.MI.157.5D	.01	Ø 1,57	-	3,00	8,00	-	38,00
TD.MI.158.5D	.01	Ø 1,58	-	3,00	8,00	-	38,00
TD.MI.159.5D	.01	Ø 1,59	-	3,00	8,00	-	38,00
TD.MI.160.5D	.01	Ø 1,60	-	3,00	8,00	-	38,00
TD.MI.161.5D	.01	Ø 1,61	-	3,00	8,50	-	38,00
TD.MI.162.5D	.01	Ø 1,62	-	3,00	8,50	-	38,00
TD.MI.163.5D	.01	Ø 1,63	-	3,00	8,50	-	38,00
TD.MI.164.5D	.01	Ø 1,64	-	3,00	8,50	-	38,00
TD.MI.165.5D	.01	Ø 1,65	-	3,00	8,50	-	38,00
TD.MI.166.5D	.01	Ø 1,66	-	3,00	8,50	-	38,00
TD.MI.167.5D	.01	Ø 1,67	-	3,00	8,50	-	38,00
TD.MI.168.5D	.01	Ø 1,68	-	3,00	8,50	-	38,00
TD.MI.169.5D	.01	Ø 1,69	-	3,00	8,50	-	38,00
TD.MI.170.5D	.01	Ø 1,70	-	3,00	8,50	-	38,00
TD.MI.171.5D	.01	Ø 1,71	-	3,00	9,00	-	38,00
TD.MI.172.5D	.01	Ø 1,72	-	3,00	9,00	-	38,00
TD.MI.173.5D	.01	Ø 1,73	-	3,00	9,00	-	38,00
TD.MI.174.5D	.01	Ø 1,74	-	3,00	9,00	-	38,00
TD.MI.175.5D	.01	Ø 1,75	-	3,00	9,00	-	38,00
TD.MI.176.5D	.01	Ø 1,76	-	3,00	9,00	-	38,00
TD.MI.177.5D	.01	Ø 1,77	-	3,00	9,00	-	38,00
TD.MI.178.5D	.01	Ø 1,78	-	3,00	9,00	-	38,00
TD.MI.179.5D	.01	Ø 1,79	-	3,00	9,00	-	38,00
TD.MI.180.5D	.01	Ø 1,80	-	3,00	9,00	-	38,00
TD.MI.181.5D	.01	Ø 1,81	-	3,00	9,50	-	38,00
TD.MI.182.5D	.01	Ø 1,82	-	3,00	9,50	-	38,00
TD.MI.183.5D	.01	Ø 1,83	-	3,00	9,50	-	38,00
TD.MI.184.5D	.01	Ø 1,84	-	3,00	9,50	-	38,00
TD.MI.185.5D	.01	Ø 1,85	-	3,00	9,50	-	38,00

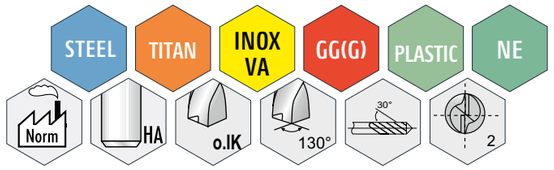
Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.186.5D	.01	Ø 1,86	-	3,00	9,50	-	38,00
TD.MI.187.5D	.01	Ø 1,87	-	3,00	9,50	-	38,00
TD.MI.188.5D	.01	Ø 1,88	-	3,00	9,50	-	38,00
TD.MI.189.5D	.01	Ø 1,89	-	3,00	9,50	-	38,00
TD.MI.190.5D	.01	Ø 1,90	-	3,00	9,50	-	38,00
TD.MI.191.5D	.01	Ø 1,91	-	3,00	10,00	-	38,00
TD.MI.192.5D	.01	Ø 1,92	-	3,00	10,00	-	38,00
TD.MI.193.5D	.01	Ø 1,93	-	3,00	10,00	-	38,00
TD.MI.194.5D	.01	Ø 1,94	-	3,00	10,00	-	38,00
TD.MI.195.5D	.01	Ø 1,95	-	3,00	10,00	-	38,00
TD.MI.196.5D	.01	Ø 1,96	-	3,00	10,00	-	38,00
TD.MI.197.5D	.01	Ø 1,97	-	3,00	10,00	-	38,00
TD.MI.198.5D	.01	Ø 1,98	-	3,00	10,00	-	38,00
TD.MI.199.5D	.01	Ø 1,99	-	3,00	10,00	-	38,00
TD.MI.200.5D	.01	Ø 2,00	-	3,00	10,00	-	38,00
TD.MI.201.5D	.01	Ø 2,01	-	3,00	10,50	-	38,00
TD.MI.202.5D	.01	Ø 2,02	-	3,00	10,50	-	38,00
TD.MI.203.5D	.01	Ø 2,03	-	3,00	10,50	-	38,00
TD.MI.204.5D	.01	Ø 2,04	-	3,00	10,50	-	38,00
TD.MI.205.5D	.01	Ø 2,05	-	3,00	10,50	-	38,00
TD.MI.206.5D	.01	Ø 2,06	-	3,00	10,50	-	38,00
TD.MI.207.5D	.01	Ø 2,07	-	3,00	10,50	-	38,00
TD.MI.208.5D	.01	Ø 2,08	-	3,00	10,50	-	38,00
TD.MI.209.5D	.01	Ø 2,09	-	3,00	10,50	-	38,00
TD.MI.210.5D	.01	Ø 2,10	-	3,00	10,50	-	38,00
TD.MI.211.5D	.01	Ø 2,11	-	3,00	11,00	-	38,00
TD.MI.212.5D	.01	Ø 2,12	-	3,00	11,00	-	38,00
TD.MI.213.5D	.01	Ø 2,13	-	3,00	11,00	-	38,00
TD.MI.214.5D	.01	Ø 2,14	-	3,00	11,00	-	38,00
TD.MI.215.5D	.01	Ø 2,15	-	3,00	11,00	-	38,00
TD.MI.216.5D	.01	Ø 2,16	-	3,00	11,00	-	38,00
TD.MI.217.5D	.01	Ø 2,17	-	3,00	11,00	-	38,00
TD.MI.218.5D	.01	Ø 2,18	-	3,00	11,00	-	38,00
TD.MI.219.5D	.01	Ø 2,19	-	3,00	11,00	-	38,00
TD.MI.220.5D	.01	Ø 2,20	-	3,00	11,00	-	38,00
TD.MI.221.5D	.01	Ø 2,21	-	3,00	11,50	-	38,00
TD.MI.222.5D	.01	Ø 2,22	-	3,00	11,50	-	38,00
TD.MI.223.5D	.01	Ø 2,23	-	3,00	11,50	-	38,00
TD.MI.224.5D	.01	Ø 2,24	-	3,00	11,50	-	38,00
TD.MI.225.5D	.01	Ø 2,25	-	3,00	11,50	-	38,00
TD.MI.226.5D	.01	Ø 2,26	-	3,00	11,50	-	38,00
TD.MI.227.5D	.01	Ø 2,27	-	3,00	11,50	-	38,00
TD.MI.228.5D	.01	Ø 2,28	-	3,00	11,50	-	38,00
TD.MI.229.5D	.01	Ø 2,29	-	3,00	11,50	-	38,00

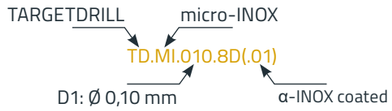
Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.230.5D	.01	Ø 2,30	-	3,00	11,50	-	38,00
TD.MI.231.5D	.01	Ø 2,31	-	3,00	12,00	-	38,00
TD.MI.232.5D	.01	Ø 2,32	-	3,00	12,00	-	38,00
TD.MI.233.5D	.01	Ø 2,33	-	3,00	12,00	-	38,00
TD.MI.234.5D	.01	Ø 2,34	-	3,00	12,00	-	38,00
TD.MI.235.5D	.01	Ø 2,35	-	3,00	12,00	-	38,00
TD.MI.236.5D	.01	Ø 2,36	-	3,00	12,00	-	38,00
TD.MI.237.5D	.01	Ø 2,37	-	3,00	12,00	-	38,00
TD.MI.238.5D	.01	Ø 2,38	-	3,00	12,00	-	38,00
TD.MI.239.5D	.01	Ø 2,39	-	3,00	12,00	-	38,00
TD.MI.240.5D	.01	Ø 2,40	-	3,00	12,00	-	38,00
TD.MI.241.5D	.01	Ø 2,41	-	3,00	12,50	-	38,00
TD.MI.242.5D	.01	Ø 2,42	-	3,00	12,50	-	38,00
TD.MI.243.5D	.01	Ø 2,43	-	3,00	12,50	-	38,00
TD.MI.244.5D	.01	Ø 2,44	-	3,00	12,50	-	38,00
TD.MI.245.5D	.01	Ø 2,45	-	3,00	12,50	-	38,00
TD.MI.246.5D	.01	Ø 2,46	-	3,00	12,50	-	38,00
TD.MI.247.5D	.01	Ø 2,47	-	3,00	12,50	-	38,00
TD.MI.248.5D	.01	Ø 2,48	-	3,00	12,50	-	38,00
TD.MI.249.5D	.01	Ø 2,49	-	3,00	12,50	-	38,00
TD.MI.250.5D	.01	Ø 2,50	-	3,00	12,50	-	38,00
TD.MI.251.5D	.01	Ø 2,51	-	3,00	13,00	-	38,00
TD.MI.252.5D	.01	Ø 2,52	-	3,00	13,00	-	38,00
TD.MI.253.5D	.01	Ø 2,53	-	3,00	13,00	-	38,00
TD.MI.254.5D	.01	Ø 2,54	-	3,00	13,00	-	38,00
TD.MI.255.5D	.01	Ø 2,55	-	3,00	13,00	-	38,00
TD.MI.256.5D	.01	Ø 2,56	-	3,00	13,00	-	38,00
TD.MI.257.5D	.01	Ø 2,57	-	3,00	13,00	-	38,00
TD.MI.258.5D	.01	Ø 2,58	-	3,00	13,00	-	38,00
TD.MI.259.5D	.01	Ø 2,59	-	3,00	13,00	-	38,00
TD.MI.260.5D	.01	Ø 2,60	-	3,00	13,00	-	38,00
TD.MI.261.5D	.01	Ø 2,61	-	3,00	13,50	-	38,00
TD.MI.262.5D	.01	Ø 2,62	-	3,00	13,50	-	38,00
TD.MI.263.5D	.01	Ø 2,63	-	3,00	13,50	-	38,00
TD.MI.264.5D	.01	Ø 2,64	-	3,00	13,50	-	38,00
TD.MI.265.5D	.01	Ø 2,65	-	3,00	13,50	-	38,00
TD.MI.266.5D	.01	Ø 2,66	-	3,00	13,50	-	38,00
TD.MI.267.5D	.01	Ø 2,67	-	3,00	13,50	-	38,00
TD.MI.268.5D	.01	Ø 2,68	-	3,00	13,50	-	38,00
TD.MI.269.5D	.01	Ø 2,69	-	3,00	13,50	-	38,00
TD.MI.270.5D	.01	Ø 2,70	-	3,00	13,50	-	38,00
TD.MI.271.5D	.01	Ø 2,71	-	3,00	14,00	-	38,00
TD.MI.272.5D	.01	Ø 2,72	-	3,00	14,00	-	38,00
TD.MI.273.5D	.01	Ø 2,73	-	3,00	14,00	-	38,00

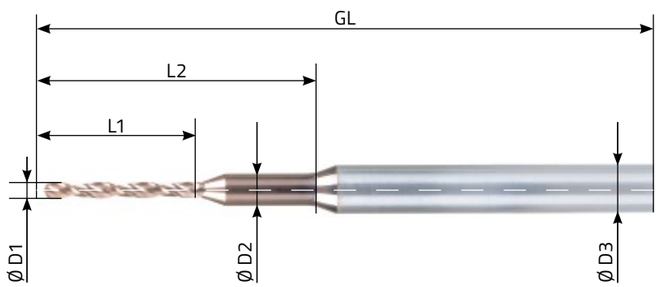
Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.274.5D	.01	Ø 2,74	-	3,00	14,00	-	38,00
TD.MI.275.5D	.01	Ø 2,75	-	3,00	14,00	-	38,00
TD.MI.276.5D	.01	Ø 2,76	-	3,00	14,00	-	38,00
TD.MI.277.5D	.01	Ø 2,77	-	3,00	14,00	-	38,00
TD.MI.278.5D	.01	Ø 2,78	-	3,00	14,00	-	38,00
TD.MI.279.5D	.01	Ø 2,79	-	3,00	14,00	-	38,00
TD.MI.280.5D	.01	Ø 2,80	-	3,00	14,00	-	38,00
TD.MI.281.5D	.01	Ø 2,81	-	3,00	14,50	-	38,00
TD.MI.282.5D	.01	Ø 2,82	-	3,00	14,50	-	38,00
TD.MI.283.5D	.01	Ø 2,83	-	3,00	14,50	-	38,00
TD.MI.284.5D	.01	Ø 2,84	-	3,00	14,50	-	38,00
TD.MI.285.5D	.01	Ø 2,85	-	3,00	14,50	-	38,00
TD.MI.286.5D	.01	Ø 2,86	-	3,00	14,50	-	38,00
TD.MI.287.5D	.01	Ø 2,87	-	3,00	14,50	-	38,00
TD.MI.288.5D	.01	Ø 2,88	-	3,00	14,50	-	38,00
TD.MI.289.5D	.01	Ø 2,89	-	3,00	14,50	-	38,00
TD.MI.290.5D	.01	Ø 2,90	-	3,00	14,50	-	38,00
TD.MI.291.5D	.01	Ø 2,91	-	3,00	15,00	-	38,00
TD.MI.292.5D	.01	Ø 2,92	-	3,00	15,00	-	38,00
TD.MI.293.5D	.01	Ø 2,93	-	3,00	15,00	-	38,00
TD.MI.294.5D	.01	Ø 2,94	-	3,00	15,00	-	38,00
TD.MI.295.5D	.01	Ø 2,95	-	3,00	15,00	-	38,00
TD.MI.296.5D	.01	Ø 2,96	-	3,00	15,00	-	38,00
TD.MI.297.5D	.01	Ø 2,97	-	3,00	15,00	-	38,00
TD.MI.298.5D	.01	Ø 2,98	-	3,00	15,00	-	38,00
TD.MI.299.5D	.01	Ø 2,99	-	3,00	15,00	-	38,00
TD.MI.300.5D	.01	Ø 3,00	-	3,00	15,00	-	38,00

Available from stock

VHM micro-INOX 8xD







- α-INOX coated with suffix .01 or blank
- D1 +0/-0,004 blank & D1 +0/-0,002 coated

5 PRO's of the TARGETDRILL:

- Available from stock; In steps of 0.01 mm from Ø 0,1 to Ø 2,05
- 8xD micro-INOX drill
- Reinforced shank
- Available coated and uncoated
- Excellent price-performance ratio

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.010.8D	.01	Ø 0,10	Ø 1,00	Ø 3,00	0,80	5,00	39,00
TD.MI.011.8D	.01	Ø 0,11	Ø 1,00	Ø 3,00	1,00	5,00	39,00
TD.MI.012.8D	.01	Ø 0,12	Ø 1,00	Ø 3,00	1,00	5,00	39,00
TD.MI.013.8D	.01	Ø 0,13	Ø 1,00	Ø 3,00	1,20	5,00	39,00
TD.MI.014.8D	.01	Ø 0,14	Ø 1,00	Ø 3,00	1,20	5,00	39,00
TD.MI.015.8D	.01	Ø 0,15	Ø 1,00	Ø 3,00	1,30	5,00	39,00
TD.MI.016.8D	.01	Ø 0,16	Ø 1,00	Ø 3,00	1,30	5,00	39,00
TD.MI.017.8D	.01	Ø 0,17	Ø 1,00	Ø 3,00	1,50	5,00	39,00
TD.MI.018.8D	.01	Ø 0,18	Ø 1,00	Ø 3,00	1,50	5,00	39,00
TD.MI.019.8D	.01	Ø 0,19	Ø 1,00	Ø 3,00	1,60	5,00	39,00
TD.MI.020.8D	.01	Ø 0,20	Ø 1,00	Ø 3,00	1,60	7,00	39,00
TD.MI.021.8D	.01	Ø 0,21	Ø 1,00	Ø 3,00	2,00	7,00	39,00
TD.MI.022.8D	.01	Ø 0,22	Ø 1,00	Ø 3,00	2,00	7,00	39,00
TD.MI.023.8D	.01	Ø 0,23	Ø 1,00	Ø 3,00	2,00	7,00	39,00
TD.MI.024.8D	.01	Ø 0,24	Ø 1,00	Ø 3,00	2,00	7,00	39,00
TD.MI.025.8D	.01	Ø 0,25	Ø 1,00	Ø 3,00	2,00	7,00	39,00
TD.MI.026.8D	.01	Ø 0,26	Ø 1,00	Ø 3,00	2,40	7,00	39,00
TD.MI.027.8D	.01	Ø 0,27	Ø 1,00	Ø 3,00	2,40	7,00	39,00
TD.MI.028.8D	.01	Ø 0,28	Ø 1,00	Ø 3,00	2,40	7,00	39,00
TD.MI.029.8D	.01	Ø 0,29	Ø 1,00	Ø 3,00	2,40	7,00	39,00
TD.MI.030.8D	.01	Ø 0,30	Ø 1,00	Ø 3,00	2,40	7,00	39,00
TD.MI.031.8D	.01	Ø 0,31	Ø 1,00	Ø 3,00	2,80	7,00	39,00
TD.MI.032.8D	.01	Ø 0,32	Ø 1,00	Ø 3,00	2,80	7,00	39,00
TD.MI.033.8D	.01	Ø 0,33	Ø 1,00	Ø 3,00	2,80	7,00	39,00
TD.MI.034.8D	.01	Ø 0,34	Ø 1,00	Ø 3,00	2,80	7,00	39,00
TD.MI.035.8D	.01	Ø 0,35	Ø 1,00	Ø 3,00	2,80	7,00	39,00
TD.MI.036.8D	.01	Ø 0,36	Ø 1,00	Ø 3,00	3,20	7,00	39,00
TD.MI.037.8D	.01	Ø 0,37	Ø 1,00	Ø 3,00	3,20	7,00	39,00
TD.MI.038.8D	.01	Ø 0,38	Ø 1,00	Ø 3,00	3,20	7,00	39,00
TD.MI.039.8D	.01	Ø 0,39	Ø 1,00	Ø 3,00	3,20	7,00	39,00
TD.MI.040.8D	.01	Ø 0,40	Ø 1,00	Ø 3,00	3,20	7,00	39,00
TD.MI.041.8D	.01	Ø 0,41	Ø 1,00	Ø 3,00	3,60	7,00	39,00
TD.MI.042.8D	.01	Ø 0,42	Ø 1,00	Ø 3,00	3,60	7,00	39,00
TD.MI.043.8D	.01	Ø 0,43	Ø 1,00	Ø 3,00	3,60	7,00	39,00
TD.MI.044.8D	.01	Ø 0,44	Ø 1,00	Ø 3,00	3,60	7,00	39,00
TD.MI.045.8D	.01	Ø 0,45	Ø 1,00	Ø 3,00	3,60	7,00	39,00
TD.MI.046.8D	.01	Ø 0,46	Ø 1,00	Ø 3,00	4,00	7,00	39,00
TD.MI.047.8D	.01	Ø 0,47	Ø 1,00	Ø 3,00	4,00	7,00	39,00
TD.MI.048.8D	.01	Ø 0,48	Ø 1,00	Ø 3,00	4,00	7,00	39,00
TD.MI.049.8D	.01	Ø 0,49	Ø 1,00	Ø 3,00	4,00	7,00	39,00
TD.MI.050.8D	.01	Ø 0,50	Ø 1,00	Ø 3,00	4,00	15,00	39,00
TD.MI.051.8D	.01	Ø 0,51	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.052.8D	.01	Ø 0,52	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.053.8D	.01	Ø 0,53	Ø 1,00	Ø 3,00	4,80	15,00	39,00

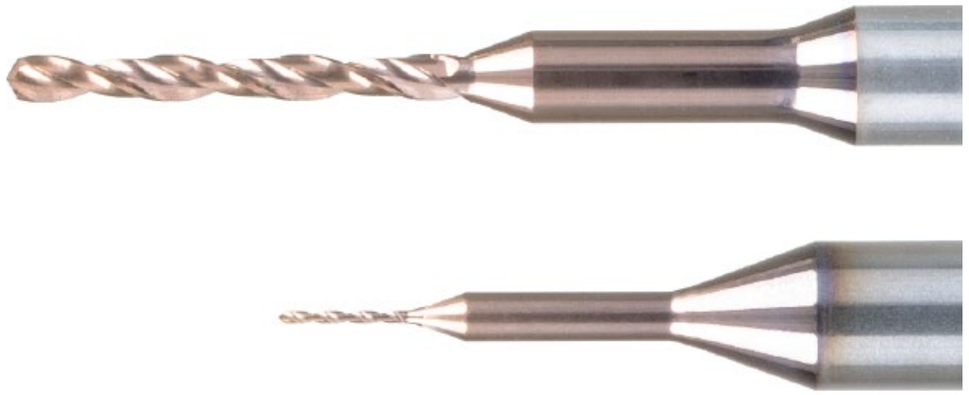
Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.054.8D	.01	Ø 0,54	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.055.8D	.01	Ø 0,55	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.056.8D	.01	Ø 0,56	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.057.8D	.01	Ø 0,57	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.058.8D	.01	Ø 0,58	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.059.8D	.01	Ø 0,59	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.060.8D	.01	Ø 0,60	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.061.8D	.01	Ø 0,61	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.062.8D	.01	Ø 0,62	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.063.8D	.01	Ø 0,63	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.064.8D	.01	Ø 0,64	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.065.8D	.01	Ø 0,65	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.066.8D	.01	Ø 0,66	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.067.8D	.01	Ø 0,67	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.068.8D	.01	Ø 0,68	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.069.8D	.01	Ø 0,69	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.070.8D	.01	Ø 0,70	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.071.8D	.01	Ø 0,71	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.072.8D	.01	Ø 0,72	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.073.8D	.01	Ø 0,73	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.074.8D	.01	Ø 0,74	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.075.8D	.01	Ø 0,75	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.076.8D	.01	Ø 0,76	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.077.8D	.01	Ø 0,77	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.078.8D	.01	Ø 0,78	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.079.8D	.01	Ø 0,79	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.080.8D	.01	Ø 0,80	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.081.8D	.01	Ø 0,81	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.082.8D	.01	Ø 0,82	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.083.8D	.01	Ø 0,83	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.084.8D	.01	Ø 0,84	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.085.8D	.01	Ø 0,85	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.086.8D	.01	Ø 0,86	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.087.8D	.01	Ø 0,87	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.088.8D	.01	Ø 0,88	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.089.8D	.01	Ø 0,89	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.090.8D	.01	Ø 0,90	Ø 1,50	Ø 3,00	7,20	15,00	39,00
TD.MI.091.8D	.01	Ø 0,91	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.092.8D	.01	Ø 0,92	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.093.8D	.01	Ø 0,93	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.094.8D	.01	Ø 0,94	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.095.8D	.01	Ø 0,95	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.096.8D	.01	Ø 0,96	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.097.8D	.01	Ø 0,97	Ø 1,50	Ø 3,00	8,00	15,00	39,00

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.098.8D	.01	Ø 0,98	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.099.8D	.01	Ø 0,99	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.100.8D	.01	Ø 1,00	Ø 1,50	Ø 3,00	8,00	15,00	39,00
TD.MI.101.8D	.01	Ø 1,01	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.102.8D	.01	Ø 1,02	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.103.8D	.01	Ø 1,03	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.104.8D	.01	Ø 1,04	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.105.8D	.01	Ø 1,05	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.106.8D	.01	Ø 1,06	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.107.8D	.01	Ø 1,07	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.108.8D	.01	Ø 1,08	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.109.8D	.01	Ø 1,09	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.110.8D	.01	Ø 1,10	Ø 1,50	Ø 3,00	8,80	15,00	39,00
TD.MI.111.8D	.01	Ø 1,11	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.112.8D	.01	Ø 1,12	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.113.8D	.01	Ø 1,13	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.114.8D	.01	Ø 1,14	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.115.8D	.01	Ø 1,15	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.116.8D	.01	Ø 1,16	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.117.8D	.01	Ø 1,17	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.118.8D	.01	Ø 1,18	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.119.8D	.01	Ø 1,19	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.120.8D	.01	Ø 1,20	Ø 1,50	Ø 3,00	9,60	15,00	39,00
TD.MI.121.8D	.01	Ø 1,21	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.122.8D	.01	Ø 1,22	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.123.8D	.01	Ø 1,23	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.124.8D	.01	Ø 1,24	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.125.8D	.01	Ø 1,25	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.126.8D	.01	Ø 1,26	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.127.8D	.01	Ø 1,27	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.128.8D	.01	Ø 1,28	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.129.8D	.01	Ø 1,29	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.130.8D	.01	Ø 1,30	Ø 1,50	Ø 3,00	10,40	15,00	39,00
TD.MI.131.8D	.01	Ø 1,31	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.132.8D	.01	Ø 1,32	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.133.8D	.01	Ø 1,33	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.134.8D	.01	Ø 1,34	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.135.8D	.01	Ø 1,35	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.136.8D	.01	Ø 1,36	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.137.8D	.01	Ø 1,37	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.138.8D	.01	Ø 1,38	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.139.8D	.01	Ø 1,39	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.140.8D	.01	Ø 1,40	Ø 1,50	Ø 3,00	11,20	15,00	39,00
TD.MI.141.8D	.01	Ø 1,41	Ø 1,50	Ø 3,00	11,20	12,00	39,00

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.142.8D	.01	Ø 1,42	Ø 1,50	Ø 3,00	11,20	12,00	39,00
TD.MI.143.8D	.01	Ø 1,43	Ø 1,50	Ø 3,00	11,20	12,00	39,00
TD.MI.144.8D	.01	Ø 1,44	Ø 1,50	Ø 3,00	11,20	12,00	39,00
TD.MI.145.8D	.01	Ø 1,45	Ø 1,50	Ø 3,00	11,20	12,00	39,00
TD.MI.146.8D	.01	Ø 1,46	Ø 1,50	Ø 3,00	11,20	12,00	39,00
TD.MI.147.8D	.01	Ø 1,47	Ø 1,50	Ø 3,00	11,20	12,00	39,00
TD.MI.148.8D	.01	Ø 1,48	Ø 1,50	Ø 3,00	11,20	12,00	39,00
TD.MI.149.8D	.01	Ø 1,49	Ø 1,50	Ø 3,00	11,20	12,00	39,00
TD.MI.150.8D	.01	Ø 1,50	-	Ø 3,00	12,00	-	39,00
TD.MI.151.8D	.01	Ø 1,51	-	Ø 3,00	12,80	-	39,00
TD.MI.152.8D	.01	Ø 1,52	-	Ø 3,00	12,80	-	39,00
TD.MI.153.8D	.01	Ø 1,53	-	Ø 3,00	12,80	-	39,00
TD.MI.154.8D	.01	Ø 1,54	-	Ø 3,00	12,80	-	39,00
TD.MI.155.8D	.01	Ø 1,55	-	Ø 3,00	12,80	-	39,00
TD.MI.156.8D	.01	Ø 1,56	-	Ø 3,00	12,80	-	39,00
TD.MI.157.8D	.01	Ø 1,57	-	Ø 3,00	12,80	-	39,00
TD.MI.158.8D	.01	Ø 1,58	-	Ø 3,00	12,80	-	39,00
TD.MI.159.8D	.01	Ø 1,59	-	Ø 3,00	12,80	-	39,00
TD.MI.160.8D	.01	Ø 1,60	-	Ø 3,00	12,80	-	39,00
TD.MI.161.8D	.01	Ø 1,61	-	Ø 3,00	13,60	-	39,00
TD.MI.162.8D	.01	Ø 1,62	-	Ø 3,00	13,60	-	39,00
TD.MI.163.8D	.01	Ø 1,63	-	Ø 3,00	13,60	-	39,00
TD.MI.164.8D	.01	Ø 1,64	-	Ø 3,00	13,60	-	39,00
TD.MI.165.8D	.01	Ø 1,65	-	Ø 3,00	13,60	-	39,00
TD.MI.166.8D	.01	Ø 1,66	-	Ø 3,00	13,60	-	39,00
TD.MI.167.8D	.01	Ø 1,67	-	Ø 3,00	13,60	-	39,00
TD.MI.168.8D	.01	Ø 1,68	-	Ø 3,00	13,60	-	39,00
TD.MI.169.8D	.01	Ø 1,69	-	Ø 3,00	13,60	-	39,00
TD.MI.170.8D	.01	Ø 1,70	-	Ø 3,00	13,60	-	39,00
TD.MI.171.8D	.01	Ø 1,71	-	Ø 3,00	14,40	-	39,00
TD.MI.172.8D	.01	Ø 1,72	-	Ø 3,00	14,40	-	39,00
TD.MI.173.8D	.01	Ø 1,73	-	Ø 3,00	14,40	-	39,00
TD.MI.174.8D	.01	Ø 1,74	-	Ø 3,00	14,40	-	39,00
TD.MI.175.8D	.01	Ø 1,75	-	Ø 3,00	14,40	-	39,00
TD.MI.176.8D	.01	Ø 1,76	-	Ø 3,00	14,40	-	39,00
TD.MI.177.8D	.01	Ø 1,77	-	Ø 3,00	14,40	-	39,00
TD.MI.178.8D	.01	Ø 1,78	-	Ø 3,00	14,40	-	39,00
TD.MI.179.8D	.01	Ø 1,79	-	Ø 3,00	14,40	-	39,00
TD.MI.180.8D	.01	Ø 1,80	-	Ø 3,00	14,40	-	39,00
TD.MI.181.8D	.01	Ø 1,81	-	Ø 3,00	15,20	-	39,00
TD.MI.182.8D	.01	Ø 1,82	-	Ø 3,00	15,20	-	39,00
TD.MI.183.8D	.01	Ø 1,83	-	Ø 3,00	15,20	-	39,00
TD.MI.184.8D	.01	Ø 1,84	-	Ø 3,00	15,20	-	39,00
TD.MI.185.8D	.01	Ø 1,85	-	Ø 3,00	15,20	-	39,00

Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.186.8D	.01	Ø 1,86	-	Ø 3,00	15,20	-	39,00
TD.MI.187.8D	.01	Ø 1,87	-	Ø 3,00	15,20	-	39,00
TD.MI.188.8D	.01	Ø 1,88	-	Ø 3,00	15,20	-	39,00
TD.MI.189.8D	.01	Ø 1,89	-	Ø 3,00	15,20	-	39,00
TD.MI.190.8D	.01	Ø 1,90	-	Ø 3,00	15,20	-	39,00
TD.MI.191.8D	.01	Ø 1,91	-	Ø 3,00	16,00	-	39,00
TD.MI.192.8D	.01	Ø 1,92	-	Ø 3,00	16,00	-	39,00
TD.MI.193.8D	.01	Ø 1,93	-	Ø 3,00	16,00	-	39,00
TD.MI.194.8D	.01	Ø 1,94	-	Ø 3,00	16,00	-	39,00
TD.MI.195.8D	.01	Ø 1,95	-	Ø 3,00	16,00	-	39,00
TD.MI.196.8D	.01	Ø 1,96	-	Ø 3,00	16,00	-	39,00
TD.MI.197.8D	.01	Ø 1,97	-	Ø 3,00	16,00	-	39,00
TD.MI.198.8D	.01	Ø 1,98	-	Ø 3,00	16,00	-	39,00
TD.MI.199.8D	.01	Ø 1,99	-	Ø 3,00	16,00	-	39,00
TD.MI.200.8D	.01	Ø 2,00	-	Ø 3,00	16,00	-	39,00
TD.MI.201.8D	.01	Ø 2,01	-	Ø 3,00	16,80	-	39,00
TD.MI.202.8D	.01	Ø 2,02	-	Ø 3,00	16,80	-	39,00
TD.MI.203.8D	.01	Ø 2,03	-	Ø 3,00	16,80	-	39,00
TD.MI.204.8D	.01	Ø 2,04	-	Ø 3,00	16,80	-	39,00
TD.MI.205.8D	.01	Ø 2,05	-	Ø 3,00	16,80	-	39,00

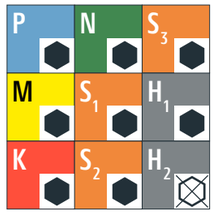
Available from stock



Cutting data - TARGETDRILL micro-INOX

HB microtec ACTIONTOOLS & ENGINEERING

TARGETDRILL®
by HB microtec micro-INOX 3xD
by HB microtec micro-INOX 5xD
by HB microtec micro-INOX 8xD



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation ⬢ Very well suited ⬡ Conditionally suited ⊠ Not recommended

Ø 0,1 - 0,5 mm		Ø 0,5 - 1,0 mm		Ø 1,0 - 1,2 mm		Ø 1,5 - 2,05 mm	
vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]
30-80	0,004 - 0,01	30-80	0,012- 0,046	40-100	0,015- 0,066	40-100	0,020 - 0,07
30-80	0,004 - 0,01	30-80	0,018- 0,026	40-120	0,015- 0,056	40-120	0,020 - 0,74
30-100	0,004 - 0,01	30-100	0,009 - 0,016	40-120	0,015 - 0,04	40-120	0,020 - 0,080
30-80	0,004 - 0,01	30-80	0,008 - 0,020	40-80	0,014 - 0,038	40-80	0,020 - 0,070
40-100	0,007 - 0,014	40-100	0,01 - 0,042	40-120	0,016 - 0,042	40-120	0,03 - 0,11
30-100	0,007 - 0,016	30-100	0,012 - 0,046	40-120	0,13 - 0,066	40-120	0,035 - 0,12
30-110	0,007 - 0,016	30-110	0,01 - 0,068	40-120	0,013 - 0,088	40-120	0,035 - 0,130
30-120	0,007 - 0,014	30-120	0,01 - 0,048	40-120	0,014 - 0,088	40-120	0,035 - 0,120
15 - 50	0,007 - 0,01	15 - 50	0,008 - 0,045	15 - 50	0,015 - 0,045	15 - 50	0,040 - 0,092
15 - 50	0,007 - 0,01	15 - 50	0,008 - 0,045	15 - 50	0,015 - 0,045	15 - 50	0,040 - 0,120
15 - 50	0,007 - 0,01	15 - 50	0,008 - 0,024	15 - 50	0,01 - 0,024	15 - 50	0,035 - 0,092
15-32	0,003 - 0,009	15-32	0,004 - 0,009	15-32	0,006 - 0,009	15-32	0,006 - 0,012
No data entered							

TARGETDRILL® by HB microtec INOX cooled

Pilotdrill
from Ø 1,0 m5
to Ø 6,0 m5

6xD to 18xD drill
from Ø 1,0 k5
to Ø 6,0 k5

In steps of 0,05 mm
from Ø 1,0 to Ø 4,0
In steps of 0,10 mm
from Ø 4,0 to Ø 6,0

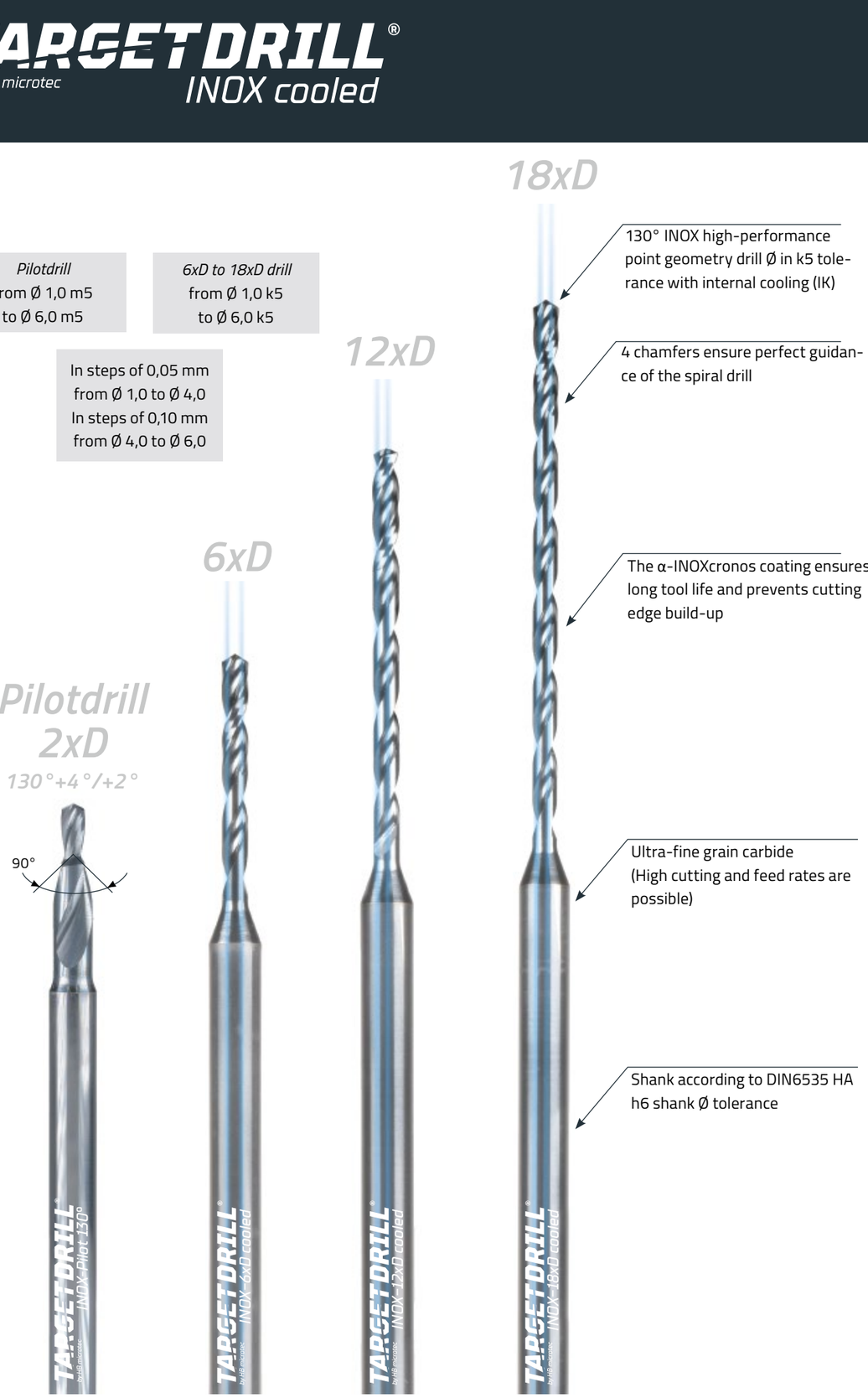
18xD

12xD

6xD

Pilotdrill
2xD
130°+4°/+2°

90°



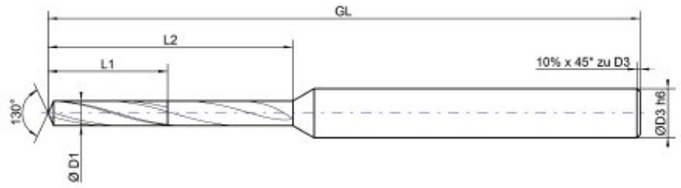
130° INOX high-performance point geometry drill Ø in k5 tolerance with internal cooling (IK)

4 chamfers ensure perfect guidance of the spiral drill

The α-INOXcronos coating ensures long tool life and prevents cutting edge build-up

Ultra-fine grain carbide
(High cutting and feed rates are possible)

Shank according to DIN6535 HA
h6 shank Ø tolerance



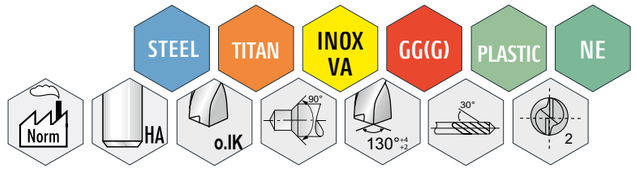
☐ **Inquiry**

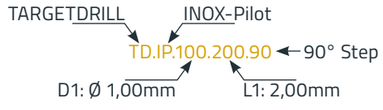
☐ **Order** **Order number:** _____ **Other:** _____

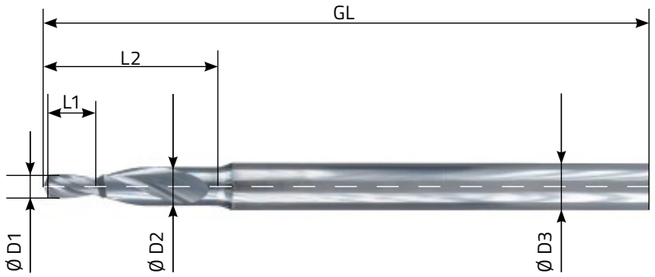
Dimensions: D_1: _____ GL: _____ α: _____ D_3: _____ L_1: _____ β: _____ L_2: _____ z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

INOX-Pilot 130°







- α-INOXcronos coated

5 PRO's of the TARGETDRILL:

- Combination tool: centering + drilling + chamfering
- Perfect positional accuracy
- 2xD drilling + flutes
- Pilot drill (tolerance Øm5) for deep-hole drilling
- Shorter process times and high process reliability

Article number	D1 m5 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.IP.100.200.90	Ø 1,00	Ø 1,80	Ø 4,00	2,00	7,30	45,00
TD.IP.105.210.90	Ø 1,05	Ø 1,80	Ø 4,00	2,10	7,70	45,00
TD.IP.110.220.90	Ø 1,10	Ø 1,80	Ø 4,00	2,20	8,05	45,00
TD.IP.115.230.90	Ø 1,15	Ø 1,80	Ø 4,00	2,30	8,40	45,00
TD.IP.120.240.90	Ø 1,20	Ø 2,10	Ø 4,00	2,40	8,80	45,00
TD.IP.125.250.90	Ø 1,25	Ø 2,10	Ø 4,00	2,50	9,15	45,00
TD.IP.130.260.90	Ø 1,30	Ø 2,10	Ø 4,00	2,60	9,50	45,00
TD.IP.135.270.90	Ø 1,35	Ø 2,10	Ø 4,00	2,70	9,90	45,00
TD.IP.140.280.90	Ø 1,40	Ø 2,10	Ø 4,00	2,80	10,25	45,00
TD.IP.145.290.90	Ø 1,45	Ø 2,45	Ø 4,00	2,90	10,60	45,00
TD.IP.150.300.90	Ø 1,50	Ø 2,45	Ø 4,00	3,00	10,95	48,00
TD.IP.155.310.90	Ø 1,55	Ø 2,45	Ø 4,00	3,10	11,35	48,00
TD.IP.160.320.90	Ø 1,60	Ø 2,45	Ø 4,00	3,20	11,70	48,00
TD.IP.165.330.90	Ø 1,65	Ø 2,45	Ø 4,00	3,30	12,05	48,00
TD.IP.170.340.90	Ø 1,70	Ø 2,80	Ø 4,00	3,40	12,45	48,00
TD.IP.175.350.90	Ø 1,75	Ø 2,80	Ø 4,00	3,50	12,80	48,00
TD.IP.180.360.90	Ø 1,80	Ø 2,80	Ø 4,00	3,60	13,15	48,00
TD.IP.185.370.90	Ø 1,85	Ø 2,80	Ø 4,00	3,70	13,55	48,00
TD.IP.190.380.90	Ø 1,90	Ø 2,80	Ø 4,00	3,80	13,90	48,00
TD.IP.195.390.90	Ø 1,95	Ø 2,80	Ø 4,00	3,90	14,25	48,00
TD.IP.200.400.90	Ø 2,00	Ø 3,30	Ø 4,00	4,00	14,60	52,00
TD.IP.205.410.90	Ø 2,05	Ø 3,30	Ø 4,00	4,10	15,00	52,00
TD.IP.210.420.90	Ø 2,10	Ø 3,30	Ø 4,00	4,20	15,35	52,00
TD.IP.215.430.90	Ø 2,15	Ø 3,30	Ø 4,00	4,30	15,70	52,00
TD.IP.220.440.90	Ø 2,20	Ø 3,30	Ø 4,00	4,40	16,10	52,00
TD.IP.225.450.90	Ø 2,25	Ø 3,30	Ø 4,00	4,50	16,45	52,00
TD.IP.230.460.90	Ø 2,30	Ø 3,60	Ø 4,00	4,60	16,80	52,00
TD.IP.235.470.90	Ø 2,35	Ø 3,60	Ø 4,00	4,70	17,20	52,00
TD.IP.240.480.90	Ø 2,40	Ø 3,60	Ø 4,00	4,80	17,55	52,00
TD.IP.245.490.90	Ø 2,45	Ø 3,60	Ø 4,00	4,90	17,90	52,00
TD.IP.250.500.90	Ø 2,50	Ø 3,60	Ø 4,00	5,00	18,25	56,00
TD.IP.255.510.90	Ø 2,55	Ø 3,60	Ø 4,00	5,10	18,65	56,00
TD.IP.260.520.90	Ø 2,60	Ø 4,00	Ø 4,00	5,20	-	56,00
TD.IP.265.530.90	Ø 2,65	Ø 4,00	Ø 4,00	5,30	-	56,00
TD.IP.270.540.90	Ø 2,70	Ø 4,00	Ø 4,00	5,40	-	56,00
TD.IP.275.550.90	Ø 2,75	Ø 4,00	Ø 4,00	5,50	-	56,00
TD.IP.280.560.90	Ø 2,80	Ø 4,00	Ø 4,00	5,60	-	56,00
TD.IP.285.570.90	Ø 2,85	Ø 4,00	Ø 4,00	5,70	-	56,00
TD.IP.290.580.90	Ø 2,90	Ø 4,00	Ø 4,00	5,80	-	56,00
TD.IP.295.590.90	Ø 2,95	Ø 4,00	Ø 4,00	5,90	-	56,00
TD.IP.300.600.90	Ø 3,00	Ø 4,80	Ø 6,00	6,00	21,90	60,00
TD.IP.305.610.90	Ø 3,05	Ø 4,80	Ø 6,00	6,10	22,30	60,00

Available from stock

TARGETDRILL® by HB microtec INOX-Pilot 130°

HB microtec® ACTIONTOOLS & ENGINEERING

Article number	D1 m5 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.IP.310.620.90	Ø 3,10	Ø 4,80	Ø 6,00	6,20	22,65	60,00
TD.IP.315.630.90	Ø 3,15	Ø 4,80	Ø 6,00	6,30	23,00	60,00
TD.IP.320.640.90	Ø 3,20	Ø 4,80	Ø 6,00	6,40	23,40	60,00
TD.IP.325.650.90	Ø 3,25	Ø 4,80	Ø 6,00	6,50	23,75	60,00
TD.IP.330.660.90	Ø 3,30	Ø 4,80	Ø 6,00	6,60	24,10	60,00
TD.IP.335.670.90	Ø 3,35	Ø 4,80	Ø 6,00	6,70	24,50	60,00
TD.IP.340.680.90	Ø 3,40	Ø 4,80	Ø 6,00	6,80	24,85	60,00
TD.IP.345.690.90	Ø 3,45	Ø 4,80	Ø 6,00	6,90	25,20	60,00
TD.IP.350.700.90	Ø 3,50	Ø 5,50	Ø 6,00	7,00	25,55	65,00
TD.IP.355.710.90	Ø 3,55	Ø 5,50	Ø 6,00	7,10	25,95	65,00
TD.IP.360.720.90	Ø 3,60	Ø 5,50	Ø 6,00	7,20	26,30	65,00
TD.IP.365.730.90	Ø 3,65	Ø 5,50	Ø 6,00	7,30	26,65	65,00
TD.IP.370.740.90	Ø 3,70	Ø 5,50	Ø 6,00	7,40	27,05	65,00
TD.IP.375.750.90	Ø 3,75	Ø 5,50	Ø 6,00	7,50	27,40	70,00
TD.IP.380.760.90	Ø 3,80	Ø 5,50	Ø 6,00	7,60	27,75	70,00
TD.IP.385.770.90	Ø 3,85	Ø 5,50	Ø 6,00	7,70	28,15	70,00
TD.IP.390.780.90	Ø 3,90	Ø 5,50	Ø 6,00	7,80	28,50	70,00
TD.IP.395.790.90	Ø 3,95	Ø 5,50	Ø 6,00	7,90	28,85	70,00
TD.IP.400.800.90	Ø 4,00	Ø 5,50	Ø 6,00	8,00	29,20	70,00
TD.IP.410.820.90	Ø 4,10	Ø 6,00	Ø 6,00	8,20	-	75,00
TD.IP.420.840.90	Ø 4,20	Ø 6,00	Ø 6,00	8,40	-	75,00
TD.IP.430.860.90	Ø 4,30	Ø 6,00	Ø 6,00	8,60	-	75,00
TD.IP.440.880.90	Ø 4,40	Ø 6,00	Ø 6,00	8,80	-	75,00
TD.IP.450.900.90	Ø 4,50	Ø 6,00	Ø 6,00	9,00	-	75,00
TD.IP.460.920.90	Ø 4,60	Ø 6,00	Ø 6,00	9,20	-	75,00
TD.IP.470.940.90	Ø 4,70	Ø 6,00	Ø 6,00	9,40	-	75,00
TD.IP.480.960.90	Ø 4,80	Ø 6,00	Ø 6,00	9,60	-	75,00
TD.IP.490.980.90	Ø 4,90	Ø 6,00	Ø 6,00	9,80	-	75,00
TD.IP.500.1000.90	Ø 5,00	Ø 8,00	Ø 8,00	10,00	-	80,00
TD.IP.510.1020.90	Ø 5,10	Ø 8,00	Ø 8,00	10,20	-	80,00
TD.IP.520.1040.90	Ø 5,20	Ø 8,00	Ø 8,00	10,40	-	80,00
TD.IP.530.1060.90	Ø 5,30	Ø 8,00	Ø 8,00	10,60	-	80,00
TD.IP.540.1080.90	Ø 5,40	Ø 8,00	Ø 8,00	10,80	-	80,00
TD.IP.550.1100.90	Ø 5,50	Ø 8,00	Ø 8,00	11,00	-	80,00
TD.IP.560.1120.90	Ø 5,60	Ø 8,00	Ø 8,00	11,20	-	80,00
TD.IP.570.1140.90	Ø 5,70	Ø 8,00	Ø 8,00	11,40	-	80,00
TD.IP.580.1160.90	Ø 5,80	Ø 8,00	Ø 8,00	11,60	-	80,00
TD.IP.590.1180.90	Ø 5,90	Ø 8,00	Ø 8,00	11,80	-	80,00
TD.IP.600.1200.90	Ø 6,00	Ø 8,00	Ø 8,00	12,00	-	80,00

130° α-INOX
High-performance point geometry, self-centering

The high-performance α-INOXcronos coating ensures long service life and prevents cutting edge build-up

90°

2xD drilling depth with 90° chamfer cutting edge

from Ø 1,0 m5 to Ø 6,0 m5

In steps of 0,05 mm from Ø 1,0 to Ø 4,0

In steps of 0,1 mm from Ø 4,0 to Ø 6,0

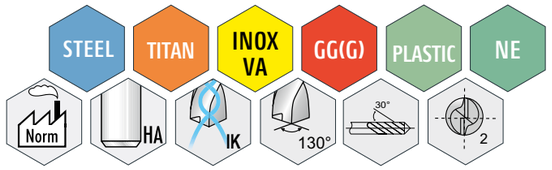
Pilotdrill 2xD

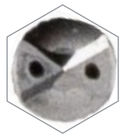
130°+4°/+2°

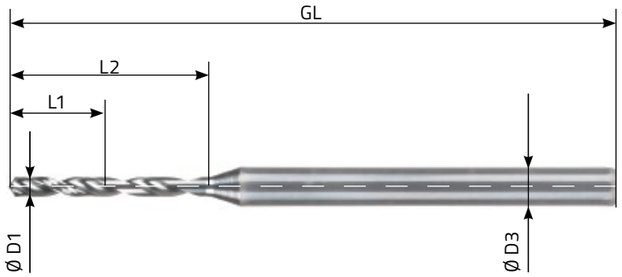
Ultra-fine grain carbide (high cutting and feed rates possible)

Shank according to DIN6535 HA, h6 shank Ø tolerance

INOX-6xD cooled







- α-INOXcronos coated

5 PRO's of the TARGETDRILL:

- Self-centring
- Perfect alignment accuracy - 6xD with 4 flutes
- High cutting and feed speeds possible
- High performance & positioning accuracy
- A plus for your process reliability and quality

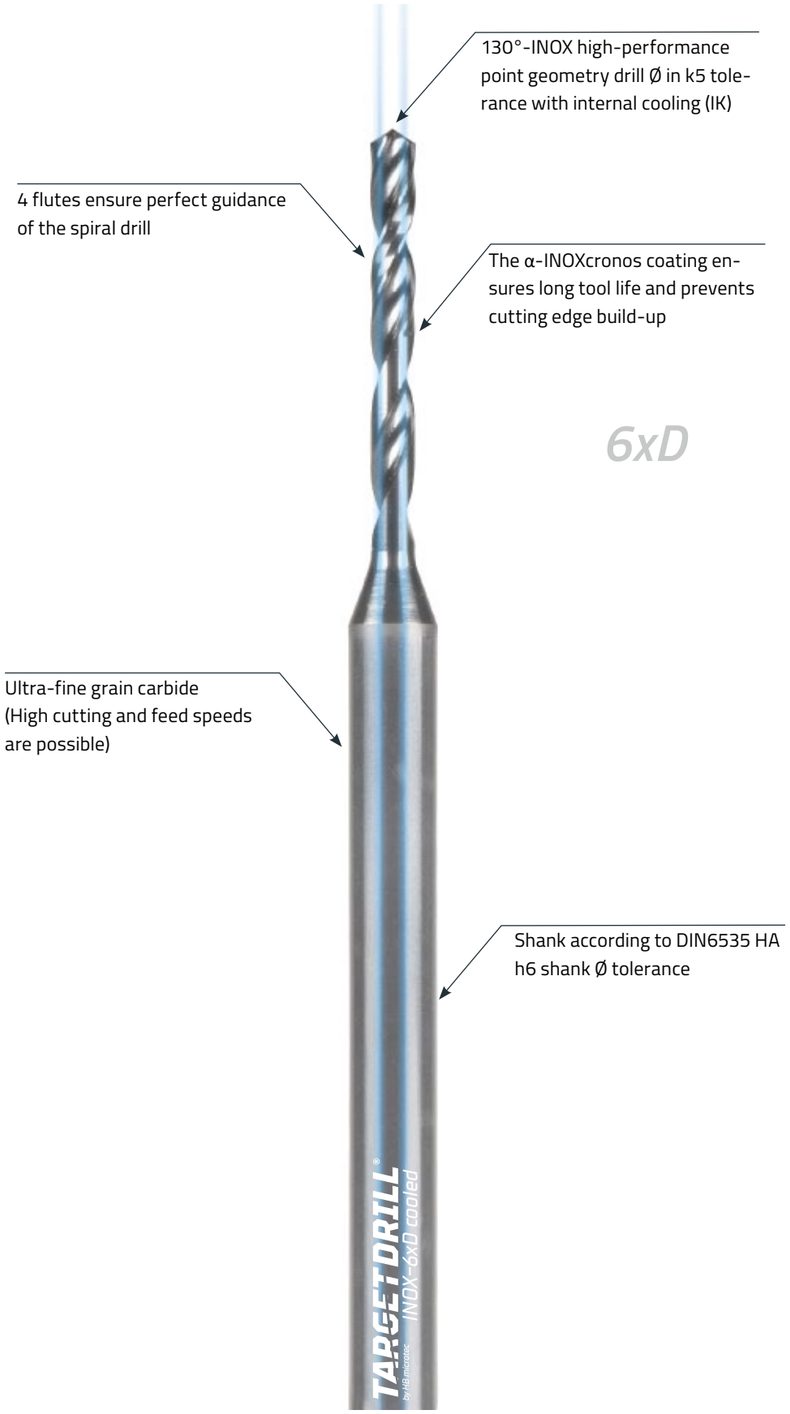
Article number	D1 k5 (mm)	D3 h6 (mm)	L1 [4-Flutes] (mm)	L2 [Spiral slot] (mm)	GL (mm)
TD.100.IK.6D	Ø 1,00	Ø 3,00	4,40	9,00	50,00
TD.105.IK.6D	Ø 1,05	Ø 3,00	4,65	9,45	50,00
TD.110.IK.6D	Ø 1,10	Ø 3,00	4,85	9,90	50,00
TD.115.IK.6D	Ø 1,15	Ø 3,00	5,10	10,35	50,00
TD.120.IK.6D	Ø 1,20	Ø 3,00	5,30	10,80	50,00
TD.125.IK.6D	Ø 1,25	Ø 3,00	5,50	11,25	50,00
TD.130.IK.6D	Ø 1,30	Ø 3,00	5,75	11,70	52,00
TD.135.IK.6D	Ø 1,35	Ø 3,00	5,95	12,15	52,00
TD.140.IK.6D	Ø 1,40	Ø 3,00	6,20	12,60	52,00
TD.145.IK.6D	Ø 1,45	Ø 3,00	6,40	13,05	52,00
TD.150.IK.6D	Ø 1,50	Ø 3,00	6,60	13,50	52,00
TD.155.IK.6D	Ø 1,55	Ø 3,00	6,85	13,95	55,00
TD.160.IK.6D	Ø 1,60	Ø 3,00	7,05	14,40	55,00
TD.165.IK.6D	Ø 1,65	Ø 3,00	7,30	14,85	55,00
TD.170.IK.6D	Ø 1,70	Ø 3,00	7,50	15,30	55,00
TD.175.IK.6D	Ø 1,75	Ø 3,00	7,70	15,75	55,00
TD.180.IK.6D	Ø 1,80	Ø 3,00	7,95	16,20	57,00
TD.185.IK.6D	Ø 1,85	Ø 3,00	8,15	16,65	57,00
TD.190.IK.6D	Ø 1,90	Ø 3,00	8,40	17,10	57,00
TD.195.IK.6D	Ø 1,95	Ø 3,00	8,60	17,55	57,00
TD.200.IK.6D	Ø 2,00	Ø 4,00	8,80	18,00	57,00
TD.205.IK.6D	Ø 2,05	Ø 4,00	9,05	18,45	60,00
TD.210.IK.6D	Ø 2,10	Ø 4,00	9,25	18,90	60,00
TD.215.IK.6D	Ø 2,15	Ø 4,00	9,50	19,35	60,00
TD.220.IK.6D	Ø 2,20	Ø 4,00	9,70	19,80	60,00
TD.225.IK.6D	Ø 2,25	Ø 4,00	9,90	20,25	60,00
TD.230.IK.6D	Ø 2,30	Ø 4,00	10,15	20,70	62,00
TD.235.IK.6D	Ø 2,35	Ø 4,00	10,35	21,15	62,00
TD.240.IK.6D	Ø 2,40	Ø 4,00	10,60	21,60	62,00
TD.245.IK.6D	Ø 2,45	Ø 4,00	10,80	22,05	62,00
TD.250.IK.6D	Ø 2,50	Ø 4,00	11,00	22,50	62,00
TD.255.IK.6D	Ø 2,55	Ø 4,00	11,25	22,95	65,00
TD.260.IK.6D	Ø 2,60	Ø 4,00	11,45	23,40	65,00
TD.265.IK.6D	Ø 2,65	Ø 4,00	11,70	23,85	65,00
TD.270.IK.6D	Ø 2,70	Ø 4,00	11,90	24,30	65,00
TD.275.IK.6D	Ø 2,75	Ø 4,00	12,10	24,75	65,00
TD.280.IK.6D	Ø 2,80	Ø 4,00	12,35	25,20	67,00
TD.285.IK.6D	Ø 2,85	Ø 4,00	12,55	25,65	67,00
TD.290.IK.6D	Ø 2,90	Ø 4,00	12,80	26,10	67,00
TD.295.IK.6D	Ø 2,95	Ø 4,00	13,00	26,55	67,00
TD.300.IK.6D	Ø 3,00	Ø 6,00	13,20	27,00	70,00
TD.305.IK.6D	Ø 3,05	Ø 6,00	13,45	27,45	70,00
TD.310.IK.6D	Ø 3,10	Ø 6,00	13,65	27,90	70,00
TD.315.IK.6D	Ø 3,15	Ø 6,00	13,90	28,35	70,00
TD.320.IK.6D	Ø 3,20	Ø 6,00	14,10	28,80	70,00

TARGETDRILL®
by HB microtec
INOX-6xD cooled

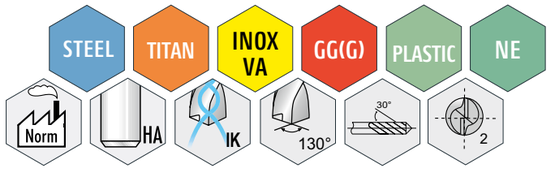
HB Microtec® ACTIONTOOLS & ENGINEERING

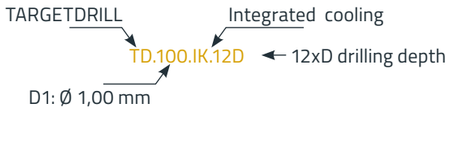
Article number	D1 k5 (mm)	D3 h6 (mm)	L1 [4-Flutes] (mm)	L2 [Spiral slot] (mm)	GL (mm)
TD.325.IK.6D	Ø 3,25	Ø 6,00	14,30	29,25	70,00
TD.330.IK.6D	Ø 3,30	Ø 6,00	14,55	29,70	72,00
TD.335.IK.6D	Ø 3,35	Ø 6,00	14,75	30,15	72,00
TD.340.IK.6D	Ø 3,40	Ø 6,00	15,00	30,60	72,00
TD.345.IK.6D	Ø 3,45	Ø 6,00	15,20	31,05	72,00
TD.350.IK.6D	Ø 3,50	Ø 6,00	15,40	31,50	72,00
TD.355.IK.6D	Ø 3,55	Ø 6,00	15,65	31,95	75,00
TD.360.IK.6D	Ø 3,60	Ø 6,00	15,85	32,40	75,00
TD.365.IK.6D	Ø 3,65	Ø 6,00	16,10	32,85	75,00
TD.370.IK.6D	Ø 3,70	Ø 6,00	16,30	33,30	75,00
TD.375.IK.6D	Ø 3,75	Ø 6,00	16,50	33,75	75,00
TD.380.IK.6D	Ø 3,80	Ø 6,00	16,75	34,20	77,00
TD.385.IK.6D	Ø 3,85	Ø 6,00	16,95	34,65	77,00
TD.390.IK.6D	Ø 3,90	Ø 6,00	17,20	35,10	77,00
TD.395.IK.6D	Ø 3,95	Ø 6,00	17,40	35,55	77,00
TD.400.IK.6D	Ø 4,00	Ø 6,00	17,60	36,00	80,00
TD.410.IK.6D	Ø 4,10	Ø 6,00	18,05	36,90	80,00
TD.420.IK.6D	Ø 4,20	Ø 6,00	18,50	37,80	80,00
TD.430.IK.6D	Ø 4,30	Ø 6,00	18,95	38,70	80,00
TD.440.IK.6D	Ø 4,40	Ø 6,00	19,40	39,60	80,00
TD.450.IK.6D	Ø 4,50	Ø 6,00	19,80	40,50	80,00
TD.460.IK.6D	Ø 4,60	Ø 6,00	20,25	41,40	85,00
TD.470.IK.6D	Ø 4,70	Ø 6,00	20,70	42,30	85,00
TD.480.IK.6D	Ø 4,80	Ø 6,00	21,15	43,20	85,00
TD.490.IK.6D	Ø 4,90	Ø 6,00	21,60	44,10	85,00
TD.500.IK.6D	Ø 5,00	Ø 6,00	22,00	45,00	85,00
TD.510.IK.6D	Ø 5,10	Ø 6,00	22,45	45,90	90,00
TD.520.IK.6D	Ø 5,20	Ø 6,00	22,90	46,80	90,00
TD.530.IK.6D	Ø 5,30	Ø 6,00	23,35	47,70	90,00
TD.540.IK.6D	Ø 5,40	Ø 6,00	23,80	48,60	90,00
TD.550.IK.6D	Ø 5,50	Ø 6,00	24,20	49,50	90,00
TD.560.IK.6D	Ø 5,60	Ø 6,00	24,65	50,40	95,00
TD.570.IK.6D	Ø 5,70	Ø 6,00	25,10	51,30	95,00
TD.580.IK.6D	Ø 5,80	Ø 6,00	25,55	52,20	95,00
TD.590.IK.6D	Ø 5,90	Ø 6,00	26,00	53,10	95,00
TD.600.IK.6D	Ø 6,00	Ø 6,00	26,40	54,00	95,00

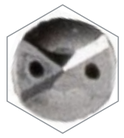
Available from stock

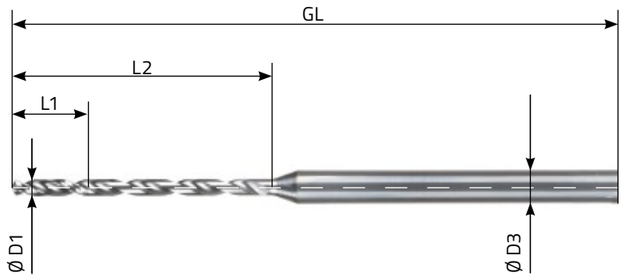


INOX-12xD cooled









- α-INOXcronos coated

5 PRO's of the TARGETDRILL:

- Twisted deep hole drill with IK
- Perfect alignment accuracy - 12xD with 4 flutes
- High cutting and feed speeds possible
- High performance & positioning accuracy
- A plus for your process reliability and quality

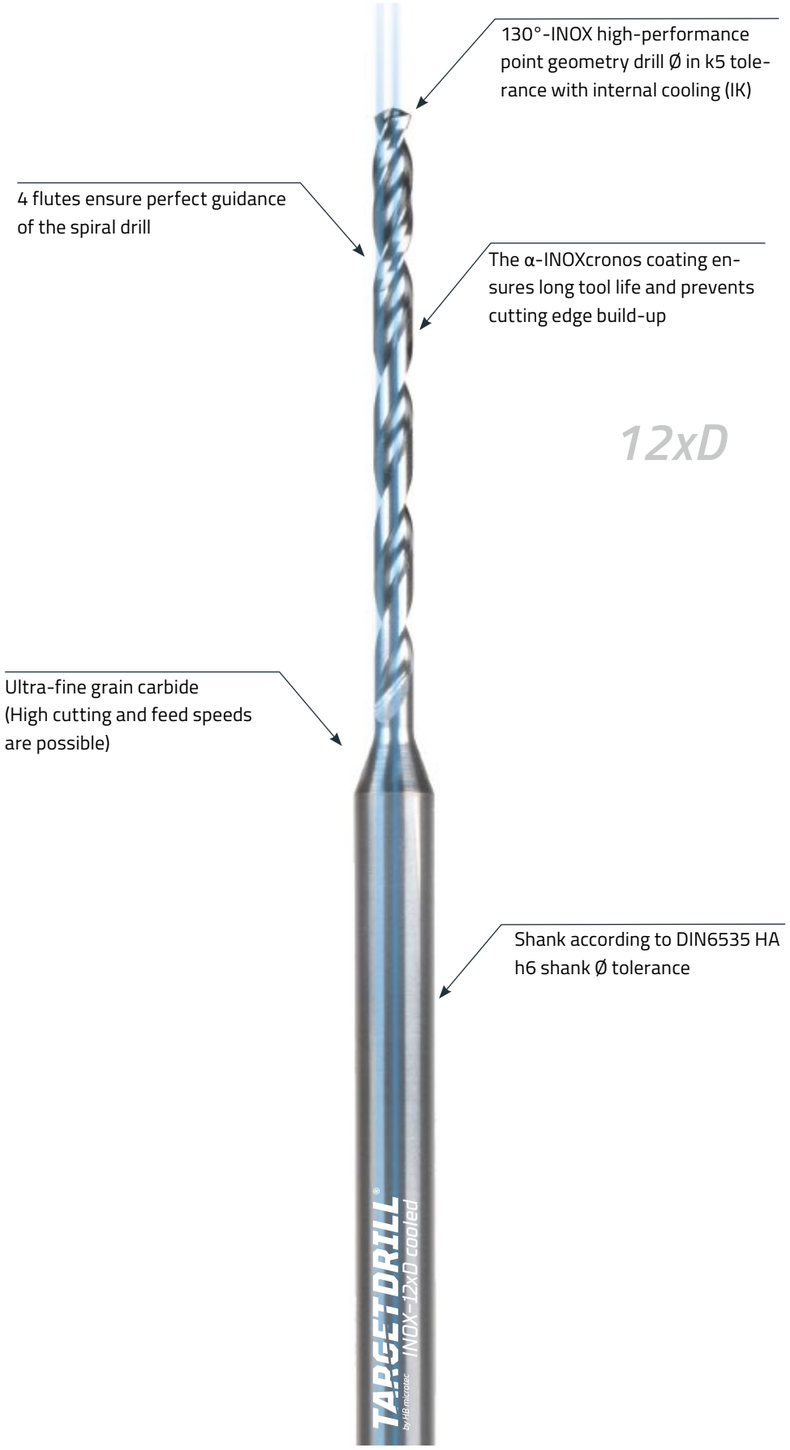
Article number	D1 k5 (mm)	D3 h6 (mm)	L1 [4-Flutes] (mm)	L2 [Spiral slot] (mm)	GL (mm)
TD.100.IK.12D	Ø 1,00	Ø 3,00	4,40	15,00	58,00
TD.105.IK.12D	Ø 1,05	Ø 3,00	4,65	15,75	58,00
TD.110.IK.12D	Ø 1,10	Ø 3,00	4,85	16,50	58,00
TD.115.IK.12D	Ø 1,15	Ø 3,00	5,10	17,25	58,00
TD.120.IK.12D	Ø 1,20	Ø 3,00	5,30	18,00	58,00
TD.125.IK.12D	Ø 1,25	Ø 3,00	5,50	18,75	58,00
TD.130.IK.12D	Ø 1,30	Ø 3,00	5,75	19,50	64,00
TD.135.IK.12D	Ø 1,35	Ø 3,00	5,95	20,25	64,00
TD.140.IK.12D	Ø 1,40	Ø 3,00	6,20	21,00	64,00
TD.145.IK.12D	Ø 1,45	Ø 3,00	6,40	21,75	64,00
TD.150.IK.12D	Ø 1,50	Ø 3,00	6,60	22,50	64,00
TD.155.IK.12D	Ø 1,55	Ø 3,00	6,85	23,25	68,00
TD.160.IK.12D	Ø 1,60	Ø 3,00	7,05	24,00	68,00
TD.165.IK.12D	Ø 1,65	Ø 3,00	7,30	24,75	68,00
TD.170.IK.12D	Ø 1,70	Ø 3,00	7,50	25,50	68,00
TD.175.IK.12D	Ø 1,75	Ø 3,00	7,70	26,25	68,00
TD.180.IK.12D	Ø 1,80	Ø 3,00	7,95	27,00	72,00
TD.185.IK.12D	Ø 1,85	Ø 3,00	8,15	27,75	72,00
TD.190.IK.12D	Ø 1,90	Ø 3,00	8,40	28,50	72,00
TD.195.IK.12D	Ø 1,95	Ø 3,00	8,60	29,25	72,00
TD.200.IK.12D	Ø 2,00	Ø 4,00	8,80	30,00	72,00
TD.205.IK.12D	Ø 2,05	Ø 4,00	9,05	30,75	76,00
TD.210.IK.12D	Ø 2,10	Ø 4,00	9,25	31,50	76,00
TD.215.IK.12D	Ø 2,15	Ø 4,00	9,50	32,25	76,00
TD.220.IK.12D	Ø 2,20	Ø 4,00	9,70	33,00	76,00
TD.225.IK.12D	Ø 2,25	Ø 4,00	9,90	33,75	76,00
TD.230.IK.12D	Ø 2,30	Ø 4,00	10,15	34,50	80,00
TD.235.IK.12D	Ø 2,35	Ø 4,00	10,35	35,25	80,00
TD.240.IK.12D	Ø 2,40	Ø 4,00	10,60	36,00	80,00
TD.245.IK.12D	Ø 2,45	Ø 4,00	10,80	36,75	80,00
TD.250.IK.12D	Ø 2,50	Ø 4,00	11,00	37,50	80,00
TD.255.IK.12D	Ø 2,55	Ø 4,00	11,25	38,25	84,00
TD.260.IK.12D	Ø 2,60	Ø 4,00	11,45	39,00	84,00
TD.265.IK.12D	Ø 2,65	Ø 4,00	11,70	39,75	84,00
TD.270.IK.12D	Ø 2,70	Ø 4,00	11,90	40,50	84,00
TD.275.IK.12D	Ø 2,75	Ø 4,00	12,10	41,25	84,00
TD.280.IK.12D	Ø 2,80	Ø 4,00	12,35	42,00	88,00
TD.285.IK.12D	Ø 2,85	Ø 4,00	12,55	42,75	88,00
TD.290.IK.12D	Ø 2,90	Ø 4,00	12,80	43,50	88,00
TD.295.IK.12D	Ø 2,95	Ø 4,00	13,00	44,25	88,00
TD.300.IK.12D	Ø 3,00	Ø 6,00	13,20	45,00	92,00
TD.305.IK.12D	Ø 3,05	Ø 6,00	13,45	45,75	92,00
TD.310.IK.12D	Ø 3,10	Ø 6,00	13,65	46,50	92,00
TD.315.IK.12D	Ø 3,15	Ø 6,00	13,90	47,25	92,00
TD.320.IK.12D	Ø 3,20	Ø 6,00	14,10	48,00	92,00

TARGETDRILL®
by HB microtec
INOX-12xD cooled

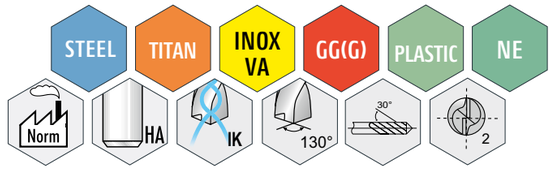
HB microtec® ACTIONTOOLS & ENGINEERING

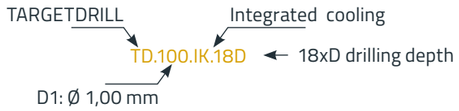
Article number	D1 k5 (mm)	D3 h6 (mm)	L1 [4-Flutes] (mm)	L2 [Spiral slot] (mm)	GL (mm)
TD.325.IK.12D	Ø 3,25	Ø 6,00	14,30	48,75	92,00
TD.330.IK.12D	Ø 3,30	Ø 6,00	14,55	49,50	96,00
TD.335.IK.12D	Ø 3,35	Ø 6,00	14,75	50,25	96,00
TD.340.IK.12D	Ø 3,40	Ø 6,00	15,00	51,00	96,00
TD.345.IK.12D	Ø 3,45	Ø 6,00	15,20	51,75	96,00
TD.350.IK.12D	Ø 3,50	Ø 6,00	15,40	52,50	96,00
TD.355.IK.12D	Ø 3,55	Ø 6,00	15,65	53,25	100,00
TD.360.IK.12D	Ø 3,60	Ø 6,00	15,85	54,00	100,00
TD.365.IK.12D	Ø 3,65	Ø 6,00	16,10	54,75	100,00
TD.370.IK.12D	Ø 3,70	Ø 6,00	16,30	55,50	100,00
TD.375.IK.12D	Ø 3,75	Ø 6,00	16,50	56,25	100,00
TD.380.IK.12D	Ø 3,80	Ø 6,00	16,75	57,00	104,00
TD.385.IK.12D	Ø 3,85	Ø 6,00	16,95	57,75	104,00
TD.390.IK.12D	Ø 3,90	Ø 6,00	17,20	58,50	104,00
TD.395.IK.12D	Ø 3,95	Ø 6,00	17,40	59,25	104,00
TD.400.IK.12D	Ø 4,00	Ø 6,00	17,60	60,00	108,00
TD.410.IK.12D	Ø 4,10	Ø 6,00	18,05	61,50	108,00
TD.420.IK.12D	Ø 4,20	Ø 6,00	18,50	63,00	108,00
TD.430.IK.12D	Ø 4,30	Ø 6,00	18,95	64,50	108,00
TD.440.IK.12D	Ø 4,40	Ø 6,00	19,40	66,00	108,00
TD.450.IK.12D	Ø 4,50	Ø 6,00	19,80	67,50	108,00
TD.460.IK.12D	Ø 4,60	Ø 6,00	20,25	69,00	115,00
TD.470.IK.12D	Ø 4,70	Ø 6,00	20,70	70,50	115,00
TD.480.IK.12D	Ø 4,80	Ø 6,00	21,15	72,00	115,00
TD.490.IK.12D	Ø 4,90	Ø 6,00	21,60	73,50	115,00
TD.500.IK.12D	Ø 5,00	Ø 6,00	22,00	75,00	115,00
TD.510.IK.12D	Ø 5,10	Ø 6,00	22,45	76,50	122,00
TD.520.IK.12D	Ø 5,20	Ø 6,00	22,90	78,00	122,00
TD.530.IK.12D	Ø 5,30	Ø 6,00	23,35	79,50	122,00
TD.540.IK.12D	Ø 5,40	Ø 6,00	23,80	81,00	122,00
TD.550.IK.12D	Ø 5,50	Ø 6,00	24,20	82,50	122,00
TD.560.IK.12D	Ø 5,60	Ø 6,00	24,65	84,00	130,00
TD.570.IK.12D	Ø 5,70	Ø 6,00	25,10	85,50	130,00
TD.580.IK.12D	Ø 5,80	Ø 6,00	25,55	87,00	130,00
TD.590.IK.12D	Ø 5,90	Ø 6,00	26,00	88,50	130,00
TD.600.IK.12D	Ø 6,00	Ø 6,00	26,40	90,00	130,00

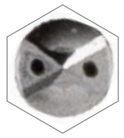
Available from stock

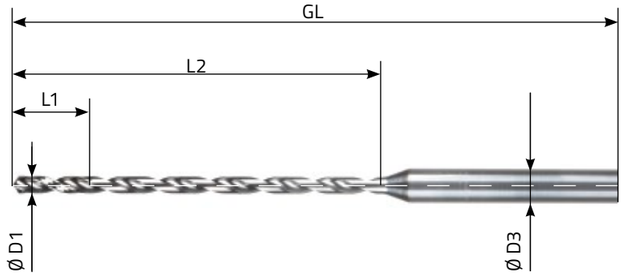


INOX-18xD cooled









- α-INOXcronos coated

5 PRO's of the TARGETDRILL:

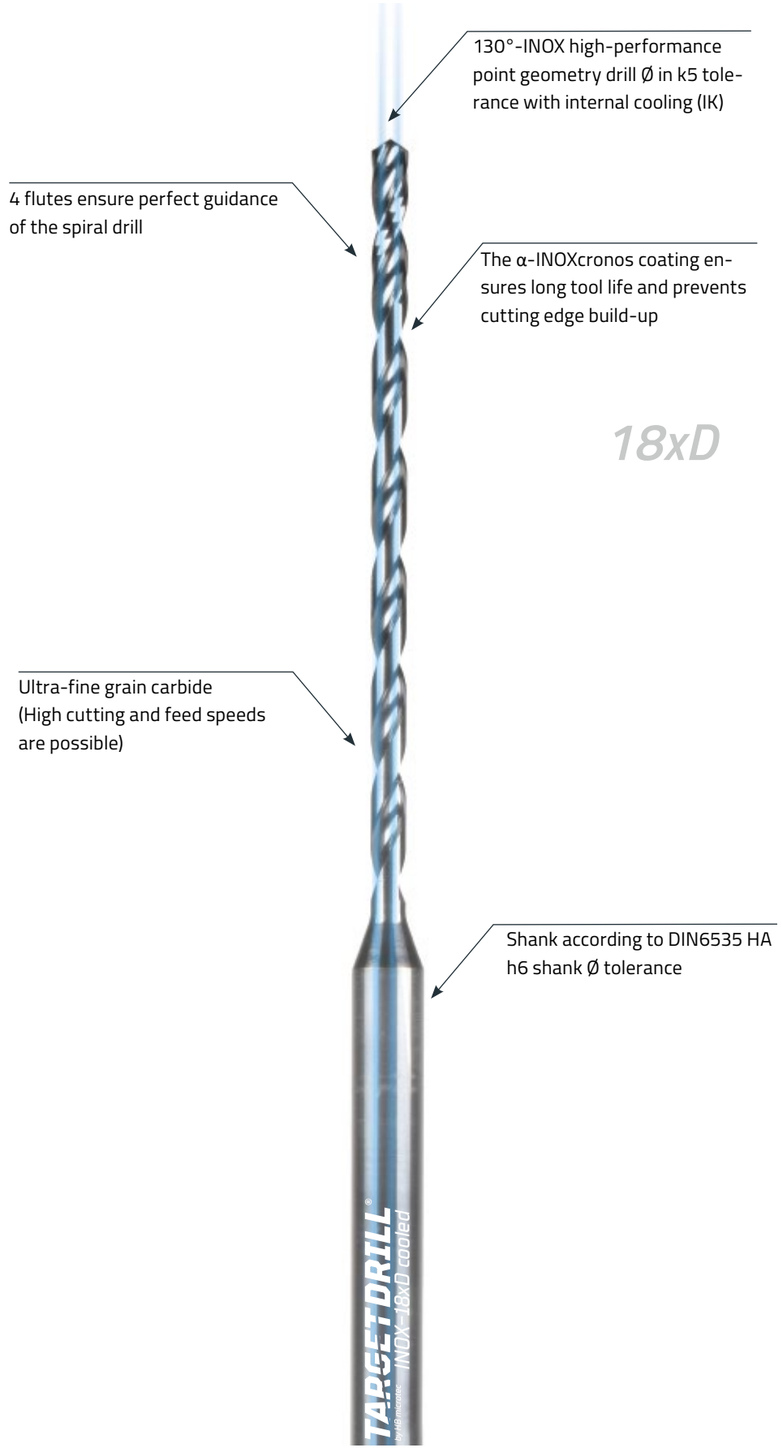
- Twisted deep hole drill with IK
- Perfect alignment accuracy - 18xD with 4 flutes
- High cutting and feed speeds possible
- High performance & positioning accuracy
- A plus for your process reliability and quality

Article number	D1 k5 (mm)	D3 h6 (mm)	L1 [4-Flutes] (mm)	L2 [Spiral slot] (mm)	GL (mm)
TD.100.IK.18D	Ø 1,00	Ø 3,00	4,40	21,00	64,00
TD.105.IK.18D	Ø 1,05	Ø 3,00	4,65	22,05	64,00
TD.110.IK.18D	Ø 1,10	Ø 3,00	4,85	23,10	64,00
TD.115.IK.18D	Ø 1,15	Ø 3,00	5,10	24,15	64,00
TD.120.IK.18D	Ø 1,20	Ø 3,00	5,30	25,20	64,00
TD.125.IK.18D	Ø 1,25	Ø 3,00	5,50	26,25	64,00
TD.130.IK.18D	Ø 1,30	Ø 3,00	5,75	27,30	72,00
TD.135.IK.18D	Ø 1,35	Ø 3,00	5,95	28,35	72,00
TD.140.IK.18D	Ø 1,40	Ø 3,00	6,20	29,40	72,00
TD.145.IK.18D	Ø 1,45	Ø 3,00	6,40	30,45	72,00
TD.150.IK.18D	Ø 1,50	Ø 3,00	6,60	31,50	72,00
TD.155.IK.18D	Ø 1,55	Ø 3,00	6,85	32,55	80,00
TD.160.IK.18D	Ø 1,60	Ø 3,00	7,05	33,60	80,00
TD.165.IK.18D	Ø 1,65	Ø 3,00	7,30	34,65	80,00
TD.170.IK.18D	Ø 1,70	Ø 3,00	7,50	35,70	80,00
TD.175.IK.18D	Ø 1,75	Ø 3,00	7,70	36,75	80,00
TD.180.IK.18D	Ø 1,80	Ø 3,00	7,95	37,80	88,00
TD.185.IK.18D	Ø 1,85	Ø 3,00	8,15	38,85	88,00
TD.190.IK.18D	Ø 1,90	Ø 3,00	8,40	39,90	88,00
TD.195.IK.18D	Ø 1,95	Ø 3,00	8,60	40,95	88,00
TD.200.IK.18D	Ø 2,00	Ø 4,00	8,80	42,00	88,00
TD.205.IK.18D	Ø 2,05	Ø 4,00	9,05	43,05	94,00
TD.210.IK.18D	Ø 2,10	Ø 4,00	9,25	44,10	94,00
TD.215.IK.18D	Ø 2,15	Ø 4,00	9,50	45,15	94,00
TD.220.IK.18D	Ø 2,20	Ø 4,00	9,70	46,20	94,00
TD.225.IK.18D	Ø 2,25	Ø 4,00	9,90	47,25	94,00
TD.230.IK.18D	Ø 2,30	Ø 4,00	10,15	48,30	100,00
TD.235.IK.18D	Ø 2,35	Ø 4,00	10,35	49,35	100,00
TD.240.IK.18D	Ø 2,40	Ø 4,00	10,60	50,40	100,00
TD.245.IK.18D	Ø 2,45	Ø 4,00	10,80	51,45	100,00
TD.250.IK.18D	Ø 2,50	Ø 4,00	11,00	52,50	100,00
TD.255.IK.18D	Ø 2,55	Ø 4,00	11,25	53,55	106,00
TD.260.IK.18D	Ø 2,60	Ø 4,00	11,45	54,60	106,00
TD.265.IK.18D	Ø 2,65	Ø 4,00	11,70	55,65	106,00
TD.270.IK.18D	Ø 2,70	Ø 4,00	11,90	56,70	106,00
TD.275.IK.18D	Ø 2,75	Ø 4,00	12,10	57,75	106,00
TD.280.IK.18D	Ø 2,80	Ø 4,00	12,35	58,80	110,00
TD.285.IK.18D	Ø 2,85	Ø 4,00	12,55	59,85	110,00
TD.290.IK.18D	Ø 2,90	Ø 4,00	12,80	60,90	110,00
TD.295.IK.18D	Ø 2,95	Ø 4,00	13,00	61,95	110,00
TD.300.IK.18D	Ø 3,00	Ø 6,00	13,20	63,00	114,00
TD.305.IK.18D	Ø 3,05	Ø 6,00	13,45	64,05	114,00
TD.310.IK.18D	Ø 3,10	Ø 6,00	13,65	65,10	114,00
TD.315.IK.18D	Ø 3,15	Ø 6,00	13,90	66,15	114,00
TD.320.IK.18D	Ø 3,20	Ø 6,00	14,10	67,20	114,00

TARGETDRILL®
by HB microtec
INOX-18xD cooled

Article number	D1 k5 (mm)	D3 h6 (mm)	L1 [4-Flutes] (mm)	L2 [Spiral slot] (mm)	GL (mm)
TD.325.IK.18D	Ø 3,25	Ø 6,00	14,30	68,25	114,00
TD.330.IK.18D	Ø 3,30	Ø 6,00	14,55	69,30	118,00
TD.335.IK.18D	Ø 3,35	Ø 6,00	14,75	70,35	118,00
TD.340.IK.18D	Ø 3,40	Ø 6,00	15,00	71,40	118,00
TD.345.IK.18D	Ø 3,45	Ø 6,00	15,20	72,45	118,00
TD.350.IK.18D	Ø 3,50	Ø 6,00	15,40	73,50	118,00
TD.355.IK.18D	Ø 3,55	Ø 6,00	15,65	74,55	122,00
TD.360.IK.18D	Ø 3,60	Ø 6,00	15,85	75,60	122,00
TD.365.IK.18D	Ø 3,65	Ø 6,00	16,10	76,65	122,00
TD.370.IK.18D	Ø 3,70	Ø 6,00	16,30	77,70	122,00
TD.375.IK.18D	Ø 3,75	Ø 6,00	16,50	78,75	122,00
TD.380.IK.18D	Ø 3,80	Ø 6,00	16,75	79,80	126,00
TD.385.IK.18D	Ø 3,85	Ø 6,00	16,95	80,85	126,00
TD.390.IK.18D	Ø 3,90	Ø 6,00	17,20	81,90	126,00
TD.395.IK.18D	Ø 3,95	Ø 6,00	17,40	82,95	126,00
TD.400.IK.18D	Ø 4,00	Ø 6,00	17,60	84,00	130,00
TD.410.IK.18D	Ø 4,10	Ø 6,00	18,05	86,10	130,00
TD.420.IK.18D	Ø 4,20	Ø 6,00	18,50	88,20	130,00
TD.430.IK.18D	Ø 4,30	Ø 6,00	18,95	90,30	130,00
TD.440.IK.18D	Ø 4,40	Ø 6,00	19,40	92,40	130,00
TD.450.IK.18D	Ø 4,50	Ø 6,00	19,80	94,50	130,00
TD.460.IK.18D	Ø 4,60	Ø 6,00	20,25	96,60	142,00
TD.470.IK.18D	Ø 4,70	Ø 6,00	20,70	98,70	142,00
TD.480.IK.18D	Ø 4,80	Ø 6,00	21,15	100,80	142,00
TD.490.IK.18D	Ø 4,90	Ø 6,00	21,60	102,90	142,00
TD.500.IK.18D	Ø 5,00	Ø 6,00	22,00	105,00	142,00
TD.510.IK.18D	Ø 5,10	Ø 6,00	22,45	107,10	153,00
TD.520.IK.18D	Ø 5,20	Ø 6,00	22,90	109,20	153,00
TD.530.IK.18D	Ø 5,30	Ø 6,00	23,35	111,30	153,00
TD.540.IK.18D	Ø 5,40	Ø 6,00	23,80	113,40	153,00
TD.550.IK.18D	Ø 5,50	Ø 6,00	24,20	115,50	153,00
TD.560.IK.18D	Ø 5,60	Ø 6,00	24,65	117,60	165,00
TD.570.IK.18D	Ø 5,70	Ø 6,00	25,10	119,70	165,00
TD.580.IK.18D	Ø 5,80	Ø 6,00	25,55	121,80	165,00
TD.590.IK.18D	Ø 5,90	Ø 6,00	26,00	123,90	165,00
TD.600.IK.18D	Ø 6,00	Ø 6,00	26,40	126,00	165,00

Available from stock

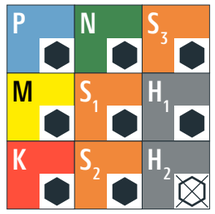


Cutting data - TARGETDRILL INOX-cooled

HB Microtec® ACTIONTOOLS & ENGINEERING

TARGETDRILL® by HB microtec

INOX-Pilot 130°
INOX-6xD cooled
INOX-12xD cooled
INOX-18xD cooled

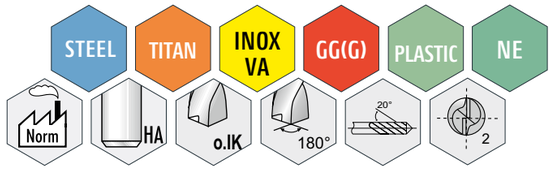


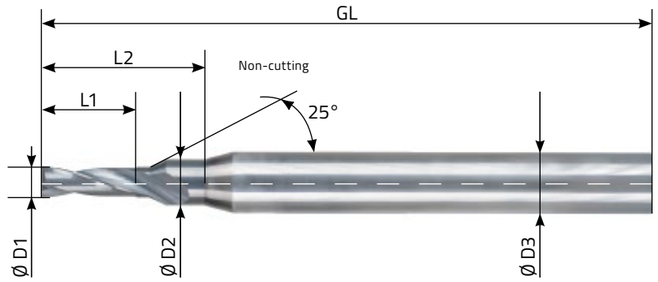
Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

Ø 1,0 - 1,2 mm		Ø 1,5 - 1,8 mm		Ø 2,0 - 2,5 mm		Ø 3,0 - 4,0 mm		Ø 5,0 - 6,0 mm	
vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]
60-130	0,05- 0,066	60-130	0,122 - 0,128	60-130	0,130 - 0,182	60-140	0,128 - 0,232	60-160	0,150 - 0,280
60-120	0,05- 0,056	60-120	0,120 - 0,122	60-130	0,130 - 0,182	60-120	0,128 - 0,202	60-150	0,150 - 0,260
50-120	0,03 - 0,04	50-120	0,043 - 0,055	50-120	0,060 - 0,080	50-100	0,074 - 0,098	50-120	0,10 - 0,185
50-80	0,025 - 0,038	50-80	0,040 - 0,068	50-90	0,050 - 0,070	50-90	0,072 - 0,084	50-100	0,10 - 0,175
80-140	0,035 - 0,042	80-140	0,06 - 0,115	80-160	0,126 - 0,135	80-160	0,100 - 0,145	80-180	0,110 - 0,210
80-160	0,042 - 0,066	80-160	0,096 - 0,122	80-160	0,132 - 0,18	80-160	0,136 - 0,172	80-180	0,200 - 0,250
80-140	0,046 - 0,088	80-140	0,098 - 0,122	80-160	0,132 - 0,210	80-160	0,134 - 0,164	80-180	0,200 - 0,252
80-120	0,032 - 0,088	80-120	0,066 - 0,122	80-140	0,085 - 0,120	80-120	0,132 - 0,162	80-160	0,195 - 0,242
15 - 50	0,025 - 0,05	15 - 50	0,049 - 0,060	15 - 60	0,060 - 0,07	15 - 70	0,062 - 0,08	15 - 80	0,080 - 0,12
15 - 50	0,025 - 0,05	15 - 50	0,048 - 0,060	15 - 60	0,060 - 0,07	15 - 70	0,062 - 0,08	15 - 80	0,080 - 0,12
15 - 50	0,020 - 0,04	15 - 50	0,05 - 0,060	15 - 50	0,055 - 0,07	15 - 60	0,052 - 0,08	15 - 75	0,076 - 0,12
15-32	0,006 - 0,01	15-32	0,006 - 0,010	15-32	0,006 - 0,012	15-35	0,006 - 0,014	15-40	0,009 - 0,018
15-32	0,006 - 0,01	15-32	0,006 - 0,010	15-32	0,006 - 0,012	15-35	0,006 - 0,014	15-40	0,009 - 0,018

INOX Flatdrill 180°
3,5xD





- α-INOXcronos coated

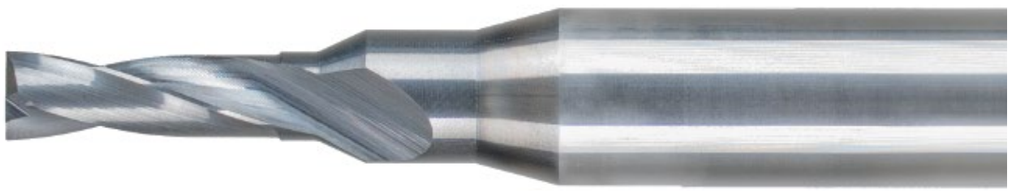
5 PRO's of the TARGETDRILL:

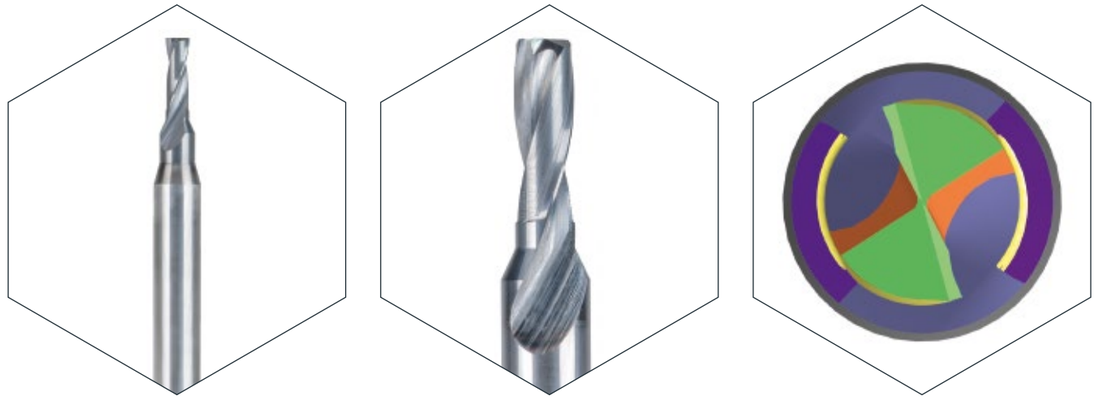
- High positioning accuracy
- Perfect price-performance conditions
- Can be used as a short drill or pilot drill
- Drill on inclined, round or curved surfaces
- Mirroring is no longer necessary

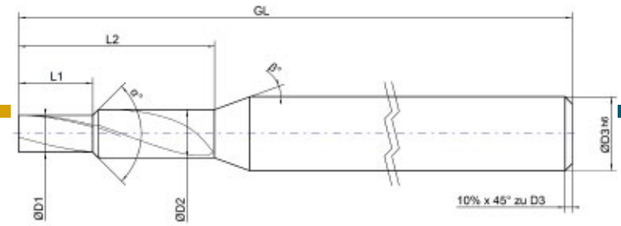
Article number	D1 m5 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.I180.080.2800	Ø 0,80	Ø 1,70	Ø 4,00	2,80	6,00	40,00
TD.I180.085.3000	Ø 0,85	Ø 1,70	Ø 4,00	3,00	6,00	40,00
TD.I180.090.3200	Ø 0,90	Ø 1,80	Ø 4,00	3,20	6,30	40,00
TD.I180.095.3300	Ø 0,95	Ø 1,90	Ø 4,00	3,30	6,70	40,00
TD.I180.100.3500	Ø 1,00	Ø 2,00	Ø 4,00	3,50	7,00	40,00
TD.I180.105.3700	Ø 1,05	Ø 2,10	Ø 4,00	3,70	7,40	40,00
TD.I180.110.3900	Ø 1,10	Ø 2,20	Ø 4,00	3,90	7,70	40,00
TD.I180.115.4000	Ø 1,15	Ø 2,30	Ø 4,00	4,00	8,10	40,00
TD.I180.120.4200	Ø 1,20	Ø 2,40	Ø 4,00	4,20	8,40	40,00
TD.I180.125.4400	Ø 1,25	Ø 2,50	Ø 4,00	4,40	8,80	40,00
TD.I180.130.4600	Ø 1,30	Ø 2,60	Ø 4,00	4,60	9,10	40,00
TD.I180.135.4700	Ø 1,35	Ø 2,70	Ø 4,00	4,70	9,50	40,00
TD.I180.140.4900	Ø 1,40	Ø 2,80	Ø 4,00	4,90	9,80	40,00
TD.I180.145.5100	Ø 1,45	Ø 2,90	Ø 4,00	5,10	10,20	40,00
TD.I180.150.5300	Ø 1,50	Ø 3,00	Ø 4,00	5,30	10,50	40,00
TD.I180.155.5400	Ø 1,55	Ø 3,05	Ø 4,00	5,40	10,70	40,00
TD.I180.160.5600	Ø 1,60	Ø 3,10	Ø 4,00	5,60	10,90	40,00
TD.I180.165.5800	Ø 1,65	Ø 3,15	Ø 4,00	5,80	11,00	40,00
TD.I180.170.6000	Ø 1,70	Ø 3,20	Ø 4,00	6,00	11,20	40,00
TD.I180.175.6100	Ø 1,75	Ø 3,25	Ø 4,00	6,10	11,40	40,00
TD.I180.180.6300	Ø 1,80	Ø 3,30	Ø 4,00	6,30	11,60	40,00
TD.I180.185.6500	Ø 1,85	Ø 3,35	Ø 4,00	6,50	11,70	40,00
TD.I180.190.6700	Ø 1,90	Ø 3,40	Ø 4,00	6,70	11,90	40,00
TD.I180.195.6800	Ø 1,95	Ø 3,45	Ø 4,00	6,80	12,10	40,00
TD.I180.200.7000	Ø 2,00	Ø 3,50	Ø 6,00	7,00	12,30	50,00
TD.I180.205.7200	Ø 2,05	Ø 3,55	Ø 6,00	7,20	12,40	50,00
TD.I180.210.7400	Ø 2,10	Ø 3,60	Ø 6,00	7,40	12,60	50,00
TD.I180.215.7500	Ø 2,15	Ø 3,65	Ø 6,00	7,50	12,80	50,00
TD.I180.220.7700	Ø 2,20	Ø 3,70	Ø 6,00	7,70	13,00	50,00
TD.I180.225.7900	Ø 2,25	Ø 3,75	Ø 6,00	7,90	13,10	50,00
TD.I180.230.8100	Ø 2,30	Ø 3,80	Ø 6,00	8,10	13,30	50,00
TD.I180.235.8200	Ø 2,35	Ø 3,85	Ø 6,00	8,20	13,50	50,00
TD.I180.240.8400	Ø 2,40	Ø 3,90	Ø 6,00	8,40	13,70	50,00
TD.I180.245.8600	Ø 2,45	Ø 3,95	Ø 6,00	8,60	13,80	50,00
TD.I180.250.8800	Ø 2,50	Ø 4,00	Ø 6,00	8,80	14,00	50,00
TD.I180.255.8900	Ø 2,55	Ø 4,05	Ø 6,00	8,90	14,20	50,00
TD.I180.260.9100	Ø 2,60	Ø 4,10	Ø 6,00	9,10	14,40	50,00
TD.I180.265.9300	Ø 2,65	Ø 4,15	Ø 6,00	9,30	14,50	50,00
TD.I180.270.9400	Ø 2,70	Ø 4,20	Ø 6,00	9,40	14,70	50,00
TD.I180.275.9600	Ø 2,75	Ø 4,25	Ø 6,00	9,60	14,90	50,00
TD.I180.280.9800	Ø 2,80	Ø 4,30	Ø 6,00	9,80	15,10	50,00
TD.I180.285.10000	Ø 2,85	Ø 4,35	Ø 6,00	10,00	15,20	50,00
TD.I180.290.10100	Ø 2,90	Ø 4,40	Ø 6,00	10,10	15,40	50,00
TD.I180.295.10300	Ø 2,95	Ø 4,45	Ø 6,00	10,30	15,60	50,00

Article number	D1 m5 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.I180.300.10500	Ø 3,00	Ø 4,50	Ø 6,00	10,50	15,80	60,00
TD.I180.310.10900	Ø 3,10	Ø 4,60	Ø 6,00	10,90	16,10	60,00
TD.I180.320.11200	Ø 3,20	Ø 4,70	Ø 6,00	11,20	16,50	60,00
TD.I180.330.11600	Ø 3,30	Ø 4,80	Ø 6,00	11,60	16,80	60,00
TD.I180.340.11900	Ø 3,40	Ø 4,90	Ø 6,00	11,90	17,20	60,00
TD.I180.350.12300	Ø 3,50	Ø 5,00	Ø 6,00	12,30	17,50	60,00
TD.I180.360.12600	Ø 3,60	Ø 6,00	Ø 6,00	12,60	-	60,00
TD.I180.370.13000	Ø 3,70	Ø 6,00	Ø 6,00	13,00	-	60,00
TD.I180.380.13300	Ø 3,80	Ø 6,00	Ø 6,00	13,30	-	60,00
TD.I180.390.13700	Ø 3,90	Ø 6,00	Ø 6,00	13,70	-	60,00
TD.I180.400.14000	Ø 4,00	Ø 6,00	Ø 6,00	14,00	-	60,00
TD.I180.410.14400	Ø 4,10	Ø 6,00	Ø 6,00	14,40	-	60,00
TD.I180.420.14700	Ø 4,20	Ø 6,00	Ø 6,00	14,70	-	60,00
TD.I180.430.15100	Ø 4,30	Ø 6,00	Ø 6,00	15,10	-	60,00
TD.I180.440.15400	Ø 4,40	Ø 6,00	Ø 6,00	15,40	-	60,00
TD.I180.450.15800	Ø 4,50	Ø 6,00	Ø 6,00	15,80	-	60,00
TD.I180.460.16100	Ø 4,60	Ø 6,00	Ø 6,00	16,10	-	60,00
TD.I180.470.16500	Ø 4,70	Ø 6,00	Ø 6,00	16,50	-	60,00
TD.I180.480.16800	Ø 4,80	Ø 6,00	Ø 6,00	16,80	-	60,00
TD.I180.490.17200	Ø 4,90	Ø 6,00	Ø 6,00	17,20	-	60,00
TD.I180.500.17500	Ø 5,00	Ø 6,00	Ø 6,00	17,50	-	60,00
TD.I180.510.17900	Ø 5,10	Ø 8,00	Ø 8,00	17,90	-	70,00
TD.I180.520.18200	Ø 5,20	Ø 8,00	Ø 8,00	18,20	-	70,00
TD.I180.530.18600	Ø 5,30	Ø 8,00	Ø 8,00	18,60	-	70,00
TD.I180.540.18900	Ø 5,40	Ø 8,00	Ø 8,00	18,90	-	70,00
TD.I180.550.19300	Ø 5,50	Ø 8,00	Ø 8,00	19,30	-	70,00
TD.I180.560.19600	Ø 5,60	Ø 8,00	Ø 8,00	19,60	-	70,00
TD.I180.570.20000	Ø 5,70	Ø 8,00	Ø 8,00	20,00	-	70,00
TD.I180.580.20300	Ø 5,80	Ø 8,00	Ø 8,00	20,30	-	70,00
TD.I180.590.20700	Ø 5,90	Ø 8,00	Ø 8,00	20,70	-	70,00
TD.I180.600.21000	Ø 6,00	Ø 8,00	Ø 8,00	21,00	-	70,00

Available from stock







☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

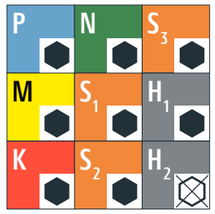
Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Cutting data - Targetdrill INOX-Flatdrill 180°

HB microtec ACTIONTOOLS & ENGINEERING

TARGETDRILL® by HB microtec INOX-Flatdrill 180°



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

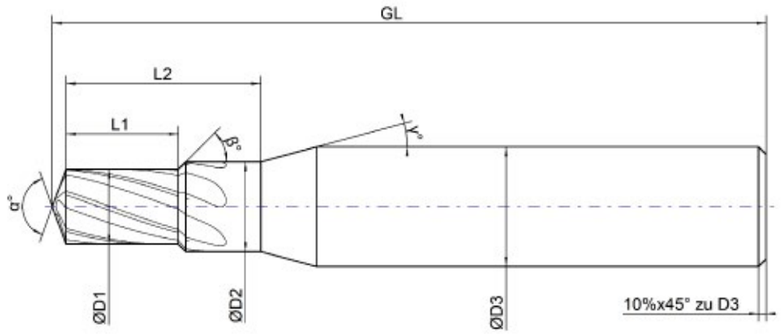
Application recommendation ⬢ Very well suited ⬡ Conditionally suited ⊠ Not recommended

Ø 0,8 - 1,0 mm		Ø 1,0 - 1,45 mm		Ø 1,5 - 1,8 mm		Ø 2,0 - 2,5 mm		Ø 3,0 mm		Ø 4,0 - 6,0 mm	
vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]	vc [m/min]	f [mm/U]
80	0,008 - 0,012	80	0,013 - 0,015	80	0,022 - 0,028	80	0,030 - 0,032	100	0,028 - 0,032	100	0,040 - 0,08
60	0,008 - 0,012	60	0,012 - 0,014	60	0,020 - 0,022	70	0,028 - 0,030	70	0,028 - 0,042	70	0,03 - 0,040
50	0,007 - 0,010	50	0,013 - 0,015	50	0,013 - 0,015	60	0,010 - 0,020	60	0,014 - 0,018	60	0,035 - 0,045
50	0,004 - 0,006	50	0,010 - 0,012	50	0,010 - 0,012	50	0,010 - 0,020	50	0,012 - 0,014	50	0,035 - 0,045
80	0,007 - 0,01	80	0,01 - 0,015	80	0,01 - 0,015	80	0,026 - 0,030	80	0,03 - 0,045	80	0,045 - 0,06
120	0,010 - 0,018	120	0,015 - 0,02	120	0,016 - 0,022	140	0,032 - 0,04	140	0,036 - 0,042	140	0,036 - 0,05
80	0,012 - 0,018	80	0,018 - 0,020	80	0,018 - 0,022	80	0,032 - 0,04	80	0,034 - 0,044	80	0,036 - 0,05
80	0,010 - 0,016	80	0,016 - 0,02	80	0,016 - 0,022	80	0,032 - 0,04	80	0,032 - 0,042	80	0,036 - 0,05
40	0,006 - 0,008	40	0,007 - 0,01	40	0,009 - 0,010	40	0,010 - 0,012	40	0,012 - 0,016	40	0,014 - 0,018
40	0,006 - 0,008	40	0,007 - 0,01	40	0,018 - 0,020	40	0,010 - 0,012	40	0,012 - 0,018	40	0,014 - 0,018
20	0,002 - 0,004	20	0,007 - 0,01	20	0,009 - 0,010	20	0,010 - 0,012	25	0,012 - 0,018	25	0,014 - 0,018
20	0,002 - 0,004	20	0,003 - 0,004	20	0,003 - 0,005	20	0,003 - 0,007	20	0,009 - 0,014	20	0,004 - 0,018
No data entered											

Drill reamers

Centering + Drilling + Reaming + Chamfering with one tool

Available from drill diameter 2.0 mm



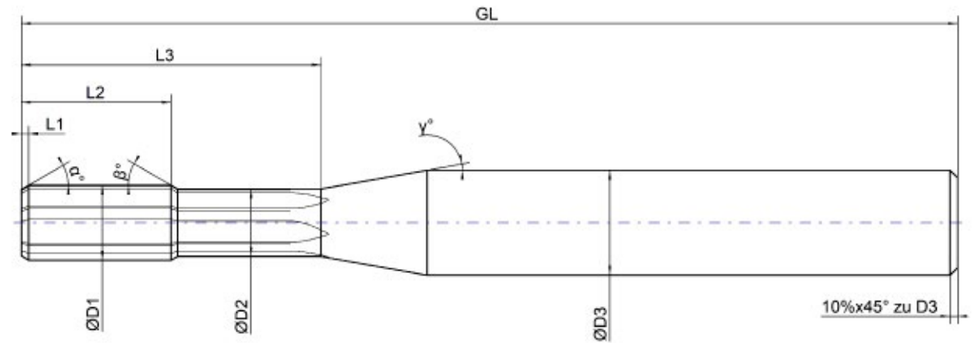
☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ γ: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Customized reamer

Individually designed reamers for perfect surfaces and tolerances



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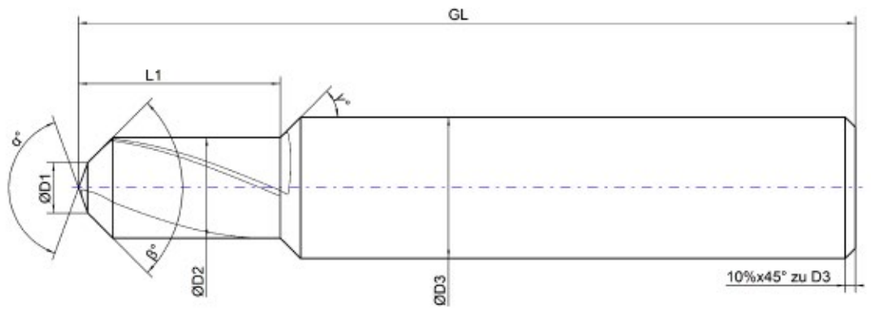
Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ γ: _____ L_3: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Special center drill

Centering with drill angle + chamfer

e.g., with 142° drill angle + 90° chamfer + internal cooling



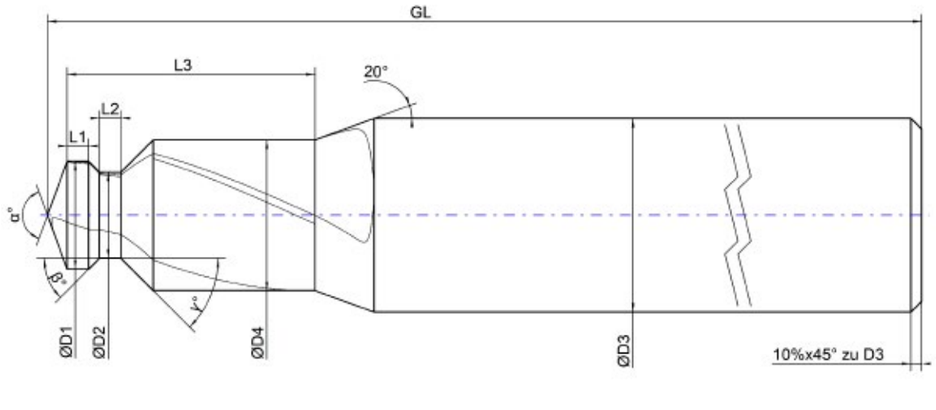
☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ γ: _____ z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Special deburring drill

Centering + Drilling + Chamfering + Back chamfering



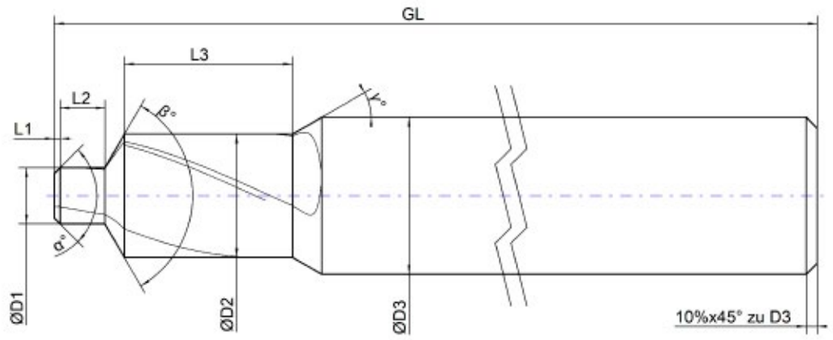
☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ γ: _____ D_4: _____ L_3: _____ z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Countersink

Individually designed countersinks for optimal „hole-chamfer-alignment“



☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ γ: _____ L_3: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:** _____ ☐ HM ☐ HSS	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

with magnetic holder and adjustable

Application

The gauges are used to ensure repeatable projection lengths on CNC machines during tool change or setup.

The gauge can be used for both drills and indexable insert holders.

With the help of the magnetic base, the gauge adheres to the tool holder, allowing the operator to use both hands to align and tighten the holder or the locknut.

Designation	Dimension	Color	Price € / Stk.
HM-(Ausspannlehre-050)	25-45 mm	violet	53,14 €
HM-(Ausspannlehre-070)	45-65 mm	blue	55,27 €
HM-(Ausspannlehre-110)	55-95 mm	green	61,66 €
HM-(Ausspannlehre-140)	95-135 mm	red	65,92 €
HM-(Ausspannlehren-Satz)	25-135mm		211,94 €
Individual laserengraving			5,33 €

- Material: Aluminum, 3.2315

On request, the clamping gauges can be laser-marked individually according to your specifications.

Problem solution drilling

Problem	Cause	Solution
Bore is too large	Feed rate too high Chip jam Runout error of the drill used Ground joint is not correct	Reduce feed rate Use suitable drill type Reduce runout error as far as possible Check ground joint for correctness
Bore is too small	Cutting speed too high Incorrect drill with too small diameter	Reduce cutting speed Use suitable drill type
Burr at bore exit	Feed rate too high Wear mark width exceeded	Reduce feed rate Replace or resharpen tools in good time
Cutting corner chipping	Vibrations, interrupted cuts, build-up cuts, carbide grade not tough enough Wrong drill Unstable workpiece clamping Wear mark width exceeded Feed rate too high Too much relief grinding	Use carbide grade with higher toughness Increase stability Use suitable drill type Check workpiece clamping Replace or resharpen tools Reduce feed rate Check resharpening quality
Crack in the core	Impact on the cross cutting Edge Gashout too strong Feed rate too high Too little relief grinding	Avoid impact on the cross-cutting edge Use suitable drill type Reduce feed rate Check regrinding quality
Cross-cutting edge wear	Cutting speed too low Cooling lubricant supply not sufficient Cooling lubricant composition not correct Feed rate too high	Correct cutting speed Ensure good cooling lubricant supply and pressure Ensure correct cooling lubricant composition Reduce feed rate
Formation of built-up edges	Insufficient cooling lubricant supply Incorrect cooling lubricant composition Cutting speed too low Uncoated tool	Ensure good cooling lubricant supply and pressure Ensure correct cooling lubricant composition Increase cutting speed Use coated tool
Poor surface quality of the hole	Built-up edge on the drill, Guide chamfer wear Runout errors	Increase feed rate Align drilling tools
Vibrations	Cutting speed too high Feed rate too low Unstable workpiece clamping Drill runout error too high	Reduce cutting speed Increase feed rate Ensure stable workpiece clamping Align drilling tools
Flank wear	Cutting speed too high Feed rate too low Clearance angle too small	Reduce cutting speed Increase feed rate Increase clearance angle, Use suitable drill type
Corner wear	Cutting speed and feed rate do not match Incorrect centering angle	Reduce speed to optimum 2°- 4° Select larger center point angle
Guide chamfer wear	Cutting speed too high Drill runout error too high Taper on the tool too small Insufficient cooling lubricant supply Incorrect cooling lubricant composition	Reduce cutting speed Align drilling tools Use suitable drill type Ensure good cooling lubricant supply and pressure Ensure correct cooling lubricant composition
Breakage of the flute outlet	Poor chip removal Drill not stable in the chuck	Use suitable drill type Ensure that the drill is seated in the chuck, that the drill is seated in the chuck
Tool life too short	Incorrect cutting data Unstable workpiece clamping Cooling lubricant supply not sufficient Cooling lubricant composition not correct	Ensure correct cutting data Ensure stable workpiece clamping Ensure good cooling lubricant supply and pressure Ensure correct cooling lubricant composition

Problem solution reaming & countersinking

HB Microtec ACTIONTOOLS & ENGINEERING

Problem	Cause	Solution
Diameter is too large	Cutting speed too high Feed rate too high Cooling lubricant supply not sufficient Cooling lubricant composition not correct Cut too short or very uneven Tool or machine spindler not correct Due to low density or flexible structure the material expands	Reduce cutting speed Reduce feed rate Ensure good cooling lubricant supply and pressure Ensure correct cooling lubricant composition Lengthen lead or reduce lead angle Clamp or guide reamers centrally; Use pendulum holder Reduce reamer diameter
Diameter is too small	Cutting speed too low Feed rate too low Insufficient chip removal Lead too long Reamer with too small an allowance, Material has a high density or Unyielding structure Reamer with too small an allowance Too much heat generated during reaming Bore shrinks again Tool diameter too small	Increase cutting speed Increase feed rate Increase machining allowance Select a shorter lead Use a suitable drill diameter Increase reamer diameter Pre-drill smaller Use internally cooled tools Use a suitable reamer type
Heavy wear	Use too little allowance	Use a larger pilot drill
Out-of-round or tapered bore conical bore	No correct fit in the machine spindle Misalignment between tool and bore Asymmetrical lead angle Clearance angle too large Out-of-round lead Insufficient guide	Check spindle and correct fit Align tools Use suitable lead angle Reduce clearance angle when regrinding Grind lead evenly sharp and round Guide more precisely or use guide reamers
Bad surface quality	AWorn tool Cutting speed too low Feed rate too low Workpiece tends to stick (built-up edge) Cutting edge outlet is sharp-edged Insufficient cooling lubricant supply Incorrect cooling lubricant composition Cutting edges are unevenly engaged	Replace or resharpen tool in good time Increase cutting speed Increase feed rate Increase clearance angle and rake angle, use low-viscosity lubricant Round off and smooth cutting edge run-out Ensure good cooling lubricant supply and pressure Ensure correct cooling lubricant composition Align tools
Tool jams and breaks	Pre-bore too narrow Chamfer width too large Neck length is too short Worn tool	Pre-bore larger Use suitable reamer type Replace or resharpen tool in good time Replace or regrind tool in good time
Chatter marks in the hole	Cutting speed too high Feed rate too low Chip removal too low or uneven Concentricity not correct Guide not sufficiently Tool or workpiece clamping not stable Clearance angle too large	Reduce cutting speed Increase feed rate Pre-drill larger Align tools Use guide reamers or pendulum holders Clamp firmly, ensure sufficient stability Reduce the clearance angle at the gate

List of formulas

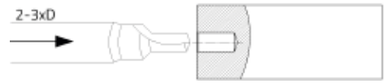
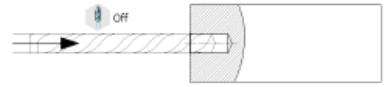
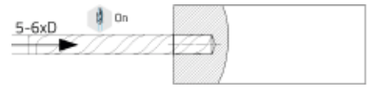
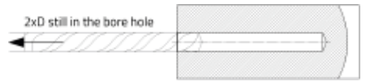
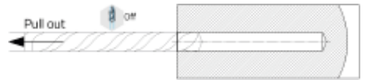
Designation	Formula		Index
Speed	$n=\frac{Vc*1000}{D*\pi}$	[1/min]	D = Cutting edge diameter f = Feed per rotation fz = Flute feed n = Speed Vc = Cutting speed vf = Feed rate z = Number of flutes T = Machining main time for maximum bore depth [sec] L = Effective bore depth Q = Metal removal rate
Cutting diameter	$Vc=\frac{D*\pi*n}{1000}$	[m/min]	
Feed per flute	$f_z=\frac{f}{z}=\frac{V_f}{z*n}$	[mm/U]	
Feed per rotation	$f=f_z*n$	[mm/U]	
Feed rate	$V_f=f_z*z*n$	[mm/min]	
Machining prime time	$T=\frac{L}{v_f}*60$	[sec]	
Metal removal rate	$Q=\frac{D^2*\pi*v_f}{4*1000}$	[cm³ / min]	

Designation	Formula		Index
ONLY FOR DRILLING WITHOUT PILOTING			D = Outside diameter Fc = Cutting force Fcz= Cutting force per tooth Md = Torque Pa = Drive power Pc = Cutting power ap = Cutting depth b = Chip width d = Inside diameter D1max = maximum Outer diameter f = Feed rate fz = Flute feed fB = Drilling process factor [1] fSE = Countersinking process factor [1] h = Chip thickness kc = Specific cutting force [1,2] vc = Cutting speed z = Number of flutes
Cutting force per tooth	$F_{cz}=\frac{D}{2}*f_z*k_c*f_B$	[N]	
Cutting power	$P_c=\frac{F_{cz}*V_c}{60000}$	[kg*m² / s³]	
Torque	$M_d=\frac{F_{cz}*z*\frac{D}{4}}{1000}$	[N*m]	
ONLY FOR DRILLING WITH PILOT HOLE AND COUNTERBORING			
Cutting power	$F_{cz}=\frac{(D-d)}{2}*f_z*k_c*f_B$	[N]	
Cutting speed	$P_c=\frac{F_{cz}*V_c*(1+\frac{d}{D})}{60000}$	[kg*m² / s³]	
Torque	$M_d=\frac{F_{cz}*z*(D+d)}{4000}$	[kg*m² / s²]	

Deep hole drilling process

Application notes for the deep hole drilling process

HB microtec recommends the following drilling strategy:

Steps	Sketch	Designation
	Pilot drill (2-3xD)	
1		■ Pilot hole = 2xD or 3xD ■ For example: ACTIONDRILL® INOX-Pilot or INOX170-Pilot
	Deep hole drill (e.g. 18xD)	
2		■ The pilot hole must be free of chips before the deep hole drill enters! ■ Insert the deep hole drill into the hole at max. 500 1/min and vf=1000 mm/min ■ Without coolant up to approx. 1 mm before the bottom of the pilot hole
	Deep hole drill (e.g. 18xD)	
3		■ The coolant can be switched on ■ Start drilling with reduced speed and feed rate to approx. 5xD ■ To do this, reduce the cutting and feed rates to 40% of the cutting data recommended by HB microtec
	Deep hole drill (e.g. 18xD)	
4		■ The speed and feed rate can now be increased to the recommended cutting data ■ Drilling process without feed interruption up to the desired drilling depth (e.g. 18xD) ■ The drill bit must be engaged without "lifting" or drilling without "steps"!
	Deep hole drill (e.g. 18xD)	
5		■ Reverse the deep hole drill with the following parameters: ■ vf = 1000 mm/min - up to approx. 2xD before the hole exit (position as in step 2)
	Deep hole drill (e.g. 18xD)	
6		■ Switch off the coolant ■ Reduce the speed to max. 300 1/min ■ Move the deep hole drill out of the hole

SAFETY NOTE

Deep hole drills from 12xD may only rotate outside the hole at a maximum speed of 500 rpm.

ATTENTION!

Higher speeds can cause the deep hole drills to vibrate and lead to tool breakage.

z.B. Pilotdrill INOX-3xD-Pilot cooled Ø 2,0 k6; 142° point angle

AD.90.200.140.IK

z.B. Deep hole drill INOX-18xD cooled Ø 2,0 k5; 130° point angle

TD.200.4260.IK

DEBURRING

ACTIONMILL®
by HB microtec

TARGETMILL®
by HB microtec

ACTIONMILL®
by HB microtec

HB microtec®
ACTIONTOOLS & ENGINEERING

HB microtec® offers a complete deburring mill program with the ACTIONMILL® Chamfer and TARGETMILL® Chamfer. Our deburring mill range is perfectly coordinated and provides the ideal deburring tool for every operation.

For example, when edge breaking, valuable production time can be saved with the ACTIONMILL Lollipop® by performing complete deburring directly on the machine.

Material application areas

Titanium alloys, CoCr alloys, stainless steel alloys (INOX), steel alloys, zirconium, PMMA, PEEK, wax, aluminum alloys, brass alloys

Quality

- Finely ground flutes
- Sharp, positive geometries
- Very smooth and droplet-free coatings
- Micro-hardness of up to 7000 HV
- Micro tools and micro geometries with high dimensional accuracy
- Fine-grain solid carbide materials with high fracture toughness and thermal shock resistance
- Strategy support with SolidCAM

HB microtec® solid carbide deburring tools can be run at extremely high feed rates. Thanks to the excellent surface qualities paired with sharp cutting edges and first-class geometries, users benefit from long tool lives.

Upon request, HB microtec® also manufactures customized special deburring geometries. Diameters, lengths, shapes, and the number of cutting edges can be tailored to your specific needs. Use our template to customize your solid carbide deburring tool.

Service

Complete machining technology from a single source:

- Cutting tools - development and manufacture
- Resharpening of your cutting tools
- Delivery and collection service
- 7-10 day express service
- Contract grinding of your medical technology products
- Project planning of cutting processes
- CAM programming

We are happy to support you in application technology and in the creation of NC deburring programs with the SolidCAM CAM system.

Standard deburring tools

ACTIONMILL INOX-Lollipop
Ø 0,8 - Ø 10,0

Overview:
- High-performance mill Lollipop from Ø 0.8 mm to Ø 10 mm
- Deburring complex contours using spherical cutting edges
- 3 cutting edges cutting over 305° of the ball
- For INOX (stainless steel), titanium G3 to G5, steel and cast iron
- Deburring, chamfering or 3D-profiling with a single tool

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ACTIONMILL TITAN-Lollipop
Ø 0,8 - Ø 10,0

Overview:
- High-performance mill Lollipop from Ø 0.8 mm to Ø 10 mm
- Deburring complex and demanding contours using spherical cutting edges
- 3 cutting edges cutting over 305° of the ball
- For TITANIUM G1 & G2; aluminum, plastics, brass
- Deburring, chamfering or 3D-profiling with one tool

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ACTIONMILL Quarter-Chamfer Z2
R 0,2 - R 3,0

Overview:
- Quarter-circle mill from R 0.2 mm to R 3.0 mm
- Small inside diameters for precision engineering
- Radiuses can be milled directly – no more 3D-profiling needed
- Thanks to the 4°–6° taper on both ends, no secondary burrs are produced
- 2 cutting edges provide ample chip space

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ACTIONMILL Quarter-Chamfer Z3
R 0,2 - R 3,0

Overview:
- Quarter-circle mill from R 0.2 mm to R 3.0 mm
- Small inside diameters for precision engineering
- Radiuses can be milled directly – no more 3D-profiling needed
- Thanks to the 4°–6° taper on both ends, no secondary burrs form
- 3 cutting edges ensure excellent surface quality

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Standard deburring tools

ACTIONMILL INOX-Front-Chamfer
Ø 0,5 - Ø 8,0

Overview:
- 90° step mill for chamfering and deburring from Ø 0.5 mm to Ø 8.0 mm
- Deburring edges, grooves, holes, and threads
- No secondary burrs form
- Universally usable in a wide variety of materials
- 4 to 6 cutting edges ensure excellent surface quality

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TARGETMILL Double-Chamfer
Ø 1,8 - Ø 6,0

Overview:
- 90° step mill for chamfering and deburring from Ø 0.5 mm to Ø 8.0 mm
- No secondary burrs form
- Universally usable in a wide variety of materials
- 4 to 6 cutting edges ensure excellent surface quality

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TARGETMILL Back-Chamfer
Ø 0,5

Overview:
- Back-chamfer tool for holes starting from Ø 0.5 mm
- "Micro" deburrer from Ø 0.46 mm to Ø 4.7 mm
- No secondary burrs form
- Universally usable in a wide variety of materials
- 3 to 6 cutting edges ensure excellent surface quality

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INOX-Lollipop

from Ø 0,8 ± 0,02 mm
to Ø 10 ± 0,02 mm

TITAN-Lollipop

305°
full wrap cutting edges

Coating color:
Brown

The high-performance α-INOX coating guarantees a long service life and prevents the cutting edge from sticking

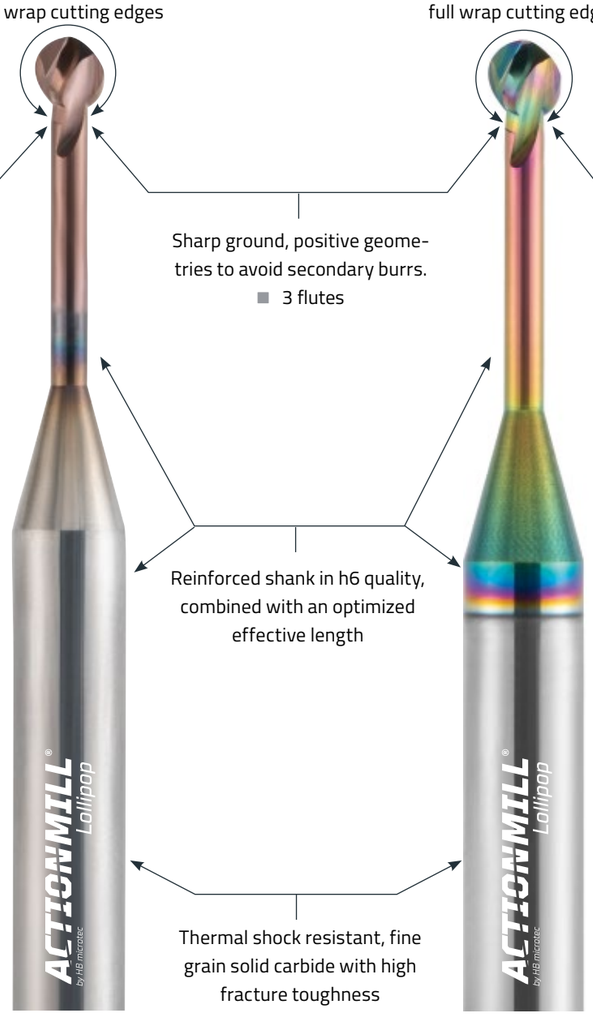
305°
full wrap cutting edges

Coating color:
Rainbow

The high-performance β-TITAN coating guarantees a long service life and prevents the cutting edge from sticking

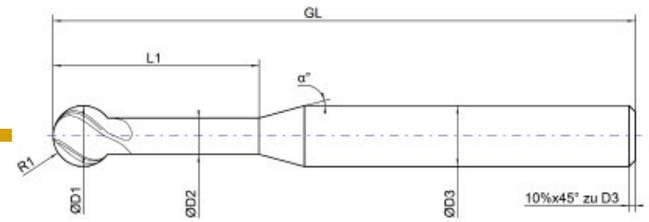
Sharp ground, positive geometries to avoid secondary burrs.

- 3 flutes



Reinforced shank in h6 quality, combined with an optimized effective length

Thermal shock resistant, fine grain solid carbide with high fracture toughness



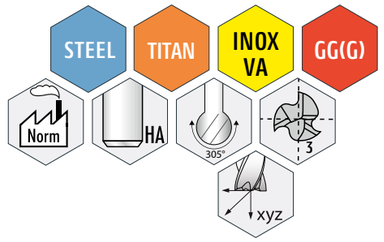
☐ **Inquiry**

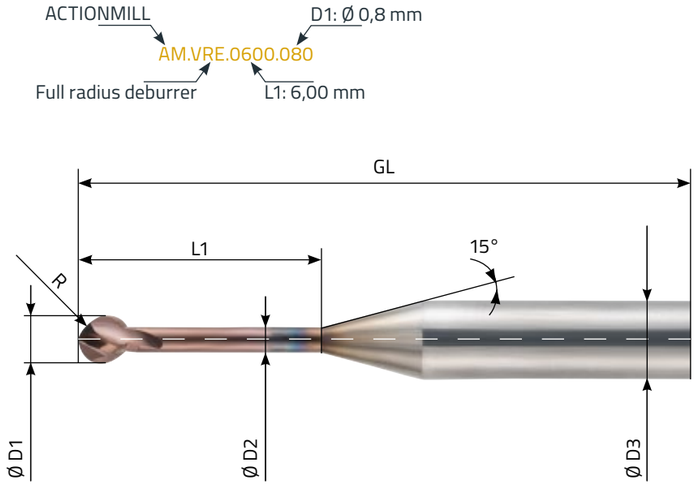
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ R_1: _____ D_2: _____ L_1: _____ α: _____ D_3: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

INOX-Lollipop





5 PRO's of the ACTIONMILL:

- High-performance mill Lollipop from Ø 0.8 mm to Ø 10.0 mm
- Milling of demanding and complex contours using the 305° cutting edges
- No secondary burrs thanks to the 3 flutes
- For INOX (stainless steel) titanium G3 to G5; steel and cast iron
- Deburring, chamfering or filing with one tool

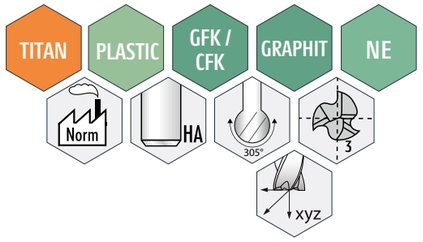
Article number	Coating	Flutes	D1 (mm)	D1 (inch)	R (mm)	D2 (mm)	D3 h6 (mm)	L1 (mm)	GL (mm)
AM.VRE.0600.080	α-INOX	3	Ø 0,800	-	0,4000	0,40	4,00	6,00	50,00
AM.VRE.0600.100	α-INOX	3	Ø 1,000	-	0,5000	0,50	4,00	6,00	50,00
AM.VRE.0800.120	α-INOX	3	Ø 1,200	-	0,6000	0,60	4,00	8,00	50,00
AM.VRE.0800.150	α-INOX	3	Ø 1,500	-	0,7500	0,75	4,00	8,00	50,00
AM.VRE.0800.1587	α-INOX	3	Ø 1,587	1 / 16"	0,7935	0,79	4,00	8,00	60,00
AM.VRE.1000.180	α-INOX	3	Ø 1,800	-	0,9000	0,90	4,00	10,00	60,00
AM.VRE.1000.200	α-INOX	3	Ø 2,000	-	1,0000	1,00	4,00	10,00	60,00
AM.VRE.1100.220	α-INOX	3	Ø 2,200	-	1,1000	1,10	4,00	11,00	60,00
AM.VRE.1100.2381	α-INOX	3	Ø 2,381	3 / 32"	1,1905	1,19	4,00	11,00	60,00
AM.VRE.1200.250	α-INOX	3	Ø 2,500	-	1,2500	1,25	4,00	12,00	60,00
AM.VRE.1400.280	α-INOX	3	Ø 2,800	-	1,4000	1,40	4,00	14,00	60,00
AM.VRE.1400.300	α-INOX	3	Ø 3,000	-	1,5000	1,50	4,00	14,00	60,00
AM.VRE.1600.3175	α-INOX	3	Ø 3,175	1 / 8"	1,5875	1,59	4,00	16,00	60,00
AM.VRE.1800.350	α-INOX	3	Ø 3,500	-	1,7500	1,75	6,00	18,00	70,00
AM.VRE.1800.380	α-INOX	3	Ø 3,800	-	1,9000	1,90	6,00	18,00	70,00
AM.VRE.1800.3968	α-INOX	3	Ø 3,968	5 / 32"	1,9840	1,99	6,00	18,00	70,00
AM.VRE.1800.400	α-INOX	3	Ø 4,000	-	2,0000	2,00	6,00	18,00	70,00
AM.VRE.1800.420	α-INOX	3	Ø 4,200	-	2,1000	2,10	6,00	18,00	70,00
AM.VRE.2400.450	α-INOX	3	Ø 4,500	-	2,2500	2,25	6,00	24,00	80,00
AM.VRE.2400.4762	α-INOX	3	Ø 4,762	3 / 16"	2,3810	2,38	6,00	24,00	80,00
AM.VRE.2500.500	α-INOX	3	Ø 5,000	-	2,5000	2,50	6,00	25,00	80,00
AM.VRE.2500.520	α-INOX	3	Ø 5,200	-	2,6000	2,60	6,00	25,00	80,00
AM.VRE.2600.5556	α-INOX	3	Ø 5,556	7 / 32"	2,7780	2,78	6,00	26,00	80,00
AM.VRE.2600.580	α-INOX	3	Ø 5,800	-	2,9000	2,90	8,00	26,00	80,00
AM.VRE.2600.600	α-INOX	3	Ø 6,000	-	3,0000	3,00	8,00	26,00	80,00
AM.VRE.2600.620	α-INOX	3	Ø 6,200	-	3,1000	3,10	8,00	26,00	80,00
AM.VRE.2600.635	α-INOX	3	Ø 6,350	1/ 4"	3,1750	3,18	8,00	26,00	80,00
AM.VRE.2800.680	α-INOX	3	Ø 6,800	-	3,4000	3,40	8,00	28,00	90,00
AM.VRE.2800.700	α-INOX	3	Ø 7,000	-	3,5000	3,50	8,00	28,00	90,00
AM.VRE.2800.800	α-INOX	3	Ø 8,000	-	4,0000	4,00	10,00	28,00	90,00
AM.VRE.3000.900	α-INOX	3	Ø 9,000	-	4,5000	4,50	10,00	30,00	90,00
AM.VRE.3200.1000	α-INOX	3	Ø 10,000	-	5,0000	5,00	12,00	32,00	100,00

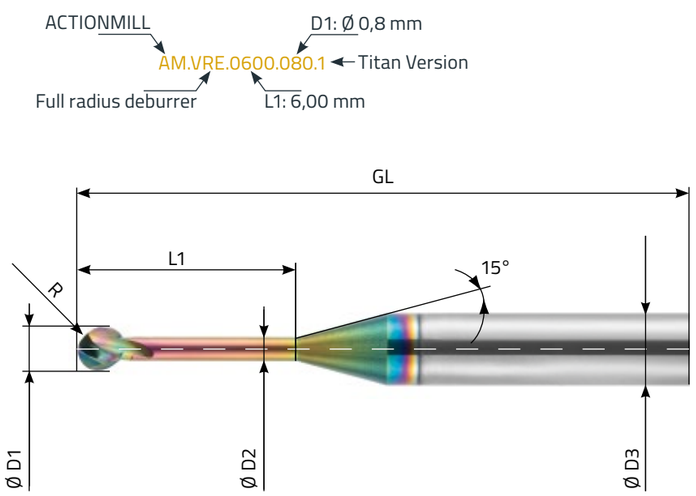
Available from stock

Overview:
305° ±5° full-wrap cutting edges

The α-INOX coating is very temperature-stable and adhesion-reducing with a layer thickness of 1.5 ± 0.5 µm and a micro-hardness of (HV) 3700 + 400, max. operating temperature 1100°C.

TITAN-Lollipop





5 PRO's of the ACTIONMILL:

- High-performance mill Lollipop from Ø 0.8 mm to Ø 10.0 mm
- Milling of demanding and complex contours using the 305° cutting edges
- No secondary burrs thanks to the 3 flutes
- For TITAN G1 & G2; aluminum, plastics, brass
- Deburring, chamfering or chamfering with one tool

Article number	Coating	Flutes	D1 (mm)	D1 (inch)	R (mm)	D2 (mm)	D3 h6 (mm)	L1 (mm)	GL (mm)
AM.VRE.0600.080.1	β-Titan	3	Ø 0,800	-	0,4000	0,40	4,00	6,00	50,00
AM.VRE.0600.100.1	β-Titan	3	Ø 1,000	-	0,5000	0,50	4,00	6,00	50,00
AM.VRE.0800.120.1	β-Titan	3	Ø 1,200	-	0,6000	0,60	4,00	8,00	50,00
AM.VRE.0800.150.1	β-Titan	3	Ø 1,500	-	0,7500	0,75	4,00	8,00	50,00
AM.VRE.0800.1587.1	β-Titan	3	Ø 1,587	1 / 16"	0,7935	0,79	4,00	8,00	60,00
AM.VRE.1000.180.1	β-Titan	3	Ø 1,800	-	0,9000	0,90	4,00	10,00	60,00
AM.VRE.1000.200.1	β-Titan	3	Ø 2,000	-	1,0000	1,00	4,00	10,00	60,00
AM.VRE.1100.220.1	β-Titan	3	Ø 2,200	-	1,1000	1,10	4,00	11,00	60,00
AM.VRE.1100.2381.1	β-Titan	3	Ø 2,381	3 / 32"	1,1905	1,19	4,00	11,00	60,00
AM.VRE.1200.250.1	β-Titan	3	Ø 2,500	-	1,2500	1,25	4,00	12,00	60,00
AM.VRE.1400.280.1	β-Titan	3	Ø 2,800	-	1,4000	1,40	4,00	14,00	60,00
AM.VRE.1400.300.1	β-Titan	3	Ø 3,000	-	1,5000	1,50	4,00	14,00	60,00
AM.VRE.1600.3175.1	β-Titan	3	Ø 3,175	1 / 8"	1,5875	1,59	4,00	16,00	60,00
AM.VRE.1800.350.1	β-Titan	3	Ø 3,500	-	1,7500	1,75	6,00	18,00	70,00
AM.VRE.1800.380.1	β-Titan	3	Ø 3,800	-	1,9000	1,90	6,00	18,00	70,00
AM.VRE.1800.3968.1	β-Titan	3	Ø 3,968	5 / 32"	1,9840	1,99	6,00	18,00	70,00
AM.VRE.1800.400.1	β-Titan	3	Ø 4,000	-	2,0000	2,00	6,00	18,00	70,00
AM.VRE.1800.420.1	β-Titan	3	Ø 4,200	-	2,1000	2,10	6,00	18,00	70,00
AM.VRE.2400.450.1	β-Titan	3	Ø 4,500	-	2,2500	2,25	6,00	24,00	80,00
AM.VRE.2400.4762.1	β-Titan	3	Ø 4,762	3 / 16"	2,3810	2,38	6,00	24,00	80,00
AM.VRE.2500.500.1	β-Titan	3	Ø 5,000	-	2,5000	2,50	6,00	25,00	80,00
AM.VRE.2500.520.1	β-Titan	3	Ø 5,200	-	2,6000	2,60	6,00	25,00	80,00
AM.VRE.2600.5556.1	β-Titan	3	Ø 5,556	7 / 32"	2,7780	2,78	6,00	26,00	80,00
AM.VRE.2600.580.1	β-Titan	3	Ø 5,800	-	2,9000	2,90	8,00	26,00	80,00
AM.VRE.2600.600.1	β-Titan	3	Ø 6,000	-	3,0000	3,00	8,00	26,00	80,00
AM.VRE.2600.620.1	β-Titan	3	Ø 6,200	-	3,1000	3,10	8,00	26,00	80,00
AM.VRE.2600.635.1	β-Titan	3	Ø 6,350	1/ 4"	3,1750	3,18	8,00	26,00	80,00
AM.VRE.2800.680.1	β-Titan	3	Ø 6,800	-	3,4000	3,40	8,00	28,00	90,00
AM.VRE.2800.700.1	β-Titan	3	Ø 7,000	-	3,5000	3,50	8,00	28,00	90,00
AM.VRE.2800.800.1	β-Titan	3	Ø 8,000	-	4,0000	4,00	10,00	28,00	90,00
AM.VRE.3000.900.1	β-Titan	3	Ø 9,000	-	4,5000	4,50	10,00	30,00	90,00
AM.VRE.3200.1000.1	β-Titan	3	Ø 10,000	-	5,0000	5,00	12,00	32,00	100,00

Available from stock

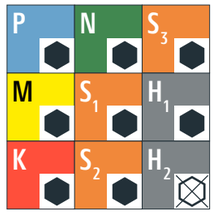
Overview:

305° ±5° full wrap cutting edges

The β-TITAN coating is very adhesion-reducing with a friction coefficient of 0.07 against steel and with a layer thickness of 1.5 ± 0.5 µm and a microhardness (HV) 5000 +2000, max. application temperature 1000°C.

Cutting data - ACTIONMILL Lollipop

ACTIONMILL® by HB microtec Lollipop



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation ⬢ Very well suited ⬡ Conditionally suited ⊠ Not recommended

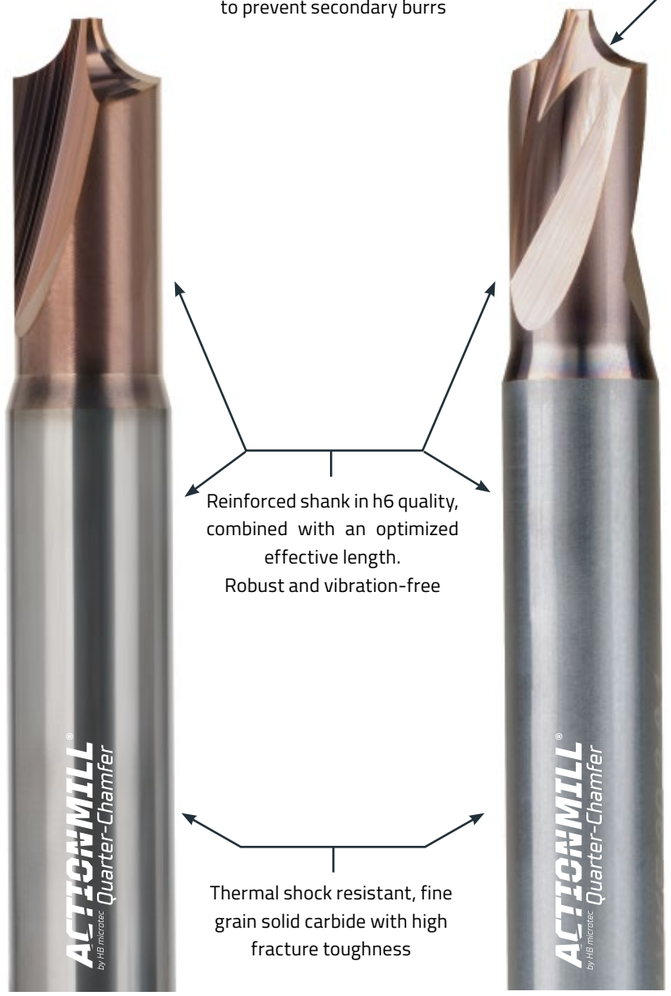
Ø 0,8 - Ø 2 mm		Ø 2,5 -Ø 4 mm		Ø 6 - Ø10 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
100-140	0,02 - 0,035	100-140	0,03 - 0,045	100-140	0,05 - 0,065
100-140	0,02 - 0,03	100-140	0,03 - 0,04	100-140	0,05 - 0,055
80-110	0,02 - 0,03	80-110	0,035 - 0,045	80-110	0,045 - 0,055
70-100	0,015 - 0,025	70-100	0,035 - 0,045	70-100	0,045 - 0,055
80-140	0,02 - 0,04	80-140	0,04 - 0,055	80-140	0,05 - 0,065
80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06
80-140	0,02 - 0,045	80-140	0,035 - 0,06	80-140	0,055 - 0,06
80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06
50 - 80	0,02 - 0,03	50 - 80	0,03 - 0,04	50 - 80	0,03 - 0,05
50-80	0,02 - 0,03	50-80	0,03 - 0,04	50-80	0,03 - 0,05
50-80	0,02 - 0,03	50-80	0,03 - 0,04	50-80	0,03 - 0,05
No data entered					
No data entered					

INOX-Quarter-Chamfer

from R 0,2 ± 0,01 mm
to R 3,0 ± 0,01 mm

The high-performance α-INOX coating guarantees a long service life and prevents the cutting edge from sticking.
- 2 flutes

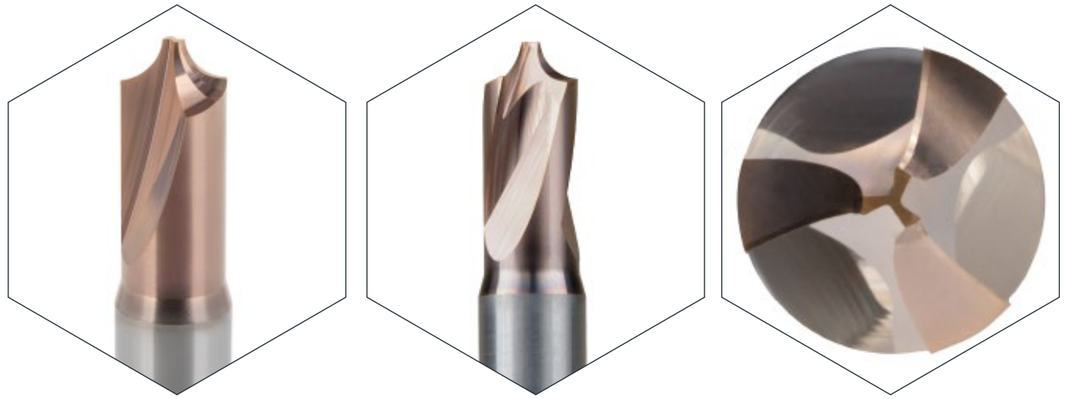
Sharply cut, positive geometries to prevent secondary burrs

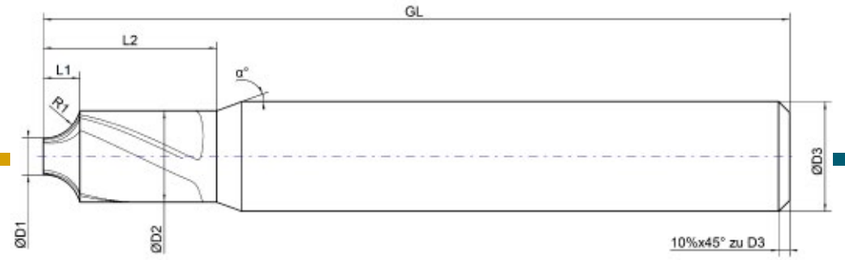


The high-performance α-INOX coating guarantees a long service life and prevents the cutting edge from sticking.
- 3 flutes

Reinforced shank in h6 quality, combined with an optimized effective length.
Robust and vibration-free

Thermal shock resistant, fine grain solid carbide with high fracture toughness





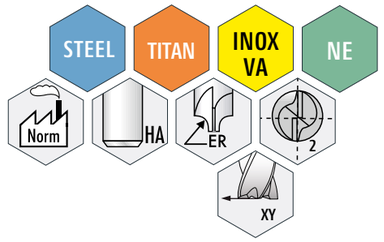
☐ **Inquiry**

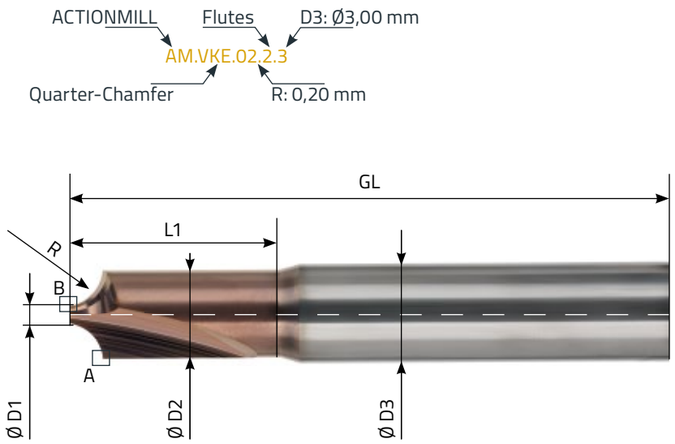
☐ **Order** **Order number:** _____ **Other:** _____

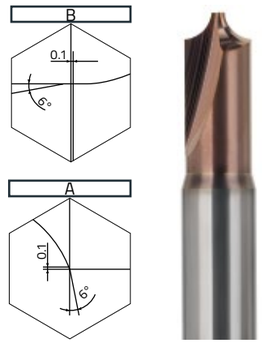
Dimensions: D_1: _____ GL: _____ Z: _____ D_2: _____ L_1: _____ α: _____ D_3: _____ L_2: _____ R_1: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

INOX-Quarter-Chamfer Z2







5 PRO’s of the ACTIONMILL:

- INOX quarter circle milling cutters from R 0.2 mm to R 3.0 mm
- Mill radiuses directly – no edge breaking required
- Thanks to the 4°–6° taper at both ends, no secondary burrs are formed
- Small inside diameters from Ø0.5 for precision engineering
- 2 Flutes ensure sufficient chip space

Article number	Coating	Flutes	D1 (mm)	R (mm)	D2 (mm)	D3 (mm)	L1 (mm)	GL (mm)
AM.VKE.02.2.3	α-INOX	2	Ø0,50	0,20	Ø1,00	Ø3,00	4,00	50,00
AM.VKE.03.2.3	α-INOX	2	Ø0,50	0,30	Ø1,25	Ø3,00	4,00	50,00
AM.VKE.04.2.3	α-INOX	2	Ø0,50	0,40	Ø1,40	Ø3,00	5,00	50,00
AM.VKE.05.2.3	α-INOX	2	Ø0,50	0,50	Ø1,60	Ø3,00	6,00	50,00
AM.VKE.10.2.3	α-INOX	2	Ø0,80	1,00	Ø2,80	Ø3,00	8,00	50,00
AM.VKE.15.2.6	α-INOX	2	Ø1,50	1,50	Ø4,40	Ø6,00	12,00	50,00
AM.VKE.20.2.6	α-INOX	2	Ø1,50	2,00	Ø5,30	Ø6,00	14,00	50,00
AM.VKE.25.2.8	α-INOX	2	Ø1,50	2,50	Ø6,20	Ø8,00	16,00	60,00
AM.VKE.30.2.8	α-INOX	2	Ø1,50	3,00	Ø7,10	Ø8,00	17,00	60,00

Available from stock

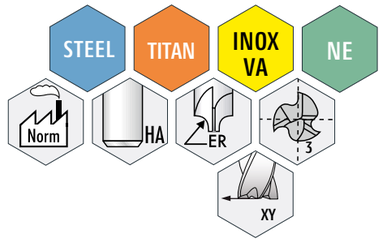
Overview:

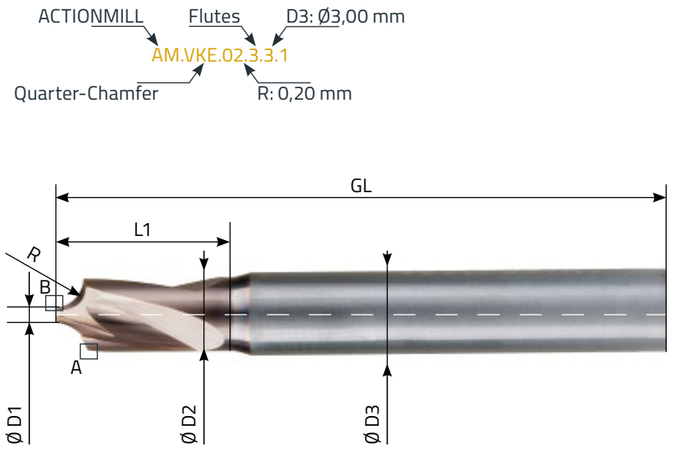
INOX quarter circle mill Z2 with 4°-6° taper at both ends

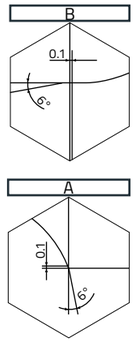
The α-INOX coating is very temperature-stable and adhesion-reducing with a coating thickness of 1.5 ± 0.5 µm and a microhardness of (HV) 3700 + 400, max. operating temperature 1100°C.

Ideal material application range for machining stainless steel alloys (INOX), CoCr alloys, titanium alloys (G5), steel alloys, cast iron, aluminum alloys and plastic alloys.

INOX-Quarter-Chamfer Z3







5 PRO's of the ACTIONMILL:

- INOX quarter circle milling cutter from R 0.2 mm to R 3.0 mm
- Mill radiuses directly – no edge breaking required
- Thanks to the 4°–6° taper at both ends, no secondary burrs are formed
- Can be used universally in a wide range of materials
- 3 flutes ensure excellent surface qualities

Article number	Coating	Flutes	D1 (mm)	R (mm)	D2 (mm)	D3 (mm)	L1 (mm)	GL (mm)
AM.VKE.02.3.3.1	α-INOX	3	Ø0,50	0,20	Ø1,00	Ø3,00	4,00	50,00
AM.VKE.03.3.3.1	α-INOX	3	Ø0,50	0,30	Ø1,25	Ø3,00	4,00	50,00
AM.VKE.04.3.3.1	α-INOX	3	Ø0,50	0,40	Ø1,40	Ø3,00	5,00	50,00
AM.VKE.05.3.3.1	α-INOX	3	Ø0,50	0,50	Ø1,60	Ø3,00	6,00	50,00
AM.VKE.10.3.3.1	α-INOX	3	Ø0,80	1,00	Ø2,80	Ø3,00	8,00	50,00
AM.VKE.15.3.6.1	α-INOX	3	Ø1,50	1,50	Ø4,40	Ø6,00	12,00	50,00
AM.VKE.20.3.6.1	α-INOX	3	Ø1,50	2,00	Ø5,30	Ø6,00	14,00	50,00
AM.VKE.25.3.8.1	α-INOX	3	Ø1,50	2,50	Ø6,20	Ø8,00	16,00	60,00
AM.VKE.30.3.8.1	α-INOX	3	Ø1,50	3,00	Ø7,10	Ø8,00	17,00	60,00

Available from stock

Overview:

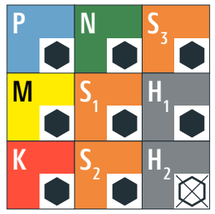
INOX quarter circle milling cutter Z3 with 4°-6° taper at both ends.

The α-INOX coating is very temperature-stable and adhesion-reducing with a coating thickness of 1.5 ± 0.5 µm and a microhardness of (HV) 3700 + 400, max. operating temperature 1100°C.

Ideal material application range for machining stainless steel alloys (INOX), CoCr alloys, titaniumalloys (G5), steel alloys, cast iron, aluminum alloys and plastic alloys.

Cutting data - ACTIONMILL Quarter-Chamfer

ACTIONMILL® by HB microtec Quarter-Chamfer



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation ⬢ Very well suited ⬡ Conditionally suited ⊠ Not recommended

R0,2 - R1,0 mm		R1,0 -R2 mm		R2,0 - R3,0 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
100-140	0,02 - 0,035	100-140	0,03 - 0,045	100-140	0,05 - 0,065
100-140	0,02 - 0,03	100-140	0,03 - 0,04	100-140	0,05 - 0,055
80-110	0,02 - 0,03	80-110	0,035 - 0,045	80-110	0,045 - 0,055
70-100	0,015 - 0,025	70-100	0,035 - 0,045	70-100	0,045 - 0,055
80-140	0,02 - 0,04	80-140	0,04 - 0,055	80-140	0,05 - 0,065
80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06
80-140	0,02 - 0,045	80-140	0,035 - 0,06	80-140	0,055 - 0,06
80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06
50 - 80	0,02 - 0,03	50 - 80	0,03 - 0,04	50 - 80	0,03 - 0,05
50-80	0,02 - 0,03	50-80	0,03 - 0,04	50-80	0,03 - 0,05
50-80	0,02 - 0,03	50-80	0,03 - 0,04	50-80	0,03 - 0,05
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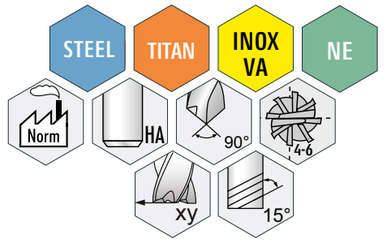
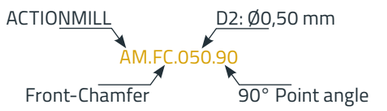
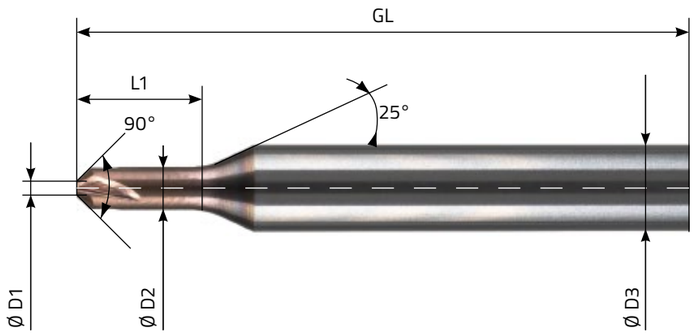
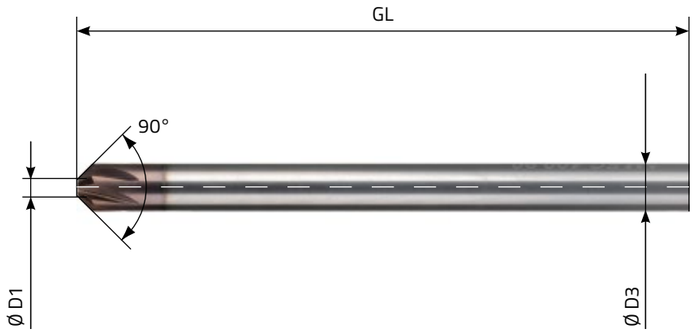
INOX-Front-Chamfer









Long and short shafts available;

Article number	Coating	Flutes	D1 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	GL (mm)
AM.FC.050.90	α-INOX	4	0,20	0,50	4,00	3,00	55,00
AM.FC.050.90.XL	α-INOX	4	0,20	0,50	4,00	6,00	70,00
AM.FC.100.90	α-INOX	4	0,30	1,00	4,00	3,00	55,00
AM.FC.100.90.XL	α-INOX	4	0,30	1,00	4,00	6,00	70,00
AM.FC.200.90	α-INOX	4	0,60	2,00	4,00	6,00	55,00
AM.FC.200.90.XL	α-INOX	4	0,60	2,00	4,00	9,00	80,00
AM.FC.300.90	α-INOX	5	1,00	3,00	4,00	9,00	55,00
AM.FC.300.90.XL	α-INOX	5	1,00	3,00	4,00	12,00	80,00
AM.FC.400.90	α-INOX	6	1,50	4,00	4,00	-	55,00
AM.FC.400.90.XL	α-INOX	6	1,50	4,00	4,00	-	80,00
AM.FC.600.90	α-INOX	6	2,00	6,00	6,00	-	57,00
AM.FC.600.90.XL	α-INOX	6	2,00	6,00	6,00	-	100,00
AM.FC.800.90	α-INOX	6	2,50	8,00	8,00	-	58,00
AM.FC.800.90.XL	α-INOX	6	2,50	8,00	8,00	-	101,00

Abvailable from stock

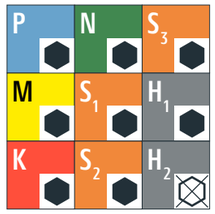
5x PRO's of the ACTIONMILL:

- "Micro" front deburrer from Ø 0.5 mm to Ø 8.0 mm
- Deburring, chamfering of edges, grooves, holes and threads
- Reinforced design for long tool life
- Universally applicable in a wide range of materials
- 4 to 6 flutes ensure excellent surface qualities

Cutting data - ACTIONMILL INOX-Front-Chamfer

HB microtec ACTIONTOOLS & ENGINEERING

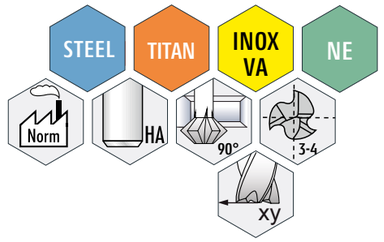
ACTIONMILL® by HB microtec INOX-Front-Chamfer

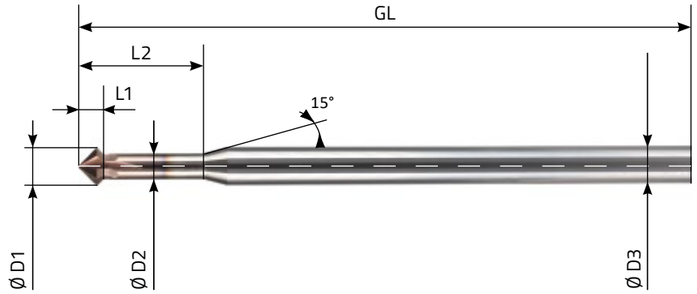


Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS	Ø 0,5 - Ø 2 mm vc [m/min]	Ø 0,5 - Ø 2 mm fz [mm]	Ø 3 -Ø 4 mm vc [m/min]	Ø 3 -Ø 4 mm fz [mm]	Ø 6 - Ø8 mm vc [m/min]	Ø 6 - Ø8 mm fz [mm]
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020	100-140	0,02 - 0,035	100-140	0,02 - 0,045	100-140	0,05 - 0,065
		1.0715	11SMn30	AISI 1215	100-140	0,02 - 0,03	100-140	0,02 - 0,04	100-140	0,05 - 0,055
		1.7131	16MnCr5	AISI 5115						
		1.3505	100Cr6	AISI 52100	80-110	0,01 - 0,03	80-110	0,015 - 0,045	80-110	0,045 - 0,055
		1.7225	42CrMo4	AISI 4140	70-100	0,01 - 0,025	70-100	0,015 - 0,045	70-100	0,045 - 0,055
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C						
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	80-140	0,01 - 0,04	80-140	0,02 - 0,055	80-140	0,05 - 0,065
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH						
		1.4301	X5CrNi 18-10	AISI 304	80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06
		1.4435	X2CrNiMo 18-14-3	AISI 316L	80-140	0,02 - 0,045	80-140	0,035 - 0,06	80-140	0,055 - 0,06
K	Cast iron	0.6020	GG20	ASTM 30	80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06
		0.6030	GG30	ASTM 40B						
		0.7040	GGG40	ASTM 60-40-18	50 - 80	0,008 - 0,015	50 - 80	0,015 - 0,04	50 - 80	0,03 - 0,05
		0.7060	GGG60	ASTM 80-60-03	50-80	0,008 - 0,015	50-80	0,015 - 0,04	50-80	0,03 - 0,05
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351	50-80	0,008 - 0,015	50-80	0,015 - 0,04	50-80	0,03 - 0,05
		2.0065	Cu-ETP / CW004A	UNS C11000						
		2.0321	CuZn37 CW508L	UNS C27400	No data entered					
		2.0401	CuZn39Pb3 / CW614N	UNS C38500	No data entered					
		2.0966	CuAl10Ni5Fe4	UNS C63000						
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2						
		2.4665	NiCr22Fe18Mo	Hastelloy X						
		3.7165	TiAl6V4	ASTM B348 / F136						
		9.9367	TiAl6Nb7	ASTM F1295						
		2.4964	CoCr20W15Ni	Haynes 25						
			CrCoMo28	ASTM F1537						
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1						
		1.2379	X153CrMoV12	AISI D2						

Double-Chamfer





5 PRO's of the TARGETMILL:

- Forward & backward deburrer from Ø 1.8 mm to Ø 6 mm (D1)
- High flexibility in the variety of applications
- No secondary burrs
- Universally applicable in a wide range of materials
- 3 to 4 flutes ensure excellent surface qualities

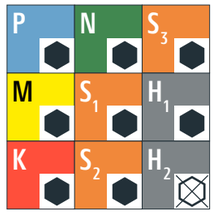
Article number	Coating	Flutes	D1 (mm)	D2 h6 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TM.DC.180.140	α-INOX	3	Ø 1,80	Ø 1,00	Ø 6,00	1,30	10,00	100,00
TM.DC.200.140	α-INOX	3	Ø 2,00	Ø 1,20	Ø 6,00	1,40	10,00	100,00
TM.DC.280.200	α-INOX	4	Ø 2,80	Ø 1,80	Ø 6,00	1,90	10,00	100,00
TM.DC.300.200	α-INOX	4	Ø 3,00	Ø 2,00	Ø 6,00	2,00	10,00	100,00
TM.DC.380.300	α-INOX	4	Ø 3,80	Ø 1,80	Ø 6,00	2,90	14,00	100,00
TM.DC.400.300	α-INOX	4	Ø 4,00	Ø 2,00	Ø 6,00	3,00	13,00	100,00
TM.DC.580.400	α-INOX	4	Ø 5,80	Ø 3,80	Ø 6,00	3,90	20,00	100,00
TM.DC.600.400	α-INOX	4	Ø 6,00	Ø 4,00	Ø 6,00	4,00	19,00	100,00

Available from stock

Cutting data - TARGETDRILL Double-Chamfer

HB microtec ACTIONTOOLS & ENGINEERING

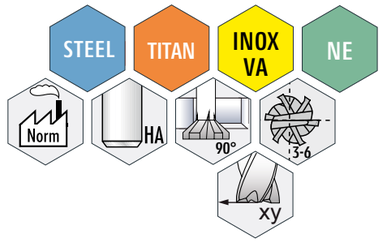
TARGETMILL® by HB microtec Double-Chamfer

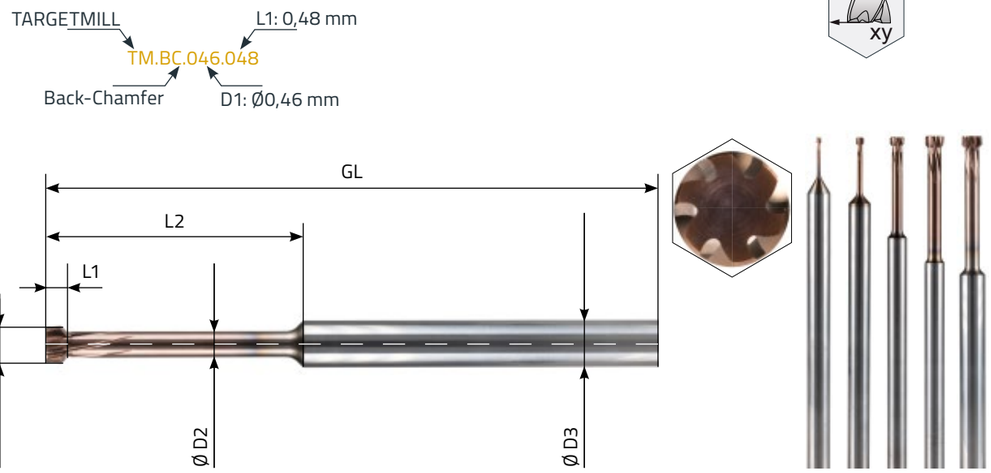


Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS	Ø 2 - Ø 3 mm vc [m/min]	Ø 2 - Ø 3 mm fz [mm]	Ø 4 mm vc [m/min]	Ø 4 mm fz [mm]	Ø 6 mm vc [m/min]	Ø 6 mm fz [mm]
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020	100-140	0,02 - 0,035	100-140	0,02 - 0,045	100-140	0,05 - 0,065
		1.0715	11SMn30	AISI 1215	100-140	0,02 - 0,03	100-140	0,02 - 0,04	100-140	0,05 - 0,055
		1.7131	16MnCr5	AISI 5115	80-110	0,01 - 0,03	80-110	0,015 - 0,045	80-110	0,045 - 0,055
		1.3505	100Cr6	AISI 52100	70-100	0,01 - 0,025	70-100	0,015 - 0,045	70-100	0,045 - 0,055
		1.7225	42CrMo4	AISI 4140	80-140	0,01 - 0,04	80-140	0,02 - 0,055	80-140	0,05 - 0,065
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C	80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	80-140	0,02 - 0,045	80-140	0,035 - 0,06	80-140	0,055 - 0,06
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH	80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06
		1.4301	X5CrNi 18-10	AISI 304	50 - 80	0,008 - 0,015	50 - 80	0,015 - 0,04	50 - 80	0,03 - 0,05
		1.4435	X2CrNiMo 18-14-3	AISI 316L	50-80	0,008 - 0,015	50-80	0,015 - 0,04	50-80	0,03 - 0,05
K	Cast iron	0.6020	GG20	ASTM 30	50-80	0,008 - 0,015	50-80	0,015 - 0,04	50-80	0,03 - 0,05
		0.6030	GG30	ASTM 40B	No data entered					
		0.7040	GGG40	ASTM 60-40-18	No data entered					
		0.7060	GGG60	ASTM 80-60-03						
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351						
		2.0065	Cu-ETP / CW004A	UNS C11000						
		2.0321	CuZn37 CW508L	UNS C27400						
		2.0401	CuZn39Pb3 / CW614N	UNS C38500						
		2.0966	CuAl10Ni5Fe4	UNS C63000						
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2						
		2.4665	NiCr22Fe18Mo	Hastelloy X						
		3.7165	TiAl6V4	ASTM B348 / F136						
		9.9367	TiAl6Nb7	ASTM F1295						
		2.4964	CoCr20W15Ni	Haynes 25						
			CrCoMo28	ASTM F1537						
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1						
		1.2379	X153CrMoV12	AISI D2						

Back-Chamfer





5 PRO's of the TARGETMILL:

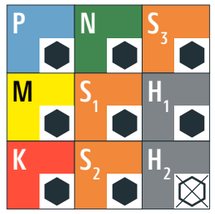
- "Micro" deburrer from Ø 0.46 mm to Ø 4.7 mm
- Back deburrer for bores from Ø 0.5 mm
- No secondary burrs
- Can be used universally in a wide variety of materials
- 3 to 6 flutes ensure excellent surface qualities

Article number	Coating	Flutes	D1 (mm)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TM.BC.046.048	α-INOX	3	Ø 0,46	Ø 0,30	Ø 3,00	0,48	3,00	50,00
TM.BC.090.100	α-INOX	4	Ø 0,90	Ø 0,60	Ø 4,00	1,00	6,00	60,00
TM.BC.140.133	α-INOX	4	Ø 1,40	Ø 0,95	Ø 4,00	1,33	9,00	60,00
TM.BC.290.190	α-INOX	5	Ø 2,90	Ø 2,10	Ø 4,00	1,90	18,00	70,00
TM.BC.370.250	α-INOX	5	Ø 3,70	Ø 2,70	Ø 4,00	2,50	24,00	70,00
TM.BC.470.270	α-INOX	6	Ø 4,70	Ø 3,30	Ø 6,00	2,70	30,00	80,00

Available from stock

Cutting data - TARGETMILL Back-Chamfer

TARGETMILL® by HB microtec Back-Chamfer



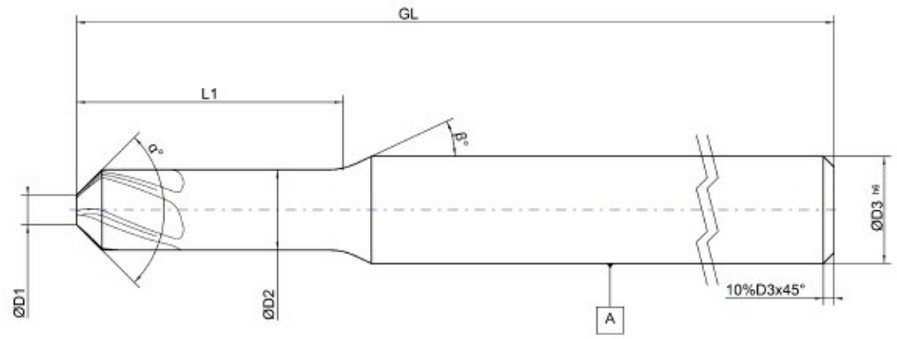
Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation ⬢ Very well suited ⬡ Conditionally suited ⊠ Not recommended

Ø 0,46 - Ø 1,4 mm		Ø2,9 - Ø 3,7 mm		Ø 4,7 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
100-140	0,02 - 0,035	100-140	0,02 - 0,045	100-140	0,025 - 0,065
100-140	0,02 - 0,03	100-140	0,02 - 0,04	100-140	0,025 - 0,055
80-110	0,01 - 0,03	80-110	0,015 - 0,045	80-110	0,025 - 0,055
70-100	0,01 - 0,025	70-100	0,015 - 0,045	70-100	0,025 - 0,055
80-140	0,01 - 0,04	80-140	0,02 - 0,055	80-140	0,03 - 0,065
80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,025 - 0,06
80-140	0,02 - 0,045	80-140	0,035 - 0,06	80-140	0,025 - 0,06
80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,025 - 0,06
50 - 80	0,008 - 0,015	50 - 80	0,015 - 0,04	50 - 80	0,02 - 0,05
50-80	0,008 - 0,015	50-80	0,015 - 0,04	50-80	0,02 - 0,05
50-80	0,008 - 0,015	50-80	0,015 - 0,04	50-80	0,02 - 0,05
No data entered					
No data entered					

Front-Chamfer

High-feed deburring or chamfering tools



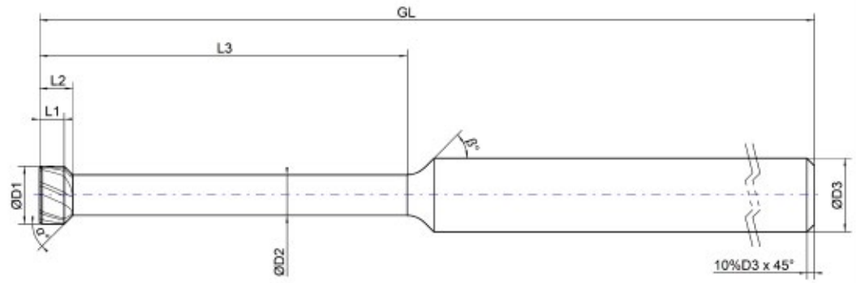
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Back-Chamfer



☐ **Inquiry**

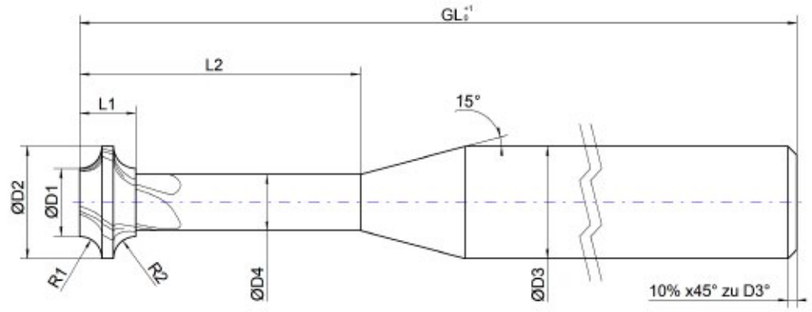
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ Z: _____ L_3: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Forward and reverse radius mill

Customized special mill suitable for your application



☐ **Inquiry**

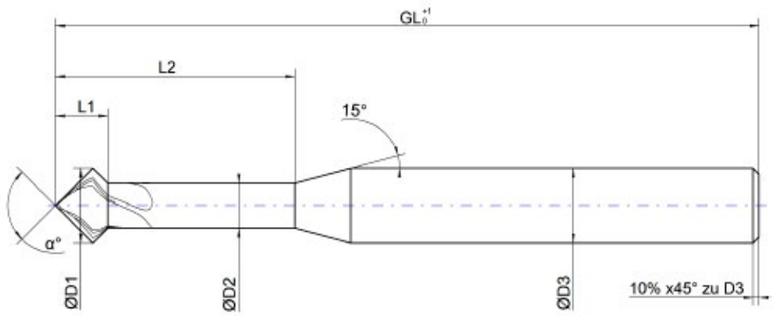
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ R_1: _____ D_2: _____ L_1: _____ R_2: _____ D_3: _____ L_2: _____ Z: _____ D_4: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Forward and reverse radius mill

Customized special mill suitable for your application

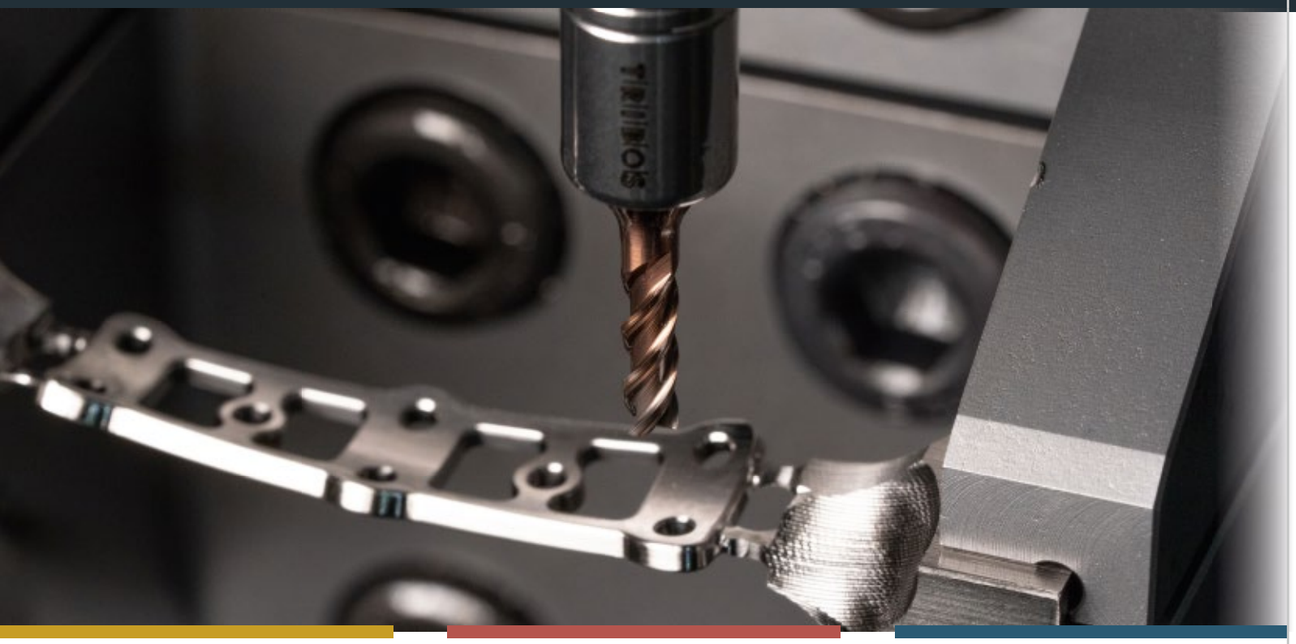


☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

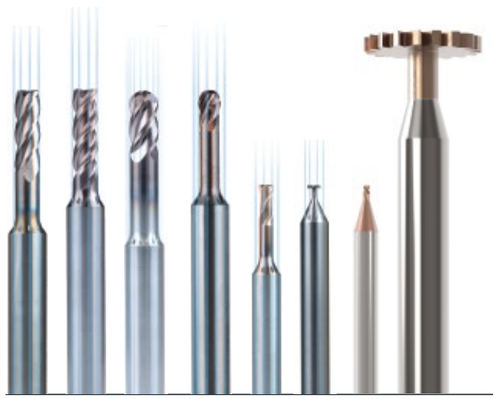
Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ Z: _____ L_3: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.



ACTIONMILL®
by HB microtec

TARGETMILL®
by HB microtec



Standard milling tools

ACTIONMILL INOX-micro cooled
Ø 0,2 - Ø 2,0 integrated cooling

Overview:
- 2xD cutting length & 5xD neck diameter; micro end mills from Ø0.3 to Ø2.0
- Protected & sharp mill corner with Z2
- Integrated cooling prevents chip accumulation
- Short process times & high process reliability
- Very long tool life
- Chrome-free coating avoids cross-contamination with medical parts

Page 144

TARGETMILL INOX-micro
Ø 0,2 - Ø 2,0

Overview:
- 2xD to 3xD cutting edge length from Ø0.2 to Ø2.0
- Protected & sharp mill corner with Z2
- Optimum price/performance ratio
- Short process times and high process reliability
- Very long tool life
- Chrome-free coating avoids cross-contamination with medical parts

Page 146

ACTIONMILL INOX-Groover cooled
Ø 0,7 - Ø 8,0 integrated cooling

Overview:
- 1.5xD & 3xD cutting edge length from Ø0.7 to Ø8.0 with Z3
- Plunging, ramping (70°) or vertical (90°) drilling possible
- Roughing and finishing with just one tool
- Integrated cooling prevents chip build-up
- Very high feed rates possible
- Short process times and high process reliability
- Chrome-free coating prevents cross-contamination with medical parts

Page 152

ACTIONMILL INOX-Groover
Ø 0,7 - Ø 8,0

Overview:
- 1.5xD & 3xD cutting edge length from Ø0.7 to Ø8.0 with Z3
- Plunging, ramping (70°) or vertical (90°) drilling possible
- Roughing & finishing with just one tool
- Very long tool life
- Very high feed rates possible
- Short process times and high process reliability
- Chrome-free coating prevents cross-contamination with medical parts

Page 156

ACTIONMILL INOX torus cooled
Ø 1,0 - Ø 6,35 integrated cooling

Overview:
- 3xD cutting edge length and 5xD neck clearance
- Z4 Torus mill from Ø1.0 to Ø6.35
- ER 0.15 to ER1.5 available from stock
- Roughing & finishing with just one tool
- Integrated cooling prevents chip build-up
- Very high feed rates possible
- Chrome-free coating prevents cross-contamination with medical parts

Page 164

ACTIONMILL INOX-micro Ball cooled
Ø 0,2 - Ø 1,0 integrated cooling

Overview:
- Short + rigid variant 3xD Internally cooled micro mill
- Very high feed rates possible
- Short process times and high process reliability
- High-quality and precise surfaces
- Very long tool life (center cutting)

Page 170

ACTIONMILL INOX Ball cooled
Ø 1,0 - Ø 8,0 integrated cooling

Overview:
- 3xD & 5xD micro full radius milling cutters from Ø1.0 to
- Ø8.0 with Z4
- Integrated cooling prevents chip jams
- High-quality and precise surfaces
- Center cutting
- Short process times and high process reliability
- Chrome-free coating prevents cross-contamination with medical parts

Page 178

ACTIONMILL INOX Ball
Ø 1,0 - Ø 8,0

Overview:
- 11.5xD HSC ball from Ø3 to Ø8 with Z4
- 3xD & 5xD micro full-radius milling cutters from Ø1.0 to Ø8.0 with Z4
- High-quality and precise surfaces
- Center cutting
- Short process times and high process reliability
- Chrome-free coating prevents cross-contamination with medical parts

Page 182

Standard milling tools

ACTIONMILL INOX Ball 260° cooled

Ø 1,0 - Ø 10,0 integrated cooling

Overview:

- 260° cutting edge circumference of the full radius mill from Ø1.0 to Ø10.0 with Z4
- Integrated cooling prevents chip accumulation
- High-quality and precise surfaces
- Undercuts possible & center cutting
- Short process times and high process reliability (long service life)
- Chrome-free coating prevents cross-contamination with the medical parts

Page 192

ACTIONMILL INOX Ball 260°

Ø 1,0 - Ø 10,0

Overview:

- 260° cutting edge circumference of the full radius mill
- From Ø1.0 to Ø10.0 with Z4
- Undercuts possible
- High-quality and precise surfaces
- Center cutting
- Short process times and high process reliability (long service life)
- Chrome-free coating prevents cross-contamination with medical parts

Page 194

ACTIONMILL T-Slot cooled

Ø 0,8 - Ø 12,0 integrated cooling

Overview:

- Quickly available, semi-standardized T-slot
- Integrated cooling prevents chip accumulation Micro and macro geometry at the highest level
- High performance at a very good price-performance ratio
- Ideal for specific applications, e.g. in medical technology
- Also specialized for difficult-to-cut materials

Page 204

ACTIONMILL T-Slot

Ø 0,8 - Ø 16,0

Overview:

- Quickly available, semi-standardized T-slot
- Micro and macro geometry at the highest level
- High performance at a very good price-performance ratio
- Ideal for specific applications, e.g. in medical technology
- Specialized also for difficult-to-cut materials

Page 206

ACTIONMILL T-Slot

Ø 20 - Ø 40,2

Overview:

- Quickly available, semi-standardized T-slot
- Micro and macro geometry at the highest level
- High performance at a very good price-performance ratio
- Ideal for specific applications, e.g. in medical technology
- Specialized also for difficult-to-cut materials

Page 208

INOX-micro cooled

INOX-micro

from Ø 0,2 mm
to Ø 2,0 mm

Z2 - Sharp

2xD cutting edge length

5xD neck diameter

Integrated cooling channels protect the tool from overheating and flush away all chips

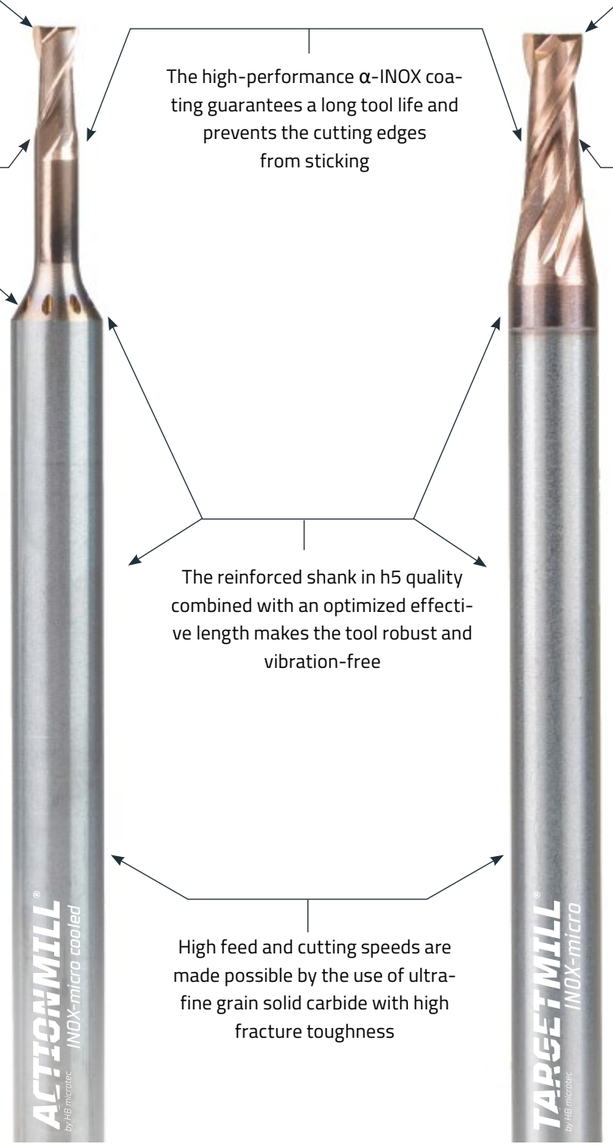
The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edges from sticking

The reinforced shank in h5 quality combined with an optimized effective length makes the tool robust and vibration-free

High feed and cutting speeds are made possible by the use of ultra-fine grain solid carbide with high fracture toughness

Z2 - Sharp

2-3xD cutting edge length

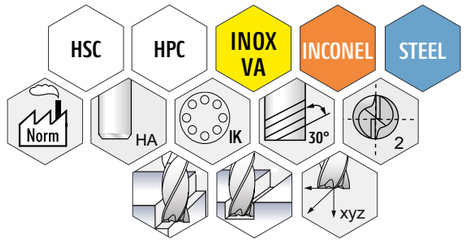


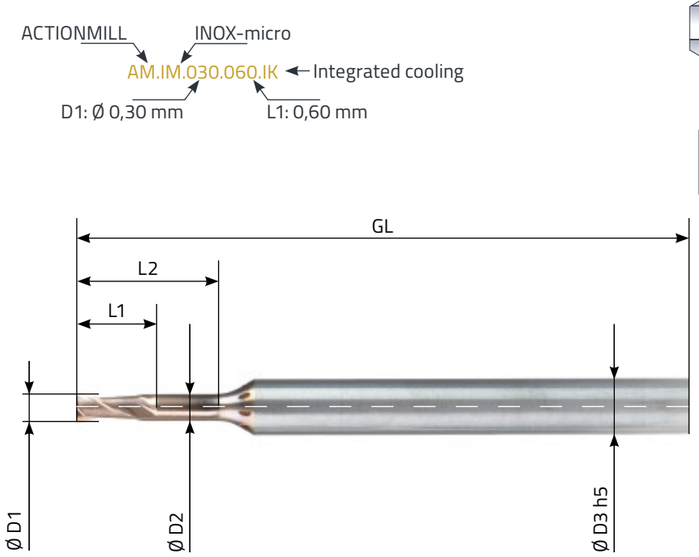
☐ **Inquiry** **Order number:** _____ ☐ **Order**

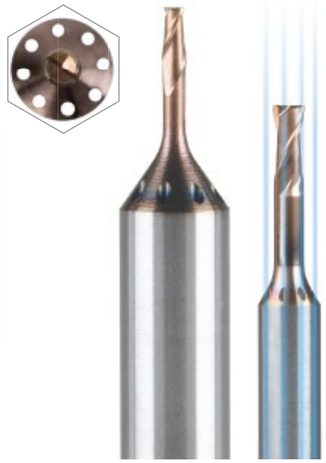
Dimensions: D_1: _____ GL: _____ EF: _____ D_2: _____ L_1: _____ ER: _____ D_3: _____ L_2: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

5xD INOX-micro cooled







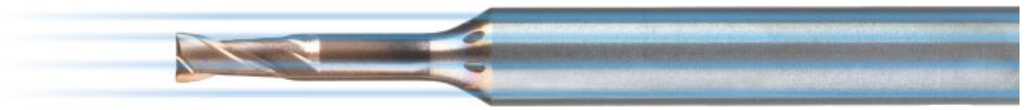
5 PRO's of the ACTIONMILL:

- Protected & sharp mill corner
- Integrated cooling prevents chip accumulation
- Very high feed rates possible
- Short process times and high process reliability
- Very long tool life

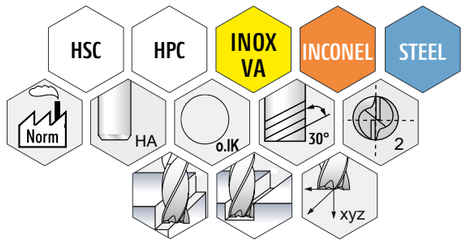
Article number	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (5xD / mm)	GL (mm)
AM.IM.020.040.IK	Ø0,20	Ø0,18	Ø4,00	0,40	1,00	40,00
AM.IM.030.060.IK	Ø 0,30	Ø 0,25	Ø 4,00	0,60	1,50	40,00
AM.IM.040.080.IK	Ø 0,40	Ø 0,35	Ø 4,00	0,80	2,00	40,00
AM.IM.050.100.IK	Ø 0,50	Ø 0,45	Ø 4,00	1,00	2,50	40,00
AM.IM.060.120.IK	Ø 0,60	Ø 0,55	Ø 4,00	1,20	3,00	40,00
AM.IM.070.140.IK	Ø 0,70	Ø 0,65	Ø 4,00	1,40	3,50	40,00
AM.IM.080.160.IK	Ø 0,80	Ø 0,74	Ø 4,00	1,60	4,00	40,00
AM.IM.090.180.IK	Ø 0,90	Ø 0,82	Ø 4,00	1,80	4,50	40,00
AM.IM.100.200.IK	Ø 1,00	Ø 0,90	Ø 4,00	2,00	5,00	40,00
AM.IM.110.220.IK	Ø 1,10	Ø 1,00	Ø 4,00	2,20	5,50	40,00
AM.IM.120.240.IK	Ø 1,20	Ø 1,10	Ø 4,00	2,40	6,00	40,00
AM.IM.130.260.IK	Ø 1,30	Ø 1,20	Ø 4,00	2,60	6,50	40,00
AM.IM.140.280.IK	Ø 1,40	Ø 1,30	Ø 4,00	2,80	7,00	40,00
AM.IM.150.300.IK	Ø 1,50	Ø 1,40	Ø 4,00	3,00	7,50	50,00
AM.IM.160.320.IK	Ø 1,60	Ø 1,50	Ø 4,00	3,20	8,00	50,00
AM.IM.170.340.IK	Ø 1,70	Ø 1,60	Ø 4,00	3,40	8,50	50,00
AM.IM.180.360.IK	Ø 1,80	Ø 1,70	Ø 4,00	3,60	9,00	50,00
AM.IM.190.380.IK	Ø 1,90	Ø 1,80	Ø 4,00	3,80	9,50	50,00
AM.IM.200.400.IK	Ø 2,00	Ø 1,90	Ø 4,00	4,00	10,00	50,00

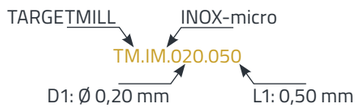
Available from stock

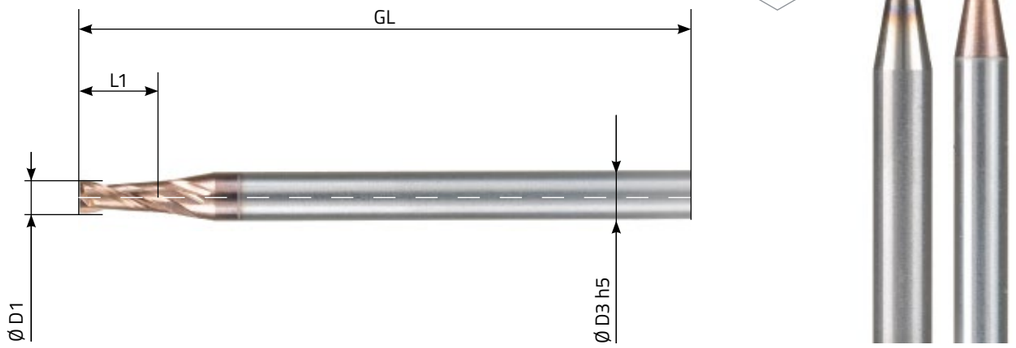
- α-INOX coated



INOX-micro







5 PRO's of the ACTIONMILL:

- Protected & sharp mill corner
- Optimum price/performance ratio
- High feed rates possible
- Short process times and high process reliability
- Long tool life

Article number	D1 (mm)	D3 h6 (mm)	L1 (mm)	Z	GL (mm)
TM.IM.020.050	Ø 0,20	3,00	0,50	2,00	38,00
TM.IM.025.050	Ø 0,25	3,00	0,50	2,00	38,00
TM.IM.030.100	Ø 0,30	3,00	1,00	2,00	38,00
TM.IM.040.100	Ø 0,40	3,00	1,00	2,00	38,00
TM.IM.050.150	Ø 0,50	3,00	1,50	2,00	38,00
TM.IM.060.150	Ø 0,60	3,00	1,50	2,00	38,00
TM.IM.070.200	Ø 0,70	3,00	2,00	2,00	38,00
TM.IM.080.200	Ø 0,80	3,00	2,00	2,00	38,00
TM.IM.090.250	Ø 0,90	3,00	2,50	2,00	38,00
TM.IM.100.300	Ø 1,00	3,00	3,00	2,00	38,00
TM.IM.110.300	Ø 1,10	3,00	3,00	2,00	38,00
TM.IM.120.400	Ø 1,20	3,00	4,00	2,00	38,00
TM.IM.130.400	Ø 1,30	3,00	4,00	2,00	38,00
TM.IM.140.400	Ø 1,40	3,00	4,00	2,00	38,00
TM.IM.150.400	Ø 1,50	3,00	4,00	2,00	38,00
TM.IM.160.400	Ø 1,60	3,00	4,00	2,00	38,00
TM.IM.170.400	Ø 1,70	3,00	4,00	2,00	38,00
TM.IM.180.500	Ø 1,80	3,00	5,00	2,00	38,00
TM.IM.190.500	Ø 1,90	3,00	5,00	2,00	38,00
TM.IM.200.500	Ø 2,00	3,00	5,00	2,00	38,00

Available from stock

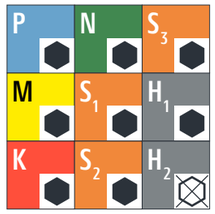
- α-INOX coated

Cutting data - ACTIONMILL INOX-micro cooled

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec INOX-micro cooled

TARGETMILL® by HB microtec INOX-micro



Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

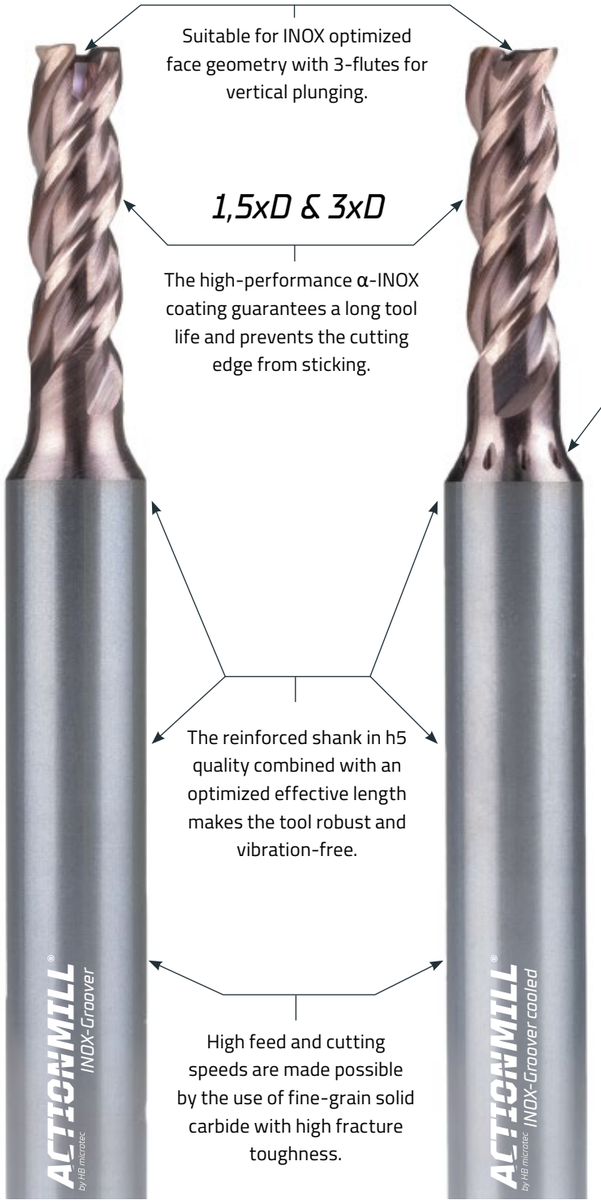
Material group	Material group	Material no.	DIN	AISI/ASTM/UNS	Ø 0,3 - Ø 0,8 mm		Ø 0,8 -Ø 1,4 mm		Ø 1,4 - Ø 2,0 mm	
					vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020	20-60	0,003 - 0,01	30-60	0,006 - 0,012	30-70	0,008 - 0,016
		1.0715	11SMn30	AISI 1215	20-60	0,003 - 0,01	30-60	0,006 - 0,012	30-70	0,008 - 0,016
		1.7131	16MnCr5	AISI 5115	20-60	0,003 - 0,01	30-60	0,006 - 0,012	30-70	0,008 - 0,016
		1.3505	100Cr6	AISI 52100	20-60	0,003 - 0,01	30-70	0,006 - 0,012	30-75	0,008 - 0,016
		1.7225	42CrMo4	AISI 4140	20-70	0,004 - 0,01	30-70	0,008 - 0,018	30-75	0,01 - 0,022
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C	20-70	0,003 - 0,01	30-70	0,006 - 0,014	30-75	0,008 - 0,02
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH	20-70	0,003 - 0,01	30-60	0,006 - 0,014	30-70	0,008 - 0,02
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH	30-60	0,003 - 0,01	25-60	0,006 - 0,014	25-70	0,006 - 0,018
		1.4301	X5CrNi 18-10	AISI 304	15-60	0,003 - 0,008	30-60	0,006 - 0,014	30-60	0,008 - 0,02
		1.4435	X2CrNiMo 18-14-3	AISI 316L	15-60	0,003 - 0,008	30-60	0,006 - 0,014	30-60	0,008 - 0,02
K	Cast iron	0.6020	GG20	ASTM 30	15-60	0,003 - 0,008	30-60	0,006 - 0,014	30-60	0,008 - 0,02
		0.6030	GG30	ASTM 40B	No data entered					
		0.7040	GGG40	ASTM 60-40-18	No data entered					
		0.7060	GGG60	ASTM 80-60-03						
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351						
		2.0065	Cu-ETP / CW004A	UNS C11000						
		2.0321	CuZn37 CW508L	UNS C27400						
		2.0401	CuZn39Pb3 / CW614N	UNS C38500						
		2.0966	CuAl10Ni5Fe4	UNS C63000						
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2						
		2.4665	NiCr22Fe18Mo	Hastelloy X						
		3.7165	TiAl6V4	ASTM B348 / F136						
		9.9367	TiAl6Nb7	ASTM F1295						
		2.4964	CoCr20W15Ni	Haynes 25						
			CrCoMo28	ASTM F1537						
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1						
		1.2379	X153CrMoV12	AISI D2						

INOX-Groover

from Ø 0,7
to Ø 8,0

INOX-Groover cooled

from Ø 0,7
to Ø 8,0



Suitable for INOX optimized face geometry with 3-flutes for vertical plunging.

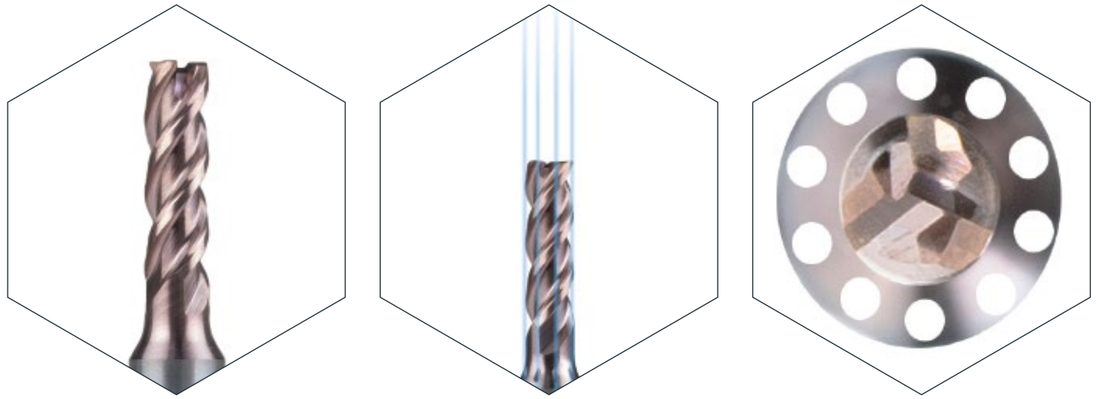
1,5xD & 3xD

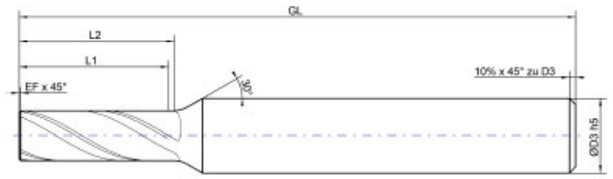
The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edge from sticking.

Integrated cooling channels protect the tool from overheating when cutting titanium alloys and stainless steels.

The reinforced shank in h5 quality combined with an optimized effective length makes the tool robust and vibration-free.

High feed and cutting speeds are made possible by the use of fine-grain solid carbide with high fracture toughness.



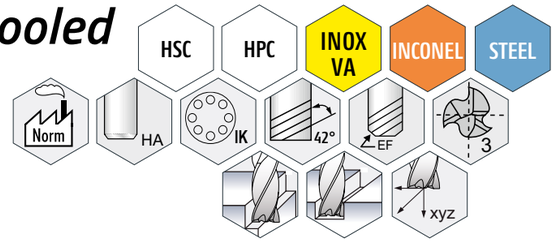


☐ **Inquiry** **Order number:** _____ ☐ **Order**

Dimensions:	**Coating:**	**Cooling channels:**
D_1: _____ GL: _____ EF: ☐ D_2: _____ L_1: _____ ER: ☐ D_3: _____ L_2: _____ Z: _____	☐ Coated*: _____ ☐ Uncoated	☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

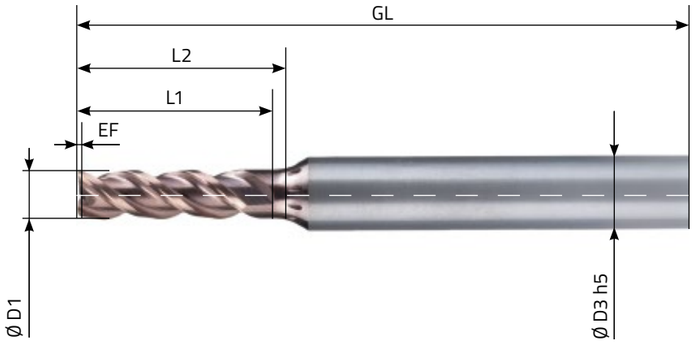
1,5xD INOX-Groover cooled



ACTIONMILL — Groover — Integrated cooling

AM.GR.100.150.IK-1.5D

D1: Ø 1,00 mm — L1: 1,50 mm



5 PRO's of the ACTIONMILL:

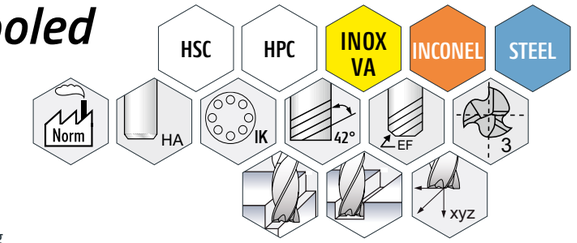
- Plunging, ramping (70°) or vertical (90°) drilling possible
- Roughing and finishing with just one tool
- Very high feed rates possible
- Short process times and high process reliability
- Very long tool life

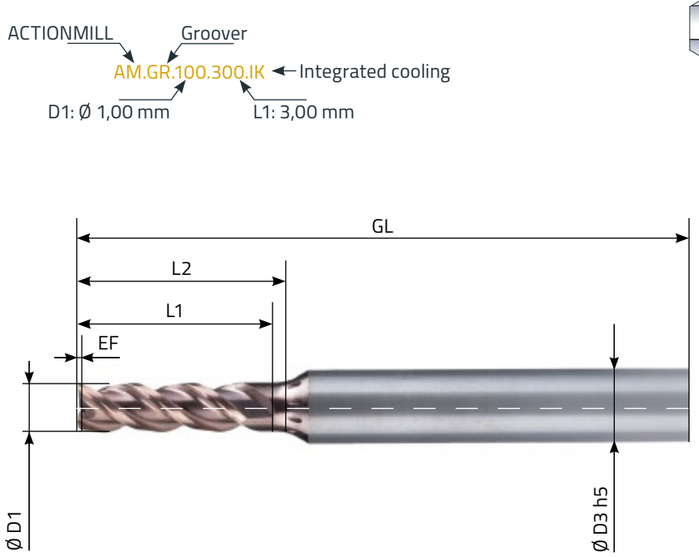
Article number	D1 +0/-0,02 (mm)	D1 (inch)	D3 h5 (mm)	L1 (3xD1/mm)	L2 (mm)	EF (45°) (mm)	GL (mm)
AM.GR.070.100.IK-1.5D	Ø 0,700	-	Ø 4,00	1,00	1,80	0,02	40,00
AM.GR.080.120.IK-1.5D	Ø 0,800	-	Ø 4,00	1,20	2,00	0,02	40,00
AM.GR.090.130.IK-1.5D	Ø 0,900	-	Ø 4,00	1,30	2,30	0,02	40,00
AM.GR.100.150.IK-1.5D	Ø 1,000	-	Ø 4,00	1,50	2,50	0,03	40,00
AM.GR.120.180.IK-1.5D	Ø 1,200	-	Ø 4,00	1,80	3,00	0,03	40,00
AM.GR.150.220.IK-1.5D	Ø 1,500	-	Ø 4,00	2,20	3,30	0,03	40,00
AM.GR.1587.240.IK-1.5D	Ø 1,587	Ø 1/16	Ø 4,00	2,40	3,40	0,03	40,00
AM.GR.180.270.IK-1.5D	Ø 1,800	-	Ø 4,00	2,70	3,70	0,03	50,00
AM.GR.200.300.IK-1.5D	Ø 2,000	-	Ø 4,00	3,00	4,00	0,03	50,00
AM.GR.220.330.IK-1.5D	Ø 2,200	-	Ø 4,00	3,30	4,30	0,03	50,00
AM.GR.2381.360.IK-1.5D	Ø 2,381	Ø 3/32	Ø 4,00	3,60	4,60	0,05	50,00
AM.GR.250.370.IK-1.5D	Ø 2,500	-	Ø 6,00	3,70	4,80	0,05	50,00
AM.GR.280.420.IK-1.5D	Ø 2,800	-	Ø 6,00	4,20	5,20	0,05	50,00
AM.GR.300.450.IK-1.5D	Ø 3,000	-	Ø 6,00	4,50	5,50	0,05	50,00
AM.GR.3175.480.IK-1.5D	Ø 3,175	Ø 1/8	Ø 6,00	4,80	5,80	0,05	50,00
AM.GR.350.520.IK-1.5D	Ø 3,500	-	Ø 6,00	5,20	6,30	0,05	50,00
AM.GR.370.550.IK-1.5D	Ø 3,700	-	Ø 6,00	5,50	6,60	0,05	50,00
AM.GR.3968.600.IK-1.5D	Ø 3,968	Ø 5/32	Ø 6,00	6,00	6,90	0,05	50,00
AM.GR.400.600.IK-1.5D	Ø 4,000	-	Ø 6,00	6,00	6,90	0,05	50,00
AM.GR.430.650.IK-1.5D	Ø 4,300	-	Ø 8,00	6,50	7,40	0,05	68,00
AM.GR.4762.710.IK-1.5D	Ø 4,762	Ø 3/16	Ø 8,00	7,10	8,20	0,05	68,00
AM.GR.500.750.IK-1.5D	Ø 5,000	-	Ø 8,00	7,50	8,50	0,05	68,00
AM.GR.5556.830.IK-1.5D	Ø 5,556	Ø 7/32	Ø 8,00	8,30	9,40	0,05	68,00
AM.GR.600.900.IK-1.5D	Ø 6,000	-	Ø 8,00	9,00	10,00	0,05	68,00
AM.GR.6350.900.IK-1.5D	Ø 6,350	Ø 1/4	Ø 10,00	9,00	10,00	0,05	84,00
AM.GR.800.1200.IK-1.5D	Ø 8,000	-	Ø 10,00	12,00	13,00	0,05	84,00

Available from stock

- α-INOX coated

3xD INOX-Groover cooled





5 PRO's of the ACTIONMILL:

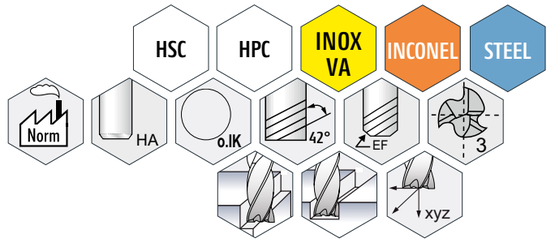
- Plunging, ramping (70°) or vertical (90°) drilling possible
- Roughing and finishing with just one tool
- Very high feed rates possible
- Short process times and high process reliability
- Very long tool life

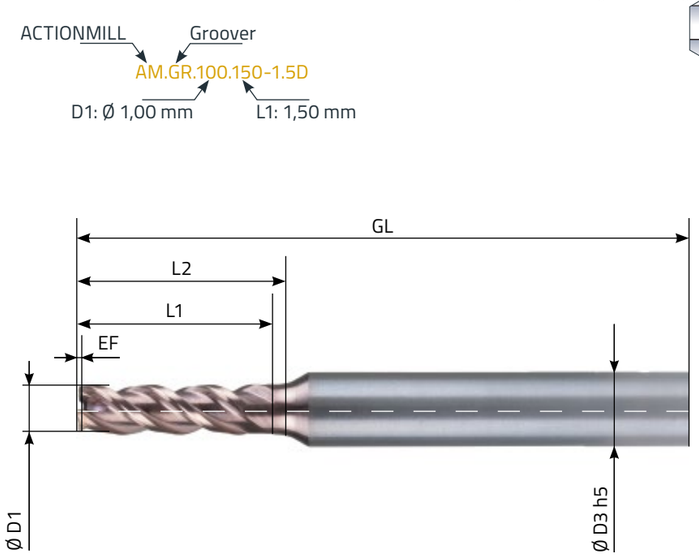
Article number	D1 +0/-0,02 (mm)	D1 (inch)	D3 h5 (mm)	L1 (3xD1/mm)	L2 (mm)	EF (45°) (mm)	GL (mm)
AM.GR.070.210.IK	Ø 0,700	-	Ø 4,00	2,10	2,80	0,02	40,00
AM.GR.080.240.IK	Ø 0,800	-	Ø 4,00	2,40	3,20	0,02	40,00
AM.GR.090.270.IK	Ø 0,900	-	Ø 4,00	2,70	3,60	0,02	40,00
AM.GR.100.300.IK	Ø 1,000	-	Ø 4,00	3,00	4,00	0,03	40,00
AM.GR.120.360.IK	Ø 1,200	-	Ø 4,00	3,60	4,80	0,03	40,00
AM.GR.150.450.IK	Ø 1,500	-	Ø 4,00	4,50	5,50	0,03	40,00
AM.GR.1587.480.IK	Ø 1,587	Ø 1/16	Ø 4,00	4,80	5,80	0,03	40,00
AM.GR.180.540.IK	Ø 1,800	-	Ø 4,00	5,40	6,40	0,03	50,00
AM.GR.200.600.IK	Ø 2,000	-	Ø 4,00	6,00	7,00	0,03	50,00
AM.GR.220.660.IK	Ø 2,200	-	Ø 4,00	6,60	7,60	0,03	50,00
AM.GR.2381.720.IK	Ø 2,381	Ø 3/32	Ø 4,00	7,20	8,20	0,05	50,00
AM.GR.250.750.IK	Ø 2,500	-	Ø 6,00	7,50	8,50	0,05	50,00
AM.GR.280.840.IK	Ø 2,800	-	Ø 6,00	8,40	9,40	0,05	50,00
AM.GR.300.900.IK	Ø 3,000	-	Ø 6,00	9,00	10,00	0,05	50,00
AM.GR.3175.960.IK	Ø 3,175	Ø 1/8	Ø 6,00	9,60	10,60	0,05	50,00
AM.GR.350.1050.IK	Ø 3,500	-	Ø 6,00	10,50	11,50	0,05	50,00
AM.GR.370.1110.IK	Ø 3,700	-	Ø 6,00	11,10	12,10	0,05	50,00
AM.GR.3968.1190.IK	Ø 3,968	Ø 5/32	Ø 6,00	11,90	12,90	0,05	50,00
AM.GR.400.1200.IK	Ø 4,000	-	Ø 6,00	12,00	13,00	0,05	50,00
AM.GR.430.1290.IK	Ø 4,300	-	Ø 8,00	12,90	13,90	0,05	68,00
AM.GR.4762.1430.IK	Ø 4,762	Ø 3/16	Ø 8,00	14,30	15,30	0,05	68,00
AM.GR.500.1500.IK	Ø 5,000	-	Ø 8,00	15,00	16,00	0,05	68,00
AM.GR.5556.1670.IK	Ø 5,556	Ø 7/32	Ø 8,00	16,70	17,70	0,05	68,00
AM.GR.600.1800.IK	Ø 6,000	-	Ø 8,00	18,00	19,00	0,05	68,00
AM.GR.6350.1910.IK	Ø 6,350	Ø 1/4	Ø 10,00	19,10	20,10	0,05	84,00
AM.GR.800.2400.IK	Ø 8,000	-	Ø 10,00	24,00	25,00	0,05	84,00

Available from stock

- α-INOX coated

1,5xD INOX-Groover





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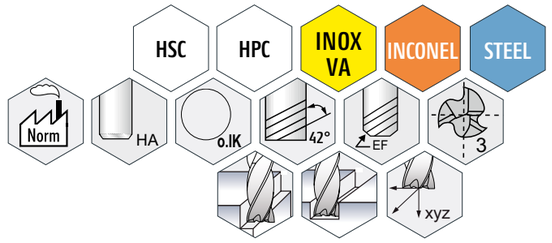
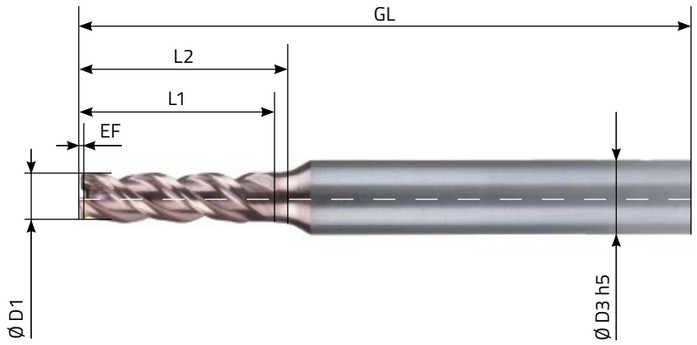
Article number	D1 +0/-0,02 (mm)	D1 (inch)	D3 h5 (mm)	L1 (3xD1/mm)	L2 (mm)	EF (45°) (mm)	GL (mm)
AM.GR.070.100-1.5D	Ø 0,700	-	Ø 4,00	1,00	1,80	0,02	40,00
AM.GR.080.120-1.5D	Ø 0,800	-	Ø 4,00	1,20	2,00	0,02	40,00
AM.GR.090.130-1.5D	Ø 0,900	-	Ø 4,00	1,30	2,30	0,02	40,00
AM.GR.100.150-1.5D	Ø 1,000	-	Ø 4,00	1,50	2,50	0,03	40,00
AM.GR.120.180-1.5D	Ø 1,200	-	Ø 4,00	1,80	3,00	0,03	40,00
AM.GR.150.220-1.5D	Ø 1,500	-	Ø 4,00	2,20	3,30	0,03	40,00
AM.GR.1587.240-1.5D	Ø 1,587	Ø 1/16	Ø 4,00	2,40	3,40	0,03	40,00
AM.GR.180.270-1.5D	Ø 1,800	-	Ø 4,00	2,70	3,70	0,03	50,00
AM.GR.200.300-1.5D	Ø 2,000	-	Ø 4,00	3,00	4,00	0,03	50,00
AM.GR.220.330-1.5D	Ø 2,200	-	Ø 4,00	3,30	4,30	0,03	50,00
AM.GR.2381.360-1.5D	Ø 2,381	Ø 3/32	Ø 4,00	3,60	4,60	0,05	50,00
AM.GR.250.370-1.5D	Ø 2,500	-	Ø 6,00	3,70	4,80	0,05	50,00
AM.GR.280.420-1.5D	Ø 2,800	-	Ø 6,00	4,20	5,20	0,05	50,00
AM.GR.300.450-1.5D	Ø 3,000	-	Ø 6,00	4,50	5,50	0,05	50,00
AM.GR.3175.480-1.5D	Ø 3,175	Ø 1/8	Ø 6,00	4,80	5,80	0,05	50,00
AM.GR.350.520-1.5D	Ø 3,500	-	Ø 6,00	5,20	6,30	0,05	50,00
AM.GR.370.550-1.5D	Ø 3,700	-	Ø 6,00	5,50	6,60	0,05	50,00
AM.GR.3968.600-1.5D	Ø 3,968	Ø 5/32	Ø 6,00	6,00	6,90	0,05	50,00
AM.GR.400.600-1.5D	Ø 4,000	-	Ø 6,00	6,00	6,90	0,05	50,00
AM.GR.430.650-1.5D	Ø 4,300	-	Ø 8,00	6,50	7,40	0,05	68,00
AM.GR.4762.710-1.5D	Ø 4,762	Ø 3/16	Ø 8,00	7,10	8,20	0,05	68,00
AM.GR.500.750-1.5D	Ø 5,000	-	Ø 8,00	7,50	8,50	0,05	68,00
AM.GR.5556.830-1.5D	Ø 5,556	Ø 7/32	Ø 8,00	8,30	9,40	0,05	68,00
AM.GR.600.900-1.5D	Ø 6,000	-	Ø 8,00	9,00	10,00	0,05	68,00
AM.GR.6350.900-1.5D	Ø 6,350	Ø 1/4	Ø 10,00	9,00	10,00	0,05	80,00
AM.GR.800.1200-1.5D	Ø 8,000		Ø 10,00	12,00	13,00	0,05	80,00

Available from stock

- α-INOX coated

3xD INOX-Groover





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AM.GR.070.210	Ø 0,700	-	Ø 4,00	2,10	2,80	0,02	40,00
AM.GR.080.240	Ø 0,800	-	Ø 4,00	2,40	3,20	0,02	40,00
AM.GR.090.270	Ø 0,900	-	Ø 4,00	2,70	3,60	0,02	40,00
AM.GR.100.300	Ø 1,000	-	Ø 4,00	3,00	4,00	0,03	40,00
AM.GR.120.360	Ø 1,200	-	Ø 4,00	3,60	4,80	0,03	40,00
AM.GR.150.450	Ø 1,500	-	Ø 4,00	4,50	5,50	0,03	40,00
AM.GR.1587.480	Ø 1,587	Ø 1/16	Ø 4,00	4,80	5,80	0,03	40,00
AM.GR.180.540	Ø 1,800	-	Ø 4,00	5,40	6,40	0,03	50,00
AM.GR.200.600	Ø 2,000	-	Ø 4,00	6,00	7,00	0,03	50,00
AM.GR.220.660	Ø 2,200	-	Ø 4,00	6,60	7,60	0,03	50,00
AM.GR.2381.720	Ø 2,381	Ø 3/32	Ø 4,00	7,20	8,20	0,05	50,00
AM.GR.250.750	Ø 2,500	-	Ø 6,00	7,50	8,50	0,05	50,00
AM.GR.280.840	Ø 2,800	-	Ø 6,00	8,40	9,40	0,05	50,00
AM.GR.300.900	Ø 3,000	-	Ø 6,00	9,00	10,00	0,05	50,00
AM.GR.3175.960	Ø 3,175	Ø 1/8	Ø 6,00	9,60	10,60	0,05	50,00
AM.GR.350.1050	Ø 3,500	-	Ø 6,00	10,50	11,50	0,05	50,00
AM.GR.370.1110	Ø 3,700	-	Ø 6,00	11,10	12,10	0,05	50,00
AM.GR.3968.1190	Ø 3,968	Ø 5/32	Ø 6,00	11,90	12,90	0,05	50,00
AM.GR.400.1200	Ø 4,000	-	Ø 6,00	12,00	13,00	0,05	50,00
AM.GR.430.1290	Ø 4,300	-	Ø 8,00	12,90	13,90	0,05	68,00
AM.GR.4762.1430	Ø 4,762	Ø 3/16	Ø 8,00	14,30	15,30	0,05	68,00
AM.GR.500.1500	Ø 5,000	-	Ø 8,00	15,00	16,00	0,05	68,00
AM.GR.5556.1670	Ø 5,556	Ø 7/32	Ø 8,00	16,70	17,70	0,05	68,00
AM.GR.600.1800	Ø 6,000	-	Ø 8,00	18,00	19,00	0,05	68,00
AM.GR.6350.1910	Ø 6,350	Ø 1/4	Ø 8,00	19,10	20,10	0,05	80,00
AM.GR.800.2400	Ø 8,000	-	Ø 8,00	24,00	25,00	0,05	80,00

Available from stock

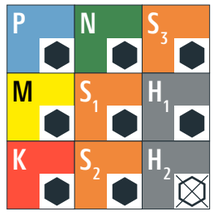
- α-INOX coated

Cutting data - ACTIONMILL INOX-Groover

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec INOX-Groover

ACTIONMILL® by HB microtec INOX-Groover cooled



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

bis zu ap=2xD Ø 1 - Ø 2 mm		bis zu ap=2xD Ø 2 - Ø 3 mm		bis zu ap=2xD Ø 3 - Ø 4 mm		bis zu ap=2xD Ø 4 - Ø 6 mm		bis zu ap=2xD Ø 8 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
100-140	0,011 - 0,025	100-140	0,013 - 0,050	100-140	0,026 - 0,065	100-140	0,03 - 0,075	100-140	0,035 - 0,085
100-140	0,011 - 0,025	100-140	0,013 - 0,052	100-140	0,026 - 0,055	100-140	0,03 - 0,065	100-140	0,035 - 0,075
80-110	0,011 - 0,025	80-110	0,013 - 0,05	80-110	0,026 - 0,055	80-110	0,035 - 0,065	80-110	0,035 - 0,075
70-100	0,016 - 0,025	70-100	0,013 - 0,05	70-100	0,026 - 0,055	70-100	0,035 - 0,065	70-100	0,035 - 0,075
80-140	0,016 - 0,025	80-140	0,02 - 0,055	80-140	0,026 - 0,065	80-140	0,035 - 0,07	80-140	0,035 - 0,085
80-160	0,016 - 0,025	80-160	0,022 - 0,07	80-160	0,035 - 0,08	80-160	0,035 - 0,085	80-160	0,035 - 0,075
80-140	0,016 - 0,025	80-140	0,022 - 0,07	80-140	0,035 - 0,08	80-140	0,035 - 0,085	80-140	0,035 - 0,09
80-120	0,016 - 0,025	80-120	0,022 - 0,07	80-120	0,035 - 0,08	80-120	0,025 - 0,085	80-120	0,035 - 0,09
50 - 80	0,01 - 0,025	50 - 80	0,01 - 0,035	50 - 80	0,013 - 0,05	50 - 80	0,018 - 0,06	50 - 80	0,025 - 0,07
50-80	0,01 - 0,025	50-80	0,01 - 0,035	50-80	0,013 - 0,05	50-80	0,018 - 0,06	50-80	0,025 - 0,07
50-80	0,01 - 0,025	50-80	0,01 - 0,035	50-80	0,013 - 0,05	50-80	0,018 - 0,06	50-80	0,025 - 0,07
No data entered									
No data entered									

INOX-torus cooled

from Ø 1,0 mm
to Ø 6,35 mm

from ER 0,15 mm
to ER 1,5 mm

Z4 - Torus mill (ER)

3xD Cutting edge

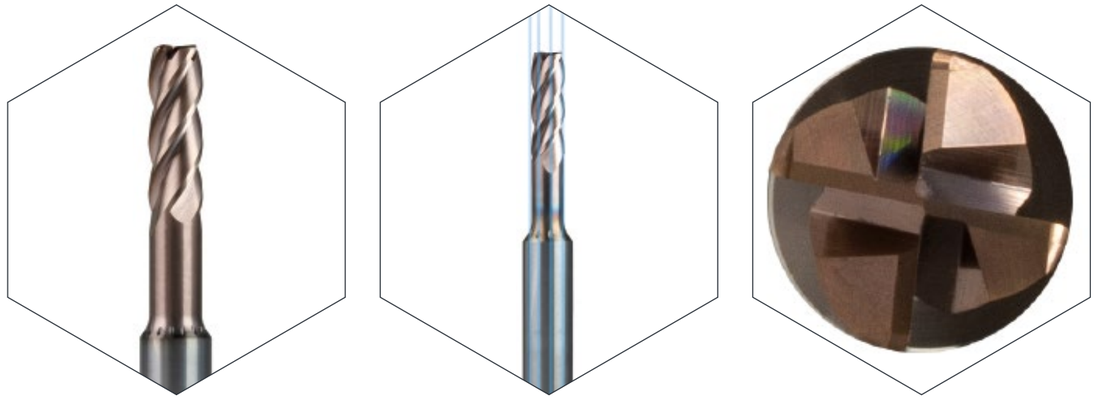
5xD Neck length

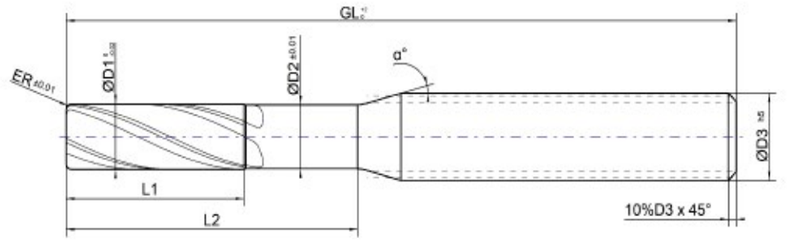
The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edges from sticking

Integrated cooling channels protect the tool from overheating and flush away all chips

The reinforced shank in h5 quality combined with an optimized effective length makes the tool robust and vibration-free

High feed and cutting speeds are made possible by the use of ultra-fine grain solid carbide with high fracture toughness



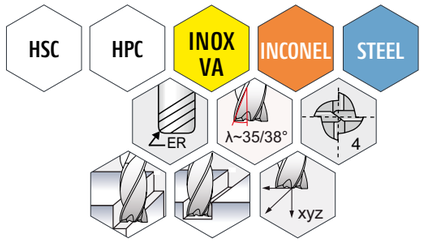


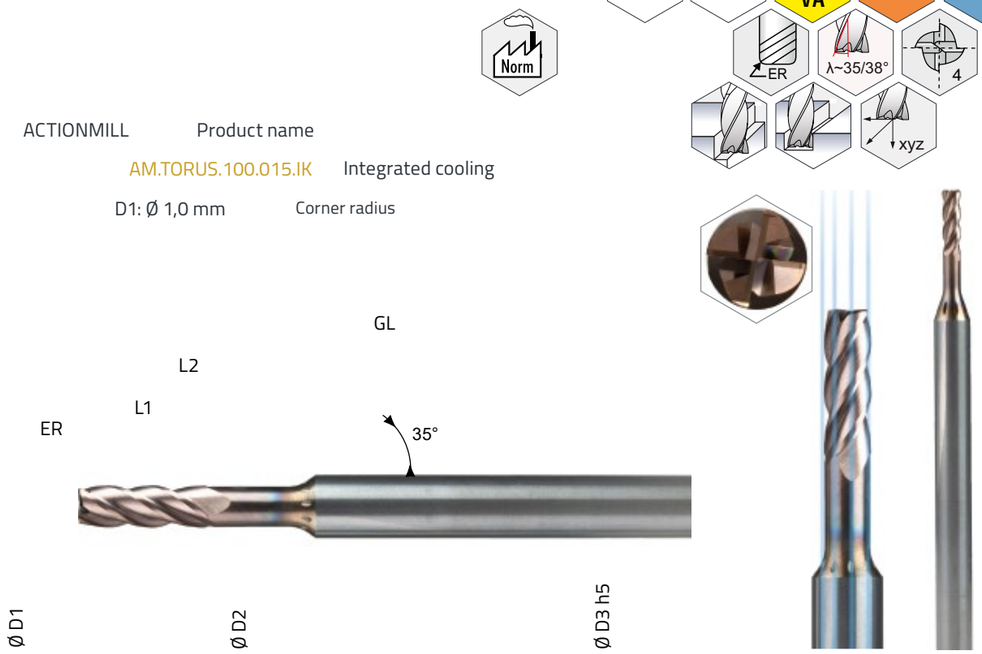
☐ **Inquiry** **Order number:** _____ ☐ **Order**

Dimensions: D_1: _____ GL: _____ ER: _____ D_2: _____ L_1: _____ EF: _____ D_3: _____ L_2: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

5xD INOX-torus cooled





- α-INOX coated

5 PRO’s of the ACTIONMILL:

- Z4 Torus mill from Ø1.0
- Integrated cooling prevents chip build-up
- Very high feed rates possible
- Short process times and high process reliability
- Very long tool life

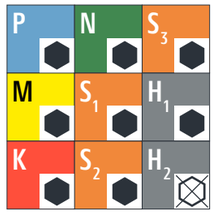
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	ER	GL (mm)
AM.TORUS.100.015.IK	Ø 1,00		Ø 0,92	Ø 4,00	3,00	5,00	0,15	50,00
AM.TORUS.100.025.IK	Ø 1,00		Ø 0,92	Ø 4,00	3,00	5,00	0,25	50,00
AM.TORUS.1587.015.IK	Ø 1,59	1/16	Ø 1,48	Ø 4,00	4,80	8,00	0,15	50,00
AM.TORUS.1587.025.IK	Ø 1,59	1/16	Ø 1,48	Ø 4,00	4,80	8,00	0,25	50,00
AM.TORUS.200.015.IK	Ø 2,00		Ø 1,90	Ø 4,00	6,00	10,00	0,15	50,00
AM.TORUS.200.025.IK	Ø 2,00		Ø 1,90	Ø 4,00	6,00	10,00	0,25	50,00
AM.TORUS.2381.015.IK	Ø 2,38	3/32	Ø 2,28	Ø 4,00	7,20	12,00	0,15	50,00
AM.TORUS.2381.025.IK	Ø 2,38	3/32	Ø 2,28	Ø 4,00	7,20	12,00	0,25	50,00
AM.TORUS.300.025.IK	Ø 3,00		Ø 2,90	Ø 6,00	9,00	15,00	0,25	60,00
AM.TORUS.300.050.IK	Ø 3,00		Ø 2,90	Ø 6,00	9,00	15,00	0,50	60,00
AM.TORUS.300.100.IK	Ø 3,00		Ø 2,90	Ø 6,00	9,00	15,00	1,00	60,00
AM.TORUS.3175.025.IK	Ø 3,18	1/8	Ø 3,05	Ø 6,00	9,60	16,00	0,25	60,00
AM.TORUS.3175.050.IK	Ø 3,18	1/8	Ø 3,05	Ø 6,00	9,60	16,00	0,50	60,00
AM.TORUS.3175.100.IK	Ø 3,18	1/8	Ø 3,05	Ø 6,00	9,60	16,00	1,00	60,00
AM.TORUS.3968.025.IK	Ø 3,97	5/32	Ø 3,85	Ø 6,00	12,00	20,00	0,25	60,00
AM.TORUS.3968.050.IK	Ø 3,97	5/32	Ø 3,85	Ø 6,00	12,00	20,00	0,50	60,00
AM.TORUS.3968.100.IK	Ø 3,97	5/32	Ø 3,85	Ø 6,00	12,00	20,00	1,00	60,00
AM.TORUS.400.025.IK	Ø 4,00		Ø 3,85	Ø 6,00	12,00	20,00	0,25	60,00
AM.TORUS.400.050.IK	Ø 4,00		Ø 3,85	Ø 6,00	12,00	20,00	0,50	60,00
AM.TORUS.400.100.IK	Ø 4,00		Ø 3,85	Ø 6,00	12,00	20,00	1,00	60,00
AM.TORUS.4762.025.IK	Ø 4,76	3/16	Ø 4,60	Ø 8,00	14,40	24,00	0,25	68,00
AM.TORUS.4762.050.IK	Ø 4,76	3/16	Ø 4,60	Ø 8,00	14,40	24,00	0,50	68,00
AM.TORUS.4762.100.IK	Ø 4,76	3/16	Ø 4,60	Ø 8,00	14,40	24,00	1,00	68,00
AM.TORUS.500.025.IK	Ø 5,00		Ø 4,85	Ø 8,00	15,00	25,00	0,25	68,00
AM.TORUS.500.050.IK	Ø 5,00		Ø 4,85	Ø 8,00	15,00	25,00	0,50	68,00
AM.TORUS.500.100.IK	Ø 5,00		Ø 4,85	Ø 8,00	15,00	25,00	1,00	68,00
AM.TORUS.5556.025.IK	Ø 5,56	7/32	Ø 5,40	Ø 8,00	16,80	28,00	0,25	68,00
AM.TORUS.5556.050.IK	Ø 5,56	7/32	Ø 5,40	Ø 8,00	16,80	28,00	0,50	68,00
AM.TORUS.5556.100.IK	Ø 5,56	7/32	Ø 5,40	Ø 8,00	16,80	28,00	1,00	68,00
AM.TORUS.600.025.IK	Ø 6,00		Ø 5,85	Ø 8,00	18,00	30,00	0,25	68,00
AM.TORUS.600.050.IK	Ø 6,00		Ø 5,85	Ø 8,00	18,00	30,00	0,50	68,00
AM.TORUS.600.100.IK	Ø 6,00		Ø 5,85	Ø 8,00	18,00	30,00	1,00	68,00
AM.TORUS.600.150.IK	Ø 6,00		Ø 5,85	Ø 8,00	18,00	30,00	1,50	68,00
AM.TORUS.635.025.IK	Ø 6,35	1/4	Ø 6,20	Ø 10,00	19,20	32,00	0,25	84,00
AM.TORUS.635.050.IK	Ø 6,35	1/4	Ø 6,20	Ø 10,00	19,20	32,00	0,50	84,00
AM.TORUS.635.100.IK	Ø 6,35	1/4	Ø 6,20	Ø 10,00	19,20	32,00	1,00	84,00
AM.TORUS.635.150.IK	Ø 6,35	1/4	Ø 6,20	Ø 10,00	19,20	32,00	1,50	84,00

Available from stock

Cutting Data - ACTIONMILL INOX-torus cooled

HB Microtec® ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec
INOX-torus cooled



Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

ap=0,25xD Ø 1 - Ø 2 mm vc [m/min]	ae=0,5xD Ø 1 - Ø 2 mm fz [mm]	ap=0,25xD Ø 2 - Ø 3 mm vc [m/min]	ae=0,5xD Ø 2 - Ø 3 mm fz [mm]	ap=0,25xD Ø 3 - Ø 4 mm vc [m/min]	ae=0,5xD Ø 3 - Ø 4 mm fz [mm]	ap=0,25xD Ø 4 - Ø 6 mm vc [m/min]	ae=0,5xD Ø 4 - Ø 6 mm fz [mm]
70-140	0,009 - 0,025	100-140	0,016 - 0,050	100-140	0,026 - 0,065	100-140	0,03 - 0,075
70-140	0,009 - 0,025	100-140	0,016 - 0,052	100-140	0,026 - 0,055	100-140	0,03 - 0,065
70-110	0,009 - 0,025	80-110	0,016 - 0,05	80-110	0,026 - 0,055	80-110	0,035 - 0,065
70-100	0,009 - 0,025	70-100	0,016 - 0,05	70-100	0,026 - 0,055	70-100	0,035 - 0,065
80-140	0,012 - 0,025	80-140	0,03 - 0,055	80-140	0,026 - 0,065	80-140	0,035 - 0,07
70-160	0,010 - 0,025	80-160	0,025 - 0,07	80-160	0,035 - 0,08	80-160	0,035 - 0,085
70-140	0,010 - 0,025	80-140	0,025 - 0,07	80-140	0,035 - 0,08	80-140	0,035 - 0,085
70-120	0,010 - 0,025	80-120	0,025 - 0,07	80-120	0,035 - 0,08	80-120	0,025 - 0,085
50 - 80	0,01 - 0,025	50 - 80	0,01 - 0,035	50 - 80	0,015 - 0,05	50 - 80	0,02 - 0,06
50-80	0,01 - 0,025	50-80	0,01 - 0,035	50-80	0,015 - 0,05	50-80	0,02 - 0,06
50-80	0,01 - 0,025	50-80	0,01 - 0,035	50-80	0,015 - 0,05	50-80	0,02 - 0,06
No data entered							
No data entered							

INOX-micro Ball cooled

INOX high-performance full radius milling cutter Geometry, Z2 and center cutting

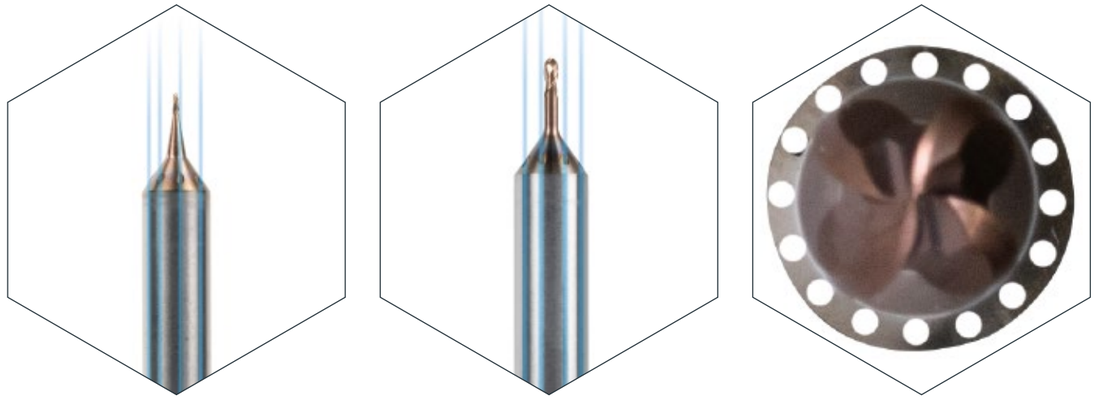
Integrated cooling channels protect the tool from overheating when cutting titanium alloys and stainless steels

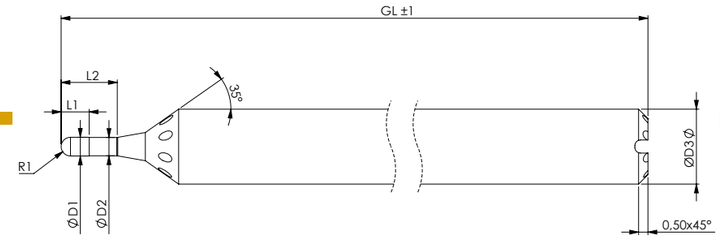
from Ø 0,2
to Ø 1,0

The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edge from sticking

The reinforced shank in h5 quality combined with an optimized effective length makes the tool robust

High feed and cutting speeds are made possible by the use of fine-grain solid carbide with high fracture toughness.





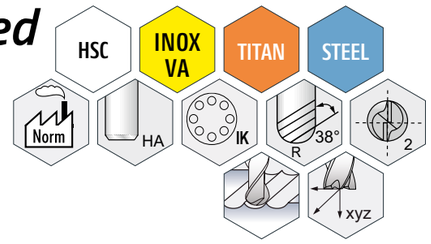
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

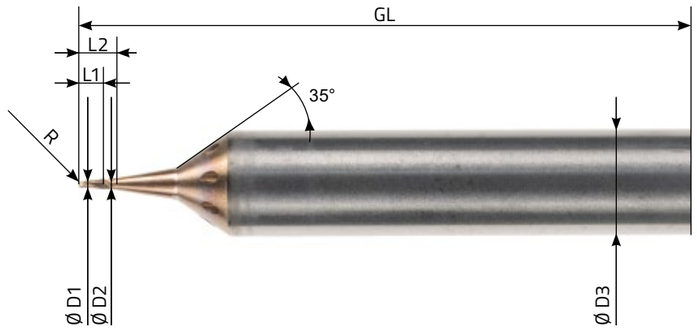
Dimensions: D_1: _____ GL: _____ R_1: _____ D_2: _____ L_1: _____ Z: _____ D_3: _____ L_2: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

3xD INOX-micro Ball cooled



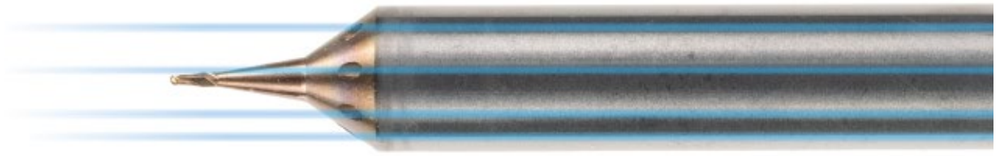
ACTIONMILL — Full radius mill
AM.VRF.020.IK.3D — 3xD
D1: Ø 0,20 mm — Integrated cooling



- α-INOX coated

Article number	D1 (mm)	R1 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AM.VRF.020.IK.3D	Ø 0,20	0,10	Ø 0,18	Ø 4,00	0,35	0,70	40,00
AM.VRF.025.IK.3D	Ø 0,25	0,13	Ø 0,23	Ø 4,00	0,38	0,75	40,00
AM.VRF.030.IK.3D	Ø 0,30	0,15	Ø 0,28	Ø 4,00	0,45	0,90	40,00
AM.VRF.040.IK.3D	Ø 0,40	0,20	Ø 0,38	Ø 4,00	0,60	1,20	40,00
AM.VRF.045.IK.3D	Ø 0,45	0,23	Ø 0,43	Ø 4,00	0,68	1,35	40,00
AM.VRF.050.IK.3D	Ø 0,50	0,25	Ø 0,48	Ø 4,00	0,75	1,50	40,00
AM.VRF.060.IK.3D	Ø 0,60	0,30	Ø 0,58	Ø 4,00	0,90	1,80	40,00
AM.VRF.070.IK.3D	Ø 0,70	0,35	Ø 0,68	Ø 4,00	1,05	2,10	40,00
AM.VRF.075.IK.3D	Ø 0,75	0,38	Ø 0,73	Ø 4,00	1,13	2,25	40,00
AM.VRF.080.IK.3D	Ø 0,80	0,40	Ø 0,78	Ø 4,00	1,20	2,40	40,00
AM.VRF.090.IK.3D	Ø 0,90	0,45	Ø 0,88	Ø 4,00	1,35	2,70	40,00
AM.VRF.100.IK.3D	Ø 1,00	0,50	Ø 0,98	Ø 4,00	1,50	3,00	40,00

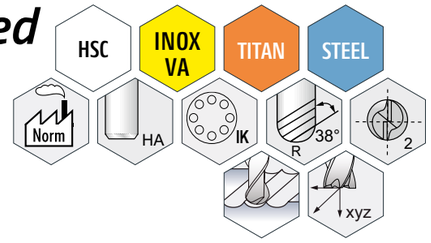
Available from stock



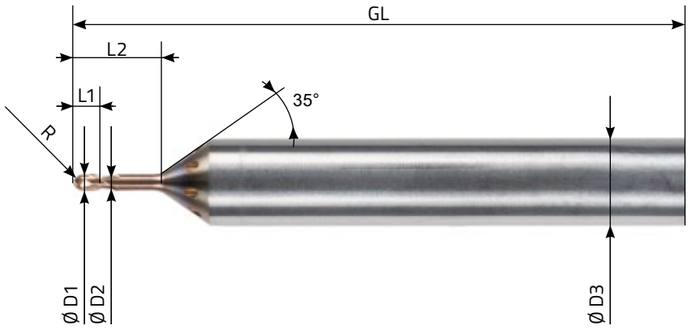
5 PRO’s of the ACTIONMILL:

- Short + rigid variant 3xD Internally cooled micro milling cutters
- Very high feed rates possible
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Very long tool life (center cutting)

5xD INOX-micro Ball cooled



ACTIONMILL — Full radius mill
AM.VRF.020.IK.5D ← 5xD
D1: Ø 0,20 mm — Integrated cooling



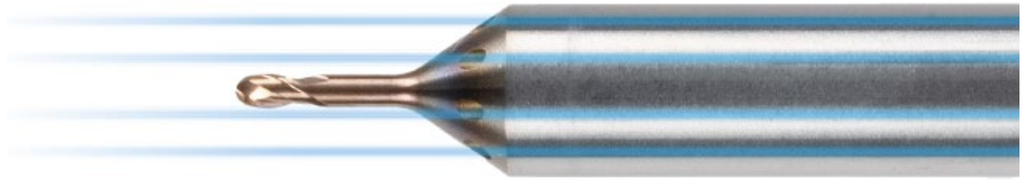
- α-INOX coated

5 PRO's of the ACTIONMILL:

- Short + rigid variant 5xD neck length, internally cooled micro mill
- Very high feed rates possible
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Very long tool life (center cutting)

Article number	D1 (mm)	R1 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AM.VRF.020.IK.5D	Ø 0,20	0,100	Ø 0,18	Ø 4,00	0,30	1,00	40,00
AM.VRF.025.IK.5D	Ø 0,25	0,125	Ø 0,23	Ø 4,00	0,38	1,25	40,00
AM.VRF.030.IK.5D	Ø 0,30	0,150	Ø 0,28	Ø 4,00	0,45	1,50	40,00
AM.VRF.040.IK.5D	Ø 0,40	0,200	Ø 0,38	Ø 4,00	0,60	2,00	40,00
AM.VRF.045.IK.5D	Ø 0,45	0,225	Ø 0,43	Ø 4,00	0,68	2,25	40,00
AM.VRF.050.IK.5D	Ø 0,50	0,250	Ø 0,48	Ø 4,00	0,75	2,50	40,00
AM.VRF.060.IK.5D	Ø 0,60	0,300	Ø 0,58	Ø 4,00	0,90	3,00	40,00
AM.VRF.070.IK.5D	Ø 0,70	0,350	Ø 0,68	Ø 4,00	1,05	3,50	40,00
AM.VRF.075.IK.5D	Ø 0,75	0,375	Ø 0,73	Ø 4,00	1,13	3,75	40,00
AM.VRF.080.IK.5D	Ø 0,80	0,400	Ø 0,78	Ø 4,00	1,20	4,00	40,00
AM.VRF.090.IK.5D	Ø 0,90	0,450	Ø 0,88	Ø 4,00	1,35	4,50	40,00
AM.VRF.100.IK.5D	Ø 1,00	0,500	Ø 0,98	Ø 4,00	1,50	5,00	40,00

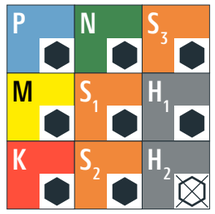
Available from stock



Cutting data - ACTIONMILL INOX-micro Ball cooled

HB Microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec INOX-micro Ball cooled



Application recommendation ⬢ Very well suited ⬡ Conditionally suited ⊠ Not recommended

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Ø 0,2-0,3		Ø 0,3-0,4		Ø 0,5 - Ø 0,6 mm		Ø 0,7 - Ø 0,8 mm		Ø 0,9-1,0 mm	
ap=0,25xD	ae=0,5xD	ap=0,25xD	ae=0,5xD	ap=0,25xD	ae=0,5xD	ap=0,25xD	ae=0,5xD	ap=0,25xD	ae=0,5xD
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
20-60	0,008 - 0,015	20-60	0,010 - 0,035	20-60	0,01 - 0,065	20-60	0,01 - 0,075	20-60	0,015 - 0,085
20-60	0,008 - 0,015	20-60	0,010 - 0,035	20-60	0,01 - 0,055	20-60	0,01 - 0,065	20-60	0,015 - 0,075
15-60	0,008 - 0,02	15-60	0,010 - 0,04	15-60	0,01 - 0,055	15-60	0,01 - 0,065	15-60	0,015 - 0,075
15-60	0,008 - 0,025	15-60	0,010 - 0,04	15-60	0,01 - 0,055	15-60	0,01 - 0,065	15-60	0,015 - 0,075
20-60	0,008 - 0,025	20-60	0,01 - 0,045	20-60	0,01 - 0,065	20-60	0,01 - 0,065	20-60	0,015 - 0,085
20-60	0,008 - 0,028	20-60	0,015 - 0,06	20-60	0,01 - 0,06	20-60	0,01 - 0,06	20-60	0,015 - 0,075
15-55	0,008 - 0,03	15-55	0,015 - 0,06	15-55	0,01 - 0,06	15-55	0,01 - 0,06	15-55	0,015 - 0,08
15-55	0,008 - 0,035	15-55	0,015 - 0,06	15-55	0,01 - 0,06	15-55	0,01 - 0,06	15-55	0,015 - 0,085
15-45	0,006 - 0,02	15-45	0,008 - 0,025	15-45	0,01 - 0,05	15-45	0,01 - 0,06	15-45	0,015 - 0,07
15-45	0,006 - 0,02	15-45	0,008 - 0,025	15-45	0,01 - 0,05	15-45	0,01 - 0,06	15-45	0,015 - 0,07
15-45	0,006 - 0,02	15-45	0,008 - 0,025	15-45	0,01 - 0,05	15-45	0,01 - 0,06	15-45	0,015 - 0,07
No data entered									
No data entered									

INOX-Ball

INOX-Ball cooled

INOX high-performance full-radius mill geometry, Z4 and center cutting

from Ø 1,0 to Ø 8,0

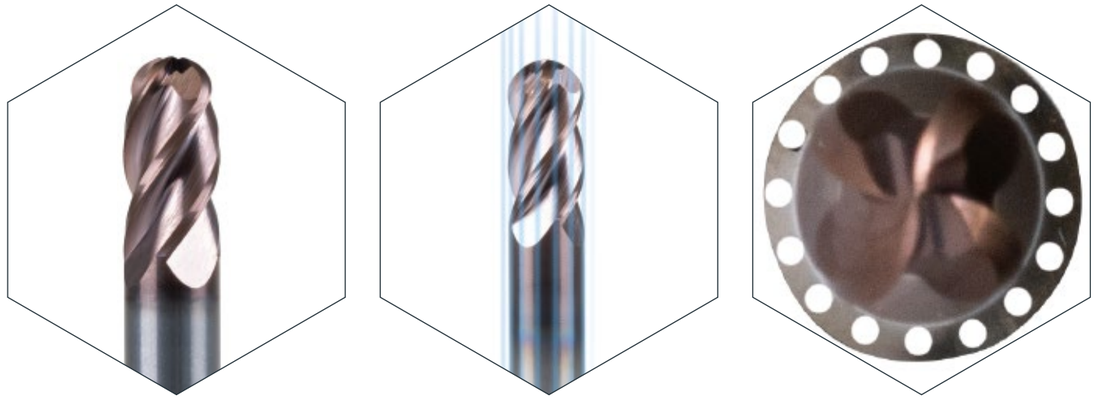
from Ø 1,0 to Ø 8,0

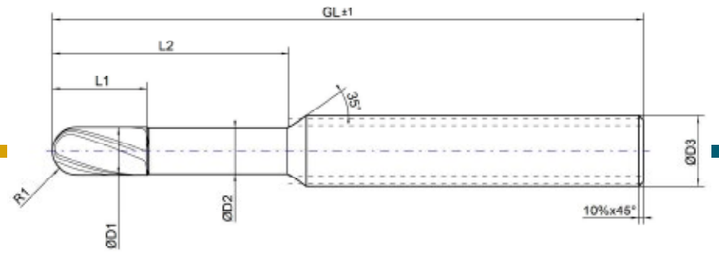
The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edge from sticking

Integrated cooling channels protect the tool from over-heating when cutting titanium alloys and stainless steels

The reinforced shank in h5 quality combined with an optimized effective length makes the tool robust and vibration-free

High feed and cutting speeds are made possible by the use of fine-grain solid carbide with high fracture toughness





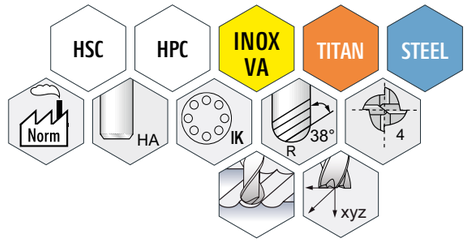
☐ **Inquiry**

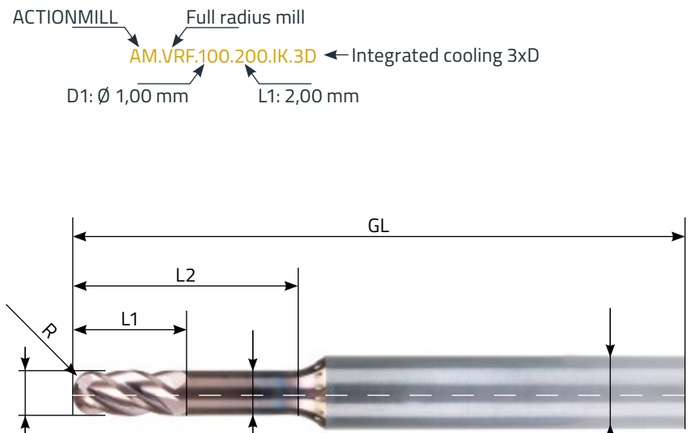
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ R_1: _____ D_2: _____ L_1: _____ Z: _____ D_3: _____ L_2: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

3xD INOX-Ball cooled





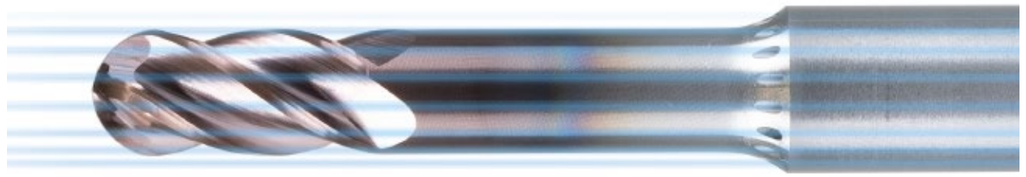
- α-INOX coated

5 PRO's of the ACTIONMILL:

- Very high feed rates possible
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Center cutting
- Very long tool life

Article number	D1 h9 (mm)	D1 h9 (inch)	R (mm)	D2 (mm)	D3 h5 (mm)	L1 (2xD1 / mm)	L2 (3xD1 / mm)	GL (mm)
AM.VRF.100.200.IK.3D	Ø 1,000	-	0,5000	Ø 0,92	Ø 4,00	2,00	3,25	40,00
AM.VRF.120.240.IK.3D	Ø 1,200	-	0,6000	Ø 1,10	Ø 4,00	2,40	3,85	40,00
AM.VRF.150.300.IK.3D	Ø 1,500	-	0,7500	Ø 1,40	Ø 4,00	3,00	4,75	40,00
AM.VRF.1587.3174.IK.3D	Ø 1,587	1/16"	0,7935	Ø 1,48	Ø 4,00	3,20	5,05	40,00
AM.VRF.180.360.IK.3D	Ø 1,800	-	0,9000	Ø 1,70	Ø 4,00	3,60	5,65	50,00
AM.VRF.200.400.IK.3D	Ø 2,000	-	1,0000	Ø 1,90	Ø 4,00	4,00	6,25	50,00
AM.VRF.2381.4762.IK.3D	Ø 2,381	3/32"	1,1905	Ø 2,28	Ø 6,00	4,80	7,45	60,00
AM.VRF.250.500.IK.3D	Ø 2,500	-	1,2500	Ø 2,40	Ø 6,00	5,00	7,75	60,00
AM.VRF.300.600.IK.3D	Ø 3,000	-	1,5000	Ø 2,90	Ø 6,00	6,00	9,25	60,00
AM.VRF.3175.6350.IK.3D	Ø 3,175	1/8"	1,5875	Ø 3,05	Ø 6,00	6,40	9,75	60,00
AM.VRF.3968.7936.IK.3D	Ø 3,968	5/32"	1,9840	Ø 3,85	Ø 6,00	8,00	12,25	60,00
AM.VRF.400.800.IK.3D	Ø 4,000	-	2,0000	Ø 3,90	Ø 6,00	8,00	12,25	60,00
AM.VRF.4762.9524.IK.3D	Ø 4,762	3/16"	2,3810	Ø 4,65	Ø 8,00	9,60	14,65	68,00
AM.VRF.500.1000.IK.3D	Ø 5,000	-	2,5000	Ø 4,90	Ø 8,00	10,00	15,25	68,00
AM.VRF.5556.11112.IK.3D	Ø 5,556	7/32"	2,7800	Ø 5,45	Ø 8,00	11,20	17,05	68,00
AM.VRF.600.1200.IK.3D	Ø 6,000	-	3,0000	Ø 5,90	Ø 8,00	12,00	18,05	68,00
AM.VRF.635.1270.IK.3D	Ø 6,350	1/4"	3,1750	Ø 6,25	Ø 10,00	12,70	19,30	84,00
AM.VRF.700.1400.IK.3D	Ø 7,000	-	3,5000	Ø 6,90	Ø 10,00	14,00	21,00	93,00
AM.VRF.800.1600.IK.3D	Ø 8,000	-	4,0000	Ø 7,90	Ø 10,00	16,00	24,00	93,00

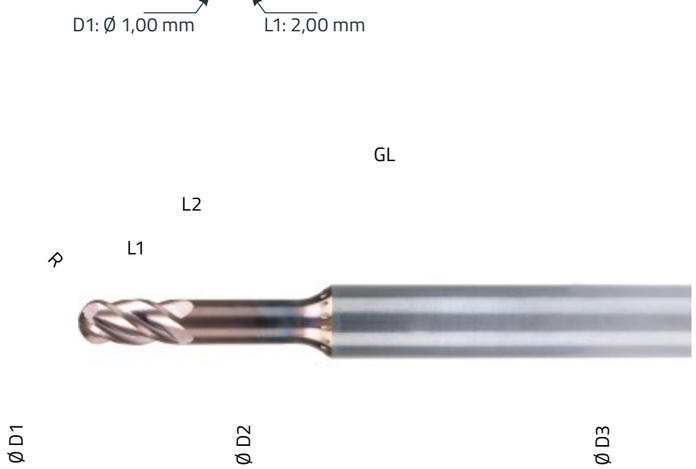
Available from stock



5xD INOX-Ball cooled

HSC HPC INOX VA TITAN STEEL

ACTIONMILL Full radius mill
AM.VRF.100.200.IK ← Integrated cooling
D1: Ø 1,00 mm L1: 2,00 mm



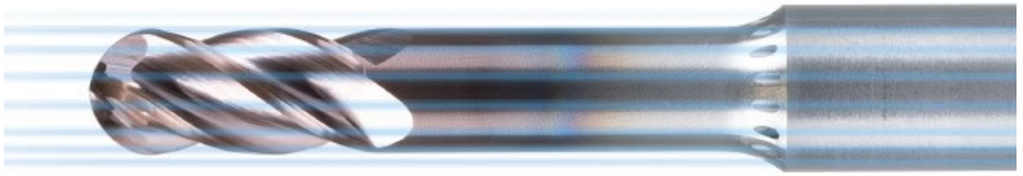
- α-INOX coated

5 PRO's of the ACTIONMILL:

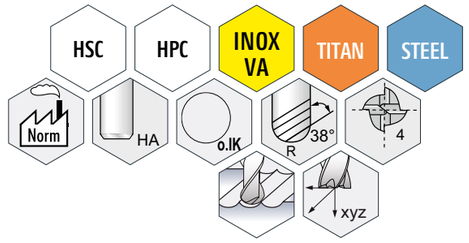
- Very high feed rates possible
- Very long tool life
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Center cutting

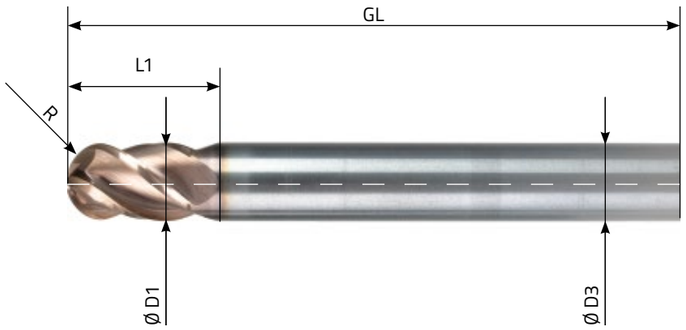
Article number	D1 h9		R	D2	D3 h5	L1	L2	GL
	(mm)	(inch)	(mm)	(mm)	(mm)	(2xD1 / mm)	(5xD1 / mm)	(mm)
AM.VRF.100.200.IK	Ø 1,000	-	0,5000	Ø 0,92	Ø 4,00	2,00	5,25	40,00
AM.VRF.120.240.IK	Ø 1,200	-	0,6000	Ø 1,10	Ø 4,00	2,40	6,25	40,00
AM.VRF.150.300.IK	Ø 1,500	-	0,7500	Ø 1,40	Ø 4,00	3,00	7,75	40,00
AM.VRF.1587.3174.IK	Ø 1,587	1/16"	0,7935	Ø 1,48	Ø 4,00	3,20	8,25	40,00
AM.VRF.180.360.IK	Ø 1,800	-	0,9000	Ø 1,70	Ø 4,00	3,60	9,25	50,00
AM.VRF.200.400.IK	Ø 2,000	-	1,0000	Ø 1,90	Ø 4,00	4,00	10,25	50,00
AM.VRF.2381.4762.IK	Ø 2,381	3/32"	1,1905	Ø 2,28	Ø 6,00	4,80	12,25	60,00
AM.VRF.250.500.IK	Ø 2,500	-	1,2500	Ø 2,40	Ø 6,00	5,00	12,75	60,00
AM.VRF.300.600.IK	Ø 3,000	-	1,5000	Ø 2,90	Ø 6,00	6,00	15,25	60,00
AM.VRF.3175.6350.IK	Ø 3,175	1/8"	1,5875	Ø 3,05	Ø 6,00	6,40	16,25	60,00
AM.VRF.3968.7936.IK	Ø 3,968	5/32"	1,9840	Ø 3,85	Ø 6,00	8,00	20,25	60,00
AM.VRF.400.800.IK	Ø 4,000	-	2,0000	Ø 3,90	Ø 6,00	8,00	20,25	60,00
AM.VRF.4762.9524.IK	Ø 4,762	3/16"	2,3810	Ø 4,65	Ø 8,00	9,60	24,25	68,00
AM.VRF.500.1000.IK	Ø 5,000	-	2,5000	Ø 4,90	Ø 8,00	10,00	25,25	68,00
AM.VRF.5556.11112.IK	Ø 5,556	7/32"	2,7800	Ø 5,45	Ø 8,00	11,20	28,25	68,00
AM.VRF.600.1200.IK	Ø 6,000	-	3,0000	Ø 5,90	Ø 8,00	12,00	30,25	68,00
AM.VRF.635.1270.IK	Ø 6,350	1/4"	3,1750	Ø 6,25	Ø 10,00	12,70	19,30	84,00
AM.VRF.700.1400.IK	Ø 7,000	-	3,5000	Ø 6,90	Ø 10,00	14,00	21,00	93,00
AM.VRF.800.1600.IK	Ø 8,000	-	4,0000	Ø 7,90	Ø 10,00	16,00	24,00	93,00

Available from stock



1,5xD INOX-Ball





- α-INOX coated

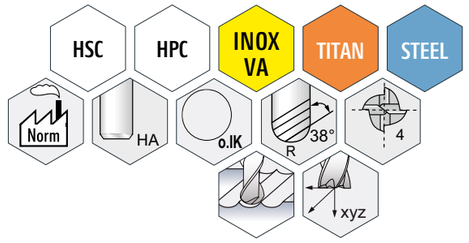
5 PRO’s of the ACTIONMILL:

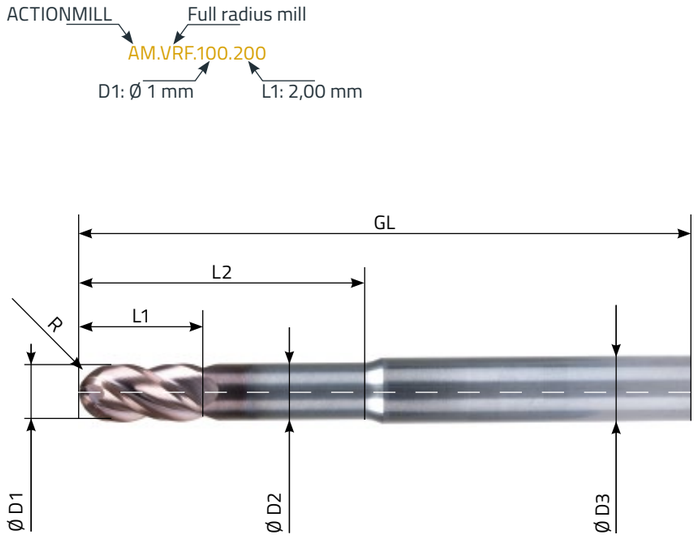
- Short + rigid version
- Very high feed rates possible
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Very long tool life (Center cutting)

Article number	D1 h9 (mm)	R (mm)	D3 h5 (mm)	L1 (1.5xD1/mm)	GL (mm)
AM.VRF.300.450.1.5D	Ø 3,00	1,50	Ø 3,00	4,50	39,00
AM.VRF.400.600.1.5D	Ø 4,00	2,00	Ø 4,00	6,00	51,00
AM.VRF.600.900.1.5D	Ø 6,00	3,00	Ø 6,00	9,00	51,00
AM.VRF.800.1200.1.5D	Ø 8,00	4,00	Ø 8,00	12,00	59,00

Available from stock

3xD INOX-Ball





- α-INOX coated

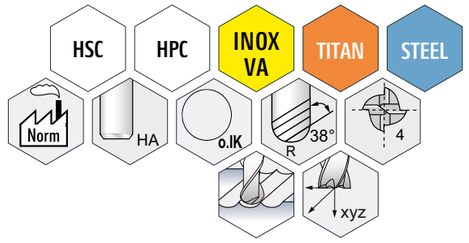
5 PRO's of the ACTIONMILL:

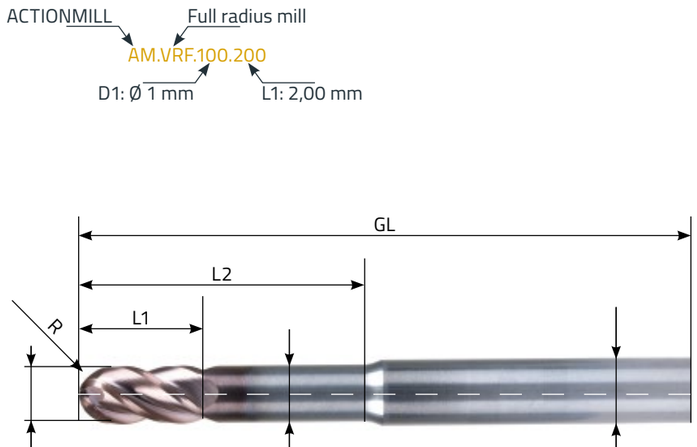
- Very high feed rates possible
- Long tool life
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Center cutting

Article number	D1 h9		R1	D2	D3 h5	L1	L2	GL
	(mm)	(inch)	(mm)	(mm)	(mm)	(2xD1 / mm)	(3xD1 / mm)	(mm)
AM.VRF.100.200.3D	Ø 1,000	-	0,5000	Ø 0,92	Ø 4,00	2,00	3,25	40,00
AM.VRF.120.240.3D	Ø 1,200	-	0,6000	Ø 1,10	Ø 4,00	2,40	3,85	40,00
AM.VRF.150.300.3D	Ø 1,500	-	0,7500	Ø 1,40	Ø 4,00	3,00	4,75	40,00
AM.VRF.1587.3174.3D	Ø 1,587	1/16"	0,7935	Ø 1,48	Ø 4,00	3,20	5,05	40,00
AM.VRF.180.360.3D	Ø 1,800	-	0,9000	Ø 1,70	Ø 4,00	3,60	5,65	50,00
AM.VRF.200.400.3D	Ø 2,000	-	1,0000	Ø 1,90	Ø 4,00	4,00	6,25	50,00
AM.VRF.2381.4762.3D	Ø 2,381	3/32"	1,1905	Ø 2,28	Ø 6,00	4,80	7,45	50,00
AM.VRF.250.500.3D	Ø 2,500	-	1,2500	Ø 2,40	Ø 6,00	5,00	7,75	60,00
AM.VRF.300.600.3D	Ø 3,000	-	1,5000	Ø 2,90	Ø 6,00	6,00	9,25	60,00
AM.VRF.3175.6350.3D	Ø 3,175	1/8"	1,5875	Ø 3,05	Ø 6,00	6,40	9,75	60,00
AM.VRF.3968.7936.3D	Ø 3,968	5/32"	1,9840	Ø 3,85	Ø 6,00	8,00	12,25	60,00
AM.VRF.400.800.3D	Ø 4,000	-	2,0000	Ø 3,90	Ø 6,00	8,00	12,25	60,00
AM.VRF.4762.9524.3D	Ø 4,762	3/16"	2,3810	Ø 4,65	Ø 6,00	9,60	14,65	68,00
AM.VRF.500.1000.3D	Ø 5,000	-	2,5000	Ø 4,90	Ø 6,00	10,00	15,25	68,00
AM.VRF.5556.11112.3D	Ø 5,556	7/32"	2,7800	Ø 5,45	Ø 6,00	11,20	17,05	68,00
AM.VRF.600.1200.3D	Ø 6,000	-	3,0000	Ø 5,90	Ø 6,00	12,00	18,05	68,00
AM.VRF.635.1270.3D	Ø 6,350	1/4"	3,1750	Ø 6,25	Ø 8,00	12,70	19,30	80,00
AM.VRF.700.1400.3D	Ø 7,000	-	3,5000	Ø 6,90	Ø 8,00	14,00	21,25	80,00
AM.VRF.800.1600.3D	Ø 8,000	-	4,0000	Ø 7,90	Ø 8,00	16,00	24,25	80,00

Available from stock

5xD INOX-Ball





- α-INOX coated

5 PRO’s of the ACTIONMILL:

- Very high feed rates possible
- Long tool life
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Center cutting

Article number	D1 h9 (mm)	D1 h9 (inch)	R1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (2xD1 / mm)	L2 (5xD1 / mm)	GL (mm)
AM.VRF.100.200	Ø 1,000	-	0,5000	Ø 0,92	Ø 4,00	2,00	5,25	40,00
AM.VRF.120.240	Ø 1,200	-	0,6000	Ø 1,10	Ø 4,00	2,40	6,25	40,00
AM.VRF.150.300	Ø 1,500	-	0,7500	Ø 1,40	Ø 4,00	3,00	7,75	40,00
AM.VRF.1587.3174	Ø 1,587	1/16“	0,7935	Ø 1,48	Ø 4,00	3,20	8,25	40,00
AM.VRF.180.360	Ø 1,800	-	0,9000	Ø 1,70	Ø 4,00	3,60	9,25	50,00
AM.VRF.200.400	Ø 2,000	-	1,0000	Ø 1,90	Ø 4,00	4,00	10,25	50,00
AM.VRF.2381.4762	Ø 2,381	3/32“	1,1905	Ø 2,28	Ø 6,00	4,80	12,25	50,00
AM.VRF.250.500	Ø 2,500	-	1,2500	Ø 2,40	Ø 6,00	5,00	12,75	60,00
AM.VRF.300.600	Ø 3,000	-	1,5000	Ø 2,90	Ø 6,00	6,00	15,25	60,00
AM.VRF.3175.6350	Ø 3,175	1/8“	1,5875	Ø 3,05	Ø 6,00	6,40	16,25	60,00
AM.VRF.3968.7936	Ø 3,968	5/32“	1,9840	Ø 3,85	Ø 6,00	8,00	20,25	60,00
AM.VRF.400.800	Ø 4,000	-	2,0000	Ø 3,90	Ø 6,00	8,00	20,25	60,00
AM.VRF.4762.9524	Ø 4,762	3/16“	2,3810	Ø 4,65	Ø 6,00	9,60	24,25	68,00
AM.VRF.500.1000	Ø 5,000	-	2,5000	Ø 4,90	Ø 6,00	10,00	25,25	68,00
AM.VRF.5556.11112	Ø 5,556	7/32“	2,7800	Ø 5,45	Ø 6,00	11,20	28,25	68,00
AM.VRF.600.1200	Ø 6,000	-	3,0000	Ø 5,90	Ø 6,00	12,00	30,25	68,00
AM.VRF.635.1270	Ø 6,350	1/4“	3,1750	Ø 6,25	Ø 8,00	12,70	32,25	80,00
AM.VRF.700.1400	Ø 7,000	-	3,5000	Ø 6,90	Ø 8,00	14,00	35,25	80,00
AM.VRF.800.1600	Ø 8,000	-	4,0000	Ø 7,90	Ø 8,00	16,00	40,25	80,00

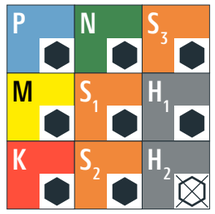
Available from stock

Cutting data - ACTIONMILL INOX-Ball

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec INOX-Ball

ACTIONMILL® by HB microtec INOX-Ball cooled



Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Ø 1 - Ø 2 mm		Ø 2 - Ø 3 mm		Ø 3 - Ø 4 mm		Ø 4 - Ø 6 mm		Ø 8 mm	
ap=0,25xD	ae=0,5xD	ap=0,25xD	ae=0,5xD	ap=0,25xD	ae=0,5xD	ap=0,25xD	ae=0,5xD	ap=0,25xD	ae=0,5xD
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
100-140	0,01 - 0,015	100-140	0,015 - 0,035	100-140	0,025 - 0,065	100-140	0,03 - 0,075	100-140	0,035 - 0,085
100-140	0,01 - 0,015	100-140	0,015 - 0,035	100-140	0,025 - 0,055	100-140	0,03 - 0,065	100-140	0,035 - 0,075
80-110	0,01 - 0,02	80-110	0,015 - 0,04	80-110	0,025 - 0,055	80-110	0,035 - 0,065	80-110	0,035 - 0,075
70-100	0,015 - 0,025	70-100	0,015 - 0,04	70-100	0,025 - 0,055	70-100	0,035 - 0,065	70-100	0,035 - 0,075
80-140	0,015 - 0,025	80-140	0,03 - 0,045	80-140	0,025 - 0,065	80-140	0,035 - 0,065	80-140	0,035 - 0,085
80-160	0,02 - 0,028	80-160	0,025 - 0,06	80-160	0,035 - 0,06	80-160	0,035 - 0,06	80-160	0,035 - 0,075
80-140	0,02 - 0,03	80-140	0,025 - 0,06	80-140	0,035 - 0,06	80-140	0,035 - 0,06	80-140	0,035 - 0,08
80-120	0,02 - 0,035	80-120	0,025 - 0,06	80-120	0,035 - 0,06	80-120	0,025 - 0,06	80-120	0,035 - 0,085
50 - 80	0,01 - 0,02	50 - 80	0,01 - 0,025	50 - 80	0,015 - 0,05	50 - 80	0,02 - 0,06	50 - 80	0,025 - 0,07
50-80	0,01 - 0,02	50-80	0,01 - 0,025	50-80	0,015 - 0,05	50-80	0,02 - 0,06	50-80	0,025 - 0,07
50-80	0,01 - 0,02	50-80	0,01 - 0,025	50-80	0,015 - 0,05	50-80	0,02 - 0,06	50-80	0,025 - 0,07
No data entered									
No data entered									

INOX-Ball 260°

INOX-Ball 260° cooled

INOX high-performance ball nose end mill 260°geometry, Z4 and center cutting

from Ø 1,0
to Ø 10,0

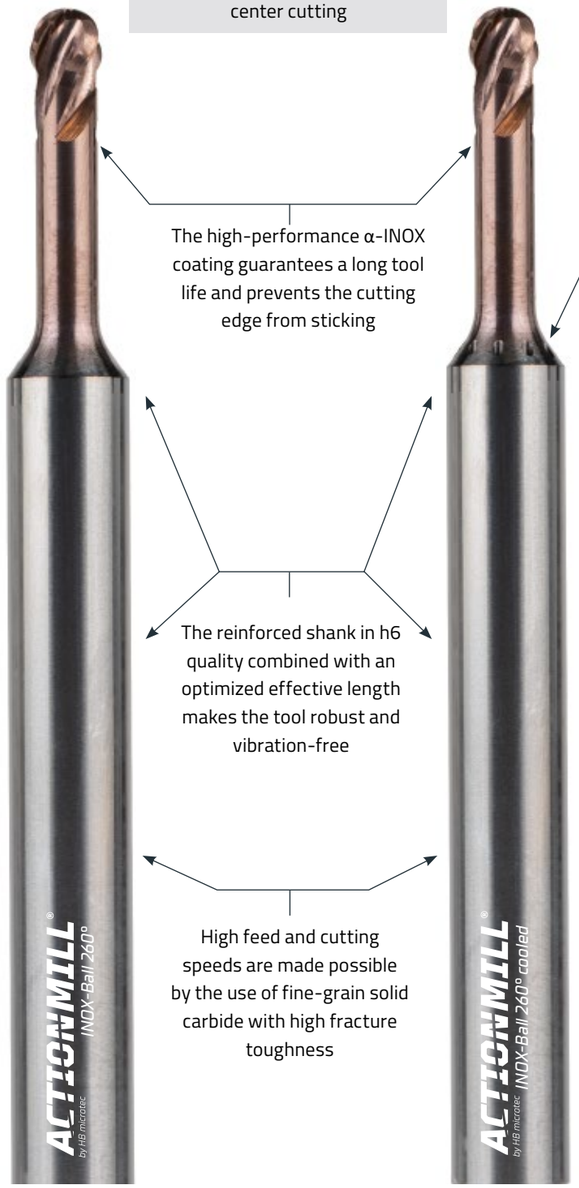
The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edge from sticking

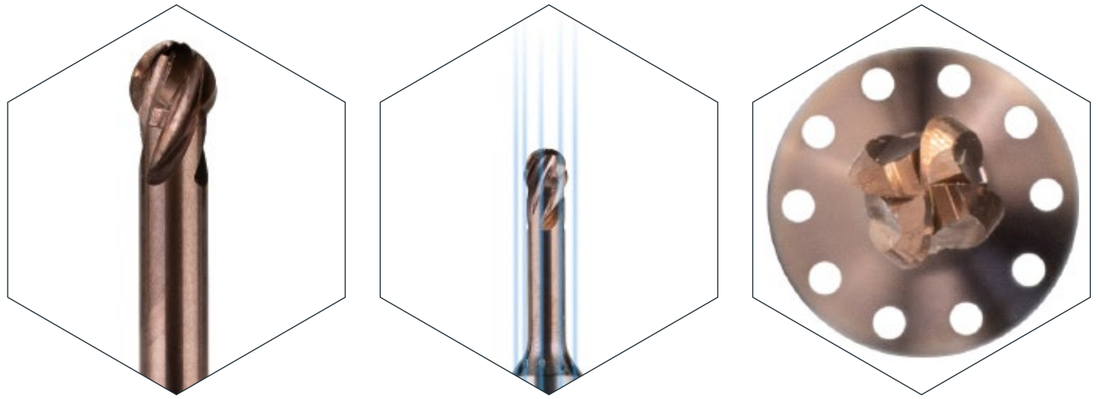
from Ø 1,0
to Ø 10,0

Integrated cooling channels protect the tool from over-heating when cutting titanium alloys and stainless steels

The reinforced shank in h6 quality combined with an optimized effective length makes the tool robust and vibration-free

High feed and cutting speeds are made possible by the use of fine-grain solid carbide with high fracture toughness





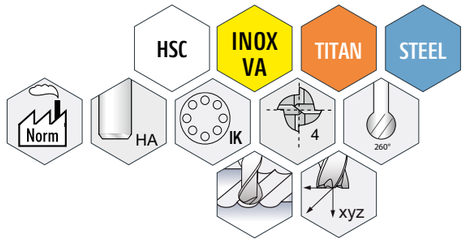
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

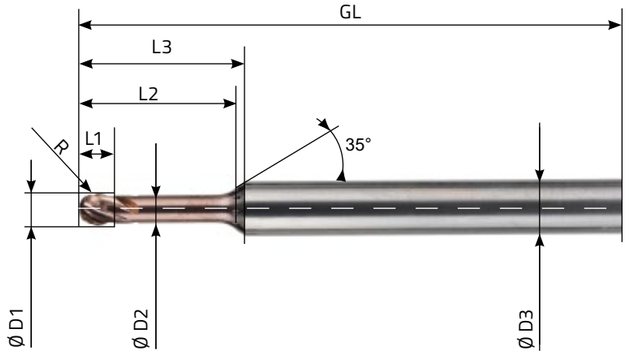
Dimensions: D_1: _____ GL: _____ R_1: _____ D_2: _____ L_1: _____ Z: _____ D_3: _____ L_2: _____ L_3: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

INOX-Ball 260° cooled



ACTIONMILL 260° Ball nose
AM.260.100.070.IK ← Integrated cooling
D1: 1,00 mm



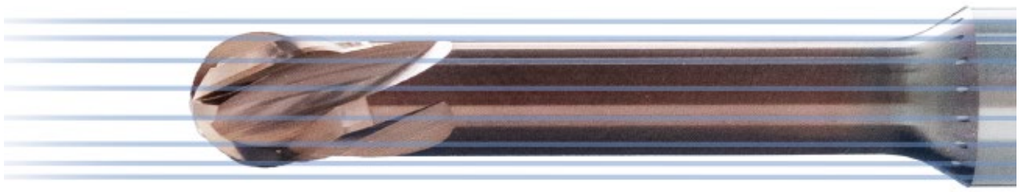
- α-INOX coated

5 PRO's of the ACTIONMILL:

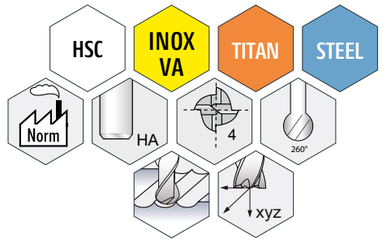
- Very high feed speeds possible
- Undercuts possible
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Center cutting

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (4xD1 / mm)	L3 (mm)	R (mm)	GL (mm)
AM.260.100.070.IK	Ø 1,000		Ø 0,77	Ø 4,00	0,82	4,00	6,34	0,500	60,00
AM.260.150.120.IK	Ø 1,500		Ø 1,15	Ø 4,00	1,23	6,00	8,06	0,750	60,00
AM.260.1587.130.IK	Ø 1,587	1/16	Ø 1,22	Ø 4,00	1,30	6,35	8,37	0,794	60,00
AM.260.200.170.IK	Ø 2,000		Ø 1,53	Ø 4,00	1,64	8,00	9,79	1,000	60,00
AM.260.2381.200.IK	Ø 2,381	3/32	Ø 1,83	Ø 4,00	1,96	9,52	11,10	1,191	60,00
AM.260.250.210.IK	Ø 2,500		Ø 1,92	Ø 4,00	2,05	10,00	11,52	1,250	60,00
AM.260.300.260.IK	Ø 3,000		Ø 2,30	Ø 6,00	2,46	12,00	14,67	1,500	60,00
AM.260.3175.280.IK	Ø 3,175	1/8	Ø 2,43	Ø 6,00	2,61	12,70	15,28	1,588	60,00
AM.260.3968.350.IK	Ø 3,968	5/32	Ø 3,04	Ø 6,00	3,26	15,87	18,03	1,984	60,00
AM.260.400.350.IK	Ø 4,000		Ø 3,06	Ø 6,00	3,29	16,00	18,14	2,000	60,00
AM.260.4762.400.IK	Ø 4,762	3/16	Ø 3,65	Ø 6,00	3,91	19,05	20,77	2,381	84,00
AM.260.500.430.IK	Ø 5,000		Ø 3,83	Ø 8,00	4,11	20,00	23,02	2,500	84,00
AM.260.5556.460.IK	Ø 5,556	7/32	Ø 2,26	Ø 8,00	4,56	22,22	24,94	2,778	84,00
AM.260.600.520.IK	Ø 6,000		Ø 4,60	Ø 8,00	4,93	24,00	26,49	3,000	84,00
AM.260.6350.550.IK	Ø 6,350	1/4	Ø 4,87	Ø 8,00	5,22	25,40	27,70	3,175	84,00
AM.260.800.700.IK	Ø 8,000		Ø 6,13	Ø 10,00	6,57	32,00	34,82	4,000	93,00
AM.260.1000.990.IK	Ø 10,000		Ø 7,66	Ø 12,00	8,21	40,00	43,16	5,000	101,00

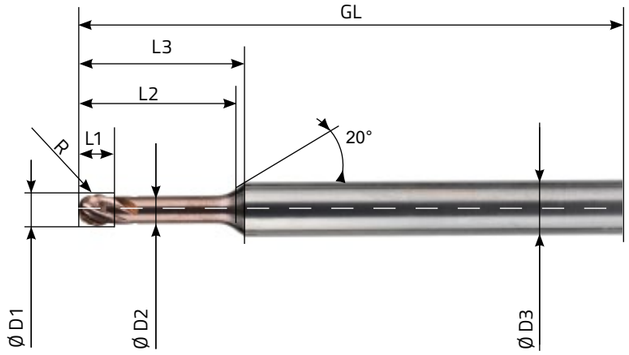
Available from stock



INOX-Ball 260°



ACTIONMILL 260° Ball nose
AM.260.100.070
D1: 1,00 mm



- α-INOX coated

5 PRO's of the ACTIONMILL:

- Very high feed speeds possible
- Undercuts possible
- Shorter process times and high process reliability
- High-quality and precise surfaces
- Center cutting

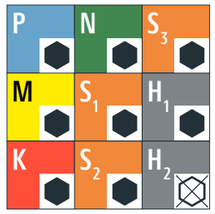
Article nummber	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (4xD1 / mm)	L3 (mm)	R (mm)	GL (mm)
AM.260.100.070	Ø 1,000		Ø 0,77	Ø 4,00	0,82	4,00	8,45	0,500	60,00
AM.260.150.120	Ø 1,500		Ø 1,15	Ø 4,00	1,23	6,00	9,92	0,750	60,00
AM.260.1587.130	Ø 1,587	1/16	Ø 1,22	Ø 4,00	1,30	6,35	10,18	0,794	60,00
AM.260.200.170	Ø 2,000		Ø 1,53	Ø 4,00	1,64	8,00	11,40	1,000	60,00
AM.260.2381.200	Ø 2,381	3/32	Ø 1,83	Ø 4,00	1,96	9,52	12,51	1,191	60,00
AM.260.250.210	Ø 2,500		Ø 1,92	Ø 4,00	2,05	10,00	12,87	1,250	60,00
AM.260.300.260	Ø 3,000		Ø 2,30	Ø 6,00	2,46	12,00	17,09	1,500	60,00
AM.260.3175.280	Ø 3,175	1/8	Ø 2,43	Ø 6,00	2,61	12,70	17,61	1,588	60,00
AM.260.3968.350	Ø 3,968	5/32	Ø 3,04	Ø 6,00	3,26	15,87	19,95	1,984	60,00
AM.260.400.350	Ø 4,000		Ø 3,06	Ø 6,00	3,29	16,00	20,04	2,000	60,00
AM.260.4762.400	Ø 4,762	3/16	Ø 3,65	Ø 6,00	3,91	19,05	22,29	2,381	80,00
AM.260.500.430	Ø 5,000		Ø 3,83	Ø 8,00	4,11	20,00	25,74	2,500	80,00
AM.260.5556.460	Ø 5,556	7/32	Ø 2,26	Ø 8,00	4,56	22,22	27,37	2,778	80,00
AM.260.600.520	Ø 6,000		Ø 4,60	Ø 8,00	4,93	24,00	28,69	3,000	80,00
AM.260.6350.550	Ø 6,350	1/4	Ø 4,87	Ø 8,00	5,22	25,40	29,72	3,175	80,00
AM.260.800.700	Ø 8,000		Ø 6,13	Ø 10,00	6,57	32,00	37,33	4,000	100,00
AM.260.1000.990	Ø 10,000		Ø 7,66	Ø 12,00	8,21	40,00	45,97	5,000	101,00

Available from stock

Cutting data - ACTIONMILL INOX-Ball 260°

ACTIONMILL® by HB microtec INOX-Ball 260°

ACTIONMILL® by HB microtec INOX-Ball 260° cooled



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

ap=0,1xD	ae=0,1xD	ap=0,1xD	ae=0,1xD	ap=0,1xD	ae=0,1xD	ap=0,1xD	ae=0,1xD	ap=0,1xD	ae=0,1xD
Ø 1 - Ø 2 mm		Ø 2 - Ø 3 mm		Ø 3 - Ø 4 mm		Ø 4 - Ø 6 mm		Ø 8 - Ø 10 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
100-140	0,011 - 0,025	100-140	0,016 - 0,035	100-140	0,026 - 0,065	100-140	0,03 - 0,075	100-140	0,035 - 0,085
100-140	0,011 - 0,025	100-140	0,016 - 0,035	100-140	0,026 - 0,055	100-140	0,03 - 0,065	100-140	0,035 - 0,075
80-110	0,011 - 0,025	80-110	0,016 - 0,04	80-110	0,026 - 0,055	80-110	0,035 - 0,065	80-110	0,035 - 0,075
70-100	0,016 - 0,032	70-100	0,016 - 0,04	70-100	0,026 - 0,055	70-100	0,035 - 0,065	70-100	0,035 - 0,075
80-140	0,016 - 0,032	80-140	0,03 - 0,045	80-140	0,026 - 0,065	80-140	0,035 - 0,065	80-140	0,035 - 0,085
80-160	0,02 - 0,035	80-160	0,025 - 0,06	80-160	0,035 - 0,06	80-160	0,035 - 0,06	80-160	0,035 - 0,075
80-140	0,02 - 0,036	80-140	0,025 - 0,06	80-140	0,035 - 0,06	80-140	0,035 - 0,06	80-140	0,035 - 0,08
80-120	0,02 - 0,036	80-120	0,025 - 0,06	80-120	0,035 - 0,06	80-120	0,025 - 0,06	80-120	0,035 - 0,085
50 - 80	0,01 - 0,02	50 - 80	0,01 - 0,025	50 - 80	0,015 - 0,05	50 - 80	0,02 - 0,06	50 - 80	0,025 - 0,07
50-80	0,01 - 0,02	50-80	0,01 - 0,025	50-80	0,015 - 0,05	50-80	0,02 - 0,06	50-80	0,025 - 0,07
50-80	0,01 - 0,02	50-80	0,01 - 0,025	50-80	0,015 - 0,05	50-80	0,02 - 0,06	50-80	0,025 - 0,07
No data entered									
No data entered									

Description

The HB microtec® T-SLOT and T-SLOT cooled is the ideal all-purpose tool for producing T-shaped slots – thanks to its outstanding performance and versatility. The ACTIONMILL® T-SLOT is characterized by excellent tool life and exceptionally high cutting performance. The positive result for you: shorter cycle times and the elimination of unnecessary tool changes.

A sophisticated cutting-edge geometry, specially designed for this tool, combined with a mirror-finish surface and a high-performance coating, ensures maximum machining performance for every component.

The cutting material is made from a proprietary ultra-fine grain solid carbide and includes innovative internal cooling channels – forming the foundation of the T-SLOT and offering you the best possible cutting conditions.

What truly makes the ACTIONMILL® T-SLOT stand out is its ability to be customized. With diameters ranging from Ø0.8 mm to Ø40 mm, there is a solution for any application.

Our customers value its versatility in processing a wide range of challenging materials – from titanium grade 5 (Ti-6Al4V) to classic stainless steel X20Cr13 (1.4021).

The ACTIONMILL® T-SLOT handles them all..

As a semi-standard solution, the ACTIONMILL® T-SLOT is quickly ready for use and delivers immediate impact. When it comes to performance, the details matter. Your customized ACTIONMILL® T-SLOT is precisely matched to your application, your material, and your component.

We round the cutting edges and give the tool the final polish – literally – for premium performance.

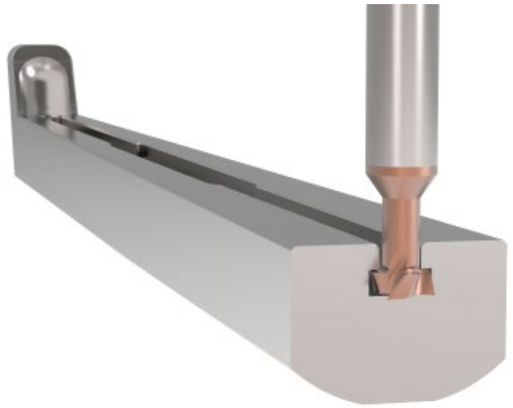
The ACTIONMILL® T-SLOT is available in two versions:

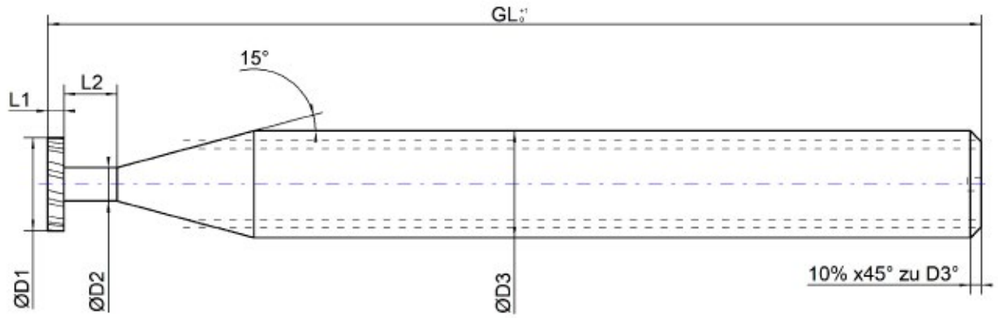
ACTIONMILL® T-SLOT cooled – with integrated cooling channels for improved chip evacuation.

ACTIONMILL® T-SLOT – the classic version without internal cooling.

HB microtec® stands for Actiontools and Engineering. Professional advice and comprehensive support are key elements of our company philosophy.

We develop your precision-ground T-slot – together with you and specifically for your needs.





T-Slot cooled

T-Slot

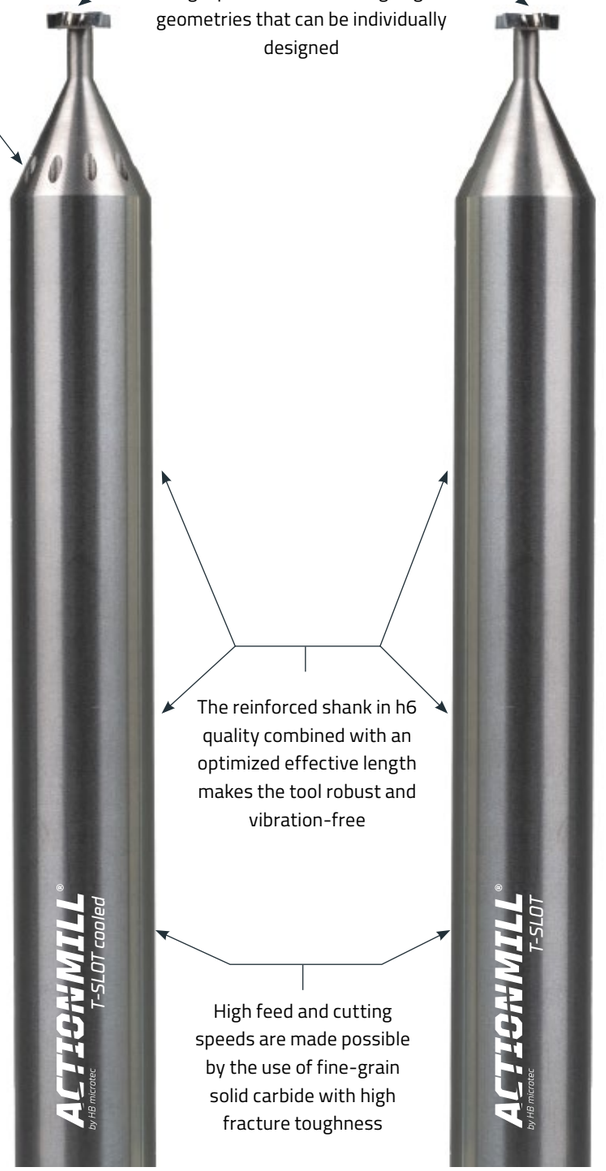
High-performance coatings guarantee a long tool life and prevent the cutting edges from sticking

High-performance cutting edge geometries that can be individually designed

Integrated cooling channels protect the tool from overheating when cutting titanium alloys and stainless steels

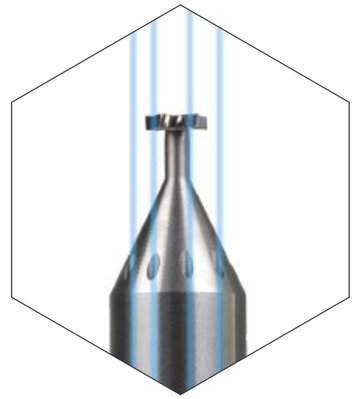
from Ø 0,8
to Ø 12,0

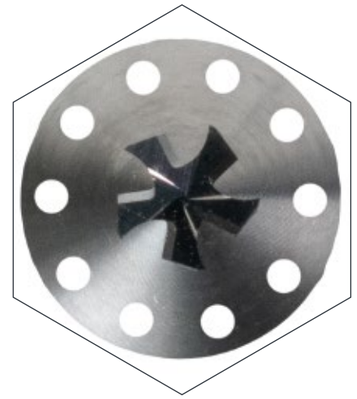
from Ø 0,8
to Ø 16,0



The reinforced shank in h6 quality combined with an optimized effective length makes the tool robust and vibration-free

High feed and cutting speeds are made possible by the use of fine-grain solid carbide with high fracture toughness





Semistandardised T-Slots

Product features

- From Ø0.8 to Ø12 with integrated cooling
- From Ø0.8 to Ø40 without cooling
- 3 to 18 flutes depending on diameter
- Straight toothing from Ø4 or helical toothing selectable
- Rounding of sharp corners between 0.004 and 0.01 mm (edge preparation)
- Further customizations available on request

Short delivery times

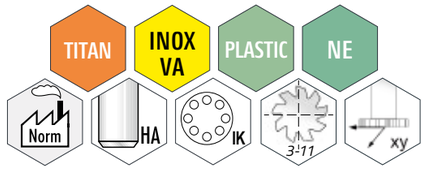
- 2 weeks blank
- 3 - 4 weeks coated
- The right high-performance coating can always be selected:
- .00 = blank for plastics and non-ferrous metals
- .01 = α-INOX for stainless steels ferritic, martensitic, austenitic & heat-resistant steels, titanium alloys, CrCo (M & S)
- .02 = β-titanium for non-ferrous metals and titanium (N & S1)
- .03 = γ-steel for steels up to RM < 1200N/mm2 & cast iron (P & K)

Material selection for your T-Slot

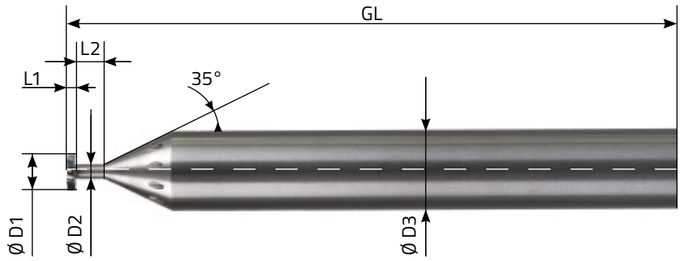
Material short description	Material number	Shank-Ø [mm]	Overall length [mm]	Maximum cutting Ø [mm]	Amount of flutes [n]
4 ITK	R_HB.040.500.ITK	4	50	2	Z3
6 ITK	R_HB.060.600.ITK	6	60	4	Z3 / Z5 from Ø3
8 ITK	R_HB.080.681.ITK	8	68	6	Z5 / Z7 from Ø5
10 ITK	R_HB.100.840.ITK	10	84	8	Z7
12 ITK	R_HB.120.1010.ITK	12	101	10	Z9
14 ITK	R_HB.140.1010.ITK	14	101	12	Z11

Material short description	Material number	Shank-Ø [mm]	Overall length [mm]	Maximum cutting Ø [mm]	Amount of flutes [n]
T-SLOT 3	R_HB.030.500.h6	3	50	3	Z3
T-SLOT 4	R_HB.040.600.h6	4	60	4	Z3 / Z5 from Ø3
T-SLOT 6	R_HB.060.760.h6	6	76	6	Z5 / Z7 from Ø5
T-SLOT 8	R_HB.080.800.h6	8	80	8	Z7
T-SLOT 10	R_HB.100.900.h6	10	90	10	Z9
T-SLOT 12	R_HB.120.1010.h6	12	101	12	Z11
T-SLOT 14	R_HB.140.1010.h6	14	101	14	Z13
T-SLOT 16	R_HB.160.1010.h6	16	101	16	Z15

INOX T-SLOT cooled Ø0,8 - Ø12



ACTIONMILL D1 L1 Blank or coated
AM.TS.XXXX.YYYY.WWWW.LLLL.BB.ZZ.12ITK ← D3h6 & Integrated cooling
T-SLOT D2 L2 Straight or helical flutes



5 PRO's of the ACTIONMILL:

- Quickly available, semi-standardized T-slot mill
- Micro and macro geometry at the highest level
- High performance at a very good price-performance ratio
- Perfect for individualized applications
- Specialized also for difficult-to-cut materials

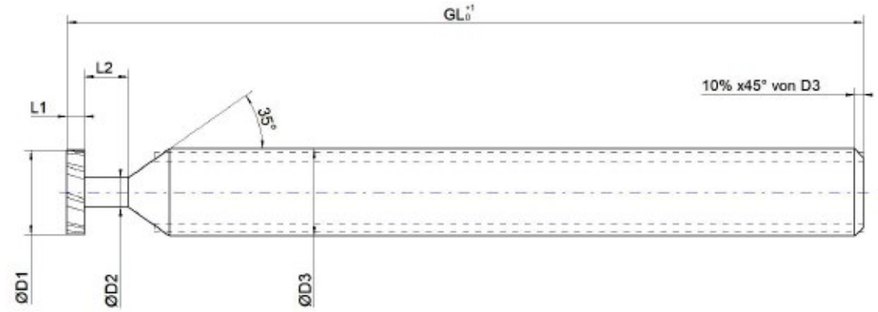
Example: T-Slot Ø9,0x5,0 mm; Neck Ø4,5x14,0 mm; Helical flutes and β-Titan coated

Article number XXXX.YYYY.WWWW.LLLL	D1 (mm) XXXX	D2 (mm) YYYY	D3 h6 (mm)	L1 ±0,005 (mm) WWWW	L2 (mm) LLLL	GL (mm)
AM.TS.XXXX.YYYY.WWWW.LLLL.BB.ZZ.12ITK	Ø8,0-Ø10,0	Ø3,5-Ø5,0	Ø12	0,5-10,5 mm	3,0-24 mm	101
AM.TS.0900.0450.0500.1400.02.ZD.12ITK	9,0	4,5	12h6	5,0	14,0	101

Minimum order quantity: 5 pieces

Delivery time: Blank 2 weeks; Coated 3-4 weeks

D_1= 0,8mm up to 12,0mm



Article number: _____

Raw material: _____

☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions (XXXX.YYYY.WWWW.LLLL):

$D_{1\ (XXXX)}$ _____ $L_{1\ (WWWW)}$ _____

$D_{2\ (YYYY)}$ _____ $L_{2\ (LLLL)}$ _____

Material to be machined _____

Coating (BB):

☐ (.00) blank

☐ (.01) α-INOX

☐ (.02) β-Titan

☐ (.03) γ-Steel

Flutes (ZZ):

☐ (.ZG) Straight

☐ (.ZD) Helix

Matrial selection (Short code): _____

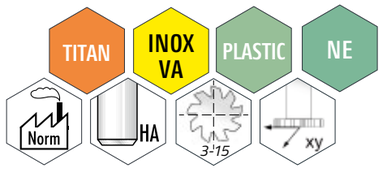
The table for material selection can be found on page 202.

Minimum order quantity from 5 pieces: _____

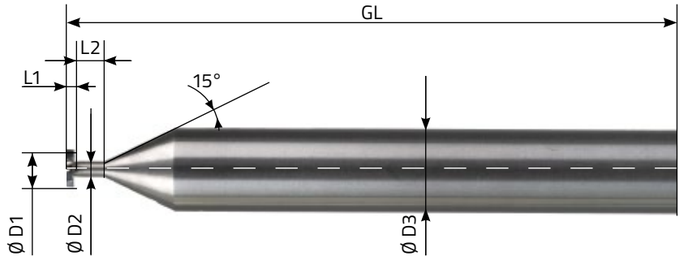
* Without further information, the most suitable coating will be used.

Z	blank BB	α-INOX BB	β-Titan BB	γ-Steel BB	Z-Straight ZZ	Z-Helix ZZ
Z9	.00	.01	.02	.03	.ZG	.ZD
Z9			.02			.ZD

T-SLOT
Ø0,8 - Ø16



ACTIONMILL D1 L1 Blank or coated
AM.TS.XXXX.YYYY.WWWW.LLLL.BB.ZZ.16 ← D3h6
T-SLOT D2 L2 Straight or helical flutes



5 PRO's of the ACTIONMILL:

- Quickly available, semi-standardized T-slot mill
- Micro and macro geometry at the highest level
- High performance at a very good price-performance ratio
- Perfect for individualized applications
- Specialized also for difficult-to-cut materials

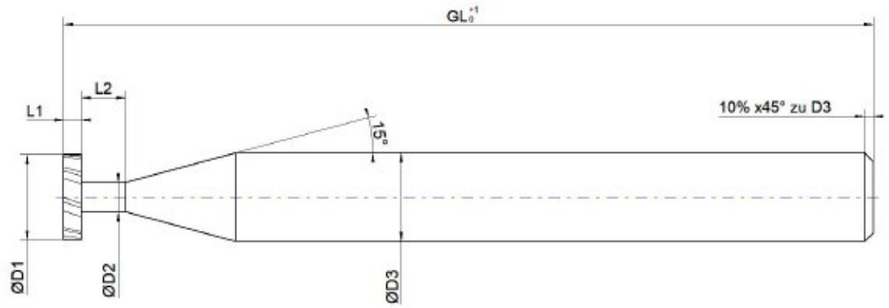
Example: T-Slot Ø12,0x6,0 mm; Neck Ø6,0x20,0 mm; Straight and α-INOX coated

Article number XXXX.YYYY.WWWW.LLLL	D1 (mm) XXXX	D2 (mm) YYYY	D3 h6 (mm)	L1 ±0,005 (mm) WWWW	L2 (mm) LLLL	GL (mm)
AM.TS.XXXX.YYYY.WWWW.LLLL.BB.ZZ.16	Ø14,0-Ø16,0	Ø7,0-Ø12,0	Ø16	0,5-16,5 mm	3,0-28 mm	101
AM.TS.1450.1000.0800.1400.02.ZD.16	14,5	10,0	16h6	8,0	14,0	101

Minimum order quantity: 5 pieces

Delivery time: Blank 2 weeks; Coated 3-4 weeks

D_1= 0,8mm up to 16,0mm



Article number: _____

Raw material: _____

☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions (XXXX.YYYY.WWWW.LLLL):

$D_{1\ (XXXX)}$ _____ $L_{1\ (WWWW)}$ _____

$D_{2\ (YYYY)}$ _____ $L_{2\ (LLLL)}$ _____

Material to be machined _____

Coating (BB):

☐ (.00) blank
☐ (.01) α-INOX
☐ (.02) β-Titan
☐ (.03) γ-Steel

Flutes (ZZ):

(.ZG) Straight
(.ZD) Helix

Matrial selection (Short code): _____

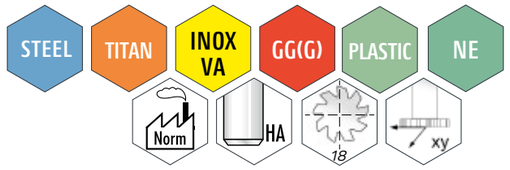
The table for material selection can be found on page 203.

Minimum order quantity from 5 pieces: _____

* Without further information, the most suitable coating will be used.

Z	blank BB	α-INOX BB	β-Titan BB	γ-Steel BB	Z-Straight ZZ	Z-Helix ZZ
Z15	.00	.01	.02	.03	.ZG	.ZD
Z15			.02			.ZD

T-SLOT 20

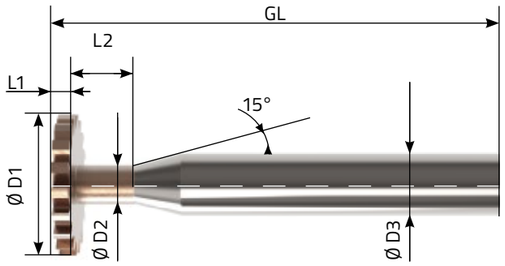


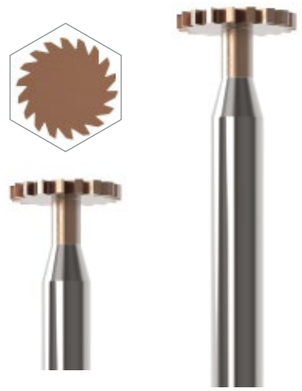
ACTIONMILL D1 L1 Blank or coated

AM.TS.XXXX.WWWW.BB.ZZ.20 ← D1 max

T-SLOT

Straight or helical flutes





5 PRO's of the ACTIONMILL:

- Quickly available, semi-standardized T-slot mill
- Micro and macro geometry at the highest level
- High performance at a very good price-performance ratio
- Perfect for individualized applications
- Also specialized for difficult-to-cut materials

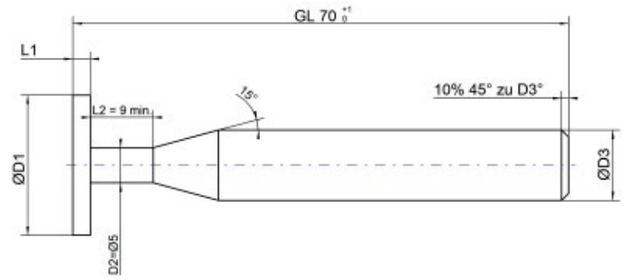
Example: T-Slot Ø17,5 x 2,0 mm; Neck Ø6,0 x 9,0 mm; Helical flutes and α-INOX coated

Article number XXXX.WWWW	D1 (mm) XXXX	D2 (mm)	D3 h6 (mm)	L1 ±0,005 (mm) WWWW	L2 (mm)	GL (mm)
AM.TS.XXXX.WWWW.BB.ZZ.20	Ø16,1-Ø20,2	Ø6	Ø10 h6	2,0-3,0 mm	min. 9	70
AM.TS.1750.0200.01.ZD.20	17,5	6	10h6	2,0	9	70

Minimum order quantity: 3 pieces

Delivery time: Blank 2 weeks; Coated 3-4 weeks

D_1 = 16,1mm up to 20,2mm



Article number

(AM.TS.XXXX.WWWW.BB.ZZ.20): _____

☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions (XXXX.WWWW):

$D_{1\ (XXXX)}$ Ø16,1-Ø20,2 _____ $L_{1\ (WWWW)}$ 2,0-3,0 mm _____

Material to be machined _____

Coating (BB):

☐ (.00) blank

☐ (.01) α-INOX

☐ (.02) β-Titan

☐ (.03) γ-Steel

Flutes (ZZ):

☐ (.ZG) Straight

☐ (.ZD) Helix

Product attributes:

- Shank shape: HA
- Shank diameter D3h6: Ø10
- Raw material: 2017440-2
- Overall lenght: 70
- Amount of flutes: Z18

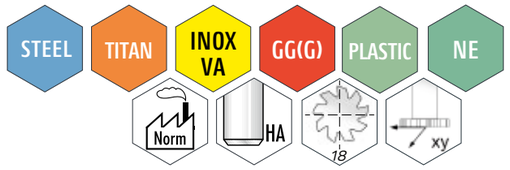
Minimum order quantity from 3 pieces:

_____

* Without further information, the most suitable coating will be used.

Z	blank BB	α-INOX BB	β-Titan BB	γ-Steel BB	Z-Straight ZZ	Z-Helix ZZ
Z18	.00	.01	.02	.03	.ZG	.ZD
Z18		.01				.ZD

T-SLOT 25

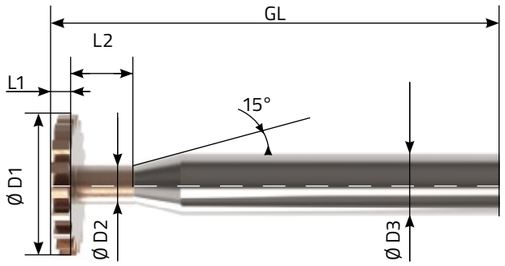


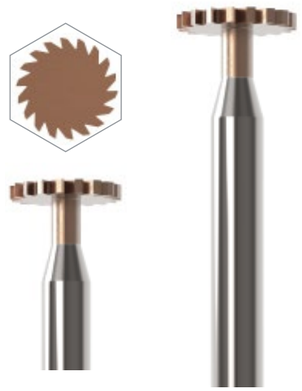
ACTIONMILL D1 L1 Blank or coated

AM.TS.XXXX.WWWW.BB.ZZ.25 ← D1 max

T-SLOT

Straight or helical flutes





5 PRO's of the ACTIONMILL:

- Quickly available, semi-standardized T-slot mill
- Micro and macro geometry at the highest level
- High performance at a very good price-performance ratio
- Perfect for individualized applications
- Also specialized for difficult-to-cut materials

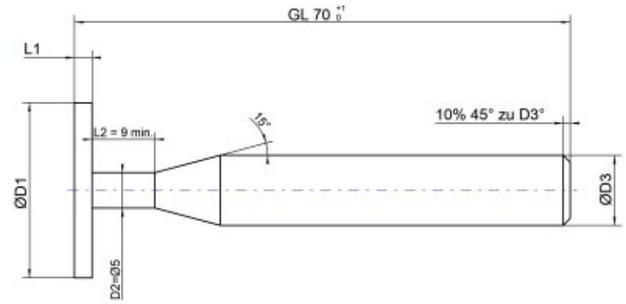
Example: T-Slot Ø23,5 x 2,5 mm, Neck Ø6,0 x 9,0mm, Helical flutes and blank (uncoated)

Article number XXXX.WWWW	D1 (mm) XXXX	D2 (mm)	D3 h6 (mm)	L1 ±0,005 (mm) WWWW	L2 (mm)	GL (mm)
AM.TS.XXXX.WWWW.BB.ZZ.25	Ø20,2-Ø25,2	Ø6	Ø10 h6	2,0-3,0 mm	min. 9	70
AM.TS.2350.0250.00.ZD.25	23,5	6	10h6	2,5	9	70

Minimum order quantity: 3 pieces

Delivery time: Blank 2 weeks; Coated 3-4 weeks

D_1= 20,2mm up to 25,2mm



Article number

(AM.TS.XXXX.WWWW.BB.ZZ.20): _____

☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions (XXXX.WWWW):

$D_{1\ (XXXX)}$ Ø20,2-Ø25,2 _____ $L_{1\ (WWWW)}$ 2,0-3,0 mm _____

Material to be machined _____

Coating (BB):

☐ (.00) blank

☐ (.01) α-INOX

☐ (.02) β-Titan

☐ (.03) γ-Steel

FIlutes (ZZ):

☐ (.ZG) Straight

☐ (.ZD) Helix

Product attributes:

- Shank shape: HA
- Shank diameter D3h6: Ø10
- Raw material: 2017440-2
- Overall lenght: 70
- Amount of flutes: Z18

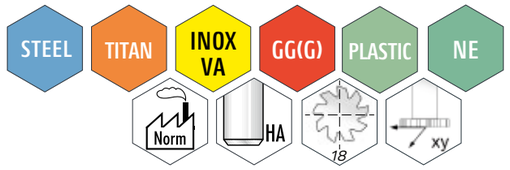
Minimum order quantity from 3 pieces:

_____

* Without further information, the most suitable coating will be used.

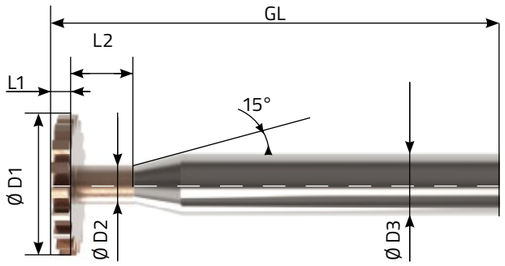
Z	blank BB	α-INOX BB	β-Titan BB	γ-Steel BB	Z-Straight ZZ	Z-Helix ZZ
Z18	.00	.01	.02	.03	.ZG	.ZD
Z18	.00					.ZD

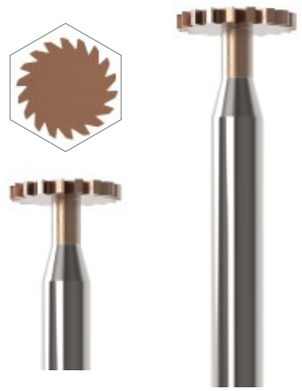
T-SLOT 30



ACTIONMILL AM.TS.XXXX.WWWW.BB.ZZ.30 ← D1 max

D1 · L1 · Blank or coated · T-SLOT · Straight or helical flutes





5 PRO's of the ACTIONMILL:

- Quickly available, semi-standardized T-slot mill
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- High performance at a very good price-performance ratio
- Perfect for individualized applications
- Specialized also for difficult-to-cut materials

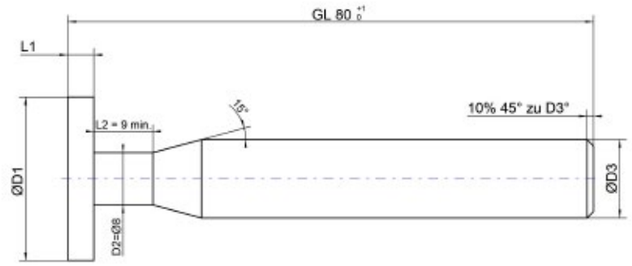
Example: T-Slot Ø28,25 x 3,8 mm, Neck Ø6,0 x 9,0mm, Straight flutes and β-Titan coated

Article number XXXX.WWWW	D1 (mm) XXXX	D2 (mm)	D3 h6 (mm)	L1 ±0,005 (mm) WWWW	L2 (mm)	GL (mm)
AM.TS.XXXX.WWWW.BB.ZZ.30	Ø25,2-Ø30,2	Ø6	Ø10 h6	2,5-4,0 mm	min. 9	80
AM.TS.2825.0380.02.ZG.30	28,25	6	10h6	3,8	9	80

Minimum order quantity: 3 pieces

Delivery time: Blank 2 weeks; Coated 3-4 weeks

D_1= 25,2mm up to 30,2mm



Article number

(AM.TS.XXXX.WWWW.BB.ZZ.20): _____

☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions (XXXX.WWWW):

$D_{1\ (XXXX)}$ Ø25,2-Ø30,2 _____ $L_{1\ (WWWW)}$ 2,5-4,0 mm _____

Material to be machined _____

Coating (BB):

- ☐ (.00) blank
- ☐ (.01) α-INOX
- ☐ (.02) β-Titan
- ☐ (.03) γ-Steel

Flutes (ZZ):

- ☐ (.ZG) Straight
- ☐ (.ZD) Helix

Product attributes:

- Shank shape: HA
- Shank diameter D3h6: Ø10
- Raw material: 2017440-2
- Overall lenght: 70
- Amount of flutes: Z18

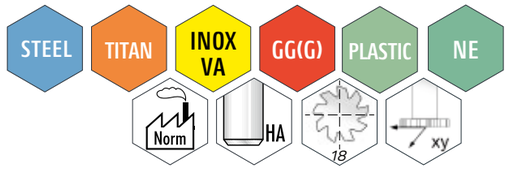
Minimum order quantity from 3 pieces:

_____

* Without further information, the most suitable coating will be used.

Z	blank BB	α-INOX BB	β-Titan BB	γ-Steel BB	Z-Straight ZZ	Z-Helix ZZ
Z18	.00	.01	.02	.03	.ZG	.ZD
Z18			.02		.ZG	

T-SLOT 40

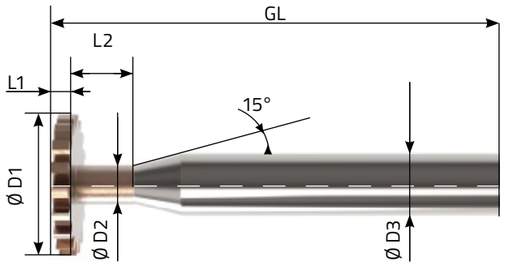


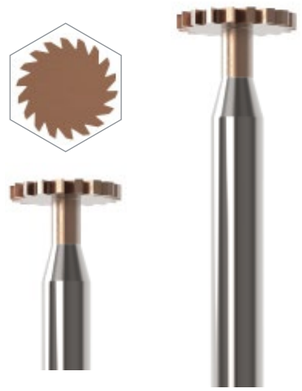
ACTIONMILL D1 L1 Blank or coated

AM.TS.XXXX.WWWW.BB.ZZ.40 ← D1 max

T-SLOT

Straight or helical flutes





5 PRO's of the ACTIONMILL:

- Quickly available, semi-standardized T-slot mill
- Micro and macro geometry at the highest level
- High performance at a very good price-performance ratio
- Perfect for individualized applications
- Specialized also for difficult-to-cut materials

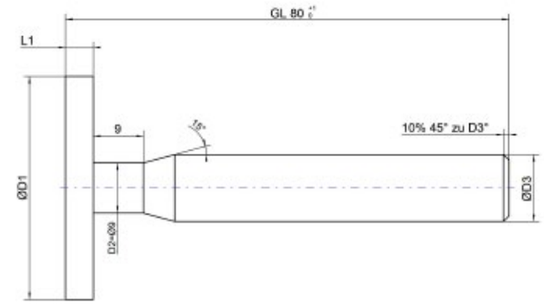
Example: T-SLot Ø39,0 x 4,7 mm, Neck Ø9,0 x 9,0mm, Straight and γ-Steel coated

Article number XXXX.WWWW	D1 (mm) XXXX	D2 (mm)	D3 h6 (mm)	L1 ±0,005 (mm) WWWW	L2 (mm)	GL (mm)
AM.TS.XXXX.WWWW.BB.ZZ.40	Ø30,2-Ø40,2	Ø9	Ø12	3,0-5,0 mm	min. 9 mm	80
AM.TS.3900.0470.03.ZG.40	39,0	9	12	4,7	9	80

Minimum order quantity: 3 pieces

Delivery time: Blank 2 weeks; Coated 3-4 weeks

D_1= 30,2mm up to 40,2mm



Article number

(AM.TS.XXXX.WWWW.BB.ZZ.20): _____

☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions (XXXX.WWWW):

$D_{1\ (XXXX)}$ Ø30,2-Ø40,2 _____ $L_{1\ (WWWW)}$ 3,0-5,0 mm _____

Material to be machined _____

Coating (BB):

- ☐ (.00) blank
- ☐ (.01) α-INOX
- ☐ (.02) β-Titan
- ☐ (.03) γ-Steel

Flutes (ZZ):

- ☐ (.ZG) Straight
- ☐ (.ZD) Helix

Product attributes:

- Shank shape: HA
- Shank diameter D3h6: Ø10
- Raw material: 2017440-2
- Overall lenght: 70
- Amount of flutes: Z18

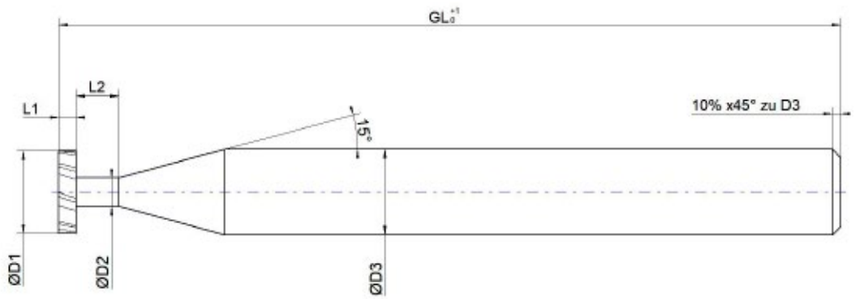
Minimum order quantity from 3 pieces:

_____

* Without further information, the most suitable coating will be used.

Z	blank BB	α-INOX BB	β-Titan BB	γ-Steel BB	Z-Straight ZZ	Z-Helix ZZ
Z18	.00	.01	.02	.03	.ZG	.ZD
Z18				.03	.ZG	

Classic



Corner alignment “sharp” = 0.004 mm - 0.01 mm rounded

(cutting edge protection)

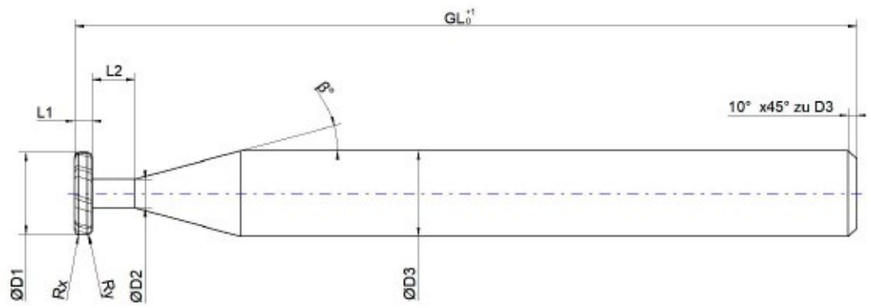
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ ☐ Straight D_2: _____ L_1: _____ D_3: _____ L_2: _____ ☐ Helix Z: _____ β: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Corner radius



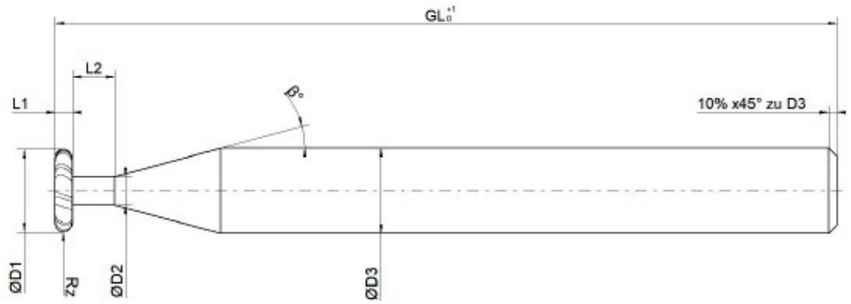
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ β: _____ D_2: _____ L_1: _____ R_x: _____ D_3: _____ L_2: _____ R_y: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Full radius



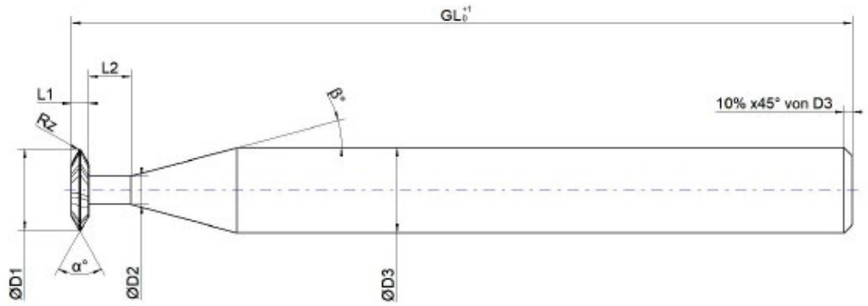
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ β: _____ D_2: _____ L_1: _____ R_z: _____ D_3: _____ L_2: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Prism



Corner alignment “sharp” = 0.004 mm - 0.01 mm rounded.
(cutting edge protection)

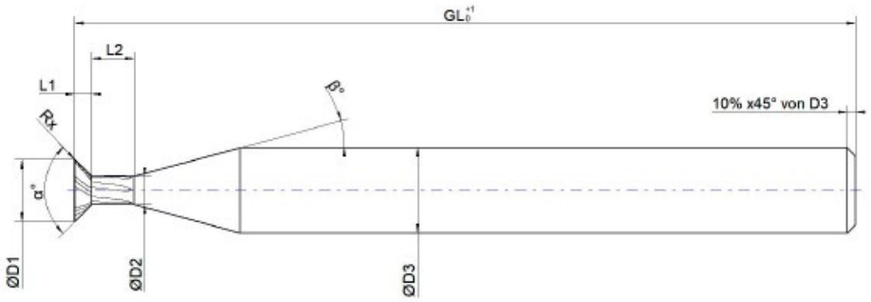
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ R_z: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Dove tail



Corner alignment “sharp” = 0.004 mm - 0.01 mm rounded

(cutting edge protection)

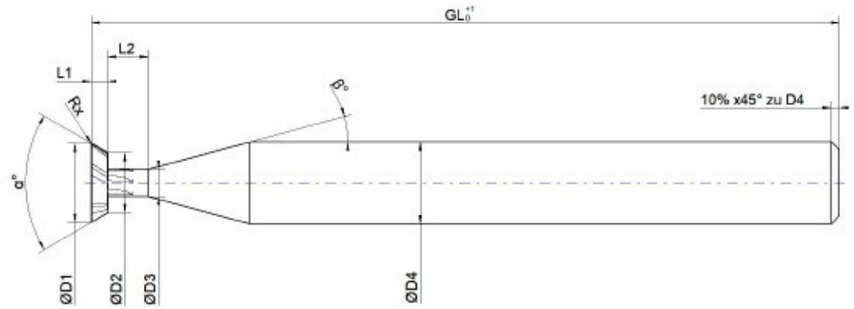
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

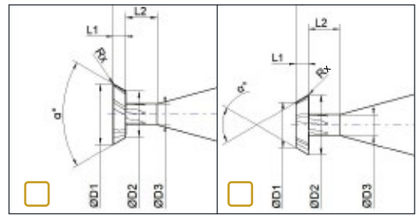
Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ R_x: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Conical



Form A ***Form B***



Corner alignment “sharp” = 0.004 mm - 0.01 mm rounded

(cutting edge protection)

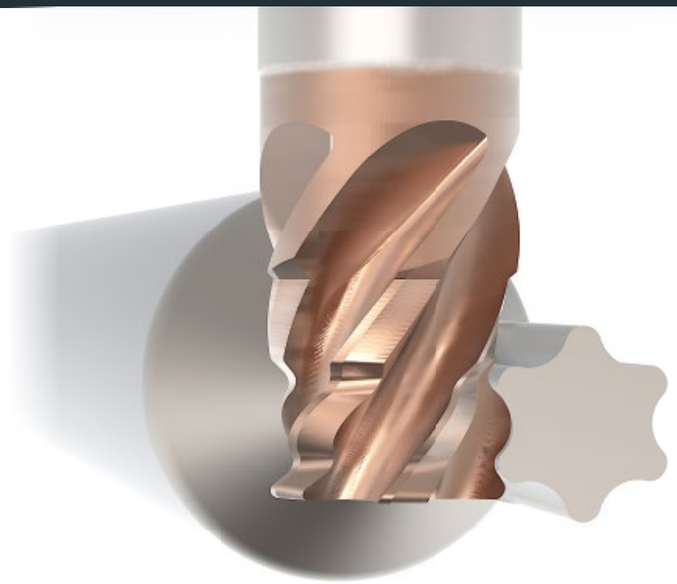
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ R_x: _____ D_4: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

TORX® DRILLING & MILLING



ACTIONMILL® by HB microtec Extern Starlobe

ACTIONMILL® by HB microtec Intern Starlobe

ACTIONDRILL by HB microtec Intern Starlobe

HB microtec ACTIONTOOLS & ENGINEERING

Description

Medical technology - surgery and dentistry - in particular uses screws and wrenches with a star-shaped shaft profile with six rounded lobes to drive in screws. Described as internal or external hexalobular according to ISO 10664, the profile is generally known under the brand name TORX®.

The advantage is that star-shaped profiles transmit significantly higher torques than other wrench shapes with comparable diameters. However, until now it has been complex and expensive to manufacture small star profiles in particular.

Revolutionary production technology

Now we, the specialists at HB Microtec in Tuttlingen, have developed micro-tools and processes that are revolutionizing the production of profiles!

Quick and economical availability thanks to standardization

Extensive standardization ensures that we can significantly reduce the cost and effort involved in manufacturing milling tools for TORX® profiles. At the same time, the innovative profile milling tools have all the familiar advantages of our tried-and-tested micro drilling and milling tools:

+ Highest accuracy
+ Best concentricity
+ Optimized cutting edge geometries
+ Rounding of the cutting edges adapted to hard and tough materials such as cobalt-chrome or titanium
+ Carefully matched, smooth TiAlSiN coatings (HiPIMS process)
+ Highest wear resistance and process reliability
+ Long tool life in difficult materials
+ Optionally with sophisticated internal cooling (IKZ) especially for titanium machining

We also manufacture individually designed and adapted tool geometries from our semi-standard tools at short notice.

Optimizing processes

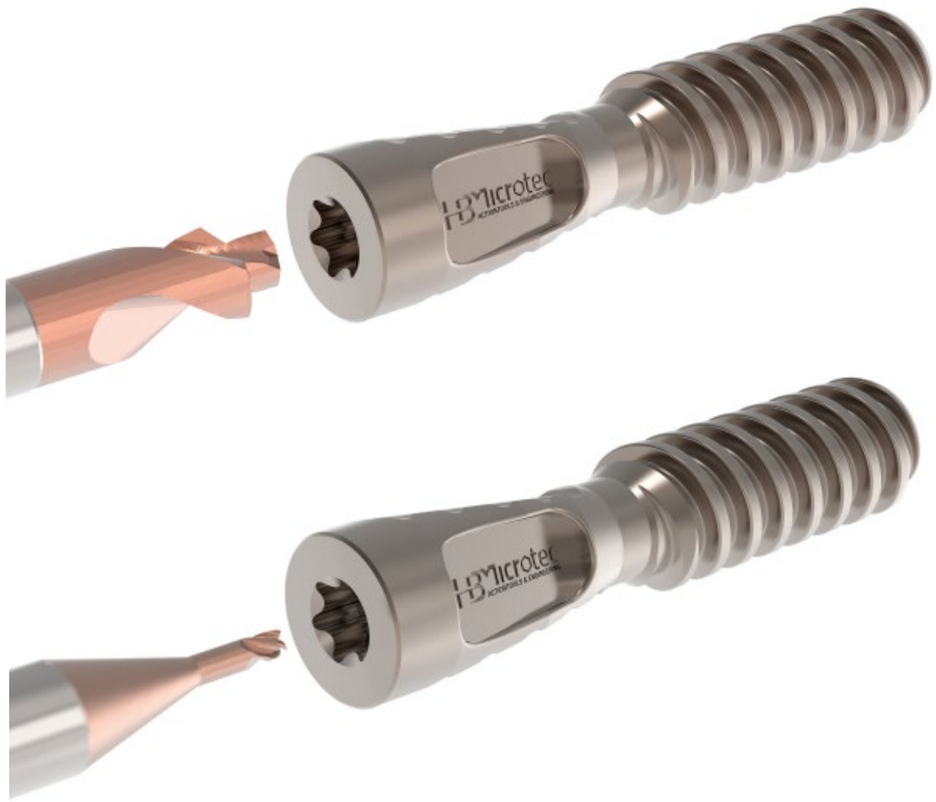
An outstanding milling tool can only be used to a limited extent without a suitable process. This is why we work with our customers to develop the optimum strategy and the right manufacturing process. Thanks to our extensive experience gained over many years in machining, especially in micromachining, we have the necessary know-how from practical manufacturing experience!

With our form milling tools and milling processes, we enable you to machine TORX® star profiles inside and out reliably, burr-free and precisely in accordance with the requirements. This ensures an optimum fit of the wrenches for transferring the highest torques.

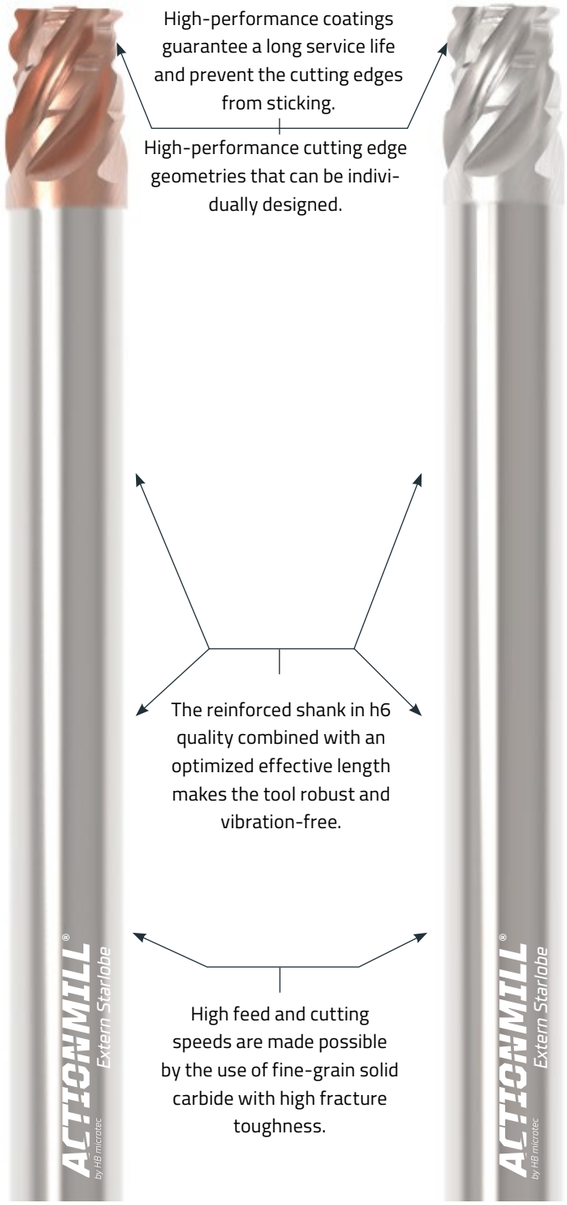
Our profile cutters for the reliable and precise production of TORX® profiles are already available in a wide range of dimensions.

We will be happy to advise you on the choice of suitable milling tools. Our highly qualified technicians can realize individually designed tool geometries at short notice. We will work with you to develop and implement the most reliable process for milling high-precision TORX® profiles internally and externally. We will support you with help and advice.

PUT US TO THE TEST!



Extern Starlobe



Torx® T4
to T30

Semi-standardized external Torx® mills

Product features

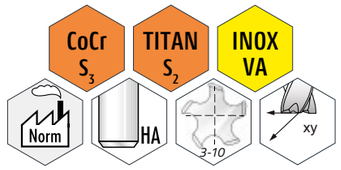
for Torx® types 4 to 30

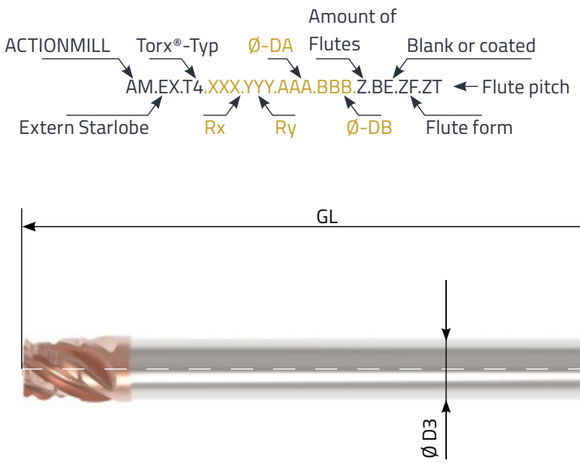
- Torx® shapes according to ISO 10664 or customized
- 3-10 flutes depending on diameter
- Straight or helical flutes selectable
- Unequal or equal flute spacing
- Technical advice and implementation according to your requirements

Short delivery times

- 2 weeks blank
- 3 – 4 weeks coated
- Always select the right high-performance coating:
  - *.00 = blank for plastics and non-ferrous metals*
  - *.01 = α-INOX for stainless steels ferritic, martensitic, austenitic & heat-resistant steels, titanium alloys, CrCo (M&S)*
  - *.02 = β-Titan for non-ferrous metals and titanium (N & S1)*
  - *.03 = γ-Steel for steels up to RM < 1200N/mm² & cast iron (P & K)*

Torx® T4 - T30





5 PRO's of the ACTIONMILL:

- Quickly available, semi-standardized external Torx® mill
- For milling Torx® type T4 to T30 in accordance with ISO10664 or individual geometries
- High profile accuracy & minimal burr formation
- Shorter process times and high process reliability
- Chrome-free coating prevents cross-contamination with medical parts

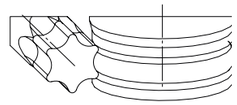
Example: Torx®-mills; Typ 4, 6 cutting edges; straight with the same flute spacing and α-INOX coated

Article number XXX.YYY.AAA.BBB	„Torx®" Type	D1 (mm)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	GL (mm)
AM.EX.T4.XXX.YYY.AAA.BBB.Z.BE.ZF.ZT	T4	Ø5,5 - 6,0	Ø5,0 - 5,4	Ø6 h6	1,0 - 1,5	3,0 - 5,0	76
AM.EX.T4.009.031.130.092.6.01.ZG.G	T4	6	5,4	Ø6 h6	1,5	4,0	76

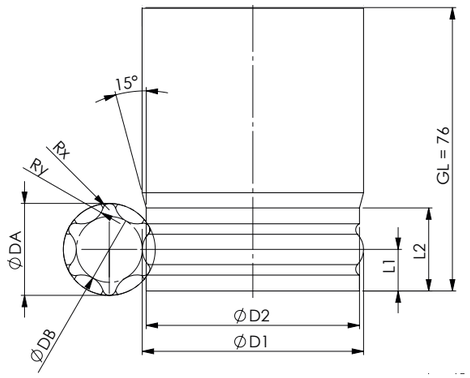
Minimum order quantity: 5 pieces

Delivery time: Blank 2 weeks; Coated 3 4 weeks.

Torx®- Standard dimensions according to ISO 10664 (mean value)



Torx®	ØDA	ØDB	Rx	Ry
4	1,30	0,92	0,09	0,31
5	1,42	1,02	0,11	0,33
6	1,70	1,22	0,13	0,38
7	2,02	1,44	0,16	0,45
8	2,34	1,68	0,19	0,51
10	2,77	1,99	0,23	0,60
15	3,30	2,36	0,27	0,71
20	3,88	2,77	0,31	0,86
25	4,46	3,18	0,38	0,92
30	5,55	3,96	0,45	1,19



Article number

(AM.TS.XXXX.WWWW.BB.ZZ.20): _____

☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions (XXXX.WWWW):

D_1 _____ D_2 _____ R_x (XXX) _____

D_A (AAA) _____ L_1 _____ R_y (YYY) _____

D_B (BBB) _____ L_2 _____ Z _____

Material to be machined _____

Coating (BB):

☐ (.00) blank
☐ (.01) α-INOX
☐ (.02) β-Titan
☐ (.03) γ-Steel

Flutes (ZZ):

☐ (.ZG) Straight
☐ (.ZD) Helical

Flute spacing (ZT)

☐ (.G) Even
☐ (.U) Odd

Product attributes:

	Material short description	Material- number	Shank-Ø [mm]	Overall length [mm]	Amount of flutes [n]
☐	Torx® T4-T7	R_HB.060.760.h6	6	76	Z3 - Z6
☐	Torx® T8-T20	R_HB.080.800.h6	8	80	Z5 - Z8
☐	Torx® T25-T30	R_HB.100.900.h6	10	90	Z7 - Z10

Minimum order quantity from

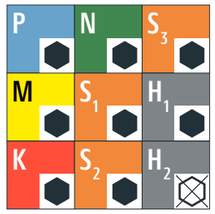
3 pieces: _____

* Without further information, the most suitable coating will be used.

ØDA AAA	ØDB BBB	Rx XXX	Ry YYY	Amount of Flutes (Z)	Coating (BE)				Flute form (ZF)		Flute spacing (ZT)	
				Z3 – Z6	blank .00	α-INOX .01	β-Titan .02	γ-Steel .03	.ZG	.ZD	.G	.U
1,30	0,92	0,09	0,31	6	.01 (α-INOX)				.ZG (Z-Straight)		.G (even)	

Cutting data - ACTIONMILL Extern Starlobe

ACTIONMILL® by HB microtec Extern Starlobe



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

T4-T7		T8-T10		T15-T20		T20-T30	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
50-80	0,008-0,018	50-100	0,008-0,022	60-120	0,010-0,025	60-140	0,010-0,03
20-50	0,006-0,013	30-70	0,006-0,020	30-80	0,008-0,022	30-80	0,008-0,025

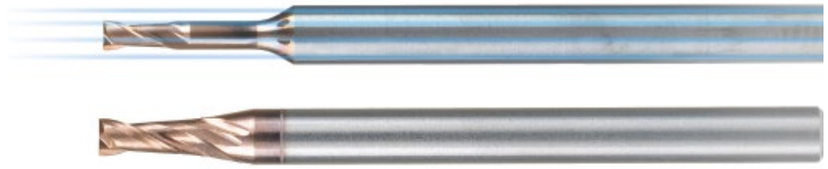
ACTIONDRILL®
by HB microtec
INOX-8xD cooled

TARGETDRILL®
by HB microtec
micro-INOX 8xD

ACTIONDRILL®
by HB microtec
Intern Starlobe

ACTIONMILL®
by HB microtec
INOX-micro cooled

TARGETMILL®
by HB microtec
INOX-micro



ACTIONMILL®
by HB microtec
Intern Starlobe

5x PRO's for the ACTIONMILL:

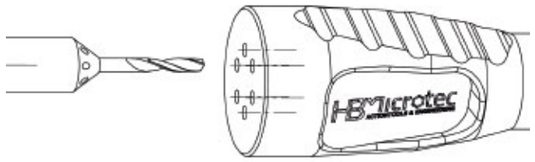
- Quickly available, standardized internal Torx® cutters & drills
- For machining Torx® types from T4 to T30
- High profile accuracy & minimal burr formation
- Shorter process times and high process reliability
- Chrome-free coating prevents cross-contamination with medical parts

Machining process Internal Torx®

With pre-drilling of the flats, e.g. for CoCr

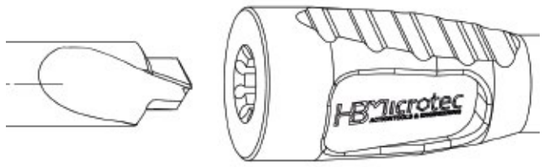
CoCr S_3

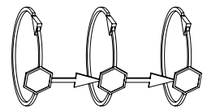
Pre-drilling the flats



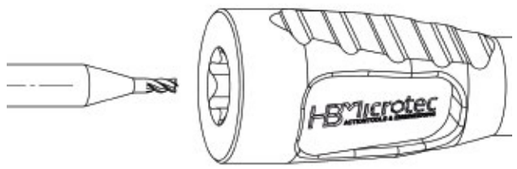
Pre-drilling with 120° chamfer

Point angle 140°/
170° or 180°

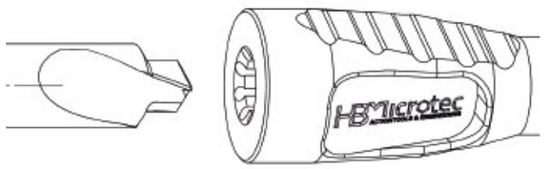




Dynamic wall milling
Spiral interpolation



Deburring

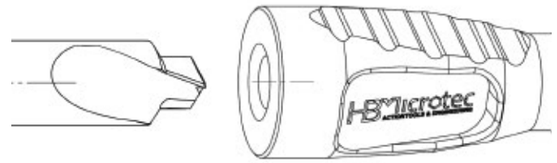


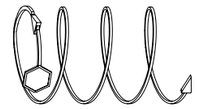
Without pre-drilling of the flats e.g. for titanium & INOX

TITAN S_2 INOX VA

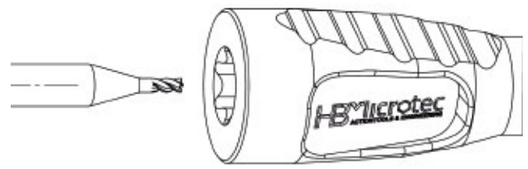
Pre-drilling with 120° chamfer

Point angle 140°/
170° or 180°

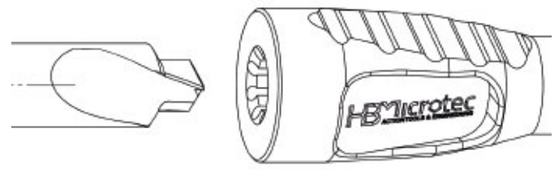




Dynamic wall milling
Spiral interpolation



Deburring



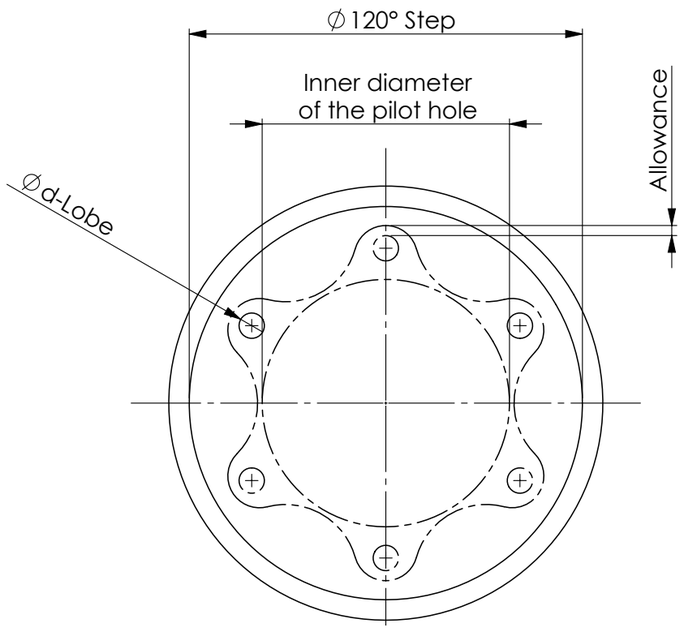
Tool recommendation for internal Torx®

With pre-drilling of lobes for internal Torx®

CoCr S_3 | TITAN S_2 | INOX VA

Dimensions according to ISO 10664

Torx® Type	D-Lobe [mm]	Allowance [mm]	Drilling the lobe with internal cooling	Drilling the lobe with external cooling	Pre-drilling 140 Point angle	Milling the lobes 3xD	Milling the lobes 5xD
T4	0,25	0,02	AD.025.140.IK.8D	TD.MI.025.8D	AD.IT.120.090.140	AM.IT.020.060.3D	AM.IT.020.100.5D
T5	0,25	0,05	AD.025.140.IK.8D	TD.MI.025.8D	AD.IT.120.100.140	AM.IT.025.075.3D	AM.IT.025.125.5D
T6	0,30	0,05	AD.030.140.IK.8D	TD.MI.030.8D	AD.IT.120.120.140	AM.IT.030.090.3D	AM.IT.030.150.5D
T7	0,35	0,07	AD.035.140.IK.8D	TD.MI.035.8D	AD.IT.120.140.140	AM.IT.030.090.3D	AM.IT.030.150.5D
T8	0,40	0,08	AD.040.140.IK.8D	TD.MI.040.8D	AD.IT.120.160.140	AM.IT.040.120.3D	AM.IT.040.200.5D
T10	0,50	0,06	AD.050.140.IK.8D	TD.MI.050.8D	AD.IT.120.190.140	AM.IT.050.150.3D	AM.IT.050.250.5D
T15	0,60	0,07	AD.060.140.IK.8D	TD.MI.060.8D	AD.IT.120.230.140	AM.IT.050.150.3D	AM.IT.050.250.5D
T20	0,70	0,09	AD.070.140.IK.8D	TD.MI.070.8D	AD.IT.120.270.140	AM.IT.050.150.3D	AM.IT.060.300.5D
T25	0,80	0,10	AD.080.140.IK.8D	TD.MI.080.8D	AD.IT.120.310.140	AM.IT.080.240.3D	AM.IT.080.400.5D
T30	1,00	0,12	AD.100.140.IK.8D	TD.MI.100.8D	AD.IT.120.380.140	AM.IT.100.300.3D	AM.IT.100.500.5D

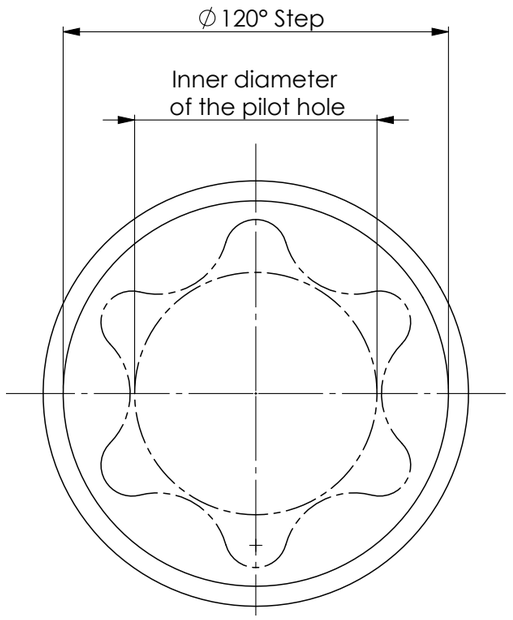


Without pre-drilling the lobes for internal Torx®

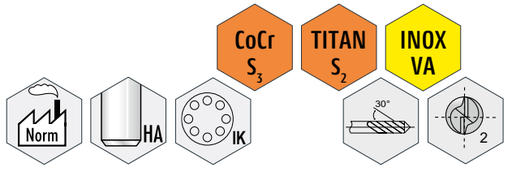
TITAN S_2 | INOX VA

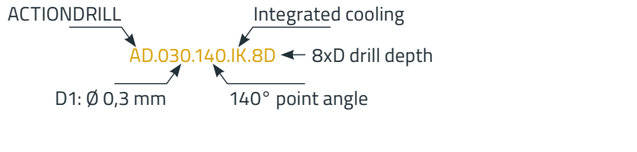
Dimensions according to ISO 10664

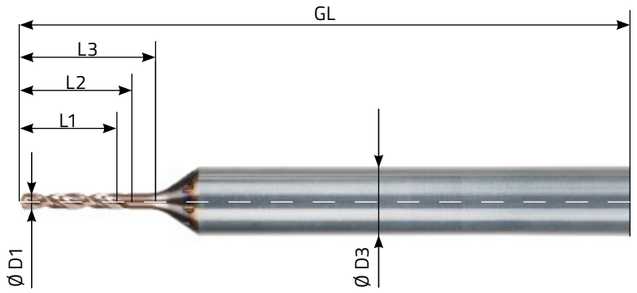
Torx® Type	Pre-drilling 140°/170°/180° Point angle	Milling of the lobes 3xD	Milling of the lobes 5xD
T4	AD.IT.4.090.056.XXX	AM.IT.020.060.3D	AM.IT.020.100.5D
T5	AD.IT.5.100.072.XXX	AM.IT.025.075.3D	AM.IT.025.125.5D
T5	AD.IT.5.100.059.XXX	AM.IT.025.075.3D	AM.IT.025.125.5D
T6	AD.IT.6.120.088.XXX	AM.IT.030.090.3D	AM.IT.030.150.5D
T6	AD.IT.6.120.067.XXX	AM.IT.030.090.3D	AM.IT.030.150.5D
T7	AD.IT.7.140.083.XXX	AM.IT.030.090.3D	AM.IT.030.150.5D
T7	AD.IT.7.140.079.XXX	AM.IT.030.090.3D	AM.IT.030.150.5D
T8	AD.IT.8.160.115.XXX	AM.IT.040.120.3D	AM.IT.040.200.5D
T8	AD.IT.8.160.081.XXX	AM.IT.040.120.3D	AM.IT.040.200.5D
T10	AD.IT.10.190.113.XXX	AM.IT.050.150.3D	AM.IT.050.250.5D
T15	AD.IT.15.230.142.XXX	AM.IT.050.150.3D	AM.IT.050.250.5D
T20	AD.IT.20.270.170.XXX	AM.IT.050.150.3D	AM.IT.060.300.5D
T25	AD.IT.25.310.236.XXX	AM.IT.080.240.3D	AM.IT.080.400.5D
T30	AD.IT.30.380.293.XXX	AM.IT.100.300.3D	AM.IT.100.500.5D
T30	AD.IT.30.380.245.XXX	AM.IT.100.300.3D	AM.IT.100.500.5D



INOX-8xD cooled







- α-INOX coated

5 PRO's of the ACTIONDRILL:

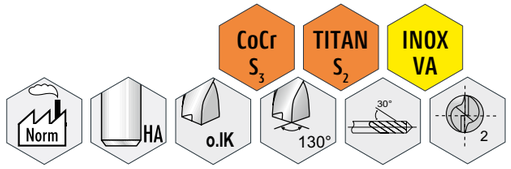
- 8xD "micro" drill with integrated cooling from Ø 0.25
- Coordinated with our INOX-3xD-Pilot cooled
- Perfect positioning accuracy
- Shorter process times and high process reliability
- Long chips are flushed away without draining through the integrated cooling channels

HB Microtec® ACTIONTOOLS & ENGINEERING

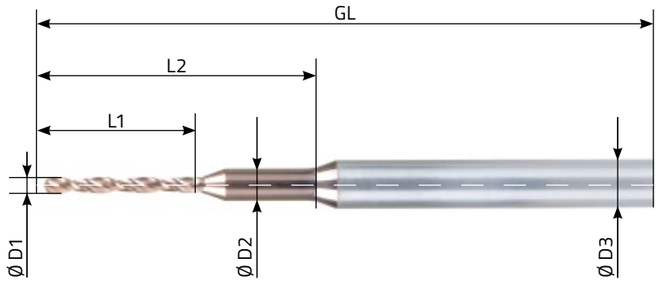
Article number	D1 k5 (mm)	D3 h5 (mm)	L1 (8xD1 / mm)	L2 (9xD1 / mm)	L3 (10xD1 / mm)	GL (mm)
AD.025.140.IK.8D	Ø 0,250	Ø 4,00	2,00	2,25	2,50	40,00
AD.030.140.IK.8D	Ø 0,300	Ø 4,00	2,40	2,70	3,00	40,00
AD.035.140.IK.8D	Ø 0,350	Ø 4,00	2,80	3,15	3,50	40,00
AD.040.140.IK.8D	Ø 0,400	Ø 4,00	3,20	3,60	4,00	40,00
AD.050.140.IK.8D	Ø 0,500	Ø 4,00	4,00	4,50	5,00	40,00
AD.060.140.IK.8D	Ø 0,600	Ø 4,00	4,80	5,40	6,00	40,00
AD.070.140.IK.8D	Ø 0,700	Ø 4,00	5,60	6,30	7,00	40,00
AD.080.140.IK.8D	Ø 0,800	Ø 4,00	6,40	7,20	8,00	40,00
AD.100.140.IK.8D	Ø 1,000	Ø 4,00	8,00	9,00	10,00	50,00

Available from stock

VHM micro-INOX 8xD



TARGETDRILL micro-INOX
TD.MI.010.8D(.01) ← α-INOX coated
D1: Ø 0,10 mm 8xD



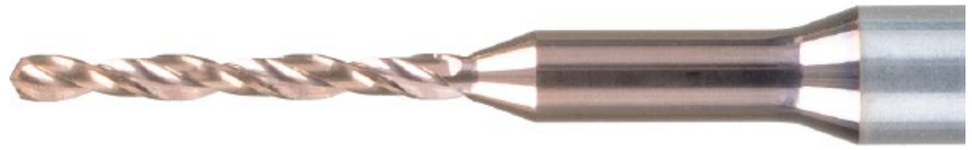
- α-INOX coated with suffix .01
- D1 +0/-0,004 blank & D1 +0/-0,002 coated

5 PRO's of the TARGETDRILL:

- Available from stock from Ø 0.1 to Ø 2.05 and in 0.01 mm increments
- 8xD micro-INOX drills
- Reinforced shank
- Coated and blank available
- Perfect price-performance conditions

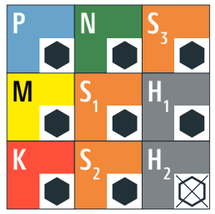
Article number	α-INOX	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (mm)	GL (mm)
TD.MI.025.8D	.01	Ø 0,25	Ø 1,00	Ø 3,00	2,00	7,00	39,00
TD.MI.030.8D	.01	Ø 0,30	Ø 1,00	Ø 3,00	2,40	7,00	39,00
TD.MI.035.8D	.01	Ø 0,35	Ø 1,00	Ø 3,00	2,80	7,00	39,00
TD.MI.040.8D	.01	Ø 0,40	Ø 1,00	Ø 3,00	3,20	7,00	39,00
TD.MI.050.8D	.01	Ø 0,50	Ø 1,00	Ø 3,00	4,00	15,00	39,00
TD.MI.060.8D	.01	Ø 0,60	Ø 1,00	Ø 3,00	4,80	15,00	39,00
TD.MI.070.8D	.01	Ø 0,70	Ø 1,50	Ø 3,00	5,60	15,00	39,00
TD.MI.080.8D	.01	Ø 0,80	Ø 1,50	Ø 3,00	6,40	15,00	39,00
TD.MI.100.8D	.01	Ø 1,00	Ø 1,50	Ø 3,00	8,00	15,00	39,00

Available from stock



Cutting data - ACTIONDRILL INOX-8xD cooled

ACTIONDRILL®
by HB microtec
INOX-8xD cooled



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

Application recommendation | Very well suited | Conditionally suited | Not recommended

Ø 0,25 - 0,4 mm		Ø 0,5 - 0,8 mm		Ø 1,0 - 1,2 mm		Ø 1,5 - 2,0 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
50-100	0,08 - 0,01	50-100	0,009 - 0,016	50-120	0,025 - 0,04	50-120	0,040 - 0,080
50-80	0,08 - 0,01	50-80	0,008 - 0,020	50-80	0,02 - 0,038	50-90	0,040 - 0,070
15 - 50	0,08 - 0,01	15 - 50	0,025 - 0,045	15 - 50	0,025 - 0,045	15 - 60	0,060 - 0,092
15 - 50	0,08 - 0,01	15 - 50	0,025 - 0,045	15 - 50	0,025 - 0,045	15 - 60	0,060 - 0,120
15 - 50	0,08 - 0,01	15 - 50	0,020 - 0,024	15 - 50	0,020 - 0,024	15 - 50	0,055 - 0,092

TARGETDRILL®
by HB microtec
micro-INOX

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

Ø 0,1 - 0,5 mm		Ø 0,5 - 1,0 mm		Ø 1,0 - 1,2 mm		Ø 1,5 - 2,05 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
30-100	0,004 - 0,01	30-100	0,009 - 0,016	40-120	0,015 - 0,04	40-120	0,020 - 0,080
30-80	0,004 - 0,01	30-80	0,008 - 0,020	40-80	0,014 - 0,038	40-80	0,020 - 0,070
15 - 50	0,007 - 0,01	15 - 50	0,008 - 0,045	15 - 50	0,015 - 0,045	15 - 50	0,040 - 0,092
15 - 50	0,007 - 0,01	15 - 50	0,008 - 0,045	15 - 50	0,015 - 0,045	15 - 50	0,040 - 0,120
15 - 50	0,007 - 0,01	15 - 50	0,008 - 0,024	15 - 50	0,01 - 0,024	15 - 50	0,035 - 0,092

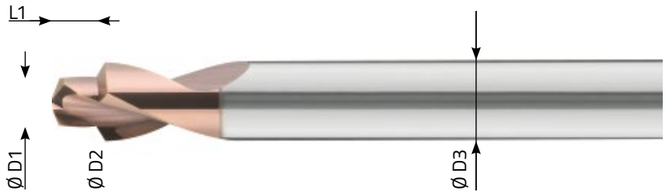
micro 140° combi drill for Torx®

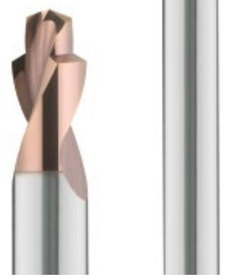
CoCr S_3 | TITAN S_2 | INOX VA

HA

ACTIONDRILL
D1: Ø 0,90 mm
AD.IT.120.090.140 ← 140° Point angle
Intern Starlobe
120° Step angle

GL



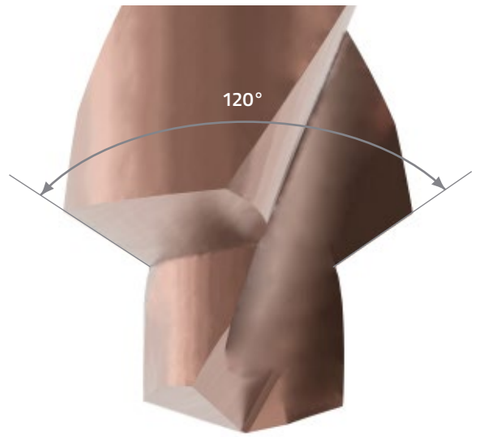


5 PRO's of the ACTIONMILL:

- Combination tool: centring + drilling + 120° chamfering
- For pre-drilling Torx® types from T4 to T30
- Minimal burr formation
- Shorter process times and high process reliability
- Chrome-free coating prevents cross-contamination with medical parts

Article number	"Torx®" Starlobe	D1 ±0,01	D2 ±0,01	D3 h5	L1 ±0,01	GL 0/+2 (mm)
AD.IT.120.090.140	T4	Ø 0,90	Ø 2,20	Ø 3,00	0,54	39,00
AD.IT.120.100.140	T5	Ø 1,00	Ø 2,20	Ø 3,00	0,70	39,00
AD.IT.120.120.140	T6	Ø 1,20	Ø 2,30	Ø 3,00	0,84	39,00
AD.IT.120.140.140	T7	Ø 1,40	Ø 3,00	Ø 3,00	0,80	39,00
AD.IT.120.160.140	T8	Ø 1,60	Ø 3,00	Ø 3,00	1,12	39,00
AD.IT.120.190.140	T10	Ø 1,90	Ø 4,00	Ø 4,00	1,07	50,00
AD.IT.120.230.140	T15	Ø 2,30	Ø 4,00	Ø 4,00	1,38	50,00
AD.IT.120.270.140	T20	Ø 2,70	Ø 5,00	Ø 6,00	1,66	50,00
AD.IT.120.310.140	T25	Ø 3,10	Ø 6,00	Ø 6,00	2,28	50,00
AD.IT.120.380.140	T30	Ø 3,80	Ø 6,00	Ø 6,00	2,83	50,00

Available from stock



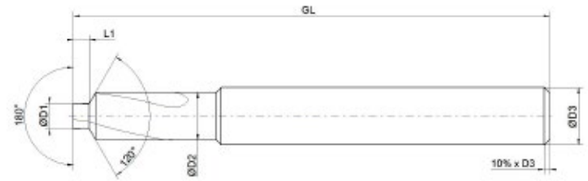
Torx® pilot drill
Dimensions according to ISO 10664

CoCr S_3 | TITAN S_2 | INOX VA

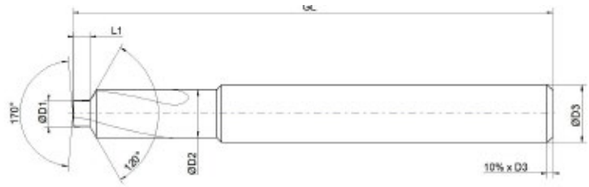
Innen Torx® pilot drill 180° or 170° or 140°							Point angle		
Article number	Torx® Type	D1 0/- 0,008 [mm]	D2 (mm)	D3 h6 [mm]	L1 (mm)	GL (mm)	140°	170°	180°
AD.IT.4.090.056.XXX	T4	Ø 0,90	Ø 1,70	Ø 3,00	0,56	40,00	☐	☐	☐
AD.IT.5.100.072.XXX	T5	Ø 1,00	Ø 2,00	Ø 3,00	0,72	40,00	☐	☐	☐
AD.IT.5.100.059.XXX	T5	Ø 1,00	Ø 2,00	Ø 3,00	0,59	40,00	☐	☐	☐
AD.IT.6.120.088.XXX	T6	Ø 1,20	Ø 2,20	Ø 3,00	0,88	40,00	☐	☐	☐
AD.IT.6.120.067.XXX	T6	Ø 1,20	Ø 2,20	Ø 3,00	0,67	40,00	☐	☐	☐
AD.IT.7.140.083.XXX	T7	Ø 1,40	Ø 3,00	Ø 3,00	0,83	40,00	☐	☐	☐
AD.IT.7.140.079.XXX	T7	Ø 1,40	Ø 3,00	Ø 3,00	0,79	40,00	☐	☐	☐
AD.IT.8.160.115.XXX	T8	Ø 1,60	Ø 3,00	Ø 3,00	1,15	40,00	☐	☐	☐
AD.IT.8.160.081.XXX	T8	Ø 1,60	Ø 3,00	Ø 3,00	0,81	40,00	☐	☐	☐
AD.IT.10.190.113.XXX	T10	Ø 1,90	Ø 4,00	Ø 4,00	1,13	50,00	☐	☐	☐
AD.IT.15.230.142.XXX	T15	Ø 2,30	Ø 4,00	Ø 4,00	1,42	50,00	☐	☐	☐
AD.IT.20.270.170.XXX	T20	Ø 2,70	Ø 5,00	Ø 6,00	1,7	50,00	☐	☐	☐
AD.IT.25.310.236.XXX	T25	Ø 3,10	Ø 6,00	Ø 6,00	2,36	50,00	☐	☐	☐
AD.IT.30.380.293.XXX	T30	Ø 3,80	Ø 6,00	Ø 6,00	2,93	50,00	☐	☐	☐
AD.IT.30.380.245.XXX	T30	Ø 3,80	Ø 6,00	Ø 6,00	2,45	50,00	☐	☐	☐

Delivery time 2-4 weeks

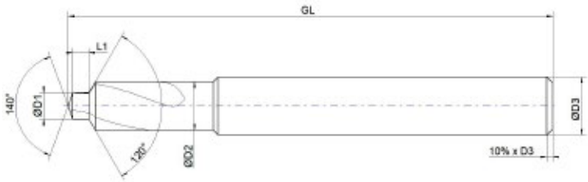
01 α-INOX coated for stainless steels ferritic, martensitic, austenitic & heat-resistant steels, titanium alloys, CrCo (M &S)



Drill point angle 180°

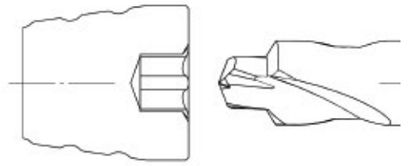


Drill point angle 170°

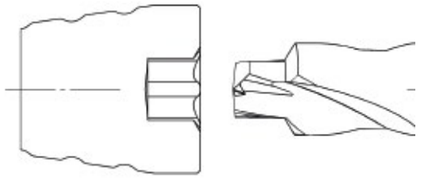


Drill bit point angle 140°

Pre-drilling the Torx® with 120° chamfer angle



Point angle 140°



Point angle 180° or 170°

A 170° point angle enables up to 4x faster feed than a 180° point angle, if geometrically compatible.

Intern Starlobe 140°

Intern Starlobe 170° & 180°

from Ø 0,9 mm
to Ø 3,8 mm

Point angle 140°

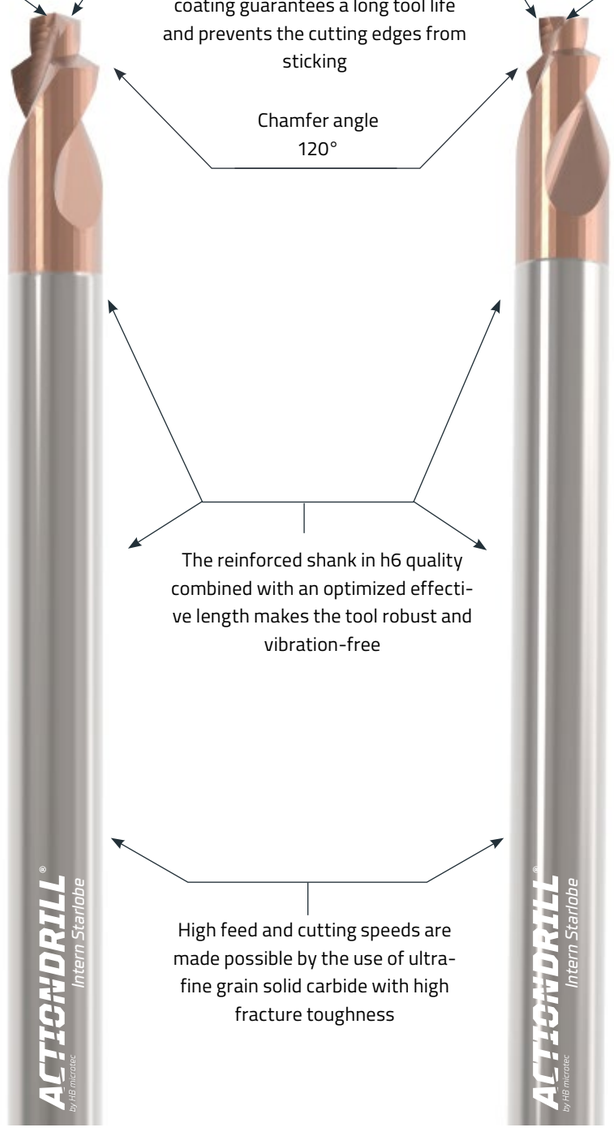
Point angle 170° & 180°

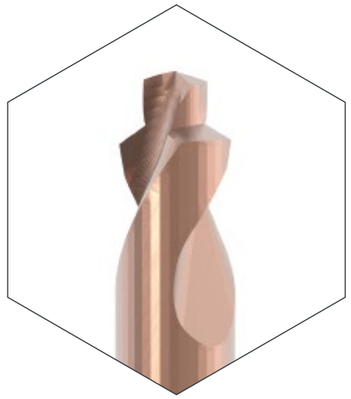
The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edges from sticking

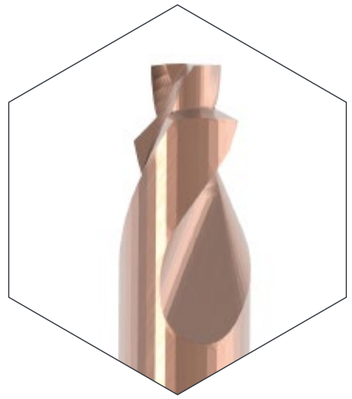
Chamfer angle
120°

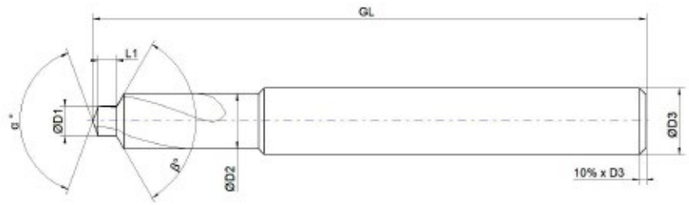
The reinforced shank in h6 quality combined with an optimized effecti-ve length makes the tool robust and vibration-free

High feed and cutting speeds are made possible by the use of ultra-fine grain solid carbide with high fracture toughness









☐ **Inquiry** **Article number :** _____

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions (XXX.YYY.AAA.BBB):

D_1 _____ GL _____ α: _____

D_2 _____ L_1 _____ β: _____

D_3 _____

Material to be machined _____

Coating (BE):

☐ (.00) blank

☐ (.01) α-INOX

☐ (.02) β-Titan

☐ (.03) γ-Steel

Contact:

_____

Date, Signature & Company stamp

_____

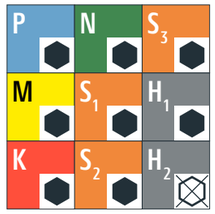
Minimum order quantity 3 pieces:

_____

* Without further information, the most suitable coating will be used.

Cutting data - 140° / 170° /180°

ACTIONDRILL®
by HB microtec
Intern Starlobe



140°

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

170°

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

180°

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

HBMicrotec® ACTIONTOOLS & ENGINEERING

Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

T4-T8		T10-T15		T20-T30	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
20-30	0,020-0,035	20-30	0,040-0,060	20-30	0,060-0,080
20-30	0,010-0,020	20-30	0,020-0,030	20-30	0,030-0,060

T4-T8		T10-T15		T20-T30	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
20-30	0,015-0,025	20-30	0,020-0,040	20-30	0,025-0,050
20-30	0,006-0,010	20-30	0,010-0,020	20-30	0,014-0,035

T4-T8		T10-T15		T20-T30	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
20-30	0,013-0,020	20-30	0,015-0,025	20-30	0,020-0,040
20-30	0,004-0,010	20-30	0,008-0,012	20-30	0,012-0,018

INOX-micro Torx® 3xD

INOX-micro Torx® 5xD

from Ø 0,2 mm
to Ø 1,0 mm

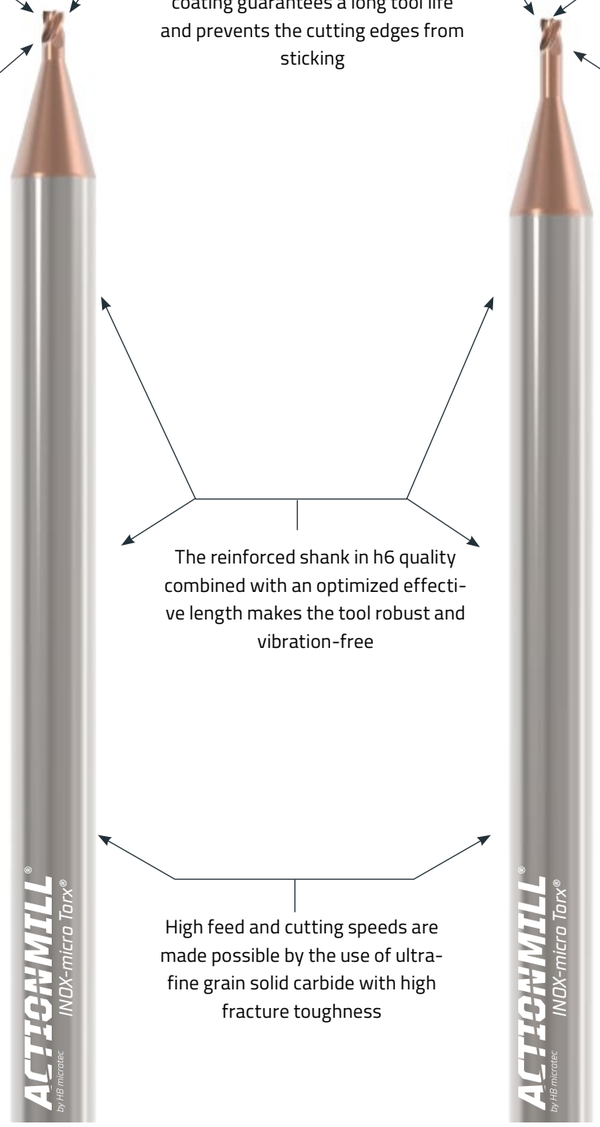
Z3-4 - Sharp

3xD Neck length

The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edges from sticking

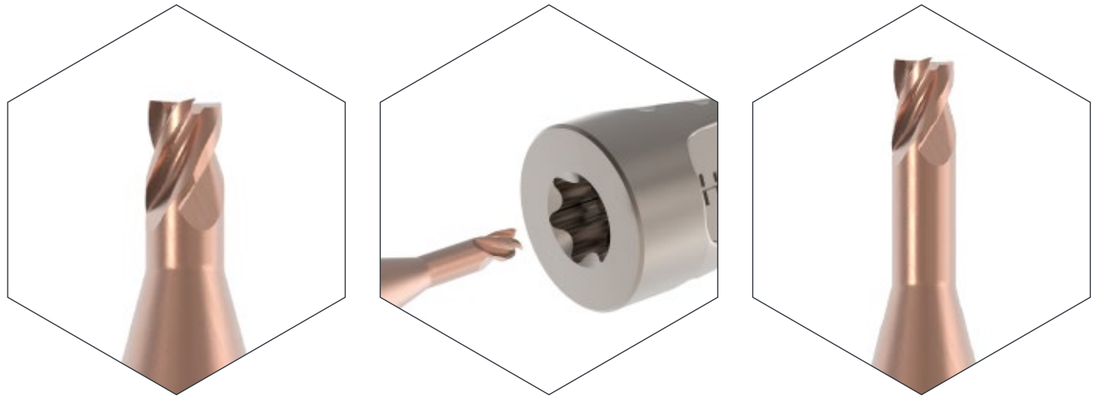
Z3-4 - Sharp

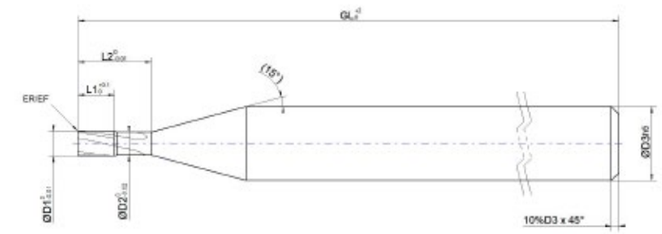
5xD Neck length



The reinforced shank in h6 quality combined with an optimized effective length makes the tool robust and vibration-free

High feed and cutting speeds are made possible by the use of ultra-fine grain solid carbide with high fracture toughness



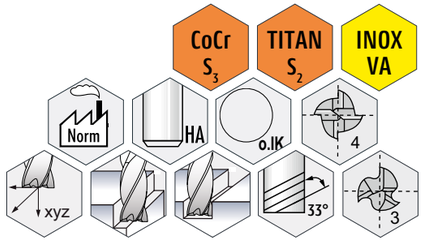


☐ **Inquiry** **Order number:** _____ ☐ **Order**

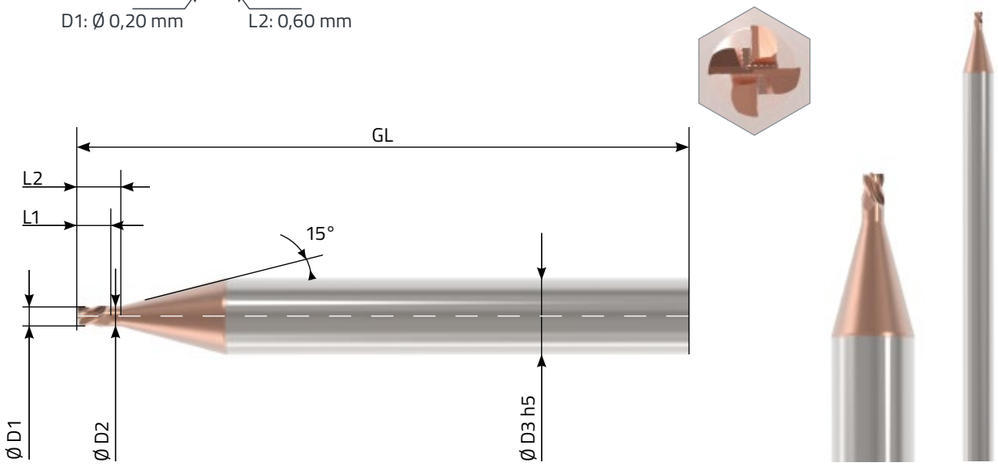
Dimensions: D_1: _____ GL: _____ EF: _____ D_2: _____ L_1: _____ ER: _____ D_3: _____ L_2: _____ Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

3xD micro Torx® mill



ACTIONMILL — Intern Starlobe
AM.IT.020.060.3D ← 3xD Neck length
D1: Ø 0,20 mm — L2: 0,60 mm



- α-INOX coated

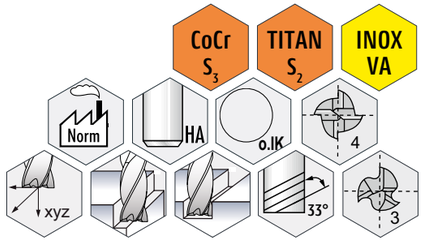
5 PRO's of the ACTIONMILL:

- Micro mill from Ø0.2 with Z3 from Ø0.4 with Z4
- For milling Torx® types from T4 to T30
- High profile accuracy & minimal burr formation
- Shorter process times and high process reliability
- Chrome-free coating prevents cross-contamination with the medical parts

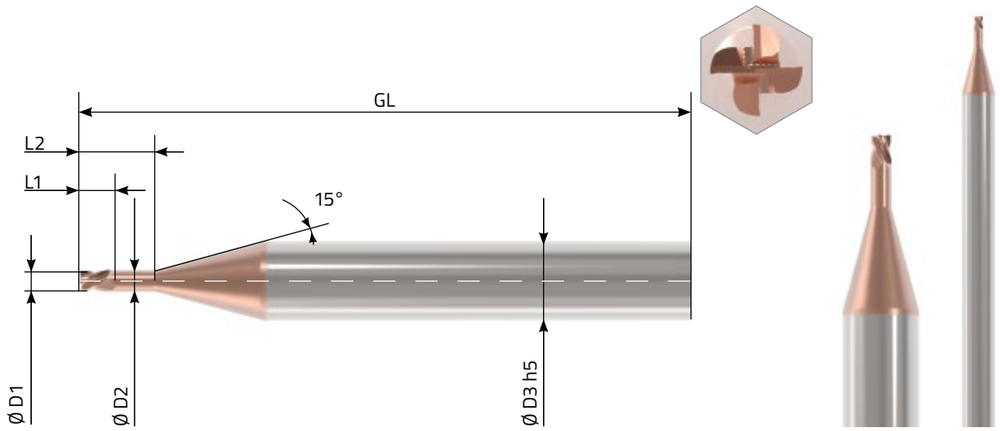
Article number	"Torx®" Starlobe	D1 0/-0,01	D2 0/-0,02	D3 h5	L1 0/+0,1	L2 0/-0,01	GL (mm)	Amount of flutes (Z)
AM.IT.020.060.3D	T4	Ø 0,20	Ø 0,18	Ø 3,00	0,30	0,60	39,00	3
AM.IT.025.075.3D	T5	Ø 0,25	Ø 0,24	Ø 3,00	0,38	0,75	39,00	3
AM.IT.030.090.3D	T6/T7	Ø 0,30	Ø 0,28	Ø 3,00	0,45	0,90	39,00	3
AM.IT.040.120.3D	T8/T10	Ø 0,40	Ø 0,38	Ø 3,00	0,60	1,20	39,00	4
AM.IT.050.150.3D	T10/T15	Ø 0,50	Ø 0,47	Ø 3,00	0,75	1,50	39,00	4
AM.IT.060.180.3D	T20	Ø 0,60	Ø 0,56	Ø 3,00	0,90	1,80	39,00	4
AM.IT.080.240.3D	T25	Ø 0,80	Ø 0,75	Ø 3,00	1,20	2,40	39,00	4
AM.IT.100.300.3D	T30	Ø 1,00	Ø 0,94	Ø 3,00	1,50	3,00	39,00	4

Available from stock

5xD micro Torx® mill



ACTIONMILL — Intern Starlobe
AM.IT.020.100.5D ← 5xD Neck length
D1: Ø 0,20 mm — L2: 1,00 mm



- α-INOX coated

5 PRO's of the ACTIONMILL:

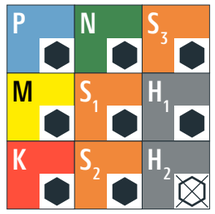
- Micro millfrom Ø0.2 with Z3 from Ø0.4 with Z4
- For milling Torx® types from T4 to T30
- High profile accuracy & minimal burr formation
- Shorter process times and high process reliability
- Chrome-free coating prevents cross-contamination with the medical parts

Article number	"Torx®" Starlobe	D1 0/-0,01	D2 0/-0,02	D3 h5	L1 0/+0,1	L2 0/-0,01	GL (mm)	Amount of flutes (Z)
AM.IT.020.100.5D	T4	Ø 0,20	Ø 0,18	Ø 3,00	0,30	1,00	39,00	3
AM.IT.025.125.5D	T5	Ø 0,25	Ø 0,24	Ø 3,00	0,38	1,25	39,00	3
AM.IT.030.150.5D	T6/T7	Ø 0,30	Ø 0,28	Ø 3,00	0,45	1,50	39,00	3
AM.IT.040.200.5D	T8/T10	Ø 0,40	Ø 0,38	Ø 3,00	0,60	2,00	39,00	4
AM.IT.050.250.5D	T10/T15	Ø 0,50	Ø 0,47	Ø 3,00	0,75	2,50	39,00	4
AM.IT.060.300.5D	T20	Ø 0,60	Ø 0,56	Ø 3,00	0,90	3,00	39,00	4
AM.IT.080.400.5D	T25	Ø 0,80	Ø 0,75	Ø 3,00	1,20	4,00	39,00	4
AM.IT.100.500.5D	T30	Ø 1,00	Ø 0,94	Ø 3,00	1,50	5,00	39,00	4

Available from stock

Cutting data - ACTIONMILL INOX micro Torx®

ACTIONMILL® by HB microtec
INOX-micro Torx®

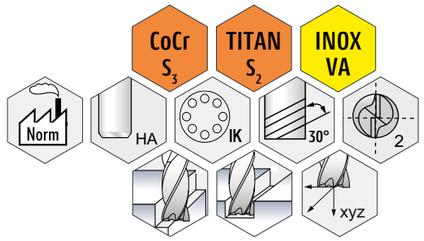


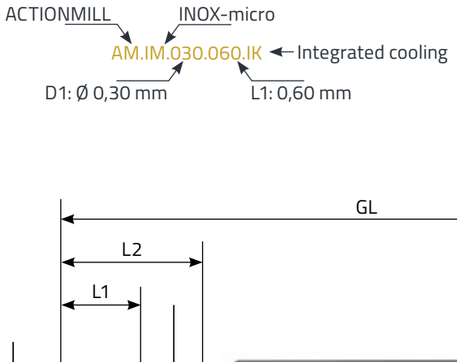
Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

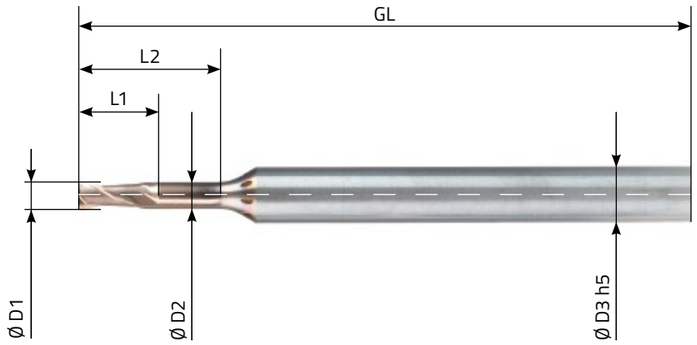
Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

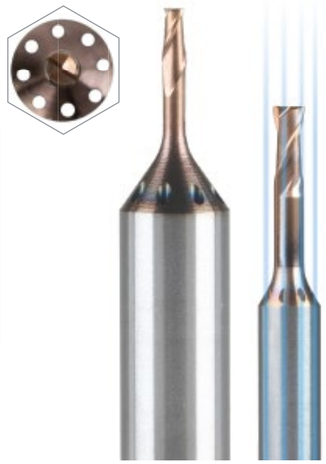
T4-T7		T8-T15		T20-T30	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
30-50	0,001-0,003	40-70	0,003-0,006	60-100	0,006-0,010
30-50	0,003-0,006	40-70	0,008-0,015	60-100	0,015-0,03
30-50	0,001-0,003	40-70	0,008-0,015	60-100	0,015-0,03
30-50	0,001-0,003	40-70	0,008-0,015	60-100	0,015-0,03

INOX-micro cooled





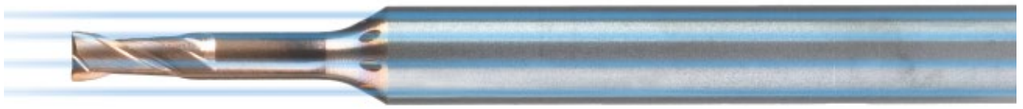




Article number	D1 (mm)	D2 (mm)	D3 h5 (mm)	L1 (mm)	L2 (5xD / mm)	GL (mm)
AM.IM.020.040.IK	Ø 0,20	Ø 0,18	Ø 4,00	0,40	1,00	40,00
AM..IM.025.050.IK	Ø 0,25	Ø 0,22	Ø 4,00	0,50	1,25	40,00
AM.IM.030.060.IK	Ø 0,30	Ø 0,25	Ø 4,00	0,60	1,50	40,00
AM.IM.040.080.IK	Ø 0,40	Ø 0,35	Ø 4,00	0,80	2,00	40,00
AM.IM.050.100.IK	Ø 0,50	Ø 0,45	Ø 4,00	1,00	2,50	40,00
AM.IM.060.120.IK	Ø 0,60	Ø 0,55	Ø 4,00	1,20	3,00	40,00
AM.IM.080.160.IK	Ø 0,80	Ø 0,74	Ø 4,00	1,60	4,00	40,00
AM.IM.100.200.IK	Ø 1,00	Ø 0,90	Ø 4,00	2,00	5,00	40,00

Available from stock

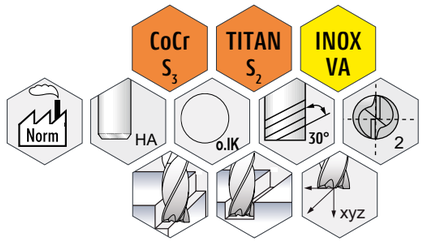
- α-INOX coated

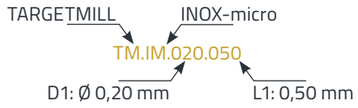


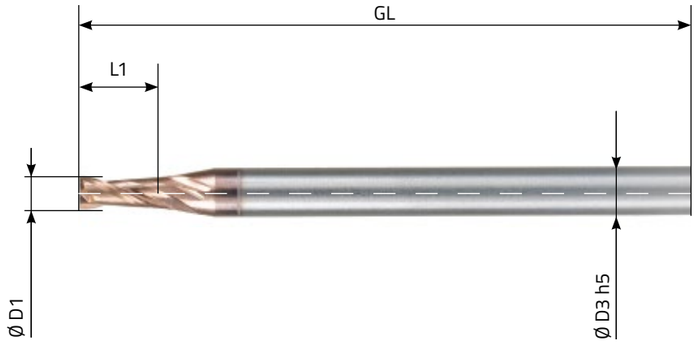
5 PRO's of the ACTIONMILL:

- Protected & sharp mill corner
- Integrated cooling prevents chip build-up
- Very high feed speeds possible
- Short process times and high process reliability
- Very long tool life

INOX-micro







5 PRO's of the ACTIONMILL:

- Protected & sharp mill corner
- Optimum price/performance ratio
- High feed speeds possible
- Short process times and high process reliability
- Long tool life

Article number	D1 (mm)	D3 h6 (mm)	L1 (mm)	Amount of Flutes (Z)	GL (mm)
TM.IM.020.050	Ø 0,20	3,00	0,50	2,00	38,00
TM.IM.025.050	Ø 0,25	3,00	0,50	2,00	38,00
TM.IM.030.100	Ø 0,30	3,00	1,00	2,00	38,00
TM.IM.040.100	Ø 0,40	3,00	1,00	2,00	38,00
TM.IM.050.150	Ø 0,50	3,00	1,50	2,00	38,00
TM.IM.060.150	Ø 0,60	3,00	1,50	2,00	38,00
TM.IM.080.200	Ø 0,80	3,00	2,00	2,00	38,00
TM.IM.100.300	Ø 1,00	3,00	3,00	2,00	38,00

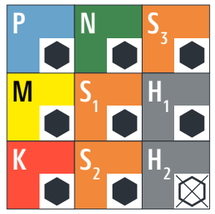
Available from stock

- α-INOX coated

Cutting data - ACTIONMILL INOX-micro cooled

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec INOX-micro cooled



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

Application recommendation ⬢ Very well suited ⬡ Conditionally suited ⊠ Not recommended

Ø 0,3 - Ø 0,8 mm		Ø 0,8 -Ø 1,0 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
20-60	0,003 - 0,01	30-60	0,006 - 0,012
20-60	0,003 - 0,01	30-70	0,006 - 0,012
15-60	0,003 - 0,008	30-60	0,006 - 0,014
15-60	0,003 - 0,008	30-60	0,006 - 0,014
15-60	0,003 - 0,008	30-60	0,006 - 0,014

TARGETMILL® by HB microtec INOX-micro

Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
M	Stainless steel, ferretic, martensitic austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537

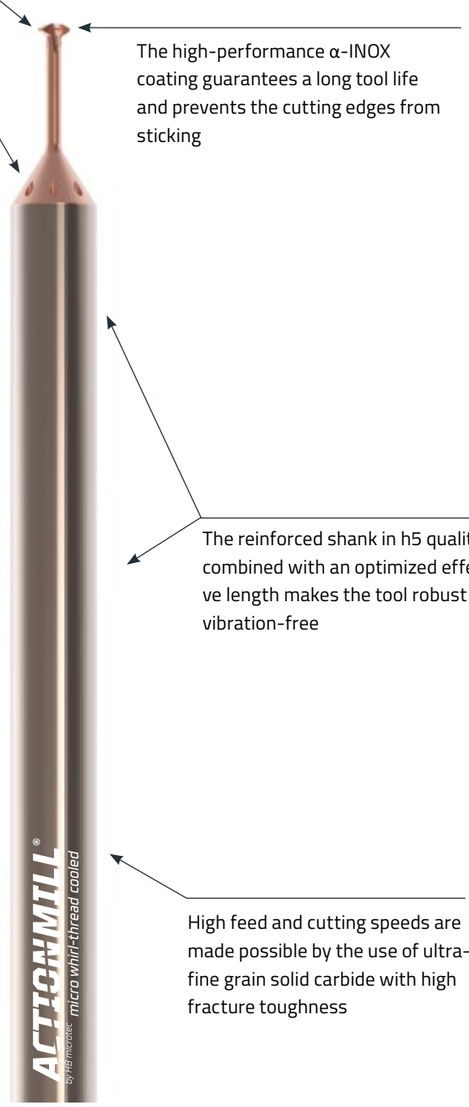
Ø 0,3 - Ø 0,8 mm		Ø 0,8 -Ø 1,0 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
15-50	0,003 - 0,008	30-60	0,004 - 0,01
15-50	0,003 - 0,008	30-70	0,004 - 0,01
15-50	0,003 - 0,008	30-60	0,006 - 0,014
15-50	0,003 - 0,008	30-60	0,006 - 0,014
15-50	0,003 - 0,008	30-60	0,006 - 0,014

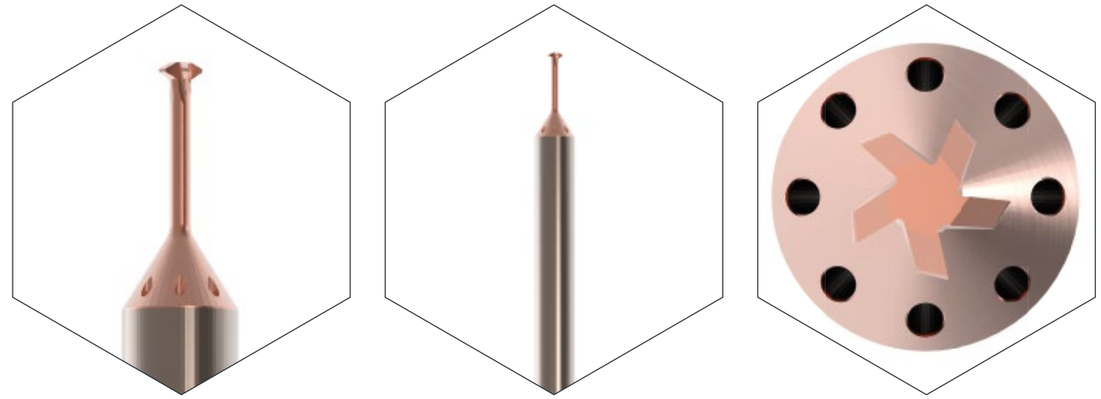
MICRO WHIRL-THREAD COOLED

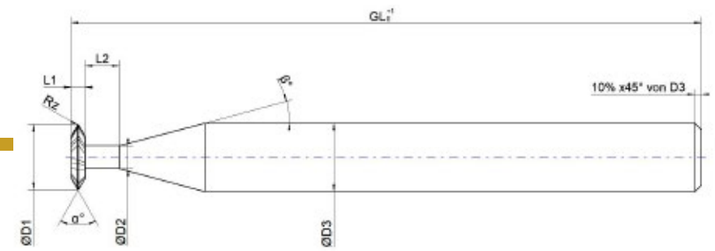
ACTIONMILL®
by HB microtec micro whirl-thread cooled

60° micro whirl-thread cooled

from M1
to M2,5







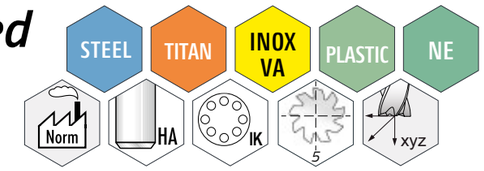
☐ **Inquiry**

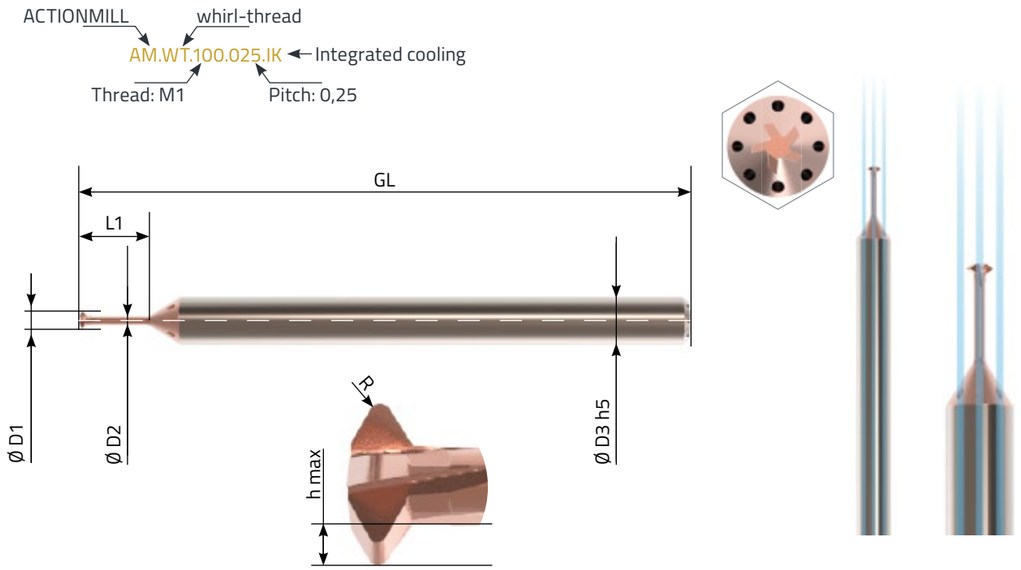
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ R_z: _____ Flutes Z: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

60° micro whirl-thread cooled





5 PRO's of the ACTIONMILL:

- Five cutting edges from M1
- Integrated cooling prevents chip build-up
- Very high feed rates possible
- Short process times and high process reliability
- Very long tool life

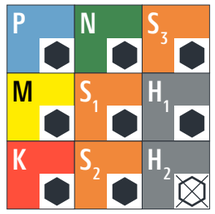
Article number	Internal thread mill M 60°	h max (mm)	D1 (mm)	D2 (mm)	D3 (mm)	L1 (mm)	R (mm)	GL (mm)	Flutes (Z)	Pitch range
AM.WT.100.025.IK	M1x0,25	0,17	Ø 0,74	Ø 0,36	Ø 4,00	3,00	0,04	40,00	5	0,20-0,25
AM.WT.120.025.IK	M1,2x0,25	0,20	Ø 0,90	Ø 0,46	Ø 4,00	3,50	0,04	40,00	5	0,20-0, 25-0,3
AM.WT.140.030.IK	M1,4x0,3	0,25	Ø 1,00	Ø 0,46	Ø 4,00	3,50	0,04	40,00	5	0,20-0,25-0,35
AM.WT.160.035.IK	M1,6x0,35	0,28	Ø 1,20	Ø 0,60	Ø 4,00	4,00	0,05	40,00	5	0,35-0,40
AM.WT.180.035.IK	M1,8x0,35	0,33	Ø 1,35	Ø 0,65	Ø 4,00	4,00	0,05	40,00	5	0,35-0,40-0,45
AM.WT.200.040.IK	M2x0,40	0,37	Ø 1,50	Ø 0,72	Ø 4,00	4,00	0,06	40,00	5	0,35-0,40-0,45
AM.WT.250.045.IK	M2,5x0,45	0,40	Ø 1,90	Ø 1,06	Ø 4,00	6,00	0,06	40,00	5	0,4-0,45-0,50

Available from stock

- α-INOX coated

Cutting data - ACTIONMILL micro whirl thread cooled

ACTIONMILL®
by HB microtec micro whirl-thread cooled



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation | ⬢ Very well suited | ⬡ Conditionally suited | ⊠ Not recommended

M1 bis M1,4		M1,6 bis M2		M2,5	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
20-60	0,003 - 0,01	20-60	0,004 - 0,012	30-70	0,006 - 0,016
20-60	0,003 - 0,01	20-60	0,004 - 0,012	30-70	0,006 - 0,016
20-60	0,003 - 0,01	20-60	0,004 - 0,012	30-70	0,006 - 0,016
20-60	0,003 - 0,01	20-70	0,004 - 0,012	30-75	0,006 - 0,016
20-70	0,004 - 0,01	20-70	0,004 - 0,018	30-75	0,006 - 0,022
20-70	0,003 - 0,01	20-70	0,004 - 0,014	30-75	0,006 - 0,020
20-70	0,003 - 0,01	20-60	0,004 - 0,014	30-70	0,006 - 0,020
20-60	0,003 - 0,01	20-60	0,004 - 0,014	25-70	0,006 - 0,018
15-40	0,003 - 0,008	15-60	0,004 - 0,014	20-60	0,006 - 0,020
15-40	0,003 - 0,008	15-60	0,004- 0,014	20-60	0,006 - 0,020
15-40	0,003 - 0,008	15-60	0,004 - 0,014	20-60	0,006 - 0,020
No data entered					
No data entered					

ACTIONMILL® by HB microtec INOX-CORD cooled

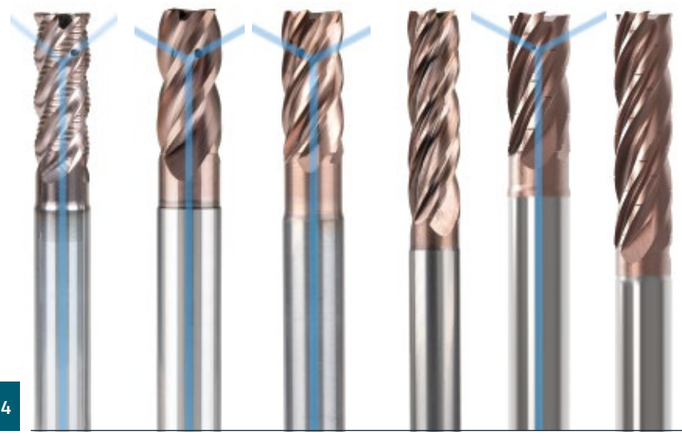
ACTIONMILL® by HB microtec INOX-HPC cooled

ACTIONMILL® by HB microtec INOX-Finish cooled

ACTIONMILL® by HB microtec INOX-FinishXL

ACTIONMILL® by HB microtec INOX-Trochoid cooled

ACTIONMILL® by HB microtec INOX-TrochoidXL



Description

The HB microtec® ACTIONMILL® mill INOX-CORD/-HPC/-Finish/-Trochoid are perfectly adapted to the respective tasks. All four mill types are suitable for all titanium and stainless steel alloys, due to their geometries with internal cooling. The mills are defined by the fact that they offer you above-average tool life.

Sophisticated and specially designed geometries, paired with very smooth surfaces and a high-performance coating as well as an ultra-fine grain solid carbide with internal cooling channels characterize the ACTIONMILL® as best performance mills. Due to the cord profile, the four-edged ACTIONMILL® INOX-CORD cooled generates less cutting pressure and therefore subject the component to less stress. One major advantage is the particularly short chips, which can be removed much more easily, thereby increasing process reliability. The universal usability of the mills is highly valued, whether in titanium G5 (Ti6Al4V) or X20Cr13 (1.4021), also known as AISI 420. All four mills offer the best performance for all INOX and TITAN alloys and save the user from having to stock different roughing, HPC and finishing cutters with different cutting edge geometries for machining these material groups. By eliminating tool changes and work steps, the main and secondary times can be shortened and productivity increased.

The mills in the ACTIONMILL® series are available in various diameters and radiuses and therefore offer the optimum tool for every machining task. The respective tool characteristics of the mills result from the geometry, the coating, the carbide substrate, the edge preparation and the internal cooling. All these features have an effect on tool life and performance. In order to meet the requirements of trochoidal cutting even better, the HB microtec carbide end mills ACTIONMILL® Finish cooled and Finish XL have been further optimized and provided with chip breaker geometry.

This has resulted in the new ACTIONMILL® INOX-Trochoid cooled and ACTIONMILL® INOX-Trochoid XL. These mills are equipped with vibration-damping features such as uneven flute spacing, unequal helix angle, a new cutting edge geometry and newly developed edge rounding in the micrometer range.

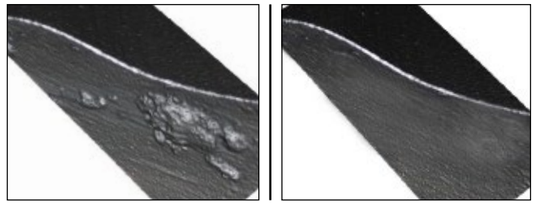
The newly developed chip breakers reduce the axial pull-out force of the tool and minimize the risk of chip jamming in pockets. The short chips can be easily removed using compressed air, oil or other coolant solutions, which prevents the chips from being repeatedly pulled through (ground up).

HB microtec is happy to develop customized mills for you that are always optimized to the machining task.

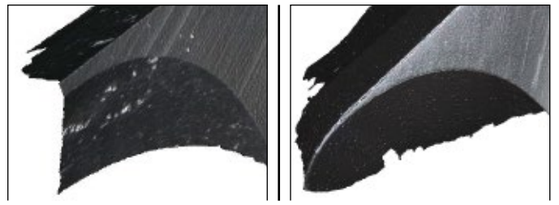
Coating surface

Before

After



Cutting edge in detail



Standard milling tools

ACTIONMILL INOX Cord cooled
Ø 4,0 - Ø 12,0 Y-IK

Overview:
- 2xD cutting edge length, high-performance corded mill from Ø4 to Ø12
- Y-shaped Integrated cooling
- Roughing of demanding materials such as titanium or INOX
- Short chips increase service life
- Short process times and high process reliability
- Chrome-free coating prevents cross-contamination with medical parts

Page 284

ACTIONMILL INOX HPC cooled
Ø 4,0 - Ø 12,0 Y-IK

Overview:
- 2xD cutting edge length, high-performance HPC mill from Ø4 to Ø12
- Y-shaped integrated cooling
- Roughing and finishing of demanding materials such as titanium or INOX
- Universally applicable
- Long service life and process reliability
- Chrome-free coating avoids cross-contamination with the medical parts

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ACTIONMILL INOX Finish cooled
Ø 4,0 - Ø 12,0 Y-IK

Overview:
- 2xD & 3xD cutting edge length, high-performance HSC mill from Ø4 to Ø12
- Y-shaped integrated cooling
- Protected and sharp mill corner
- Can be used for TSC milling
- Long service life and process reliability when finishing
- Chrome-free coating avoids cross-contamination with medical parts
- Finishing of demanding materials such as pure titanium and aluminum alloys

Page 294

ACTIONMILL Alu Finish cooled
Ø 4,0 - Ø 12,0 Y-IK

Overview:
- 2xD & 3xD cutting edge length, high-performance HSC mills from Ø4 to Ø12
- Y-shaped integrated cooling
- Protected and sharp mill Corner
- Can be used for TSC milling
- Long service life and process reliability when finishing
- Chrome-free coating prevents cross-contamination with medical parts
- Finishing of demanding materials such as pure titanium and aluminum alloys

Page 298

Standard milling tools

ACTIONMILL Steel Finish cooled
Ø 4,0 - Ø 12,0 Y-IK

Overview:
- 2xD & 3xD cutting edge length, high-performance HSC mill from Ø4 to Ø12
- Y-shaped Integrated cooling
- Protected and sharp mill corner
- Can be used for TSC milling
- Long service life and process reliability for finishing
- Chrome-free coating avoids cross-contamination with medical parts
- Finishing of demanding materials such as high-alloy Cr steels

Page 302

ACTIONMILL INOX Finish XL & XXL
Ø 4,0 - Ø 12,0 (4xD & 5xD)

Overview:
- Protected and sharp mill corner
- High-performance finishing cutters from Ø4 to Ø12 with Z6
- High-quality and precise surfaces
- Long service life and process reliability
- Finishing of demanding materials such as pure titanium and aluminum alloys
- Finishing of demanding materials such as CoCr or INOX

Page 310

ACTIONMILL Alu Finish XL & XXL
Ø 4,0 - Ø 12,0 Y-IK (4xD & 5xD)

Overview:
- Protected and sharp mills corner
- High-performance finishing cutters from Ø4 to Ø12 with Z6
- High-quality and precise surfaces
- Long service life and process reliability
- Finishing of demanding materials such as pure titanium and aluminum alloys

Page 314

ACTIONMILL Steel Finish XL & XXL
Ø 4,0 - Ø 12,0 (4xD & 5xD)

Overview:
- Protected and sharp mill corner
- High-performance finishing mill from Ø4 to Ø12 with Z6
- High-quality and precise surfaces
- Long service life and process reliability
- Finishing of demanding materials such as high-alloy Cr steels

Page 320

Standard milling tools

ACTIONMILL INOX Trochoid cooled
Ø 4,0 - Ø 12,0 Y-IK

Overview:

- 2xD & 3xD cutting edge length, high-performance HTC mill from Ø4 to Ø12
- Vibration-free machining thanks to uneven flute spacing
- Special cutting edge design for vibration damping
- Internal cooling lubricant supply, Y-outlet
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

Page 326

ACTIONMILL Alu Trochoid cooled
Ø 4,0 - Ø 12,0 Y-IK

Overview:

- 2xD & 3xD cutting edge length, high-performance HTC milling cutters from Ø4 to Ø12
- Vibration-free machining thanks to uneven flute spacing
- Special cutting edge design for vibration damping
- Internal cooling lubricant supply, Y-outlet
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

Page 330

ACTIONMILLSteel Trochoid cooled
Ø 4,0 - Ø 12,0 Y-IK

Overview:

- 2xD & 3xD cutting edge length, high-performance HTC milling cutters from Ø4 to Ø12
- Vibration-free machining thanks to uneven flute spacing
- Special cutting edge design for vibration damping
- Internal cooling lubricant supply, Y-outlet
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

Page 336

ACTIONMILL INOX Trochoid XL & XXL
Ø 4,0 - Ø 12,0 (4xD & 5xD)

Overview:

- 4xD & 5xD cutting edge length, high-performance HTC milling cutter from Ø4 to Ø12
- Vibration-free machining due to uneven flute spacing and unequal helix angles
- Special cutting edge design for vibration damping
- High-performance tool for trochoidal machining
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

Page 342

Standard milling tools

ACTIONMILL Alu Trochoid XL & XXL
Ø 4,0 - Ø 12,0 (4xD & 5xD)

Overview:

- 4xD & 5xD cutting edge length, high-performance HTC milling cutter from Ø4 to Ø12
- Vibration-free machining due to uneven flute spacing and unequal helix angles
- Special cutting edge design for vibration damping
- High-performance tool for trochoidal machining
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

Page 346

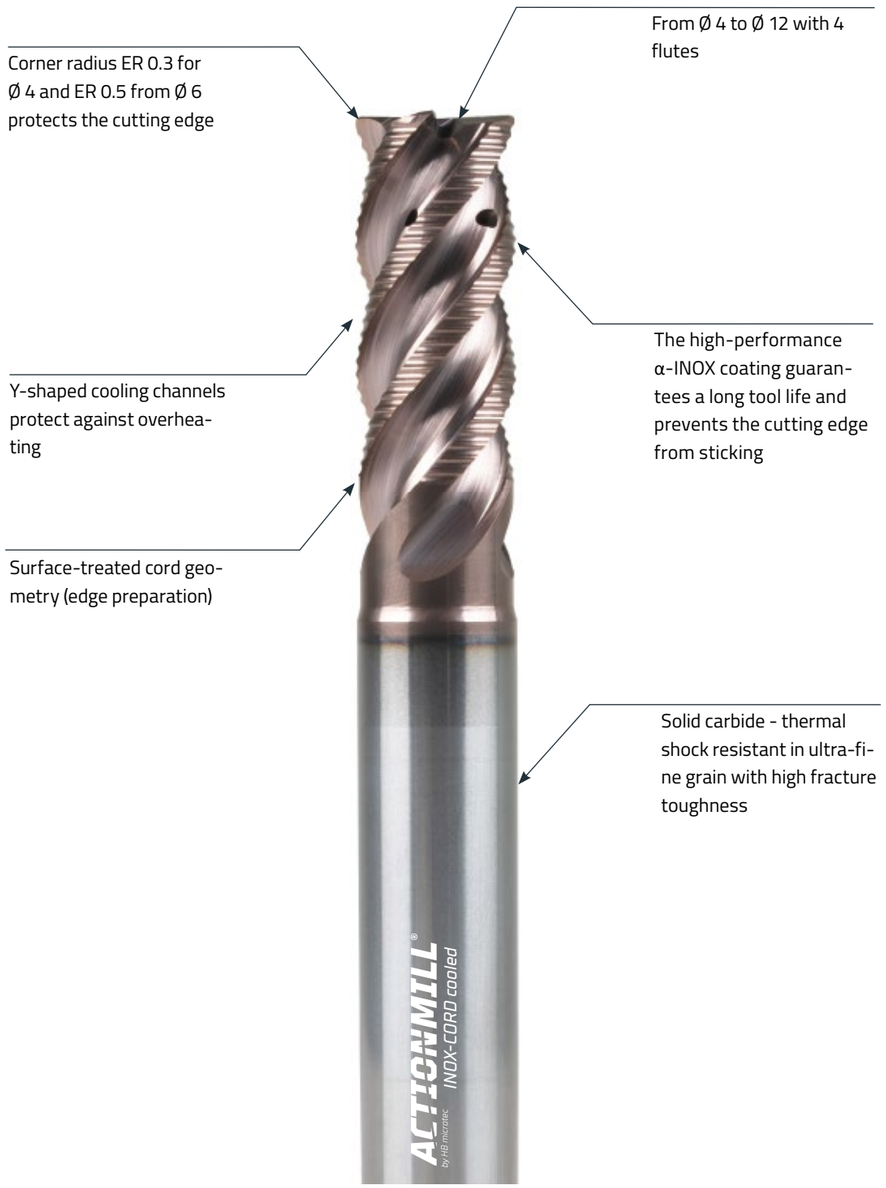
ACTIONMILL Steel Trochoid XL & XXL
Ø 4,0 - Ø 12,0 (4xD & 5xD)

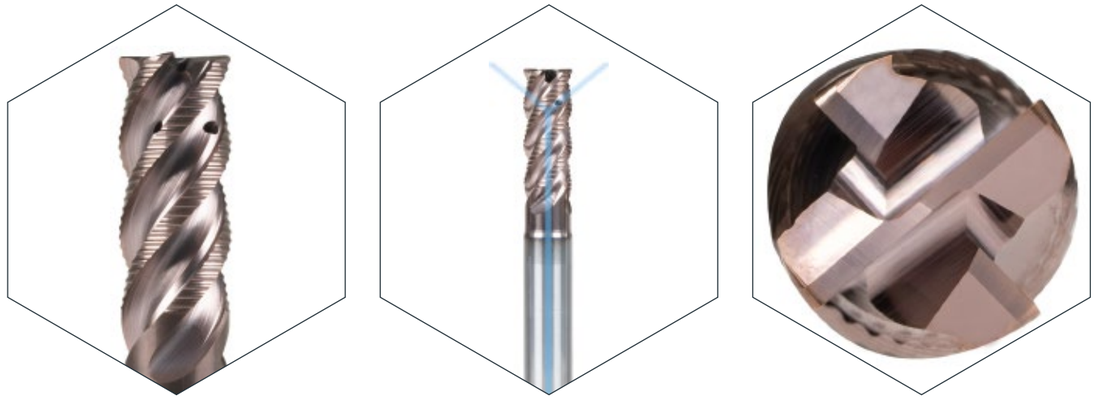
Overview:

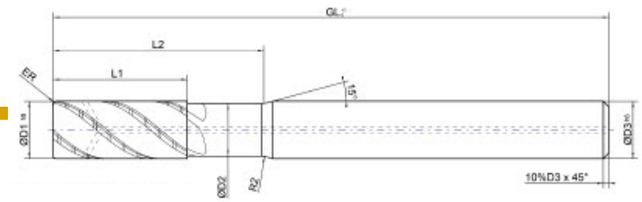
- 4xD & 5xD cutting edge length, high-performance HTC milling cutter from Ø4 to Ø12
- Vibration-free machining due to uneven flute spacing and unequal helix angles
- Special cutting edge design for vibration damping
- High-performance tool for trochoidal machining
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

Page 350

INOX-CORD cooled





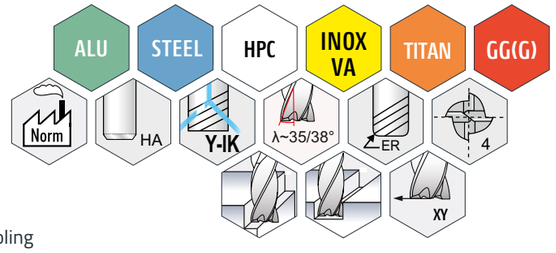


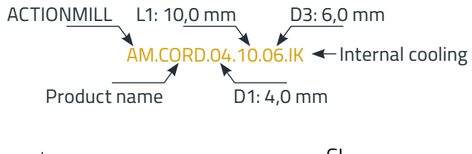
☐ **Order** **Order number:** _____ ☐ **Inquiry**

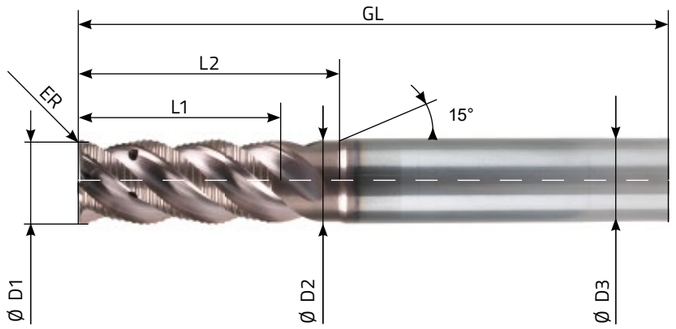
Dimensions:	**Coating:**	**Cooling channels:**
D_1: _____ GL: _____ ER: _____ (Corner Radius) D_2: _____ L_1: _____ Z: _____ (Amount of flutes) D_3: _____ L_2: _____	☐ Coated*: _____ ☐ Uncoated	☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

INOX-CORD cooled







Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	ER (mm)	GL (mm)	HB-Shank
AM.CORD.03968.10.06.IK	Ø 3,968	5/32	Ø 3,40	Ø 6,00	10,00	18,00	0,30	58,00	.HB
AM.CORD.04.10.06.IK	Ø 4,000		Ø 3,50	Ø 6,00	10,00	18,00	0,30	58,00	.HB
AM.CORD.04762.14.06.IK	Ø 4,762	3/16	Ø 4,20	Ø 6,00	14,00	20,00	0,30	58,00	.HB
AM.CORD.05.14.06.IK	Ø 5,000		Ø 4,20	Ø 6,00	14,00	20,00	0,30	58,00	.HB
AM.CORD.05556.14.06.IK	Ø 5,556	7/32	Ø 5,00	Ø 6,00	14,00	22,00	0,50	58,00	.HB
AM.CORD.06.14.06.IK	Ø 6,000		Ø 5,50	Ø 6,00	14,00	22,00	0,50	58,00	.HB
AM.CORD.0635.14.08.IK	Ø 6,350	1/4	Ø 5,80	Ø 8,00	14,00	22,00	0,50	64,00	.HB
AM.CORD.08.18.08.IK	Ø 8,000		Ø 7,50	Ø 8,00	18,00	26,00	0,50	64,00	.HB
AM.CORD.10.22.10.IK	Ø 10,000		Ø 9,50	Ø 10,00	22,00	32,00	0,50	73,00	.HB
AM.CORD.12.26.12.IK	Ø 12,000		Ø 11,50	Ø 12,00	26,00	36,00	0,50	84,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.CORD.04.10.06.IK.HB

Available from stock

- α-INOX coated

5 PRO’s of the ACTIONMILL:

- High-performance corded end mills from Ø4 to Ø12
- Roughing of demanding materials such as CoCr or INOX
- Short chips increase tool life
- High performance
- Perfect price-performance ratio

INOX-HPC cooled

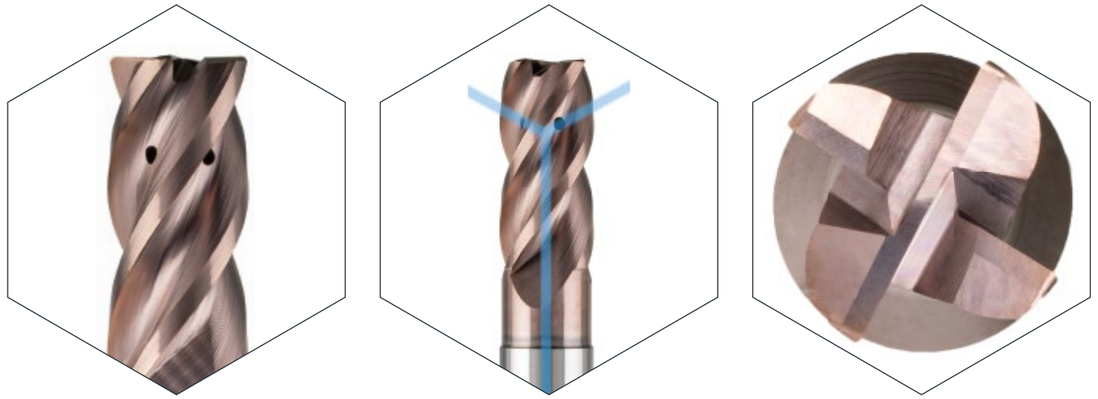
Corner radius ER 0.3 at Ø 4 and ER 0.5 from Ø 6 protects the cutting corner

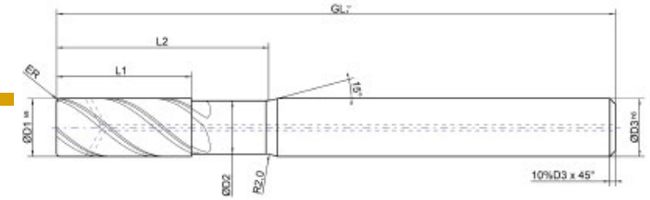
From Ø 4 to Ø 12 with 4 flutes

Y-shaped cooling channels protect against overheating

The high-performance α-INOX coating guarantees a long tool life and prevents the cutting edge from sticking

Solid carbide - thermal shock resistant in ultra-fine grain with high fracture toughness



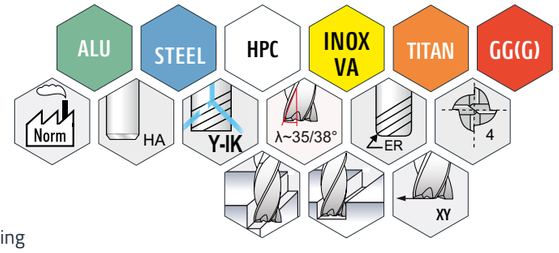


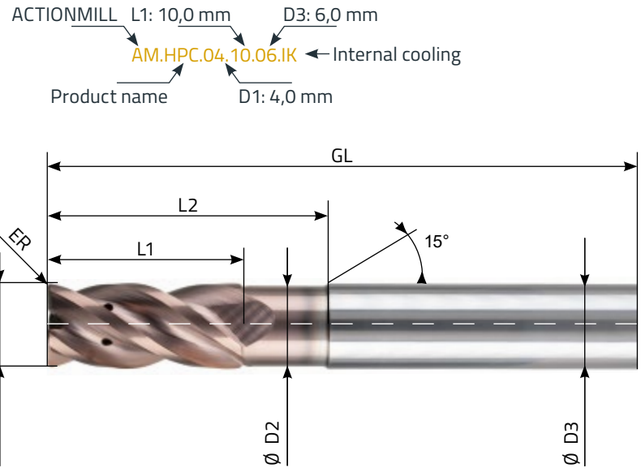
☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions:	**Coating:**	**Cooling channels:**
D_1: _____ GL: _____ ER: _____ (Corner Radius) D_2: _____ L_1: _____ Z: _____ (Amount of flutes) D_3: _____ L_2: _____	☐ Coated*: _____ ☐ Uncoated	☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

INOX-HPC cooled





- α-INOX coated

5 PRO's of the ACTIONMILL:

- High-performance HPC mill from Ø4 to Ø12
- Roughing & finishing of demanding materials such as CoCr or INOX
- Long tool life and process reliability
- Universally applicable
- Perfect price-performance ratio

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	ER (mm)	GL (mm)	HB-Shank
AM.HPC.03968.10.06.IK	Ø 3,968	5/32	Ø 3,40	Ø 6,00	10,00	18,00	0,30	58,00	.HB
AM.HPC.04.10.06.IK	Ø 4,000		Ø 3,50	Ø 6,00	10,00	18,00	0,30	58,00	.HB
AM.HPC.04762.14.06.IK	Ø 4,762	3/16	Ø 4,20	Ø 6,00	14,00	20,00	0,30	58,00	.HB
AM.HPC.05.14.06.IK	Ø 5,000		Ø 4,20	Ø 6,00	14,00	20,00	0,30	58,00	.HB
AM.HPC.05556.14.06.IK	Ø 5,556	7/32	Ø 5,00	Ø 6,00	14,00	22,00	0,50	58,00	.HB
AM.HPC.06.14.06.IK	Ø 6,000		Ø 5,50	Ø 6,00	14,00	22,00	0,50	58,00	.HB
AM.HPC.0635.14.08.IK	Ø 6,350	1/4	Ø 5,80	Ø 8,00	14,00	22,00	0,50	64,00	.HB
AM.HPC.08.18.08.IK	Ø 8,000		Ø 7,50	Ø 8,00	18,00	26,00	0,50	64,00	.HB
AM.HPC.10.22.10.IK	Ø 10,000		Ø 9,50	Ø 10,00	22,00	32,00	0,50	73,00	.HB
AM.HPC.12.26.12.IK	Ø 12,000		Ø 11,50	Ø 12,00	26,00	36,00	0,50	84,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.HPC.04.10.06.IK.HB

Available from stock

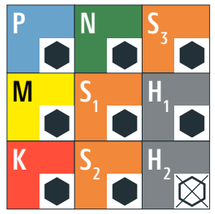
Cutting data - ACTIONMILL INOX-CORD cooled

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec

INOX-CORD cooled

INOX-HPC cooled



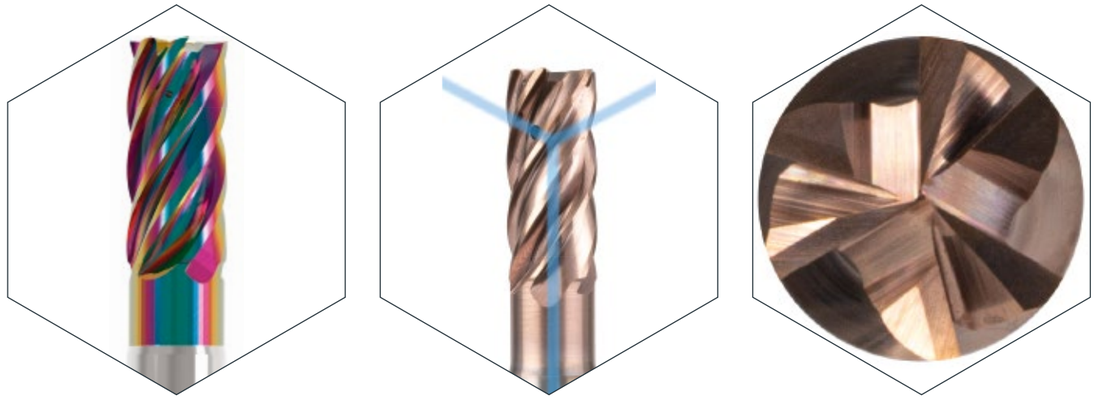
Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

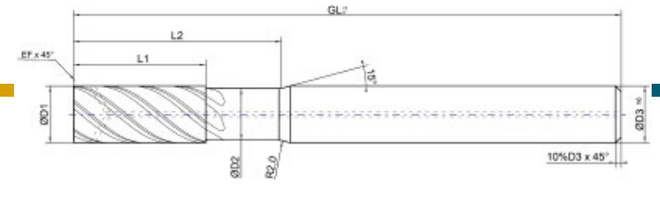
Application recommendation ⬢ very well suited ⬡ Conditionally suited ⊠ Not recommended

ap=1xD	ae=1/2xD	ap=1xD	ae=1/2xD	ap=1xD	ae=1/2xD	ap=1xD	ae=1/2xD	ap=1xD	ae=1/2xD
Ø 4 mm		Ø 6 mm		Ø 8 mm		Ø 10 mm		Ø 12 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]
100-140	0,02 - 0,035	100-140	0,03 - 0,045	100-140	0,05 - 0,065	100-140	0,06 - 0,075	100-140	0,07 - 0,085
100-140	0,02 - 0,03	100-140	0,03 - 0,04	100-140	0,05 - 0,055	100-140	0,06 - 0,065	100-140	0,07 - 0,075
80-110	0,02 - 0,03	80-110	0,035 - 0,045	80-110	0,045 - 0,055	80-110	0,055 - 0,065	80-110	0,065 - 0,075
70-100	0,015 - 0,025	70-100	0,035 - 0,045	70-100	0,045 - 0,055	70-100	0,055 - 0,065	70-100	0,065 - 0,075
80-140	0,02 - 0,04	80-140	0,04 - 0,055	80-140	0,05 - 0,065	80-140	0,06 - 0,065	80-140	0,065 - 0,085
80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06	80-160	0,055 - 0,06	80-160	0,065 - 0,075
80-140	0,02 - 0,045	80-140	0,035 - 0,06	80-140	0,055 - 0,06	80-140	0,055 - 0,06	80-140	0,065 - 0,08
80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06	80-120	0,055 - 0,06	80-120	0,065 - 0,085
50 - 80	0,02 - 0,03	50 - 80	0,03 - 0,04	50 - 80	0,03 - 0,05	50 - 80	0,04 - 0,06	50 - 80	0,05 - 0,07
50-80	0,02 - 0,03	50-80	0,03 - 0,04	50-80	0,03 - 0,05	50-80	0,04 - 0,06	50-80	0,05 - 0,07
50-80	0,02 - 0,03	50-80	0,03 - 0,04	50-80	0,03 - 0,05	50-80	0,04 - 0,06	50-80	0,05 - 0,07
No data entered									
No data entered									

INOX-Finish cooled

Alu-Finish cooled



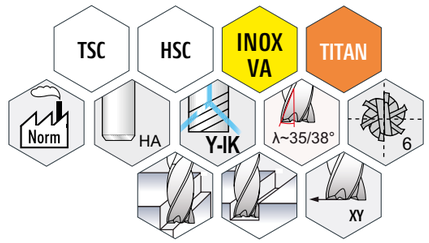


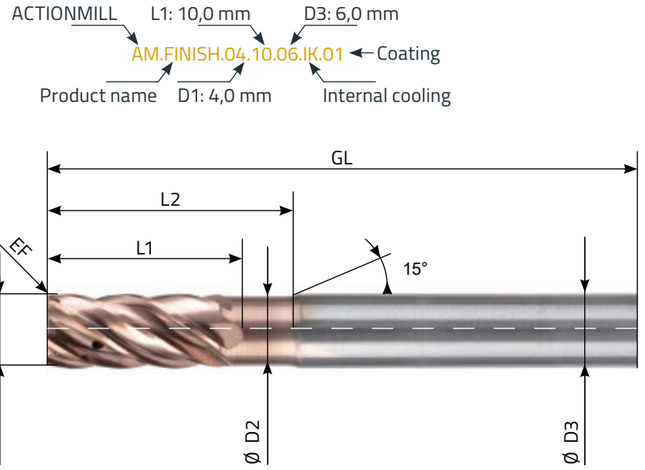
☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions: D_1: _____ GL: _____ EF: _____ (Corner chamfer) D_2: _____ L_1: _____ Z: _____ (Amount of flutes) D_3: _____ L_2: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

2xD INOX-Finish cooled





- α-INOX coated

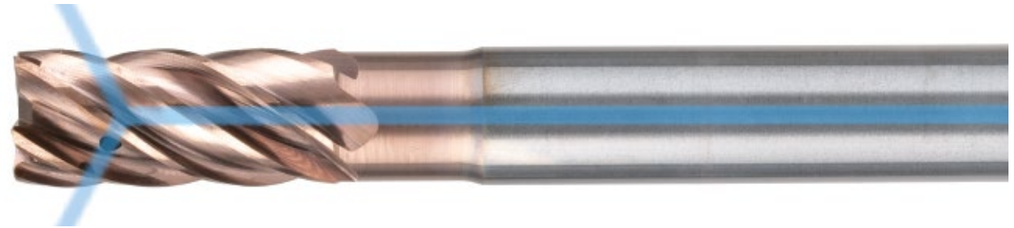
5 PRO's of the ACTIONMILL:

- Protected and sharp mill corner
- High-performance finishing mill from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as titanium and INOX
- High-quality and precise surfaces
- Long tool life and process reliability

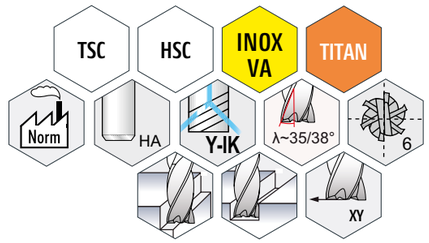
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.10.06.IK.01	Ø 3,968	5/32	Ø 3,40	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.FINISH.04.10.06.IK.01	Ø 4,000		Ø 3,50	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.FINISH.04762.14.06.IK.01	Ø 4,762	3/16	Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.FINISH.05.14.06.IK.01	Ø 5,000		Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.FINISH.05556.14.06.IK.01	Ø 5,556	7/32	Ø 5,00	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.FINISH.06.14.06.IK.01	Ø 6,000		Ø 5,50	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.FINISH.0635.14.08.IK.01	Ø 6,350	1/4	Ø 5,80	Ø 8,00	14,00	22,00	0,03	64,00	.HB
AM.FINISH.08.18.08.IK.01	Ø 8,000		Ø 7,50	Ø 8,00	18,00	26,00	0,05	64,00	.HB
AM.FINISH.10.22.10.IK.01	Ø 10,000		Ø 9,50	Ø 10,00	22,00	32,00	0,05	73,00	.HB
AM.FINISH.12.26.12.IK.01	Ø 12,000		Ø 11,50	Ø 12,00	26,00	36,00	0,05	84,00	.HB

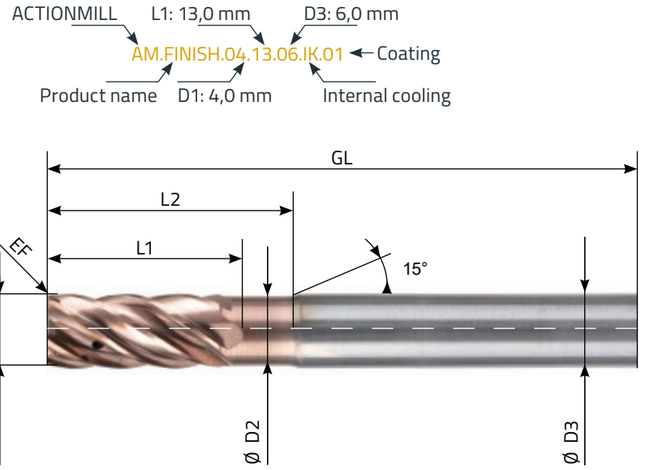
- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.FINISH.04.10.06.IK.01.HB

Available from stock



3xD INOX-Finish cooled





- α-INOX coated

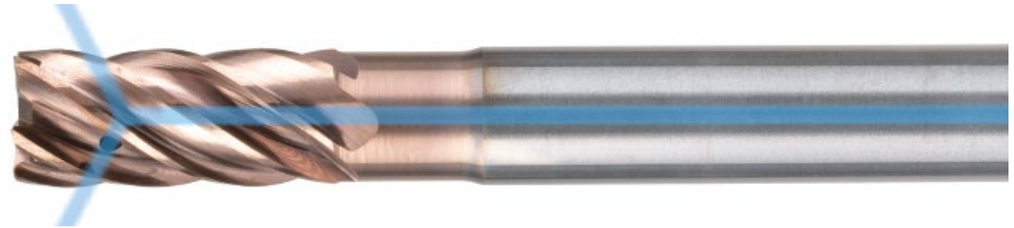
5 PRO's of the ACTIONMILL:

- Protected and sharp mill corner
- High-performance finishing cutters from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as titanium and INOX
- High-quality and precise surfaces
- Long tool life and process reliability

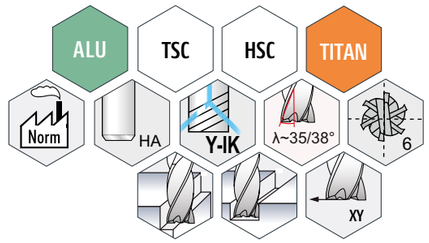
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.13.06.IK.01	Ø 3,968	5/32	Ø 3,40	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.FINISH.04.13.06.IK.01	Ø 4,000		Ø 3,50	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.FINISH.04762.15.06.IK.01	Ø 4,762	3/16	Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.FINISH.05.15.06.IK.01	Ø 5,000		Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.FINISH.05556.18.06.IK.01	Ø 5,556	7/32	Ø 5,00	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.FINISH.06.18.06.IK.01	Ø 6,000		Ø 5,50	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.FINISH.0635.20.08.IK.01	Ø 6,350	1/4	Ø 5,80	Ø 8,00	20,00	24,00	0,03	64,00	.HB
AM.FINISH.08.24.08.IK.01	Ø 8,000		Ø 7,50	Ø 8,00	24,00	28,00	0,05	64,00	.HB
AM.FINISH.10.30.10.IK.01	Ø 10,000		Ø 9,50	Ø 10,00	30,00	36,00	0,05	73,00	.HB
AM.FINISH.12.36.12.IK.01	Ø 12,000		Ø 11,50	Ø 12,00	36,00	40,00	0,05	84,00	.HB

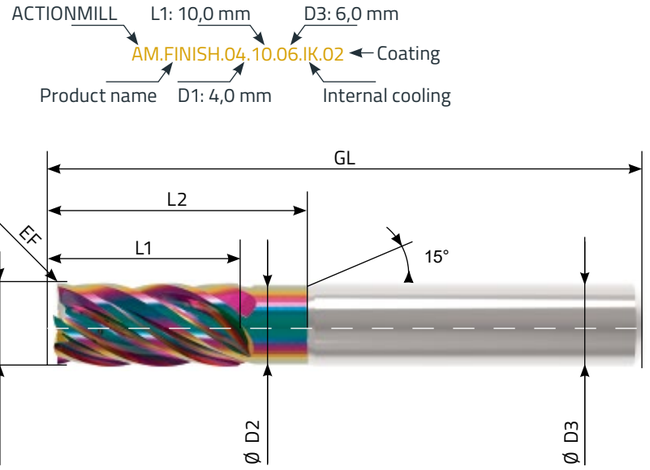
- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.FINISH.04.10.06.IK.01.HB

Available from stock



2xD Alu-Finish cooled





- β-TITAN coated

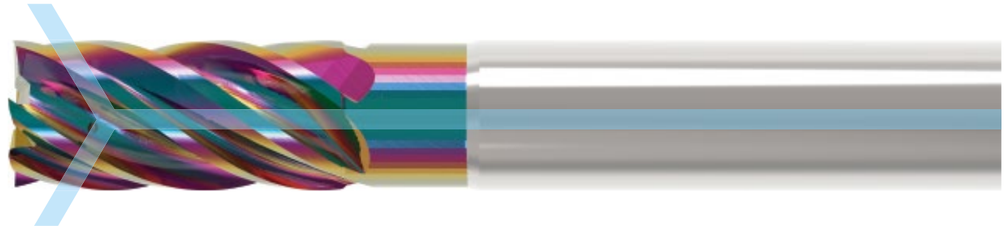
5 PRO's of the ACTIONMILL:

- Protected and sharp mill corner
- High-performance finishing mill from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as pure titanium and aluminum alloys
- High-quality and precise surfaces
- Long tool life and process reliability

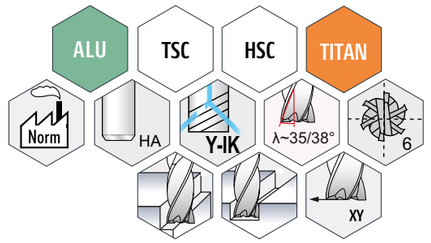
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.10.06.IK.02	Ø 3,968	5/32	Ø 3,40	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.FINISH.04.10.06.IK.02	Ø 4,000		Ø 3,50	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.FINISH.04762.14.06.IK.02	Ø 4,762	3/16	Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.FINISH.05.14.06.IK.02	Ø 5,000		Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.FINISH.05556.14.06.IK.02	Ø 5,556	7/32	Ø 5,00	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.FINISH.06.14.06.IK.02	Ø 6,000		Ø 5,50	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.FINISH.0635.14.08.IK.02	Ø 6,350	1/4	Ø 5,80	Ø 8,00	14,00	22,00	0,03	64,00	.HB
AM.FINISH.08.18.08.IK.02	Ø 8,000		Ø 7,50	Ø 8,00	18,00	26,00	0,05	64,00	.HB
AM.FINISH.10.22.10.IK.02	Ø 10,000		Ø 9,50	Ø 10,00	22,00	32,00	0,05	73,00	.HB
AM.FINISH.12.26.12.IK.02	Ø 12,000		Ø 11,50	Ø 12,00	26,00	36,00	0,05	84,00	.HB

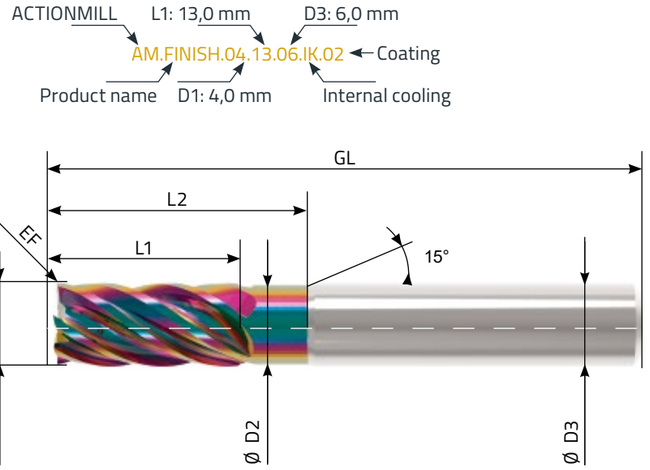
- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.FINISH.04.10.06.IK.02.HB

Available from stock



3xD Alu-Finish cooled





- β-TITAN coated

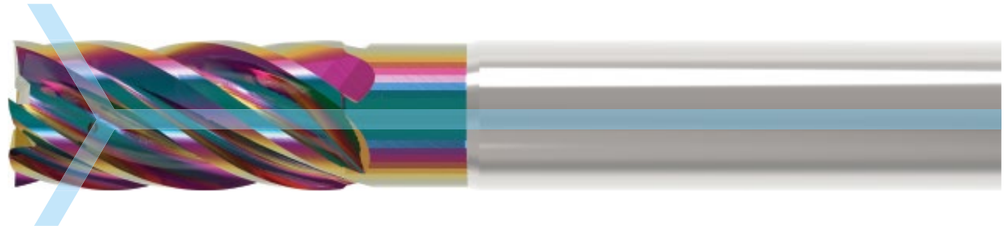
5 PRO's of the ACTIONMILL:

- Protected and sharp mill corner
- High-performance finishing cutters from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as pure titanium and aluminum alloys
- High-quality and precise surfaces
- Long tool life and process reliability

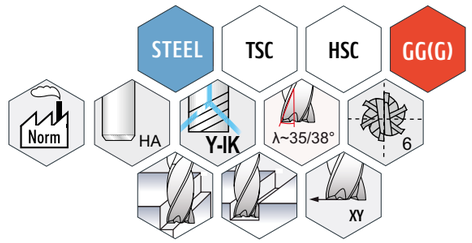
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.13.06.IK.02	Ø 3,968	5/32	Ø 3,40	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.FINISH.04.13.06.IK.02	Ø 4,000		Ø 3,50	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.FINISH.04762.15.06.IK.02	Ø 4,762	3/16	Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.FINISH.05.15.06.IK.02	Ø 5,000		Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.FINISH.05556.18.06.IK.02	Ø 5,556	7/32	Ø 5,00	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.FINISH.06.18.06.IK.02	Ø 6,000		Ø 5,50	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.FINISH.0635.20.08.IK.02	Ø 6,350	1/4	Ø 5,80	Ø 8,00	20,00	24,00	0,03	64,00	.HB
AM.FINISH.08.24.08.IK.02	Ø 8,000		Ø 7,50	Ø 8,00	24,00	28,00	0,05	64,00	.HB
AM.FINISH.10.30.10.IK.02	Ø 10,000		Ø 9,50	Ø 10,00	30,00	36,00	0,05	73,00	.HB
AM.FINISH.12.36.12.IK.02	Ø 12,000		Ø 11,50	Ø 12,00	36,00	40,00	0,05	84,00	.HB

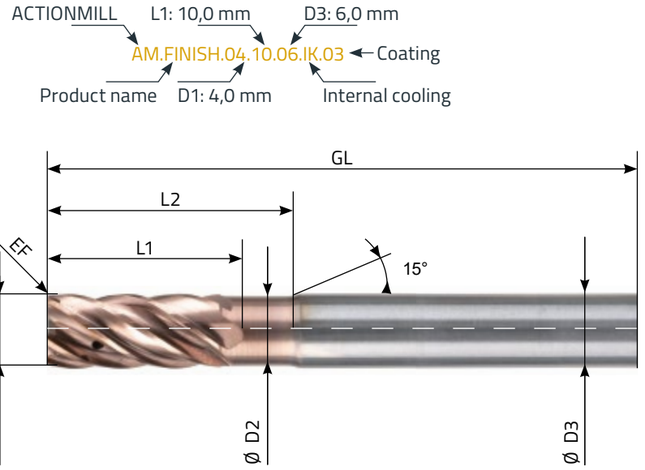
- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.FINISH.04.10.06.IK.02.HB

Available from stock



2xD Steel-Finish cooled





- γ-Steel coated

5 PRO's of the ACTIONMILL:

- Protected and sharp mill corner
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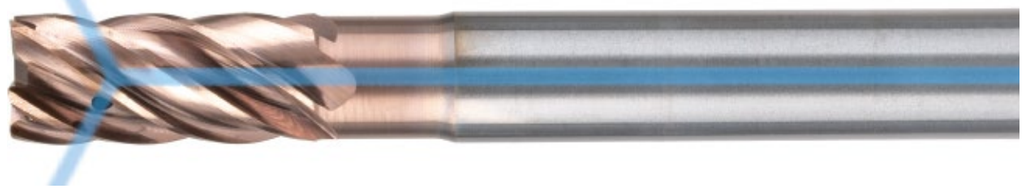
- Finishing of demanding materials such as high-alloy Cr steels
- High-quality and precise surfaces
- Long tool life and process reliability

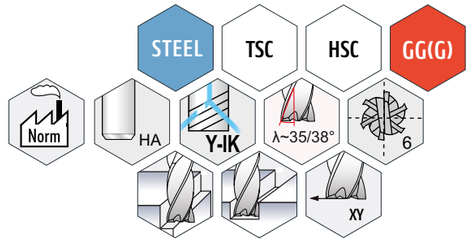
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.10.06.IK.03	Ø 3,968	5/32	Ø 3,40	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.FINISH.04.10.06.IK.03	Ø 4,000		Ø 3,50	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.FINISH.04762.14.06.IK.03	Ø 4,762	3/16	Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.FINISH.05.14.06.IK.03	Ø 5,000		Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.FINISH.05556.14.06.IK.03	Ø 5,556	7/32	Ø 5,00	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.FINISH.06.14.06.IK.03	Ø 6,000		Ø 5,50	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.FINISH.0635.14.08.IK.03	Ø 6,350	1/4	Ø 5,80	Ø 8,00	14,00	22,00	0,03	64,00	.HB
AM.FINISH.08.18.08.IK.03	Ø 8,000		Ø 7,50	Ø 8,00	18,00	26,00	0,05	64,00	.HB
AM.FINISH.10.22.10.IK.03	Ø 10,000		Ø 9,50	Ø 10,00	22,00	32,00	0,05	73,00	.HB
AM.FINISH.12.26.12.IK.03	Ø 12,000		Ø 11,50	Ø 12,00	26,00	36,00	0,05	84,00	.HB

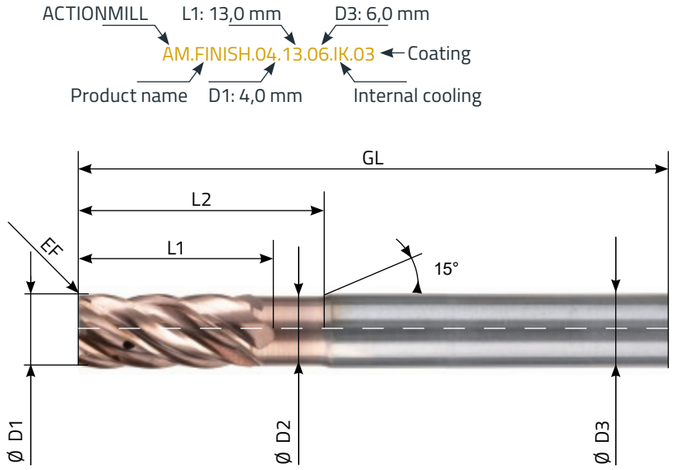
- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.FINISH.04.10.06.IK.03.HB

Available from stock



3xD Steel-Finish cooled





- γ-Steel coated

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- Protected and sharp mill corner
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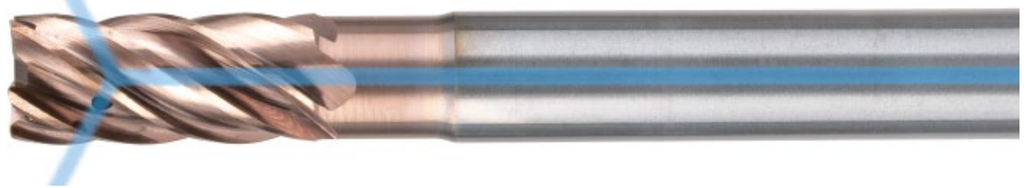
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.13.06.IK.03	Ø 3,968	5/32	Ø 3,40	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.FINISH.04.13.06.IK.03	Ø 4,000		Ø 3,50	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.FINISH.04762.15.06.IK.03	Ø 4,762	3/16	Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.FINISH.05.15.06.IK.03	Ø 5,000		Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.FINISH.05556.18.06.IK.03	Ø 5,556	7/32	Ø 5,00	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.FINISH.06.18.06.IK.03	Ø 6,000		Ø 5,50	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.FINISH.0635.20.08.IK.03	Ø 6,350	1/4	Ø 5,80	Ø 8,00	20,00	24,00	0,03	64,00	.HB
AM.FINISH.08.24.08.IK.03	Ø 8,000		Ø 7,50	Ø 8,00	24,00	28,00	0,05	64,00	.HB
AM.FINISH.10.30.10.IK.03	Ø 10,000		Ø 9,50	Ø 10,00	30,00	36,00	0,05	73,00	.HB
AM.FINISH.12.36.12.IK.03	Ø 12,000		Ø 11,50	Ø 12,00	36,00	40,00	0,05	84,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.FINISH.04.10.06.IK.03.HB

Available from stock

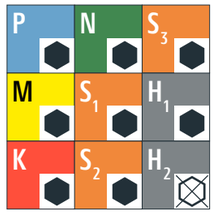


Cutting data - ACTIONMILL Finish cooled

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec

INOX-Finish cooled
ALU-Finish cooled
Steel-Finish cooled



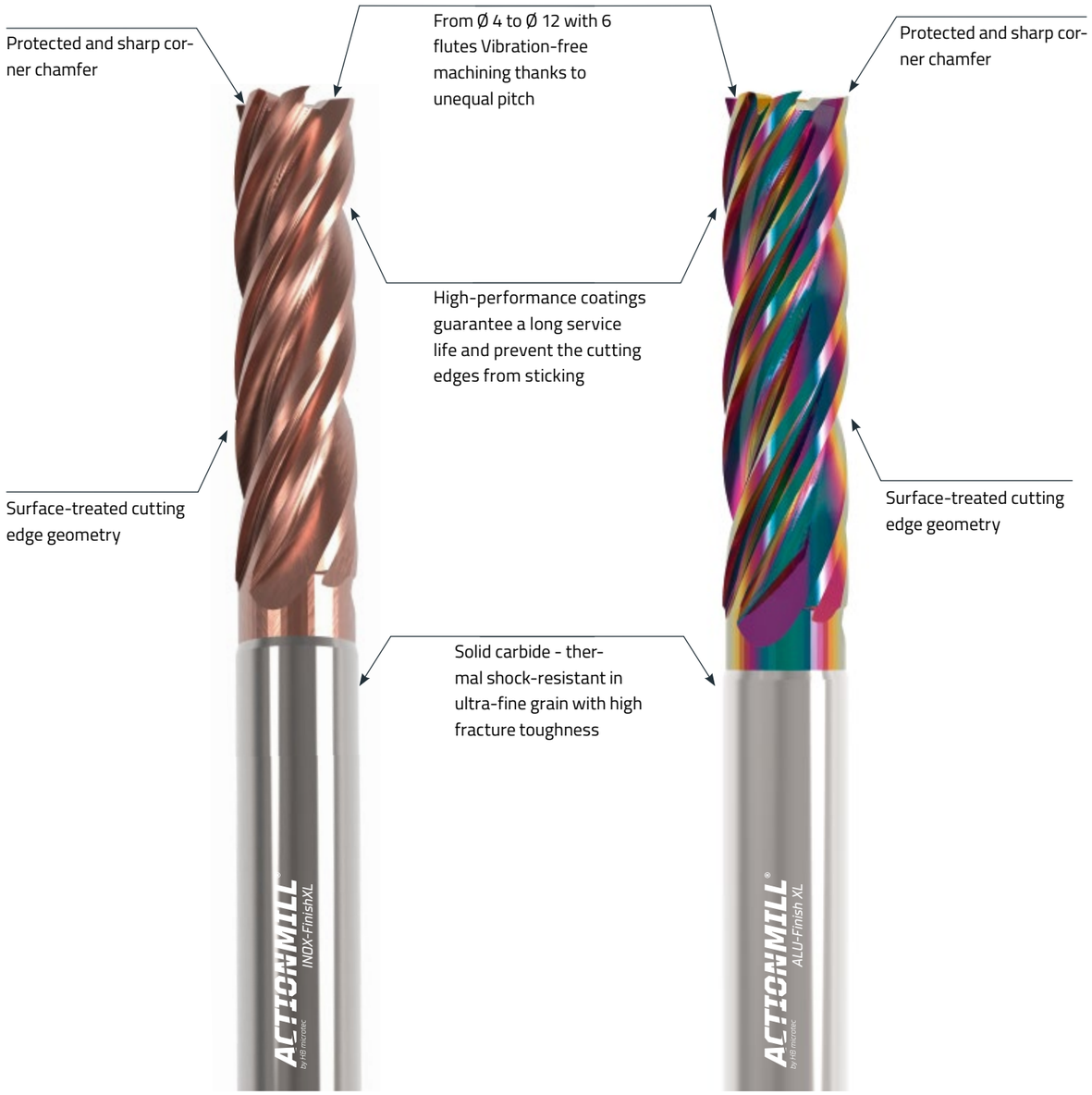
Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

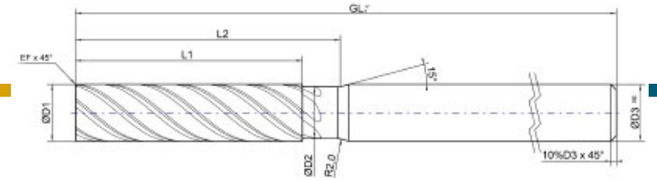
Application recommendation ⬢ very well suited ⬡ Conditionally suited ⊠ Not recommended

ap=L1	ae=0,06xD1	ap=L1	ae=0,06xD1	ap=L1	ae=0,06xD1	ap=L1	ae=0,06xD1	ap=L1	ae=0,06xD1
Ø 4 mm		Ø 6 mm		Ø 8 mm		Ø 10 mm		Ø 12 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	vc [m/min]	vc [m/min]	fz [mm]
100-200	0,02 - 0,035	100-200	0,03 - 0,045	100-200	0,05 - 0,065	100-200	0,06 - 0,075	100-200	0,07 - 0,085
100-200	0,02 - 0,03	100-200	0,03 - 0,04	100-200	0,05 - 0,055	100-200	0,06 - 0,065	100-200	0,07 - 0,075
80-110	0,02 - 0,03	80-110	0,035 - 0,045	80-110	0,045 - 0,055	80-110	0,055 - 0,065	80-110	0,065 - 0,075
70-100	0,015 - 0,025	70-100	0,035 - 0,045	70-100	0,045 - 0,055	70-100	0,055 - 0,065	70-100	0,065 - 0,075
80-170	0,02 - 0,04	80-170	0,04 - 0,055	80-170	0,05 - 0,065	80-170	0,06 - 0,065	80-170	0,065 - 0,085
80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06	80-160	0,055 - 0,06	80-160	0,065 - 0,075
100-200	0,02 - 0,045	100-200	0,035 - 0,06	100-200	0,055 - 0,06	100-200	0,055 - 0,06	100-200	0,065 - 0,08
80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06	80-120	0,055 - 0,06	80-120	0,065 - 0,085
50 - 80	0,02 - 0,03	50 - 80	0,03 - 0,04	50 - 80	0,03 - 0,05	50 - 80	0,04 - 0,06	50 - 80	0,05 - 0,07
40-70	0,02 - 0,03	40-70	0,03 - 0,04	40-70	0,03 - 0,05	40-70	0,04 - 0,06	40-70	0,05 - 0,07
25-40	0,02 - 0,03	25-40	0,03 - 0,04	25-40	0,03 - 0,05	25-40	0,04 - 0,06	25-40	0,05 - 0,07
No data entered									
No data entered									

INOX-FinishXL

Alu-FinishXL



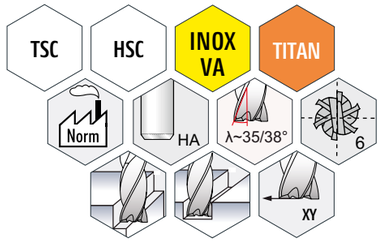


☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions: D_1: _____ GL: _____ EF: _____ (Corner chamfer) D_2: _____ L_1: _____ Z: _____ (Amount of flutes) D_3: _____ L_2: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

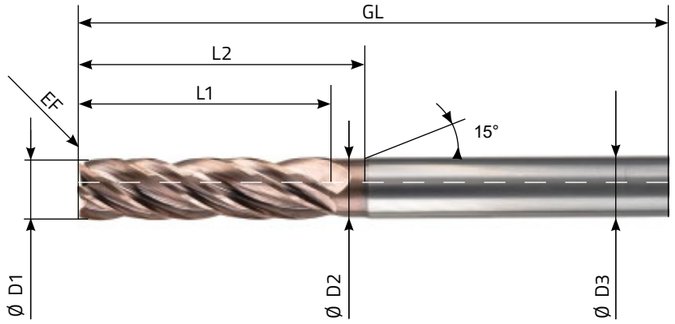
4xD INOX-FinishXL



ACTIONMILL L1: 16,0 mm D3: 6,0 mm

AM.FINISH.04.16.06.XL.01 ← Coating

Product name D1: 4,0 mm XL long variant



- α-INOX coated

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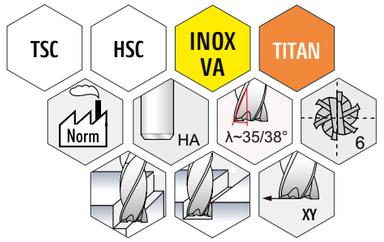
- Protected and sharp corner mill
- High-performance finishing mill from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as CoCr or INOX
- High-quality and precise surfaces
- Long tool life and process reliability

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.16.06.XL.01	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.FINISH.04.16.06.XL.01	Ø 4,000		Ø 3,50	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.FINISH.04762.20.06.XL.01	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.FINISH.05.20.06.XL.01	Ø 5,000		Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.FINISH.05556.22.06.XL.01	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	22,00	25,00	0,03	83,00	.HB
AM.FINISH.06.24.06.XL.01	Ø 6,000		Ø 5,50	Ø 6,00	24,00	28,00	0,03	83,00	.HB
AM.FINISH.0635.25.08.XL.01	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	25,00	28,00	0,03	80,00	.HB
AM.FINISH.08.32.08.XL.01	Ø 8,000		Ø 7,50	Ø 8,00	32,00	36,00	0,05	80,00	.HB
AM.FINISH.10.40.10.XL.01	Ø 10,000		Ø 9,50	Ø 10,00	40,00	44,00	0,05	100,00	.HB
AM.FINISH.12.48.12.XL.01	Ø 12,000		Ø 11,50	Ø 12,00	48,00	52,00	0,05	101,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.FINISH.04.16.06.XL.01.HB

Available from stock

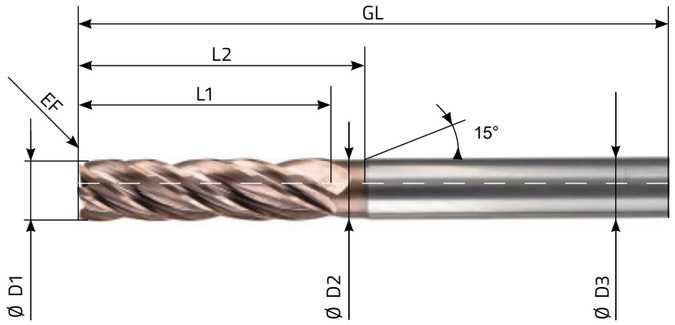
5xD INOX-FinishXXL



ACTIONMILL L1: 20,0 mm D3: 6,0 mm

AM.FINISH.04.20.06.XXL.01 ← Coating

Product name D1: 4,0 mm XXL long variant



- α-INOX coated

5 PRO's of the ACTIONMILL:

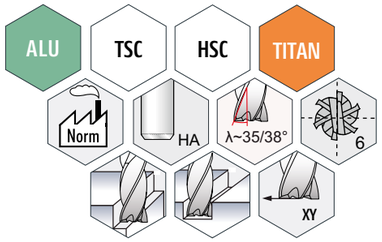
- Protected and sharp mill corner
- High-performance finishing mill from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as CoCr or INOX
- High-quality and precise surfaces
- Long service life and process reliability

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.20.06.XXL.01	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.FINISH.04.20.06.XXL.01	Ø 4,000		Ø 3,50	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.FINISH.04762.25.06.XXL.01	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.FINISH.05.25.06.XXL.01	Ø 5,000		Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.FINISH.05556.30.06.XXL.01	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.FINISH.06.30.06.XXL.01	Ø 6,000		Ø 5,50	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.FINISH.0635.32.08.XXL.01	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	32,00	36,00	0,03	83,00	.HB
AM.FINISH.08.40.08.XXL.01	Ø 8,000		Ø 7,50	Ø 8,00	40,00	44,00	0,05	83,00	.HB
AM.FINISH.10.50.10.XXL.01	Ø 10,000		Ø 9,50	Ø 10,00	50,00	54,00	0,05	101,00	.HB
AM.FINISH.12.60.12.XXL.01	Ø 12,000		Ø 11,50	Ø 12,00	60,00	64,00	0,05	110,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.FINISH.04.16.06.XL.01.HB

Available from stock

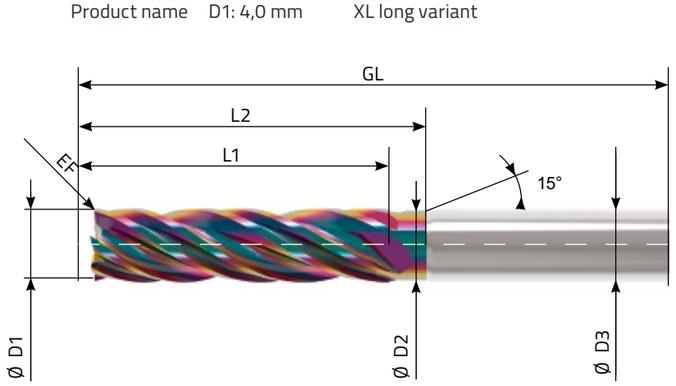
4xD Alu-FinishXL



ACTIONMILL L1: 16,0 mm D3: 6,0 mm

AM.FINISH.04.16.06.XL.02 ← Coating

Product name D1: 4,0 mm XL long variant



- β-TITAN coated

5 PRO's of the ACTIONMILL:

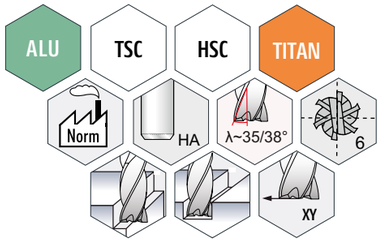
- Protected and sharp mill corner
- High-performance finishing mill from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as pure titanium and aluminum alloys
- High-quality and precise surfaces
- Long tool life and process reliability

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.16.06.XL.02	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.FINISH.04.16.06.XL.02	Ø 4,000		Ø 3,50	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.FINISH.04762.20.06.XL.02	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.FINISH.05.20.06.XL.02	Ø 5,000		Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.FINISH.05556.22.06.XL.02	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	22,00	25,00	0,03	83,00	.HB
AM.FINISH.06.24.06.XL.02	Ø 6,000		Ø 5,50	Ø 6,00	24,00	28,00	0,03	83,00	.HB
AM.FINISH.0635.25.08.XL.02	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	25,00	28,00	0,03	80,00	.HB
AM.FINISH.08.32.08.XL.02	Ø 8,000		Ø 7,50	Ø 8,00	32,00	36,00	0,05	80,00	.HB
AM.FINISH.10.40.10.XL.02	Ø 10,000		Ø 9,50	Ø 10,00	40,00	44,00	0,05	100,00	.HB
AM.FINISH.12.48.12.XL.02	Ø 12,000		Ø 11,50	Ø 12,00	48,00	52,00	0,05	101,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.FINISH.04.16.06.XL.02.HB

Available from stock

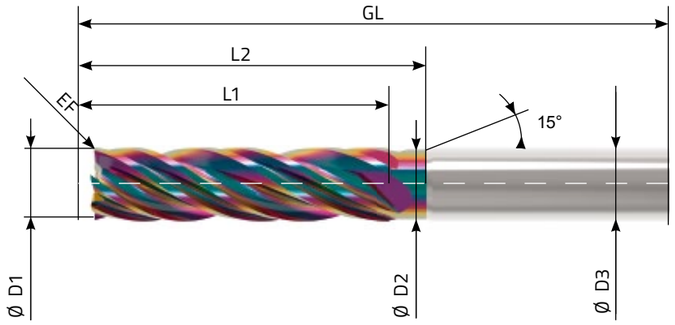
5xD Alu-FinishXXL



ACTIONMILL L1: 20,0 mm D3: 6,0 mm

AM.FINISH.04.20.06.XXL.02 ← Coating

Product name D1: 4,0 mm XXL long variant



- β-TITAN coated

5 PRO's of the ACTIONMILL:

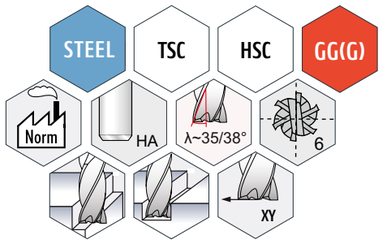
- Protected and sharp mill corner
- High-performance finishing mill from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as pure titanium and aluminum alloys
- High-quality and precise surfaces
- Long service life and process reliability

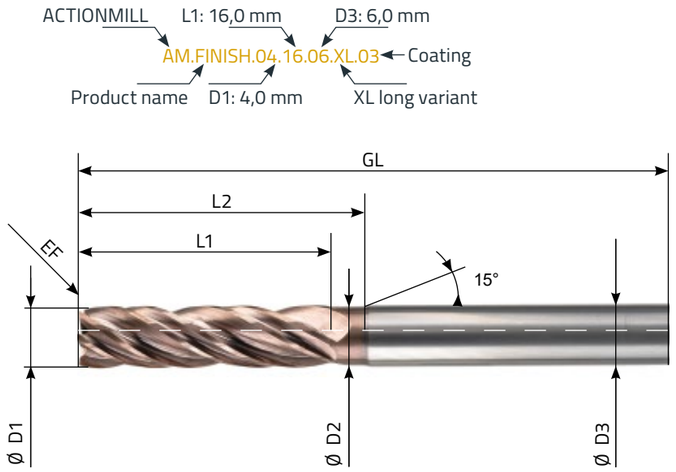
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.20.06.XXL.02	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.FINISH.04.20.06.XXL.02	Ø 4,000		Ø 3,50	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.FINISH.04762.25.06.XXL.02	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.FINISH.05.25.06.XXL.02	Ø 5,000		Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.FINISH.05556.30.06.XXL.02	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.FINISH.06.30.06.XXL.02	Ø 6,000		Ø 5,50	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.FINISH.0635.32.08.XXL.02	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	32,00	36,00	0,03	83,00	.HB
AM.FINISH.08.40.08.XXL.02	Ø 8,000		Ø 7,50	Ø 8,00	40,00	44,00	0,05	83,00	.HB
AM.FINISH.10.50.10.XXL.02	Ø 10,000		Ø 9,50	Ø 10,00	50,00	54,00	0,05	101,00	.HB
AM.FINISH.12.60.12.XXL.02	Ø 12,000		Ø 11,50	Ø 12,00	60,00	64,00	0,05	110,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.FINISH.04.16.06.XL.02.HB

Available from stock

4xD Steel-FinishXL





- γ-Steel coated

5 PRO's of the ACTIONMILL:

- Protected and sharp mill corner
- High-performance finishing milling cutter from

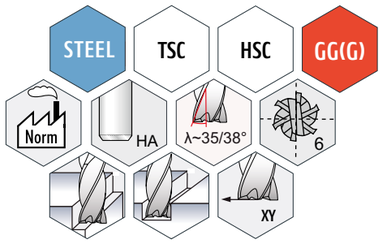
  Ø4 to Ø12 with Z6
- Finishing of demanding materials such as high-alloy Cr steels
- High-quality and precise surfaces
- Long tool life and process reliability

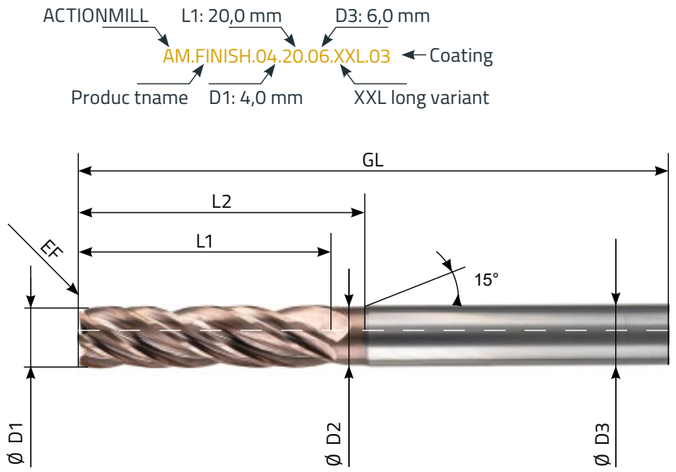
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.16.06.XL.03	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.FINISH.04.16.06.XL.03	Ø 4,000		Ø 3,50	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.FINISH.04762.20.06.XL.03	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.FINISH.05.20.06.XL.03	Ø 5,000		Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.FINISH.05556.22.06.XL.03	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	22,00	25,00	0,03	83,00	.HB
AM.FINISH.06.24.06.XL.03	Ø 6,000		Ø 5,50	Ø 6,00	24,00	28,00	0,03	83,00	.HB
AM.FINISH.0635.25.08.XL.03	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	25,00	28,00	0,03	80,00	.HB
AM.FINISH.08.32.08.XL.03	Ø 8,000		Ø 7,50	Ø 8,00	32,00	36,00	0,05	80,00	.HB
AM.FINISH.10.40.10.XL.03	Ø 10,000		Ø 9,50	Ø 10,00	40,00	44,00	0,05	100,00	.HB
AM.FINISH.12.48.12.XL.03	Ø 12,000		Ø 11,50	Ø 12,00	48,00	52,00	0,05	101,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.FINISH.04.16.06.XL.03.HB

Available from stock

5xD Steel-FinishXXL





- γ-Steel coated

5 PRO's of the ACTIONMILL:

- Protected and sharp mill corner
- High-performance finishing mill from Ø4 to Ø12 with Z6
- Finishing of demanding materials such as high-alloy Cr steels
- High-quality and precise surfaces
- High tool life and process reliability

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.FINISH.03968.20.06.XXL.03	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.FINISH.04.20.06.XXL.03	Ø 4,000		Ø 3,50	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.FINISH.04762.25.06.XXL.03	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.FINISH.05.25.06.XXL.03	Ø 5,000		Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.FINISH.05556.30.06.XXL.03	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.FINISH.06.30.06.XXL.03	Ø 6,000		Ø 5,50	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.FINISH.0635.32.08.XXL.03	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	32,00	36,00	0,03	83,00	.HB
AM.FINISH.08.40.08.XXL.03	Ø 8,000		Ø 7,50	Ø 8,00	40,00	44,00	0,05	83,00	.HB
AM.FINISH.10.50.10.XXL.03	Ø 10,000		Ø 9,50	Ø 10,00	50,00	54,00	0,05	101,00	.HB
AM.FINISH.12.60.12.XXL.03	Ø 12,000		Ø 11,50	Ø 12,00	60,00	64,00	0,05	110,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.FINISH.04.16.06.XL.03.HB

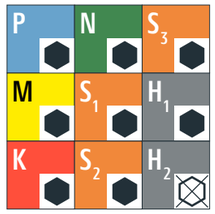
Available from stock

Cutting data - ACTIONMILL FinishXL/XXL

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec

INOX-FinishXL
ALU-Finish XL
Steel-Finish XL

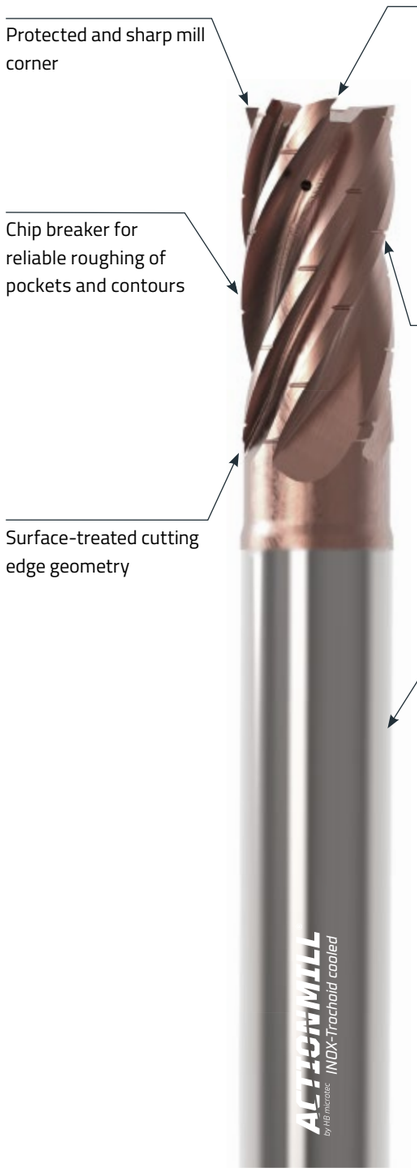


Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

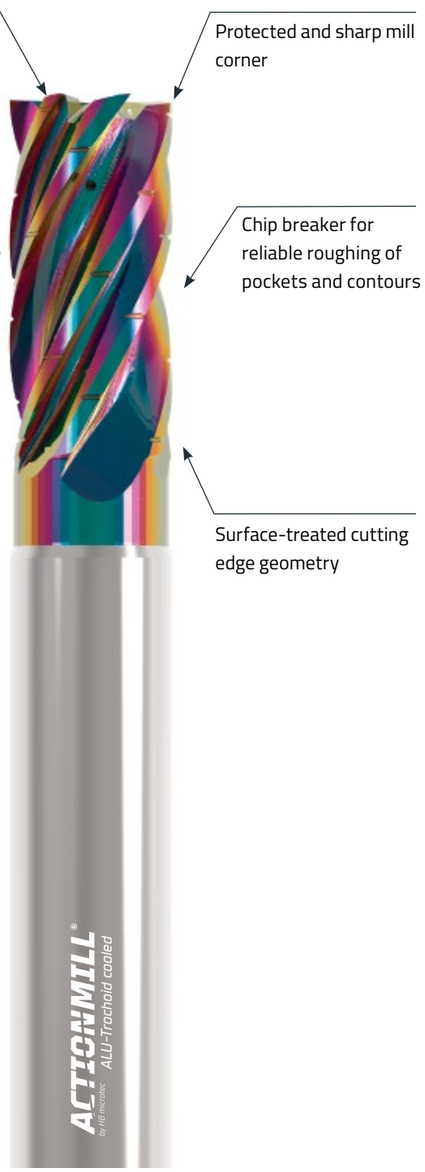
Application recommendation ⬢ very well suited ⬡ Conditionally suited ⊠ Not recommended

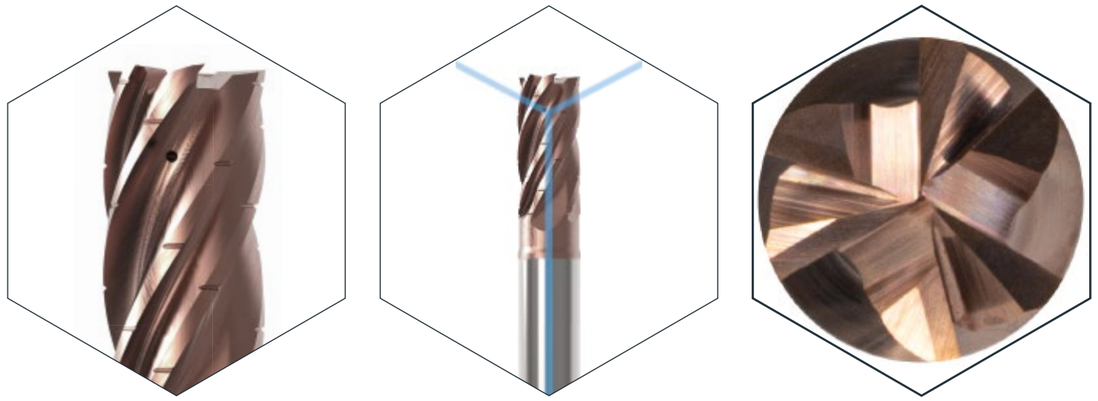
ap=L1	ae=0,05xD1	ap=L1	ae=0,05xD1	ap=L1	ae=0,05xD1	ap=L1	ae=0,05xD1	ap=L1	ae=0,05xD1
Ø 4 mm		Ø 6 mm		Ø 8 mm		Ø 10 mm		Ø 12 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	vc [m/min]	vc [m/min]	fz [mm]
100-200	0,02 - 0,035	100-200	0,03 - 0,045	100-200	0,05 - 0,065	100-200	0,06 - 0,075	100-200	0,07 - 0,085
100-200	0,02 - 0,03	100-200	0,03 - 0,04	100-200	0,05 - 0,055	100-200	0,06 - 0,065	100-200	0,07 - 0,075
80-110	0,02 - 0,03	80-110	0,035 - 0,045	80-110	0,045 - 0,055	80-110	0,055 - 0,065	80-110	0,065 - 0,075
70-100	0,015 - 0,025	70-100	0,035 - 0,045	70-100	0,045 - 0,055	70-100	0,055 - 0,065	70-100	0,065 - 0,075
80-170	0,02 - 0,04	80-170	0,04 - 0,055	80-170	0,05 - 0,065	80-170	0,06 - 0,065	80-170	0,065 - 0,085
80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06	80-160	0,055 - 0,06	80-160	0,065 - 0,075
100-200	0,02 - 0,045	100-200	0,035 - 0,06	100-200	0,055 - 0,06	100-200	0,055 - 0,06	100-200	0,065 - 0,08
80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06	80-120	0,055 - 0,06	80-120	0,065 - 0,085
50 - 80	0,02 - 0,03	50 - 80	0,03 - 0,04	50 - 80	0,03 - 0,05	50 - 80	0,04 - 0,06	50 - 80	0,05 - 0,07
40-70	0,02 - 0,03	40-70	0,03 - 0,04	40-70	0,03 - 0,05	40-70	0,04 - 0,06	40-70	0,05 - 0,07
25-40	0,02 - 0,03	25-40	0,03 - 0,04	25-40	0,03 - 0,05	25-40	0,04 - 0,06	25-40	0,05 - 0,07
No data entered									
No data entered									

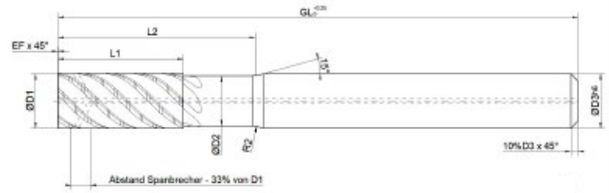
INOX-Trochoid cooled



Alu-Trochoid cooled





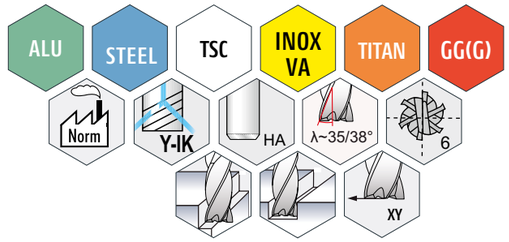


☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions:	**Coating:**	**Cooling channels:**
D_1: _____ GL: _____ EF: _____ (Corner chamfer) D_2: _____ L_1: _____ Z: _____ (Amount of flutes) D_3: _____ L_2: _____	☐ Coated*: _____ ☐ Uncoated	☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

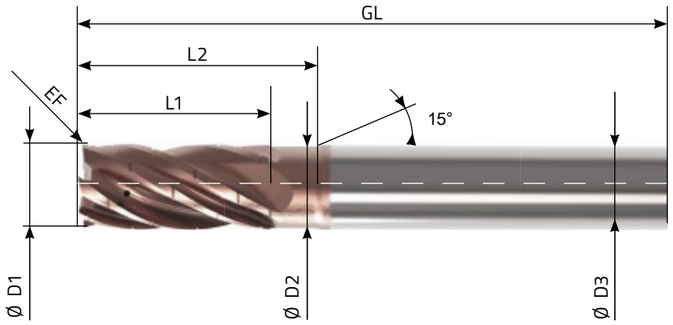
2xD INOX-Trochoid cooled



ACTIONMILL D1: 4,0 mm L1: 10,0 mm

AM.TROCHO.04.10.06.IK.01 ← Coating

Product name D3: 6,0 mm Internal cooling



- α-INOX coated

5 PRO's of the ACTIONMILL:

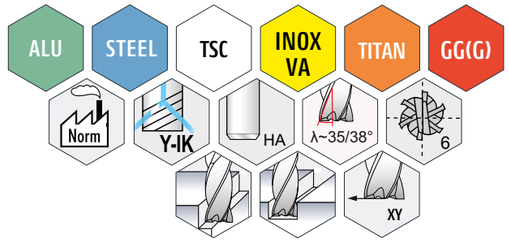
- Vibration-free machining thanks to unevan flute spacing
- Special cutting edge design for vibration damping
- Internal cooling lubricant supply, Y-discharge
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

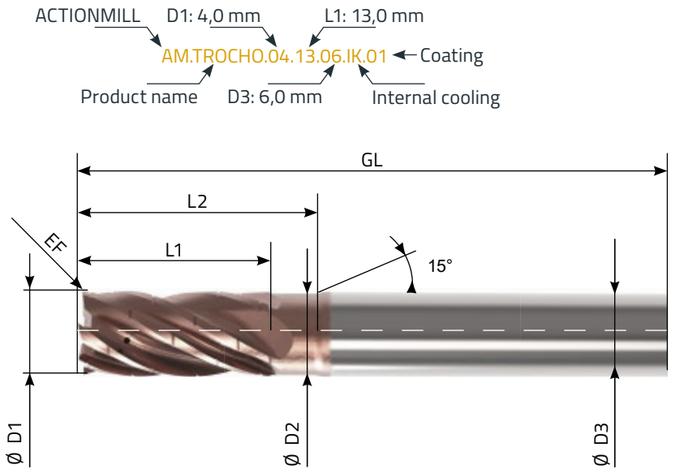
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.10.06.IK.01	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.TROCHO.04.10.06.IK.01	Ø 4,000		Ø 3,50	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.TROCHO.04762.14.06.IK.01	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.TROCHO.05.14.06.IK.01	Ø 5,000		Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.TROCHO.05556.14.06.IK.01	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.TROCHO.06.14.06.IK.01	Ø 6,000		Ø 5,50	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.TROCHO.0635.14.08.IK.01	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	14,00	22,00	0,03	64,00	.HB
AM.TROCHO.08.18.08.IK.01	Ø 8,000		Ø 7,50	Ø 8,00	18,00	26,00	0,05	64,00	.HB
AM.TROCHO.10.22.10.IK.01	Ø 10,000		Ø 9,50	Ø 10,00	22,00	32,00	0,05	73,00	.HB
AM.TROCHO.12.26.12.IK.01	Ø 12,000		Ø 11,50	Ø 12,00	26,00	36,00	0,05	84,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.TROCHO.04.10.06.IK.01.HB

Available from stock

3xD INOX-Trochoid cooled





- α-INOX coated

5 PRO's of the ACTIONMILL:

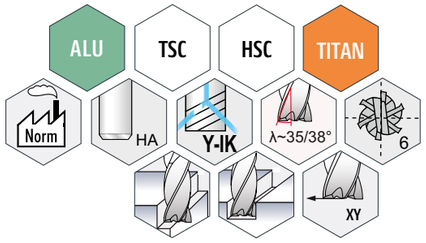
- Vibration-free machining thanks to uneven flute spacing
- Special cutting edge design for vibration damping
- Internal cooling lubricant supply, Y-discharge
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.13.06.IK.01	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.TROCHO.04.13.06.IK.01	Ø 4,000		Ø 3,50	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.TROCHO.04762.15.06.IK.01	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.TROCHO.05.15.06.IK.01	Ø 5,000		Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.TROCHO.05556.18.06.IK.01	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.TROCHO.06.18.06.IK.01	Ø 6,000		Ø 5,50	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.TROCHO.0635.20.08.IK.01	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	20,00	24,00	0,03	64,00	.HB
AM.TROCHO.08.24.08.IK.01	Ø 8,000		Ø 7,50	Ø 8,00	24,00	28,00	0,05	64,00	.HB
AM.TROCHO.10.30.10.IK.01	Ø 10,000		Ø 9,50	Ø 10,00	30,00	36,00	0,05	73,00	.HB
AM.TROCHO.12.36.12.IK.01	Ø 12,000		Ø 11,50	Ø 12,00	36,00	40,00	0,05	84,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.TROCHO.04.13.06.IK.01.HB

Available from stock

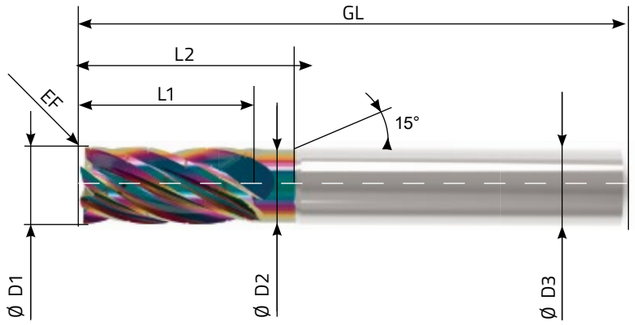
2xD Alu-Trochoid cooled



ACTIONMILL D1: 4,0 mm L1: 10,0 mm

AM.TROCHO.04.10.06.IK.02 ← Coating

Product name D3: 6,0 mm Internal cooling



- β-TITAN coated

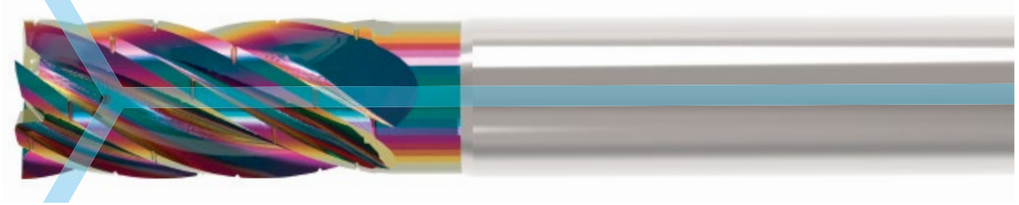
5 PRO's of the ACTIONMILL:

- Vibration-free machining thanks to uneven flute spacing
- Special cutting edge design for vibration damping
- Internal cooling lubricant supply, Y-exit
- Chip breaker geometry for reliable roughing of pockets and contours
- Protected and sharp mill corner

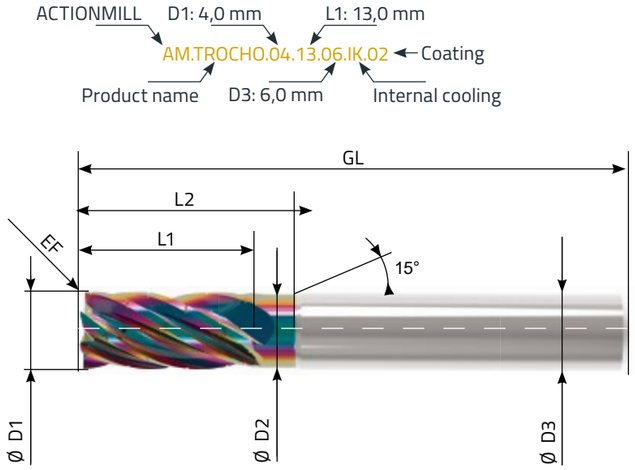
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.10.06.IK.02	Ø 3,968	5/32	Ø 3,40	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.TROCHO.04.10.06.IK.02	Ø 4,000		Ø 3,50	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.TROCHO.04762.14.06.IK.02	Ø 4,762	3/16	Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.TROCHO.05.14.06.IK.02	Ø 5,000		Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.TROCHO.05556.14.06.IK.02	Ø 5,556	7/32	Ø 5,00	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.TROCHO.06.14.06.IK.02	Ø 6,000		Ø 5,50	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.TROCHO.0635.14.08.IK.02	Ø 6,350	1/4	Ø 5,80	Ø 8,00	14,00	22,00	0,03	64,00	.HB
AM.TROCHO.08.18.08.IK.02	Ø 8,000		Ø 7,50	Ø 8,00	18,00	26,00	0,05	64,00	.HB
AM.TROCHO.10.22.10.IK.02	Ø 10,000		Ø 9,50	Ø 10,00	22,00	32,00	0,05	73,00	.HB
AM.TROCHO.12.26.12.IK.02	Ø 12,000		Ø 11,50	Ø 12,00	26,00	36,00	0,05	84,00	.HB

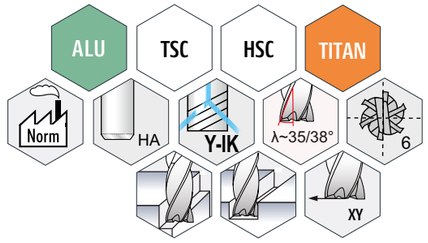
- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.TROCHO.04.10.06.IK.02.HB

Available from stock



3xD Alu-Trochoid cooled





- β-TITAN coated

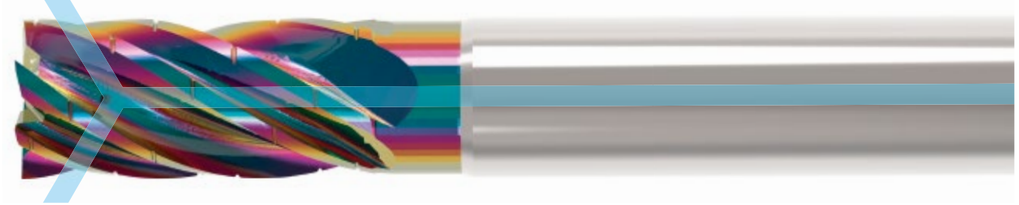
5 PRO’s of the ACTIONMILL:

- Vibration-free machining thanks to uneven flute spacing
- Special cutting edge design for vibration damping
- Internal cooling lubricant supply, Y-discharge
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

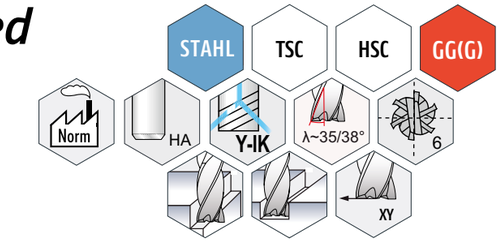
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.13.06.IK.02	Ø 3,968	5/32	Ø 3,40	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.TROCHO.04.13.06.IK.02	Ø 4,000		Ø 3,50	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.TROCHO.04762.15.06.IK.02	Ø 4,762	3/16	Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.TROCHO.05.15.06.IK.02	Ø 5,000		Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.TROCHO.05556.18.06.IK.02	Ø 5,556	7/32	Ø 5,00	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.TROCHO.06.18.06.IK.02	Ø 6,000		Ø 5,50	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.TROCHO.0635.20.08.IK.02	Ø 6,350	1/4	Ø 5,80	Ø 8,00	20,00	24,00	0,03	64,00	.HB
AM.TROCHO.08.24.08.IK.02	Ø 8,000		Ø 7,50	Ø 10,00	24,00	28,00	0,05	64,00	.HB
AM.TROCHO.10.30.10.IK.02	Ø 10,000		Ø 9,50	Ø 12,00	30,00	36,00	0,05	73,00	.HB
AM.TROCHO.12.36.12.IK.02	Ø 12,000		Ø 11,50	Ø 14,00	36,00	40,00	0,05	84,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.TROCHO.04.13.06.IK.02.HB

Available from stock



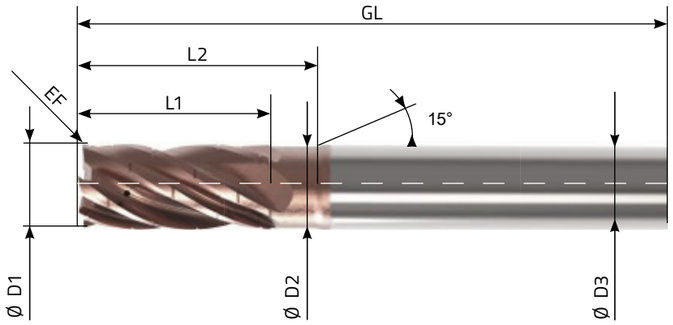
2xD Steel-Trochoid cooled



ACTIONMILL D1: 4,0 mm L1: 10,0 mm

AM.TROCHO.04.10.06.IK.03 ← Coating

Product name D3: 6,0 mm Internal Cooling



- α-INOX coated

5 PRO's of the ACTIONMILL:

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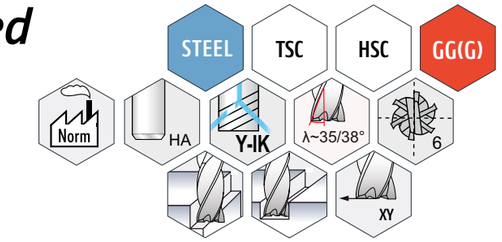
- Internal cooling lubricant supply, Y-discharge
- Chip breaker geometry for reliable roughing of pockets and contours
- Protected and sharp mill corner

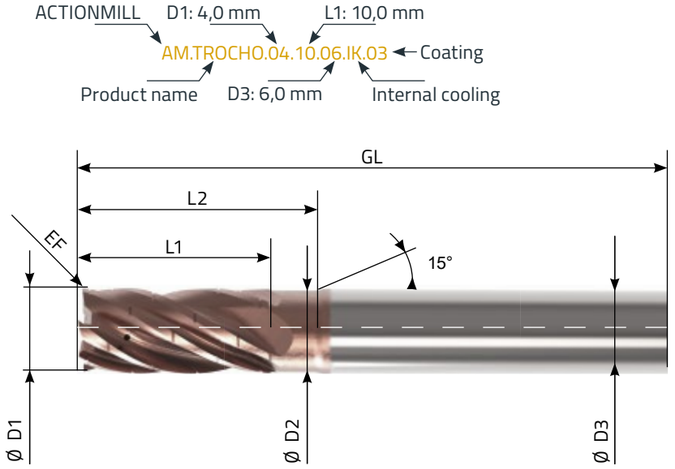
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.10.06.IK.03	Ø 3,968	5/32	Ø 3,40	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.TROCHO.04.10.06.IK.03	Ø 4,000		Ø 3,50	Ø 6,00	10,00	18,00	0,03	58,00	.HB
AM.TROCHO.04762.14.06.IK.03	Ø 4,762	3/16	Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.TROCHO.05.14.06.IK.03	Ø 5,000		Ø 4,20	Ø 6,00	14,00	20,00	0,03	58,00	.HB
AM.TROCHO.05556.14.06.IK.03	Ø 5,556	7/32	Ø 5,00	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.TROCHO.06.14.06.IK.03	Ø 6,000		Ø 5,50	Ø 6,00	14,00	22,00	0,03	58,00	.HB
AM.TROCHO.0635.14.08.IK.03	Ø 6,350	1/4	Ø 5,80	Ø 8,00	14,00	22,00	0,03	64,00	.HB
AM.TROCHO.08.18.08.IK.03	Ø 8,000		Ø 7,50	Ø 8,00	18,00	26,00	0,05	64,00	.HB
AM.TROCHO.10.22.10.IK.03	Ø 10,000		Ø 9,50	Ø 10,00	22,00	32,00	0,05	73,00	.HB
AM.TROCHO.12.26.12.IK.03	Ø 12,000		Ø 11,50	Ø 12,00	26,00	36,00	0,05	84,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.TROCHO.04.10.06.IK.03.HB

Available from stock

3xD Steel-Trochoid cooled





- α-INOX coated

5 PRO’s of the ACTIONMILL:

- Vibration-free machining thanks to uneven flute spacing
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- Internal cooling lubricant supply, Y-discharge
- Chip breaker geometry for reliable roughing of pockets and contours
- Protected and sharp mill corner

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.13.06.IK.03	Ø 3,968	5/32	Ø 3,40	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.TROCHO.04.13.06.IK.03	Ø 4,000		Ø 3,50	Ø 6,00	13,00	18,00	0,03	58,00	.HB
AM.TROCHO.04762.15.06.IK.03	Ø 4,762	3/16	Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.TROCHO.05.15.06.IK.03	Ø 5,000		Ø 4,20	Ø 6,00	15,00	20,00	0,03	58,00	.HB
AM.TROCHO.05556.18.06.IK.03	Ø 5,556	7/32	Ø 5,00	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.TROCHO.06.18.06.IK.03	Ø 6,000		Ø 5,50	Ø 6,00	18,00	22,00	0,03	58,00	.HB
AM.TROCHO.0635.20.08.IK.03	Ø 6,350	1/4	Ø 5,80	Ø 8,00	20,00	24,00	0,03	64,00	.HB
AM.TROCHO.08.24.08.IK.03	Ø 8,000		Ø 7,50	Ø 10,00	24,00	28,00	0,05	64,00	.HB
AM.TROCHO.10.30.10.IK.03	Ø 10,000		Ø 9,50	Ø 12,00	30,00	36,00	0,05	73,00	.HB
AM.TROCHO.12.36.12.IK.03	Ø 12,000		Ø 11,50	Ø 14,00	36,00	40,00	0,05	84,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.TROCHO.04.13.06.IK.03.HB

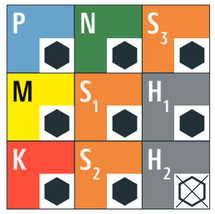
Available from stock

Cutting data - ACTIONMILL Trochoid cooled

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec

INOX-Trochoid cooled
ALU-Trochoid cooled
Steel-Trochoid cooled



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation ⬢ very well suited ⬡ Conditionally suited ⊠ Not recommended

ap=L1	ae=0,06xD1	ap=L1	ae=0,06xD1	ap=L1	ae=0,06xD1	ap=L1	ae=0,06xD1	ap=L1	ae=0,06xD1
Ø 4 mm		Ø 6 mm		Ø 8 mm		Ø 10 mm		Ø 12 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	vc [m/min]	vc [m/min]	fz [mm]
100-200	0,02 - 0,035	100-200	0,03 - 0,045	100-200	0,05 - 0,065	100-200	0,06 - 0,075	100-200	0,07 - 0,085
100-200	0,02 - 0,03	100-200	0,03 - 0,04	100-200	0,05 - 0,055	100-200	0,06 - 0,065	100-200	0,07 - 0,075
80-110	0,02 - 0,03	80-110	0,035 - 0,045	80-110	0,045 - 0,055	80-110	0,055 - 0,065	80-110	0,065 - 0,075
70-100	0,015 - 0,025	70-100	0,035 - 0,045	70-100	0,045 - 0,055	70-100	0,055 - 0,065	70-100	0,065 - 0,075
80-170	0,02 - 0,04	80-170	0,04 - 0,055	80-170	0,05 - 0,065	80-170	0,06 - 0,065	80-170	0,065 - 0,085
80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06	80-160	0,055 - 0,06	80-160	0,065 - 0,075
100-200	0,02 - 0,045	100-200	0,035 - 0,06	100-200	0,055 - 0,06	100-200	0,055 - 0,06	100-200	0,065 - 0,08
80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06	80-120	0,055 - 0,06	80-120	0,065 - 0,085
50 - 80	0,02 - 0,03	50 - 80	0,03 - 0,04	50 - 80	0,03 - 0,05	50 - 80	0,04 - 0,06	50 - 80	0,05 - 0,07
40-70	0,02 - 0,03	40-70	0,03 - 0,04	40-70	0,03 - 0,05	40-70	0,04 - 0,06	40-70	0,05 - 0,07
25-40	0,02 - 0,03	25-40	0,03 - 0,04	25-40	0,03 - 0,05	25-40	0,04 - 0,06	25-40	0,05 - 0,07
No data entered									
No data entered									

INOX-TrochoidXL

Protected and sharp mill corner

From Ø 4 to Ø 12 with 6 flute, vibration-free machining thanks to unequal spacing

Chip breaker for reliable roughing of pockets and contours

The high-performance α-INOX coating guarantees a long service life and prevents the cutting edge from sticking

Surface-treated cutting edge geometry

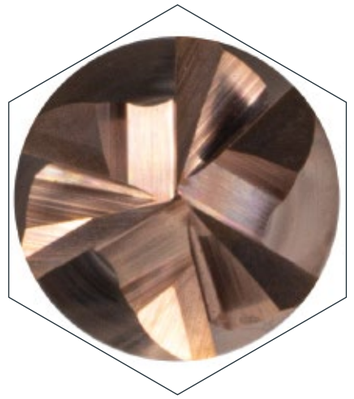
Solid carbide - thermal shock-resistant in ultra-fine grain with high fracture toughness

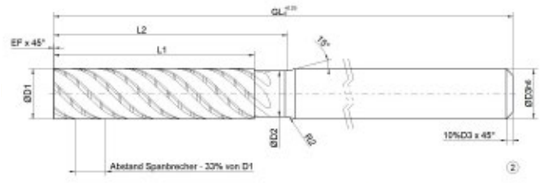
Alu-TrochoidXL

Protected and sharp mill corner

Chip breaker for reliable roughing of pockets and contours

Surface-treated cutting edge geometry



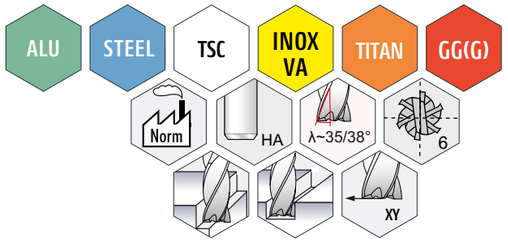


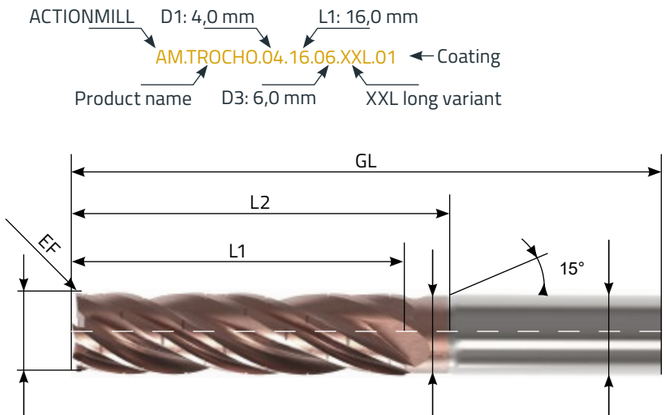
☐ **Order** **Order number:** _____ ☐ **Inquiry**

Dimensions: D_1: _____ GL: _____ EF: _____ (Corner chamfer) D_2: _____ L_1: _____ Z: _____ (Amount of flutes) D_3: _____ L_2: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

4xD INOX-TrochoidXL





- α-INOX coated

5 PRO’s of the ACTIONMILL:

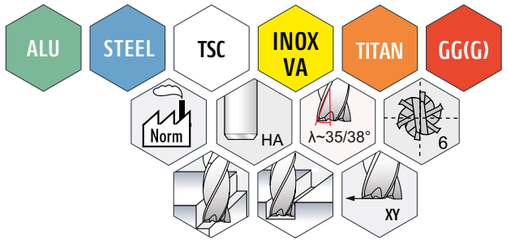
- Vibration-free machining thanks to uneven flute spacing and unequal helix angles
- Special cutting edge design for vibration damping
- High-performance tool for trochoidal machining with 4xD cutting edge length
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

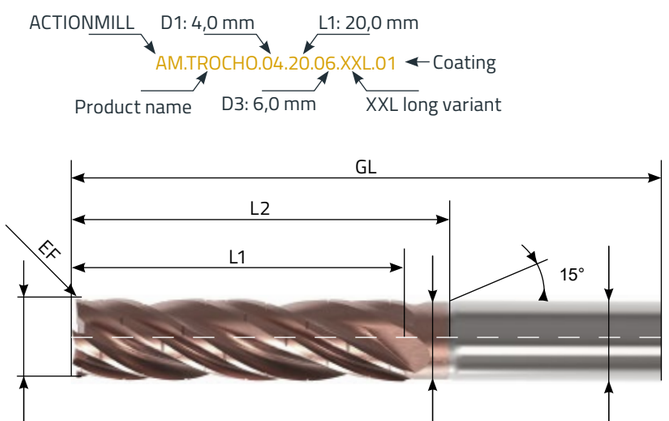
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.16.06.XL.01	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.TROCHO.04.16.06.XL.01	Ø 4,000		Ø 3,50	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.TROCHO.04762.20.06.XL.01	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.TROCHO.05.20.06.XL.01	Ø 5,000		Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.TROCHO.05556.22.06.XL.01	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	22,00	25,00	0,03	83,00	.HB
AM.TROCHO.06.24.06.XL.01	Ø 6,000		Ø 5,50	Ø 6,00	24,00	28,00	0,03	83,00	.HB
AM.TROCHO.0635.25.08.XL.01	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	25,00	28,00	0,03	83,00	.HB
AM.TROCHO.08.32.08.XL.01	Ø 8,000		Ø 7,50	Ø 8,00	32,00	36,00	0,05	83,00	.HB
AM.TROCHO.10.40.10.XL.01	Ø 10,000		Ø 9,50	Ø 10,00	40,00	44,00	0,05	101,00	.HB
AM.TROCHO.12.48.12.XL.01	Ø 12,000		Ø 11,50	Ø 12,00	48,00	52,00	0,05	110,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.TROCHO.04.16.06.XL.01.HB

Available from stock

5xD INOX-TrochoidXXL





- α-INOX coated

5 PRO’s of the ACTIONMILL:

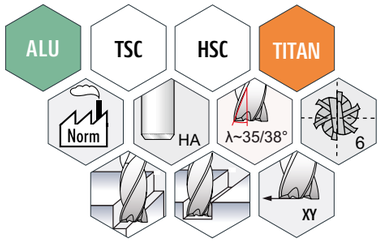
- Vibration-free machining thanks to uneven flute spacing and unequal helix angles
- Special cutting edge design for vibration damping
- High-performance tool for trochoidal machining with 5xD cutting edge length
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

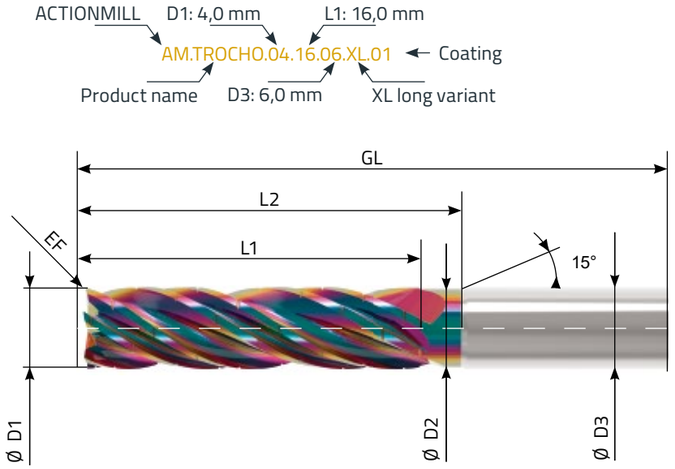
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.20.06.XXL.01	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.TROCHO.04.20.06.XXL.01	Ø 4,000		Ø 3,50	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.TROCHO.04762.25.06.XXL.01	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.TROCHO.05.25.06.XXL.01	Ø 5,000		Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.TROCHO.05556.30.06.XXL.01	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.TROCHO.06.30.06.XXL.01	Ø 6,000		Ø 5,50	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.TROCHO.0635.32.08.XXL.01	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	32,00	36,00	0,03	83,00	.HB
AM.TROCHO.08.40.08.XXL.01	Ø 8,000		Ø 7,50	Ø 8,00	40,00	44,00	0,05	83,00	.HB
AM.TROCHO.10.50.10.XXL.01	Ø 10,000		Ø 9,50	Ø 10,00	50,00	54,00	0,05	101,00	.HB
AM.TROCHO.12.60.12.XXL.01	Ø 12,000		Ø 11,50	Ø 12,00	60,00	64,00	0,05	110,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB“ to the arctivel number, for example AM.TROCHO.04.20.06.XXL.01.HB

Available from stock

4xD Alu-TrochoidXL





- β-TITAN coated

5 PRO's of the ACTIONMILL:

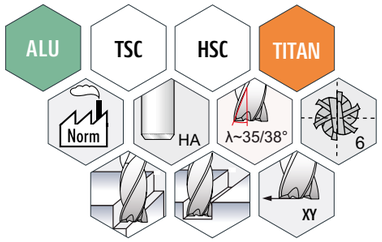
- Vibration-free machining thanks to uneven flute spacing and unequal helix angles
- Special cutting edge design for vibration damping
- High-performance tool for trochoidal machining with 4xD cutting edge length
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp cutter corner

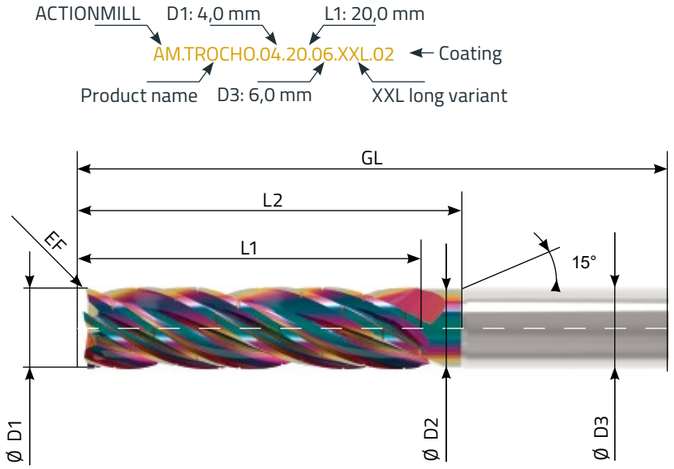
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.16.06.XL.02	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.TROCHO.04.16.06.XL.02	Ø 4,000		Ø 3,50	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.TROCHO.04762.20.06.XL.02	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.TROCHO.05.20.06.XL.02	Ø 5,000		Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.TROCHO.05556.22.06.XL.02	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	22,00	25,00	0,03	83,00	.HB
AM.TROCHO.06.24.06.XL.02	Ø 6,000		Ø 5,50	Ø 6,00	24,00	28,00	0,03	83,00	.HB
AM.TROCHO.0635.25.08.XL.02	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	25,00	28,00	0,03	80,00	.HB
AM.TROCHO.08.32.08.XL.02	Ø 8,000		Ø 7,50	Ø 8,00	32,00	36,00	0,05	80,00	.HB
AM.TROCHO.10.40.10.XL.02	Ø 10,000		Ø 9,50	Ø 10,00	40,00	44,00	0,05	100,00	.HB
AM.TROCHO.12.48.12.XL.02	Ø 12,000		Ø 11,50	Ø 12,00	48,00	52,00	0,05	101,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.TROCHO.04.16.06.XL.02.HB

Available from stock

5xD Alu-TrochoidXXL





- β-TITAN coated

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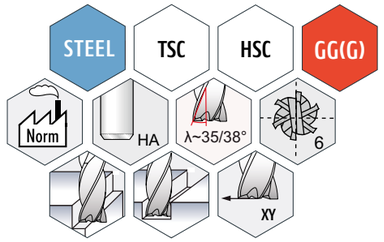
- Special cutting edge design for vibration damping
- High-performance tool for trochoidal machining with 5xD cutting edge length
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

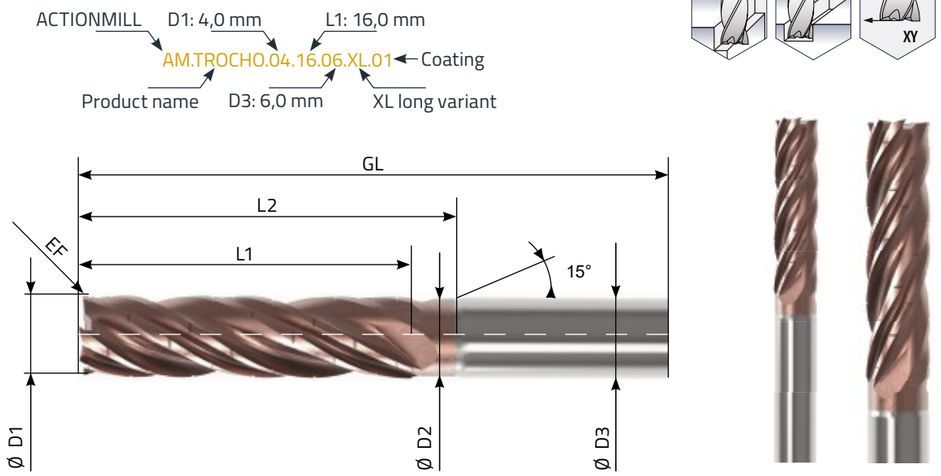
Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.20.06.XXL.02	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.TROCHO.04.20.06.XXL.02	Ø 4,000		Ø 3,50	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.TROCHO.04762.25.06.XXL.02	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.TROCHO.05.25.06.XXL.02	Ø 5,000		Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.TROCHO.05556.30.06.XXL.02	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.TROCHO.06.30.06.XXL.02	Ø 6,000		Ø 5,50	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.TROCHO.0635.32.08.XXL.02	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	32,00	36,00	0,03	83,00	.HB
AM.TROCHO.08.40.08.XXL.02	Ø 8,000		Ø 7,50	Ø 8,00	40,00	44,00	0,05	83,00	.HB
AM.TROCHO.10.50.10.XXL.02	Ø 10,000		Ø 9,50	Ø 10,00	50,00	54,00	0,05	101,00	.HB
AM.TROCHO.12.60.12.XXL.02	Ø 12,000		Ø 11,50	Ø 12,00	60,00	64,00	0,05	110,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.TROCHO.04.20.06.XXL.02.HB

Available from stock

4xD Steel-TrochoidXL





- α-INOX coated

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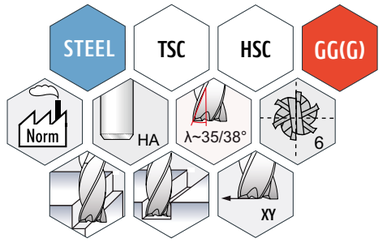
- Protected and sharp mill corner

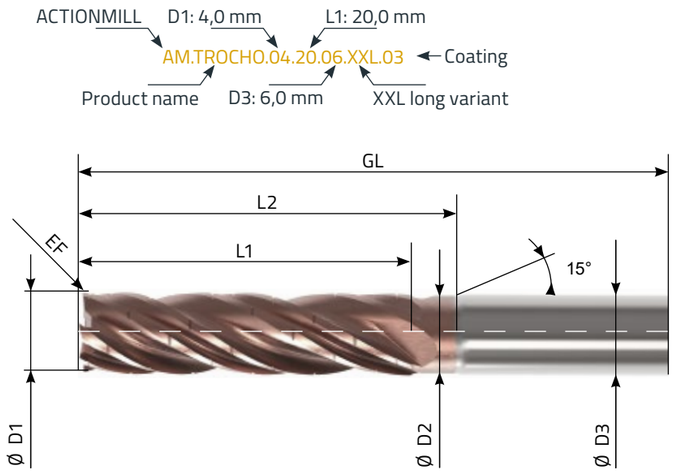
Article Number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.16.06.XL.03	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.TROCHO.04.16.06.XL.03	Ø 4,000		Ø 3,50	Ø 6,00	16,00	20,00	0,03	83,00	.HB
AM.TROCHO.04762.20.06.XL.03	Ø 4,762	3/16"	Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.TROCHO.05.20.06.XL.03	Ø 5,000		Ø 4,20	Ø 6,00	20,00	25,00	0,03	83,00	.HB
AM.TROCHO.05556.22.06.XL.03	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	22,00	25,00	0,03	83,00	.HB
AM.TROCHO.06.24.06.XL.03	Ø 6,000		Ø 5,50	Ø 6,00	24,00	28,00	0,03	83,00	.HB
AM.TROCHO.0635.25.08.XL.03	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	25,00	28,00	0,03	80,00	.HB
AM.TROCHO.08.32.08.XL.03	Ø 8,000		Ø 7,50	Ø 8,00	32,00	36,00	0,05	80,00	.HB
AM.TROCHO.10.40.10.XL.03	Ø 10,000		Ø 9,50	Ø 10,00	40,00	44,00	0,05	100,00	.HB
AM.TROCHO.12.48.12.XL.03	Ø 12,000		Ø 11,50	Ø 12,00	48,00	52,00	0,05	101,00	.HB

- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.TROCHO.04.16.06.XL.03.HB

Available from stock

5xD Steel-TrochoidXXL





- α-INOX coated

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- High-performance tool for trochoidal machining with 5xD cutting edge length
- Chip breaker geometry for process-reliable roughing of pockets and contours
- Protected and sharp mill corner

Article number	D1 (mm)	D1 (inch)	D2 (mm)	D3 h6 (mm)	L1 (mm)	L2 (mm)	EF (mm) sharp	GL (mm)	HB-Shank
AM.TROCHO.03968.20.06.XXL.03	Ø 3,968	5/32"	Ø 3,40	Ø 6,00	20,00	24,00	0,03	83,00	.HB
AM.TROCHO.04.20.06.XXL.03	Ø 4,000		Ø 3,50	Ø 6,00	20,00	24,00	0,03	83,00	.HB
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AM.TROCHO.05.25.06.XXL.03	Ø 5,000		Ø 4,20	Ø 6,00	25,00	29,00	0,03	83,00	.HB
AM.TROCHO.05556.30.06.XXL.03	Ø 5,556	7/32"	Ø 5,00	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.TROCHO.06.30.06.XXL.03	Ø 6,000		Ø 5,50	Ø 6,00	30,00	34,00	0,03	83,00	.HB
AM.TROCHO.0635.32.08.XXL.03	Ø 6,350	1/4"	Ø 5,80	Ø 8,00	32,00	36,00	0,03	83,00	.HB
AM.TROCHO.08.40.08.XXL.03	Ø 8,000		Ø 7,50	Ø 8,00	40,00	44,00	0,05	83,00	.HB
AM.TROCHO.10.50.10.XXL.03	Ø 10,000		Ø 9,50	Ø 10,00	50,00	54,00	0,05	101,00	.HB
AM.TROCHO.12.60.12.XXL.03	Ø 12,000		Ø 11,50	Ø 12,00	60,00	64,00	0,05	110,00	.HB

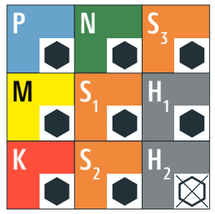
- For a mill with HB-Shank (DIN 6535HB) add „.HB" to the arctivel number, for example AM.TROCHO.04.20.06.XXL.03.HB

Available from stock

HB microtec ACTIONTOOLS & ENGINEERING

ACTIONMILL® by HB microtec

INOX-TrochoidXL
ALU-Trochoid XL
Steel-Trochoid XL



Material group	Material group	Material no.	DIN	AISI/ASTM/UNS
P	Steels up to RM < 1200N/mm²	1.0044	S275JR	AISI 1020
		1.0715	11SMn30	AISI 1215
		1.7131	16MnCr5	AISI 5115
		1.3505	100Cr6	AISI 52100
		1.7225	42CrMo4	AISI 4140
M	Stainless steels ferritic, martensitic, austenitic	1.4034	X46Cr13	AISI 420C
		1.4542	X5CrNiCuNb 16-4	AISI 630 / ASTM 17-4 PH
		1.4545	X5CrNiCuNb 15-5	ASTM 15-5 PH
		1.4301	X5CrNi 18-10	AISI 304
		1.4435	X2CrNiMo 18-14-3	AISI 316L
K	Cast iron	0.6020	GG20	ASTM 30
		0.6030	GG30	ASTM 40B
		0.7040	GGG40	ASTM 60-40-18
		0.7060	GGG60	ASTM 80-60-03
N	Non-ferrous metals	3.2315	AlMgSi1	ASTM 6351
		2.0065	Cu-ETP / CW004A	UNS C11000
		2.0321	CuZn37 CW508L	UNS C27400
		2.0401	CuZn39Pb3 / CW614N	UNS C38500
		2.0966	CuAl10Ni5Fe4	UNS C63000
S (S1, S2, S3)	Heat-resistant steels, Titanium, CrCo	2.4617	NiMo28	Hastelloy B-2
		2.4665	NiCr22Fe18Mo	Hastelloy X
		3.7165	TiAl6V4	ASTM B348 / F136
		9.9367	TiAl6Nb7	ASTM F1295
		2.4964	CoCr20W15Ni	Haynes 25
			CrCoMo28	ASTM F1537
H	Hardened steels up to ≥ 55 HRC	1.2510	100MnCrMoW4	AISI O1
		1.2379	X153CrMoV12	AISI D2

Application recommendation ⬢ very well suited ⬡ Conditionally suited ⊠ Not recommended

ap=L1	ae=0,05xD1	ap=L1	ae=0,05xD1	ap=L1	ae=0,05xD1	ap=L1	ae=0,05xD1	ap=L1	ae=0,05xD1
Ø 4 mm		Ø 6 mm		Ø 8 mm		Ø 10 mm		Ø 12 mm	
vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	fz [mm]	vc [m/min]	vc [m/min]	vc [m/min]	fz [mm]
100-200	0,02 - 0,035	100-200	0,03 - 0,045	100-200	0,05 - 0,065	100-200	0,06 - 0,075	100-200	0,07 - 0,085
100-200	0,02 - 0,03	100-200	0,03 - 0,04	100-200	0,05 - 0,055	100-200	0,06 - 0,065	100-200	0,07 - 0,075
80-110	0,02 - 0,03	80-110	0,035 - 0,045	80-110	0,045 - 0,055	80-110	0,055 - 0,065	80-110	0,065 - 0,075
70-100	0,015 - 0,025	70-100	0,035 - 0,045	70-100	0,045 - 0,055	70-100	0,055 - 0,065	70-100	0,065 - 0,075
80-170	0,02 - 0,04	80-170	0,04 - 0,055	80-170	0,05 - 0,065	80-170	0,06 - 0,065	80-170	0,065 - 0,085
80-160	0,02 - 0,04	80-160	0,035 - 0,06	80-160	0,055 - 0,06	80-160	0,055 - 0,06	80-160	0,065 - 0,075
100-200	0,02 - 0,045	100-200	0,035 - 0,06	100-200	0,055 - 0,06	100-200	0,055 - 0,06	100-200	0,065 - 0,08
80-120	0,02 - 0,045	80-120	0,035 - 0,06	80-120	0,055 - 0,06	80-120	0,055 - 0,06	80-120	0,065 - 0,085
50 - 80	0,02 - 0,03	50 - 80	0,03 - 0,04	50 - 80	0,03 - 0,05	50 - 80	0,04 - 0,06	50 - 80	0,05 - 0,07
40-70	0,02 - 0,03	40-70	0,03 - 0,04	40-70	0,03 - 0,05	40-70	0,04 - 0,06	40-70	0,05 - 0,07
25-40	0,02 - 0,03	25-40	0,03 - 0,04	25-40	0,03 - 0,05	25-40	0,04 - 0,06	25-40	0,05 - 0,07
No data entered									
No data entered									

List of formula

Description	Formula	Legend
Rotational speed	$n = \frac{Vc * 1000}{D * \pi}$ [1/min]	D =Mill diameter Dc=Cutting diameter ae=Radial cutting width ap=Axial cutting depth fz=Flute feed z =Number of teeth n =Rotations per min. De=Effective cutting diameter Vc=Cutting speed Q=Cutting volume l=Working length Vf=Feed speed hm=Mean chip thickness kr=Adjustment angle Pa=Cutting speed kc= Specific cutting force ηmt= Efficiency Tc= Machining time
Cutting speed	$Vc = \frac{D * \pi * n}{1000}$ [m/min]	
Feed per flute	$f_z = \frac{f}{z} = \frac{V_f}{z * n}$ [mm/U]	
Feed per rotation	$f = f_z * n$ [mm/U]	
Feed rate	$V_f = f_z * z * n$ [mm/min]	
Chip removal rate	$Q = \frac{a_p * a_e * V_f}{1000}$ $\left[\frac{cm^3}{min}\right]$	
Median chip thickness (face & corner milling) *if $a_e / D_c \leq 0{,}1$*	$h_m = f_z \sqrt{\frac{a_e}{D_c}}$ = mm	
Drive power	≤ $Pa = \frac{a_p * a_e * V_f * k_c}{60 * 10^6 * \eta_{mt}}$ = KW	
Median chip thickness *if $a_e / D_c \leq 0{,}1$*	$h_m = \frac{\sin k_r * 180 * a_e * f_z}{\pi * D_c * arcsin\left(\frac{a_e}{D_c}\right)}$ = mm	
Processing time	$T_c = \frac{l}{V_f} = min$	
Conversions between systems	1 [mm]= .0394 [inch]	1 [m/min]= 3.28 [SFM] 1 [bar]= 14.5[psi]

Hardness comparison table

HB Microtec® ACTIONTOOLS & ENGINEERING

Rm [N/mm²]	HV 10	HB	HRC	Rm [N/mm²]	HV 10	HB	HRC
240	75	71	-	920	287	273	28
255	80	76	-	940	293	278	29
270	85	81	-	970	302	287	30
285	90	86	-	995	310	295	31
305	95	90	-	1020	317	301	32
320	100	95	-	1050	327	311	33
335	105	100	-	1080	336	319	34
350	110	105	-	1110	345	328	35
370	115	109	-	1140	355	337	36
385	120	114	-	1170	364	346	37
400	125	119	-	1200	373	354	38
415	130	124	-	1230	382	363	39
430	135	128	-	1260	392	372	40
450	140	133	-	1300	403	383	41
465	145	138	-	1330	413	393	42
480	150	143	-	1360	423	402	43
495	155	147	-	1400	434	413	44
510	160	152	-	1440	446	424	45
530	165	157	-	1480	458	435	46
545	170	162	-	1530	473	449	47
560	175	166	-	1570	484	460	48
575	180	171	-	1620	497	472	49
595	185	176	-	1680	514	488	50
610	190	181	-	1730	527	501	51
625	195	185	-	1790	544	517	52
640	200	190	-	1845	560	532	53
660	205	195	-	1910	578	549	54
675	210	199	-	1980	596	567	55
690	215	204	-	2050	615	584	56
705	220	209	-	2140	639	607	57
720	225	214	-	-	655	622	58
740	230	219	-	-	675	-	59
755	235	223	-	-	698	-	60
770	240	228	-	-	720	-	61
785	245	233	-	-	745	-	62
800	250	238	22	-	773	-	63
820	255	242	23	-	800	-	64
835	260	247	24	-	829	-	65
860	268	255	25	-	864	-	66
870	272	258	26	-	900	-	67
900	280	266	27	-	940	-	68

Special tools

Special tools

In addition to standard products, we work with our customers to realize special tool solutions for demanding processes and machining tasks.

Our customers benefit from our many years of experience in machining and the lean structures of a medium-sized company. We are extremely flexible and can produce and deliver even individually developed tools within a very short time. Of course, we also optimize special tools that are already in use on a customer-specific basis.

Other benefits include shorter machining and throughput times, greater flexibility and reduced costs. Special tools help to produce complex geometries in just one machining step and optimize the accuracy of the component. With such tool concepts, we make a decisive contribution to our customers producing more economically and competitively. After all, it is not the cost of a tool but the cost per component that determines the total cost.

Our ability to develop trend-setting innovations is based on our competent and motivated specialists. They are each responsible for developing a product and a machining process that leads to success. Our experts are very familiar with all conceivable machining technology processes. In cooperation with research and thinktanks such as the Competence Center for Machining Production (KSF) in Tuttlingen, we are continuously developing our know-how. In cooperation with leading machine tool manufacturers, our specialists develop solutions for day-to-day production practice. We also continuously invest in state-of-the-art production technologies in order to manufacture future-oriented tools of the highest quality.

Manufacturing companies in numerous industries benefit from our high-performance tools, including Automotive engineering, the watch and jewelry industry, aerospace, medical and dental technology, mechanical and apparatus engineering, tool and mould making, transport and conveyor technology, electrics and electronics, writing instruments, the food industry, petrochemicals, fittings, hydraulics and pneumatics, household appliances.

Contract manufacturing

Contract manufacturing medical technology

As a specialist for cutting tools, we grind all types of cutting edges on instruments according to individual specifications as a contract manufacturer for medical technology. Our customers supply the hardened blanks and we grind them according to customer drawings and specifications.

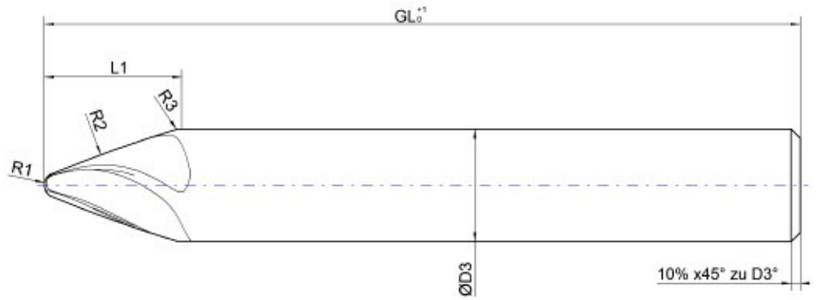
Typical tools that we grind

- Twist drills from Ø 1 mm to Ø 15 mm
- Cervical spine drills from Ø 0.6 mm
- Medullary drills and medullary cutters
- Trephine drills and trephine cutters
- Saw blades for e.g. knee saw blades and hip saw blades or saw blades for veterinary medicine Knee saw blades and hip saw blades or saw blades for veterinary medicine
- Acetabular reamers
- Punch serrations
- Taps and thread cutters
- Oval and round burr shavers
- Reamers for tibial surgery and endoscopic applications
- Rasps for the metacarpal area
- (Bi-)cortical screws

Please contact us directly at our tool grinding shop:

Tel. +49 (0) 7461 1657280
Fax +49 (0) 7461 1657281
kontakt@hb-microtec.de

Curved segment mill



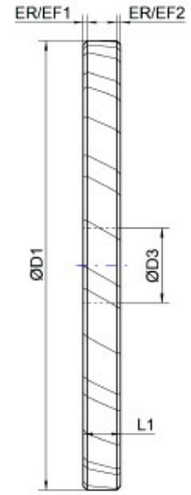
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: R_1: _____ GL: _____ Z: _____ (Amount of flutes) R_2: _____ L_1: _____ R_3: _____ D_3:	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Disc mill



☐ **Inquiry**

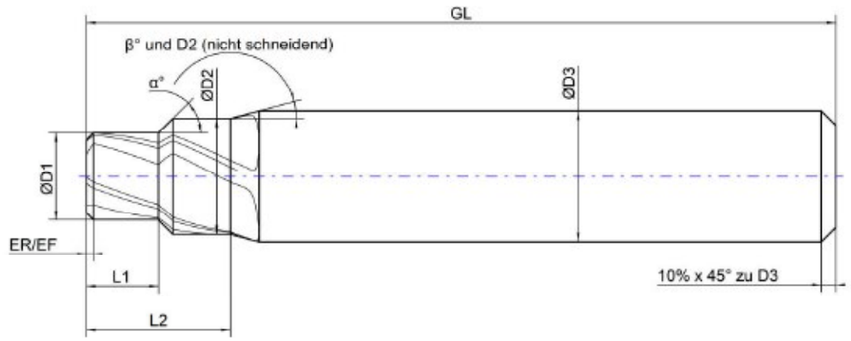
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ L: _____ Z: _____ (Amount of flutes) D_3: _____ ER/EF_1: _____ (Corner radius / chamfer) ER/EF_2: _____ (Corner radius / chamfer)	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Shaping mill

Shaping mill combination tool: milling + chamfering



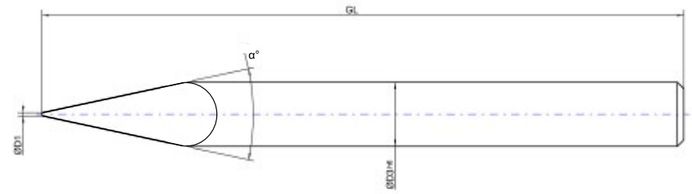
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ α: _____ D_2: _____ L_1: _____ β: _____ D_3: _____ L_2: _____ Z: _____ ER/EF: _____ (Corner radius / chamfer)	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Engraving mill



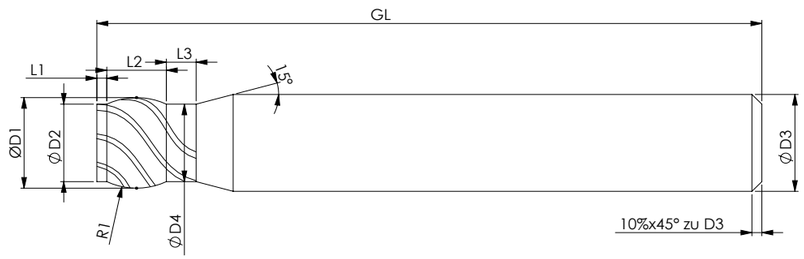
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ α: _____ D_3: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Convex semicircular mill



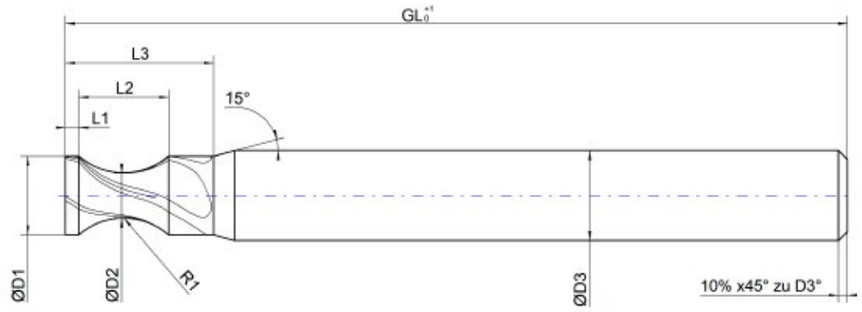
☐ **Inquiry**

☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ R_1: _____ D_2: _____ L_1: _____ Z: _____ (Amount of flutes) D_3: _____ L_2: _____ L_3: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Concave semicircular mill



☐ **Inquiry**

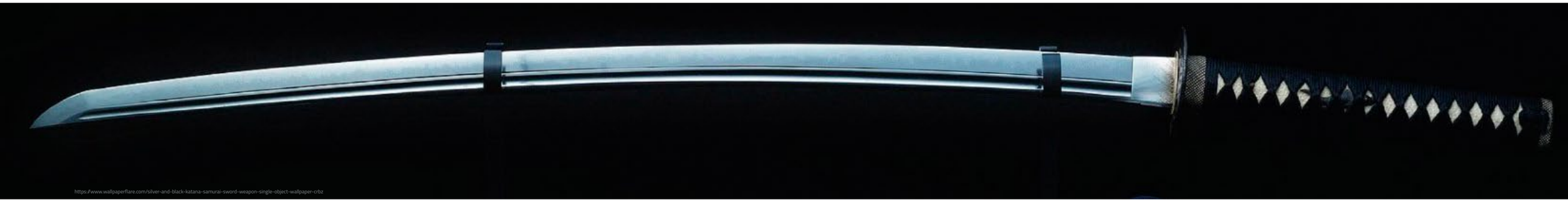
☐ **Order** **Order number:** _____ **Other:** _____

Dimensions: D_1: _____ GL: _____ R_1: _____ D_2: _____ L_1: _____ Z: _____ (Amount of flutes) D_3: _____ L_2: _____ L_3: _____	**Coating:** ☐ Coated*: _____ ☐ Uncoated	**Cooling channels:** ☐ No ☐ Yes **Cutting direction:** ☐ Right ☐ Left
Material to be machined:	**Shank shape:**	**Quantity:**
Date, signature & company stamp:		**Contact person:**

* Without further information, the most suitable coating will be used.

Regrinding service

Your used precision tool is in the best hands with us.



https://www.wallpaperflare.com/silver-and-black-katana-samurai-sword-weapon-single-object-wallpaper-crbz

High-quality tools such as mills, countersinks, centering drills and reamers only perform their service perfectly if the cutting edges are always optimally sharpened. Where re-sharpening is possible, the price drops significantly the second and third time the cutting tools are used. No new raw material is required, only the cutting edges are resharpened and refined. With the regrinding service from HB microtec, we ensure that the economic efficiency is realized through the reconditioning of worn tool cutting edges to a high quality.

HB microtec expertise at a glance:

- Tool reconditioning to perfection
- Competent customer support and advice
- Everything from a single source, grinding, edge treatment and coating
- Original regrinding with the original geometry and coating of our own products
- Highest quality 99% of original HB microtec or partner tools
- Test report service for special tools Testing for regrindability
- Short delivery time
- Best price guarantee - transparent pricing

Advantages that are sure to convince you!

We carry out precise regrinding on state-of-the-art CNC grinding machines. We increase the service life of our tools by using a specially developed cutting edge preparation process. All our standardized and special tools are reconditioned using the same machines, the same processes and the same coatings. We can offer this service for all our own and related (e.g. our partner manufacturers) cutting tools.

Our customers receive a transport-safe plastic box for shipping the regrinding tools, where you can collect the used tools. You can then conveniently send us your tools for resharpening, or we can arrange for them to be collected.

Would you like to find out more about our resharpening service for your tools?

Our experts will be happy to advise you.

You can reach us at

+49 7461 1657280

or write to us at

kontakt@hb-microtec.de

NEW SHARPNESS IN 4 STEPS

CONTACT

Contact us if you have tools for regrinding.

RECEIVING BOX

You will receive your personal regrinding box from us for transportation.

PACKAGING TOOLS

Pack the tools properly and send them to us.

TRANSPORT

We will regrind your tools and send them back to you.

ACTIONMILL regrinding

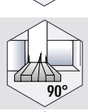
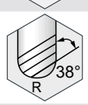
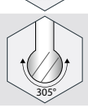
99% like new!

List of icons

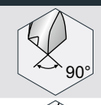
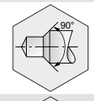
Number	Icon	Description
1	STEEL	Material: Steel
2	TITAN	Material: Titanium
3	INOX VA	Material: INOX
4	GG(G)	Material: Cast iron
5	PLASTIC	Material: Plastic
6	NE	Non-ferrous metal
7	CoCr S_3	CrCo Alloy
8	INCONEL	S1 Heatresistant Steels
9	HSC	High Speed Cutting
10	HPC	High Performance Cutting
11	TSC	Trochoidal Speed Cutting
12	Norm	Works standard HB microtec
13	HA	Shank design HA
14	IK	With integrated cooling
15	o.IK	Without integrated cooling

Number	Icon	Description
16	Y-IK	With integrated Y-cooling
17	IK	With spiralized internal cooling
18	o.IK	Without integrated cooling
19	xy	Cutting direction xy
20	xyz	Cutting direction xyz
21	XY	Cutting direction xy
22		Lateral Milling
23		Slot Milling
24		Radius Milling
25		Cutting edges
26		Cutting edges
27	2	2 Flutes
28	3	3 Flutes
29	4	4 Flutes

List of icons

Number	Icon	Description
30		Flutes
31		3-6 Flutes
32		Forwards and Backwards chamfering
33		Backwards chamfering
34		Backwards chamfering 90°
35		Corner Radius
36		Spiral Angle 15°
37		Spiral Angle 30°
38		Spiral Angle 33°
39		Spiral Angle 38
40		Spiral Angle 42°
41		260° Flute Circulation
42		305° Flute Circuation

List of icons

Number	Icon	Description
43		90° Point angle
44		130° Point angle
45		140° Point angle
46		170° Point angle
47		180° Point angle
48		Cornerchamfer
49		Variable Spiral 35°- 38°
50		Stepped tool 90°
51		Spiral 15°

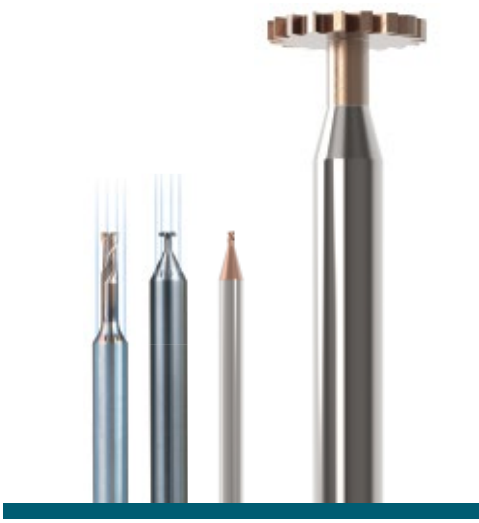
You set the challenge - we deliver the solution.

HB microtec transforms demanding requirements into competitive advantages.

Contact us at +49 7461 1657280 or
and write to us at kontakt@hb-microtec.de

ACTION TOOLS®
by HB microtec

TARGET TOOLS®
by HB microtec



HBMicrotec®
ACTIONTOOLS & ENGINEERING

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