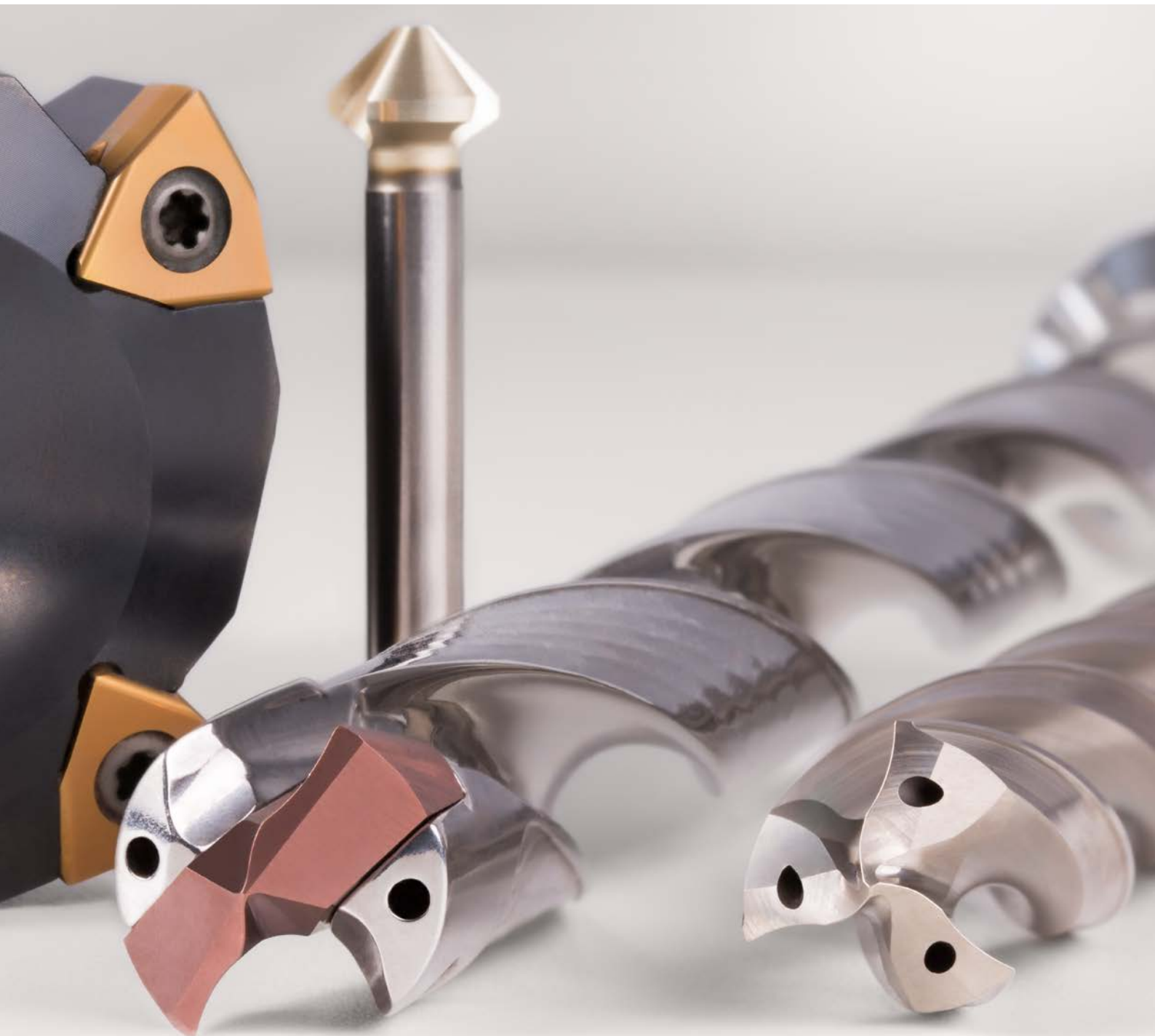




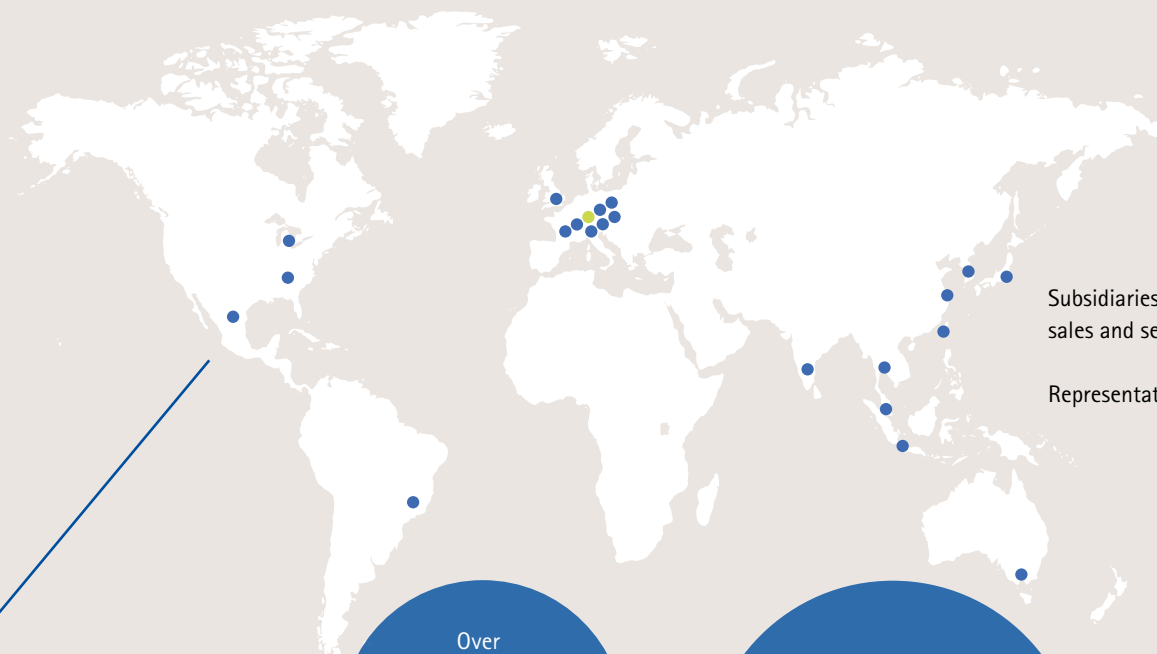
Your technology partner for cost-effective machining

DRILLING | BORING | COUNTERSINKING



When there's something more between you and us:
That's the MAPAL effect.





Subsidiaries with production, sales and service in 21 countries

Representatives in 25 countries

Over
4,800
staff worldwide

No. 1
technology leader for
the machining of cubic parts

Tool and process solutions combined with comprehensive services

We see ourselves as a technology partner, supporting you with the development of efficient and resource-saving manufacturing processes using standard tools, individual tool concepts and the optimisation of tool details. Our tools satisfy all the requirements on process reliability, precision and simple handling. How? Using advanced development and design methods as well as production using the latest manufacturing facilities.

You do not just need the optimal tool for your task, you are also looking for a partner who takes over the entire planning and management of your process? We are also there for you in this situation. We support you during all production phases and keep your manufacturing at the top level: highly productive, cost-effective and reliable. We also offer you complete networked solutions for all peripheral tasks related to the actual machining process.



Reaming and fine boring



Drilling from the solid, boring and countersinking



Milling



Turning



Actuating



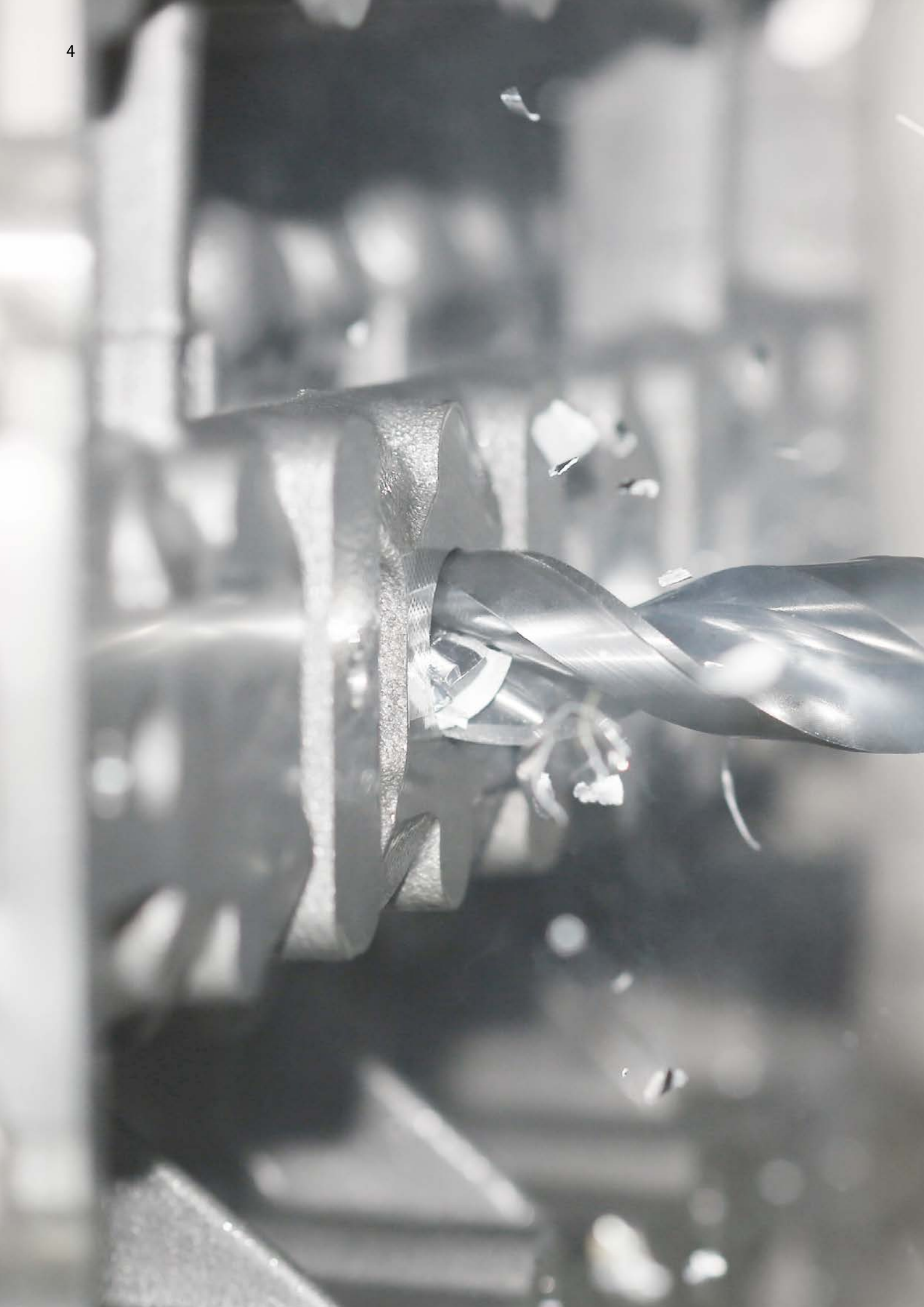
Clamping



Setting, measuring and dispensing



Services



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03 Boring

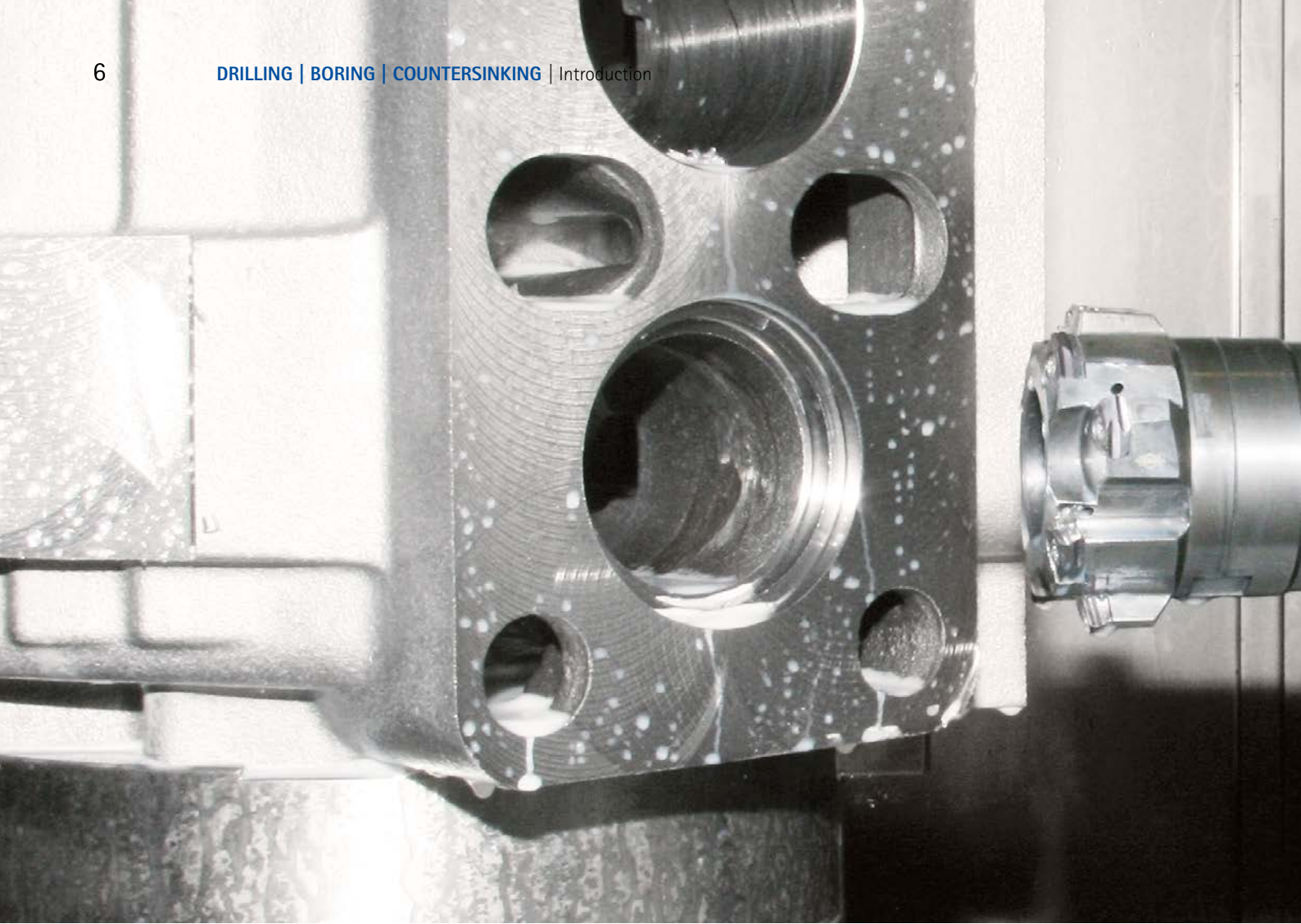
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DRILLING, BORING AND COUNTERSINKING COMPETENCE

The optimal tool for every application

Starting from the focus on the manufacture of custom tools for customer-specific machining solutions, MAPAL has developed a comprehensive standard programme for drilling, boring and countersinking.

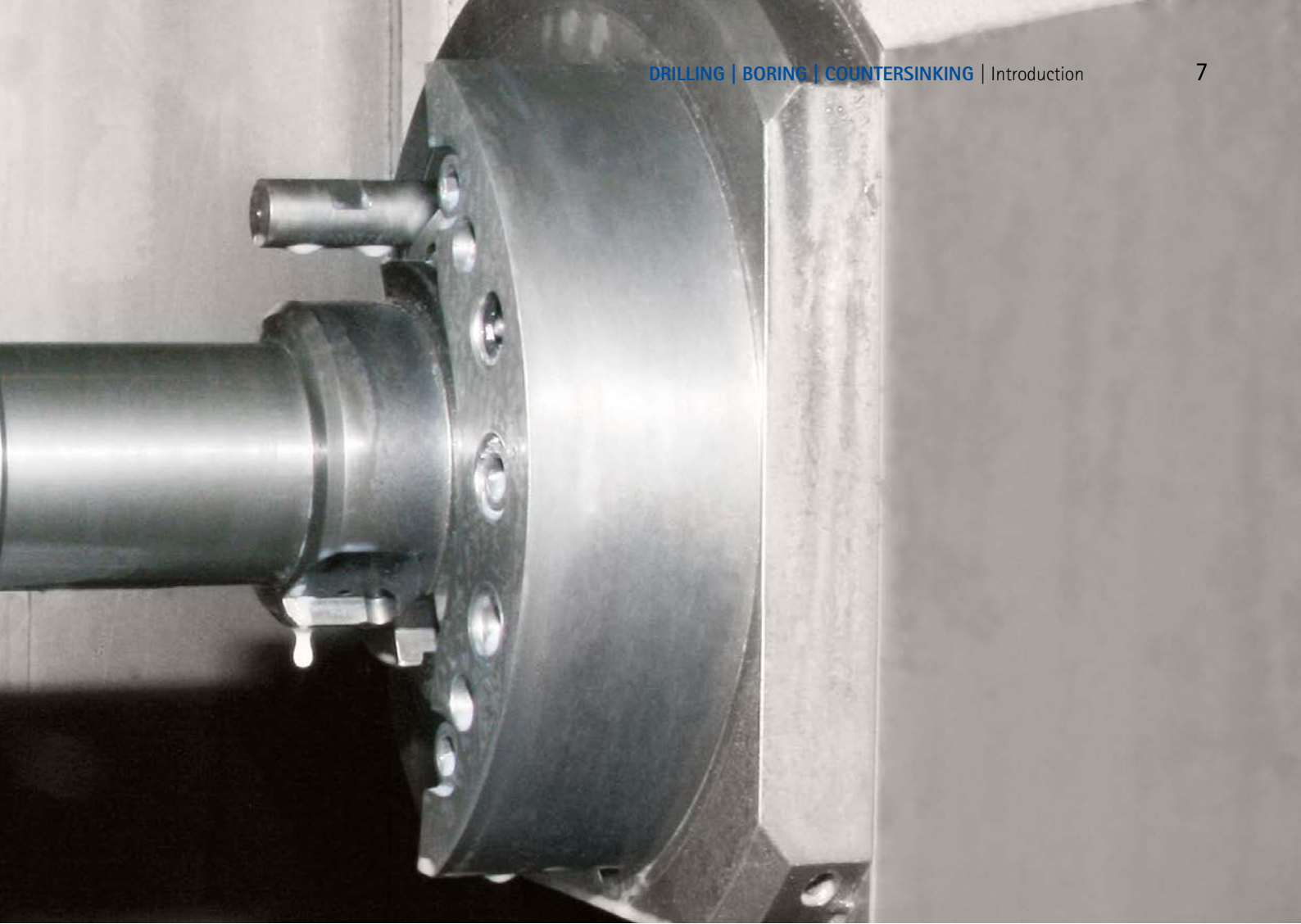
In the area of drilling using solid carbide tools, MAPAL is one of the world's largest providers. The programme of solid carbide drills covers solutions for the reliable and cost-effective machining of almost every workpiece material and is completed by modern replaceable head systems for the highest cost-effectiveness.

Tools with ISO indexable inserts are taking a leading role in the area of boring. Building on its know-how related to fine machining, MAPAL has developed a comprehensive standard programme for this machining.

PCD drills can be optimally matched to the process for customer-specific solutions. Twisted designs ensure the highest performance and extremely reduced machining times.

MAPAL also offers the optimal solution for secondary machining operations such as countersinking – whether using the tool specifically designed for this machining or in combination with the drilling tool as a countersink step.

Standardised processes and numerous MAPAL Group sites worldwide ensure optimum tool supply and re-grinding for solid carbide and PCD tools with the same high quality.



Drilling

As a technology partner, MAPAL offers a comprehensive standard programme of solid carbide drills and as a replaceable head system for all machining operations. Irrespective of which workpiece materials, whether non-ferrous metals, steels, modern lightweight materials or difficult to machine materials, MAPAL offers the right drill.



Boring

MAPAL offers tangential tools TSW, ModulBore and customer-specific PCD tools for boring. For tools with ISO indexable inserts, MAPAL offers a completely new, cost-effective programme of indexable inserts available ex-stock for the optimal machining solution.



Countersinking

Every machining process has latent potential for boosting productivity. Also supposedly secondary machining operations such as countersinking offer significant potential for improvement, as is demonstrated by MAPAL with the extremely unequal spaced countersinks. These operate with significantly reduced axial and radial forces and achieve better surfaces and longer tool lives, and also ensure optimal screw and rivet joints.

INNOVATIONS | HIGHLIGHTS

Tritan-Drill

With three cutting edges, operation in demanding drilling situations with up to twice the feed

► [more from page 146](#)



The triple edge drill Tritan-Drill achieves more bores, a longer tool life and lower machining costs compared to its double edge equivalent. The Tritan-Drill makes it possible to machine with a significantly higher feed rate. In both standard and special designs, it combines process reliability and high performance. It is a universal drill for a wide range of materials and provides rounder bores and reduced burr formation. These results are achieved thanks in

part to the innovative geometry that gives rise to optimum chip removal and a low cutting pressure. The Tritan-Drill is also convincing for long-chipping workpiece materials due to its special chip formation.

AT A GLANCE

- Innovative lead geometry for very good chip removal and low cutting pressure
- Ideal for through-drilling or on entry into cross bores
- Ideal for inclined bore entrances
- High feed despite demanding drilling situation



Twisted drills with PCD

The high-performance variant in the drilling area

► [more from page 262](#)

Twisted PCD drills have crucial advantages over their straight-fluted equivalents. In particular, they make possible extremely short machining times and very high machining quality. With the twisted PCD drills, previously complex drilling and boring processes can be undertaken in one machining step. Due to the twisted carbide guiding chamfers, the tools achieve a higher contact ratio and as a consequence significantly better guiding

behaviour in the bore. They tend less to rising vibration, as a consequence better bore qualities and surface finishes are achieved. The chip flutes are highly polished, such that the friction produced by the chips is reduced and as a consequence the amount of heat introduced to the part is also reduced. Highly positive rake angles reduce the cutting forces required.

AT A GLANCE

- Precisely embedded PCD segments that are matched exactly to the related step geometry
- Highly polished chip flutes
- Drilling depths up to 7xD
- Laser machined chip guiding stages, chip breakers and chip formers

CVD coating for boring all cast materials

Extremely resistant also at very high loads

► more from page 362



MAPAL has developed a CVD-coated series of cutting materials that are specially matched to all cast materials – GJL, GJV and GJS. The new cutting materials HC720, HC725, HC730 and HC735 differ in the carbide substrate used. All four impress due to the extremely heat-resistant α -aluminium oxide coating with very good coating adhesion. Indexable inserts with the new α -aluminium oxide coating offer the potential for a significant

increase in the cutting speed during boring, even during dry machining. A cutting speed of 250 m/min can be used for machining without difficulties. In this way significantly increased productivity is achieved with long tool life.

AT A GLANCE

- Series of cutting materials for boring cast materials
- Extremely wear-resistant
- Dry machining with a cutting speed of 250 m/min possible
- Three times the tool life

Countersink programme

Unequally spaced countersinks made of HSS or solid carbide with high-performance coating

► more from page 436



For optimal countersinking results, the cutting edges on the countersinks are unevenly spaced. With this spacing, the axial force is reduced by more than 50 % compared with conventional countersinks. The forces acting perpendicularly to the tool axis and vibration are also reduced, as a result higher accuracies and better surface finishes are achieved. The precision of the countersink leads to improved contact of bolted and riveted

joints, eliminating settling of the joint under load after assembly. The reduced load on the machine extends the life of the tools. Due to the smooth, stable running, the tools can be operated with higher cutting data, resulting in considerable time savings. The counterboring tools are available as HSS and solid carbide variants with high-performance coating.

AT A GLANCE

- High accuracy
- Better surface finish
- Less vibration at the tool
- 50% reduced axial forces compared with conventional countersinks
- No settling with bolted and riveted joints

DRILLING USING SOLID CARBIDE AND REPLACEABLE HEAD DRILLS

Optimal drills for almost all applications and workpiece materials







COMPETENCE IN DRILLING FROM SOLID USING SOLID CARBIDE, PCD AND REPLACEABLE HEAD SYSTEMS

Complete – available – powerful

For drilling MAPAL offers a comprehensive standard programme of solid carbide drills and replaceable head drills for almost all machining operations. The programme includes universal drills as well as tools for machining cast iron, non-ferrous metals, steels, lightweight or difficult to machine materials. Solutions for high-speed and high-feed machining with three cutting edges form part of the range.

MAPAL offers specially designed PCD-tipped drills for specific customer requirements. The solid carbide and replaceable head drills can also be individually customised. The worldwide re-grinding service to original quality guarantees the highest cost-effectiveness for all tools.

ADVANTAGES

- High availability from stock
- Intermediate sizes and special solutions available at short notice
- For all materials
- Imperial dimensions from stock
- Worldwide re-grinding service
- The latest production technologies
- Also for minimum quantity lubrication



Competence in drilling from solid using solid carbide, PCD and replaceable head systems



Drilling from solid using solid carbide

MAPAL offers a suitable solid carbide drill for practically all workpiece materials. The programme ranges from double edge and tripled edge drills, deep hole drills and drilling-reaming combinations. The drills are available as a universal design for a broad selection of workpiece materials and as specialists for the related workpiece materials in three different performance classes.



Replaceable head drills

The MAPAL replaceable head drills impress due to good positioning accuracy as well as the best circularity and diameter tolerances. In addition, the connections guarantee not only high torque transmission and precision, they also permit optimal cooling of the cutting edges and therefore long tool lives. Simple, quick handling in combination with very good bore quality make them the cost-effective alternative to the solid carbide drill.




Custom solutions

Along with application-specific custom solutions in the area of solid carbide drills, for machining aluminium and increasingly also CFRP workpiece materials MAPAL offers PCD-tipped drills optimally matched to the machining for drilling from solid. The portfolio ranges from the simple straight-fluted PCD-tipped drill to the twisted PCD-tipped step drills. With a manufacturing capacity of 120,000 PCD tools, MAPAL has a world-leading competence centre for PCD tools in Pforzheim.

SELECTION OF A DRILL

Step-by-step to the right drill

The selection aid will lead you step-by-step to the right drill.




Drilling


1

Design Select your preferred design.

>



Monolithic




Connection QTS

2

Product class Decide for a product class.

>




Basic Line:
Universal tools, broad application area, low procurement costs


3

Material suitability Identify your workpiece material as per the MMG (MAPAL machining group).

>



Steel




Stainless steel


4.1

Part characteristics Check the requirements that are placed on your tool by the characteristics of the bore.

>



Maximum drilling depth



Drilling into the solid

4.2

Tool features Check whether the geometric features meet your requirements. Select internal cooling and drilling depth.

>

Diameter range

Number of cutting edges

5

Product Select your drill.

>

Specification





Connection
TTS



Performance Line:
High-performance tools, broad application area,
high productivity in series production manufacturing



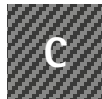
Expert Line:
Specialist tools for selected applications,
maximum precision and productivity



Cast iron



Non-ferrous metals
and plastics



Composite
materials



Super alloys
and titanium



Hardened steel
and cast steel



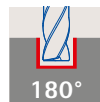
Interrupted
cut



Inclined
bore entrances



Inclined
bore exit



Flat 180° bottom
of the bore



Achievable bore
tolerance

Tip angle



Internal
coolant supply



External
coolant supply

Bohrungstoleranz				Ausführung				Produkt		
IT7	IT8	IT9	IT10	z	Spitzenwinkel			Produktname	Spezifikation	Seite
				2	190°		✓	MEGA-Drill-Composite-UDX	SCD27	127
		✓		2	180°	✓		MEGA-180°-Drill	SCD23	178
		✓		2	180°	✓		MEGA-180°-Drill-Alu	SCD24	184
✓				4.2	140°	✓	✓	MEGA-Drill-Reamer	SCD20	170
		✓		2	135°	✓		MEGA-Speed-Drill-Steel	SCD22	194
		✓		2	135°	✓		MEGA-Speed-Drill-Inox	SCD41	203

Step 1:
Design



Step 2:
Produktklasse



Step 3:
Materialeignung



Step 4:
Bauteilmerkmale



Step 5:
Werkzeugmerk.





Solid carbide drilling | Selection system (1/2)

Design	Product class	Material suitability																	Bore characteristic											
		P		M		K			N				C					S		H		Ø	Bore characteristic icons							
		1-6	1-3	1	2	3	1	2	3	4	1	2	3	4	5	1-5	1	2	MAX.	180°										
	Basic LINE	■	■		■															1.00 - 20.00	6xD	✓								
		■	■		■	■	■														1.00 - 20.00	12xD	✓							
		■	■		■	■		■	■												3.00 - 20.00	12xD	✓							
		■	■																		0.50 - 6.30									

Design	Product class	Material suitability																	Bore characteristic											
		P		M		K			N				C					S		H		Ø	Bore characteristic icons							
		1-6	1-3	1	2	3	1	2	3	4	1	2	3	4	5	1-5	1	2	MAX.	180°										
	Performance LINE	■	■	■	■	■														3.00 - 25.00	8xD	✓								
		■	■	■	■	■															2.50 - 14.00		✓							
		■	■	■	■	■															2.80 - 20.00	8xD	✓							
		■	■	■	■	■															2.80 - 19.05	12xD	✓							
		■	■	■	■	■															3.00 - 12.00	5xD	✓	✓			✓			
		■	■	■	■	■															2.55 - 16.00	4xD	✓							
		■	■	■	■	■															1.00 - 2.90	12xD	✓							
		★	■	■	■	■															3.00 - 16.00	40xD	✓					✓		
		■	■	■	■	■															3.00 - 16.00	40xD	✓					✓		
		★	■	■	■	■															5.00 - 20.00	8xD	✓	✓	✓	✓	✓	✓		
		■	■	■	■	■															3.00 - 20.00	12xD	✓	✓			✓			
		■	■	■	■	■															0.50 - 2.90	5xD	✓							
		■	■	■	■	■															2.50 - 12.00	5xD	✓							

★ 1st choice ■ highly suitable ■ suitable in some situations

Step 1:
Design



Step 2:
Product class



Step 3:
Material suitability



Step 4:
Part characteristics



Step 5:
Tool features



	Bore tolerance				Design				Product		
	IT7	IT8	IT9	IT10	z	Tip angle			Product name	Specification	Page
			✓		2	140 °	✓	✓	ECU-Drill-Uni	SCD35	30
			✓		2	135° / 140°	✓	✓	ECU-Drill-Steel	SCD36	41
			✓		2	130 °	✓		ECU-G-Drill	SCD21	58
					2	120 ° / 60 °		✓	ECU-Centre-Drill	SCD45	67
			✓		2	140 ° / 135 °	✓	✓	MEGA-Drill-Steel-Plus	SCD60	72
			✓		2	140 °	✓	✓	MEGA-Step-Drill-Steel	SCD11	91
			✓		2	140 °	✓	✓	MEGA-Drill-Inox	SCD12	93
			✓		2	140 °	✓	✓	MEGA-Drill-Alu	SCD13	108
			✓		2	140 °	✓		MEGA-Drill-Inco	SCD29	119
			✓		2	140 °		✓	MEGA-Drill-Hardened	SCD14	120
			✓		2	140 °	✓		MEGA-SMART-Drill	SCD15	130
			✓		2	130 ° / 135 °	✓		MEGA-Deep-Drill	SCD17	133
			✓		2	130 ° / 135 °	✓		MEGA-Deep-Drill-Alu	SCD18	138
			✓		3	135° / 140°	✓		Tritan-Drill-Uni	SCD44	148
		✓			2	140 °	✓	✓	MEGA-Quadro-Drill	SCD16	156
			✓		2	90 °	✓		MEGA-Drill-Composite-MD-Micro	SCD40	123
			✓		2	90 °		✓	MEGA-Drill-Composite-MD	SCD25	124



Solid carbide drilling | Selection system (2/2)

Design	Product class	Material suitability																Bore characteristic																
		P			M			K			N				C						S		H		Ø	MAX.	180°							
		1-6	1-3	1-3	1	2	3	4	1.2	1.3	2.1	4.1	4.2	4.3	4.4	1-5	1	2																
	Expert LINE																★	★	★							3.00 - 12.00	5xD	✓						
		★	■	■																							3.00 - 20.00	5xD	✓		✓	✓	✓	
					★	★																					3.00 - 20.00	5xD	✓		✓	✓	✓	
		■		★	■	■																					5.97 - 12.72	5xD	✓					
		★		■																							3.00 - 20.00	8xD	✓				✓	
		■	★																								3.00 - 20.00	5xD	✓				✓	
				★																							3.00 - 20.00	5xD	✓				✓	
																											3.00 - 12.00	5xD	✓				✓	
																											0.97 - 13.03	5xD	✓					
	Performance LINE	★		■																					8.00 - 50.00	12xD	✓							
		■	★	■		■																				8.00 - 50.00	12xD	✓						
					★	★																				8.00 - 50.00	12xD	✓						
				★																						8.00 - 50.00	12xD	✓						
	Performance LINE	■		■																					12.00 - 45.00	12xD	✓							
		■	★	■		■																				12.00 - 45.00	12xD	✓						
					★	★																				12.00 - 45.00	12xD	✓						
		★		■																						12.00 - 45.00	12xD	✓						
				★																						12.00 - 45.00	12xD	✓						

★ 1st choice ■ highly suitable ■ suitable in some situations

Step 1:
Design



Step 2:
Product class



Step 3:
Material suitability



Step 4:
Part characteristics



Step 5:
Tool features

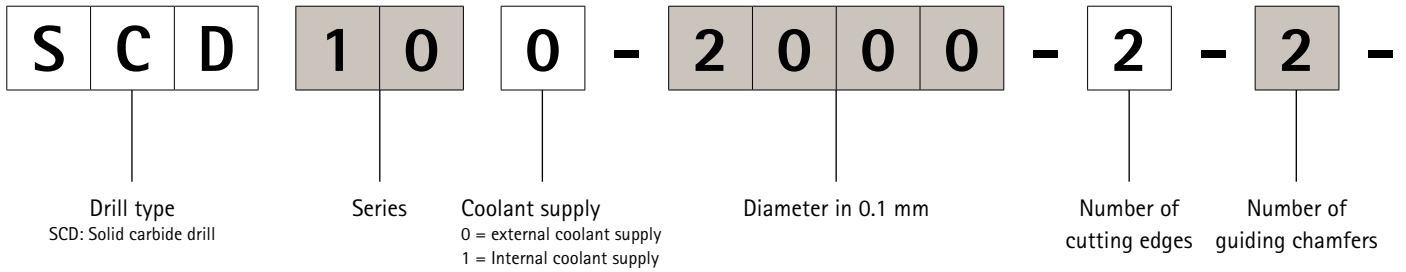


	Bore tolerance				Design				Product		
	IT7	IT8	IT9	IT10	z	Tip angle			Product name	Specification	Page
	✓				2	90 °		✓	MEGA-Drill-Composite-UDX	SCD27	127
			✓		2	180 °	✓		MEGA-180°-Drill	SCD23	178
			✓		2	180 °	✓		MEGA-180°-Drill-Alu	SCD24	184
	✓				2	140 °	✓	✓	MEGA-Drill-Reamer	SCD20	170
			✓		2	135 °	✓		MEGA-Speed-Drill-Steel	SCD22	194
			✓		2	135 °	✓		MEGA-Speed-Drill-Inox	SCD41	203
			✓		2	130 °	✓		MEGA-Speed-Drill Iron	SCD42	206
			✓		2	130 °	✓		MEGA-Speed-Drill-Titan	SCD30	209
					1	120 °		✓	Mono-Drill-Plastic	SCD57	212
				✓	2	135 °	✓		Insert Drill QTD	Type 01 - Steel	222
				✓	2	135 °	✓		Insert Drill QTD	Type 02 - Inox	224
				✓	2	135 °	✓		Insert Drill QTD	Type 03 - Alu	226
				✓	2	135 °	✓		Insert Drill QTD	Type 04 - Iron	228
			✓		2	140 °	✓		Replaceable drill head TTD	Type 01 - Uni	244
			✓		2	138 °	✓		Replaceable drill head TTD	Type 02 - Inox	246
			✓		2	140 °	✓		Replaceable drill head TTD	Type 03 - Alu	248
			✓		2	138 °	✓		Replaceable drill head TTD	Type 04 - Steel	250
			✓		2	140 °	✓		Replaceable drill head TTD	Type 05 - Iron	252

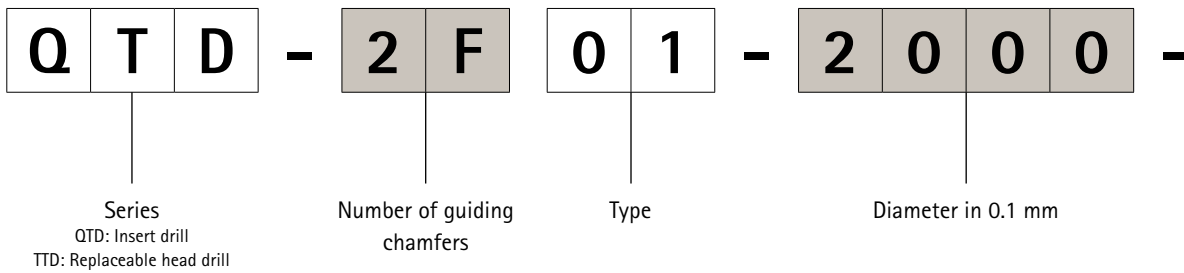
Model key

Solid carbide and replaceable head drills and holders

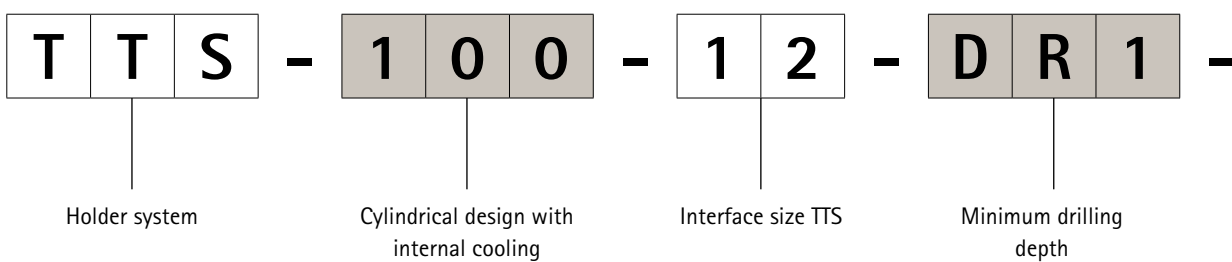
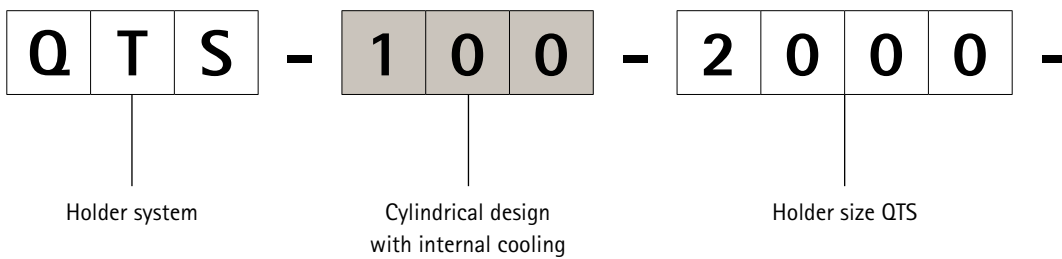
Solid carbide drill

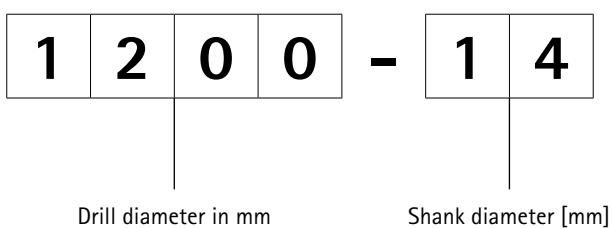
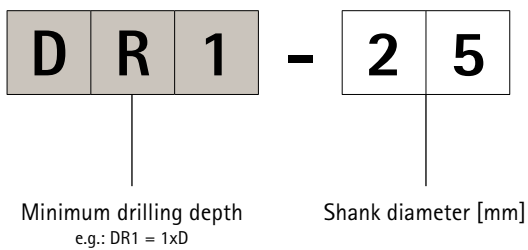
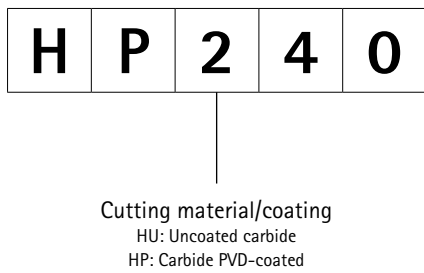
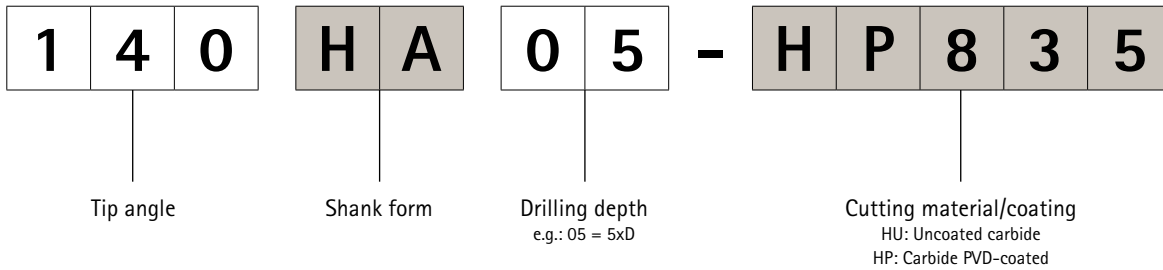


Changing systems QTD and TTD



Holder range QTS for QTD and TTS for TTD







DRILLING USING SOLID CARBIDE

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ECU-Drill

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PRODUCT OVERVIEW

The right tool for every material

MAPAL has been researching intensively into the various challenges facing drilling operations for decades and as a consequence has gained extensive experience and competence. This work has produced, among others in the competence centre in Altenstadt, innovative tools made of solid carbide for almost all workpiece materials – for cast iron, non-ferrous metals, steels and difficult to machine materials. The standard programme

of solid carbide tools includes double edge and triple edge drills of universal application, deep hole drills up to 40xD, drill reamers as well as other drilling tools for specific machining operations.

You will find tools for machining lightweight material such as CFRP or GFRP in the catalogue "Tools for modern lightweight materials".



Basic Line:
Universal tools, broad application area, low procurement costs







Performance Line:
High-performance tools, broad application area, high productivity in series production manufacturing



Expert Line:
Specialist tools for selected applications, maximum precision and productivity

Drilling using solid carbide

				
<p>ECU-Drill</p> <p>Double edge twist drills with and without internal cooling for a broad range of workpiece materials.</p> <p>Basic LINE</p> <p>Ø range: 1.00 - 20.00 mm</p> <p>Drilling depth: 3xD 4xD 5xD 6xD 12xD</p> <p>P M K N</p>	<p>MEGA-Drill</p> <p>Twist drills with two cutting edges, optimally matched to the material to be machined.</p> <p>Performance LINE</p> <p>Ø range: 1.00 - 25.00 mm</p> <p>Drilling depth: 3xD 5xD 8xD 12xD</p> <p>P M K N C S H</p>	<p>MEGA-Step-Drill-Steel</p> <p>Outstanding performance for core holes and chamfers for metric threads.</p> <p>Performance LINE</p> <p>Ø range: 2.50 - 14.00 mm</p> <p>P K</p>	<p>MEGA-Deep-Drill</p> <p>Efficient production of deep bores up to 40xD.</p> <p>Performance LINE</p> <p>Ø range: 3.00 - 16.00 mm</p> <p>Drilling depth: 15xD 20xD 25xD 30xD 40xD</p> <p>P M K N</p>	<p>Tritan-Drill-Uni</p> <p>The new standard with three cutting edges - drilling with up to twice the feed rate where other drills fail.</p> <p>Performance LINE</p> <p>Ø range: 5.00 - 20.00 mm</p> <p>Drilling depth: 5xD 8xD</p> <p>P M K N</p>
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Re-grinding

To exploit the full potential of solid carbide tools, re-grinding and re-coating to original manufacturer quality are essential. Only then is it possible to guarantee reliable, consistent machining results and machining performance of up to 100 percent compared to the new tool. For this reason MAPAL offers to recondition tools to original manufacturer quality. And that also worldwide with comprehensive service and uniform standards.

Drilling using solid carbide

				
<p>MEGA-Quadro-Drill</p> <p>Four guiding chamfers for maximum bore quality, concentricity and positioning accuracy.</p> <p>Performance LINE</p> <p>Ø range: 3.00 - 20.00 mm</p> <p>Drilling depth: 5xD 8xD 12xD</p> <p>P M K</p>	<p>MEGA-Drill-Reamer</p> <p>Two processes - drilling and reaming - combined in one tool.</p> <p>Expert LINE</p> <p>Ø range: 4.00 - 16.00 mm</p> <p>Drilling depth: 3xD 5xD</p> <p>P K N</p>	<p>MEGA-180°-Drill</p> <p>Drilling with a flat bottom of the bore and drilling on inclined surfaces.</p> <p>Expert LINE</p> <p>Ø range: 3.00 - 20.00 mm</p> <p>Drilling depth: 3xD 5xD</p> <p>P M K N</p>	<p>MEGA-Speed-Drill</p> <p>Three guiding chamfers for high performance and process reliability.</p> <p>Expert LINE</p> <p>Ø range: 3.00 - 20.00 mm</p> <p>Drilling depth: 3xD 5xD 8xD</p> <p>P M K S</p>	<p>Mono-Drill-Plastic</p> <p>Specialist with single-lip geometry for machining thermoplastics and aluminium.</p> <p>Expert LINE</p> <p>Ø range: 0.97 - 13.03 mm</p> <p>Drilling depth: 4xD</p> <p>N c</p>
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ECU-DRILL

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PRODUCT OVERVIEW

ECU-Drill: Uni, Steel, G-Drill and Centre-Drill

With the ECU-Drill series, MAPAL presents a range of drills featuring versatile use in different materials. Use of the latest production technologies makes it possible to offer an excellent, impressive and extremely economical programme selection with a good price-to-performance ratio. MAPAL relies on its proven geometries here. Combined with special cutting materials and coatings, they stand for maximum precision and process reliability.

The range is supplemented by straight-fluted drills that always have 4 guiding chamfers for support in the bore.



ECU-Drill-Uni

Due to its geometry and coating the ECU-Drill-Uni is ideally suited to universal usage. In this way steel, inox and cast iron can be drilled cost-effectively and reliably. The ECU-Drill-Uni is available as a coated variant both for internal and for external coolant supply.



Ø range: 1.00 - 20.00 mm

Drilling depth:



ECU-Drill-Steel

The ECU-Drill-Steel is optimally designed for machining steel due to the cutting edge design. The ECU-Drill-Steel is available with a coating as a variant for both internal and also external coolant supply.



Ø range: 1.00 - 20.00 mm

Drilling depth:





ECU-G-Drill

The drilling tools with straight chip flutes supplement the ECU-Drill range. The straight-fluted ECU-G-Drills have four guiding chamfers for support in the bore and are suitable for machining grey cast iron and non-ferrous metals.



Ø range: 3.00 - 20.00 mm

Drilling depth:

5xD | 8xD | 12xD



ECU-Centre-Drill

The ideal solid carbide tool for producing centring bores to DIN standards in rotationally symmetrical parts.



Ø range: 0.50 - 6.30 mm

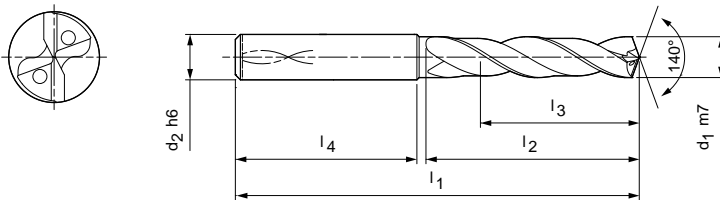


ECU-Drill-Uni

Solid carbide twist drill
SCD35 (4xD), internal coolant supply

Design:

Drill diameter: 1.00 - 20.00 mm
Bore tolerance: \geq IT 9
Coating: Special TiAlN coating
Number of cutting edges: 2
Tip angle: 140 °
Side rake angle: 30 °



Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
1,00	4	45	6	5	32	SCD351-0100-2-2-140HA04-HP765	30677924
1,10	4	45	6,5	5	31,5	SCD351-0110-2-2-140HA04-HP765	30677925
1,20	4	45	7	5	31	SCD351-0120-2-2-140HA04-HP765	30677926
1,30	4	45	8	6	30,5	SCD351-0130-2-2-140HA04-HP765	30677927
1,40	4	45	8,5	6	30	SCD351-0140-2-2-140HA04-HP765	30677928
1,50	4	50	9	7	35	SCD351-0150-2-2-140HA04-HP765	30677929
1,60	4	50	9,5	7	34,5	SCD351-0160-2-2-140HA04-HP765	30677930
1,70	4	50	10	8	34	SCD351-0170-2-2-140HA04-HP765	30677931
1,80	4	50	11	8	33,5	SCD351-0180-2-2-140HA04-HP765	30677932
1,90	4	50	11,5	9	33	SCD351-0190-2-2-140HA04-HP765	30677933
2,00	4	50	12	9	33	SCD351-0200-2-2-140HA04-HP765	30677934
2,10	4	55	12,5	9	37,5	SCD351-0210-2-2-140HA04-HP765	30677935
2,20	4	55	13	10	37	SCD351-0220-2-2-140HA04-HP765	30677936
2,30	4	55	14	10	36,5	SCD351-0230-2-2-140HA04-HP765	30677937
2,40	4	55	14,5	11	36	SCD351-0240-2-2-140HA04-HP765	30677938
2,50	4	55	15	11	35,5	SCD351-0250-2-2-140HA04-HP765	30677939
2,60	4	55	15,5	12	35,5	SCD351-0260-2-2-140HA04-HP765	30677940
2,70	4	55	16	12	35	SCD351-0270-2-2-140HA04-HP765	30677941
*2,80	4	55	17	13	34,5	SCD351-0280-2-2-140HA04-HP765	30677942
2,90	4	55	17,5	13	34	SCD351-0290-2-2-140HA04-HP765	30677943
3,00	6	62	22	16	36	SCD351-0300-2-2-140HA04-HP765	30421828
3,10	6	62	22	16	36	SCD351-0310-2-2-140HA04-HP765	30421829
3,20	6	62	22	16	36	SCD351-0320-2-2-140HA04-HP765	30421830
3,30	6	62	22	16	36	SCD351-0330-2-2-140HA04-HP765	30421831
3,40	6	62	22	16	36	SCD351-0340-2-2-140HA04-HP765	30421832
3,50	6	62	22	16	36	SCD351-0350-2-2-140HA04-HP765	30421833
3,60	6	62	22	16	36	SCD351-0360-2-2-140HA04-HP765	30421834
*3,70	6	62	22	16	36	SCD351-0370-2-2-140HA04-HP765	30421835
3,80	6	66	26	22	36	SCD351-0380-2-2-140HA04-HP765	30421836
3,90	6	66	26	22	36	SCD351-0390-2-2-140HA04-HP765	30421837
4,00	6	66	26	22	36	SCD351-0400-2-2-140HA04-HP765	30421838
4,10	6	66	26	22	36	SCD351-0410-2-2-140HA04-HP765	30421839
4,20	6	66	26	22	36	SCD351-0420-2-2-140HA04-HP765	30421840
4,30	6	66	26	22	36	SCD351-0430-2-2-140HA04-HP765	30421842
4,40	6	66	26	22	36	SCD351-0440-2-2-140HA04-HP765	30421843

ECU-Drill-Uni | Solid carbide twist drills SCD35 (4xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
4,50	6	66	26	22	36	SCD351-0450-2-2-140HA04-HP765	30421844
4,60	6	66	26	22	36	SCD351-0460-2-2-140HA04-HP765	30421845
*4,65	6	66	26	22	36	SCD351-0465-2-2-140HA04-HP765	30421846
4,70	6	66	26	22	36	SCD351-0470-2-2-140HA04-HP765	30421847
4,80	6	66	30	24	36	SCD351-0480-2-2-140HA04-HP765	30421848
4,90	6	66	30	24	36	SCD351-0490-2-2-140HA04-HP765	30421849
5,00	6	66	30	24	36	SCD351-0500-2-2-140HA04-HP765	30421850
5,10	6	66	30	24	36	SCD351-0510-2-2-140HA04-HP765	30421851
5,20	6	66	30	24	36	SCD351-0520-2-2-140HA04-HP765	30421852
5,30	6	66	30	24	36	SCD351-0530-2-2-140HA04-HP765	30421853
5,40	6	66	30	24	36	SCD351-0540-2-2-140HA04-HP765	30421854
5,50	6	66	30	24	36	SCD351-0550-2-2-140HA04-HP765	30421855
*5,55	6	66	30	24	36	SCD351-0555-2-2-140HA04-HP765	30421856
5,60	6	66	30	24	36	SCD351-0560-2-2-140HA04-HP765	30421857
5,70	6	66	30	24	36	SCD351-0570-2-2-140HA04-HP765	30421858
5,80	6	66	30	24	36	SCD351-0580-2-2-140HA04-HP765	30421859
5,90	6	66	30	24	36	SCD351-0590-2-2-140HA04-HP765	30421860
6,00	6	66	30	24	36	SCD351-0600-2-2-140HA04-HP765	30421861
6,10	8	79	38	30	36	SCD351-0610-2-2-140HA04-HP765	30421862
6,20	8	79	38	30	36	SCD351-0620-2-2-140HA04-HP765	30421863
6,30	8	79	38	30	36	SCD351-0630-2-2-140HA04-HP765	30421864
6,40	8	79	38	30	36	SCD351-0640-2-2-140HA04-HP765	30421865
6,50	8	79	38	30	36	SCD351-0650-2-2-140HA04-HP765	30421866
6,60	8	79	38	30	36	SCD351-0660-2-2-140HA04-HP765	30421867
6,70	8	79	38	30	36	SCD351-0670-2-2-140HA04-HP765	30421868
6,80	8	79	38	30	36	SCD351-0680-2-2-140HA04-HP765	30421869
6,90	8	79	38	30	36	SCD351-0690-2-2-140HA04-HP765	30421870
7,00	8	79	38	30	36	SCD351-0700-2-2-140HA04-HP765	30421871
7,10	8	79	42	34	36	SCD351-0710-2-2-140HA04-HP765	30421872
7,20	8	79	42	34	36	SCD351-0720-2-2-140HA04-HP765	30421873
7,30	8	79	42	34	36	SCD351-0730-2-2-140HA04-HP765	30421874
7,40	8	79	42	34	36	SCD351-0740-2-2-140HA04-HP765	30421875
*7,45	8	79	42	34	36	SCD351-0745-2-2-140HA04-HP765	30569196
7,50	8	79	42	34	36	SCD351-0750-2-2-140HA04-HP765	30421876
7,60	8	79	42	34	36	SCD351-0760-2-2-140HA04-HP765	30421878
7,70	8	79	42	34	36	SCD351-0770-2-2-140HA04-HP765	30421879
7,80	8	79	42	34	36	SCD351-0780-2-2-140HA04-HP765	30421880
7,90	8	79	42	34	36	SCD351-0790-2-2-140HA04-HP765	30421881
8,00	8	79	42	34	36	SCD351-0800-2-2-140HA04-HP765	30421882
8,10	10	89	49	38	40	SCD351-0810-2-2-140HA04-HP765	30421883
8,20	10	89	49	38	40	SCD351-0820-2-2-140HA04-HP765	30421884
8,30	10	89	49	38	40	SCD351-0830-2-2-140HA04-HP765	30421885
8,40	10	89	49	38	40	SCD351-0840-2-2-140HA04-HP765	30421886
8,50	10	89	49	38	40	SCD351-0850-2-2-140HA04-HP765	30421887
8,60	10	89	49	38	40	SCD351-0860-2-2-140HA04-HP765	30421888
8,70	10	89	49	38	40	SCD351-0870-2-2-140HA04-HP765	30421889
8,80	10	89	49	38	40	SCD351-0880-2-2-140HA04-HP765	30421890
8,90	10	89	49	38	40	SCD351-0890-2-2-140HA04-HP765	30421891
9,00	10	89	49	38	40	SCD351-0900-2-2-140HA04-HP765	30421892
9,10	10	89	49	38	40	SCD351-0910-2-2-140HA04-HP765	30421893
9,20	10	89	49	38	40	SCD351-0920-2-2-140HA04-HP765	30421894
*9,30	10	89	49	40	40	SCD351-0930-2-2-140HA04-HP765	30421896
9,40	10	89	49	40	40	SCD351-0940-2-2-140HA04-HP765	30421897
9,50	10	89	49	40	40	SCD351-0950-2-2-140HA04-HP765	30421898
9,60	10	89	49	40	40	SCD351-0960-2-2-140HA04-HP765	30421899

Continued on next page.

ECU-Drill-Uni | Solid carbide twist drills SCD35 (4xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
9,70	10	89	49	40	40	SCD351-0970-2-2-140HA04-HP765	30421900
9,80	10	89	49	40	40	SCD351-0980-2-2-140HA04-HP765	30421901
9,90	10	89	49	40	40	SCD351-0990-2-2-140HA04-HP765	30421902
10,00	10	89	49	40	40	SCD351-1000-2-2-140HA04-HP765	30421903
10,10	12	102	56	45	45	SCD351-1010-2-2-140HA04-HP765	30421904
10,20	12	102	56	45	45	SCD351-1020-2-2-140HA04-HP765	30421905
10,30	12	102	56	45	45	SCD351-1030-2-2-140HA04-HP765	30421906
10,40	12	102	56	45	45	SCD351-1040-2-2-140HA04-HP765	30421907
10,50	12	102	56	45	45	SCD351-1050-2-2-140HA04-HP765	30421908
10,60	12	102	56	45	45	SCD351-1060-2-2-140HA04-HP765	30421909
10,70	12	102	56	45	45	SCD351-1070-2-2-140HA04-HP765	30421910
10,80	12	102	56	45	45	SCD351-1080-2-2-140HA04-HP765	30421911
10,90	12	102	56	45	45	SCD351-1090-2-2-140HA04-HP765	30421912
11,00	12	102	56	45	45	SCD351-1100-2-2-140HA04-HP765	30421913
11,10	12	102	56	45	45	SCD351-1110-2-2-140HA04-HP765	30421914
*11,20	12	102	56	45	45	SCD351-1120-2-2-140HA04-HP765	30421915
11,30	12	102	56	45	45	SCD351-1130-2-2-140HA04-HP765	30421916
11,40	12	102	56	45	45	SCD351-1140-2-2-140HA04-HP765	30421917
11,50	12	102	56	45	45	SCD351-1150-2-2-140HA04-HP765	30421918
11,60	12	102	56	45	45	SCD351-1160-2-2-140HA04-HP765	30421919
11,70	12	102	56	45	45	SCD351-1170-2-2-140HA04-HP765	30421920
11,80	12	102	56	45	45	SCD351-1180-2-2-140HA04-HP765	30421921
11,90	12	102	56	45	45	SCD351-1190-2-2-140HA04-HP765	30421922
12,00	12	102	56	45	45	SCD351-1200-2-2-140HA04-HP765	30421923
12,20	14	107	61	50	45	SCD351-1220-2-2-140HA04-HP765	30421924
12,50	14	107	61	50	45	SCD351-1250-2-2-140HA04-HP765	30421925
12,70	14	107	61	50	45	SCD351-1270-2-2-140HA04-HP765	30421926
12,80	14	107	61	50	45	SCD351-1280-2-2-140HA04-HP765	30421927
13,00	14	107	61	50	45	SCD351-1300-2-2-140HA04-HP765	30421928
13,20	14	107	61	50	45	SCD351-1320-2-2-140HA04-HP765	30454073
13,50	14	107	61	50	45	SCD351-1350-2-2-140HA04-HP765	30421929
13,70	14	107	61	50	45	SCD351-1370-2-2-140HA04-HP765	30421930
13,80	14	107	61	50	45	SCD351-1380-2-2-140HA04-HP765	30421931
14,00	14	107	61	50	45	SCD351-1400-2-2-140HA04-HP765	30421932
14,20	16	115	65	51	48	SCD351-1420-2-2-140HA04-HP765	30421934
14,50	16	115	65	51	48	SCD351-1450-2-2-140HA04-HP765	30421935
14,70	16	115	65	51	48	SCD351-1470-2-2-140HA04-HP765	30569197
14,80	16	115	65	51	48	SCD351-1480-2-2-140HA04-HP765	30421936
15,00	16	115	65	51	48	SCD351-1500-2-2-140HA04-HP765	30421937
15,10	16	115	65	51	48	SCD351-1510-2-2-140HA04-HP765	30421938
15,20	16	115	65	51	48	SCD351-1520-2-2-140HA04-HP765	30421939
15,50	16	115	65	51	48	SCD351-1550-2-2-140HA04-HP765	30421941
15,70	16	115	65	51	48	SCD351-1570-2-2-140HA04-HP765	30421942
15,80	16	115	65	51	48	SCD351-1580-2-2-140HA04-HP765	30421943
16,00	16	115	65	51	48	SCD351-1600-2-2-140HA04-HP765	30421944
16,50	18	123	73	53	48	SCD351-1650-2-2-140HA04-HP765	30421946
16,80	18	123	73	53	48	SCD351-1680-2-2-140HA04-HP765	30569199
17,00	18	123	73	53	48	SCD351-1700-2-2-140HA04-HP765	30421947
17,30	18	123	73	53	48	SCD351-1730-2-2-140HA04-HP765	30421949
17,50	18	123	73	53	48	SCD351-1750-2-2-140HA04-HP765	30421950
17,70	18	123	73	53	48	SCD351-1770-2-2-140HA04-HP765	30421951
17,80	18	123	73	53	48	SCD351-1780-2-2-140HA04-HP765	30569200
18,00	18	123	73	53	48	SCD351-1800-2-2-140HA04-HP765	30421952
18,50	20	131	79	55	50	SCD351-1850-2-2-140HA04-HP765	30421953
18,80	20	131	79	55	50	SCD351-1880-2-2-140HA04-HP765	30569201

ECU-Drill-Uni | Solid carbide twist drills SCD35 (4xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
19,00	20	131	79	55	50	SCD351-1900-2-2-140HA04-HP765	30421954
19,50	20	131	79	55	50	SCD351-1950-2-2-140HA04-HP765	30421956
19,80	20	131	79	55	50	SCD351-1980-2-2-140HA04-HP765	30569202
20,00	20	131	79	55	50	SCD351-2000-2-2-140HA04-HP765	30421957

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

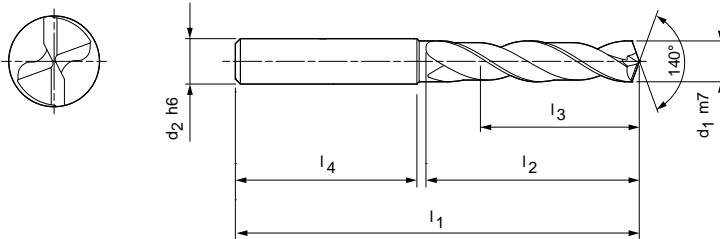
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-Drill-Uni

Solid carbide twist drill
SCD35 (4xD), external coolant supply

Design:
 Drill diameter: 1.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Tip angle: 140°
 Side rake angle: 30°



Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
1,00	4	45	6	5	32	SCD350-0100-2-2-140HA04-HP765	30677914
1,10	4	45	6,5	5	31,5	SCD350-0110-2-2-140HA04-HP765	30677915
1,20	4	45	7	5	31	SCD350-0120-2-2-140HA04-HP765	30677916
1,30	4	45	8	6	30,5	SCD350-0130-2-2-140HA04-HP765	30677917
1,40	4	45	8,5	6	30	SCD350-0140-2-2-140HA04-HP765	30677918
1,50	4	50	9	7	35	SCD350-0150-2-2-140HA04-HP765	30677919
1,60	4	50	9,5	7	34,5	SCD350-0160-2-2-140HA04-HP765	30677920
1,70	4	50	10	8	34	SCD350-0170-2-2-140HA04-HP765	30677921
1,80	4	50	11	8	33,5	SCD350-0180-2-2-140HA04-HP765	30677922
1,90	4	50	11,5	9	33	SCD350-0190-2-2-140HA04-HP765	30677923
2,00	6	58	16	11	36	SCD350-0200-2-2-140HA04-HP765	30421683
2,10	6	58	16	11	36	SCD350-0210-2-2-140HA04-HP765	30421685
2,20	6	58	16	11	36	SCD350-0220-2-2-140HA04-HP765	30421686
2,30	6	58	16	11	36	SCD350-0230-2-2-140HA04-HP765	30421687
2,40	6	58	16	11	36	SCD350-0240-2-2-140HA04-HP765	30421688
2,50	6	58	16	11	36	SCD350-0250-2-2-140HA04-HP765	30421689
2,60	6	58	16	11	36	SCD350-0260-2-2-140HA04-HP765	30421690
2,70	6	58	16	11	36	SCD350-0270-2-2-140HA04-HP765	30421691
*2,80	6	58	16	11	36	SCD350-0280-2-2-140HA04-HP765	30421692
2,90	6	58	16	11	36	SCD350-0290-2-2-140HA04-HP765	30421693
3,00	6	62	22	16	36	SCD350-0300-2-2-140HA04-HP765	30421694
3,10	6	62	22	16	36	SCD350-0310-2-2-140HA04-HP765	30421696
3,20	6	62	22	16	36	SCD350-0320-2-2-140HA04-HP765	30421697
3,30	6	62	22	16	36	SCD350-0330-2-2-140HA04-HP765	30421698
3,40	6	62	22	16	36	SCD350-0340-2-2-140HA04-HP765	30421699
3,50	6	62	22	16	36	SCD350-0350-2-2-140HA04-HP765	30421700
3,60	6	62	22	16	36	SCD350-0360-2-2-140HA04-HP765	30421701
*3,70	6	62	22	16	36	SCD350-0370-2-2-140HA04-HP765	30421703
3,80	6	66	26	22	36	SCD350-0380-2-2-140HA04-HP765	30421704
3,90	6	66	26	22	36	SCD350-0390-2-2-140HA04-HP765	30421705
4,00	6	66	26	22	36	SCD350-0400-2-2-140HA04-HP765	30421706
4,10	6	66	26	22	36	SCD350-0410-2-2-140HA04-HP765	30421707
4,20	6	66	26	22	36	SCD350-0420-2-2-140HA04-HP765	30421708
4,30	6	66	26	22	36	SCD350-0430-2-2-140HA04-HP765	30421709
4,40	6	66	26	22	36	SCD350-0440-2-2-140HA04-HP765	30421710

ECU-Drill-Uni | Solid carbide twist drills SCD35 (4xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
4,50	6	66	26	22	36	SCD350-0450-2-2-140HA04-HP765	30421711
4,60	6	66	26	22	36	SCD350-0460-2-2-140HA04-HP765	30421712
*4,65	6	66	26	22	36	SCD350-0465-2-2-140HA04-HP765	30421713
4,70	6	66	26	22	36	SCD350-0470-2-2-140HA04-HP765	30421714
4,80	6	66	30	24	36	SCD350-0480-2-2-140HA04-HP765	30421715
4,90	6	66	30	24	36	SCD350-0490-2-2-140HA04-HP765	30421716
5,00	6	66	30	24	36	SCD350-0500-2-2-140HA04-HP765	30421717
5,10	6	66	30	24	36	SCD350-0510-2-2-140HA04-HP765	30421718
5,20	6	66	30	24	36	SCD350-0520-2-2-140HA04-HP765	30421719
5,30	6	66	30	24	36	SCD350-0530-2-2-140HA04-HP765	30421720
5,40	6	66	30	24	36	SCD350-0540-2-2-140HA04-HP765	30421721
5,50	6	66	30	24	36	SCD350-0550-2-2-140HA04-HP765	30421722
*5,55	6	66	30	24	36	SCD350-0555-2-2-140HA04-HP765	30421723
5,60	6	66	30	24	36	SCD350-0560-2-2-140HA04-HP765	30421725
5,70	6	66	30	24	36	SCD350-0570-2-2-140HA04-HP765	30421726
5,80	6	66	30	24	36	SCD350-0580-2-2-140HA04-HP765	30421727
5,90	6	66	30	24	36	SCD350-0590-2-2-140HA04-HP765	30421728
6,00	6	66	30	24	36	SCD350-0600-2-2-140HA04-HP765	30421731
6,10	8	79	38	30	36	SCD350-0610-2-2-140HA04-HP765	30421732
6,20	8	79	38	30	36	SCD350-0620-2-2-140HA04-HP765	30421733
6,30	8	79	38	30	36	SCD350-0630-2-2-140HA04-HP765	30421734
6,40	8	79	38	30	36	SCD350-0640-2-2-140HA04-HP765	30421735
6,50	8	79	38	30	36	SCD350-0650-2-2-140HA04-HP765	30421736
6,60	8	79	38	30	36	SCD350-0660-2-2-140HA04-HP765	30421737
6,70	8	79	38	30	36	SCD350-0670-2-2-140HA04-HP765	30421738
6,80	8	79	38	30	36	SCD350-0680-2-2-140HA04-HP765	30421739
6,90	8	79	38	30	36	SCD350-0690-2-2-140HA04-HP765	30421740
7,00	8	79	38	30	36	SCD350-0700-2-2-140HA04-HP765	30421741
7,10	8	79	42	34	36	SCD350-0710-2-2-140HA04-HP765	30421742
7,20	8	79	42	34	36	SCD350-0720-2-2-140HA04-HP765	30421743
7,30	8	79	42	34	36	SCD350-0730-2-2-140HA04-HP765	30421744
7,40	8	79	42	34	36	SCD350-0740-2-2-140HA04-HP765	30421745
*7,45	8	79	42	34	36	SCD350-0745-2-2-140HA04-HP765	30569179
7,50	8	79	42	34	36	SCD350-0750-2-2-140HA04-HP765	30421746
7,60	8	79	42	34	36	SCD350-0760-2-2-140HA04-HP765	30421748
7,70	8	79	42	34	36	SCD350-0770-2-2-140HA04-HP765	30421749
7,80	8	79	42	34	36	SCD350-0780-2-2-140HA04-HP765	30421750
7,90	8	79	42	34	36	SCD350-0790-2-2-140HA04-HP765	30421751
8,00	8	79	42	34	36	SCD350-0800-2-2-140HA04-HP765	30421752
8,10	10	89	49	38	40	SCD350-0810-2-2-140HA04-HP765	30421753
8,20	10	89	49	38	40	SCD350-0820-2-2-140HA04-HP765	30421754
8,30	10	89	49	38	40	SCD350-0830-2-2-140HA04-HP765	30421755
8,40	10	89	49	38	40	SCD350-0840-2-2-140HA04-HP765	30421756
8,50	10	89	49	38	40	SCD350-0850-2-2-140HA04-HP765	30421757
8,60	10	89	49	38	40	SCD350-0860-2-2-140HA04-HP765	30421758
8,70	10	89	49	38	40	SCD350-0870-2-2-140HA04-HP765	30421759
8,80	10	89	49	38	40	SCD350-0880-2-2-140HA04-HP765	30421760
8,90	10	89	49	38	40	SCD350-0890-2-2-140HA04-HP765	30421761
9,00	10	89	49	38	40	SCD350-0900-2-2-140HA04-HP765	30421762
9,10	10	89	49	38	40	SCD350-0910-2-2-140HA04-HP765	30421763
9,20	10	89	49	38	40	SCD350-0920-2-2-140HA04-HP765	30421764
*9,30	10	89	49	40	40	SCD350-0930-2-2-140HA04-HP765	30421766
9,40	10	89	49	40	40	SCD350-0940-2-2-140HA04-HP765	30421767
9,50	10	89	49	40	40	SCD350-0950-2-2-140HA04-HP765	30421768
9,60	10	89	49	40	40	SCD350-0960-2-2-140HA04-HP765	30421769

Continued on next page.

ECU-Drill-Uni | Solid carbide twist drills SCD35 (4xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
9,70	10	89	49	40	40	SCD350-0970-2-2-140HA04-HP765	30421770
9,80	10	89	49	40	40	SCD350-0980-2-2-140HA04-HP765	30421771
9,90	10	89	49	40	40	SCD350-0990-2-2-140HA04-HP765	30421772
10,00	10	89	49	40	40	SCD350-1000-2-2-140HA04-HP765	30421773
10,10	12	102	56	45	45	SCD350-1010-2-2-140HA04-HP765	30421774
10,20	12	102	56	45	45	SCD350-1020-2-2-140HA04-HP765	30421775
10,30	12	102	56	45	45	SCD350-1030-2-2-140HA04-HP765	30421776
10,40	12	102	56	45	45	SCD350-1040-2-2-140HA04-HP765	30421777
10,50	12	102	56	45	45	SCD350-1050-2-2-140HA04-HP765	30421778
10,60	12	102	56	45	45	SCD350-1060-2-2-140HA04-HP765	30421779
10,70	12	102	56	45	45	SCD350-1070-2-2-140HA04-HP765	30421780
10,80	12	102	56	45	45	SCD350-1080-2-2-140HA04-HP765	30421781
10,90	12	102	56	45	45	SCD350-1090-2-2-140HA04-HP765	30421782
11,00	12	102	56	45	45	SCD350-1100-2-2-140HA04-HP765	30421783
11,10	12	102	56	45	45	SCD350-1110-2-2-140HA04-HP765	30421784
*11,20	12	102	56	45	45	SCD350-1120-2-2-140HA04-HP765	30421785
11,30	12	102	56	45	45	SCD350-1130-2-2-140HA04-HP765	30421786
11,40	12	102	56	45	45	SCD350-1140-2-2-140HA04-HP765	30421787
11,50	12	102	56	45	45	SCD350-1150-2-2-140HA04-HP765	30421788
11,60	12	102	56	45	45	SCD350-1160-2-2-140HA04-HP765	30421789
11,70	12	102	56	45	45	SCD350-1170-2-2-140HA04-HP765	30421790
11,80	12	102	56	45	45	SCD350-1180-2-2-140HA04-HP765	30421791
11,90	12	102	56	45	45	SCD350-1190-2-2-140HA04-HP765	30421792
12,00	12	102	56	45	45	SCD350-1200-2-2-140HA04-HP765	30421793
12,20	14	107	61	50	45	SCD350-1220-2-2-140HA04-HP765	30421794
12,50	14	107	61	50	45	SCD350-1250-2-2-140HA04-HP765	30421795
12,70	14	107	61	50	45	SCD350-1270-2-2-140HA04-HP765	30421797
12,80	14	107	61	50	45	SCD350-1280-2-2-140HA04-HP765	30421798
13,00	14	107	61	50	45	SCD350-1300-2-2-140HA04-HP765	30421799
13,20	14	107	61	50	45	SCD350-1320-2-2-140HA04-HP765	30569180
13,50	14	107	61	50	45	SCD350-1350-2-2-140HA04-HP765	30421800
13,70	14	107	61	50	45	SCD350-1370-2-2-140HA04-HP765	30421801
13,80	14	107	61	50	45	SCD350-1380-2-2-140HA04-HP765	30421802
14,00	14	107	61	50	45	SCD350-1400-2-2-140HA04-HP765	30421803
14,20	16	115	65	51	48	SCD350-1420-2-2-140HA04-HP765	30421804
14,50	16	115	65	51	48	SCD350-1450-2-2-140HA04-HP765	30421805
14,70	16	115	65	51	48	SCD350-1470-2-2-140HA04-HP765	30421806
14,80	16	115	65	51	48	SCD350-1480-2-2-140HA04-HP765	30421807
15,00	16	115	65	51	48	SCD350-1500-2-2-140HA04-HP765	30421808
15,10	16	115	65	51	48	SCD350-1510-2-2-140HA04-HP765	30421809
15,20	16	115	65	51	48	SCD350-1520-2-2-140HA04-HP765	30421810
15,50	16	115	65	51	48	SCD350-1550-2-2-140HA04-HP765	30421811
15,70	16	115	65	51	48	SCD350-1570-2-2-140HA04-HP765	30421813
15,80	16	115	65	51	48	SCD350-1580-2-2-140HA04-HP765	30421814
16,00	16	115	65	51	48	SCD350-1600-2-2-140HA04-HP765	30421815
16,50	18	123	73	53	48	SCD350-1650-2-2-140HA04-HP765	30421817
16,80	18	123	73	53	48	SCD350-1680-2-2-140HA04-HP765	30569181
17,00	18	123	73	53	48	SCD350-1700-2-2-140HA04-HP765	30421818
17,30	18	123	73	53	48	SCD350-1730-2-2-140HA04-HP765	30421819
17,50	18	123	73	53	48	SCD350-1750-2-2-140HA04-HP765	30421820
17,70	18	123	73	53	48	SCD350-1770-2-2-140HA04-HP765	30421821
17,80	18	123	73	53	48	SCD350-1780-2-2-140HA04-HP765	30569182
18,00	18	123	73	53	48	SCD350-1800-2-2-140HA04-HP765	30421822
18,50	20	131	79	55	50	SCD350-1850-2-2-140HA04-HP765	30421823
18,80	20	131	79	55	50	SCD350-1880-2-2-140HA04-HP765	30569183

ECU-Drill-Uni | Solid carbide twist drills SCD35 (4xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
19,00	20	131	79	55	50	SCD350-1900-2-2-140HA04-HP765	30421824
19,50	20	131	79	55	50	SCD350-1950-2-2-140HA04-HP765	30421826
19,80	20	131	79	55	50	SCD350-1980-2-2-140HA04-HP765	30569184
20,00	20	131	79	55	50	SCD350-2000-2-2-140HA04-HP765	30421827

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

Cutting data recommendation from page 458.

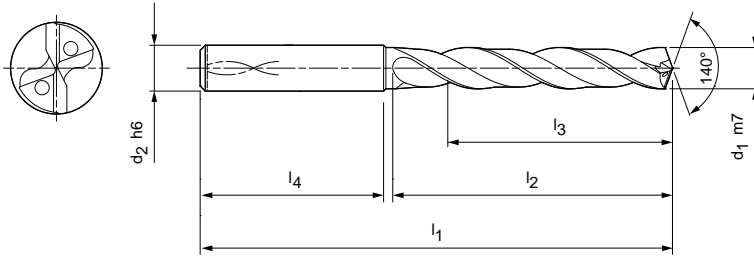
Special designs and other coatings on request.

ECU-Drill-Uni

Solid carbide twist drill
SCD35 (6xD), internal coolant supply

Design:

Drill diameter: 1.00 - 20.00 mm
Bore tolerance: ≥ IT 9
Coating: Special TiAlN coating
Number of cutting edges: 2
Tip angle: 140 °
Side rake angle: 30 °



Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
1,00	4	45	8	7	30	SCD351-0100-2-2-140HA06-HP765	30677944
1,10	4	45	9	7	29,5	SCD351-0110-2-2-140HA06-HP765	30677945
1,20	4	45	9,5	8	28,5	SCD351-0120-2-2-140HA06-HP765	30677946
1,30	4	45	10,5	8	28	SCD351-0130-2-2-140HA06-HP765	30677947
1,40	4	45	11	9	27,5	SCD351-0140-2-2-140HA06-HP765	30677948
1,50	4	50	12	10	32	SCD351-0150-2-2-140HA06-HP765	30677949
1,60	4	50	13	10	31	SCD351-0160-2-2-140HA06-HP765	30677950
1,70	4	50	13,5	11	30,5	SCD351-0170-2-2-140HA06-HP765	30677951
1,80	4	50	14,5	12	30	SCD351-0180-2-2-140HA06-HP765	30677952
1,90	4	50	15	12	29,5	SCD351-0190-2-2-140HA06-HP765	30677953
2,00	4	50	16	13	29	SCD351-0200-2-2-140HA06-HP765	30677954
2,10	4	55	17	14	33	SCD351-0210-2-2-140HA06-HP765	30677955
2,20	4	55	17,5	14	32,5	SCD351-0220-2-2-140HA06-HP765	30677956
2,30	4	55	18,5	15	32	SCD351-0230-2-2-140HA06-HP765	30677957
2,40	4	55	19	16	31,5	SCD351-0240-2-2-140HA06-HP765	30677958
2,50	4	55	20	16	30,5	SCD351-0250-2-2-140HA06-HP765	30677959
2,60	4	55	21	17	30	SCD351-0260-2-2-140HA06-HP765	30677960
2,70	4	55	21,5	18	29,5	SCD351-0270-2-2-140HA06-HP765	30677961
*2,80	4	55	22,5	18	29	SCD351-0280-2-2-140HA06-HP765	30677962
2,90	4	55	23	19	28	SCD351-0290-2-2-140HA06-HP765	30677963
3,00	6	66	28	23	36	SCD351-0300-2-2-140HA06-HP765	30421958
3,10	6	66	28	23	36	SCD351-0310-2-2-140HA06-HP765	30421959
3,20	6	66	28	23	36	SCD351-0320-2-2-140HA06-HP765	30421960
3,30	6	66	28	23	36	SCD351-0330-2-2-140HA06-HP765	30421961
3,40	6	66	28	23	36	SCD351-0340-2-2-140HA06-HP765	30421962
3,50	6	66	28	23	36	SCD351-0350-2-2-140HA06-HP765	30421963
3,60	6	66	28	23	36	SCD351-0360-2-2-140HA06-HP765	30421964
*3,70	6	66	28	23	36	SCD351-0370-2-2-140HA06-HP765	30421965
3,80	6	74	36	29	36	SCD351-0380-2-2-140HA06-HP765	30421966
3,90	6	74	36	29	36	SCD351-0390-2-2-140HA06-HP765	30421967
4,00	6	74	36	29	36	SCD351-0400-2-2-140HA06-HP765	30421968
4,10	6	74	36	29	36	SCD351-0410-2-2-140HA06-HP765	30421969
4,20	6	74	36	29	36	SCD351-0420-2-2-140HA06-HP765	30421970
4,30	6	74	36	29	36	SCD351-0430-2-2-140HA06-HP765	30421971
4,40	6	74	36	29	36	SCD351-0440-2-2-140HA06-HP765	30421972
4,50	6	74	36	29	36	SCD351-0450-2-2-140HA06-HP765	30421973

ECU-Drill-Uni | Solid carbide twist drills SCD35 (6xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
4,60	6	74	36	29	36	SCD351-0460-2-2-140HA06-HP765	30421974
*4,65	6	74	36	29	36	SCD351-0465-2-2-140HA06-HP765	30421975
4,70	6	74	36	29	36	SCD351-0470-2-2-140HA06-HP765	30421976
4,80	6	82	44	35	36	SCD351-0480-2-2-140HA06-HP765	30421977
4,90	6	82	44	35	36	SCD351-0490-2-2-140HA06-HP765	30421978
5,00	6	82	44	35	36	SCD351-0500-2-2-140HA06-HP765	30421979
5,10	6	82	44	35	36	SCD351-0510-2-2-140HA06-HP765	30421980
5,20	6	82	44	35	36	SCD351-0520-2-2-140HA06-HP765	30421981
5,30	6	82	44	35	36	SCD351-0530-2-2-140HA06-HP765	30421982
5,40	6	82	44	35	36	SCD351-0540-2-2-140HA06-HP765	30421983
5,50	6	82	44	35	36	SCD351-0550-2-2-140HA06-HP765	30421984
*5,55	6	82	44	35	36	SCD351-0555-2-2-140HA06-HP765	30421985
5,60	6	82	44	35	36	SCD351-0560-2-2-140HA06-HP765	30421987
5,70	6	82	44	35	36	SCD351-0570-2-2-140HA06-HP765	30421988
5,80	6	82	44	35	36	SCD351-0580-2-2-140HA06-HP765	30421989
5,90	6	82	44	35	36	SCD351-0590-2-2-140HA06-HP765	30421990
6,00	6	82	44	35	36	SCD351-0600-2-2-140HA06-HP765	30421991
6,10	8	91	53	43	36	SCD351-0610-2-2-140HA06-HP765	30421992
6,20	8	91	53	43	36	SCD351-0620-2-2-140HA06-HP765	30421993
6,30	8	91	53	43	36	SCD351-0630-2-2-140HA06-HP765	30421994
6,40	8	91	53	43	36	SCD351-0640-2-2-140HA06-HP765	30421995
6,50	8	91	53	43	36	SCD351-0650-2-2-140HA06-HP765	30421996
6,60	8	91	53	43	36	SCD351-0660-2-2-140HA06-HP765	30421997
6,70	8	91	53	43	36	SCD351-0670-2-2-140HA06-HP765	30421998
6,80	8	91	53	43	36	SCD351-0680-2-2-140HA06-HP765	30421999
6,90	8	91	53	43	36	SCD351-0690-2-2-140HA06-HP765	30422000
7,00	8	91	53	43	36	SCD351-0700-2-2-140HA06-HP765	30422001
7,10	8	91	53	43	36	SCD351-0710-2-2-140HA06-HP765	30422002
7,20	8	91	53	43	36	SCD351-0720-2-2-140HA06-HP765	30422003
7,30	8	91	53	43	36	SCD351-0730-2-2-140HA06-HP765	30422004
7,40	8	91	53	43	36	SCD351-0740-2-2-140HA06-HP765	30422005
*7,45	8	91	53	43	36	SCD351-0745-2-2-140HA06-HP765	30569230
7,50	8	91	53	43	36	SCD351-0750-2-2-140HA06-HP765	30422006
7,60	8	91	53	43	36	SCD351-0760-2-2-140HA06-HP765	30422008
7,70	8	91	53	43	36	SCD351-0770-2-2-140HA06-HP765	30422009
7,80	8	91	53	43	36	SCD351-0780-2-2-140HA06-HP765	30422010
7,90	8	91	53	43	36	SCD351-0790-2-2-140HA06-HP765	30422011
8,00	8	91	53	43	36	SCD351-0800-2-2-140HA06-HP765	30422012
8,10	10	103	61	49	40	SCD351-0810-2-2-140HA06-HP765	30422013
8,20	10	103	61	49	40	SCD351-0820-2-2-140HA06-HP765	30422014
8,30	10	103	61	49	40	SCD351-0830-2-2-140HA06-HP765	30422015
8,40	10	103	61	49	40	SCD351-0840-2-2-140HA06-HP765	30422016
8,50	10	103	61	49	40	SCD351-0850-2-2-140HA06-HP765	30422017
8,60	10	103	61	49	40	SCD351-0860-2-2-140HA06-HP765	30422018
8,70	10	103	61	49	40	SCD351-0870-2-2-140HA06-HP765	30422019
8,80	10	103	61	49	40	SCD351-0880-2-2-140HA06-HP765	30422020
8,90	10	103	61	49	40	SCD351-0890-2-2-140HA06-HP765	30422021
9,00	10	103	61	49	40	SCD351-0900-2-2-140HA06-HP765	30422022
9,10	10	103	61	49	40	SCD351-0910-2-2-140HA06-HP765	30422023
9,20	10	103	61	49	40	SCD351-0920-2-2-140HA06-HP765	30422024
*9,30	10	103	61	49	40	SCD351-0930-2-2-140HA06-HP765	30422026
9,40	10	103	61	49	40	SCD351-0940-2-2-140HA06-HP765	30422027
9,50	10	103	61	49	40	SCD351-0950-2-2-140HA06-HP765	30422028
9,60	10	103	61	49	40	SCD351-0960-2-2-140HA06-HP765	30422029
9,70	10	103	61	49	40	SCD351-0970-2-2-140HA06-HP765	30422030
9,80	10	103	61	49	40	SCD351-0980-2-2-140HA06-HP765	30422031
9,90	10	103	61	49	40	SCD351-0990-2-2-140HA06-HP765	30422032

Continued on next page.

ECU-Drill-Uni | Solid carbide twist drills SCD35 (6xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,00	10	103	61	49	40	SCD351-1000-2-2-140HA06-HP765	30422033
10,10	12	118	71	56	45	SCD351-1010-2-2-140HA06-HP765	30422034
10,20	12	118	71	56	45	SCD351-1020-2-2-140HA06-HP765	30422035
10,30	12	118	71	56	45	SCD351-1030-2-2-140HA06-HP765	30422036
10,40	12	118	71	56	45	SCD351-1040-2-2-140HA06-HP765	30422037
10,50	12	118	71	56	45	SCD351-1050-2-2-140HA06-HP765	30422038
10,60	12	118	71	56	45	SCD351-1060-2-2-140HA06-HP765	30422039
10,70	12	118	71	56	45	SCD351-1070-2-2-140HA06-HP765	30422040
10,80	12	118	71	56	45	SCD351-1080-2-2-140HA06-HP765	30422041
10,90	12	118	71	56	45	SCD351-1090-2-2-140HA06-HP765	30422042
11,00	12	118	71	56	45	SCD351-1100-2-2-140HA06-HP765	30422043
11,10	12	118	71	56	45	SCD351-1110-2-2-140HA06-HP765	30422044
*11,20	12	118	71	56	45	SCD351-1120-2-2-140HA06-HP765	30422045
11,30	12	118	71	56	45	SCD351-1130-2-2-140HA06-HP765	30422046
11,40	12	118	71	56	45	SCD351-1140-2-2-140HA06-HP765	30422047
11,50	12	118	71	56	45	SCD351-1150-2-2-140HA06-HP765	30422048
11,60	12	118	71	56	45	SCD351-1160-2-2-140HA06-HP765	30422049
11,70	12	118	71	56	45	SCD351-1170-2-2-140HA06-HP765	30422050
11,80	12	118	71	56	45	SCD351-1180-2-2-140HA06-HP765	30422051
11,90	12	118	71	56	45	SCD351-1190-2-2-140HA06-HP765	30422052
12,00	12	118	71	56	45	SCD351-1200-2-2-140HA06-HP765	30422053
12,20	14	124	77	60	45	SCD351-1220-2-2-140HA06-HP765	30422054
12,50	14	124	77	60	45	SCD351-1250-2-2-140HA06-HP765	30422055
12,70	14	124	77	60	45	SCD351-1270-2-2-140HA06-HP765	30422056
12,80	14	124	77	60	45	SCD351-1280-2-2-140HA06-HP765	30422057
13,00	14	124	77	60	45	SCD351-1300-2-2-140HA06-HP765	30422058
13,20	14	124	77	60	45	SCD351-1320-2-2-140HA06-HP765	30569231
13,50	14	124	77	60	45	SCD351-1350-2-2-140HA06-HP765	30422059
13,70	14	124	77	60	45	SCD351-1370-2-2-140HA06-HP765	30422060
13,80	14	124	77	60	45	SCD351-1380-2-2-140HA06-HP765	30422061
14,00	14	124	77	60	45	SCD351-1400-2-2-140HA06-HP765	30422062
14,20	16	133	83	63	48	SCD351-1420-2-2-140HA06-HP765	30422063
14,50	16	133	83	63	48	SCD351-1450-2-2-140HA06-HP765	30422064
14,70	16	133	83	63	48	SCD351-1470-2-2-140HA06-HP765	30422065
14,80	16	133	83	63	48	SCD351-1480-2-2-140HA06-HP765	30422066
15,00	16	133	83	63	48	SCD351-1500-2-2-140HA06-HP765	30422067
15,30	16	133	83	63	48	SCD351-1530-2-2-140HA06-HP765	30422068
15,50	16	133	83	63	48	SCD351-1550-2-2-140HA06-HP765	30422069
15,80	16	133	83	63	48	SCD351-1580-2-2-140HA06-HP765	30422071
16,00	16	133	83	63	48	SCD351-1600-2-2-140HA06-HP765	30422072
16,50	18	143	93	71	48	SCD351-1650-2-2-140HA06-HP765	30422073
16,80	18	143	93	71	48	SCD351-1680-2-2-140HA06-HP765	30569232
17,00	18	143	93	71	48	SCD351-1700-2-2-140HA06-HP765	30422074
17,50	18	143	93	71	48	SCD351-1750-2-2-140HA06-HP765	30422075
17,80	18	143	93	71	48	SCD351-1780-2-2-140HA06-HP765	30569233
18,00	18	143	93	71	48	SCD351-1800-2-2-140HA06-HP765	30422076
18,50	20	153	101	77	50	SCD351-1850-2-2-140HA06-HP765	30422077
18,80	20	153	101	77	50	SCD351-1880-2-2-140HA06-HP765	30569261
19,00	20	153	101	77	50	SCD351-1900-2-2-140HA06-HP765	30422078
19,50	20	153	101	77	50	SCD351-1950-2-2-140HA06-HP765	30422079
19,80	20	153	101	77	50	SCD351-1980-2-2-140HA06-HP765	30569236
20,00	20	153	101	77	50	SCD351-2000-2-2-140HA06-HP765	30422080

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

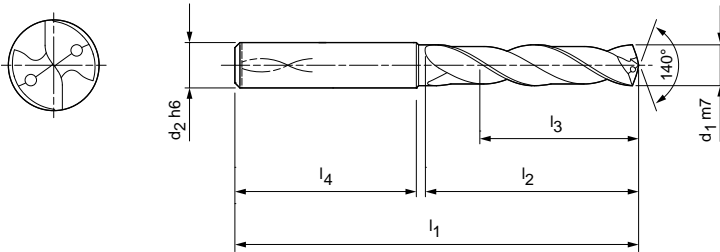
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-Drill-Steel

Solid carbide twist drill
SCD36 (3xD), internal coolant supply

Design:
 Drill diameter: 1.00 - 20.00 mm
 Bore tolerance: \geq IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Tip angle: 140 °
 Side rake angle: 30 °



Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
1,00	4	45	5	4	33	SCD361-0100-2-2-140HA03-HP132	30677673
1,10	4	45	5,5	4	32,5	SCD361-0110-2-2-140HA03-HP132	30677674
1,20	4	45	6	4	32,5	SCD361-0120-2-2-140HA03-HP132	30677675
1,30	4	45	6,5	5	32	SCD361-0130-2-2-140HA03-HP132	30677676
1,40	4	45	7	5	31,5	SCD361-0140-2-2-140HA03-HP132	30677677
1,50	4	50	7,5	5	36,5	SCD361-0150-2-2-140HA03-HP132	30677678
1,60	4	50	8	6	36	SCD361-0160-2-2-140HA03-HP132	30677679
1,70	4	50	8,5	6	35,5	SCD361-0170-2-2-140HA03-HP132	30677680
1,80	4	50	9	6	35,5	SCD361-0180-2-2-140HA03-HP132	30677681
1,90	4	50	9,5	7	35	SCD361-0190-2-2-140HA03-HP132	30677682
2,00	4	50	10	7	35	SCD361-0200-2-2-140HA03-HP132	30677683
2,10	4	55	10,5	7	39,5	SCD361-0210-2-2-140HA03-HP132	30677684
2,20	4	55	11	8	39	SCD361-0220-2-2-140HA03-HP132	30677685
2,30	4	55	11,5	8	39	SCD361-0230-2-2-140HA03-HP132	30677686
2,40	4	55	12	8	38,5	SCD361-0240-2-2-140HA03-HP132	30677687
2,50	4	55	12,5	9	38	SCD361-0250-2-2-140HA03-HP132	30677688
2,60	4	55	13	9	38	SCD361-0260-2-2-140HA03-HP132	30677689
2,70	4	55	13,5	9	37,5	SCD361-0270-2-2-140HA03-HP132	30677690
*2,80	4	55	14	10	37,5	SCD361-0280-2-2-140HA03-HP132	30677691
2,90	4	55	14,5	10	37	SCD361-0290-2-2-140HA03-HP132	30677692
3,00	6	62	20	14	36	SCD361-0300-2-2-140HA03-HP132	30421364
3,10	6	62	20	14	36	SCD361-0310-2-2-140HA03-HP132	30421365
3,20	6	62	20	14	36	SCD361-0320-2-2-140HA03-HP132	30421366
3,30	6	62	20	14	36	SCD361-0330-2-2-140HA03-HP132	30421368
3,40	6	62	20	14	36	SCD361-0340-2-2-140HA03-HP132	30421369
3,50	6	62	20	14	36	SCD361-0350-2-2-140HA03-HP132	30421370
3,60	6	62	20	14	36	SCD361-0360-2-2-140HA03-HP132	30421371
*3,70	6	62	20	14	36	SCD361-0370-2-2-140HA03-HP132	30421372
3,80	6	66	24	17	36	SCD361-0380-2-2-140HA03-HP132	30421373
3,90	6	66	24	17	36	SCD361-0390-2-2-140HA03-HP132	30421374
4,00	6	66	24	17	36	SCD361-0400-2-2-140HA03-HP132	30421375
4,10	6	66	24	17	36	SCD361-0410-2-2-140HA03-HP132	30421376
4,20	6	66	24	17	36	SCD361-0420-2-2-140HA03-HP132	30421377
4,30	6	66	24	17	36	SCD361-0430-2-2-140HA03-HP132	30421379
4,40	6	66	24	17	36	SCD361-0440-2-2-140HA03-HP132	30421380
4,50	6	66	24	17	36	SCD361-0450-2-2-140HA03-HP132	30421381

ECU-Drill-Steel | Solid carbide twist drill SCD36 (3xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
4,60	6	66	24	17	36	SCD361-0460-2-2-140HA03-HP132	30421382
*4,65	6	66	24	17	36	SCD361-0465-2-2-140HA03-HP132	30421383
4,70	6	66	24	17	36	SCD361-0470-2-2-140HA03-HP132	30421384
4,80	6	66	28	20	36	SCD361-0480-2-2-140HA03-HP132	30421385
4,90	6	66	28	20	36	SCD361-0490-2-2-140HA03-HP132	30421386
5,00	6	66	28	20	36	SCD361-0500-2-2-140HA03-HP132	30421388
5,10	6	66	28	20	36	SCD361-0510-2-2-140HA03-HP132	30421390
5,20	6	66	28	20	36	SCD361-0520-2-2-140HA03-HP132	30421391
5,30	6	66	28	20	36	SCD361-0530-2-2-140HA03-HP132	30421392
5,40	6	66	28	20	36	SCD361-0540-2-2-140HA03-HP132	30421393
5,50	6	66	28	20	36	SCD361-0550-2-2-140HA03-HP132	30421394
*5,55	6	66	28	20	36	SCD361-0555-2-2-140HA03-HP132	30421395
5,60	6	66	28	20	36	SCD361-0560-2-2-140HA03-HP132	30421396
5,70	6	66	28	20	36	SCD361-0570-2-2-140HA03-HP132	30421397
5,80	6	66	28	20	36	SCD361-0580-2-2-140HA03-HP132	30421399
5,90	6	66	28	20	36	SCD361-0590-2-2-140HA03-HP132	30421400
6,00	6	66	28	20	36	SCD361-0600-2-2-140HA03-HP132	30421401
6,10	8	79	34	24	36	SCD361-0610-2-2-140HA03-HP132	30421402
6,20	8	79	34	24	36	SCD361-0620-2-2-140HA03-HP132	30421403
6,30	8	79	34	24	36	SCD361-0630-2-2-140HA03-HP132	30421404
6,40	8	79	34	24	36	SCD361-0640-2-2-140HA03-HP132	30421405
6,50	8	79	34	24	36	SCD361-0650-2-2-140HA03-HP132	30421406
6,60	8	79	34	24	36	SCD361-0660-2-2-140HA03-HP132	30421407
6,70	8	79	34	24	36	SCD361-0670-2-2-140HA03-HP132	30421408
6,80	8	79	34	24	36	SCD361-0680-2-2-140HA03-HP132	30421409
6,90	8	79	34	24	36	SCD361-0690-2-2-140HA03-HP132	30421410
7,00	8	79	34	24	36	SCD361-0700-2-2-140HA03-HP132	30421411
7,10	8	79	41	29	36	SCD361-0710-2-2-140HA03-HP132	30421412
7,20	8	79	41	29	36	SCD361-0720-2-2-140HA03-HP132	30421413
7,30	8	79	41	29	36	SCD361-0730-2-2-140HA03-HP132	30421414
7,40	8	79	41	29	36	SCD361-0740-2-2-140HA03-HP132	30421415
*7,45	8	79	41	29	36	SCD361-0745-2-2-140HA03-HP132	30421416
7,50	8	79	41	29	36	SCD361-0750-2-2-140HA03-HP132	30421417
7,60	8	79	41	29	36	SCD361-0760-2-2-140HA03-HP132	30421419
7,70	8	79	41	29	36	SCD361-0770-2-2-140HA03-HP132	30421420
7,80	8	79	41	29	36	SCD361-0780-2-2-140HA03-HP132	30421421
7,90	8	79	41	29	36	SCD361-0790-2-2-140HA03-HP132	30421422
8,00	8	79	41	29	36	SCD361-0800-2-2-140HA03-HP132	30421423
8,10	10	89	47	35	40	SCD361-0810-2-2-140HA03-HP132	30421424
8,20	10	89	47	35	40	SCD361-0820-2-2-140HA03-HP132	30421425
8,30	10	89	47	35	40	SCD361-0830-2-2-140HA03-HP132	30421426
8,40	10	89	47	35	40	SCD361-0840-2-2-140HA03-HP132	30421427
8,50	10	89	47	35	40	SCD361-0850-2-2-140HA03-HP132	30421428
8,60	10	89	47	35	40	SCD361-0860-2-2-140HA03-HP132	30421429
8,70	10	89	47	35	40	SCD361-0870-2-2-140HA03-HP132	30421430
8,80	10	89	47	35	40	SCD361-0880-2-2-140HA03-HP132	30421431
8,90	10	89	47	35	40	SCD361-0890-2-2-140HA03-HP132	30421432
9,00	10	89	47	35	40	SCD361-0900-2-2-140HA03-HP132	30421433
9,10	10	89	47	35	40	SCD361-0910-2-2-140HA03-HP132	30421434
9,20	10	89	47	35	40	SCD361-0920-2-2-140HA03-HP132	30421435
*9,30	10	89	47	35	40	SCD361-0930-2-2-140HA03-HP132	30421437
9,40	10	89	47	35	40	SCD361-0940-2-2-140HA03-HP132	30421439
9,50	10	89	47	35	40	SCD361-0950-2-2-140HA03-HP132	30421440
9,60	10	89	47	35	40	SCD361-0960-2-2-140HA03-HP132	30421441
9,70	10	89	47	35	40	SCD361-0970-2-2-140HA03-HP132	30421442
9,80	10	89	47	35	40	SCD361-0980-2-2-140HA03-HP132	30421443
9,90	10	89	47	35	40	SCD361-0990-2-2-140HA03-HP132	30421445

ECU-Drill-Steel | Solid carbide twist drill SCD36 (3xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,00	10	89	47	35	40	SCD361-1000-2-2-140HA03-HP132	30421446
10,10	12	102	55	40	45	SCD361-1010-2-2-140HA03-HP132	30421447
10,20	12	102	55	40	45	SCD361-1020-2-2-140HA03-HP132	30421448
10,30	12	102	55	40	45	SCD361-1030-2-2-140HA03-HP132	30421449
10,40	12	102	55	40	45	SCD361-1040-2-2-140HA03-HP132	30421450
10,50	12	102	55	40	45	SCD361-1050-2-2-140HA03-HP132	30421451
10,60	12	102	55	40	45	SCD361-1060-2-2-140HA03-HP132	30421453
10,70	12	102	55	40	45	SCD361-1070-2-2-140HA03-HP132	30421454
10,80	12	102	55	40	45	SCD361-1080-2-2-140HA03-HP132	30421456
10,90	12	102	55	40	45	SCD361-1090-2-2-140HA03-HP132	30421457
11,00	12	102	55	40	45	SCD361-1100-2-2-140HA03-HP132	30421458
11,10	12	102	55	40	45	SCD361-1110-2-2-140HA03-HP132	30421459
*11,20	12	102	55	40	45	SCD361-1120-2-2-140HA03-HP132	30421460
11,30	12	102	55	40	45	SCD361-1130-2-2-140HA03-HP132	30421462
11,40	12	102	55	40	45	SCD361-1140-2-2-140HA03-HP132	30421463
11,50	12	102	55	40	45	SCD361-1150-2-2-140HA03-HP132	30421464
11,60	12	102	55	40	45	SCD361-1160-2-2-140HA03-HP132	30421465
11,70	12	102	55	40	45	SCD361-1170-2-2-140HA03-HP132	30421466
11,80	12	102	55	40	45	SCD361-1180-2-2-140HA03-HP132	30421467
11,90	12	102	55	40	45	SCD361-1190-2-2-140HA03-HP132	30421468
12,00	12	102	55	40	45	SCD361-1200-2-2-140HA03-HP132	30421469
12,20	14	107	60	43	45	SCD361-1220-2-2-140HA03-HP132	30569171
12,50	14	107	60	43	45	SCD361-1250-2-2-140HA03-HP132	30421471
12,70	14	107	60	43	45	SCD361-1270-2-2-140HA03-HP132	30421472
12,80	14	107	60	43	45	SCD361-1280-2-2-140HA03-HP132	30421473
13,00	14	107	60	43	45	SCD361-1300-2-2-140HA03-HP132	30421475
13,20	14	107	60	43	45	SCD361-1320-2-2-140HA03-HP132	30421477
13,50	14	107	60	43	45	SCD361-1350-2-2-140HA03-HP132	30421479
13,70	14	107	60	43	45	SCD361-1370-2-2-140HA03-HP132	30421480
13,80	14	107	60	43	45	SCD361-1380-2-2-140HA03-HP132	30421481
14,00	14	107	60	43	45	SCD361-1400-2-2-140HA03-HP132	30421482
14,20	16	115	65	45	48	SCD361-1420-2-2-140HA03-HP132	30421483
14,50	16	115	65	45	48	SCD361-1450-2-2-140HA03-HP132	30421484
14,70	16	115	65	45	48	SCD361-1470-2-2-140HA03-HP132	30421486
14,80	16	115	65	45	48	SCD361-1480-2-2-140HA03-HP132	30421487
15,00	16	115	65	45	48	SCD361-1500-2-2-140HA03-HP132	30421488
15,50	16	115	65	45	48	SCD361-1550-2-2-140HA03-HP132	30421493
15,70	16	115	65	45	48	SCD361-1570-2-2-140HA03-HP132	30421495
15,80	16	115	65	45	48	SCD361-1580-2-2-140HA03-HP132	30421496
16,00	16	115	65	45	48	SCD361-1600-2-2-140HA03-HP132	30421497
16,50	18	123	73	51	48	SCD361-1650-2-2-140HA03-HP132	30421498
16,80	18	123	73	51	48	SCD361-1680-2-2-140HA03-HP132	30421499
17,00	18	123	73	51	48	SCD361-1700-2-2-140HA03-HP132	30421501
17,50	18	123	73	51	48	SCD361-1750-2-2-140HA03-HP132	30421502
17,80	18	123	73	51	48	SCD361-1780-2-2-140HA03-HP132	30421504
18,00	18	123	73	51	48	SCD361-1800-2-2-140HA03-HP132	30421505
18,50	20	131	79	55	50	SCD361-1850-2-2-140HA03-HP132	30421506
18,80	20	131	79	55	50	SCD361-1880-2-2-140HA03-HP132	30421507
19,00	20	131	79	55	50	SCD361-1900-2-2-140HA03-HP132	30421509
19,50	20	131	79	55	50	SCD361-1950-2-2-140HA03-HP132	30421510
19,80	20	131	79	55	50	SCD361-1980-2-2-140HA03-HP132	30421512
20,00	20	131	79	55	50	SCD361-2000-2-2-140HA03-HP132	30421513

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

Cutting data recommendation from page 458.

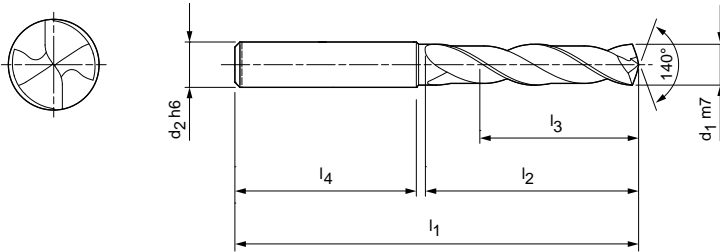
Special designs and other coatings on request.

ECU-Drill-Steel

Solid carbide twist drill
SCD36 (3xD), external coolant supply

Design:

Drill diameter: 1.00 - 20.00 mm
Bore tolerance: ≥ IT 9
Coating: Special TiAlN coating
Number of cutting edges: 2
Tip angle: 140 °
Side rake angle: 30 °



Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
1,00	4	45	5	4	33	SCD360-0100-2-2-140HA03-HP132	30677663
1,10	4	45	5,5	4	32,5	SCD360-0110-2-2-140HA03-HP132	30677978
1,20	4	45	6	4	32,5	SCD360-0120-2-2-140HA03-HP132	30677979
1,30	4	45	6,5	5	32	SCD360-0130-2-2-140HA03-HP132	30677980
1,40	4	45	7	5	31,5	SCD360-0140-2-2-140HA03-HP132	30677981
1,50	4	50	7,5	5	36,5	SCD360-0150-2-2-140HA03-HP132	30677982
1,60	4	50	8	6	36	SCD360-0160-2-2-140HA03-HP132	30677983
1,70	4	50	8,5	6	35,5	SCD360-0170-2-2-140HA03-HP132	30677984
1,80	4	50	9	6	35,5	SCD360-0180-2-2-140HA03-HP132	30677985
1,90	4	50	9,5	7	35	SCD360-0190-2-2-140HA03-HP132	30677986
2,00	6	58	14	9	36	SCD360-0200-2-2-140HA03-HP132	30453453
2,10	6	58	14	9	36	SCD360-0210-2-2-140HA03-HP132	30453454
2,20	6	58	14	9	36	SCD360-0220-2-2-140HA03-HP132	30453455
2,30	6	58	14	9	36	SCD360-0230-2-2-140HA03-HP132	30453456
2,40	6	58	14	9	36	SCD360-0240-2-2-140HA03-HP132	30453457
2,50	6	58	14	9	36	SCD360-0250-2-2-140HA03-HP132	30453458
2,60	6	58	14	9	36	SCD360-0260-2-2-140HA03-HP132	30453459
2,70	6	58	14	9	36	SCD360-0270-2-2-140HA03-HP132	30453460
*2,80	6	58	14	9	36	SCD360-0280-2-2-140HA03-HP132	30453461
2,90	6	58	14	9	36	SCD360-0290-2-2-140HA03-HP132	30453462
3,00	6	62	20	14	36	SCD360-0300-2-2-140HA03-HP132	30421215
3,10	6	62	20	14	36	SCD360-0310-2-2-140HA03-HP132	30421216
3,20	6	62	20	14	36	SCD360-0320-2-2-140HA03-HP132	30421217
3,30	6	62	20	14	36	SCD360-0330-2-2-140HA03-HP132	30421218
3,40	6	62	20	14	36	SCD360-0340-2-2-140HA03-HP132	30421219
3,50	6	62	20	14	36	SCD360-0350-2-2-140HA03-HP132	30421220
3,60	6	62	20	14	36	SCD360-0360-2-2-140HA03-HP132	30421221
*3,70	6	62	20	14	36	SCD360-0370-2-2-140HA03-HP132	30421222
3,80	6	66	24	17	36	SCD360-0380-2-2-140HA03-HP132	30421223
3,90	6	66	24	17	36	SCD360-0390-2-2-140HA03-HP132	30421224
4,00	6	66	24	17	36	SCD360-0400-2-2-140HA03-HP132	30421225
4,10	6	66	24	17	36	SCD360-0410-2-2-140HA03-HP132	30421227
4,20	6	66	24	17	36	SCD360-0420-2-2-140HA03-HP132	30421228
4,30	6	66	24	17	36	SCD360-0430-2-2-140HA03-HP132	30421229
4,40	6	66	24	17	36	SCD360-0440-2-2-140HA03-HP132	30421230
4,50	6	66	24	17	36	SCD360-0450-2-2-140HA03-HP132	30421231

ECU-Drill-Steel | Solid carbide twist drills SCD36 (3xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
4,60	6	66	24	17	36	SCD360-0460-2-2-140HA03-HP132	30421232
*4,65	6	66	24	17	36	SCD360-0465-2-2-140HA03-HP132	30421233
4,70	6	66	24	17	36	SCD360-0470-2-2-140HA03-HP132	30421234
4,80	6	66	28	20	36	SCD360-0480-2-2-140HA03-HP132	30421235
4,90	6	66	28	20	36	SCD360-0490-2-2-140HA03-HP132	30421236
5,00	6	66	28	20	36	SCD360-0500-2-2-140HA03-HP132	30421237
5,10	6	66	28	20	36	SCD360-0510-2-2-140HA03-HP132	30421238
5,20	6	66	28	20	36	SCD360-0520-2-2-140HA03-HP132	30421240
5,30	6	66	28	20	36	SCD360-0530-2-2-140HA03-HP132	30421241
5,40	6	66	28	20	36	SCD360-0540-2-2-140HA03-HP132	30421242
5,50	6	66	28	20	36	SCD360-0550-2-2-140HA03-HP132	30421243
*5,55	6	66	28	20	36	SCD360-0555-2-2-140HA03-HP132	30421244
5,60	6	66	28	20	36	SCD360-0560-2-2-140HA03-HP132	30421245
5,70	6	66	28	20	36	SCD360-0570-2-2-140HA03-HP132	30421246
5,80	6	66	28	20	36	SCD360-0580-2-2-140HA03-HP132	30421247
5,90	6	66	28	20	36	SCD360-0590-2-2-140HA03-HP132	30421248
6,00	6	66	28	20	36	SCD360-0600-2-2-140HA03-HP132	30421249
6,10	8	79	34	24	36	SCD360-0610-2-2-140HA03-HP132	30421250
6,20	8	79	34	24	36	SCD360-0620-2-2-140HA03-HP132	30421251
6,30	8	79	34	24	36	SCD360-0630-2-2-140HA03-HP132	30421252
6,40	8	79	34	24	36	SCD360-0640-2-2-140HA03-HP132	30421253
6,50	8	79	34	24	36	SCD360-0650-2-2-140HA03-HP132	30421254
6,60	8	79	34	24	36	SCD360-0660-2-2-140HA03-HP132	30421255
6,70	8	79	34	24	36	SCD360-0670-2-2-140HA03-HP132	30421256
6,80	8	79	34	24	36	SCD360-0680-2-2-140HA03-HP132	30421257
6,90	8	79	34	24	36	SCD360-0690-2-2-140HA03-HP132	30421258
7,00	8	79	34	24	36	SCD360-0700-2-2-140HA03-HP132	30421259
7,10	8	79	41	29	36	SCD360-0710-2-2-140HA03-HP132	30421260
7,20	8	79	41	29	36	SCD360-0720-2-2-140HA03-HP132	30421261
7,30	8	79	41	29	36	SCD360-0730-2-2-140HA03-HP132	30421262
7,40	8	79	41	29	36	SCD360-0740-2-2-140HA03-HP132	30421263
*7,45	8	79	41	29	36	SCD360-0745-2-2-140HA03-HP132	30569111
7,50	8	79	41	29	36	SCD360-0750-2-2-140HA03-HP132	30421264
7,60	8	79	41	29	36	SCD360-0760-2-2-140HA03-HP132	30421266
7,70	8	79	41	29	36	SCD360-0770-2-2-140HA03-HP132	30421267
7,80	8	79	41	29	36	SCD360-0780-2-2-140HA03-HP132	30421268
7,90	8	79	41	29	36	SCD360-0790-2-2-140HA03-HP132	30421269
8,00	8	79	41	29	36	SCD360-0800-2-2-140HA03-HP132	30421270
8,10	10	89	47	35	40	SCD360-0810-2-2-140HA03-HP132	30421271
8,20	10	89	47	35	40	SCD360-0820-2-2-140HA03-HP132	30421272
8,30	10	89	47	35	40	SCD360-0830-2-2-140HA03-HP132	30421273
8,40	10	89	47	35	40	SCD360-0840-2-2-140HA03-HP132	30421274
8,50	10	89	47	35	40	SCD360-0850-2-2-140HA03-HP132	30421275
8,60	10	89	47	35	40	SCD360-0860-2-2-140HA03-HP132	30421276
8,70	10	89	47	35	40	SCD360-0870-2-2-140HA03-HP132	30421277
8,80	10	89	47	35	40	SCD360-0880-2-2-140HA03-HP132	30421278
8,90	10	89	47	35	40	SCD360-0890-2-2-140HA03-HP132	30421279
9,00	10	89	47	35	40	SCD360-0900-2-2-140HA03-HP132	30421280
9,10	10	89	47	35	40	SCD360-0910-2-2-140HA03-HP132	30421281
9,20	10	89	47	35	40	SCD360-0920-2-2-140HA03-HP132	30421282
*9,30	10	89	47	35	40	SCD360-0930-2-2-140HA03-HP132	30421284
9,40	10	89	47	35	40	SCD360-0940-2-2-140HA03-HP132	30421285
9,50	10	89	47	35	40	SCD360-0950-2-2-140HA03-HP132	30421286
9,60	10	89	47	35	40	SCD360-0960-2-2-140HA03-HP132	30421287
9,70	10	89	47	35	40	SCD360-0970-2-2-140HA03-HP132	30421288
9,80	10	89	47	35	40	SCD360-0980-2-2-140HA03-HP132	30421289
9,90	10	89	47	35	40	SCD360-0990-2-2-140HA03-HP132	30421290

Continued on next page.

ECU-Drill-Steel | Solid carbide twist drills SCD36 (3xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,00	10	89	47	35	40	SCD360-1000-2-2-140HA03-HP132	30421291
10,10	12	102	55	40	45	SCD360-1010-2-2-140HA03-HP132	30421292
10,20	12	102	55	40	45	SCD360-1020-2-2-140HA03-HP132	30421293
10,30	12	102	55	40	45	SCD360-1030-2-2-140HA03-HP132	30421294
10,40	12	102	55	40	45	SCD360-1040-2-2-140HA03-HP132	30421295
10,50	12	102	55	40	45	SCD360-1050-2-2-140HA03-HP132	30421296
10,60	12	102	55	40	45	SCD360-1060-2-2-140HA03-HP132	30421297
10,70	12	102	55	40	45	SCD360-1070-2-2-140HA03-HP132	30421298
10,80	12	102	55	40	45	SCD360-1080-2-2-140HA03-HP132	30421300
10,90	12	102	55	40	45	SCD360-1090-2-2-140HA03-HP132	30421301
11,00	12	102	55	40	45	SCD360-1100-2-2-140HA03-HP132	30421302
11,10	12	102	55	40	45	SCD360-1110-2-2-140HA03-HP132	30421303
*11,20	12	102	55	40	45	SCD360-1120-2-2-140HA03-HP132	30421304
11,30	12	102	55	40	45	SCD360-1130-2-2-140HA03-HP132	30421305
11,40	12	102	55	40	45	SCD360-1140-2-2-140HA03-HP132	30421306
11,50	12	102	55	40	45	SCD360-1150-2-2-140HA03-HP132	30421307
11,60	12	102	55	40	45	SCD360-1160-2-2-140HA03-HP132	30421308
11,70	12	102	55	40	45	SCD360-1170-2-2-140HA03-HP132	30421309
11,80	12	102	55	40	45	SCD360-1180-2-2-140HA03-HP132	30421310
11,90	12	102	55	40	45	SCD360-1190-2-2-140HA03-HP132	30421312
12,00	12	102	55	40	45	SCD360-1200-2-2-140HA03-HP132	30421313
12,20	14	107	60	43	45	SCD360-1220-2-2-140HA03-HP132	30569112
12,50	14	107	60	43	45	SCD360-1250-2-2-140HA03-HP132	30421316
12,70	14	107	60	43	45	SCD360-1270-2-2-140HA03-HP132	30421317
12,80	14	107	60	43	45	SCD360-1280-2-2-140HA03-HP132	30421318
13,00	14	107	60	43	45	SCD360-1300-2-2-140HA03-HP132	30421320
13,20	14	107	60	43	45	SCD360-1320-2-2-140HA03-HP132	30421322
13,50	14	107	60	43	45	SCD360-1350-2-2-140HA03-HP132	30421324
13,70	14	107	60	43	45	SCD360-1370-2-2-140HA03-HP132	30421325
13,80	14	107	60	43	45	SCD360-1380-2-2-140HA03-HP132	30421326
14,00	14	107	60	43	45	SCD360-1400-2-2-140HA03-HP132	30421327
14,20	16	115	65	45	48	SCD360-1420-2-2-140HA03-HP132	30421328
14,50	16	115	65	45	48	SCD360-1450-2-2-140HA03-HP132	30421330
14,70	16	115	65	45	48	SCD360-1470-2-2-140HA03-HP132	30421331
14,80	16	115	65	45	48	SCD360-1480-2-2-140HA03-HP132	30421332
15,00	16	115	65	45	48	SCD360-1500-2-2-140HA03-HP132	30421333
15,50	16	115	65	45	48	SCD360-1550-2-2-140HA03-HP132	30421337
15,70	16	115	65	45	48	SCD360-1570-2-2-140HA03-HP132	30421338
15,80	16	115	65	45	48	SCD360-1580-2-2-140HA03-HP132	30421339
16,00	16	115	65	45	48	SCD360-1600-2-2-140HA03-HP132	30421340
16,50	18	123	73	51	48	SCD360-1650-2-2-140HA03-HP132	30421341
16,80	18	123	73	51	48	SCD360-1680-2-2-140HA03-HP132	30421342
17,00	18	123	73	51	48	SCD360-1700-2-2-140HA03-HP132	30421343
17,50	18	123	73	51	48	SCD360-1750-2-2-140HA03-HP132	30421344
17,80	18	123	73	51	48	SCD360-1780-2-2-140HA03-HP132	30421345
18,00	18	123	73	51	48	SCD360-1800-2-2-140HA03-HP132	30421346
18,50	20	131	79	55	50	SCD360-1850-2-2-140HA03-HP132	30421347
18,80	20	131	79	55	50	SCD360-1880-2-2-140HA03-HP132	30421348
19,00	20	131	79	55	50	SCD360-1900-2-2-140HA03-HP132	30421349
19,50	20	131	79	55	50	SCD360-1950-2-2-140HA03-HP132	30421350
19,80	20	131	79	55	50	SCD360-1980-2-2-140HA03-HP132	30421351
20,00	20	131	79	55	50	SCD360-2000-2-2-140HA03-HP132	30421352

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

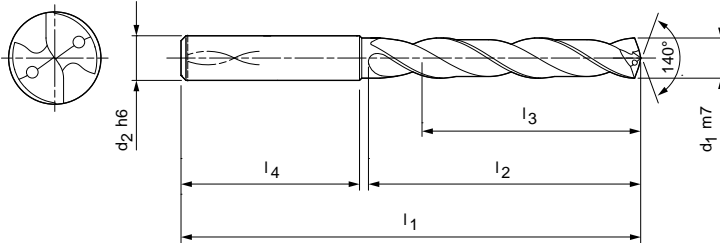
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-Drill-Steel

Solid carbide twist drill
SCD36 (5xD), internal coolant supply

Design:
 Drill diameter: 1.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Tip angle: 140°
 Side rake angle: 30°



Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
1,00	4	45	7	6	31	SCD361-0100-2-2-140HA05-HP132	30677693
1,10	4	45	7,5	6	30,5	SCD361-0110-2-2-140HA05-HP132	30677694
1,20	4	45	8,5	7	30	SCD361-0120-2-2-140HA05-HP132	30677695
1,30	4	45	9	7	29,5	SCD361-0130-2-2-140HA05-HP132	30677696
1,40	4	45	10	8	29	SCD361-0140-2-2-140HA05-HP132	30677697
1,50	4	50	10,5	8	33,5	SCD361-0150-2-2-140HA05-HP132	30677698
1,60	4	50	11	9	33	SCD361-0160-2-2-140HA05-HP132	30677699
1,70	4	50	12	9	32,5	SCD361-0170-2-2-140HA05-HP132	30677700
1,80	4	50	12,5	10	32	SCD361-0180-2-2-140HA05-HP132	30677701
1,90	4	50	13,5	10	31,5	SCD361-0190-2-2-140HA05-HP132	30677702
2,00	4	50	14	11	31	SCD361-0200-2-2-140HA05-HP132	30677703
2,10	4	55	14,5	12	35,5	SCD361-0210-2-2-140HA05-HP132	30677704
2,20	4	55	15,5	12	34,5	SCD361-0220-2-2-140HA05-HP132	30677705
2,30	4	55	16	13	34	SCD361-0230-2-2-140HA05-HP132	30677706
2,40	4	55	17	13	33,5	SCD361-0240-2-2-140HA05-HP132	30677707
2,50	4	55	17,5	14	33	SCD361-0250-2-2-140HA05-HP132	30677708
2,60	4	55	18	14	32,5	SCD361-0260-2-2-140HA05-HP132	30677709
2,70	4	55	19	15	32	SCD361-0270-2-2-140HA05-HP132	30677710
*2,80	4	55	19,5	15	31,5	SCD361-0280-2-2-140HA05-HP132	30677711
2,90	4	55	20,5	16	31	SCD361-0290-2-2-140HA05-HP132	30677712
3,00	6	66	28	23	36	SCD361-0300-2-2-140HA05-HP132	30421524
3,10	6	66	28	23	36	SCD361-0310-2-2-140HA05-HP132	30421525
3,20	6	66	28	23	36	SCD361-0320-2-2-140HA05-HP132	30421526
3,30	6	66	28	23	36	SCD361-0330-2-2-140HA05-HP132	30421528
3,40	6	66	28	23	36	SCD361-0340-2-2-140HA05-HP132	30421529
3,50	6	66	28	23	36	SCD361-0350-2-2-140HA05-HP132	30421530
3,60	6	66	28	23	36	SCD361-0360-2-2-140HA05-HP132	30421531
*3,70	6	66	28	23	36	SCD361-0370-2-2-140HA05-HP132	30421532
3,80	6	74	36	29	36	SCD361-0380-2-2-140HA05-HP132	30421533
3,90	6	74	36	29	36	SCD361-0390-2-2-140HA05-HP132	30421534
4,00	6	74	36	29	36	SCD361-0400-2-2-140HA05-HP132	30421535
4,10	6	74	36	29	36	SCD361-0410-2-2-140HA05-HP132	30421536
4,20	6	74	36	29	36	SCD361-0420-2-2-140HA05-HP132	30421537
4,30	6	74	36	29	36	SCD361-0430-2-2-140HA05-HP132	30421539
4,40	6	74	36	29	36	SCD361-0440-2-2-140HA05-HP132	30421540
4,50	6	74	36	29	36	SCD361-0450-2-2-140HA05-HP132	30421541

ECU-Drill-Steel | Solid carbide twist drills SCD36 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
4,60	6	74	36	29	36	SCD361-0460-2-2-140HA05-HP132	30421542
*4,65	6	74	36	29	36	SCD361-0465-2-2-140HA05-HP132	30421543
4,70	6	74	36	29	36	SCD361-0470-2-2-140HA05-HP132	30421544
4,80	6	82	44	35	36	SCD361-0480-2-2-140HA05-HP132	30421545
4,90	6	82	44	35	36	SCD361-0490-2-2-140HA05-HP132	30421546
5,00	6	82	44	35	36	SCD361-0500-2-2-140HA05-HP132	30421548
5,10	6	82	44	35	36	SCD361-0510-2-2-140HA05-HP132	30421550
5,20	6	82	44	35	36	SCD361-0520-2-2-140HA05-HP132	30421551
5,30	6	82	44	35	36	SCD361-0530-2-2-140HA05-HP132	30421552
5,40	6	82	44	35	36	SCD361-0540-2-2-140HA05-HP132	30421553
5,50	6	82	44	35	36	SCD361-0550-2-2-140HA05-HP132	30421554
*5,55	6	82	44	35	36	SCD361-0555-2-2-140HA05-HP132	30421555
5,60	6	82	44	35	36	SCD361-0560-2-2-140HA05-HP132	30421556
5,70	6	82	44	35	36	SCD361-0570-2-2-140HA05-HP132	30421557
5,80	6	82	44	35	36	SCD361-0580-2-2-140HA05-HP132	30421559
5,90	6	82	44	35	36	SCD361-0590-2-2-140HA05-HP132	30421560
6,00	6	82	44	35	36	SCD361-0600-2-2-140HA05-HP132	30421561
6,10	8	91	53	43	36	SCD361-0610-2-2-140HA05-HP132	30421562
6,20	8	91	53	43	36	SCD361-0620-2-2-140HA05-HP132	30421563
6,30	8	91	53	43	36	SCD361-0630-2-2-140HA05-HP132	30421564
6,40	8	91	53	43	36	SCD361-0640-2-2-140HA05-HP132	30421565
6,50	8	91	53	43	36	SCD361-0650-2-2-140HA05-HP132	30421566
6,60	8	91	53	43	36	SCD361-0660-2-2-140HA05-HP132	30421567
6,70	8	91	53	43	36	SCD361-0670-2-2-140HA05-HP132	30421568
6,80	8	91	53	43	36	SCD361-0680-2-2-140HA05-HP132	30421569
6,90	8	91	53	43	36	SCD361-0690-2-2-140HA05-HP132	30421570
7,00	8	91	53	43	36	SCD361-0700-2-2-140HA05-HP132	30421571
7,10	8	91	53	43	36	SCD361-0710-2-2-140HA05-HP132	30421572
7,20	8	91	53	43	36	SCD361-0720-2-2-140HA05-HP132	30421573
7,30	8	91	53	43	36	SCD361-0730-2-2-140HA05-HP132	30421574
7,40	8	91	53	43	36	SCD361-0740-2-2-140HA05-HP132	30421575
*7,45	8	91	53	43	36	SCD361-0745-2-2-140HA05-HP132	30421577
7,50	8	91	53	43	36	SCD361-0750-2-2-140HA05-HP132	30421577
7,60	8	91	53	43	36	SCD361-0760-2-2-140HA05-HP132	30421579
7,70	8	91	53	43	36	SCD361-0770-2-2-140HA05-HP132	30421580
7,80	8	91	53	43	36	SCD361-0780-2-2-140HA05-HP132	30421581
7,90	8	91	53	43	36	SCD361-0790-2-2-140HA05-HP132	30421582
8,00	8	91	53	43	36	SCD361-0800-2-2-140HA05-HP132	30421583
8,10	10	103	61	49	40	SCD361-0810-2-2-140HA05-HP132	30421584
8,20	10	103	61	49	40	SCD361-0820-2-2-140HA05-HP132	30421585
8,30	10	103	61	49	40	SCD361-0830-2-2-140HA05-HP132	30421586
8,40	10	103	61	49	40	SCD361-0840-2-2-140HA05-HP132	30421587
8,50	10	103	61	49	40	SCD361-0850-2-2-140HA05-HP132	30421588
8,60	10	103	61	49	40	SCD361-0860-2-2-140HA05-HP132	30421589
8,70	10	103	61	49	40	SCD361-0870-2-2-140HA05-HP132	30421590
8,80	10	103	61	49	40	SCD361-0880-2-2-140HA05-HP132	30421591
8,90	10	103	61	49	40	SCD361-0890-2-2-140HA05-HP132	30421592
9,00	10	103	61	49	40	SCD361-0900-2-2-140HA05-HP132	30421593
9,10	10	103	61	49	40	SCD361-0910-2-2-140HA05-HP132	30421594
9,20	10	103	61	49	40	SCD361-0920-2-2-140HA05-HP132	30421595
*9,30	10	103	61	49	40	SCD361-0930-2-2-140HA05-HP132	30421597
9,40	10	103	61	49	40	SCD361-0940-2-2-140HA05-HP132	30421599
9,50	10	103	61	49	40	SCD361-0950-2-2-140HA05-HP132	30421600
9,60	10	103	61	49	40	SCD361-0960-2-2-140HA05-HP132	30421601
9,70	10	103	61	49	40	SCD361-0970-2-2-140HA05-HP132	30421602
9,80	10	103	61	49	40	SCD361-0980-2-2-140HA05-HP132	30421603
9,90	10	103	61	49	40	SCD361-0990-2-2-140HA05-HP132	30421604

ECU-Drill-Steel | Solid carbide twist drills SCD36 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,00	10	103	61	49	40	SCD361-1000-2-2-140HA05-HP132	30421605
10,10	12	118	71	56	45	SCD361-1010-2-2-140HA05-HP132	30421606
10,20	12	118	71	56	45	SCD361-1020-2-2-140HA05-HP132	30421607
10,30	12	118	71	56	45	SCD361-1030-2-2-140HA05-HP132	30421608
10,40	12	118	71	56	45	SCD361-1040-2-2-140HA05-HP132	30421609
10,50	12	118	71	56	45	SCD361-1050-2-2-140HA05-HP132	30421610
10,60	12	118	71	56	45	SCD361-1060-2-2-140HA05-HP132	30421612
10,70	12	118	71	56	45	SCD361-1070-2-2-140HA05-HP132	30421613
10,80	12	118	71	56	45	SCD361-1080-2-2-140HA05-HP132	30421615
10,90	12	118	71	56	45	SCD361-1090-2-2-140HA05-HP132	30421616
11,00	12	118	71	56	45	SCD361-1100-2-2-140HA05-HP132	30421617
11,10	12	118	71	56	45	SCD361-1110-2-2-140HA05-HP132	30421618
*11,20	12	118	71	56	45	SCD361-1120-2-2-140HA05-HP132	30421619
11,30	12	118	71	56	45	SCD361-1130-2-2-140HA05-HP132	30421621
11,40	12	118	71	56	45	SCD361-1140-2-2-140HA05-HP132	30421622
11,50	12	118	71	56	45	SCD361-1150-2-2-140HA05-HP132	30421623
11,60	12	118	71	56	45	SCD361-1160-2-2-140HA05-HP132	30421624
11,70	12	118	71	56	45	SCD361-1170-2-2-140HA05-HP132	30421625
11,80	12	118	71	56	45	SCD361-1180-2-2-140HA05-HP132	30421626
11,90	12	118	71	56	45	SCD361-1190-2-2-140HA05-HP132	30421628
12,00	12	118	71	56	45	SCD361-1200-2-2-140HA05-HP132	30421629
12,20	14	124	77	60	45	SCD361-1220-2-2-140HA05-HP132	30569175
12,50	14	124	77	60	45	SCD361-1250-2-2-140HA05-HP132	30421632
12,70	14	124	77	60	45	SCD361-1270-2-2-140HA05-HP132	30421633
12,80	14	124	77	60	45	SCD361-1280-2-2-140HA05-HP132	30421634
13,00	14	124	77	60	45	SCD361-1300-2-2-140HA05-HP132	30421636
13,10	14	124	77	60	45	SCD361-1310-2-2-140HA05-HP132	30421637
13,20	14	124	77	60	45	SCD361-1320-2-2-140HA05-HP132	30421638
13,50	14	124	77	60	45	SCD361-1350-2-2-140HA05-HP132	30421640
13,70	14	124	77	60	45	SCD361-1370-2-2-140HA05-HP132	30421641
13,80	14	124	77	60	45	SCD361-1380-2-2-140HA05-HP132	30421642
14,00	14	124	77	60	45	SCD361-1400-2-2-140HA05-HP132	30421643
14,20	16	133	83	63	48	SCD361-1420-2-2-140HA05-HP132	30421644
14,50	16	133	83	63	48	SCD361-1450-2-2-140HA05-HP132	30421645
14,70	16	133	83	63	48	SCD361-1470-2-2-140HA05-HP132	30421646
14,80	16	133	83	63	48	SCD361-1480-2-2-140HA05-HP132	30421647
15,00	16	133	83	63	48	SCD361-1500-2-2-140HA05-HP132	30421648
15,10	16	133	83	63	48	SCD361-1510-2-2-140HA05-HP132	30421649
15,50	16	133	83	63	48	SCD361-1550-2-2-140HA05-HP132	30421652
15,70	16	133	83	63	48	SCD361-1570-2-2-140HA05-HP132	30421654
15,80	16	133	83	63	48	SCD361-1580-2-2-140HA05-HP132	30421655
16,00	16	133	83	63	48	SCD361-1600-2-2-140HA05-HP132	30421656
16,50	18	143	93	71	48	SCD361-1650-2-2-140HA05-HP132	30421657
16,80	18	143	93	71	48	SCD361-1680-2-2-140HA05-HP132	30421658
17,00	18	143	93	71	48	SCD361-1700-2-2-140HA05-HP132	30421660
17,50	18	143	93	71	48	SCD361-1750-2-2-140HA05-HP132	30421661
17,80	18	143	93	71	48	SCD361-1780-2-2-140HA05-HP132	30421663
18,00	18	143	93	71	48	SCD361-1800-2-2-140HA05-HP132	30421664
18,50	20	153	101	77	50	SCD361-1850-2-2-140HA05-HP132	30421665
18,80	20	153	101	77	50	SCD361-1880-2-2-140HA05-HP132	30421666
19,00	20	153	101	77	50	SCD361-1900-2-2-140HA05-HP132	30421668
19,50	20	153	101	77	50	SCD361-1950-2-2-140HA05-HP132	30421669
19,80	20	153	101	77	50	SCD361-1980-2-2-140HA05-HP132	30421671
20,00	20	153	101	77	50	SCD361-2000-2-2-140HA05-HP132	30421672

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

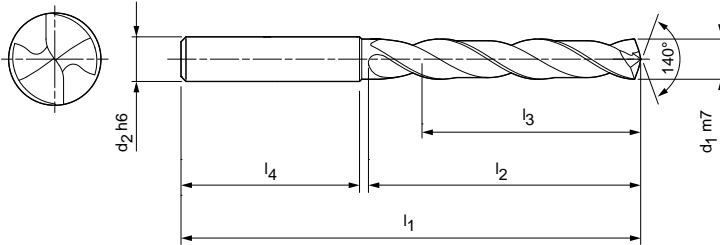
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-Drill-Steel

Solid carbide twist drill
SCD36 (5xD), external coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Tip angle: 140 °
 Side rake angle: 30 °



Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	66	28	23	36	SCD360-0300-2-2-140HA05-HP132	30568692
3,10	6	66	28	23	36	SCD360-0310-2-2-140HA05-HP132	30568693
3,20	6	66	28	23	36	SCD360-0320-2-2-140HA05-HP132	30568694
3,30	6	66	28	23	36	SCD360-0330-2-2-140HA05-HP132	30568695
3,40	6	66	28	23	36	SCD360-0340-2-2-140HA05-HP132	30568696
3,50	6	66	28	23	36	SCD360-0350-2-2-140HA05-HP132	30568697
3,60	6	66	28	23	36	SCD360-0360-2-2-140HA05-HP132	30568698
*3,70	6	66	28	23	36	SCD360-0370-2-2-140HA05-HP132	30568699
3,80	6	74	36	29	36	SCD360-0380-2-2-140HA05-HP132	30568700
3,90	6	74	36	29	36	SCD360-0390-2-2-140HA05-HP132	30568701
4,00	6	74	36	29	36	SCD360-0400-2-2-140HA05-HP132	30568702
4,10	6	74	36	29	36	SCD360-0410-2-2-140HA05-HP132	30568703
4,20	6	74	36	29	36	SCD360-0420-2-2-140HA05-HP132	30568704
4,30	6	74	36	29	36	SCD360-0430-2-2-140HA05-HP132	30568705
4,40	6	74	36	29	36	SCD360-0440-2-2-140HA05-HP132	30568706
4,50	6	74	36	29	36	SCD360-0450-2-2-140HA05-HP132	30568707
4,60	6	74	36	29	36	SCD360-0460-2-2-140HA05-HP132	30568708
*4,65	6	74	36	29	36	SCD360-0465-2-2-140HA05-HP132	30568709
4,70	6	74	36	29	36	SCD360-0470-2-2-140HA05-HP132	30568710
4,80	6	82	44	35	36	SCD360-0480-2-2-140HA05-HP132	30568711
4,90	6	82	44	35	36	SCD360-0490-2-2-140HA05-HP132	30568712
5,00	6	82	44	35	36	SCD360-0500-2-2-140HA05-HP132	30568713
5,10	6	82	44	35	36	SCD360-0510-2-2-140HA05-HP132	30568714
5,20	6	82	44	35	36	SCD360-0520-2-2-140HA05-HP132	30568715
5,30	6	82	44	35	36	SCD360-0530-2-2-140HA05-HP132	30568716
5,40	6	82	44	35	36	SCD360-0540-2-2-140HA05-HP132	30568717
5,50	6	82	44	35	36	SCD360-0550-2-2-140HA05-HP132	30568718
*5,55	6	82	44	35	36	SCD360-0555-2-2-140HA05-HP132	30568719
5,60	6	82	44	35	36	SCD360-0560-2-2-140HA05-HP132	30568720
5,70	6	82	44	35	36	SCD360-0570-2-2-140HA05-HP132	30568721
5,80	6	82	44	35	36	SCD360-0580-2-2-140HA05-HP132	30568722
5,90	6	82	44	35	36	SCD360-0590-2-2-140HA05-HP132	30568723
6,00	6	82	44	35	36	SCD360-0600-2-2-140HA05-HP132	30568724
6,10	8	91	53	43	36	SCD360-0610-2-2-140HA05-HP132	30568725
6,20	8	91	53	43	36	SCD360-0620-2-2-140HA05-HP132	30568726
6,30	8	91	53	43	36	SCD360-0630-2-2-140HA05-HP132	30568727

ECU-Drill-Steel | Solid carbide twist drills SCD36 (5xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	91	53	43	36	SCD360-0640-2-2-140HA05-HP132	30568728
6,50	8	91	53	43	36	SCD360-0650-2-2-140HA05-HP132	30568729
6,60	8	91	53	43	36	SCD360-0660-2-2-140HA05-HP132	30568730
6,70	8	91	53	43	36	SCD360-0670-2-2-140HA05-HP132	30568731
6,80	8	91	53	43	36	SCD360-0680-2-2-140HA05-HP132	30568732
6,90	8	91	53	43	36	SCD360-0690-2-2-140HA05-HP132	30568733
7,00	8	91	53	43	36	SCD360-0700-2-2-140HA05-HP132	30568734
7,10	8	91	53	43	36	SCD360-0710-2-2-140HA05-HP132	30568735
7,20	8	91	53	43	36	SCD360-0720-2-2-140HA05-HP132	30568736
7,30	8	91	53	43	36	SCD360-0730-2-2-140HA05-HP132	30568737
7,40	8	91	53	43	36	SCD360-0740-2-2-140HA05-HP132	30568738
*7,45	8	91	53	43	36	SCD360-0745-2-2-140HA05-HP132	30568739
7,50	8	91	53	43	36	SCD360-0750-2-2-140HA05-HP132	30568740
7,60	8	91	53	43	36	SCD360-0760-2-2-140HA05-HP132	30568741
7,70	8	91	53	43	36	SCD360-0770-2-2-140HA05-HP132	30568742
7,80	8	91	53	43	36	SCD360-0780-2-2-140HA05-HP132	30568743
7,90	8	91	53	43	36	SCD360-0790-2-2-140HA05-HP132	30568744
8,00	8	91	53	43	36	SCD360-0800-2-2-140HA05-HP132	30568745
8,10	10	103	61	49	40	SCD360-0810-2-2-140HA05-HP132	30568746
8,20	10	103	61	49	40	SCD360-0820-2-2-140HA05-HP132	30568747
8,30	10	103	61	49	40	SCD360-0830-2-2-140HA05-HP132	30568748
8,40	10	103	61	49	40	SCD360-0840-2-2-140HA05-HP132	30568749
8,50	10	103	61	49	40	SCD360-0850-2-2-140HA05-HP132	30568750
8,60	10	103	61	49	40	SCD360-0860-2-2-140HA05-HP132	30568751
8,70	10	103	61	49	40	SCD360-0870-2-2-140HA05-HP132	30568752
8,80	10	103	61	49	40	SCD360-0880-2-2-140HA05-HP132	30568753
8,90	10	103	61	49	40	SCD360-0890-2-2-140HA05-HP132	30568754
9,00	10	103	61	49	40	SCD360-0900-2-2-140HA05-HP132	30568755
9,10	10	103	61	49	40	SCD360-0910-2-2-140HA05-HP132	30568756
9,20	10	103	61	49	40	SCD360-0920-2-2-140HA05-HP132	30568757
*9,30	10	103	61	49	40	SCD360-0930-2-2-140HA05-HP132	30568758
9,40	10	103	61	49	40	SCD360-0940-2-2-140HA05-HP132	30568759
9,50	10	103	61	49	40	SCD360-0950-2-2-140HA05-HP132	30568760
9,60	10	103	61	49	40	SCD360-0960-2-2-140HA05-HP132	30568761
9,70	10	103	61	49	40	SCD360-0970-2-2-140HA05-HP132	30568762
9,80	10	103	61	49	40	SCD360-0980-2-2-140HA05-HP132	30568763
9,90	10	103	61	49	40	SCD360-0990-2-2-140HA05-HP132	30568764
10,00	10	103	61	49	40	SCD360-1000-2-2-140HA05-HP132	30568765
10,10	12	118	71	56	45	SCD360-1010-2-2-140HA05-HP132	30568766
10,20	12	118	71	56	45	SCD360-1020-2-2-140HA05-HP132	30568767
10,30	12	118	71	56	45	SCD360-1030-2-2-140HA05-HP132	30568768
10,40	12	118	71	56	45	SCD360-1040-2-2-140HA05-HP132	30568769
10,50	12	118	71	56	45	SCD360-1050-2-2-140HA05-HP132	30568770
10,60	12	118	71	56	45	SCD360-1060-2-2-140HA05-HP132	30568771
10,70	12	118	71	56	45	SCD360-1070-2-2-140HA05-HP132	30568772
10,80	12	118	71	56	45	SCD360-1080-2-2-140HA05-HP132	30568773
10,90	12	118	71	56	45	SCD360-1090-2-2-140HA05-HP132	30568774
11,00	12	118	71	56	45	SCD360-1100-2-2-140HA05-HP132	30568775
11,10	12	118	71	56	45	SCD360-1110-2-2-140HA05-HP132	30568776
*11,20	12	118	71	56	45	SCD360-1120-2-2-140HA05-HP132	30568777
11,30	12	118	71	56	45	SCD360-1130-2-2-140HA05-HP132	30568778
11,40	12	118	71	56	45	SCD360-1140-2-2-140HA05-HP132	30568779
11,50	12	118	71	56	45	SCD360-1150-2-2-140HA05-HP132	30568780
11,60	12	118	71	56	45	SCD360-1160-2-2-140HA05-HP132	30568781
11,70	12	118	71	56	45	SCD360-1170-2-2-140HA05-HP132	30568782
11,80	12	118	71	56	45	SCD360-1180-2-2-140HA05-HP132	30568783
11,90	12	118	71	56	45	SCD360-1190-2-2-140HA05-HP132	30568784

Continued on next page.

ECU-Drill-Steel | Solid carbide twist drills SCD36 (5xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,00	12	118	71	56	45	SCD360-1200-2-2-140HA05-HP132	30568785
12,20	14	124	77	60	45	SCD360-1220-2-2-140HA05-HP132	30568786
12,50	14	124	77	60	45	SCD360-1250-2-2-140HA05-HP132	30568787
12,70	14	124	77	60	45	SCD360-1270-2-2-140HA05-HP132	30568788
12,80	14	124	77	60	45	SCD360-1280-2-2-140HA05-HP132	30568789
13,00	14	124	77	60	45	SCD360-1300-2-2-140HA05-HP132	30568790
13,10	14	124	77	60	45	SCD360-1310-2-2-140HA05-HP132	30569190
13,20	14	124	77	60	45	SCD360-1320-2-2-140HA05-HP132	30568791
13,50	14	124	77	60	45	SCD360-1350-2-2-140HA05-HP132	30568792
13,70	14	124	77	60	45	SCD360-1370-2-2-140HA05-HP132	30568793
13,80	14	124	77	60	45	SCD360-1380-2-2-140HA05-HP132	30568794
14,00	14	124	77	60	45	SCD360-1400-2-2-140HA05-HP132	30568795
14,20	16	133	83	63	48	SCD360-1420-2-2-140HA05-HP132	30568796
14,50	16	133	83	63	48	SCD360-1450-2-2-140HA05-HP132	30568797
14,70	16	133	83	63	48	SCD360-1470-2-2-140HA05-HP132	30568798
14,80	16	133	83	63	48	SCD360-1480-2-2-140HA05-HP132	30568799
15,00	16	133	83	63	48	SCD360-1500-2-2-140HA05-HP132	30568800
15,10	16	133	83	63	48	SCD360-1510-2-2-140HA05-HP132	30569191
15,50	16	133	83	63	48	SCD360-1550-2-2-140HA05-HP132	30568801
15,70	16	133	83	63	48	SCD360-1570-2-2-140HA05-HP132	30568802
15,80	16	133	83	63	48	SCD360-1580-2-2-140HA05-HP132	30568803
16,00	16	133	83	63	48	SCD360-1600-2-2-140HA05-HP132	30568804
16,50	18	143	93	71	48	SCD360-1650-2-2-140HA05-HP132	30568805
16,80	18	143	93	71	48	SCD360-1680-2-2-140HA05-HP132	30568806
17,00	18	143	93	71	48	SCD360-1700-2-2-140HA05-HP132	30568807
17,50	18	143	93	71	48	SCD360-1750-2-2-140HA05-HP132	30568808
17,80	18	143	93	71	48	SCD360-1780-2-2-140HA05-HP132	30568809
18,00	18	143	93	71	48	SCD360-1800-2-2-140HA05-HP132	30568810
18,50	20	153	101	77	50	SCD360-1850-2-2-140HA05-HP132	30568811
18,80	20	153	101	77	50	SCD360-1880-2-2-140HA05-HP132	30568812
19,00	20	153	101	77	50	SCD360-1900-2-2-140HA05-HP132	30568813
19,50	20	153	101	77	50	SCD360-1950-2-2-140HA05-HP132	30568814
19,80	20	153	101	77	50	SCD360-1980-2-2-140HA05-HP132	30568815
20,00	20	153	101	77	50	SCD360-2000-2-2-140HA05-HP132	30568816

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

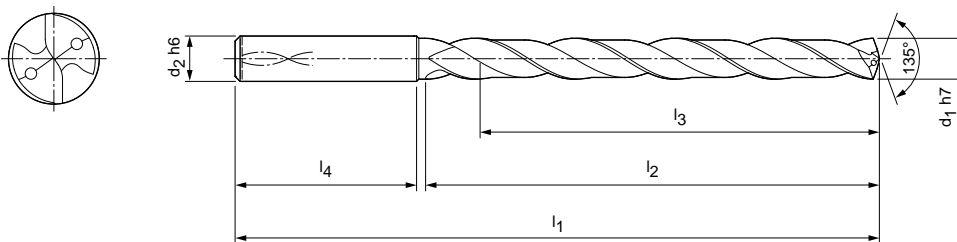
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-Drill-Steel

Solid carbide twist drill
SCD36 (8xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Tip angle: 135°
 Side rake angle: 30°



Dimensions						Shank form HA	
$d_1 h7$	$d_2 h6$	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	72	34	29	36	SCD361-0300-2-2-135HA08-HP132	30677713
3,10	6	72	34	29	36	SCD361-0310-2-2-135HA08-HP132	30677714
3,20	6	72	34	29	36	SCD361-0320-2-2-135HA08-HP132	30677715
3,30	6	72	34	29	36	SCD361-0330-2-2-135HA08-HP132	30677716
3,40	6	72	34	29	36	SCD361-0340-2-2-135HA08-HP132	30677717
3,50	6	72	34	29	36	SCD361-0350-2-2-135HA08-HP132	30677718
3,60	6	72	34	29	36	SCD361-0360-2-2-135HA08-HP132	30677719
3,70	6	72	34	29	36	SCD361-0370-2-2-135HA08-HP132	30677720
3,80	6	81	43	36	36	SCD361-0380-2-2-135HA08-HP132	30677721
3,90	6	81	43	36	36	SCD361-0390-2-2-135HA08-HP132	30677722
4,00	6	81	43	36	36	SCD361-0400-2-2-135HA08-HP132	30677723
4,10	6	81	43	36	36	SCD361-0410-2-2-135HA08-HP132	30677724
4,20	6	81	43	36	36	SCD361-0420-2-2-135HA08-HP132	30677725
4,30	6	81	43	36	36	SCD361-0430-2-2-135HA08-HP132	30677726
4,40	6	81	43	36	36	SCD361-0440-2-2-135HA08-HP132	30677727
4,50	6	81	43	36	36	SCD361-0450-2-2-135HA08-HP132	30677728
4,60	6	81	43	36	36	SCD361-0460-2-2-135HA08-HP132	30677729
4,70	6	81	43	36	36	SCD361-0470-2-2-135HA08-HP132	30677730
4,80	6	95	57	48	36	SCD361-0480-2-2-135HA08-HP132	30677731
4,90	6	95	57	48	36	SCD361-0490-2-2-135HA08-HP132	30677732
5,00	6	95	57	48	36	SCD361-0500-2-2-135HA08-HP132	30677733
5,10	6	95	57	48	36	SCD361-0510-2-2-135HA08-HP132	30677734
5,20	6	95	57	48	36	SCD361-0520-2-2-135HA08-HP132	30677735
5,30	6	95	57	48	36	SCD361-0530-2-2-135HA08-HP132	30677736
5,40	6	95	57	48	36	SCD361-0540-2-2-135HA08-HP132	30677737
5,50	6	95	57	48	36	SCD361-0550-2-2-135HA08-HP132	30677738
5,60	6	95	57	48	36	SCD361-0560-2-2-135HA08-HP132	30677739
5,70	6	95	57	48	36	SCD361-0570-2-2-135HA08-HP132	30677740
5,80	6	95	57	48	36	SCD361-0580-2-2-135HA08-HP132	30677741
5,90	6	95	57	48	36	SCD361-0590-2-2-135HA08-HP132	30677742
6,00	6	95	57	48	36	SCD361-0600-2-2-135HA08-HP132	30677743
6,10	8	114	76	64	36	SCD361-0610-2-2-135HA08-HP132	30677744
6,20	8	114	76	64	36	SCD361-0620-2-2-135HA08-HP132	30677745
6,30	8	114	76	64	36	SCD361-0630-2-2-135HA08-HP132	30677746
6,40	8	114	76	64	36	SCD361-0640-2-2-135HA08-HP132	30677747
6,50	8	114	76	64	36	SCD361-0650-2-2-135HA08-HP132	30677748

ECU-Drill-Steel | Solid carbide twist drills SCD36 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,60	8	114	76	64	36	SCD361-0660-2-2-135HA08-HP132	30677749
6,70	8	114	76	64	36	SCD361-0670-2-2-135HA08-HP132	30677751
6,80	8	114	76	64	36	SCD361-0680-2-2-135HA08-HP132	30677752
6,90	8	114	76	64	36	SCD361-0690-2-2-135HA08-HP132	30677753
7,00	8	114	76	64	36	SCD361-0700-2-2-135HA08-HP132	30677754
7,10	8	114	76	64	36	SCD361-0710-2-2-135HA08-HP132	30677755
7,20	8	114	76	64	36	SCD361-0720-2-2-135HA08-HP132	30677756
7,30	8	114	76	64	36	SCD361-0730-2-2-135HA08-HP132	30677757
7,40	8	114	76	64	36	SCD361-0740-2-2-135HA08-HP132	30677758
7,50	8	114	76	64	36	SCD361-0750-2-2-135HA08-HP132	30677759
7,60	8	114	76	64	36	SCD361-0760-2-2-135HA08-HP132	30677760
7,70	8	114	76	64	36	SCD361-0770-2-2-135HA08-HP132	30677761
7,80	8	114	76	64	36	SCD361-0780-2-2-135HA08-HP132	30677762
7,90	8	114	76	64	36	SCD361-0790-2-2-135HA08-HP132	30677763
8,00	8	114	76	64	36	SCD361-0800-2-2-135HA08-HP132	30677764
8,10	10	142	95	80	40	SCD361-0810-2-2-135HA08-HP132	30677765
8,20	10	142	95	80	40	SCD361-0820-2-2-135HA08-HP132	30677766
8,30	10	142	95	80	40	SCD361-0830-2-2-135HA08-HP132	30677767
8,40	10	142	95	80	40	SCD361-0840-2-2-135HA08-HP132	30677768
8,50	10	142	95	80	40	SCD361-0850-2-2-135HA08-HP132	30677769
8,60	10	142	95	80	40	SCD361-0860-2-2-135HA08-HP132	30677770
8,65	10	142	95	80	40	SCD361-0865-2-2-135HA08-HP132	30677771
8,70	10	142	95	80	40	SCD361-0870-2-2-135HA08-HP132	30677772
8,80	10	142	95	80	40	SCD361-0880-2-2-135HA08-HP132	30677773
8,90	10	142	95	80	40	SCD361-0890-2-2-135HA08-HP132	30677774
9,00	10	142	95	80	40	SCD361-0900-2-2-135HA08-HP132	30677775
9,10	10	142	95	80	40	SCD361-0910-2-2-135HA08-HP132	30677776
9,20	10	142	95	80	40	SCD361-0920-2-2-135HA08-HP132	30677777
9,30	10	142	95	80	40	SCD361-0930-2-2-135HA08-HP132	30677778
9,40	10	142	95	80	40	SCD361-0940-2-2-135HA08-HP132	30677779
9,50	10	142	95	80	40	SCD361-0950-2-2-135HA08-HP132	30677780
9,60	10	142	95	80	40	SCD361-0960-2-2-135HA08-HP132	30677781
9,70	10	142	95	80	40	SCD361-0970-2-2-135HA08-HP132	30677782
9,80	10	142	95	80	40	SCD361-0980-2-2-135HA08-HP132	30677783
9,90	10	142	95	80	40	SCD361-0990-2-2-135HA08-HP132	30677784
10,00	10	142	95	80	40	SCD361-1000-2-2-135HA08-HP132	30677785
10,10	12	162	114	96	45	SCD361-1010-2-2-135HA08-HP132	30677786
10,20	12	162	114	96	45	SCD361-1020-2-2-135HA08-HP132	30677787
10,30	12	162	114	96	45	SCD361-1030-2-2-135HA08-HP132	30677788
10,40	12	162	114	96	45	SCD361-1040-2-2-135HA08-HP132	30677789
10,50	12	162	114	96	45	SCD361-1050-2-2-135HA08-HP132	30677790
10,60	12	162	114	96	45	SCD361-1060-2-2-135HA08-HP132	30677791
10,70	12	162	114	96	45	SCD361-1070-2-2-135HA08-HP132	30677792
10,80	12	162	114	96	45	SCD361-1080-2-2-135HA08-HP132	30677793
10,90	12	162	114	96	45	SCD361-1090-2-2-135HA08-HP132	30677794
11,00	12	162	114	96	45	SCD361-1100-2-2-135HA08-HP132	30677795
11,10	12	162	114	96	45	SCD361-1110-2-2-135HA08-HP132	30677796
11,20	12	162	114	96	45	SCD361-1120-2-2-135HA08-HP132	30677797
11,30	12	162	114	96	45	SCD361-1130-2-2-135HA08-HP132	30677798
11,40	12	162	114	96	45	SCD361-1140-2-2-135HA08-HP132	30677799
11,50	12	162	114	96	45	SCD361-1150-2-2-135HA08-HP132	30677800
11,60	12	162	114	96	45	SCD361-1160-2-2-135HA08-HP132	30677801
11,70	12	162	114	96	45	SCD361-1170-2-2-135HA08-HP132	30677802
11,80	12	162	114	96	45	SCD361-1180-2-2-135HA08-HP132	30677803
11,90	12	162	114	96	45	SCD361-1190-2-2-135HA08-HP132	30677804
12,00	12	162	114	96	45	SCD361-1200-2-2-135HA08-HP132	30677805
12,20	14	178	133	112	45	SCD361-1220-2-2-135HA08-HP132	30677806

ECU-Drill-Steel | Solid carbide twist drills SCD36 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	178	133	112	45	SCD361-1250-2-2-135HA08-HP132	30677807
12,80	14	178	133	112	45	SCD361-1280-2-2-135HA08-HP132	30677808
13,00	14	178	133	112	45	SCD361-1300-2-2-135HA08-HP132	30677809
13,10	14	178	133	112	45	SCD361-1310-2-2-135HA08-HP132	30677810
13,50	14	178	133	112	45	SCD361-1350-2-2-135HA08-HP132	30677811
13,80	14	178	133	112	45	SCD361-1380-2-2-135HA08-HP132	30677812
14,00	14	178	133	112	45	SCD361-1400-2-2-135HA08-HP132	30677813
14,20	16	203	152	128	48	SCD361-1420-2-2-135HA08-HP132	30677814
14,50	16	203	152	128	48	SCD361-1450-2-2-135HA08-HP132	30677815
14,80	16	203	152	128	48	SCD361-1480-2-2-135HA08-HP132	30677816
15,00	16	203	152	128	48	SCD361-1500-2-2-135HA08-HP132	30677817
15,50	16	203	152	128	48	SCD361-1550-2-2-135HA08-HP132	30677818
15,80	16	203	152	128	48	SCD361-1580-2-2-135HA08-HP132	30677819
16,00	16	203	152	128	48	SCD361-1600-2-2-135HA08-HP132	30677820
16,50	18	222	171	144	48	SCD361-1650-2-2-135HA08-HP132	30677821
17,00	18	222	171	144	48	SCD361-1700-2-2-135HA08-HP132	30677822
17,50	18	222	171	144	48	SCD361-1750-2-2-135HA08-HP132	30677823
18,00	18	222	171	144	48	SCD361-1800-2-2-135HA08-HP132	30677824
18,50	20	243	190	160	50	SCD361-1850-2-2-135HA08-HP132	30677825
19,00	20	243	190	160	50	SCD361-1900-2-2-135HA08-HP132	30677826
19,50	20	243	190	160	50	SCD361-1950-2-2-135HA08-HP132	30677827
20,00	20	243	190	160	50	SCD361-2000-2-2-135HA08-HP132	30677828

Dimensions in mm.

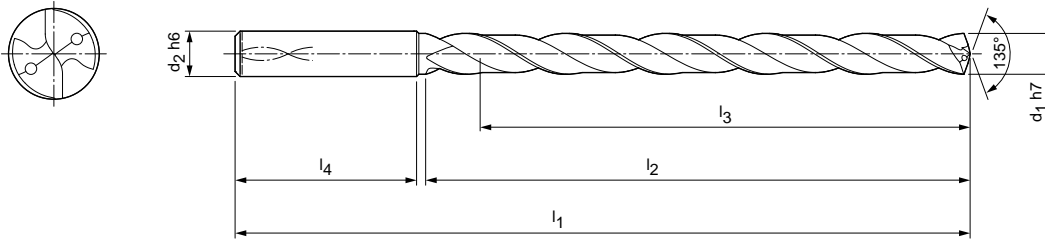
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-Drill-Steel

Solid carbide twist drill
SCD36 (12xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Tip angle: 135 °
 Side rake angle: 30 °



Dimensions						Shank form HA	
d_1 h7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	92	54	48	36	SCD361-0300-2-2-135HA12-HP132	30677829
3,10	6	92	54	48	36	SCD361-0310-2-2-135HA12-HP132	30677830
3,20	6	92	54	48	36	SCD361-0320-2-2-135HA12-HP132	30677831
3,30	6	92	54	48	36	SCD361-0330-2-2-135HA12-HP132	30677832
3,40	6	92	54	48	36	SCD361-0340-2-2-135HA12-HP132	30677833
3,50	6	92	54	48	36	SCD361-0350-2-2-135HA12-HP132	30677834
3,60	6	92	54	48	36	SCD361-0360-2-2-135HA12-HP132	30677835
3,70	6	92	54	48	36	SCD361-0370-2-2-135HA12-HP132	30677836
3,80	6	102	64	58	36	SCD361-0380-2-2-135HA12-HP132	30677837
3,90	6	102	64	58	36	SCD361-0390-2-2-135HA12-HP132	30677838
4,00	6	102	64	58	36	SCD361-0400-2-2-135HA12-HP132	30677839
4,10	6	102	64	58	36	SCD361-0410-2-2-135HA12-HP132	30677840
4,20	6	102	64	58	36	SCD361-0420-2-2-135HA12-HP132	30677841
4,30	6	102	64	58	36	SCD361-0430-2-2-135HA12-HP132	30677842
4,40	6	102	64	58	36	SCD361-0440-2-2-135HA12-HP132	30677843
4,50	6	102	64	58	36	SCD361-0450-2-2-135HA12-HP132	30677844
4,60	6	102	64	58	36	SCD361-0460-2-2-135HA12-HP132	30677845
4,70	6	102	64	58	36	SCD361-0470-2-2-135HA12-HP132	30677846
4,80	6	116	78	70	36	SCD361-0480-2-2-135HA12-HP132	30677847
4,90	6	116	78	70	36	SCD361-0490-2-2-135HA12-HP132	30677848
5,00	6	116	78	70	36	SCD361-0500-2-2-135HA12-HP132	30677849
5,10	6	116	78	70	36	SCD361-0510-2-2-135HA12-HP132	30677850
5,20	6	116	78	70	36	SCD361-0520-2-2-135HA12-HP132	30677851
5,30	6	116	78	70	36	SCD361-0530-2-2-135HA12-HP132	30677852
5,50	6	116	78	70	36	SCD361-0550-2-2-135HA12-HP132	30677853
5,80	6	116	78	70	36	SCD361-0580-2-2-135HA12-HP132	30677854
5,90	6	116	78	70	36	SCD361-0590-2-2-135HA12-HP132	30677855
6,00	6	116	78	70	36	SCD361-0600-2-2-135HA12-HP132	30677856
6,10	8	146	108	94	36	SCD361-0610-2-2-135HA12-HP132	30677857
6,20	8	146	108	94	36	SCD361-0620-2-2-135HA12-HP132	30677858
6,30	8	146	108	94	36	SCD361-0630-2-2-135HA12-HP132	30677859
6,50	8	146	108	94	36	SCD361-0650-2-2-135HA12-HP132	30677860
6,60	8	146	108	94	36	SCD361-0660-2-2-135HA12-HP132	30677861
6,80	8	146	108	94	36	SCD361-0680-2-2-135HA12-HP132	30677862
7,00	8	146	108	94	36	SCD361-0700-2-2-135HA12-HP132	30677863
7,40	8	146	108	94	36	SCD361-0740-2-2-135HA12-HP132	30677864

ECU-Drill-Steel | Solid carbide twist drills SCD36 (12xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
7,50	8	146	108	94	36	SCD361-0750-2-2-135HA12-HP132	30677865
7,70	8	146	108	94	36	SCD361-0770-2-2-135HA12-HP132	30677866
7,80	8	146	108	94	36	SCD361-0780-2-2-135HA12-HP132	30677867
7,90	8	146	108	94	36	SCD361-0790-2-2-135HA12-HP132	30677868
8,00	8	146	108	94	36	SCD361-0800-2-2-135HA12-HP132	30677869
8,10	10	162	120	110	40	SCD361-0810-2-2-135HA12-HP132	30677870
8,20	10	162	120	110	40	SCD361-0820-2-2-135HA12-HP132	30677871
8,30	10	162	120	110	40	SCD361-0830-2-2-135HA12-HP132	30677872
8,40	10	162	120	110	40	SCD361-0840-2-2-135HA12-HP132	30677873
8,50	10	162	120	110	40	SCD361-0850-2-2-135HA12-HP132	30677874
8,60	10	162	120	110	40	SCD361-0860-2-2-135HA12-HP132	30677875
8,70	10	162	120	110	40	SCD361-0870-2-2-135HA12-HP132	30677876
8,80	10	162	120	110	40	SCD361-0880-2-2-135HA12-HP132	30677877
9,00	10	162	120	110	40	SCD361-0900-2-2-135HA12-HP132	30677878
9,10	10	162	120	110	40	SCD361-0910-2-2-135HA12-HP132	30677879
9,20	10	162	120	110	40	SCD361-0920-2-2-135HA12-HP132	30677880
9,30	10	162	120	110	40	SCD361-0930-2-2-135HA12-HP132	30677881
9,40	10	162	120	110	40	SCD361-0940-2-2-135HA12-HP132	30677882
9,50	10	162	120	110	40	SCD361-0950-2-2-135HA12-HP132	30677883
9,70	10	162	120	110	40	SCD361-0970-2-2-135HA12-HP132	30677884
9,80	10	162	120	110	40	SCD361-0980-2-2-135HA12-HP132	30677885
9,90	10	162	120	110	40	SCD361-0990-2-2-135HA12-HP132	30677886
10,00	10	162	120	110	40	SCD361-1000-2-2-135HA12-HP132	30677887
10,20	12	204	156	142	45	SCD361-1020-2-2-135HA12-HP132	30677888
10,50	12	204	156	142	45	SCD361-1050-2-2-135HA12-HP132	30677889
10,80	12	204	156	142	45	SCD361-1080-2-2-135HA12-HP132	30677890
11,00	12	204	156	142	45	SCD361-1100-2-2-135HA12-HP132	30677891
11,20	12	204	156	142	45	SCD361-1120-2-2-135HA12-HP132	30677892
11,50	12	204	156	142	45	SCD361-1150-2-2-135HA12-HP132	30677893
11,80	12	204	156	142	45	SCD361-1180-2-2-135HA12-HP132	30677894
12,00	12	204	156	142	45	SCD361-1200-2-2-135HA12-HP132	30677895
12,50	14	230	182	166	45	SCD361-1250-2-2-135HA12-HP132	30677896
13,00	14	230	182	166	45	SCD361-1300-2-2-135HA12-HP132	30677897
13,20	14	230	182	166	45	SCD361-1320-2-2-135HA12-HP132	30677898
13,50	14	230	182	166	45	SCD361-1350-2-2-135HA12-HP132	30677899
14,00	14	230	182	166	45	SCD361-1400-2-2-135HA12-HP132	30677900
14,50	16	260	208	192	48	SCD361-1450-2-2-135HA12-HP132	30677901
14,80	16	260	208	192	48	SCD361-1480-2-2-135HA12-HP132	30677902
15,00	16	260	208	192	48	SCD361-1500-2-2-135HA12-HP132	30677903
15,50	16	260	208	192	48	SCD361-1550-2-2-135HA12-HP132	30677904
15,80	16	260	208	192	48	SCD361-1580-2-2-135HA12-HP132	30677905
16,00	16	260	208	192	48	SCD361-1600-2-2-135HA12-HP132	30677906
16,50	18	285	234	216	48	SCD361-1650-2-2-135HA12-HP132	30677907
17,00	18	285	234	216	48	SCD361-1700-2-2-135HA12-HP132	30677908
17,50	18	285	234	216	48	SCD361-1750-2-2-135HA12-HP132	30677909
18,00	18	285	234	216	48	SCD361-1800-2-2-135HA12-HP132	30677910
18,50	20	310	258	240	50	SCD361-1850-2-2-135HA12-HP132	30677911
19,00	20	310	258	240	50	SCD361-1900-2-2-135HA12-HP132	30677912
20,00	20	310	258	240	50	SCD361-2000-2-2-135HA12-HP132	30677913

Dimensions in mm.

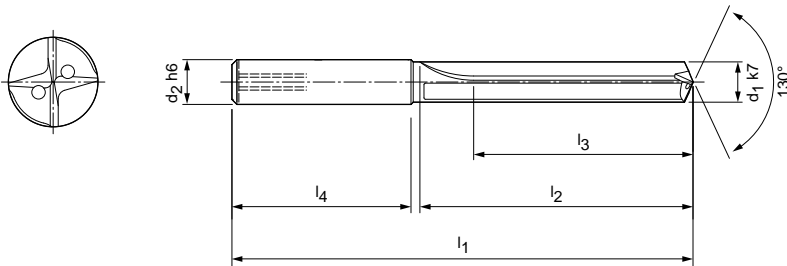
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-G-Drill

Straight fluted
SCD21 (5xD), internal coolant supply

Design:
 Bore diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 130 °



Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	66	28	23	36	SCD211-0300-2-4-130HA05-HU610	30392604
3,10	6	66	28	23	36	SCD211-0310-2-4-130HA05-HU610	30392605
3,20	6	66	28	23	36	SCD211-0320-2-4-130HA05-HU610	30392606
3,30	6	66	28	23	36	SCD211-0330-2-4-130HA05-HU610	30392607
3,40	6	66	28	23	36	SCD211-0340-2-4-130HA05-HU610	30392608
3,50	6	66	28	23	36	SCD211-0350-2-4-130HA05-HU610	30392609
3,60	6	66	28	23	36	SCD211-0360-2-4-130HA05-HU610	30392610
3,70	6	66	28	23	36	SCD211-0370-2-4-130HA05-HU610	30392611
3,80	6	74	36	29	36	SCD211-0380-2-4-130HA05-HU610	30392612
3,90	6	74	36	29	36	SCD211-0390-2-4-130HA05-HU610	30392613
4,00	6	74	36	29	36	SCD211-0400-2-4-130HA05-HU610	30392614
4,10	6	74	36	29	36	SCD211-0410-2-4-130HA05-HU610	30392615
4,20	6	74	36	29	36	SCD211-0420-2-4-130HA05-HU610	30392616
4,30	6	74	36	29	36	SCD211-0430-2-4-130HA05-HU610	30392617
4,40	6	74	36	29	36	SCD211-0440-2-4-130HA05-HU610	30392618
4,50	6	74	36	29	36	SCD211-0450-2-4-130HA05-HU610	30392619
4,60	6	74	36	29	36	SCD211-0460-2-4-130HA05-HU610	30392620
4,70	6	74	36	29	36	SCD211-0470-2-4-130HA05-HU610	30392621
4,80	6	82	44	35	36	SCD211-0480-2-4-130HA05-HU610	30392622
4,90	6	82	44	35	36	SCD211-0490-2-4-130HA05-HU610	30392623
5,00	6	82	44	35	36	SCD211-0500-2-4-130HA05-HU610	30392624
5,10	6	82	44	35	36	SCD211-0510-2-4-130HA05-HU610	30392626
5,20	6	82	44	35	36	SCD211-0520-2-4-130HA05-HU610	30392627
5,30	6	82	44	35	36	SCD211-0530-2-4-130HA05-HU610	30392628
5,40	6	82	44	35	36	SCD211-0540-2-4-130HA05-HU610	30392629
5,50	6	82	44	35	36	SCD211-0550-2-4-130HA05-HU610	30392630
5,60	6	82	44	35	36	SCD211-0560-2-4-130HA05-HU610	30392631
5,70	6	82	44	35	36	SCD211-0570-2-4-130HA05-HU610	30392632
5,80	6	82	44	35	36	SCD211-0580-2-4-130HA05-HU610	30392633
5,90	6	82	44	35	36	SCD211-0590-2-4-130HA05-HU610	30392634
6,00	6	82	44	35	36	SCD211-0600-2-4-130HA05-HU610	30392635
6,10	8	91	53	43	36	SCD211-0610-2-4-130HA05-HU610	30392636
6,20	8	91	53	43	36	SCD211-0620-2-4-130HA05-HU610	30392637
6,30	8	91	53	43	36	SCD211-0630-2-4-130HA05-HU610	30392638
6,40	8	91	53	43	36	SCD211-0640-2-4-130HA05-HU610	30392639
6,50	8	91	53	43	36	SCD211-0650-2-4-130HA05-HU610	30392640

ECU-G-Drill | Straight-fluted, SCD21 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,60	8	91	53	43	36	SCD211-0660-2-4-130HA05-HU610	30392641
6,70	8	91	53	43	36	SCD211-0670-2-4-130HA05-HU610	30392642
6,80	8	91	53	43	36	SCD211-0680-2-4-130HA05-HU610	30392643
6,90	8	91	53	43	36	SCD211-0690-2-4-130HA05-HU610	30392644
7,00	8	91	53	43	36	SCD211-0700-2-4-130HA05-HU610	30392645
7,10	8	91	53	43	36	SCD211-0710-2-4-130HA05-HU610	30392646
7,20	8	91	53	43	36	SCD211-0720-2-4-130HA05-HU610	30392647
7,30	8	91	53	43	36	SCD211-0730-2-4-130HA05-HU610	30392648
7,40	8	91	53	43	36	SCD211-0740-2-4-130HA05-HU610	30392649
7,50	8	91	53	43	36	SCD211-0750-2-4-130HA05-HU610	30392650
7,60	8	91	53	43	36	SCD211-0760-2-4-130HA05-HU610	30392651
7,70	8	91	53	43	36	SCD211-0770-2-4-130HA05-HU610	30392652
7,80	8	91	53	43	36	SCD211-0780-2-4-130HA05-HU610	30392653
7,90	8	91	53	43	36	SCD211-0790-2-4-130HA05-HU610	30392654
8,00	8	91	53	43	36	SCD211-0800-2-4-130HA05-HU610	30392655
8,10	10	103	61	49	40	SCD211-0810-2-4-130HA05-HU610	30392656
8,20	10	103	61	49	40	SCD211-0820-2-4-130HA05-HU610	30392657
8,30	10	103	61	49	40	SCD211-0830-2-4-130HA05-HU610	30392658
8,40	10	103	61	49	40	SCD211-0840-2-4-130HA05-HU610	30392659
8,50	10	103	61	49	40	SCD211-0850-2-4-130HA05-HU610	30392660
8,60	10	103	61	49	40	SCD211-0860-2-4-130HA05-HU610	30392661
8,70	10	103	61	49	40	SCD211-0870-2-4-130HA05-HU610	30392662
8,80	10	103	61	49	40	SCD211-0880-2-4-130HA05-HU610	30392663
8,90	10	103	61	49	40	SCD211-0890-2-4-130HA05-HU610	30392664
9,00	10	103	61	49	40	SCD211-0900-2-4-130HA05-HU610	30392665
9,10	10	103	61	49	40	SCD211-0910-2-4-130HA05-HU610	30392666
9,20	10	103	61	49	40	SCD211-0920-2-4-130HA05-HU610	30392667
9,30	10	103	61	49	40	SCD211-0930-2-4-130HA05-HU610	30392668
9,40	10	103	61	49	40	SCD211-0940-2-4-130HA05-HU610	30392669
9,50	10	103	61	49	40	SCD211-0950-2-4-130HA05-HU610	30392670
9,60	10	103	61	49	40	SCD211-0960-2-4-130HA05-HU610	30392671
9,70	10	103	61	49	40	SCD211-0970-2-4-130HA05-HU610	30392672
9,80	10	103	61	49	40	SCD211-0980-2-4-130HA05-HU610	30392673
9,90	10	103	61	49	40	SCD211-0990-2-4-130HA05-HU610	30392674
10,00	10	103	61	49	40	SCD211-1000-2-4-130HA05-HU610	30392675
10,10	12	118	71	56	45	SCD211-1010-2-4-130HA05-HU610	30392676
10,20	12	118	71	56	45	SCD211-1020-2-4-130HA05-HU610	30392677
10,30	12	118	71	56	45	SCD211-1030-2-4-130HA05-HU610	30392678
10,40	12	118	71	56	45	SCD211-1040-2-4-130HA05-HU610	30392679
10,50	12	118	71	56	45	SCD211-1050-2-4-130HA05-HU610	30392680
10,60	12	118	71	56	45	SCD211-1060-2-4-130HA05-HU610	30392681
10,70	12	118	71	56	45	SCD211-1070-2-4-130HA05-HU610	30392682
10,80	12	118	71	56	45	SCD211-1080-2-4-130HA05-HU610	30392683
10,90	12	118	71	56	45	SCD211-1090-2-4-130HA05-HU610	30392684
11,00	12	118	71	56	45	SCD211-1100-2-4-130HA05-HU610	30392685
11,10	12	118	71	56	45	SCD211-1110-2-4-130HA05-HU610	30392686
11,20	12	118	71	56	45	SCD211-1120-2-4-130HA05-HU610	30392687
11,30	12	118	71	56	45	SCD211-1130-2-4-130HA05-HU610	30392688
11,40	12	118	71	56	45	SCD211-1140-2-4-130HA05-HU610	30392689
11,50	12	118	71	56	45	SCD211-1150-2-4-130HA05-HU610	30392690
11,60	12	118	71	56	45	SCD211-1160-2-4-130HA05-HU610	30392691
11,70	12	118	71	56	45	SCD211-1170-2-4-130HA05-HU610	30392692
11,80	12	118	71	56	45	SCD211-1180-2-4-130HA05-HU610	30392693
11,90	12	118	71	56	45	SCD211-1190-2-4-130HA05-HU610	30392694
12,00	12	118	71	56	45	SCD211-1200-2-4-130HA05-HU610	30392695
12,50	14	124	77	60	45	SCD211-1250-2-4-130HA05-HU610	30392696
13,00	14	124	77	60	45	SCD211-1300-2-4-130HA05-HU610	30392697

Continued on next page.

ECU-G-Drill | Straight-fluted, SCD21 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
13,50	14	124	77	60	45	SCD211-1350-2-4-130HA05-HU610	30392698
14,00	14	124	77	60	45	SCD211-1400-2-4-130HA05-HU610	30392699
14,50	16	133	83	63	48	SCD211-1450-2-4-130HA05-HU610	30392700
15,00	16	133	83	63	48	SCD211-1500-2-4-130HA05-HU610	30392701
15,50	16	133	83	63	48	SCD211-1550-2-4-130HA05-HU610	30392702
16,00	16	133	83	63	48	SCD211-1600-2-4-130HA05-HU610	30392703
16,50	18	143	93	71	48	SCD211-1650-2-4-130HA05-HU610	30392704
17,00	18	143	93	71	48	SCD211-1700-2-4-130HA05-HU610	30392705
18,00	18	143	93	71	48	SCD211-1800-2-4-130HA05-HU610	30392706
18,50	20	153	101	77	50	SCD211-1850-2-4-130HA05-HU610	30392707
19,00	20	153	101	77	50	SCD211-1900-2-4-130HA05-HU610	30392708
19,50	20	153	101	77	50	SCD211-1950-2-4-130HA05-HU610	30392709
20,00	20	153	101	77	50	SCD211-2000-2-4-130HA05-HU610	30392710

Dimensions in mm.

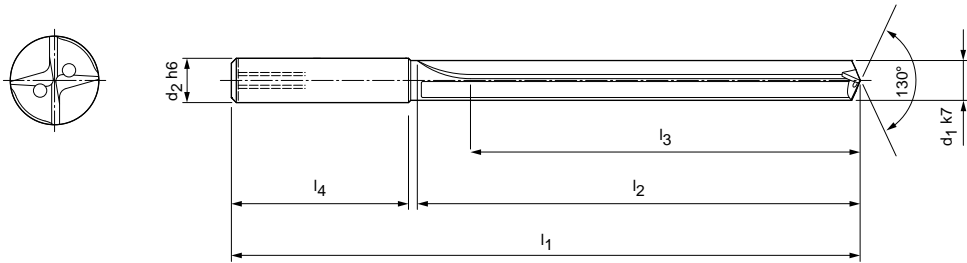
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-G-Drill

Straight fluted
SCD21 (8xD), internal coolant supply

Design:
 Bore diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 130 °



Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	72	34	29	36	SCD211-0300-2-4-130HA08-HU610	30392711
3,10	6	72	34	29	36	SCD211-0310-2-4-130HA08-HU610	30392712
3,20	6	72	34	29	36	SCD211-0320-2-4-130HA08-HU610	30392713
3,30	6	72	34	29	36	SCD211-0330-2-4-130HA08-HU610	30392714
3,40	6	72	34	29	36	SCD211-0340-2-4-130HA08-HU610	30392715
3,50	6	72	34	29	36	SCD211-0350-2-4-130HA08-HU610	30392716
3,60	6	72	34	29	36	SCD211-0360-2-4-130HA08-HU610	30392717
3,70	6	72	34	29	36	SCD211-0370-2-4-130HA08-HU610	30392718
3,80	6	81	43	36	36	SCD211-0380-2-4-130HA08-HU610	30392719
3,90	6	81	43	36	36	SCD211-0390-2-4-130HA08-HU610	30392720
4,00	6	81	43	36	36	SCD211-0400-2-4-130HA08-HU610	30392721
4,10	6	81	43	36	36	SCD211-0410-2-4-130HA08-HU610	30392722
4,20	6	81	43	36	36	SCD211-0420-2-4-130HA08-HU610	30392723
4,30	6	81	43	36	36	SCD211-0430-2-4-130HA08-HU610	30392724
4,40	6	81	43	36	36	SCD211-0440-2-4-130HA08-HU610	30392725
4,50	6	81	43	36	36	SCD211-0450-2-4-130HA08-HU610	30392726
4,60	6	81	43	36	36	SCD211-0460-2-4-130HA08-HU610	30392727
4,70	6	81	43	36	36	SCD211-0470-2-4-130HA08-HU610	30392728
4,80	6	95	57	48	36	SCD211-0480-2-4-130HA08-HU610	30392729
4,90	6	95	57	48	36	SCD211-0490-2-4-130HA08-HU610	30392730
5,00	6	95	57	48	36	SCD211-0500-2-4-130HA08-HU610	30392731
5,10	6	95	57	48	36	SCD211-0510-2-4-130HA08-HU610	30392732
5,20	6	95	57	48	36	SCD211-0520-2-4-130HA08-HU610	30392733
5,30	6	95	57	48	36	SCD211-0530-2-4-130HA08-HU610	30392734
5,40	6	95	57	48	36	SCD211-0540-2-4-130HA08-HU610	30392735
5,50	6	95	57	48	36	SCD211-0550-2-4-130HA08-HU610	30392736
5,60	6	95	57	48	36	SCD211-0560-2-4-130HA08-HU610	30392737
5,70	6	95	57	48	36	SCD211-0570-2-4-130HA08-HU610	30392738
5,80	6	95	57	48	36	SCD211-0580-2-4-130HA08-HU610	30392739
5,90	6	95	57	48	36	SCD211-0590-2-4-130HA08-HU610	30392740
6,00	6	95	57	48	36	SCD211-0600-2-4-130HA08-HU610	30392741
6,10	8	114	76	64	36	SCD211-0610-2-4-130HA08-HU610	30392742
6,20	8	114	76	64	36	SCD211-0620-2-4-130HA08-HU610	30392743
6,30	8	114	76	64	36	SCD211-0630-2-4-130HA08-HU610	30392744
6,40	8	114	76	64	36	SCD211-0640-2-4-130HA08-HU610	30392745
6,50	8	114	76	64	36	SCD211-0650-2-4-130HA08-HU610	30392746

ECU-G-Drill | Straight-fluted, SCD21 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,60	8	114	76	64	36	SCD211-0660-2-4-130HA08-HU610	30392747
6,70	8	114	76	64	36	SCD211-0670-2-4-130HA08-HU610	30392748
6,80	8	114	76	64	36	SCD211-0680-2-4-130HA08-HU610	30392749
6,90	8	114	76	64	36	SCD211-0690-2-4-130HA08-HU610	30392750
7,00	8	114	76	64	36	SCD211-0700-2-4-130HA08-HU610	30392751
7,10	8	114	76	64	36	SCD211-0710-2-4-130HA08-HU610	30392752
7,20	8	114	76	64	36	SCD211-0720-2-4-130HA08-HU610	30392753
7,30	8	114	76	64	36	SCD211-0730-2-4-130HA08-HU610	30392754
7,40	8	114	76	64	36	SCD211-0740-2-4-130HA08-HU610	30392755
7,50	8	114	76	64	36	SCD211-0750-2-4-130HA08-HU610	30392756
7,60	8	114	76	64	36	SCD211-0760-2-4-130HA08-HU610	30392757
7,70	8	114	76	64	36	SCD211-0770-2-4-130HA08-HU610	30392758
7,80	8	114	76	64	36	SCD211-0780-2-4-130HA08-HU610	30392759
7,90	8	114	76	64	36	SCD211-0790-2-4-130HA08-HU610	30392760
8,00	8	114	76	64	36	SCD211-0800-2-4-130HA08-HU610	30392761
8,10	10	142	95	80	40	SCD211-0810-2-4-130HA08-HU610	30392762
8,20	10	142	95	80	40	SCD211-0820-2-4-130HA08-HU610	30392763
8,30	10	142	95	80	40	SCD211-0830-2-4-130HA08-HU610	30392764
8,40	10	142	95	80	40	SCD211-0840-2-4-130HA08-HU610	30392765
8,50	10	142	95	80	40	SCD211-0850-2-4-130HA08-HU610	30392766
8,60	10	142	95	80	40	SCD211-0860-2-4-130HA08-HU610	30392767
8,70	10	142	95	80	40	SCD211-0870-2-4-130HA08-HU610	30392768
8,80	10	142	95	80	40	SCD211-0880-2-4-130HA08-HU610	30392769
8,90	10	142	95	80	40	SCD211-0890-2-4-130HA08-HU610	30392770
9,00	10	142	95	80	40	SCD211-0900-2-4-130HA08-HU610	30392771
9,10	10	142	95	80	40	SCD211-0910-2-4-130HA08-HU610	30392772
9,20	10	142	95	80	40	SCD211-0920-2-4-130HA08-HU610	30392773
9,30	10	142	95	80	40	SCD211-0930-2-4-130HA08-HU610	30392774
9,40	10	142	95	80	40	SCD211-0940-2-4-130HA08-HU610	30392775
9,50	10	142	95	80	40	SCD211-0950-2-4-130HA08-HU610	30392776
9,60	10	142	95	80	40	SCD211-0960-2-4-130HA08-HU610	30392777
9,70	10	142	95	80	40	SCD211-0970-2-4-130HA08-HU610	30392778
9,80	10	142	95	80	40	SCD211-0980-2-4-130HA08-HU610	30392779
9,90	10	142	95	80	40	SCD211-0990-2-4-130HA08-HU610	30392780
10,00	10	142	95	80	40	SCD211-1000-2-4-130HA08-HU610	30392781
10,10	12	162	114	96	45	SCD211-1010-2-4-130HA08-HU610	30392782
10,20	12	162	114	96	45	SCD211-1020-2-4-130HA08-HU610	30392783
10,30	12	162	114	96	45	SCD211-1030-2-4-130HA08-HU610	30392784
10,40	12	162	114	96	45	SCD211-1040-2-4-130HA08-HU610	30392785
10,50	12	162	114	96	45	SCD211-1050-2-4-130HA08-HU610	30392786
10,60	12	162	114	96	45	SCD211-1060-2-4-130HA08-HU610	30392787
10,70	12	162	114	96	45	SCD211-1070-2-4-130HA08-HU610	30392788
10,80	12	162	114	96	45	SCD211-1080-2-4-130HA08-HU610	30392789
10,90	12	162	114	96	45	SCD211-1090-2-4-130HA08-HU610	30392790
11,00	12	162	114	96	45	SCD211-1100-2-4-130HA08-HU610	30392791
11,10	12	162	114	96	45	SCD211-1110-2-4-130HA08-HU610	30392792
11,20	12	162	114	96	45	SCD211-1120-2-4-130HA08-HU610	30392793
11,30	12	162	114	96	45	SCD211-1130-2-4-130HA08-HU610	30392794
11,40	12	162	114	96	45	SCD211-1140-2-4-130HA08-HU610	30392795
11,50	12	162	114	96	45	SCD211-1150-2-4-130HA08-HU610	30392796
11,60	12	162	114	96	45	SCD211-1160-2-4-130HA08-HU610	30392797
11,70	12	162	114	96	45	SCD211-1170-2-4-130HA08-HU610	30392798
11,80	12	162	114	96	45	SCD211-1180-2-4-130HA08-HU610	30392799
11,90	12	162	114	96	45	SCD211-1190-2-4-130HA08-HU610	30392800
12,00	12	162	114	96	45	SCD211-1200-2-4-130HA08-HU610	30392801
12,50	14	178	133	112	45	SCD211-1250-2-4-130HA08-HU610	30392802
13,00	14	178	133	112	45	SCD211-1300-2-4-130HA08-HU610	30392803

ECU-G-Drill | Straight-fluted, SCD21 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
13,50	14	178	133	112	45	SCD211-1350-2-4-130HA08-HU610	30392804
14,00	14	178	133	112	45	SCD211-1400-2-4-130HA08-HU610	30392805
14,50	16	203	152	128	48	SCD211-1450-2-4-130HA08-HU610	30392806
15,00	16	203	152	128	48	SCD211-1500-2-4-130HA08-HU610	30392807
15,50	16	203	152	128	48	SCD211-1550-2-4-130HA08-HU610	30392808
16,00	16	203	152	128	48	SCD211-1600-2-4-130HA08-HU610	30392809
16,50	18	222	171	144	48	SCD211-1650-2-4-130HA08-HU610	30392810
17,00	18	222	171	144	48	SCD211-1700-2-4-130HA08-HU610	30392811
17,50	18	222	171	144	48	SCD211-1750-2-4-130HA08-HU610	30392812
18,00	18	222	171	144	48	SCD211-1800-2-4-130HA08-HU610	30392813
18,50	20	243	190	160	50	SCD211-1850-2-4-130HA08-HU610	30392814
19,00	20	243	190	160	50	SCD211-1900-2-4-130HA08-HU610	30392815
19,50	20	243	190	160	50	SCD211-1950-2-4-130HA08-HU610	30392816
20,00	20	243	190	160	50	SCD211-2000-2-4-130HA08-HU610	30392817

Dimensions in mm.

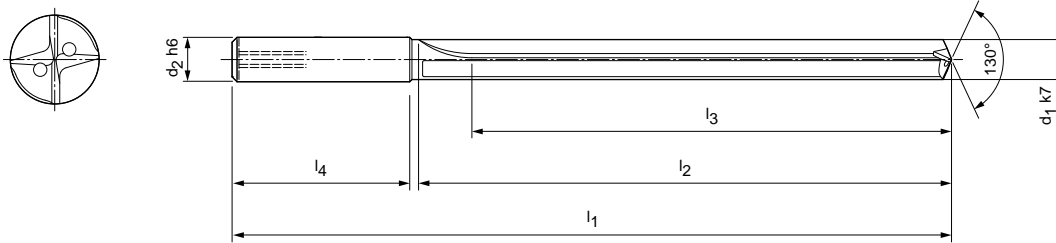
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-G-Drill

Straight fluted
SCD21 (12xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 130 °



Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	92	54	48	36	SCD211-0300-2-4-130HA12-HU610	30392818
3,10	6	92	54	48	36	SCD211-0310-2-4-130HA12-HU610	30392820
3,20	6	92	54	48	36	SCD211-0320-2-4-130HA12-HU610	30392821
3,30	6	92	54	48	36	SCD211-0330-2-4-130HA12-HU610	30392822
3,40	6	92	54	48	36	SCD211-0340-2-4-130HA12-HU610	30392823
3,50	6	92	54	48	36	SCD211-0350-2-4-130HA12-HU610	30392824
3,60	6	92	54	48	36	SCD211-0360-2-4-130HA12-HU610	30392825
3,70	6	92	54	48	36	SCD211-0370-2-4-130HA12-HU610	30392826
3,80	6	102	64	58	36	SCD211-0380-2-4-130HA12-HU610	30392827
3,90	6	102	64	58	36	SCD211-0390-2-4-130HA12-HU610	30392828
4,00	6	102	64	58	36	SCD211-0400-2-4-130HA12-HU610	30392829
4,10	6	102	64	58	36	SCD211-0410-2-4-130HA12-HU610	30392830
4,20	6	102	64	58	36	SCD211-0420-2-4-130HA12-HU610	30392831
4,30	6	102	64	58	36	SCD211-0430-2-4-130HA12-HU610	30392832
4,40	6	102	64	58	36	SCD211-0440-2-4-130HA12-HU610	30392833
4,50	6	102	64	58	36	SCD211-0450-2-4-130HA12-HU610	30392834
4,60	6	102	64	58	36	SCD211-0460-2-4-130HA12-HU610	30392835
4,70	6	102	64	58	36	SCD211-0470-2-4-130HA12-HU610	30392836
4,80	6	116	78	70	36	SCD211-0480-2-4-130HA12-HU610	30392837
4,90	6	116	78	70	36	SCD211-0490-2-4-130HA12-HU610	30392838
5,00	6	116	78	70	36	SCD211-0500-2-4-130HA12-HU610	30392839
5,10	6	116	78	70	36	SCD211-0510-2-4-130HA12-HU610	30392840
5,20	6	116	78	70	36	SCD211-0520-2-4-130HA12-HU610	30392841
5,30	6	116	78	70	36	SCD211-0530-2-4-130HA12-HU610	30392842
5,40	6	116	78	70	36	SCD211-0540-2-4-130HA12-HU610	30392843
5,50	6	116	78	70	36	SCD211-0550-2-4-130HA12-HU610	30392844
5,60	6	116	78	70	36	SCD211-0560-2-4-130HA12-HU610	30392845
5,70	6	116	78	70	36	SCD211-0570-2-4-130HA12-HU610	30392846
5,80	6	116	78	70	36	SCD211-0580-2-4-130HA12-HU610	30392847
5,90	6	116	78	70	36	SCD211-0590-2-4-130HA12-HU610	30392848
6,00	6	116	78	70	36	SCD211-0600-2-4-130HA12-HU610	30392849
6,10	8	146	108	94	36	SCD211-0610-2-4-130HA12-HU610	30392850
6,20	8	146	108	94	36	SCD211-0620-2-4-130HA12-HU610	30392851
6,30	8	146	108	94	36	SCD211-0630-2-4-130HA12-HU610	30392852
6,40	8	146	108	94	36	SCD211-0640-2-4-130HA12-HU610	30392853
6,50	8	146	108	94	36	SCD211-0650-2-4-130HA12-HU610	30392854

ECU-G-Drill | Straight-fluted, SCD21 (12xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,60	8	146	108	94	36	SCD211-0660-2-4-130HA12-HU610	30392855
6,70	8	146	108	94	36	SCD211-0670-2-4-130HA12-HU610	30392856
6,80	8	146	108	94	36	SCD211-0680-2-4-130HA12-HU610	30392857
6,90	8	146	108	94	36	SCD211-0690-2-4-130HA12-HU610	30392858
7,00	8	146	108	94	36	SCD211-0700-2-4-130HA12-HU610	30392859
7,10	8	146	108	94	36	SCD211-0710-2-4-130HA12-HU610	30392860
7,20	8	146	108	94	36	SCD211-0720-2-4-130HA12-HU610	30392861
7,30	8	146	108	94	36	SCD211-0730-2-4-130HA12-HU610	30392862
7,40	8	146	108	94	36	SCD211-0740-2-4-130HA12-HU610	30392863
7,50	8	146	108	94	36	SCD211-0750-2-4-130HA12-HU610	30392864
7,60	8	146	108	94	36	SCD211-0760-2-4-130HA12-HU610	30392865
7,70	8	146	108	94	36	SCD211-0770-2-4-130HA12-HU610	30392866
7,80	8	146	108	94	36	SCD211-0780-2-4-130HA12-HU610	30392867
7,90	8	146	108	94	36	SCD211-0790-2-4-130HA12-HU610	30392868
8,00	8	146	108	94	36	SCD211-0800-2-4-130HA12-HU610	30392869
8,10	10	162	120	110	40	SCD211-0810-2-4-130HA12-HU610	30392870
8,20	10	162	120	110	40	SCD211-0820-2-4-130HA12-HU610	30392871
8,30	10	162	120	110	40	SCD211-0830-2-4-130HA12-HU610	30392872
8,40	10	162	120	110	40	SCD211-0840-2-4-130HA12-HU610	30392873
8,50	10	162	120	110	40	SCD211-0850-2-4-130HA12-HU610	30392874
8,60	10	162	120	110	40	SCD211-0860-2-4-130HA12-HU610	30392875
8,70	10	162	120	110	40	SCD211-0870-2-4-130HA12-HU610	30392876
8,80	10	162	120	110	40	SCD211-0880-2-4-130HA12-HU610	30392877
8,90	10	162	120	110	40	SCD211-0890-2-4-130HA12-HU610	30392878
9,00	10	162	120	110	40	SCD211-0900-2-4-130HA12-HU610	30392879
9,10	10	162	120	110	40	SCD211-0910-2-4-130HA12-HU610	30392880
9,20	10	162	120	110	40	SCD211-0920-2-4-130HA12-HU610	30392881
9,30	10	162	120	110	40	SCD211-0930-2-4-130HA12-HU610	30392882
9,40	10	162	120	110	40	SCD211-0940-2-4-130HA12-HU610	30392883
9,50	10	162	120	110	40	SCD211-0950-2-4-130HA12-HU610	30392884
9,60	10	162	120	110	40	SCD211-0960-2-4-130HA12-HU610	30392885
9,70	10	162	120	110	40	SCD211-0970-2-4-130HA12-HU610	30392886
9,80	10	162	120	110	40	SCD211-0980-2-4-130HA12-HU610	30392887
9,90	10	162	120	110	40	SCD211-0990-2-4-130HA12-HU610	30392888
10,00	10	162	120	110	40	SCD211-1000-2-4-130HA12-HU610	30392889
10,10	12	204	156	142	45	SCD211-1010-2-4-130HA12-HU610	30392890
10,20	12	204	156	142	45	SCD211-1020-2-4-130HA12-HU610	30392891
10,30	12	204	156	142	45	SCD211-1030-2-4-130HA12-HU610	30392892
10,40	12	204	156	142	45	SCD211-1040-2-4-130HA12-HU610	30392893
10,50	12	204	156	142	45	SCD211-1050-2-4-130HA12-HU610	30392894
10,60	12	204	156	142	45	SCD211-1060-2-4-130HA12-HU610	30392895
10,70	12	204	156	142	45	SCD211-1070-2-4-130HA12-HU610	30392896
10,80	12	204	156	142	45	SCD211-1080-2-4-130HA12-HU610	30392897
10,90	12	204	156	142	45	SCD211-1090-2-4-130HA12-HU610	30392898
11,00	12	204	156	142	45	SCD211-1100-2-4-130HA12-HU610	30392899
11,10	12	204	156	142	45	SCD211-1110-2-4-130HA12-HU610	30392900
11,20	12	204	156	142	45	SCD211-1120-2-4-130HA12-HU610	30392901
11,30	12	204	156	142	45	SCD211-1130-2-4-130HA12-HU610	30392902
11,40	12	204	156	142	45	SCD211-1140-2-4-130HA12-HU610	30392903
11,50	12	204	156	142	45	SCD211-1150-2-4-130HA12-HU610	30392904
11,60	12	204	156	142	45	SCD211-1160-2-4-130HA12-HU610	30392905
11,70	12	204	156	142	45	SCD211-1170-2-4-130HA12-HU610	30392906
11,80	12	204	156	142	45	SCD211-1180-2-4-130HA12-HU610	30392907
11,90	12	204	156	142	45	SCD211-1190-2-4-130HA12-HU610	30392908
12,00	12	204	156	142	45	SCD211-1200-2-4-130HA12-HU610	30392909
12,50	14	230	182	166	45	SCD211-1250-2-4-130HA12-HU610	30392910
13,00	14	230	182	166	45	SCD211-1300-2-4-130HA12-HU610	30392911

Continued on next page.

ECU-G-Drill | Straight-fluted, SCD21 (12xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ k7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
13,50	14	230	182	166	45	SCD211-1350-2-4-130HA12-HU610	30392912
14,00	14	230	182	166	45	SCD211-1400-2-4-130HA12-HU610	30392913
14,50	16	260	208	192	48	SCD211-1450-2-4-130HA12-HU610	30392914
15,00	16	260	208	192	48	SCD211-1500-2-4-130HA12-HU610	30392915
15,50	16	260	208	192	48	SCD211-1550-2-4-130HA12-HU610	30392916
16,00	16	260	208	192	48	SCD211-1600-2-4-130HA12-HU610	30392917
17,00	18	285	234	216	48	SCD211-1700-2-4-130HA12-HU610	30392918
17,50	18	285	234	216	48	SCD211-1750-2-4-130HA12-HU610	30392919
18,00	18	285	234	216	48	SCD211-1800-2-4-130HA12-HU610	30392920
18,50	20	310	258	240	50	SCD211-1850-2-4-130HA12-HU610	30392921
19,00	20	310	258	240	50	SCD211-1900-2-4-130HA12-HU610	30392922
19,50	20	310	258	240	50	SCD211-1950-2-4-130HA12-HU610	30392923
20,00	20	310	258	240	50	SCD211-2000-2-4-130HA12-HU610	30392924

Dimensions in mm.

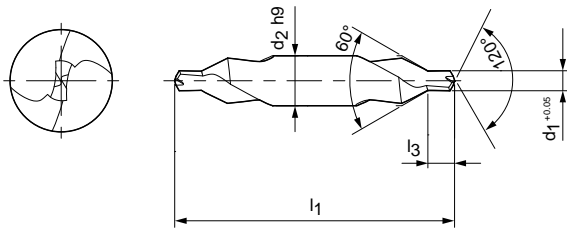
Cutting data recommendation from page 458.

Special designs and other coatings on request.

ECU-Centre-Drill

Solid carbide centre drill
SCD45

Design:
 Drill diameter: 0.50 - 6.30 mm
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 120 °/60 °
 Side rake angle: 5 °



Dimensions				Specification	Order No.
d_1 (0 +0.05)	d_2 h9	l_1	l_3		
0,50*	3,15	20,0	0,80	SCD450-0050-2-2-120HA-HU318	30561506
0,80*	3,15	20,0	1,10	SCD450-0080-2-2-120HA-HU318	30561507
1,00	3,15	31,5	1,30	SCD450-0100-2-2-120HA-HU318	30561508
1,25	3,15	31,5	1,60	SCD450-0125-2-2-120HA-HU318	30561509
1,60	4,00	35,5	2,00	SCD450-0160-2-2-120HA-HU318	30561510
2,00	5,00	40,0	2,50	SCD450-0200-2-2-120HA-HU318	30561511
2,50	6,30	45,0	3,10	SCD450-0250-2-2-120HA-HU318	30561512
3,15	8,00	50,0	3,90	SCD450-0315-2-2-120HA-HU318	30561513
4,00	10,00	56,0	5,00	SCD450-0400-2-2-120HA-HU318	30561514
5,00	12,50	63,0	6,30	SCD450-0500-2-2-120HA-HU318	30561515
6,30	16,00	71,0	8,00	SCD450-0630-2-2-120HA-HU318	30561516

Dimensions in mm.
 * Single-side cutting.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.



MEGA-DRILL

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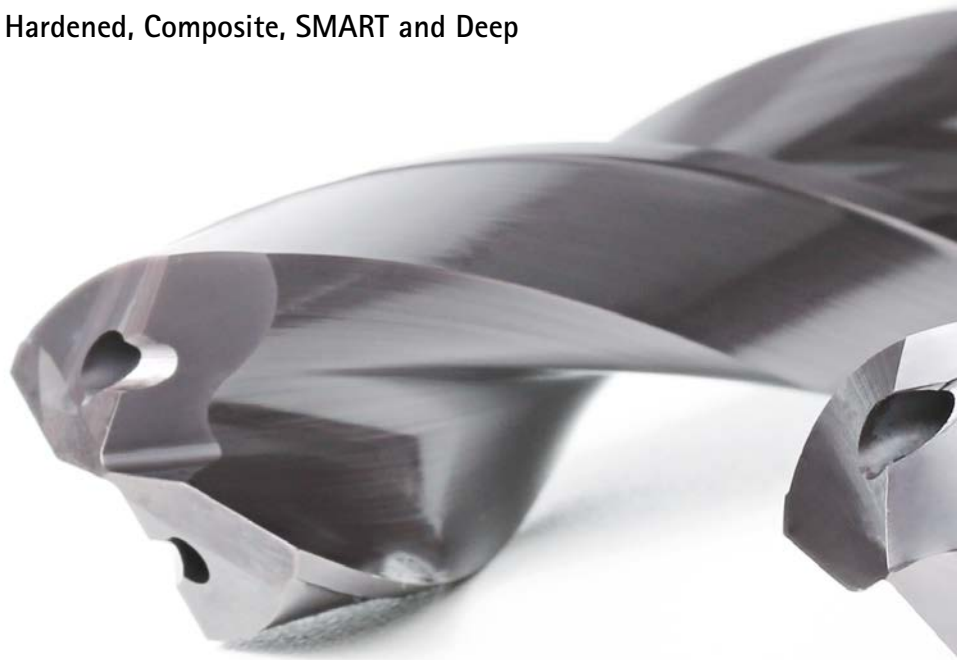






PRODUCT OVERVIEW

MEGA-Drill: Steel-Plus, Inox, Alu, Inco, Hardened, Composite, SMART and Deep

With the drills in the MEGA-Drill series, both the requirement for tools of universal application and the wish for special tools designed for the related workpiece material are met.

The series includes drills, also as step solutions, with special cutting edge geometries and chip flutes, as well as with matched coatings. Along with steel, inox, aluminium and hardened materials, the drills are also available for machining modern materials. Deep hole drills for bore up to 40xD complete the MEGA-Drill series.



				
<p>MEGA-Drill-Steel-Plus</p> <p>Due to the special design of the cutting edges and the chip flutes, the MEGA-Drill-Steel is adapted and optimised for machining steel.</p> <p>Performance LINE</p> <p>Ø range: 3.00 - 25.00 mm</p> <p>Drilling depth:</p> <p>3xD 5xD 8xD</p> <p>P K</p>	<p>MEGA-Drill-Inox</p> <p>In addition to its very sharp cutting edge with special cutting edge preparation, the MEGA-Drill-Inox also has an optimised chip flute with a rounded geometry.</p> <p>Performance LINE</p> <p>Ø range: 3.00 - 20.00 mm</p> <p>Drilling depth:</p> <p>3xD 5xD 8xD</p> <p>P M K N S</p>	<p>MEGA-Drill-Alu</p> <p>The spiral fluted high-performance drill MEGA-Drill-Alu with its large chip flutes, the special radial geometry and the highly polished chip flutes meets very high requirements on the drilling quality.</p> <p>Performance LINE</p> <p>Ø range: 3.00 - 19.00 mm</p> <p>Drilling depth:</p> <p>3xD 5xD 8xD 12xD</p> <p>N</p>	<p>MEGA-Drill-Inco</p> <p>The MEGA-Drill-Inco has four guiding chamfers. The special solid carbide substrate for pronounced cutting edge ductility as well as the highly polished chip flutes ensure controlled chip removal.</p> <p>Performance LINE</p> <p>Ø range: 3.00 - 12.00 mm</p> <p>Drilling depth:</p> <p>5xD</p> <p>S</p>	
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MEGA-Drill-Hardened

For machining hardened materials in the range from 50 – 65 HRC, the MEGA-Drill-Hardened has a high helical pitch and a special chip flute geometry.



Ø range: 2.50 - 16.00 mm

Drilling depth:

4xD

H

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MEGA-Drill-Alu

The UD and MD variants are individually designed for unidirectional and multidirectional CFRP composite materials respectively. The UDX is suitable for all CFRP materials and acts as a problem solver.



Ø range: 0.50 - 12.00 mm

Drilling depth:

5xD

N C

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MEGA-SMART-Drill

For bore diameters even in the range from 1.00 to 2.90 mm and depths of bore up to 12xD the SMART-Drill is equipped with internal coolant supply.



Ø range: 1.00 - 2.90 mm

Drilling depth:

5xD 8xD 12xD

P M K N

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MEGA-Deep-Drill

The MEGA-Deep-Drill and the MEGA-Deep-Drill-Alu open up new opportunities for the particularly efficient and reliable production of deep bores up to 40xD.



Ø range: 3.00 - 16.00 mm

Drilling depth:

15xD 20xD 25xD 30xD 40xD

P K

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MEGA-Drill-Steel-Plus

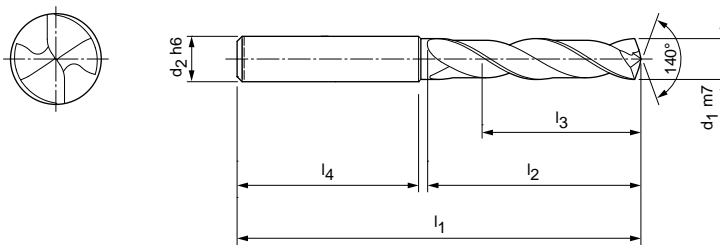
Solid carbide twist drill

SCD60 (3xD), external coolant supply

Successor product to MEGA-Drill-Steel (SCD10)

Design:

Drill diameter: 3.00 - 25.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Side rake angle: 30 °



Dimensions						Shank form HA		Shank form HE	
d1 m7	d2 h6	l1	l2	l3	l4	Specification	Order No.	Specification	Order No.
3,00	6	62	20	14	36	SCD600-0300-2-2-140HA03-HP358	30801131	SCD600-0300-2-2-140HE03-HP358	30801465
3,10	6	62	20	14	36	SCD600-0310-2-2-140HA03-HP358	30801132	SCD600-0310-2-2-140HE03-HP358	30801466
3,15	6	62	20	14	36	SCD600-0315-2-2-140HA03-HP358	30801133	SCD600-0315-2-2-140HE03-HP358	30801467
3,20	6	62	20	14	36	SCD600-0320-2-2-140HA03-HP358	30801134	SCD600-0320-2-2-140HE03-HP358	30801468
3,22	6	62	20	14	36	SCD600-0322-2-2-140HA03-HP358	30801135	SCD600-0322-2-2-140HE03-HP358	30801469
3,25	6	62	20	14	36	SCD600-0325-2-2-140HA03-HP358	30801136	SCD600-0325-2-2-140HE03-HP358	30801470
3,30	6	62	20	14	36	SCD600-0330-2-2-140HA03-HP358	30801137	SCD600-0330-2-2-140HE03-HP358	30801471
3,40	6	62	20	14	36	SCD600-0340-2-2-140HA03-HP358	30801138	SCD600-0340-2-2-140HE03-HP358	30801472
3,50	6	62	20	14	36	SCD600-0350-2-2-140HA03-HP358	30801139	SCD600-0350-2-2-140HE03-HP358	30801473
3,60	6	62	20	14	36	SCD600-0360-2-2-140HA03-HP358	30801140	SCD600-0360-2-2-140HE03-HP358	30801474
*3,70	6	62	20	14	36	SCD600-0370-2-2-140HA03-HP358	30801141	SCD600-0370-2-2-140HE03-HP358	30801475
3,80	6	66	24	17	36	SCD600-0380-2-2-140HA03-HP358	30801142	SCD600-0380-2-2-140HE03-HP358	30801476
3,85	6	66	24	17	36	SCD600-0385-2-2-140HA03-HP358	30801143	SCD600-0385-2-2-140HE03-HP358	30801477
3,90	6	66	24	17	36	SCD600-0390-2-2-140HA03-HP358	30801144	SCD600-0390-2-2-140HE03-HP358	30801478
4,00	6	66	24	17	36	SCD600-0400-2-2-140HA03-HP358	30801145	SCD600-0400-2-2-140HE03-HP358	30801479
4,10	6	66	24	17	36	SCD600-0410-2-2-140HA03-HP358	30801146	SCD600-0410-2-2-140HE03-HP358	30801480
4,20	6	66	24	17	36	SCD600-0420-2-2-140HA03-HP358	30801147	SCD600-0420-2-2-140HE03-HP358	30801481
4,25	6	66	24	17	36	SCD600-0425-2-2-140HA03-HP358	30801148	SCD600-0425-2-2-140HE03-HP358	30801482
4,30	6	66	24	17	36	SCD600-0430-2-2-140HA03-HP358	30801149	SCD600-0430-2-2-140HE03-HP358	30801483
4,35	6	66	24	17	36	SCD600-0435-2-2-140HA03-HP358	30801150	SCD600-0435-2-2-140HE03-HP358	30801484
4,40	6	66	24	17	36	SCD600-0440-2-2-140HA03-HP358	30801151	SCD600-0440-2-2-140HE03-HP358	30801485
4,45	6	66	24	17	36	SCD600-0445-2-2-140HA03-HP358	30801152	SCD600-0445-2-2-140HE03-HP358	30801486
4,50	6	66	24	17	36	SCD600-0450-2-2-140HA03-HP358	30801153	SCD600-0450-2-2-140HE03-HP358	30801487
4,60	6	66	24	17	36	SCD600-0460-2-2-140HA03-HP358	30801154	SCD600-0460-2-2-140HE03-HP358	30801488
*4,65	6	66	24	17	36	SCD600-0465-2-2-140HA03-HP358	30801155	SCD600-0465-2-2-140HE03-HP358	30801489
4,70	6	66	24	17	36	SCD600-0470-2-2-140HA03-HP358	30801156	SCD600-0470-2-2-140HE03-HP358	30801490
4,80	6	66	28	20	36	SCD600-0480-2-2-140HA03-HP358	30801157	SCD600-0480-2-2-140HE03-HP358	30801491
4,90	6	66	28	20	36	SCD600-0490-2-2-140HA03-HP358	30801158	SCD600-0490-2-2-140HE03-HP358	30801492
4,95	6	66	28	20	36	SCD600-0495-2-2-140HA03-HP358	30801159	SCD600-0495-2-2-140HE03-HP358	30801493
5,00	6	66	28	20	36	SCD600-0500-2-2-140HA03-HP358	30801160	SCD600-0500-2-2-140HE03-HP358	30801494
5,05	6	66	28	20	36	SCD600-0505-2-2-140HA03-HP358	30801161	SCD600-0505-2-2-140HE03-HP358	30801495
5,10	6	66	28	20	36	SCD600-0510-2-2-140HA03-HP358	30801162	SCD600-0510-2-2-140HE03-HP358	30801496
5,20	6	66	28	20	36	SCD600-0520-2-2-140HA03-HP358	30801163	SCD600-0520-2-2-140HE03-HP358	30801497
5,30	6	66	28	20	36	SCD600-0530-2-2-140HA03-HP358	30801164	SCD600-0530-2-2-140HE03-HP358	30801498
5,40	6	66	28	20	36	SCD600-0540-2-2-140HA03-HP358	30801165	SCD600-0540-2-2-140HE03-HP358	30801499
5,50	6	66	28	20	36	SCD600-0550-2-2-140HA03-HP358	30801166	SCD600-0550-2-2-140HE03-HP358	30801500

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (3xD), external coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
*5,55	6	66	28	20	36	SCD600-0555-2-2-140HA03-HP358	30801167	SCD600-0555-2-2-140HE03-HP358	30801502
5,60	6	66	28	20	36	SCD600-0560-2-2-140HA03-HP358	30801168	SCD600-0560-2-2-140HE03-HP358	30801503
5,70	6	66	28	20	36	SCD600-0570-2-2-140HA03-HP358	30801169	SCD600-0570-2-2-140HE03-HP358	30801504
5,75	6	66	28	20	36	SCD600-0575-2-2-140HA03-HP358	30801170	SCD600-0575-2-2-140HE03-HP358	30801505
5,80	6	66	28	20	36	SCD600-0580-2-2-140HA03-HP358	30801171	SCD600-0580-2-2-140HE03-HP358	30801506
5,90	6	66	28	20	36	SCD600-0590-2-2-140HA03-HP358	30801172	SCD600-0590-2-2-140HE03-HP358	30801507
5,95	6	66	28	20	36	SCD600-0595-2-2-140HA03-HP358	30801173	SCD600-0595-2-2-140HE03-HP358	30801508
6,00	6	66	28	20	36	SCD600-0600-2-2-140HA03-HP358	30801174	SCD600-0600-2-2-140HE03-HP358	30801509
6,10	8	79	34	24	36	SCD600-0610-2-2-140HA03-HP358	30801175	SCD600-0610-2-2-140HE03-HP358	30801510
6,20	8	79	34	24	36	SCD600-0620-2-2-140HA03-HP358	30801176	SCD600-0620-2-2-140HE03-HP358	30801511
6,30	8	79	34	24	36	SCD600-0630-2-2-140HA03-HP358	30801177	SCD600-0630-2-2-140HE03-HP358	30801512
6,40	8	79	34	24	36	SCD600-0640-2-2-140HA03-HP358	30801178	SCD600-0640-2-2-140HE03-HP358	30801513
6,50	8	79	34	24	36	SCD600-0650-2-2-140HA03-HP358	30801179	SCD600-0650-2-2-140HE03-HP358	30801514
6,60	8	79	34	24	36	SCD600-0660-2-2-140HA03-HP358	30801180	SCD600-0660-2-2-140HE03-HP358	30801515
6,70	8	79	34	24	36	SCD600-0670-2-2-140HA03-HP358	30801181	SCD600-0670-2-2-140HE03-HP358	30801516
6,80	8	79	34	24	36	SCD600-0680-2-2-140HA03-HP358	30801182	SCD600-0680-2-2-140HE03-HP358	30801517
6,90	8	79	34	24	36	SCD600-0690-2-2-140HA03-HP358	30801183	SCD600-0690-2-2-140HE03-HP358	30801518
7,00	8	79	34	24	36	SCD600-0700-2-2-140HA03-HP358	30801184	SCD600-0700-2-2-140HE03-HP358	30801519
7,10	8	79	41	29	36	SCD600-0710-2-2-140HA03-HP358	30801185	SCD600-0710-2-2-140HE03-HP358	30801520
7,20	8	79	41	29	36	SCD600-0720-2-2-140HA03-HP358	30801186	SCD600-0720-2-2-140HE03-HP358	30801521
7,30	8	79	41	29	36	SCD600-0730-2-2-140HA03-HP358	30801187	SCD600-0730-2-2-140HE03-HP358	30801522
7,40	8	79	41	29	36	SCD600-0740-2-2-140HA03-HP358	30801188	SCD600-0740-2-2-140HE03-HP358	30801523
*7,45	8	79	41	29	36	SCD600-0745-2-2-140HA03-HP358	30801189	SCD600-0745-2-2-140HE03-HP358	30801524
7,50	8	79	41	29	36	SCD600-0750-2-2-140HA03-HP358	30801190	SCD600-0750-2-2-140HE03-HP358	30801525
7,60	8	79	41	29	36	SCD600-0760-2-2-140HA03-HP358	30801191	SCD600-0760-2-2-140HE03-HP358	30801526
7,70	8	79	41	29	36	SCD600-0770-2-2-140HA03-HP358	30801192	SCD600-0770-2-2-140HE03-HP358	30801527
7,80	8	79	41	29	36	SCD600-0780-2-2-140HA03-HP358	30801193	SCD600-0780-2-2-140HE03-HP358	30801528
7,90	8	79	41	29	36	SCD600-0790-2-2-140HA03-HP358	30801194	SCD600-0790-2-2-140HE03-HP358	30801529
8,00	8	79	41	29	36	SCD600-0800-2-2-140HA03-HP358	30801195	SCD600-0800-2-2-140HE03-HP358	30801530
8,10	10	89	47	35	40	SCD600-0810-2-2-140HA03-HP358	30801196	SCD600-0810-2-2-140HE03-HP358	30801531
8,20	10	89	47	35	40	SCD600-0820-2-2-140HA03-HP358	30801197	SCD600-0820-2-2-140HE03-HP358	30801532
8,30	10	89	47	35	40	SCD600-0830-2-2-140HA03-HP358	30801198	SCD600-0830-2-2-140HE03-HP358	30801533
8,40	10	89	47	35	40	SCD600-0840-2-2-140HA03-HP358	30801199	SCD600-0840-2-2-140HE03-HP358	30801534
8,50	10	89	47	35	40	SCD600-0850-2-2-140HA03-HP358	30801200	SCD600-0850-2-2-140HE03-HP358	30801535
8,60	10	89	47	35	40	SCD600-0860-2-2-140HA03-HP358	30801201	SCD600-0860-2-2-140HE03-HP358	30801536
8,70	10	89	47	35	40	SCD600-0870-2-2-140HA03-HP358	30801202	SCD600-0870-2-2-140HE03-HP358	30801537
8,80	10	89	47	35	40	SCD600-0880-2-2-140HA03-HP358	30801203	SCD600-0880-2-2-140HE03-HP358	30801538
8,90	10	89	47	35	40	SCD600-0890-2-2-140HA03-HP358	30801204	SCD600-0890-2-2-140HE03-HP358	30801539
9,00	10	89	47	35	40	SCD600-0900-2-2-140HA03-HP358	30801205	SCD600-0900-2-2-140HE03-HP358	30801540
9,10	10	89	47	35	40	SCD600-0910-2-2-140HA03-HP358	30801206	SCD600-0910-2-2-140HE03-HP358	30801541
9,20	10	89	47	35	40	SCD600-0920-2-2-140HA03-HP358	30801207	SCD600-0920-2-2-140HE03-HP358	30801542
*9,30	10	89	47	35	40	SCD600-0930-2-2-140HA03-HP358	30801208	SCD600-0930-2-2-140HE03-HP358	30801543
9,35	10	89	47	35	40	SCD600-0935-2-2-140HA03-HP358	30801209	SCD600-0935-2-2-140HE03-HP358	30801544
9,40	10	89	47	35	40	SCD600-0940-2-2-140HA03-HP358	30801210	SCD600-0940-2-2-140HE03-HP358	30801545
9,45	10	89	47	35	40	SCD600-0945-2-2-140HA03-HP358	30801211	SCD600-0945-2-2-140HE03-HP358	30801546
9,50	10	89	47	35	40	SCD600-0950-2-2-140HA03-HP358	30801212	SCD600-0950-2-2-140HE03-HP358	30801547
9,60	10	89	47	35	40	SCD600-0960-2-2-140HA03-HP358	30801213	SCD600-0960-2-2-140HE03-HP358	30801548
9,70	10	89	47	35	40	SCD600-0970-2-2-140HA03-HP358	30801214	SCD600-0970-2-2-140HE03-HP358	30801549
9,80	10	89	47	35	40	SCD600-0980-2-2-140HA03-HP358	30801215	SCD600-0980-2-2-140HE03-HP358	30801550
9,90	10	89	47	35	40	SCD600-0990-2-2-140HA03-HP358	30801216	SCD600-0990-2-2-140HE03-HP358	30801551
10,00	10	89	47	35	40	SCD600-1000-2-2-140HA03-HP358	30801217	SCD600-1000-2-2-140HE03-HP358	30801552
10,10	12	102	55	40	45	SCD600-1010-2-2-140HA03-HP358	30801218	SCD600-1010-2-2-140HE03-HP358	30801553
10,20	12	102	55	40	45	SCD600-1020-2-2-140HA03-HP358	30801219	SCD600-1020-2-2-140HE03-HP358	30801554
10,30	12	102	55	40	45	SCD600-1030-2-2-140HA03-HP358	30801220	SCD600-1030-2-2-140HE03-HP358	30801555
10,40	12	102	55	40	45	SCD600-1040-2-2-140HA03-HP358	30801221	SCD600-1040-2-2-140HE03-HP358	30801556
10,50	12	102	55	40	45	SCD600-1050-2-2-140HA03-HP358	30801222	SCD600-1050-2-2-140HE03-HP358	30801557
10,55	12	102	55	40	45	SCD600-1055-2-2-140HA03-HP358	30801223	SCD600-1055-2-2-140HE03-HP358	30801558

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (3xD), external coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
10,60	12	102	55	40	45	SCD600-1060-2-2-140HA03-HP358	30801224	SCD600-1060-2-2-140HE03-HP358	30801559
10,70	12	102	55	40	45	SCD600-1070-2-2-140HA03-HP358	30801225	SCD600-1070-2-2-140HE03-HP358	30801560
10,75	12	102	55	40	45	SCD600-1075-2-2-140HA03-HP358	30801226	SCD600-1075-2-2-140HE03-HP358	30801561
10,80	12	102	55	40	45	SCD600-1080-2-2-140HA03-HP358	30801227	SCD600-1080-2-2-140HE03-HP358	30801562
10,90	12	102	55	40	45	SCD600-1090-2-2-140HA03-HP358	30801228	SCD600-1090-2-2-140HE03-HP358	30801563
11,00	12	102	55	40	45	SCD600-1100-2-2-140HA03-HP358	30801229	SCD600-1100-2-2-140HE03-HP358	30801564
11,10	12	102	55	40	45	SCD600-1110-2-2-140HA03-HP358	30801230	SCD600-1110-2-2-140HE03-HP358	30801565
*11,20	12	102	55	40	45	SCD600-1120-2-2-140HA03-HP358	30801231	SCD600-1120-2-2-140HE03-HP358	30801566
11,25	12	102	55	40	45	SCD600-1125-2-2-140HA03-HP358	30801232	SCD600-1125-2-2-140HE03-HP358	30801567
11,30	12	102	55	40	45	SCD600-1130-2-2-140HA03-HP358	30801233	SCD600-1130-2-2-140HE03-HP358	30801568
11,35	12	102	55	40	45	SCD600-1135-2-2-140HA03-HP358	30801234	SCD600-1135-2-2-140HE03-HP358	30801569
11,40	12	102	55	40	45	SCD600-1140-2-2-140HA03-HP358	30801235	SCD600-1140-2-2-140HE03-HP358	30801570
11,45	12	102	55	40	45	SCD600-1145-2-2-140HA03-HP358	30801236	SCD600-1145-2-2-140HE03-HP358	30801571
11,50	12	102	55	40	45	SCD600-1150-2-2-140HA03-HP358	30801237	SCD600-1150-2-2-140HE03-HP358	30801572
11,60	12	102	55	40	45	SCD600-1160-2-2-140HA03-HP358	30801238	SCD600-1160-2-2-140HE03-HP358	30801573
11,70	12	102	55	40	45	SCD600-1170-2-2-140HA03-HP358	30801239	SCD600-1170-2-2-140HE03-HP358	30801574
11,80	12	102	55	40	45	SCD600-1180-2-2-140HA03-HP358	30801240	SCD600-1180-2-2-140HE03-HP358	30801575
11,90	12	102	55	40	45	SCD600-1190-2-2-140HA03-HP358	30801241	SCD600-1190-2-2-140HE03-HP358	30801576
12,00	12	102	55	40	45	SCD600-1200-2-2-140HA03-HP358	30801242	SCD600-1200-2-2-140HE03-HP358	30801577
12,15	14	107	60	43	45	SCD600-1215-2-2-140HA03-HP358	30801243	SCD600-1215-2-2-140HE03-HP358	30801578
12,25	14	107	60	43	45	SCD600-1225-2-2-140HA03-HP358	30801244	SCD600-1225-2-2-140HE03-HP358	30801579
12,50	14	107	60	43	45	SCD600-1250-2-2-140HA03-HP358	30801245	SCD600-1250-2-2-140HE03-HP358	30801580
12,55	14	107	60	43	45	SCD600-1255-2-2-140HA03-HP358	30801246	SCD600-1255-2-2-140HE03-HP358	30801581
12,70	14	107	60	43	45	SCD600-1270-2-2-140HA03-HP358	30801247	SCD600-1270-2-2-140HE03-HP358	30801582
12,80	14	107	60	43	45	SCD600-1280-2-2-140HA03-HP358	30801248	SCD600-1280-2-2-140HE03-HP358	30801583
12,90	14	107	60	43	45	SCD600-1290-2-2-140HA03-HP358	30801249	SCD600-1290-2-2-140HE03-HP358	30801584
13,00	14	107	60	43	45	SCD600-1300-2-2-140HA03-HP358	30801250	SCD600-1300-2-2-140HE03-HP358	30801585
13,10	14	107	60	43	45	SCD600-1310-2-2-140HA03-HP358	30801251	SCD600-1310-2-2-140HE03-HP358	30801586
13,30	14	107	60	43	45	SCD600-1330-2-2-140HA03-HP358	30801252	SCD600-1330-2-2-140HE03-HP358	30801587
13,35	14	107	60	43	45	SCD600-1335-2-2-140HA03-HP358	30801253	SCD600-1335-2-2-140HE03-HP358	30801588
13,50	14	107	60	43	45	SCD600-1350-2-2-140HA03-HP358	30801254	SCD600-1350-2-2-140HE03-HP358	30801589
13,70	14	107	60	43	45	SCD600-1370-2-2-140HA03-HP358	30801255	SCD600-1370-2-2-140HE03-HP358	30801590
13,80	14	107	60	43	45	SCD600-1380-2-2-140HA03-HP358	30801256	SCD600-1380-2-2-140HE03-HP358	30801591
14,00	14	107	60	43	45	SCD600-1400-2-2-140HA03-HP358	30801257	SCD600-1400-2-2-140HE03-HP358	30801592
14,20	16	115	65	45	48	SCD600-1420-2-2-140HA03-HP358	30801258	SCD600-1420-2-2-140HE03-HP358	30801593
14,50	16	115	65	45	48	SCD600-1450-2-2-140HA03-HP358	30801259	SCD600-1450-2-2-140HE03-HP358	30801594
14,80	16	115	65	45	48	SCD600-1480-2-2-140HA03-HP358	30801260	SCD600-1480-2-2-140HE03-HP358	30801595
15,00	16	115	65	45	48	SCD600-1500-2-2-140HA03-HP358	30801261	SCD600-1500-2-2-140HE03-HP358	30801596
15,10	16	115	65	45	48	SCD600-1510-2-2-140HA03-HP358	30801262	SCD600-1510-2-2-140HE03-HP358	30801597
15,25	16	115	65	45	48	SCD600-1525-2-2-140HA03-HP358	30801263	SCD600-1525-2-2-140HE03-HP358	30801598
15,30	16	115	65	45	48	SCD600-1530-2-2-140HA03-HP358	30801264	SCD600-1530-2-2-140HE03-HP358	30801599
15,35	16	115	65	45	48	SCD600-1535-2-2-140HA03-HP358	30801265	SCD600-1535-2-2-140HE03-HP358	30801600
15,50	16	115	65	45	48	SCD600-1550-2-2-140HA03-HP358	30801266	SCD600-1550-2-2-140HE03-HP358	30801601
15,60	16	115	65	45	48	SCD600-1560-2-2-140HA03-HP358	30801267	SCD600-1560-2-2-140HE03-HP358	30801602
15,80	16	115	65	45	48	SCD600-1580-2-2-140HA03-HP358	30801268	SCD600-1580-2-2-140HE03-HP358	30801603
16,00	16	115	65	45	48	SCD600-1600-2-2-140HA03-HP358	30801269	SCD600-1600-2-2-140HE03-HP358	30801604
16,05	18	123	73	51	48	SCD600-1605-2-2-140HA03-HP358	30801270	SCD600-1605-2-2-140HE03-HP358	30801605
16,50	18	123	73	51	48	SCD600-1650-2-2-140HA03-HP358	30801271	SCD600-1650-2-2-140HE03-HP358	30801606
16,80	18	123	73	51	48	SCD600-1680-2-2-140HA03-HP358	30801272	SCD600-1680-2-2-140HE03-HP358	30801607
16,90	18	123	73	51	48	SCD600-1690-2-2-140HA03-HP358	30801273	SCD600-1690-2-2-140HE03-HP358	30801608
17,00	18	123	73	51	48	SCD600-1700-2-2-140HA03-HP358	30801274	SCD600-1700-2-2-140HE03-HP358	30801609
17,50	18	123	73	51	48	SCD600-1750-2-2-140HA03-HP358	30801275	SCD600-1750-2-2-140HE03-HP358	30801610
17,60	18	123	73	51	48	SCD600-1760-2-2-140HA03-HP358	30801276	SCD600-1760-2-2-140HE03-HP358	30801611
17,80	18	123	73	51	48	SCD600-1780-2-2-140HA03-HP358	30801277	SCD600-1780-2-2-140HE03-HP358	30801612
18,00	18	123	73	51	48	SCD600-1800-2-2-140HA03-HP358	30801278	SCD600-1800-2-2-140HE03-HP358	30801613
18,50	20	131	79	55	50	SCD600-1850-2-2-140HA03-HP358	30801279	SCD600-1850-2-2-140HE03-HP358	30801614
18,80	20	131	79	55	50	SCD600-1880-2-2-140HA03-HP358	30801280	SCD600-1880-2-2-140HE03-HP358	30801615

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (3xD), external coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
18,90	20	131	79	55	50	SCD600-1890-2-2-140HA03-HP358	30801281	SCD600-1890-2-2-140HE03-HP358	30801616
19,00	20	131	79	55	50	SCD600-1900-2-2-140HA03-HP358	30801282	SCD600-1900-2-2-140HE03-HP358	30801617
19,35	20	131	79	55	50	SCD600-1935-2-2-140HA03-HP358	30801283	SCD600-1935-2-2-140HE03-HP358	30801618
19,50	20	131	79	55	50	SCD600-1950-2-2-140HA03-HP358	30801284	SCD600-1950-2-2-140HE03-HP358	30801619
19,60	20	131	79	55	50	SCD600-1960-2-2-140HA03-HP358	30801285	SCD600-1960-2-2-140HE03-HP358	30801620
19,80	20	131	79	55	50	SCD600-1980-2-2-140HA03-HP358	30801286	SCD600-1980-2-2-140HE03-HP358	30801621
20,00	20	131	79	55	50	SCD600-2000-2-2-140HA03-HP358	30801287	SCD600-2000-2-2-140HE03-HP358	30801622
20,50	25	151	93	66	56	SCD600-2050-2-2-140HA03-HP358	30801288	SCD600-2050-2-2-140HE03-HP358	30801623
21,00	25	151	93	66	56	SCD600-2100-2-2-140HA03-HP358	30801289	SCD600-2100-2-2-140HE03-HP358	30801624
21,50	25	151	93	66	56	SCD600-2150-2-2-140HA03-HP358	30801290	SCD600-2150-2-2-140HE03-HP358	30801626
22,00	25	151	93	66	56	SCD600-2200-2-2-140HA03-HP358	30801291	SCD600-2200-2-2-140HE03-HP358	30801627
22,50	25	153	96	72	56	SCD600-2250-2-2-140HA03-HP358	30801292	SCD600-2250-2-2-140HE03-HP358	30801628
23,00	25	153	96	72	56	SCD600-2300-2-2-140HA03-HP358	30801293	SCD600-2300-2-2-140HE03-HP358	30801629
23,50	25	153	96	72	56	SCD600-2350-2-2-140HA03-HP358	30801294	SCD600-2350-2-2-140HE03-HP358	30801630
24,00	25	153	96	72	56	SCD600-2400-2-2-140HA03-HP358	30801295	SCD600-2400-2-2-140HE03-HP358	30801631
24,50	25	153	96	72	56	SCD600-2450-2-2-140HA03-HP358	30801296	SCD600-2450-2-2-140HE03-HP358	30801632
25,00	25	153	96	72	56	SCD600-2500-2-2-140HA03-HP358	30801297	SCD600-2500-2-2-140HE03-HP358	30801633

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Steel-Plus

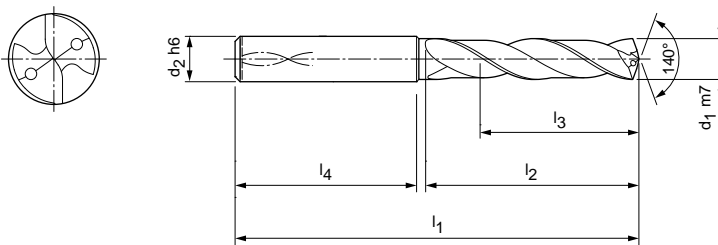
Solid carbide twist drill

SCD60 (3xD), internal coolant supply

Successor product to MEGA-Drill-Steel (SCD10)

Design:

Drill diameter: 3.00 - 25.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Side rake angle: 30 °



Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
3,00	6	62	20	14	36	SCD601-0300-2-2-140HA03-HP358	30802107	SCD601-0300-2-2-140HE03-HP358	30802443
3,10	6	62	20	14	36	SCD601-0310-2-2-140HA03-HP358	30802108	SCD601-0310-2-2-140HE03-HP358	30802444
3,15	6	62	20	14	36	SCD601-0315-2-2-140HA03-HP358	30802109	SCD601-0315-2-2-140HE03-HP358	30802445
3,20	6	62	20	14	36	SCD601-0320-2-2-140HA03-HP358	30802110	SCD601-0320-2-2-140HE03-HP358	30802446
3,22	6	62	20	14	36	SCD601-0322-2-2-140HA03-HP358	30802111	SCD601-0322-2-2-140HE03-HP358	30802447
3,25	6	62	20	14	36	SCD601-0325-2-2-140HA03-HP358	30802112	SCD601-0325-2-2-140HE03-HP358	30802448
3,30	6	62	20	14	36	SCD601-0330-2-2-140HA03-HP358	30802113	SCD601-0330-2-2-140HE03-HP358	30802449
3,40	6	62	20	14	36	SCD601-0340-2-2-140HA03-HP358	30802115	SCD601-0340-2-2-140HE03-HP358	30802450
3,50	6	62	20	14	36	SCD601-0350-2-2-140HA03-HP358	30802116	SCD601-0350-2-2-140HE03-HP358	30802451
3,60	6	62	20	14	36	SCD601-0360-2-2-140HA03-HP358	30802117	SCD601-0360-2-2-140HE03-HP358	30802452
*3,70	6	62	20	14	36	SCD601-0370-2-2-140HA03-HP358	30802118	SCD601-0370-2-2-140HE03-HP358	30802453
3,80	6	66	24	17	36	SCD601-0380-2-2-140HA03-HP358	30802119	SCD601-0380-2-2-140HE03-HP358	30802454
3,85	6	66	24	17	36	SCD601-0385-2-2-140HA03-HP358	30802120	SCD601-0385-2-2-140HE03-HP358	30802455
3,90	6	66	24	17	36	SCD601-0390-2-2-140HA03-HP358	30802121	SCD601-0390-2-2-140HE03-HP358	30802456
4,00	6	66	24	17	36	SCD601-0400-2-2-140HA03-HP358	30802122	SCD601-0400-2-2-140HE03-HP358	30802457
4,10	6	66	24	17	36	SCD601-0410-2-2-140HA03-HP358	30802123	SCD601-0410-2-2-140HE03-HP358	30802458
4,20	6	66	24	17	36	SCD601-0420-2-2-140HA03-HP358	30802124	SCD601-0420-2-2-140HE03-HP358	30802459
4,25	6	66	24	17	36	SCD601-0425-2-2-140HA03-HP358	30802125	SCD601-0425-2-2-140HE03-HP358	30802460
4,30	6	66	24	17	36	SCD601-0430-2-2-140HA03-HP358	30802126	SCD601-0430-2-2-140HE03-HP358	30802461
4,35	6	66	24	17	36	SCD601-0435-2-2-140HA03-HP358	30802128	SCD601-0435-2-2-140HE03-HP358	30802462
4,40	6	66	24	17	36	SCD601-0440-2-2-140HA03-HP358	30802129	SCD601-0440-2-2-140HE03-HP358	30802463
4,45	6	66	24	17	36	SCD601-0445-2-2-140HA03-HP358	30802130	SCD601-0445-2-2-140HE03-HP358	30802464
4,50	6	66	24	17	36	SCD601-0450-2-2-140HA03-HP358	30802131	SCD601-0450-2-2-140HE03-HP358	30802465
4,60	6	66	24	17	36	SCD601-0460-2-2-140HA03-HP358	30802132	SCD601-0460-2-2-140HE03-HP358	30802466
*4,65	6	66	24	17	36	SCD601-0465-2-2-140HA03-HP358	30802133	SCD601-0465-2-2-140HE03-HP358	30802467
4,70	6	66	24	17	36	SCD601-0470-2-2-140HA03-HP358	30802134	SCD601-0470-2-2-140HE03-HP358	30802468
4,80	6	66	28	20	36	SCD601-0480-2-2-140HA03-HP358	30802135	SCD601-0480-2-2-140HE03-HP358	30802469
4,90	6	66	28	20	36	SCD601-0490-2-2-140HA03-HP358	30802136	SCD601-0490-2-2-140HE03-HP358	30802470
4,95	6	66	28	20	36	SCD601-0495-2-2-140HA03-HP358	30802137	SCD601-0495-2-2-140HE03-HP358	30802471
5,00	6	66	28	20	36	SCD601-0500-2-2-140HA03-HP358	30802138	SCD601-0500-2-2-140HE03-HP358	30802472
5,05	6	66	28	20	36	SCD601-0505-2-2-140HA03-HP358	30802139	SCD601-0505-2-2-140HE03-HP358	30802473
5,10	6	66	28	20	36	SCD601-0510-2-2-140HA03-HP358	30802140	SCD601-0510-2-2-140HE03-HP358	30802474
5,20	6	66	28	20	36	SCD601-0520-2-2-140HA03-HP358	30802141	SCD601-0520-2-2-140HE03-HP358	30802475
5,30	6	66	28	20	36	SCD601-0530-2-2-140HA03-HP358	30802142	SCD601-0530-2-2-140HE03-HP358	30802476
5,40	6	66	28	20	36	SCD601-0540-2-2-140HA03-HP358	30802143	SCD601-0540-2-2-140HE03-HP358	30802477
5,50	6	66	28	20	36	SCD601-0550-2-2-140HA03-HP358	30802144	SCD601-0550-2-2-140HE03-HP358	30802478

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (3xD), internal coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
*5,55	6	66	28	20	36	SCD601-0555-2-2-140HA03-HP358	30802145	SCD601-0555-2-2-140HE03-HP358	30802479
5,60	6	66	28	20	36	SCD601-0560-2-2-140HA03-HP358	30802146	SCD601-0560-2-2-140HE03-HP358	30802480
5,70	6	66	28	20	36	SCD601-0570-2-2-140HA03-HP358	30802147	SCD601-0570-2-2-140HE03-HP358	30802481
5,75	6	66	28	20	36	SCD601-0575-2-2-140HA03-HP358	30802148	SCD601-0575-2-2-140HE03-HP358	30802482
5,80	6	66	28	20	36	SCD601-0580-2-2-140HA03-HP358	30802149	SCD601-0580-2-2-140HE03-HP358	30802483
5,90	6	66	28	20	36	SCD601-0590-2-2-140HA03-HP358	30802150	SCD601-0590-2-2-140HE03-HP358	30802484
5,95	6	66	28	20	36	SCD601-0595-2-2-140HA03-HP358	30802151	SCD601-0595-2-2-140HE03-HP358	30802485
6,00	6	66	28	20	36	SCD601-0600-2-2-140HA03-HP358	30802152	SCD601-0600-2-2-140HE03-HP358	30802486
6,10	8	79	34	24	36	SCD601-0610-2-2-140HA03-HP358	30802153	SCD601-0610-2-2-140HE03-HP358	30802487
6,20	8	79	34	24	36	SCD601-0620-2-2-140HA03-HP358	30802154	SCD601-0620-2-2-140HE03-HP358	30802488
6,30	8	79	34	24	36	SCD601-0630-2-2-140HA03-HP358	30802155	SCD601-0630-2-2-140HE03-HP358	30802489
6,40	8	79	34	24	36	SCD601-0640-2-2-140HA03-HP358	30802156	SCD601-0640-2-2-140HE03-HP358	30802490
6,50	8	79	34	24	36	SCD601-0650-2-2-140HA03-HP358	30802157	SCD601-0650-2-2-140HE03-HP358	30802491
6,60	8	79	34	24	36	SCD601-0660-2-2-140HA03-HP358	30802158	SCD601-0660-2-2-140HE03-HP358	30802492
6,70	8	79	34	24	36	SCD601-0670-2-2-140HA03-HP358	30802159	SCD601-0670-2-2-140HE03-HP358	30802493
6,80	8	79	34	24	36	SCD601-0680-2-2-140HA03-HP358	30802160	SCD601-0680-2-2-140HE03-HP358	30802494
6,90	8	79	34	24	36	SCD601-0690-2-2-140HA03-HP358	30802161	SCD601-0690-2-2-140HE03-HP358	30802495
7,00	8	79	34	24	36	SCD601-0700-2-2-140HA03-HP358	30802162	SCD601-0700-2-2-140HE03-HP358	30802496
7,10	8	79	41	29	36	SCD601-0710-2-2-140HA03-HP358	30802163	SCD601-0710-2-2-140HE03-HP358	30802497
7,20	8	79	41	29	36	SCD601-0720-2-2-140HA03-HP358	30802164	SCD601-0720-2-2-140HE03-HP358	30802498
7,30	8	79	41	29	36	SCD601-0730-2-2-140HA03-HP358	30802165	SCD601-0730-2-2-140HE03-HP358	30802499
7,40	8	79	41	29	36	SCD601-0740-2-2-140HA03-HP358	30802166	SCD601-0740-2-2-140HE03-HP358	30802500
*7,45	8	79	41	29	36	SCD601-0745-2-2-140HA03-HP358	30802167	SCD601-0745-2-2-140HE03-HP358	30802501
7,50	8	79	41	29	36	SCD601-0750-2-2-140HA03-HP358	30802168	SCD601-0750-2-2-140HE03-HP358	30802502
7,60	8	79	41	29	36	SCD601-0760-2-2-140HA03-HP358	30802169	SCD601-0760-2-2-140HE03-HP358	30802503
7,70	8	79	41	29	36	SCD601-0770-2-2-140HA03-HP358	30802170	SCD601-0770-2-2-140HE03-HP358	30802504
7,80	8	79	41	29	36	SCD601-0780-2-2-140HA03-HP358	30802171	SCD601-0780-2-2-140HE03-HP358	30802505
7,90	8	79	41	29	36	SCD601-0790-2-2-140HA03-HP358	30802172	SCD601-0790-2-2-140HE03-HP358	30802506
8,00	8	79	41	29	36	SCD601-0800-2-2-140HA03-HP358	30802173	SCD601-0800-2-2-140HE03-HP358	30802507
8,10	10	89	47	35	40	SCD601-0810-2-2-140HA03-HP358	30802174	SCD601-0810-2-2-140HE03-HP358	30802508
8,20	10	89	47	35	40	SCD601-0820-2-2-140HA03-HP358	30802175	SCD601-0820-2-2-140HE03-HP358	30802509
8,30	10	89	47	35	40	SCD601-0830-2-2-140HA03-HP358	30802176	SCD601-0830-2-2-140HE03-HP358	30802510
8,40	10	89	47	35	40	SCD601-0840-2-2-140HA03-HP358	30802177	SCD601-0840-2-2-140HE03-HP358	30802511
8,50	10	89	47	35	40	SCD601-0850-2-2-140HA03-HP358	30802178	SCD601-0850-2-2-140HE03-HP358	30802512
8,60	10	89	47	35	40	SCD601-0860-2-2-140HA03-HP358	30802179	SCD601-0860-2-2-140HE03-HP358	30802513
8,70	10	89	47	35	40	SCD601-0870-2-2-140HA03-HP358	30802180	SCD601-0870-2-2-140HE03-HP358	30802514
8,80	10	89	47	35	40	SCD601-0880-2-2-140HA03-HP358	30802181	SCD601-0880-2-2-140HE03-HP358	30802515
8,90	10	89	47	35	40	SCD601-0890-2-2-140HA03-HP358	30802182	SCD601-0890-2-2-140HE03-HP358	30802516
9,00	10	89	47	35	40	SCD601-0900-2-2-140HA03-HP358	30802183	SCD601-0900-2-2-140HE03-HP358	30802517
9,10	10	89	47	35	40	SCD601-0910-2-2-140HA03-HP358	30802184	SCD601-0910-2-2-140HE03-HP358	30802518
9,20	10	89	47	35	40	SCD601-0920-2-2-140HA03-HP358	30802185	SCD601-0920-2-2-140HE03-HP358	30802519
*9,30	10	89	47	35	40	SCD601-0930-2-2-140HA03-HP358	30802186	SCD601-0930-2-2-140HE03-HP358	30802520
9,35	10	89	47	35	40	SCD601-0935-2-2-140HA03-HP358	30802187	SCD601-0935-2-2-140HE03-HP358	30802521
9,40	10	89	47	35	40	SCD601-0940-2-2-140HA03-HP358	30802188	SCD601-0940-2-2-140HE03-HP358	30802522
9,45	10	89	47	35	40	SCD601-0945-2-2-140HA03-HP358	30802189	SCD601-0945-2-2-140HE03-HP358	30802523
9,50	10	89	47	35	40	SCD601-0950-2-2-140HA03-HP358	30802190	SCD601-0950-2-2-140HE03-HP358	30802524
9,60	10	89	47	35	40	SCD601-0960-2-2-140HA03-HP358	30802191	SCD601-0960-2-2-140HE03-HP358	30802525
9,70	10	89	47	35	40	SCD601-0970-2-2-140HA03-HP358	30802192	SCD601-0970-2-2-140HE03-HP358	30802527
9,80	10	89	47	35	40	SCD601-0980-2-2-140HA03-HP358	30802193	SCD601-0980-2-2-140HE03-HP358	30802528
9,90	10	89	47	35	40	SCD601-0990-2-2-140HA03-HP358	30802194	SCD601-0990-2-2-140HE03-HP358	30802529
10,00	10	89	47	35	40	SCD601-1000-2-2-140HA03-HP358	30802195	SCD601-1000-2-2-140HE03-HP358	30802530
10,10	12	102	55	40	45	SCD601-1010-2-2-140HA03-HP358	30802196	SCD601-1010-2-2-140HE03-HP358	30802531
10,20	12	102	55	40	45	SCD601-1020-2-2-140HA03-HP358	30802197	SCD601-1020-2-2-140HE03-HP358	30802532
10,30	12	102	55	40	45	SCD601-1030-2-2-140HA03-HP358	30802198	SCD601-1030-2-2-140HE03-HP358	30802533
10,40	12	102	55	40	45	SCD601-1040-2-2-140HA03-HP358	30802199	SCD601-1040-2-2-140HE03-HP358	30802534
10,50	12	102	55	40	45	SCD601-1050-2-2-140HA03-HP358	30802200	SCD601-1050-2-2-140HE03-HP358	30802535
10,55	12	102	55	40	45	SCD601-1055-2-2-140HA03-HP358	30802201	SCD601-1055-2-2-140HE03-HP358	30802536

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (3xD), internal coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
10,60	12	102	55	40	45	SCD601-1060-2-2-140HA03-HP358	30802202	SCD601-1060-2-2-140HE03-HP358	30802537
10,70	12	102	55	40	45	SCD601-1070-2-2-140HA03-HP358	30802203	SCD601-1070-2-2-140HE03-HP358	30802538
10,75	12	102	55	40	45	SCD601-1075-2-2-140HA03-HP358	30802204	SCD601-1075-2-2-140HE03-HP358	30802539
10,80	12	102	55	40	45	SCD601-1080-2-2-140HA03-HP358	30802205	SCD601-1080-2-2-140HE03-HP358	30802540
10,90	12	102	55	40	45	SCD601-1090-2-2-140HA03-HP358	30802206	SCD601-1090-2-2-140HE03-HP358	30802541
11,00	12	102	55	40	45	SCD601-1100-2-2-140HA03-HP358	30802207	SCD601-1100-2-2-140HE03-HP358	30802542
11,10	12	102	55	40	45	SCD601-1110-2-2-140HA03-HP358	30802208	SCD601-1110-2-2-140HE03-HP358	30802543
*11,20	12	102	55	40	45	SCD601-1120-2-2-140HA03-HP358	30802209	SCD601-1120-2-2-140HE03-HP358	30802544
11,25	12	102	55	40	45	SCD601-1125-2-2-140HA03-HP358	30802210	SCD601-1125-2-2-140HE03-HP358	30802545
11,30	12	102	55	40	45	SCD601-1130-2-2-140HA03-HP358	30802211	SCD601-1130-2-2-140HE03-HP358	30802546
11,35	12	102	55	40	45	SCD601-1135-2-2-140HA03-HP358	30802212	SCD601-1135-2-2-140HE03-HP358	30802547
11,40	12	102	55	40	45	SCD601-1140-2-2-140HA03-HP358	30802213	SCD601-1140-2-2-140HE03-HP358	30802548
11,45	12	102	55	40	45	SCD601-1145-2-2-140HA03-HP358	30802214	SCD601-1145-2-2-140HE03-HP358	30802549
11,50	12	102	55	40	45	SCD601-1150-2-2-140HA03-HP358	30802215	SCD601-1150-2-2-140HE03-HP358	30802550
11,60	12	102	55	40	45	SCD601-1160-2-2-140HA03-HP358	30802216	SCD601-1160-2-2-140HE03-HP358	30802551
11,70	12	102	55	40	45	SCD601-1170-2-2-140HA03-HP358	30802217	SCD601-1170-2-2-140HE03-HP358	30802552
11,80	12	102	55	40	45	SCD601-1180-2-2-140HA03-HP358	30802218	SCD601-1180-2-2-140HE03-HP358	30802553
11,90	12	102	55	40	45	SCD601-1190-2-2-140HA03-HP358	30802219	SCD601-1190-2-2-140HE03-HP358	30802554
12,00	12	102	55	40	45	SCD601-1200-2-2-140HA03-HP358	30802220	SCD601-1200-2-2-140HE03-HP358	30802555
12,15	14	107	60	43	45	SCD601-1215-2-2-140HA03-HP358	30802221	SCD601-1215-2-2-140HE03-HP358	30802556
12,25	14	107	60	43	45	SCD601-1225-2-2-140HA03-HP358	30802222	SCD601-1225-2-2-140HE03-HP358	30802557
12,50	14	107	60	43	45	SCD601-1250-2-2-140HA03-HP358	30802223	SCD601-1250-2-2-140HE03-HP358	30802558
12,55	14	107	60	43	45	SCD601-1255-2-2-140HA03-HP358	30802224	SCD601-1255-2-2-140HE03-HP358	30802559
12,70	14	107	60	43	45	SCD601-1270-2-2-140HA03-HP358	30802225	SCD601-1270-2-2-140HE03-HP358	30802560
12,80	14	107	60	43	45	SCD601-1280-2-2-140HA03-HP358	30802226	SCD601-1280-2-2-140HE03-HP358	30802561
12,90	14	107	60	43	45	SCD601-1290-2-2-140HA03-HP358	30802227	SCD601-1290-2-2-140HE03-HP358	30802562
13,00	14	107	60	43	45	SCD601-1300-2-2-140HA03-HP358	30802228	SCD601-1300-2-2-140HE03-HP358	30802563
13,10	14	107	60	43	45	SCD601-1310-2-2-140HA03-HP358	30802229	SCD601-1310-2-2-140HE03-HP358	30802564
13,30	14	107	60	43	45	SCD601-1330-2-2-140HA03-HP358	30802230	SCD601-1330-2-2-140HE03-HP358	30802565
13,35	14	107	60	43	45	SCD601-1335-2-2-140HA03-HP358	30802231	SCD601-1335-2-2-140HE03-HP358	30802566
13,50	14	107	60	43	45	SCD601-1350-2-2-140HA03-HP358	30802232	SCD601-1350-2-2-140HE03-HP358	30802567
13,70	14	107	60	43	45	SCD601-1370-2-2-140HA03-HP358	30802233	SCD601-1370-2-2-140HE03-HP358	30802568
13,80	14	107	60	43	45	SCD601-1380-2-2-140HA03-HP358	30802234	SCD601-1380-2-2-140HE03-HP358	30802569
14,00	14	107	60	43	45	SCD601-1400-2-2-140HA03-HP358	30802235	SCD601-1400-2-2-140HE03-HP358	30802570
14,20	16	115	65	45	48	SCD601-1420-2-2-140HA03-HP358	30802236	SCD601-1420-2-2-140HE03-HP358	30802571
14,50	16	115	65	45	48	SCD601-1450-2-2-140HA03-HP358	30802237	SCD601-1450-2-2-140HE03-HP358	30802572
14,80	16	115	65	45	48	SCD601-1480-2-2-140HA03-HP358	30802238	SCD601-1480-2-2-140HE03-HP358	30802573
15,00	16	115	65	45	48	SCD601-1500-2-2-140HA03-HP358	30802239	SCD601-1500-2-2-140HE03-HP358	30802574
15,10	16	115	65	45	48	SCD601-1510-2-2-140HA03-HP358	30802240	SCD601-1510-2-2-140HE03-HP358	30802575
15,25	16	115	65	45	48	SCD601-1525-2-2-140HA03-HP358	30802241	SCD601-1525-2-2-140HE03-HP358	30802576
15,30	16	115	65	45	48	SCD601-1530-2-2-140HA03-HP358	30802242	SCD601-1530-2-2-140HE03-HP358	30802577
15,35	16	115	65	45	48	SCD601-1535-2-2-140HA03-HP358	30802243	SCD601-1535-2-2-140HE03-HP358	30802578
15,50	16	115	65	45	48	SCD601-1550-2-2-140HA03-HP358	30802244	SCD601-1550-2-2-140HE03-HP358	30802579
15,60	16	115	65	45	48	SCD601-1560-2-2-140HA03-HP358	30802245	SCD601-1560-2-2-140HE03-HP358	30802580
15,80	16	115	65	45	48	SCD601-1580-2-2-140HA03-HP358	30802246	SCD601-1580-2-2-140HE03-HP358	30802581
16,00	16	115	65	45	48	SCD601-1600-2-2-140HA03-HP358	30802247	SCD601-1600-2-2-140HE03-HP358	30802582
16,05	18	123	73	51	48	SCD601-1605-2-2-140HA03-HP358	30802248	SCD601-1605-2-2-140HE03-HP358	30802583
16,50	18	123	73	51	48	SCD601-1650-2-2-140HA03-HP358	30802249	SCD601-1650-2-2-140HE03-HP358	30802584
16,80	18	123	73	51	48	SCD601-1680-2-2-140HA03-HP358	30802250	SCD601-1680-2-2-140HE03-HP358	30802585
16,90	18	123	73	51	48	SCD601-1690-2-2-140HA03-HP358	30802251	SCD601-1690-2-2-140HE03-HP358	30802586
17,00	18	123	73	51	48	SCD601-1700-2-2-140HA03-HP358	30802252	SCD601-1700-2-2-140HE03-HP358	30802587
17,50	18	123	73	51	48	SCD601-1750-2-2-140HA03-HP358	30802253	SCD601-1750-2-2-140HE03-HP358	30802588
17,60	18	123	73	51	48	SCD601-1760-2-2-140HA03-HP358	30802254	SCD601-1760-2-2-140HE03-HP358	30802589
17,80	18	123	73	51	48	SCD601-1780-2-2-140HA03-HP358	30802255	SCD601-1780-2-2-140HE03-HP358	30802590
18,00	18	123	73	51	48	SCD601-1800-2-2-140HA03-HP358	30802256	SCD601-1800-2-2-140HE03-HP358	30802591
18,50	20	131	79	55	50	SCD601-1850-2-2-140HA03-HP358	30802257	SCD601-1850-2-2-140HE03-HP358	30802592
18,80	20	131	79	55	50	SCD601-1880-2-2-140HA03-HP358	30802258	SCD601-1880-2-2-140HE03-HP358	30802593

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (3xD), internal coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
18,90	20	131	79	55	50	SCD601-1890-2-2-140HA03-HP358	30802259	SCD601-1890-2-2-140HE03-HP358	30802594
19,00	20	131	79	55	50	SCD601-1900-2-2-140HA03-HP358	30802260	SCD601-1900-2-2-140HE03-HP358	30802595
19,35	20	131	79	55	50	SCD601-1935-2-2-140HA03-HP358	30802261	SCD601-1935-2-2-140HE03-HP358	30802596
19,50	20	131	79	55	50	SCD601-1950-2-2-140HA03-HP358	30802262	SCD601-1950-2-2-140HE03-HP358	30802597
19,60	20	131	79	55	50	SCD601-1960-2-2-140HA03-HP358	30802263	SCD601-1960-2-2-140HE03-HP358	30802598
19,80	20	131	79	55	50	SCD601-1980-2-2-140HA03-HP358	30802264	SCD601-1980-2-2-140HE03-HP358	30802599
20,00	20	131	79	55	50	SCD601-2000-2-2-140HA03-HP358	30802265	SCD601-2000-2-2-140HE03-HP358	30802600
20,50	25	151	93	66	56	SCD601-2050-2-2-140HA03-HP358	30802266	SCD601-2050-2-2-140HE03-HP358	30802601
21,00	25	151	93	66	56	SCD601-2100-2-2-140HA03-HP358	30802267	SCD601-2100-2-2-140HE03-HP358	30802602
21,50	25	151	93	66	56	SCD601-2150-2-2-140HA03-HP358	30802268	SCD601-2150-2-2-140HE03-HP358	30802603
22,00	25	151	93	66	56	SCD601-2200-2-2-140HA03-HP358	30802269	SCD601-2200-2-2-140HE03-HP358	30802604
22,50	25	151	93	66	56	SCD601-2250-2-2-140HA03-HP358	30802270	SCD601-2250-2-2-140HE03-HP358	30802605
23,00	25	151	93	66	56	SCD601-2300-2-2-140HA03-HP358	30802271	SCD601-2300-2-2-140HE03-HP358	30802606
23,50	25	151	93	66	56	SCD601-2350-2-2-140HA03-HP358	30802272	SCD601-2350-2-2-140HE03-HP358	30802607
24,00	25	151	93	66	56	SCD601-2400-2-2-140HA03-HP358	30802273	SCD601-2400-2-2-140HE03-HP358	30802608
24,50	25	151	93	66	56	SCD601-2450-2-2-140HA03-HP358	30802274	SCD601-2450-2-2-140HE03-HP358	30802609
25,00	25	151	93	66	56	SCD601-2500-2-2-140HA03-HP358	30802275	SCD601-2500-2-2-140HE03-HP358	30802610

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Steel-Plus

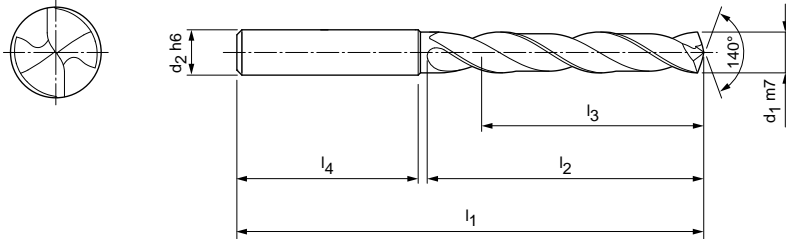
Solid carbide twist drill

SCD60 (5xD), external coolant supply

Successor product to MEGA-Drill-Steel (SCD10)

Design:

Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Side rake angle: 30 °



Dimensions						Shank form HA		Shank form HE	
d1 m7	d2 h6	l1	l2	l3	l4	Specification	Order No.	Specification	Order No.
3,00	6	66	28	23	36	SCD600-0300-2-2-140HA05-HP358	30801634	SCD600-0300-2-2-140HE05-HP358	30801950
3,10	6	66	28	23	36	SCD600-0310-2-2-140HA05-HP358	30801635	SCD600-0310-2-2-140HE05-HP358	30801951
3,15	6	66	28	23	36	SCD600-0315-2-2-140HA05-HP358	30801636	SCD600-0315-2-2-140HE05-HP358	30801952
3,20	6	66	28	23	36	SCD600-0320-2-2-140HA05-HP358	30801637	SCD600-0320-2-2-140HE05-HP358	30801953
3,22	6	66	28	23	36	SCD600-0322-2-2-140HA05-HP358	30801638	SCD600-0322-2-2-140HE05-HP358	30801954
3,25	6	66	28	23	36	SCD600-0325-2-2-140HA05-HP358	30801639	SCD600-0325-2-2-140HE05-HP358	30801955
3,30	6	66	28	23	36	SCD600-0330-2-2-140HA05-HP358	30801640	SCD600-0330-2-2-140HE05-HP358	30801956
3,40	6	66	28	23	36	SCD600-0340-2-2-140HA05-HP358	30801641	SCD600-0340-2-2-140HE05-HP358	30801957
3,50	6	66	28	23	36	SCD600-0350-2-2-140HA05-HP358	30801642	SCD600-0350-2-2-140HE05-HP358	30801958
3,60	6	66	28	23	36	SCD600-0360-2-2-140HA05-HP358	30801643	SCD600-0360-2-2-140HE05-HP358	30801959
3,70	6	66	28	23	36	SCD600-0370-2-2-140HA05-HP358	30801644	SCD600-0370-2-2-140HE05-HP358	30801960
3,80	6	74	36	29	36	SCD600-0380-2-2-140HA05-HP358	30801645	SCD600-0380-2-2-140HE05-HP358	30801961
3,85	6	74	36	29	36	SCD600-0385-2-2-140HA05-HP358	30801646	SCD600-0385-2-2-140HE05-HP358	30801962
3,90	6	74	36	29	36	SCD600-0390-2-2-140HA05-HP358	30801647	SCD600-0390-2-2-140HE05-HP358	30801963
4,00	6	74	36	29	36	SCD600-0400-2-2-140HA05-HP358	30801648	SCD600-0400-2-2-140HE05-HP358	30801964
4,10	6	74	36	29	36	SCD600-0410-2-2-140HA05-HP358	30801649	SCD600-0410-2-2-140HE05-HP358	30801965
4,20	6	74	36	29	36	SCD600-0420-2-2-140HA05-HP358	30801650	SCD600-0420-2-2-140HE05-HP358	30801966
4,25	6	74	36	29	36	SCD600-0425-2-2-140HA05-HP358	30801651	SCD600-0425-2-2-140HE05-HP358	30801967
4,30	6	74	36	29	36	SCD600-0430-2-2-140HA05-HP358	30801652	SCD600-0430-2-2-140HE05-HP358	30801968
4,35	6	74	36	29	36	SCD600-0435-2-2-140HA05-HP358	30801653	SCD600-0435-2-2-140HE05-HP358	30801969
4,40	6	74	36	29	36	SCD600-0440-2-2-140HA05-HP358	30801654	SCD600-0440-2-2-140HE05-HP358	30801970
4,45	6	74	36	29	36	SCD600-0445-2-2-140HA05-HP358	30801655	SCD600-0445-2-2-140HE05-HP358	30801971
4,50	6	74	36	29	36	SCD600-0450-2-2-140HA05-HP358	30801656	SCD600-0450-2-2-140HE05-HP358	30801972
4,60	6	74	36	29	36	SCD600-0460-2-2-140HA05-HP358	30801657	SCD600-0460-2-2-140HE05-HP358	30801973
4,65	6	74	36	29	36	SCD600-0465-2-2-140HA05-HP358	30801658	SCD600-0465-2-2-140HE05-HP358	30801974
4,70	6	74	36	29	36	SCD600-0470-2-2-140HA05-HP358	30801659	SCD600-0470-2-2-140HE05-HP358	30801975
4,80	6	82	44	35	36	SCD600-0480-2-2-140HA05-HP358	30801660	SCD600-0480-2-2-140HE05-HP358	30801976
4,90	6	82	44	35	36	SCD600-0490-2-2-140HA05-HP358	30801662	SCD600-0490-2-2-140HE05-HP358	30801977
4,95	6	82	44	35	36	SCD600-0495-2-2-140HA05-HP358	30801663	SCD600-0495-2-2-140HE05-HP358	30801978
5,00	6	82	44	35	36	SCD600-0500-2-2-140HA05-HP358	30801664	SCD600-0500-2-2-140HE05-HP358	30801979
5,05	6	82	44	35	36	SCD600-0505-2-2-140HA05-HP358	30801665	SCD600-0505-2-2-140HE05-HP358	30801980
5,10	6	82	44	35	36	SCD600-0510-2-2-140HA05-HP358	30801666	SCD600-0510-2-2-140HE05-HP358	30801981
5,20	6	82	44	35	36	SCD600-0520-2-2-140HA05-HP358	30801667	SCD600-0520-2-2-140HE05-HP358	30801982
5,30	6	82	44	35	36	SCD600-0530-2-2-140HA05-HP358	30801668	SCD600-0530-2-2-140HE05-HP358	30801983
5,40	6	82	44	35	36	SCD600-0540-2-2-140HA05-HP358	30801669	SCD600-0540-2-2-140HE05-HP358	30801984
5,50	6	82	44	35	36	SCD600-0550-2-2-140HA05-HP358	30801670	SCD600-0550-2-2-140HE05-HP358	30801985

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (5xD), external coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
5,55	6	82	44	35	36	SCD600-0555-2-2-140HA05-HP358	30801671	SCD600-0555-2-2-140HE05-HP358	30801986
5,60	6	82	44	35	36	SCD600-0560-2-2-140HA05-HP358	30801672	SCD600-0560-2-2-140HE05-HP358	30801987
5,70	6	82	44	35	36	SCD600-0570-2-2-140HA05-HP358	30801673	SCD600-0570-2-2-140HE05-HP358	30801988
5,75	6	82	44	35	36	SCD600-0575-2-2-140HA05-HP358	30801674	SCD600-0575-2-2-140HE05-HP358	30801989
5,80	6	82	44	35	36	SCD600-0580-2-2-140HA05-HP358	30801675	SCD600-0580-2-2-140HE05-HP358	30801990
5,90	6	82	44	35	36	SCD600-0590-2-2-140HA05-HP358	30801676	SCD600-0590-2-2-140HE05-HP358	30801991
5,95	6	82	44	35	36	SCD600-0595-2-2-140HA05-HP358	30801677	SCD600-0595-2-2-140HE05-HP358	30801992
6,00	6	82	44	35	36	SCD600-0600-2-2-140HA05-HP358	30801678	SCD600-0600-2-2-140HE05-HP358	30801993
6,10	8	91	53	43	36	SCD600-0610-2-2-140HA05-HP358	30801679	SCD600-0610-2-2-140HE05-HP358	30801994
6,20	8	91	53	43	36	SCD600-0620-2-2-140HA05-HP358	30801680	SCD600-0620-2-2-140HE05-HP358	30801995
6,30	8	91	53	43	36	SCD600-0630-2-2-140HA05-HP358	30801681	SCD600-0630-2-2-140HE05-HP358	30801996
6,40	8	91	53	43	36	SCD600-0640-2-2-140HA05-HP358	30801682	SCD600-0640-2-2-140HE05-HP358	30801997
6,50	8	91	53	43	36	SCD600-0650-2-2-140HA05-HP358	30801683	SCD600-0650-2-2-140HE05-HP358	30801998
6,60	8	91	53	43	36	SCD600-0660-2-2-140HA05-HP358	30801684	SCD600-0660-2-2-140HE05-HP358	30801999
6,70	8	91	53	43	36	SCD600-0670-2-2-140HA05-HP358	30801685	SCD600-0670-2-2-140HE05-HP358	30802000
6,80	8	91	53	43	36	SCD600-0680-2-2-140HA05-HP358	30801686	SCD600-0680-2-2-140HE05-HP358	30802001
6,90	8	91	53	43	36	SCD600-0690-2-2-140HA05-HP358	30801687	SCD600-0690-2-2-140HE05-HP358	30802002
7,00	8	91	53	43	36	SCD600-0700-2-2-140HA05-HP358	30801688	SCD600-0700-2-2-140HE05-HP358	30802003
7,10	8	91	53	43	36	SCD600-0710-2-2-140HA05-HP358	30801689	SCD600-0710-2-2-140HE05-HP358	30802004
7,20	8	91	53	43	36	SCD600-0720-2-2-140HA05-HP358	30801690	SCD600-0720-2-2-140HE05-HP358	30802005
7,30	8	91	53	43	36	SCD600-0730-2-2-140HA05-HP358	30801691	SCD600-0730-2-2-140HE05-HP358	30802006
7,40	8	91	53	43	36	SCD600-0740-2-2-140HA05-HP358	30801692	SCD600-0740-2-2-140HE05-HP358	30802007
7,45	8	91	53	43	36	SCD600-0745-2-2-140HA05-HP358	30801693	SCD600-0745-2-2-140HE05-HP358	30802008
7,50	8	91	53	43	36	SCD600-0750-2-2-140HA05-HP358	30801694	SCD600-0750-2-2-140HE05-HP358	30802009
7,60	8	91	53	43	36	SCD600-0760-2-2-140HA05-HP358	30801695	SCD600-0760-2-2-140HE05-HP358	30802010
7,70	8	91	53	43	36	SCD600-0770-2-2-140HA05-HP358	30801696	SCD600-0770-2-2-140HE05-HP358	30802011
7,80	8	91	53	43	36	SCD600-0780-2-2-140HA05-HP358	30801697	SCD600-0780-2-2-140HE05-HP358	30802012
7,90	8	91	53	43	36	SCD600-0790-2-2-140HA05-HP358	30801698	SCD600-0790-2-2-140HE05-HP358	30802013
8,00	8	91	53	43	36	SCD600-0800-2-2-140HA05-HP358	30801699	SCD600-0800-2-2-140HE05-HP358	30802014
8,10	10	103	61	49	40	SCD600-0810-2-2-140HA05-HP358	30801700	SCD600-0810-2-2-140HE05-HP358	30802015
8,20	10	103	61	49	40	SCD600-0820-2-2-140HA05-HP358	30801701	SCD600-0820-2-2-140HE05-HP358	30802016
8,30	10	103	61	49	40	SCD600-0830-2-2-140HA05-HP358	30801702	SCD600-0830-2-2-140HE05-HP358	30802017
8,40	10	103	61	49	40	SCD600-0840-2-2-140HA05-HP358	30801703	SCD600-0840-2-2-140HE05-HP358	30802018
8,50	10	103	61	49	40	SCD600-0850-2-2-140HA05-HP358	30801704	SCD600-0850-2-2-140HE05-HP358	30802019
8,60	10	103	61	49	40	SCD600-0860-2-2-140HA05-HP358	30801705	SCD600-0860-2-2-140HE05-HP358	30802020
8,70	10	103	61	49	40	SCD600-0870-2-2-140HA05-HP358	30801706	SCD600-0870-2-2-140HE05-HP358	30802021
8,80	10	103	61	49	40	SCD600-0880-2-2-140HA05-HP358	30801707	SCD600-0880-2-2-140HE05-HP358	30802022
8,90	10	103	61	49	40	SCD600-0890-2-2-140HA05-HP358	30801708	SCD600-0890-2-2-140HE05-HP358	30802023
9,00	10	103	61	49	40	SCD600-0900-2-2-140HA05-HP358	30801709	SCD600-0900-2-2-140HE05-HP358	30802024
9,10	10	103	61	49	40	SCD600-0910-2-2-140HA05-HP358	30801710	SCD600-0910-2-2-140HE05-HP358	30802025
9,20	10	103	61	49	40	SCD600-0920-2-2-140HA05-HP358	30801711	SCD600-0920-2-2-140HE05-HP358	30802026
9,30	10	103	61	49	40	SCD600-0930-2-2-140HA05-HP358	30801712	SCD600-0930-2-2-140HE05-HP358	30802027
9,35	10	103	61	49	40	SCD600-0935-2-2-140HA05-HP358	30801713	SCD600-0935-2-2-140HE05-HP358	30802028
9,40	10	103	61	49	40	SCD600-0940-2-2-140HA05-HP358	30801714	SCD600-0940-2-2-140HE05-HP358	30802029
9,45	10	103	61	49	40	SCD600-0945-2-2-140HA05-HP358	30801715	SCD600-0945-2-2-140HE05-HP358	30802030
9,50	10	103	61	49	40	SCD600-0950-2-2-140HA05-HP358	30801716	SCD600-0950-2-2-140HE05-HP358	30802031
9,60	10	103	61	49	40	SCD600-0960-2-2-140HA05-HP358	30801717	SCD600-0960-2-2-140HE05-HP358	30802032
9,70	10	103	61	49	40	SCD600-0970-2-2-140HA05-HP358	30801718	SCD600-0970-2-2-140HE05-HP358	30802033
9,80	10	103	61	49	40	SCD600-0980-2-2-140HA05-HP358	30801719	SCD600-0980-2-2-140HE05-HP358	30802034
9,90	10	103	61	49	40	SCD600-0990-2-2-140HA05-HP358	30801720	SCD600-0990-2-2-140HE05-HP358	30802035
10,00	10	103	61	49	40	SCD600-1000-2-2-140HA05-HP358	30801721	SCD600-1000-2-2-140HE05-HP358	30802036
10,10	12	118	71	56	45	SCD600-1010-2-2-140HA05-HP358	30801722	SCD600-1010-2-2-140HE05-HP358	30802037
10,20	12	118	71	56	45	SCD600-1020-2-2-140HA05-HP358	30801723	SCD600-1020-2-2-140HE05-HP358	30802038
10,30	12	118	71	56	45	SCD600-1030-2-2-140HA05-HP358	30801724	SCD600-1030-2-2-140HE05-HP358	30802039
10,40	12	118	71	56	45	SCD600-1040-2-2-140HA05-HP358	30801725	SCD600-1040-2-2-140HE05-HP358	30802040
10,50	12	118	71	56	45	SCD600-1050-2-2-140HA05-HP358	30801726	SCD600-1050-2-2-140HE05-HP358	30802041
10,55	12	118	71	56	45	SCD600-1055-2-2-140HA05-HP358	30801727	SCD600-1055-2-2-140HE05-HP358	30802042

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (5xD), external coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
10,60	12	118	71	56	45	SCD600-1060-2-2-140HA05-HP358	30801728	SCD600-1060-2-2-140HE05-HP358	30802043
10,70	12	118	71	56	45	SCD600-1070-2-2-140HA05-HP358	30801729	SCD600-1070-2-2-140HE05-HP358	30802044
10,75	12	118	71	56	45	SCD600-1075-2-2-140HA05-HP358	30801731	SCD600-1075-2-2-140HE05-HP358	30802045
10,80	12	118	71	56	45	SCD600-1080-2-2-140HA05-HP358	30801732	SCD600-1080-2-2-140HE05-HP358	30802046
10,90	12	118	71	56	45	SCD600-1090-2-2-140HA05-HP358	30801733	SCD600-1090-2-2-140HE05-HP358	30802047
11,00	12	118	71	56	45	SCD600-1100-2-2-140HA05-HP358	30801734	SCD600-1100-2-2-140HE05-HP358	30802048
11,10	12	118	71	56	45	SCD600-1110-2-2-140HA05-HP358	30801735	SCD600-1110-2-2-140HE05-HP358	30802049
11,20	12	118	71	56	45	SCD600-1120-2-2-140HA05-HP358	30801736	SCD600-1120-2-2-140HE05-HP358	30802050
11,25	12	118	71	56	45	SCD600-1125-2-2-140HA05-HP358	30801737	SCD600-1125-2-2-140HE05-HP358	30802051
11,30	12	118	71	56	45	SCD600-1130-2-2-140HA05-HP358	30801738	SCD600-1130-2-2-140HE05-HP358	30802052
11,35	12	118	71	56	45	SCD600-1135-2-2-140HA05-HP358	30801739	SCD600-1135-2-2-140HE05-HP358	30802053
11,40	12	118	71	56	45	SCD600-1140-2-2-140HA05-HP358	30801740	SCD600-1140-2-2-140HE05-HP358	30802054
11,45	12	118	71	56	45	SCD600-1145-2-2-140HA05-HP358	30801741	SCD600-1145-2-2-140HE05-HP358	30802055
11,50	12	118	71	56	45	SCD600-1150-2-2-140HA05-HP358	30801742	SCD600-1150-2-2-140HE05-HP358	30802056
11,60	12	118	71	56	45	SCD600-1160-2-2-140HA05-HP358	30801743	SCD600-1160-2-2-140HE05-HP358	30802057
11,70	12	118	71	56	45	SCD600-1170-2-2-140HA05-HP358	30801744	SCD600-1170-2-2-140HE05-HP358	30802058
11,80	12	118	71	56	45	SCD600-1180-2-2-140HA05-HP358	30801745	SCD600-1180-2-2-140HE05-HP358	30802059
11,90	12	118	71	56	45	SCD600-1190-2-2-140HA05-HP358	30801746	SCD600-1190-2-2-140HE05-HP358	30802060
12,00	12	118	71	56	45	SCD600-1200-2-2-140HA05-HP358	30801747	SCD600-1200-2-2-140HE05-HP358	30802061
12,15	14	124	77	60	45	SCD600-1215-2-2-140HA05-HP358	30801748	SCD600-1215-2-2-140HE05-HP358	30802062
12,25	14	124	77	60	45	SCD600-1225-2-2-140HA05-HP358	30801749	SCD600-1225-2-2-140HE05-HP358	30802063
12,50	14	124	77	60	45	SCD600-1250-2-2-140HA05-HP358	30801750	SCD600-1250-2-2-140HE05-HP358	30802064
12,55	14	124	77	60	45	SCD600-1255-2-2-140HA05-HP358	30801751	SCD600-1255-2-2-140HE05-HP358	30802065
12,70	14	124	77	60	45	SCD600-1270-2-2-140HA05-HP358	30801752	SCD600-1270-2-2-140HE05-HP358	30802066
12,80	14	124	77	60	45	SCD600-1280-2-2-140HA05-HP358	30801753	SCD600-1280-2-2-140HE05-HP358	30802067
12,90	14	124	77	60	45	SCD600-1290-2-2-140HA05-HP358	30801754	SCD600-1290-2-2-140HE05-HP358	30802068
13,00	14	124	77	60	45	SCD600-1300-2-2-140HA05-HP358	30801755	SCD600-1300-2-2-140HE05-HP358	30802069
13,10	14	124	77	60	45	SCD600-1310-2-2-140HA05-HP358	30801756	SCD600-1310-2-2-140HE05-HP358	30802070
13,30	14	124	77	60	45	SCD600-1330-2-2-140HA05-HP358	30801757	SCD600-1330-2-2-140HE05-HP358	30802071
13,35	14	124	77	60	45	SCD600-1335-2-2-140HA05-HP358	30801758	SCD600-1335-2-2-140HE05-HP358	30802072
13,50	14	124	77	60	45	SCD600-1350-2-2-140HA05-HP358	30801759	SCD600-1350-2-2-140HE05-HP358	30802073
13,70	14	124	77	60	45	SCD600-1370-2-2-140HA05-HP358	30801760	SCD600-1370-2-2-140HE05-HP358	30802074
13,80	14	124	77	60	45	SCD600-1380-2-2-140HA05-HP358	30801761	SCD600-1380-2-2-140HE05-HP358	30802075
14,00	14	124	77	60	45	SCD600-1400-2-2-140HA05-HP358	30801762	SCD600-1400-2-2-140HE05-HP358	30802076
14,20	16	133	83	63	48	SCD600-1420-2-2-140HA05-HP358	30801763	SCD600-1420-2-2-140HE05-HP358	30802077
14,50	16	133	83	63	48	SCD600-1450-2-2-140HA05-HP358	30801764	SCD600-1450-2-2-140HE05-HP358	30802078
14,80	16	133	83	63	48	SCD600-1480-2-2-140HA05-HP358	30801765	SCD600-1480-2-2-140HE05-HP358	30802079
15,00	16	133	83	63	48	SCD600-1500-2-2-140HA05-HP358	30801766	SCD600-1500-2-2-140HE05-HP358	30802080
15,10	16	133	83	63	48	SCD600-1510-2-2-140HA05-HP358	30801767	SCD600-1510-2-2-140HE05-HP358	30802081
15,25	16	133	83	63	48	SCD600-1525-2-2-140HA05-HP358	30801768	SCD600-1525-2-2-140HE05-HP358	30802082
15,30	16	133	83	63	48	SCD600-1530-2-2-140HA05-HP358	30801769	SCD600-1530-2-2-140HE05-HP358	30802083
15,35	16	133	83	63	48	SCD600-1535-2-2-140HA05-HP358	30801770	SCD600-1535-2-2-140HE05-HP358	30802084
15,50	16	133	83	63	48	SCD600-1550-2-2-140HA05-HP358	30801771	SCD600-1550-2-2-140HE05-HP358	30802085
15,60	16	133	83	63	48	SCD600-1560-2-2-140HA05-HP358	30801772	SCD600-1560-2-2-140HE05-HP358	30802086
15,80	16	133	83	63	48	SCD600-1580-2-2-140HA05-HP358	30801773	SCD600-1580-2-2-140HE05-HP358	30802087
16,00	16	133	83	63	48	SCD600-1600-2-2-140HA05-HP358	30801774	SCD600-1600-2-2-140HE05-HP358	30802088
16,05	18	143	93	71	48	SCD600-1605-2-2-140HA05-HP358	30801775	SCD600-1605-2-2-140HE05-HP358	30802089
16,50	18	143	93	71	48	SCD600-1650-2-2-140HA05-HP358	30801776	SCD600-1650-2-2-140HE05-HP358	30802090
16,80	18	143	93	71	48	SCD600-1680-2-2-140HA05-HP358	30801777	SCD600-1680-2-2-140HE05-HP358	30802091
16,90	18	143	93	71	48	SCD600-1690-2-2-140HA05-HP358	30801778	SCD600-1690-2-2-140HE05-HP358	30802092
17,00	18	143	93	71	48	SCD600-1700-2-2-140HA05-HP358	30801779	SCD600-1700-2-2-140HE05-HP358	30802093
17,50	18	143	93	71	48	SCD600-1750-2-2-140HA05-HP358	30801780	SCD600-1750-2-2-140HE05-HP358	30802094
17,60	18	143	93	71	48	SCD600-1760-2-2-140HA05-HP358	30801781	SCD600-1760-2-2-140HE05-HP358	30802095
17,80	18	143	93	71	48	SCD600-1780-2-2-140HA05-HP358	30801782	SCD600-1780-2-2-140HE05-HP358	30802096
18,00	18	143	93	71	48	SCD600-1800-2-2-140HA05-HP358	30801783	SCD600-1800-2-2-140HE05-HP358	30802097
18,50	20	153	101	77	50	SCD600-1850-2-2-140HA05-HP358	30801784	SCD600-1850-2-2-140HE05-HP358	30802098
18,80	20	153	101	77	50	SCD600-1880-2-2-140HA05-HP358	30801785	SCD600-1880-2-2-140HE05-HP358	30802099

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (5xD), external coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
18,90	20	153	101	77	50	SCD600-1890-2-2-140HA05-HP358	30801786	SCD600-1890-2-2-140HE05-HP358	30802100
19,00	20	153	101	77	50	SCD600-1900-2-2-140HA05-HP358	30801787	SCD600-1900-2-2-140HE05-HP358	30802101
19,35	20	153	101	77	50	SCD600-1935-2-2-140HA05-HP358	30801788	SCD600-1935-2-2-140HE05-HP358	30802102
19,50	20	153	101	77	50	SCD600-1950-2-2-140HA05-HP358	30801789	SCD600-1950-2-2-140HE05-HP358	30802103
19,60	20	153	101	77	50	SCD600-1960-2-2-140HA05-HP358	30801790	SCD600-1960-2-2-140HE05-HP358	30802104
19,80	20	153	101	77	50	SCD600-1980-2-2-140HA05-HP358	30801791	SCD600-1980-2-2-140HE05-HP358	30802105
20,00	20	153	101	77	50	SCD600-2000-2-2-140HA05-HP358	30801792	SCD600-2000-2-2-140HE05-HP358	30802106

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Steel-Plus

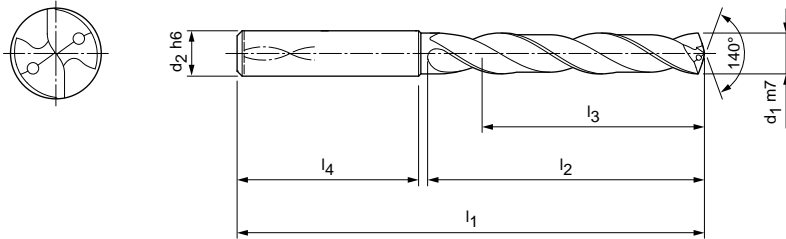
Solid carbide twist drill

SCD60 (5xD), internal coolant supply

Successor product to MEGA-Drill-Steel (SCD10)

Design:

Bore diameter: 3.00 - 25.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Side rake angle: 30 °



Dimensions						Shank form HA		Shank form HE	
d1 m7	d2 h6	l1	l2	l3	l4	Specification	Order No.	Specification	Order No.
3,00	6	66	28	23	36	SCD601-0300-2-2-140HA05-HP358	30802611	SCD601-0300-2-2-140HE05-HP358	30802945
3,10	6	66	28	23	36	SCD601-0310-2-2-140HA05-HP358	30802612	SCD601-0310-2-2-140HE05-HP358	30802946
3,15	6	66	28	23	36	SCD601-0315-2-2-140HA05-HP358	30802613	SCD601-0315-2-2-140HE05-HP358	30802947
3,20	6	66	28	23	36	SCD601-0320-2-2-140HA05-HP358	30802614	SCD601-0320-2-2-140HE05-HP358	30802948
3,22	6	66	28	23	36	SCD601-0322-2-2-140HA05-HP358	30802615	SCD601-0322-2-2-140HE05-HP358	30802949
3,25	6	66	28	23	36	SCD601-0325-2-2-140HA05-HP358	30802616	SCD601-0325-2-2-140HE05-HP358	30802950
3,30	6	66	28	23	36	SCD601-0330-2-2-140HA05-HP358	30802617	SCD601-0330-2-2-140HE05-HP358	30802951
3,40	6	66	28	23	36	SCD601-0340-2-2-140HA05-HP358	30802618	SCD601-0340-2-2-140HE05-HP358	30802952
3,50	6	66	28	23	36	SCD601-0350-2-2-140HA05-HP358	30802619	SCD601-0350-2-2-140HE05-HP358	30802953
3,60	6	66	28	23	36	SCD601-0360-2-2-140HA05-HP358	30802620	SCD601-0360-2-2-140HE05-HP358	30802954
*3,70	6	66	28	23	36	SCD601-0370-2-2-140HA05-HP358	30802621	SCD601-0370-2-2-140HE05-HP358	30802955
3,80	6	74	36	29	36	SCD601-0380-2-2-140HA05-HP358	30802622	SCD601-0380-2-2-140HE05-HP358	30802956
3,85	6	74	36	29	36	SCD601-0385-2-2-140HA05-HP358	30802623	SCD601-0385-2-2-140HE05-HP358	30802957
3,90	6	74	36	29	36	SCD601-0390-2-2-140HA05-HP358	30802624	SCD601-0390-2-2-140HE05-HP358	30802958
4,00	6	74	36	29	36	SCD601-0400-2-2-140HA05-HP358	30802625	SCD601-0400-2-2-140HE05-HP358	30802959
4,10	6	74	36	29	36	SCD601-0410-2-2-140HA05-HP358	30802626	SCD601-0410-2-2-140HE05-HP358	30802960
4,20	6	74	36	29	36	SCD601-0420-2-2-140HA05-HP358	30802627	SCD601-0420-2-2-140HE05-HP358	30802961
4,25	6	74	36	29	36	SCD601-0425-2-2-140HA05-HP358	30802628	SCD601-0425-2-2-140HE05-HP358	30802962
4,30	6	74	36	29	36	SCD601-0430-2-2-140HA05-HP358	30802629	SCD601-0430-2-2-140HE05-HP358	30802963
4,35	6	74	36	29	36	SCD601-0435-2-2-140HA05-HP358	30802630	SCD601-0435-2-2-140HE05-HP358	30802964
4,40	6	74	36	29	36	SCD601-0440-2-2-140HA05-HP358	30802631	SCD601-0440-2-2-140HE05-HP358	30802965
4,45	6	74	36	29	36	SCD601-0445-2-2-140HA05-HP358	30802632	SCD601-0445-2-2-140HE05-HP358	30802966
4,50	6	74	36	29	36	SCD601-0450-2-2-140HA05-HP358	30802633	SCD601-0450-2-2-140HE05-HP358	30802967
4,60	6	74	36	29	36	SCD601-0460-2-2-140HA05-HP358	30802634	SCD601-0460-2-2-140HE05-HP358	30802968
*4,65	6	74	36	29	36	SCD601-0465-2-2-140HA05-HP358	30802635	SCD601-0465-2-2-140HE05-HP358	30802969
4,70	6	74	36	29	36	SCD601-0470-2-2-140HA05-HP358	30802636	SCD601-0470-2-2-140HE05-HP358	30802970
4,80	6	82	44	35	36	SCD601-0480-2-2-140HA05-HP358	30802637	SCD601-0480-2-2-140HE05-HP358	30802971
4,90	6	82	44	35	36	SCD601-0490-2-2-140HA05-HP358	30802638	SCD601-0490-2-2-140HE05-HP358	30802972
4,95	6	82	44	35	36	SCD601-0495-2-2-140HA05-HP358	30802639	SCD601-0495-2-2-140HE05-HP358	30802973
5,00	6	82	44	35	36	SCD601-0500-2-2-140HA05-HP358	30802640	SCD601-0500-2-2-140HE05-HP358	30802974
5,05	6	82	44	35	36	SCD601-0505-2-2-140HA05-HP358	30802641	SCD601-0505-2-2-140HE05-HP358	30802975
5,10	6	82	44	35	36	SCD601-0510-2-2-140HA05-HP358	30802642	SCD601-0510-2-2-140HE05-HP358	30802976
5,20	6	82	44	35	36	SCD601-0520-2-2-140HA05-HP358	30802643	SCD601-0520-2-2-140HE05-HP358	30802977
5,30	6	82	44	35	36	SCD601-0530-2-2-140HA05-HP358	30802644	SCD601-0530-2-2-140HE05-HP358	30802978
5,40	6	82	44	35	36	SCD601-0540-2-2-140HA05-HP358	30802645	SCD601-0540-2-2-140HE05-HP358	30802979
5,50	6	82	44	35	36	SCD601-0550-2-2-140HA05-HP358	30802646	SCD601-0550-2-2-140HE05-HP358	30802980

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (5xD), internal coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
*5,55	6	82	44	35	36	SCD601-0555-2-2-140HA05-HP358	30802647	SCD601-0555-2-2-140HE05-HP358	30802981
5,60	6	82	44	35	36	SCD601-0560-2-2-140HA05-HP358	30802648	SCD601-0560-2-2-140HE05-HP358	30802982
5,70	6	82	44	35	36	SCD601-0570-2-2-140HA05-HP358	30802649	SCD601-0570-2-2-140HE05-HP358	30802983
5,75	6	82	44	35	36	SCD601-0575-2-2-140HA05-HP358	30802650	SCD601-0575-2-2-140HE05-HP358	30802984
5,80	6	82	44	35	36	SCD601-0580-2-2-140HA05-HP358	30802651	SCD601-0580-2-2-140HE05-HP358	30802985
5,90	6	82	44	35	36	SCD601-0590-2-2-140HA05-HP358	30802652	SCD601-0590-2-2-140HE05-HP358	30802986
5,95	6	82	44	35	36	SCD601-0595-2-2-140HA05-HP358	30802653	SCD601-0595-2-2-140HE05-HP358	30802987
6,00	6	82	44	35	36	SCD601-0600-2-2-140HA05-HP358	30802654	SCD601-0600-2-2-140HE05-HP358	30802988
6,10	8	91	53	43	36	SCD601-0610-2-2-140HA05-HP358	30802655	SCD601-0610-2-2-140HE05-HP358	30802989
6,20	8	91	53	43	36	SCD601-0620-2-2-140HA05-HP358	30802656	SCD601-0620-2-2-140HE05-HP358	30802990
6,30	8	91	53	43	36	SCD601-0630-2-2-140HA05-HP358	30802657	SCD601-0630-2-2-140HE05-HP358	30802991
6,40	8	91	53	43	36	SCD601-0640-2-2-140HA05-HP358	30802658	SCD601-0640-2-2-140HE05-HP358	30802992
6,50	8	91	53	43	36	SCD601-0650-2-2-140HA05-HP358	30802659	SCD601-0650-2-2-140HE05-HP358	30802993
6,60	8	91	53	43	36	SCD601-0660-2-2-140HA05-HP358	30802660	SCD601-0660-2-2-140HE05-HP358	30802994
6,70	8	91	53	43	36	SCD601-0670-2-2-140HA05-HP358	30802661	SCD601-0670-2-2-140HE05-HP358	30802995
6,80	8	91	53	43	36	SCD601-0680-2-2-140HA05-HP358	30802662	SCD601-0680-2-2-140HE05-HP358	30802996
6,90	8	91	53	43	36	SCD601-0690-2-2-140HA05-HP358	30802663	SCD601-0690-2-2-140HE05-HP358	30802997
7,00	8	91	53	43	36	SCD601-0700-2-2-140HA05-HP358	30802664	SCD601-0700-2-2-140HE05-HP358	30802998
7,10	8	91	53	43	36	SCD601-0710-2-2-140HA05-HP358	30802665	SCD601-0710-2-2-140HE05-HP358	30802999
7,20	8	91	53	43	36	SCD601-0720-2-2-140HA05-HP358	30802666	SCD601-0720-2-2-140HE05-HP358	30803000
7,30	8	91	53	43	36	SCD601-0730-2-2-140HA05-HP358	30802667	SCD601-0730-2-2-140HE05-HP358	30803001
7,40	8	91	53	43	36	SCD601-0740-2-2-140HA05-HP358	30802668	SCD601-0740-2-2-140HE05-HP358	30803002
*7,45	8	91	53	43	36	SCD601-0745-2-2-140HA05-HP358	30802669	SCD601-0745-2-2-140HE05-HP358	30803003
7,50	8	91	53	43	36	SCD601-0750-2-2-140HA05-HP358	30802670	SCD601-0750-2-2-140HE05-HP358	30803004
7,60	8	91	53	43	36	SCD601-0760-2-2-140HA05-HP358	30802671	SCD601-0760-2-2-140HE05-HP358	30803005
7,70	8	91	53	43	36	SCD601-0770-2-2-140HA05-HP358	30802672	SCD601-0770-2-2-140HE05-HP358	30803006
7,80	8	91	53	43	36	SCD601-0780-2-2-140HA05-HP358	30802673	SCD601-0780-2-2-140HE05-HP358	30803007
7,90	8	91	53	43	36	SCD601-0790-2-2-140HA05-HP358	30802674	SCD601-0790-2-2-140HE05-HP358	30803008
8,00	8	91	53	43	36	SCD601-0800-2-2-140HA05-HP358	30802675	SCD601-0800-2-2-140HE05-HP358	30803009
8,10	10	103	61	49	40	SCD601-0810-2-2-140HA05-HP358	30802676	SCD601-0810-2-2-140HE05-HP358	30803010
8,20	10	103	61	49	40	SCD601-0820-2-2-140HA05-HP358	30802677	SCD601-0820-2-2-140HE05-HP358	30803011
8,30	10	103	61	49	40	SCD601-0830-2-2-140HA05-HP358	30802678	SCD601-0830-2-2-140HE05-HP358	30803012
8,40	10	103	61	49	40	SCD601-0840-2-2-140HA05-HP358	30802679	SCD601-0840-2-2-140HE05-HP358	30803013
8,50	10	103	61	49	40	SCD601-0850-2-2-140HA05-HP358	30802680	SCD601-0850-2-2-140HE05-HP358	30803014
8,60	10	103	61	49	40	SCD601-0860-2-2-140HA05-HP358	30802681	SCD601-0860-2-2-140HE05-HP358	30803015
8,70	10	103	61	49	40	SCD601-0870-2-2-140HA05-HP358	30802682	SCD601-0870-2-2-140HE05-HP358	30803016
8,80	10	103	61	49	40	SCD601-0880-2-2-140HA05-HP358	30802683	SCD601-0880-2-2-140HE05-HP358	30803017
8,90	10	103	61	49	40	SCD601-0890-2-2-140HA05-HP358	30802684	SCD601-0890-2-2-140HE05-HP358	30803018
9,00	10	103	61	49	40	SCD601-0900-2-2-140HA05-HP358	30802685	SCD601-0900-2-2-140HE05-HP358	30803019
9,10	10	103	61	49	40	SCD601-0910-2-2-140HA05-HP358	30802686	SCD601-0910-2-2-140HE05-HP358	30803020
9,20	10	103	61	49	40	SCD601-0920-2-2-140HA05-HP358	30802687	SCD601-0920-2-2-140HE05-HP358	30803021
*9,30	10	103	61	49	40	SCD601-0930-2-2-140HA05-HP358	30802688	SCD601-0930-2-2-140HE05-HP358	30803022
9,35	10	103	61	49	40	SCD601-0935-2-2-140HA05-HP358	30802689	SCD601-0935-2-2-140HE05-HP358	30803023
9,40	10	103	61	49	40	SCD601-0940-2-2-140HA05-HP358	30802690	SCD601-0940-2-2-140HE05-HP358	30803024
9,45	10	103	61	49	40	SCD601-0945-2-2-140HA05-HP358	30802691	SCD601-0945-2-2-140HE05-HP358	30803025
9,50	10	103	61	49	40	SCD601-0950-2-2-140HA05-HP358	30802692	SCD601-0950-2-2-140HE05-HP358	30803026
9,60	10	103	61	49	40	SCD601-0960-2-2-140HA05-HP358	30802693	SCD601-0960-2-2-140HE05-HP358	30803027
9,70	10	103	61	49	40	SCD601-0970-2-2-140HA05-HP358	30802694	SCD601-0970-2-2-140HE05-HP358	30803028
9,80	10	103	61	49	40	SCD601-0980-2-2-140HA05-HP358	30802695	SCD601-0980-2-2-140HE05-HP358	30803029
9,90	10	103	61	49	40	SCD601-0990-2-2-140HA05-HP358	30802696	SCD601-0990-2-2-140HE05-HP358	30803030
10,00	10	103	61	49	40	SCD601-1000-2-2-140HA05-HP358	30802697	SCD601-1000-2-2-140HE05-HP358	30803031
10,10	12	118	71	56	45	SCD601-1010-2-2-140HA05-HP358	30802698	SCD601-1010-2-2-140HE05-HP358	30803032
10,20	12	118	71	56	45	SCD601-1020-2-2-140HA05-HP358	30802699	SCD601-1020-2-2-140HE05-HP358	30803033
10,30	12	118	71	56	45	SCD601-1030-2-2-140HA05-HP358	30802700	SCD601-1030-2-2-140HE05-HP358	30803034
10,40	12	118	71	56	45	SCD601-1040-2-2-140HA05-HP358	30802701	SCD601-1040-2-2-140HE05-HP358	30803035
10,50	12	118	71	56	45	SCD601-1050-2-2-140HA05-HP358	30802702	SCD601-1050-2-2-140HE05-HP358	30803036
10,55	12	118	71	56	45	SCD601-1055-2-2-140HA05-HP358	30802703	SCD601-1055-2-2-140HE05-HP358	30803037

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (5xD), internal coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
10,60	12	118	71	56	45	SCD601-1060-2-2-140HA05-HP358	30802704	SCD601-1060-2-2-140HE05-HP358	30803038
10,70	12	118	71	56	45	SCD601-1070-2-2-140HA05-HP358	30802705	SCD601-1070-2-2-140HE05-HP358	30803039
10,75	12	118	71	56	45	SCD601-1075-2-2-140HA05-HP358	30802706	SCD601-1075-2-2-140HE05-HP358	30803040
10,80	12	118	71	56	45	SCD601-1080-2-2-140HA05-HP358	30802707	SCD601-1080-2-2-140HE05-HP358	30803041
10,90	12	118	71	56	45	SCD601-1090-2-2-140HA05-HP358	30802708	SCD601-1090-2-2-140HE05-HP358	30803042
11,00	12	118	71	56	45	SCD601-1100-2-2-140HA05-HP358	30802709	SCD601-1100-2-2-140HE05-HP358	30803043
11,10	12	118	71	56	45	SCD601-1110-2-2-140HA05-HP358	30802710	SCD601-1110-2-2-140HE05-HP358	30803044
*11,20	12	118	71	56	45	SCD601-1120-2-2-140HA05-HP358	30802711	SCD601-1120-2-2-140HE05-HP358	30803045
11,25	12	118	71	56	45	SCD601-1125-2-2-140HA05-HP358	30802712	SCD601-1125-2-2-140HE05-HP358	30803046
11,30	12	118	71	56	45	SCD601-1130-2-2-140HA05-HP358	30802713	SCD601-1130-2-2-140HE05-HP358	30803047
11,35	12	118	71	56	45	SCD601-1135-2-2-140HA05-HP358	30802714	SCD601-1135-2-2-140HE05-HP358	30803048
11,40	12	118	71	56	45	SCD601-1140-2-2-140HA05-HP358	30802715	SCD601-1140-2-2-140HE05-HP358	30803049
11,45	12	118	71	56	45	SCD601-1145-2-2-140HA05-HP358	30802716	SCD601-1145-2-2-140HE05-HP358	30803050
11,50	12	118	71	56	45	SCD601-1150-2-2-140HA05-HP358	30802717	SCD601-1150-2-2-140HE05-HP358	30803051
11,60	12	118	71	56	45	SCD601-1160-2-2-140HA05-HP358	30802718	SCD601-1160-2-2-140HE05-HP358	30803052
11,70	12	118	71	56	45	SCD601-1170-2-2-140HA05-HP358	30802719	SCD601-1170-2-2-140HE05-HP358	30803053
11,80	12	118	71	56	45	SCD601-1180-2-2-140HA05-HP358	30802720	SCD601-1180-2-2-140HE05-HP358	30803054
11,90	12	118	71	56	45	SCD601-1190-2-2-140HA05-HP358	30802721	SCD601-1190-2-2-140HE05-HP358	30803055
12,00	12	118	71	56	45	SCD601-1200-2-2-140HA05-HP358	30802722	SCD601-1200-2-2-140HE05-HP358	30803056
12,15	14	124	77	60	45	SCD601-1215-2-2-140HA05-HP358	30802723	SCD601-1215-2-2-140HE05-HP358	30803057
12,25	14	124	77	60	45	SCD601-1225-2-2-140HA05-HP358	30802724	SCD601-1225-2-2-140HE05-HP358	30803058
12,50	14	124	77	60	45	SCD601-1250-2-2-140HA05-HP358	30802725	SCD601-1250-2-2-140HE05-HP358	30803059
12,55	14	124	77	60	45	SCD601-1255-2-2-140HA05-HP358	30802726	SCD601-1255-2-2-140HE05-HP358	30803060
12,70	14	124	77	60	45	SCD601-1270-2-2-140HA05-HP358	30802727	SCD601-1270-2-2-140HE05-HP358	30803061
12,80	14	124	77	60	45	SCD601-1280-2-2-140HA05-HP358	30802728	SCD601-1280-2-2-140HE05-HP358	30803062
12,90	14	124	77	60	45	SCD601-1290-2-2-140HA05-HP358	30802729	SCD601-1290-2-2-140HE05-HP358	30803063
13,00	14	124	77	60	45	SCD601-1300-2-2-140HA05-HP358	30802730	SCD601-1300-2-2-140HE05-HP358	30803064
13,10	14	124	77	60	45	SCD601-1310-2-2-140HA05-HP358	30802731	SCD601-1310-2-2-140HE05-HP358	30803065
13,30	14	124	77	60	45	SCD601-1330-2-2-140HA05-HP358	30802732	SCD601-1330-2-2-140HE05-HP358	30803066
13,35	14	124	77	60	45	SCD601-1335-2-2-140HA05-HP358	30802733	SCD601-1335-2-2-140HE05-HP358	30803067
13,50	14	124	77	60	45	SCD601-1350-2-2-140HA05-HP358	30802734	SCD601-1350-2-2-140HE05-HP358	30803068
13,70	14	124	77	60	45	SCD601-1370-2-2-140HA05-HP358	30802735	SCD601-1370-2-2-140HE05-HP358	30803069
13,80	14	124	77	60	45	SCD601-1380-2-2-140HA05-HP358	30802736	SCD601-1380-2-2-140HE05-HP358	30803070
14,00	14	124	77	60	45	SCD601-1400-2-2-140HA05-HP358	30802737	SCD601-1400-2-2-140HE05-HP358	30803071
14,20	16	133	83	63	48	SCD601-1420-2-2-140HA05-HP358	30802738	SCD601-1420-2-2-140HE05-HP358	30803072
14,50	16	133	83	63	48	SCD601-1450-2-2-140HA05-HP358	30802739	SCD601-1450-2-2-140HE05-HP358	30803073
14,80	16	133	83	63	48	SCD601-1480-2-2-140HA05-HP358	30802740	SCD601-1480-2-2-140HE05-HP358	30803074
15,00	16	133	83	63	48	SCD601-1500-2-2-140HA05-HP358	30802741	SCD601-1500-2-2-140HE05-HP358	30803075
15,10	16	133	83	63	48	SCD601-1510-2-2-140HA05-HP358	30802742	SCD601-1510-2-2-140HE05-HP358	30803076
15,25	16	133	83	63	48	SCD601-1525-2-2-140HA05-HP358	30802743	SCD601-1525-2-2-140HE05-HP358	30803077
15,30	16	133	83	63	48	SCD601-1530-2-2-140HA05-HP358	30802744	SCD601-1530-2-2-140HE05-HP358	30803078
15,35	16	133	83	63	48	SCD601-1535-2-2-140HA05-HP358	30802745	SCD601-1535-2-2-140HE05-HP358	30803079
15,50	16	133	83	63	48	SCD601-1550-2-2-140HA05-HP358	30802746	SCD601-1550-2-2-140HE05-HP358	30803080
15,60	16	133	83	63	48	SCD601-1560-2-2-140HA05-HP358	30802747	SCD601-1560-2-2-140HE05-HP358	30803081
15,80	16	133	83	63	48	SCD601-1580-2-2-140HA05-HP358	30802748	SCD601-1580-2-2-140HE05-HP358	30803082
16,00	16	133	83	63	48	SCD601-1600-2-2-140HA05-HP358	30802749	SCD601-1600-2-2-140HE05-HP358	30803083
16,05	18	143	93	71	48	SCD601-1605-2-2-140HA05-HP358	30802750	SCD601-1605-2-2-140HE05-HP358	30803084
16,50	18	143	93	71	48	SCD601-1650-2-2-140HA05-HP358	30802751	SCD601-1650-2-2-140HE05-HP358	30803085
16,80	18	143	93	71	48	SCD601-1680-2-2-140HA05-HP358	30802752	SCD601-1680-2-2-140HE05-HP358	30803086
16,90	18	143	93	71	48	SCD601-1690-2-2-140HA05-HP358	30802753	SCD601-1690-2-2-140HE05-HP358	30803087
17,00	18	143	93	71	48	SCD601-1700-2-2-140HA05-HP358	30802754	SCD601-1700-2-2-140HE05-HP358	30803088
17,50	18	143	93	71	48	SCD601-1750-2-2-140HA05-HP358	30802755	SCD601-1750-2-2-140HE05-HP358	30803089
17,60	18	143	93	71	48	SCD601-1760-2-2-140HA05-HP358	30802756	SCD601-1760-2-2-140HE05-HP358	30803090
17,80	18	143	93	71	48	SCD601-1780-2-2-140HA05-HP358	30802757	SCD601-1780-2-2-140HE05-HP358	30803091
18,00	18	143	93	71	48	SCD601-1800-2-2-140HA05-HP358	30802758	SCD601-1800-2-2-140HE05-HP358	30803092
18,50	20	153	101	77	50	SCD601-1850-2-2-140HA05-HP358	30802759	SCD601-1850-2-2-140HE05-HP358	30803093
18,80	20	153	101	77	50	SCD601-1880-2-2-140HA05-HP358	30802760	SCD601-1880-2-2-140HE05-HP358	30803094

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (5xD), internal coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
18,90	20	153	101	77	50	SCD601-1890-2-2-140HA05-HP358	30802761	SCD601-1890-2-2-140HE05-HP358	30803095
19,00	20	153	101	77	50	SCD601-1900-2-2-140HA05-HP358	30802762	SCD601-1900-2-2-140HE05-HP358	30803096
19,35	20	153	101	77	50	SCD601-1935-2-2-140HA05-HP358	30802763	SCD601-1935-2-2-140HE05-HP358	30803097
19,50	20	153	101	77	50	SCD601-1950-2-2-140HA05-HP358	30802764	SCD601-1950-2-2-140HE05-HP358	30803098
19,60	20	153	101	77	50	SCD601-1960-2-2-140HA05-HP358	30802765	SCD601-1960-2-2-140HE05-HP358	30803099
19,80	20	153	101	77	50	SCD601-1980-2-2-140HA05-HP358	30802766	SCD601-1980-2-2-140HE05-HP358	30803100
20,00	20	153	101	77	50	SCD601-2000-2-2-140HA05-HP358	30802767	SCD601-2000-2-2-140HE05-HP358	30803101
20,50	25	200	135	110	56	SCD601-2050-2-2-140HA05-HP358	30802768	SCD601-2050-2-2-140HE05-HP358	30803102
21,00	25	200	135	110	56	SCD601-2100-2-2-140HA05-HP358	30802769	SCD601-2100-2-2-140HE05-HP358	30803103
21,50	25	200	135	110	56	SCD601-2150-2-2-140HA05-HP358	30802770	SCD601-2150-2-2-140HE05-HP358	30803104
22,00	25	200	135	110	56	SCD601-2200-2-2-140HA05-HP358	30802771	SCD601-2200-2-2-140HE05-HP358	30803105
22,50	25	200	140	120	56	SCD601-2250-2-2-140HA05-HP358	30802772	SCD601-2250-2-2-140HE05-HP358	30803106
23,00	25	200	140	120	56	SCD601-2300-2-2-140HA05-HP358	30802773	SCD601-2300-2-2-140HE05-HP358	30803107
23,50	25	200	140	120	56	SCD601-2350-2-2-140HA05-HP358	30802774	SCD601-2350-2-2-140HE05-HP358	30803108
24,00	25	200	140	120	56	SCD601-2400-2-2-140HA05-HP358	30802775	SCD601-2400-2-2-140HE05-HP358	30803109
24,50	25	200	140	120	56	SCD601-2450-2-2-140HA05-HP358	30802776	SCD601-2450-2-2-140HE05-HP358	30803110
25,00	25	200	140	120	56	SCD601-2500-2-2-140HA05-HP358	30802777	SCD601-2500-2-2-140HE05-HP358	30803111

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Steel-Plus

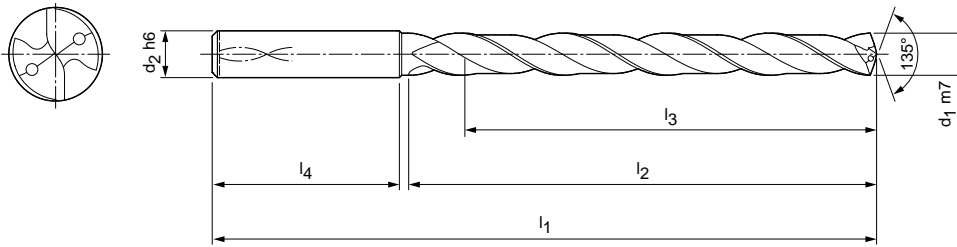
Solid carbide twist drill

SCD60 (8xD), internal coolant supply

Successor product to MEGA-Drill-Steel (SCD10)

Design:

Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 135 °
 Side rake angle: 30 °



Dimensions						Shank form HA		Shank form HE	
d1 m7	d2 h6	l1	l2	l3	l4	Specification	Order No.	Specification	Order No.
3,00	6	72	34	29	36	SCD601-0300-2-2-140HA08-HP358	30803112	SCD601-0300-2-2-140HE08-HP358	30803342
3,10	6	72	34	29	36	SCD601-0310-2-2-140HA08-HP358	30803113	SCD601-0310-2-2-140HE08-HP358	30803343
3,20	6	72	34	29	36	SCD601-0320-2-2-140HA08-HP358	30803114	SCD601-0320-2-2-140HE08-HP358	30803344
3,30	6	72	34	29	36	SCD601-0330-2-2-140HA08-HP358	30803115	SCD601-0330-2-2-140HE08-HP358	30803345
3,40	6	72	34	29	36	SCD601-0340-2-2-140HA08-HP358	30803116	SCD601-0340-2-2-140HE08-HP358	30803346
3,50	6	72	34	29	36	SCD601-0350-2-2-140HA08-HP358	30803117	SCD601-0350-2-2-140HE08-HP358	30803347
3,60	6	72	34	29	36	SCD601-0360-2-2-140HA08-HP358	30803118	SCD601-0360-2-2-140HE08-HP358	30803348
3,70	6	72	34	29	36	SCD601-0370-2-2-140HA08-HP358	30803119	SCD601-0370-2-2-140HE08-HP358	30803349
3,80	6	81	43	36	36	SCD601-0380-2-2-140HA08-HP358	30803120	SCD601-0380-2-2-140HE08-HP358	30803350
3,90	6	81	43	36	36	SCD601-0390-2-2-140HA08-HP358	30803121	SCD601-0390-2-2-140HE08-HP358	30803351
4,00	6	81	43	36	36	SCD601-0400-2-2-140HA08-HP358	30803122	SCD601-0400-2-2-140HE08-HP358	30803352
4,10	6	81	43	36	36	SCD601-0410-2-2-140HA08-HP358	30803123	SCD601-0410-2-2-140HE08-HP358	30803353
4,20	6	81	43	36	36	SCD601-0420-2-2-140HA08-HP358	30803124	SCD601-0420-2-2-140HE08-HP358	30803354
4,30	6	81	43	36	36	SCD601-0430-2-2-140HA08-HP358	30803125	SCD601-0430-2-2-140HE08-HP358	30803355
4,40	6	81	43	36	36	SCD601-0440-2-2-140HA08-HP358	30803126	SCD601-0440-2-2-140HE08-HP358	30803356
4,50	6	81	43	36	36	SCD601-0450-2-2-140HA08-HP358	30803127	SCD601-0450-2-2-140HE08-HP358	30803357
4,60	6	81	43	36	36	SCD601-0460-2-2-140HA08-HP358	30803128	SCD601-0460-2-2-140HE08-HP358	30803358
4,70	6	81	43	36	36	SCD601-0470-2-2-140HA08-HP358	30803129	SCD601-0470-2-2-140HE08-HP358	30803359
4,80	6	95	57	48	36	SCD601-0480-2-2-140HA08-HP358	30803130	SCD601-0480-2-2-140HE08-HP358	30803360
4,90	6	95	57	48	36	SCD601-0490-2-2-140HA08-HP358	30803131	SCD601-0490-2-2-140HE08-HP358	30803361
5,00	6	95	57	48	36	SCD601-0500-2-2-140HA08-HP358	30803132	SCD601-0500-2-2-140HE08-HP358	30803362
5,10	6	95	57	48	36	SCD601-0510-2-2-140HA08-HP358	30803133	SCD601-0510-2-2-140HE08-HP358	30803363
5,20	6	95	57	48	36	SCD601-0520-2-2-140HA08-HP358	30803134	SCD601-0520-2-2-140HE08-HP358	30803364
5,30	6	95	57	48	36	SCD601-0530-2-2-140HA08-HP358	30803135	SCD601-0530-2-2-140HE08-HP358	30803365
5,40	6	95	57	48	36	SCD601-0540-2-2-140HA08-HP358	30803136	SCD601-0540-2-2-140HE08-HP358	30803366
5,50	6	95	57	48	36	SCD601-0550-2-2-140HA08-HP358	30803137	SCD601-0550-2-2-140HE08-HP358	30803367
5,60	6	95	57	48	36	SCD601-0560-2-2-140HA08-HP358	30803138	SCD601-0560-2-2-140HE08-HP358	30803368
5,70	6	95	57	48	36	SCD601-0570-2-2-140HA08-HP358	30803139	SCD601-0570-2-2-140HE08-HP358	30803369
5,80	6	95	57	48	36	SCD601-0580-2-2-140HA08-HP358	30803140	SCD601-0580-2-2-140HE08-HP358	30803370
5,90	6	95	57	48	36	SCD601-0590-2-2-140HA08-HP358	30803141	SCD601-0590-2-2-140HE08-HP358	30803371
6,00	6	95	57	48	36	SCD601-0600-2-2-140HA08-HP358	30803142	SCD601-0600-2-2-140HE08-HP358	30803372
6,10	8	114	76	64	36	SCD601-0610-2-2-140HA08-HP358	30803143	SCD601-0610-2-2-140HE08-HP358	30803373
6,20	8	114	76	64	36	SCD601-0620-2-2-140HA08-HP358	30803144	SCD601-0620-2-2-140HE08-HP358	30803374
6,30	8	114	76	64	36	SCD601-0630-2-2-140HA08-HP358	30803145	SCD601-0630-2-2-140HE08-HP358	30803375
6,40	8	114	76	64	36	SCD601-0640-2-2-140HA08-HP358	30803146	SCD601-0640-2-2-140HE08-HP358	30803376
6,50	8	114	76	64	36	SCD601-0650-2-2-140HA08-HP358	30803147	SCD601-0650-2-2-140HE08-HP358	30803377

MEGA-Drill-Steel-Plus | Solid carbide twist drills SCD60 (8xD), internal coolant supply

Dimensions						Shank form HA		Shank form HE	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
13,00	14	178	133	112	45	SCD601-1300-2-2-140HA08-HP358	30803205	SCD601-1300-2-2-140HE08-HP358	30803435
13,50	14	178	133	112	45	SCD601-1350-2-2-140HA08-HP358	30803206	SCD601-1350-2-2-140HE08-HP358	30803436
13,80	14	178	133	112	45	SCD601-1380-2-2-140HA08-HP358	30803207	SCD601-1380-2-2-140HE08-HP358	30803437
14,00	14	178	133	112	45	SCD601-1400-2-2-140HA08-HP358	30803208	SCD601-1400-2-2-140HE08-HP358	30803438
14,50	16	203	152	128	48	SCD601-1450-2-2-140HA08-HP358	30803209	SCD601-1450-2-2-140HE08-HP358	30803439
14,80	16	203	152	128	48	SCD601-1480-2-2-140HA08-HP358	30803210	SCD601-1480-2-2-140HE08-HP358	30803440
15,00	16	203	152	128	48	SCD601-1500-2-2-140HA08-HP358	30803211	SCD601-1500-2-2-140HE08-HP358	30803441
15,50	16	203	152	128	48	SCD601-1550-2-2-140HA08-HP358	30803212	SCD601-1550-2-2-140HE08-HP358	30803442
15,80	16	203	152	128	48	SCD601-1580-2-2-140HA08-HP358	30803213	SCD601-1580-2-2-140HE08-HP358	30803443
16,00	16	203	152	128	48	SCD601-1600-2-2-140HA08-HP358	30803214	SCD601-1600-2-2-140HE08-HP358	30803444
16,50	18	222	171	144	48	SCD601-1650-2-2-140HA08-HP358	30803215	SCD601-1650-2-2-140HE08-HP358	30803445
16,80	18	222	171	144	48	SCD601-1680-2-2-140HA08-HP358	30803216	SCD601-1680-2-2-140HE08-HP358	30803446
17,00	18	222	171	144	48	SCD601-1700-2-2-140HA08-HP358	30803217	SCD601-1700-2-2-140HE08-HP358	30803447
17,50	18	222	171	144	48	SCD601-1750-2-2-140HA08-HP358	30803218	SCD601-1750-2-2-140HE08-HP358	30803448
17,80	18	222	171	144	48	SCD601-1780-2-2-140HA08-HP358	30803219	SCD601-1780-2-2-140HE08-HP358	30803449
18,00	18	222	171	144	48	SCD601-1800-2-2-140HA08-HP358	30803220	SCD601-1800-2-2-140HE08-HP358	30803450
18,50	20	243	190	160	50	SCD601-1850-2-2-140HA08-HP358	30803221	SCD601-1850-2-2-140HE08-HP358	30803451
18,80	20	243	190	160	50	SCD601-1880-2-2-140HA08-HP358	30803222	SCD601-1880-2-2-140HE08-HP358	30803452
19,00	20	243	190	160	50	SCD601-1900-2-2-140HA08-HP358	30803223	SCD601-1900-2-2-140HE08-HP358	30803453
19,50	20	243	190	160	50	SCD601-1950-2-2-140HA08-HP358	30803224	SCD601-1950-2-2-140HE08-HP358	30803454
19,80	20	243	190	160	50	SCD601-1980-2-2-140HA08-HP358	30803225	SCD601-1980-2-2-140HE08-HP358	30803455
20,00	20	243	190	160	50	SCD601-2000-2-2-140HA08-HP358	30803226	SCD601-2000-2-2-140HE08-HP358	30803456

Dimensions in mm.

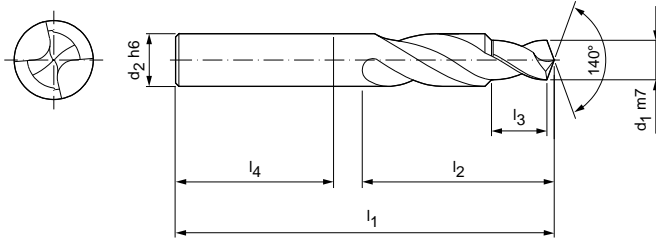
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Step-Drill-Steel

Solid carbide step drill
SCD11, external coolant supply

Design:
 Drill diameter: 2.50 - 14.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Helix angle: 30°



Dimensions								Shank form HA	
d	Type	d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
M3	GB	2,50	6	62	20	8,80	36	SCD110-0250-2-2-140HA-HP835	30390293
M3	F0	2,80	6	62	20	8,80	36	SCD110-0280-2-2-140HA-HP835	30450234
M4	GB	3,30	6	62	24	11,40	36	SCD110-0330-2-2-140HA-HP835	30390294
M4	F0	3,70	6	62	24	11,40	36	SCD110-0370-2-2-140HA-HP835	30450235
M5	GB	4,20	6	66	28	13,60	36	SCD110-0420-2-2-140HA-HP835	30390295
M5	F0	4,65	6	66	28	13,60	36	SCD110-0465-2-2-140HA-HP835	30450236
M6	GB	5,00	8	79	34	16,50	36	SCD110-0500-2-2-140HA-HP835	30390296
M6	F0	5,55	8	79	34	16,50	36	SCD110-0555-2-2-140HA-HP835	30450237
M8	GB	6,80	10	89	47	21,00	40	SCD110-0680-2-2-140HA-HP835	30390297
M8	F0	7,45	10	89	47	21,00	40	SCD110-0745-2-2-140HA-HP835	On request
M10	GB	8,50	12	102	55	25,50	45	SCD110-0850-2-2-140HA-HP835	30390298
M10	F0	9,30	12	102	55	25,50	45	SCD110-0930-2-2-140HA-HP835	30450239
M12	GB	10,20	14	107	60	30,00	45	SCD110-1020-2-2-140HA-HP835	30390299
M12	F0	11,20	14	107	60	30,00	45	SCD110-1120-2-2-140HA-HP835	30450240
M16	GB	14,00	18	123	73	38,50	48	SCD110-1400-2-2-140HA-HP835	30390300

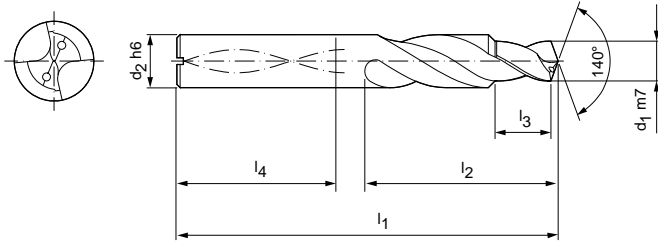
GB: Core hole tapping
 F0: Core hole thread forming / thread grooving

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Step-Drill-Steel

Solid carbide step drill
SCD11, internal coolant supply

Design:
 Drill diameter: 2.50 - 14.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Helix angle: 30°



Dimensions								Shank form HA		Shank form HE	
d	Type	d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
M3	GB	2,50	6	62	20	8,80	36	SCD111-0250-2-2-140HA-HP835	30390302	SCD111-0250-2-2-140HE-HP835	30442249
M3	FO	2,80	6	62	20	8,80	36	SCD111-0280-2-2-140HA-HP835	30823947	SCD111-0280-2-2-140HE-HP835	30823955
M4	GB	3,30	6	62	24	11,40	36	SCD111-0330-2-2-140HA-HP835	30390303	SCD111-0330-2-2-140HE-HP835	30442250
M4	FO	3,70	6	62	24	11,40	36	SCD111-0370-2-2-140HA-HP835	30823949	SCD111-0370-2-2-140HE-HP835	30823956
M5	GB	4,20	6	66	28	13,60	36	SCD111-0420-2-2-140HA-HP835	30390304	SCD111-0420-2-2-140HE-HP835	30442251
M5	FO	4,65	6	66	28	13,60	36	SCD111-0465-2-2-140HA-HP835	30823950	SCD111-0465-2-2-140HE-HP835	30823957
M6	GB	5,00	8	79	34	16,50	36	SCD111-0500-2-2-140HA-HP835	30390305	SCD111-0500-2-2-140HE-HP835	30442252
M6	FO	5,55	8	79	34	16,50	36	SCD111-0555-2-2-140HA-HP835	30823951	SCD111-0555-2-2-140HE-HP835	30823958
M8	GB	6,80	10	89	47	21,00	40	SCD111-0680-2-2-140HA-HP835	30390306	SCD111-0680-2-2-140HE-HP835	30442253
M8	FO	7,45	10	89	47	21,00	40	SCD111-0745-2-2-140HA-HP835	30451566	SCD111-0745-2-2-140HE-HP835	30823959
M10	GB	8,50	12	102	55	25,50	45	SCD111-0850-2-2-140HA-HP835	30390307	SCD111-0850-2-2-140HE-HP835	30442254
M10	FO	9,30	12	102	55	25,50	45	SCD111-0930-2-2-140HA-HP835	30823952	SCD111-0930-2-2-140HE-HP835	30823960
M12	GB	10,20	14	107	60	30,00	45	SCD111-1020-2-2-140HA-HP835	30390308	SCD111-1020-2-2-140HE-HP835	30442255
M12	FO	11,20	14	107	60	30,00	45	SCD111-1120-2-2-140HA-HP835	30823954	SCD111-1120-2-2-140HE-HP835	30823961
M16	GB	14,00	18	123	73	38,50	48	SCD111-1400-2-2-140HA-HP835	30390309	SCD111-1400-2-2-140HE-HP835	30442257

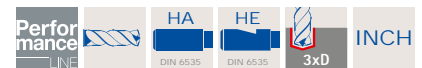
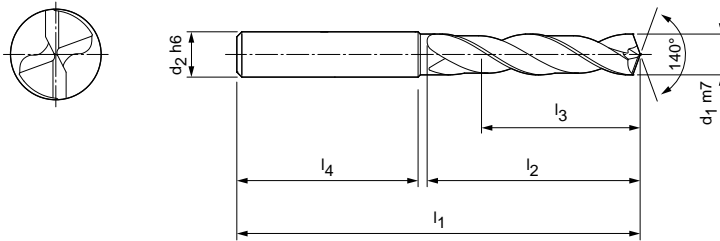
GB: Core hole tapping
 FO: Core hole thread forming / thread grooving

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Drill-Inox

Solid carbide twist drill
SCD12 (3xD), external coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry, surfaces
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA		Shank form HE	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
3,00		6	62	22	14	36	SCD120-0300-2-2-140HA03-HP835	30390310	SCD120-0300-2-2-140HE03-HP835	30390417
3,10		6	62	22	14	36	SCD120-0310-2-2-140HA03-HP835	30390311	SCD120-0310-2-2-140HE03-HP835	30390418
3,18	1/8	6	62	22	14	36	SCD120-0318-2-2-140HA03-HP835	30450554	-	-
3,20		6	62	22	14	36	SCD120-0320-2-2-140HA03-HP835	30390312	SCD120-0320-2-2-140HE03-HP835	30390419
3,30		6	62	22	14	36	SCD120-0330-2-2-140HA03-HP835	30390313	SCD120-0330-2-2-140HE03-HP835	30390420
3,40		6	62	22	14	36	SCD120-0340-2-2-140HA03-HP835	30390314	SCD120-0340-2-2-140HE03-HP835	30390421
3,50		6	62	22	14	36	SCD120-0350-2-2-140HA03-HP835	30390315	SCD120-0350-2-2-140HE03-HP835	30390422
3,57	9/64	6	62	22	14	36	SCD120-0357-2-2-140HA03-HP835	30450556	-	-
3,60		6	62	22	14	36	SCD120-0360-2-2-140HA03-HP835	30390316	SCD120-0360-2-2-140HE03-HP835	30390423
3,70		6	62	22	14	36	SCD120-0370-2-2-140HA03-HP835	30390317	SCD120-0370-2-2-140HE03-HP835	30390424
3,80		6	66	26	17	36	SCD120-0380-2-2-140HA03-HP835	30390318	SCD120-0380-2-2-140HE03-HP835	30390425
3,90		6	66	26	17	36	SCD120-0390-2-2-140HA03-HP835	30390319	SCD120-0390-2-2-140HE03-HP835	30390426
3,97	5/32	6	66	26	17	36	SCD120-0397-2-2-140HA03-HP835	30450558	-	-
4,00		6	66	26	17	36	SCD120-0400-2-2-140HA03-HP835	30390320	SCD120-0400-2-2-140HE03-HP835	30390427
4,10		6	66	26	17	36	SCD120-0410-2-2-140HA03-HP835	30390321	SCD120-0410-2-2-140HE03-HP835	30390428
4,20		6	66	26	17	36	SCD120-0420-2-2-140HA03-HP835	30390322	SCD120-0420-2-2-140HE03-HP835	30390429
4,30		6	66	26	17	36	SCD120-0430-2-2-140HA03-HP835	30390323	SCD120-0430-2-2-140HE03-HP835	30390430
4,37	11/64	6	66	26	17	36	SCD120-0437-2-2-140HA03-HP835	30450560	-	-
4,40		6	66	26	17	36	SCD120-0440-2-2-140HA03-HP835	30390324	SCD120-0440-2-2-140HE03-HP835	30390431
4,50		6	66	26	17	36	SCD120-0450-2-2-140HA03-HP835	30390325	SCD120-0450-2-2-140HE03-HP835	30390432
4,60		6	66	26	17	36	SCD120-0460-2-2-140HA03-HP835	30390326	SCD120-0460-2-2-140HE03-HP835	30390433
4,70		6	66	26	17	36	SCD120-0470-2-2-140HA03-HP835	30390327	SCD120-0470-2-2-140HE03-HP835	30390434
4,76	3/16	6	66	26	17	36	SCD120-0476-2-2-140HA03-HP835	30450562	-	-
4,80		6	66	30	20	36	SCD120-0480-2-2-140HA03-HP835	30390328	SCD120-0480-2-2-140HE03-HP835	30390435
4,90		6	66	30	20	36	SCD120-0490-2-2-140HA03-HP835	30390329	SCD120-0490-2-2-140HE03-HP835	30390436
5,00		6	66	30	20	36	SCD120-0500-2-2-140HA03-HP835	30390330	SCD120-0500-2-2-140HE03-HP835	30390437
5,10		6	66	30	20	36	SCD120-0510-2-2-140HA03-HP835	30390331	SCD120-0510-2-2-140HE03-HP835	30390438
5,16	13/64	6	66	30	20	36	SCD120-0516-2-2-140HA03-HP835	30450563	-	-
5,20		6	66	30	20	36	SCD120-0520-2-2-140HA03-HP835	30390332	SCD120-0520-2-2-140HE03-HP835	30390439
5,30		6	66	30	20	36	SCD120-0530-2-2-140HA03-HP835	30390333	SCD120-0530-2-2-140HE03-HP835	30390440
5,40		6	66	30	20	36	SCD120-0540-2-2-140HA03-HP835	30390334	SCD120-0540-2-2-140HE03-HP835	30390441
5,50		6	66	30	20	36	SCD120-0550-2-2-140HA03-HP835	30390335	SCD120-0550-2-2-140HE03-HP835	30390442
5,56	7/32	6	66	30	20	36	SCD120-0556-2-2-140HA03-HP835	30450564	-	-
5,60		6	66	30	20	36	SCD120-0560-2-2-140HA03-HP835	30390336	SCD120-0560-2-2-140HE03-HP835	30390443
5,70		6	66	30	20	36	SCD120-0570-2-2-140HA03-HP835	30390337	SCD120-0570-2-2-140HE03-HP835	30390444
5,80		6	66	30	20	36	SCD120-0580-2-2-140HA03-HP835	30390338	SCD120-0580-2-2-140HE03-HP835	30390445

MEGA-Drill-Inox | Solid carbide twist drills SCD12 (3xD), external coolant supply

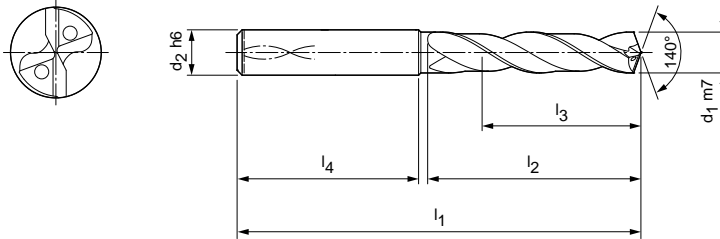
Dimensions							Shank form HA		Shank form HE	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
10,40		12	102	56	40	45	SCD120-1040-2-2-140HA03-HP835	30390384	SCD120-1040-2-2-140HE03-HP835	30390491
10,50		12	102	56	40	45	SCD120-1050-2-2-140HA03-HP835	30390385	SCD120-1050-2-2-140HE03-HP835	30390492
10,60		12	102	56	40	45	SCD120-1060-2-2-140HA03-HP835	30390386	SCD120-1060-2-2-140HE03-HP835	30390493
10,70		12	102	56	40	45	SCD120-1070-2-2-140HA03-HP835	30390387	SCD120-1070-2-2-140HE03-HP835	30390494
10,72	27/64	12	102	56	40	45	SCD120-1072-2-2-140HA03-HP835	30450582	-	-
10,80		12	102	56	40	45	SCD120-1080-2-2-140HA03-HP835	30390388	SCD120-1080-2-2-140HE03-HP835	30390495
10,90		12	102	56	40	45	SCD120-1090-2-2-140HA03-HP835	30390389	SCD120-1090-2-2-140HE03-HP835	30390496
11,00		12	102	56	40	45	SCD120-1100-2-2-140HA03-HP835	30390390	SCD120-1100-2-2-140HE03-HP835	30390497
11,10		12	102	56	40	45	SCD120-1110-2-2-140HA03-HP835	30390391	SCD120-1110-2-2-140HE03-HP835	30390498
11,11	7/16	12	102	56	40	45	SCD120-1111-2-2-140HA03-HP835	30450583	-	-
11,20		12	102	56	40	45	SCD120-1120-2-2-140HA03-HP835	30390392	SCD120-1120-2-2-140HE03-HP835	30390499
11,30		12	102	56	40	45	SCD120-1130-2-2-140HA03-HP835	30390393	SCD120-1130-2-2-140HE03-HP835	30390500
11,40		12	102	56	40	45	SCD120-1140-2-2-140HA03-HP835	30390394	SCD120-1140-2-2-140HE03-HP835	30390501
11,50		12	102	56	40	45	SCD120-1150-2-2-140HA03-HP835	30390395	SCD120-1150-2-2-140HE03-HP835	30390502
11,60		12	102	56	40	45	SCD120-1160-2-2-140HA03-HP835	30390396	SCD120-1160-2-2-140HE03-HP835	30390503
11,70		12	102	56	40	45	SCD120-1170-2-2-140HA03-HP835	30390397	SCD120-1170-2-2-140HE03-HP835	30390504
11,80		12	102	56	40	45	SCD120-1180-2-2-140HA03-HP835	30390398	SCD120-1180-2-2-140HE03-HP835	30390505
11,90		12	102	56	40	45	SCD120-1190-2-2-140HA03-HP835	30390399	SCD120-1190-2-2-140HE03-HP835	30390506
12,00		12	102	56	40	45	SCD120-1200-2-2-140HA03-HP835	30390400	SCD120-1200-2-2-140HE03-HP835	30390507
12,50		14	107	61	43	45	SCD120-1250-2-2-140HA03-HP835	30390401	SCD120-1250-2-2-140HE03-HP835	30390508
13,00		14	107	61	43	45	SCD120-1300-2-2-140HA03-HP835	30390402	SCD120-1300-2-2-140HE03-HP835	30390509
13,50		14	107	61	43	45	SCD120-1350-2-2-140HA03-HP835	30390403	SCD120-1350-2-2-140HE03-HP835	30390510
14,00		14	107	61	43	45	SCD120-1400-2-2-140HA03-HP835	30390404	SCD120-1400-2-2-140HE03-HP835	30390511
14,50		16	115	65	45	48	SCD120-1450-2-2-140HA03-HP835	30390405	SCD120-1450-2-2-140HE03-HP835	30390512
14,68	37/64	16	115	65	45	48	SCD120-1468-2-2-140HA03-HP835	30450589	-	-
15,00		16	115	65	45	48	SCD120-1500-2-2-140HA03-HP835	30390406	SCD120-1500-2-2-140HE03-HP835	30390513
15,08	19/32	16	115	65	45	48	SCD120-1508-2-2-140HA03-HP835	30450590	-	-
15,50		16	115	65	45	48	SCD120-1550-2-2-140HA03-HP835	30390407	SCD120-1550-2-2-140HE03-HP835	30390514
15,88	21/32	16	115	65	45	48	SCD120-1588-2-2-140HA03-HP835	30450591	-	-
16,00		16	115	65	45	48	SCD120-1600-2-2-140HA03-HP835	30390408	SCD120-1600-2-2-140HE03-HP835	30390515
16,50		18	123	73	51	48	SCD120-1650-2-2-140HA03-HP835	30390409	SCD120-1650-2-2-140HE03-HP835	30390516
16,67	11/16	18	123	73	51	48	SCD120-1667-2-2-140HA03-HP835	30450592	-	-
17,00		18	123	73	51	48	SCD120-1700-2-2-140HA03-HP835	30390410	SCD120-1700-2-2-140HE03-HP835	30390517
17,46	2/3	18	123	73	51	48	SCD120-1746-2-2-140HA03-HP835	30450593	-	-
17,50		18	123	73	51	48	SCD120-1750-2-2-140HA03-HP835	30390411	SCD120-1750-2-2-140HE03-HP835	30441286
17,86	45/54	18	123	73	51	48	SCD120-1786-2-2-140HA03-HP835	30450594	-	-
18,00		18	123	73	51	48	SCD120-1800-2-2-140HA03-HP835	30390412	SCD120-1800-2-2-140HE03-HP835	30390518
18,26	23/32	20	131	79	55	50	SCD120-1826-2-2-140HA03-HP835	30450595	-	-
18,50		20	131	79	55	50	SCD120-1850-2-2-140HA03-HP835	30390413	SCD120-1850-2-2-140HE03-HP835	30390519
19,00		20	131	79	55	50	SCD120-1900-2-2-140HA03-HP835	30390414	SCD120-1900-2-2-140HE03-HP835	30390520
19,05	3/4	20	131	79	55	50	SCD120-1905-2-2-140HA03-HP835	30450596	-	-
19,50		20	131	79	55	50	SCD120-1950-2-2-140HA03-HP835	30390415	SCD120-1950-2-2-140HE03-HP835	30390521
20,00		20	131	79	55	50	SCD120-2000-2-2-140HA03-HP835	30390416	SCD120-2000-2-2-140HE03-HP835	30390522

Dimensions in mm.
Cutting data recommendation from page 458.
Special designs and other coatings on request.

MEGA-Drill-Inox

Solid carbide twist drill
SCD12 (3xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry, surfaces
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA		Shank form HE	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
3,00		6	62	22	14	36	SCD121-0300-2-2-140HA03-HP835	30390523	SCD121-0300-2-2-140HE03-HP835	30390626
3,10		6	62	22	14	36	SCD121-0310-2-2-140HA03-HP835	30390524	SCD121-0310-2-2-140HE03-HP835	30390627
3,18	1/8	6	62	22	14	36	SCD121-0318-2-2-140HA03-HP835	30450640	-	-
3,20		6	62	22	14	36	SCD121-0320-2-2-140HA03-HP835	30390525	SCD121-0320-2-2-140HE03-HP835	30390628
3,30		6	62	22	14	36	SCD121-0330-2-2-140HA03-HP835	30390526	SCD121-0330-2-2-140HE03-HP835	30390629
3,40		6	62	22	14	36	SCD121-0340-2-2-140HA03-HP835	30390527	SCD121-0340-2-2-140HE03-HP835	30390630
3,50		6	62	22	14	36	SCD121-0350-2-2-140HA03-HP835	30390528	SCD121-0350-2-2-140HE03-HP835	30390631
3,57	9/64	6	62	22	14	36	SCD121-0357-2-2-140HA03-HP835	30450642	-	-
3,60		6	62	22	14	36	SCD121-0360-2-2-140HA03-HP835	30390529	SCD121-0360-2-2-140HE03-HP835	30390632
3,70		6	62	22	14	36	SCD121-0370-2-2-140HA03-HP835	30390530	SCD121-0370-2-2-140HE03-HP835	30390633
3,80		6	66	26	17	36	SCD121-0380-2-2-140HA03-HP835	30390531	SCD121-0380-2-2-140HE03-HP835	30390634
3,90		6	66	26	17	36	SCD121-0390-2-2-140HA03-HP835	30390532	SCD121-0390-2-2-140HE03-HP835	30390635
3,97	5/32	6	66	26	17	36	SCD121-0397-2-2-140HA03-HP835	30450644	-	-
4,00		6	66	26	17	36	SCD121-0400-2-2-140HA03-HP835	30390533	SCD121-0400-2-2-140HE03-HP835	30390636
4,10		6	66	26	17	36	SCD121-0410-2-2-140HA03-HP835	30390534	SCD121-0410-2-2-140HE03-HP835	30390637
4,20		6	66	26	17	36	SCD121-0420-2-2-140HA03-HP835	30390535	SCD121-0420-2-2-140HE03-HP835	30390638
4,30		6	66	26	17	36	SCD121-0430-2-2-140HA03-HP835	30390536	SCD121-0430-2-2-140HE03-HP835	30390639
4,37	11/64	6	66	26	17	36	SCD121-0437-2-2-140HA03-HP835	30450646	-	-
4,40		6	66	26	17	36	SCD121-0440-2-2-140HA03-HP835	30390537	SCD121-0440-2-2-140HE03-HP835	30390640
4,50		6	66	26	17	36	SCD121-0450-2-2-140HA03-HP835	30390538	SCD121-0450-2-2-140HE03-HP835	30390641
4,60		6	66	26	17	36	SCD121-0460-2-2-140HA03-HP835	30390539	SCD121-0460-2-2-140HE03-HP835	30390642
4,70		6	66	26	17	36	SCD121-0470-2-2-140HA03-HP835	30390540	SCD121-0470-2-2-140HE03-HP835	30390643
4,76	3/16	6	66	26	17	36	SCD121-0476-2-2-140HA03-HP835	30450648	-	-
4,80		6	66	30	20	36	SCD121-0480-2-2-140HA03-HP835	30390541	SCD121-0480-2-2-140HE03-HP835	30390644
4,90		6	66	30	20	36	SCD121-0490-2-2-140HA03-HP835	30390542	SCD121-0490-2-2-140HE03-HP835	30390645
5,00		6	66	30	20	36	SCD121-0500-2-2-140HA03-HP835	30390543	SCD121-0500-2-2-140HE03-HP835	30390646
5,10		6	66	30	20	36	SCD121-0510-2-2-140HA03-HP835	30390544	SCD121-0510-2-2-140HE03-HP835	30390647
5,16	13/64	6	66	30	20	36	SCD121-0516-2-2-140HA03-HP835	30450649	-	-
5,20		6	66	30	20	36	SCD121-0520-2-2-140HA03-HP835	30390545	SCD121-0520-2-2-140HE03-HP835	30390648
5,30		6	66	30	20	36	SCD121-0530-2-2-140HA03-HP835	30390546	SCD121-0530-2-2-140HE03-HP835	30390649
5,40		6	66	30	20	36	SCD121-0540-2-2-140HA03-HP835	30390547	SCD121-0540-2-2-140HE03-HP835	30390650
5,50		6	66	30	20	36	SCD121-0550-2-2-140HA03-HP835	30390548	SCD121-0550-2-2-140HE03-HP835	30390651
5,56	7/32	6	66	30	20	36	SCD121-0556-2-2-140HA03-HP835	30450650	-	-
5,60		6	66	30	20	36	SCD121-0560-2-2-140HA03-HP835	30390549	SCD121-0560-2-2-140HE03-HP835	30390652
5,70		6	66	30	20	36	SCD121-0570-2-2-140HA03-HP835	30390550	SCD121-0570-2-2-140HE03-HP835	30390653
5,80		6	66	30	20	36	SCD121-0580-2-2-140HA03-HP835	30390551	SCD121-0580-2-2-140HE03-HP835	30390654

MEGA-Drill-Inox | Solid carbide twist drills SCD12 (3xD), internal coolant supply

Dimensions								Shank form HA		Shank form HE	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.	
10,40		12	102	56	40	45	SCD121-1040-2-2-140HA03-HP835	30390597	SCD121-1040-2-2-140HE03-HP835	30390700	
10,50		12	102	56	40	45	SCD121-1050-2-2-140HA03-HP835	30390598	SCD121-1050-2-2-140HE03-HP835	30390701	
10,60		12	102	56	40	45	SCD121-1060-2-2-140HA03-HP835	30390599	SCD121-1060-2-2-140HE03-HP835	30390702	
10,70		12	102	56	40	45	SCD121-1070-2-2-140HA03-HP835	30390600	SCD121-1070-2-2-140HE03-HP835	30390703	
10,72	27/64	12	102	56	40	45	SCD121-1072-2-2-140HA03-HP835	30450668	-	-	
10,80		12	102	56	40	45	SCD121-1080-2-2-140HA03-HP835	30390601	SCD121-1080-2-2-140HE03-HP835	30390704	
10,90		12	102	56	40	45	SCD121-1090-2-2-140HA03-HP835	30390602	SCD121-1090-2-2-140HE03-HP835	30390705	
11,00		12	102	56	40	45	SCD121-1100-2-2-140HA03-HP835	30390603	SCD121-1100-2-2-140HE03-HP835	30390706	
11,10		12	102	56	40	45	SCD121-1110-2-2-140HA03-HP835	30390604	SCD121-1110-2-2-140HE03-HP835	30390707	
11,11	7/16	12	102	56	40	45	SCD121-1111-2-2-140HA03-HP835	30450669	-	-	
11,20		12	102	56	40	45	SCD121-1120-2-2-140HA03-HP835	30390605	SCD121-1120-2-2-140HE03-HP835	30390708	
11,30		12	102	56	40	45	SCD121-1130-2-2-140HA03-HP835	30390606	SCD121-1130-2-2-140HE03-HP835	30390709	
11,40		12	102	56	40	45	SCD121-1140-2-2-140HA03-HP835	30390607	SCD121-1140-2-2-140HE03-HP835	30390710	
11,50		12	102	56	40	45	SCD121-1150-2-2-140HA03-HP835	30390608	SCD121-1150-2-2-140HE03-HP835	30390711	
11,60		12	102	56	40	45	SCD121-1160-2-2-140HA03-HP835	30390609	SCD121-1160-2-2-140HE03-HP835	30390713	
11,70		12	102	56	40	45	SCD121-1170-2-2-140HA03-HP835	30390610	SCD121-1170-2-2-140HE03-HP835	30390714	
11,80		12	102	56	40	45	SCD121-1180-2-2-140HA03-HP835	30390611	SCD121-1180-2-2-140HE03-HP835	30390715	
11,90		12	102	56	40	45	SCD121-1190-2-2-140HA03-HP835	30390612	SCD121-1190-2-2-140HE03-HP835	30390716	
12,00		12	102	56	40	45	SCD121-1200-2-2-140HA03-HP835	30390613	SCD121-1200-2-2-140HE03-HP835	30390717	
12,50		14	107	61	43	45	SCD121-1250-2-2-140HA03-HP835	30443976	SCD121-1250-2-2-140HE03-HP835	30441291	
13,00		14	107	61	43	45	SCD121-1300-2-2-140HA03-HP835	30444778	SCD121-1300-2-2-140HE03-HP835	30441293	
13,50		14	107	61	43	45	SCD121-1350-2-2-140HA03-HP835	30390614	SCD121-1350-2-2-140HE03-HP835	30390718	
14,00		14	107	61	43	45	SCD121-1400-2-2-140HA03-HP835	30445050	SCD121-1400-2-2-140HE03-HP835	30441295	
14,50		16	115	65	45	48	SCD121-1450-2-2-140HA03-HP835	30390615	SCD121-1450-2-2-140HE03-HP835	30390719	
14,68	37/64	16	115	65	45	48	SCD121-1468-2-2-140HA03-HP835	30450674	-	-	
15,00		16	115	65	45	48	SCD121-1500-2-2-140HA03-HP835	30390616	SCD121-1500-2-2-140HE03-HP835	30390720	
15,08	19/32	16	115	65	45	48	SCD121-1508-2-2-140HA03-HP835	30450675	-	-	
15,50		16	115	65	45	48	SCD121-1550-2-2-140HA03-HP835	30442531	SCD121-1550-2-2-140HE03-HP835	30441297	
15,88	5/8	16	115	65	45	48	SCD121-1588-2-2-140HA03-HP835	30450676	-	-	
16,00		16	115	65	45	48	SCD121-1600-2-2-140HA03-HP835	30390617	SCD121-1600-2-2-140HE03-HP835	30390721	
16,50		18	123	73	51	48	SCD121-1650-2-2-140HA03-HP835	30390618	SCD121-1650-2-2-140HE03-HP835	30390722	
16,67	21/32	18	123	73	51	48	SCD121-1667-2-2-140HA03-HP835	30450677	-	-	
17,00		18	123	73	51	48	SCD121-1700-2-2-140HA03-HP835	30390619	SCD121-1700-2-2-140HE03-HP835	30390723	
17,46	11/16	18	123	73	51	48	SCD121-1746-2-2-140HA03-HP835	30450678	-	-	
17,50		18	123	73	51	48	SCD121-1750-2-2-140HA03-HP835	30390620	SCD121-1750-2-2-140HE03-HP835	30390724	
17,86	45/54	18	123	73	51	48	SCD121-1786-2-2-140HA03-HP835	30450679	-	-	
18,00		18	123	73	51	48	SCD121-1800-2-2-140HA03-HP835	30390621	SCD121-1800-2-2-140HE03-HP835	30390725	
18,26	23/32	20	131	79	55	50	SCD121-1826-2-2-140HA03-HP835	30450680	-	-	
18,50		20	131	79	55	50	SCD121-1850-2-2-140HA03-HP835	30390622	SCD121-1850-2-2-140HE03-HP835	30390726	
19,00		20	131	79	55	50	SCD121-1900-2-2-140HA03-HP835	30390623	SCD121-1900-2-2-140HE03-HP835	30390727	
19,05	3/4	20	131	79	55	50	SCD121-1905-2-2-140HA03-HP835	30450681	-	-	
19,50		20	131	79	55	50	SCD121-1950-2-2-140HA03-HP835	30390624	SCD121-1950-2-2-140HE03-HP835	30390728	
20,00		20	131	79	55	50	SCD121-2000-2-2-140HA03-HP835	30390625	SCD121-2000-2-2-140HE03-HP835	30390729	

Dimensions in mm.

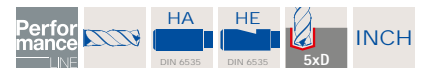
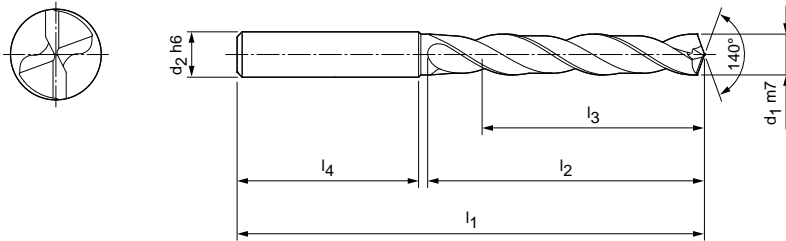
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Inox

Solid carbide twist drill
SCD12 (5xD), external coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry, surfaces
 Tip angle: 140°
 Helix angle: 30°



Dimensions							Shank form HA		Shank form HE	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
3,00		6	66	28	23	36	SCD120-0300-2-2-140HA05-HP835	30390730	SCD120-0300-2-2-140HE05-HP835	30390836
3,10		6	66	28	23	36	SCD120-0310-2-2-140HA05-HP835	30390731	SCD120-0310-2-2-140HE05-HP835	30390837
3,18	1/8	6	66	28	23	36	SCD120-0318-2-2-140HA05-HP835	30450597	-	-
3,20		6	66	28	23	36	SCD120-0320-2-2-140HA05-HP835	30390732	SCD120-0320-2-2-140HE05-HP835	30390838
3,30		6	66	28	23	36	SCD120-0330-2-2-140HA05-HP835	30390733	SCD120-0330-2-2-140HE05-HP835	30390839
3,40		6	66	28	23	36	SCD120-0340-2-2-140HA05-HP835	30390734	SCD120-0340-2-2-140HE05-HP835	30390840
3,50		6	66	28	23	36	SCD120-0350-2-2-140HA05-HP835	30390735	SCD120-0350-2-2-140HE05-HP835	30390841
3,57	9/64	6	66	28	23	36	SCD120-0357-2-2-140HA05-HP835	30450601	-	-
3,60		6	66	28	23	36	SCD120-0360-2-2-140HA05-HP835	30390736	SCD120-0360-2-2-140HE05-HP835	30390842
3,70		6	66	28	23	36	SCD120-0370-2-2-140HA05-HP835	30390737	SCD120-0370-2-2-140HE05-HP835	30390843
3,80		6	74	36	29	36	SCD120-0380-2-2-140HA05-HP835	30390738	SCD120-0380-2-2-140HE05-HP835	30390844
3,90		6	74	36	29	36	SCD120-0390-2-2-140HA05-HP835	30390739	SCD120-0390-2-2-140HE05-HP835	30390845
3,97	5/32	6	74	36	29	36	SCD120-0397-2-2-140HA05-HP835	30450601	-	-
4,00		6	74	36	29	36	SCD120-0400-2-2-140HA05-HP835	30390740	SCD120-0400-2-2-140HE05-HP835	30390846
4,10		6	74	36	29	36	SCD120-0410-2-2-140HA05-HP835	30390741	SCD120-0410-2-2-140HE05-HP835	30390847
4,20		6	74	36	29	36	SCD120-0420-2-2-140HA05-HP835	30390742	SCD120-0420-2-2-140HE05-HP835	30390848
4,30		6	74	36	29	36	SCD120-0430-2-2-140HA05-HP835	30390743	SCD120-0430-2-2-140HE05-HP835	30390849
4,37	11/64	6	74	36	29	36	SCD120-0437-2-2-140HA05-HP835	30450603	-	-
4,40		6	74	36	29	36	SCD120-0440-2-2-140HA05-HP835	30390744	SCD120-0440-2-2-140HE05-HP835	30390850
4,50		6	74	36	29	36	SCD120-0450-2-2-140HA05-HP835	30390745	SCD120-0450-2-2-140HE05-HP835	30390851
4,60		6	74	36	29	36	SCD120-0460-2-2-140HA05-HP835	30390746	SCD120-0460-2-2-140HE05-HP835	30390852
4,70		6	74	36	29	36	SCD120-0470-2-2-140HA05-HP835	30390747	SCD120-0470-2-2-140HE05-HP835	30390853
4,76	3/16	6	82	44	35	36	SCD120-0476-2-2-140HA05-HP835	30450605	-	-
4,80		6	82	44	35	36	SCD120-0480-2-2-140HA05-HP835	30390748	SCD120-0480-2-2-140HE05-HP835	30390854
4,90		6	82	44	35	36	SCD120-0490-2-2-140HA05-HP835	30390749	SCD120-0490-2-2-140HE05-HP835	30390855
5,00		6	82	44	35	36	SCD120-0500-2-2-140HA05-HP835	30390750	SCD120-0500-2-2-140HE05-HP835	30390856
5,10		6	82	44	35	36	SCD120-0510-2-2-140HA05-HP835	30390751	SCD120-0510-2-2-140HE05-HP835	30390857
5,16	13/64	6	82	44	35	36	SCD120-0516-2-2-140HA05-HP835	30450606	-	-
5,20		6	82	44	35	36	SCD120-0520-2-2-140HA05-HP835	30390752	SCD120-0520-2-2-140HE05-HP835	30390858
5,30		6	82	44	35	36	SCD120-0530-2-2-140HA05-HP835	30390753	SCD120-0530-2-2-140HE05-HP835	30390859
5,40		6	82	44	35	36	SCD120-0540-2-2-140HA05-HP835	30390754	SCD120-0540-2-2-140HE05-HP835	30390860
5,50		6	82	44	35	36	SCD120-0550-2-2-140HA05-HP835	30390755	SCD120-0550-2-2-140HE05-HP835	30390861
5,56	7/32	6	82	44	35	36	SCD120-0556-2-2-140HA05-HP835	30450607	-	-
5,60		6	82	44	35	36	SCD120-0560-2-2-140HA05-HP835	30390756	SCD120-0560-2-2-140HE05-HP835	30390862
5,70		6	82	44	35	36	SCD120-0570-2-2-140HA05-HP835	30390757	SCD120-0570-2-2-140HE05-HP835	30390863
5,80		6	82	44	35	36	SCD120-0580-2-2-140HA05-HP835	30390758	SCD120-0580-2-2-140HE05-HP835	30390864

MEGA-Drill-Inox | Solid carbide twist drills SCD12 (5xD), external coolant supply

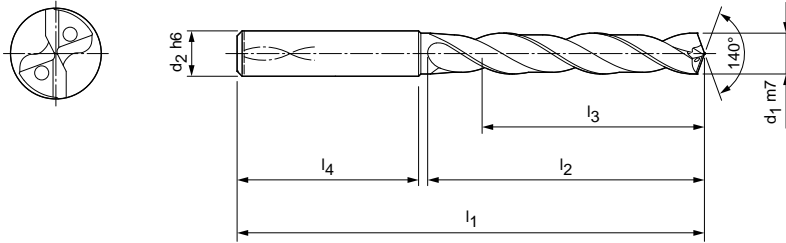
Dimensions								Shank form HA		Shank form HE	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.	
10,40		12	118	71	56	45	SCD120-1040-2-2-140HA05-HP835	30390804	SCD120-1040-2-2-140HE05-HP835	30390911	
10,50		12	118	71	56	45	SCD120-1050-2-2-140HA05-HP835	30390805	SCD120-1050-2-2-140HE05-HP835	30390912	
10,60		12	118	71	56	45	SCD120-1060-2-2-140HA05-HP835	30390806	SCD120-1060-2-2-140HE05-HP835	30390913	
10,70		12	118	71	56	45	SCD120-1070-2-2-140HA05-HP835	30390807	SCD120-1070-2-2-140HE05-HP835	30390914	
10,72	27/64	12	118	71	56	45	SCD120-1072-2-2-140HA05-HP835	30450625	-	-	
10,80		12	118	71	56	45	SCD120-1080-2-2-140HA05-HP835	30390808	SCD120-1080-2-2-140HE05-HP835	30390915	
10,90		12	118	71	56	45	SCD120-1090-2-2-140HA05-HP835	30390809	SCD120-1090-2-2-140HE05-HP835	30390916	
11,00		12	118	71	56	45	SCD120-1100-2-2-140HA05-HP835	30390810	SCD120-1100-2-2-140HE05-HP835	30390917	
11,10		12	118	71	56	45	SCD120-1110-2-2-140HA05-HP835	30390811	SCD120-1110-2-2-140HE05-HP835	30390918	
11,11	7/16	12	118	71	56	45	SCD120-1111-2-2-140HA05-HP835	30450626	-	-	
11,20		12	118	71	56	45	SCD120-1120-2-2-140HA05-HP835	30390812	SCD120-1120-2-2-140HE05-HP835	30390919	
11,30		12	118	71	56	45	SCD120-1130-2-2-140HA05-HP835	30390813	SCD120-1130-2-2-140HE05-HP835	30390920	
11,40		12	118	71	56	45	SCD120-1140-2-2-140HA05-HP835	30390814	SCD120-1140-2-2-140HE05-HP835	30390921	
11,50		12	118	71	56	45	SCD120-1150-2-2-140HA05-HP835	30390815	SCD120-1150-2-2-140HE05-HP835	30390922	
11,60		12	118	71	56	45	SCD120-1160-2-2-140HA05-HP835	30390816	SCD120-1160-2-2-140HE05-HP835	30390923	
11,70		12	118	71	56	45	SCD120-1170-2-2-140HA05-HP835	30390817	SCD120-1170-2-2-140HE05-HP835	30390924	
11,80		12	118	71	56	45	SCD120-1180-2-2-140HA05-HP835	30390818	SCD120-1180-2-2-140HE05-HP835	30390925	
11,90		12	118	71	56	45	SCD120-1190-2-2-140HA05-HP835	30390819	SCD120-1190-2-2-140HE05-HP835	30390926	
12,00		12	118	71	56	45	SCD120-1200-2-2-140HA05-HP835	30390820	SCD120-1200-2-2-140HE05-HP835	30390927	
12,50		14	124	77	60	45	SCD120-1250-2-2-140HA05-HP835	30390821	SCD120-1250-2-2-140HE05-HP835	30390928	
12,80		14	124	77	60	45	-	-	SCD120-1280-2-2-140HE05-HP835	30390929	
13,00		14	124	77	60	45	SCD120-1300-2-2-140HA05-HP835	30390822	SCD120-1300-2-2-140HE05-HP835	30390930	
13,50		14	124	77	60	45	SCD120-1350-2-2-140HA05-HP835	30390823	SCD120-1350-2-2-140HE05-HP835	30390931	
13,80		14	124	77	60	45	-	-	SCD120-1380-2-2-140HE05-HP835	30390932	
14,00		14	124	77	60	45	SCD120-1400-2-2-140HA05-HP835	30390824	SCD120-1400-2-2-140HE05-HP835	30390933	
14,50		16	133	83	63	48	SCD120-1450-2-2-140HA05-HP835	30390825	SCD120-1450-2-2-140HE05-HP835	30390934	
14,68	37/64	16	133	83	63	48	SCD120-1468-2-2-140HA05-HP835	30450632	-	-	
14,80		16	133	83	63	48	-	-	SCD120-1480-2-2-140HE05-HP835	30390935	
15,00		16	133	83	63	48	SCD120-1500-2-2-140HA05-HP835	-	SCD120-1500-2-2-140HE05-HP835	30390936	
15,08	19/32	16	133	83	63	48	SCD120-1508-2-2-140HA05-HP835	30450633	-	-	
15,50		16	133	83	63	48	SCD120-1550-2-2-140HA05-HP835	30390826	SCD120-1550-2-2-140HE05-HP835	30390937	
15,88	5/8	16	133	83	63	48	SCD120-1588-2-2-140HA05-HP835	30450634	-	-	
16,00		16	133	83	63	48	SCD120-1600-2-2-140HA05-HP835	30390827	SCD120-1600-2-2-140HE05-HP835	30390938	
16,50		18	143	93	71	48	-	-	SCD120-1650-2-2-140HE05-HP835	30390939	
16,67	21/32	18	143	93	71	48	SCD120-1667-2-2-140HA05-HP835	30450635	-	-	
16,80		18	143	93	71	48	-	-	SCD120-1680-2-2-140HE05-HP835	30390940	
17,00		18	143	93	71	48	SCD120-1700-2-2-140HA05-HP835	30390829	SCD120-1700-2-2-140HE05-HP835	30390941	
17,46	11/16	18	143	93	71	48	SCD120-1746-2-2-140HA05-HP835	30450636	-	-	
17,50		18	143	93	71	48	SCD120-1750-2-2-140HA05-HP835	30390830	SCD120-1750-2-2-140HE05-HP835	30390942	
17,80		18	143	93	71	48	-	-	SCD120-1780-2-2-140HE05-HP835	30390943	
17,86	45/54	18	143	93	71	48	SCD120-1786-2-2-140HA05-HP835	30450637	-	-	
18,00		18	143	93	71	48	SCD120-1800-2-2-140HA05-HP835	30390831	SCD120-1800-2-2-140HE05-HP835	30390944	
18,26	23/32	20	153	101	77	50	SCD120-1826-2-2-140HA05-HP835	30450638	-	-	
18,50		20	153	101	77	50	SCD120-1850-2-2-140HA05-HP835	30390832	SCD120-1850-2-2-140HE05-HP835	30390945	
18,80		20	153	101	77	50	-	-	SCD120-1880-2-2-140HE05-HP835	30390946	
19,00		20	153	101	77	50	SCD120-1900-2-2-140HA05-HP835	30390833	SCD120-1900-2-2-140HE05-HP835	30390947	
19,05	3/4	20	153	101	77	50	SCD120-1905-2-2-140HA05-HP835	30450639	-	-	
19,50		20	153	101	77	50	SCD120-1950-2-2-140HA05-HP835	30390834	SCD120-1950-2-2-140HE05-HP835	30390948	
19,80		20	153	101	77	50	-	-	SCD120-1980-2-2-140HE05-HP835	30390949	
20,00		20	153	101	77	50	SCD120-2000-2-2-140HA05-HP835	30390835	SCD120-2000-2-2-140HE05-HP835	30390950	

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Drill-Inox

Solid carbide twist drill
SCD12 (5xD), internal coolant supply

Design:
 Drill diameter: 2.80 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry, surfaces
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA		Shank form HE	
d1 m7 [mm]	d1 m7 [inch]	d2 h6	l1	l2	l3	l4	Specification	Order No.	Specification	Order No.
*2,80		6	66	28	23	36	SCD121-0280-2-2-140HA05-HP835	30453905	SCD121-0280-2-2-140HE05-HP835	30453906
3,00		6	66	28	23	36	SCD121-0300-2-2-140HA05-HP835	30390951	SCD121-0300-2-2-140HE05-HP835	30391066
3,10		6	66	28	23	36	SCD121-0310-2-2-140HA05-HP835	30390952	SCD121-0310-2-2-140HE05-HP835	30391067
3,18	1/8	6	66	28	23	36	SCD121-0318-2-2-140HA05-HP835	30450682	-	-
3,20		6	66	28	23	36	SCD121-0320-2-2-140HA05-HP835	30390953	SCD121-0320-2-2-140HE05-HP835	30391068
3,30		6	66	28	23	36	SCD121-0330-2-2-140HA05-HP835	30390954	SCD121-0330-2-2-140HE05-HP835	30391069
3,40		6	66	28	23	36	SCD121-0340-2-2-140HA05-HP835	30390955	SCD121-0340-2-2-140HE05-HP835	30391070
3,50		6	66	28	23	36	SCD121-0350-2-2-140HA05-HP835	30390956	SCD121-0350-2-2-140HE05-HP835	30391071
3,57	9/64	6	66	28	23	36	SCD121-0357-2-2-140HA05-HP835	30450684	-	-
3,60		6	66	28	23	36	SCD121-0360-2-2-140HA05-HP835	30390957	SCD121-0360-2-2-140HE05-HP835	30391072
*3,70		6	66	28	23	36	SCD121-0370-2-2-140HA05-HP835	30390958	SCD121-0370-2-2-140HE05-HP835	30391073
3,80		6	74	36	29	36	SCD121-0380-2-2-140HA05-HP835	30390959	SCD121-0380-2-2-140HE05-HP835	30391074
3,90		6	74	36	29	36	SCD121-0390-2-2-140HA05-HP835	30390960	SCD121-0390-2-2-140HE05-HP835	30391075
3,97	5/32	6	74	36	29	36	SCD121-0397-2-2-140HA05-HP835	30450686	-	-
4,00		6	74	36	29	36	SCD121-0400-2-2-140HA05-HP835	30390961	SCD121-0400-2-2-140HE05-HP835	30391076
4,10		6	74	36	29	36	SCD121-0410-2-2-140HA05-HP835	30390962	SCD121-0410-2-2-140HE05-HP835	30391077
4,20		6	74	36	29	36	SCD121-0420-2-2-140HA05-HP835	30390963	SCD121-0420-2-2-140HE05-HP835	30391078
4,30		6	74	36	29	36	SCD121-0430-2-2-140HA05-HP835	30390964	SCD121-0430-2-2-140HE05-HP835	30391079
4,37	11/64	6	74	36	29	36	SCD121-0437-2-2-140HA05-HP835	30450688	-	-
4,40		6	74	36	29	36	SCD121-0440-2-2-140HA05-HP835	30390965	SCD121-0440-2-2-140HE05-HP835	30391080
4,50		6	74	36	29	36	SCD121-0450-2-2-140HA05-HP835	30390966	SCD121-0450-2-2-140HE05-HP835	30391081
4,60		6	74	36	29	36	SCD121-0460-2-2-140HA05-HP835	30390967	SCD121-0460-2-2-140HE05-HP835	30391082
4,65		6	74	36	29	36	SCD121-0465-2-2-140HA05-HP835	30453655	SCD121-0465-2-2-140HE05-HP835	30445975
4,70		6	74	36	29	36	SCD121-0470-2-2-140HA05-HP835	30390968	SCD121-0470-2-2-140HE05-HP835	30391083
4,76	3/16	6	82	44	35	36	SCD121-0476-2-2-140HA05-HP835	30450690	-	-
4,80		6	82	44	35	36	SCD121-0480-2-2-140HA05-HP835	30390969	SCD121-0480-2-2-140HE05-HP835	30391084
4,90		6	82	44	35	36	SCD121-0490-2-2-140HA05-HP835	30390970	SCD121-0490-2-2-140HE05-HP835	30391085
5,00		6	82	44	35	36	SCD121-0500-2-2-140HA05-HP835	30390971	SCD121-0500-2-2-140HE05-HP835	30391086
5,10		6	82	44	35	36	SCD121-0510-2-2-140HA05-HP835	30390972	SCD121-0510-2-2-140HE05-HP835	30391087
5,16	13/64	6	82	44	35	36	SCD121-0516-2-2-140HA05-HP835	30450691	-	-
5,20		6	82	44	35	36	SCD121-0520-2-2-140HA05-HP835	30390973	SCD121-0520-2-2-140HE05-HP835	30391088
5,30		6	82	44	35	36	SCD121-0530-2-2-140HA05-HP835	30390974	SCD121-0530-2-2-140HE05-HP835	30391089
5,40		6	82	44	35	36	SCD121-0540-2-2-140HA05-HP835	30390975	SCD121-0540-2-2-140HE05-HP835	30391090
5,50		6	82	44	35	36	SCD121-0550-2-2-140HA05-HP835	30390976	SCD121-0550-2-2-140HE05-HP835	30391091
5,55		6	82	44	35	36	SCD121-0555-2-2-140HA05-HP835	30445951	SCD121-0555-2-2-140HE05-HP835	30445859
5,56	7/32	6	82	44	35	36	SCD121-0556-2-2-140HA05-HP835	30450692	-	-

MEGA-Drill-Inox | Solid carbide twist drills SCD12 (5xD), internal coolant supply

Dimensions							Shank form HA		Shank form HE	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.	Specification	Order No.
10,10		12	118	71	56	45	SCD121-1010-2-2-140HA05-HP835	30391022	SCD121-1010-2-2-140HE05-HP835	30391137
10,20		12	118	71	56	45	SCD121-1020-2-2-140HA05-HP835	30391023	SCD121-1020-2-2-140HE05-HP835	30391138
10,30		12	118	71	56	45	SCD121-1030-2-2-140HA05-HP835	30391024	SCD121-1030-2-2-140HE05-HP835	30391139
10,32	13/32	12	118	71	56	45	SCD121-1032-2-2-140HA05-HP835	30450709	-	-
10,40		12	118	71	56	45	SCD121-1040-2-2-140HA05-HP835	30391025	SCD121-1040-2-2-140HE05-HP835	30391140
10,50		12	118	71	56	45	SCD121-1050-2-2-140HA05-HP835	30391026	SCD121-1050-2-2-140HE05-HP835	30391141
10,60		12	118	71	56	45	SCD121-1060-2-2-140HA05-HP835	30391027	SCD121-1060-2-2-140HE05-HP835	30391142
10,70		12	118	71	56	45	SCD121-1070-2-2-140HA05-HP835	30391028	SCD121-1070-2-2-140HE05-HP835	30391143
10,72	27/64	12	118	71	56	45	SCD121-1072-2-2-140HA05-HP835	30450710	-	-
10,80		12	118	71	56	45	SCD121-1080-2-2-140HA05-HP835	30391029	SCD121-1080-2-2-140HE05-HP835	30391144
10,90		12	118	71	56	45	SCD121-1090-2-2-140HA05-HP835	30391030	SCD121-1090-2-2-140HE05-HP835	30391145
11,00		12	118	71	56	45	SCD121-1100-2-2-140HA05-HP835	30391031	SCD121-1100-2-2-140HE05-HP835	30391146
11,10		12	118	71	56	45	SCD121-1110-2-2-140HA05-HP835	30391032	SCD121-1110-2-2-140HE05-HP835	30391147
11,11	7/16	12	118	71	56	45	SCD121-1111-2-2-140HA05-HP835	30450711	-	-
*11,20		12	118	71	56	45	SCD121-1120-2-2-140HA05-HP835	30391033	SCD121-1120-2-2-140HE05-HP835	30391148
11,30		12	118	71	56	45	SCD121-1130-2-2-140HA05-HP835	30391034	SCD121-1130-2-2-140HE05-HP835	30391149
11,40		12	118	71	56	45	SCD121-1140-2-2-140HA05-HP835	30391035	SCD121-1140-2-2-140HE05-HP835	30391150
11,50		12	118	71	56	45	SCD121-1150-2-2-140HA05-HP835	30391036	SCD121-1150-2-2-140HE05-HP835	30391151
11,60		12	118	71	56	45	SCD121-1160-2-2-140HA05-HP835	30391037	SCD121-1160-2-2-140HE05-HP835	30391152
11,70		12	118	71	56	45	SCD121-1170-2-2-140HA05-HP835	30391038	SCD121-1170-2-2-140HE05-HP835	30391153
11,80		12	118	71	56	45	SCD121-1180-2-2-140HA05-HP835	30391039	SCD121-1180-2-2-140HE05-HP835	30391154
11,90		12	118	71	56	45	SCD121-1190-2-2-140HA05-HP835	30391040	SCD121-1190-2-2-140HE05-HP835	30391155
12,00		12	118	71	56	45	SCD121-1200-2-2-140HA05-HP835	30391041	SCD121-1200-2-2-140HE05-HP835	30391156
12,50		14	124	77	60	45	SCD121-1250-2-2-140HA05-HP835	30391042	SCD121-1250-2-2-140HE05-HP835	30391157
12,80		14	124	77	60	45	SCD121-1280-2-2-140HA05-HP835	30391043	-	-
13,00		14	124	77	60	45	SCD121-1300-2-2-140HA05-HP835	30391044	SCD121-1300-2-2-140HE05-HP835	30391158
13,50		14	124	77	60	45	SCD121-1350-2-2-140HA05-HP835	30391045	-	-
13,80		14	124	77	60	45	SCD121-1380-2-2-140HA05-HP835	30391046	-	-
14,00		14	124	77	60	45	SCD121-1400-2-2-140HA05-HP835	30391047	SCD121-1400-2-2-140HE05-HP835	30391159
14,50		16	133	83	63	48	SCD121-1450-2-2-140HA05-HP835	30391048	SCD121-1450-2-2-140HE05-HP835	30391160
14,68	37/64	16	133	83	63	48	SCD121-1468-2-2-140HA05-HP835	30450716	-	-
14,80		16	133	83	63	48	SCD121-1480-2-2-140HA05-HP835	30391049	-	-
15,00		16	133	83	63	48	SCD121-1500-2-2-140HA05-HP835	30391050	SCD121-1500-2-2-140HE05-HP835	30391161
15,08	19/32	16	133	83	63	48	SCD121-1508-2-2-140HA05-HP835	30450717	-	-
15,50		16	133	83	63	48	SCD121-1550-2-2-140HA05-HP835	30391051	-	-
15,80		16	133	83	63	48	SCD121-1580-2-2-140HA05-HP835	30391052	SCD121-1580-2-2-140HE05-HP835	30391162
15,88	5/8	16	133	83	63	48	SCD121-1588-2-2-140HA05-HP835	30450718	-	-
16,00		16	133	83	63	48	SCD121-1600-2-2-140HA05-HP835	30391053	SCD121-1600-2-2-140HE05-HP835	30391163
16,50		18	143	93	71	48	SCD121-1650-2-2-140HA05-HP835	30391054	SCD121-1650-2-2-140HE05-HP835	30391164
16,67	21/32	18	143	93	71	48	SCD121-1667-2-2-140HA05-HP835	30450719	-	-
16,80		18	143	93	71	48	SCD121-1680-2-2-140HA05-HP835	30391055	-	-
17,00		18	143	93	71	48	SCD121-1700-2-2-140HA05-HP835	30391056	SCD121-1700-2-2-140HE05-HP835	30391165
17,46	11/16	18	143	93	71	48	SCD121-1746-2-2-140HA05-HP835	30450720	-	-
17,50		18	143	93	71	48	SCD121-1750-2-2-140HA05-HP835	30391057	SCD121-1750-2-2-140HE05-HP835	30391166
17,80		18	143	93	71	48	SCD121-1780-2-2-140HA05-HP835	30391058	-	-
17,86	45/64	18	143	93	71	48	SCD121-1786-2-2-140HA05-HP835	30450721	-	-
18,00		18	143	93	71	48	SCD121-1800-2-2-140HA05-HP835	30391059	SCD121-1800-2-2-140HE05-HP835	30391167
18,26	23/32	20	153	101	77	50	SCD121-1826-2-2-140HA05-HP835	30450722	-	-
18,50		20	153	101	77	50	SCD121-1850-2-2-140HA05-HP835	30391060	SCD121-1850-2-2-140HE05-HP835	30391168
18,80		20	153	101	77	50	SCD121-1880-2-2-140HA05-HP835	30391061	-	-
19,00		20	153	101	77	50	SCD121-1900-2-2-140HA05-HP835	30391062	SCD121-1900-2-2-140HE05-HP835	30391169
19,05	3/4	20	153	101	77	50	SCD121-1905-2-2-140HA05-HP835	30450723	-	-
19,50		20	153	101	77	50	SCD121-1950-2-2-140HA05-HP835	30391063	-	-
19,80		20	153	101	77	50	SCD121-1980-2-2-140HA05-HP835	30391064	-	-
20,00		20	153	101	77	50	SCD121-2000-2-2-140HA05-HP835	30391065	SCD121-2000-2-2-140HE05-HP835	30391170

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

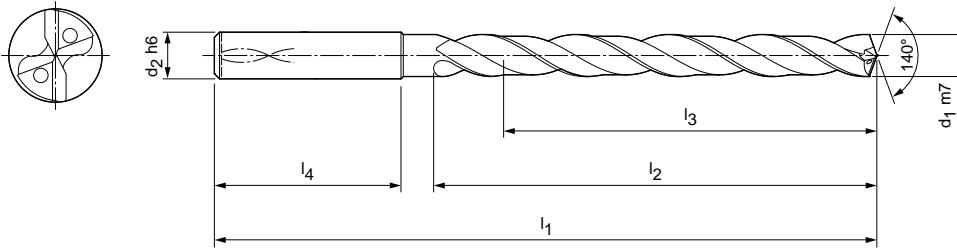
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Inox

Solid carbide twist drill
SCD12 (8xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry, surfaces
 Tip angle: 140°
 Helix angle: 30°



Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	72	34	29	36	SCD121-0300-2-2-140HA08-HP835	30391171
3,10	6	72	34	29	36	SCD121-0310-2-2-140HA08-HP835	30391172
3,20	6	72	34	29	36	SCD121-0320-2-2-140HA08-HP835	30391173
3,30	6	72	34	29	36	SCD121-0330-2-2-140HA08-HP835	30391174
3,40	6	72	34	29	36	SCD121-0340-2-2-140HA08-HP835	30391175
3,50	6	72	34	29	36	SCD121-0350-2-2-140HA08-HP835	30391176
3,60	6	72	34	29	36	SCD121-0360-2-2-140HA08-HP835	30391177
3,70	6	72	34	29	36	SCD121-0370-2-2-140HA08-HP835	30391178
3,80	6	81	43	36	36	SCD121-0380-2-2-140HA08-HP835	30391179
3,90	6	81	43	36	36	SCD121-0390-2-2-140HA08-HP835	30391180
4,00	6	81	43	36	36	SCD121-0400-2-2-140HA08-HP835	30391181
4,10	6	81	43	36	36	SCD121-0410-2-2-140HA08-HP835	30391182
4,20	6	81	43	36	36	SCD121-0420-2-2-140HA08-HP835	30391183
4,30	6	81	43	36	36	SCD121-0430-2-2-140HA08-HP835	30391184
4,40	6	81	43	36	36	SCD121-0440-2-2-140HA08-HP835	30391185
4,50	6	81	43	36	36	SCD121-0450-2-2-140HA08-HP835	30391186
4,60	6	81	43	36	36	SCD121-0460-2-2-140HA08-HP835	30391187
4,70	6	81	43	36	36	SCD121-0470-2-2-140HA08-HP835	30391188
4,80	6	95	57	48	36	SCD121-0480-2-2-140HA08-HP835	30391189
4,90	6	95	57	48	36	SCD121-0490-2-2-140HA08-HP835	30391190
5,00	6	95	57	48	36	SCD121-0500-2-2-140HA08-HP835	30391191
5,10	6	95	57	48	36	SCD121-0510-2-2-140HA08-HP835	30391192
5,20	6	95	57	48	36	SCD121-0520-2-2-140HA08-HP835	30391193
5,30	6	95	57	48	36	SCD121-0530-2-2-140HA08-HP835	30391194
5,40	6	95	57	48	36	SCD121-0540-2-2-140HA08-HP835	30391195
5,50	6	95	57	48	36	SCD121-0550-2-2-140HA08-HP835	30391196
5,60	6	95	57	48	36	SCD121-0560-2-2-140HA08-HP835	30391197
5,70	6	95	57	48	36	SCD121-0570-2-2-140HA08-HP835	30391198
5,80	6	95	57	48	36	SCD121-0580-2-2-140HA08-HP835	30391199
5,90	6	95	57	48	36	SCD121-0590-2-2-140HA08-HP835	30391200
6,00	6	95	57	48	36	SCD121-0600-2-2-140HA08-HP835	30391201
6,10	8	114	76	64	36	SCD121-0610-2-2-140HA08-HP835	30391202
6,20	8	114	76	64	36	SCD121-0620-2-2-140HA08-HP835	30391203
6,30	8	114	76	64	36	SCD121-0630-2-2-140HA08-HP835	30391204
6,40	8	114	76	64	36	SCD121-0640-2-2-140HA08-HP835	30391205
6,50	8	114	76	64	36	SCD121-0650-2-2-140HA08-HP835	30391206

MEGA-Drill-Inox | Solid carbide twist drills SCD12 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,60	8	114	76	64	36	SCD121-0660-2-2-140HA08-HP835	30391207
6,70	8	114	76	64	36	SCD121-0670-2-2-140HA08-HP835	30391208
6,80	8	114	76	64	36	SCD121-0680-2-2-140HA08-HP835	30391209
6,90	8	114	76	64	36	SCD121-0690-2-2-140HA08-HP835	30391210
7,00	8	114	76	64	36	SCD121-0700-2-2-140HA08-HP835	30391212
7,10	8	114	76	64	36	SCD121-0710-2-2-140HA08-HP835	30391213
7,20	8	114	76	64	36	SCD121-0720-2-2-140HA08-HP835	30391214
7,30	8	114	76	64	36	SCD121-0730-2-2-140HA08-HP835	30391215
7,40	8	114	76	64	36	SCD121-0740-2-2-140HA08-HP835	30391216
7,50	8	114	76	64	36	SCD121-0750-2-2-140HA08-HP835	30391217
7,60	8	114	76	64	36	SCD121-0760-2-2-140HA08-HP835	30391218
7,70	8	114	76	64	36	SCD121-0770-2-2-140HA08-HP835	30391219
7,80	8	114	76	64	36	SCD121-0780-2-2-140HA08-HP835	30391220
7,90	8	114	76	64	36	SCD121-0790-2-2-140HA08-HP835	30391221
8,00	8	114	76	64	36	SCD121-0800-2-2-140HA08-HP835	30391222
8,10	10	142	95	80	40	SCD121-0810-2-2-140HA08-HP835	30391223
8,20	10	142	95	80	40	SCD121-0820-2-2-140HA08-HP835	30391224
8,30	10	142	95	80	40	SCD121-0830-2-2-140HA08-HP835	30391225
8,40	10	142	95	80	40	SCD121-0840-2-2-140HA08-HP835	30391226
8,50	10	142	95	80	40	SCD121-0850-2-2-140HA08-HP835	30391227
8,60	10	142	95	80	40	SCD121-0860-2-2-140HA08-HP835	30391228
8,70	10	142	95	80	40	SCD121-0870-2-2-140HA08-HP835	30391229
8,80	10	142	95	80	40	SCD121-0880-2-2-140HA08-HP835	30391230
8,90	10	142	95	80	40	SCD121-0890-2-2-140HA08-HP835	30391231
9,00	10	142	95	80	40	SCD121-0900-2-2-140HA08-HP835	30391232
9,10	10	142	95	80	40	SCD121-0910-2-2-140HA08-HP835	30391233
9,20	10	142	95	80	40	SCD121-0920-2-2-140HA08-HP835	30391234
9,30	10	142	95	80	40	SCD121-0930-2-2-140HA08-HP835	30391235
9,40	10	142	95	80	40	SCD121-0940-2-2-140HA08-HP835	30391236
9,50	10	142	95	80	40	SCD121-0950-2-2-140HA08-HP835	30391237
9,60	10	142	95	80	40	SCD121-0960-2-2-140HA08-HP835	30391238
9,70	10	142	95	80	40	SCD121-0970-2-2-140HA08-HP835	30391239
9,80	10	142	95	80	40	SCD121-0980-2-2-140HA08-HP835	30391240
9,90	10	142	95	80	40	SCD121-0990-2-2-140HA08-HP835	30391241
10,00	10	142	95	80	40	SCD121-1000-2-2-140HA08-HP835	30391242
10,10	12	162	114	96	45	SCD121-1010-2-2-140HA08-HP835	30391243
10,20	12	162	114	96	45	SCD121-1020-2-2-140HA08-HP835	30391244
10,30	12	162	114	96	45	SCD121-1030-2-2-140HA08-HP835	30391245
10,40	12	162	114	96	45	SCD121-1040-2-2-140HA08-HP835	30391246
10,50	12	162	114	96	45	SCD121-1050-2-2-140HA08-HP835	30391247
10,60	12	162	114	96	45	SCD121-1060-2-2-140HA08-HP835	30391248
10,70	12	162	114	96	45	SCD121-1070-2-2-140HA08-HP835	30391249
10,80	12	162	114	96	45	SCD121-1080-2-2-140HA08-HP835	30391250
10,90	12	162	114	96	45	SCD121-1090-2-2-140HA08-HP835	30391251
11,00	12	162	114	96	45	SCD121-1100-2-2-140HA08-HP835	30391252
11,10	12	162	114	96	45	SCD121-1110-2-2-140HA08-HP835	30391253
11,20	12	162	114	96	45	SCD121-1120-2-2-140HA08-HP835	30391254
11,30	12	162	114	96	45	SCD121-1130-2-2-140HA08-HP835	30391255
11,40	12	162	114	96	45	SCD121-1140-2-2-140HA08-HP835	30391256
11,50	12	162	114	96	45	SCD121-1150-2-2-140HA08-HP835	30391257
11,60	12	162	114	96	45	SCD121-1160-2-2-140HA08-HP835	30391258
11,70	12	162	114	96	45	SCD121-1170-2-2-140HA08-HP835	30391259
11,80	12	162	114	96	45	SCD121-1180-2-2-140HA08-HP835	30391260
11,90	12	162	114	96	45	SCD121-1190-2-2-140HA08-HP835	30391261
12,00	12	162	114	96	45	SCD121-1200-2-2-140HA08-HP835	30391262
12,50	14	178	133	112	45	SCD121-1250-2-2-140HA08-HP835	30391263
12,80	14	178	133	112	45	SCD121-1280-2-2-140HA08-HP835	30391264

MEGA-Drill-Inox | Solid carbide twist drills SCD12 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
13,00	14	178	133	112	45	SCD121-1300-2-2-140HA08-HP835	30391265
13,50	14	178	133	112	45	SCD121-1350-2-2-140HA08-HP835	30391266
13,80	14	178	133	112	45	SCD121-1380-2-2-140HA08-HP835	30391267
14,00	14	178	133	112	45	SCD121-1400-2-2-140HA08-HP835	30391268
14,50	16	203	152	128	48	SCD121-1450-2-2-140HA08-HP835	30391269
14,80	16	203	152	128	48	SCD121-1480-2-2-140HA08-HP835	30391270
15,00	16	203	152	128	48	SCD121-1500-2-2-140HA08-HP835	30391271
15,50	16	203	152	128	48	SCD121-1550-2-2-140HA08-HP835	30391272
15,80	16	203	152	128	48	SCD121-1580-2-2-140HA08-HP835	30391273
16,00	16	203	152	128	48	SCD121-1600-2-2-140HA08-HP835	30391274
16,50	18	222	171	144	48	SCD121-1650-2-2-140HA08-HP835	30391275
16,80	18	222	171	144	48	SCD121-1680-2-2-140HA08-HP835	30391276
17,00	18	222	171	144	48	SCD121-1700-2-2-140HA08-HP835	30391277
17,50	18	222	171	144	48	SCD121-1750-2-2-140HA08-HP835	30391278
17,80	18	222	171	144	48	SCD121-1780-2-2-140HA08-HP835	30391279
18,00	18	222	171	144	48	SCD121-1800-2-2-140HA08-HP835	30391280
18,50	20	243	190	160	50	SCD121-1850-2-2-140HA08-HP835	30391281
18,80	20	243	190	160	50	SCD121-1880-2-2-140HA08-HP835	30391282
19,00	20	243	190	160	50	SCD121-1900-2-2-140HA08-HP835	30391283
19,50	20	243	190	160	50	SCD121-1950-2-2-140HA08-HP835	30391284
19,80	20	243	190	160	50	SCD121-1980-2-2-140HA08-HP835	30391285
20,00	20	243	190	160	50	SCD121-2000-2-2-140HA08-HP835	30391286

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Alu

Solid carbide twist drill

SCD13 (3xD), internal coolant supply

Suitable for use as pilot drill for MEGA-Deep-Drill-Alu

Design:

Drill diameter: 3.00 - 16.00 mm

Bore tolerance: \geq IT 9

Coating: Uncoated

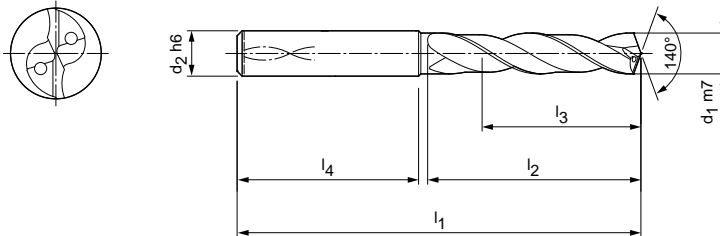
Number of cutting edges: 2

Number of guiding chamfers: 2

Point geometry: Specific lead geometry

Tip angle: 140 °

Helix angle: 30 °



Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	62	20	14	36	SCD131-0300-2-2-140HA03-HU630	30391287
3,50	6	62	20	14	36	SCD131-0350-2-2-140HA03-HU630	30391288
4,00	6	66	24	17	36	SCD131-0400-2-2-140HA03-HU630	30391289
4,50	6	66	24	17	36	SCD131-0450-2-2-140HA03-HU630	30391290
5,00	6	66	28	20	36	SCD131-0500-2-2-140HA03-HU630	30391291
5,50	6	66	28	20	36	SCD131-0550-2-2-140HA03-HU630	30391292
6,00	6	66	28	20	36	SCD131-0600-2-2-140HA03-HU630	30391293
6,50	8	79	34	24	36	SCD131-0650-2-2-140HA03-HU630	30394280
7,00	8	79	34	24	36	SCD131-0700-2-2-140HA03-HU630	30391294
7,50	8	79	41	29	36	SCD131-0750-2-2-140HA03-HU630	30394281
8,00	8	79	41	29	36	SCD131-0800-2-2-140HA03-HU630	30391295
8,50	10	89	47	35	40	SCD131-0850-2-2-140HA03-HU630	30394282
9,00	10	89	47	35	40	SCD131-0900-2-2-140HA03-HU630	30391296
10,00	10	89	47	35	40	SCD131-1000-2-2-140HA03-HU630	30391297
11,00	12	102	55	40	45	SCD131-1100-2-2-140HA03-HU630	30391298
12,00	12	102	55	40	45	SCD131-1200-2-2-140HA03-HU630	30391299
13,00	14	107	60	43	45	SCD131-1300-2-2-140HA03-HU630	30391300
14,00	14	107	60	43	45	SCD131-1400-2-2-140HA03-HU630	30391301
15,00	16	115	65	45	48	SCD131-1500-2-2-140HA03-HU630	30391302
16,00	16	115	65	45	48	SCD131-1600-2-2-140HA03-HU630	30391303

Dimensions in mm.

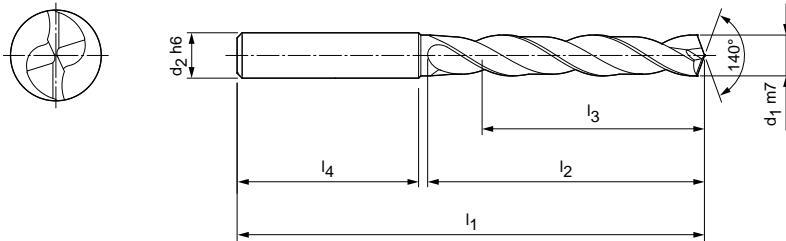
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Alu

Solid carbide twist drill
SCD13 (5xD), external coolant supply

Design:
 Drill diameter: 3.00 - 12.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Helix angle: 30°



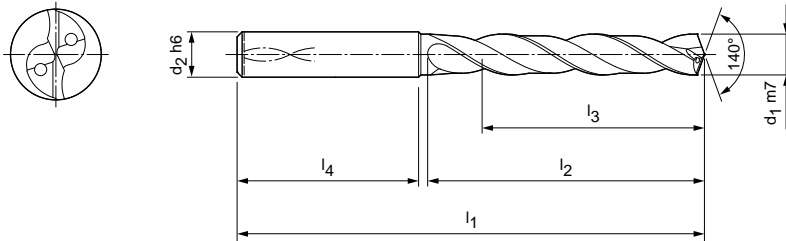
Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	66	28	23	36	SCD130-0300-2-2-140HA05-HU630	30391304
3,30	6	66	28	23	36	SCD130-0330-2-2-140HA05-HU630	30391305
3,50	6	66	28	23	36	SCD130-0350-2-2-140HA05-HU630	30391306
4,00	6	74	36	29	36	SCD130-0400-2-2-140HA05-HU630	30391307
4,20	6	74	36	29	36	SCD130-0420-2-2-140HA05-HU630	30391308
4,50	6	74	36	29	36	SCD130-0450-2-2-140HA05-HU630	30391309
5,00	6	82	44	35	36	SCD130-0500-2-2-140HA05-HU630	30391310
5,50	6	82	44	35	36	SCD130-0550-2-2-140HA05-HU630	30391311
6,00	6	82	44	35	36	SCD130-0600-2-2-140HA05-HU630	30391312
6,50	8	91	53	43	36	SCD130-0650-2-2-140HA05-HU630	30391313
6,80	8	91	53	43	36	SCD130-0680-2-2-140HA05-HU630	30391314
7,00	8	91	53	43	36	SCD130-0700-2-2-140HA05-HU630	30391315
7,50	8	91	53	43	36	SCD130-0750-2-2-140HA05-HU630	30391316
8,00	8	91	53	43	36	SCD130-0800-2-2-140HA05-HU630	30391317
8,50	10	103	61	49	40	SCD130-0850-2-2-140HA05-HU630	30391318
9,00	10	103	61	49	40	SCD130-0900-2-2-140HA05-HU630	30391319
9,50	10	103	61	49	40	SCD130-0950-2-2-140HA05-HU630	30391320
10,00	10	103	61	49	40	SCD130-1000-2-2-140HA05-HU630	30391321
10,20	12	118	71	56	45	SCD130-1020-2-2-140HA05-HU630	30391322
10,50	12	118	71	56	45	SCD130-1050-2-2-140HA05-HU630	30391323
11,00	12	118	71	56	45	SCD130-1100-2-2-140HA05-HU630	30391324
12,00	12	118	71	56	45	SCD130-1200-2-2-140HA05-HU630	30391325

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Drill-Alu

Solid carbide twist drill
SCD13 (5xD), internal coolant supply

Design:
 Drill diameter: 2.80 - 19.05 mm
 Bore tolerance: ≥ IT 9
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
*2,80		6	66	28	23	36	SCD131-0280-2-2-140HA05-HU630	30427727
3,00		6	66	28	23	36	SCD131-0300-2-2-140HA05-HU630	30391326
3,10		6	66	28	23	36	SCD131-0310-2-2-140HA05-HU630	30391327
3,18	1/8	6	66	28	23	36	SCD131-0318-2-2-140HA05-HU630	30451145
3,20		6	66	28	23	36	SCD131-0320-2-2-140HA05-HU630	30391328
3,30		6	66	28	23	36	SCD131-0330-2-2-140HA05-HU630	30391329
3,40		6	66	28	23	36	SCD131-0340-2-2-140HA05-HU630	30391330
3,50		6	66	28	23	36	SCD131-0350-2-2-140HA05-HU630	30391331
3,57	9/64	6	66	28	23	36	SCD131-0357-2-2-140HA05-HU630	30451147
3,60		6	66	28	23	36	SCD131-0360-2-2-140HA05-HU630	30391332
*3,70		6	66	28	23	36	SCD131-0370-2-2-140HA05-HU630	30391333
3,80		6	74	36	29	36	SCD131-0380-2-2-140HA05-HU630	30391334
3,90		6	74	36	29	36	SCD131-0390-2-2-140HA05-HU630	30391335
3,97	5/32	6	74	36	29	36	SCD131-0397-2-2-140HA05-HU630	30451149
4,00		6	74	36	29	36	SCD131-0400-2-2-140HA05-HU630	30391336
4,10		6	74	36	29	36	SCD131-0410-2-2-140HA05-HU630	30391337
4,20		6	74	36	29	36	SCD131-0420-2-2-140HA05-HU630	30391338
4,30		6	74	36	29	36	SCD131-0430-2-2-140HA05-HU630	30391339
4,37	11/64	6	74	36	29	36	SCD131-0437-2-2-140HA05-HU630	30451151
4,40		6	74	36	29	36	SCD131-0440-2-2-140HA05-HU630	30391340
4,50		6	74	36	29	36	SCD131-0450-2-2-140HA05-HU630	30391341
4,60		6	74	36	29	36	SCD131-0460-2-2-140HA05-HU630	30391342
*4,65		6	74	36	29	36	SCD131-0465-2-2-140HA05-HU630	30453500
4,70		6	74	36	29	36	SCD131-0470-2-2-140HA05-HU630	30391343
4,76	3/16	6	82	44	35	36	SCD131-0476-2-2-140HA05-HU630	30451153
4,80		6	82	44	35	36	SCD131-0480-2-2-140HA05-HU630	30391344
4,90		6	82	44	35	36	SCD131-0490-2-2-140HA05-HU630	30391345
5,00		6	82	44	35	36	SCD131-0500-2-2-140HA05-HU630	30391346
5,10		6	82	44	35	36	SCD131-0510-2-2-140HA05-HU630	30391347
5,16	13/64	6	82	44	35	36	SCD131-0516-2-2-140HA05-HU630	30451154
5,20		6	82	44	35	36	SCD131-0520-2-2-140HA05-HU630	30391348
5,30		6	82	44	35	36	SCD131-0530-2-2-140HA05-HU630	30391349
5,40		6	82	44	35	36	SCD131-0540-2-2-140HA05-HU630	30391350
5,50		6	82	44	35	36	SCD131-0550-2-2-140HA05-HU630	30391351
*5,55		6	82	44	35	36	SCD131-0555-2-2-140HA05-HU630	On request
5,56	7/32	6	82	44	35	36	SCD131-0556-2-2-140HA05-HU630	30451155

MEGA-Drill-Alu | Solid carbide twist drills SCD13 (5xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,60		6	82	44	35	36	SCD131-0560-2-2-140HA05-HU630	30391352
5,70		6	82	44	35	36	SCD131-0570-2-2-140HA05-HU630	30391353
5,80		6	82	44	35	36	SCD131-0580-2-2-140HA05-HU630	30391354
5,90		6	82	44	35	36	SCD131-0590-2-2-140HA05-HU630	30391355
5,95	15/64	6	82	44	35	36	SCD131-0595-2-2-140HA05-HU630	30451156
6,00		6	82	44	35	36	SCD131-0600-2-2-140HA05-HU630	30391356
6,10		8	91	53	43	36	SCD131-0610-2-2-140HA05-HU630	30391357
6,20		8	91	53	43	36	SCD131-0620-2-2-140HA05-HU630	30391358
6,30		8	91	53	43	36	SCD131-0630-2-2-140HA05-HU630	30391359
6,35	1/4	8	91	53	43	36	SCD131-0635-2-2-140HA05-HU630	30451158
6,40		8	91	53	43	36	SCD131-0640-2-2-140HA05-HU630	30391360
6,50		8	91	53	43	36	SCD131-0650-2-2-140HA05-HU630	30391361
6,60		8	91	53	43	36	SCD131-0660-2-2-140HA05-HU630	30391362
6,70		8	91	53	43	36	SCD131-0670-2-2-140HA05-HU630	30391363
6,75	17/64	8	91	53	43	36	SCD131-0675-2-2-140HA05-HU630	30451161
6,80		8	91	53	43	36	SCD131-0680-2-2-140HA05-HU630	30391364
6,90		8	91	53	43	36	SCD131-0690-2-2-140HA05-HU630	30391365
7,00		8	91	53	43	36	SCD131-0700-2-2-140HA05-HU630	30391366
7,10		8	91	53	43	36	SCD131-0710-2-2-140HA05-HU630	30391367
7,14	9/32	8	91	53	43	36	SCD131-0714-2-2-140HA05-HU630	30451162
7,20		8	91	53	43	36	SCD131-0720-2-2-140HA05-HU630	30391368
7,30		8	91	53	43	36	SCD131-0730-2-2-140HA05-HU630	30391369
7,40		8	91	53	43	36	SCD131-0740-2-2-140HA05-HU630	30391370
*7,45		8	91	53	43	36	SCD131-0745-2-2-140HA05-HU630	30453910
7,50		8	91	53	43	36	SCD131-0750-2-2-140HA05-HU630	30391371
7,54	19/64	8	91	53	43	36	SCD131-0754-2-2-140HA05-HU630	30451163
7,60		8	91	53	43	36	SCD131-0760-2-2-140HA05-HU630	30391372
7,70		8	91	53	43	36	SCD131-0770-2-2-140HA05-HU630	30391373
7,80		8	91	53	43	36	SCD131-0780-2-2-140HA05-HU630	30391374
7,90		8	91	53	43	36	SCD131-0790-2-2-140HA05-HU630	30391375
7,94	5/16	8	91	53	43	36	SCD131-0794-2-2-140HA05-HU630	30451164
8,00		8	91	53	43	36	SCD131-0800-2-2-140HA05-HU630	30391376
8,10		10	103	61	49	40	SCD131-0810-2-2-140HA05-HU630	30391377
8,20		10	103	61	49	40	SCD131-0820-2-2-140HA05-HU630	30391378
8,30		10	103	61	49	40	SCD131-0830-2-2-140HA05-HU630	30391379
8,33	21/64	10	103	61	49	40	SCD131-0833-2-2-140HA05-HU630	30451165
8,40		10	103	61	49	40	SCD131-0840-2-2-140HA05-HU630	30391380
8,50		10	103	61	49	40	SCD131-0850-2-2-140HA05-HU630	30391381
8,60		10	103	61	49	40	SCD131-0860-2-2-140HA05-HU630	30391382
8,70		10	103	61	49	40	SCD131-0870-2-2-140HA05-HU630	30391383
8,73	11/32	10	103	61	49	40	SCD131-0873-2-2-140HA05-HU630	30451167
8,80		10	103	61	49	40	SCD131-0880-2-2-140HA05-HU630	30391384
8,90		10	103	61	49	40	SCD131-0890-2-2-140HA05-HU630	30391385
9,00		10	103	61	49	40	SCD131-0900-2-2-140HA05-HU630	30391386
9,10		10	103	61	49	40	SCD131-0910-2-2-140HA05-HU630	30391387
9,13	23/64	10	103	61	49	40	SCD131-0913-2-2-140HA05-HU630	30451168
9,20		10	103	61	49	40	SCD131-0920-2-2-140HA05-HU630	30391388
*9,30		10	103	61	49	40	SCD131-0930-2-2-140HA05-HU630	30391389
9,40		10	103	61	49	40	SCD131-0940-2-2-140HA05-HU630	30391390
9,50		10	103	61	49	40	SCD131-0950-2-2-140HA05-HU630	30391391
9,53	3/8	10	103	61	49	40	SCD131-0953-2-2-140HA05-HU630	30451170
9,60		10	103	61	49	40	SCD131-0960-2-2-140HA05-HU630	30391392
9,70		10	103	61	49	40	SCD131-0970-2-2-140HA05-HU630	30391393
9,80		10	103	61	49	40	SCD131-0980-2-2-140HA05-HU630	30391394
9,90		10	103	61	49	40	SCD131-0990-2-2-140HA05-HU630	30391395
9,92	25/64	10	103	61	49	40	SCD131-0992-2-2-140HA05-HU630	30451171
10,00		10	103	61	49	40	SCD131-1000-2-2-140HA05-HU630	30391396

MEGA-Drill-Alu | Solid carbide twist drills SCD13 (5xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,10		12	118	71	56	45	SCD131-1010-2-2-140HA05-HU630	30391397
10,20		12	118	71	56	45	SCD131-1020-2-2-140HA05-HU630	30391398
10,30		12	118	71	56	45	SCD131-1030-2-2-140HA05-HU630	30391399
10,32	13/32	12	118	71	56	45	SCD131-1032-2-2-140HA05-HU630	30451173
10,40		12	118	71	56	45	SCD131-1040-2-2-140HA05-HU630	30391400
10,50		12	118	71	56	45	SCD131-1050-2-2-140HA05-HU630	30391401
10,60		12	118	71	56	45	SCD131-1060-2-2-140HA05-HU630	30391402
10,70		12	118	71	56	45	SCD131-1070-2-2-140HA05-HU630	30391403
10,72	27/64	12	118	71	56	45	SCD131-1072-2-2-140HA05-HU630	30451174
10,80		12	118	71	56	45	SCD131-1080-2-2-140HA05-HU630	30391404
10,90		12	118	71	56	45	SCD131-1090-2-2-140HA05-HU630	30391405
11,00		12	118	71	56	45	SCD131-1100-2-2-140HA05-HU630	30391406
11,11	7/16	12	118	71	56	45	SCD131-1111-2-2-140HA05-HU630	30451175
*11,20		12	118	71	56	45	SCD131-1120-2-2-140HA05-HU630	30476363
11,50		12	118	71	56	45	SCD131-1150-2-2-140HA05-HU630	30391407
12,00		12	118	71	56	45	SCD131-1200-2-2-140HA05-HU630	30391408
12,50		14	124	77	60	45	SCD131-1250-2-2-140HA05-HU630	30391409
13,00		14	124	77	60	45	SCD131-1300-2-2-140HA05-HU630	30391410
13,50		14	124	77	60	45	SCD131-1350-2-2-140HA05-HU630	30391411
14,00		14	124	77	60	45	SCD131-1400-2-2-140HA05-HU630	30391412
14,50		16	133	83	63	48	SCD131-1450-2-2-140HA05-HU630	30391413
14,68	37/64	16	133	83	63	48	SCD131-1468-2-2-140HA05-HU630	30451181
14,80		16	133	83	63	48	SCD131-1480-2-2-140HA05-HU630	30391414
15,00		16	133	83	63	48	SCD131-1500-2-2-140HA05-HU630	30391415
15,08	19/32	16	133	83	63	48	SCD131-1508-2-2-140HA05-HU630	30451182
15,50		16	133	83	63	48	SCD131-1550-2-2-140HA05-HU630	30391416
15,80		16	133	83	63	48	SCD131-1580-2-2-140HA05-HU630	30391417
15,88	5/8	16	133	83	63	48	SCD131-1588-2-2-140HA05-HU630	30451183
16,00		16	133	83	63	48	SCD131-1600-2-2-140HA05-HU630	30391418
16,67	21/32	18	143	93	71	48	SCD131-1667-2-2-140HA05-HU630	30451184
17,46	11/16	18	143	93	71	48	SCD131-1746-2-2-140HA05-HU630	30451185
17,86	45/64	18	143	93	71	48	SCD131-1786-2-2-140HA05-HU630	30451186
18,26	23/32	20	153	101	77	50	SCD131-1826-2-2-140HA05-HU630	30451187
19,05	3/4	20	153	101	77	50	SCD131-1905-2-2-140HA05-HU630	30451188

Dimensions in mm.

* Especially suitable for prefabricating core holes for thread formers.

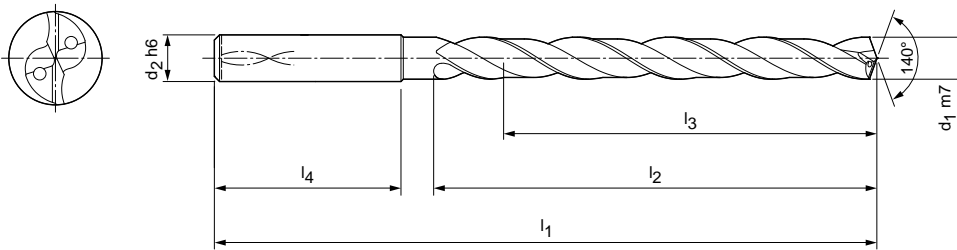
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Alu

Solid carbide twist drill
SCD13 (8xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 16.00 mm
 Bore tolerance: \geq IT 9
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	72	34	29	36	SCD131-0300-2-2-140HA08-HU630	30391421
3,10	6	72	34	29	36	SCD131-0310-2-2-140HA08-HU630	30391422
3,20	6	72	34	29	36	SCD131-0320-2-2-140HA08-HU630	30391423
3,30	6	72	34	29	36	SCD131-0330-2-2-140HA08-HU630	30391424
3,40	6	72	34	29	36	SCD131-0340-2-2-140HA08-HU630	30391425
3,50	6	72	34	29	36	SCD131-0350-2-2-140HA08-HU630	30391426
3,60	6	72	34	29	36	SCD131-0360-2-2-140HA08-HU630	30391427
3,70	6	72	34	29	36	SCD131-0370-2-2-140HA08-HU630	30391428
3,80	6	81	43	36	36	SCD131-0380-2-2-140HA08-HU630	30391429
3,90	6	81	43	36	36	SCD131-0390-2-2-140HA08-HU630	30391430
4,00	6	81	43	36	36	SCD131-0400-2-2-140HA08-HU630	30391431
4,10	6	81	43	36	36	SCD131-0410-2-2-140HA08-HU630	30391432
4,20	6	81	43	36	36	SCD131-0420-2-2-140HA08-HU630	30391433
4,30	6	81	43	36	36	SCD131-0430-2-2-140HA08-HU630	30391434
4,40	6	81	43	36	36	SCD131-0440-2-2-140HA08-HU630	30391435
4,50	6	81	43	36	36	SCD131-0450-2-2-140HA08-HU630	30391436
4,60	6	81	43	36	36	SCD131-0460-2-2-140HA08-HU630	30391437
4,70	6	81	43	36	36	SCD131-0470-2-2-140HA08-HU630	30391438
4,80	6	95	57	48	36	SCD131-0480-2-2-140HA08-HU630	30391439
4,90	6	95	57	48	36	SCD131-0490-2-2-140HA08-HU630	30391440
5,00	6	95	57	48	36	SCD131-0500-2-2-140HA08-HU630	30391441
5,10	6	95	57	48	36	SCD131-0510-2-2-140HA08-HU630	30391442
5,20	6	95	57	48	36	SCD131-0520-2-2-140HA08-HU630	30391443
5,30	6	95	57	48	36	SCD131-0530-2-2-140HA08-HU630	30391444
5,40	6	95	57	48	36	SCD131-0540-2-2-140HA08-HU630	30391445
5,50	6	95	57	48	36	SCD131-0550-2-2-140HA08-HU630	30391446
5,60	6	95	57	48	36	SCD131-0560-2-2-140HA08-HU630	30391447
5,70	6	95	57	48	36	SCD131-0570-2-2-140HA08-HU630	30391448
5,80	6	95	57	48	36	SCD131-0580-2-2-140HA08-HU630	30391449
5,90	6	95	57	48	36	SCD131-0590-2-2-140HA08-HU630	30391450
6,00	6	95	57	48	36	SCD131-0600-2-2-140HA08-HU630	30391452
6,10	8	114	76	64	36	SCD131-0610-2-2-140HA08-HU630	30391453
6,20	8	114	76	64	36	SCD131-0620-2-2-140HA08-HU630	30391454
6,30	8	114	76	64	36	SCD131-0630-2-2-140HA08-HU630	30391455
6,40	8	114	76	64	36	SCD131-0640-2-2-140HA08-HU630	30391456
6,50	8	114	76	64	36	SCD131-0650-2-2-140HA08-HU630	30391457

MEGA-Drill-Alu | Solid carbide twist drills SCD13 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,60	8	114	76	64	36	SCD131-0660-2-2-140HA08-HU630	30391458
6,70	8	114	76	64	36	SCD131-0670-2-2-140HA08-HU630	30391459
6,80	8	114	76	64	36	SCD131-0680-2-2-140HA08-HU630	30391460
6,90	8	114	76	64	36	SCD131-0690-2-2-140HA08-HU630	30391461
7,00	8	114	76	64	36	SCD131-0700-2-2-140HA08-HU630	30391462
7,10	8	114	76	64	36	SCD131-0710-2-2-140HA08-HU630	30391463
7,20	8	114	76	64	36	SCD131-0720-2-2-140HA08-HU630	30391464
7,30	8	114	76	64	36	SCD131-0730-2-2-140HA08-HU630	30391465
7,40	8	114	76	64	36	SCD131-0740-2-2-140HA08-HU630	30391466
7,50	8	114	76	64	36	SCD131-0750-2-2-140HA08-HU630	30391467
7,60	8	114	76	64	36	SCD131-0760-2-2-140HA08-HU630	30391468
7,70	8	114	76	64	36	SCD131-0770-2-2-140HA08-HU630	30391469
7,80	8	114	76	64	36	SCD131-0780-2-2-140HA08-HU630	30391470
7,90	8	114	76	64	36	SCD131-0790-2-2-140HA08-HU630	30391471
8,00	8	114	76	64	36	SCD131-0800-2-2-140HA08-HU630	30391472
8,10	10	142	95	80	40	SCD131-0810-2-2-140HA08-HU630	30391473
8,20	10	142	95	80	40	SCD131-0820-2-2-140HA08-HU630	30391474
8,30	10	142	95	80	40	SCD131-0830-2-2-140HA08-HU630	30391475
8,40	10	142	95	80	40	SCD131-0840-2-2-140HA08-HU630	30391476
8,50	10	142	95	80	40	SCD131-0850-2-2-140HA08-HU630	30391477
8,60	10	142	95	80	40	SCD131-0860-2-2-140HA08-HU630	30391478
8,70	10	142	95	80	40	SCD131-0870-2-2-140HA08-HU630	30391479
8,80	10	142	95	80	40	SCD131-0880-2-2-140HA08-HU630	30391480
9,00	10	142	95	80	40	SCD131-0900-2-2-140HA08-HU630	30391481
9,10	10	142	95	80	40	SCD131-0910-2-2-140HA08-HU630	30391482
9,20	10	142	95	80	40	SCD131-0920-2-2-140HA08-HU630	30391483
9,30	10	142	95	80	40	SCD131-0930-2-2-140HA08-HU630	30391484
9,40	10	142	95	80	40	SCD131-0940-2-2-140HA08-HU630	30391485
9,50	10	142	95	80	40	SCD131-0950-2-2-140HA08-HU630	30391486
9,60	10	142	95	80	40	SCD131-0960-2-2-140HA08-HU630	30391487
9,70	10	142	95	80	40	SCD131-0970-2-2-140HA08-HU630	30391488
9,90	10	142	95	80	40	SCD131-0990-2-2-140HA08-HU630	30391489
10,00	10	142	95	80	40	SCD131-1000-2-2-140HA08-HU630	30391490
10,10	12	162	114	96	45	SCD131-1010-2-2-140HA08-HU630	30391491
10,20	12	162	114	96	45	SCD131-1020-2-2-140HA08-HU630	30391492
10,30	12	162	114	96	45	SCD131-1030-2-2-140HA08-HU630	30391493
10,40	12	162	114	96	45	SCD131-1040-2-2-140HA08-HU630	30391494
10,50	12	162	114	96	45	SCD131-1050-2-2-140HA08-HU630	30391495
10,60	12	162	114	96	45	SCD131-1060-2-2-140HA08-HU630	30391496
10,70	12	162	114	96	45	SCD131-1070-2-2-140HA08-HU630	30391497
10,80	12	162	114	96	45	SCD131-1080-2-2-140HA08-HU630	30391498
10,90	12	162	114	96	45	SCD131-1090-2-2-140HA08-HU630	30391499
11,00	12	162	114	96	45	SCD131-1100-2-2-140HA08-HU630	30391500
11,10	12	162	114	96	45	SCD131-1110-2-2-140HA08-HU630	30391501
11,20	12	162	114	96	45	SCD131-1120-2-2-140HA08-HU630	30391502
11,30	12	162	114	96	45	SCD131-1130-2-2-140HA08-HU630	30391503
11,40	12	162	114	96	45	SCD131-1140-2-2-140HA08-HU630	30391504
11,50	12	162	114	96	45	SCD131-1150-2-2-140HA08-HU630	30391505
11,60	12	162	114	96	45	SCD131-1160-2-2-140HA08-HU630	30391506
11,70	12	162	114	96	45	SCD131-1170-2-2-140HA08-HU630	30391507
11,80	12	162	114	96	45	SCD131-1180-2-2-140HA08-HU630	30391508
11,90	12	162	114	96	45	SCD131-1190-2-2-140HA08-HU630	30391509
12,00	12	162	114	96	45	SCD131-1200-2-2-140HA08-HU630	30391510
12,50	14	178	133	112	45	SCD131-1250-2-2-140HA08-HU630	30391511
13,00	14	178	133	112	45	SCD131-1300-2-2-140HA08-HU630	30391512
13,50	14	178	133	112	45	SCD131-1350-2-2-140HA08-HU630	30391513
14,00	14	178	133	112	45	SCD131-1400-2-2-140HA08-HU630	30391514

MEGA-Drill-Alu | Solid carbide twist drills SCD13 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
14,50	16	203	152	128	48	SCD131-1450-2-2-140HA08-HU630	30391515
15,00	16	203	152	128	48	SCD131-1500-2-2-140HA08-HU630	30391516
15,50	16	203	152	128	48	SCD131-1550-2-2-140HA08-HU630	30391517
16,00	16	203	152	128	48	SCD131-1600-2-2-140HA08-HU630	30391518

Dimensions in mm.

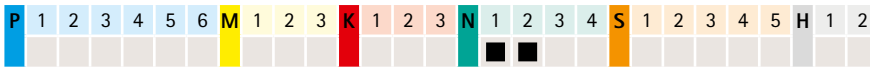
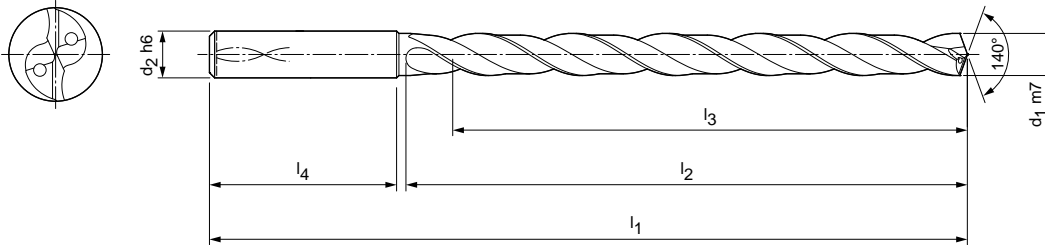
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Alu

Solid carbide twist drill
SCD13 (12xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 19.05 mm
 Bore tolerance: ≥ IT 9
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00		6	92	54	48	36	SCD131-0300-2-2-140HA12-HU630	30391519
3,10		6	92	54	48	36	SCD131-0310-2-2-140HA12-HU630	30391520
3,18	1/8	6	92	54	48	36	SCD131-0318-2-2-140HA12-HU630	30451232
3,20		6	92	54	48	36	SCD131-0320-2-2-140HA12-HU630	30391521
3,30		6	92	54	48	36	SCD131-0330-2-2-140HA12-HU630	30391522
3,40		6	92	54	48	36	SCD131-0340-2-2-140HA12-HU630	30391523
3,50		6	92	54	48	36	SCD131-0350-2-2-140HA12-HU630	30391524
3,57	9/64	6	92	54	48	36	SCD131-0357-2-2-140HA12-HU630	30451234
3,60		6	92	54	48	36	SCD131-0360-2-2-140HA12-HU630	30391525
3,70		6	92	54	48	36	SCD131-0370-2-2-140HA12-HU630	30391526
3,80		6	102	64	58	36	SCD131-0380-2-2-140HA12-HU630	30391527
3,90		6	102	64	58	36	SCD131-0390-2-2-140HA12-HU630	30391528
3,97	5/32	6	102	64	58	36	SCD131-0397-2-2-140HA12-HU630	30451236
4,00		6	102	64	58	36	SCD131-0400-2-2-140HA12-HU630	30391529
4,10		6	102	64	58	36	SCD131-0410-2-2-140HA12-HU630	30391530
4,20		6	102	64	58	36	SCD131-0420-2-2-140HA12-HU630	30391531
4,30		6	102	64	58	36	SCD131-0430-2-2-140HA12-HU630	30391532
4,37	11/64	6	102	64	58	36	SCD131-0437-2-2-140HA12-HU630	30451238
4,40		6	102	64	58	36	SCD131-0440-2-2-140HA12-HU630	30391533
4,50		6	102	64	58	36	SCD131-0450-2-2-140HA12-HU630	30391534
4,60		6	102	64	58	36	SCD131-0460-2-2-140HA12-HU630	30391535
4,70		6	102	64	58	36	SCD131-0470-2-2-140HA12-HU630	30391536
4,76	3/16	6	116	78	70	36	SCD131-0476-2-2-140HA12-HU630	30451240
4,80		6	116	78	70	36	SCD131-0480-2-2-140HA12-HU630	30391537
4,90		6	116	78	70	36	SCD131-0490-2-2-140HA12-HU630	30391538
5,00		6	116	78	70	36	SCD131-0500-2-2-140HA12-HU630	30391539
5,10		6	116	78	70	36	SCD131-0510-2-2-140HA12-HU630	30391540
5,16	13/64	6	116	78	70	36	SCD131-0516-2-2-140HA12-HU630	30451241
5,20		6	116	78	70	36	SCD131-0520-2-2-140HA12-HU630	30391541
5,30		6	116	78	70	36	SCD131-0530-2-2-140HA12-HU630	30391542
5,40		6	116	78	70	36	SCD131-0540-2-2-140HA12-HU630	30391543
5,50		6	116	78	70	36	SCD131-0550-2-2-140HA12-HU630	30391544
5,56	7/32	6	116	78	70	36	SCD131-0556-2-2-140HA12-HU630	30451242
5,60		6	116	78	70	36	SCD131-0560-2-2-140HA12-HU630	30391545
5,70		6	116	78	70	36	SCD131-0570-2-2-140HA12-HU630	30391546
5,80		6	116	78	70	36	SCD131-0580-2-2-140HA12-HU630	30391547

MEGA-Drill-Alu | Solid carbide twist drills SCD13 (12xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,90		6	116	78	70	36	SCD131-0590-2-2-140HA12-HU630	30391548
5,95	15/64	6	116	78	70	36	SCD131-0595-2-2-140HA12-HU630	30451243
6,00		6	116	78	70	36	SCD131-0600-2-2-140HA12-HU630	30391549
6,10		8	146	108	94	36	SCD131-0610-2-2-140HA12-HU630	30391550
6,20		8	146	108	94	36	SCD131-0620-2-2-140HA12-HU630	30391551
6,30		8	146	108	94	36	SCD131-0630-2-2-140HA12-HU630	30391552
6,35	1/4	8	146	108	94	36	SCD131-0635-2-2-140HA12-HU630	30451245
6,40		8	146	108	94	36	SCD131-0640-2-2-140HA12-HU630	30391553
6,50		8	146	108	94	36	SCD131-0650-2-2-140HA12-HU630	30391554
6,60		8	146	108	94	36	SCD131-0660-2-2-140HA12-HU630	30391555
6,70		8	146	108	94	36	SCD131-0670-2-2-140HA12-HU630	30391556
6,75	17/64	8	146	108	94	36	SCD131-0675-2-2-140HA12-HU630	30451248
6,90		8	146	108	94	36	SCD131-0690-2-2-140HA12-HU630	30391557
7,00		8	146	108	94	36	SCD131-0700-2-2-140HA12-HU630	30391558
7,10		8	146	108	94	36	SCD131-0710-2-2-140HA12-HU630	30391559
7,14	9/32	8	146	108	94	36	SCD131-0714-2-2-140HA12-HU630	30451249
7,20		8	146	108	94	36	SCD131-0720-2-2-140HA12-HU630	30391560
7,30		8	146	108	94	36	SCD131-0730-2-2-140HA12-HU630	30391561
7,40		8	146	108	94	36	SCD131-0740-2-2-140HA12-HU630	30391562
7,50		8	146	108	94	36	SCD131-0750-2-2-140HA12-HU630	30391563
7,54	19/64	8	146	108	94	36	SCD131-0754-2-2-140HA12-HU630	30451250
7,60		8	146	108	94	36	SCD131-0760-2-2-140HA12-HU630	30391564
7,70		8	146	108	94	36	SCD131-0770-2-2-140HA12-HU630	30391565
7,80		8	146	108	94	36	SCD131-0780-2-2-140HA12-HU630	30391566
7,90		8	146	108	94	36	SCD131-0790-2-2-140HA12-HU630	30391567
7,94	5/16	8	146	108	94	36	SCD131-0794-2-2-140HA12-HU630	30451251
8,00		8	146	108	94	36	SCD131-0800-2-2-140HA12-HU630	30391568
8,10		10	162	120	110	40	SCD131-0810-2-2-140HA12-HU630	30391569
8,20		10	162	120	110	40	SCD131-0820-2-2-140HA12-HU630	30391570
8,30		10	162	120	110	40	SCD131-0830-2-2-140HA12-HU630	30391571
8,33	21/64	10	162	120	110	40	SCD131-0833-2-2-140HA12-HU630	30451252
8,40		10	162	120	110	40	SCD131-0840-2-2-140HA12-HU630	30391572
8,50		10	162	120	110	40	SCD131-0850-2-2-140HA12-HU630	30391573
8,70		10	162	120	110	40	SCD131-0870-2-2-140HA12-HU630	30391574
8,73	11/32	10	162	120	110	40	SCD131-0873-2-2-140HA12-HU630	30451254
8,80		10	162	120	110	40	SCD131-0880-2-2-140HA12-HU630	30391575
8,90		10	162	120	110	40	SCD131-0890-2-2-140HA12-HU630	30391576
9,00		10	162	120	110	40	SCD131-0900-2-2-140HA12-HU630	30391577
9,10		10	162	120	110	40	SCD131-0910-2-2-140HA12-HU630	30391578
9,13	23/64	10	162	120	110	40	SCD131-0913-2-2-140HA12-HU630	30451255
9,20		10	162	120	110	40	SCD131-0920-2-2-140HA12-HU630	30391579
9,30		10	162	120	110	40	SCD131-0930-2-2-140HA12-HU630	30391580
9,40		10	162	120	110	40	SCD131-0940-2-2-140HA12-HU630	30391581
9,50		10	162	120	110	40	SCD131-0950-2-2-140HA12-HU630	30391582
9,53	3/8	10	162	120	110	40	SCD131-0953-2-2-140HA12-HU630	30451257
9,60		10	162	120	110	40	SCD131-0960-2-2-140HA12-HU630	30391583
9,70		10	162	120	110	40	SCD131-0970-2-2-140HA12-HU630	30391584
9,80		10	162	120	110	40	SCD131-0980-2-2-140HA12-HU630	30391585
9,90		10	162	120	110	40	SCD131-0990-2-2-140HA12-HU630	30391586
9,92	25/64	10	162	120	110	40	SCD131-0992-2-2-140HA12-HU630	30451258
10,00		10	162	120	110	40	SCD131-1000-2-2-140HA12-HU630	30391587
10,10		12	204	156	142	45	SCD131-1010-2-2-140HA12-HU630	30391588
10,20		12	204	156	142	45	SCD131-1020-2-2-140HA12-HU630	30391589
10,30		12	204	156	142	45	SCD131-1030-2-2-140HA12-HU630	30391590
10,32	13/32	12	204	156	142	45	SCD131-1032-2-2-140HA12-HU630	30451260
10,40		12	204	156	142	45	SCD131-1040-2-2-140HA12-HU630	30391591
10,50		12	204	156	142	45	SCD131-1050-2-2-140HA12-HU630	30391592

Continued on next page.

MEGA-Drill-Alu | Solid carbide twist drills SCD13 (12xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,60		12	204	156	142	45	SCD131-1060-2-2-140HA12-HU630	30391593
10,70		12	204	156	142	45	SCD131-1070-2-2-140HA12-HU630	30391594
10,72	27/64	12	204	156	142	45	SCD131-1072-2-2-140HA12-HU630	30451261
10,80		12	204	156	142	45	SCD131-1080-2-2-140HA12-HU630	30391595
10,90		12	204	156	142	45	SCD131-1090-2-2-140HA12-HU630	30391596
11,00		12	204	156	142	45	SCD131-1100-2-2-140HA12-HU630	30391597
11,10		12	204	156	142	45	SCD131-1110-2-2-140HA12-HU630	30391598
11,11	7/16	12	204	156	142	45	SCD131-1111-2-2-140HA12-HU630	30451262
11,20		12	204	156	142	45	SCD131-1120-2-2-140HA12-HU630	30391599
11,30		12	204	156	142	45	SCD131-1130-2-2-140HA12-HU630	30391600
11,40		12	204	156	142	45	SCD131-1140-2-2-140HA12-HU630	30391601
11,50		12	204	156	142	45	SCD131-1150-2-2-140HA12-HU630	30391602
11,60		12	204	156	142	45	SCD131-1160-2-2-140HA12-HU630	30391603
11,70		12	204	156	142	45	SCD131-1170-2-2-140HA12-HU630	30391604
11,80		12	204	156	142	45	SCD131-1180-2-2-140HA12-HU630	30391605
11,90		12	204	156	142	45	SCD131-1190-2-2-140HA12-HU630	30391606
12,00		12	204	156	142	45	SCD131-1200-2-2-140HA12-HU630	30391607
14,68	37/64	16	260	208	192	48	SCD131-1468-2-2-140HA12-HU630	30451267
15,08	19/32	16	260	208	192	48	SCD131-1508-2-2-140HA12-HU630	30451268
15,88	5/8	16	260	208	192	48	SCD131-1588-2-2-140HA12-HU630	30451269
16,67	21/32	18	285	234	216	48	SCD131-1667-2-2-140HA12-HU630	30451270
17,46	11/16	18	285	234	216	48	SCD131-1746-2-2-140HA12-HU630	30451271
17,86	45/64	18	285	234	216	48	SCD131-1786-2-2-140HA12-HU630	30451272
18,26	23/32	20	310	258	240	50	SCD131-1826-2-2-140HA12-HU630	30451273
19,05	3/4	20	310	258	240	50	SCD131-1905-2-2-140HA12-HU630	30451274

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Inco

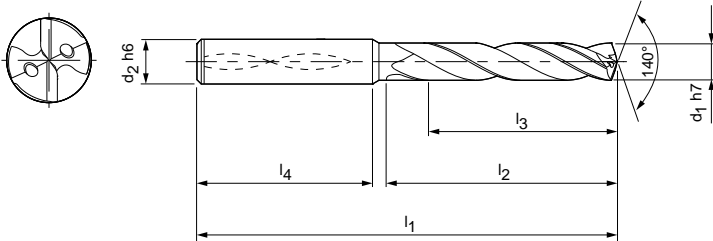
Solid carbide twist drill
SCD29 (5xD), internal coolant supply

Design:

Drill diameter: 3.00 - 12.00 mm
Bore tolerance: $\geq IT 9$
Coating: Uncoated
Number of cutting edges: 2
Tip angle: 140°
Number of guiding chamfers: 4
Helix angle: 30°

Application:

Nickel-based alloys



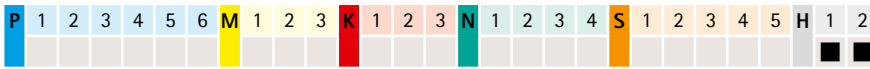
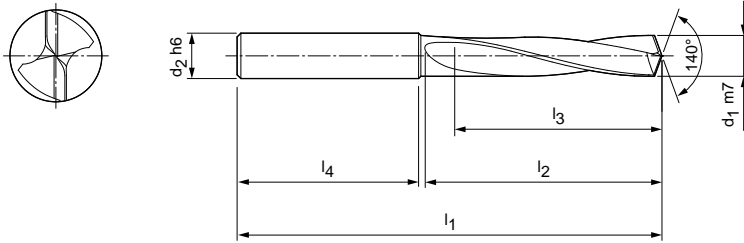
Dimensions						Shank form HA	
$d_1 h7$	$d_2 h6$	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	66	28	23	36	SCD291-0300-2-4-140HA05-HU621	30393829
4,00	6	74	36	29	36	SCD291-0400-2-4-140HA05-HU621	30393830
5,00	6	82	44	35	36	SCD291-0500-2-4-140HA05-HU621	30393831
6,00	6	82	44	35	36	SCD291-0600-2-4-140HA05-HU621	30393832
7,00	8	91	53	43	36	SCD291-0700-2-4-140HA05-HU621	30393833
8,00	8	91	53	43	40	SCD291-0800-2-4-140HA05-HU621	30393834
9,00	10	103	61	49	40	SCD291-0900-2-4-140HA05-HU621	30393835
10,00	10	103	61	49	40	SCD291-1000-2-4-140HA05-HU621	30393836
11,00	12	118	71	56	45	SCD291-1100-2-4-140HA05-HU621	30393837
12,00	12	118	71	56	45	SCD291-1200-2-4-140HA05-HU621	30393838

Dimensions in mm.
Cutting data recommendation from page 458.
Special designs and other coatings on request.

MEGA-Drill-Hardened

Solid carbide twist drill
SCD14 (4xD), external coolant supply

Design:
 Drill diameter: 2.55 - 16.00 mm
 Bore tolerance: \geq IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry, surfaces
 Tip angle: 140°
 Helix angle: 15°



Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
2,55	3	44	12	6	30	SCD140-0255-2-2-140HA04-HP835	30391608
3,00	3	46	14	6	30	SCD140-0300-2-2-140HA04-HP835	30391609
3,10	4	48	14	6	30	SCD140-0310-2-2-140HA04-HP835	30391610
3,20	4	48	14	6	30	SCD140-0320-2-2-140HA04-HP835	30391611
3,30	4	48	16	8	30	SCD140-0330-2-2-140HA04-HP835	30391612
3,40	4	50	18	10	30	SCD140-0340-2-2-140HA04-HP835	30391613
3,50	4	50	18	10	30	SCD140-0350-2-2-140HA04-HP835	30391614
3,60	4	50	18	10	30	SCD140-0360-2-2-140HA04-HP835	30391615
3,70	4	50	18	10	30	SCD140-0370-2-2-140HA04-HP835	30391616
3,80	4	52	20	12	30	SCD140-0380-2-2-140HA04-HP835	30391617
3,90	4	52	20	12	30	SCD140-0390-2-2-140HA04-HP835	30391618
4,00	4	52	20	12	30	SCD140-0400-2-2-140HA04-HP835	30391619
4,10	6	65	23	15	40	SCD140-0410-2-2-140HA04-HP835	30391620
4,20	6	65	23	15	40	SCD140-0420-2-2-140HA04-HP835	30391621
4,30	6	68	26	15	40	SCD140-0430-2-2-140HA04-HP835	30391622
4,40	6	68	26	15	40	SCD140-0440-2-2-140HA04-HP835	30391623
4,50	6	68	26	15	40	SCD140-0450-2-2-140HA04-HP835	30391624
4,60	6	68	26	15	40	SCD140-0460-2-2-140HA04-HP835	30391625
4,70	6	68	26	15	40	SCD140-0470-2-2-140HA04-HP835	30391626
4,80	6	72	30	18	40	SCD140-0480-2-2-140HA04-HP835	30391627
4,90	6	72	30	18	40	SCD140-0490-2-2-140HA04-HP835	30391628
5,00	6	72	30	18	40	SCD140-0500-2-2-140HA04-HP835	30391629
5,10	6	72	30	18	40	SCD140-0510-2-2-140HA04-HP835	30391630
5,20	6	72	30	18	40	SCD140-0520-2-2-140HA04-HP835	30391631
5,30	6	72	30	18	40	SCD140-0530-2-2-140HA04-HP835	30391632
5,40	6	75	33	18	40	SCD140-0540-2-2-140HA04-HP835	30391633
5,50	6	75	33	18	40	SCD140-0550-2-2-140HA04-HP835	30391634
5,60	6	75	33	18	40	SCD140-0560-2-2-140HA04-HP835	30391635
5,70	6	75	33	18	40	SCD140-0570-2-2-140HA04-HP835	30391636
5,80	6	75	33	18	40	SCD140-0580-2-2-140HA04-HP835	30391637
5,90	6	75	33	18	40	SCD140-0590-2-2-140HA04-HP835	30391638
6,00	6	75	33	18	40	SCD140-0600-2-2-140HA04-HP835	30391639
6,10	8	80	38	25	40	SCD140-0610-2-2-140HA04-HP835	30391640
6,20	8	80	38	25	40	SCD140-0620-2-2-140HA04-HP835	30391641
6,30	8	80	38	25	40	SCD140-0630-2-2-140HA04-HP835	30391642
6,40	8	80	38	25	40	SCD140-0640-2-2-140HA04-HP835	30391643

MEGA-Drill-Hardened | Solid carbide twist drills SCD14 (4xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,50	8	80	38	25	40	SCD140-0650-2-2-140HA04-HP835	30391644
6,60	8	80	38	25	40	SCD140-0660-2-2-140HA04-HP835	30391645
6,70	8	80	38	25	40	SCD140-0670-2-2-140HA04-HP835	30391646
6,80	8	85	43	30	40	SCD140-0680-2-2-140HA04-HP835	30391647
6,90	8	85	43	30	40	SCD140-0690-2-2-140HA04-HP835	30391648
7,00	8	85	43	30	40	SCD140-0700-2-2-140HA04-HP835	30391649
7,10	8	85	43	30	40	SCD140-0710-2-2-140HA04-HP835	30391650
7,20	8	85	43	30	40	SCD140-0720-2-2-140HA04-HP835	30391651
7,30	8	85	43	30	40	SCD140-0730-2-2-140HA04-HP835	30391652
7,40	8	85	43	30	40	SCD140-0740-2-2-140HA04-HP835	30391653
7,50	8	85	43	30	40	SCD140-0750-2-2-140HA04-HP835	30391654
7,60	8	98	48	35	48	SCD140-0760-2-2-140HA04-HP835	30391655
7,70	8	98	48	35	48	SCD140-0770-2-2-140HA04-HP835	30391656
7,80	8	98	48	35	48	SCD140-0780-2-2-140HA04-HP835	30391657
7,90	8	98	48	35	48	SCD140-0790-2-2-140HA04-HP835	30391658
8,00	8	98	48	35	48	SCD140-0800-2-2-140HA04-HP835	30391659
8,10	10	98	48	35	48	SCD140-0810-2-2-140HA04-HP835	30391660
8,20	10	98	48	35	48	SCD140-0820-2-2-140HA04-HP835	30391661
8,30	10	98	48	35	48	SCD140-0830-2-2-140HA04-HP835	30391662
8,40	10	98	48	35	48	SCD140-0840-2-2-140HA04-HP835	30391663
8,50	10	98	48	35	48	SCD140-0850-2-2-140HA04-HP835	30391664
8,60	10	105	55	42	48	SCD140-0860-2-2-140HA04-HP835	30391665
8,70	10	105	55	42	48	SCD140-0870-2-2-140HA04-HP835	30391666
8,80	10	105	55	42	48	SCD140-0880-2-2-140HA04-HP835	30391667
8,90	10	105	55	42	48	SCD140-0890-2-2-140HA04-HP835	30391668
9,00	10	105	55	42	48	SCD140-0900-2-2-140HA04-HP835	30391669
9,10	10	105	55	42	48	SCD140-0910-2-2-140HA04-HP835	30391670
9,20	10	105	55	42	48	SCD140-0920-2-2-140HA04-HP835	30391671
9,30	10	105	55	42	48	SCD140-0930-2-2-140HA04-HP835	30391672
9,40	10	105	55	42	48	SCD140-0940-2-2-140HA04-HP835	30391673
9,50	10	105	55	42	48	SCD140-0950-2-2-140HA04-HP835	30391674
9,60	10	111	61	45	48	SCD140-0960-2-2-140HA04-HP835	30391675
9,70	10	111	61	45	48	SCD140-0970-2-2-140HA04-HP835	30391676
9,80	10	111	61	45	48	SCD140-0980-2-2-140HA04-HP835	30391677
9,90	10	111	61	45	48	SCD140-0990-2-2-140HA04-HP835	30391678
10,00	10	111	61	45	48	SCD140-1000-2-2-140HA04-HP835	30391679
10,10	12	111	61	45	48	SCD140-1010-2-2-140HA04-HP835	30391680
10,20	12	111	61	45	48	SCD140-1020-2-2-140HA04-HP835	30391681
10,30	12	111	61	45	48	SCD140-1030-2-2-140HA04-HP835	30391682
10,40	12	111	61	45	48	SCD140-1040-2-2-140HA04-HP835	30391683
10,50	12	111	61	45	48	SCD140-1050-2-2-140HA04-HP835	30391684
10,60	12	111	61	45	48	SCD140-1060-2-2-140HA04-HP835	30391685
10,70	12	119	69	50	48	SCD140-1070-2-2-140HA04-HP835	30391686
10,80	12	119	69	50	48	SCD140-1080-2-2-140HA04-HP835	30391687
10,90	12	119	69	50	48	SCD140-1090-2-2-140HA04-HP835	30391688
11,00	12	119	69	50	48	SCD140-1100-2-2-140HA04-HP835	30391689
11,10	12	119	69	50	48	SCD140-1110-2-2-140HA04-HP835	30391690
11,20	12	119	69	50	48	SCD140-1120-2-2-140HA04-HP835	30391691
11,30	12	119	69	50	48	SCD140-1130-2-2-140HA04-HP835	30391692
11,40	12	119	69	50	48	SCD140-1140-2-2-140HA04-HP835	30391693
11,50	12	119	69	50	48	SCD140-1150-2-2-140HA04-HP835	30391694
11,60	12	119	69	50	48	SCD140-1160-2-2-140HA04-HP835	30391695
11,70	12	119	69	50	48	SCD140-1170-2-2-140HA04-HP835	30391696
11,80	12	119	69	50	48	SCD140-1180-2-2-140HA04-HP835	30391697
11,90	12	119	69	50	48	SCD140-1190-2-2-140HA04-HP835	30391698
12,00	12	119	69	50	48	SCD140-1200-2-2-140HA04-HP835	30391699
12,50	14	125	75	55	50	SCD140-1250-2-2-140HA04-HP835	30391700

MEGA-Drill-Hardened | Solid carbide twist drills SCD14 (4xD), external coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
13,00	14	125	75	55	50	SCD140-1300-2-2-140HA04-HP835	30391701
13,50	14	125	75	55	50	SCD140-1350-2-2-140HA04-HP835	30391702
14,00	14	125	75	55	50	SCD140-1400-2-2-140HA04-HP835	30391703
14,50	16	133	81	60	50	SCD140-1450-2-2-140HA04-HP835	30391704
15,00	16	133	81	60	50	SCD140-1500-2-2-140HA04-HP835	30391705
16,00	16	133	81	60	50	SCD140-1600-2-2-140HA04-HP835	30391706

Dimensions in mm.

Cutting data recommendation from page 458.

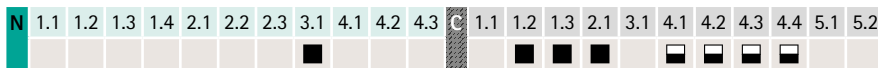
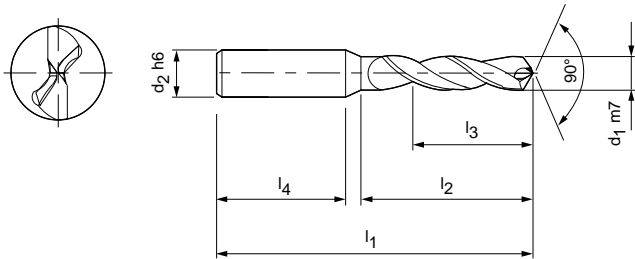
Special designs and other coatings on request.

MEGA-Drill-Composite-MD-Micro

Solid carbide twist drill
SCD40 (5xD), external coolant supply

Design:
 Drill diameter: 0.50 - 2.90 mm
 Bore tolerance: \geq IT 9
 Coating: Diamond
 Number of cutting edges: 2
 Tip angle: 90 °
 Number of guiding chamfers: 2
 Helix angle: 35 °

Application:
 CFRP with multidirectional fibres



Dimensions						Shank form HA	
d1 m7	d2 h6	l1	l2	l3	l4	Specification	Order No.
0,50	3	55	4,5	3	46	SCD400-0050-2-2-140HA05-HC620	30504673
0,60	3	55	4,5	3	46	SCD400-0060-2-2-140HA05-HC620	30504674
0,70	3	55	5,5	4	45	SCD400-0070-2-2-140HA05-HC620	30504675
0,80	3	55	5,5	4	45	SCD400-0080-2-2-140HA05-HC620	30504676
0,90	3	55	7	5	44	SCD400-0090-2-2-140HA05-HC620	30504677
1,00	3	55	7	5	44	SCD400-0100-2-2-140HA05-HC620	30504678
1,10	3	55	10	8	41	SCD400-0110-2-2-140HA05-HC620	30504679
1,20	3	55	10	8	41	SCD400-0120-2-2-140HA05-HC620	30504680
1,30	3	55	10	8	41	SCD400-0130-2-2-140HA05-HC620	30504681
1,40	3	55	10	8	41	SCD400-0140-2-2-140HA05-HC620	30504682
1,50	3	55	10	8	41	SCD400-0150-2-2-140HA05-HC620	30504683
1,60	3	68	14	11	51	SCD400-0160-2-2-140HA05-HC620	30504684
1,70	3	68	14	11	51	SCD400-0170-2-2-140HA05-HC620	30504685
1,80	3	68	14	11	51	SCD400-0180-2-2-140HA05-HC620	30504686
1,90	3	68	14	11	51	SCD400-0190-2-2-140HA05-HC620	30504687
2,00	3	68	14	11	51	SCD400-0200-2-2-140HA05-HC620	30504688
2,10	3	74	18	14	54	SCD400-0210-2-2-140HA05-HC620	30504689
2,20	3	74	18	14	54	SCD400-0220-2-2-140HA05-HC620	30504690
2,30	3	74	18	14	54	SCD400-0230-2-2-140HA05-HC620	30504691
2,40	3	74	18	14	54	SCD400-0240-2-2-140HA05-HC620	30504692
2,50	3	74	18	14	54	SCD400-0250-2-2-140HA05-HC620	30504693
2,60	3	81	20	16	60	SCD400-0260-2-2-140HA05-HC620	30504694
2,70	3	81	20	16	60	SCD400-0270-2-2-140HA05-HC620	30504695
2,80	3	81	20	16	60	SCD400-0280-2-2-140HA05-HC620	30504696
2,90	3	81	20	16	60	SCD400-0290-2-2-140HA05-HC620	30504697

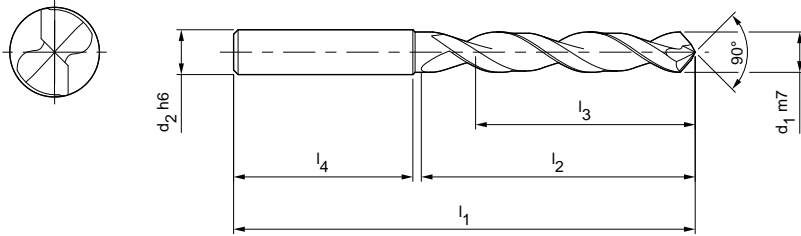
Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Drill-Composite-MD

Solid carbide twist drill
SCD25 (5xD), external coolant supply

Design:
 Drill diameter: 2.50 - 12.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Diamond
 Number of cutting edges: 2
 Tip angle: 90 °
 Number of guiding chamfers: 2
 Helix angle: 35 °

Application:
 CFRP with multidirectional fibres



N	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	4.1	4.2	4.3	C	1.1	1.2	1.3	2.1	3.1	4.1	4.2	4.3	4.4	5.1	5.2
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Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
2,50		6	66	24	19	36	SCD250-0250-2-2-090HA05-HC619	30401897
2,60		6	66	24	19	36	SCD250-0260-2-2-090HA05-HC619	30401898
2,70		6	66	24	19	36	SCD250-0270-2-2-090HA05-HC619	30401899
2,80		6	66	24	19	36	SCD250-0280-2-2-090HA05-HC619	30401900
2,90		6	66	24	19	36	SCD250-0290-2-2-090HA05-HC619	30401901
3,00		6	66	28	23	36	SCD250-0300-2-2-090HA05-HC619	30401902
3,10		6	66	28	23	36	SCD250-0310-2-2-090HA05-HC619	30401903
3,175	1/8	6	66	28	23	36	SCD250-03175-2-2-090HA05-HC619	30401904
3,20		6	66	28	23	36	SCD250-0320-2-2-090HA05-HC619	30401905
3,30		6	66	28	23	36	SCD250-0330-2-2-090HA05-HC619	30401906
3,40		6	66	28	23	36	SCD250-0340-2-2-090HA05-HC619	30401907
3,50		6	66	28	23	36	SCD250-0350-2-2-090HA05-HC619	30401908
3,60		6	66	28	23	36	SCD250-0360-2-2-090HA05-HC619	30401909
3,70		6	66	28	23	36	SCD250-0370-2-2-090HA05-HC619	30401910
3,80		6	66	28	23	36	SCD250-0380-2-2-090HA05-HC619	30401911
3,90		6	66	28	23	36	SCD250-0390-2-2-090HA05-HC619	30401912
4,00		6	74	36	29	36	SCD250-0400-2-2-090HA05-HC619	30401913
4,10		6	74	36	29	36	SCD250-0410-2-2-090HA05-HC619	30401914
4,20		6	74	36	29	36	SCD250-0420-2-2-090HA05-HC619	30401915
4,30		6	74	36	29	36	SCD250-0430-2-2-090HA05-HC619	30401916
4,40		6	74	36	29	36	SCD250-0440-2-2-090HA05-HC619	30401917
4,50		6	74	36	29	36	SCD250-0450-2-2-090HA05-HC619	30401918
4,60		6	74	36	29	36	SCD250-0460-2-2-090HA05-HC619	30401919
4,70		6	74	36	29	36	SCD250-0470-2-2-090HA05-HC619	30401920
4,763	3/16	6	74	36	29	36	SCD250-04763-2-2-090HA05-HC619	30401921
4,80		6	74	36	29	36	SCD250-0480-2-2-090HA05-HC619	30401922
4,90		6	74	36	29	36	SCD250-0490-2-2-090HA05-HC619	30401923
5,00		6	82	44	35	36	SCD250-0500-2-2-090HA05-HC619	30401924
5,10		6	82	44	35	36	SCD250-0510-2-2-090HA05-HC619	30401925
5,20		6	82	44	35	36	SCD250-0520-2-2-090HA05-HC619	30401926
5,30		6	82	44	35	36	SCD250-0530-2-2-090HA05-HC619	30401927
5,40		6	82	44	35	36	SCD250-0540-2-2-090HA05-HC619	30401928
5,50		6	82	44	35	36	SCD250-0550-2-2-090HA05-HC619	30401929
5,60		6	82	44	35	36	SCD250-0560-2-2-090HA05-HC619	30401930
5,70		6	82	44	35	36	SCD250-0570-2-2-090HA05-HC619	30401931
5,80		6	82	44	35	36	SCD250-0580-2-2-090HA05-HC619	30401932

MEGA-Drill-Composite-MD | Solid carbide twist drills SCD25 (5xD), external coolant supply

Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,90		6	82	44	35	36	SCD250-0590-2-2-090HA05-HC619	30401933
6,00		6	82	44	35	36	SCD250-0600-2-2-090HA05-HC619	30401934
6,10		8	91	53	43	36	SCD250-0610-2-2-090HA05-HC619	30401935
6,20		8	91	53	43	36	SCD250-0620-2-2-090HA05-HC619	30401936
6,30		8	91	53	43	36	SCD250-0630-2-2-090HA05-HC619	30401937
6,35	1/4	8	91	53	43	36	SCD250-06350-2-2-090HA05-HC619	30401938
6,40		8	91	53	43	36	SCD250-0640-2-2-090HA05-HC619	30401939
6,50		8	91	53	43	36	SCD250-0650-2-2-090HA05-HC619	30401940
6,60		8	91	53	43	36	SCD250-0660-2-2-090HA05-HC619	30401941
6,70		8	91	53	43	36	SCD250-0670-2-2-090HA05-HC619	30401942
6,80		8	91	53	43	36	SCD250-0680-2-2-090HA05-HC619	30401943
6,90		8	91	53	43	36	SCD250-0690-2-2-090HA05-HC619	30401944
7,00		8	91	53	43	36	SCD250-0700-2-2-090HA05-HC619	30401945
7,10		8	91	53	43	36	SCD250-0710-2-2-090HA05-HC619	30401946
7,20		8	91	53	43	36	SCD250-0720-2-2-090HA05-HC619	30401947
7,30		8	91	53	43	36	SCD250-0730-2-2-090HA05-HC619	30401948
7,40		8	91	53	43	36	SCD250-0740-2-2-090HA05-HC619	30401949
7,50		8	91	53	43	36	SCD250-0750-2-2-090HA05-HC619	30401950
7,60		8	91	53	43	36	SCD250-0760-2-2-090HA05-HC619	30401951
7,70		8	91	53	43	36	SCD250-0770-2-2-090HA05-HC619	30401952
7,80		8	91	53	43	36	SCD250-0780-2-2-090HA05-HC619	30401953
7,90		8	91	53	43	36	SCD250-0790-2-2-090HA05-HC619	30401954
7,938	5/16	8	91	53	43	36	SCD250-07938-2-2-090HA05-HC619	30401955
8,00		8	91	53	43	40	SCD250-0800-2-2-090HA05-HC619	30401956
8,10		10	103	61	49	40	SCD250-0810-2-2-090HA05-HC611	30401957
8,20		10	103	61	49	40	SCD250-0820-2-2-090HA05-HC611	30401958
8,30		10	103	61	49	40	SCD250-0830-2-2-090HA05-HC611	30401959
8,40		10	103	61	49	40	SCD250-0840-2-2-090HA05-HC611	30401960
8,50		10	103	61	49	40	SCD250-0850-2-2-090HA05-HC611	30401961
8,60		10	103	61	49	40	SCD250-0860-2-2-090HA05-HC611	30401962
8,70		10	103	61	49	40	SCD250-0870-2-2-090HA05-HC611	30401963
8,80		10	103	61	49	40	SCD250-0880-2-2-090HA05-HC611	30401964
8,90		10	103	61	49	40	SCD250-0890-2-2-090HA05-HC611	30401965
9,00		10	103	61	49	40	SCD250-0900-2-2-090HA05-HC611	30401966
9,10		10	103	61	49	40	SCD250-0910-2-2-090HA05-HC611	30401967
9,20		10	103	61	49	40	SCD250-0920-2-2-090HA05-HC611	30401968
9,30		10	103	61	49	40	SCD250-0930-2-2-090HA05-HC611	30401969
9,40		10	103	61	49	40	SCD250-0940-2-2-090HA05-HC611	30401970
9,50		10	103	61	49	40	SCD250-0950-2-2-090HA05-HC611	30401971
9,525	3/8	10	103	61	49	40	SCD250-09525-2-2-090HA05-HC611	30401972
9,60		10	103	61	49	40	SCD250-0960-2-2-090HA05-HC611	30401973
9,70		10	103	61	49	40	SCD250-0970-2-2-090HA05-HC611	30401974
9,80		10	103	61	49	40	SCD250-0980-2-2-090HA05-HC611	30401975
9,90		10	103	61	49	40	SCD250-0990-2-2-090HA05-HC611	30401976
10,00		10	103	61	49	40	SCD250-1000-2-2-090HA05-HC611	30401977
10,10		12	118	71	56	45	SCD250-1010-2-2-090HA05-HC611	30401978
10,20		12	118	71	56	45	SCD250-1020-2-2-090HA05-HC611	30401979
10,30		12	118	71	56	45	SCD250-1030-2-2-090HA05-HC611	30401980
10,40		12	118	71	56	45	SCD250-1040-2-2-090HA05-HC611	30401981
10,50		12	118	71	56	45	SCD250-1050-2-2-090HA05-HC611	30401982
10,60		12	118	71	56	45	SCD250-1060-2-2-090HA05-HC611	30401983
10,70		12	118	71	56	45	SCD250-1070-2-2-090HA05-HC611	30401984
10,80		12	118	71	56	45	SCD250-1080-2-2-090HA05-HC611	30401985
10,90		12	118	71	56	45	SCD250-1090-2-2-090HA05-HC611	30401986
11,00		12	118	71	56	45	SCD250-1100-2-2-090HA05-HC611	30401987
11,10		12	118	71	56	45	SCD250-1110-2-2-090HA05-HC611	30401988
11,111	7/16	12	118	71	56	45	SCD250-11111-2-2-090HA05-HC611	30401989

MEGA-Drill-Composite-MD | Solid carbide twist drills SCD25 (5xD), external coolant supply

Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
11,20		12	118	71	56	45	SCD250-1120-2-2-090HA05-HC611	30401990
11,30		12	118	71	56	45	SCD250-1130-2-2-090HA05-HC611	30401991
11,40		12	118	71	56	45	SCD250-1140-2-2-090HA05-HC611	30401992
11,50		12	118	71	56	45	SCD250-1150-2-2-090HA05-HC611	30401993
11,60		12	118	71	56	45	SCD250-1160-2-2-090HA05-HC611	30401994
11,70		12	118	71	56	45	SCD250-1170-2-2-090HA05-HC611	30401995
11,80		12	118	71	56	45	SCD250-1180-2-2-090HA05-HC611	30401996
11,90		12	118	71	56	45	SCD250-1190-2-2-090HA05-HC611	30401997
12,00		12	118	71	56	45	SCD250-1200-2-2-090HA05-HC611	30401998

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Composite-UDX

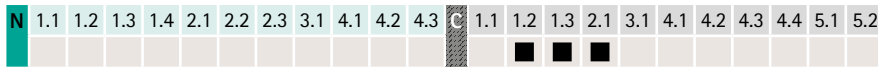
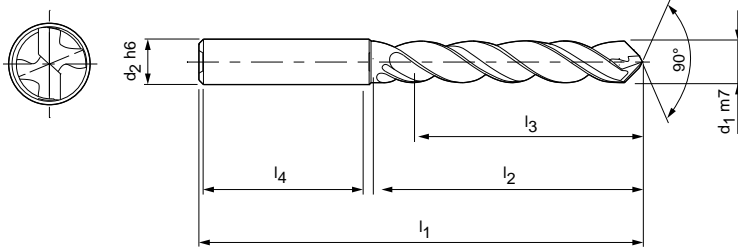
Solid carbide twist drill
SCD27 (5xD), external coolant supply

Design:

Drill diameter: 3.00 - 12.00 mm
Bore tolerance: ≥ IT 8
Coating: Diamond
Number of cutting edges: 2
Tip angle: 90 °
Number of guiding chamfers: 4
Helix angle: 35 °

Application:

For all CFRP materials / problem solver in unstable clamping situations or for thin-walled parts



Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00		6	66	26	20	36	SCD270-0300-2-2-090HA05-HC619	30402101
3,10		6	66	26	20	36	SCD270-0310-2-2-090HA05-HC619	30402102
3,175	1/8	6	66	26	20	36	SCD270-03175-2-2-090HA05-HC619	30402103
3,20		6	66	26	20	36	SCD270-0320-2-2-090HA05-HC619	30402104
3,30		6	66	26	20	36	SCD270-0330-2-2-090HA05-HC619	30402105
3,40		6	66	26	20	36	SCD270-0340-2-2-090HA05-HC619	30402106
3,50		6	66	26	20	36	SCD270-0350-2-2-090HA05-HC619	30402107
3,60		6	66	26	20	36	SCD270-0360-2-2-090HA05-HC619	30402108
3,70		6	66	26	20	36	SCD270-0370-2-2-090HA05-HC619	30402109
3,80		6	66	26	20	36	SCD270-0380-2-2-090HA05-HC619	30402110
3,90		6	66	26	20	36	SCD270-0390-2-2-090HA05-HC619	30402111
4,00		6	74	35	27	36	SCD270-0400-2-2-090HA05-HC619	30402112
4,10		6	74	35	27	36	SCD270-0410-2-2-090HA05-HC619	30402113
4,20		6	74	35	27	36	SCD270-0420-2-2-090HA05-HC619	30402114
4,30		6	74	35	27	36	SCD270-0430-2-2-090HA05-HC619	30402115
4,40		6	74	35	27	36	SCD270-0440-2-2-090HA05-HC619	30402116
4,50		6	74	35	27	36	SCD270-0450-2-2-090HA05-HC619	30402117
4,60		6	74	35	27	36	SCD270-0460-2-2-090HA05-HC619	30402118
4,70		6	74	35	27	36	SCD270-0470-2-2-090HA05-HC619	30402119
4,763	3/16	6	74	35	27	36	SCD270-04763-2-2-090HA05-HC619	30402120
4,80		6	74	35	27	36	SCD270-0480-2-2-090HA05-HC619	30402121
4,90		6	74	35	27	36	SCD270-0490-2-2-090HA05-HC619	30402122
5,00		6	82	44	35	36	SCD270-0500-2-2-090HA05-HC619	30402123
5,10		6	82	44	35	36	SCD270-0510-2-2-090HA05-HC619	30402124
5,20		6	82	44	35	36	SCD270-0520-2-2-090HA05-HC619	30402125
5,30		6	82	44	35	36	SCD270-0530-2-2-090HA05-HC619	30402126
5,40		6	82	44	35	36	SCD270-0540-2-2-090HA05-HC619	30402127
5,50		6	82	44	35	36	SCD270-0550-2-2-090HA05-HC619	30402128
5,60		6	82	44	35	36	SCD270-0560-2-2-090HA05-HC619	30402129
5,70		6	82	44	35	36	SCD270-0570-2-2-090HA05-HC619	30402130
5,80		6	82	44	35	36	SCD270-0580-2-2-090HA05-HC619	30402131
5,90		6	82	44	35	36	SCD270-0590-2-2-090HA05-HC619	30402132
6,00		6	82	44	35	36	SCD270-0600-2-2-090HA05-HC619	30650496
6,10		8	91	52	40	36	SCD270-0610-2-2-090HA05-HC619	30650497
6,20		8	91	52	40	36	SCD270-0620-2-2-090HA05-HC619	30650498
6,30		8	91	52	40	36	SCD270-0630-2-2-090HA05-HC619	30650499

MEGA-Drill-Composite-UDX | Solid carbide twist drills SCD27 (5xD), external coolant supply

Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,35	1/4	8	91	52	40	36	SCD270-0635-2-2-090HA05-HC619	30650500
6,40		8	91	52	40	36	SCD270-0640-2-2-090HA05-HC619	30650501
6,50		8	91	52	40	36	SCD270-0650-2-2-090HA05-HC619	30650502
6,60		8	91	52	40	36	SCD270-0660-2-2-090HA05-HC619	30650503
6,70		8	91	52	40	36	SCD270-0670-2-2-090HA05-HC619	30650504
6,80		8	91	52	40	36	SCD270-0680-2-2-090HA05-HC619	30650505
6,90		8	91	52	40	36	SCD270-0690-2-2-090HA05-HC619	30650506
7,00		8	91	52	40	36	SCD270-0700-2-2-090HA05-HC619	30650507
7,10		8	91	52	40	36	SCD270-0710-2-2-090HA05-HC619	30650508
7,20		8	91	52	40	36	SCD270-0720-2-2-090HA05-HC619	30650509
7,30		8	91	52	40	36	SCD270-0730-2-2-090HA05-HC619	30650510
7,40		8	91	52	40	36	SCD270-0740-2-2-090HA05-HC619	30650511
7,50		8	91	52	40	36	SCD270-0750-2-2-090HA05-HC619	30650512
7,60		8	91	52	40	36	SCD270-0760-2-2-090HA05-HC619	30650513
7,70		8	91	52	40	36	SCD270-0770-2-2-090HA05-HC619	30650514
7,80		8	91	52	40	36	SCD270-0780-2-2-090HA05-HC619	30650515
7,90		8	91	52	40	36	SCD270-0790-2-2-090HA05-HC619	30650516
7,938	5/16	8	91	52	40	36	SCD270-07938-2-2-090HA05-HC619	30650517
8,00		8	91	52	40	40	SCD270-0800-2-2-090HA05-HC619	30650518
8,10		10	103	60	45	40	SCD270-0810-2-2-090HA05-HC611	30650519
8,20		10	103	60	45	40	SCD270-0820-2-2-090HA05-HC611	30650520
8,30		10	103	60	45	40	SCD270-0830-2-2-090HA05-HC611	30650521
8,40		10	103	60	45	40	SCD270-0840-2-2-090HA05-HC611	30650522
8,50		10	103	60	45	40	SCD270-0850-2-2-090HA05-HC611	30650523
8,60		10	103	60	45	40	SCD270-0860-2-2-090HA05-HC611	30650524
8,70		10	103	60	45	40	SCD270-0870-2-2-090HA05-HC611	30650525
8,80		10	103	60	45	40	SCD270-0880-2-2-090HA05-HC611	30650526
8,90		10	103	60	45	40	SCD270-0890-2-2-090HA05-HC611	30650527
9,00		10	103	60	45	40	SCD270-0900-2-2-090HA05-HC611	30650528
9,10		10	103	60	45	40	SCD270-0910-2-2-090HA05-HC611	30650529
9,20		10	103	60	45	40	SCD270-0920-2-2-090HA05-HC611	30650530
9,30		10	103	60	45	40	SCD270-0930-2-2-090HA05-HC611	30650531
9,40		10	103	60	45	40	SCD270-0940-2-2-090HA05-HC611	30650532
9,50		10	103	60	45	40	SCD270-0950-2-2-090HA05-HC611	30650533
9,525	3/8	10	103	60	45	40	SCD270-09525-2-2-090HA05-HC611	30650534
9,60		10	103	60	45	40	SCD270-0960-2-2-090HA05-HC611	30650535
9,70		10	103	60	45	40	SCD270-0970-2-2-090HA05-HC611	30650536
9,80		10	103	60	45	40	SCD270-0980-2-2-090HA05-HC611	30650537
9,90		10	103	60	45	40	SCD270-0990-2-2-090HA05-HC611	30650538
10,00		10	103	60	45	40	SCD270-1000-2-2-090HA05-HC611	30650539
10,10		12	118	70	52	45	SCD270-1010-2-2-090HA05-HC611	30650540
10,20		12	118	70	52	45	SCD270-1020-2-2-090HA05-HC611	30650541
10,30		12	118	70	52	45	SCD270-1030-2-2-090HA05-HC611	30650542
10,40		12	118	70	52	45	SCD270-1040-2-2-090HA05-HC611	30650543
10,50		12	118	70	52	45	SCD270-1050-2-2-090HA05-HC611	30650544
10,60		12	118	70	52	45	SCD270-1060-2-2-090HA05-HC611	30650545
10,70		12	118	70	52	45	SCD270-1070-2-2-090HA05-HC611	30650546
10,80		12	118	70	52	45	SCD270-1080-2-2-090HA05-HC611	30650547
10,90		12	118	70	52	45	SCD270-1090-2-2-090HA05-HC611	30650548
11,00		12	118	70	52	45	SCD270-1100-2-2-090HA05-HC611	30650549
11,10		12	118	70	52	45	SCD270-1110-2-2-090HA05-HC611	30650550
11,111	7/16	12	118	70	52	45	SCD270-11111-2-2-090HA05-HC611	30650551
11,20		12	118	70	52	45	SCD270-1120-2-2-090HA05-HC611	30650552
11,30		12	118	70	52	45	SCD270-1130-2-2-090HA05-HC611	30650553
11,40		12	118	70	52	45	SCD270-1140-2-2-090HA05-HC611	30650554
11,50		12	118	70	52	45	SCD270-1150-2-2-090HA05-HC611	30650555
11,60		12	118	70	52	45	SCD270-1160-2-2-090HA05-HC611	30650556

MEGA-Drill-Composite-UDX | Solid carbide twist drills SCD27 (5xD), external coolant supply

Dimensions							Shank form HA	
d ₁ m7 [mm]	d ₁ m7 [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
11,70		12	118	70	52	45	SCD270-1170-2-2-090HA05-HC611	30650557
11,80		12	118	70	52	45	SCD270-1180-2-2-090HA05-HC611	30650558
11,90		12	118	70	52	45	SCD270-1190-2-2-090HA05-HC611	30650559
12,00		12	118	70	52	45	SCD270-1200-2-2-090HA05-HC611	30650560

Dimensions in mm.

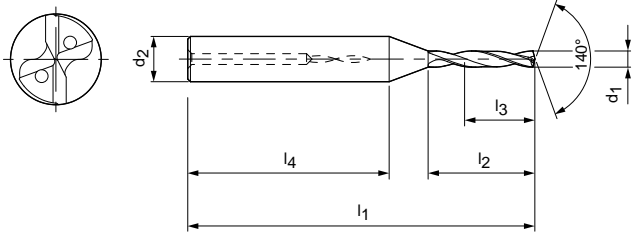
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-SMART-Drill

Solid carbide twist drill
SCD15 (5xD), internal coolant supply

Design:
 Drill diameter: 1.00 - 2.90 mm
 Bore tolerance: \geq IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Helix angle: 10° to 25° (diameter-dependent)



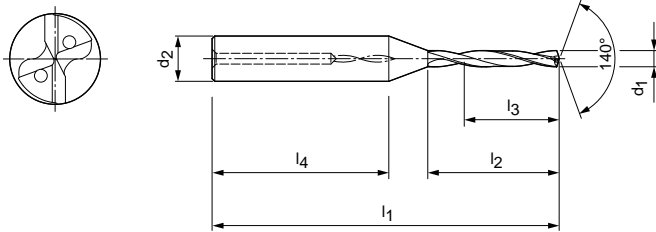
Dimensions						Shank form HA	
$d_1 (+0.004)$	$d_2 (-0.002/-0.005)$	l_1	l_2	l_3	l_4	Specification	Order No.
1,00	3	55	8	5	40	SCD151-0100-2-2-140HA05-HP241	30391707
1,10	3	55	12	8	34	SCD151-0110-2-2-140HA05-HP241	30391708
1,20	3	55	12	8	35	SCD151-0120-2-2-140HA05-HP241	30391709
1,30	3	55	12	8	35	SCD151-0130-2-2-140HA05-HP241	30391710
1,40	3	55	12	8	35	SCD151-0140-2-2-140HA05-HP241	30391711
1,50	3	55	12	8	35	SCD151-0150-2-2-140HA05-HP241	30391712
1,60	3	68	16	11	43	SCD151-0160-2-2-140HA05-HP241	30391713
1,70	3	68	16	11	44	SCD151-0170-2-2-140HA05-HP241	30391714
1,80	3	68	16	11	44	SCD151-0180-2-2-140HA05-HP241	30391715
1,90	3	68	16	11	44	SCD151-0190-2-2-140HA05-HP241	30391716
2,00	3	68	16	11	44	SCD151-0200-2-2-140HA05-HP241	30391717
2,10	3	74	20	14	44	SCD151-0210-2-2-140HA05-HP241	30391718
2,20	3	74	20	14	45	SCD151-0220-2-2-140HA05-HP241	30391719
2,30	3	74	20	14	45	SCD151-0230-2-2-140HA05-HP241	30391720
2,40	3	74	20	14	45	SCD151-0240-2-2-140HA05-HP241	30391721
2,50	3	74	20	14	45	SCD151-0250-2-2-140HA05-HP241	30391722
2,60	3	81	23	16	48	SCD151-0260-2-2-140HA05-HP241	30391723
2,70	3	81	23	16	48	SCD151-0270-2-2-140HA05-HP241	30391724
2,80	3	81	23	16	48	SCD151-0280-2-2-140HA05-HP241	30391725
2,90	3	81	23	16	48	SCD151-0290-2-2-140HA05-HP241	30391726

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-SMART-Drill

Solid carbide twist drill
SCD15 (8xD), internal coolant supply

Design:
 Drill diameter: 1.00 - 2.90 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Helix angle: 10° to 25° (diameter-dependent)



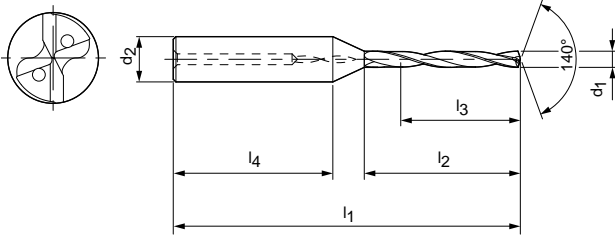
Dimensions						Shank form HA	
$d_1 (+0.004)$	$d_2 (-0.002/-0.005)$	l_1	l_2	l_3	l_4	Specification	Order No.
1,00	3	55	11	8	40	SCD151-0100-2-2-140HA08-HP241	30391727
1,10	3	55	17	13	34	SCD151-0110-2-2-140HA08-HP241	30391728
1,20	3	55	17	13	35	SCD151-0120-2-2-140HA08-HP241	30391729
1,30	3	55	17	13	35	SCD151-0130-2-2-140HA08-HP241	30391730
1,40	3	55	17	13	35	SCD151-0140-2-2-140HA08-HP241	30391731
1,50	3	68	22	13	35	SCD151-0150-2-2-140HA08-HP241	30391732
1,60	3	68	22	17	43	SCD151-0160-2-2-140HA08-HP241	30391733
1,70	3	68	22	17	44	SCD151-0170-2-2-140HA08-HP241	30391734
1,80	3	68	22	17	44	SCD151-0180-2-2-140HA08-HP241	30391735
1,90	3	68	22	17	44	SCD151-0190-2-2-140HA08-HP241	30391736
2,00	3	68	22	17	44	SCD151-0200-2-2-140HA08-HP241	30391737
2,10	3	74	28	22	44	SCD151-0210-2-2-140HA08-HP241	30391738
2,20	3	74	28	22	45	SCD151-0220-2-2-140HA08-HP241	30391739
2,30	3	74	28	22	45	SCD151-0230-2-2-140HA08-HP241	30391740
2,40	3	74	28	22	45	SCD151-0240-2-2-140HA08-HP241	30391741
2,50	3	74	28	22	45	SCD151-0250-2-2-140HA08-HP241	30391742
2,60	3	81	32	25	48	SCD151-0260-2-2-140HA08-HP241	30391743
2,70	3	81	32	25	48	SCD151-0270-2-2-140HA08-HP241	30391744
2,80	3	81	32	25	48	SCD151-0280-2-2-140HA08-HP241	30391745
2,90	3	81	32	25	48	SCD151-0290-2-2-140HA08-HP241	30391746

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-SMART-Drill

Solid carbide twist drill
SCD15 (12xD), internal coolant supply

Design:
 Drill diameter: 1.00 - 2.90 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 2
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Helix angle: 10° to 25° (diameter-dependent)



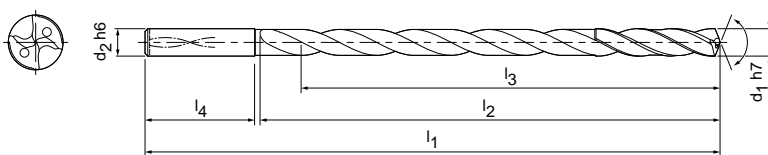
Dimensions						Shank form HA	
$d_1 (+0.004)$	$d_2 (-0.002/-0.005)$	l_1	l_2	l_3	l_4	Specification	Order No.
1,00	3	55	15	12	28	SCD151-0100-2-2-140HA12-HP241	30391747
1,10	3	55	23	19	28	SCD151-0110-2-2-140HA12-HP241	30391748
1,20	3	55	23	19	29	SCD151-0120-2-2-140HA12-HP241	30391749
1,30	3	55	23	19	29	SCD151-0130-2-2-140HA12-HP241	30391750
1,40	3	55	23	19	29	SCD151-0140-2-2-140HA12-HP241	30391751
1,50	3	55	23	19	29	SCD151-0150-2-2-140HA12-HP241	30391752
1,60	3	68	30	25	35	SCD151-0160-2-2-140HA12-HP241	30391753
1,70	3	68	30	25	36	SCD151-0170-2-2-140HA12-HP241	30391754
1,80	3	68	30	25	36	SCD151-0180-2-2-140HA12-HP241	30391755
1,90	3	68	30	25	36	SCD151-0190-2-2-140HA12-HP241	30391756
2,00	3	68	30	25	36	SCD151-0200-2-2-140HA12-HP241	30391757
2,10	3	74	38	32	34	SCD151-0210-2-2-140HA12-HP241	30391758
2,20	3	74	38	32	35	SCD151-0220-2-2-140HA12-HP241	30391759
2,30	3	74	38	32	35	SCD151-0230-2-2-140HA12-HP241	30391760
2,40	3	74	38	32	35	SCD151-0240-2-2-140HA12-HP241	30391761
2,50	3	74	38	32	35	SCD151-0250-2-2-140HA12-HP241	30391762
2,60	3	81	44	37	36	SCD151-0260-2-2-140HA12-HP241	30391763
2,70	3	81	44	37	36	SCD151-0270-2-2-140HA12-HP241	30391764
2,80	3	81	44	37	36	SCD151-0280-2-2-140HA12-HP241	30391765
2,90	3	81	44	37	36	SCD151-0290-2-2-140HA12-HP241	30391766

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Deep-Drill

Solid carbide twist drill
SCD17 (15xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 16.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 135°
 Helix angle: 30°



Dimensions							Shank form HA	
$d_1 h7$	$d_2 h6$	l_1	l_2	l_3	L/d ratio	l_4	Specification	Order No.
3,00	4	90	56	52	17	32	SCD171-0300-2-4-135HA15-HP285	30392214
3,50	4	100	66	61	17	32	SCD171-0350-2-4-135HA15-HP285	30392215
4,00	4	100	66	60	15	32	SCD171-0400-2-4-135HA15-HP285	30392216
4,50	5	110	74	67	15	34	SCD171-0450-2-4-135HA15-HP285	30392217
5,00	5	120	84	77	15	34	SCD171-0500-2-4-135HA15-HP285	30392218
5,50	6	130	92	84	15	36	SCD171-0550-2-4-135HA15-HP285	30392219
6,00	6	140	102	93	16	36	SCD171-0600-2-4-135HA15-HP285	30392220
7,00	7	155	115	105	15	38	SCD171-0700-2-4-135HA15-HP285	30392221
8,00	8	175	133	121	15	40	SCD171-0800-2-4-135HA15-HP285	30392222
9,00	9	190	148	135	15	40	SCD171-0900-2-4-135HA15-HP285	30392223
10,00	10	210	168	153	15	40	SCD171-1000-2-4-135HA15-HP285	30392224
11,00	11	230	183	167	15	45	SCD171-1100-2-4-135HA15-HP245	30392225
12,00	12	250	203	185	15	45	SCD171-1200-2-4-135HA15-HP245	30392226
13,00	13	265	218	199	15	45	SCD171-1300-2-4-135HA15-HP245	30392227
14,00	14	285	233	212	15	50	SCD171-1400-2-4-135HA15-HP245	30392228
15,00	15	305	253	231	15	50	SCD171-1500-2-4-135HA15-HP245	30392229
16,00	16	320	268	244	15	50	SCD171-1600-2-4-135HA15-HP245	30392230

Recommendation for pilot drills:

For the pilot drill please use the MEGA-Drill-Steel-Plus SCD60 / 3xD with internal coolant supply with the same nominal diameter. Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

You will find application notes on deep hole drilling in the section Technical appendix.

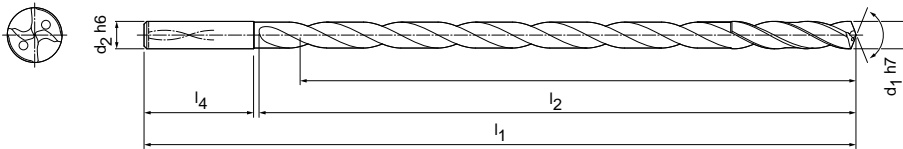
Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Deep-Drill

Solid carbide twist drill
SCD17 (20xD), internal coolant supply

Design:

Drill diameter:	3.00 - 16.00 mm
Bore tolerance:	≥ IT 9
Coating:	Special TiAlN coating
Number of cutting edges:	2
Number of guiding chamfers:	4
Point geometry:	Specific lead geometry
Tip angle:	135 °
Helix angle:	30 °



Dimensions							Shank form HA	
d_1 h7	d_2 h6	l_1	l_2	l_3	L/d ratio	l_4	Specification	Order No.
3,00	4	110	74	70	23	32	SCD171-0300-2-4-135HA20-HP285	30392231
3,50	4	120	86	81	23	32	SCD171-0350-2-4-135HA20-HP285	30392232
4,00	4	120	86	80	20	32	SCD171-0400-2-4-135HA20-HP285	30392233
4,50	5	135	98	91	20	34	SCD171-0450-2-4-135HA20-HP285	30392234
5,00	5	145	109	102	20	34	SCD171-0500-2-4-135HA20-HP285	30392235
5,50	6	160	120	112	20	36	SCD171-0550-2-4-135HA20-HP285	30392236
6,00	6	170	130	121	20	36	SCD171-0600-2-4-135HA20-HP285	30392237
7,00	7	190	150	140	20	38	SCD171-0700-2-4-135HA20-HP285	30392238
8,00	8	215	173	161	20	40	SCD171-0800-2-4-135HA20-HP285	30392239
9,00	9	240	196	183	20	40	SCD171-0900-2-4-135HA20-HP285	30392240
10,00	10	260	218	203	20	40	SCD171-1000-2-4-135HA20-HP285	30392241
11,00	11	285	238	222	20	45	SCD171-1100-2-4-135HA20-HP245	30392242
12,00	12	305	258	240	20	45	SCD171-1200-2-4-135HA20-HP245	30392243
13,00	13	330	283	264	20	45	SCD171-1300-2-4-135HA20-HP245	30392244
14,00	14	355	303	282	20	50	SCD171-1400-2-4-135HA20-HP245	30392245
15,00	15	375	323	301	20	50	SCD171-1500-2-4-135HA20-HP245	30392246
16,00	16	400	348	324	20	50	SCD171-1600-2-4-135HA20-HP245	30392247

Recommendation for pilot drills:

For the pilot drill please use the MEGA-Drill-Steel-Plus SCD60 / 3xD with internal coolant supply with the same nominal diameter.

Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

You will find application notes on deep hole drilling in the section Technical appendix.

Dimensions in mm.

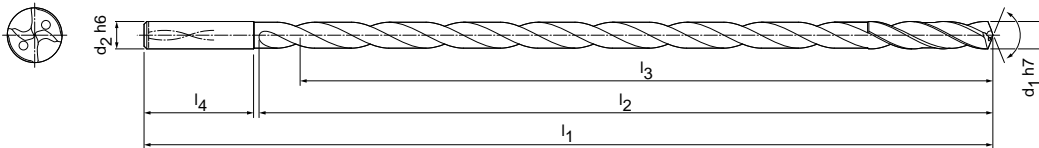
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Deep-Drill

Solid carbide twist drill
SCD17 (25xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 14.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 135°
 Helix angle: 30°



Dimensions							Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	L/d ratio	l ₄	Specification	Order No.
3,00	4	125	91	87	29	32	SCD171-0300-2-4-135HA25-HP285	30392248
3,50	4	140	106	101	29	32	SCD171-0350-2-4-135HA25-HP285	30392249
4,00	4	140	106	100	25	32	SCD171-0400-2-4-135HA25-HP285	30392250
4,50	5	155	119	112	25	34	SCD171-0450-2-4-135HA25-HP285	30392251
5,00	5	170	134	127	25	34	SCD171-0500-2-4-135HA25-HP285	30392252
5,50	6	185	147	139	25	36	SCD171-0550-2-4-135HA25-HP285	30392253
6,00	6	200	160	151	25	36	SCD171-0600-2-4-135HA25-HP285	30392254
7,00	7	225	185	175	25	38	SCD171-0700-2-4-135HA25-HP285	30392255
8,00	8	255	213	201	25	40	SCD171-0800-2-4-135HA25-HP285	30392256
9,00	9	280	238	225	25	40	SCD171-0900-2-4-135HA25-HP285	30392257
10,00	10	310	268	253	25	40	SCD171-1000-2-4-135HA25-HP285	30392258
11,00	11	340	293	277	25	45	SCD171-1100-2-4-135HA25-HP245	30392259
12,00	12	365	318	300	25	45	SCD171-1200-2-4-135HA25-HP245	30392260
13,00	13	390	343	324	25	45	SCD171-1300-2-4-135HA25-HP245	30392261
14,00	14	425	373	352	25	50	SCD171-1400-2-4-135HA25-HP245	30392262

Recommendation for pilot drills:

For the pilot drill please use the MEGA-Drill-Steel-Plus SCD60 / 3xD with internal coolant supply with the same nominal diameter. Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

You will find application notes on deep hole drilling in the section Technical appendix.

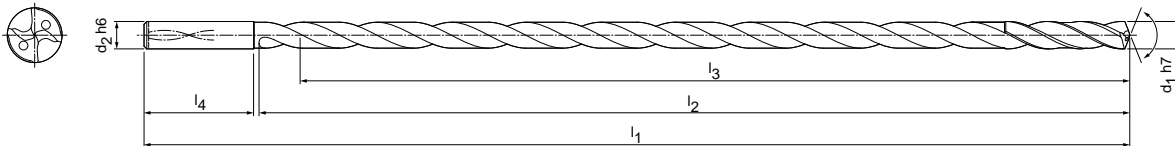
Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Deep-Drill

Solid carbide twist drill
SCD17 (30xD), internal coolant supply

Design:

Drill diameter:	3.00 – 12.00 mm
Bore tolerance:	≥ IT 9
Coating:	Special TiAlN coating
Number of cutting edges:	2
Number of guiding chamfers:	4
Point geometry:	Specific lead geometry
Tip angle:	135 °
Helix angle:	30 °



Dimensions							Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	L/d ratio	l ₄	Specification	Order No.
3,00	4	145	110	106	35	32	SCD171-0300-2-4-135HA30-HP285	30392264
3,50	4	160	126	121	35	32	SCD171-0350-2-4-135HA30-HP285	30392265
4,00	4	160	126	120	30	32	SCD171-0400-2-4-135HA30-HP285	30392266
4,50	5	180	144	137	31	34	SCD171-0450-2-4-135HA30-HP285	30392267
5,00	5	195	159	152	30	34	SCD171-0500-2-4-135HA30-HP285	30392268
5,50	6	210	172	164	30	36	SCD171-0550-2-4-135HA30-HP285	30392269
6,00	6	230	192	183	31	36	SCD171-0600-2-4-135HA30-HP285	30392270
7,00	7	260	220	210	30	38	SCD171-0700-2-4-135HA30-HP285	30392271
8,00	8	295	253	241	30	40	SCD171-0800-2-4-135HA30-HP285	30392272
9,00	9	325	283	270	30	40	SCD171-0900-2-4-135HA30-HP285	30392273
10,00	10	360	318	303	30	40	SCD171-1000-2-4-135HA30-HP285	30392274
11,00	11	400	353	337	31	45	SCD171-1100-2-4-135HA30-HP245	30392275
12,00	12	430	383	365	30	45	SCD171-1200-2-4-135HA30-HP245	30392276

Recommendation for pilot drills:

For the pilot drill please use the MEGA-Drill-Steel-Plus SCD60 / 3xD with internal coolant supply with the same nominal diameter.

Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

You will find application notes on deep hole drilling in the section Technical appendix.

Dimensions in mm.

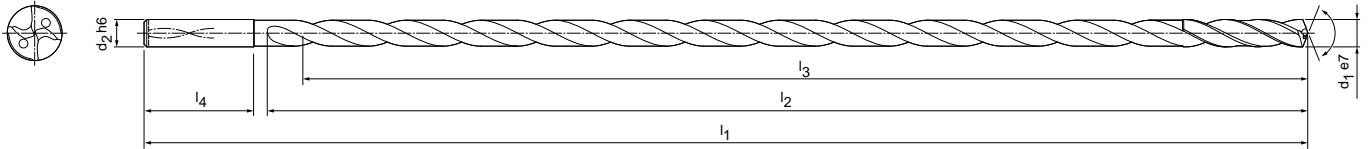
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Deep-Drill

Solid carbide twist drill
SCD17 (40xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 9.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 130°
 Helix angle: 30°



Dimensions							Shank form HA	
$d_1 e7$	$d_2 h6$	l_1	l_2	l_3	L/d ratio	l_4	Specification	Order No.
3,00	4	180	145	141	48	32	SCD171-0300-2-4-130HA40-HP285	30549865
3,50	4	205	170	165	49	32	SCD171-0350-2-4-130HA40-HP285	30549866
4,00	4	205	170	164	43	32	SCD171-0400-2-4-130HA40-HP285	30549867
4,50	5	226	190	184	42	34	SCD171-0450-2-4-130HA40-HP285	30549868
5,00	5	245	208	201	42	34	SCD171-0500-2-4-130HA40-HP285	30549869
5,50	6	270	230	222	42	36	SCD171-0550-2-4-130HA40-HP285	30549870
6,00	6	290	250	241	42	36	SCD171-0600-2-4-130HA40-HP285	30549871
7,00	7	330	290	280	41	38	SCD171-0700-2-4-130HA40-HP285	30549872
8,00	8	380	335	323	42	40	SCD171-0800-2-4-130HA40-HP285	30549873
9,00	9	425	380	367	42	40	SCD171-0900-2-4-130HA40-HP285	30549874

Recommendation for pilot drills:

For the pilot drill please use the MEGA-Drill-Steel-Plus SCD60 / 3xD with the same nominal diameter. Then pre-drill using the MEGA-Deep-Drill SCD17 / 20xD, also with the same nominal diameter. Tip angle and diameter tolerance are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

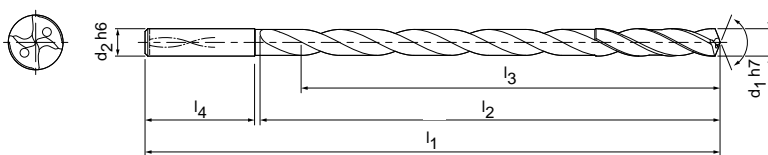
You will find application notes on deep hole drilling in the section Technical appendix.

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Deep-Drill-Alu

Solid carbide twist drill
SCD18 (15xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 16.00 mm
 Bore tolerance: \geq IT 9
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 135°
 Helix angle: 30°



Dimensions							Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	L/d ratio	l ₄	Specification	Order No.
3,00	4	90	56	52	17	32	SCD181-0300-2-4-135HA15-HU680	30392277
3,50	4	100	66	61	17	32	SCD181-0350-2-4-135HA15-HU680	30392278
4,00	4	100	66	60	15	32	SCD181-0400-2-4-135HA15-HU680	30392279
4,50	5	110	74	67	15	34	SCD181-0450-2-4-135HA15-HU680	30392280
5,00	5	120	84	77	15	34	SCD181-0500-2-4-135HA15-HU680	30392281
5,50	6	130	92	84	15	36	SCD181-0550-2-4-135HA15-HU680	30392282
6,00	6	140	102	93	16	36	SCD181-0600-2-4-135HA15-HU680	30392283
7,00	7	155	115	105	15	38	SCD181-0700-2-4-135HA15-HU680	30392284
8,00	8	175	133	121	15	40	SCD181-0800-2-4-135HA15-HU680	30392285
9,00	9	190	148	135	15	40	SCD181-0900-2-4-135HA15-HU680	30392286
10,00	10	210	168	153	15	40	SCD181-1000-2-4-135HA15-HU680	30392287
11,00	11	230	183	167	15	45	SCD181-1100-2-4-135HA15-HU644	30392288
12,00	12	250	203	185	15	45	SCD181-1200-2-4-135HA15-HU644	30392289
13,00	13	265	218	199	15	45	SCD181-1300-2-4-135HA15-HU644	30392290
14,00	14	285	233	212	15	50	SCD181-1400-2-4-135HA15-HU644	30392291
15,00	15	305	253	231	15	50	SCD181-1500-2-4-135HA15-HU644	30392292
16,00	16	320	268	244	15	50	SCD181-1600-2-4-135HA15-HU644	30392293

Recommendation for pilot drills:

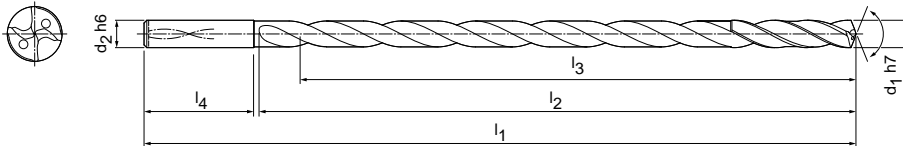
For the pilot drill please use the MEGA-Drill-Alu, SCD13 / 3xD with internal coolant supply with the same nominal diameter. Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

You will find application notes on deep hole drilling in the section Technical appendix.

MEGA-Deep-Drill-Alu

Solid carbide twist drill
SCD18 (20xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 16.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 135°
 Helix angle: 30°



Dimensions							Shank form HA	
$d_1 h7$	$d_2 h6$	l_1	l_2	l_3	L/d ratio	l_4	Specification	Order No.
3,00	4	110	74	70	23	32	SCD181-0300-2-4-135HA20-HU680	30392294
3,50	4	120	86	81	23	32	SCD181-0350-2-4-135HA20-HU680	30392295
4,00	4	120	86	80	20	32	SCD181-0400-2-4-135HA20-HU680	30392296
4,50	5	135	98	91	20	34	SCD181-0450-2-4-135HA20-HU680	30392297
5,00	5	145	109	102	20	34	SCD181-0500-2-4-135HA20-HU680	30392298
5,50	6	160	120	112	20	36	SCD181-0550-2-4-135HA20-HU680	30392299
6,00	6	170	130	121	20	36	SCD181-0600-2-4-135HA20-HU680	30392300
7,00	7	190	150	140	20	38	SCD181-0700-2-4-135HA20-HU680	30392301
8,00	8	215	173	161	20	40	SCD181-0800-2-4-135HA20-HU680	30392302
9,00	9	240	196	183	20	40	SCD181-0900-2-4-135HA20-HU680	30392303
10,00	10	260	218	203	20	40	SCD181-1000-2-4-135HA20-HU680	30392304
11,00	11	285	238	222	20	45	SCD181-1100-2-4-135HA20-HU644	30392305
12,00	12	305	258	240	20	45	SCD181-1200-2-4-135HA20-HU644	30392306
13,00	13	330	283	264	20	45	SCD181-1300-2-4-135HA20-HU644	30392307
14,00	14	355	303	282	20	50	SCD181-1400-2-4-135HA20-HU644	30392308
15,00	15	375	323	301	20	50	SCD181-1500-2-4-135HA20-HU644	30392309
16,00	16	400	348	324	20	50	SCD181-1600-2-4-135HA20-HU644	30392310

Recommendation for pilot drills:

For the pilot drill please use the MEGA-Drill-Alu SCD13 / 3xD with internal coolant supply with the same nominal diameter. Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

You will find application notes on deep hole drilling in the section Technical appendix.

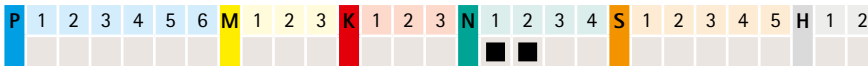
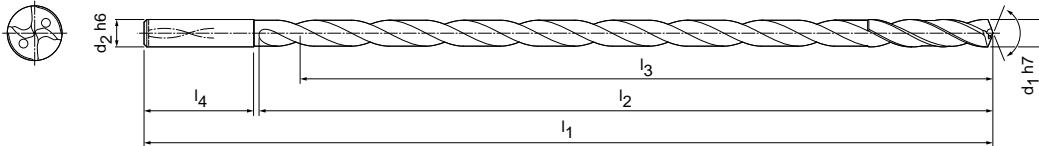
Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Deep-Drill-Alu

Solid carbide twist drill
SCD18 (25xD), internal coolant supply

Design:

Drill diameter:	3.00 - 14.00 mm
Bore tolerance:	≥ IT 9
Coating:	Uncoated
Number of cutting edges:	2
Number of guiding chamfers:	4
Point geometry:	Specific lead geometry
Tip angle:	135 °
Helix angle:	30 °



Dimensions							Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	L/d ratio	l ₄	Specification	Order No.
3,00	4	125	91	87	29	32	SCD181-0300-2-4-135HA25-HU680	30392311
3,50	4	140	106	101	29	32	SCD181-0350-2-4-135HA25-HU680	30392312
4,00	4	140	106	100	25	32	SCD181-0400-2-4-135HA25-HU680	30392313
4,50	5	155	119	112	25	34	SCD181-0450-2-4-135HA25-HU680	30392314
5,00	5	170	134	127	25	34	SCD181-0500-2-4-135HA25-HU680	30392315
5,50	6	185	147	139	25	36	SCD181-0550-2-4-135HA25-HU680	30392316
6,00	6	200	160	151	25	36	SCD181-0600-2-4-135HA25-HU680	30392317
7,00	7	225	185	175	25	38	SCD181-0700-2-4-135HA25-HU680	30392318
8,00	8	255	213	201	25	40	SCD181-0800-2-4-135HA25-HU680	30392319
9,00	9	280	238	225	25	40	SCD181-0900-2-4-135HA25-HU680	30392320
10,00	10	310	268	253	25	40	SCD181-1000-2-4-135HA25-HU680	30392321
11,00	11	340	293	277	25	45	SCD181-1100-2-4-135HA25-HU644	30392322
12,00	12	365	318	300	25	45	SCD181-1200-2-4-135HA25-HU644	30392323
13,00	13	390	343	324	25	45	SCD181-1300-2-4-135HA25-HU644	30392324
14,00	14	425	373	352	25	50	SCD181-1400-2-4-135HA25-HU644	30392325

Recommendation for pilot drills:

For the pilot drill please use the MEGA-Drill-Alu SCD13 / 3xD with internal coolant supply with the same nominal diameter.

Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

You will find application notes on deep hole drilling in the section Technical appendix.

Dimensions in mm.

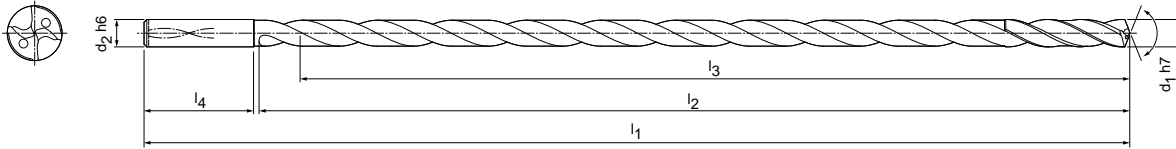
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Deep-Drill-Alu

Solid carbide twist drill
SCD18 (30xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 12.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 135 °
 Helix angle: 30 °



Dimensions							Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	L/d ratio	l ₄	Specification	Order No.
3,00	4	145	110	106	35	32	SCD181-0300-2-4-135HA30-HU680	30392326
3,50	4	160	126	121	35	32	SCD181-0350-2-4-135HA30-HU680	30392327
4,00	4	160	126	120	30	32	SCD181-0400-2-4-135HA30-HU680	30392328
4,50	5	180	144	137	31	34	SCD181-0450-2-4-135HA30-HU680	30392329
5,00	5	195	159	152	30	34	SCD181-0500-2-4-135HA30-HU680	30392330
5,50	6	210	172	164	30	36	SCD181-0550-2-4-135HA30-HU680	30392331
6,00	6	230	192	183	31	36	SCD181-0600-2-4-135HA30-HU680	30392332
7,00	7	260	220	210	30	38	SCD181-0700-2-4-135HA30-HU680	30392333
8,00	8	295	253	241	30	40	SCD181-0800-2-4-135HA30-HU680	30392334
9,00	9	325	283	270	30	40	SCD181-0900-2-4-135HA30-HU680	30392335
10,00	10	360	318	303	30	40	SCD181-1000-2-4-135HA30-HU680	30392336
11,00	11	400	353	337	31	45	SCD181-1100-2-4-135HA30-HU644	30392337
12,00	12	430	383	365	30	45	SCD181-1200-2-4-135HA30-HU644	30392338

Recommendation for pilot drills:

For the pilot drill please use the MEGA-Drill-Alu SCD13 / 3xD with internal coolant supply with the same nominal diameter. Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

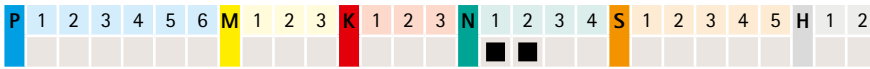
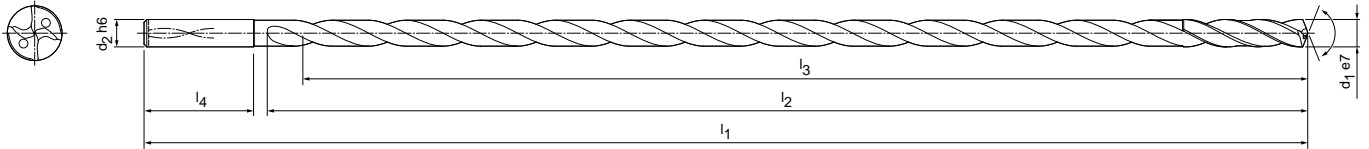
You will find application notes on deep hole drilling in the section Technical appendix.

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Deep-Drill-Alu

Solid carbide twist drill
SCD18 (40xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 9.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 130°
 Helix angle: 30°



Dimensions							Shank form HA	
$d_1 e7$	$d_2 h6$	l_1	l_2	l_3	L/d ratio	l_4	Specification	Order No.
3,00	4	180	145	141	48	32	SCD181-0300-2-4-130HA40-HU680	30549875
3,50	4	205	170	165	49	32	SCD181-0350-2-4-130HA40-HU680	30549876
4,00	4	205	170	164	43	32	SCD181-0400-2-4-130HA40-HU680	30549877
4,50	5	226	190	184	42	34	SCD181-0450-2-4-130HA40-HU680	30549878
5,00	5	245	208	201	42	34	SCD181-0500-2-4-130HA40-HU680	30549879
5,50	6	270	230	222	42	36	SCD181-0550-2-4-130HA40-HU680	30549880
6,00	6	290	250	241	42	36	SCD181-0600-2-4-130HA40-HU680	30549881
7,00	7	330	290	280	41	38	SCD181-0700-2-4-130HA40-HU680	30549882
8,00	8	380	335	323	42	40	SCD181-0800-2-4-130HA40-HU680	30549883
9,00	9	425	380	367	42	40	SCD181-0900-2-4-130HA40-HU680	30549884

Recommendation for pilot drills:

For the pilot drill for the MEGA-Deep-Drill-Alu please use the MEGA-Drill-Alu SCD13 / 3xD with the same nominal diameter. Then pre-drill using the MEGA-Deep-Drill-Alu SCD18 / 20xD and also the same nominal diameter. Tip angle and diameter tolerance are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

You will find application notes on deep hole drilling in the section Technical appendix.

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.



TRITAN-DRILL

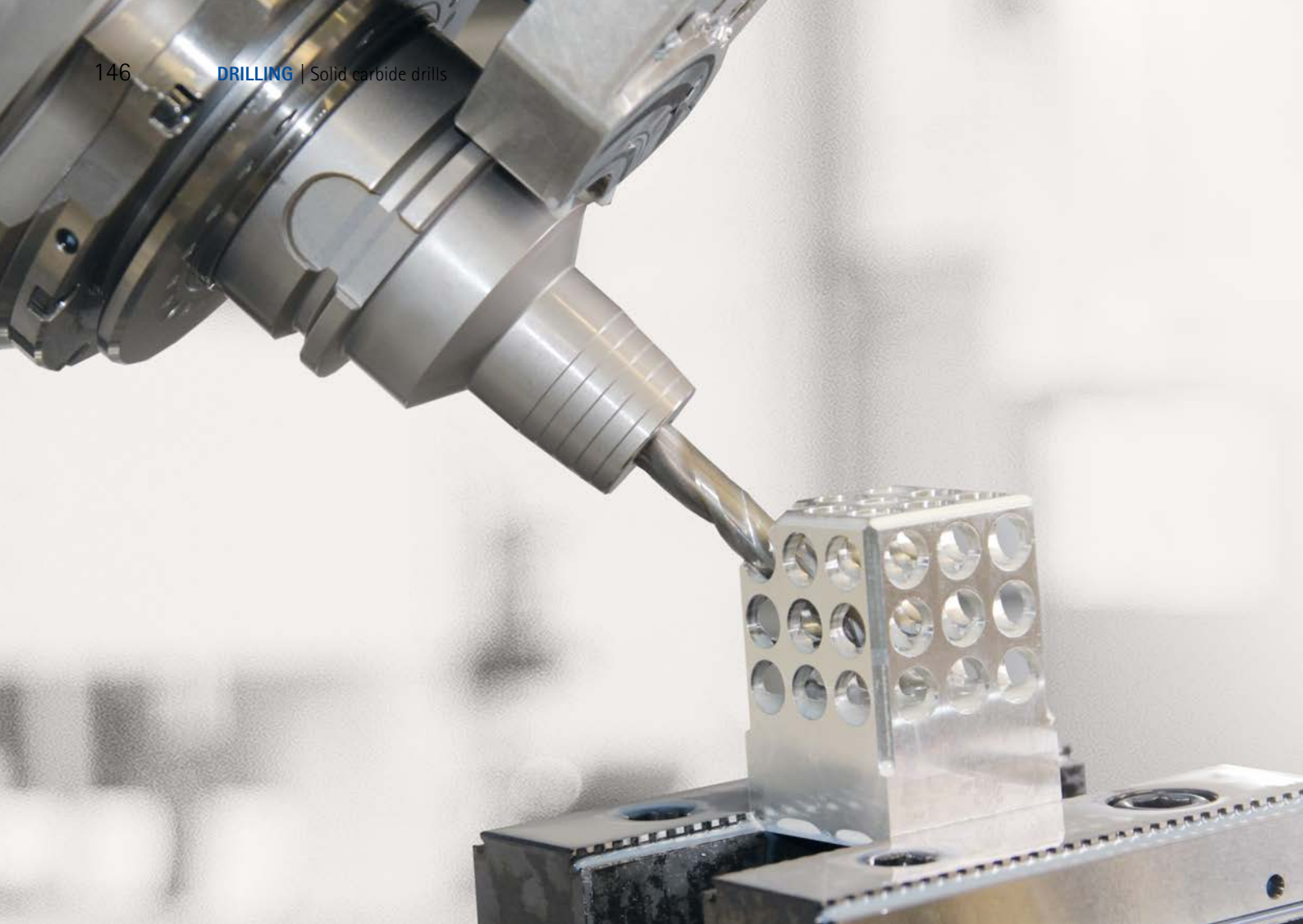
Introduction

Product description 146

Tritan-Drill-Uni

Tritan-Drill-Uni, 5xD - internal coolant supply 148

Tritan-Drill-Uni, 8xD - internal coolant supply 151



THREE CUTTING EDGES FOR OPTIMAL RESULTS

Highest performance and process reliability also in difficult boring situations

In demanding boring situations where other drills fail, the triple edge drill demonstrates its strength and masters the situation reliably. Examples are accurately positioned and deep bores up to 8xD, through bores or bores with inclined bore entrance and bore exit. Three positive cutting edges and a self-centring tip give the Tritan-Drill the highest possible performance and optimal positioning accuracy. The point thinning on the drill is very stable in the centre, but becomes increasingly positive with increasing distance from the centre with a transition to the chip flute that is almost continuous. The friction between chip and drill is significantly reduced as a result. The positive rake angle in conjunction with the sharp main cutting edges on the Tritan-Drill reduce

the cutting pressure and therefore the process temperature compared to conventional solid carbide drills.

Along with the standard designs of the Tritan-Drill, customer-specific special designs can be prepared at short notice. As such, other deep hole drills and drill reamers are available with the Tritan geometry. In addition, special designs of the Tritan-Drill, for example with special point thinning, edge preparation and coating can be individually adapted to the requirements of different workpiece materials. Along with the variants for machining steel and cast iron, drills for machining aluminium, titanium or austenitic steels are available at short notice.

AT A GLANCE

- For difficult bore machining operations
- Special triple edge geometry
- Highly suitable for inclined bore entrances
- Perfect for through-drilling or on entry into cross bores
- Innovative lead geometry for very good chip removal and low cutting pressure
- Significantly more performance, up to twice the feed rate

Tool features in detail



- 1 Special geometry**
 - Improved centring
- 2 High-performance coating**
 - Perfect chip removal
 - Extremely wear-resistant
- 3 Triple cutting edge geometry**
 - Highest feeds

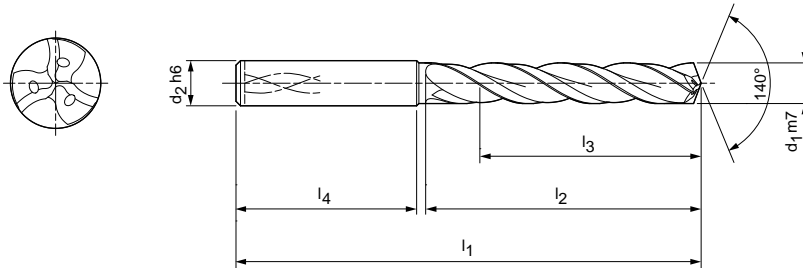
<p>Tritan-Drill-Uni</p> <p>The new standard with three cutting edges - drilling with up to twice the feed rate where other drills fail.</p> <p>Performance LINE</p> <p>Ø range: 5.00 - 20.00 mm</p> <p>Drilling depth:</p> <p>5xD 8xD</p> <p>P M K N</p>	<p>Special geometries and process solutions</p> <p>Customer-specific special geometries are available at short notice for the Tritan-Drill.</p> <p>Customer-specific requirements are met optimally by means of special point thinning, edge preparation and coatings matched to the workpiece material or step variants.</p>

Tritan-Drill-Uni

Solid carbide twist drill
SCD44 (5xD), internal coolant supply

Design:

Drill diameter:	5.00 - 20.00 mm
Bore tolerance:	≥ IT 9
Coating:	Chromium-based TiAl
Number of cutting edges:	3
Number of guiding chamfers:	3
Tip angle:	140 °
Helix angle:	30 °



Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,00	6	82	44	35	36	SCD441-0500-3-3-140HA05-HP619	30551907
5,10	6	82	44	35	36	SCD441-0510-3-3-140HA05-HP619	30551908
5,20	6	82	44	35	36	SCD441-0520-3-3-140HA05-HP619	30551909
5,30	6	82	44	35	36	SCD441-0530-3-3-140HA05-HP619	30551910
5,40	6	82	44	35	36	SCD441-0540-3-3-140HA05-HP619	30551911
5,50	6	82	44	35	36	SCD441-0550-3-3-140HA05-HP619	30551912
5,55	6	82	44	35	36	SCD441-0555-3-3-140HA05-HP619	30551913
5,60	6	82	44	35	36	SCD441-0560-3-3-140HA05-HP619	30551914
5,70	6	82	44	35	36	SCD441-0570-3-3-140HA05-HP619	30551915
5,80	6	82	44	35	36	SCD441-0580-3-3-140HA05-HP619	30551916
5,90	6	82	44	35	36	SCD441-0590-3-3-140HA05-HP619	30551917
6,00	6	82	44	35	36	SCD441-0600-3-3-140HA05-HP619	30551918
6,10	8	91	53	43	36	SCD441-0610-3-3-140HA05-HP619	30551919
6,20	8	91	53	43	36	SCD441-0620-3-3-140HA05-HP619	30551920
6,30	8	91	53	43	36	SCD441-0630-3-3-140HA05-HP619	30551921
6,40	8	91	53	43	36	SCD441-0640-3-3-140HA05-HP619	30551922
6,50	8	91	53	43	36	SCD441-0650-3-3-140HA05-HP619	30551923
6,60	8	91	53	43	36	SCD441-0660-3-3-140HA05-HP619	30551924
6,70	8	91	53	43	36	SCD441-0670-3-3-140HA05-HP619	30551925
6,80	8	91	53	43	36	SCD441-0680-3-3-140HA05-HP619	30551926
6,90	8	91	53	43	36	SCD441-0690-3-3-140HA05-HP619	30551927
7,00	8	91	53	43	36	SCD441-0700-3-3-140HA05-HP619	30551928
7,10	8	91	53	43	36	SCD441-0710-3-3-140HA05-HP619	30551930
7,20	8	91	53	43	36	SCD441-0720-3-3-140HA05-HP619	30551931
7,30	8	91	53	43	36	SCD441-0730-3-3-140HA05-HP619	30551932
7,40	8	91	53	43	36	SCD441-0740-3-3-140HA05-HP619	30551933
7,50	8	91	53	43	36	SCD441-0750-3-3-140HA05-HP619	30551934
7,60	8	91	53	43	36	SCD441-0760-3-3-140HA05-HP619	30551935
7,70	8	91	53	43	36	SCD441-0770-3-3-140HA05-HP619	30551936
7,80	8	91	53	43	36	SCD441-0780-3-3-140HA05-HP619	30551937
7,90	8	91	53	43	36	SCD441-0790-3-3-140HA05-HP619	30551938
8,00	8	91	53	43	36	SCD441-0800-3-3-140HA05-HP619	30551939
8,10	10	103	61	49	40	SCD441-0810-3-3-140HA05-HP619	30551940
8,20	10	103	61	49	40	SCD441-0820-3-3-140HA05-HP619	30551941
8,30	10	103	61	49	40	SCD441-0830-3-3-140HA05-HP619	30551942
8,40	10	103	61	49	40	SCD441-0840-3-3-140HA05-HP619	30551943

Tritan-Drill-Uni | Solid carbide twist drills SCD44 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
8,50	10	103	61	49	40	SCD441-0850-3-3-140HA05-HP619	30551944
8,60	10	103	61	49	40	SCD441-0860-3-3-140HA05-HP619	30551945
8,70	10	103	61	49	40	SCD441-0870-3-3-140HA05-HP619	30551946
8,80	10	103	61	49	40	SCD441-0880-3-3-140HA05-HP619	30551947
8,90	10	103	61	49	40	SCD441-0890-3-3-140HA05-HP619	30551948
9,00	10	103	61	49	40	SCD441-0900-3-3-140HA05-HP619	30551949
9,10	10	103	61	49	40	SCD441-0910-3-3-140HA05-HP619	30551950
9,20	10	103	61	49	40	SCD441-0920-3-3-140HA05-HP619	30551951
9,30	10	103	61	49	40	SCD441-0930-3-3-140HA05-HP619	30551952
9,40	10	103	61	49	40	SCD441-0940-3-3-140HA05-HP619	30551953
9,50	10	103	61	49	40	SCD441-0950-3-3-140HA05-HP619	30551954
9,60	10	103	61	49	40	SCD441-0960-3-3-140HA05-HP619	30551955
9,70	10	103	61	49	40	SCD441-0970-3-3-140HA05-HP619	30551956
9,80	10	103	61	49	40	SCD441-0980-3-3-140HA05-HP619	30551957
9,90	10	103	61	49	40	SCD441-0990-3-3-140HA05-HP619	30551958
10,00	10	103	61	49	40	SCD441-1000-3-3-140HA05-HP619	30551959
10,10	12	118	71	56	45	SCD441-1010-3-3-140HA05-HP619	30551960
10,20	12	118	71	56	45	SCD441-1020-3-3-140HA05-HP619	30551961
10,30	12	118	71	56	45	SCD441-1030-3-3-140HA05-HP619	30551962
10,40	12	118	71	56	45	SCD441-1040-3-3-140HA05-HP619	30551963
10,50	12	118	71	56	45	SCD441-1050-3-3-140HA05-HP619	30551964
10,60	12	118	71	56	45	SCD441-1060-3-3-140HA05-HP619	30551965
10,70	12	118	71	56	45	SCD441-1070-3-3-140HA05-HP619	30551966
10,80	12	118	71	56	45	SCD441-1080-3-3-140HA05-HP619	30551967
10,90	12	118	71	56	45	SCD441-1090-3-3-140HA05-HP619	30551968
11,00	12	118	71	56	45	SCD441-1100-3-3-140HA05-HP619	30551969
11,10	12	118	71	56	45	SCD441-1110-3-3-140HA05-HP619	30551970
11,20	12	118	71	56	45	SCD441-1120-3-3-140HA05-HP619	30551971
11,30	12	118	71	56	45	SCD441-1130-3-3-140HA05-HP619	30551972
11,40	12	118	71	56	45	SCD441-1140-3-3-140HA05-HP619	30551973
11,50	12	118	71	56	45	SCD441-1150-3-3-140HA05-HP619	30551974
11,60	12	118	71	56	45	SCD441-1160-3-3-140HA05-HP619	30551975
11,70	12	118	71	56	45	SCD441-1170-3-3-140HA05-HP619	30551976
11,80	12	118	71	56	45	SCD441-1180-3-3-140HA05-HP619	30551977
11,90	12	118	71	56	45	SCD441-1190-3-3-140HA05-HP619	30551978
12,00	12	118	71	56	45	SCD441-1200-3-3-140HA05-HP619	30551979
12,50	14	124	77	60	45	SCD441-1250-3-3-140HA05-HP619	30551980
12,80	14	124	77	60	45	SCD441-1280-3-3-140HA05-HP619	30551981
13,00	14	124	77	60	45	SCD441-1300-3-3-140HA05-HP619	30551982
13,50	14	124	77	60	45	SCD441-1350-3-3-140HA05-HP619	30551983
13,80	14	124	77	60	45	SCD441-1380-3-3-140HA05-HP619	30551984
14,00	14	124	77	60	45	SCD441-1400-3-3-140HA05-HP619	30551985
14,50	16	133	83	63	48	SCD441-1450-3-3-140HA05-HP619	30551986
14,80	16	133	83	63	48	SCD441-1480-3-3-140HA05-HP619	30551987
15,00	16	133	83	63	48	SCD441-1500-3-3-140HA05-HP619	30551988
15,50	16	133	83	63	48	SCD441-1550-3-3-140HA05-HP619	30551989
15,80	16	133	83	63	48	SCD441-1580-3-3-140HA05-HP619	30551990
16,00	16	133	83	63	48	SCD441-1600-3-3-140HA05-HP619	30551991
16,50	18	143	93	71	48	SCD441-1650-3-3-140HA05-HP619	30551992
16,80	18	143	93	71	48	SCD441-1680-3-3-140HA05-HP619	30551993
17,00	18	143	93	71	48	SCD441-1700-3-3-140HA05-HP619	30551994
17,50	18	143	93	71	48	SCD441-1750-3-3-140HA05-HP619	30551995
17,80	18	143	93	71	48	SCD441-1780-3-3-140HA05-HP619	30551996
18,00	18	143	93	71	48	SCD441-1800-3-3-140HA05-HP619	30551997
18,50	20	153	101	77	50	SCD441-1850-3-3-140HA05-HP619	30551998
18,80	20	153	101	77	50	SCD441-1880-3-3-140HA05-HP619	30551999
19,00	20	153	101	77	50	SCD441-1900-3-3-140HA05-HP619	30552000

Continued on next page.

Tritan-Drill-Uni | Solid carbide twist drills SCD44 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
19,50	20	153	101	77	50	SCD441-1950-3-3-140HA05-HP619	30552001
19,80	20	153	101	77	50	SCD441-1980-3-3-140HA05-HP619	30552002
20,00	20	153	101	77	50	SCD441-2000-3-3-140HA05-HP619	30552003

Dimensions in mm.

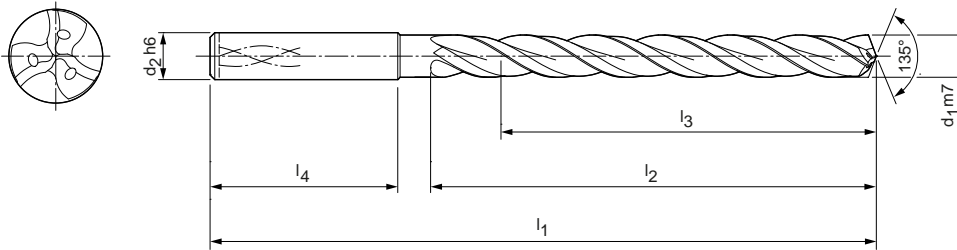
Cutting data recommendation from page 458.

Special designs and other coatings on request.

Tritan-Drill-Uni

Solid carbide twist drill
SCD44 (8xD), internal coolant supply

Design:
 Drill diameter: 5.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Chromium-based TiAl
 Number of cutting edges: 3
 Number of guiding chamfers: 3
 Tip angle: 135°
 Helix angle: 30°



Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,00	6	95	57	48	36	SCD441-0500-3-3-135HA08-HP619	30694559
5,10	6	95	57	48	36	SCD441-0510-3-3-135HA08-HP619	30694560
5,20	6	95	57	48	36	SCD441-0520-3-3-135HA08-HP619	30694561
5,30	6	95	57	48	36	SCD441-0530-3-3-135HA08-HP619	30694562
5,40	6	95	57	48	36	SCD441-0540-3-3-135HA08-HP619	30694563
5,50	6	95	57	48	36	SCD441-0550-3-3-135HA08-HP619	30694564
5,55	6	95	57	48	36	SCD441-0555-3-3-135HA08-HP619	30694565
5,60	6	95	57	48	36	SCD441-0560-3-3-135HA08-HP619	30694566
5,70	6	95	57	48	36	SCD441-0570-3-3-135HA08-HP619	30694567
5,80	6	95	57	48	36	SCD441-0580-3-3-135HA08-HP619	30694568
5,90	6	95	57	48	36	SCD441-0590-3-3-135HA08-HP619	30694569
6,00	6	95	57	48	36	SCD441-0600-3-3-135HA08-HP619	30694570
6,10	8	114	76	64	36	SCD441-0610-3-3-135HA08-HP619	30694571
6,20	8	114	76	64	36	SCD441-0620-3-3-135HA08-HP619	30694572
6,30	8	114	76	64	36	SCD441-0630-3-3-135HA08-HP619	30694573
6,40	8	114	76	64	36	SCD441-0640-3-3-135HA08-HP619	30694574
6,50	8	114	76	64	36	SCD441-0650-3-3-135HA08-HP619	30694575
6,60	8	114	76	64	36	SCD441-0660-3-3-135HA08-HP619	30694576
6,70	8	114	76	64	36	SCD441-0670-3-3-135HA08-HP619	30694577
6,80	8	114	76	64	36	SCD441-0680-3-3-135HA08-HP619	30694578
6,90	8	114	76	64	36	SCD441-0690-3-3-135HA08-HP619	30694579
7,00	8	114	76	64	36	SCD441-0700-3-3-135HA08-HP619	30694580
7,10	8	114	76	64	36	SCD441-0710-3-3-135HA08-HP619	30694581
7,20	8	114	76	64	36	SCD441-0720-3-3-135HA08-HP619	30694583
7,30	8	114	76	64	36	SCD441-0730-3-3-135HA08-HP619	30694584
7,40	8	114	76	64	36	SCD441-0740-3-3-135HA08-HP619	30694585
7,50	8	114	76	64	36	SCD441-0750-3-3-135HA08-HP619	30694586
7,60	8	114	76	64	36	SCD441-0760-3-3-135HA08-HP619	30694587
7,70	8	114	76	64	36	SCD441-0770-3-3-135HA08-HP619	30694588
7,80	8	114	76	64	36	SCD441-0780-3-3-135HA08-HP619	30694589
7,90	8	114	76	64	36	SCD441-0790-3-3-135HA08-HP619	30694590
8,00	8	114	76	64	36	SCD441-0800-3-3-135HA08-HP619	30694591
8,10	10	142	95	80	40	SCD441-0810-3-3-135HA08-HP619	30694592
8,20	10	142	95	80	40	SCD441-0820-3-3-135HA08-HP619	30694593
8,30	10	142	95	80	40	SCD441-0830-3-3-135HA08-HP619	30694594
8,40	10	142	95	80	40	SCD441-0840-3-3-135HA08-HP619	30694595

Tritan-Drill-Uni | Solid carbide twist drills SCD44 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
8,50	10	142	95	80	40	SCD441-0850-3-3-135HA08-HP619	30694596
8,60	10	142	95	80	40	SCD441-0860-3-3-135HA08-HP619	30694597
8,70	10	142	95	80	40	SCD441-0870-3-3-135HA08-HP619	30694598
8,80	10	142	95	80	40	SCD441-0880-3-3-135HA08-HP619	30694599
8,90	10	142	95	80	40	SCD441-0890-3-3-135HA08-HP619	30694600
9,00	10	142	95	80	40	SCD441-0900-3-3-135HA08-HP619	30694601
9,10	10	142	95	80	40	SCD441-0910-3-3-135HA08-HP619	30694602
9,20	10	142	95	80	40	SCD441-0920-3-3-135HA08-HP619	30694603
9,30	10	142	95	80	40	SCD441-0930-3-3-135HA08-HP619	30694604
9,40	10	142	95	80	40	SCD441-0940-3-3-135HA08-HP619	30694605
9,50	10	142	95	80	40	SCD441-0950-3-3-135HA08-HP619	30694606
9,60	10	142	95	80	40	SCD441-0960-3-3-135HA08-HP619	30694607
9,70	10	142	95	80	40	SCD441-0970-3-3-135HA08-HP619	30694608
9,80	10	142	95	80	40	SCD441-0980-3-3-135HA08-HP619	30694609
9,90	10	142	95	80	40	SCD441-0990-3-3-135HA08-HP619	30694610
10,00	10	142	95	80	40	SCD441-1000-3-3-135HA08-HP619	30694611
10,10	12	162	114	96	45	SCD441-1010-3-3-135HA08-HP619	30694612
10,20	12	162	114	96	45	SCD441-1020-3-3-135HA08-HP619	30694613
10,30	12	162	114	96	45	SCD441-1030-3-3-135HA08-HP619	30694614
10,40	12	162	114	96	45	SCD441-1040-3-3-135HA08-HP619	30694615
10,50	12	162	114	96	45	SCD441-1050-3-3-135HA08-HP619	30694616
10,60	12	162	114	96	45	SCD441-1060-3-3-135HA08-HP619	30694617
10,70	12	162	114	96	45	SCD441-1070-3-3-135HA08-HP619	30694618
10,80	12	162	114	96	45	SCD441-1080-3-3-135HA08-HP619	30694619
10,90	12	162	114	96	45	SCD441-1090-3-3-135HA08-HP619	30694620
11,00	12	162	114	96	45	SCD441-1100-3-3-135HA08-HP619	30694621
11,10	12	162	114	96	45	SCD441-1110-3-3-135HA08-HP619	30694622
11,20	12	162	114	96	45	SCD441-1120-3-3-135HA08-HP619	30694623
11,30	12	162	114	96	45	SCD441-1130-3-3-135HA08-HP619	30694624
11,40	12	162	114	96	45	SCD441-1140-3-3-135HA08-HP619	30694625
11,50	12	162	114	96	45	SCD441-1150-3-3-135HA08-HP619	30694626
11,60	12	162	114	96	45	SCD441-1160-3-3-135HA08-HP619	30694627
11,70	12	162	114	96	45	SCD441-1170-3-3-135HA08-HP619	30694628
11,80	12	162	114	96	45	SCD441-1180-3-3-135HA08-HP619	30694629
11,90	12	162	114	96	45	SCD441-1190-3-3-135HA08-HP619	30694630
12,00	12	162	114	96	45	SCD441-1200-3-3-135HA08-HP619	30694631
12,50	14	178	133	112	45	SCD441-1250-3-3-135HA08-HP619	30694632
12,80	14	178	133	112	45	SCD441-1280-3-3-135HA08-HP619	30694633
13,00	14	178	133	112	45	SCD441-1300-3-3-135HA08-HP619	30694634
13,50	14	178	133	112	45	SCD441-1350-3-3-135HA08-HP619	30694635
13,80	14	178	133	112	45	SCD441-1380-3-3-135HA08-HP619	30694636
14,00	14	178	133	112	45	SCD441-1400-3-3-135HA08-HP619	30694637
14,50	16	203	152	128	48	SCD441-1450-3-3-135HA08-HP619	30694638
14,80	16	203	152	128	48	SCD441-1480-3-3-135HA08-HP619	30694639
15,00	16	203	152	128	48	SCD441-1500-3-3-135HA08-HP619	30694640
15,50	16	203	152	128	48	SCD441-1550-3-3-135HA08-HP619	30694641
15,80	16	203	152	128	48	SCD441-1580-3-3-135HA08-HP619	30694642
16,00	16	203	152	128	48	SCD441-1600-3-3-135HA08-HP619	30694643
16,50	18	222	171	144	48	SCD441-1650-3-3-135HA08-HP619	30694644
16,80	18	222	171	144	48	SCD441-1680-3-3-135HA08-HP619	30694645
17,00	18	222	171	144	48	SCD441-1700-3-3-135HA08-HP619	30694646
17,50	18	222	171	144	48	SCD441-1750-3-3-135HA08-HP619	30694647
17,80	18	222	171	144	48	SCD441-1780-3-3-135HA08-HP619	30694648
18,00	18	222	171	144	48	SCD441-1800-3-3-135HA08-HP619	30694649
18,50	20	243	190	160	50	SCD441-1850-3-3-135HA08-HP619	30694650
18,80	20	243	190	160	50	SCD441-1880-3-3-135HA08-HP619	30694651
19,00	20	243	190	160	50	SCD441-1900-3-3-135HA08-HP619	30694652

Tritan-Drill-Uni | Solid carbide twist drills SCD44 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
19,50	20	243	190	160	50	SCD441-1950-3-3-135HA08-HP619	30694653
19,80	20	243	190	160	50	SCD441-1980-3-3-135HA08-HP619	30694654
20,00	20	243	190	160	50	SCD441-2000-3-3-135HA08-HP619	30694655

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.



MEGA-QUADRO-DRILL

The drills in the MEGA-Quadro-Drill series are equipped with two cutting edges and two additional guiding chamfers. The total of four guiding chamfers ensures maximum bore quality in relation to accuracy of alignment, concentricity and positioning accuracy. Drills in the Quadro-Drill series also impress in relation to circularity and diameter tolerance.

MEGA-Quadro-Drill

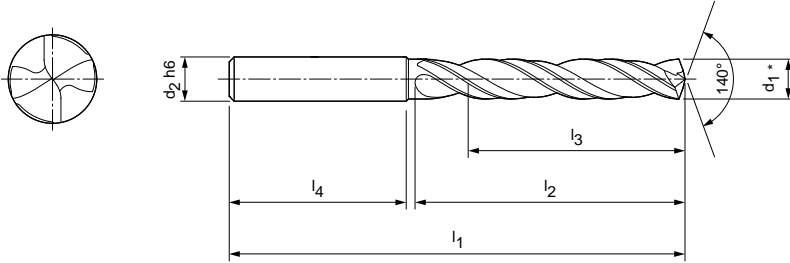
MEGA-Quadro-Drill, 5xD - external coolant supply	156
MEGA-Quadro-Drill, 5xD - internal coolant supply	159
MEGA-Quadro-Drill, 8xD - internal coolant supply	162
MEGA-Quadro-Drill, 12xD - internal coolant supply	165



MEGA-Quadro-Drill

Solid carbide twist drill
SCD16 (5xD), external coolant supply

Design:
 Drill diameter: 3.00 - 16.00 mm
 Bore tolerance: $\geq IT 8$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Side rake angle: 30°



Dimensions						Shank form HA	
d ₁	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	66	28	23	36	SCD160-0300-2-4-140HA05-HP835	30391767
3,10	6	66	28	23	36	SCD160-0310-2-4-140HA05-HP835	30391768
3,20	6	66	28	23	36	SCD160-0320-2-4-140HA05-HP835	30391769
3,30	6	66	28	23	36	SCD160-0330-2-4-140HA05-HP835	30391770
3,40	6	66	28	23	36	SCD160-0340-2-4-140HA05-HP835	30391771
3,50	6	66	28	23	36	SCD160-0350-2-4-140HA05-HP835	30391772
3,60	6	66	28	23	36	SCD160-0360-2-4-140HA05-HP835	30391773
3,70	6	66	28	23	36	SCD160-0370-2-4-140HA05-HP835	30391774
3,80	6	74	36	29	36	SCD160-0380-2-4-140HA05-HP835	30391775
3,90	6	74	36	29	36	SCD160-0390-2-4-140HA05-HP835	30391776
4,00	6	74	36	29	36	SCD160-0400-2-4-140HA05-HP835	30391777
4,10	6	74	36	29	36	SCD160-0410-2-4-140HA05-HP835	30391778
4,20	6	74	36	29	36	SCD160-0420-2-4-140HA05-HP835	30391779
4,30	6	74	36	29	36	SCD160-0430-2-4-140HA05-HP835	30391780
4,40	6	74	36	29	36	SCD160-0440-2-4-140HA05-HP835	30391781
4,50	6	74	36	29	36	SCD160-0450-2-4-140HA05-HP835	30391782
4,60	6	74	36	29	36	SCD160-0460-2-4-140HA05-HP835	30391783
4,70	6	74	36	29	36	SCD160-0470-2-4-140HA05-HP835	30391784
4,80	6	82	44	35	36	SCD160-0480-2-4-140HA05-HP835	30391785
4,90	6	82	44	35	36	SCD160-0490-2-4-140HA05-HP835	30391786
5,00	6	82	44	35	36	SCD160-0500-2-4-140HA05-HP835	30391787
5,10	6	82	44	35	36	SCD160-0510-2-4-140HA05-HP835	30391788
5,20	6	82	44	35	36	SCD160-0520-2-4-140HA05-HP835	30391789
5,30	6	82	44	35	36	SCD160-0530-2-4-140HA05-HP835	30391790
5,40	6	82	44	35	36	SCD160-0540-2-4-140HA05-HP835	30391791
5,50	6	82	44	35	36	SCD160-0550-2-4-140HA05-HP835	30391792
5,60	6	82	44	35	36	SCD160-0560-2-4-140HA05-HP835	30391793
5,70	6	82	44	35	36	SCD160-0570-2-4-140HA05-HP835	30391794
5,80	6	82	44	35	36	SCD160-0580-2-4-140HA05-HP835	30391795
5,90	6	82	44	35	36	SCD160-0590-2-4-140HA05-HP835	30391796
6,00	6	82	44	35	36	SCD160-0600-2-4-140HA05-HP835	30391797
6,10	8	91	53	43	36	SCD160-0610-2-4-140HA05-HP835	30391798
6,20	8	91	53	43	36	SCD160-0620-2-4-140HA05-HP835	30391799
6,30	8	91	53	43	36	SCD160-0630-2-4-140HA05-HP835	30391800
6,40	8	91	53	43	36	SCD160-0640-2-4-140HA05-HP835	30391801
6,50	8	91	53	43	36	SCD160-0650-2-4-140HA05-HP835	30391802

MEGA-Quadro-Drill | Solid carbide twist drills SCD16 (5xD), external coolant supply

Dimensions						Shank form HA	
d ₁	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,60	8	91	53	43	36	SCD160-0660-2-4-140HA05-HP835	30391803
6,70	8	91	53	43	36	SCD160-0670-2-4-140HA05-HP835	30391804
6,80	8	91	53	43	36	SCD160-0680-2-4-140HA05-HP835	30391805
6,90	8	91	53	43	36	SCD160-0690-2-4-140HA05-HP835	30391806
7,00	8	91	53	43	36	SCD160-0700-2-4-140HA05-HP835	30391807
7,10	8	91	53	43	36	SCD160-0710-2-4-140HA05-HP835	30391808
7,20	8	91	53	43	36	SCD160-0720-2-4-140HA05-HP835	30391809
7,30	8	91	53	43	36	SCD160-0730-2-4-140HA05-HP835	30391810
7,40	8	91	53	43	36	SCD160-0740-2-4-140HA05-HP835	30391811
7,50	8	91	53	43	36	SCD160-0750-2-4-140HA05-HP835	30391812
7,60	8	91	53	43	36	SCD160-0760-2-4-140HA05-HP835	30391813
7,70	8	91	53	43	36	SCD160-0770-2-4-140HA05-HP835	30391814
7,80	8	91	53	43	36	SCD160-0780-2-4-140HA05-HP835	30391815
7,90	8	91	53	43	36	SCD160-0790-2-4-140HA05-HP835	30391816
8,00	8	91	53	43	36	SCD160-0800-2-4-140HA05-HP835	30391817
8,10	10	103	61	49	40	SCD160-0810-2-4-140HA05-HP835	30391818
8,20	10	103	61	49	40	SCD160-0820-2-4-140HA05-HP835	30391819
8,30	10	103	61	49	40	SCD160-0830-2-4-140HA05-HP835	30391820
8,40	10	103	61	49	40	SCD160-0840-2-4-140HA05-HP835	30391821
8,50	10	103	61	49	40	SCD160-0850-2-4-140HA05-HP835	30391822
8,60	10	103	61	49	40	SCD160-0860-2-4-140HA05-HP835	30391823
8,70	10	103	61	49	40	SCD160-0870-2-4-140HA05-HP835	30391824
8,80	10	103	61	49	40	SCD160-0880-2-4-140HA05-HP835	30391825
8,90	10	103	61	49	40	SCD160-0890-2-4-140HA05-HP835	30391826
9,00	10	103	61	49	40	SCD160-0900-2-4-140HA05-HP835	30391827
9,10	10	103	61	49	40	SCD160-0910-2-4-140HA05-HP835	30391828
9,20	10	103	61	49	40	SCD160-0920-2-4-140HA05-HP835	30391829
9,30	10	103	61	49	40	SCD160-0930-2-4-140HA05-HP835	30391830
9,40	10	103	61	49	40	SCD160-0940-2-4-140HA05-HP835	30391831
9,50	10	103	61	49	40	SCD160-0950-2-4-140HA05-HP835	30391832
9,60	10	103	61	49	40	SCD160-0960-2-4-140HA05-HP835	30391833
9,70	10	103	61	49	40	SCD160-0970-2-4-140HA05-HP835	30391834
9,80	10	103	61	49	40	SCD160-0980-2-4-140HA05-HP835	30391835
9,90	10	103	61	49	40	SCD160-0990-2-4-140HA05-HP835	30391836
10,00	10	103	61	49	40	SCD160-1000-2-4-140HA05-HP835	30391837
10,10	12	118	71	56	45	SCD160-1010-2-4-140HA05-HP835	30391838
10,20	12	118	71	56	45	SCD160-1020-2-4-140HA05-HP835	30391839
10,30	12	118	71	56	45	SCD160-1030-2-4-140HA05-HP835	30391840
10,40	12	118	71	56	45	SCD160-1040-2-4-140HA05-HP835	30391841
10,50	12	118	71	56	45	SCD160-1050-2-4-140HA05-HP835	30391842
10,60	12	118	71	56	45	SCD160-1060-2-4-140HA05-HP835	30391843
10,70	12	118	71	56	45	SCD160-1070-2-4-140HA05-HP835	30391844
10,80	12	118	71	56	45	SCD160-1080-2-4-140HA05-HP835	30391845
10,90	12	118	71	56	45	SCD160-1090-2-4-140HA05-HP835	30391846
11,00	12	118	71	56	45	SCD160-1100-2-4-140HA05-HP835	30391847
11,10	12	118	71	56	45	SCD160-1110-2-4-140HA05-HP835	30391848
11,20	12	118	71	56	45	SCD160-1120-2-4-140HA05-HP835	30391849
11,30	12	118	71	56	45	SCD160-1130-2-4-140HA05-HP835	30391850
11,40	12	118	71	56	45	SCD160-1140-2-4-140HA05-HP835	30391851
11,50	12	118	71	56	45	SCD160-1150-2-4-140HA05-HP835	30391852
11,60	12	118	71	56	45	SCD160-1160-2-4-140HA05-HP835	30391853
11,70	12	118	71	56	45	SCD160-1170-2-4-140HA05-HP835	30391854
11,80	12	118	71	56	45	SCD160-1180-2-4-140HA05-HP835	30391855
11,90	12	118	71	56	45	SCD160-1190-2-4-140HA05-HP835	30391856
12,00	12	118	71	56	45	SCD160-1200-2-4-140HA05-HP835	30391857
12,50	14	124	77	60	45	SCD160-1250-2-4-140HA05-HP835	30391858
12,80	14	124	77	60	45	SCD160-1280-2-4-140HA05-HP835	30391859

Continued on next page.

MEGA-Quadro-Drill | Solid carbide twist drills SCD16 (5xD), external coolant supply

Dimensions						Shank form HA	
d ₁	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
13,00	14	124	77	60	45	SCD160-1300-2-4-140HA05-HP835	30391860
13,50	14	124	77	60	45	SCD160-1350-2-4-140HA05-HP835	30391861
13,80	14	124	77	60	45	SCD160-1380-2-4-140HA05-HP835	30391863
14,00	14	124	77	60	45	SCD160-1400-2-4-140HA05-HP835	30391864
14,50	16	133	83	63	48	SCD160-1450-2-4-140HA05-HP835	30391865
14,80	16	133	83	63	48	SCD160-1480-2-4-140HA05-HP835	30391866
15,00	16	133	83	63	48	SCD160-1500-2-4-140HA05-HP835	30391867
15,50	16	133	83	63	48	SCD160-1550-2-4-140HA05-HP835	30391868
15,80	16	133	83	63	48	SCD160-1580-2-4-140HA05-HP835	30391869
16,00	16	133	83	63	48	SCD160-1600-2-4-140HA05-HP835	30391870

Dimensions in mm.

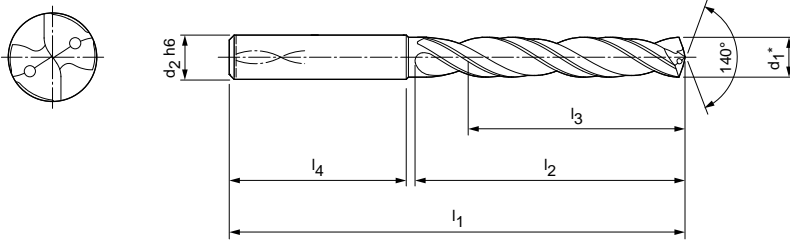
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Quadro-Drill

Solid carbide twist drill
SCD16 (5xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 8$
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Helix angle: 30°



Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00		6	66	28	23	36	SCD161-0300-2-4-140HA05-HP835	30391871
3,10		6	66	28	23	36	SCD161-0310-2-4-140HA05-HP835	30391872
3,18	1/8	6	66	28	23	36	SCD161-0318-2-4-140HA05-HP835	30450912
3,20		6	66	28	23	36	SCD161-0320-2-4-140HA05-HP835	30391873
3,30		6	66	28	23	36	SCD161-0330-2-4-140HA05-HP835	30391874
3,40		6	66	28	23	36	SCD161-0340-2-4-140HA05-HP835	30391875
3,50		6	66	28	23	36	SCD161-0350-2-4-140HA05-HP835	30391876
3,57	9/64	6	66	28	23	36	SCD161-0357-2-4-140HA05-HP835	30450914
3,60		6	66	28	23	36	SCD161-0360-2-4-140HA05-HP835	30391877
3,70		6	66	28	23	36	SCD161-0370-2-4-140HA05-HP835	30391878
3,80		6	74	36	29	36	SCD161-0380-2-4-140HA05-HP835	30391879
3,90		6	74	36	29	36	SCD161-0390-2-4-140HA05-HP835	30391880
3,97	5/32	6	74	36	29	36	SCD161-0397-2-4-140HA05-HP835	30450916
4,00		6	74	36	29	36	SCD161-0400-2-4-140HA05-HP835	30391881
4,10		6	74	36	29	36	SCD161-0410-2-4-140HA05-HP835	30391882
4,20		6	74	36	29	36	SCD161-0420-2-4-140HA05-HP835	30391883
4,30		6	74	36	29	36	SCD161-0430-2-4-140HA05-HP835	30391884
4,37	11/64	6	74	36	29	36	SCD161-0437-2-4-140HA05-HP835	30445543
4,40		6	74	36	29	36	SCD161-0440-2-4-140HA05-HP835	30391885
4,50		6	74	36	29	36	SCD161-0450-2-4-140HA05-HP835	30391886
4,60		6	74	36	29	36	SCD161-0460-2-4-140HA05-HP835	30391887
4,70		6	74	36	29	36	SCD161-0470-2-4-140HA05-HP835	30391888
4,76	3/16	6	82	44	35	36	SCD161-0476-2-4-140HA05-HP835	30450919
4,80		6	82	44	35	36	SCD161-0480-2-4-140HA05-HP835	30391889
4,90		6	82	44	35	36	SCD161-0490-2-4-140HA05-HP835	30391890
5,00		6	82	44	35	36	SCD161-0500-2-4-140HA05-HP835	30391891
5,10		6	82	44	35	36	SCD161-0510-2-4-140HA05-HP835	30391892
5,16	13/64	6	82	44	35	36	SCD161-0516-2-4-140HA05-HP835	30450920
5,20		6	82	44	35	36	SCD161-0520-2-4-140HA05-HP835	30391893
5,30		6	82	44	35	36	SCD161-0530-2-4-140HA05-HP835	30391894
5,40		6	82	44	35	36	SCD161-0540-2-4-140HA05-HP835	30391895
5,50		6	82	44	35	36	SCD161-0550-2-4-140HA05-HP835	30391896
5,56	7/32	6	82	44	35	36	SCD161-0556-2-4-140HA05-HP835	30450921
5,60		6	82	44	35	36	SCD161-0560-2-4-140HA05-HP835	30391897
5,70		6	82	44	35	36	SCD161-0570-2-4-140HA05-HP835	30391898
5,80		6	82	44	35	36	SCD161-0580-2-4-140HA05-HP835	30391899

MEGA-Quadro-Drill | Solid carbide twist drills SCD16 (5xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,90		6	82	44	35	36	SCD161-0590-2-4-140HA05-HP835	30391900
5,95	15/64	6	82	44	35	36	SCD161-0595-2-4-140HA05-HP835	30450922
6,00		6	82	44	35	36	SCD161-0600-2-4-140HA05-HP835	30391901
6,10		8	91	53	43	36	SCD161-0610-2-4-140HA05-HP835	30391902
6,20		8	91	53	43	36	SCD161-0620-2-4-140HA05-HP835	30391903
6,30		8	91	53	43	36	SCD161-0630-2-4-140HA05-HP835	30391904
6,35	1/4	8	91	53	43	36	SCD161-0635-2-4-140HA05-HP835	30445021
6,40		8	91	53	43	36	SCD161-0640-2-4-140HA05-HP835	30391905
6,50		8	91	53	43	36	SCD161-0650-2-4-140HA05-HP835	30391906
6,60		8	91	53	43	36	SCD161-0660-2-4-140HA05-HP835	30391907
6,70		8	91	53	43	36	SCD161-0670-2-4-140HA05-HP835	30391908
6,75	17/64	8	91	53	43	36	SCD161-0675-2-4-140HA05-HP835	30450924
6,80		8	91	53	43	36	SCD161-0680-2-4-140HA05-HP835	30391909
6,90		8	91	53	43	36	SCD161-0690-2-4-140HA05-HP835	30391910
7,00		8	91	53	43	36	SCD161-0700-2-4-140HA05-HP835	30391911
7,10		8	91	53	43	36	SCD161-0710-2-4-140HA05-HP835	30391912
7,14	9/32	8	91	53	43	36	SCD161-0714-2-4-140HA05-HP835	30450925
7,20		8	91	53	43	36	SCD161-0720-2-4-140HA05-HP835	30391913
7,30		8	91	53	43	36	SCD161-0730-2-4-140HA05-HP835	30391914
7,40		8	91	53	43	36	SCD161-0740-2-4-140HA05-HP835	30391915
7,50		8	91	53	43	36	SCD161-0750-2-4-140HA05-HP835	30391916
7,54	19/64	8	91	53	43	36	SCD161-0754-2-4-140HA05-HP835	30450926
7,60		8	91	53	43	36	SCD161-0760-2-4-140HA05-HP835	30391917
7,70		8	91	53	43	36	SCD161-0770-2-4-140HA05-HP835	30391918
7,80		8	91	53	43	36	SCD161-0780-2-4-140HA05-HP835	30391919
7,90		8	91	53	43	36	SCD161-0790-2-4-140HA05-HP835	30391920
7,94	5/16	8	91	53	43	36	SCD161-0794-2-4-140HA05-HP835	30445759
8,00		8	91	53	43	36	SCD161-0800-2-4-140HA05-HP835	30391921
8,10		10	103	61	49	40	SCD161-0810-2-4-140HA05-HP835	30391922
8,20		10	103	61	49	40	SCD161-0820-2-4-140HA05-HP835	30391923
8,30		10	103	61	49	40	SCD161-0830-2-4-140HA05-HP835	30391924
8,33	21/64	10	103	61	49	40	SCD161-0833-2-4-140HA05-HP835	30450927
8,40		10	103	61	49	40	SCD161-0840-2-4-140HA05-HP835	30391925
8,50		10	103	61	49	40	SCD161-0850-2-4-140HA05-HP835	30391926
8,60		10	103	61	49	40	SCD161-0860-2-4-140HA05-HP835	30391927
8,70		10	103	61	49	40	SCD161-0870-2-4-140HA05-HP835	30391928
8,73	11/32	10	103	61	49	40	SCD161-0873-2-4-140HA05-HP835	30450929
8,80		10	103	61	49	40	SCD161-0880-2-4-140HA05-HP835	30391929
8,90		10	103	61	49	40	SCD161-0890-2-4-140HA05-HP835	30391930
9,00		10	103	61	49	40	SCD161-0900-2-4-140HA05-HP835	30391931
9,10		10	103	61	49	40	SCD161-0910-2-4-140HA05-HP835	30391932
9,13	23/64	10	103	61	49	40	SCD161-0913-2-4-140HA05-HP835	30450930
9,20		10	103	61	49	40	SCD161-0920-2-4-140HA05-HP835	30391933
9,30		10	103	61	49	40	SCD161-0930-2-4-140HA05-HP835	30391934
9,40		10	103	61	49	40	SCD161-0940-2-4-140HA05-HP835	30391935
9,50		10	103	61	49	40	SCD161-0950-2-4-140HA05-HP835	30391936
9,53	3/8	10	103	61	49	40	SCD161-0953-2-4-140HA05-HP835	30450932
9,60		10	103	61	49	40	SCD161-0960-2-4-140HA05-HP835	30391937
9,70		10	103	61	49	40	SCD161-0970-2-4-140HA05-HP835	30391938
9,80		10	103	61	49	40	SCD161-0980-2-4-140HA05-HP835	30391939
9,90		10	103	61	49	40	SCD161-0990-2-4-140HA05-HP835	30391940
9,92	25/64	10	103	61	49	40	SCD161-0992-2-4-140HA05-HP835	30450933
10,00		10	103	61	49	40	SCD161-1000-2-4-140HA05-HP835	30391941
10,10		12	118	71	56	45	SCD161-1010-2-4-140HA05-HP835	30391942
10,20		12	118	71	56	45	SCD161-1020-2-4-140HA05-HP835	30391943
10,30		12	118	71	56	45	SCD161-1030-2-4-140HA05-HP835	30391944
10,32	13/32	12	118	71	56	45	SCD161-1032-2-4-140HA05-HP835	30450935

MEGA-Quadro-Drill | Solid carbide twist drills SCD16 (5xD), internal coolant supply

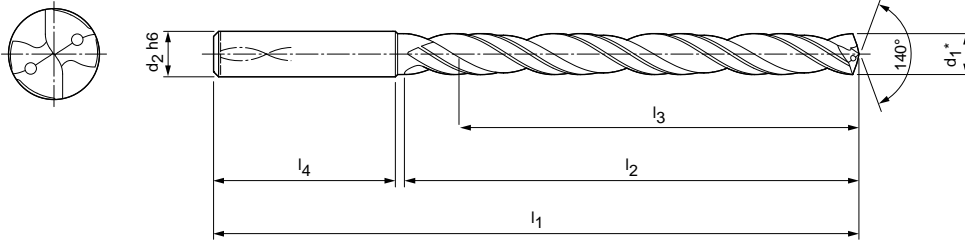
Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,40		12	118	71	56	45	SCD161-1040-2-4-140HA05-HP835	30391945
10,50		12	118	71	56	45	SCD161-1050-2-4-140HA05-HP835	30391946
10,60		12	118	71	56	45	SCD161-1060-2-4-140HA05-HP835	30391947
10,70		12	118	71	56	45	SCD161-1070-2-4-140HA05-HP835	30391948
10,72	27/64	12	118	71	56	45	SCD161-1072-2-4-140HA05-HP835	30450936
10,80		12	118	71	56	45	SCD161-1080-2-4-140HA05-HP835	30391949
10,90		12	118	71	56	45	SCD161-1090-2-4-140HA05-HP835	30391950
11,00		12	118	71	56	45	SCD161-1100-2-4-140HA05-HP835	30391951
11,10		12	118	71	56	45	SCD161-1110-2-4-140HA05-HP835	30391952
11,11	7/16	12	118	71	56	45	SCD161-1111-2-4-140HA05-HP835	30450937
11,20		12	118	71	56	45	SCD161-1120-2-4-140HA05-HP835	30391953
11,30		12	118	71	56	45	SCD161-1130-2-4-140HA05-HP835	30391954
11,40		12	118	71	56	45	SCD161-1140-2-4-140HA05-HP835	30391955
11,50		12	118	71	56	45	SCD161-1150-2-4-140HA05-HP835	30391956
11,60		12	118	71	56	45	SCD161-1160-2-4-140HA05-HP835	30391957
11,70		12	118	71	56	45	SCD161-1170-2-4-140HA05-HP835	30391958
11,80		12	118	71	56	45	SCD161-1180-2-4-140HA05-HP835	30391959
11,90		12	118	71	56	45	SCD161-1190-2-4-140HA05-HP835	30391960
12,00		12	118	71	56	45	SCD161-1200-2-4-140HA05-HP835	30391961
12,50		14	124	77	60	45	SCD161-1250-2-4-140HA05-HP835	30391962
12,80		14	124	77	60	45	SCD161-1280-2-4-140HA05-HP835	30391963
13,00		14	124	77	60	45	SCD161-1300-2-4-140HA05-HP835	30391964
13,50		14	124	77	60	45	SCD161-1350-2-4-140HA05-HP835	30391965
14,00		14	124	77	60	45	SCD161-1400-2-4-140HA05-HP835	30391966
14,29	9/16	16	133	83	63	48	SCD161-1429-2-4-140HA05-HP835	30450940
14,50		16	133	83	63	48	SCD161-1450-2-4-140HA05-HP835	30391967
14,68	37/64	16	133	83	63	48	SCD161-1468-2-4-140HA05-HP835	30450941
14,80		16	133	83	63	48	SCD161-1480-2-4-140HA05-HP835	30391968
15,00		16	133	83	63	48	SCD161-1500-2-4-140HA05-HP835	30391969
15,08	19/32	16	133	83	63	48	SCD161-1508-2-4-140HA05-HP835	30450942
15,50		16	133	83	63	48	SCD161-1550-2-4-140HA05-HP835	30391970
15,80		16	133	83	63	48	SCD161-1580-2-4-140HA05-HP835	30391971
15,88	5/8	16	133	83	63	48	SCD161-1588-2-4-140HA05-HP835	30450943
16,00		16	133	83	63	48	SCD161-1600-2-4-140HA05-HP835	30391972
16,50		18	143	93	71	48	SCD161-1650-2-4-140HA05-HP835	30391973
16,67	21/32	18	143	93	71	48	SCD161-1667-2-4-140HA05-HP835	30450944
16,80		18	143	93	71	48	SCD161-1680-2-4-140HA05-HP835	30391974
17,00		18	143	93	71	48	SCD161-1700-2-4-140HA05-HP835	30391975
17,46	11/16	18	143	93	71	48	SCD161-1746-2-4-140HA05-HP835	30450945
17,50		18	143	93	71	48	SCD161-1750-2-4-140HA05-HP835	30391976
17,86	45/64	18	143	93	71	48	SCD161-1786-2-4-140HA05-HP835	30450946
18,00		18	143	93	71	48	SCD161-1800-2-4-140HA05-HP835	30391977
18,26	23/32	20	153	101	77	50	SCD161-1826-2-4-140HA05-HP835	30450947
18,50		20	153	101	77	50	SCD161-1850-2-4-140HA05-HP835	30391978
18,80		20	153	101	77	50	SCD161-1880-2-4-140HA05-HP835	30391979
19,00		20	153	101	77	50	SCD161-1900-2-4-140HA05-HP835	30391980
19,05	3/4	20	153	101	77	50	SCD161-1905-2-4-140HA05-HP835	30450948
19,50		20	153	101	77	50	SCD161-1950-2-4-140HA05-HP835	30391981
19,80		20	153	101	77	50	SCD161-1980-2-4-140HA05-HP835	30391982
20,00		20	153	101	77	50	SCD161-2000-2-4-140HA05-HP835	30391983

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Quadro-Drill

Solid carbide twist drill
SCD16 (8xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 8
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 140°
 Helix angle: 30°



Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00		6	72	34	29	36	SCD161-0300-2-4-140HA08-HP835	30391984
3,10		6	72	34	29	36	SCD161-0310-2-4-140HA08-HP835	30391985
3,18	1/8	6	72	34	29	36	SCD161-0318-2-4-140HA08-HP835	30450949
3,20		6	72	34	29	36	SCD161-0320-2-4-140HA08-HP835	30391986
3,30		6	72	34	29	36	SCD161-0330-2-4-140HA08-HP835	30391987
3,40		6	72	34	29	36	SCD161-0340-2-4-140HA08-HP835	30391988
3,50		6	72	34	29	36	SCD161-0350-2-4-140HA08-HP835	30391989
3,57	9/64	6	72	34	29	36	SCD161-0357-2-4-140HA08-HP835	30450951
3,60		6	72	34	29	36	SCD161-0360-2-4-140HA08-HP835	30391990
3,70		6	72	34	29	36	SCD161-0370-2-4-140HA08-HP835	30391991
3,80		6	81	43	36	36	SCD161-0380-2-4-140HA08-HP835	30391992
3,90		6	81	43	36	36	SCD161-0390-2-4-140HA08-HP835	30391993
3,97	5/32	6	81	43	36	36	SCD161-0397-2-4-140HA08-HP835	30450953
4,00		6	81	43	36	36	SCD161-0400-2-4-140HA08-HP835	30391994
4,10		6	81	43	36	36	SCD161-0410-2-4-140HA08-HP835	30391995
4,20		6	81	43	36	36	SCD161-0420-2-4-140HA08-HP835	30391996
4,30		6	81	43	36	36	SCD161-0430-2-4-140HA08-HP835	30391997
4,37	11/64	6	81	43	36	36	SCD161-0437-2-4-140HA08-HP835	30450955
4,40		6	81	43	36	36	SCD161-0440-2-4-140HA08-HP835	30391998
4,50		6	81	43	36	36	SCD161-0450-2-4-140HA08-HP835	30391999
4,60		6	81	43	36	36	SCD161-0460-2-4-140HA08-HP835	30392000
4,70		6	81	43	36	36	SCD161-0470-2-4-140HA08-HP835	30392001
4,76	3/16	6	95	57	48	36	SCD161-0476-2-4-140HA08-HP835	30450957
4,80		6	95	57	48	36	SCD161-0480-2-4-140HA08-HP835	30392002
4,90		6	95	57	48	36	SCD161-0490-2-4-140HA08-HP835	30392003
5,00		6	95	57	48	36	SCD161-0500-2-4-140HA08-HP835	30392004
5,10		6	95	57	48	36	SCD161-0510-2-4-140HA08-HP835	30392005
5,16	13/64	6	95	57	48	36	SCD161-0516-2-4-140HA08-HP835	30450958
5,20		6	95	57	48	36	SCD161-0520-2-4-140HA08-HP835	30392006
5,30		6	95	57	48	36	SCD161-0530-2-4-140HA08-HP835	30392007
5,40		6	95	57	48	36	SCD161-0540-2-4-140HA08-HP835	30392008
5,50		6	95	57	48	36	SCD161-0550-2-4-140HA08-HP835	30392009
5,56	7/32	6	95	57	48	36	SCD161-0556-2-4-140HA08-HP835	30450959
5,60		6	95	57	48	36	SCD161-0560-2-4-140HA08-HP835	30392010
5,70		6	95	57	48	36	SCD161-0570-2-4-140HA08-HP835	30392011
5,80		6	95	57	48	36	SCD161-0580-2-4-140HA08-HP835	30392012

MEGA-Quadro-Drill | Solid carbide twist drills SCD16 (8xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,90		6	95	57	48	36	SCD161-0590-2-4-140HA08-HP835	30392013
5,95	15/64	6	95	57	48	36	SCD161-0595-2-4-140HA08-HP835	30450960
6,00		6	95	57	48	36	SCD161-0600-2-4-140HA08-HP835	30392014
6,10		8	114	76	64	36	SCD161-0610-2-4-140HA08-HP835	30392015
6,20		8	114	76	64	36	SCD161-0620-2-4-140HA08-HP835	30392016
6,30		8	114	76	64	36	SCD161-0630-2-4-140HA08-HP835	30392017
6,35	1/4	8	114	76	64	36	SCD161-0635-2-4-140HA08-HP835	30450962
6,40		8	114	76	64	36	SCD161-0640-2-4-140HA08-HP835	30392018
6,50		8	114	76	64	36	SCD161-0650-2-4-140HA08-HP835	30392019
6,60		8	114	76	64	36	SCD161-0660-2-4-140HA08-HP835	30392020
6,70		8	114	76	64	36	SCD161-0670-2-4-140HA08-HP835	30392021
6,75	17/64	8	114	76	64	36	SCD161-0675-2-4-140HA08-HP835	30450424
6,80		8	114	76	64	36	SCD161-0680-2-4-140HA08-HP835	30392022
6,90		8	114	76	64	36	SCD161-0690-2-4-140HA08-HP835	30392023
7,00		8	114	76	64	36	SCD161-0700-2-4-140HA08-HP835	30392024
7,10		8	114	76	64	36	SCD161-0710-2-4-140HA08-HP835	30392025
7,14	9/32	8	114	76	64	36	SCD161-0714-2-4-140HA08-HP835	30450965
7,20		8	114	76	64	36	SCD161-0720-2-4-140HA08-HP835	30392026
7,30		8	114	76	64	36	SCD161-0730-2-4-140HA08-HP835	30392027
7,40		8	114	76	64	36	SCD161-0740-2-4-140HA08-HP835	30392028
7,50		8	114	76	64	36	SCD161-0750-2-4-140HA08-HP835	30392029
7,54	19/64	8	114	76	64	36	SCD161-0754-2-4-140HA08-HP835	30450966
7,60		8	114	76	64	36	SCD161-0760-2-4-140HA08-HP835	30392030
7,70		8	114	76	64	36	SCD161-0770-2-4-140HA08-HP835	30392031
7,80		8	114	76	64	36	SCD161-0780-2-4-140HA08-HP835	30392032
7,90		8	114	76	64	36	SCD161-0790-2-4-140HA08-HP835	30392033
7,94	5/16	8	114	76	64	36	SCD161-0794-2-4-140HA08-HP835	30450967
8,00		8	114	76	64	36	SCD161-0800-2-4-140HA08-HP835	30392034
8,10		10	142	95	80	40	SCD161-0810-2-4-140HA08-HP835	30392035
8,20		10	142	95	80	40	SCD161-0820-2-4-140HA08-HP835	30392036
8,30		10	142	95	80	40	SCD161-0830-2-4-140HA08-HP835	30392037
8,33	21/64	10	142	95	80	40	SCD161-0833-2-4-140HA08-HP835	30450968
8,40		10	142	95	80	40	SCD161-0840-2-4-140HA08-HP835	30392038
8,50		10	142	95	80	40	SCD161-0850-2-4-140HA08-HP835	30392039
8,60		10	142	95	80	40	SCD161-0860-2-4-140HA08-HP835	30392040
8,70		10	142	95	80	40	SCD161-0870-2-4-140HA08-HP835	30392041
8,73	11/32	10	142	95	80	40	SCD161-0873-2-4-140HA08-HP835	30450970
8,80		10	142	95	80	40	SCD161-0880-2-4-140HA08-HP835	30392042
8,90		10	142	95	80	40	SCD161-0890-2-4-140HA08-HP835	30392043
9,00		10	142	95	80	40	SCD161-0900-2-4-140HA08-HP835	30392044
9,10		10	142	95	80	40	SCD161-0910-2-4-140HA08-HP835	30392045
9,13	23/64	10	142	95	80	40	SCD161-0913-2-4-140HA08-HP835	30450971
9,20		10	142	95	80	40	SCD161-0920-2-4-140HA08-HP835	30392046
9,30		10	142	95	80	40	SCD161-0930-2-4-140HA08-HP835	30392047
9,40		10	142	95	80	40	SCD161-0940-2-4-140HA08-HP835	30392048
9,50		10	142	95	80	40	SCD161-0950-2-4-140HA08-HP835	30392049
9,53	3/8	10	142	95	80	40	SCD161-0953-2-4-140HA08-HP835	30450973
9,60		10	142	95	80	40	SCD161-0960-2-4-140HA08-HP835	30392050
9,70		10	142	95	80	40	SCD161-0970-2-4-140HA08-HP835	30392051
9,80		10	142	95	80	40	SCD161-0980-2-4-140HA08-HP835	30392052
9,90		10	142	95	80	40	SCD161-0990-2-4-140HA08-HP835	30392053
9,92	25/64	10	142	95	80	40	SCD161-0992-2-4-140HA08-HP835	30450974
10,00		10	142	95	80	40	SCD161-1000-2-4-140HA08-HP835	30392054
10,10		12	162	114	96	45	SCD161-1010-2-4-140HA08-HP835	30392055
10,20		12	162	114	96	45	SCD161-1020-2-4-140HA08-HP835	30392056
10,30		12	162	114	96	45	SCD161-1030-2-4-140HA08-HP835	30392057
10,32	13/32	12	162	114	96	45	SCD161-1032-2-4-140HA08-HP835	30450976

Continued on next page.

MEGA-Quadro-Drill | Solid carbide twist drills SCD16 (8xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,40		12	162	114	96	45	SCD161-1040-2-4-140HA08-HP835	30392058
10,50		12	162	114	96	45	SCD161-1050-2-4-140HA08-HP835	30392059
10,60		12	162	114	96	45	SCD161-1060-2-4-140HA08-HP835	30392060
10,70		12	162	114	96	45	SCD161-1070-2-4-140HA08-HP835	30392061
10,72	27/64	12	162	114	96	45	SCD161-1072-2-4-140HA08-HP835	30450977
10,80		12	162	114	96	45	SCD161-1080-2-4-140HA08-HP835	30392062
10,90		12	162	114	96	45	SCD161-1090-2-4-140HA08-HP835	30392063
11,00		12	162	114	96	45	SCD161-1100-2-4-140HA08-HP835	30392064
11,10		12	162	114	96	45	SCD161-1110-2-4-140HA08-HP835	30392065
11,11	7/16	12	162	114	96	45	SCD161-1111-2-4-140HA08-HP835	30450978
11,20		12	162	114	96	45	SCD161-1120-2-4-140HA08-HP835	30392066
11,30		12	162	114	96	45	SCD161-1130-2-4-140HA08-HP835	30392067
11,40		12	162	114	96	45	SCD161-1140-2-4-140HA08-HP835	30392068
11,50		12	162	114	96	45	SCD161-1150-2-4-140HA08-HP835	30392069
11,60		12	162	114	96	45	SCD161-1160-2-4-140HA08-HP835	30392070
11,70		12	162	114	96	45	SCD161-1170-2-4-140HA08-HP835	30392071
11,80		12	162	114	96	45	SCD161-1180-2-4-140HA08-HP835	30392072
11,90		12	162	114	96	45	SCD161-1190-2-4-140HA08-HP835	30392073
12,00		12	162	114	96	45	SCD161-1200-2-4-140HA08-HP835	30392074
12,50		14	178	133	112	45	SCD161-1250-2-4-140HA08-HP835	30392075
12,80		14	178	133	112	45	SCD161-1280-2-4-140HA08-HP835	30392076
13,00		14	178	133	112	45	SCD161-1300-2-4-140HA08-HP835	30392077
13,50		14	178	133	112	45	SCD161-1350-2-4-140HA08-HP835	30392078
13,80		14	178	133	112	45	SCD161-1380-2-4-140HA08-HP835	30392079
14,00		14	178	133	112	45	SCD161-1400-2-4-140HA08-HP835	30392080
14,29	9/16	16	203	152	128	48	SCD161-1429-2-4-140HA08-HP835	30450981
14,50		16	203	152	128	48	SCD161-1450-2-4-140HA08-HP835	30392081
14,68	37/64	16	203	152	128	48	SCD161-1468-2-4-140HA08-HP835	30450982
14,80		16	203	152	128	48	SCD161-1480-2-4-140HA08-HP835	30392082
15,00		16	203	152	128	48	SCD161-1500-2-4-140HA08-HP835	30392083
15,08	19/32	16	203	152	128	48	SCD161-1508-2-4-140HA08-HP835	30450983
15,50		16	203	152	128	48	SCD161-1550-2-4-140HA08-HP835	30392084
15,80		16	203	152	128	48	SCD161-1580-2-4-140HA08-HP835	30392085
15,88	5/8	16	203	152	128	48	SCD161-1588-2-4-140HA08-HP835	30450984
16,00		16	203	152	128	48	SCD161-1600-2-4-140HA08-HP835	30392086
16,50		18	222	171	144	48	SCD161-1650-2-4-140HA08-HP835	30392087
16,67	21/32	18	222	171	144	48	SCD161-1667-2-4-140HA08-HP835	30450985
16,80		18	222	171	144	48	SCD161-1680-2-4-140HA08-HP835	30392088
17,00		18	222	171	144	48	SCD161-1700-2-4-140HA08-HP835	30392089
17,46	11/16	18	222	171	144	48	SCD161-1746-2-4-140HA08-HP835	30450986
17,50		18	222	171	144	48	SCD161-1750-2-4-140HA08-HP835	30392090
17,80		18	222	171	144	48	SCD161-1780-2-4-140HA08-HP835	30392091
17,86	45/64	18	222	171	144	48	SCD161-1786-2-4-140HA08-HP835	30450987
18,00		18	222	171	144	48	SCD161-1800-2-4-140HA08-HP835	30392092
18,26	23/32	20	243	190	160	50	SCD161-1826-2-4-140HA08-HP835	30450988
18,50		20	243	190	160	50	SCD161-1850-2-4-140HA08-HP835	30392093
18,80		20	243	190	160	50	SCD161-1880-2-4-140HA08-HP835	30392094
19,00		20	243	190	160	50	SCD161-1900-2-4-140HA08-HP835	30392095
19,05	3/4	20	243	190	160	50	SCD161-1905-2-4-140HA08-HP835	30450989
19,50		20	243	190	160	50	SCD161-1950-2-4-140HA08-HP835	30392096
19,80		20	243	190	160	50	SCD161-1980-2-4-140HA08-HP835	30392097
20,00		20	243	190	160	50	SCD161-2000-2-4-140HA08-HP835	30392098

Dimensions in mm.

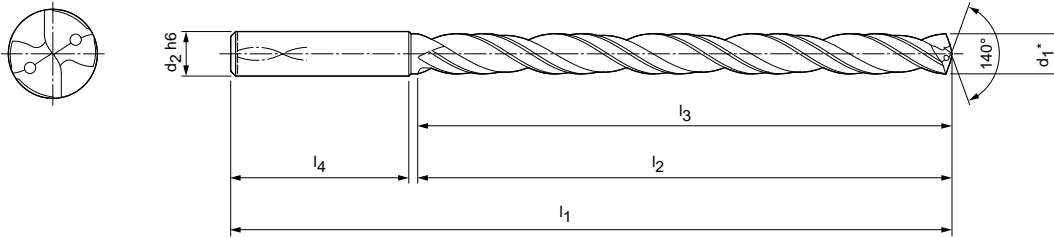
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Quadro-Drill

Solid carbide twist drill
SCD16 (12xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 8
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00		6	92	54	48	36	SCD161-0300-2-4-140HA12-HP835	30392099
3,10		6	92	54	48	36	SCD161-0310-2-4-140HA12-HP835	30392100
3,18	1/8	6	92	54	48	36	SCD161-0318-2-4-140HA12-HP835	30450990
3,20		6	92	54	48	36	SCD161-0320-2-4-140HA12-HP835	30392101
3,30		6	92	54	48	36	SCD161-0330-2-4-140HA12-HP835	30392102
3,40		6	92	54	48	36	SCD161-0340-2-4-140HA12-HP835	30392103
3,50		6	92	54	48	36	SCD161-0350-2-4-140HA12-HP835	30392104
3,57	9/64	6	92	54	48	36	SCD161-0357-2-4-140HA12-HP835	30450992
3,60		6	92	54	48	36	SCD161-0360-2-4-140HA12-HP835	30392105
3,70		6	92	54	48	36	SCD161-0370-2-4-140HA12-HP835	30392106
3,80		6	102	64	58	36	SCD161-0380-2-4-140HA12-HP835	30392107
3,90		6	102	64	58	36	SCD161-0390-2-4-140HA12-HP835	30392108
3,97	5/32	6	102	64	58	36	SCD161-0397-2-4-140HA12-HP835	30450994
4,00		6	102	64	58	36	SCD161-0400-2-4-140HA12-HP835	30392109
4,10		6	102	64	58	36	SCD161-0410-2-4-140HA12-HP835	30392110
4,20		6	102	64	58	36	SCD161-0420-2-4-140HA12-HP835	30392111
4,30		6	102	64	58	36	SCD161-0430-2-4-140HA12-HP835	30392112
4,37	11/64	6	102	64	58	36	SCD161-0437-2-4-140HA12-HP835	30450996
4,40		6	102	64	58	36	SCD161-0440-2-4-140HA12-HP835	30392113
4,50		6	102	64	58	36	SCD161-0450-2-4-140HA12-HP835	30392114
4,60		6	102	64	58	36	SCD161-0460-2-4-140HA12-HP835	30392115
4,70		6	102	64	58	36	SCD161-0470-2-4-140HA12-HP835	30392116
4,76	3/16	6	116	78	70	36	SCD161-0476-2-4-140HA12-HP835	30450998
4,80		6	116	78	70	36	SCD161-0480-2-4-140HA12-HP835	30392117
4,90		6	116	78	70	36	SCD161-0490-2-4-140HA12-HP835	30392118
5,00		6	116	78	70	36	SCD161-0500-2-4-140HA12-HP835	30392119
5,10		6	116	78	70	36	SCD161-0510-2-4-140HA12-HP835	30392120
5,16	13/64	6	116	78	70	36	SCD161-0516-2-4-140HA12-HP835	30450999
5,20		6	116	78	70	36	SCD161-0520-2-4-140HA12-HP835	30392121
5,30		6	116	78	70	36	SCD161-0530-2-4-140HA12-HP835	30392122
5,40		6	116	78	70	36	SCD161-0540-2-4-140HA12-HP835	30392123
5,50		6	116	78	70	36	SCD161-0550-2-4-140HA12-HP835	30392124
5,56	7/32	6	116	78	70	36	SCD161-0556-2-4-140HA12-HP835	30451000
5,60		6	116	78	70	36	SCD161-0560-2-4-140HA12-HP835	30392125
5,70		6	116	78	70	36	SCD161-0570-2-4-140HA12-HP835	30392126
5,80		6	116	78	70	36	SCD161-0580-2-4-140HA12-HP835	30392127

MEGA-Quadro-Drill | Solid carbide twist drills SCD16 (12xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,90		6	116	78	70	36	SCD161-0590-2-4-140HA12-HP835	30392128
5,95	15/64	6	116	78	70	36	SCD161-0595-2-4-140HA12-HP835	30451001
6,00		6	116	78	70	36	SCD161-0600-2-4-140HA12-HP835	30392129
6,10		8	146	108	94	36	SCD161-0610-2-4-140HA12-HP835	30392130
6,20		8	146	108	94	36	SCD161-0620-2-4-140HA12-HP835	30392131
6,30		8	146	108	94	36	SCD161-0630-2-4-140HA12-HP835	30392132
6,35	1/4	8	146	108	94	36	SCD161-0635-2-4-140HA12-HP835	30445817
6,40		8	146	108	94	36	SCD161-0640-2-4-140HA12-HP835	30392133
6,50		8	146	108	94	36	SCD161-0650-2-4-140HA12-HP835	30392134
6,60		8	146	108	94	36	SCD161-0660-2-4-140HA12-HP835	30392135
6,70		8	146	108	94	36	SCD161-0670-2-4-140HA12-HP835	30392136
6,75	17/64	8	146	108	94	36	SCD161-0675-2-4-140HA12-HP835	30451005
6,80		8	146	108	94	36	SCD161-0680-2-4-140HA12-HP835	30392137
6,90		8	146	108	94	36	SCD161-0690-2-4-140HA12-HP835	30392138
7,00		8	146	108	94	36	SCD161-0700-2-4-140HA12-HP835	30392139
7,10		8	146	108	94	36	SCD161-0710-2-4-140HA12-HP835	30392140
7,14	9/32	8	146	108	94	36	SCD161-0714-2-4-140HA12-HP835	30451006
7,20		8	146	108	94	36	SCD161-0720-2-4-140HA12-HP835	30392141
7,30		8	146	108	94	36	SCD161-0730-2-4-140HA12-HP835	30392142
7,40		8	146	108	94	36	SCD161-0740-2-4-140HA12-HP835	30392143
7,50		8	146	108	94	36	SCD161-0750-2-4-140HA12-HP835	30392144
7,54	19/64	8	146	108	94	36	SCD161-0754-2-4-140HA12-HP835	30451007
7,60		8	146	108	94	36	SCD161-0760-2-4-140HA12-HP835	30392145
7,70		8	146	108	94	36	SCD161-0770-2-4-140HA12-HP835	30392146
7,80		8	146	108	94	36	SCD161-0780-2-4-140HA12-HP835	30392147
7,90		8	146	108	94	36	SCD161-0790-2-4-140HA12-HP835	30392148
7,94	5/16	8	146	108	94	36	SCD161-0794-2-4-140HA12-HP835	30451008
8,00		8	146	108	94	36	SCD161-0800-2-4-140HA12-HP835	30392149
8,10		10	162	120	110	40	SCD161-0810-2-4-140HA12-HP835	30392150
8,20		10	162	120	110	40	SCD161-0820-2-4-140HA12-HP835	30392151
8,30		10	162	120	110	40	SCD161-0830-2-4-140HA12-HP835	30392152
8,33	21/64	10	162	120	110	40	SCD161-0833-2-4-140HA12-HP835	30451009
8,40		10	162	120	110	40	SCD161-0840-2-4-140HA12-HP835	30392153
8,50		10	162	120	110	40	SCD161-0850-2-4-140HA12-HP835	30392154
8,60		10	162	120	110	40	SCD161-0860-2-4-140HA12-HP835	30392155
8,70		10	162	120	110	40	SCD161-0870-2-4-140HA12-HP835	30392156
8,73	11/32	10	162	120	110	40	SCD161-0873-2-4-140HA12-HP835	30451011
8,80		10	162	120	110	40	SCD161-0880-2-4-140HA12-HP835	30392157
8,90		10	162	120	110	40	SCD161-0890-2-4-140HA12-HP835	30392158
9,00		10	162	120	110	40	SCD161-0900-2-4-140HA12-HP835	30392159
9,10		10	162	120	110	40	SCD161-0910-2-4-140HA12-HP835	30392160
9,13	23/64	10	162	120	110	40	SCD161-0913-2-4-140HA12-HP835	30451012
9,20		10	162	120	110	40	SCD161-0920-2-4-140HA12-HP835	30392161
9,30		10	162	120	110	40	SCD161-0930-2-4-140HA12-HP835	30392162
9,40		10	162	120	110	40	SCD161-0940-2-4-140HA12-HP835	30392163
9,50		10	162	120	110	40	SCD161-0950-2-4-140HA12-HP835	30392164
9,53	3/8	10	162	120	110	40	SCD161-0953-2-4-140HA12-HP835	30451014
9,60		10	162	120	110	40	SCD161-0960-2-4-140HA12-HP835	30392165
9,70		10	162	120	110	40	SCD161-0970-2-4-140HA12-HP835	30392166
9,80		10	162	120	110	40	SCD161-0980-2-4-140HA12-HP835	30392167
9,90		10	162	120	110	40	SCD161-0990-2-4-140HA12-HP835	30392168
9,92	25/64	10	162	120	110	40	SCD161-0992-2-4-140HA12-HP835	30451015
10,00		10	162	120	110	40	SCD161-1000-2-4-140HA12-HP835	30392169
10,10		12	204	156	142	45	SCD161-1010-2-4-140HA12-HP835	30392170
10,20		12	204	156	142	45	SCD161-1020-2-4-140HA12-HP835	30392171
10,30		12	204	156	142	45	SCD161-1030-2-4-140HA12-HP835	30392172
10,32	13/32	12	204	156	142	45	SCD161-1032-2-4-140HA12-HP835	30451017

MEGA-Quadro-Drill | Solid carbide twist drills SCD16 (12xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ [mm]	d ₁ [inch]	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
10,40		12	204	156	142	45	SCD161-1040-2-4-140HA12-HP835	30392173
10,50		12	204	156	142	45	SCD161-1050-2-4-140HA12-HP835	30392174
10,60		12	204	156	142	45	SCD161-1060-2-4-140HA12-HP835	30392175
10,70		12	204	156	142	45	SCD161-1070-2-4-140HA12-HP835	30392176
10,72	27/64	12	204	156	142	45	SCD161-1072-2-4-140HA12-HP835	30451018
10,80		12	204	156	142	45	SCD161-1080-2-4-140HA12-HP835	30392177
10,90		12	204	156	142	45	SCD161-1090-2-4-140HA12-HP835	30392178
11,00		12	204	156	142	45	SCD161-1100-2-4-140HA12-HP835	30392179
11,10		12	204	156	142	45	SCD161-1110-2-4-140HA12-HP835	30392180
11,11	7/16	12	204	156	142	45	SCD161-1111-2-4-140HA12-HP835	30451019
11,20		12	204	156	142	45	SCD161-1120-2-4-140HA12-HP835	30392181
11,30		12	204	156	142	45	SCD161-1130-2-4-140HA12-HP835	30392182
11,40		12	204	156	142	45	SCD161-1140-2-4-140HA12-HP835	30392183
11,50		12	204	156	142	45	SCD161-1150-2-4-140HA12-HP835	30392184
11,60		12	204	156	142	45	SCD161-1160-2-4-140HA12-HP835	30392185
11,70		12	204	156	142	45	SCD161-1170-2-4-140HA12-HP835	30392186
11,80		12	204	156	142	45	SCD161-1180-2-4-140HA12-HP835	30392187
11,90		12	204	156	142	45	SCD161-1190-2-4-140HA12-HP835	30392188
12,00		12	204	156	142	45	SCD161-1200-2-4-140HA12-HP835	30392189
12,50		14	230	182	166	45	SCD161-1250-2-4-140HA12-HP835	30392190
12,80		14	230	182	166	45	SCD161-1280-2-4-140HA12-HP835	30392191
13,00		14	230	182	166	45	SCD161-1300-2-4-140HA12-HP835	30392192
13,50		14	230	182	166	45	SCD161-1350-2-4-140HA12-HP835	30392193
13,80		14	230	182	166	45	SCD161-1380-2-4-140HA12-HP835	30392194
14,00		14	230	182	166	45	SCD161-1400-2-4-140HA12-HP835	30392195
14,29	9/16	16	260	208	192	48	SCD161-1429-2-4-140HA12-HP835	30451023
14,50		16	260	208	192	48	SCD161-1450-2-4-140HA12-HP835	30392196
14,68	37/64	16	260	208	192	48	SCD161-1468-2-4-140HA12-HP835	30451024
14,80		16	260	208	192	48	SCD161-1480-2-4-140HA12-HP835	30392197
15,00		16	260	208	192	48	SCD161-1500-2-4-140HA12-HP835	30392198
15,08	19/32	16	260	208	192	48	SCD161-1508-2-4-140HA12-HP835	30451025
15,50		16	260	208	192	48	SCD161-1550-2-4-140HA12-HP835	30392199
15,80		16	260	208	192	48	SCD161-1580-2-4-140HA12-HP835	30392200
15,88	5/8	16	260	208	192	48	SCD161-1588-2-4-140HA12-HP835	30451026
16,00		16	260	208	192	48	SCD161-1600-2-4-140HA12-HP835	30392201
16,50		18	285	234	216	48	SCD161-1650-2-4-140HA12-HP835	30392202
16,67	21/32	18	285	234	216	48	SCD161-1667-2-4-140HA12-HP835	30451027
16,80		18	285	234	216	48	SCD161-1680-2-4-140HA12-HP835	30392203
17,00		18	285	234	216	48	SCD161-1700-2-4-140HA12-HP835	30392204
17,46	11/16	18	285	234	216	48	SCD161-1746-2-4-140HA12-HP835	30451028
17,50		18	285	234	216	48	SCD161-1750-2-4-140HA12-HP835	30392205
17,80		18	285	234	216	48	SCD161-1780-2-4-140HA12-HP835	30392206
17,86	45/64	18	285	234	216	48	SCD161-1786-2-4-140HA12-HP835	30451029
18,00		18	285	234	216	48	SCD161-1800-2-4-140HA12-HP835	30392207
18,26	23/32	20	310	258	240	50	SCD161-1826-2-4-140HA12-HP835	30451030
18,50		20	310	258	240	50	SCD161-1850-2-4-140HA12-HP835	30392208
18,80		20	310	258	240	50	SCD161-1880-2-4-140HA12-HP835	30392209
19,00		20	310	258	240	50	SCD161-1900-2-4-140HA12-HP835	30392210
19,05	3/4	20	310	258	240	50	SCD161-1905-2-4-140HA12-HP835	30451031
19,50		20	310	258	240	50	SCD161-1950-2-4-140HA12-HP835	30392211
19,80		20	310	258	240	50	SCD161-1980-2-4-140HA12-HP835	30392212
20,00		20	310	258	240	50	SCD161-2000-2-4-140HA12-HP835	30392213

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.





MEGA-DRILL-REAMER

The MEGA-Drill-Reamer combines two processes in one tool: Drilling and reaming

Using the MEGA-Drill-Reamers the drilling and reaming is realised in one processes. In this way bores can be machined faster and more efficiently and the productive and non-productive times significantly reduced. Two drill cutting edges on the coated tool initially undertake the bore machining into the solid. Four slightly axially offset reaming cutting edges provide the fine machining and safeguard the required surface finishes, the dimensional accuracy as well as the circularity in reamed quality.

MEGA-Drill-Reamer

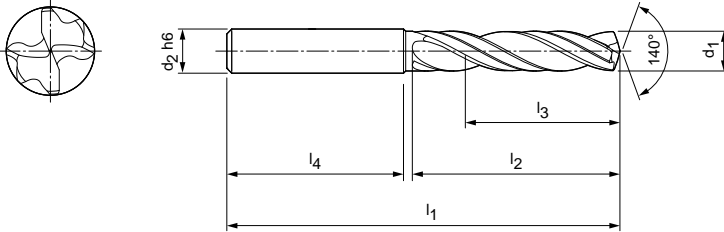
MEGA-Drill-Reamer, 3xD - external coolant supply	_____	170
MEGA-Drill-Reamer, 3xD - internal coolant supply	_____	171
MEGA-Drill-Reamer, 5xD - internal coolant supply	_____	173

MEGA-Drill-Reamer

SCD20 (3xD)

Design:

Drill diameter: 5.97 - 12.02 mm
 Bore tolerance: ≥ IT 7
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA	
d ₁ (±0.003)	Bore diameter * min. – max.	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,97	5,965 - 5,980	6	79	34	24	36	SCD200-0597-2-4-140HA03-HP835	30392496
5,98	5,975 - 5,990	6	79	34	24	36	SCD200-0598-2-4-140HA03-HP835	30392497
5,99	5,985 - 6,000	6	79	34	24	36	SCD200-0599-2-4-140HA03-HP835	30392498
6,00	5,995 - 6,010	6	79	34	24	36	SCD200-0600-2-4-140HA03-HP835	30392499
6,01	6,005 - 6,020	6	79	34	24	36	SCD200-0601-2-4-140HA03-HP835	30392500
6,02	6,015 - 6,030	6	79	34	24	36	SCD200-0602-2-4-140HA03-HP835	30392501
7,97	7,965 - 7,980	8	79	34	24	36	SCD200-0797-2-4-140HA03-HP835	30392502
7,98	7,975 - 7,990	8	79	34	24	36	SCD200-0798-2-4-140HA03-HP835	30392503
7,99	7,985 - 8,000	8	79	34	24	36	SCD200-0799-2-4-140HA03-HP835	30392504
8,00	7,995 - 8,010	8	79	34	24	36	SCD200-0800-2-4-140HA03-HP835	30392505
8,01	8,005 - 8,020	8	79	34	24	36	SCD200-0801-2-4-140HA03-HP835	30392506
8,02	8,015 - 8,030	8	79	34	24	36	SCD200-0802-2-4-140HA03-HP835	30392507
9,97	9,965 - 9,980	10	89	47	35	40	SCD200-0997-2-4-140HA03-HP835	30392508
9,98	9,975 - 9,990	10	89	47	35	40	SCD200-0998-2-4-140HA03-HP835	30392509
9,99	9,985 - 10,000	10	89	47	35	40	SCD200-0999-2-4-140HA03-HP835	30392510
10,00	9,995 - 10,010	10	89	47	35	40	SCD200-1000-2-4-140HA03-HP835	30392511
10,01	10,005 - 10,020	10	89	47	35	40	SCD200-1001-2-4-140HA03-HP835	30392512
10,02	10,015 - 10,030	10	89	47	35	40	SCD200-1002-2-4-140HA03-HP835	30392513
11,97	11,964 - 11,982	12	102	55	40	45	SCD200-1197-2-4-140HA03-HP835	30392514
11,98	11,974 - 11,992	12	102	55	40	45	SCD200-1198-2-4-140HA03-HP835	30392515
11,99	11,984 - 12,002	12	102	55	40	45	SCD200-1199-2-4-140HA03-HP835	30392516
12,00	11,994 - 12,012	12	102	55	40	45	SCD200-1200-2-4-140HA03-HP835	30392517
12,01	12,004 - 12,022	12	102	55	40	45	SCD200-1201-2-4-140HA03-HP835	30392518
12,02	12,014 - 12,032	12	102	55	40	45	SCD200-1202-2-4-140HA03-HP835	30392519

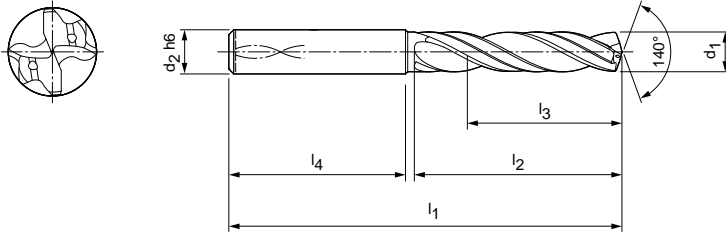
* The bore tolerances can only be guaranteed in perfect application conditions and with radial run-out errors < 10 µm.
 Workpiece, workpiece material and cooling lubricant can also have an effect on the bore diameter.
 Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Drill-Reamer

SCD20 (3xD), internal coolant supply

Design:

Drill diameter: 5.97 - 12.72 mm
 Bore tolerance: ≥ IT 7
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA	
d ₁ (±0.003)	Bore diameter * min. – max.	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,97	5,965 - 5,980	6	79	34	24	36	SCD201-0597-2-4-140HA03-HP835	30392520
5,98	5,975 - 5,990	6	79	34	24	36	SCD201-0598-2-4-140HA03-HP835	30392521
5,99	5,985 - 6,000	6	79	34	24	36	SCD201-0599-2-4-140HA03-HP835	30392522
6,00	5,995 - 6,010	6	79	34	24	36	SCD201-0600-2-4-140HA03-HP835	30392523
6,01	6,005 - 6,020	6	79	34	24	36	SCD201-0601-2-4-140HA03-HP835	30392524
6,02	6,015 - 6,030	6	79	34	24	36	SCD201-0602-2-4-140HA03-HP835	30392525
6,32	6,315 - 6,330	8	79	34	24	36	SCD201-0632-2-4-140HA03-HP835	30392526
6,33	6,325 - 6,340	8	79	34	24	36	SCD201-0633-2-4-140HA03-HP835	30392527
6,34	6,335 - 6,350	8	79	34	24	36	SCD201-0634-2-4-140HA03-HP835	30392528
6,35	6,345 - 6,360	8	79	34	24	36	SCD201-0635-2-4-140HA03-HP835	30392529
6,36	6,355 - 6,370	8	79	34	24	36	SCD201-0636-2-4-140HA03-HP835	30392530
6,37	6,365 - 6,380	8	79	34	24	36	SCD201-0637-2-4-140HA03-HP835	30392531
7,97	7,965 - 7,980	8	79	34	24	36	SCD201-0797-2-4-140HA03-HP835	30392532
7,98	7,975 - 7,990	8	79	34	24	36	SCD201-0798-2-4-140HA03-HP835	30392533
7,99	7,985 - 8,000	8	79	34	24	36	SCD201-0799-2-4-140HA03-HP835	30392534
8,00	7,995 - 8,010	8	79	34	24	36	SCD201-0800-2-4-140HA03-HP835	30392535
8,01	8,005 - 8,020	8	79	34	24	36	SCD201-0801-2-4-140HA03-HP835	30392536
8,02	8,015 - 8,030	8	79	34	24	36	SCD201-0802-2-4-140HA03-HP835	30392537
9,48	9,475 - 9,490	10	89	47	35	40	SCD201-0948-2-4-140HA03-HP835	30392538
9,49	9,485 - 9,500	10	89	47	35	40	SCD201-0949-2-4-140HA03-HP835	30392539
9,50	9,495 - 9,510	10	89	47	35	40	SCD201-0950-2-4-140HA03-HP835	30392540
9,52	9,515 - 9,530	10	89	47	35	40	SCD201-0952-2-4-140HA03-HP835	30392541
9,53	9,525 - 9,540	10	89	47	35	40	SCD201-0953-2-4-140HA03-HP835	30392542
9,54	9,535 - 9,550	10	89	47	35	40	SCD201-0954-2-4-140HA03-HP835	30392543
9,97	9,965 - 9,980	10	89	47	35	40	SCD201-0997-2-4-140HA03-HP835	30392544
9,98	9,975 - 9,990	10	89	47	35	40	SCD201-0998-2-4-140HA03-HP835	30392545
9,99	9,985 - 10,000	10	89	47	35	40	SCD201-0999-2-4-140HA03-HP835	30392546
10,00	9,995 - 10,010	10	89	47	35	40	SCD201-1000-2-4-140HA03-HP835	30392547
10,01	10,005 - 10,020	10	89	47	35	40	SCD201-1001-2-4-140HA03-HP835	30392548
10,02	10,015 - 10,030	10	89	47	35	40	SCD201-1002-2-4-140HA03-HP835	30392549
11,97	11,964 - 11,982	12	102	55	40	45	SCD201-1197-2-4-140HA03-HP835	30392550
11,98	11,974 - 11,992	12	102	55	40	45	SCD201-1198-2-4-140HA03-HP835	30392551
11,99	11,984 - 12,002	12	102	55	40	45	SCD201-1199-2-4-140HA03-HP835	30392552
12,00	11,994 - 12,012	12	102	55	40	45	SCD201-1200-2-4-140HA03-HP835	30392553
12,01	12,004 - 12,022	12	102	55	40	45	SCD201-1201-2-4-140HA03-HP835	30392554
12,02	12,014 - 12,032	12	102	55	40	45	SCD201-1202-2-4-140HA03-HP835	30392555

MEGA-Drill-Reamer | SCD20 (3xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ (±0.003)	Bore diameter * min. – max.	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,67	12,664 - 12,682	14	107	60	43	45	SCD201-1267-2-4-140HA03-HP835	30392556
12,68	12,674 - 12,692	14	107	60	43	45	SCD201-1268-2-4-140HA03-HP835	30392557
12,69	12,684 - 12,702	14	107	60	43	45	SCD201-1269-2-4-140HA03-HP835	30392558
12,70	12,694 - 12,712	14	107	60	43	45	SCD201-1270-2-4-140HA03-HP835	30392559
12,71	12,704 - 12,722	14	107	60	43	45	SCD201-1271-2-4-140HA03-HP835	30392560
12,72	12,714 - 12,732	14	107	60	43	45	SCD201-1272-2-4-140HA03-HP835	30392561

* The bore tolerances can only be guaranteed in perfect application conditions and with radial run-out errors < 10 µm.
Workpiece, workpiece material and cooling lubricant can also have an effect on the bore diameter.

Drill reamers for basic holes with tolerance H7

Dimensions							Shank form HA	
d ₁	Bore diameter min. – max.	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
4 ^{H7}	4,000 - 4,012	6	66	24	17	36	SCD201C-0400-2-4-140HA03-HP835 H7	30457927
5 ^{H7}	5,000 - 5,012	6	79	34	24	36	SCD201C-0500-2-4-140HA03-HP835 H7	30405369
6 ^{H7}	6,000 - 6,012	6	79	34	24	36	SCD201C-0600-2-4-140HA03-HP835 H7	30393870
7 ^{H7}	7,000 - 7,015	8	79	34	24	36	SCD201C-0700-2-4-140HA03-HP835 H7	30455340
8 ^{H7}	8,000 - 8,015	8	79	34	24	36	SCD201C-0800-2-4-140HA03-HP835 H7	30393871
9 ^{H7}	9,000 - 9,015	10	89	47	35	40	SCD201C-0900-2-4-140HA03-HP835 H7	30435050
10 ^{H7}	10,000 - 10,015	10	89	47	35	40	SCD201C-1000-2-4-140HA03-HP835 H7	30393872
12 ^{H7}	12,000 - 12,018	12	102	55	40	45	SCD201C-1200-2-4-140HA03-HP835 H7	30393873
14 ^{H7}	14,000 - 14,018	14	107	60	43	45	SCD201C-1400-2-4-140HA03-HP835 H7	30393874
16 ^{H7}	16,000 - 16,018	16	115	65	45	48	SCD201C-1600-2-4-140HA03-HP835 H7	30393875

Dimensions in mm.

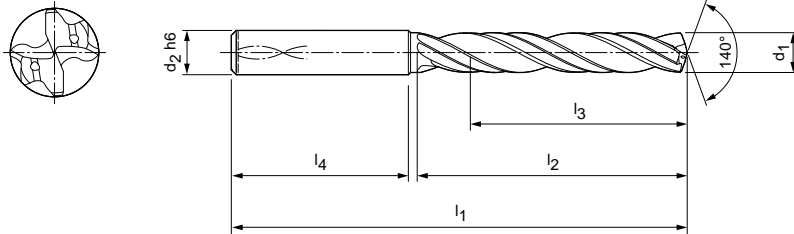
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-Drill-Reamer

SCD20 (5xD), internal coolant supply

Design:
 Drill diameter: 5.97 - 12.72 mm
 Bore tolerance: ≥ IT 7
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 140 °
 Helix angle: 30 °



Dimensions							Shank form HA	
d ₁ (±0.003)	Bore diameter * min. – max.	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,97	5,965 - 5,980	6	91	53	43	36	SCD201-0597-2-4-140HA05-HP835	30392562
5,98	5,975 - 5,990	6	91	53	43	36	SCD201-0598-2-4-140HA05-HP835	30392563
5,99	5,985 - 6,000	6	91	53	43	36	SCD201-0599-2-4-140HA05-HP835	30392564
6,00	5,995 - 6,010	6	91	53	43	36	SCD201-0600-2-4-140HA05-HP835	30392565
6,01	6,005 - 6,020	6	91	53	43	36	SCD201-0601-2-4-140HA05-HP835	30392566
6,02	6,015 - 6,030	6	91	53	43	36	SCD201-0602-2-4-140HA05-HP835	30392567
6,32	6,315 - 6,330	8	91	53	43	36	SCD201-0632-2-4-140HA05-HP835	30392568
6,33	6,325 - 6,340	8	91	53	43	36	SCD201-0633-2-4-140HA05-HP835	30392569
6,34	6,335 - 6,350	8	91	53	43	36	SCD201-0634-2-4-140HA05-HP835	30392570
6,35	6,345 - 6,360	8	91	53	43	36	SCD201-0635-2-4-140HA05-HP835	30392571
6,36	6,355 - 6,370	8	91	53	43	36	SCD201-0636-2-4-140HA05-HP835	30392572
6,37	6,365 - 6,380	8	91	53	43	36	SCD201-0637-2-4-140HA05-HP835	30392573
7,97	7,965 - 7,980	8	91	53	43	36	SCD201-0797-2-4-140HA05-HP835	30392574
7,98	7,975 - 7,990	8	91	53	43	36	SCD201-0798-2-4-140HA05-HP835	30392575
7,99	7,985 - 8,000	8	91	53	43	36	SCD201-0799-2-4-140HA05-HP835	30392576
8,00	7,995 - 8,010	8	91	53	43	36	SCD201-0800-2-4-140HA05-HP835	30392577
8,01	8,005 - 8,020	8	91	53	43	36	SCD201-0801-2-4-140HA05-HP835	30392578
8,02	8,015 - 8,030	8	91	53	43	36	SCD201-0802-2-4-140HA05-HP835	30392579
9,48	9,475 - 9,490	10	103	61	49	40	SCD201-0948-2-4-140HA05-HP835	30392580
9,49	9,485 - 9,500	10	103	61	49	40	SCD201-0949-2-4-140HA05-HP835	30392581
9,50	9,495 - 9,510	10	103	61	49	40	SCD201-0950-2-4-140HA05-HP835	30392582
9,52	9,515 - 9,530	10	103	61	49	40	SCD201-0952-2-4-140HA05-HP835	30392583
9,53	9,525 - 9,540	10	103	61	49	40	SCD201-0953-2-4-140HA05-HP835	30392584
9,54	9,535 - 9,550	10	103	61	49	40	SCD201-0954-2-4-140HA05-HP835	30392585
9,97	9,965 - 9,980	10	103	61	49	40	SCD201-0997-2-4-140HA05-HP835	30392586
9,98	9,975 - 9,990	10	103	61	49	40	SCD201-0998-2-4-140HA05-HP835	30392587
9,99	9,985 - 10,000	10	103	61	49	40	SCD201-0999-2-4-140HA05-HP835	30392588
10,00	9,995 - 10,010	10	103	61	49	40	SCD201-1000-2-4-140HA05-HP835	30392589
10,01	10,005 - 10,020	10	103	61	49	40	SCD201-1001-2-4-140HA05-HP835	30392590
10,02	10,015 - 10,030	10	103	61	49	40	SCD201-1002-2-4-140HA05-HP835	30392591
11,97	11,964 - 11,982	12	118	71	56	45	SCD201-1197-2-4-140HA05-HP835	30392592
11,98	11,974 - 11,992	12	118	71	56	45	SCD201-1198-2-4-140HA05-HP835	30392593
11,99	11,984 - 12,002	12	118	71	56	45	SCD201-1199-2-4-140HA05-HP835	30392594
12,00	11,994 - 12,012	12	118	71	56	45	SCD201-1200-2-4-140HA05-HP835	30392595
12,01	12,004 - 12,022	12	118	71	56	45	SCD201-1201-2-4-140HA05-HP835	30392596
12,02	12,014 - 12,032	12	118	71	56	45	SCD201-1202-2-4-140HA05-HP835	30392597

MEGA-Drill-Reamer | SCD20 (5xD), internal coolant supply

Dimensions							Shank form HA	
d ₁ (±0.003)	Bore diameter * min. – max.	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,67	12,664 - 12,682	14	124	77	60	45	SCD201-1267-2-4-140HA05-HP835	30392598
12,68	12,674 - 12,692	14	124	77	60	45	SCD201-1268-2-4-140HA05-HP835	30392599
12,69	12,684 - 12,702	14	124	77	60	45	SCD201-1269-2-4-140HA05-HP835	30392600
12,70	12,694 - 12,712	14	124	77	60	45	SCD201-1270-2-4-140HA05-HP835	30392601
12,71	12,704 - 12,722	14	124	77	60	45	SCD201-1271-2-4-140HA05-HP835	30392602
12,72	12,714 - 12,732	14	124	77	60	45	SCD201-1272-2-4-140HA05-HP835	30392603

* The bore tolerances can only be guaranteed in perfect application conditions and with radial run-out errors < 10 µm.

Workpiece, workpiece material and cooling lubricant can also have an effect on the bore diameter.

Further special designs can be manufactured on request with a minimum order quantity of 3 pieces.

Drill reamers for basic holes with tolerance H7

Dimensions							Shank form HA	
d ₁	Bore diameter min. – max.	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
4 ^{H7}	4,000 - 4,012	6	74	36	29	36	SCD201C-0400-2-4-140HA05-HP835 H7	30457977
5 ^{H7}	5,000 - 5,012	6	91	53	43	36	SCD201C-0500-2-4-140HA05-HP835 H7	30457985
6 ^{H7}	6,000 - 6,012	6	91	53	43	36	SCD201C-0600-2-4-140HA05-HP835 H7	30393876
7 ^{H7}	7,000 - 7,015	8	91	53	43	36	SCD201C-0700-2-4-140HA05-HP835 H7	30457987
8 ^{H7}	8,000 - 8,015	8	91	53	43	36	SCD201C-0800-2-4-140HA05-HP835 H7	30393877
9 ^{H7}	9,000 - 9,015	10	103	61	49	40	SCD201C-0900-2-4-140HA05-HP835 H7	30457992
10 ^{H7}	10,000 - 10,015	10	103	61	49	40	SCD201C-1000-2-4-140HA05-HP835 H7	30393878
12 ^{H7}	12,000 - 12,018	12	118	71	56	45	SCD201C-1200-2-4-140HA05-HP835 H7	30393879
14 ^{H7}	14,000 - 14,018	14	124	77	60	45	SCD201C-1400-2-4-140HA05-HP835 H7	30393880
16 ^{H7}	16,000 - 16,018	16	133	83	63	48	SCD201C-1600-2-4-140HA05-HP835 H7	30393881

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.



MEGA-180°-DRILL

Drilling from solid with a flat bottom of the bore and drilling on inclined surfaces

The MEGA-180°-Drill has a 180° tip angle and a special geometry to produce a flat bottom of the bore.

Normally two machining processes are required to manufacture the bore and bottom of the bore. During the first step the bore would be produced to the required depth, followed in the second step by countersinking. These two steps are efficiently combined into one machining cycle on the MEGA-180°-Drill.

Thanks to the four-chamfer geometry and the therefore very good guidance in the bore, the MEGA-180°-Drill achieves optimum circularities and surface qualities in the bore. In addition, polished chip flutes ensure optimum chip removal.

The MEGA-180°-Drill is also suitable for drilling and piloting on inclined surfaces at an angle up to 45°. Compared to conventional 140° drill tips, the radial forces are reduced due to the flat tip.

MEGA-180°-Drill

MEGA-180°-Drill, 3xD - internal coolant supply _____ 178

MEGA-180°-Drill, 5xD - internal coolant supply _____ 181

MEGA-180°-Drill-Alu

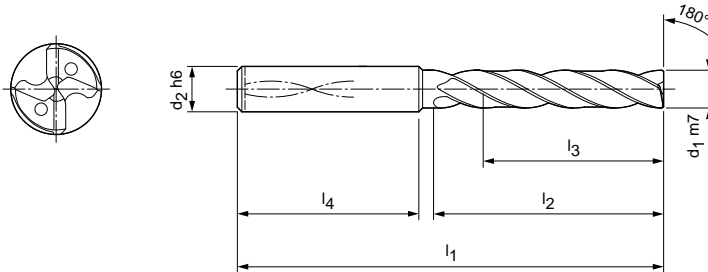
MEGA-180°-Drill-Alu, 3xD - internal coolant supply _____ 184

MEGA-180°-Drill-Alu, 5xD - internal coolant supply _____ 187

MEGA-180°-Drill

Solid carbide twist drill
SCD23 (3xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 180°
 Helix angle: 30°



Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	62	20	14	36	SCD231-0300-2-4-180HA03-HP230	30382647
3,10	6	62	20	14	36	SCD231-0310-2-4-180HA03-HP230	30382648
3,20	6	62	20	14	36	SCD231-0320-2-4-180HA03-HP230	30382649
3,30	6	62	20	14	36	SCD231-0330-2-4-180HA03-HP230	30382650
3,40	6	62	20	14	36	SCD231-0340-2-4-180HA03-HP230	30382651
3,50	6	62	20	14	36	SCD231-0350-2-4-180HA03-HP230	30382652
3,60	6	62	20	14	36	SCD231-0360-2-4-180HA03-HP230	30382653
3,70	6	62	20	14	36	SCD231-0370-2-4-180HA03-HP230	30382654
3,80	6	66	24	17	36	SCD231-0380-2-4-180HA03-HP230	30382655
3,90	6	66	24	17	36	SCD231-0390-2-4-180HA03-HP230	30382656
4,00	6	66	24	17	36	SCD231-0400-2-4-180HA03-HP230	30382657
4,10	6	66	24	17	36	SCD231-0410-2-4-180HA03-HP230	30382658
4,20	6	66	24	17	36	SCD231-0420-2-4-180HA03-HP230	30382659
4,30	6	66	24	17	36	SCD231-0430-2-4-180HA03-HP230	30382660
4,40	6	66	24	17	36	SCD231-0440-2-4-180HA03-HP230	30382661
4,50	6	66	24	17	36	SCD231-0450-2-4-180HA03-HP230	30382662
4,60	6	66	24	17	36	SCD231-0460-2-4-180HA03-HP230	30382663
4,65	6	66	24	17	36	SCD231-0465-2-4-180HA03-HP230	30382664
4,70	6	66	24	17	36	SCD231-0470-2-4-180HA03-HP230	30382665
4,80	6	66	28	20	36	SCD231-0480-2-4-180HA03-HP230	30382666
4,90	6	66	28	20	36	SCD231-0490-2-4-180HA03-HP230	30382667
5,00	6	66	28	20	36	SCD231-0500-2-4-180HA03-HP230	30382668
5,10	6	66	28	20	36	SCD231-0510-2-4-180HA03-HP230	30382669
5,20	6	66	28	20	36	SCD231-0520-2-4-180HA03-HP230	30382670
5,30	6	66	28	20	36	SCD231-0530-2-4-180HA03-HP230	30382671
5,40	6	66	28	20	36	SCD231-0540-2-4-180HA03-HP230	30382672
5,50	6	66	28	20	36	SCD231-0550-2-4-180HA03-HP230	30382673
5,55	6	66	28	20	36	SCD231-0555-2-4-180HA03-HP230	30382674
5,60	6	66	28	20	36	SCD231-0560-2-4-180HA03-HP230	30382675
5,70	6	66	28	20	36	SCD231-0570-2-4-180HA03-HP230	30382676
5,80	6	66	28	20	36	SCD231-0580-2-4-180HA03-HP230	30382677
5,90	6	66	28	20	36	SCD231-0590-2-4-180HA03-HP230	30382678
6,00	6	66	28	20	36	SCD231-0600-2-4-180HA03-HP230	30382679
6,10	8	79	34	24	36	SCD231-0610-2-4-180HA03-HP230	30382680
6,20	8	79	34	24	36	SCD231-0620-2-4-180HA03-HP230	30382681
6,30	8	79	34	24	36	SCD231-0630-2-4-180HA03-HP230	30382682

MEGA-180°-Drill | Solid carbide twist drills SCD23 (3xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	79	34	24	36	SCD231-0640-2-4-180HA03-HP230	30382683
6,50	8	79	34	24	36	SCD231-0650-2-4-180HA03-HP230	30382684
6,60	8	79	34	24	36	SCD231-0660-2-4-180HA03-HP230	30382685
6,70	8	79	34	24	36	SCD231-0670-2-4-180HA03-HP230	30382686
6,80	8	79	34	24	36	SCD231-0680-2-4-180HA03-HP230	30382687
6,90	8	79	34	24	36	SCD231-0690-2-4-180HA03-HP230	30382688
7,00	8	79	34	24	36	SCD231-0700-2-4-180HA03-HP230	30382689
7,10	8	79	41	29	36	SCD231-0710-2-4-180HA03-HP230	30382690
7,20	8	79	41	29	36	SCD231-0720-2-4-180HA03-HP230	30382691
7,30	8	79	41	29	36	SCD231-0730-2-4-180HA03-HP230	30382692
7,40	8	79	41	29	36	SCD231-0740-2-4-180HA03-HP230	30382693
7,50	8	79	41	29	36	SCD231-0750-2-4-180HA03-HP230	30382694
7,60	8	79	41	29	36	SCD231-0760-2-4-180HA03-HP230	30382695
7,70	8	79	41	29	36	SCD231-0770-2-4-180HA03-HP230	30382696
7,80	8	79	41	29	36	SCD231-0780-2-4-180HA03-HP230	30382697
7,90	8	79	41	29	36	SCD231-0790-2-4-180HA03-HP230	30382698
8,00	8	79	41	29	36	SCD231-0800-2-4-180HA03-HP230	30382699
8,10	10	89	47	35	40	SCD231-0810-2-4-180HA03-HP230	30382700
8,20	10	89	47	35	40	SCD231-0820-2-4-180HA03-HP230	30382701
8,30	10	89	47	35	40	SCD231-0830-2-4-180HA03-HP230	30382702
8,40	10	89	47	35	40	SCD231-0840-2-4-180HA03-HP230	30382703
8,50	10	89	47	35	40	SCD231-0850-2-4-180HA03-HP230	30382704
8,60	10	89	47	35	40	SCD231-0860-2-4-180HA03-HP230	30382705
8,70	10	89	47	35	40	SCD231-0870-2-4-180HA03-HP230	30382706
8,80	10	89	47	35	40	SCD231-0880-2-4-180HA03-HP230	30382707
8,90	10	89	47	35	40	SCD231-0890-2-4-180HA03-HP230	30382708
9,00	10	89	47	35	40	SCD231-0900-2-4-180HA03-HP230	30382709
9,10	10	89	47	35	40	SCD231-0910-2-4-180HA03-HP230	30382710
9,20	10	89	47	35	40	SCD231-0920-2-4-180HA03-HP230	30382711
9,30	10	89	47	35	40	SCD231-0930-2-4-180HA03-HP230	30382712
9,40	10	89	47	35	40	SCD231-0940-2-4-180HA03-HP230	30382713
9,50	10	89	47	35	40	SCD231-0950-2-4-180HA03-HP230	30382714
9,60	10	89	47	35	40	SCD231-0960-2-4-180HA03-HP230	30382715
9,70	10	89	47	35	40	SCD231-0970-2-4-180HA03-HP230	30382716
9,80	10	89	47	35	40	SCD231-0980-2-4-180HA03-HP230	30382717
9,90	10	89	47	35	40	SCD231-0990-2-4-180HA03-HP230	30382718
10,00	10	89	47	35	40	SCD231-1000-2-4-180HA03-HP230	30382719
10,10	12	100	53	38	45	SCD231-1010-2-4-180HA03-HP230	30382720
10,20	12	100	53	38	45	SCD231-1020-2-4-180HA03-HP230	30382721
10,30	12	100	53	38	45	SCD231-1030-2-4-180HA03-HP230	30382722
10,40	12	100	53	38	45	SCD231-1040-2-4-180HA03-HP230	30382723
10,50	12	100	53	38	45	SCD231-1050-2-4-180HA03-HP230	30382724
10,60	12	100	53	38	45	SCD231-1060-2-4-180HA03-HP230	30382725
10,70	12	100	53	38	45	SCD231-1070-2-4-180HA03-HP230	30382726
10,80	12	100	53	38	45	SCD231-1080-2-4-180HA03-HP230	30382727
10,90	12	100	53	38	45	SCD231-1090-2-4-180HA03-HP230	30382728
11,00	12	100	53	38	45	SCD231-1100-2-4-180HA03-HP230	30382729
11,10	12	100	53	38	45	SCD231-1110-2-4-180HA03-HP230	30382730
11,20	12	100	53	38	45	SCD231-1120-2-4-180HA03-HP230	30382731
11,30	12	100	53	38	45	SCD231-1130-2-4-180HA03-HP230	30382732
11,40	12	100	53	38	45	SCD231-1140-2-4-180HA03-HP230	30382733
11,50	12	100	53	38	45	SCD231-1150-2-4-180HA03-HP230	30382734
11,60	12	100	53	38	45	SCD231-1160-2-4-180HA03-HP230	30382735
11,70	12	100	53	38	45	SCD231-1170-2-4-180HA03-HP230	30382736
11,80	12	100	53	38	45	SCD231-1180-2-4-180HA03-HP230	30382737
11,90	12	100	53	38	45	SCD231-1190-2-4-180HA03-HP230	30382738
12,00	12	100	53	38	45	SCD231-1200-2-4-180HA03-HP230	30382739

Continued on next page.

MEGA-180°-Drill | Solid carbide twist drills SCD23 (3xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	105	58	41	45	SCD231-1250-2-4-180HA03-HP230	30382740
12,80	14	105	58	41	45	SCD231-1280-2-4-180HA03-HP230	30382741
13,00	14	105	58	41	45	SCD231-1300-2-4-180HA03-HP230	30382742
13,50	14	105	58	41	45	SCD231-1350-2-4-180HA03-HP230	30382743
13,80	14	105	58	41	45	SCD231-1380-2-4-180HA03-HP230	30382744
14,00	14	105	58	41	45	SCD231-1400-2-4-180HA03-HP230	30382745
14,50	16	113	63	43	48	SCD231-1450-2-4-180HA03-HP230	30382746
14,80	16	113	63	43	48	SCD231-1480-2-4-180HA03-HP230	30382747
15,00	16	113	63	43	48	SCD231-1500-2-4-180HA03-HP230	30382748
15,50	16	113	63	43	48	SCD231-1550-2-4-180HA03-HP230	30382749
15,80	16	113	63	43	48	SCD231-1580-2-4-180HA03-HP230	30382750
16,00	16	113	63	43	48	SCD231-1600-2-4-180HA03-HP230	30382751
16,50	18	121	71	49	48	SCD231-1650-2-4-180HA03-HP230	30382752
16,80	18	121	71	49	48	SCD231-1680-2-4-180HA03-HP230	30382753
17,00	18	121	71	49	48	SCD231-1700-2-4-180HA03-HP230	30382754
17,50	18	121	71	49	48	SCD231-1750-2-4-180HA03-HP230	30382755
17,80	18	121	71	49	48	SCD231-1780-2-4-180HA03-HP230	30382756
18,00	18	121	71	49	48	SCD231-1800-2-4-180HA03-HP230	30382757
18,50	20	129	77	53	50	SCD231-1850-2-4-180HA03-HP230	30382758
18,80	20	129	77	53	50	SCD231-1880-2-4-180HA03-HP230	30382759
19,00	20	129	77	53	50	SCD231-1900-2-4-180HA03-HP230	30382760
19,50	20	129	77	53	50	SCD231-1950-2-4-180HA03-HP230	30382761
19,80	20	129	77	53	50	SCD231-1980-2-4-180HA03-HP230	30382762
20,00	20	129	77	53	50	SCD231-2000-2-4-180HA03-HP230	30382763

Dimensions in mm.

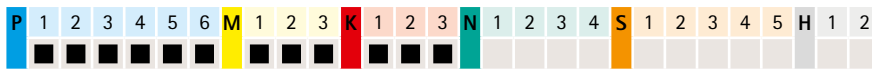
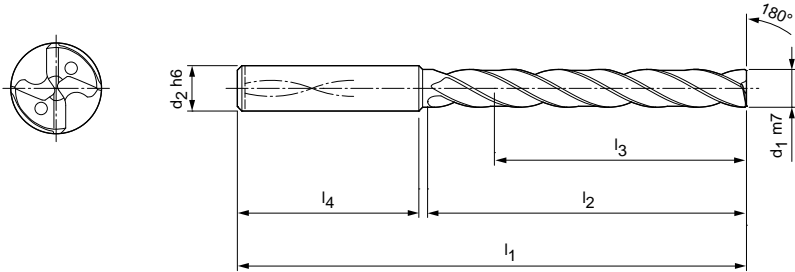
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-180°-Drill

Solid carbide twist drill
SCD23 (5xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Special TiAlN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 180°
 Helix angle: 30°



Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	66	28	23	36	SCD231-0300-2-4-180HA05-HP230	30382764
3,10	6	66	28	23	36	SCD231-0310-2-4-180HA05-HP230	30382765
3,20	6	66	28	23	36	SCD231-0320-2-4-180HA05-HP230	30382766
3,30	6	66	28	23	36	SCD231-0330-2-4-180HA05-HP230	30382767
3,40	6	66	28	23	36	SCD231-0340-2-4-180HA05-HP230	30382768
3,50	6	66	28	23	36	SCD231-0350-2-4-180HA05-HP230	30382769
3,60	6	66	28	23	36	SCD231-0360-2-4-180HA05-HP230	30382770
3,70	6	66	28	23	36	SCD231-0370-2-4-180HA05-HP230	30382771
3,80	6	74	36	29	36	SCD231-0380-2-4-180HA05-HP230	30382772
3,90	6	74	36	29	36	SCD231-0390-2-4-180HA05-HP230	30382773
4,00	6	74	36	29	36	SCD231-0400-2-4-180HA05-HP230	30382774
4,10	6	74	36	29	36	SCD231-0410-2-4-180HA05-HP230	30382775
4,20	6	74	36	29	36	SCD231-0420-2-4-180HA05-HP230	30382776
4,30	6	74	36	29	36	SCD231-0430-2-4-180HA05-HP230	30382777
4,40	6	74	36	29	36	SCD231-0440-2-4-180HA05-HP230	30382778
4,50	6	74	36	29	36	SCD231-0450-2-4-180HA05-HP230	30382779
4,60	6	74	36	29	36	SCD231-0460-2-4-180HA05-HP230	30382780
4,65	6	74	36	29	36	SCD231-0465-2-4-180HA05-HP230	30382781
4,70	6	74	36	29	36	SCD231-0470-2-4-180HA05-HP230	30382782
4,80	6	82	44	35	36	SCD231-0480-2-4-180HA05-HP230	30382783
4,90	6	82	44	35	36	SCD231-0490-2-4-180HA05-HP230	30382784
5,00	6	82	44	35	36	SCD231-0500-2-4-180HA05-HP230	30382785
5,10	6	82	44	35	36	SCD231-0510-2-4-180HA05-HP230	30382786
5,20	6	82	44	35	36	SCD231-0520-2-4-180HA05-HP230	30382787
5,30	6	82	44	35	36	SCD231-0530-2-4-180HA05-HP230	30382788
5,40	6	82	44	35	36	SCD231-0540-2-4-180HA05-HP230	30382789
5,50	6	82	44	35	36	SCD231-0550-2-4-180HA05-HP230	30382790
5,55	6	82	44	35	36	SCD231-0555-2-4-180HA05-HP230	30382791
5,60	6	82	44	35	36	SCD231-0560-2-4-180HA05-HP230	30382792
5,70	6	82	44	35	36	SCD231-0570-2-4-180HA05-HP230	30382793
5,80	6	82	44	35	36	SCD231-0580-2-4-180HA05-HP230	30382794
5,90	6	82	44	35	36	SCD231-0590-2-4-180HA05-HP230	30382795
6,00	6	82	44	35	36	SCD231-0600-2-4-180HA05-HP230	30382796
6,10	8	91	53	43	36	SCD231-0610-2-4-180HA05-HP230	30382797
6,20	8	91	53	43	36	SCD231-0620-2-4-180HA05-HP230	30382798
6,30	8	91	53	43	36	SCD231-0630-2-4-180HA05-HP230	30382799

MEGA-180°-Drill | Solid carbide twist drills SCD23 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	91	53	43	36	SCD231-0640-2-4-180HA05-HP230	30382800
6,50	8	91	53	43	36	SCD231-0650-2-4-180HA05-HP230	30382801
6,60	8	91	53	43	36	SCD231-0660-2-4-180HA05-HP230	30382802
6,70	8	91	53	43	36	SCD231-0670-2-4-180HA05-HP230	30382803
6,80	8	91	53	43	36	SCD231-0680-2-4-180HA05-HP230	30382804
6,90	8	91	53	43	36	SCD231-0690-2-4-180HA05-HP230	30382805
7,00	8	91	53	43	36	SCD231-0700-2-4-180HA05-HP230	30382806
7,10	8	91	53	43	36	SCD231-0710-2-4-180HA05-HP230	30382807
7,20	8	91	53	43	36	SCD231-0720-2-4-180HA05-HP230	30382808
7,30	8	91	53	43	36	SCD231-0730-2-4-180HA05-HP230	30382809
7,40	8	91	53	43	36	SCD231-0740-2-4-180HA05-HP230	30382810
7,50	8	91	53	43	36	SCD231-0750-2-4-180HA05-HP230	30382811
7,60	8	91	53	43	36	SCD231-0760-2-4-180HA05-HP230	30382812
7,70	8	91	53	43	36	SCD231-0770-2-4-180HA05-HP230	30382813
7,80	8	91	53	43	36	SCD231-0780-2-4-180HA05-HP230	30382814
7,90	8	91	53	43	36	SCD231-0790-2-4-180HA05-HP230	30382815
8,00	8	91	53	43	36	SCD231-0800-2-4-180HA05-HP230	30382816
8,10	10	103	61	49	40	SCD231-0810-2-4-180HA05-HP230	30382817
8,20	10	103	61	49	40	SCD231-0820-2-4-180HA05-HP230	30382818
8,30	10	103	61	49	40	SCD231-0830-2-4-180HA05-HP230	30382819
8,40	10	103	61	49	40	SCD231-0840-2-4-180HA05-HP230	30382820
8,50	10	103	61	49	40	SCD231-0850-2-4-180HA05-HP230	30382821
8,60	10	103	61	49	40	SCD231-0860-2-4-180HA05-HP230	30382822
8,70	10	103	61	49	40	SCD231-0870-2-4-180HA05-HP230	30382823
8,80	10	103	61	49	40	SCD231-0880-2-4-180HA05-HP230	30382824
8,90	10	103	61	49	40	SCD231-0890-2-4-180HA05-HP230	30382825
9,00	10	103	61	49	40	SCD231-0900-2-4-180HA05-HP230	30382826
9,10	10	103	61	49	40	SCD231-0910-2-4-180HA05-HP230	30382827
9,20	10	103	61	49	40	SCD231-0920-2-4-180HA05-HP230	30382828
9,30	10	103	61	49	40	SCD231-0930-2-4-180HA05-HP230	30382829
9,40	10	103	61	49	40	SCD231-0940-2-4-180HA05-HP230	30382830
9,50	10	103	61	49	40	SCD231-0950-2-4-180HA05-HP230	30382831
9,60	10	103	61	49	40	SCD231-0960-2-4-180HA05-HP230	30382832
9,70	10	103	61	49	40	SCD231-0970-2-4-180HA05-HP230	30382833
9,80	10	103	61	49	40	SCD231-0980-2-4-180HA05-HP230	30382834
9,90	10	103	61	49	40	SCD231-0990-2-4-180HA05-HP230	30382835
10,00	10	103	61	49	40	SCD231-1000-2-4-180HA05-HP230	30382836
10,10	12	116	69	54	45	SCD231-1010-2-4-180HA05-HP230	30382838
10,20	12	116	69	54	45	SCD231-1020-2-4-180HA05-HP230	30382840
10,30	12	116	69	54	45	SCD231-1030-2-4-180HA05-HP230	30382841
10,40	12	116	69	54	45	SCD231-1040-2-4-180HA05-HP230	30382842
10,50	12	116	69	54	45	SCD231-1050-2-4-180HA05-HP230	30382843
10,60	12	116	69	54	45	SCD231-1060-2-4-180HA05-HP230	30382844
10,70	12	116	69	54	45	SCD231-1070-2-4-180HA05-HP230	30382845
10,80	12	116	69	54	45	SCD231-1080-2-4-180HA05-HP230	30382846
10,90	12	116	69	54	45	SCD231-1090-2-4-180HA05-HP230	30382847
11,00	12	116	69	54	45	SCD231-1100-2-4-180HA05-HP230	30382848
11,10	12	116	69	54	45	SCD231-1110-2-4-180HA05-HP230	30382849
11,20	12	116	69	54	45	SCD231-1120-2-4-180HA05-HP230	30382850
11,30	12	116	69	54	45	SCD231-1130-2-4-180HA05-HP230	30382851
11,40	12	116	69	54	45	SCD231-1140-2-4-180HA05-HP230	30382852
11,50	12	116	69	54	45	SCD231-1150-2-4-180HA05-HP230	30382853
11,60	12	116	69	54	45	SCD231-1160-2-4-180HA05-HP230	30382854
11,70	12	116	69	54	45	SCD231-1170-2-4-180HA05-HP230	30382855
11,80	12	116	69	54	45	SCD231-1180-2-4-180HA05-HP230	30382856
11,90	12	116	69	54	45	SCD231-1190-2-4-180HA05-HP230	30382857
12,00	12	116	69	54	45	SCD231-1200-2-4-180HA05-HP230	30382858

MEGA-180°-Drill | Solid carbide twist drills SCD23 (5xD), internal coolant supply

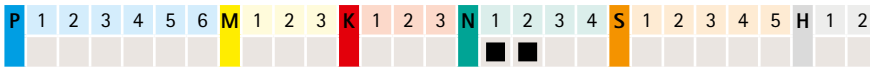
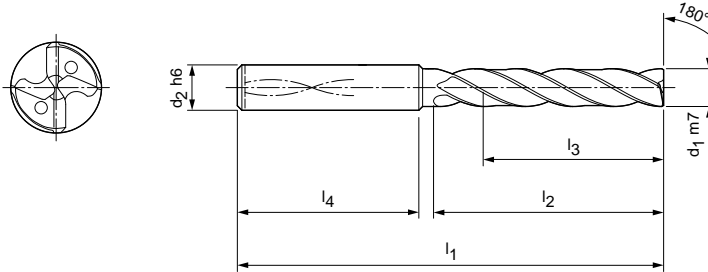
Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	122	75	58	45	SCD231-1250-2-4-180HA05-HP230	30382859
12,80	14	122	75	58	45	SCD231-1280-2-4-180HA05-HP230	30382860
13,00	14	122	75	58	45	SCD231-1300-2-4-180HA05-HP230	30382861
13,50	14	122	75	58	45	SCD231-1350-2-4-180HA05-HP230	30382862
13,80	14	122	75	58	45	SCD231-1380-2-4-180HA05-HP230	30382863
14,00	14	122	75	58	45	SCD231-1400-2-4-180HA05-HP230	30382864
14,50	16	131	81	61	48	SCD231-1450-2-4-180HA05-HP230	30382865
14,80	16	131	81	61	48	SCD231-1480-2-4-180HA05-HP230	30382866
15,00	16	131	81	61	48	SCD231-1500-2-4-180HA05-HP230	30382867
15,50	16	131	81	61	48	SCD231-1550-2-4-180HA05-HP230	30382868
15,80	16	131	81	61	48	SCD231-1580-2-4-180HA05-HP230	30382869
16,00	16	131	81	61	48	SCD231-1600-2-4-180HA05-HP230	30382870
16,50	18	141	91	69	48	SCD231-1650-2-4-180HA05-HP230	30382871
16,80	18	141	91	69	48	SCD231-1680-2-4-180HA05-HP230	30382872
17,00	18	141	91	69	48	SCD231-1700-2-4-180HA05-HP230	30382873
17,50	18	141	91	69	48	SCD231-1750-2-4-180HA05-HP230	30382874
17,80	18	141	91	69	48	SCD231-1780-2-4-180HA05-HP230	30382875
18,00	18	141	91	69	48	SCD231-1800-2-4-180HA05-HP230	30382876
18,50	20	151	99	75	50	SCD231-1850-2-4-180HA05-HP230	30382877
18,80	20	151	99	75	50	SCD231-1880-2-4-180HA05-HP230	30382878
19,00	20	151	99	75	50	SCD231-1900-2-4-180HA05-HP230	30382879
19,50	20	151	99	75	50	SCD231-1950-2-4-180HA05-HP230	30382880
19,80	20	151	99	75	50	SCD231-1980-2-4-180HA05-HP230	30382881
20,00	20	151	99	75	50	SCD231-2000-2-4-180HA05-HP230	30382882

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-180°-Drill-Alu

Solid carbide twist drill
SCD24 (3xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 180°
 Helix angle: 30°



Dimensions						Shank form HA	
$d_1 m7$	$d_2 h6$	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	62	20	14	36	SCD241-0300-2-4-180HA03-HU630	30382883
3,10	6	62	20	14	36	SCD241-0310-2-4-180HA03-HU630	30382884
3,20	6	62	20	14	36	SCD241-0320-2-4-180HA03-HU630	30382885
3,30	6	62	20	14	36	SCD241-0330-2-4-180HA03-HU630	30382886
3,40	6	62	20	14	36	SCD241-0340-2-4-180HA03-HU630	30382887
3,50	6	62	20	14	36	SCD241-0350-2-4-180HA03-HU630	30382888
3,60	6	62	20	14	36	SCD241-0360-2-4-180HA03-HU630	30382889
3,70	6	62	20	14	36	SCD241-0370-2-4-180HA03-HU630	30382890
3,80	6	66	24	17	36	SCD241-0380-2-4-180HA03-HU630	30382891
3,90	6	66	24	17	36	SCD241-0390-2-4-180HA03-HU630	30382892
4,00	6	66	24	17	36	SCD241-0400-2-4-180HA03-HU630	30382893
4,10	6	66	24	17	36	SCD241-0410-2-4-180HA03-HU630	30382894
4,20	6	66	24	17	36	SCD241-0420-2-4-180HA03-HU630	30382895
4,30	6	66	24	17	36	SCD241-0430-2-4-180HA03-HU630	30382896
4,40	6	66	24	17	36	SCD241-0440-2-4-180HA03-HU630	30382897
4,50	6	66	24	17	36	SCD241-0450-2-4-180HA03-HU630	30382898
4,60	6	66	24	17	36	SCD241-0460-2-4-180HA03-HU630	30382899
4,65	6	66	24	17	36	SCD241-0465-2-4-180HA03-HU630	30382900
4,70	6	66	24	17	36	SCD241-0470-2-4-180HA03-HU630	30382901
4,80	6	66	28	20	36	SCD241-0480-2-4-180HA03-HU630	30382902
4,90	6	66	28	20	36	SCD241-0490-2-4-180HA03-HU630	30382903
5,00	6	66	28	20	36	SCD241-0500-2-4-180HA03-HU630	30382904
5,10	6	66	28	20	36	SCD241-0510-2-4-180HA03-HU630	30382905
5,20	6	66	28	20	36	SCD241-0520-2-4-180HA03-HU630	30382906
5,30	6	66	28	20	36	SCD241-0530-2-4-180HA03-HU630	30382907
5,40	6	66	28	20	36	SCD241-0540-2-4-180HA03-HU630	30382908
5,50	6	66	28	20	36	SCD241-0550-2-4-180HA03-HU630	30382909
5,55	6	66	28	20	36	SCD241-0555-2-4-180HA03-HU630	30382910
5,60	6	66	28	20	36	SCD241-0560-2-4-180HA03-HU630	30382911
5,70	6	66	28	20	36	SCD241-0570-2-4-180HA03-HU630	30382912
5,80	6	66	28	20	36	SCD241-0580-2-4-180HA03-HU630	30382913
5,90	6	66	28	20	36	SCD241-0590-2-4-180HA03-HU630	30382914
6,00	6	66	28	20	36	SCD241-0600-2-4-180HA03-HU630	30382915
6,10	8	79	34	24	36	SCD241-0610-2-4-180HA03-HU630	30382916
6,20	8	79	34	24	36	SCD241-0620-2-4-180HA03-HU630	30382917
6,30	8	79	34	24	36	SCD241-0630-2-4-180HA03-HU630	30382918

MEGA-180°-Drill-Alu | Solid carbide twist drills SCD24 (3xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	79	34	24	36	SCD241-0640-2-4-180HA03-HU630	30382919
6,50	8	79	34	24	36	SCD241-0650-2-4-180HA03-HU630	30382920
6,60	8	79	34	24	36	SCD241-0660-2-4-180HA03-HU630	30382921
6,70	8	79	34	24	36	SCD241-0670-2-4-180HA03-HU630	30382922
6,80	8	79	34	24	36	SCD241-0680-2-4-180HA03-HU630	30382923
6,90	8	79	34	24	36	SCD241-0690-2-4-180HA03-HU630	30382924
7,00	8	79	34	24	36	SCD241-0700-2-4-180HA03-HU630	30382925
7,10	8	79	41	29	36	SCD241-0710-2-4-180HA03-HU630	30382926
7,20	8	79	41	29	36	SCD241-0720-2-4-180HA03-HU630	30382927
7,30	8	79	41	29	36	SCD241-0730-2-4-180HA03-HU630	30382928
7,40	8	79	41	29	36	SCD241-0740-2-4-180HA03-HU630	30382929
7,50	8	79	41	29	36	SCD241-0750-2-4-180HA03-HU630	30382930
7,60	8	79	41	29	36	SCD241-0760-2-4-180HA03-HU630	30382931
7,70	8	79	41	29	36	SCD241-0770-2-4-180HA03-HU630	30382932
7,80	8	79	41	29	36	SCD241-0780-2-4-180HA03-HU630	30382933
7,90	8	79	41	29	36	SCD241-0790-2-4-180HA03-HU630	30382934
8,00	8	79	41	29	36	SCD241-0800-2-4-180HA03-HU630	30382935
8,10	10	89	47	35	40	SCD241-0810-2-4-180HA03-HU630	30382936
8,20	10	89	47	35	40	SCD241-0820-2-4-180HA03-HU630	30382937
8,30	10	89	47	35	40	SCD241-0830-2-4-180HA03-HU630	30382938
8,40	10	89	47	35	40	SCD241-0840-2-4-180HA03-HU630	30382939
8,50	10	89	47	35	40	SCD241-0850-2-4-180HA03-HU630	30382940
8,60	10	89	47	35	40	SCD241-0860-2-4-180HA03-HU630	30382941
8,70	10	89	47	35	40	SCD241-0870-2-4-180HA03-HU630	30382942
8,80	10	89	47	35	40	SCD241-0880-2-4-180HA03-HU630	30382943
8,90	10	89	47	35	40	SCD241-0890-2-4-180HA03-HU630	30382944
9,00	10	89	47	35	40	SCD241-0900-2-4-180HA03-HU630	30382945
9,10	10	89	47	35	40	SCD241-0910-2-4-180HA03-HU630	30382946
9,20	10	89	47	35	40	SCD241-0920-2-4-180HA03-HU630	30382947
9,30	10	89	47	35	40	SCD241-0930-2-4-180HA03-HU630	30382948
9,40	10	89	47	35	40	SCD241-0940-2-4-180HA03-HU630	30382949
9,50	10	89	47	35	40	SCD241-0950-2-4-180HA03-HU630	30382950
9,60	10	89	47	35	40	SCD241-0960-2-4-180HA03-HU630	30382951
9,70	10	89	47	35	40	SCD241-0970-2-4-180HA03-HU630	30382952
9,80	10	89	47	35	40	SCD241-0980-2-4-180HA03-HU630	30382953
9,90	10	89	47	35	40	SCD241-0990-2-4-180HA03-HU630	30382954
10,00	10	89	47	35	40	SCD241-1000-2-4-180HA03-HU630	30382955
10,10	12	100	53	38	45	SCD241-1010-2-4-180HA03-HU630	30382956
10,20	12	100	53	38	45	SCD241-1020-2-4-180HA03-HU630	30382957
10,30	12	100	53	38	45	SCD241-1030-2-4-180HA03-HU630	30382958
10,40	12	100	53	38	45	SCD241-1040-2-4-180HA03-HU630	30382959
10,50	12	100	53	38	45	SCD241-1050-2-4-180HA03-HU630	30382960
10,60	12	100	53	38	45	SCD241-1060-2-4-180HA03-HU630	30382961
10,70	12	100	53	38	45	SCD241-1070-2-4-180HA03-HU630	30382962
10,80	12	100	53	38	45	SCD241-1080-2-4-180HA03-HU630	30382963
10,90	12	100	53	38	45	SCD241-1090-2-4-180HA03-HU630	30382964
11,00	12	100	53	38	45	SCD241-1100-2-4-180HA03-HU630	30382965
11,10	12	100	53	38	45	SCD241-1110-2-4-180HA03-HU630	30382966
11,20	12	100	53	38	45	SCD241-1120-2-4-180HA03-HU630	30382967
11,30	12	100	53	38	45	SCD241-1130-2-4-180HA03-HU630	30382968
11,40	12	100	53	38	45	SCD241-1140-2-4-180HA03-HU630	30382969
11,50	12	100	53	38	45	SCD241-1150-2-4-180HA03-HU630	30382970
11,60	12	100	53	38	45	SCD241-1160-2-4-180HA03-HU630	30382971
11,70	12	100	53	38	45	SCD241-1170-2-4-180HA03-HU630	30382972
11,80	12	100	53	38	45	SCD241-1180-2-4-180HA03-HU630	30382973
11,90	12	100	53	38	45	SCD241-1190-2-4-180HA03-HU630	30382974
12,00	12	100	53	38	45	SCD241-1200-2-4-180HA03-HU630	30382975

MEGA-180°-Drill-Alu | Solid carbide twist drills SCD24 (3xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	105	58	41	45	SCD241-1250-2-4-180HA03-HU630	30382976
12,80	14	105	58	41	45	SCD241-1280-2-4-180HA03-HU630	30382977
13,00	14	105	58	41	45	SCD241-1300-2-4-180HA03-HU630	30382978
13,50	14	105	58	41	45	SCD241-1350-2-4-180HA03-HU630	30382979
13,80	14	105	58	41	45	SCD241-1380-2-4-180HA03-HU630	30382980
14,00	14	105	58	41	45	SCD241-1400-2-4-180HA03-HU630	30382981
14,50	16	113	63	43	48	SCD241-1450-2-4-180HA03-HU630	30382982
14,80	16	113	63	43	48	SCD241-1480-2-4-180HA03-HU630	30382983
15,00	16	113	63	43	48	SCD241-1500-2-4-180HA03-HU630	30382984
15,50	16	113	63	43	48	SCD241-1550-2-4-180HA03-HU630	30382985
15,80	16	113	63	43	48	SCD241-1580-2-4-180HA03-HU630	30382986
16,00	16	113	63	43	48	SCD241-1600-2-4-180HA03-HU630	30382987
16,50	18	121	71	49	48	SCD241-1650-2-4-180HA03-HU630	30382988
16,80	18	121	71	49	48	SCD241-1680-2-4-180HA03-HU630	30382989
17,00	18	121	71	49	48	SCD241-1700-2-4-180HA03-HU630	30382990
17,50	18	121	71	49	48	SCD241-1750-2-4-180HA03-HU630	30382991
17,80	18	121	71	49	48	SCD241-1780-2-4-180HA03-HU630	30382992
18,00	18	121	71	49	48	SCD241-1800-2-4-180HA03-HU630	30382993
18,50	20	129	77	53	50	SCD241-1850-2-4-180HA03-HU630	30382994
18,80	20	129	77	53	50	SCD241-1880-2-4-180HA03-HU630	30382995
19,00	20	129	77	53	50	SCD241-1900-2-4-180HA03-HU630	30382996
19,50	20	129	77	53	50	SCD241-1950-2-4-180HA03-HU630	30382997
19,80	20	129	77	53	50	SCD241-1980-2-4-180HA03-HU630	30382998
20,00	20	129	77	53	50	SCD241-2000-2-4-180HA03-HU630	30382999

Dimensions in mm.

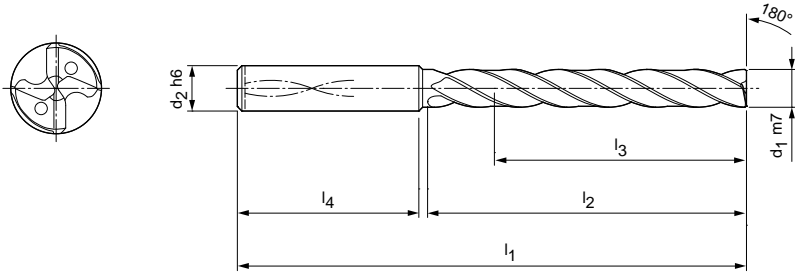
Cutting data recommendation from page 458.

Special designs and other coatings on request.

MEGA-180°-Drill-Alu

Solid carbide twist drill
SCD24 (5xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: ≥ IT 9
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 4
 Point geometry: Specific lead geometry
 Tip angle: 180 °
 Helix angle: 30 °



Dimensions						Shank form HA	
d_1 m7	d_2 h6	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	66	28	23	36	SCD241-0300-2-4-180HA05-HU630	30383000
3,10	6	66	28	23	36	SCD241-0310-2-4-180HA05-HU630	30383001
3,20	6	66	28	23	36	SCD241-0320-2-4-180HA05-HU630	30383002
3,30	6	66	28	23	36	SCD241-0330-2-4-180HA05-HU630	30383003
3,40	6	66	28	23	36	SCD241-0340-2-4-180HA05-HU630	30383004
3,50	6	66	28	23	36	SCD241-0350-2-4-180HA05-HU630	30383005
3,60	6	66	28	23	36	SCD241-0360-2-4-180HA05-HU630	30383006
3,70	6	66	28	23	36	SCD241-0370-2-4-180HA05-HU630	30383007
3,80	6	74	36	29	36	SCD241-0380-2-4-180HA05-HU630	30383008
3,90	6	74	36	29	36	SCD241-0390-2-4-180HA05-HU630	30383009
4,00	6	74	36	29	36	SCD241-0400-2-4-180HA05-HU630	30383010
4,10	6	74	36	29	36	SCD241-0410-2-4-180HA05-HU630	30383011
4,20	6	74	36	29	36	SCD241-0420-2-4-180HA05-HU630	30383012
4,30	6	74	36	29	36	SCD241-0430-2-4-180HA05-HU630	30383013
4,40	6	74	36	29	36	SCD241-0440-2-4-180HA05-HU630	30383014
4,50	6	74	36	29	36	SCD241-0450-2-4-180HA05-HU630	30383015
4,60	6	74	36	29	36	SCD241-0460-2-4-180HA05-HU630	30383016
4,65	6	74	36	29	36	SCD241-0465-2-4-180HA05-HU630	30383017
4,70	6	74	36	29	36	SCD241-0470-2-4-180HA05-HU630	30383018
4,80	6	82	44	35	36	SCD241-0480-2-4-180HA05-HU630	30383019
4,90	6	82	44	35	36	SCD241-0490-2-4-180HA05-HU630	30383020
5,00	6	82	44	35	36	SCD241-0500-2-4-180HA05-HU630	30383021
5,10	6	82	44	35	36	SCD241-0510-2-4-180HA05-HU630	30383022
5,20	6	82	44	35	36	SCD241-0520-2-4-180HA05-HU630	30383023
5,30	6	82	44	35	36	SCD241-0530-2-4-180HA05-HU630	30383024
5,40	6	82	44	35	36	SCD241-0540-2-4-180HA05-HU630	30383025
5,50	6	82	44	35	36	SCD241-0550-2-4-180HA05-HU630	30383026
5,55	6	82	44	35	36	SCD241-0555-2-4-180HA05-HU630	30383027
5,60	6	82	44	35	36	SCD241-0560-2-4-180HA05-HU630	30383028
5,70	6	82	44	35	36	SCD241-0570-2-4-180HA05-HU630	30383029
5,80	6	82	44	35	36	SCD241-0580-2-4-180HA05-HU630	30383030
5,90	6	82	44	35	36	SCD241-0590-2-4-180HA05-HU630	30383031
6,00	6	82	44	35	36	SCD241-0600-2-4-180HA05-HU630	30383032
6,10	8	91	53	43	36	SCD241-0610-2-4-180HA05-HU630	30383033
6,20	8	91	53	43	36	SCD241-0620-2-4-180HA05-HU630	30383034
6,30	8	91	53	43	36	SCD241-0630-2-4-180HA05-HU630	30383035

MEGA-180°-Drill-Alu | Solid carbide twist drills SCD24 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	91	53	43	36	SCD241-0640-2-4-180HA05-HU630	30383036
6,50	8	91	53	43	36	SCD241-0650-2-4-180HA05-HU630	30383037
6,60	8	91	53	43	36	SCD241-0660-2-4-180HA05-HU630	30383038
6,70	8	91	53	43	36	SCD241-0670-2-4-180HA05-HU630	30383039
6,80	8	91	53	43	36	SCD241-0680-2-4-180HA05-HU630	30383040
6,90	8	91	53	43	36	SCD241-0690-2-4-180HA05-HU630	30383041
7,00	8	91	53	43	36	SCD241-0700-2-4-180HA05-HU630	30383042
7,10	8	91	53	43	36	SCD241-0710-2-4-180HA05-HU630	30383043
7,20	8	91	53	43	36	SCD241-0720-2-4-180HA05-HU630	30383044
7,30	8	91	53	43	36	SCD241-0730-2-4-180HA05-HU630	30383045
7,40	8	91	53	43	36	SCD241-0740-2-4-180HA05-HU630	30383046
7,50	8	91	53	43	36	SCD241-0750-2-4-180HA05-HU630	30383047
7,60	8	91	53	43	36	SCD241-0760-2-4-180HA05-HU630	30383048
7,70	8	91	53	43	36	SCD241-0770-2-4-180HA05-HU630	30383049
7,80	8	91	53	43	36	SCD241-0780-2-4-180HA05-HU630	30383050
7,90	8	91	53	43	36	SCD241-0790-2-4-180HA05-HU630	30383051
8,00	8	91	53	43	36	SCD241-0800-2-4-180HA05-HU630	30383052
8,10	10	103	61	49	40	SCD241-0810-2-4-180HA05-HU630	30383053
8,20	10	103	61	49	40	SCD241-0820-2-4-180HA05-HU630	30383054
8,30	10	103	61	49	40	SCD241-0830-2-4-180HA05-HU630	30383055
8,40	10	103	61	49	40	SCD241-0840-2-4-180HA05-HU630	30383056
8,50	10	103	61	49	40	SCD241-0850-2-4-180HA05-HU630	30383057
8,60	10	103	61	49	40	SCD241-0860-2-4-180HA05-HU630	30383058
8,70	10	103	61	49	40	SCD241-0870-2-4-180HA05-HU630	30383059
8,80	10	103	61	49	40	SCD241-0880-2-4-180HA05-HU630	30383060
8,90	10	103	61	49	40	SCD241-0890-2-4-180HA05-HU630	30383061
9,00	10	103	61	49	40	SCD241-0900-2-4-180HA05-HU630	30383062
9,10	10	103	61	49	40	SCD241-0910-2-4-180HA05-HU630	30383064
9,20	10	103	61	49	40	SCD241-0920-2-4-180HA05-HU630	30383065
9,30	10	103	61	49	40	SCD241-0930-2-4-180HA05-HU630	30383066
9,40	10	103	61	49	40	SCD241-0940-2-4-180HA05-HU630	30383067
9,50	10	103	61	49	40	SCD241-0950-2-4-180HA05-HU630	30383068
9,60	10	103	61	49	40	SCD241-0960-2-4-180HA05-HU630	30383069
9,70	10	103	61	49	40	SCD241-0970-2-4-180HA05-HU630	30383070
9,80	10	103	61	49	40	SCD241-0980-2-4-180HA05-HU630	30383071
9,90	10	103	61	49	40	SCD241-0990-2-4-180HA05-HU630	30383072
10,00	10	103	61	49	40	SCD241-1000-2-4-180HA05-HU630	30383073
10,10	12	116	69	54	45	SCD241-1010-2-4-180HA05-HU630	30383074
10,20	12	116	69	54	45	SCD241-1020-2-4-180HA05-HU630	30383075
10,30	12	116	69	54	45	SCD241-1030-2-4-180HA05-HU630	30383076
10,40	12	116	69	54	45	SCD241-1040-2-4-180HA05-HU630	30383077
10,50	12	116	69	54	45	SCD241-1050-2-4-180HA05-HU630	30383078
10,60	12	116	69	54	45	SCD241-1060-2-4-180HA05-HU630	30383079
10,70	12	116	69	54	45	SCD241-1070-2-4-180HA05-HU630	30383080
10,80	12	116	69	54	45	SCD241-1080-2-4-180HA05-HU630	30383081
10,90	12	116	69	54	45	SCD241-1090-2-4-180HA05-HU630	30383082
11,00	12	116	69	54	45	SCD241-1100-2-4-180HA05-HU630	30383083
11,10	12	116	69	54	45	SCD241-1110-2-4-180HA05-HU630	30383084
11,20	12	116	69	54	45	SCD241-1120-2-4-180HA05-HU630	30383085
11,30	12	116	69	54	45	SCD241-1130-2-4-180HA05-HU630	30383086
11,40	12	116	69	54	45	SCD241-1140-2-4-180HA05-HU630	30383087
11,50	12	116	69	54	45	SCD241-1150-2-4-180HA05-HU630	30383088
11,60	12	116	69	54	45	SCD241-1160-2-4-180HA05-HU630	30383089
11,70	12	116	69	54	45	SCD241-1170-2-4-180HA05-HU630	30383090
11,80	12	116	69	54	45	SCD241-1180-2-4-180HA05-HU630	30383091
11,90	12	116	69	54	45	SCD241-1190-2-4-180HA05-HU630	30383092
12,00	12	116	69	54	45	SCD241-1200-2-4-180HA05-HU630	30383093

MEGA-180°-Drill-Alu | Solid carbide twist drills SCD24 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	122	75	58	45	SCD241-1250-2-4-180HA05-HU630	30383094
12,80	14	122	75	58	45	SCD241-1280-2-4-180HA05-HU630	30383095
13,00	14	122	75	58	45	SCD241-1300-2-4-180HA05-HU630	30383096
13,50	14	122	75	58	45	SCD241-1350-2-4-180HA05-HU630	30383097
13,80	14	122	75	58	45	SCD241-1380-2-4-180HA05-HU630	30383098
14,00	14	122	75	58	45	SCD241-1400-2-4-180HA05-HU630	30383099
14,50	16	131	81	61	48	SCD241-1450-2-4-180HA05-HU630	30383100
14,80	16	131	81	61	48	SCD241-1480-2-4-180HA05-HU630	30383101
15,00	16	131	81	61	48	SCD241-1500-2-4-180HA05-HU630	30383102
15,50	16	131	81	61	48	SCD241-1550-2-4-180HA05-HU630	30383103
15,80	16	131	81	61	48	SCD241-1580-2-4-180HA05-HU630	30383104
16,00	16	131	81	61	48	SCD241-1600-2-4-180HA05-HU630	30383105
16,50	18	141	91	69	48	SCD241-1650-2-4-180HA05-HU630	30383106
16,80	18	141	91	69	48	SCD241-1680-2-4-180HA05-HU630	30383107
17,00	18	141	91	69	48	SCD241-1700-2-4-180HA05-HU630	30383108
17,50	18	141	91	69	48	SCD241-1750-2-4-180HA05-HU630	30383109
17,80	18	141	91	69	48	SCD241-1780-2-4-180HA05-HU630	30383110
18,00	18	141	91	69	48	SCD241-1800-2-4-180HA05-HU630	30383111
18,50	20	151	99	75	50	SCD241-1850-2-4-180HA05-HU630	30383112
18,80	20	151	99	75	50	SCD241-1880-2-4-180HA05-HU630	30383113
19,00	20	151	99	75	50	SCD241-1900-2-4-180HA05-HU630	30383114
19,50	20	151	99	75	50	SCD241-1950-2-4-180HA05-HU630	30383115
19,80	20	151	99	75	50	SCD241-1980-2-4-180HA05-HU630	30383116
20,00	20	151	99	75	50	SCD241-2000-2-4-180HA05-HU630	30383117

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.





MEGA-SPEED-DRILL

Introduction

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MEGA-Speed-Drill-Steel

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MEGA-Speed-Drill-Steel, 5xD - internal coolant supply	197
MEGA-Speed-Drill-Steel, 8xD - internal coolant supply	200

MEGA-Speed-Drill-Inox

MEGA-Speed-Drill-Inox, 5xD - internal coolant supply	203
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MEGA-Speed-Drill Iron

MEGA-Speed-Drill-Iron, 5xD - internal coolant supply	206
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MEGA-Speed-Drill-Titan

MEGA-Speed-Drill-Titan, 5xD - internal coolant supply	209
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MEGA-SPEED-DRILL

Three times faster and reliable

The cutting edges on the MEGA-Speed-Drill have an unequal spacing. The drill also has three guiding chamfers. This prevents vibration and reduces friction. The highly polished chip flutes guarantee optimal chip flow.

These features of the drill combined with the lead geometries and cutting materials geared specially to the workpiece materials cast iron, steel and stainless steel allow the MEGA-Speed-Drill to produce bores with 30 % higher feed rates than is possible with conventional drills.

AT A GLANCE









- Significantly higher cutting speeds
- Polished chip flute guarantees optimal chip removal
- Powerful in cast iron, steel and stainless steel

Tool features in detail



- 1 Three guiding chamfers
- 2 Special coatings matched to the workpiece material
- 3 Highly polished chip flutes
- 4 Guiding chamfer 1
- 5 Guiding chamfer 2 including side relief
- 6 Guiding chamfer 3

Programme

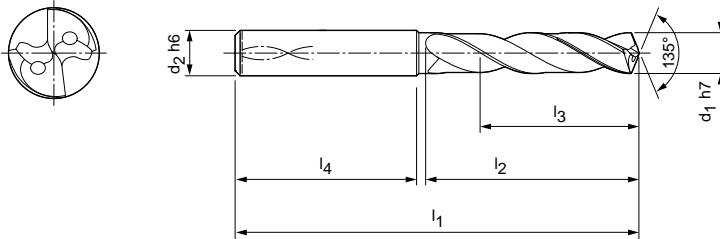
			
MEGA-Speed-Drill-Steel	MEGA-Speed-Drill-Inox	MEGA-Speed-Drill Iron	MEGA-Speed-Drill-Titan
			
Ø range: 3.00 - 20.00 mm	Ø range: 3.00 - 20.00 mm	Ø range: 3.00 - 20.00 mm	Ø range: 3.00 - 12.00 mm
Drilling depth: 3xD 5xD 8xD	Drilling depth: 5xD	Drilling depth: 5xD	Drilling depth: 5xD
P K	P M S	K	S
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MEGA-Speed-Drill-Steel

Solid carbide twist drill
SCD22 (3xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special AlTiN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 3
 Point geometry: Specific lead geometry
 Tip angle: 135 °
 Helix angle: 30 °

Application:
 For high-speed machining



Dimensions						Shank form HA	
$d_1 h7$	$d_2 h6$	l_1	l_2	l_3	l_4	Specification	Order No.
3,00	6	62	20	14	36	SCD221-0300-2-3-135HA03-HP374	30404127
3,10	6	62	20	14	36	SCD221-0310-2-3-135HA03-HP374	30404128
3,20	6	62	20	14	36	SCD221-0320-2-3-135HA03-HP374	30404129
3,30	6	62	20	14	36	SCD221-0330-2-3-135HA03-HP374	30404130
3,40	6	62	20	14	36	SCD221-0340-2-3-135HA03-HP374	30404131
3,50	6	62	20	14	36	SCD221-0350-2-3-135HA03-HP374	30404132
3,60	6	62	20	14	36	SCD221-0360-2-3-135HA03-HP374	30404133
3,70	6	62	20	14	36	SCD221-0370-2-3-135HA03-HP374	30404134
3,80	6	66	24	17	36	SCD221-0380-2-3-135HA03-HP374	30404135
3,90	6	66	24	17	36	SCD221-0390-2-3-135HA03-HP374	30404136
4,00	6	66	24	17	36	SCD221-0400-2-3-135HA03-HP374	30404137
4,10	6	66	24	17	36	SCD221-0410-2-3-135HA03-HP374	30404138
4,20	6	66	24	17	36	SCD221-0420-2-3-135HA03-HP374	30404139
4,30	6	66	24	17	36	SCD221-0430-2-3-135HA03-HP374	30404140
4,40	6	66	24	17	36	SCD221-0440-2-3-135HA03-HP374	30404141
4,50	6	66	24	17	36	SCD221-0450-2-3-135HA03-HP374	30404142
4,60	6	66	24	17	36	SCD221-0460-2-3-135HA03-HP374	30404143
4,65	6	66	24	17	36	SCD221-0465-2-3-135HA03-HP374	30404144
4,70	6	66	24	17	36	SCD221-0470-2-3-135HA03-HP374	30404145
4,80	6	66	28	20	36	SCD221-0480-2-3-135HA03-HP374	30404146
4,90	6	66	28	20	36	SCD221-0490-2-3-135HA03-HP374	30404147
5,00	6	66	28	20	36	SCD221-0500-2-3-135HA03-HP374	30404148
5,10	6	66	28	20	36	SCD221-0510-2-3-135HA03-HP374	30404149
5,20	6	66	28	20	36	SCD221-0520-2-3-135HA03-HP374	30404150
5,30	6	66	28	20	36	SCD221-0530-2-3-135HA03-HP374	30404151
5,40	6	66	28	20	36	SCD221-0540-2-3-135HA03-HP374	30404152
5,50	6	66	28	20	36	SCD221-0550-2-3-135HA03-HP374	30404153
5,55	6	66	28	20	36	SCD221-0555-2-3-135HA03-HP374	30404154
5,60	6	66	28	20	36	SCD221-0560-2-3-135HA03-HP374	30404155
5,70	6	66	28	20	36	SCD221-0570-2-3-135HA03-HP374	30404156
5,80	6	66	28	20	36	SCD221-0580-2-3-135HA03-HP374	30404157
5,90	6	66	28	20	36	SCD221-0590-2-3-135HA03-HP374	30404158
6,00	6	66	28	20	36	SCD221-0600-2-3-135HA03-HP374	30404159
6,10	8	79	34	24	36	SCD221-0610-2-3-135HA03-HP374	30404160
6,20	8	79	34	24	36	SCD221-0620-2-3-135HA03-HP374	30404161
6,30	8	79	34	24	36	SCD221-0630-2-3-135HA03-HP374	30404162

MEGA-Speed-Drill-Steel | Solid carbide twist drills SCD22 (3xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	79	34	24	36	SCD221-0640-2-3-135HA03-HP374	30404163
6,50	8	79	34	24	36	SCD221-0650-2-3-135HA03-HP374	30404164
6,60	8	79	34	24	36	SCD221-0660-2-3-135HA03-HP374	30404165
6,70	8	79	34	24	36	SCD221-0670-2-3-135HA03-HP374	30404166
6,80	8	79	34	24	36	SCD221-0680-2-3-135HA03-HP374	30404167
6,90	8	79	34	24	36	SCD221-0690-2-3-135HA03-HP374	30404168
7,00	8	79	34	24	36	SCD221-0700-2-3-135HA03-HP374	30404169
7,10	8	79	41	29	36	SCD221-0710-2-3-135HA03-HP374	30404170
7,20	8	79	41	29	36	SCD221-0720-2-3-135HA03-HP374	30404171
7,30	8	79	41	29	36	SCD221-0730-2-3-135HA03-HP374	30404172
7,40	8	79	41	29	36	SCD221-0740-2-3-135HA03-HP374	30404173
7,50	8	79	41	29	36	SCD221-0750-2-3-135HA03-HP374	30404175
7,60	8	79	41	29	36	SCD221-0760-2-3-135HA03-HP374	30404176
7,70	8	79	41	29	36	SCD221-0770-2-3-135HA03-HP374	30404177
7,80	8	79	41	29	36	SCD221-0780-2-3-135HA03-HP374	30404178
7,90	8	79	41	29	36	SCD221-0790-2-3-135HA03-HP374	30404179
8,00	8	79	41	29	36	SCD221-0800-2-3-135HA03-HP374	30404180
8,10	10	89	47	35	40	SCD221-0810-2-3-135HA03-HP374	30404181
8,20	10	89	47	35	40	SCD221-0820-2-3-135HA03-HP374	30404182
8,30	10	89	47	35	40	SCD221-0830-2-3-135HA03-HP374	30404183
8,40	10	89	47	35	40	SCD221-0840-2-3-135HA03-HP374	30404184
8,50	10	89	47	35	40	SCD221-0850-2-3-135HA03-HP374	30404185
8,60	10	89	47	35	40	SCD221-0860-2-3-135HA03-HP374	30404186
8,70	10	89	47	35	40	SCD221-0870-2-3-135HA03-HP374	30404187
8,80	10	89	47	35	40	SCD221-0880-2-3-135HA03-HP374	30404188
8,90	10	89	47	35	40	SCD221-0890-2-3-135HA03-HP374	30404189
9,00	10	89	47	35	40	SCD221-0900-2-3-135HA03-HP374	30404190
9,10	10	89	47	35	40	SCD221-0910-2-3-135HA03-HP374	30404191
9,20	10	89	47	35	40	SCD221-0920-2-3-135HA03-HP374	30404192
9,30	10	89	47	35	40	SCD221-0930-2-3-135HA03-HP374	30404193
9,40	10	89	47	35	40	SCD221-0940-2-3-135HA03-HP374	30404194
9,50	10	89	47	35	40	SCD221-0950-2-3-135HA03-HP374	30404195
9,60	10	89	47	35	40	SCD221-0960-2-3-135HA03-HP374	30404196
9,70	10	89	47	35	40	SCD221-0970-2-3-135HA03-HP374	30404197
9,80	10	89	47	35	40	SCD221-0980-2-3-135HA03-HP374	30404198
9,90	10	89	47	35	40	SCD221-0990-2-3-135HA03-HP374	30404199
10,00	10	89	47	35	40	SCD221-1000-2-3-135HA03-HP374	30404200
10,10	12	102	55	40	45	SCD221-1010-2-3-135HA03-HP374	30404201
10,20	12	102	55	40	45	SCD221-1020-2-3-135HA03-HP374	30404202
10,30	12	102	55	40	45	SCD221-1030-2-3-135HA03-HP374	30404203
10,40	12	102	55	40	45	SCD221-1040-2-3-135HA03-HP374	30404204
10,50	12	102	55	40	45	SCD221-1050-2-3-135HA03-HP374	30404205
10,60	12	102	55	40	45	SCD221-1060-2-3-135HA03-HP374	30404206
10,70	12	102	55	40	45	SCD221-1070-2-3-135HA03-HP374	30404207
10,80	12	102	55	40	45	SCD221-1080-2-3-135HA03-HP374	30404208
10,90	12	102	55	40	45	SCD221-1090-2-3-135HA03-HP374	30404209
11,00	12	102	55	40	45	SCD221-1100-2-3-135HA03-HP374	30404210
11,10	12	102	55	40	45	SCD221-1110-2-3-135HA03-HP374	30404211
11,20	12	102	55	40	45	SCD221-1120-2-3-135HA03-HP374	30404212
11,30	12	102	55	40	45	SCD221-1130-2-3-135HA03-HP374	30404213
11,40	12	102	55	40	45	SCD221-1140-2-3-135HA03-HP374	30404214
11,50	12	102	55	40	45	SCD221-1150-2-3-135HA03-HP374	30404215
11,60	12	102	55	40	45	SCD221-1160-2-3-135HA03-HP374	30404216
11,70	12	102	55	40	45	SCD221-1170-2-3-135HA03-HP374	30404217
11,80	12	102	55	40	45	SCD221-1180-2-3-135HA03-HP374	30404219
11,90	12	102	55	40	45	SCD221-1190-2-3-135HA03-HP374	30404220
12,00	12	102	55	40	45	SCD221-1200-2-3-135HA03-HP374	30404221

MEGA-Speed-Drill-Steel | Solid carbide twist drills SCD22 (3xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	107	60	43	45	SCD221-1250-2-3-135HA03-HP374	30404222
12,80	14	107	60	43	45	SCD221-1280-2-3-135HA03-HP374	30404223
13,00	14	107	60	43	45	SCD221-1300-2-3-135HA03-HP374	30404224
13,50	14	107	60	43	45	SCD221-1350-2-3-135HA03-HP374	30404225
13,80	14	107	60	43	45	SCD221-1380-2-3-135HA03-HP374	30404226
14,00	14	107	60	43	45	SCD221-1400-2-3-135HA03-HP374	30404227
14,50	16	115	65	45	48	SCD221-1450-2-3-135HA03-HP374	30404228
14,80	16	115	65	45	48	SCD221-1480-2-3-135HA03-HP374	30404229
15,00	16	115	65	45	48	SCD221-1500-2-3-135HA03-HP374	30404230
15,50	16	115	65	45	48	SCD221-1550-2-3-135HA03-HP374	30404231
15,80	16	115	65	45	48	SCD221-1580-2-3-135HA03-HP374	30404232
16,00	16	115	65	45	48	SCD221-1600-2-3-135HA03-HP374	30404233
16,50	18	123	73	51	48	SCD221-1650-2-3-135HA03-HP374	30404234
16,80	18	123	73	51	48	SCD221-1680-2-3-135HA03-HP374	30404235
17,00	18	123	73	51	48	SCD221-1700-2-3-135HA03-HP374	30404236
17,50	18	123	73	51	48	SCD221-1750-2-3-135HA03-HP374	30404237
17,80	18	123	73	51	48	SCD221-1780-2-3-135HA03-HP374	30404238
18,00	18	123	73	51	48	SCD221-1800-2-3-135HA03-HP374	30404239
18,50	20	131	79	55	50	SCD221-1850-2-3-135HA03-HP374	30404240
18,80	20	131	79	55	50	SCD221-1880-2-3-135HA03-HP374	30404241
19,00	20	131	79	55	50	SCD221-1900-2-3-135HA03-HP374	30404242
19,50	20	131	79	55	50	SCD221-1950-2-3-135HA03-HP374	30404243
19,80	20	131	79	55	50	SCD221-1980-2-3-135HA03-HP374	30404244
20,00	20	131	79	55	50	SCD221-2000-2-3-135HA03-HP374	30404245

Dimensions in mm.

Cutting data recommendation from page 458.

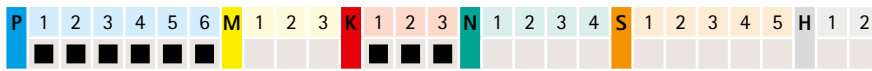
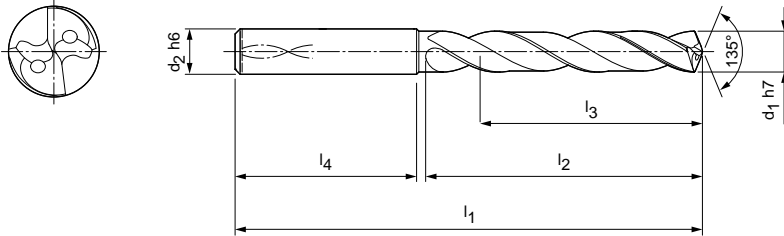
Special designs and other coatings on request.

MEGA-Speed-Drill-Steel

Solid carbide twist drill
SCD22 (5xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special AlTiN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 3
 Point geometry: Specific lead geometry
 Tip angle: 135 °
 Helix angle: 30 °

Application:
 For high-speed machining



Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	66	28	23	36	SCD221-0300-2-3-135HA05-HP374	30392925
3,10	6	66	28	23	36	SCD221-0310-2-3-135HA05-HP374	30392926
3,20	6	66	28	23	36	SCD221-0320-2-3-135HA05-HP374	30392927
3,30	6	66	28	23	36	SCD221-0330-2-3-135HA05-HP374	30392928
3,40	6	66	28	23	36	SCD221-0340-2-3-135HA05-HP374	30392929
3,50	6	66	28	23	36	SCD221-0350-2-3-135HA05-HP374	30392930
3,60	6	66	28	23	36	SCD221-0360-2-3-135HA05-HP374	30392931
3,70	6	66	28	23	36	SCD221-0370-2-3-135HA05-HP374	30392932
3,80	6	74	36	29	36	SCD221-0380-2-3-135HA05-HP374	30392933
3,90	6	74	36	29	36	SCD221-0390-2-3-135HA05-HP374	30392934
4,00	6	74	36	29	36	SCD221-0400-2-3-135HA05-HP374	30392935
4,10	6	74	36	29	36	SCD221-0410-2-3-135HA05-HP374	30392936
4,20	6	74	36	29	36	SCD221-0420-2-3-135HA05-HP374	30392937
4,30	6	74	36	29	36	SCD221-0430-2-3-135HA05-HP374	30392938
4,40	6	74	36	29	36	SCD221-0440-2-3-135HA05-HP374	30392939
4,50	6	74	36	29	36	SCD221-0450-2-3-135HA05-HP374	30392940
4,60	6	74	36	29	36	SCD221-0460-2-3-135HA05-HP374	30392941
4,65	6	74	36	29	36	SCD221-0465-2-3-135HA05-HP374	30392942
4,70	6	74	36	29	36	SCD221-0470-2-3-135HA05-HP374	30392943
4,80	6	82	44	35	36	SCD221-0480-2-3-135HA05-HP374	30392944
4,90	6	82	44	35	36	SCD221-0490-2-3-135HA05-HP374	30392945
5,00	6	82	44	35	36	SCD221-0500-2-3-135HA05-HP374	30392946
5,10	6	82	44	35	36	SCD221-0510-2-3-135HA05-HP374	30392947
5,20	6	82	44	35	36	SCD221-0520-2-3-135HA05-HP374	30392948
5,30	6	82	44	35	36	SCD221-0530-2-3-135HA05-HP374	30392949
5,40	6	82	44	35	36	SCD221-0540-2-3-135HA05-HP374	30392950
5,50	6	82	44	35	36	SCD221-0550-2-3-135HA05-HP374	30392951
5,55	6	82	44	35	36	SCD221-0555-2-3-135HA05-HP374	30392952
5,60	6	82	44	35	36	SCD221-0560-2-3-135HA05-HP374	30392953
5,70	6	82	44	35	36	SCD221-0570-2-3-135HA05-HP374	30392954
5,80	6	82	44	35	36	SCD221-0580-2-3-135HA05-HP374	30392955
5,90	6	82	44	35	36	SCD221-0590-2-3-135HA05-HP374	30392956
6,00	6	82	44	35	36	SCD221-0600-2-3-135HA05-HP374	30392957
6,10	8	91	53	43	36	SCD221-0610-2-3-135HA05-HP374	30392958
6,20	8	91	53	43	36	SCD221-0620-2-3-135HA05-HP374	30392959
6,30	8	91	53	43	36	SCD221-0630-2-3-135HA05-HP374	30392960

MEGA-Speed-Drill-Steel | Solid carbide twist drills SCD22 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	91	53	43	36	SCD221-0640-2-3-135HA05-HP374	30392961
6,50	8	91	53	43	36	SCD221-0650-2-3-135HA05-HP374	30392962
6,60	8	91	53	43	36	SCD221-0660-2-3-135HA05-HP374	30392963
6,70	8	91	53	43	36	SCD221-0670-2-3-135HA05-HP374	30392964
6,80	8	91	53	43	36	SCD221-0680-2-3-135HA05-HP374	30392965
6,90	8	91	53	43	36	SCD221-0690-2-3-135HA05-HP374	30392966
7,00	8	91	53	43	36	SCD221-0700-2-3-135HA05-HP374	30392967
7,10	8	91	53	43	36	SCD221-0710-2-3-135HA05-HP374	30392968
7,20	8	91	53	43	36	SCD221-0720-2-3-135HA05-HP374	30392969
7,30	8	91	53	43	36	SCD221-0730-2-3-135HA05-HP374	30392970
7,40	8	91	53	43	36	SCD221-0740-2-3-135HA05-HP374	30392971
7,50	8	91	53	43	36	SCD221-0750-2-3-135HA05-HP374	30392972
7,60	8	91	53	43	36	SCD221-0760-2-3-135HA05-HP374	30392973
7,70	8	91	53	43	36	SCD221-0770-2-3-135HA05-HP374	30392974
7,80	8	91	53	43	36	SCD221-0780-2-3-135HA05-HP374	30392975
7,90	8	91	53	43	36	SCD221-0790-2-3-135HA05-HP374	30392976
8,00	8	91	53	43	36	SCD221-0800-2-3-135HA05-HP374	30392977
8,10	10	103	61	49	40	SCD221-0810-2-3-135HA05-HP374	30392978
8,20	10	103	61	49	40	SCD221-0820-2-3-135HA05-HP374	30392979
8,30	10	103	61	49	40	SCD221-0830-2-3-135HA05-HP374	30392980
8,40	10	103	61	49	40	SCD221-0840-2-3-135HA05-HP374	30392981
8,50	10	103	61	49	40	SCD221-0850-2-3-135HA05-HP374	30392982
8,60	10	103	61	49	40	SCD221-0860-2-3-135HA05-HP374	30392983
8,70	10	103	61	49	40	SCD221-0870-2-3-135HA05-HP374	30392984
8,80	10	103	61	49	40	SCD221-0880-2-3-135HA05-HP374	30392985
8,90	10	103	61	49	40	SCD221-0890-2-3-135HA05-HP374	30392986
9,00	10	103	61	49	40	SCD221-0900-2-3-135HA05-HP374	30392987
9,10	10	103	61	49	40	SCD221-0910-2-3-135HA05-HP374	30392988
9,20	10	103	61	49	40	SCD221-0920-2-3-135HA05-HP374	30392989
9,30	10	103	61	49	40	SCD221-0930-2-3-135HA05-HP374	30392990
9,40	10	103	61	49	40	SCD221-0940-2-3-135HA05-HP374	30392991
9,50	10	103	61	49	40	SCD221-0950-2-3-135HA05-HP374	30392992
9,60	10	103	61	49	40	SCD221-0960-2-3-135HA05-HP374	30392993
9,70	10	103	61	49	40	SCD221-0970-2-3-135HA05-HP374	30392994
9,80	10	103	61	49	40	SCD221-0980-2-3-135HA05-HP374	30392995
9,90	10	103	61	49	40	SCD221-0990-2-3-135HA05-HP374	30392996
10,00	10	103	61	49	40	SCD221-1000-2-3-135HA05-HP374	30392997
10,10	12	118	71	56	45	SCD221-1010-2-3-135HA05-HP374	30392998
10,20	12	118	71	56	45	SCD221-1020-2-3-135HA05-HP374	30392999
10,30	12	118	71	56	45	SCD221-1030-2-3-135HA05-HP374	30393000
10,40	12	118	71	56	45	SCD221-1040-2-3-135HA05-HP374	30393001
10,50	12	118	71	56	45	SCD221-1050-2-3-135HA05-HP374	30393002
10,60	12	118	71	56	45	SCD221-1060-2-3-135HA05-HP374	30393003
10,70	12	118	71	56	45	SCD221-1070-2-3-135HA05-HP374	30393004
10,80	12	118	71	56	45	SCD221-1080-2-3-135HA05-HP374	30393005
10,90	12	118	71	56	45	SCD221-1090-2-3-135HA05-HP374	30393006
11,00	12	118	71	56	45	SCD221-1100-2-3-135HA05-HP374	30393007
11,10	12	118	71	56	45	SCD221-1110-2-3-135HA05-HP374	30393008
11,20	12	118	71	56	45	SCD221-1120-2-3-135HA05-HP374	30393009
11,30	12	118	71	56	45	SCD221-1130-2-3-135HA05-HP374	30393010
11,40	12	118	71	56	45	SCD221-1140-2-3-135HA05-HP374	30393011
11,50	12	118	71	56	45	SCD221-1150-2-3-135HA05-HP374	30393012
11,60	12	118	71	56	45	SCD221-1160-2-3-135HA05-HP374	30393013
11,70	12	118	71	56	45	SCD221-1170-2-3-135HA05-HP374	30393014
11,80	12	118	71	56	45	SCD221-1180-2-3-135HA05-HP374	30393015
11,90	12	118	71	56	45	SCD221-1190-2-3-135HA05-HP374	30393016
12,00	12	118	71	56	45	SCD221-1200-2-3-135HA05-HP374	30393017

MEGA-Speed-Drill-Steel | Solid carbide twist drills SCD22 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	124	77	60	45	SCD221-1250-2-3-135HA05-HP374	30393018
12,80	14	124	77	60	45	SCD221-1280-2-3-135HA05-HP374	30393019
13,00	14	124	77	60	45	SCD221-1300-2-3-135HA05-HP374	30393020
13,50	14	124	77	60	45	SCD221-1350-2-3-135HA05-HP374	30393021
13,80	14	124	77	60	45	SCD221-1380-2-3-135HA05-HP374	30393022
14,00	14	124	77	60	45	SCD221-1400-2-3-135HA05-HP374	30393023
14,50	16	133	83	63	48	SCD221-1450-2-3-135HA05-HP374	30393024
14,80	16	133	83	63	48	SCD221-1480-2-3-135HA05-HP374	30393025
15,00	16	133	83	63	48	SCD221-1500-2-3-135HA05-HP374	30393026
15,50	16	133	83	63	48	SCD221-1550-2-3-135HA05-HP374	30393027
15,80	16	133	83	63	48	SCD221-1580-2-3-135HA05-HP374	30393028
16,00	16	133	83	63	48	SCD221-1600-2-3-135HA05-HP374	30393029
16,50	18	143	93	71	48	SCD221-1650-2-3-135HA05-HP374	30393030
16,80	18	143	93	71	48	SCD221-1680-2-3-135HA05-HP374	30393031
17,00	18	143	93	71	48	SCD221-1700-2-3-135HA05-HP374	30393032
17,50	18	143	93	71	48	SCD221-1750-2-3-135HA05-HP374	30393033
17,80	18	143	93	71	48	SCD221-1780-2-3-135HA05-HP374	30393034
18,00	18	143	93	71	48	SCD221-1800-2-3-135HA05-HP374	30393035
18,50	20	153	101	77	50	SCD221-1850-2-3-135HA05-HP374	30393036
18,80	20	153	101	77	50	SCD221-1880-2-3-135HA05-HP374	30393037
19,00	20	153	101	77	50	SCD221-1900-2-3-135HA05-HP374	30393038
19,50	20	153	101	77	50	SCD221-1950-2-3-135HA05-HP374	30393039
19,80	20	153	101	77	50	SCD221-1980-2-3-135HA05-HP374	30393040
20,00	20	153	101	77	50	SCD221-2000-2-3-135HA05-HP374	30393041

Dimensions in mm.

Cutting data recommendation from page 458.

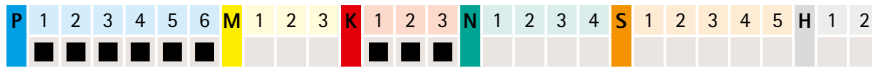
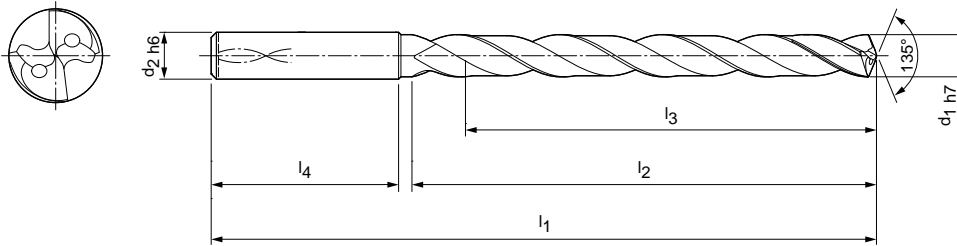
Special designs and other coatings on request.

MEGA-Speed-Drill-Steel

Solid carbide twist drill
SCD22 (8xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special AlTiN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 3
 Point geometry: Specific lead geometry
 Tip angle: 135 °
 Helix angle: 30 °

Application:
 For high-speed machining



Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	72	34	29	36	SCD221-0300-2-3-135HA08-HP374	30404000
3,10	6	72	34	29	36	SCD221-0310-2-3-135HA08-HP374	30404001
3,20	6	72	34	29	36	SCD221-0320-2-3-135HA08-HP374	30404002
3,30	6	72	34	29	36	SCD221-0330-2-3-135HA08-HP374	30404003
3,40	6	72	34	29	36	SCD221-0340-2-3-135HA08-HP374	30404004
3,50	6	72	34	29	36	SCD221-0350-2-3-135HA08-HP374	30404005
3,60	6	72	34	29	36	SCD221-0360-2-3-135HA08-HP374	30404006
3,70	6	72	34	29	36	SCD221-0370-2-3-135HA08-HP374	30404007
3,80	6	81	43	36	36	SCD221-0380-2-3-135HA08-HP374	30404008
3,90	6	81	43	36	36	SCD221-0390-2-3-135HA08-HP374	30404009
4,00	6	81	43	36	36	SCD221-0400-2-3-135HA08-HP374	30404010
4,10	6	81	43	36	36	SCD221-0410-2-3-135HA08-HP374	30404011
4,20	6	81	43	36	36	SCD221-0420-2-3-135HA08-HP374	30404012
4,30	6	81	43	36	36	SCD221-0430-2-3-135HA08-HP374	30404013
4,40	6	81	43	36	36	SCD221-0440-2-3-135HA08-HP374	30404014
4,50	6	81	43	36	36	SCD221-0450-2-3-135HA08-HP374	30404015
4,60	6	81	43	36	36	SCD221-0460-2-3-135HA08-HP374	30404016
4,65	6	81	43	36	36	SCD221-0465-2-3-135HA08-HP374	30404017
4,70	6	81	43	36	36	SCD221-0470-2-3-135HA08-HP374	30404018
4,80	6	95	57	48	36	SCD221-0480-2-3-135HA08-HP374	30404019
4,90	6	95	57	48	36	SCD221-0490-2-3-135HA08-HP374	30404020
5,00	6	95	57	48	36	SCD221-0500-2-3-135HA08-HP374	30404021
5,10	6	95	57	48	36	SCD221-0510-2-3-135HA08-HP374	30404022
5,20	6	95	57	48	36	SCD221-0520-2-3-135HA08-HP374	30404023
5,30	6	95	57	48	36	SCD221-0530-2-3-135HA08-HP374	30404024
5,40	6	95	57	48	36	SCD221-0540-2-3-135HA08-HP374	30404025
5,50	6	95	57	48	36	SCD221-0550-2-3-135HA08-HP374	30404026
5,55	6	95	57	48	36	SCD221-0555-2-3-135HA08-HP374	30404027
5,60	6	95	57	48	36	SCD221-0560-2-3-135HA08-HP374	30404028
5,70	6	95	57	48	36	SCD221-0570-2-3-135HA08-HP374	30404029
5,80	6	95	57	48	36	SCD221-0580-2-3-135HA08-HP374	30404030
5,90	6	95	57	48	36	SCD221-0590-2-3-135HA08-HP374	30404031
6,00	6	95	57	48	36	SCD221-0600-2-3-135HA08-HP374	30404032
6,10	8	114	76	64	36	SCD221-0610-2-3-135HA08-HP374	30404033
6,20	8	114	76	64	36	SCD221-0620-2-3-135HA08-HP374	30404034
6,30	8	114	76	64	36	SCD221-0630-2-3-135HA08-HP374	30404035

MEGA-Speed-Drill-Steel | Solid carbide twist drills SCD22 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	114	76	64	36	SCD221-0640-2-3-135HA08-HP374	30404036
6,50	8	114	76	64	36	SCD221-0650-2-3-135HA08-HP374	30404037
6,60	8	114	76	64	36	SCD221-0660-2-3-135HA08-HP374	30404038
6,70	8	114	76	64	36	SCD221-0670-2-3-135HA08-HP374	30404039
6,80	8	114	76	64	36	SCD221-0680-2-3-135HA08-HP374	30404040
6,90	8	114	76	64	36	SCD221-0690-2-3-135HA08-HP374	30404042
7,00	8	114	76	64	36	SCD221-0700-2-3-135HA08-HP374	30404043
7,10	8	114	76	64	36	SCD221-0710-2-3-135HA08-HP374	30404044
7,20	8	114	76	64	36	SCD221-0720-2-3-135HA08-HP374	30404045
7,30	8	114	76	64	36	SCD221-0730-2-3-135HA08-HP374	30404046
7,40	8	114	76	64	36	SCD221-0740-2-3-135HA08-HP374	30404047
7,50	8	114	76	64	36	SCD221-0750-2-3-135HA08-HP374	30404048
7,60	8	114	76	64	36	SCD221-0760-2-3-135HA08-HP374	30404049
7,70	8	114	76	64	36	SCD221-0770-2-3-135HA08-HP374	30404050
7,80	8	114	76	64	36	SCD221-0780-2-3-135HA08-HP374	30404051
7,90	8	114	76	64	36	SCD221-0790-2-3-135HA08-HP374	30404052
8,00	8	114	76	64	36	SCD221-0800-2-3-135HA08-HP374	30404053
8,10	10	142	95	80	40	SCD221-0810-2-3-135HA08-HP374	30404054
8,20	10	142	95	80	40	SCD221-0820-2-3-135HA08-HP374	30404055
8,30	10	142	95	80	40	SCD221-0830-2-3-135HA08-HP374	30404056
8,40	10	142	95	80	40	SCD221-0840-2-3-135HA08-HP374	30404057
8,50	10	142	95	80	40	SCD221-0850-2-3-135HA08-HP374	30404058
8,60	10	142	95	80	40	SCD221-0860-2-3-135HA08-HP374	30404059
8,70	10	142	95	80	40	SCD221-0870-2-3-135HA08-HP374	30404060
8,80	10	142	95	80	40	SCD221-0880-2-3-135HA08-HP374	30404061
8,90	10	142	95	80	40	SCD221-0890-2-3-135HA08-HP374	30404062
9,00	10	142	95	80	40	SCD221-0900-2-3-135HA08-HP374	30404063
9,10	10	142	95	80	40	SCD221-0910-2-3-135HA08-HP374	30404064
9,20	10	142	95	80	40	SCD221-0920-2-3-135HA08-HP374	30404065
9,30	10	142	95	80	40	SCD221-0930-2-3-135HA08-HP374	30404066
9,40	10	142	95	80	40	SCD221-0940-2-3-135HA08-HP374	30404067
9,50	10	142	95	80	40	SCD221-0950-2-3-135HA08-HP374	30404068
9,60	10	142	95	80	40	SCD221-0960-2-3-135HA08-HP374	30404069
9,70	10	142	95	80	40	SCD221-0970-2-3-135HA08-HP374	30404070
9,80	10	142	95	80	40	SCD221-0980-2-3-135HA08-HP374	30404071
9,90	10	142	95	80	40	SCD221-0990-2-3-135HA08-HP374	30404072
10,00	10	142	95	80	40	SCD221-1000-2-3-135HA08-HP374	30404073
10,10	12	162	114	96	45	SCD221-1010-2-3-135HA08-HP374	30404074
10,20	12	162	114	96	45	SCD221-1020-2-3-135HA08-HP374	30404075
10,30	12	162	114	96	45	SCD221-1030-2-3-135HA08-HP374	30404076
10,40	12	162	114	96	45	SCD221-1040-2-3-135HA08-HP374	30404077
10,50	12	162	114	96	45	SCD221-1050-2-3-135HA08-HP374	30404078
10,60	12	162	114	96	45	SCD221-1060-2-3-135HA08-HP374	30404079
10,70	12	162	114	96	45	SCD221-1070-2-3-135HA08-HP374	30404080
10,80	12	162	114	96	45	SCD221-1080-2-3-135HA08-HP374	30404081
10,90	12	162	114	96	45	SCD221-1090-2-3-135HA08-HP374	30404082
11,00	12	162	114	96	45	SCD221-1100-2-3-135HA08-HP374	30404083
11,10	12	162	114	96	45	SCD221-1110-2-3-135HA08-HP374	30404084
11,20	12	162	114	96	45	SCD221-1120-2-3-135HA08-HP374	30404085
11,30	12	162	114	96	45	SCD221-1130-2-3-135HA08-HP374	30404086
11,40	12	162	114	96	45	SCD221-1140-2-3-135HA08-HP374	30404088
11,50	12	162	114	96	45	SCD221-1150-2-3-135HA08-HP374	30404089
11,60	12	162	114	96	45	SCD221-1160-2-3-135HA08-HP374	30404090
11,70	12	162	114	96	45	SCD221-1170-2-3-135HA08-HP374	30404091
11,80	12	162	114	96	45	SCD221-1180-2-3-135HA08-HP374	30404092
11,90	12	162	114	96	45	SCD221-1190-2-3-135HA08-HP374	30404093
12,00	12	162	114	96	45	SCD221-1200-2-3-135HA08-HP374	30404094

Continued on next page.

MEGA-Speed-Drill-Steel | Solid carbide twist drills SCD22 (8xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	178	133	112	45	SCD221-1250-2-3-135HA08-HP374	30404095
12,80	14	178	133	112	45	SCD221-1280-2-3-135HA08-HP374	30404096
13,00	14	178	133	112	45	SCD221-1300-2-3-135HA08-HP374	30404097
13,50	14	178	133	112	45	SCD221-1350-2-3-135HA08-HP374	30404098
13,80	14	178	133	112	45	SCD221-1380-2-3-135HA08-HP374	30404099
14,00	14	178	133	112	45	SCD221-1400-2-3-135HA08-HP374	30404100
14,50	16	203	152	128	48	SCD221-1450-2-3-135HA08-HP374	30404101
14,80	16	203	152	128	48	SCD221-1480-2-3-135HA08-HP374	30404102
15,00	16	203	152	128	48	SCD221-1500-2-3-135HA08-HP374	30404103
15,50	16	203	152	128	48	SCD221-1550-2-3-135HA08-HP374	30404104
15,80	16	203	152	128	48	SCD221-1580-2-3-135HA08-HP374	30404105
16,00	16	203	152	128	48	SCD221-1600-2-3-135HA08-HP374	30404106
16,50	18	222	171	144	48	SCD221-1650-2-3-135HA08-HP374	30404107
16,80	18	222	171	144	48	SCD221-1680-2-3-135HA08-HP374	30404108
17,00	18	222	171	144	48	SCD221-1700-2-3-135HA08-HP374	30404109
17,50	18	222	171	144	48	SCD221-1750-2-3-135HA08-HP374	30404110
17,80	18	222	171	144	48	SCD221-1780-2-3-135HA08-HP374	30404111
18,00	18	222	171	144	48	SCD221-1800-2-3-135HA08-HP374	30404112
18,50	20	243	190	160	50	SCD221-1850-2-3-135HA08-HP374	30404113
18,80	20	243	190	160	50	SCD221-1880-2-3-135HA08-HP374	30404114
19,00	20	243	190	160	50	SCD221-1900-2-3-135HA08-HP374	30404115
19,50	20	243	190	160	50	SCD221-1950-2-3-135HA08-HP374	30404116
19,80	20	243	190	160	50	SCD221-1980-2-3-135HA08-HP374	30404117
20,00	20	243	190	160	50	SCD221-2000-2-3-135HA08-HP374	30404118

Dimensions in mm.

Cutting data recommendation from page 458.

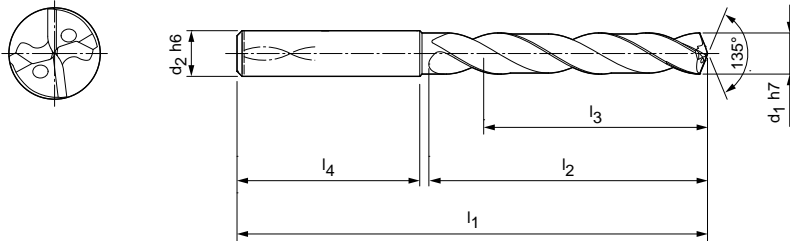
Special designs and other coatings on request.

MEGA-Speed-Drill-Inox

Solid carbide twist drill
SCD41 (5xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special AlTiN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 3
 Point geometry: Specific lead geometry
 Tip angle: 135°
 Helix angle: 30°

Application:
 For high-speed machining



Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	66	28	23	36	SCD411-0300-2-3-135HA05-HP374	30488182
3,10	6	66	28	23	36	SCD411-0310-2-3-135HA05-HP374	30488183
3,20	6	66	28	23	36	SCD411-0320-2-3-135HA05-HP374	30488184
3,30	6	66	28	23	36	SCD411-0330-2-3-135HA05-HP374	30488185
3,40	6	66	28	23	36	SCD411-0340-2-3-135HA05-HP374	30488186
3,50	6	66	28	23	36	SCD411-0350-2-3-135HA05-HP374	30488187
3,60	6	66	28	23	36	SCD411-0360-2-3-135HA05-HP374	30488188
3,70	6	66	28	23	36	SCD411-0370-2-3-135HA05-HP374	30488189
3,80	6	74	36	29	36	SCD411-0380-2-3-135HA05-HP374	30488190
3,90	6	74	36	29	36	SCD411-0390-2-3-135HA05-HP374	30488191
4,00	6	74	36	29	36	SCD411-0400-2-3-135HA05-HP374	30488192
4,10	6	74	36	29	36	SCD411-0410-2-3-135HA05-HP374	30488193
4,20	6	74	36	29	36	SCD411-0420-2-3-135HA05-HP374	30488194
4,30	6	74	36	29	36	SCD411-0430-2-3-135HA05-HP374	30488195
4,40	6	74	36	29	36	SCD411-0440-2-3-135HA05-HP374	30488196
4,50	6	74	36	29	36	SCD411-0450-2-3-135HA05-HP374	30488197
4,60	6	74	36	29	36	SCD411-0460-2-3-135HA05-HP374	30488198
4,65	6	74	36	29	36	SCD411-0465-2-3-135HA05-HP374	30488199
4,70	6	74	36	29	36	SCD411-0470-2-3-135HA05-HP374	30488200
4,80	6	82	44	35	36	SCD411-0480-2-3-135HA05-HP374	30488201
4,90	6	82	44	35	36	SCD411-0490-2-3-135HA05-HP374	30488202
5,00	6	82	44	35	36	SCD411-0500-2-3-135HA05-HP374	30488203
5,10	6	82	44	35	36	SCD411-0510-2-3-135HA05-HP374	30488204
5,20	6	82	44	35	36	SCD411-0520-2-3-135HA05-HP374	30488205
5,30	6	82	44	35	36	SCD411-0530-2-3-135HA05-HP374	30488206
5,40	6	82	44	35	36	SCD411-0540-2-3-135HA05-HP374	30488207
5,50	6	82	44	35	36	SCD411-0550-2-3-135HA05-HP374	30488208
5,55	6	82	44	35	36	SCD411-0555-2-3-135HA05-HP374	30488209
5,60	6	82	44	35	36	SCD411-0560-2-3-135HA05-HP374	30488210
5,70	6	82	44	35	36	SCD411-0570-2-3-135HA05-HP374	30488211
5,80	6	82	44	35	36	SCD411-0580-2-3-135HA05-HP374	30488212
5,90	6	82	44	35	36	SCD411-0590-2-3-135HA05-HP374	30488213
6,00	6	82	44	35	36	SCD411-0600-2-3-135HA05-HP374	30488214
6,10	8	91	53	43	36	SCD411-0610-2-3-135HA05-HP374	30488215
6,20	8	91	53	43	36	SCD411-0620-2-3-135HA05-HP374	30488216
6,30	8	91	53	43	36	SCD411-0630-2-3-135HA05-HP374	30488217

MEGA-Speed-Drill-Inox | Solid carbide twist drills SCD41 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	91	53	43	36	SCD411-0640-2-3-135HA05-HP374	30488218
6,50	8	91	53	43	36	SCD411-0650-2-3-135HA05-HP374	30488219
6,60	8	91	53	43	36	SCD411-0660-2-3-135HA05-HP374	30488220
6,70	8	91	53	43	36	SCD411-0670-2-3-135HA05-HP374	30488221
6,80	8	91	53	43	36	SCD411-0680-2-3-135HA05-HP374	30488222
6,90	8	91	53	43	36	SCD411-0690-2-3-135HA05-HP374	30488223
7,00	8	91	53	43	36	SCD411-0700-2-3-135HA05-HP374	30488224
7,10	8	91	53	43	36	SCD411-0710-2-3-135HA05-HP374	30488225
7,20	8	91	53	43	36	SCD411-0720-2-3-135HA05-HP374	30488226
7,30	8	91	53	43	36	SCD411-0730-2-3-135HA05-HP374	30488227
7,40	8	91	53	43	36	SCD411-0740-2-3-135HA05-HP374	30488228
7,50	8	91	53	43	36	SCD411-0750-2-3-135HA05-HP374	30488229
7,60	8	91	53	43	36	SCD411-0760-2-3-135HA05-HP374	30488230
7,70	8	91	53	43	36	SCD411-0770-2-3-135HA05-HP374	30488231
7,80	8	91	53	43	36	SCD411-0780-2-3-135HA05-HP374	30488232
7,90	8	91	53	43	36	SCD411-0790-2-3-135HA05-HP374	30488233
8,00	8	91	53	43	36	SCD411-0800-2-3-135HA05-HP374	30488234
8,10	10	103	61	49	40	SCD411-0810-2-3-135HA05-HP374	30488235
8,20	10	103	61	49	40	SCD411-0820-2-3-135HA05-HP374	30488236
8,30	10	103	61	49	40	SCD411-0830-2-3-135HA05-HP374	30488237
8,40	10	103	61	49	40	SCD411-0840-2-3-135HA05-HP374	30488238
8,50	10	103	61	49	40	SCD411-0850-2-3-135HA05-HP374	30488239
8,60	10	103	61	49	40	SCD411-0860-2-3-135HA05-HP374	30488240
8,70	10	103	61	49	40	SCD411-0870-2-3-135HA05-HP374	30488241
8,80	10	103	61	49	40	SCD411-0880-2-3-135HA05-HP374	30488242
8,90	10	103	61	49	40	SCD411-0890-2-3-135HA05-HP374	30488243
9,00	10	103	61	49	40	SCD411-0900-2-3-135HA05-HP374	30488244
9,10	10	103	61	49	40	SCD411-0910-2-3-135HA05-HP374	30488245
9,20	10	103	61	49	40	SCD411-0920-2-3-135HA05-HP374	30488246
9,30	10	103	61	49	40	SCD411-0930-2-3-135HA05-HP374	30488247
9,40	10	103	61	49	40	SCD411-0940-2-3-135HA05-HP374	30488248
9,50	10	103	61	49	40	SCD411-0950-2-3-135HA05-HP374	30488249
9,60	10	103	61	49	40	SCD411-0960-2-3-135HA05-HP374	30488250
9,70	10	103	61	49	40	SCD411-0970-2-3-135HA05-HP374	30488251
9,80	10	103	61	49	40	SCD411-0980-2-3-135HA05-HP374	30488252
9,90	10	103	61	49	40	SCD411-0990-2-3-135HA05-HP374	30488253
10,00	10	103	61	49	40	SCD411-1000-2-3-135HA05-HP374	30488254
10,10	12	118	71	56	45	SCD411-1010-2-3-135HA05-HP374	30488255
10,20	12	118	71	56	45	SCD411-1020-2-3-135HA05-HP374	30488256
10,30	12	118	71	56	45	SCD411-1030-2-3-135HA05-HP374	30488257
10,40	12	118	71	56	45	SCD411-1040-2-3-135HA05-HP374	30488258
10,50	12	118	71	56	45	SCD411-1050-2-3-135HA05-HP374	30488259
10,60	12	118	71	56	45	SCD411-1060-2-3-135HA05-HP374	30488260
10,70	12	118	71	56	45	SCD411-1070-2-3-135HA05-HP374	30488261
10,80	12	118	71	56	45	SCD411-1080-2-3-135HA05-HP374	30488262
10,90	12	118	71	56	45	SCD411-1090-2-3-135HA05-HP374	30488263
11,00	12	118	71	56	45	SCD411-1100-2-3-135HA05-HP374	30488264
11,10	12	118	71	56	45	SCD411-1110-2-3-135HA05-HP374	30488265
11,20	12	118	71	56	45	SCD411-1120-2-3-135HA05-HP374	30488266
11,30	12	118	71	56	45	SCD411-1130-2-3-135HA05-HP374	30488267
11,40	12	118	71	56	45	SCD411-1140-2-3-135HA05-HP374	30488268
11,50	12	118	71	56	45	SCD411-1150-2-3-135HA05-HP374	30488269
11,60	12	118	71	56	45	SCD411-1160-2-3-135HA05-HP374	30488270
11,70	12	118	71	56	45	SCD411-1170-2-3-135HA05-HP374	30488271
11,80	12	118	71	56	45	SCD411-1180-2-3-135HA05-HP374	30488272
11,90	12	118	71	56	45	SCD411-1190-2-3-135HA05-HP374	30488273
12,00	12	118	71	56	45	SCD411-1200-2-3-135HA05-HP374	30488274

MEGA-Speed-Drill-Inox | Solid carbide twist drills SCD41 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	124	77	60	45	SCD411-1250-2-3-135HA05-HP374	30488275
12,80	14	124	77	60	45	SCD411-1280-2-3-135HA05-HP374	30488276
13,00	14	124	77	60	45	SCD411-1300-2-3-135HA05-HP374	30488277
13,50	14	124	77	60	45	SCD411-1350-2-3-135HA05-HP374	30488278
13,80	14	124	77	60	45	SCD411-1380-2-3-135HA05-HP374	30488279
14,00	14	124	77	60	45	SCD411-1400-2-3-135HA05-HP374	30488280
14,50	16	133	83	63	48	SCD411-1450-2-3-135HA05-HP374	30488281
14,80	16	133	83	63	48	SCD411-1480-2-3-135HA05-HP374	30488282
15,00	16	133	83	63	48	SCD411-1500-2-3-135HA05-HP374	30488283
15,50	16	133	83	63	48	SCD411-1550-2-3-135HA05-HP374	30488284
15,80	16	133	83	63	48	SCD411-1580-2-3-135HA05-HP374	30488285
16,00	16	133	83	63	48	SCD411-1600-2-3-135HA05-HP374	30488286
16,50	18	143	93	71	48	SCD411-1650-2-3-135HA05-HP374	30488287
16,80	18	143	93	71	48	SCD411-1680-2-3-135HA05-HP374	30488288
17,00	18	143	93	71	48	SCD411-1700-2-3-135HA05-HP374	30488289
17,50	18	143	93	71	48	SCD411-1750-2-3-135HA05-HP374	30488290
17,80	18	143	93	71	48	SCD411-1780-2-3-135HA05-HP374	30488291
18,00	18	143	93	71	48	SCD411-1800-2-3-135HA05-HP374	30488292
18,50	20	153	101	77	50	SCD411-1850-2-3-135HA05-HP374	30488293
18,80	20	153	101	77	50	SCD411-1880-2-3-135HA05-HP374	30488294
19,00	20	153	101	77	50	SCD411-1900-2-3-135HA05-HP374	30488295
19,50	20	153	101	77	50	SCD411-1950-2-3-135HA05-HP374	30488296
19,80	20	153	101	77	50	SCD411-1980-2-3-135HA05-HP374	30488297
20,00	20	153	101	77	50	SCD411-2000-2-3-135HA05-HP374	30488298

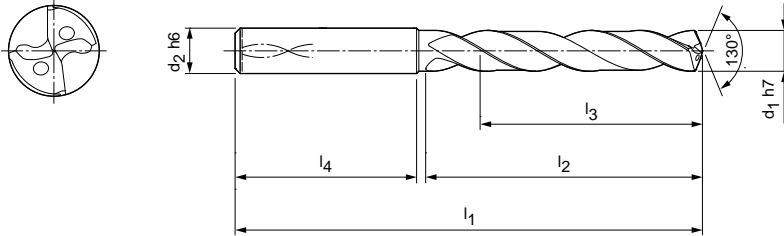
Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

MEGA-Speed-Drill Iron

Solid carbide twist drill
SCD42 (5xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 20.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Special AlTiSiXN coating
 Number of cutting edges: 2
 Number of guiding chamfers: 3
 Point geometry: Specific lead geometry
 Tip angle: 130 °
 Helix angle: 30 °

Application:
 For high-speed machining



Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	66	28	23	36	SCD421-0300-2-3-135HA05-HP238	30488299
3,10	6	66	28	23	36	SCD421-0310-2-3-135HA05-HP238	30488300
3,20	6	66	28	23	36	SCD421-0320-2-3-135HA05-HP238	30488301
3,30	6	66	28	23	36	SCD421-0330-2-3-135HA05-HP238	30488302
3,40	6	66	28	23	36	SCD421-0340-2-3-135HA05-HP238	30488303
3,50	6	66	28	23	36	SCD421-0350-2-3-135HA05-HP238	30488304
3,60	6	66	28	23	36	SCD421-0360-2-3-135HA05-HP238	30488305
3,70	6	66	28	23	36	SCD421-0370-2-3-135HA05-HP238	30488306
3,80	6	74	36	29	36	SCD421-0380-2-3-135HA05-HP238	30488307
3,90	6	74	36	29	36	SCD421-0390-2-3-135HA05-HP238	30488308
4,00	6	74	36	29	36	SCD421-0400-2-3-135HA05-HP238	30488309
4,10	6	74	36	29	36	SCD421-0410-2-3-135HA05-HP238	30488310
4,20	6	74	36	29	36	SCD421-0420-2-3-135HA05-HP238	30488311
4,30	6	74	36	29	36	SCD421-0430-2-3-135HA05-HP238	30488312
4,40	6	74	36	29	36	SCD421-0440-2-3-135HA05-HP238	30488313
4,50	6	74	36	29	36	SCD421-0450-2-3-135HA05-HP238	30488314
4,60	6	74	36	29	36	SCD421-0460-2-3-135HA05-HP238	30488315
4,65	6	74	36	29	36	SCD421-0465-2-3-135HA05-HP238	30488316
4,70	6	74	36	29	36	SCD421-0470-2-3-135HA05-HP238	30488317
4,80	6	82	44	35	36	SCD421-0480-2-3-135HA05-HP238	30488318
4,90	6	82	44	35	36	SCD421-0490-2-3-135HA05-HP238	30488319
5,00	6	82	44	35	36	SCD421-0500-2-3-135HA05-HP238	30488320
5,10	6	82	44	35	36	SCD421-0510-2-3-135HA05-HP238	30488321
5,20	6	82	44	35	36	SCD421-0520-2-3-135HA05-HP238	30488322
5,30	6	82	44	35	36	SCD421-0530-2-3-135HA05-HP238	30488323
5,40	6	82	44	35	36	SCD421-0540-2-3-135HA05-HP238	30488324
5,50	6	82	44	35	36	SCD421-0550-2-3-135HA05-HP238	30488325
5,55	6	82	44	35	36	SCD421-0555-2-3-135HA05-HP238	30488326
5,60	6	82	44	35	36	SCD421-0560-2-3-135HA05-HP238	30488327
5,70	6	82	44	35	36	SCD421-0570-2-3-135HA05-HP238	30488328
5,80	6	82	44	35	36	SCD421-0580-2-3-135HA05-HP238	30488329
5,90	6	82	44	35	36	SCD421-0590-2-3-135HA05-HP238	30488330
6,00	6	82	44	35	36	SCD421-0600-2-3-135HA05-HP238	30488331
6,10	8	91	53	43	36	SCD421-0610-2-3-135HA05-HP238	30488332
6,20	8	91	53	43	36	SCD421-0620-2-3-135HA05-HP238	30488333
6,30	8	91	53	43	36	SCD421-0630-2-3-135HA05-HP238	30488334

MEGA-Speed-Drill-Iron | Solid carbide twist drills SCD42 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
6,40	8	91	53	43	36	SCD421-0640-2-3-135HA05-HP238	30488335
6,50	8	91	53	43	36	SCD421-0650-2-3-135HA05-HP238	30488336
6,60	8	91	53	43	36	SCD421-0660-2-3-135HA05-HP238	30488337
6,70	8	91	53	43	36	SCD421-0670-2-3-135HA05-HP238	30488338
6,80	8	91	53	43	36	SCD421-0680-2-3-135HA05-HP238	30488339
6,90	8	91	53	43	36	SCD421-0690-2-3-135HA05-HP238	30488340
7,00	8	91	53	43	36	SCD421-0700-2-3-135HA05-HP238	30488341
7,10	8	91	53	43	36	SCD421-0710-2-3-135HA05-HP238	30488342
7,20	8	91	53	43	36	SCD421-0720-2-3-135HA05-HP238	30488343
7,30	8	91	53	43	36	SCD421-0730-2-3-135HA05-HP238	30488344
7,40	8	91	53	43	36	SCD421-0740-2-3-135HA05-HP238	30488345
7,50	8	91	53	43	36	SCD421-0750-2-3-135HA05-HP238	30488346
7,60	8	91	53	43	36	SCD421-0760-2-3-135HA05-HP238	30488347
7,70	8	91	53	43	36	SCD421-0770-2-3-135HA05-HP238	30488348
7,80	8	91	53	43	36	SCD421-0780-2-3-135HA05-HP238	30488349
7,90	8	91	53	43	36	SCD421-0790-2-3-135HA05-HP238	30488350
8,00	8	91	53	43	36	SCD421-0800-2-3-135HA05-HP238	30488351
8,10	10	103	61	49	40	SCD421-0810-2-3-135HA05-HP238	30488352
8,20	10	103	61	49	40	SCD421-0820-2-3-135HA05-HP238	30488353
8,30	10	103	61	49	40	SCD421-0830-2-3-135HA05-HP238	30488354
8,40	10	103	61	49	40	SCD421-0840-2-3-135HA05-HP238	30488355
8,50	10	103	61	49	40	SCD421-0850-2-3-135HA05-HP238	30488356
8,60	10	103	61	49	40	SCD421-0860-2-3-135HA05-HP238	30488357
8,70	10	103	61	49	40	SCD421-0870-2-3-135HA05-HP238	30488358
8,80	10	103	61	49	40	SCD421-0880-2-3-135HA05-HP238	30488359
8,90	10	103	61	49	40	SCD421-0890-2-3-135HA05-HP238	30488360
9,00	10	103	61	49	40	SCD421-0900-2-3-135HA05-HP238	30488361
9,10	10	103	61	49	40	SCD421-0910-2-3-135HA05-HP238	30488362
9,20	10	103	61	49	40	SCD421-0920-2-3-135HA05-HP238	30488363
9,30	10	103	61	49	40	SCD421-0930-2-3-135HA05-HP238	30488364
9,40	10	103	61	49	40	SCD421-0940-2-3-135HA05-HP238	30488365
9,50	10	103	61	49	40	SCD421-0950-2-3-135HA05-HP238	30488366
9,60	10	103	61	49	40	SCD421-0960-2-3-135HA05-HP238	30488367
9,70	10	103	61	49	40	SCD421-0970-2-3-135HA05-HP238	30488368
9,80	10	103	61	49	40	SCD421-0980-2-3-135HA05-HP238	30488369
9,90	10	103	61	49	40	SCD421-0990-2-3-135HA05-HP238	30488370
10,00	10	103	61	49	40	SCD421-1000-2-3-135HA05-HP238	30488371
10,10	12	118	71	56	45	SCD421-1010-2-3-135HA05-HP238	30488372
10,20	12	118	71	56	45	SCD421-1020-2-3-135HA05-HP238	30488373
10,30	12	118	71	56	45	SCD421-1030-2-3-135HA05-HP238	30488374
10,40	12	118	71	56	45	SCD421-1040-2-3-135HA05-HP238	30488375
10,50	12	118	71	56	45	SCD421-1050-2-3-135HA05-HP238	30488376
10,60	12	118	71	56	45	SCD421-1060-2-3-135HA05-HP238	30488377
10,70	12	118	71	56	45	SCD421-1070-2-3-135HA05-HP238	30488378
10,80	12	118	71	56	45	SCD421-1080-2-3-135HA05-HP238	30488379
10,90	12	118	71	56	45	SCD421-1090-2-3-135HA05-HP238	30488380
11,00	12	118	71	56	45	SCD421-1100-2-3-135HA05-HP238	30488381
11,10	12	118	71	56	45	SCD421-1110-2-3-135HA05-HP238	30488382
11,20	12	118	71	56	45	SCD421-1120-2-3-135HA05-HP238	30488383
11,30	12	118	71	56	45	SCD421-1130-2-3-135HA05-HP238	30488384
11,40	12	118	71	56	45	SCD421-1140-2-3-135HA05-HP238	30488385
11,50	12	118	71	56	45	SCD421-1150-2-3-135HA05-HP238	30488386
11,60	12	118	71	56	45	SCD421-1160-2-3-135HA05-HP238	30488387
11,70	12	118	71	56	45	SCD421-1170-2-3-135HA05-HP238	30488388
11,80	12	118	71	56	45	SCD421-1180-2-3-135HA05-HP238	30488389
11,90	12	118	71	56	45	SCD421-1190-2-3-135HA05-HP238	30488390
12,00	12	118	71	56	45	SCD421-1200-2-3-135HA05-HP238	30488391

MEGA-Speed-Drill-Iron | Solid carbide twist drills SCD42 (5xD), internal coolant supply

Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
12,50	14	124	77	60	45	SCD421-1250-2-3-135HA05-HP238	30488392
12,80	14	124	77	60	45	SCD421-1280-2-3-135HA05-HP238	30488393
13,00	14	124	77	60	45	SCD421-1300-2-3-135HA05-HP238	30488394
13,50	14	124	77	60	45	SCD421-1350-2-3-135HA05-HP238	30488395
13,80	14	124	77	60	45	SCD421-1380-2-3-135HA05-HP238	30488396
14,00	14	124	77	60	45	SCD421-1400-2-3-135HA05-HP238	30488397
14,50	16	133	83	63	48	SCD421-1450-2-3-135HA05-HP238	30488398
14,80	16	133	83	63	48	SCD421-1480-2-3-135HA05-HP238	30488399
15,00	16	133	83	63	48	SCD421-1500-2-3-135HA05-HP238	30488400
15,50	16	133	83	63	48	SCD421-1550-2-3-135HA05-HP238	30488401
15,80	16	133	83	63	48	SCD421-1580-2-3-135HA05-HP238	30488402
16,00	16	133	83	63	48	SCD421-1600-2-3-135HA05-HP238	30488403
16,50	18	143	93	71	48	SCD421-1650-2-3-135HA05-HP238	30488404
16,80	18	143	93	71	48	SCD421-1680-2-3-135HA05-HP238	30488405
17,00	18	143	93	71	48	SCD421-1700-2-3-135HA05-HP238	30488406
17,50	18	143	93	71	48	SCD421-1750-2-3-135HA05-HP238	30488407
17,80	18	143	93	71	48	SCD421-1780-2-3-135HA05-HP238	30488408
18,00	18	143	93	71	48	SCD421-1800-2-3-135HA05-HP238	30488409
18,50	20	153	101	77	50	SCD421-1850-2-3-135HA05-HP238	30488410
18,80	20	153	101	77	50	SCD421-1880-2-3-135HA05-HP238	30488411
19,00	20	153	101	77	50	SCD421-1900-2-3-135HA05-HP238	30488412
19,50	20	153	101	77	50	SCD421-1950-2-3-135HA05-HP238	30488413
19,80	20	153	101	77	50	SCD421-1980-2-3-135HA05-HP238	30488414
20,00	20	153	101	77	50	SCD421-2000-2-3-135HA05-HP238	30488415

Dimensions in mm.

Cutting data recommendation from page 458.

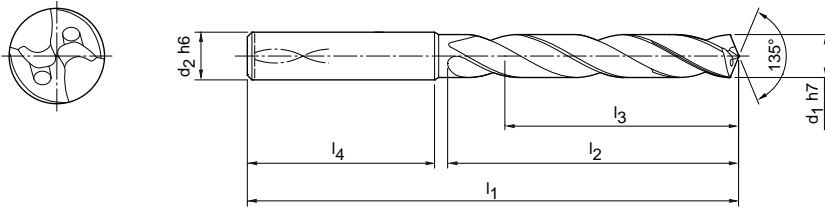
Special designs and other coatings on request.

MEGA-Speed-Drill-Titan

Solid carbide twist drill
SCD30 (5xD), internal coolant supply

Design:
 Drill diameter: 3.00 - 12.00 mm
 Bore tolerance: $\geq IT 9$
 Coating: Uncoated
 Number of cutting edges: 2
 Number of guiding chamfers: 3
 Tip angle: 135°
 Helix angle: 30°

Application:
 For high-speed machining



Dimensions						Shank form HA	
d ₁ h7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
3,00	6	66	28	23	36	SCD301-0300-2-3-130HA05-HU621	30393819
4,00	6	74	36	29	36	SCD301-0400-2-3-130HA05-HU621	30393820
5,00	6	82	44	35	36	SCD301-0500-2-3-130HA05-HU621	30393821
6,00	6	82	44	35	36	SCD301-0600-2-3-130HA05-HU621	30393822
7,00	8	91	53	43	36	SCD301-0700-2-3-130HA05-HU621	30393823
8,00	8	91	53	43	40	SCD301-0800-2-3-130HA05-HU621	30393824
9,00	10	103	61	49	40	SCD301-0900-2-3-130HA05-HU621	30393825
10,00	10	103	61	49	40	SCD301-1000-2-3-130HA05-HU621	30393826
11,00	12	118	71	56	45	SCD301-1100-2-3-130HA05-HU621	30393827
12,00	12	118	71	56	45	SCD301-1200-2-3-130HA05-HU621	30393828

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.





MONO-DRILL-PLASTIC

New level of performance on machining plastic

The Mono-Drill-Plastic was specially developed for machining thermoplastics with poor thermal conductivity and relatively low melting temperatures such as PEEK, POM or PA 6. With the geometry of the so-called single-lip drill, also called the spindle drill, the extremely sharp cutting edge geometry, the special point thinning and the large polished chip flute, a new level of performance for machining modern plastic workpiece materials is achieved. Bore tolerances up to IT7 are realised. Along with the usage for machining plastics, the Mono-Drill-Plastic can also be used for machining aluminium.

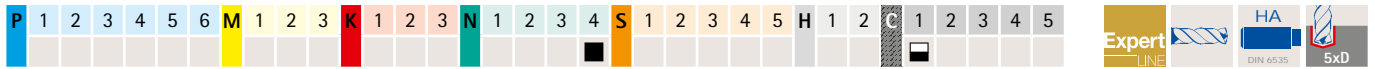
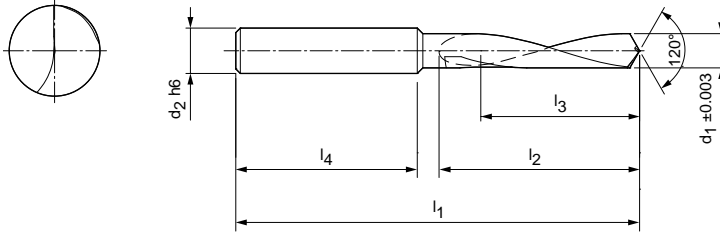
Mono-Drill-Plastic

Mono-Drill-Plastic, 6xD _____ 212

Mono-Drill-Plastic

Solid carbide twist drill
SCD57 (5xD), external coolant supply

Design:
 Drill diameter: 0.97 - 13.03 mm
 Bore tolerance: $\geq IT 7$
 Coating: Uncoated
 Number of cutting edges: 1
 Number of guiding chamfers: 1
 Point geometry: Specific lead geometry
 Tip angle: 120 °



Dimensions						Shank form HA	
d ₁ (±0.003)	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
0,97	3	45	7	6	31	SCD570-0097-1-1-120HA06-HU607	30658388
0,98	3	45	7	6	31	SCD570-0098-1-1-120HA06-HU607	30658389
0,99	3	45	7	6	31	SCD570-0099-1-1-120HA06-HU607	30658390
1,00	3	45	7	6	31	SCD570-0100-1-1-120HA06-HU607	30658391
1,01	3	45	7	6	31	SCD570-0101-1-1-120HA06-HU607	30658392
1,02	3	45	7	6	31	SCD570-0102-1-1-120HA06-HU607	30658393
1,03	3	45	7	6	31	SCD570-0103-1-1-120HA06-HU607	30658394
1,97	3	50	14	11	31	SCD570-0197-1-1-120HA06-HU607	30658395
1,98	3	50	14	11	31	SCD570-0198-1-1-120HA06-HU607	30658396
1,99	3	50	14	11	31	SCD570-0199-1-1-120HA06-HU607	30658397
2,00	3	50	14	11	31	SCD570-0200-1-1-120HA06-HU607	30658398
2,01	3	50	14	11	31	SCD570-0201-1-1-120HA06-HU607	30658399
2,02	3	50	14	11	31	SCD570-0202-1-1-120HA06-HU607	30658400
2,03	3	50	14	11	31	SCD570-0203-1-1-120HA06-HU607	30658401
2,97	4	66	28	23	36	SCD570-0297-1-1-120HA06-HU607	30658402
2,98	4	66	28	23	36	SCD570-0298-1-1-120HA06-HU607	30658403
2,99	4	66	28	23	36	SCD570-0299-1-1-120HA06-HU607	30658404
3,00	4	66	28	23	36	SCD570-0300-1-1-120HA06-HU607	30658405
3,01	4	66	28	23	36	SCD570-0301-1-1-120HA06-HU607	30658406
3,02	4	66	28	23	36	SCD570-0302-1-1-120HA06-HU607	30658407
3,03	4	66	28	23	36	SCD570-0303-1-1-120HA06-HU607	30658408
3,97	4	74	36	29	36	SCD570-0397-1-1-120HA06-HU607	30658409
3,98	4	74	36	29	36	SCD570-0398-1-1-120HA06-HU607	30658410
3,99	4	74	36	29	36	SCD570-0399-1-1-120HA06-HU607	30658411
4,00	4	74	36	29	36	SCD570-0400-1-1-120HA06-HU607	30658412
4,01	4	74	36	29	36	SCD570-0401-1-1-120HA06-HU607	30658413
4,02	4	74	36	29	36	SCD570-0402-1-1-120HA06-HU607	30658414
4,03	4	74	36	29	36	SCD570-0403-1-1-120HA06-HU607	30658415
4,97	6	82	44	35	36	SCD570-0497-1-1-120HA06-HU607	30658416
4,98	6	82	44	35	36	SCD570-0498-1-1-120HA06-HU607	30658417
4,99	6	82	44	35	36	SCD570-0499-1-1-120HA06-HU607	30658418
5,00	6	82	44	35	36	SCD570-0500-1-1-120HA06-HU607	30658419
5,01	6	82	44	35	36	SCD570-0501-1-1-120HA06-HU607	30658420
5,02	6	82	44	35	36	SCD570-0502-1-1-120HA06-HU607	30658421
5,03	6	82	44	35	36	SCD570-0503-1-1-120HA06-HU607	30658422
5,97	6	82	44	35	36	SCD570-0597-1-1-120HA06-HU607	30658423

Mono-Drill-Plastic | Solid carbide twist drills, external coolant supply

Dimensions						Shank form HA	
d ₁ (±0.003)	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Specification	Order No.
5,98	6	82	44	35	36	SCD570-0598-1-1-120HA06-HU607	30658424
5,99	6	82	44	35	36	SCD570-0599-1-1-120HA06-HU607	30658425
6,00	6	82	44	35	36	SCD570-0600-1-1-120HA06-HU607	30658426
6,01	6	82	44	35	36	SCD570-0601-1-1-120HA06-HU607	30658427
6,02	6	82	44	35	36	SCD570-0602-1-1-120HA06-HU607	30658428
6,03	6	82	44	35	36	SCD570-0603-1-1-120HA06-HU607	30658429
6,97	8	91	53	43	36	SCD570-0697-1-1-120HA06-HU607	30658430
6,98	8	91	53	43	36	SCD570-0698-1-1-120HA06-HU607	30658431
6,99	8	91	53	43	36	SCD570-0699-1-1-120HA06-HU607	30658432
7,00	8	91	53	43	36	SCD570-0700-1-1-120HA06-HU607	30658433
7,01	8	91	53	43	36	SCD570-0701-1-1-120HA06-HU607	30658434
7,02	8	91	53	43	36	SCD570-0702-1-1-120HA06-HU607	30658435
7,03	8	91	53	43	36	SCD570-0703-1-1-120HA06-HU607	30658436
7,97	8	91	53	43	36	SCD570-0797-1-1-120HA06-HU607	30658437
7,98	8	91	53	43	36	SCD570-0798-1-1-120HA06-HU607	30658438
7,99	8	91	53	43	36	SCD570-0799-1-1-120HA06-HU607	30658439
8,00	8	91	53	43	36	SCD570-0800-1-1-120HA06-HU607	30658440
8,01	8	91	53	43	36	SCD570-0801-1-1-120HA06-HU607	30658441
8,02	8	91	53	43	36	SCD570-0802-1-1-120HA06-HU607	30658442
8,03	8	91	53	43	36	SCD570-0803-1-1-120HA06-HU607	30658443
8,97	10	103	61	49	40	SCD570-0897-1-1-120HA06-HU607	30658444
8,98	10	103	61	49	40	SCD570-0898-1-1-120HA06-HU607	30658445
8,99	10	103	61	49	40	SCD570-0899-1-1-120HA06-HU607	30658446
9,00	10	103	61	49	40	SCD570-0900-1-1-120HA06-HU607	30658447
9,01	10	103	61	49	40	SCD570-0901-1-1-120HA06-HU607	30658448
9,02	10	103	61	49	40	SCD570-0902-1-1-120HA06-HU607	30658449
9,03	10	103	61	49	40	SCD570-0903-1-1-120HA06-HU607	30658450
9,97	10	103	61	49	40	SCD570-0997-1-1-120HA06-HU607	30658451
9,98	10	103	61	49	40	SCD570-0998-1-1-120HA06-HU607	30658452
9,99	10	103	61	49	40	SCD570-0999-1-1-120HA06-HU607	30658453
10,00	10	103	61	49	40	SCD570-1000-1-1-120HA06-HU607	30658454
10,01	10	103	61	49	40	SCD570-1001-1-1-120HA06-HU607	30658455
10,02	10	103	61	49	40	SCD570-1002-1-1-120HA06-HU607	30658456
10,03	10	103	61	49	40	SCD570-1003-1-1-120HA06-HU607	30658457
10,97	12	118	71	56	45	SCD570-1097-1-1-120HA06-HU607	30658458
10,98	12	118	71	56	45	SCD570-1098-1-1-120HA06-HU607	30658459
10,99	12	118	71	56	45	SCD570-1099-1-1-120HA06-HU607	30658460
11,00	12	118	71	56	45	SCD570-1100-1-1-120HA06-HU607	30658461
11,01	12	118	71	56	45	SCD570-1101-1-1-120HA06-HU607	30658462
11,02	12	118	71	56	45	SCD570-1102-1-1-120HA06-HU607	30658463
11,03	12	118	71	56	45	SCD570-1103-1-1-120HA06-HU607	30658464
11,97	12	118	71	56	45	SCD570-1197-1-1-120HA06-HU607	30658465
11,98	12	118	71	56	45	SCD570-1198-1-1-120HA06-HU607	30658466
11,99	12	118	71	56	45	SCD570-1199-1-1-120HA06-HU607	30658467
12,00	12	118	71	56	45	SCD570-1200-1-1-120HA06-HU607	30658468
12,01	12	118	71	56	45	SCD570-1201-1-1-120HA06-HU607	30658469
12,02	12	118	71	56	45	SCD570-1202-1-1-120HA06-HU607	30658470
12,03	12	118	71	56	45	SCD570-1203-1-1-120HA06-HU607	30658471
12,97	14	124	77	60	45	SCD570-1297-1-1-120HA06-HU607	30658472
12,98	14	124	77	60	45	SCD570-1298-1-1-120HA06-HU607	30658473
12,99	14	124	77	60	45	SCD570-1299-1-1-120HA06-HU607	30658474
13,00	14	124	77	60	45	SCD570-1300-1-1-120HA06-HU607	30658475
13,01	14	124	77	60	45	SCD570-1301-1-1-120HA06-HU607	30658476
13,02	14	124	77	60	45	SCD570-1302-1-1-120HA06-HU607	30658477
13,03	14	124	77	60	45	SCD570-1303-1-1-120HA06-HU607	30658478

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.





DRILLING USING REPLACEABLE HEAD SYSTEM

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Insert drills QTD

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Replaceable head drills TTD

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PRODUCT OVERVIEW

Replaceable head systems

Replaceable head tool systems are now indispensable in modern production. Increasing raw material prices, lean inventories and the consideration of life cycle costs as against the pure purchase price favour the usage of replaceable head systems.

MAPAL has placed on the market highly productive systems for all application areas; systems that are in no way inferior to monolithic tools – quite the opposite. With a focus on highly precise, very stable connections it has been possible to limit the usage of expensive carbide to the tool head, and to make the machining stable and precise overall. Cutting edge geometries and coatings optimally matched to the workpiece material to be machined achieve the best results without compromises in relation to solid carbide drills.

In the area of drilling from solid, MAPAL offers the replaceable head drill TTD and insert drill QTD. At the centre are the TTS connection on the TTD and QTS on the QTD that permit optimal torque transfer and at the same time achieve high changeover and radial run-out accuracies. In this way the replaceable head drills achieve the performance of a solid carbide drill at lower cost and with simple handling. The latest manufacturing technologies, such as additive manufacturing, make it possible to manufacture the QTD already from a diameter of 8 mm with internal cooling.



Indexable insert drill QTD



QTD

Sturdy connection and simple clamping system - additively manufactured up to 8 mm diameter.

- Optimally embedded cutting edge
- Force and form fit clamping system
- Easy handling



Ø range: 8.00 - 50.00 mm

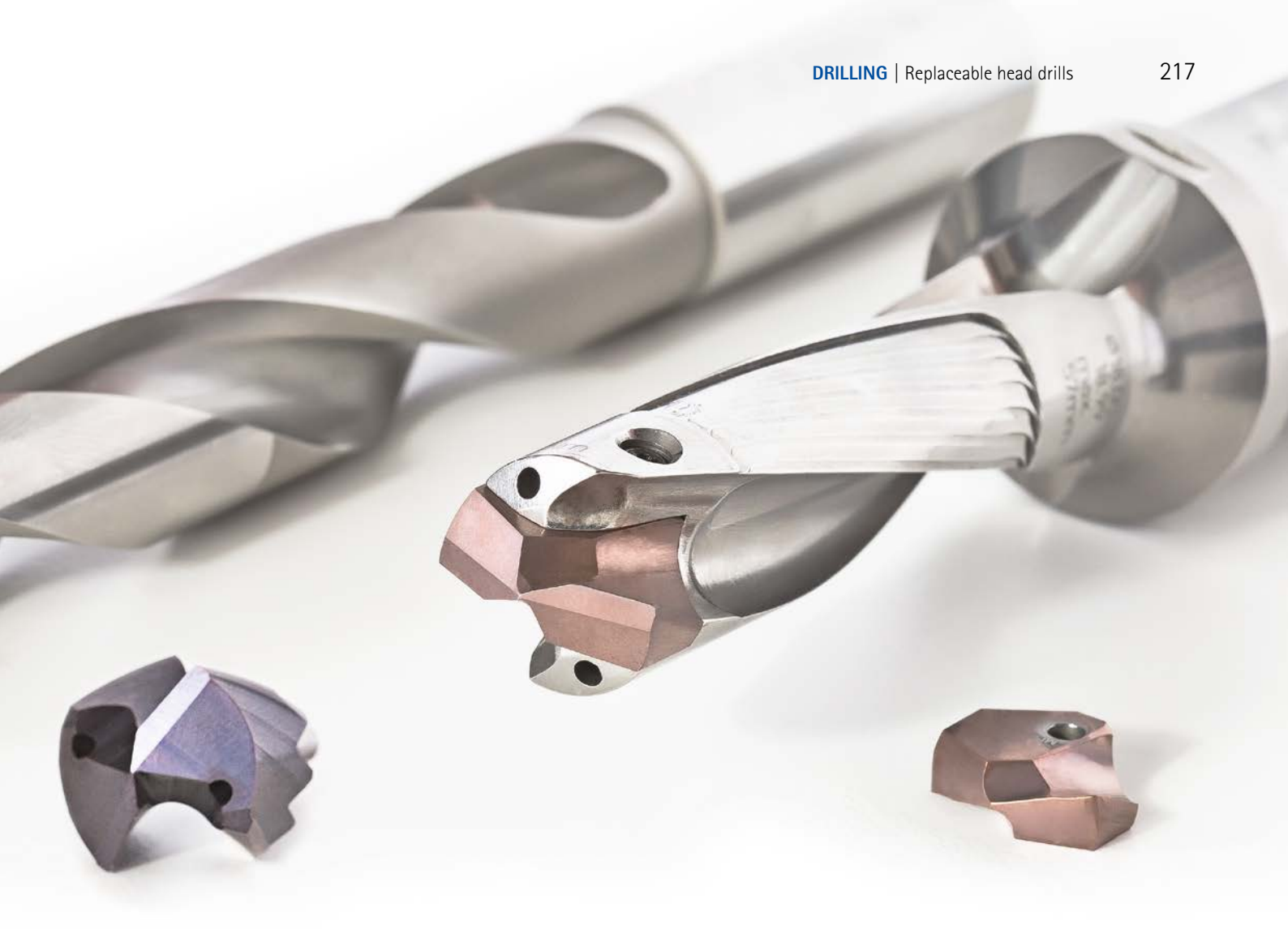
Drilling depth:

- 1.5xD
- 3xD
- 5xD
- 8xD
- 12xD

Cutting material recommendation

	P	M	K	N	S	H
Type 01 Steel	■					■
Type 02 Inox	■	■	■	■	■	
Type 03 Alu				■		
Type 04 Iron			■			

■ highly suitable
 ■ suitable in some situations



Replaceable head drill TTD



TTD

Minimised usage of carbide with highest stability and precision.

- Fully fledged drill head system made of solid carbide
- Fool-proof
- Easy handling



ø range: 12.00 - 45.00 mm

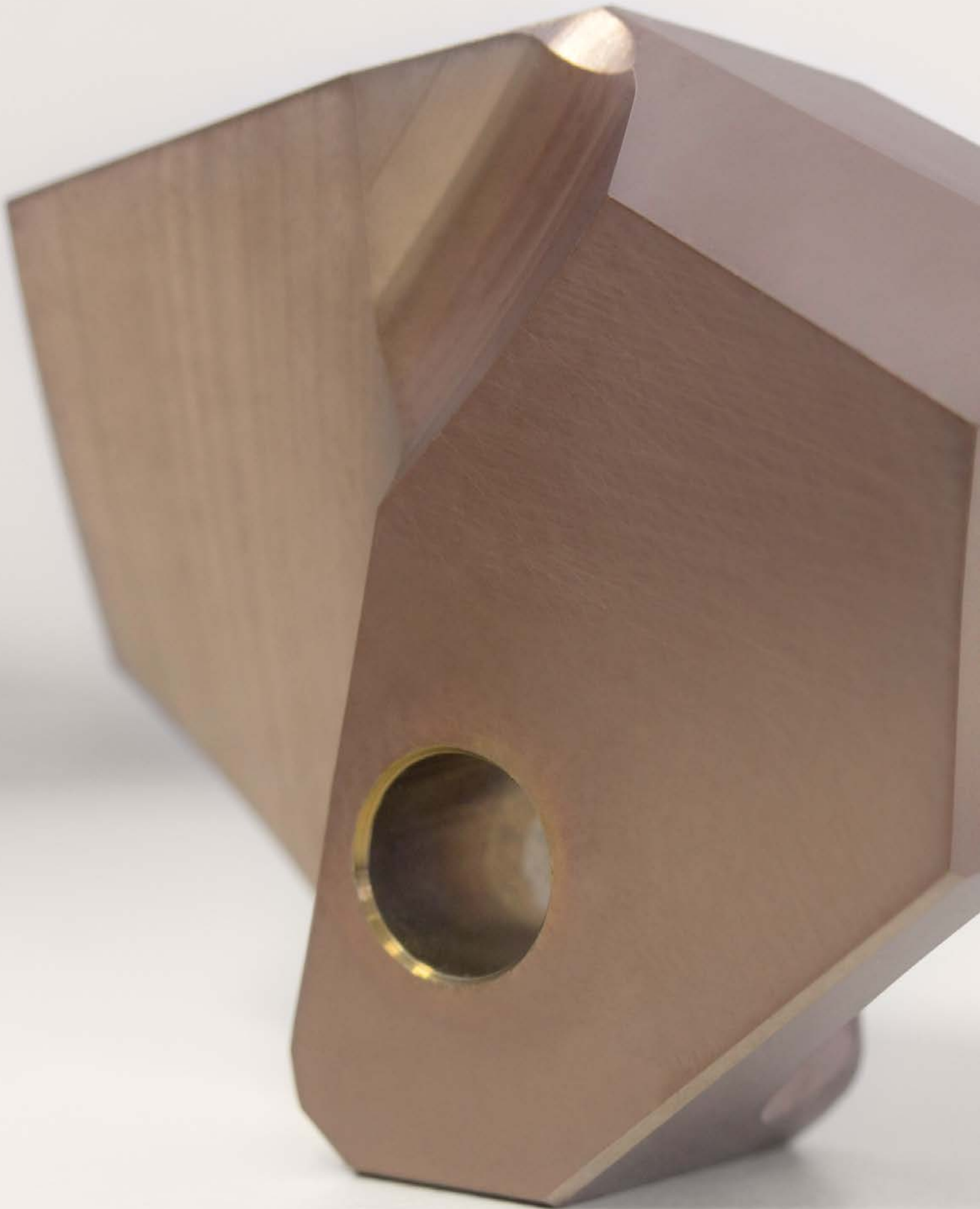
Drilling depth:

- 1xD
- 3xD
- 5xD
- 8xD
- 12xD

Cutting material recommendation

	P	M	K	N	S	H
Type 01 Uni	■		■			■
Type 02 Inox	■	■	■	■	■	
Type 03 Alu				■		
Type 04 Steel	■		■			
Type 05 Iron			■			

■ highly suitable
 ■ suitable in some situations



INDEXABLE INSERT DRILLS QTD

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Indexable insert drills QTD

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Indexable insert holders QTS

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STABLE INSERT RECEPTACLE, SIMPLE CLAMPING SYSTEM

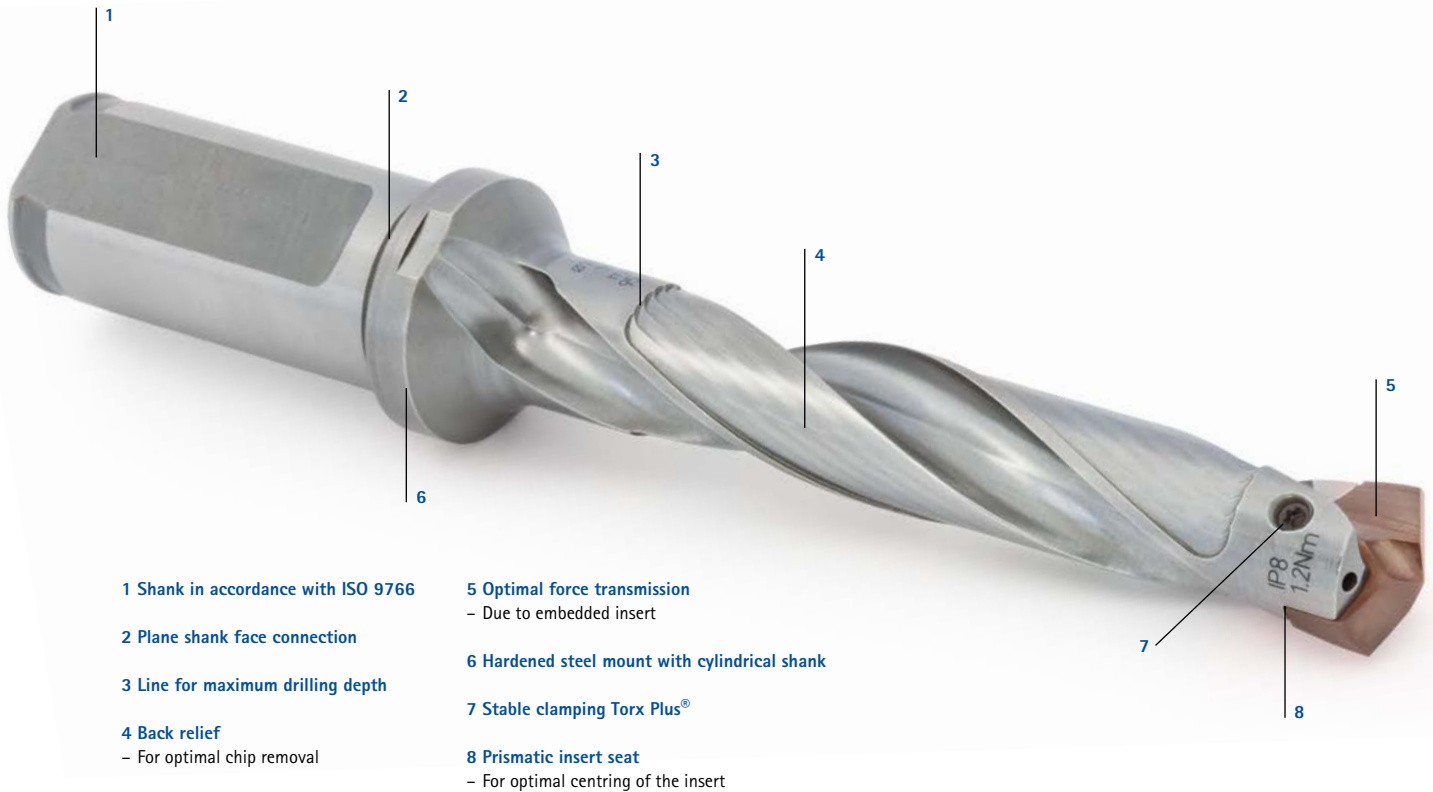
With the latest manufacturing technology from \varnothing 8 to 50 mm

The insert drill QTD for the medium to upper diameter range impresses with very good chip formation and reliable chip discharge. Numerous insert changes are possible per holder, as the basic holder is not eroded. The clamping system for the insert is both particularly simple and extremely effective. It consists of a screw that is inserted transversely through the insert, clamping the insert stably in the prism connection. The insert is held particularly stably in the prism connection such that high cutting data and bore qualities are possible.

Additive manufacturing makes possible optimum cooling duct design and diameters from 8 mm

To be able to realise also diameters less than 13 mm, additive manufacturing is used. This method makes it possible to manufacture tool bodies in the diameter range 8 to 13 mm with spiral cooling ducts using 3D printing. Compared to central coolant supply with diversions, this design achieves a 100 % increased coolant flow rate, particularly thanks to the deviation from the circular cooling channel profile.

Tool features in detail



1 Shank in accordance with ISO 9766

2 Plane shank face connection

3 Line for maximum drilling depth

4 Back relief

- For optimal chip removal

5 Optimal force transmission

- Due to embedded insert

6 Hardened steel mount with cylindrical shank

7 Stable clamping Torx Plus®

8 Prismatic insert seat

- For optimal centring of the insert



AT A GLANCE

- High availability from stock
- Diameter range from 8 to 50 mm
- Holder range 1.5 | 3 | 5 | 8 and 12xD
- Inserts for steel, stainless steel, aluminium and cast iron
- With internal cooling
- Special surface coating
- Simple handling, insert change on the machine

FEATURES

- Same performance as solid carbide drill
- High radial run-out accuracy
- Stable collar for absorbing high axial forces
- Secure clamping of the insert with Torx Plus® screw
- Robust system

ADVANTAGES

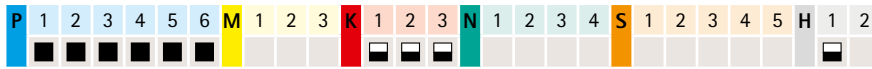
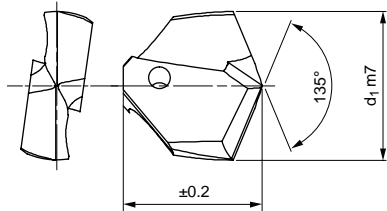
- Optimised costs
- Highest performance
- Error-free insert installation
- Optimum chip formation on the insert and chip removal
- One holder for all bore geometries
- Large number of insert changes per holder possible, as no erosion of the basic holder

QTD inserts

Made of solid carbide, internal coolant supply
Type 01 - Steel

Design:
Drill diameter: 8.00 - 50.00 mm
Bore tolerance: $\geq IT 10$
Coating: Special AlTiSiXN coating

Type 01
Number of cutting edges: 2
Number of guiding chamfers: 2
Tip angle: 135°



d ₁ from 8.00 to 11.20			
d ₁ m7	Holder size D	Specification	Order No.
8,00	8	QTD-2F01-0800-HP240	30646007
8,10	8	QTD-2F01-0810-HP240	30646008
8,20	8	QTD-2F01-0820-HP240	30646009
8,30	8	QTD-2F01-0830-HP240	30646010
8,40	8	QTD-2F01-0840-HP240	30646011
8,50	8,5	QTD-2F01-0850-HP240	30615633
8,60	8,5	QTD-2F01-0860-HP240	30646013
8,70	8,5	QTD-2F01-0870-HP240	30615634
8,80	8,5	QTD-2F01-0880-HP240	30646014
8,90	8,5	QTD-2F01-0890-HP240	30646015
9,00	9	QTD-2F01-0900-HP240	30615635
9,10	9	QTD-2F01-0910-HP240	30646016
9,20	9	QTD-2F01-0920-HP240	30646017
9,30	9	QTD-2F01-0930-HP240	30646018
9,40	9	QTD-2F01-0940-HP240	30646019
9,50	9,5	QTD-2F01-0950-HP240	30615636
9,53	9,5	QTD-2F01-0953-HP240	30646020
9,60	9,5	QTD-2F01-0960-HP240	30649270
9,70	9,5	QTD-2F01-0970-HP240	30615637
9,80	9,5	QTD-2F01-0980-HP240	30646021
9,90	9,5	QTD-2F01-0990-HP240	30646022
10,00	10	QTD-2F01-1000-HP240	30615638
10,10	10	QTD-2F01-1010-HP240	30646023
10,20	10	QTD-2F01-1020-HP240	30646024
10,30	10	QTD-2F01-1030-HP240	30646025
10,40	10	QTD-2F01-1040-HP240	30646026
10,50	10,5	QTD-2F01-1050-HP240	30615639
10,60	10,5	QTD-2F01-1060-HP240	30646027
10,70	10,5	QTD-2F01-1070-HP240	30615640
10,80	10,5	QTD-2F01-1080-HP240	30646028
10,90	10,5	QTD-2F01-1090-HP240	30646029
11,00	11	QTD-2F01-1100-HP240	30615641
11,10	11	QTD-2F01-1110-HP240	30646030
11,11	11	QTD-2F01-1111-HP240	30646031
11,20	11	QTD-2F01-1120-HP240	30646032

d ₁ from 11.30 to 14.60			
d ₁ m7	Holder size D	Specification	Order No.
11,30	11	QTD-2F01-1130-HP240	30646033
11,40	11	QTD-2F01-1140-HP240	30646034
11,50	11,5	QTD-2F01-1150-HP240	30615642
11,60	11,5	QTD-2F01-1160-HP240	30646035
11,70	11,5	QTD-2F01-1170-HP240	30615643
11,80	11,5	QTD-2F01-1180-HP240	30646036
11,90	11,5	QTD-2F01-1190-HP240	30646037
12,00	12	QTD-2F01-1200-HP240	30615644
12,10	12	QTD-2F01-1210-HP240	30646038
12,20	12	QTD-2F01-1220-HP240	30646039
12,30	12	QTD-2F01-1230-HP240	30646040
12,40	12	QTD-2F01-1240-HP240	30646041
12,50	12,5	QTD-2F01-1250-HP240	30615645
12,60	12,5	QTD-2F01-1260-HP240	30646042
12,70	12,5	QTD-2F01-1270-HP240	30615646
12,80	12,5	QTD-2F01-1280-HP240	30646043
12,90	12,5	QTD-2F01-1290-HP240	30646044
13,00	13	QTD-2F01-1300-HP240	30572990
13,10	13	QTD-2F01-1310-HP240	30646045
13,20	13	QTD-2F01-1320-HP240	30646046
13,30	13	QTD-2F01-1330-HP240	30646047
13,40	13	QTD-2F01-1340-HP240	30646048
13,50	13,5	QTD-2F01-1350-HP240	30572991
13,60	13,5	QTD-2F01-1360-HP240	30646049
13,70	13,5	QTD-2F01-1370-HP240	30572992
13,80	13,5	QTD-2F01-1380-HP240	30646050
13,90	13,5	QTD-2F01-1390-HP240	30646051
14,00	14	QTD-2F01-1400-HP240	30572993
14,10	14	QTD-2F01-1410-HP240	30646052
14,20	14	QTD-2F01-1420-HP240	30646053
14,29	14	QTD-2F01-1429-HP240	30646054
14,30	14	QTD-2F01-1430-HP240	30646055
14,40	14	QTD-2F01-1440-HP240	30646056
14,50	14,5	QTD-2F01-1450-HP240	30572994
14,60	14,5	QTD-2F01-1460-HP240	30646057

d ₁ from 14.70 to 17.30			
d ₁ m7	Holder size D	Specification	Order No.
14,70	14,5	QTD-2F01-1470-HP240	30572995
14,75	14,5	QTD-2F01-1475-HP240	30572996
14,80	14,5	QTD-2F01-1480-HP240	30646058
14,90	14,5	QTD-2F01-1490-HP240	30646059
15,00	15	QTD-2F01-1500-HP240	30572997
15,10	15	QTD-2F01-1510-HP240	30646060
15,20	15	QTD-2F01-1520-HP240	30646061
15,25	15	QTD-2F01-1525-HP240	30572998
15,30	15	QTD-2F01-1530-HP240	30646062
15,32	15	QTD-2F01-1532-HP240	30646063
15,40	15	QTD-2F01-1540-HP240	30646064
15,50	15	QTD-2F01-1550-HP240	30572999
15,60	15	QTD-2F01-1560-HP240	30646065
15,70	15	QTD-2F01-1570-HP240	30573000
15,80	15	QTD-2F01-1580-HP240	30646066
15,88	15	QTD-2F01-1588-HP240	30646067
15,90	15	QTD-2F01-1590-HP240	30646068
16,00	16	QTD-2F01-1600-HP240	30573001
16,08	16	QTD-2F01-1608-HP240	30573002
16,10	16	QTD-2F01-1610-HP240	30573003
16,20	16	QTD-2F01-1620-HP240	30646069
16,25	16	QTD-2F01-1625-HP240	30573004
16,30	16	QTD-2F01-1630-HP240	30610882
16,40	16	QTD-2F01-1640-HP240	30646071
16,50	16	QTD-2F01-1650-HP240	30573005
16,60	16	QTD-2F01-1660-HP240	30646072
16,66	16	QTD-2F01-1666-HP240	30646073
16,70	16	QTD-2F01-1670-HP240	30573006
16,75	16	QTD-2F01-1675-HP240	30573007
16,80	16	QTD-2F01-1680-HP240	30646074
16,90	16	QTD-2F01-1690-HP240	30646075
17,00	17	QTD-2F01-1700-HP240	30573009
17,10	17	QTD-2F01-1710-HP240	30646076
17,20	17	QTD-2F01-1720-HP240	30646077
17,30	17	QTD-2F01-1730-HP240	30646078

QTD inserts made of solid carbide, internal coolant supply – type O1

d ₁ from 17.40 to 20.64				d ₁ from 20.70 to 26.00				d ₁ from 26.50 to 50.00			
d ₁ m7	Holder size D	Specification	Order No.	d ₁ m7	Holder size D	Specification	Order No.	d ₁ m7	Holder size D	Specification	Order No.
17,40	17	QTD-2F01-1740-HP240	30646079	20,70	20	QTD-2F01-2070-HP240	30573026	26,50	26	QTD-2F01-2650-HP240	30573052
17,46	17	QTD-2F01-1746-HP240	30646080	20,75	20	QTD-2F01-2075-HP240	30573027	27,00	27	QTD-2F01-2700-HP240	30573053
17,50	17	QTD-2F01-1750-HP240	30573010	20,80	20	QTD-2F01-2080-HP240	30623395	27,50	27	QTD-2F01-2750-HP240	30573054
17,60	17	QTD-2F01-1760-HP240	30646081	21,00	21	QTD-2F01-2100-HP240	30573028	27,75	27	QTD-2F01-2775-HP240	30573055
17,70	17	QTD-2F01-1770-HP240	30573011	21,50	21	QTD-2F01-2150-HP240	30573029	28,00	28	QTD-2F01-2800-HP240	30573056
17,80	17	QTD-2F01-1780-HP240	30646082	21,70	21	QTD-2F01-2170-HP240	30573030	28,25	28	QTD-2F01-2825-HP240	30573057
17,90	17	QTD-2F01-1790-HP240	30646083	22,00	22	QTD-2F01-2200-HP240	30573031	28,50	28	QTD-2F01-2850-HP240	30573058
18,00	18	QTD-2F01-1800-HP240	30573012	22,22	22	QTD-2F01-2222-HP240	30646101	29,00	29	QTD-2F01-2900-HP240	30573059
18,10	18	QTD-2F01-1810-HP240	30646084	22,23	22	QTD-2F01-2223-HP240	30646102	29,50	29	QTD-2F01-2950-HP240	30573060
18,20	18	QTD-2F01-1820-HP240	30646085	22,25	22	QTD-2F01-2225-HP240	30573032	30,00	30	QTD-2F01-3000-HP240	30573062
18,25	18	QTD-2F01-1825-HP240	30573013	22,45	22	QTD-2F01-2245-HP240	30573033	30,25	30	QTD-2F01-3025-HP240	30573063
18,30	18	QTD-2F01-1830-HP240	30618751	22,50	22	QTD-2F01-2250-HP240	30573034	30,50	30	QTD-2F01-3050-HP240	30573064
18,40	18	QTD-2F01-1840-HP240	30646087	22,70	22	QTD-2F01-2270-HP240	30573035	30,75	30	QTD-2F01-3075-HP240	30573065
18,50	18	QTD-2F01-1850-HP240	30573014	22,75	22	QTD-2F01-2275-HP240	30573036	31,00	31	QTD-2F01-3100-HP240	30573066
18,60	18	QTD-2F01-1860-HP240	30646088	23,00	23	QTD-2F01-2300-HP240	30573037	31,50	31	QTD-2F01-3150-HP240	30573067
18,70	18	QTD-2F01-1870-HP240	30573015	23,25	23	QTD-2F01-2325-HP240	30573038	31,75	31	QTD-2F01-3175-HP240	30646111
18,80	18	QTD-2F01-1880-HP240	30646089	23,50	23	QTD-2F01-2350-HP240	30573039	32,00	32	QTD-2F01-3200-HP240	30573068
18,90	18	QTD-2F01-1890-HP240	30646090	23,60	23	QTD-2F01-2360-HP240	30573040	32,75	32	QTD-2F01-3275-HP240	30573069
19,00	19	QTD-2F01-1900-HP240	30573016	23,70	23	QTD-2F01-2370-HP240	30573041	33,00	33	QTD-2F01-3300-HP240	30649656
19,05	19	QTD-2F01-1905-HP240	30646091	23,75	23	QTD-2F01-2375-HP240	30573042	34,00	34	QTD-2F01-3400-HP240	30649657
19,10	19	QTD-2F01-1910-HP240	30646092	23,81	23	QTD-2F01-2381-HP240	30646103	35,00	35	QTD-2F01-3500-HP240	30649658
19,20	19	QTD-2F01-1920-HP240	30573017	24,00	24	QTD-2F01-2400-HP240	30573043	36,00	36	QTD-2F01-3600-HP240	30649659
19,25	19	QTD-2F01-1925-HP240	30573018	24,20	24	QTD-2F01-2420-HP240	30646104	37,00	37	QTD-2F01-3700-HP240	30649660
19,27	19	QTD-2F01-1927-HP240	30584722	24,30	24	QTD-2F01-2430-HP240	30646105	38,00	37	QTD-2F01-3800-HP240	30649661
19,30	19	QTD-2F01-1930-HP240	30646094	24,50	24	QTD-2F01-2450-HP240	30573044	39,00	39	QTD-2F01-3900-HP240	30657232
19,40	19	QTD-2F01-1940-HP240	30573019	24,70	24	QTD-2F01-2470-HP240	30573045	40,00	39	QTD-2F01-4000-HP240	30657233
19,50	19	QTD-2F01-1950-HP240	30573020	24,75	24	QTD-2F01-2475-HP240	30573046	41,00	41	QTD-2F01-4100-HP240	30657234
19,60	19	QTD-2F01-1960-HP240	30646095	25,00	25	QTD-2F01-2500-HP240	30573047	42,00	41	QTD-2F01-4200-HP240	30657235
19,70	19	QTD-2F01-1970-HP240	30573021	25,04	25	QTD-2F01-2504-HP240	30646106	43,00	43	QTD-2F01-4300-HP240	30657236
19,75	19	QTD-2F01-1975-HP240	30573022	25,20	25	QTD-2F01-2520-HP240	30646107	44,00	43	QTD-2F01-4400-HP240	30657237
19,80	19	QTD-2F01-1980-HP240	30646096	25,40	25	QTD-2F01-2540-HP240	30573048	45,00	45	QTD-2F01-4500-HP240	30657238
19,90	19	QTD-2F01-1990-HP240	30646097	25,50	25	QTD-2F01-2550-HP240	30573049	46,00	45	QTD-2F01-4600-HP240	30657239
20,00	20	QTD-2F01-2000-HP240	30573023	25,65	25	QTD-2F01-2565-HP240	30594440	47,00	47	QTD-2F01-4700-HP240	30657240
20,40	20	QTD-2F01-2040-HP240	30573024	25,67	25	QTD-2F01-2567-HP240	30584728	48,00	47	QTD-2F01-4800-HP240	30657241
20,50	20	QTD-2F01-2050-HP240	30573025	25,70	25	QTD-2F01-2570-HP240	30573050	49,00	47	QTD-2F01-4900-HP240	30657242
20,60	20	QTD-2F01-2060-HP240	30646098	25,80	25	QTD-2F01-2580-HP240	30584730	50,00	49	QTD-2F01-5000-HP240	30657243
20,64	20	QTD-2F01-2064-HP240	30646099	26,00	26	QTD-2F01-2600-HP240	30573051				

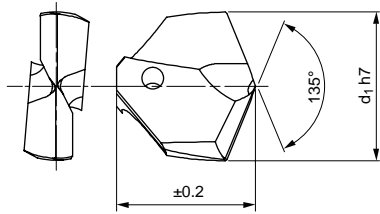
Dimensions in mm.
Cutting data recommendation from page 458.
Special designs and other coatings on request.

QTD inserts

Made of solid carbide, internal coolant supply
Type 02 - Inox

Design:
Drill diameter: 8.00 - 50.00 mm
Bore tolerance: $\geq IT 10$
Coating: Special TiAlCN coating

Type 02
Number of cutting edges: 2
Number of guiding chamfers: 2
Tip angle: 135 °



d ₁ from 8.00 to 11.20			
d ₁ h7	Holder size D	Specification	Order No.
8,00	8	QTD-2F02-0800-HP600	30646163
8,10	8	QTD-2F02-0810-HP600	30646164
8,20	8	QTD-2F02-0820-HP600	30646165
8,30	8	QTD-2F02-0830-HP600	30646166
8,40	8	QTD-2F02-0840-HP600	30646167
8,50	8,5	QTD-2F02-0850-HP600	30615619
8,60	8,5	QTD-2F02-0860-HP600	30646168
8,70	8,5	QTD-2F02-0870-HP600	30615620
8,80	8,5	QTD-2F02-0880-HP600	30646169
8,90	8,5	QTD-2F02-0890-HP600	30646170
9,00	9	QTD-2F02-0900-HP600	30615621
9,10	9	QTD-2F02-0910-HP600	30646171
9,20	9	QTD-2F02-0920-HP600	30646172
9,30	9	QTD-2F02-0930-HP600	30646173
9,40	9	QTD-2F02-0940-HP600	30646174
9,50	9,5	QTD-2F02-0950-HP600	30615622
9,53	9,5	QTD-2F02-0953-HP600	30646175
9,60	9,5	QTD-2F02-0960-HP600	30646176
9,70	9,5	QTD-2F02-0970-HP600	30615623
9,80	9,5	QTD-2F02-0980-HP600	30646177
9,90	9,5	QTD-2F02-0990-HP600	30646178
10,00	10	QTD-2F02-1000-HP600	30615624
10,10	10	QTD-2F02-1010-HP600	30646179
10,20	10	QTD-2F02-1020-HP600	30646180
10,30	10	QTD-2F02-1030-HP600	30646181
10,40	10	QTD-2F02-1040-HP600	30646182
10,50	10,5	QTD-2F02-1050-HP600	30615625
10,60	10,5	QTD-2F02-1060-HP600	30646183
10,70	10,5	QTD-2F02-1070-HP600	30615626
10,80	10,5	QTD-2F02-1080-HP600	30646184
10,90	10,5	QTD-2F02-1090-HP600	30646185
11,00	11	QTD-2F02-1100-HP600	30615627
11,10	11	QTD-2F02-1110-HP600	30646186
11,11	11	QTD-2F02-1111-HP600	30646187
11,20	11	QTD-2F02-1120-HP600	30646188

d ₁ from 11.30 to 14.60			
d ₁ h7	Holder size D	Specification	Order No.
11,30	11	QTD-2F02-1130-HP600	30646189
11,40	11	QTD-2F02-1140-HP600	30646190
11,50	11,5	QTD-2F02-1150-HP600	30615628
11,60	11,5	QTD-2F02-1160-HP600	30646191
11,70	11,5	QTD-2F02-1170-HP600	30615629
11,80	11,5	QTD-2F02-1180-HP600	30646192
11,90	11,5	QTD-2F02-1190-HP600	30646193
12,00	12	QTD-2F02-1200-HP600	30615630
12,10	12	QTD-2F02-1210-HP600	30646194
12,20	12	QTD-2F02-1220-HP600	30646195
12,30	12	QTD-2F02-1230-HP600	30646196
12,40	12	QTD-2F02-1240-HP600	30646197
12,50	12,5	QTD-2F02-1250-HP600	30615631
12,60	12,5	QTD-2F02-1260-HP600	30646198
12,70	12,5	QTD-2F02-1270-HP600	30615632
12,80	12,5	QTD-2F02-1280-HP600	30646199
12,90	12,5	QTD-2F02-1290-HP600	30646200
13,00	13	QTD-2F02-1300-HP600	30573070
13,10	13	QTD-2F02-1310-HP600	30646113
13,20	13	QTD-2F02-1320-HP600	30646114
13,30	13	QTD-2F02-1330-HP600	30646115
13,40	13	QTD-2F02-1340-HP600	30646116
13,50	13,5	QTD-2F02-1350-HP600	30573072
13,60	13,5	QTD-2F02-1360-HP600	30646117
13,70	13,5	QTD-2F02-1370-HP600	30573073
13,80	13,5	QTD-2F02-1380-HP600	30646118
13,90	13,5	QTD-2F02-1390-HP600	30646119
14,00	14	QTD-2F02-1400-HP600	30573074
14,10	14	QTD-2F02-1410-HP600	30646120
14,20	14	QTD-2F02-1420-HP600	30630410
14,29	14	QTD-2F02-1429-HP600	30646201
14,30	14	QTD-2F02-1430-HP600	30646122
14,40	14	QTD-2F02-1440-HP600	30646123
14,50	14,5	QTD-2F02-1450-HP600	30573075
14,60	14,5	QTD-2F02-1460-HP600	30646124

d ₁ from 14.70 to 17.30			
d ₁ h7	Holder size D	Specification	Order No.
14,70	14,5	QTD-2F02-1470-HP600	30573076
14,75	14,5	QTD-2F02-1475-HP600	30573077
14,80	14,5	QTD-2F02-1480-HP600	30646125
14,90	14,5	QTD-2F02-1490-HP600	30646126
15,00	15	QTD-2F02-1500-HP600	30573078
15,10	15	QTD-2F02-1510-HP600	30646127
15,20	15	QTD-2F02-1520-HP600	30646128
15,25	15	QTD-2F02-1525-HP600	30573079
15,30	15	QTD-2F02-1530-HP600	30646129
15,32	15	QTD-2F02-1532-HP600	30646209
15,40	15	QTD-2F02-1540-HP600	30646130
15,50	15	QTD-2F02-1550-HP600	30573080
15,60	15	QTD-2F02-1560-HP600	30646131
15,70	15	QTD-2F02-1570-HP600	30573081
15,80	15	QTD-2F02-1580-HP600	30646132
15,88	15	QTD-2F02-1588-HP600	30646202
15,90	15	QTD-2F02-1590-HP600	30646133
16,00	16	QTD-2F02-1600-HP600	30573083
16,08	16	QTD-2F02-1608-HP600	30573084
16,10	16	QTD-2F02-1610-HP600	30573086
16,20	16	QTD-2F02-1620-HP600	30646134
16,25	16	QTD-2F02-1625-HP600	30573087
16,30	16	QTD-2F02-1630-HP600	30646135
16,40	16	QTD-2F02-1640-HP600	30646136
16,50	16	QTD-2F02-1650-HP600	30573088
16,60	16	QTD-2F02-1660-HP600	30646137
16,66	16	QTD-2F02-1666-HP600	30646210
16,70	16	QTD-2F02-1670-HP600	30573089
16,75	16	QTD-2F02-1675-HP600	30573090
16,80	16	QTD-2F02-1680-HP600	30646138
16,90	16	QTD-2F02-1690-HP600	30646139
17,00	17	QTD-2F02-1700-HP600	30573091
17,10	17	QTD-2F02-1710-HP600	30646140
17,20	17	QTD-2F02-1720-HP600	30646141
17,30	17	QTD-2F02-1730-HP600	30646142

QTD inserts made of solid carbide, internal coolant supply – type 02

d ₁ from 17.40 to 20.64			
d ₁ h7	Holder size D	Specification	Order No.
17,40	17	QTD-2F02-1740-HP600	30646143
17,46	17	QTD-2F02-1746-HP600	30646203
17,50	17	QTD-2F02-1750-HP600	30573092
17,60	17	QTD-2F02-1760-HP600	30646144
17,70	17	QTD-2F02-1770-HP600	30573093
17,80	17	QTD-2F02-1780-HP600	30646145
17,90	17	QTD-2F02-1790-HP600	30646146
18,00	18	QTD-2F02-1800-HP600	30573094
18,10	18	QTD-2F02-1810-HP600	30646147
18,20	18	QTD-2F02-1820-HP600	30646148
18,25	18	QTD-2F02-1825-HP600	30573095
18,30	18	QTD-2F02-1830-HP600	30646149
18,40	18	QTD-2F02-1840-HP600	30646150
18,50	18	QTD-2F02-1850-HP600	30573096
18,60	18	QTD-2F02-1860-HP600	30646151
18,70	18	QTD-2F02-1870-HP600	30573097
18,80	18	QTD-2F02-1880-HP600	30646152
18,90	18	QTD-2F02-1890-HP600	30646153
19,00	19	QTD-2F02-1900-HP600	30573098
19,05	19	QTD-2F02-1905-HP600	30646204
19,10	19	QTD-2F02-1910-HP600	30646154
19,20	19	QTD-2F02-1920-HP600	30573099
19,25	19	QTD-2F02-1925-HP600	30573100
19,27	19	QTD-2F02-1927-HP600	30584733
19,30	19	QTD-2F02-1930-HP600	30646156
19,40	19	QTD-2F02-1940-HP600	30573101
19,50	19	QTD-2F02-1950-HP600	30573102
19,60	19	QTD-2F02-1960-HP600	30646157
19,70	19	QTD-2F02-1970-HP600	30573103
19,75	19	QTD-2F02-1975-HP600	30573104
19,80	19	QTD-2F02-1980-HP600	30646158
19,90	19	QTD-2F02-1990-HP600	30646159
20,00	20	QTD-2F02-2000-HP600	30573105
20,40	20	QTD-2F02-2040-HP600	30573106
20,50	20	QTD-2F02-2050-HP600	30573107
20,60	20	QTD-2F02-2060-HP600	30646211
20,64	20	QTD-2F02-2064-HP600	30646205

d ₁ from 20.70 to 26.00			
d ₁ h7	Holder size D	Specification	Order No.
20,70	20	QTD-2F02-2070-HP600	30573108
20,75	20	QTD-2F02-2075-HP600	30573109
20,80	20	QTD-2F02-2080-HP600	30646212
21,00	21	QTD-2F02-2100-HP600	30573110
21,50	21	QTD-2F02-2150-HP600	30573111
21,70	21	QTD-2F02-2170-HP600	30573112
22,00	22	QTD-2F02-2200-HP600	30573113
22,22	22	QTD-2F02-2222-HP600	30646213
22,23	22	QTD-2F02-2223-HP600	30646206
22,25	22	QTD-2F02-2225-HP600	30573114
22,45	22	QTD-2F02-2245-HP600	30573115
22,50	22	QTD-2F02-2250-HP600	30573116
22,70	22	QTD-2F02-2270-HP600	30573117
22,75	22	QTD-2F02-2275-HP600	30573118
23,00	23	QTD-2F02-2300-HP600	30573119
23,25	23	QTD-2F02-2325-HP600	30573120
23,50	23	QTD-2F02-2350-HP600	30573121
23,60	23	QTD-2F02-2360-HP600	30573122
23,70	23	QTD-2F02-2370-HP600	30573123
23,75	23	QTD-2F02-2375-HP600	30573124
23,81	23	QTD-2F02-2381-HP600	30646207
24,00	24	QTD-2F02-2400-HP600	30573125
24,20	24	QTD-2F02-2420-HP600	30646214
24,30	24	QTD-2F02-2430-HP600	30646215
24,50	24	QTD-2F02-2450-HP600	30573126
24,70	24	QTD-2F02-2470-HP600	30573127
24,75	24	QTD-2F02-2475-HP600	30573128
25,00	25	QTD-2F02-2500-HP600	30573129
25,04	25	QTD-2F02-2507-HP600	30646160
25,20	25	QTD-2F02-2520-HP600	30646216
25,40	25	QTD-2F02-2540-HP600	30573130
25,50	25	QTD-2F02-2550-HP600	30573131
25,65	25	QTD-2F02-2565-HP600	30646217
25,67	25	QTD-2F02-2567-HP600	30584742
25,70	25	QTD-2F02-2570-HP600	30573132
25,80	25	QTD-2F02-2580-HP600	30584745
26,00	26	QTD-2F02-2600-HP600	30573133

d ₁ from 26.50 to 50.00			
d ₁ h7	Holder size D	Specification	Order No.
26,50	26	QTD-2F02-2650-HP600	30573134
27,00	27	QTD-2F02-2700-HP600	30573135
27,50	27	QTD-2F02-2750-HP600	30573136
27,75	27	QTD-2F02-2775-HP600	30573137
28,00	28	QTD-2F02-2800-HP600	30573138
28,25	28	QTD-2F02-2825-HP600	30573139
28,50	28	QTD-2F02-2850-HP600	30573140
29,00	29	QTD-2F02-2900-HP600	30573141
29,50	29	QTD-2F02-2950-HP600	30573142
30,00	30	QTD-2F02-3000-HP600	30573143
30,25	30	QTD-2F02-3025-HP600	30573144
30,50	30	QTD-2F02-3050-HP600	30573145
30,75	30	QTD-2F02-3075-HP600	30573146
31,00	31	QTD-2F02-3100-HP600	30573147
31,50	31	QTD-2F02-3150-HP600	30573148
31,75	31	QTD-2F02-3175-HP600	30646208
32,00	32	QTD-2F02-3200-HP600	30573149
32,75	32	QTD-2F02-3275-HP600	30573150
33,00	33	QTD-2F02-3300-HP600	30649662
34,00	34	QTD-2F02-3400-HP600	30649663
35,00	35	QTD-2F02-3500-HP600	30649664
36,00	36	QTD-2F02-3600-HP600	30649665
37,00	37	QTD-2F02-3700-HP600	30649666
38,00	37	QTD-2F02-3800-HP600	30649667
39,00	39	QTD-2F02-3900-HP600	30657245
40,00	39	QTD-2F02-4000-HP600	30657246
41,00	41	QTD-2F02-4100-HP600	30657247
42,00	41	QTD-2F02-4200-HP600	30657248
43,00	43	QTD-2F02-4300-HP600	30657249
44,00	43	QTD-2F02-4400-HP600	30657251
45,00	45	QTD-2F02-4500-HP600	30657252
46,00	45	QTD-2F02-4600-HP600	30657253
47,00	47	QTD-2F02-4700-HP600	30657254
48,00	47	QTD-2F02-4800-HP600	30657255
49,00	47	QTD-2F02-4900-HP600	30657256
50,00	49	QTD-2F02-5000-HP600	30657257

Dimensions in mm.
 Cutting data recommendation from page 458.
 Special designs and other coatings on request.

QTD inserts

Made of solid carbide, internal coolant supply

Type 03 - Alu

Design:

Drill diameter:

Bore tolerance:

Coating:

Number of cutting edges:

Number of guiding chamfers:

Tip angle:

Type 03

8.00 - 50.00 mm

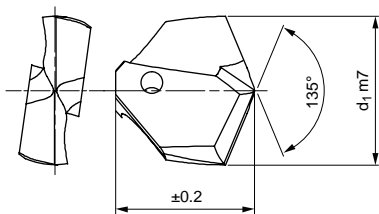
≥ IT 10

Uncoated

2

2

135 °



d ₁ from 8.00 to 11.20			
d ₁ m7	Holder size D	Specification	Order No.
8,00	8	QTD-2F03-0800-HU310	30646277
8,10	8	QTD-2F03-0810-HU310	30646278
8,20	8	QTD-2F03-0820-HU310	30646279
8,30	8	QTD-2F03-0830-HU310	30646280
8,40	8	QTD-2F03-0840-HU310	30646281
8,50	8,5	QTD-2F03-0850-HU310	30615780
8,60	8,5	QTD-2F03-0860-HU310	30646282
8,70	8,5	QTD-2F03-0870-HU310	30615781
8,80	8,5	QTD-2F03-0880-HU310	30646283
8,90	8,5	QTD-2F03-0890-HU310	30646284
9,00	9	QTD-2F03-0900-HU310	30615782
9,10	9	QTD-2F03-0910-HU310	30646285
9,20	9	QTD-2F03-0920-HU310	30646286
9,30	9	QTD-2F03-0930-HU310	30646287
9,40	9	QTD-2F03-0940-HU310	30646288
9,50	9,5	QTD-2F03-0950-HU310	30615783
9,53	9,5	QTD-2F03-0953-HU310	30646289
9,60	9,5	QTD-2F03-0960-HU310	30646290
9,70	9,5	QTD-2F03-0970-HU310	30615784
9,80	9,5	QTD-2F03-0980-HU310	30646291
9,90	9,5	QTD-2F03-0990-HU310	30646292
10,00	10	QTD-2F03-1000-HU310	30615785
10,10	10	QTD-2F03-1010-HU310	30646293
10,20	10	QTD-2F03-1020-HU310	30646294
10,30	10	QTD-2F03-1030-HU310	30646295
10,40	10	QTD-2F03-1040-HU310	30646296
10,50	10,5	QTD-2F03-1050-HU310	30615786
10,60	10,5	QTD-2F03-1060-HU310	30646297
10,70	10,5	QTD-2F03-1070-HU310	30615787
10,80	10,5	QTD-2F03-1080-HU310	30646298
10,90	10,5	QTD-2F03-1090-HU310	30646299
11,00	11	QTD-2F03-1100-HU310	30615788
11,10	11	QTD-2F03-1110-HU310	30646300
11,11	11	QTD-2F03-1111-HU310	30646301
11,20	11	QTD-2F03-1120-HU310	30646302

d ₁ from 11.30 to 14.60			
d ₁ m7	Holder size D	Specification	Order No.
11,30	11	QTD-2F03-1130-HU310	30646303
11,40	11	QTD-2F03-1140-HU310	30646304
11,50	11,5	QTD-2F03-1150-HU310	30615789
11,60	11,5	QTD-2F03-1160-HU310	30646305
11,70	11,5	QTD-2F03-1170-HU310	30615790
11,80	11,5	QTD-2F03-1180-HU310	30646306
11,90	11,5	QTD-2F03-1190-HU310	30646307
12,00	12	QTD-2F03-1200-HU310	30615791
12,10	12	QTD-2F03-1210-HU310	30646308
12,20	12	QTD-2F03-1220-HU310	30646309
12,30	12	QTD-2F03-1230-HU310	30646310
12,40	12	QTD-2F03-1240-HU310	30646311
12,50	12,5	QTD-2F03-1250-HU310	30615792
12,60	12,5	QTD-2F03-1260-HU310	30646312
12,70	12,5	QTD-2F03-1270-HU310	30615793
12,80	12,5	QTD-2F03-1280-HU310	30646313
12,90	12,5	QTD-2F03-1290-HU310	30646314
13,00	13	QTD-2F03-1300-HU310	30612819
13,10	13	QTD-2F03-1310-HU310	30646218
13,20	13	QTD-2F03-1320-HU310	30646219
13,30	13	QTD-2F03-1330-HU310	30646220
13,40	13	QTD-2F03-1340-HU310	30646221
13,50	13,5	QTD-2F03-1350-HU310	30612820
13,60	13,5	QTD-2F03-1360-HU310	30646222
13,70	13,5	QTD-2F03-1370-HU310	30612821
13,80	13,5	QTD-2F03-1380-HU310	30646223
13,90	13,5	QTD-2F03-1390-HU310	30646224
14,00	14	QTD-2F03-1400-HU310	30612822
14,10	14	QTD-2F03-1410-HU310	30646225
14,20	14	QTD-2F03-1420-HU310	30646226
14,29	14	QTD-2F03-1429-HU310	30646315
14,30	14	QTD-2F03-1430-HU310	30646227
14,40	14	QTD-2F03-1440-HU310	30646228
14,50	14,5	QTD-2F03-1450-HU310	30612823
14,60	14,5	QTD-2F03-1460-HU310	30646229

d ₁ from 14.70 to 17.30			
d ₁ m7	Holder size D	Specification	Order No.
14,70	14,5	QTD-2F03-1470-HU310	30612824
14,75	14,5	QTD-2F03-1475-HU310	30612825
14,80	14,5	QTD-2F03-1480-HU310	30646230
14,90	14,5	QTD-2F03-1490-HU310	30646231
15,00	15	QTD-2F03-1500-HU310	30612826
15,10	15	QTD-2F03-1510-HU310	30646232
15,20	15	QTD-2F03-1520-HU310	30646233
15,25	15	QTD-2F03-1525-HU310	30612827
15,30	15	QTD-2F03-1530-HU310	30646234
15,32	15	QTD-2F03-1532-HU310	30646235
15,40	15	QTD-2F03-1540-HU310	30646236
15,50	15	QTD-2F03-1550-HU310	30612828
15,60	15	QTD-2F03-1560-HU310	30646237
15,70	15	QTD-2F03-1570-HU310	30612829
15,80	15	QTD-2F03-1580-HU310	30646238
15,88	15	QTD-2F03-1588-HU310	30646316
15,90	15	QTD-2F03-1590-HU310	30646239
16,00	16	QTD-2F03-1600-HU310	30612830
16,08	16	QTD-2F03-1608-HU310	30612831
16,10	16	QTD-2F03-1610-HU310	30612832
16,20	16	QTD-2F03-1620-HU310	30646240
16,25	16	QTD-2F03-1625-HU310	30612833
16,30	16	QTD-2F03-1630-HU310	30646241
16,40	16	QTD-2F03-1640-HU310	30646242
16,50	16	QTD-2F03-1650-HU310	30612834
16,60	16	QTD-2F03-1660-HU310	30646243
16,66	16	QTD-2F03-1666-HU310	30646244
16,70	16	QTD-2F03-1670-HU310	30612835
16,75	16	QTD-2F03-1675-HU310	30612836
16,80	16	QTD-2F03-1680-HU310	30646245
16,90	16	QTD-2F03-1690-HU310	30646246
17,00	17	QTD-2F03-1700-HU310	30612837
17,10	17	QTD-2F03-1710-HU310	30646247
17,20	17	QTD-2F03-1720-HU310	30646248
17,30	17	QTD-2F03-1730-HU310	30646249

QTD inserts made of solid carbide, internal coolant supply – type O3

d ₁ from 17.40 to 20.64				d ₁ from 20.70 to 26.00				d ₁ from 26.50 to 50.00			
d ₁ m7	Holder size D	Specification	Order No.	d ₁ m7	Holder size D	Specification	Order No.	d ₁ m7	Holder size D	Specification	Order No.
17,40	17	QTD-2F03-1740-HU310	30646250	20,70	20	QTD-2F03-2070-HU310	30612854	26,50	26	QTD-2F03-2650-HU310	30612880
17,46	17	QTD-2F03-1746-HU310	30646317	20,75	20	QTD-2F03-2075-HU310	30612855	27,00	27	QTD-2F03-2700-HU310	30612881
17,50	17	QTD-2F03-1750-HU310	30612838	20,80	20	QTD-2F03-2080-HU310	30646268	27,50	27	QTD-2F03-2750-HU310	30612882
17,60	17	QTD-2F03-1760-HU310	30646251	21,00	21	QTD-2F03-2100-HU310	30612856	27,75	27	QTD-2F03-2775-HU310	30612883
17,70	17	QTD-2F03-1770-HU310	30612839	21,50	21	QTD-2F03-2150-HU310	30612857	28,00	28	QTD-2F03-2800-HU310	30612884
17,80	17	QTD-2F03-1780-HU310	30646252	21,70	21	QTD-2F03-2170-HU310	30612858	28,25	28	QTD-2F03-2825-HU310	30612885
17,90	17	QTD-2F03-1790-HU310	30646253	22,00	22	QTD-2F03-2200-HU310	30612859	28,50	28	QTD-2F03-2850-HU310	30612886
18,00	18	QTD-2F03-1800-HU310	30612840	22,22	22	QTD-2F03-2222-HU310	30646269	29,00	29	QTD-2F03-2900-HU310	30612887
18,10	18	QTD-2F03-1810-HU310	30646254	22,23	22	QTD-2F03-2223-HU310	30646320	29,50	29	QTD-2F03-2950-HU310	30612888
18,20	18	QTD-2F03-1820-HU310	30646255	22,25	22	QTD-2F03-2225-HU310	30612860	30,00	30	QTD-2F03-3000-HU310	30612889
18,25	18	QTD-2F03-1825-HU310	30612841	22,45	22	QTD-2F03-2245-HU310	30612861	30,25	30	QTD-2F03-3025-HU310	30612890
18,30	18	QTD-2F03-1830-HU310	30646256	22,50	22	QTD-2F03-2250-HU310	30612862	30,50	30	QTD-2F03-3050-HU310	30612891
18,40	18	QTD-2F03-1840-HU310	30646257	22,70	22	QTD-2F03-2270-HU310	30612863	30,75	30	QTD-2F03-3075-HU310	30612892
18,50	18	QTD-2F03-1850-HU310	30612842	22,75	22	QTD-2F03-2275-HU310	30612864	31,00	31	QTD-2F03-3100-HU310	30612893
18,60	18	QTD-2F03-1860-HU310	30646258	23,00	23	QTD-2F03-2300-HU310	30612865	31,50	31	QTD-2F03-3150-HU310	30612894
18,70	18	QTD-2F03-1870-HU310	30612843	23,25	23	QTD-2F03-2325-HU310	30612866	31,75	31	QTD-2F03-3175-HU310	30646322
18,80	18	QTD-2F03-1880-HU310	30646259	23,50	23	QTD-2F03-2350-HU310	30612867	32,00	32	QTD-2F03-3200-HU310	30612895
18,90	18	QTD-2F03-1890-HU310	30646260	23,60	23	QTD-2F03-2360-HU310	30612868	32,75	32	QTD-2F03-3275-HU310	30612896
19,00	19	QTD-2F03-1900-HU310	30612844	23,70	23	QTD-2F03-2370-HU310	30612869	33,00	33	QTD-2F03-3300-HU310	30649668
19,05	19	QTD-2F03-1905-HU310	30646318	23,75	23	QTD-2F03-2375-HU310	30612870	34,00	34	QTD-2F03-3400-HU310	30649669
19,10	19	QTD-2F03-1910-HU310	30646261	23,81	23	QTD-2F03-2381-HU310	30646321	35,00	35	QTD-2F03-3500-HU310	30649670
19,20	19	QTD-2F03-1920-HU310	30612845	24,00	24	QTD-2F03-2400-HU310	30612871	36,00	36	QTD-2F03-3600-HU310	30649671
19,25	19	QTD-2F03-1925-HU310	30612846	24,20	24	QTD-2F03-2420-HU310	30646270	37,00	37	QTD-2F03-3700-HU310	30649672
19,27	19	QTD-2F03-1927-HU310	30646262	24,30	24	QTD-2F03-2430-HU310	30646271	38,00	37	QTD-2F03-3800-HU310	30649673
19,30	19	QTD-2F03-1930-HU310	30646263	24,50	24	QTD-2F03-2450-HU310	30612872	39,00	39	QTD-2F03-3900-HU310	30657258
19,40	19	QTD-2F03-1940-HU310	30612847	24,70	24	QTD-2F03-2470-HU310	30612873	40,00	39	QTD-2F03-4000-HU310	30657259
19,50	19	QTD-2F03-1950-HU310	30612848	24,75	24	QTD-2F03-2475-HU310	30612874	41,00	41	QTD-2F03-4100-HU310	30657260
19,60	19	QTD-2F03-1960-HU310	30646264	25,00	25	QTD-2F03-2500-HU310	30612875	42,00	41	QTD-2F03-4200-HU310	30657261
19,70	19	QTD-2F03-1970-HU310	30612849	25,04	25	QTD-2F03-2507-HU310	30646272	43,00	43	QTD-2F03-4300-HU310	30657262
19,75	19	QTD-2F03-1975-HU310	30612850	25,20	25	QTD-2F03-2520-HU310	30646273	44,00	43	QTD-2F03-4400-HU310	30657263
19,80	19	QTD-2F03-1980-HU310	30646265	25,40	25	QTD-2F03-2540-HU310	30612876	45,00	45	QTD-2F03-4500-HU310	30657264
19,90	19	QTD-2F03-1990-HU310	30646266	25,50	25	QTD-2F03-2550-HU310	30612877	46,00	45	QTD-2F03-4600-HU310	30657265
20,00	20	QTD-2F03-2000-HU310	30612851	25,65	25	QTD-2F03-2565-HU310	30646274	47,00	47	QTD-2F03-4700-HU310	30657266
20,40	20	QTD-2F03-2040-HU310	30612852	25,67	25	QTD-2F03-2567-HU310	30646275	48,00	47	QTD-2F03-4800-HU310	30657267
20,50	20	QTD-2F03-2050-HU310	30612853	25,70	25	QTD-2F03-2570-HU310	30612878	49,00	47	QTD-2F03-4900-HU310	30657268
20,60	20	QTD-2F03-2060-HU310	30646267	25,80	25	QTD-2F03-2580-HU310	30646276	50,00	49	QTD-2F03-5000-HU310	30657269
20,64	20	QTD-2F03-2064-HU310	30646319	26,00	26	QTD-2F03-2600-HU310	30612879				

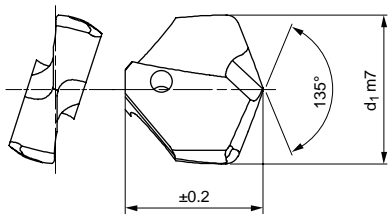
Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

QTD inserts

Made of solid carbide, internal coolant supply
Type 04 - Iron

**Design:**

Drill diameter:
Bore tolerance:
Coating:

Type 04

8.00 - 50.00 mm
≥ IT 10
Special TiAlSiXN
coating

Number of cutting edges: 2

Number of guiding chamfers: 2

Tip angle: 135 °



d ₁ from 8.00 to 11.20				d ₁ from 11.30 to 14.60				d ₁ from 14.70 to 17.30			
d ₁ m7	Holder size D	Specification	Order No.	d ₁ m7	Holder size D	Specification	Order No.	d ₁ m7	Holder size D	Specification	Order No.
8,00	8	QTD-2F04-0800-HP240	30646382	11,30	11	QTD-2F04-1130-HP240	30646409	14,70	14,5	QTD-2F04-1470-HP240	30612902
8,10	8	QTD-2F04-0810-HP240	30646383	11,40	11	QTD-2F04-1140-HP240	30646410	14,75	14,5	QTD-2F04-1475-HP240	30612903
8,20	8	QTD-2F04-0820-HP240	30646384	11,50	11,5	QTD-2F04-1150-HP240	30615803	14,80	14,5	QTD-2F04-1480-HP240	30646335
8,30	8	QTD-2F04-0830-HP240	30646385	11,60	11,5	QTD-2F04-1160-HP240	30646411	14,90	14,5	QTD-2F04-1490-HP240	30646336
8,40	8	QTD-2F04-0840-HP240	30646386	11,70	11,5	QTD-2F04-1170-HP240	30615804	15,00	15	QTD-2F04-1500-HP240	30612904
8,50	8,5	QTD-2F04-0850-HP240	30615794	11,80	11,5	QTD-2F04-1180-HP240	30646412	15,10	15	QTD-2F04-1510-HP240	30646337
8,60	8,5	QTD-2F04-0860-HP240	30646387	11,90	11,5	QTD-2F04-1190-HP240	30646413	15,20	15	QTD-2F04-1520-HP240	30646338
8,70	8,5	QTD-2F04-0870-HP240	30615795	12,00	12	QTD-2F04-1200-HP240	30615805	15,25	15	QTD-2F04-1525-HP240	30612905
8,80	8,5	QTD-2F04-0880-HP240	30646388	12,10	12	QTD-2F04-1210-HP240	30646414	15,30	15	QTD-2F04-1530-HP240	30646339
8,90	8,5	QTD-2F04-0890-HP240	30646390	12,20	12	QTD-2F04-1220-HP240	30646415	15,32	15	QTD-2F04-1532-HP240	30646340
9,00	9	QTD-2F04-0900-HP240	30615796	12,30	12	QTD-2F04-1230-HP240	30646416	15,40	15	QTD-2F04-1540-HP240	30646341
9,10	9	QTD-2F04-0910-HP240	30646391	12,40	12	QTD-2F04-1240-HP240	30646417	15,50	15	QTD-2F04-1550-HP240	30612906
9,20	9	QTD-2F04-0920-HP240	30646392	12,50	12,5	QTD-2F04-1250-HP240	30615806	15,60	15	QTD-2F04-1560-HP240	30646342
9,30	9	QTD-2F04-0930-HP240	30646393	12,60	12,5	QTD-2F04-1260-HP240	30646418	15,70	15	QTD-2F04-1570-HP240	30612907
9,40	9	QTD-2F04-0940-HP240	30646394	12,70	12,5	QTD-2F04-1270-HP240	30615807	15,80	15	QTD-2F04-1580-HP240	30646343
9,50	9,5	QTD-2F04-0950-HP240	30615797	12,80	12,5	QTD-2F04-1280-HP240	30646419	15,88	15	QTD-2F04-1588-HP240	30646422
9,53	9,5	QTD-2F04-0953-HP240	30646395	12,90	12,5	QTD-2F04-1290-HP240	30646420	15,90	15	QTD-2F04-1590-HP240	30646344
9,60	9,5	QTD-2F04-0960-HP240	30646396	13,00	13	QTD-2F04-1300-HP240	30612897	16,00	16	QTD-2F04-1600-HP240	30612908
9,70	9,5	QTD-2F04-0970-HP240	30615798	13,10	13	QTD-2F04-1310-HP240	30646323	16,08	16	QTD-2F04-1608-HP240	30612909
9,80	9,5	QTD-2F04-0980-HP240	30646397	13,20	13	QTD-2F04-1320-HP240	30646324	16,10	16	QTD-2F04-1610-HP240	30612910
9,90	9,5	QTD-2F04-0990-HP240	30646398	13,30	13	QTD-2F04-1330-HP240	30646325	16,20	16	QTD-2F04-1620-HP240	30646345
10,00	10	QTD-2F04-1000-HP240	30615799	13,40	13	QTD-2F04-1340-HP240	30646326	16,25	16	QTD-2F04-1625-HP240	30612911
10,10	10	QTD-2F04-1010-HP240	30646399	13,50	13,5	QTD-2F04-1350-HP240	30612898	16,30	16	QTD-2F04-1630-HP240	30646346
10,20	10	QTD-2F04-1020-HP240	30646400	13,60	13,5	QTD-2F04-1360-HP240	30646327	16,40	16	QTD-2F04-1640-HP240	30646347
10,30	10	QTD-2F04-1030-HP240	30646401	13,70	13,5	QTD-2F04-1370-HP240	30612899	16,50	16	QTD-2F04-1650-HP240	30612912
10,40	10	QTD-2F04-1040-HP240	30646402	13,80	13,5	QTD-2F04-1380-HP240	30646328	16,60	16	QTD-2F04-1660-HP240	30646348
10,50	10,5	QTD-2F04-1050-HP240	30615800	13,90	13,5	QTD-2F04-1390-HP240	30646329	16,66	16	QTD-2F04-1666-HP240	30646349
10,60	10,5	QTD-2F04-1060-HP240	30646403	14,00	14	QTD-2F04-1400-HP240	30612900	16,70	16	QTD-2F04-1670-HP240	30612913
10,70	10,5	QTD-2F04-1070-HP240	30615801	14,10	14	QTD-2F04-1410-HP240	30646330	16,75	16	QTD-2F04-1675-HP240	30612914
10,80	10,5	QTD-2F04-1080-HP240	30646404	14,20	14	QTD-2F04-1420-HP240	30646331	16,80	16	QTD-2F04-1680-HP240	30646350
10,90	10,5	QTD-2F04-1090-HP240	30646405	14,29	14	QTD-2F04-1429-HP240	30646421	16,90	16	QTD-2F04-1690-HP240	30646351
11,00	11	QTD-2F04-1100-HP240	30615802	14,30	14	QTD-2F04-1430-HP240	30646332	17,00	17	QTD-2F04-1700-HP240	30612915
11,10	11	QTD-2F04-1110-HP240	30646406	14,40	14	QTD-2F04-1440-HP240	30646333	17,10	17	QTD-2F04-1710-HP240	30646352
11,11	11	QTD-2F04-1111-HP240	30646407	14,50	14,5	QTD-2F04-1450-HP240	30612901	17,20	17	QTD-2F04-1720-HP240	30646353
11,20	11	QTD-2F04-1120-HP240	30646408	14,60	14,5	QTD-2F04-1460-HP240	30646334	17,30	17	QTD-2F04-1730-HP240	30646354

QTD inserts made of solid carbide, internal coolant supply – type O4

d ₁ from 17.40 to 20.64				d ₁ from 20.70 to 26.00				d ₁ from 26.50 to 50.00			
d ₁ m7	Holder size D	Specification	Order No.	d ₁ m7	Holder size D	Specification	Order No.	d ₁ m7	Holder size D	Specification	Order No.
17,40	17	QTD-2F04-1740-HP240	30646355	20,70	20	QTD-2F04-2070-HP240	30612932	26,50	26	QTD-2F04-2650-HP240	30612958
17,46	17	QTD-2F04-1746-HP240	30646423	20,75	20	QTD-2F04-2075-HP240	30612933	27,00	27	QTD-2F04-2700-HP240	30612959
17,50	17	QTD-2F04-1750-HP240	30612916	20,80	20	QTD-2F04-2080-HP240	30646373	27,50	27	QTD-2F04-2750-HP240	30612960
17,60	17	QTD-2F04-1760-HP240	30646356	21,00	21	QTD-2F04-2100-HP240	30612934	27,75	27	QTD-2F04-2775-HP240	30612961
17,70	17	QTD-2F04-1770-HP240	30612917	21,50	21	QTD-2F04-2150-HP240	30612935	28,00	28	QTD-2F04-2800-HP240	30612962
17,80	17	QTD-2F04-1780-HP240	30646357	21,70	21	QTD-2F04-2170-HP240	30612936	28,25	28	QTD-2F04-2825-HP240	30612963
17,90	17	QTD-2F04-1790-HP240	30646358	22,00	22	QTD-2F04-2200-HP240	30612937	28,50	28	QTD-2F04-2850-HP240	30612964
18,00	18	QTD-2F04-1800-HP240	30612918	22,22	22	QTD-2F04-2222-HP240	30646374	29,00	29	QTD-2F04-2900-HP240	30612965
18,10	18	QTD-2F04-1810-HP240	30646359	22,23	22	QTD-2F04-2223-HP240	30646426	29,50	29	QTD-2F04-2950-HP240	30612966
18,20	18	QTD-2F04-1820-HP240	30646360	22,25	22	QTD-2F04-2225-HP240	30612938	30,00	30	QTD-2F04-3000-HP240	30612967
18,25	18	QTD-2F04-1825-HP240	30612919	22,45	22	QTD-2F04-2245-HP240	30612939	30,25	30	QTD-2F04-3025-HP240	30612968
18,30	18	QTD-2F04-1830-HP240	30646361	22,50	22	QTD-2F04-2250-HP240	30612940	30,50	30	QTD-2F04-3050-HP240	30612969
18,40	18	QTD-2F04-1840-HP240	30646362	22,70	22	QTD-2F04-2270-HP240	30612941	30,75	30	QTD-2F04-3075-HP240	30612970
18,50	18	QTD-2F04-1850-HP240	30612920	22,75	22	QTD-2F04-2275-HP240	30612942	31,00	31	QTD-2F04-3100-HP240	30612971
18,60	18	QTD-2F04-1860-HP240	30646363	23,00	23	QTD-2F04-2300-HP240	30612943	31,50	31	QTD-2F04-3150-HP240	30612972
18,70	18	QTD-2F04-1870-HP240	30612921	23,25	23	QTD-2F04-2325-HP240	30612944	31,75	31	QTD-2F04-3175-HP240	30646428
18,80	18	QTD-2F04-1880-HP240	30646364	23,50	23	QTD-2F04-2350-HP240	30612945	32,00	32	QTD-2F04-3200-HP240	30612973
18,90	18	QTD-2F04-1890-HP240	30646365	23,60	23	QTD-2F04-2360-HP240	30612946	32,75	32	QTD-2F04-3275-HP240	30612974
19,00	19	QTD-2F04-1900-HP240	30612922	23,70	23	QTD-2F04-2370-HP240	30612947	33,00	33	QTD-2F04-3300-HP240	30649674
19,05	19	QTD-2F04-1905-HP240	30646424	23,75	23	QTD-2F04-2375-HP240	30612948	34,00	34	QTD-2F04-3400-HP240	30649675
19,10	19	QTD-2F04-1910-HP240	30646366	23,81	23	QTD-2F04-2381-HP240	30646427	35,00	35	QTD-2F04-3500-HP240	30649676
19,20	19	QTD-2F04-1920-HP240	30612923	24,00	24	QTD-2F04-2400-HP240	30612949	36,00	36	QTD-2F04-3600-HP240	30649677
19,25	19	QTD-2F04-1925-HP240	30612924	24,20	24	QTD-2F04-2420-HP240	30646375	37,00	37	QTD-2F04-3700-HP240	30649678
19,27	19	QTD-2F04-1927-HP240	30646367	24,30	24	QTD-2F04-2430-HP240	30646376	38,00	37	QTD-2F04-3800-HP240	30649679
19,30	19	QTD-2F04-1930-HP240	30646368	24,50	24	QTD-2F04-2450-HP240	30612950	39,00	39	QTD-2F04-3900-HP240	30657270
19,40	19	QTD-2F04-1940-HP240	30612925	24,70	24	QTD-2F04-2470-HP240	30612951	40,00	39	QTD-2F04-4000-HP240	30657271
19,50	19	QTD-2F04-1950-HP240	30612926	24,75	24	QTD-2F04-2475-HP240	30612952	41,00	41	QTD-2F04-4100-HP240	30657272
19,60	19	QTD-2F04-1960-HP240	30646369	25,00	25	QTD-2F04-2500-HP240	30612953	42,00	41	QTD-2F04-4200-HP240	30657273
19,70	19	QTD-2F04-1970-HP240	30612927	25,04	25	QTD-2F04-2507-HP240	30646377	43,00	43	QTD-2F04-4300-HP240	30657274
19,75	19	QTD-2F04-1975-HP240	30612928	25,20	25	QTD-2F04-2520-HP240	30646378	44,00	43	QTD-2F04-4400-HP240	30657275
19,80	19	QTD-2F04-1980-HP240	30646370	25,40	25	QTD-2F04-2540-HP240	30612954	45,00	45	QTD-2F04-4500-HP240	30657276
19,90	19	QTD-2F04-1990-HP240	30646371	25,50	25	QTD-2F04-2550-HP240	30612955	46,00	45	QTD-2F04-4600-HP240	30657277
20,00	20	QTD-2F04-2000-HP240	30612929	25,65	25	QTD-2F04-2565-HP240	30646379	47,00	47	QTD-2F04-4700-HP240	30657279
20,40	20	QTD-2F04-2040-HP240	30612930	25,67	25	QTD-2F04-2567-HP240	30646380	48,00	47	QTD-2F04-4800-HP240	30657280
20,50	20	QTD-2F04-2050-HP240	30612931	25,70	25	QTD-2F04-2570-HP240	30612956	49,00	47	QTD-2F04-4900-HP240	30657281
20,60	20	QTD-2F04-2060-HP240	30646372	25,80	25	QTD-2F04-2580-HP240	30646381	50,00	49	QTD-2F04-5000-HP240	30657282
20,64	20	QTD-2F04-2064-HP240	30646425	26,00	26	QTD-2F04-2600-HP240	30612957				

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

Insert holders QTS

QTS100 with prism connection for QTD inserts (1.5xD),
internal coolant supply

Design:

For diameters:

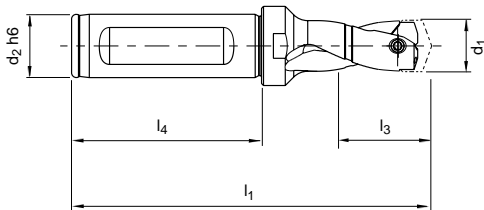
8.00 - 50.99 mm

Shank form:

in accordance with
ISO 9766

Changing system:

Prism connection, insert
replacement on the
machine possible



Dimensions						Specification	Order No.
Holder size D	Diameter range insert d ₁	d ₂ h6	l ₁	l ₃	l ₄		
8,00	8,00 - 8,49	12	74	13	45	QTS100-0800-DR1-12	30605462
8,50	8,50 - 8,99	12	76	14	45	QTS100-0850-DR1-12	30605463
9,00	9,00 - 9,49	12	77	15	45	QTS100-0900-DR1-12	30605464
9,50	9,50 - 9,99	12	78	15	45	QTS100-0950-DR1-12	30605465
10,00	10,00 - 10,49	16	83	16	48	QTS100-1000-DR1-16	30605466
10,50	10,50 - 10,99	16	84	17	48	QTS100-1050-DR1-16	30605467
11,00	11,00 - 11,49	16	86	18	48	QTS100-1100-DR1-16	30605468
11,50	11,50 - 11,99	16	86	18	48	QTS100-1150-DR1-16	30605469
12,00	12,00 - 12,49	16	88	19	48	QTS100-1200-DR1-16	30605470
12,50	12,50 - 12,99	16	90	20	48	QTS100-1250-DR1-16	30605471
13,00	13,00 - 13,49	16	91	21	48	QTS100-1300-DR1-16	30572900
13,50	13,50 - 13,99	16	92	21	48	QTS100-1350-DR1-16	30572901
14,00	14,00 - 14,49	16	93	22	48	QTS100-1400-DR1-16	30572902
14,50	14,50 - 14,99	16	95	23	48	QTS100-1450-DR1-16	30572903
15,00	15,00 - 15,99	20	99	24	50	QTS100-1500-DR1-20	30572904
16,00	16,00 - 16,99	20	102	26	50	QTS100-1600-DR1-20	30572905
17,00	17,00 - 17,99	20	105	27	50	QTS100-1700-DR1-20	30572906
18,00	18,00 - 18,99	25	114	29	56	QTS100-1800-DR1-25	30572907
19,00	19,00 - 19,99	25	116	30	56	QTS100-1900-DR1-25	30572908
20,00	20,00 - 20,99	25	119	32	56	QTS100-2000-DR1-25	30572909
21,00	21,00 - 21,99	25	121	33	56	QTS100-2100-DR1-25	30572910
22,00	22,00 - 22,99	25	125	35	56	QTS100-2200-DR1-25	30572911
23,00	23,00 - 23,99	25	127	36	56	QTS100-2300-DR1-25	30572912
24,00	24,00 - 24,99	32	134	38	60	QTS100-2400-DR1-32	30572913
25,00	25,00 - 25,99	32	136	39	60	QTS100-2500-DR1-32	30572914
26,00	26,00 - 26,99	32	139	41	60	QTS100-2600-DR1-32	30572915
27,00	27,00 - 27,99	32	142	42	60	QTS100-2700-DR1-32	30572916
28,00	28,00 - 28,99	32	145	44	60	QTS100-2800-DR1-32	30572917
29,00	29,00 - 29,99	32	147	45	60	QTS100-2900-DR1-32	30572918
30,00	30,00 - 30,99	32	150	47	60	QTS100-3000-DR1-32	30572919
31,00	31,00 - 31,99	32	152	48	60	QTS100-3100-DR1-32	30572920
32,00	32,00 - 32,99	32	156	50	60	QTS100-3200-DR1-32	30572921
33,00	33,00 - 33,99	32	158	51	60	QTS100-3300-DR1-32	30639163
34,00	34,00 - 34,99	32	161	53	60	QTS100-3400-DR1-32	30639164
35,00	35,00 - 35,99	32	163	54	60	QTS100-3500-DR1-32	30639165

Insert holders QTS | QTS100 with prism connection for QTD inserts (1.5xD), internal coolant supply

Dimensions							
Holder size D	Diameter range insert d ₁	d ₂ h6	l ₁	l ₃	l ₄	Specification	Order No.
36,00	36,00 - 36,99	32	166	56	60	QTS100-3600-DR1-32	30639166
37,00	37,00 - 38,99	40	182	59	70	QTS100-3700-DR1-40	30650278
39,00	39,00 - 40,99	40	187	62	70	QTS100-3900-DR1-40	30650279
41,00	41,00 - 42,99	40	193	65	70	QTS100-4100-DR1-40	30650280
43,00	43,00 - 44,99	40	198	68	70	QTS100-4300-DR1-40	30650281
45,00	45,00 - 46,99	40	203	71	70	QTS100-4500-DR1-40	30650282
47,00	47,00 - 48,99	40	211	74	70	QTS100-4700-DR1-40	30652932
49,00	49,00 - 50,99	40	216	77	70	QTS100-4900-DR1-40	30652933

Insert holders QTS

QTS100 with prism connection for QTD inserts (3xD),
internal coolant supply

Design:

For diameters:

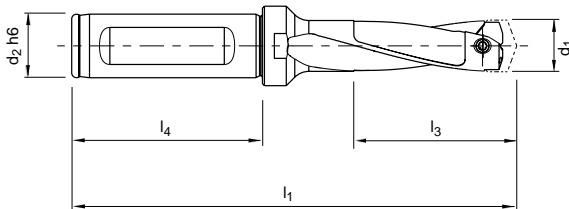
8.00 - 50.99 mm

Shank form:

in accordance with
ISO 9766

Changing system:

Prism connection, insert
replacement on the
machine possible



Dimensions						Specification	Order No.
Holder size D	Diameter range insert d ₁	d ₂ h6	l ₁	l ₃	l ₄		
8,00	8,00 - 8,49	12	88	26	45	QTS100-0800-DR3-12	30605472
8,50	8,50 - 8,99	12	89	27	45	QTS100-0850-DR3-12	30605473
9,00	9,00 - 9,49	12	92	29	45	QTS100-0900-DR3-12	30605474
9,50	9,50 - 9,99	12	93	30	45	QTS100-0950-DR3-12	30605475
10,00	10,00 - 10,49	16	99	32	48	QTS100-1000-DR3-16	30605476
10,50	10,50 - 10,99	16	101	33	48	QTS100-1050-DR3-16	30605477
11,00	11,00 - 11,49	16	103	35	48	QTS100-1100-DR3-16	30605478
11,50	11,50 - 11,99	16	105	36	48	QTS100-1150-DR3-16	30605479
12,00	12,00 - 12,49	16	107	38	48	QTS100-1200-DR3-16	30605480
12,50	12,50 - 12,99	16	109	39	48	QTS100-1250-DR3-16	30605481
13,00	13,00 - 13,49	16	112	41	48	QTS100-1300-DR3-16	30572922
13,50	13,50 - 13,99	16	113	42	48	QTS100-1350-DR3-16	30572923
14,00	14,00 - 14,49	16	116	44	48	QTS100-1400-DR3-16	30572924
14,50	14,50 - 14,99	16	117	45	48	QTS100-1450-DR3-16	30572925
15,00	15,00 - 15,99	20	124	48	50	QTS100-1500-DR3-20	30572926
16,00	16,00 - 16,99	20	128	51	50	QTS100-1600-DR3-20	30572927
17,00	17,00 - 17,99	20	132	54	50	QTS100-1700-DR3-20	30572928
18,00	18,00 - 18,99	25	142	57	56	QTS100-1800-DR3-25	30572929
19,00	19,00 - 19,99	25	146	60	56	QTS100-1900-DR3-25	30572930
20,00	20,00 - 20,99	25	151	63	56	QTS100-2000-DR3-25	30572931
21,00	21,00 - 21,99	25	155	66	56	QTS100-2100-DR3-25	30572932
22,00	22,00 - 22,99	25	159	69	56	QTS100-2200-DR3-25	30572933
23,00	23,00 - 23,99	25	163	72	56	QTS100-2300-DR3-25	30572934
24,00	24,00 - 24,99	32	171	75	60	QTS100-2400-DR3-32	30572935
25,00	25,00 - 25,99	32	176	78	60	QTS100-2500-DR3-32	30572937
26,00	26,00 - 26,99	32	180	81	60	QTS100-2600-DR3-32	30572938
27,00	27,00 - 27,99	32	184	84	60	QTS100-2700-DR3-32	30572939
28,00	28,00 - 28,99	32	188	87	60	QTS100-2800-DR3-32	30572940
29,00	29,00 - 29,99	32	192	90	60	QTS100-2900-DR3-32	30572941
30,00	30,00 - 30,99	32	197	93	60	QTS100-3000-DR3-32	30572942
31,00	31,00 - 31,99	32	201	96	60	QTS100-3100-DR3-32	30572943
32,00	32,00 - 32,99	32	205	99	60	QTS100-3200-DR3-32	30572944
33,00	33,00 - 33,99	32	209	102	60	QTS100-3300-DR3-32	30639167
34,00	34,00 - 34,99	32	213	105	60	QTS100-3400-DR3-32	30639168
35,00	35,00 - 35,99	32	218	108	60	QTS100-3500-DR3-32	30639169

Insert holders QTS | QTS100 with prism connection for QTD inserts (3xD), internal coolant supply

Dimensions							
Holder size D	Diameter range insert d_1	d_2 h6	l_1	l_3	l_4	Specification	Order No.
36,00	36,00 - 36,99	32	222	111	60	QTS100-3600-DR3-32	30639170
37,00	37,00 - 38,99	40	240	117	70	QTS100-3700-DR3-40	30650283
39,00	39,00 - 40,99	40	249	123	70	QTS100-3900-DR3-40	30650284
41,00	41,00 - 42,99	40	257	129	70	QTS100-4100-DR3-40	30650285
43,00	43,00 - 44,99	40	265	135	70	QTS100-4300-DR3-40	30650286
45,00	45,00 - 46,99	40	274	141	70	QTS100-4500-DR3-40	30650287
47,00	47,00 - 48,99	40	284	147	70	QTS100-4700-DR3-40	30652934
49,00	49,00 - 50,99	40	293	153	70	QTS100-4900-DR3-40	30652935

Insert holders QTS

QTS100 with prism connection for QTD inserts (5xD),
internal coolant supply

Design:

For diameters:

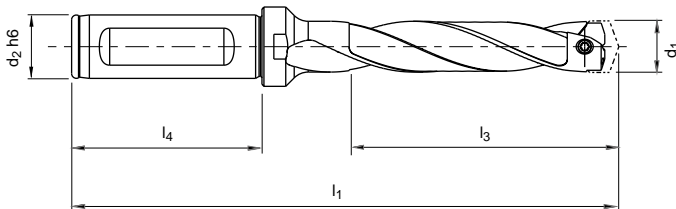
8.00 - 50.99 mm

Shank form:

in accordance with
ISO 9766

Changing system:

Prism connection, insert
replacement on the
machine possible



Dimensions						Specification	Order No.
Holder size D	Diameter range insert d ₁	d ₂ h6	l ₁	l ₃	l ₄		
8,00	8,00 - 8,49	12	104	43	45	QTS100-0800-DR5-12	30605482
8,50	8,50 - 8,99	12	107	45	45	QTS100-0850-DR5-12	30605483
9,00	9,00 - 9,49	12	110	48	45	QTS100-0900-DR5-12	30605484
9,50	9,50 - 9,99	12	113	50	45	QTS100-0950-DR5-12	30605485
10,00	10,00 - 10,49	16	120	53	48	QTS100-1000-DR5-16	30605486
10,50	10,50 - 10,99	16	122	55	48	QTS100-1050-DR5-16	30605487
11,00	11,00 - 11,49	16	126	58	48	QTS100-1100-DR5-16	30605488
11,50	11,50 - 11,99	16	128	60	48	QTS100-1150-DR5-16	30605489
12,00	12,00 - 12,49	16	132	63	48	QTS100-1200-DR5-16	30605490
12,50	12,50 - 12,99	16	135	65	48	QTS100-1250-DR5-16	30605491
13,00	13,00 - 13,49	16	138	68	48	QTS100-1300-DR5-16	30572945
13,50	13,50 - 13,99	16	141	70	48	QTS100-1350-DR5-16	30572946
14,00	14,00 - 14,49	16	144	73	48	QTS100-1400-DR5-16	30572947
14,50	14,50 - 14,99	16	147	75	48	QTS100-1450-DR5-16	30572948
15,00	15,00 - 15,99	20	155	80	50	QTS100-1500-DR5-20	30572949
16,00	16,00 - 16,99	20	161	85	50	QTS100-1600-DR5-20	30572950
17,00	17,00 - 17,99	20	168	90	50	QTS100-1700-DR5-20	30572951
18,00	18,00 - 18,99	25	180	95	56	QTS100-1800-DR5-25	30572952
19,00	19,00 - 19,99	25	186	100	56	QTS100-1900-DR5-25	30572953
20,00	20,00 - 20,99	25	192	105	56	QTS100-2000-DR5-25	30572954
21,00	21,00 - 21,99	25	198	110	56	QTS100-2100-DR5-25	30572955
22,00	22,00 - 22,99	25	205	115	56	QTS100-2200-DR5-25	30572956
23,00	23,00 - 23,99	25	211	120	56	QTS100-2300-DR5-25	30572957
24,00	24,00 - 24,99	32	221	125	60	QTS100-2400-DR5-32	30572958
25,00	25,00 - 25,99	32	227	130	60	QTS100-2500-DR5-32	30572959
26,00	26,00 - 26,99	32	233	135	60	QTS100-2600-DR5-32	30572960
27,00	27,00 - 27,99	32	240	140	60	QTS100-2700-DR5-32	30572961
28,00	28,00 - 28,99	32	246	145	60	QTS100-2800-DR5-32	30572962
29,00	29,00 - 29,99	32	252	150	60	QTS100-2900-DR5-32	30572963
30,00	30,00 - 30,99	32	258	155	60	QTS100-3000-DR5-32	30572964
31,00	31,00 - 31,99	32	264	160	60	QTS100-3100-DR5-32	30572965
32,00	32,00 - 32,99	32	271	165	60	QTS100-3200-DR5-32	30572966
33,00	33,00 - 33,99	32	277	170	60	QTS100-3300-DR5-32	30639171
34,00	34,00 - 34,99	32	283	175	60	QTS100-3400-DR5-32	30639172
35,00	35,00 - 35,99	32	289	180	60	QTS100-3500-DR5-32	30639173

Insert holders QTS | QTS100 with prism connection for QTD inserts (5xD), internal coolant supply

Dimensions							
Holder size D	Diameter range insert d_1	d_2 h6	l_1	l_3	l_4	Specification	Order No.
36,00	36,00 - 36,99	32	295	185	60	QTS100-3600-DR5-32	30639174
37,00	37,00 - 38,99	40	318	195	70	QTS100-3700-DR5-40	30650288
39,00	39,00 - 40,99	40	330	205	70	QTS100-3900-DR5-40	30650289
41,00	41,00 - 42,99	40	343	215	70	QTS100-4100-DR5-40	30650290
43,00	43,00 - 44,99	40	355	225	70	QTS100-4300-DR5-40	30650291
45,00	45,00 - 46,99	40	367	235	70	QTS100-4500-DR5-40	30650292
47,00	47,00 - 48,99	40	382	245	70	QTS100-4700-DR5-40	30652936
49,00	49,00 - 50,99	40	394	255	70	QTS100-4900-DR5-40	30652937

Insert holders QTS

QTS100 with prism connection for QTD inserts (8xD),
internal coolant supply

Design:

For diameters:

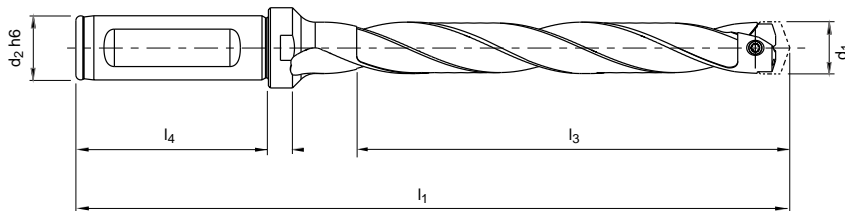
8.00 - 50.99 mm

Shank form:

in accordance with
ISO 9766

Changing system:

Prism connection, insert
replacement on the
machine possible



Dimensions						Specification	Order No.
Holder size D	Diameter range insert d_1	d_2 h6	l_1	l_3	l_4		
8,00	8,00 - 8,49	12	129	68	45	QTS100-0800-DR8-12	30605492
8,50	8,50 - 8,99	12	134	72	45	QTS100-0850-DR8-12	30605493
9,00	9,00 - 9,49	12	138	76	45	QTS100-0900-DR8-12	30605494
9,50	9,50 - 9,99	12	143	80	45	QTS100-0950-DR8-12	30605495
10,00	10,00 - 10,49	16	151	84	48	QTS100-1000-DR8-16	30605496
10,50	10,50 - 10,99	16	155	88	48	QTS100-1050-DR8-16	30605497
11,00	11,00 - 11,49	16	160	92	48	QTS100-1100-DR8-16	30605498
11,50	11,50 - 11,99	16	164	96	48	QTS100-1150-DR8-16	30605499
12,00	12,00 - 12,49	16	169	100	48	QTS100-1200-DR8-16	30605500
12,50	12,50 - 12,99	16	174	104	48	QTS100-1250-DR8-16	30605501
13,00	13,00 - 13,49	16	178	108	48	QTS100-1300-DR8-16	30572967
13,50	13,50 - 13,99	16	183	112	48	QTS100-1350-DR8-16	30572968
14,00	14,00 - 14,49	16	187	116	48	QTS100-1400-DR8-16	30572970
14,50	14,50 - 14,99	16	192	120	48	QTS100-1450-DR8-16	30572971
15,00	15,00 - 15,99	20	203	128	50	QTS100-1500-DR8-20	30572972
16,00	16,00 - 16,99	20	212	136	50	QTS100-1600-DR8-20	30572973
17,00	17,00 - 17,99	20	222	144	50	QTS100-1700-DR8-20	30572974
18,00	18,00 - 18,99	25	237	152	56	QTS100-1800-DR8-25	30572975
19,00	19,00 - 19,99	25	246	160	56	QTS100-1900-DR8-25	30572976
20,00	20,00 - 20,99	25	255	168	56	QTS100-2000-DR8-25	30572977
21,00	21,00 - 21,99	25	264	176	56	QTS100-2100-DR8-25	30572978
22,00	22,00 - 22,99	25	274	184	56	QTS100-2200-DR8-25	30572979
23,00	23,00 - 23,99	25	283	192	56	QTS100-2300-DR8-25	30572980
24,00	24,00 - 24,99	32	296	200	60	QTS100-2400-DR8-32	30572981
25,00	25,00 - 25,99	32	305	208	60	QTS100-2500-DR8-32	30572982
26,00	26,00 - 26,99	32	314	216	60	QTS100-2600-DR8-32	30572983
27,00	27,00 - 27,99	32	324	224	60	QTS100-2700-DR8-32	30572984
28,00	28,00 - 28,99	32	333	232	60	QTS100-2800-DR8-32	30572985
29,00	29,00 - 29,99	32	342	240	60	QTS100-2900-DR8-32	30572986
30,00	30,00 - 30,99	32	351	248	60	QTS100-3000-DR8-32	30572987
31,00	31,00 - 31,99	32	360	256	60	QTS100-3100-DR8-32	30572988
32,00	32,00 - 32,99	32	370	264	60	QTS100-3200-DR8-32	30572989
33,00	33,00 - 33,99	32	379	272	60	QTS100-3300-DR8-32	30639175
34,00	34,00 - 34,99	32	388	280	60	QTS100-3400-DR8-32	30639176
35,00	35,00 - 35,99	32	397	288	60	QTS100-3500-DR8-32	30639177

Insert holders QTS | QTS100 with prism connection for QTD inserts (8xD), internal coolant supply

Dimensions							
Holder size D	Diameter range Indexable insert d ₁	d ₂ h6	l ₁	l ₃	l ₄	Specification	Order No.
36,00	36,00 - 36,99	32	406	296	60	QTS100-3600-DR8-32	30639178
37,00	37,00 - 38,99	40	435	312	70	QTS100-3700-DR8-40	30650293
39,00	39,00 - 40,99	40	453	328	70	QTS100-3900-DR8-40	30650294
41,00	41,00 - 42,99	40	472	344	70	QTS100-4100-DR8-40	30650295
43,00	43,00 - 44,99	40	490	360	70	QTS100-4300-DR8-40	30650296
45,00	45,00 - 46,99	40	508	376	70	QTS100-4500-DR8-40	30650297
47,00	47,00 - 48,99	40	529	392	70	QTS100-4700-DR8-40	30652938
49,00	49,00 - 50,99	40	547	408	70	QTS100-4900-DR8-40	30652939

Insert holders QTS

QTS100 with prism connection for QTD inserts (12xD),
internal coolant supply

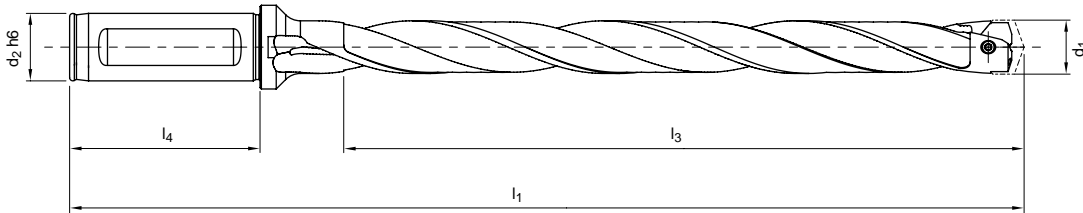
Design:

For diameters:
Shank form:

13.00 - 50.99 mm
in accordance with
ISO 9766

Changing system:

Prism connection, insert
replacement on the
machine possible

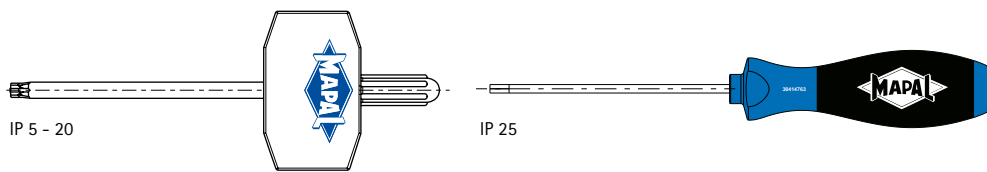


Dimensions						Specification	Order No.
Holder size D	Diameter range insert d_1	d_2 h6	l_1	l_3	l_4		
13,00	13,00 - 13,49	16	232	162	48	QTS100-1300-DR12-16	30598728
13,50	13,50 - 13,99	16	239	168	48	QTS100-1350-DR12-16	30598729
14,00	14,00 - 14,49	16	245	174	48	QTS100-1400-DR12-16	30598730
14,50	14,50 - 14,99	16	252	180	48	QTS100-1450-DR12-16	30598731
15,00	15,00 - 15,99	20	267	192	50	QTS100-1500-DR12-20	30598732
16,00	16,00 - 16,99	20	280	204	50	QTS100-1600-DR12-20	30598733
17,00	17,00 - 17,99	20	294	216	50	QTS100-1700-DR12-20	30598734
18,00	18,00 - 18,99	25	313	228	56	QTS100-1800-DR12-25	30598735
19,00	19,00 - 19,99	25	326	240	56	QTS100-1900-DR12-25	30598736
20,00	20,00 - 20,99	25	339	252	56	QTS100-2000-DR12-25	30598737
21,00	21,00 - 21,99	25	352	264	56	QTS100-2100-DR12-25	30598738
22,00	22,00 - 22,99	25	366	276	56	QTS100-2200-DR12-25	30598739
23,00	23,00 - 23,99	25	379	288	56	QTS100-2300-DR12-25	30598740
24,00	24,00 - 24,99	32	396	300	60	QTS100-2400-DR12-32	30598741
25,00	25,00 - 25,99	32	409	312	60	QTS100-2500-DR12-32	30598742
26,00	26,00 - 26,99	32	422	324	60	QTS100-2600-DR12-32	30598743
27,00	27,00 - 27,99	32	436	336	60	QTS100-2700-DR12-32	30598744
28,00	28,00 - 28,99	32	449	348	60	QTS100-2800-DR12-32	30598745
29,00	29,00 - 29,99	32	462	360	60	QTS100-2900-DR12-32	30598746
30,00	30,00 - 30,99	32	475	372	60	QTS100-3000-DR12-32	30598747
31,00	31,00 - 31,99	32	488	384	60	QTS100-3100-DR12-32	30598748
32,00	32,00 - 32,99	32	502	396	60	QTS100-3200-DR12-32	30598749
33,00	33,00 - 33,99	32	515	408	60	QTS100-3300-DR12-32	30650298
34,00	34,00 - 34,99	32	528	420	60	QTS100-3400-DR12-32	30650299
35,00	35,00 - 35,99	32	541	432	60	QTS100-3500-DR12-32	30650300
36,00	36,00 - 36,99	32	554	444	60	QTS100-3600-DR12-32	30650301
37,00	37,00 - 38,99	40	591	468	70	QTS100-3700-DR12-40	30650311
39,00	39,00 - 40,99	40	617	492	70	QTS100-3900-DR12-40	30650304
41,00	41,00 - 42,99	40	644	516	70	QTS100-4100-DR12-40	30650305
43,00	43,00 - 44,99	40	670	540	70	QTS100-4300-DR12-40	30650306
45,00	45,00 - 46,99	40	696	564	70	QTS100-4500-DR12-40	30650307
47,00	47,00 - 48,99	40	725	588	70	QTS100-4700-DR12-40	30652940
49,00	49,00 - 50,99	40	751	612	70	QTS100-4900-DR12-40	30652942

Dimensions in mm.

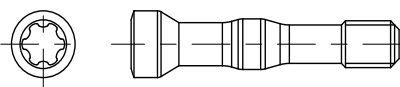
Special designs on request.

Spare parts



Screwdriver

Torx size TORX PLUS®	Order No.
5 IP	30584281
6 IP	30584282
7 IP	30584283
8 IP	30584284
9 IP	30584285
10 IP	30584286
15 IP	30584287
20 IP	30584288
25 IP	30414767



Clamping screw

Ø range	TORX PLUS® size	Order No.	Specification	Tightening torque [Nm]
8,00-8,99	5 IP	30604440	M1.2X7.5-TX5-IP	0,2
9,00-10,99	5 IP	30546309	M1.2X8.5-TX5-IP	0,2
11,00-12,99	6 IP	30604180	M1.6X10.5-TX6-IP	0,4
13,00-13,99	7 IP	30510826	M2x12-TX7-IP	0,6
14,00-15,99	8 IP	30510827	M2.2x13-TX8-IP	0,9
16,00-18,99	8 IP	30495432	M2.5x15-TX8-IP	1,2
19,00-21,99	9 IP	30510829	M3x18-TX9-IP	2,2
22,00-24,99	10 IP	30510830	M3.5x21-TX10-IP	3,3
25,00-27,99	15 IP	30510831	M4x24-TX15-IP	5,0
28,00-30,99	15 IP	30510832	M4.5x27-TX15-IP	5,7
31,00-32,99	20 IP	30510833	M5x30-TX20-IP	7,5
33,00-36,99	20 IP	30651830	M5X32-TX20-IP	7,5
37,00-44,99	25 IP	30651399	M6X35-TX25-IP	15,0
45,00-50,99	25 IP	30651510	M6X43-TX25-IP	15,0

Dimensions in mm.



REPLACEABLE HEAD DRILLS TTD

Introduction

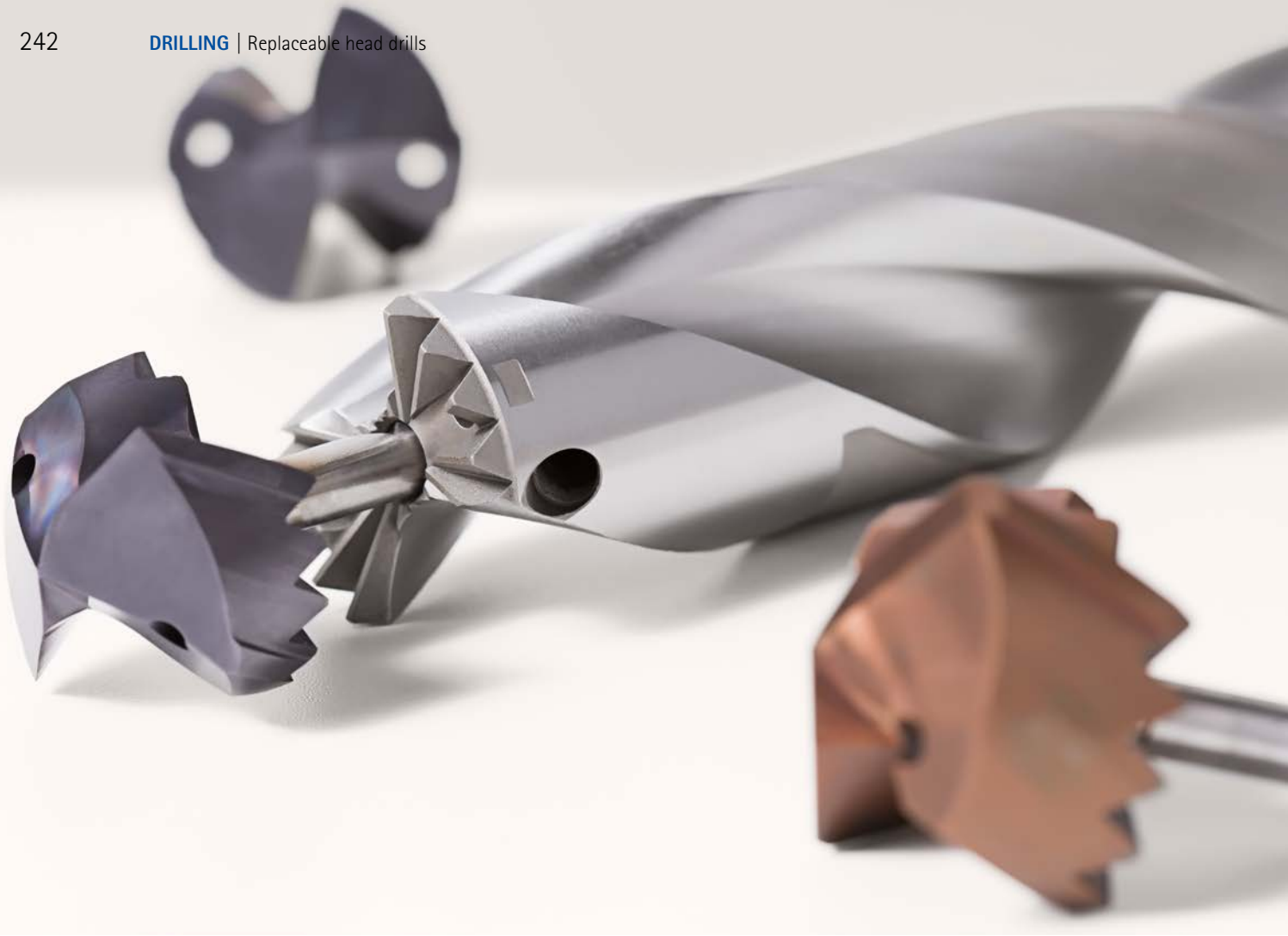
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Replaceable head drills TTD

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REPLACEABLE HEAD DRILL TTD

Minimised usage of carbide with highest stability and precision

Thanks to its combination of outstanding characteristics, the replaceable head drill TTD achieves the performance and quality level of solid carbide drills. At the same time, the reduction in the use of carbide for the replaceable drill heads means reduced tool costs.

The heart of the replaceable head drill TTD is the connection TTS (Torque Transfer System) that guarantees extremely high stability of the joint. It is characterised by two elementary

features: Optimum torque transmission and high changing and radial run-out accuracies.

The standard range of the replaceable head drills TTD cover the drilling depths 1xD, 3xD, 5xD, 8xD and 12xD. With five different types of replaceable drill head, even problematic machining operations can be carried out in practically all materials in the diameter range from 12 mm to 45 mm.

The drill heads exhibit optimum centring properties and the chips are reliably discharged via the chip spaces of the TTS holder thanks to the special facet geometry. In addition, very smooth running is enhanced by the special three or four-chamfer geometry. The combination of these properties enables long tool lives and drilling results to be achieved at the highest level.

Tool features in detail



1 Three of four guiding chamfers

- Optimal guiding properties

2 TTS holder

- Universal carrier for all drill geometries

3 TTS connection

- Fool-proof Hirth serration



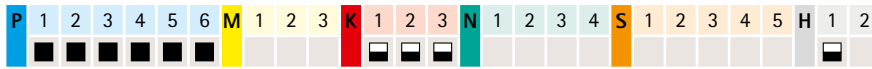
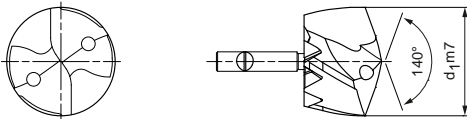
AT A GLANCE	FEATURES	ADVANTAGES
<ul style="list-style-type: none"> - Available ex-stock - ϕ range 12.00 to 45.00 mm - Drilling depths 1 3 5 8 and 12xD - With internal cooling - Easy handling - Head replacement on the machine possible 	<ul style="list-style-type: none"> - Same performance as solid carbide drill - High radial run-out accuracy - Good positioning accuracy - High torque transmission 	<ul style="list-style-type: none"> - Can be reground if necessary - Error-free head replacement - One replaceable head holder for different drill heads - Almost all bore geometries can be realised

Replaceable drill head TTD

Made of solid carbide, internal coolant supply
Type 01 - Uni

Design:
Drill diameter: 12.00 - 45.00 mm
Bore tolerance: ≥ IT 9
Coating: Special TiAlN coating

Type 01
Number of cutting edges: 2
Number of guiding chamfers: 4
Tip angle: 140 °



d ₁ from 12.00 to 15.40			
d ₁ m7	Conne- ction	Specification	Order No.
12,00	TTS12-A	TTD-4F01-1200-HP385	30231747
12,10	TTS12-A	TTD-4F01-1210-HP385	30248895
12,20	TTS12-A	TTD-4F01-1220-HP385	30248896
12,30	TTS12-A	TTD-4F01-1230-HP385	30248897
12,40	TTS12-A	TTD-4F01-1240-HP385	30248898
12,50	TTS12-A	TTD-4F01-1250-HP385	30231751
12,60	TTS12-A	TTD-4F01-1260-HP385	30248900
12,70	TTS12-A	TTD-4F01-1270-HP385	30231753
12,80	TTS12-A	TTD-4F01-1280-HP385	30248901
12,90	TTS12-A	TTD-4F01-1290-HP385	30248902
13,00	TTS12-A	TTD-4F01-1300-HP385	30231754
13,10	TTS12-A	TTD-4F01-1310-HP385	30248903
13,20	TTS12-A	TTD-4F01-1320-HP385	30248904
13,30	TTS12-A	TTD-4F01-1330-HP385	30248905
13,40	TTS12-A	TTD-4F01-1340-HP385	30248906
13,50	TTS12-A	TTD-4F01-1350-HP385	30231763
13,60	TTS12-A	TTD-4F01-1360-HP385	30248907
13,70	TTS12-A	TTD-4F01-1370-HP385	30231767
13,80	TTS12-A	TTD-4F01-1380-HP385	30248908
13,90	TTS12-A	TTD-4F01-1390-HP385	30248909
14,00	TTS12-A	TTD-4F01-1400-HP385	30231770
14,10	TTS12-A	TTD-4F01-1410-HP385	30248910
14,20	TTS12-A	TTD-4F01-1420-HP385	30248911
14,30	TTS12-A	TTD-4F01-1430-HP385	30248262
14,40	TTS12-A	TTD-4F01-1440-HP385	30248913
14,50	TTS12-A	TTD-4F01-1450-HP385	30231772
14,60	TTS12-A	TTD-4F01-1460-HP385	30248914
14,70	TTS12-A	TTD-4F01-1470-HP385	30231773
14,80	TTS12-A	TTD-4F01-1480-HP385	30248915
14,90	TTS12-A	TTD-4F01-1490-HP385	30248916
15,00	TTS12-A	TTD-4F01-1500-HP385	30231774
15,10	TTS12-A	TTD-4F01-1510-HP385	30227043
15,20	TTS12-A	TTD-4F01-1520-HP385	30248917
15,30	TTS12-A	TTD-4F01-1530-HP385	30248918
15,40	TTS12-A	TTD-4F01-1540-HP385	30248919

d ₁ from 15.50 to 18.90			
d ₁ m7	Conne- ction	Specification	Order No.
15,50	TTS12-A	TTD-4F01-1550-HP385	30231775
15,60	TTS12-A	TTD-4F01-1560-HP385	30225841
15,70	TTS12-A	TTD-4F01-1570-HP385	30218065
15,80	TTS12-A	TTD-4F01-1580-HP385	30220045
15,90	TTS12-A	TTD-4F01-1590-HP385	30220050
16,00	TTS12-A	TTD-4F01-1600-HP385	30191394
16,10	TTS12-A	TTD-4F01-1610-HP385	30220051
16,20	TTS12-A	TTD-4F01-1620-HP385	30220053
16,30	TTS12-A	TTD-4F01-1630-HP385	30220054
16,40	TTS12-A	TTD-4F01-1640-HP385	30220055
16,50	TTS12-A	TTD-4F01-1650-HP385	30191395
16,60	TTS12-A	TTD-4F01-1660-HP385	30220057
16,70	TTS12-A	TTD-4F01-1670-HP385	30215299
16,80	TTS12-A	TTD-4F01-1680-HP385	30220058
16,90	TTS12-A	TTD-4F01-1690-HP385	30278805
17,00	TTS12-A	TTD-4F01-1700-HP385	30191396
17,10	TTS12-A	TTD-4F01-1710-HP385	30220061
17,20	TTS12-A	TTD-4F01-1720-HP385	30216446
17,30	TTS12-A	TTD-4F01-1730-HP385	30220062
17,40	TTS12-A	TTD-4F01-1740-HP385	30220064
17,50	TTS12-A	TTD-4F01-1750-HP385	30191397
17,60	TTS12-A	TTD-4F01-1760-HP385	30220065
17,70	TTS12-A	TTD-4F01-1770-HP385	30215300
17,80	TTS12-A	TTD-4F01-1780-HP385	30220067
17,90	TTS12-A	TTD-4F01-1790-HP385	30220069
18,00	TTS12-A	TTD-4F01-1800-HP385	30191398
18,10	TTS12-A	TTD-4F01-1810-HP385	30220070
18,20	TTS12-A	TTD-4F01-1820-HP385	30220073
18,30	TTS12-A	TTD-4F01-1830-HP385	30220074
18,40	TTS12-A	TTD-4F01-1840-HP385	30220075
18,50	TTS12-A	TTD-4F01-1850-HP385	30191399
18,60	TTS12-A	TTD-4F01-1860-HP385	30220076
18,70	TTS12-A	TTD-4F01-1870-HP385	30215302
18,80	TTS12-A	TTD-4F01-1880-HP385	30220079
18,90	TTS12-A	TTD-4F01-1890-HP385	30220080

d ₁ from 19.00 to 22.40			
d ₁ m7	Conne- ction	Specification	Order No.
19,00	TTS12-A	TTD-4F01-1900-HP385	30191400
19,10	TTS12-A	TTD-4F01-1910-HP385	30220081
19,20	TTS12-A	TTD-4F01-1920-HP385	30220082
19,30	TTS12-A	TTD-4F01-1930-HP385	30220083
19,40	TTS12-A	TTD-4F01-1940-HP385	30220084
19,50	TTS12-A	TTD-4F01-1950-HP385	30191401
19,60	TTS12-A	TTD-4F01-1960-HP385	30220085
19,70	TTS12-A	TTD-4F01-1970-HP385	30215303
19,80	TTS12-A	TTD-4F01-1980-HP385	30211611
19,90	TTS12-A	TTD-4F01-1990-HP385	30220086
20,00	TTS12-A	TTD-4F01-2000-HP385	30191402
20,10	TTS12-A	TTD-4F01-2010-HP385	30220088
20,20	TTS12-A	TTD-4F01-2020-HP385	30220097
20,30	TTS12-A	TTD-4F01-2030-HP385	30218751
20,40	TTS12-A	TTD-4F01-2040-HP385	30220100
20,50	TTS12-A	TTD-4F01-2050-HP385	30191403
20,60	TTS12-A	TTD-4F01-2060-HP385	30220103
20,70	TTS12-A	TTD-4F01-2070-HP385	30215304
20,80	TTS12-A	TTD-4F01-2080-HP385	30220104
20,90	TTS12-A	TTD-4F01-2090-HP385	30220105
21,00	TTS12-A	TTD-4F01-2100-HP385	30191404
21,10	TTS12-A	TTD-4F01-2110-HP385	30220106
21,20	TTS12-A	TTD-4F01-2120-HP385	30220107
21,30	TTS12-A	TTD-4F01-2130-HP385	30220108
21,40	TTS12-A	TTD-4F01-2140-HP385	30220109
21,50	TTS12-A	TTD-4F01-2150-HP385	30191405
21,60	TTS12-A	TTD-4F01-2160-HP385	30220111
21,70	TTS12-A	TTD-4F01-2170-HP385	30215305
21,80	TTS12-A	TTD-4F01-2180-HP385	30220112
21,90	TTS12-A	TTD-4F01-2190-HP385	30220113
22,00	TTS12-A	TTD-4F01-2200-HP385	30191406
22,10	TTS12-A	TTD-4F01-2210-HP385	30220115
22,20	TTS12-A	TTD-4F01-2220-HP385	30218296
22,30	TTS12-A	TTD-4F01-2230-HP385	30220116
22,40	TTS12-A	TTD-4F01-2240-HP385	30220117

Replaceable drill head TTD made of solid carbide, internal coolant supply – type 01

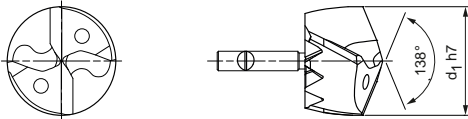
d ₁ from 22.50 to 26.50				d ₁ from 26.60 to 30.60				d ₁ from 30.70 to 45.00			
d ₁ m7	Conne- ction	Specification	Order No.	d ₁ m7	Conne- ction	Specification	Order No.	d ₁ m7	Conne- ction	Specification	Order No.
22,50	TTS12-A	TTD-4F01-2250-HP385	30191407	26,60	TTS18-A	TTD-4F01-2660-HP385	30220153	30,70	TTS18-A	TTD-4F01-3070-HP385	30215317
22,60	TTS12-A	TTD-4F01-2260-HP385	30220118	26,70	TTS18-A	TTD-4F01-2670-HP385	30215310	30,80	TTS18-A	TTD-4F01-3080-HP385	30220193
22,70	TTS12-A	TTD-4F01-2270-HP385	30215306	26,80	TTS18-A	TTD-4F01-2680-HP385	30220154	30,90	TTS18-A	TTD-4F01-3090-HP385	30220194
22,80	TTS12-A	TTD-4F01-2280-HP385	30220119	26,90	TTS18-A	TTD-4F01-2690-HP385	30220155	31,00	TTS18-A	TTD-4F01-3100-HP385	30191424
22,90	TTS12-A	TTD-4F01-2290-HP385	30220121	27,00	TTS18-A	TTD-4F01-2700-HP385	30191416	31,10	TTS18-A	TTD-4F01-3110-HP385	30220196
23,00	TTS12-A	TTD-4F01-2300-HP385	30191408	27,10	TTS18-A	TTD-4F01-2710-HP385	30220156	31,20	TTS18-A	TTD-4F01-3120-HP385	30220198
23,10	TTS12-A	TTD-4F01-2310-HP385	30220123	27,20	TTS18-A	TTD-4F01-2720-HP385	30220157	31,30	TTS18-A	TTD-4F01-3130-HP385	30220200
23,20	TTS12-A	TTD-4F01-2320-HP385	30220124	27,30	TTS18-A	TTD-4F01-2730-HP385	30220158	31,40	TTS18-A	TTD-4F01-3140-HP385	30220202
23,30	TTS12-A	TTD-4F01-2330-HP385	30220126	27,40	TTS18-A	TTD-4F01-2740-HP385	30220159	31,50	TTS18-A	TTD-4F01-3150-HP385	30191425
23,40	TTS12-A	TTD-4F01-2340-HP385	30220127	27,50	TTS18-A	TTD-4F01-2750-HP385	30191417	31,60	TTS18-A	TTD-4F01-3160-HP385	30220203
23,50	TTS12-A	TTD-4F01-2350-HP385	30191409	27,60	TTS18-A	TTD-4F01-2760-HP385	30220160	31,70	TTS18-A	TTD-4F01-3170-HP385	30215319
23,60	TTS12-A	TTD-4F01-2360-HP385	30220129	27,70	TTS18-A	TTD-4F01-2770-HP385	30215311	31,80	TTS18-A	TTD-4F01-3180-HP385	30220205
23,70	TTS12-A	TTD-4F01-2370-HP385	30215307	27,80	TTS18-A	TTD-4F01-2780-HP385	30220163	31,90	TTS18-A	TTD-4F01-3190-HP385	30220206
23,80	TTS12-A	TTD-4F01-2380-HP385	30220130	27,90	TTS18-A	TTD-4F01-2790-HP385	30220165	32,00	TTS18-A	TTD-4F01-3200-HP385	30191426
23,90	TTS12-A	TTD-4F01-2390-HP385	30220131	28,00	TTS18-A	TTD-4F01-2800-HP385	30191418	32,50	TTS18-A	TTD-4F01-3250-HP385	30322341
24,00	TTS12-A	TTD-4F01-2400-HP385	30191410	28,10	TTS18-A	TTD-4F01-2810-HP385	30220170	33,00	TTS18-A	TTD-4F01-3300-HP385	30322343
24,10	TTS12-A	TTD-4F01-2410-HP385	30220132	28,20	TTS18-A	TTD-4F01-2820-HP385	30220171	33,50	TTS18-A	TTD-4F01-3350-HP385	30322344
24,20	TTS12-A	TTD-4F01-2420-HP385	30220133	28,30	TTS18-A	TTD-4F01-2830-HP385	30220172	34,00	TTS18-A	TTD-4F01-3400-HP385	30322430
24,30	TTS12-A	TTD-4F01-2430-HP385	30220134	28,40	TTS18-A	TTD-4F01-2840-HP385	30220173	34,50	TTS18-A	TTD-4F01-3450-HP385	30322346
24,40	TTS12-A	TTD-4F01-2440-HP385	30220135	28,50	TTS18-A	TTD-4F01-2850-HP385	30191419	35,00	TTS18-A	TTD-4F01-3500-HP385	30322347
24,50	TTS18-A	TTD-4F01-2450-HP385	30191411	28,60	TTS18-A	TTD-4F01-2860-HP385	30220175	35,50	TTS18-A	TTD-4F01-3550-HP385	30322348
24,60	TTS18-A	TTD-4F01-2460-HP385	30220136	28,70	TTS18-A	TTD-4F01-2870-HP385	30215313	36,00	TTS18-A	TTD-4F01-3600-HP385	30322349
24,70	TTS18-A	TTD-4F01-2470-HP385	30215135	28,80	TTS18-A	TTD-4F01-2880-HP385	30220176	36,50	TTS18-A	TTD-4F01-3650-HP385	30322350
24,80	TTS18-A	TTD-4F01-2480-HP385	30220137	28,90	TTS18-A	TTD-4F01-2890-HP385	30220177	37,00	TTS18-A	TTD-4F01-3700-HP385	30322352
24,90	TTS18-A	TTD-4F01-2490-HP385	30220138	29,00	TTS18-A	TTD-4F01-2900-HP385	30191420	37,50	TTS18-A	TTD-4F01-3750-HP385	30322353
25,00	TTS18-A	TTD-4F01-2500-HP385	30191412	29,10	TTS18-A	TTD-4F01-2910-HP385	30220178	38,00	TTS18-A	TTD-4F01-3800-HP385	30322354
25,10	TTS18-A	TTD-4F01-2510-HP385	30220139	29,20	TTS18-A	TTD-4F01-2920-HP385	30220179	38,50	TTS18-A	TTD-4F01-3850-HP385	30322356
25,20	TTS18-A	TTD-4F01-2520-HP385	30220140	29,30	TTS18-A	TTD-4F01-2930-HP385	30220180	39,00	TTS18-A	TTD-4F01-3900-HP385	30322357
25,30	TTS18-A	TTD-4F01-2530-HP385	30220141	29,40	TTS18-A	TTD-4F01-2940-HP385	30220181	39,50	TTS18-A	TTD-4F01-3950-HP385	30322359
25,40	TTS18-A	TTD-4F01-2540-HP385	30220142	29,50	TTS18-A	TTD-4F01-2950-HP385	30191421	40,00	TTS18-A	TTD-4F01-4000-HP385	30322360
25,50	TTS18-A	TTD-4F01-2550-HP385	30191413	29,60	TTS18-A	TTD-4F01-2960-HP385	30220183	40,50	TTS18-A	TTD-4F01-4050-HP385	30322361
25,60	TTS18-A	TTD-4F01-2560-HP385	30220144	29,70	TTS18-A	TTD-4F01-2970-HP385	30215315	41,00	TTS18-A	TTD-4F01-4100-HP385	30322362
25,70	TTS18-A	TTD-4F01-2570-HP385	30215309	29,80	TTS18-A	TTD-4F01-2980-HP385	30220184	41,50	TTS18-A	TTD-4F01-4150-HP385	30322363
25,80	TTS18-A	TTD-4F01-2580-HP385	30220146	29,90	TTS18-A	TTD-4F01-2990-HP385	30220185	42,00	TTS18-A	TTD-4F01-4200-HP385	30322364
25,90	TTS18-A	TTD-4F01-2590-HP385	30220148	30,00	TTS18-A	TTD-4F01-3000-HP385	30191422	42,50	TTS18-A	TTD-4F01-4250-HP385	30322365
26,00	TTS18-A	TTD-4F01-2600-HP385	30191414	30,10	TTS18-A	TTD-4F01-3010-HP385	30220186	43,00	TTS18-A	TTD-4F01-4300-HP385	30322366
26,10	TTS18-A	TTD-4F01-2610-HP385	30220149	30,20	TTS18-A	TTD-4F01-3020-HP385	30220188	43,50	TTS18-A	TTD-4F01-4350-HP385	30322367
26,20	TTS18-A	TTD-4F01-2620-HP385	30220150	30,30	TTS18-A	TTD-4F01-3030-HP385	30220189	44,00	TTS18-A	TTD-4F01-4400-HP385	30322368
26,30	TTS18-A	TTD-4F01-2630-HP385	30220151	30,40	TTS18-A	TTD-4F01-3040-HP385	30220191	44,50	TTS18-A	TTD-4F01-4450-HP385	30322369
26,40	TTS18-A	TTD-4F01-2640-HP385	30220152	30,50	TTS18-A	TTD-4F01-3050-HP385	30191423	45,00	TTS18-A	TTD-4F01-4500-HP385	30322370
26,50	TTS18-A	TTD-4F01-2650-HP385	30191415	30,60	TTS18-A	TTD-4F01-3060-HP385	30220192				

Dimensions in mm.
Cutting data recommendation from page 458.
Special designs and other coatings on request.

Replaceable drill head TTD

Made of solid carbide, internal coolant supply
Type 02 - Inox

Design: Type 02
Drill diameter: 12.00 - 45.00 mm
Bore tolerance: ≥ IT 9
Coating: Special TiAlN coating
Number of cutting edges: 2
Number of guiding chamfers: 3
Tip angle: 138 °



d ₁ from 12.00 to 15.40			
d ₁ h7	Conne- ction	Specification	Order No.
12,00	TTS12-A	TTD-3F02-1200-HP385	30231780
12,10	TTS12-A	TTD-3F02-1210-HP385	30248920
12,20	TTS12-A	TTD-3F02-1220-HP385	30248921
12,30	TTS12-A	TTD-3F02-1230-HP385	30248922
12,40	TTS12-A	TTD-3F02-1240-HP385	30248923
12,50	TTS12-A	TTD-3F02-1250-HP385	30231784
12,60	TTS12-A	TTD-3F02-1260-HP385	30248924
12,70	TTS12-A	TTD-3F02-1270-HP385	30231787
12,80	TTS12-A	TTD-3F02-1280-HP385	30248925
12,90	TTS12-A	TTD-3F02-1290-HP385	30248926
13,00	TTS12-A	TTD-3F02-1300-HP385	30231791
13,10	TTS12-A	TTD-3F02-1310-HP385	30248927
13,20	TTS12-A	TTD-3F02-1320-HP385	30248928
13,30	TTS12-A	TTD-3F02-1330-HP385	30248929
13,40	TTS12-A	TTD-3F02-1340-HP385	30248930
13,50	TTS12-A	TTD-3F02-1350-HP385	30231792
13,60	TTS12-A	TTD-3F02-1360-HP385	30248931
13,70	TTS12-A	TTD-3F02-1370-HP385	30231793
13,80	TTS12-A	TTD-3F02-1380-HP385	30248932
13,90	TTS12-A	TTD-3F02-1390-HP385	30248933
14,00	TTS12-A	TTD-3F02-1400-HP385	30231795
14,10	TTS12-A	TTD-3F02-1410-HP385	30239446
14,20	TTS12-A	TTD-3F02-1420-HP385	30248934
14,30	TTS12-A	TTD-3F02-1430-HP385	30248935
14,40	TTS12-A	TTD-3F02-1440-HP385	30248936
14,50	TTS12-A	TTD-3F02-1450-HP385	30231802
14,60	TTS12-A	TTD-3F02-1460-HP385	30248937
14,70	TTS12-A	TTD-3F02-1470-HP385	30231804
14,80	TTS12-A	TTD-3F02-1480-HP385	30248938
14,90	TTS12-A	TTD-3F02-1490-HP385	30248939
15,00	TTS12-A	TTD-3F02-1500-HP385	30231805
15,10	TTS12-A	TTD-3F02-1510-HP385	30248940
15,20	TTS12-A	TTD-3F02-1520-HP385	30248941
15,30	TTS12-A	TTD-3F02-1530-HP385	30248942
15,40	TTS12-A	TTD-3F02-1540-HP385	30248943

d ₁ from 15.50 to 18.90			
d ₁ h7	Conne- ction	Specification	Order No.
15,50	TTS12-A	TTD-3F02-1550-HP385	30231806
15,60	TTS12-A	TTD-3F02-1560-HP385	30248944
15,70	TTS12-A	TTD-3F02-1570-HP385	30219115
15,80	TTS12-A	TTD-3F02-1580-HP385	30248945
15,90	TTS12-A	TTD-3F02-1590-HP385	30248946
16,00	TTS12-A	TTD-3F02-1600-HP385	30191427
16,10	TTS12-A	TTD-3F02-1610-HP385	30248947
16,20	TTS12-A	TTD-3F02-1620-HP385	30248948
16,30	TTS12-A	TTD-3F02-1630-HP385	30248949
16,40	TTS12-A	TTD-3F02-1640-HP385	30248950
16,50	TTS12-A	TTD-3F02-1650-HP385	30191428
16,60	TTS12-A	TTD-3F02-1660-HP385	30248951
16,70	TTS12-A	TTD-3F02-1670-HP385	30219122
16,80	TTS12-A	TTD-3F02-1680-HP385	30248952
16,90	TTS12-A	TTD-3F02-1690-HP385	30248953
17,00	TTS12-A	TTD-3F02-1700-HP385	30191429
17,10	TTS12-A	TTD-3F02-1710-HP385	30248954
17,20	TTS12-A	TTD-3F02-1720-HP385	30248955
17,30	TTS12-A	TTD-3F02-1730-HP385	30248956
17,40	TTS12-A	TTD-3F02-1740-HP385	30248957
17,50	TTS12-A	TTD-3F02-1750-HP385	30191430
17,60	TTS12-A	TTD-3F02-1760-HP385	30248958
17,70	TTS12-A	TTD-3F02-1770-HP385	30219123
17,80	TTS12-A	TTD-3F02-1780-HP385	30248959
17,90	TTS12-A	TTD-3F02-1790-HP385	30248960
18,00	TTS12-A	TTD-3F02-1800-HP385	30191431
18,10	TTS12-A	TTD-3F02-1810-HP385	30248961
18,20	TTS12-A	TTD-3F02-1820-HP385	30248962
18,30	TTS12-A	TTD-3F02-1830-HP385	30248963
18,40	TTS12-A	TTD-3F02-1840-HP385	30248964
18,50	TTS12-A	TTD-3F02-1850-HP385	30191432
18,60	TTS12-A	TTD-3F02-1860-HP385	30248965
18,70	TTS12-A	TTD-3F02-1870-HP385	30219124
18,80	TTS12-A	TTD-3F02-1880-HP385	30248966
18,90	TTS12-A	TTD-3F02-1890-HP385	30248967

d ₁ from 19.00 to 22.40			
d ₁ h7	Conne- ction	Specification	Order No.
19,00	TTS12-A	TTD-3F02-1900-HP385	30191433
19,10	TTS12-A	TTD-3F02-1910-HP385	30248968
19,20	TTS12-A	TTD-3F02-1920-HP385	30248969
19,30	TTS12-A	TTD-3F02-1930-HP385	30248970
19,40	TTS12-A	TTD-3F02-1940-HP385	30248971
19,50	TTS12-A	TTD-3F02-1950-HP385	30191434
19,60	TTS12-A	TTD-3F02-1960-HP385	30248972
19,70	TTS12-A	TTD-3F02-1970-HP385	30219125
19,80	TTS12-A	TTD-3F02-1980-HP385	30248973
19,90	TTS12-A	TTD-3F02-1990-HP385	30248974
20,00	TTS12-A	TTD-3F02-2000-HP385	30191435
20,10	TTS12-A	TTD-3F02-2010-HP385	30248975
20,20	TTS12-A	TTD-3F02-2020-HP385	30248976
20,30	TTS12-A	TTD-3F02-2030-HP385	30248977
20,40	TTS12-A	TTD-3F02-2040-HP385	30248978
20,50	TTS12-A	TTD-3F02-2050-HP385	30191436
20,60	TTS12-A	TTD-3F02-2060-HP385	30221253
20,70	TTS12-A	TTD-3F02-2070-HP385	30219126
20,80	TTS12-A	TTD-3F02-2080-HP385	30248979
20,90	TTS12-A	TTD-3F02-2090-HP385	30248980
21,00	TTS12-A	TTD-3F02-2100-HP385	30191437
21,10	TTS12-A	TTD-3F02-2110-HP385	30248981
21,20	TTS12-A	TTD-3F02-2120-HP385	30248982
21,30	TTS12-A	TTD-3F02-2130-HP385	30248983
21,40	TTS12-A	TTD-3F02-2140-HP385	30248984
21,50	TTS12-A	TTD-3F02-2150-HP385	30191438
21,60	TTS12-A	TTD-3F02-2160-HP385	30248985
21,70	TTS12-A	TTD-3F02-2170-HP385	30219127
21,80	TTS12-A	TTD-3F02-2180-HP385	30248986
21,90	TTS12-A	TTD-3F02-2190-HP385	30248987
22,00	TTS12-A	TTD-3F02-2200-HP385	30191439
22,10	TTS12-A	TTD-3F02-2210-HP385	30248988
22,20	TTS12-A	TTD-3F02-2220-HP385	30221256
22,30	TTS12-A	TTD-3F02-2230-HP385	30248989
22,40	TTS12-A	TTD-3F02-2240-HP385	30248990

Replaceable drill head TTD made of solid carbide, internal coolant supply – type O2

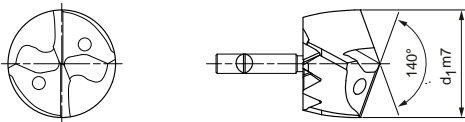
d ₁ from 22.50 to 26.50				d ₁ from 26.60 to 30.60				d ₁ from 30.70 to 45.00			
d ₁ h7	Conne- ction	Specification	Order No.	d ₁ h7	Conne- ction	Specification	Order No.	d ₁ h7	Conne- ction	Specification	Order No.
22,50	TTS12-A	TTD-3F02-2250-HP385	30191440	26,60	TTS18-A	TTD-3F02-2660-HP385	30249019	30,70	TTS18-A	TTD-3F02-3070-HP385	30219136
22,60	TTS12-A	TTD-3F02-2260-HP385	30248991	26,70	TTS18-A	TTD-3F02-2670-HP385	30219132	30,80	TTS18-A	TTD-3F02-3080-HP385	30249048
22,70	TTS12-A	TTD-3F02-2270-HP385	30219128	26,80	TTS18-A	TTD-3F02-2680-HP385	30249020	30,90	TTS18-A	TTD-3F02-3090-HP385	30249049
22,80	TTS12-A	TTD-3F02-2280-HP385	30248992	26,90	TTS18-A	TTD-3F02-2690-HP385	30249021	31,00	TTS18-A	TTD-3F02-3100-HP385	30191457
22,90	TTS12-A	TTD-3F02-2290-HP385	30248993	27,00	TTS18-A	TTD-3F02-2700-HP385	30191449	31,10	TTS18-A	TTD-3F02-3110-HP385	30249050
23,00	TTS12-A	TTD-3F02-2300-HP385	30191441	27,10	TTS18-A	TTD-3F02-2710-HP385	30249022	31,20	TTS18-A	TTD-3F02-3120-HP385	30249051
23,10	TTS12-A	TTD-3F02-2310-HP385	30248994	27,20	TTS18-A	TTD-3F02-2720-HP385	30249023	31,30	TTS18-A	TTD-3F02-3130-HP385	30249052
23,20	TTS12-A	TTD-3F02-2320-HP385	30248995	27,30	TTS18-A	TTD-3F02-2730-HP385	30249024	31,40	TTS18-A	TTD-3F02-3140-HP385	30249053
23,30	TTS12-A	TTD-3F02-2330-HP385	30248996	27,40	TTS18-A	TTD-3F02-2740-HP385	30249025	31,50	TTS18-A	TTD-3F02-3150-HP385	30191458
23,40	TTS12-A	TTD-3F02-2340-HP385	30248997	27,50	TTS18-A	TTD-3F02-2750-HP385	30191450	31,60	TTS18-A	TTD-3F02-3160-HP385	30249054
23,50	TTS12-A	TTD-3F02-2350-HP385	30191442	27,60	TTS18-A	TTD-3F02-2760-HP385	30249026	31,70	TTS18-A	TTD-3F02-3170-HP385	30219137
23,60	TTS12-A	TTD-3F02-2360-HP385	30248998	27,70	TTS18-A	TTD-3F02-2770-HP385	30219133	31,80	TTS18-A	TTD-3F02-3180-HP385	30249055
23,70	TTS12-A	TTD-3F02-2370-HP385	30219129	27,80	TTS18-A	TTD-3F02-2780-HP385	30249027	31,90	TTS18-A	TTD-3F02-3190-HP385	30249056
23,80	TTS12-A	TTD-3F02-2380-HP385	30248999	27,90	TTS18-A	TTD-3F02-2790-HP385	30249028	32,00	TTS18-A	TTD-3F02-3200-HP385	30191459
23,90	TTS12-A	TTD-3F02-2390-HP385	30249000	28,00	TTS18-A	TTD-3F02-2800-HP385	30191451	32,50	TTS18-A	TTD-3F02-3250-HP385	30322371
24,00	TTS12-A	TTD-3F02-2400-HP385	30191443	28,10	TTS18-A	TTD-3F02-2810-HP385	30249029	33,00	TTS18-A	TTD-3F02-3300-HP385	30322372
24,10	TTS12-A	TTD-3F02-2410-HP385	30249001	28,20	TTS18-A	TTD-3F02-2820-HP385	30249030	33,50	TTS18-A	TTD-3F02-3350-HP385	30322373
24,20	TTS12-A	TTD-3F02-2420-HP385	30249002	28,30	TTS18-A	TTD-3F02-2830-HP385	30249031	34,00	TTS18-A	TTD-3F02-3400-HP385	30322375
24,30	TTS12-A	TTD-3F02-2430-HP385	30237401	28,40	TTS18-A	TTD-3F02-2840-HP385	30249032	34,50	TTS18-A	TTD-3F02-3450-HP385	30322376
24,40	TTS12-A	TTD-3F02-2440-HP385	30249004	28,50	TTS18-A	TTD-3F02-2850-HP385	30191452	35,00	TTS18-A	TTD-3F02-3500-HP385	30322377
24,50	TTS18-A	TTD-3F02-2450-HP385	30191444	28,60	TTS18-A	TTD-3F02-2860-HP385	30249033	35,50	TTS18-A	TTD-3F02-3550-HP385	30322378
24,60	TTS18-A	TTD-3F02-2460-HP385	30249005	28,70	TTS18-A	TTD-3F02-2870-HP385	30219134	36,00	TTS18-A	TTD-3F02-3600-HP385	30322379
24,70	TTS18-A	TTD-3F02-2470-HP385	30219130	28,80	TTS18-A	TTD-3F02-2880-HP385	30249034	36,50	TTS18-A	TTD-3F02-3650-HP385	30322380
24,80	TTS18-A	TTD-3F02-2480-HP385	30249006	28,90	TTS18-A	TTD-3F02-2890-HP385	30249035	37,00	TTS18-A	TTD-3F02-3700-HP385	30322381
24,90	TTS18-A	TTD-3F02-2490-HP385	30249007	29,00	TTS18-A	TTD-3F02-2900-HP385	30191453	37,50	TTS18-A	TTD-3F02-3750-HP385	30322382
25,00	TTS18-A	TTD-3F02-2500-HP385	30191445	29,10	TTS18-A	TTD-3F02-2910-HP385	30249036	38,00	TTS18-A	TTD-3F02-3800-HP385	30322383
25,10	TTS18-A	TTD-3F02-2510-HP385	30249008	29,20	TTS18-A	TTD-3F02-2920-HP385	30249037	38,50	TTS18-A	TTD-3F02-3850-HP385	30322384
25,20	TTS18-A	TTD-3F02-2520-HP385	30249009	29,30	TTS18-A	TTD-3F02-2930-HP385	30249038	39,00	TTS18-A	TTD-3F02-3900-HP385	30322385
25,30	TTS18-A	TTD-3F02-2530-HP385	30249010	29,40	TTS18-A	TTD-3F02-2940-HP385	30249039	39,50	TTS18-A	TTD-3F02-3950-HP385	30322386
25,40	TTS18-A	TTD-3F02-2540-HP385	30249011	29,50	TTS18-A	TTD-3F02-2950-HP385	30191454	40,00	TTS18-A	TTD-3F02-4000-HP385	30322387
25,50	TTS18-A	TTD-3F02-2550-HP385	30191446	29,60	TTS18-A	TTD-3F02-2960-HP385	30249040	40,50	TTS18-A	TTD-3F02-4050-HP385	30322432
25,60	TTS18-A	TTD-3F02-2560-HP385	30249012	29,70	TTS18-A	TTD-3F02-2970-HP385	30219135	41,00	TTS18-A	TTD-3F02-4100-HP385	30322389
25,70	TTS18-A	TTD-3F02-2570-HP385	30219131	29,80	TTS18-A	TTD-3F02-2980-HP385	30249041	41,50	TTS18-A	TTD-3F02-4150-HP385	30322390
25,80	TTS18-A	TTD-3F02-2580-HP385	30249013	29,90	TTS18-A	TTD-3F02-2990-HP385	30249042	42,00	TTS18-A	TTD-3F02-4200-HP385	30322391
25,90	TTS18-A	TTD-3F02-2590-HP385	30249014	30,00	TTS18-A	TTD-3F02-3000-HP385	30191455	42,50	TTS18-A	TTD-3F02-4250-HP385	30322392
26,00	TTS18-A	TTD-3F02-2600-HP385	30191447	30,10	TTS18-A	TTD-3F02-3010-HP385	30249043	43,00	TTS18-A	TTD-3F02-4300-HP385	30322393
26,10	TTS18-A	TTD-3F02-2610-HP385	30249015	30,20	TTS18-A	TTD-3F02-3020-HP385	30249044	43,50	TTS18-A	TTD-3F02-4350-HP385	30322394
26,20	TTS18-A	TTD-3F02-2620-HP385	30249016	30,30	TTS18-A	TTD-3F02-3030-HP385	30249045	44,00	TTS18-A	TTD-3F02-4400-HP385	30322395
26,30	TTS18-A	TTD-3F02-2630-HP385	30249017	30,40	TTS18-A	TTD-3F02-3040-HP385	30249046	44,50	TTS18-A	TTD-3F02-4450-HP385	30322396
26,40	TTS18-A	TTD-3F02-2640-HP385	30249018	30,50	TTS18-A	TTD-3F02-3050-HP385	30191456	45,00	TTS18-A	TTD-3F02-4500-HP385	30322397
26,50	TTS18-A	TTD-3F02-2650-HP385	30191448	30,60	TTS18-A	TTD-3F02-3060-HP385	30249047				

Dimensions in mm.
Cutting data recommendation from page 458.
Special designs and other coatings on request.

Replaceable drill head TTD

Made of solid carbide, internal coolant supply
Type 03 - Alu

Design: Type 03
Drill diameter: 12.00 - 45.00 mm
Bore tolerance: ≥ IT 9
Coating: Special TiB₂ coating
Number of cutting edges: 2
Number of guiding chamfers: 4
Tip angle: 140 °



d ₁ from 12.00 to 15.40			
d ₁ m7	Conne- ction	Specification	Order No.
12,00	TTS12-A	TTD-4F03-1200-HP619	30231807
12,10	TTS12-A	TTD-4F03-1210-HP619	30249057
12,20	TTS12-A	TTD-4F03-1220-HP619	30249058
12,30	TTS12-A	TTD-4F03-1230-HP619	30249059
12,40	TTS12-A	TTD-4F03-1240-HP619	30249060
12,50	TTS12-A	TTD-4F03-1250-HP619	30231808
12,60	TTS12-A	TTD-4F03-1260-HP619	30249061
12,70	TTS12-A	TTD-4F03-1270-HP619	30231810
12,80	TTS12-A	TTD-4F03-1280-HP619	30249062
12,90	TTS12-A	TTD-4F03-1290-HP619	30249063
13,00	TTS12-A	TTD-4F03-1300-HP619	30231812
13,10	TTS12-A	TTD-4F03-1310-HP619	30249064
13,20	TTS12-A	TTD-4F03-1320-HP619	30249065
13,30	TTS12-A	TTD-4F03-1330-HP619	30249066
13,40	TTS12-A	TTD-4F03-1340-HP619	30249067
13,50	TTS12-A	TTD-4F03-1350-HP619	30231815
13,60	TTS12-A	TTD-4F03-1360-HP619	30249068
13,70	TTS12-A	TTD-4F03-1370-HP619	30231816
13,80	TTS12-A	TTD-4F03-1380-HP619	30249069
13,90	TTS12-A	TTD-4F03-1390-HP619	30249070
14,00	TTS12-A	TTD-4F03-1400-HP619	30231817
14,10	TTS12-A	TTD-4F03-1410-HP619	30249071
14,20	TTS12-A	TTD-4F03-1420-HP619	30249072
14,30	TTS12-A	TTD-4F03-1430-HP619	30249073
14,40	TTS12-A	TTD-4F03-1440-HP619	30249074
14,50	TTS12-A	TTD-4F03-1450-HP619	30231818
14,60	TTS12-A	TTD-4F03-1460-HP619	30249075
14,70	TTS12-A	TTD-4F03-1470-HP619	30231819
14,80	TTS12-A	TTD-4F03-1480-HP619	30249076
14,90	TTS12-A	TTD-4F03-1490-HP619	30249077
15,00	TTS12-A	TTD-4F03-1500-HP619	30231820
15,10	TTS12-A	TTD-4F03-1510-HP619	30249078
15,20	TTS12-A	TTD-4F03-1520-HP619	30249079
15,30	TTS12-A	TTD-4F03-1530-HP619	30249080
15,40	TTS12-A	TTD-4F03-1540-HP619	30249081

d ₁ from 15.50 to 18.90			
d ₁ m7	Conne- ction	Specification	Order No.
15,50	TTS12-A	TTD-4F03-1550-HP619	30231821
15,60	TTS12-A	TTD-4F03-1560-HP619	30249082
15,70	TTS12-A	TTD-4F03-1570-HP619	30219138
15,80	TTS12-A	TTD-4F03-1580-HP619	30249083
15,90	TTS12-A	TTD-4F03-1590-HP619	30249084
16,00	TTS12-A	TTD-4F03-1600-HP619	30191460
16,10	TTS12-A	TTD-4F03-1610-HP619	30249085
16,20	TTS12-A	TTD-4F03-1620-HP619	30249086
16,30	TTS12-A	TTD-4F03-1630-HP619	30249087
16,40	TTS12-A	TTD-4F03-1640-HP619	30249088
16,50	TTS12-A	TTD-4F03-1650-HP619	30191461
16,60	TTS12-A	TTD-4F03-1660-HP619	30249089
16,70	TTS12-A	TTD-4F03-1670-HP619	30219139
16,80	TTS12-A	TTD-4F03-1680-HP619	30249090
16,90	TTS12-A	TTD-4F03-1690-HP619	30249091
17,00	TTS12-A	TTD-4F03-1700-HP619	30191462
17,10	TTS12-A	TTD-4F03-1710-HP619	30249092
17,20	TTS12-A	TTD-4F03-1720-HP619	30249093
17,30	TTS12-A	TTD-4F03-1730-HP619	30249094
17,40	TTS12-A	TTD-4F03-1740-HP619	30249095
17,50	TTS12-A	TTD-4F03-1750-HP619	30191463
17,60	TTS12-A	TTD-4F03-1760-HP619	30249096
17,70	TTS12-A	TTD-4F03-1770-HP619	30219140
17,80	TTS12-A	TTD-4F03-1780-HP619	30249097
17,90	TTS12-A	TTD-4F03-1790-HP619	30249098
18,00	TTS12-A	TTD-4F03-1800-HP619	30191464
18,10	TTS12-A	TTD-4F03-1810-HP619	30234210
18,20	TTS12-A	TTD-4F03-1820-HP619	30249099
18,30	TTS12-A	TTD-4F03-1830-HP619	30249100
18,40	TTS12-A	TTD-4F03-1840-HP619	30249101
18,50	TTS12-A	TTD-4F03-1850-HP619	30191465
18,60	TTS12-A	TTD-4F03-1860-HP619	30249102
18,70	TTS12-A	TTD-4F03-1870-HP619	30219141
18,80	TTS12-A	TTD-4F03-1880-HP619	30249103
18,90	TTS12-A	TTD-4F03-1890-HP619	30249104

d ₁ from 19.00 to 22.40			
d ₁ m7	Conne- ction	Specification	Order No.
19,00	TTS12-A	TTD-4F03-1900-HP619	30191466
19,10	TTS12-A	TTD-4F03-1910-HP619	30249105
19,20	TTS12-A	TTD-4F03-1920-HP619	30249106
19,30	TTS12-A	TTD-4F03-1930-HP619	30249107
19,40	TTS12-A	TTD-4F03-1940-HP619	30249108
19,50	TTS12-A	TTD-4F03-1950-HP619	30191467
19,60	TTS12-A	TTD-4F03-1960-HP619	30249109
19,70	TTS12-A	TTD-4F03-1970-HP619	30219142
19,80	TTS12-A	TTD-4F03-1980-HP619	30249110
19,90	TTS12-A	TTD-4F03-1990-HP619	30249111
20,00	TTS12-A	TTD-4F03-2000-HP619	30191468
20,10	TTS12-A	TTD-4F03-2010-HP619	30249112
20,20	TTS12-A	TTD-4F03-2020-HP619	30249113
20,30	TTS12-A	TTD-4F03-2030-HP619	30216431
20,40	TTS12-A	TTD-4F03-2040-HP619	30249114
20,50	TTS12-A	TTD-4F03-2050-HP619	30191469
20,60	TTS12-A	TTD-4F03-2060-HP619	30249115
20,70	TTS12-A	TTD-4F03-2070-HP619	30219143
20,80	TTS12-A	TTD-4F03-2080-HP619	30249116
20,90	TTS12-A	TTD-4F03-2090-HP619	30249117
21,00	TTS12-A	TTD-4F03-2100-HP619	30191470
21,10	TTS12-A	TTD-4F03-2110-HP619	30249118
21,20	TTS12-A	TTD-4F03-2120-HP619	30249119
21,30	TTS12-A	TTD-4F03-2130-HP619	30249120
21,40	TTS12-A	TTD-4F03-2140-HP619	30249121
21,50	TTS12-A	TTD-4F03-2150-HP619	30191471
21,60	TTS12-A	TTD-4F03-2160-HP619	30249122
21,70	TTS12-A	TTD-4F03-2170-HP619	30219144
21,80	TTS12-A	TTD-4F03-2180-HP619	30249123
21,90	TTS12-A	TTD-4F03-2190-HP619	30249124
22,00	TTS12-A	TTD-4F03-2200-HP619	30191472
22,10	TTS12-A	TTD-4F03-2210-HP619	30249125
22,20	TTS12-A	TTD-4F03-2220-HP619	30249126
22,30	TTS12-A	TTD-4F03-2230-HP619	30249127
22,40	TTS12-A	TTD-4F03-2240-HP619	30249128

Replaceable drill head TTD made of solid carbide, internal coolant supply – type O3

d ₁ from 22.50 to 26.50				d ₁ from 26.60 to 30.60				d ₁ from 30.70 to 45.00			
d ₁ m7	Conne- ction	Specification	Order No.	d ₁ m7	Conne- ction	Specification	Order No.	d ₁ m7	Conne- ction	Specification	Order No.
22,50	TTS12-A	TTD-4F03-2250-HP619	30191473	26,60	TTS18-A	TTD-4F03-2660-HP619	30249157	30,70	TTS18-A	TTD-4F03-3070-HP619	30219153
22,60	TTS12-A	TTD-4F03-2260-HP619	30249129	26,70	TTS18-A	TTD-4F03-2670-HP619	30219149	30,80	TTS18-A	TTD-4F03-3080-HP619	30249186
22,70	TTS12-A	TTD-4F03-2270-HP619	30219145	26,80	TTS18-A	TTD-4F03-2680-HP619	30249158	30,90	TTS18-A	TTD-4F03-3090-HP619	30249187
22,80	TTS12-A	TTD-4F03-2280-HP619	30249130	26,90	TTS18-A	TTD-4F03-2690-HP619	30249159	31,00	TTS18-A	TTD-4F03-3100-HP619	30191490
22,90	TTS12-A	TTD-4F03-2290-HP619	30249131	27,00	TTS18-A	TTD-4F03-2700-HP619	30191482	31,10	TTS18-A	TTD-4F03-3110-HP619	30249188
23,00	TTS12-A	TTD-4F03-2300-HP619	30191474	27,10	TTS18-A	TTD-4F03-2710-HP619	30249160	31,20	TTS18-A	TTD-4F03-3120-HP619	30249189
23,10	TTS12-A	TTD-4F03-2310-HP619	30249132	27,20	TTS18-A	TTD-4F03-2720-HP619	30249161	31,30	TTS18-A	TTD-4F03-3130-HP619	30249190
23,20	TTS12-A	TTD-4F03-2320-HP619	30249133	27,30	TTS18-A	TTD-4F03-2730-HP619	30249162	31,40	TTS18-A	TTD-4F03-3140-HP619	30249191
23,30	TTS12-A	TTD-4F03-2330-HP619	30249134	27,40	TTS18-A	TTD-4F03-2740-HP619	30249163	31,50	TTS18-A	TTD-4F03-3150-HP619	30191491
23,40	TTS12-A	TTD-4F03-2340-HP619	30249135	27,50	TTS18-A	TTD-4F03-2750-HP619	30191483	31,60	TTS18-A	TTD-4F03-3160-HP619	30249192
23,50	TTS12-A	TTD-4F03-2350-HP619	30191475	27,60	TTS18-A	TTD-4F03-2760-HP619	30249164	31,70	TTS18-A	TTD-4F03-3170-HP619	30219154
23,60	TTS12-A	TTD-4F03-2360-HP619	30249136	27,70	TTS18-A	TTD-4F03-2770-HP619	30219150	31,80	TTS18-A	TTD-4F03-3180-HP619	30249193
23,70	TTS12-A	TTD-4F03-2370-HP619	30219146	27,80	TTS18-A	TTD-4F03-2780-HP619	30249165	31,90	TTS18-A	TTD-4F03-3190-HP619	30249194
23,80	TTS12-A	TTD-4F03-2380-HP619	30249137	27,90	TTS18-A	TTD-4F03-2790-HP619	30249166	32,00	TTS18-A	TTD-4F03-3200-HP619	30191492
23,90	TTS12-A	TTD-4F03-2390-HP619	30249138	28,00	TTS18-A	TTD-4F03-2800-HP619	30191484	32,50	TTS18-A	TTD-4F03-3250-HP619	30322399
24,00	TTS12-A	TTD-4F03-2400-HP619	30191476	28,10	TTS18-A	TTD-4F03-2810-HP619	30249167	33,00	TTS18-A	TTD-4F03-3300-HP619	30322401
24,10	TTS12-A	TTD-4F03-2410-HP619	30249139	28,20	TTS18-A	TTD-4F03-2820-HP619	30249168	33,50	TTS18-A	TTD-4F03-3350-HP619	30322402
24,20	TTS12-A	TTD-4F03-2420-HP619	30249140	28,30	TTS18-A	TTD-4F03-2830-HP619	30249169	34,00	TTS18-A	TTD-4F03-3400-HP619	30322403
24,30	TTS12-A	TTD-4F03-2430-HP619	30249141	28,40	TTS18-A	TTD-4F03-2840-HP619	30249170	34,50	TTS18-A	TTD-4F03-3450-HP619	30322404
24,40	TTS12-A	TTD-4F03-2440-HP619	30249142	28,50	TTS18-A	TTD-4F03-2850-HP619	30191485	35,00	TTS18-A	TTD-4F03-3500-HP619	30322405
24,50	TTS18-A	TTD-4F03-2450-HP619	30191477	28,60	TTS18-A	TTD-4F03-2860-HP619	30249171	35,50	TTS18-A	TTD-4F03-3550-HP619	30322406
24,60	TTS18-A	TTD-4F03-2460-HP619	30249143	28,70	TTS18-A	TTD-4F03-2870-HP619	30219151	36,00	TTS18-A	TTD-4F03-3600-HP619	30322407
24,70	TTS18-A	TTD-4F03-2470-HP619	30219147	28,80	TTS18-A	TTD-4F03-2880-HP619	30249172	36,50	TTS18-A	TTD-4F03-3650-HP619	30322408
24,80	TTS18-A	TTD-4F03-2480-HP619	30249144	28,90	TTS18-A	TTD-4F03-2890-HP619	30249173	37,00	TTS18-A	TTD-4F03-3700-HP619	30322409
24,90	TTS18-A	TTD-4F03-2490-HP619	30249145	29,00	TTS18-A	TTD-4F03-2900-HP619	30191486	37,50	TTS18-A	TTD-4F03-3750-HP619	30322410
25,00	TTS18-A	TTD-4F03-2500-HP619	30191478	29,10	TTS18-A	TTD-4F03-2910-HP619	30249174	38,00	TTS18-A	TTD-4F03-3800-HP619	30322412
25,10	TTS18-A	TTD-4F03-2510-HP619	30249146	29,20	TTS18-A	TTD-4F03-2920-HP619	30249175	38,50	TTS18-A	TTD-4F03-3850-HP619	30322413
25,20	TTS18-A	TTD-4F03-2520-HP619	30249147	29,30	TTS18-A	TTD-4F03-2930-HP619	30249176	39,00	TTS18-A	TTD-4F03-3900-HP619	30322434
25,30	TTS18-A	TTD-4F03-2530-HP619	30249148	29,40	TTS18-A	TTD-4F03-2940-HP619	30249177	39,50	TTS18-A	TTD-4F03-3950-HP619	30322414
25,40	TTS18-A	TTD-4F03-2540-HP619	30249149	29,50	TTS18-A	TTD-4F03-2950-HP619	30191487	40,00	TTS18-A	TTD-4F03-4000-HP619	30322416
25,50	TTS18-A	TTD-4F03-2550-HP619	30191479	29,60	TTS18-A	TTD-4F03-2960-HP619	30249178	40,50	TTS18-A	TTD-4F03-4050-HP619	30322417
25,60	TTS18-A	TTD-4F03-2560-HP619	30249150	29,70	TTS18-A	TTD-4F03-2970-HP619	30219152	41,00	TTS18-A	TTD-4F03-4100-HP619	30322418
25,70	TTS18-A	TTD-4F03-2570-HP619	30219148	29,80	TTS18-A	TTD-4F03-2980-HP619	30249179	41,50	TTS18-A	TTD-4F03-4150-HP619	30322419
25,80	TTS18-A	TTD-4F03-2580-HP619	30249151	29,90	TTS18-A	TTD-4F03-2990-HP619	30249180	42,00	TTS18-A	TTD-4F03-4200-HP619	30322421
25,90	TTS18-A	TTD-4F03-2590-HP619	30249152	30,00	TTS18-A	TTD-4F03-3000-HP619	30191488	42,50	TTS18-A	TTD-4F03-4250-HP619	30322422
26,00	TTS18-A	TTD-4F03-2600-HP619	30191480	30,10	TTS18-A	TTD-4F03-3010-HP619	30249181	43,00	TTS18-A	TTD-4F03-4300-HP619	30322423
26,10	TTS18-A	TTD-4F03-2610-HP619	30249153	30,20	TTS18-A	TTD-4F03-3020-HP619	30249182	43,50	TTS18-A	TTD-4F03-4350-HP619	30322424
26,20	TTS18-A	TTD-4F03-2620-HP619	30249154	30,30	TTS18-A	TTD-4F03-3030-HP619	30249183	44,00	TTS18-A	TTD-4F03-4400-HP619	30322425
26,30	TTS18-A	TTD-4F03-2630-HP619	30249155	30,40	TTS18-A	TTD-4F03-3040-HP619	30249184	44,50	TTS18-A	TTD-4F03-4450-HP619	30322426
26,40	TTS18-A	TTD-4F03-2640-HP619	30249156	30,50	TTS18-A	TTD-4F03-3050-HP619	30191489	45,00	TTS18-A	TTD-4F03-4500-HP619	30322427
26,50	TTS18-A	TTD-4F03-2650-HP619	30191481	30,60	TTS18-A	TTD-4F03-3060-HP619	30249185				

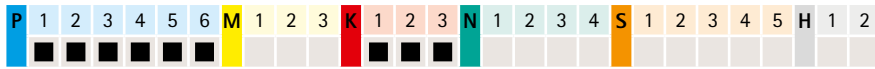
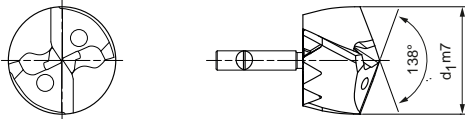
Dimensions in mm.
Cutting data recommendation from page 458.
Special designs and other coatings on request.

Replaceable drill head TTD

Made of solid carbide, internal coolant supply
Type 04 - Steel

Design:
Drill diameter: 12.00 - 45.00 mm
Bore tolerance: $\geq IT 9$
Coating: Special TiAlN coating

Number of cutting edges: 2
Number of guiding chamfers: 3
Tip angle: 138 °



d ₁ from 12.00 to 15.40			
d ₁ m7	Connec-tion	Specification	Order No.
12,00	TTS12-A	TTD-3F04-1200-HP358	30530406
12,10	TTS12-A	TTD-3F04-1210-HP358	30596953
12,20	TTS12-A	TTD-3F04-1220-HP358	30596954
12,30	TTS12-A	TTD-3F04-1230-HP358	30596955
12,40	TTS12-A	TTD-3F04-1240-HP358	30596956
12,50	TTS12-A	TTD-3F04-1250-HP358	30530407
12,60	TTS12-A	TTD-3F04-1260-HP358	30596957
12,70	TTS12-A	TTD-3F04-1270-HP358	30530408
12,80	TTS12-A	TTD-3F04-1280-HP358	30596958
12,90	TTS12-A	TTD-3F04-1290-HP358	30596959
13,00	TTS12-A	TTD-3F04-1300-HP358	30530409
13,10	TTS12-A	TTD-3F04-1310-HP358	30596960
13,20	TTS12-A	TTD-3F04-1320-HP358	30596961
13,30	TTS12-A	TTD-3F04-1330-HP358	30596962
13,40	TTS12-A	TTD-3F04-1340-HP358	30596963
13,50	TTS12-A	TTD-3F04-1350-HP358	30530410
13,60	TTS12-A	TTD-3F04-1360-HP358	30596964
13,70	TTS12-A	TTD-3F04-1370-HP358	30530411
13,80	TTS12-A	TTD-3F04-1380-HP358	30596965
13,90	TTS12-A	TTD-3F04-1390-HP358	30596966
14,00	TTS12-A	TTD-3F04-1400-HP358	30530412
14,10	TTS12-A	TTD-3F04-1410-HP358	30596967
14,20	TTS12-A	TTD-3F04-1420-HP358	30596968
14,30	TTS12-A	TTD-3F04-1430-HP358	30596969
14,40	TTS12-A	TTD-3F04-1440-HP358	30596970
14,50	TTS12-A	TTD-3F04-1450-HP358	30530413
14,60	TTS12-A	TTD-3F04-1460-HP358	30596971
14,70	TTS12-A	TTD-3F04-1470-HP358	30530414
14,80	TTS12-A	TTD-3F04-1480-HP358	30596972
14,90	TTS12-A	TTD-3F04-1490-HP358	30596973
15,00	TTS12-A	TTD-3F04-1500-HP358	30530415
15,10	TTS12-A	TTD-3F04-1510-HP358	30596974
15,20	TTS12-A	TTD-3F04-1520-HP358	30596975
15,30	TTS12-A	TTD-3F04-1530-HP358	30596976
15,40	TTS12-A	TTD-3F04-1540-HP358	30596977

d ₁ from 15.50 to 18.90			
d ₁ m7	Connec-tion	Specification	Order No.
15,50	TTS12-A	TTD-3F04-1550-HP358	30530416
15,60	TTS12-A	TTD-3F04-1560-HP358	30596978
15,70	TTS12-A	TTD-3F04-1570-HP358	30530417
15,80	TTS12-A	TTD-3F04-1580-HP358	30596979
15,90	TTS12-A	TTD-3F04-1590-HP358	30596980
16,00	TTS12-A	TTD-3F04-1600-HP358	30530418
16,10	TTS12-A	TTD-3F04-1610-HP358	30596981
16,20	TTS12-A	TTD-3F04-1620-HP358	30596982
16,30	TTS12-A	TTD-3F04-1630-HP358	30596983
16,40	TTS12-A	TTD-3F04-1640-HP358	30596984
16,50	TTS12-A	TTD-3F04-1650-HP358	30530419
16,60	TTS12-A	TTD-3F04-1660-HP358	30596985
16,70	TTS12-A	TTD-3F04-1670-HP358	30530420
16,80	TTS12-A	TTD-3F04-1680-HP358	30596986
16,90	TTS12-A	TTD-3F04-1690-HP358	30596987
17,00	TTS12-A	TTD-3F04-1700-HP358	30530421
17,10	TTS12-A	TTD-3F04-1710-HP358	30596988
17,20	TTS12-A	TTD-3F04-1720-HP358	30596989
17,30	TTS12-A	TTD-3F04-1730-HP358	30596990
17,40	TTS12-A	TTD-3F04-1740-HP358	30596991
17,50	TTS12-A	TTD-3F04-1750-HP358	30530422
17,60	TTS12-A	TTD-3F04-1760-HP358	30596992
17,70	TTS12-A	TTD-3F04-1770-HP358	30530423
17,80	TTS12-A	TTD-3F04-1780-HP358	30596993
17,90	TTS12-A	TTD-3F04-1790-HP358	30596994
18,00	TTS12-A	TTD-3F04-1800-HP358	30530424
18,10	TTS12-A	TTD-3F04-1810-HP358	30596995
18,20	TTS12-A	TTD-3F04-1820-HP358	30596996
18,30	TTS12-A	TTD-3F04-1830-HP358	30596997
18,40	TTS12-A	TTD-3F04-1840-HP358	30596998
18,50	TTS12-A	TTD-3F04-1850-HP358	30530425
18,60	TTS12-A	TTD-3F04-1860-HP358	30596999
18,70	TTS12-A	TTD-3F04-1870-HP358	30530426
18,80	TTS12-A	TTD-3F04-1880-HP358	30597000
18,90	TTS12-A	TTD-3F04-1890-HP358	30597001

d ₁ from 19.00 to 22.40			
d ₁ m7	Connec-tion	Specification	Order No.
19,00	TTS12-A	TTD-3F04-1900-HP358	30530427
19,10	TTS12-A	TTD-3F04-1910-HP358	30597002
19,20	TTS12-A	TTD-3F04-1920-HP358	30597003
19,30	TTS12-A	TTD-3F04-1930-HP358	30597004
19,40	TTS12-A	TTD-3F04-1940-HP358	30597005
19,50	TTS12-A	TTD-3F04-1950-HP358	30530428
19,60	TTS12-A	TTD-3F04-1960-HP358	30597006
19,70	TTS12-A	TTD-3F04-1970-HP358	30530429
19,80	TTS12-A	TTD-3F04-1980-HP358	30597007
19,90	TTS12-A	TTD-3F04-1990-HP358	30597008
20,00	TTS12-A	TTD-3F04-2000-HP358	30530431
20,10	TTS12-A	TTD-3F04-2010-HP358	30597009
20,20	TTS12-A	TTD-3F04-2020-HP358	30597010
20,30	TTS12-A	TTD-3F04-2030-HP358	30597011
20,40	TTS12-A	TTD-3F04-2040-HP358	30597012
20,50	TTS12-A	TTD-3F04-2050-HP358	30530432
20,60	TTS12-A	TTD-3F04-2060-HP358	30597013
20,70	TTS12-A	TTD-3F04-2070-HP358	30530433
20,80	TTS12-A	TTD-3F04-2080-HP358	30597014
20,90	TTS12-A	TTD-3F04-2090-HP358	30597015
21,00	TTS12-A	TTD-3F04-2100-HP358	30530434
21,10	TTS12-A	TTD-3F04-2110-HP358	30597016
21,20	TTS12-A	TTD-3F04-2120-HP358	30597017
21,30	TTS12-A	TTD-3F04-2130-HP358	30597018
21,40	TTS12-A	TTD-3F04-2140-HP358	30597019
21,50	TTS12-A	TTD-3F04-2150-HP358	30530435
21,60	TTS12-A	TTD-3F04-2160-HP358	30597020
21,70	TTS12-A	TTD-3F04-2170-HP358	30530436
21,80	TTS12-A	TTD-3F04-2180-HP358	30597021
21,90	TTS12-A	TTD-3F04-2190-HP358	30597022
22,00	TTS12-A	TTD-3F04-2200-HP358	30530437
22,10	TTS12-A	TTD-3F04-2210-HP358	30597023
22,20	TTS12-A	TTD-3F04-2220-HP358	30597024
22,30	TTS12-A	TTD-3F04-2230-HP358	30597025
22,40	TTS12-A	TTD-3F04-2240-HP358	30597026

Replaceable drill head TTD made of solid carbide, internal coolant supply – type O4

d ₁ from 22.50 to 26.50				d ₁ from 26.60 to 30.60				d ₁ from 30.70 to 45.00			
d ₁ m7	Conne- ction	Specification	Order No.	d ₁ m7	Conne- ction	Specification	Order No.	d ₁ m7	Conne- ction	Specification	Order No.
22,50	TTS12-A	TTD-3F04-2250-HP358	30530438	26,60	TTS18-A	TTD-3F04-2660-HP358	30597055	30,70	TTS18-A	TTD-3F04-3070-HP358	30530463
22,60	TTS12-A	TTD-3F04-2260-HP358	30597027	26,70	TTS18-A	TTD-3F04-2670-HP358	30530451	30,80	TTS18-A	TTD-3F04-3080-HP358	30597085
22,70	TTS12-A	TTD-3F04-2270-HP358	30530439	26,80	TTS18-A	TTD-3F04-2680-HP358	30597056	30,90	TTS18-A	TTD-3F04-3090-HP358	30597086
22,80	TTS12-A	TTD-3F04-2280-HP358	30597028	26,90	TTS18-A	TTD-3F04-2690-HP358	30597057	31,00	TTS18-A	TTD-3F04-3100-HP358	30530464
22,90	TTS12-A	TTD-3F04-2290-HP358	30597029	27,00	TTS18-A	TTD-3F04-2700-HP358	30530452	31,10	TTS18-A	TTD-3F04-3110-HP358	30597087
23,00	TTS12-A	TTD-3F04-2300-HP358	30530440	27,10	TTS18-A	TTD-3F04-2710-HP358	30597058	31,20	TTS18-A	TTD-3F04-3120-HP358	30597088
23,10	TTS12-A	TTD-3F04-2310-HP358	30597030	27,20	TTS18-A	TTD-3F04-2720-HP358	30597059	31,30	TTS18-A	TTD-3F04-3130-HP358	30597089
23,20	TTS12-A	TTD-3F04-2320-HP358	30597031	27,30	TTS18-A	TTD-3F04-2730-HP358	30597060	31,40	TTS18-A	TTD-3F04-3140-HP358	30597090
23,30	TTS12-A	TTD-3F04-2330-HP358	30597032	27,40	TTS18-A	TTD-3F04-2740-HP358	30597061	31,50	TTS18-A	TTD-3F04-3150-HP358	30530465
23,40	TTS12-A	TTD-3F04-2340-HP358	30597033	27,50	TTS18-A	TTD-3F04-2750-HP358	30530453	31,60	TTS18-A	TTD-3F04-3160-HP358	30597091
23,50	TTS12-A	TTD-3F04-2350-HP358	30530441	27,60	TTS18-A	TTD-3F04-2760-HP358	30597062	31,70	TTS18-A	TTD-3F04-3170-HP358	30530466
23,60	TTS12-A	TTD-3F04-2360-HP358	30597034	27,70	TTS18-A	TTD-3F04-2770-HP358	30530454	31,80	TTS18-A	TTD-3F04-3180-HP358	30597092
23,70	TTS12-A	TTD-3F04-2370-HP358	30530442	27,80	TTS18-A	TTD-3F04-2780-HP358	30597063	31,90	TTS18-A	TTD-3F04-3190-HP358	30597093
23,80	TTS12-A	TTD-3F04-2380-HP358	30597035	27,90	TTS18-A	TTD-3F04-2790-HP358	30597064	32,00	TTS18-A	TTD-3F04-3200-HP358	30530467
23,90	TTS12-A	TTD-3F04-2390-HP358	30597036	28,00	TTS18-A	TTD-3F04-2800-HP358	30530455	32,50	TTS18-A	TTD-3F04-3250-HP358	30530468
24,00	TTS12-A	TTD-3F04-2400-HP358	30530443	28,10	TTS18-A	TTD-3F04-2810-HP358	30597065	33,00	TTS18-A	TTD-3F04-3300-HP358	30530469
24,10	TTS12-A	TTD-3F04-2410-HP358	30597037	28,20	TTS18-A	TTD-3F04-2820-HP358	30597066	33,50	TTS18-A	TTD-3F04-3350-HP358	30530470
24,20	TTS12-A	TTD-3F04-2420-HP358	30597038	28,30	TTS18-A	TTD-3F04-2830-HP358	30597067	34,00	TTS18-A	TTD-3F04-3400-HP358	30530471
24,30	TTS12-A	TTD-3F04-2430-HP358	30597039	28,40	TTS18-A	TTD-3F04-2840-HP358	30597068	34,50	TTS18-A	TTD-3F04-3450-HP358	30530472
24,40	TTS12-A	TTD-3F04-2440-HP358	30597040	28,50	TTS18-A	TTD-3F04-2850-HP358	30530456	35,00	TTS18-A	TTD-3F04-3500-HP358	30530473
24,50	TTS18-A	TTD-3F04-2450-HP358	30530444	28,60	TTS18-A	TTD-3F04-2860-HP358	30597069	35,50	TTS18-A	TTD-3F04-3550-HP358	30530474
24,60	TTS18-A	TTD-3F04-2460-HP358	30597041	28,70	TTS18-A	TTD-3F04-2870-HP358	30530457	36,00	TTS18-A	TTD-3F04-3600-HP358	30530475
24,70	TTS18-A	TTD-3F04-2470-HP358	30530445	28,80	TTS18-A	TTD-3F04-2880-HP358	30597070	36,50	TTS18-A	TTD-3F04-3650-HP358	30530476
24,80	TTS18-A	TTD-3F04-2480-HP358	30597042	28,90	TTS18-A	TTD-3F04-2890-HP358	30597071	37,00	TTS18-A	TTD-3F04-3700-HP358	30530477
24,90	TTS18-A	TTD-3F04-2490-HP358	30597043	29,00	TTS18-A	TTD-3F04-2900-HP358	30530458	37,50	TTS18-A	TTD-3F04-3750-HP358	30530478
25,00	TTS18-A	TTD-3F04-2500-HP358	30530446	29,10	TTS18-A	TTD-3F04-2910-HP358	30597072	38,00	TTS18-A	TTD-3F04-3800-HP358	30530479
25,10	TTS18-A	TTD-3F04-2510-HP358	30597044	29,20	TTS18-A	TTD-3F04-2920-HP358	30597073	38,50	TTS18-A	TTD-3F04-3850-HP358	30530480
25,20	TTS18-A	TTD-3F04-2520-HP358	30597045	29,30	TTS18-A	TTD-3F04-2930-HP358	30597074	39,00	TTS18-A	TTD-3F04-3900-HP358	30530481
25,30	TTS18-A	TTD-3F04-2530-HP358	30597046	29,40	TTS18-A	TTD-3F04-2940-HP358	30597075	39,50	TTS18-A	TTD-3F04-3950-HP358	30530482
25,40	TTS18-A	TTD-3F04-2540-HP358	30597047	29,50	TTS18-A	TTD-3F04-2950-HP358	30530459	40,00	TTS18-A	TTD-3F04-4000-HP358	30530483
25,50	TTS18-A	TTD-3F04-2550-HP358	30530447	29,60	TTS18-A	TTD-3F04-2960-HP358	30597076	40,50	TTS18-A	TTD-3F04-4050-HP358	30530484
25,60	TTS18-A	TTD-3F04-2560-HP358	30597048	29,70	TTS18-A	TTD-3F04-2970-HP358	30530460	41,00	TTS18-A	TTD-3F04-4100-HP358	30530485
25,70	TTS18-A	TTD-3F04-2570-HP358	30530448	29,80	TTS18-A	TTD-3F04-2980-HP358	30597078	41,50	TTS18-A	TTD-3F04-4150-HP358	30530486
25,80	TTS18-A	TTD-3F04-2580-HP358	30597049	29,90	TTS18-A	TTD-3F04-2990-HP358	30597079	42,00	TTS18-A	TTD-3F04-4200-HP358	30530487
25,90	TTS18-A	TTD-3F04-2590-HP358	30597050	30,00	TTS18-A	TTD-3F04-3000-HP358	30530461	42,50	TTS18-A	TTD-3F04-4250-HP358	30530488
26,00	TTS18-A	TTD-3F04-2600-HP358	30530449	30,10	TTS18-A	TTD-3F04-3010-HP358	30597080	43,00	TTS18-A	TTD-3F04-4300-HP358	30530489
26,10	TTS18-A	TTD-3F04-2610-HP358	30597051	30,20	TTS18-A	TTD-3F04-3020-HP358	30597081	43,50	TTS18-A	TTD-3F04-4350-HP358	30530490
26,20	TTS18-A	TTD-3F04-2620-HP358	30597052	30,30	TTS18-A	TTD-3F04-3030-HP358	30597082	44,00	TTS18-A	TTD-3F04-4400-HP358	30530491
26,30	TTS18-A	TTD-3F04-2630-HP358	30597053	30,40	TTS18-A	TTD-3F04-3040-HP358	30597083	44,50	TTS18-A	TTD-3F04-4450-HP358	30530492
26,40	TTS18-A	TTD-3F04-2640-HP358	30597054	30,50	TTS18-A	TTD-3F04-3050-HP358	30530462	45,00	TTS18-A	TTD-3F04-4500-HP358	30530493
26,50	TTS18-A	TTD-3F04-2650-HP358	30530450	30,60	TTS18-A	TTD-3F04-3060-HP358	30597084				

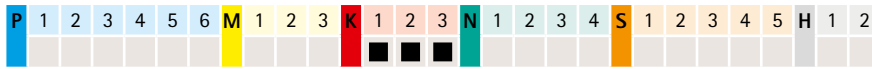
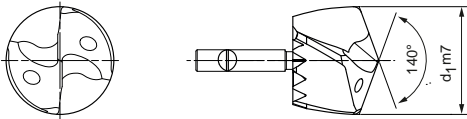
Dimensions in mm.
Cutting data recommendation from page 458.
Special designs and other coatings on request.

Replaceable drill head TTD

Made of solid carbide, internal coolant supply
Type 05 - Iron

Design:
Drill diameter: 12.00 - 45.00 mm
Bore tolerance: ≥ IT 9
Coating: Special AlTiSiXN coating

Number of cutting edges: 2
Number of guiding chamfers: 4
Tip angle: 140 °



d ₁ from 12.00 to 15.40			
d ₁ m7	Conne- ction	Specification	Order No.
12,00	TTS12-A	TTD-4F05-1200-HP240	30597139
12,10	TTS12-A	TTD-4F05-1210-HP240	30597140
12,20	TTS12-A	TTD-4F05-1220-HP240	30597141
12,30	TTS12-A	TTD-4F05-1230-HP240	30597142
12,40	TTS12-A	TTD-4F05-1240-HP240	30597143
12,50	TTS12-A	TTD-4F05-1250-HP240	30597144
12,60	TTS12-A	TTD-4F05-1260-HP240	30597145
12,70	TTS12-A	TTD-4F05-1270-HP240	30597146
12,80	TTS12-A	TTD-4F05-1280-HP240	30597147
12,90	TTS12-A	TTD-4F05-1290-HP240	30597148
13,00	TTS12-A	TTD-4F05-1300-HP240	30597149
13,10	TTS12-A	TTD-4F05-1310-HP240	30597150
13,20	TTS12-A	TTD-4F05-1320-HP240	30597151
13,30	TTS12-A	TTD-4F05-1330-HP240	30597152
13,40	TTS12-A	TTD-4F05-1340-HP240	30597153
13,50	TTS12-A	TTD-4F05-1350-HP240	30597154
13,60	TTS12-A	TTD-4F05-1360-HP240	30597155
13,70	TTS12-A	TTD-4F05-1370-HP240	30597156
13,80	TTS12-A	TTD-4F05-1380-HP240	30597157
13,90	TTS12-A	TTD-4F05-1390-HP240	30597158
14,00	TTS12-A	TTD-4F05-1400-HP240	30597159
14,10	TTS12-A	TTD-4F05-1410-HP240	30597160
14,20	TTS12-A	TTD-4F05-1420-HP240	30597161
14,30	TTS12-A	TTD-4F05-1430-HP240	30597162
14,40	TTS12-A	TTD-4F05-1440-HP240	30597163
14,50	TTS12-A	TTD-4F05-1450-HP240	30597164
14,60	TTS12-A	TTD-4F05-1460-HP240	30597165
14,70	TTS12-A	TTD-4F05-1470-HP240	30597166
14,80	TTS12-A	TTD-4F05-1480-HP240	30597167
14,90	TTS12-A	TTD-4F05-1490-HP240	30597168
15,00	TTS12-A	TTD-4F05-1500-HP240	30597169
15,10	TTS12-A	TTD-4F05-1510-HP240	30597171
15,20	TTS12-A	TTD-4F05-1520-HP240	30597172
15,30	TTS12-A	TTD-4F05-1530-HP240	30597173
15,40	TTS12-A	TTD-4F05-1540-HP240	30597174

d ₁ from 15.50 to 18.90			
d ₁ m7	Conne- ction	Specification	Order No.
15,50	TTS12-A	TTD-4F05-1550-HP240	30597175
15,60	TTS12-A	TTD-4F05-1560-HP240	30597176
15,70	TTS12-A	TTD-4F05-1570-HP240	30597177
15,80	TTS12-A	TTD-4F05-1580-HP240	30597178
15,90	TTS12-A	TTD-4F05-1590-HP240	30597179
16,00	TTS12-A	TTD-4F05-1600-HP240	30597180
16,10	TTS12-A	TTD-4F05-1610-HP240	30597181
16,20	TTS12-A	TTD-4F05-1620-HP240	30597182
16,30	TTS12-A	TTD-4F05-1630-HP240	30597183
16,40	TTS12-A	TTD-4F05-1640-HP240	30597184
16,50	TTS12-A	TTD-4F05-1650-HP240	30597185
16,60	TTS12-A	TTD-4F05-1660-HP240	30597186
16,70	TTS12-A	TTD-4F05-1670-HP240	30597187
16,80	TTS12-A	TTD-4F05-1680-HP240	30597188
16,90	TTS12-A	TTD-4F05-1690-HP240	30597189
17,00	TTS12-A	TTD-4F05-1700-HP240	30597190
17,10	TTS12-A	TTD-4F05-1710-HP240	30597191
17,20	TTS12-A	TTD-4F05-1720-HP240	30597192
17,30	TTS12-A	TTD-4F05-1730-HP240	30597193
17,40	TTS12-A	TTD-4F05-1740-HP240	30597194
17,50	TTS12-A	TTD-4F05-1750-HP240	30597195
17,60	TTS12-A	TTD-4F05-1760-HP240	30597196
17,70	TTS12-A	TTD-4F05-1770-HP240	30597197
17,80	TTS12-A	TTD-4F05-1780-HP240	30597198
17,90	TTS12-A	TTD-4F05-1790-HP240	30597199
18,00	TTS12-A	TTD-4F05-1800-HP240	30597200
18,10	TTS12-A	TTD-4F05-1810-HP240	30597201
18,20	TTS12-A	TTD-4F05-1820-HP240	30597202
18,30	TTS12-A	TTD-4F05-1830-HP240	30597203
18,40	TTS12-A	TTD-4F05-1840-HP240	30597204
18,50	TTS12-A	TTD-4F05-1850-HP240	30597205
18,60	TTS12-A	TTD-4F05-1860-HP240	30597206
18,70	TTS12-A	TTD-4F05-1870-HP240	30597207
18,80	TTS12-A	TTD-4F05-1880-HP240	30597208
18,90	TTS12-A	TTD-4F05-1890-HP240	30597209

d ₁ from 19.00 to 22.40			
d ₁ m7	Conne- ction	Specification	Order No.
19,00	TTS12-A	TTD-4F05-1900-HP240	30597210
19,10	TTS12-A	TTD-4F05-1910-HP240	30597211
19,20	TTS12-A	TTD-4F05-1920-HP240	30597212
19,30	TTS12-A	TTD-4F05-1930-HP240	30597213
19,40	TTS12-A	TTD-4F05-1940-HP240	30597214
19,50	TTS12-A	TTD-4F05-1950-HP240	30597215
19,60	TTS12-A	TTD-4F05-1960-HP240	30597216
19,70	TTS12-A	TTD-4F05-1970-HP240	30597217
19,80	TTS12-A	TTD-4F05-1980-HP240	30597218
19,90	TTS12-A	TTD-4F05-1990-HP240	30597219
20,00	TTS12-A	TTD-4F05-2000-HP240	30597220
20,10	TTS12-A	TTD-4F05-2010-HP240	30597221
20,20	TTS12-A	TTD-4F05-2020-HP240	30597222
20,30	TTS12-A	TTD-4F05-2030-HP240	30597223
20,40	TTS12-A	TTD-4F05-2040-HP240	30597224
20,50	TTS12-A	TTD-4F05-2050-HP240	30597225
20,60	TTS12-A	TTD-4F05-2060-HP240	30597226
20,70	TTS12-A	TTD-4F05-2070-HP240	30597227
20,80	TTS12-A	TTD-4F05-2080-HP240	30597228
20,90	TTS12-A	TTD-4F05-2090-HP240	30597229
21,00	TTS12-A	TTD-4F05-2100-HP240	30597230
21,10	TTS12-A	TTD-4F05-2110-HP240	30597231
21,20	TTS12-A	TTD-4F05-2120-HP240	30597232
21,30	TTS12-A	TTD-4F05-2130-HP240	30597233
21,40	TTS12-A	TTD-4F05-2140-HP240	30597234
21,50	TTS12-A	TTD-4F05-2150-HP240	30597235
21,60	TTS12-A	TTD-4F05-2160-HP240	30597236
21,70	TTS12-A	TTD-4F05-2170-HP240	30597237
21,80	TTS12-A	TTD-4F05-2180-HP240	30597238
21,90	TTS12-A	TTD-4F05-2190-HP240	30597239
22,00	TTS12-A	TTD-4F05-2200-HP240	30597240
22,10	TTS12-A	TTD-4F05-2210-HP240	30597241
22,20	TTS12-A	TTD-4F05-2220-HP240	30597242
22,30	TTS12-A	TTD-4F05-2230-HP240	30597243
22,40	TTS12-A	TTD-4F05-2240-HP240	30597244

Replaceable drill head TTD made of solid carbide, internal coolant supply – type 05

d ₁ from 22.50 to 26.50				d ₁ from 26.60 to 30.60				d ₁ from 30.70 to 45.00			
d ₁ m7	Conne- ction	Specification	Order No.	d ₁ m7	Conne- ction	Specification	Order No.	d ₁ m7	Conne- ction	Specification	Order No.
22,50	TTS12-A	TTD-4F05-2250-HP240	30597245	26,60	TTS18-A	TTD-4F05-2660-HP240	30597286	30,70	TTS18-A	TTD-4F05-3070-HP240	30597327
22,60	TTS12-A	TTD-4F05-2260-HP240	30597246	26,70	TTS18-A	TTD-4F05-2670-HP240	30597287	30,80	TTS18-A	TTD-4F05-3080-HP240	30597328
22,70	TTS12-A	TTD-4F05-2270-HP240	30597247	26,80	TTS18-A	TTD-4F05-2680-HP240	30597288	30,90	TTS18-A	TTD-4F05-3090-HP240	30597329
22,80	TTS12-A	TTD-4F05-2280-HP240	30597248	26,90	TTS18-A	TTD-4F05-2690-HP240	30597289	31,00	TTS18-A	TTD-4F05-3100-HP240	30597330
22,90	TTS12-A	TTD-4F05-2290-HP240	30597249	27,00	TTS18-A	TTD-4F05-2700-HP240	30597290	31,10	TTS18-A	TTD-4F05-3110-HP240	30597332
23,00	TTS12-A	TTD-4F05-2300-HP240	30597250	27,10	TTS18-A	TTD-4F05-2710-HP240	30597291	31,20	TTS18-A	TTD-4F05-3120-HP240	30597333
23,10	TTS12-A	TTD-4F05-2310-HP240	30597251	27,20	TTS18-A	TTD-4F05-2720-HP240	30597292	31,30	TTS18-A	TTD-4F05-3130-HP240	30597334
23,20	TTS12-A	TTD-4F05-2320-HP240	30597252	27,30	TTS18-A	TTD-4F05-2730-HP240	30597293	31,40	TTS18-A	TTD-4F05-3140-HP240	30597335
23,30	TTS12-A	TTD-4F05-2330-HP240	30597253	27,40	TTS18-A	TTD-4F05-2740-HP240	30597294	31,50	TTS18-A	TTD-4F05-3150-HP240	30597336
23,40	TTS12-A	TTD-4F05-2340-HP240	30597254	27,50	TTS18-A	TTD-4F05-2750-HP240	30597295	31,60	TTS18-A	TTD-4F05-3160-HP240	30597337
23,50	TTS12-A	TTD-4F05-2350-HP240	30597255	27,60	TTS18-A	TTD-4F05-2760-HP240	30597296	31,70	TTS18-A	TTD-4F05-3170-HP240	30597338
23,60	TTS12-A	TTD-4F05-2360-HP240	30597256	27,70	TTS18-A	TTD-4F05-2770-HP240	30597297	31,80	TTS18-A	TTD-4F05-3180-HP240	30597339
23,70	TTS12-A	TTD-4F05-2370-HP240	30597257	27,80	TTS18-A	TTD-4F05-2780-HP240	30597298	31,90	TTS18-A	TTD-4F05-3190-HP240	30597340
23,80	TTS12-A	TTD-4F05-2380-HP240	30597258	27,90	TTS18-A	TTD-4F05-2790-HP240	30597299	32,00	TTS18-A	TTD-4F05-3200-HP240	30597341
23,90	TTS12-A	TTD-4F05-2390-HP240	30597259	28,00	TTS18-A	TTD-4F05-2800-HP240	30597300	32,50	TTS18-A	TTD-4F05-3250-HP240	30597342
24,00	TTS12-A	TTD-4F05-2400-HP240	30597260	28,10	TTS18-A	TTD-4F05-2810-HP240	30597301	33,00	TTS18-A	TTD-4F05-3300-HP240	30597343
24,10	TTS12-A	TTD-4F05-2410-HP240	30597261	28,20	TTS18-A	TTD-4F05-2820-HP240	30597302	33,50	TTS18-A	TTD-4F05-3350-HP240	30597344
24,20	TTS12-A	TTD-4F05-2420-HP240	30597262	28,30	TTS18-A	TTD-4F05-2830-HP240	30597303	34,00	TTS18-A	TTD-4F05-3400-HP240	30597345
24,30	TTS12-A	TTD-4F05-2430-HP240	30597263	28,40	TTS18-A	TTD-4F05-2840-HP240	30597304	34,50	TTS18-A	TTD-4F05-3450-HP240	30597346
24,40	TTS12-A	TTD-4F05-2440-HP240	30597264	28,50	TTS18-A	TTD-4F05-2850-HP240	30597305	35,00	TTS18-A	TTD-4F05-3500-HP240	30597347
24,50	TTS18-A	TTD-4F05-2450-HP240	30597265	28,60	TTS18-A	TTD-4F05-2860-HP240	30597306	35,50	TTS18-A	TTD-4F05-3550-HP240	30597348
24,60	TTS18-A	TTD-4F05-2460-HP240	30597266	28,70	TTS18-A	TTD-4F05-2870-HP240	30597307	36,00	TTS18-A	TTD-4F05-3600-HP240	30597349
24,70	TTS18-A	TTD-4F05-2470-HP240	30597267	28,80	TTS18-A	TTD-4F05-2880-HP240	30597308	36,50	TTS18-A	TTD-4F05-3650-HP240	30597350
24,80	TTS18-A	TTD-4F05-2480-HP240	30597268	28,90	TTS18-A	TTD-4F05-2890-HP240	30597309	37,00	TTS18-A	TTD-4F05-3700-HP240	30597351
24,90	TTS18-A	TTD-4F05-2490-HP240	30597269	29,00	TTS18-A	TTD-4F05-2900-HP240	30597310	37,50	TTS18-A	TTD-4F05-3750-HP240	30597352
25,00	TTS18-A	TTD-4F05-2500-HP240	30597270	29,10	TTS18-A	TTD-4F05-2910-HP240	30597311	38,00	TTS18-A	TTD-4F05-3800-HP240	30597353
25,10	TTS18-A	TTD-4F05-2510-HP240	30597271	29,20	TTS18-A	TTD-4F05-2920-HP240	30597312	38,50	TTS18-A	TTD-4F05-3850-HP240	30597354
25,20	TTS18-A	TTD-4F05-2520-HP240	30597272	29,30	TTS18-A	TTD-4F05-2930-HP240	30597313	39,00	TTS18-A	TTD-4F05-3900-HP240	30597355
25,30	TTS18-A	TTD-4F05-2530-HP240	30597273	29,40	TTS18-A	TTD-4F05-2940-HP240	30597314	39,50	TTS18-A	TTD-4F05-3950-HP240	30597356
25,40	TTS18-A	TTD-4F05-2540-HP240	30597274	29,50	TTS18-A	TTD-4F05-2950-HP240	30597315	40,00	TTS18-A	TTD-4F05-4000-HP240	30597357
25,50	TTS18-A	TTD-4F05-2550-HP240	30597275	29,60	TTS18-A	TTD-4F05-2960-HP240	30597316	40,50	TTS18-A	TTD-4F05-4050-HP240	30597358
25,60	TTS18-A	TTD-4F05-2560-HP240	30597276	29,70	TTS18-A	TTD-4F05-2970-HP240	30597317	41,00	TTS18-A	TTD-4F05-4100-HP240	30597359
25,70	TTS18-A	TTD-4F05-2570-HP240	30597277	29,80	TTS18-A	TTD-4F05-2980-HP240	30597318	41,50	TTS18-A	TTD-4F05-4150-HP240	30597360
25,80	TTS18-A	TTD-4F05-2580-HP240	30597278	29,90	TTS18-A	TTD-4F05-2990-HP240	30597319	42,00	TTS18-A	TTD-4F05-4200-HP240	30597361
25,90	TTS18-A	TTD-4F05-2590-HP240	30597279	30,00	TTS18-A	TTD-4F05-3000-HP240	30597320	42,50	TTS18-A	TTD-4F05-4250-HP240	30597362
26,00	TTS18-A	TTD-4F05-2600-HP240	30597280	30,10	TTS18-A	TTD-4F05-3010-HP240	30597321	43,00	TTS18-A	TTD-4F05-4300-HP240	30597363
26,10	TTS18-A	TTD-4F05-2610-HP240	30597281	30,20	TTS18-A	TTD-4F05-3020-HP240	30597322	43,50	TTS18-A	TTD-4F05-4350-HP240	30597364
26,20	TTS18-A	TTD-4F05-2620-HP240	30597282	30,30	TTS18-A	TTD-4F05-3030-HP240	30597323	44,00	TTS18-A	TTD-4F05-4400-HP240	30597365
26,30	TTS18-A	TTD-4F05-2630-HP240	30597283	30,40	TTS18-A	TTD-4F05-3040-HP240	30597324	44,50	TTS18-A	TTD-4F05-4450-HP240	30597366
26,40	TTS18-A	TTD-4F05-2640-HP240	30597284	30,50	TTS18-A	TTD-4F05-3050-HP240	30597325	45,00	TTS18-A	TTD-4F05-4500-HP240	30597367
26,50	TTS18-A	TTD-4F05-2650-HP240	30597285	30,60	TTS18-A	TTD-4F05-3060-HP240	30597326				

Dimensions in mm.

Cutting data recommendation from page 458.

Special designs and other coatings on request.

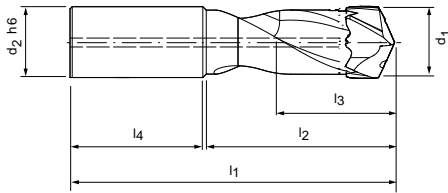
Replaceable head holders TTS

TTS100 with front clamping system for replaceable head drill TTD (1xD), internal coolant supply

Design:

For drill diameter:
Changing system:

12.00 - 45.49 mm
Front clamping system
Head replacement on the machine possible



Dimensions							Specification	Shank HA	Shank HB	Shank HE
d_1	Connection	$d_2 h_6$	l_1	l_2	l_3	l_4		Order No.	Order No.	Order No.
12,00-12,49	TTS12-S	14	81	29	13	45	TTS100-12-DR1-1200-14	30324271	30324304	30324332
12,50-12,99	TTS12-S	14	81	29	13	45	TTS100-12-DR1-1250-14	30324272	30324305	30324333
13,00-13,49	TTS12-S	14	81	31	14	45	TTS100-12-DR1-1300-14	30324273	30324306	30324334
13,50-13,99	TTS12-S	16	86	32	14	48	TTS100-12-DR1-1350-16	30324274	30324307	30324335
14,00-14,49	TTS12-S	16	86	33	15	48	TTS100-12-DR1-1400-16	30324275	30324308	30324336
14,50-14,99	TTS12-S	16	91	34	15	48	TTS100-12-DR1-1450-16	30324276	30324309	30324337
15,00-15,49	TTS12-S	16	91	36	16	48	TTS100-12-DR1-1500-16	30324277	30324310	30324338
15,50-16,49	TTS12-S	18	92	38	17	48	TTS100-12-DR1-1550-18	30324278	30324311	30324339
16,50-17,49	TTS12-S	18	94	40	18	48	TTS100-12-DR1-1650-18	30324280	30324312	30324340
17,50-18,49	TTS12-S	18	99	43	19	48	TTS100-12-DR1-1750-18	30324282	30324313	30324341
18,50-19,49	TTS12-S	20	99	45	20	50	TTS100-12-DR1-1850-20	30324283	30324314	30324342
19,50-20,49	TTS12-S	20	104	47	21	50	TTS100-12-DR1-1950-20	30324284	30324316	30324343
20,50-21,49	TTS12-S	25	111	49	22	56	TTS100-12-DR1-2050-25	30324285	30324317	30324344
21,50-22,49	TTS12-S	25	116	52	23	56	TTS100-12-DR1-2150-25	30324286	30324318	30324345
22,50-23,49	TTS12-S	25	116	54	24	56	TTS100-12-DR1-2250-25	30324287	30324319	30324346
23,50-24,49	TTS12-S	25	121	56	25	56	TTS100-12-DR1-2350-25	30324288	30324320	30324347
24,50-25,49	TTS18-S	25	123	59	26	56	TTS100-18-DR1-2450-25	30324289	30324321	30324348
25,50-26,49	TTS18-S	25	123	61	27	56	TTS100-18-DR1-2550-25	30324290	30324322	30324349
26,50-27,49	TTS18-S	25	128	63	28	56	TTS100-18-DR1-2650-25	30324291	30324323	30324350
27,50-28,49	TTS18-S	25	128	66	29	56	TTS100-18-DR1-2750-25	30324292	30324325	30324352
28,50-29,49	TTS18-S	32	134	68	30	60	TTS100-18-DR1-2850-32	30324293	30324327	30324353
29,50-30,49	TTS18-S	32	139	70	31	60	TTS100-18-DR1-2950-32	30324294	30324328	30324354
30,50-31,49	TTS18-S	32	139	75	32	60	TTS100-18-DR1-3050-32	30324295	30324329	30324355
31,50-32,49	TTS18-S	32	139	75	33	60	TTS100-18-DR1-3150-32	30324296	30324330	30324357
32,50-33,49	TTS18-S	32	150	78	34	60	TTS100-18-DR1-3250-32	30374584	30374587	30374588
33,50-34,49	TTS18-S	32	150	79	35	60	TTS100-18-DR1-3350-32	30374589	30374590	30374591
34,50-35,49	TTS18-S	32	150	82	36	60	TTS100-18-DR1-3450-32	30374592	30374593	30374594
35,50-37,49	TTS18-S	40	162	86	38	70	TTS100-18-DR1-3550-40	-	30535302	30374595
37,50-39,49	TTS18-S	40	167	71	40	70	TTS100-18-DR1-3750-40	-	30535303	30374596
39,50-41,49	TTS18-S	40	177	95	42	70	TTS100-18-DR1-3950-40	-	30535305	30374597
41,50-43,49	TTS18-S	40	180	100	44	70	TTS100-18-DR1-4150-40	-	30535307	30374598
43,50-45,49	TTS18-S	40	185	105	46	70	TTS100-18-DR1-4350-40	-	30535312	30374599

Dimensions in mm.
* Similar to HE (DIN 6535)
Special designs on request.

Replaceable head holders TTS

TTS100 with front clamping system for replaceable head drill TTD (3xD), internal coolant supply

Design:

For drill diameter:

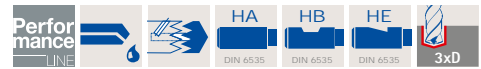
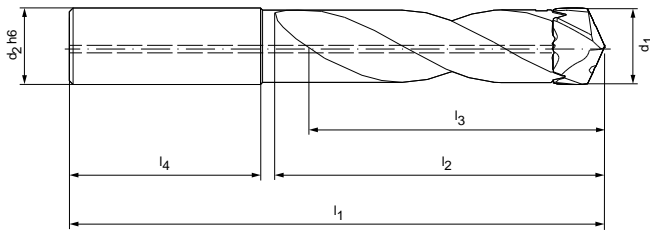
12.00 - 45.49 mm

Changing system:

Front clamping system

Head replacement on

the machine possible



Dimensions							Specification	Shank HA	Shank HB	Shank HE
d_1	Connection	d_2 h6	l_1	l_2	l_3	l_4		Order No.	Order No.	Order No.
12,00-12,49	TTS12-S	14	100	53	38	45	TTS100-12-DR3-1200-14	30231822	30232785	30232818
12,50-12,99	TTS12-S	14	105	55	39	45	TTS100-12-DR3-1250-14	30231823	30232787	30232820
13,00-13,49	TTS12-S	14	105	57	41	45	TTS100-12-DR3-1300-14	30231824	30232789	30232821
13,50-13,99	TTS12-S	16	110	59	42	48	TTS100-12-DR3-1350-16	30231825	30232790	30232827
14,00-14,49	TTS12-S	16	115	61	44	48	TTS100-12-DR3-1400-16	30231831	30232792	30232828
14,50-14,99	TTS12-S	16	115	63	45	48	TTS100-12-DR3-1450-16	30231832	30232793	30232829
15,00-15,49	TTS12-S	16	115	65	47	48	TTS100-12-DR3-1500-16	30231833	30232794	30232830
15,50-16,49	TTS12-S	18	120	70	50	48	TTS100-12-DR3-1550-18	30191550	30191496	30198891
16,50-17,49	TTS12-S	18	125	74	53	48	TTS100-12-DR3-1650-18	30191551	30191497	30198895
17,50-18,49	TTS12-S	18	130	78	56	48	TTS100-12-DR3-1750-18	30191552	30191498	30198932
18,50-19,49	TTS12-S	20	135	82	59	50	TTS100-12-DR3-1850-20	30191553	30191499	30198933
19,50-20,49	TTS12-S	20	140	87	62	50	TTS100-12-DR3-1950-20	30191554	30191500	30198934
20,50-21,49	TTS12-S	25	150	91	65	56	TTS100-12-DR3-2050-25	30191555	30191501	30198935
21,50-22,49	TTS12-S	25	155	95	68	56	TTS100-12-DR3-2150-25	30191556	30191502	30198936
22,50-23,49	TTS12-S	25	160	99	71	56	TTS100-12-DR3-2250-25	30191557	30191503	30198937
23,50-24,49	TTS12-S	25	165	103	74	56	TTS100-12-DR3-2350-25	30191558	30191504	30198938
24,50-25,49	TTS18-S	25	165	108	77	56	TTS100-18-DR3-2450-25	30191559	30191505	30198939
25,50-26,49	TTS18-S	25	175	112	80	56	TTS100-18-DR3-2550-25	30191561	30191507	30198940
26,50-27,49	TTS18-S	25	175	116	83	56	TTS100-18-DR3-2650-25	30191562	30191508	30198941
27,50-28,49	TTS18-S	25	180	120	86	56	TTS100-18-DR3-2750-25	30191563	30191509	30198942
28,50-29,49	TTS18-S	32	190	124	89	60	TTS100-18-DR3-2850-32	30191564	30191510	30198943
29,50-30,49	TTS18-S	32	195	129	92	60	TTS100-18-DR3-2950-32	30191565	30191511	30198945
30,50-31,49	TTS18-S	32	195	133	95	60	TTS100-18-DR3-3050-32	30191566	30191512	30198946
31,50-32,49	TTS18-S	32	200	137	98	60	TTS100-18-DR3-3150-32	30191567	30191513	30198948
32,50-33,49	TTS18-S	32	210	144	101	60	TTS100-18-DR3-3250-32	30322281	30322289	30322297
33,50-34,49	TTS18-S	32	215	148	104	60	TTS100-18-DR3-3350-32	30322282	30322290	30322298
34,50-35,49	TTS18-S	32	220	153	107	60	TTS100-18-DR3-3450-32	30322283	30322291	30322299
35,50-37,49	TTS18-S	40	237	161	113	70	TTS100-18-DR3-3550-40	-	30535313	30322300
37,50-39,49	TTS18-S	40	247	170	119	70	TTS100-18-DR3-3750-40	-	30535316	30322301
39,50-41,49	TTS18-S	40	257	178	125	70	TTS100-18-DR3-3950-40	-	30535318	30322302
41,50-43,49	TTS18-S	40	265	187	131	70	TTS100-18-DR3-4150-40	-	30535320	30322303
43,50-45,49	TTS18-S	40	275	196	137	70	TTS100-18-DR3-4350-40	-	30535321	30322304

Dimensions in mm.

* Similar to HE (DIN 6535)

Special designs on request.

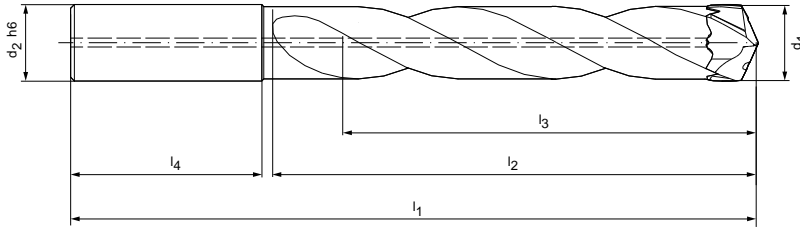
Replaceable head holders TTS

TTS100 with front clamping system for replaceable head drill TTD (5xD), internal coolant supply

Design:

For drill diameter:
Changing system:

12.00 - 45.49 mm
Front clamping system
Head replacement on the machine possible



Dimensions							Specification	Shank HA	Shank HB	Shank HE
d_1	Connection	d_2 h6	l_1	l_2	l_3	l_4		Order No.	Order No.	Order No.
12,00-12,49	TTS12-S	14	125	78	63	45	TTS100-12-DR5-1200-14	30231835	30232796	30232832
12,50-12,99	TTS12-S	14	130	81	65	45	TTS100-12-DR5-1250-14	30231836	30232798	30232833
13,00-13,49	TTS12-S	14	130	84	68	45	TTS100-12-DR5-1300-14	30231837	30232799	30232834
13,50-13,99	TTS12-S	16	140	88	70	48	TTS100-12-DR5-1350-16	30231838	30232800	30232835
14,00-14,49	TTS12-S	16	140	90	73	48	TTS100-12-DR5-1400-16	30231839	30232801	30232836
14,50-14,99	TTS12-S	16	145	94	75	48	TTS100-12-DR5-1450-16	30231840	30232802	30232837
15,00-15,49	TTS12-S	16	145	96	78	48	TTS100-12-DR5-1500-16	30231841	30232803	30232838
15,50-16,49	TTS12-S	18	155	103	83	48	TTS100-12-DR5-1550-18	30191568	30191514	30198949
16,50-17,49	TTS12-S	18	160	109	88	48	TTS100-12-DR5-1650-18	30191569	30191515	30198950
17,50-18,49	TTS12-S	18	165	115	93	48	TTS100-12-DR5-1750-18	30191570	30191516	30198951
18,50-19,49	TTS12-S	20	175	121	98	50	TTS100-12-DR5-1850-20	30191571	30191517	30198952
19,50-20,49	TTS12-S	20	180	128	103	50	TTS100-12-DR5-1950-20	30191572	30191518	30198953
20,50-21,49	TTS12-S	25	195	134	108	56	TTS100-12-DR5-2050-25	30191573	30191519	30198954
21,50-22,49	TTS12-S	25	200	140	113	56	TTS100-12-DR5-2150-25	30191574	30191520	30198955
22,50-23,49	TTS12-S	25	205	146	118	56	TTS100-12-DR5-2250-25	30191575	30191521	30198956
23,50-24,49	TTS12-S	25	210	152	123	56	TTS100-12-DR5-2350-25	30191576	30191522	30198957
24,50-25,49	TTS18-S	25	220	159	128	56	TTS100-18-DR5-2450-25	30191577	30191523	30198958
25,50-26,49	TTS18-S	25	225	165	133	56	TTS100-18-DR5-2550-25	30191579	30191525	30198959
26,50-27,49	TTS18-S	25	230	171	138	56	TTS100-18-DR5-2650-25	30191580	30191526	30198960
27,50-28,49	TTS18-S	25	240	177	143	56	TTS100-18-DR5-2750-25	30191581	30191527	30198961
28,50-29,49	TTS18-S	32	250	183	148	60	TTS100-18-DR5-2850-32	30191582	30191528	30198962
29,50-30,49	TTS18-S	32	255	190	153	60	TTS100-18-DR5-2950-32	30191583	30191529	30198963
30,50-31,49	TTS18-S	32	260	196	158	60	TTS100-18-DR5-3050-32	30191584	30191530	30198964
31,50-32,49	TTS18-S	32	265	202	163	60	TTS100-18-DR5-3150-32	30191585	30191531	30198965
32,50-33,49	TTS18-S	32	275	210	168	60	TTS100-18-DR5-3250-32	30322305	30322313	30322322
33,50-34,49	TTS18-S	32	285	217	173	60	TTS100-18-DR5-3350-32	30322306	30322314	30322323
34,50-35,49	TTS18-S	32	290	224	178	60	TTS100-18-DR5-3450-32	30322307	30322315	30322324
*35,50-37,49	TTS18-S	40	312	236	188	70	TTS100-18-DR5-3550-40	-	30535324	30322326
*37,50-39,49	TTS18-S	40	327	249	198	70	TTS100-18-DR5-3750-40	-	30534860	30322327
*39,50-41,49	TTS18-S	40	337	261	208	70	TTS100-18-DR5-3950-40	-	30535326	30322328
*41,50-43,49	TTS18-S	40	350	274	218	70	TTS100-18-DR5-4150-40	-	30535327	30322329
*43,50-45,49	TTS18-S	40	365	287	228	70	TTS100-18-DR5-4350-40	-	30535328	30322331

Dimensions in mm.

* Similar to HE (DIN 6535)

Special designs on request.

Replaceable head holders TTS

TTS100 with front clamping system for replaceable head drill TTD (8xD), internal coolant supply

Design:

For drill diameter:

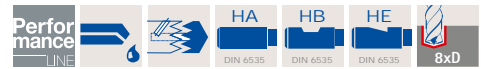
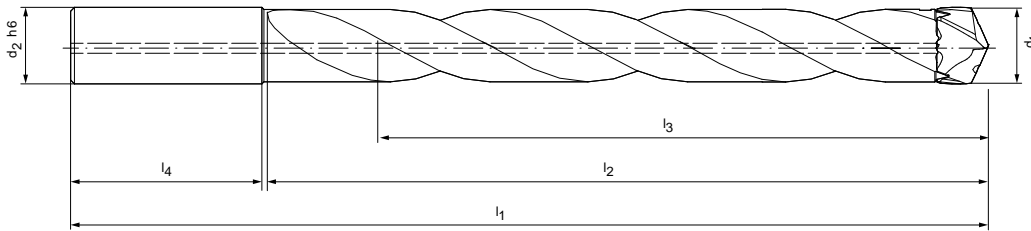
12.00 - 32.49 mm

Changing system:

Front clamping system

Head replacement on

the machine possible



Dimensions							Specification	Shank HA	Shank HB	Shank HE
d_1	Connection	$d_2 h6$	l_1	l_2	l_3	l_4		Order No.	Order No.	Order No.
12,00-12,49	TTS12-S	14	165	116	100	45	TTS100-12-DR8-1200-14	30231843	30232805	30232840
12,50-12,99	TTS12-S	14	170	121	104	45	TTS100-12-DR8-1250-14	30231844	30232806	30232841
13,00-13,49	TTS12-S	14	175	126	108	45	TTS100-12-DR8-1300-14	30231845	30232807	30232842
13,50-13,99	TTS12-S	16	180	129	112	48	TTS100-12-DR8-1350-16	30231846	30232808	30232843
14,00-14,49	TTS12-S	16	185	134	116	48	TTS100-12-DR8-1400-16	30231847	30232809	30232845
14,50-14,99	TTS12-S	16	190	139	120	48	TTS100-12-DR8-1450-16	30231848	30232810	30232846
15,00-15,49	TTS12-S	16	195	144	124	48	TTS100-12-DR8-1500-16	30231849	30232811	30232847
15,50-16,49	TTS12-S	18	205	152	132	48	TTS100-12-DR8-1550-18	30191586	30191532	30198966
16,50-17,49	TTS12-S	18	215	161	140	48	TTS100-12-DR8-1650-18	30191587	30191533	30198967
17,50-18,49	TTS12-S	18	220	171	148	48	TTS100-12-DR8-1750-18	30191588	30191534	30198968
18,50-19,49	TTS12-S	20	235	180	156	50	TTS100-12-DR8-1850-20	30191589	30191535	30198969
19,50-20,49	TTS12-S	20	240	189	164	50	TTS100-12-DR8-1950-20	30191590	30191536	30198971
20,50-21,49	TTS12-S	25	260	198	172	56	TTS100-12-DR8-2050-25	30191591	30191537	30198972
21,50-22,49	TTS12-S	25	270	207	180	56	TTS100-12-DR8-2150-25	30191592	30191538	30198973
22,50-23,49	TTS12-S	25	275	217	188	56	TTS100-12-DR8-2250-25	30191593	30191539	30198974
23,50-24,49	TTS12-S	25	285	226	196	56	TTS100-12-DR8-2350-25	30191594	30191540	30198975
24,50-25,49	TTS18-S	25	295	235	204	56	TTS100-18-DR8-2450-25	30191595	30191541	30198976
25,50-26,49	TTS18-S	25	305	244	212	56	TTS100-18-DR8-2550-25	30191597	30191543	30198977
26,50-27,49	TTS18-S	25	315	253	220	56	TTS100-18-DR8-2650-25	30191598	30191544	30198978
27,50-28,49	TTS18-S	25	325	263	228	56	TTS100-18-DR8-2750-25	30191599	30191545	30198979
28,50-29,49	TTS18-S	32	340	272	236	60	TTS100-18-DR8-2850-32	30191600	30191546	30198980
29,50-30,49	TTS18-S	32	345	281	244	60	TTS100-18-DR8-2950-32	30191601	30191547	30198981
30,50-31,49	TTS18-S	32	355	290	252	60	TTS100-18-DR8-3050-32	30191602	30191548	30198982
31,50-32,49	TTS18-S	32	360	299	260	60	TTS100-18-DR8-3150-32	30191603	30191549	30198983

Dimensions in mm.
Special designs on request.

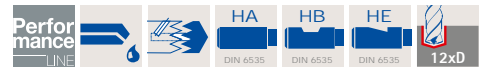
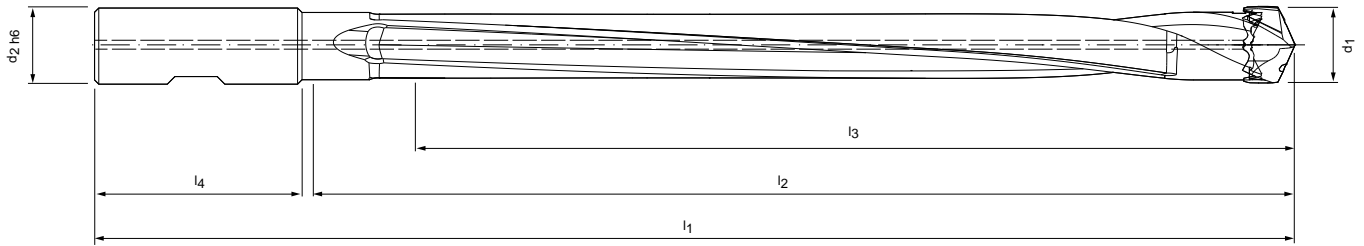
Replaceable head holders TTS

TTS100 with front clamping system for replaceable head drill TTD (12xD), internal coolant supply

Design:

For drill diameter:
Changing system:

12.00 - 32.49 mm
Front clamping system
Head replacement on the machine possible



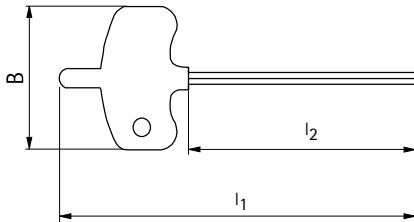
Dimensions							Specification	Shank HA	Shank HB	Shank HE
d_1	Connection	$d_2\ h6$	l_1	l_2	l_3	l_4		Order No.	Order No.	Order No.
12,00-12,49	TTS12-S	14	210	162	150	45	TTS100-12-DR12-1200-14	30327797	30327798	30327800
12,50-12,99	TTS12-S	14	216	168	156	45	TTS100-12-DR12-1250-14	30327801	30327802	30327803
13,00-13,49	TTS12-S	14	223	175	162	45	TTS100-12-DR12-1300-14	30327804	30327805	30327806
13,50-13,99	TTS12-S	16	235	182	168	48	TTS100-12-DR12-1350-16	30327807	30327808	30327809
14,00-14,49	TTS12-S	16	242	189	174	48	TTS100-12-DR12-1400-16	30327810	30327811	30327812
14,50-14,99	TTS12-S	16	248	195	180	48	TTS100-12-DR12-1450-16	30327813	30327814	30327815
15,00-15,49	TTS12-S	16	255	202	186	48	TTS100-12-DR12-1500-16	30327816	30327817	30327818
15,50-16,49	TTS12-S	18	262	209	198	48	TTS100-12-DR12-1550-18	30327819	30327820	30327822
16,50-17,49	TTS12-S	18	275	222	210	48	TTS100-12-DR12-1650-18	30327823	30327824	30327826
17,50-18,49	TTS12-S	18	289	236	222	48	TTS100-12-DR12-1750-18	30327827	30327828	30327830
18,50-19,49	TTS12-S	20	304	249	234	50	TTS100-12-DR12-1850-20	30327832	30327833	30327834
19,50-20,49	TTS12-S	20	318	263	246	50	TTS100-12-DR12-1950-20	30327835	30255588	30327842
20,50-21,49	TTS12-S	25	337	276	258	56	TTS100-12-DR12-2050-25	30327843	30327844	30327845
21,50-22,49	TTS12-S	25	351	290	270	56	TTS100-12-DR12-2150-25	30327846	30327847	30327849
22,50-23,49	TTS12-S	25	364	303	282	56	TTS100-12-DR12-2250-25	30327850	30327851	30327852
23,50-24,49	TTS12-S	25	378	317	294	56	TTS100-12-DR12-2350-25	30327853	30327854	30327855
24,50-25,49	TTS18-S	25	391	330	306	56	TTS100-18-DR12-2450-25	30327858	30327859	30327860
25,50-26,49	TTS18-S	25	405	344	318	56	TTS100-18-DR12-2550-25	30327861	30327863	30327864
26,50-27,49	TTS18-S	25	418	357	330	56	TTS100-18-DR12-2650-25	30327865	30327866	30327867
27,50-28,49	TTS18-S	25	432	371	342	56	TTS100-18-DR12-2750-25	30327869	30327870	30327871
28,50-29,49	TTS18-S	32	449	384	354	60	TTS100-18-DR12-2850-32	30327872	30327873	30327874
29,50-30,49	TTS18-S	32	463	398	366	60	TTS100-18-DR12-2950-32	30327875	30327876	30327877
30,50-31,49	TTS18-S	32	476	411	378	60	TTS100-18-DR12-3050-32	30327878	30327879	30327880
31,50-32,49	TTS18-S	32	490	425	390	60	TTS100-18-DR12-3150-32	30327881	30327883	30327885

Dimensions in mm.

It is imperative you pay attention to the handling notes for the replaceable head drill TTD (12xD) on page 446.

Special designs on request.

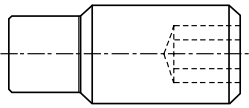
Spare parts



Hexagonal wrench

Holder type	Wrench size	l_1	l_2	B	Order No.
TS100-12-DRx-1200-14-HA	1,3	95	60	38	10004355
TS100-12-DRx-1250-14-HA	1,3	95	60	38	10004355
TS100-12-DRx-1300-14-HA	1,3	95	60	38	10004355
TS100-12-DRx-1350-16-HA	1,5	95	60	38	10098108
TS100-12-DRx-1400-16-HA	1,5	95	60	38	10098108
TS100-12-DRx-1450-16-HA	1,5	95	60	38	10098108
TS100-12-DRx-1500-16-HA	1,5	95	60	38	10098108
TS100-12-DRx-1550-18-HA	1,5	95	60	38	10098108
TS100-12-DRx-1650-18-HA	2	95	60	38	10098109
TS100-12-DRx-1750-18-HA	2	95	60	38	10098109
TS100-12-DRx-1850-20-HA	2	95	60	38	10098109
TS100-12-DRx-1950-20-HA	2	95	60	38	10098109
TS100-12-DRx-2050-25-HA	2	95	60	38	10098109
TS100-12-DRx-2150-25-HA	2	95	60	38	10098109
TS100-12-DRx-2250-25-HA	2	95	60	38	10098109
TS100-12-DRx-2350-25-HA	2	95	60	38	10098109
TS100-18-DRx-2450-25-HA	2,5	95	60	38	10098110
TS100-18-DRx-2550-25-HA	2,5	95	60	38	10098110
TS100-18-DRx-2650-25-HA	2,5	95	60	38	10098110
TS100-18-DRx-2750-25-HA	2,5	95	60	38	10098110
TS100-18-DRx-2850-32-HA	2,5	95	60	38	10098110
TS100-18-DRx-2950-32-HA	2,5	95	60	38	10098110
TS100-18-DRx-3050-32-HA	2,5	95	60	38	10098110
TS100-18-DRx-3150-32-HA	2,5	95	60	38	10098110
TS100-18-DRx-3250-32-HA	3	100	60	38	10006234
TS100-18-DRx-3350-32-HA	3	100	60	38	10006234
TS100-18-DRx-3450-32-HA	3	100	60	38	10006234
TS100-18-DRx-3550-40-HA	3	100	60	38	10006234
TS100-18-DRx-3750-40-HA	3	100	60	38	10006234
TS100-18-DRx-3950-40-HA	3	100	60	38	10006234
TS100-18-DRx-4150-40-HA	4	100	60	38	10006235
TS100-18-DRx-4350-40-HA	4	100	60	38	10006235

Threaded pin



Holder type	Threaded pin	Order No.
TS100-12-DRx-1200-14-HA	M2,5x5	30259117
TS100-12-DRx-1250-14-HA	M2,5x6	30259118
TS100-12-DRx-1300-14-HA	M2,5x6	30259118
TS100-12-DRx-1350-16-HA	M3x6	30259119
TS100-12-DRx-1400-16-HA	M3x6	30259119
TS100-12-DRx-1450-16-HA	M3x7	30193231
TS100-12-DRx-1500-16-HA	M3x7	30193231
TS100-12-DRx-1550-18-HA	M3x0,5x7	30193231
TS100-12-DRx-1650-18-HA	M4x0,5x7,5	30193232
TS100-12-DRx-1750-18-HA	M4x0,5x7,5	30193232
TS100-12-DRx-1850-20-HA	M4x0,5x7,5	30193232
TS100-12-DRx-1950-20-HA	M4x0,5x7,5	30193232
TS100-12-DRx-2050-25-HA	M4x0,5x10	30193233
TS100-12-DRx-2150-25-HA	M4x0,5x10	30193233
TS100-12-DRx-2250-25-HA	M4x0,5x10	30193233
TS100-12-DRx-2350-25-HA	M4x0,5x10	30193233
TS100-18-DRx-2450-25-HA	M5x0,5x11	30193234
TS100-18-DRx-2550-25-HA	M5x0,5x11	30193234
TS100-18-DRx-2650-25-HA	M5x0,5x11	30193234
TS100-18-DRx-2750-25-HA	M5x0,5x11	30193234
TS100-18-DRx-2850-32-HA	M5x0,5x14	30193235
TS100-18-DRx-2950-32-HA	M5x0,5x14	30193235
TS100-18-DRx-3050-32-HA	M5x0,5x14	30193235
TS100-18-DRx-3150-32-HA	M5x0,5x14	30193235
TS100-18-DRx-3250-32-HA	M6x0,5x16	30320812
TS100-18-DRx-3350-32-HA	M6x0,5x16	30320812
TS100-18-DRx-3450-32-HA	M6x0,5x16	30320812
TS100-18-DRx-3550-40-HA	M6x0,5x18	30320811
TS100-18-DRx-3750-40-HA	M6x0,5x18	30320811
TS100-18-DRx-3950-40-HA	M6x0,5x20	30320810
TS100-18-DRx-4150-40-HA	M8x1x20	30320806
TS100-18-DRx-4350-40-HA	M8x1x20	30320806





DRILLING FROM SOLID WITH PCD

Optimally matched to the process

During the machining of parts made of aluminium and other non-ferrous metals, mostly straight-fluted PCD drilling tools are used for drilling. The tool features are optimally matched for the high effectiveness of the PCD drills. The chip flutes are polished along the entire length of the drill to keep the chip friction as low as possible. The optimally embedded PCD cutting edges result in good cutting behaviour of the drill. In this way the heat introduction to the part is reduced. For processes with minimum quantity lubrication (MQL) the coolant outlets are positioned such that the aerosol arrives exactly where it is required for lubrication. In this way the risk of built-up edges is reduced and the tool life of the drill increased.

However, modern machining processes increasingly require PCD-tipped drilling tools with a large helix angle.

The twisted PCD tools make possible reliable, productive bore machining. Chip congestion or tool fracture is prevented by "mechanical assisted" removal of the chips. Highly positive rake angles reduce the cutting forces required. Several machining steps such as drilling from solid or boring processes can be undertaken in one machining step. The reduction of the machining time increases productivity, with high process reliability and bore quality.

Tool features in detail

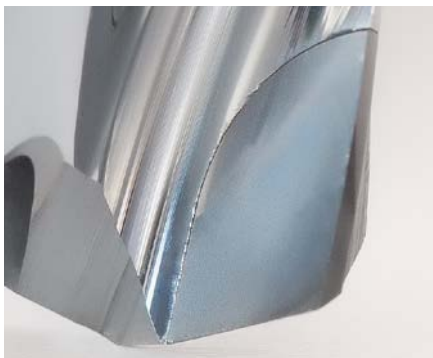


1 PCD cutting edges

2 Twisted and highly polished chip flute

3 Optimised coolant outlets for MQL process

Optimally embedded PCD cutting edges



The embedding of PCD segments in a twisted groove rounded on all sides places high demands on the production technology. The latest production equipment ensures that twisted PCD drilling tools can be designed and manufactured reliably and reproducibly. To ensure the correct performance of the tools, comprehensive application details flow via the technical consultants and production specialists at MAPAL into the design and the construction.

Highly polished chip flute



The chip flutes are highly polished, such that the friction produced by the chips is reduced and as a consequence the heat introduction to the part is also reduced. The twisted design of the chip flutes makes possible the "mechanically assisted" removal of the chips. Highly positive rake angles reduce the cutting forces required.

Ideal for MQL processes



The correct positioning of the coolant outlets is crucial for the performance of the drill during MQL machining. The aerosol must arrive exactly where it is required for lubrication. This reduces the risk, for example, of built-up edges and of course also helps to increase the tool life of the drill.

CUSTOM TOOLS FOR DRILLING

Along with a comprehensive standard programme of drilling tools, MAPAL also offers custom tools.

Individual customer requirements demand custom solutions that are specifically tailored to the machining tasks. With its vast know-how in metal machining and many years of experience, MAPAL is your competent partner worldwide when it comes to the design and manufacture of custom tools, as well as the design of complete machining processes for drilling. The programme includes twisted and straight-fluted drills as well as step drills made of solid carbide or PCD-tipped drills.

MAPAL – your partner for application-specific custom solutions.





Custom tools for drilling from MAPAL

- 1 Custom solid carbide step drill with three cutting edges, self-centring chisel edge, for connecting rod machining in a 1-shot process
- 2 Solid carbide step drill with three guiding chamfers and special coating for high-speed machining
- 3 Solid carbide core hole drill for connecting rod machining in a 2-shot process
- 4 Solid carbide step drill with three guiding chamfers and special coating for the high-speed machining of automotive constant-velocity joints made of ADI 900
- 5 Custom solid carbide drill with Tritan-Drill geometry and special coating for turbocharger machining
- 6 Drill reamer with three cutting edges and additional reaming cutting edge on the periphery with special coating for machining axles made of EN-GJS-500-7
- 7 Solid carbide pilot drill for connecting rod machining in a 2-shot process
- 8 Solid carbide deep hole drill with custom coating for machining cylinder blocks made of GJV
- 9 Solid carbide aluminium drill with three cutting edges, self-centring chisel edge and highly polished chip flutes for machining AISI1
- 10 Solid carbide step drill with 180° face geometry for valve machining

BORING WITH ISO INDEXABLE INSERTS, PCD AND MODULBORE

Application-specific solutions for boring





BORING COMPETENCE




ISO | PCD | ModulBore

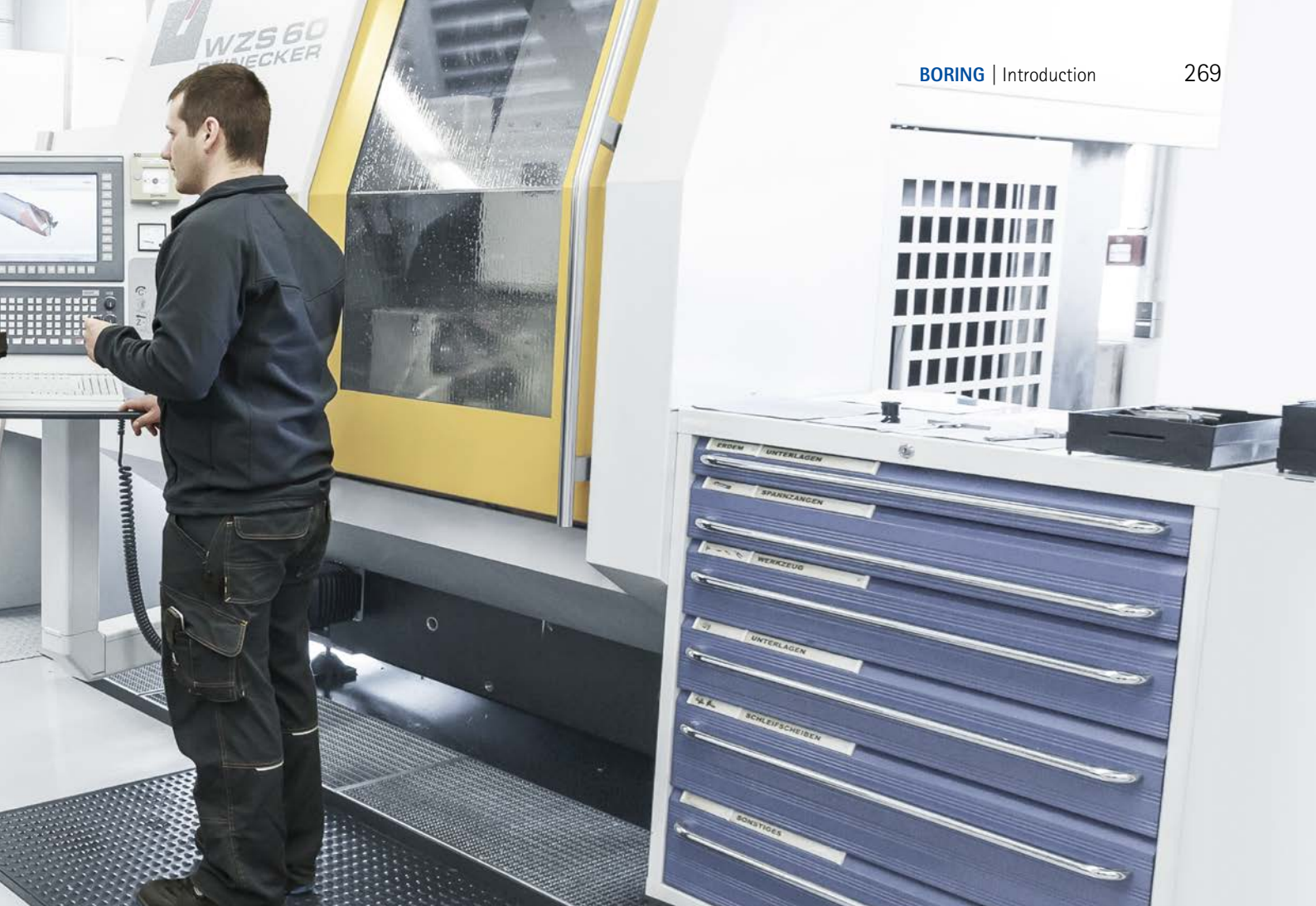
Due to the combination of innovative technology and absolute precision during manufacture, MAPAL boring tools are high-performance tools. An understanding of the complete machining process and the production process as a whole makes possible real progress.

The perfect interaction of all components in a machining process allows the highest possible cost-effectiveness and resource-saving production. Here it is particularly important that comprehensive knowledge of all machining processes and machining technologies is available even during the process planning.

MAPAL provides the ideal basis for the process planner with its broad range of innovative, high-performance tools and its extensive pool of experience. For this purpose, use is made of all tool technologies as necessary. The results are machining solutions without compromises.



Custom solutions	Standard programme	
		
<p>Custom solutions with PCD cutting edges</p> <ul style="list-style-type: none"> - Individual tool solutions for demanding machining tasks - Highest machining quality for dimensions, surface finish and shape - Realisation of complex cutting geometries and extreme rake and helix angles - Twisted PCD boring tools for machining delicate or unstable parts and clamping systems (e.g. interrupted cuts) - Manufacturing tolerances from $\leq 3 \mu\text{m}$ for tool ϕ - Modular design for highest radial run-out accuracy - PCD boring tools with several steps guarantee the concentricity of stepped bores - Boring tools as combination tool for reduced non-productive times - Optimised for usage with minimum quantity lubrication (MQL) 	<p>Custom solutions with ISO elements</p> <ul style="list-style-type: none"> - Multi-stage design reduces the tools needed and shortens the machining time - Higher effectiveness due to the usage of tangential technology - Guide pads ensure very high positioning accuracy - Spring-loaded guide pads for reliable machining of large drilling depths - Hybrid tools combine different tool systems - In unstable machining situations or with large projection lengths, vibration dampers ensure higher machining quality and tool life 	<p>TSW boring tools with ISO indexable inserts</p> <ul style="list-style-type: none"> - Diameter range 37 to 280 mm - Different contact angle for blind bores (0°) and through bores (10°) - Cutting depths of up to 5 mm - For depths of the bore up to 300 mm - Tangential indexable inserts with six cutting edges for high cost-effectiveness - Special arc shaped land on the indexable inserts ensures additional stability in the bore - Available in monoblock and modular design - Six to eight times faster than turning tools
<p>Page 270</p>	<p>Page 276</p>	<p>Page 282</p>



Standard programme



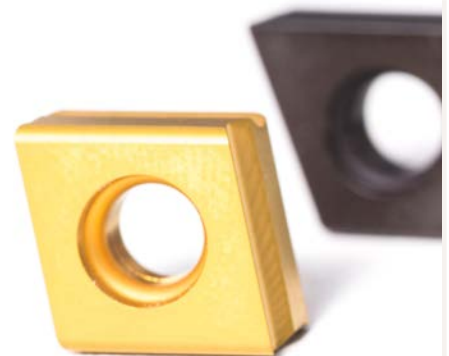
ModuBore

- Diameter range from 6 to 1000 mm
- High flexibility due to modular construction
- Large diameter ranges can be machined using one tool
- Internal coolant supply for optimum chip removal
- Available with fine adjustment feature (ModuBore-Plus)
- Face side serration guaranteed a stable, high-performance system
- Variant with ISO cartridges for machining larger diameter



Cartridges

- High flexibility due to quick, straightforward interchangeability
- Adjusting feature with long adjustment travel
- Compatible with all common ISO indexable inserts
- Suitable for both external and internal machining operations
- Available in different installation variants
- Also available as compact cartridge with shorter length



ISO indexable inserts

- Broad range of radial and tangential indexable inserts
- The range covers ground, highly accurate indexable inserts in tolerance class H to the sintered indexable inserts in tolerance class M
- Large selection of cutting materials for almost every application
- Tipped variants with PCD and PcBN for highly cost-effective machining of aluminium or cast iron

CUSTOM SOLUTIONS FOR BORING USING PCD TOOLS

Custom solutions with PCD cutting edges are the first choice if it is necessary to machine large quantities of aluminium and die cast aluminium parts reliably and cost-effectively. By using modern CNC controllers and laser technology, today it is possible to manufacture just about any cutting geometry reliably – and that with manufacturing tolerances from $\leq 3 \mu\text{m}$ on the tool diameter. The combination of several machining operations in one tool is particularly worthwhile. The saving in tools and reduction of non-productive times increases the cost-effectiveness in production. The manufacture of a stepped bore on which

all chamfers and radii are machined is solved using a PCD boring tool with several steps. In this way the concentricity of the individual steps is guaranteed. The machining of axial recesses or spot facing of contact surfaces can also be solved cost-effectively using one drilling tool. Flatness requirements or angular accuracies can be achieved much more easily than with conventional turning or circular movements, as there are no radial forces acting on the workpiece.



Polycrystalline diamond – PCD

PCD is very important for machining aluminium, non-ferrous metals and increasingly also CFRP and other modern workpiece materials. At approx. 1,500 °C and a pressure of approx. 60 kbar, synthetic diamond particles are subjected to a sintering process together with a carbide substrate. The result: a cutting material with the hardness and wear resistance of diamond, the hardest mineral on Earth. The carbide substrate gives the cutting material the necessary ductility and in daily machining provides the best prerequisites for brazing the cutting edges to a suitable carrier.

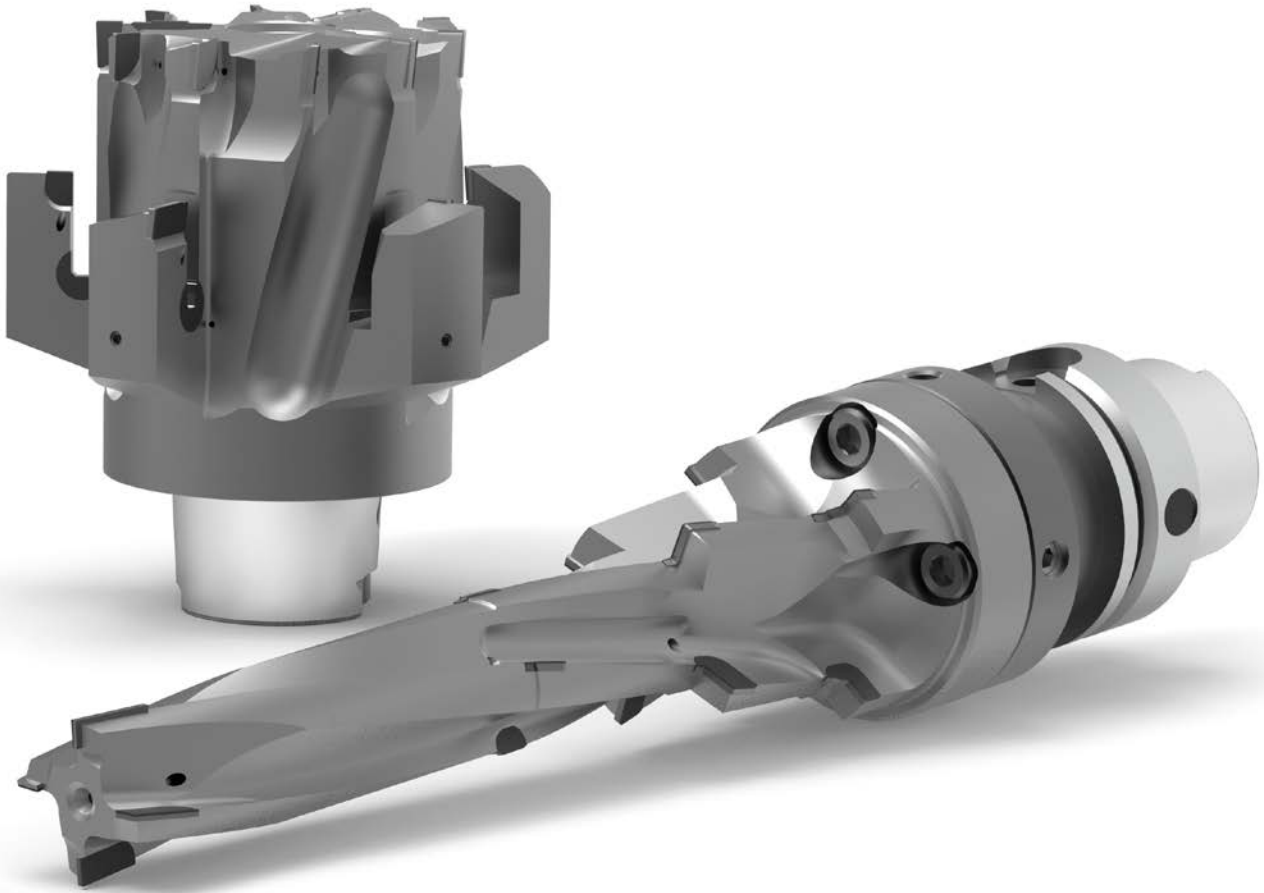
Competence centre PCD

With an annual manufacturing capacity of 120,000 PCD tools, the MAPAL competence centre for PCD tools in Pforzheim is the world's leading development and production facility for PCD tools. High quality standard in conjunction with highly qualified staff guarantee first-class production results. Due to the usage of the latest manufacturing technology as well as the usage of laser technology, it is possible to realise reliably almost any cutting edge geometry.

Highest precision

The PCD cutting edges ground to the μm stand for the highest precision. Manufacturing tolerances from $\leq 3 \mu\text{m}$ for the tool diameter are reliably achieved. Highest machining quality is guaranteed for dimensions, surface finish and shape. Laser machined chip guiding stages, chip breakers and chip formers make possible optimal chip removal and prevent chip congestion. The modular design ensures the highest radial run-out accuracy. Due to axial and radial adjustment features the radial run-out can be adjusted precisely and reliably.





Complex geometries

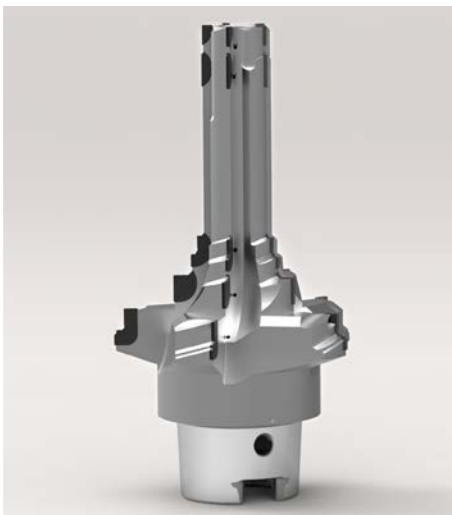
The usage of laser machining makes possible the precise manufacture of highly complex cutting edge geometries as well the realisation of extreme rake and helix angles. Twisted PCD boring tools have crucial advantages over their straight-fluted equivalents. They make possible extremely short machining times and very high machining quality. Highly positive rake angles reduce the cutting forces required. This aspect is very important on machining delicate or unstable parts and in unstable clamping systems.

Innovative solutions

Development of reliable solutions based on the latest machining strategies such as minimum quantity lubrication (MQL) for example. The number of process steps is reduced and the non-productive times shortened by the usage of combination tools. PCD boring tools with several steps guarantee the concentricity of stepped bores. Precisely embedded PCD segments that are matched exactly to the related step geometry ensure outstanding results in relation to quality and productivity.

Reconditioning

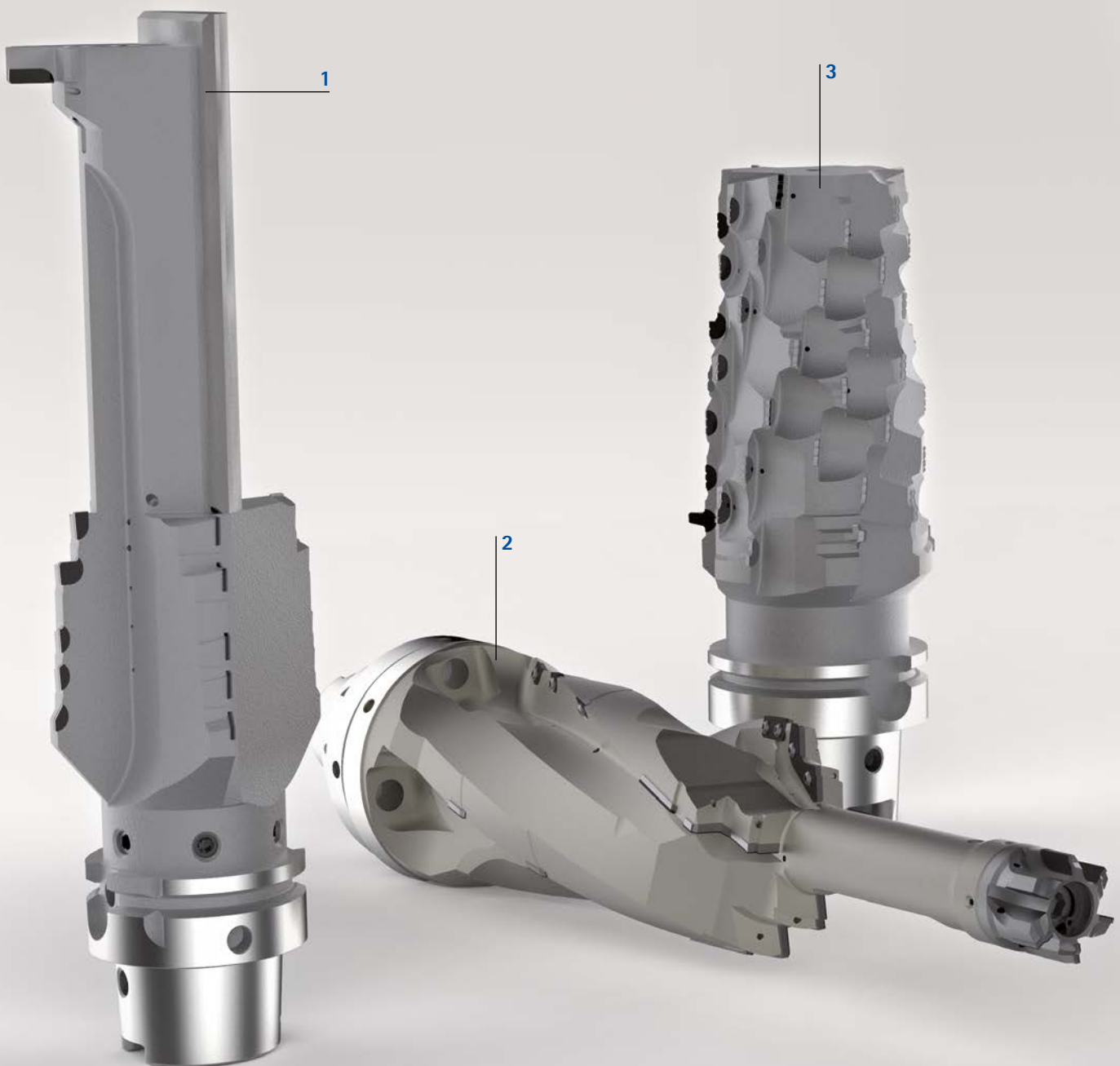
With each reconditioning the service life of the PCD boring tools is significantly increased and costs for new tools saved. The customer receives tools that can be used immediately for the trouble-free achievement of the tool lives already familiar. The tools are collected from and delivered to the customer by courier. The standardised process ensures straightforward, fast processing within a few days.

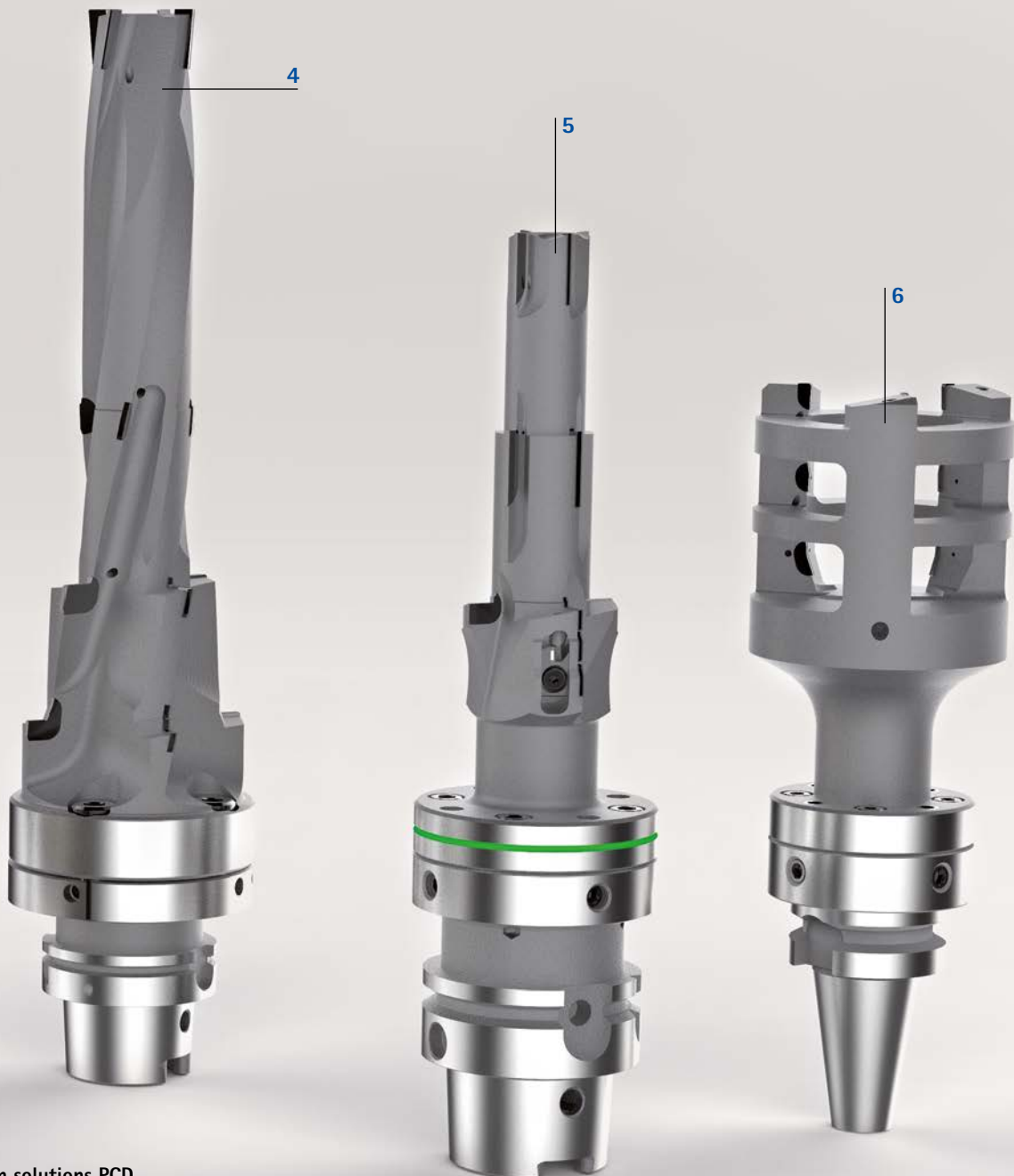


CUSTOM SOLUTIONS (1/2)

Innovative tool concepts with PCD

MAPAL manufactures twisted PCD tools with crucial advantages compared to straight-fluted tools. The tools can be flexibly designed to the process, for example for minimum quantity lubrication. HSK designs and modular systems that can be aligned ensure optimal results.



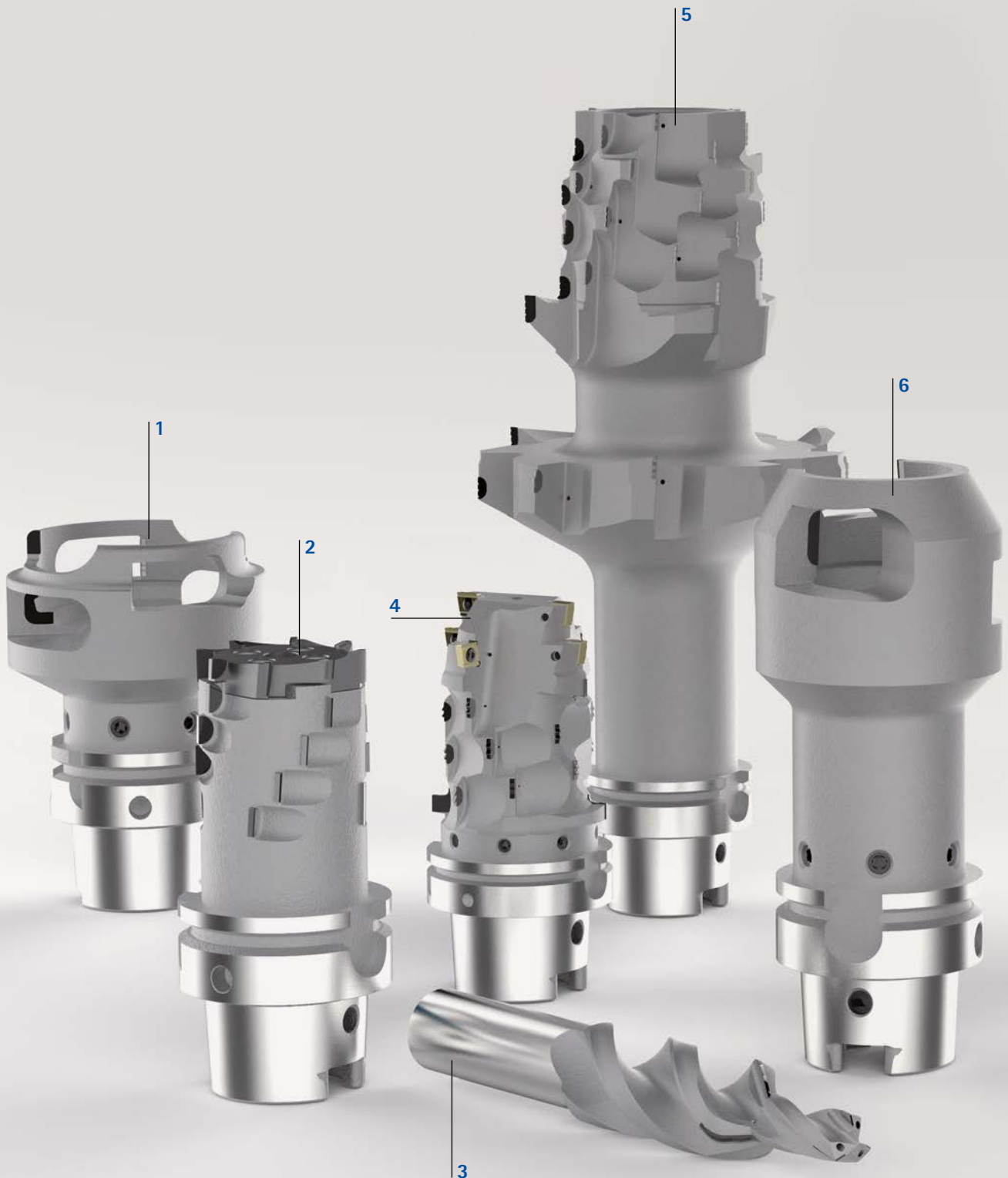


Custom solutions PCD

- 1 Step drilling tool with adjustable and interchangeable reverse machining for machining a differential housing made of aluminium
- 2 Multi-stage boring tool for machining a steering gear box / steering rack tube made of AISi9Cu3 with titanium tool body with a tool weight of only 5.5 kg despite extreme dimensions. With this tool very high cutting values are possible
- 3 Custom PCD milling tool with several milling applications in one tool
- 4 Twisted step boring tool for machining a steering gear box made of AISi9Cu3 with module interface that can be aligned. Due to the twisted design, very soft cut and mechanical chip conveying
- 5 Step boring tool for machining a bearing bore with integrated fine adjustment feature for the pilot on a camshaft bore in a cylinder head cover made of AISi9Cu3Fe for a process with minimum quantity lubrication
- 6 Boring tool of lightweight design for machining a compressor baseplate made of AISiO3Cu3. Due to the low tool weight very high cutting values are possible and the load on the spindle is reduced

CUSTOM SOLUTIONS (2/2)

Innovative tool concepts with PCD





Custom solutions PCD

- 1 Circular application for duct machining for a throttle valve. High stability of the carrier due to laser machined cutting edges, as a consequence very high machining quality
- 2 Combination tool with replaceable disc. The primary load on the milling cutter is during face milling, for this reason the front cutting edge area has been designed as an interchangeable "disc" to keep the repair costs low
- 3 Twisted step drilling tools for machining the bolt bore in an alloy wheel with Z=3 for higher machining quality and tool lives
- 4 Combination drilling-milling tool with PCD insert and ISO indexable inserts made of carbide for machining a rear frame made of AISiMg0.3. The cutting edges with the most load are designed so they are interchangeable, as these machine the raw cast iron and are therefore subject to the most load
- 5 Custom PCD milling tool for gearbox machining with several machining operations in one tool
- 6 Circular milling cutter for machining a thermostat housing made of AL380. The number of cutting edges is 1+1+1. Version for even higher machining quality due to more stable design
- 7 Step boring tool for internal and external machining on a gearbox housing made of AISi9Cu3Mg
- 8 Multi-stage PCD boring tool for "one-shot machining" on an electric motor housing made of AISi9Cu3Fe of hollow design for weight reduction

CUSTOM SOLUTIONS FOR BORING USING ISO TOOLS

During the planning of new machining processes as well as the optimisation of existing processes, the focus is on the assessment of the machining time and the Cost Per Part (CPP). By means of intelligent, multi-stage, multi-cutting edge ISO combination tools or complete machining tools, both the productive times and the non-productive times can be significantly reduced. Here the design of intelligent tool solutions is not limited to just the ISO area. To prepare a solution that is optimal for the customer, different machining systems are combined into so-called hybrid tools.

ISO tools from MAPAL meet both the requirement for process reliability and the requirement for straightforward handling – with intelligent and precise adapter solutions along with reliable, quick indexable insert mounting. The reliable principle of operation of MAPAL ISO tools is ensured by the latest design methods that make it possible to assess collisions or to determine tool restrictions even during the planning phase. Production in the latest manufacturing facilities guarantees maximum tool precision.



Process solutions

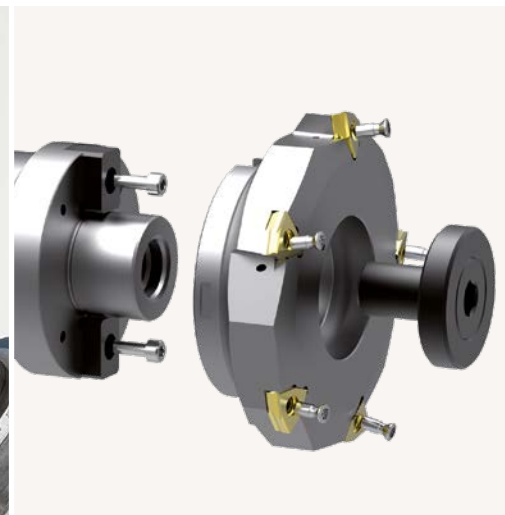
To reduce productive and non-productive times simultaneously, MAPAL offers particularly high-performance complete machining tools. Reduced cycle times, lower energy consumption and the related higher cost-effectiveness are the result. Among the success stories of processes optimised by MAPAL specialists there are some applications where it was possible to save up to 60% of the machining time.

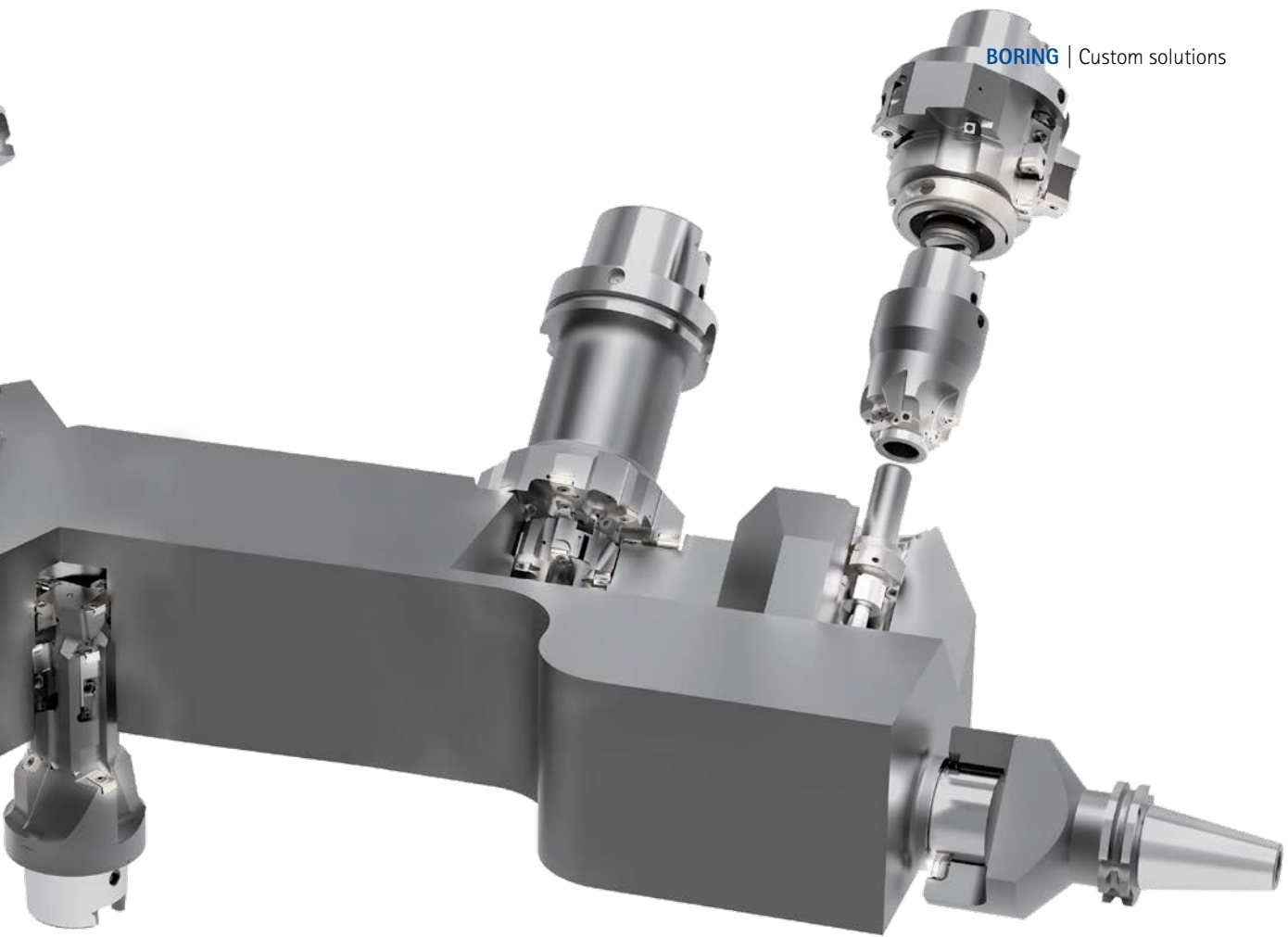
Design and production

The latest 3D design and computer-aided studies make it possible to develop and design complex tangential tools. The data on the insert seats and chip spaces exactly defined in this manner and other machining tasks are sent via a CAM interface to the controller for high-accuracy, high-performance 5-axis machining centres. In this way MAPAL ISO tools are produced with monitoring and control by experienced staff. Highly accurate manufacturing tolerances are required and met. This aspect guarantees a real multi-cutting edge capability and the high performance of the tools.

Modular construction

The modular design of ISO combination tools makes it possible to machine entire part families with a few tools as only one part of the tool must be replaced. By using connections, for instance a highly accurate HSK-C connection, particularly complex tools can be constructed. More machining steps are combined into one tool and the productivity increased further.





Tangential technology

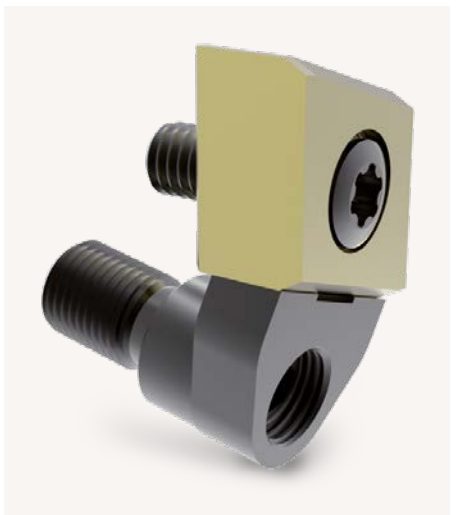
Crucial for the high performance of the MAPAL ISO tools is tangential technology. Compared to the usage of radially mounted indexable inserts, this technology permits the usage of more cutting edges with the same power consumption. As such, higher machining values and a higher machining volume are possible. Tangential tools also feature very smooth running. As a result excellent tool lives and very good part qualities are achieved.

Cutting edges

In the area of ISO boring and milling tools MAPAL offers a wide selection of geometries and cutting materials. Due to the comprehensive programme it is ensured that the right cutting edge can be used for every application. Along with the different shapes and sizes, this programme also includes cutting materials such as carbide, ceramic and PCD or PcBN-tipped indexable inserts. This variety has a positive effect on cost-effectiveness and the efficiency of the usage of resources. As depending on the application, up to eight cutting edges on the indexable inserts ensure that the cutting material is optimally utilised.

Exact adjustment

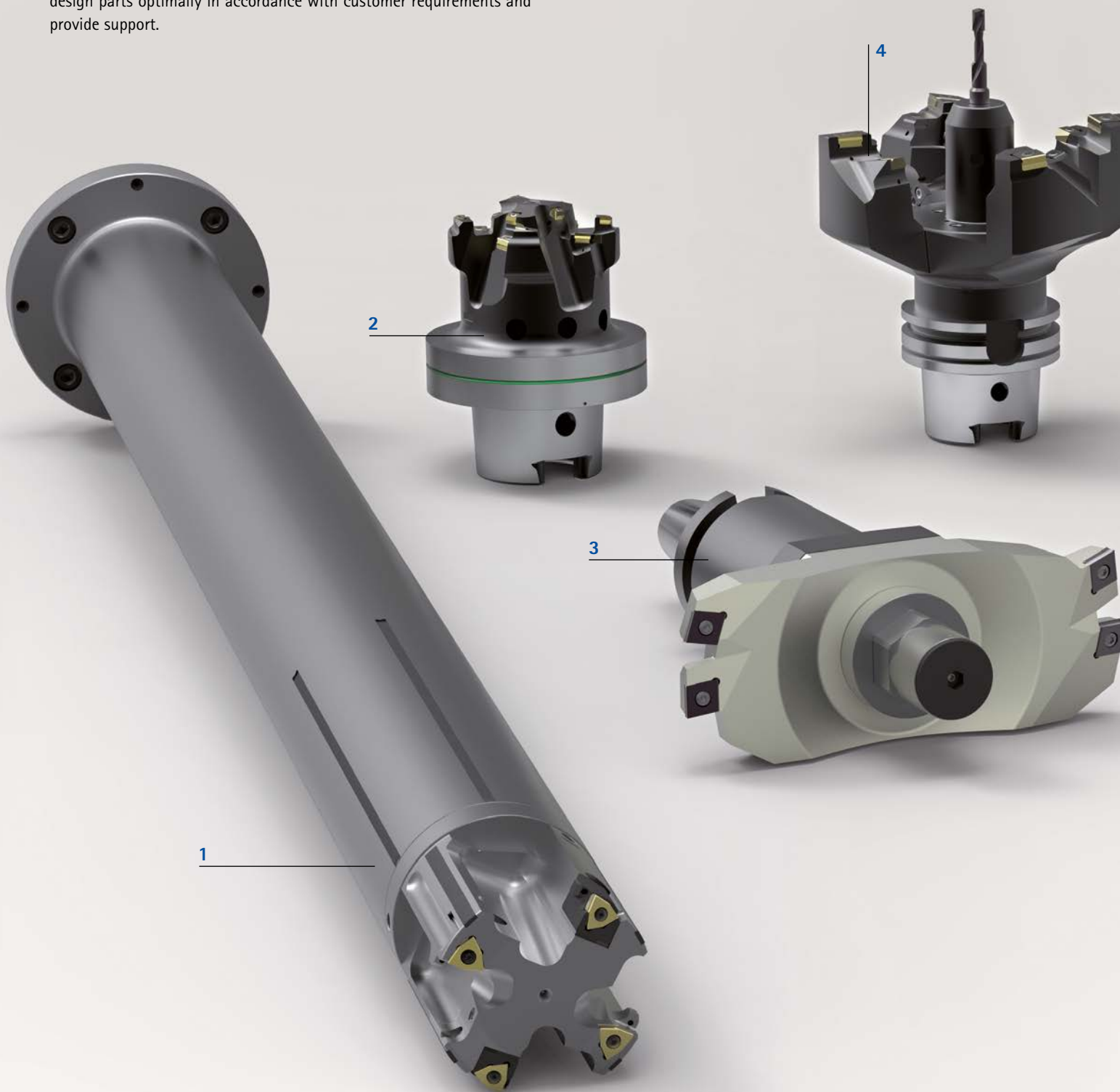
For the cases in which high-accuracy indexable inserts and precision milled insert seats are insufficient for the required accuracy, MAPAL uses an adjustment system specially developed for ISO inserts. Here the insert sits on an adjusting wedge with a large contact area. This feature is completely embedded in the tool body and as a result offers the indexable insert a stable seat. The adjusting wedge has an angled surface and can be moved using a left-hand - right-hand adjusting screw. This design produces an indirect, very accurate and easy to use setting feature.



CUSTOM SOLUTIONS (1/2)

Innovative tool concepts with ISO indexable inserts

MAPAL ISO tools unfold their possibilities particularly in the context of complete projects in which they are able to deliver significant advantages due to the combinations and high productivity. Together with tailored services and the complete tool package, MAPAL is able to design parts optimally in accordance with customer requirements and provide support.





Custom tools for boring

- 1 Tool with guide pad technology for optimal support on machining a spindle on a rotary table machine with a length of over 1000 mm
- 2 Tangential construction makes possible the complete countersinking of the shaped contour on a rotor bore in a turbocharger made of highly heat-resistant materials using minimum quantity lubrication
- 3 Machining the rotor bore in a compressor housing made of EN-GJL-250 with vibration damper on the face side
- 4 ISO combination tool with solid carbide insertion drill for brake bracket mounting and for multi-step machining of a hub carrier made of EN-GJS-500-7
- 5 Special tool for steering knuckle manufacture for roughing and semi-machining, incl. edge breaking and recess milling and additional insertion drill
- 6 Ultra lightweight combination tool with tool body parts made of CFRP, radial and tangential indexable inserts for machining the main train in a gearbox housing made of aluminium alloy with a silicon content between 7-9 %
- 7 Combination tool for the multi-stage machining a heavy-duty gearbox made of EN-GJL-300

CUSTOM SOLUTIONS (2/2)

Innovative tool concepts with ISO indexable inserts





Custom tools for boring

- 1 Multifunctional ISO combination tool of modular construction machines, as well as the complete contour on the output side from the inside, the contour of the protective tube side opposite
- 2 ISO combination tool of monolithic construction for machining an automotive suspension arm. Four work steps, roughing and fine machining the bore as well as milling the front and rear including chamfer machining are undertaken in one process with this tool
- 3 Special tool with spring-loaded guide pads for roughing the main bearing bore and the face surface as well as the external machining of an automotive stub axle made of 38MnVs6 with interrupted cut at the bore outlet
- 4 Special tool for roughing and pre-machining the piston rod guide on a juice press made of S355J0. The spring-loaded guide pads dampen and guide the tool over the entire machining length of 3000 mm
- 5 Tool with spring-loaded guide pads for roughing and pre-machining the piston bore with a length of 6xD on a large hydraulic valve in EN-GJS-500-7 while maintaining the concentricity to an existing bore in opposite direction



Spring-loaded guide pads

Spring-loaded guide pads are a tool concept that makes the machining of bores with medium to large diameters and long projection lengths significantly more productive and above all more reliable compared to spindle and turning tools. Spring-loaded guide pads make possible smooth machining and high cutting values. The spring-loaded guide pads are positioned such that the resulting spring force ensures that the fixed guide pads lie perfectly against the material of the bore and support the tool. This guarantees smooth machining even with fluctuating stock removals or wear of the inserts. Very good bore qualities are achieved even with high cutting values.





TSW BORING TOOLS WITH ISO INDEXABLE INSERTS

ISO boring tools

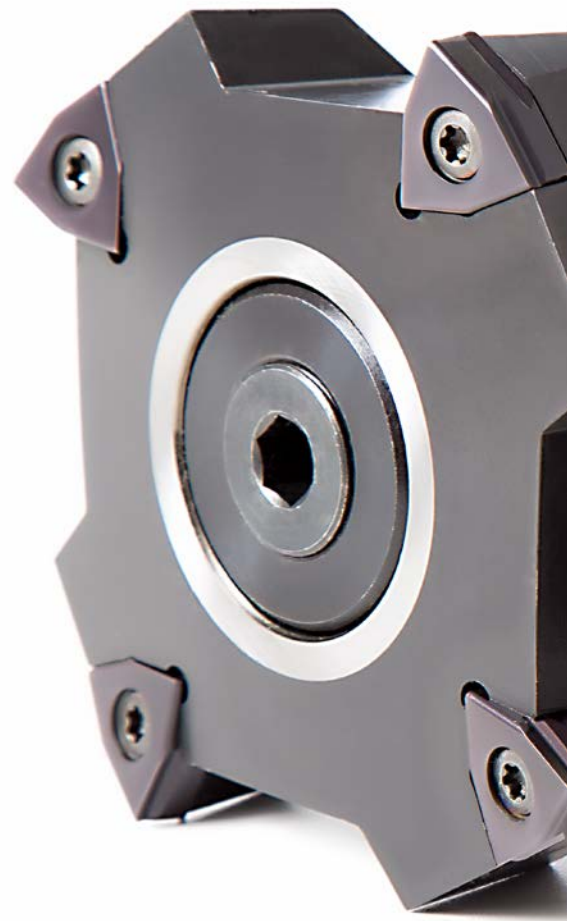
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Accessories and spare parts	296

TANGENTIAL ROUGHING TOOLS TSW

New standards for stability and performance

The MAPAL tangential roughing tools set standards in relation to stability and performance, particularly with higher stock removal. An innovative, six-cutting edge indexable insert with special support arc shaped land prevents chatter and vibration.

Perfect multi-cutting edge capability with increased stability is ensured by the tangential installation of the indexable inserts in precision insert seats on the front face.



Series TSW 101/111 and TSW 201/211

The ground clamping geometry combined with the tangential installation position on the face of the tool body results in a highly positive rake angle and therefore a soft cut and very quiet tool cutting behaviour. This property is further assisted by an arc shaped land, which supports the tool in the bore like an arc land chamfer on reamers.

Along with the excellent cutting behaviour of the tangential roughing tools, the necessary drive power required is also reduced, as the machining forces are comparatively low. As

such the tools can also be used on machines with lower torques. It is, however, much more important that, with the same drive power, it is possible to fit more cutting edges to the tools, so that the feeds are increased and machining times drastically reduced.

The diameter range of the tools for the standard range is 37 - 280 mm; larger diameters are also possible as a custom solution. Two insert sizes available in different substrates cover the entire diameter range.

The TSW are available in a monoblock design and as a modular system for larger diameters. The TSW tools are also designed with two different contact angles on the insert seats. The contact angle is 0° on the TSW 101/201 tools for blind bores and 10° on the TSW 111/211 tools for through bores.

FEATURES

- Six-cutting edge tangential indexable insert
- Soft cutting behaviour
- Reduced drive power
- High cutting depths
- Six to eight times faster than turning tools

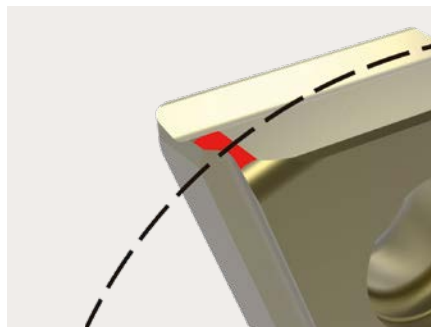


Tangential indexable inserts



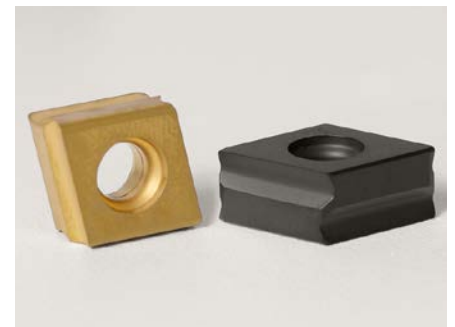
For tangential roughing tools MAPAL offers highly accurate indexable inserts in the tolerance class H. In combination with the exactly manufactured insert seats it is ensured that deviations between the cutting edges are reduced to a minimum. This means all inserts are in use at the same time. The result is a significant increase in performance. The indexable insert has six cutting edges for high cost-effectiveness. The indexable inserts in tolerance class H are available in numerous different geometries and with different cutting materials and coatings.

Best machining results due to arc shaped land



Due to the normal clearance angle on ISO indexable inserts there is only limited support for the tool during bore machining. Tools then tend to vibration; this vibration degrades the surface finish and tool life achieved. To counteract this problem, MAPAL developed the arc shaped land. This special geometry is a support surface on the cutting edge that supports the tool in the bore and is comparable to an arc land chamfer on fixed reamers.

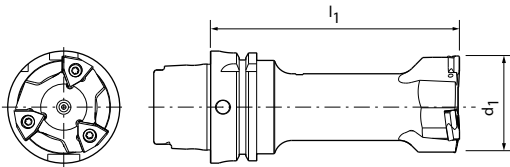
CVD coating



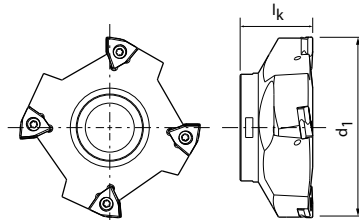
With the new CVD coating it has been possible to combine the previously contradictory parameters of high ductility and high hardness. The new CVD-coated cutting materials, which can be found in the tables for the indexable inserts, only differ in the carbide used. A common feature is the new α -aluminium oxide coating with very good coating adhesion. The new cutting materials permit machining with significantly higher cutting speeds.

Model key

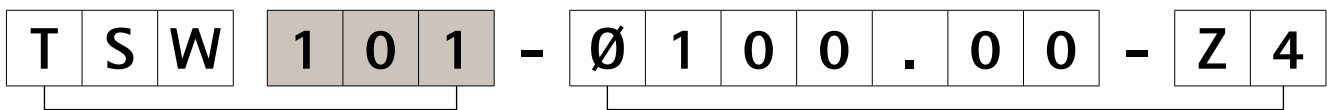
Tools: TSW monoblock | TSW roughing heads



TSW 101 and 111



TSW 201 and 211



Tool type

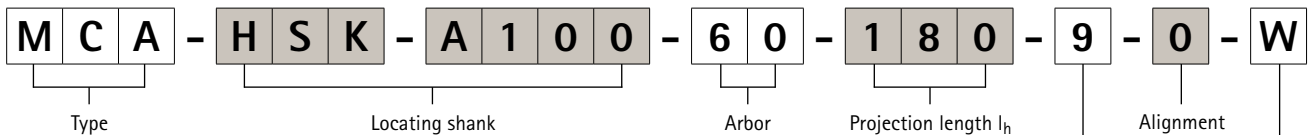
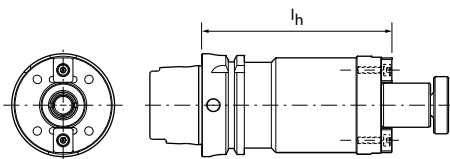
Tool diameter d_1 and number of cutting edges

TSW 101 + 111	TSW 201 + 211
Monoblock design	Modular design
TSW 101 = 0° contact angle for blind bores and bores with shoulders	TSW 201 = 0° contact angle for blind bores and bores with shoulders
TSW 111 = 10° contact angle for through bores	TSW 211 = 10° contact angle for through bores

TSW 101 + 111	
Diameter d_1	Number of teeth
37.00 - 40.40	Z = 2
40.50 - 59.40	Z = 3
59.50 - 74.40	Z = 3
74.50 - 104.40	Z = 4
104.50 - 120.00	Z = 5

TSW 201 + 211	
Diameter d_1	Number of teeth
59.50 - 74.40	Z = 3
74.50 - 89.40	Z = 4
89.50 - 104.40	Z = 4
104.50 - 119.40	Z = 5
119.50 - 174.40	Z = 5
174.50 - 280.00	Z = 5

Tool holder: TSW 201 and 211



MCA	Arbor	HSK-A	Hollow shank taper Form A
		HSK-C	Hollow shank taper Form C
		SK	Steep taper in accordance with ISO 7388-1 Form AD/AF

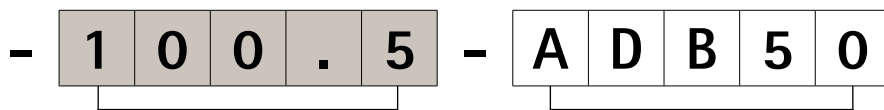
Arbor diameter

Nominal length of the arbor

0	Without alignment
---	-------------------

9	Custom (not specified)
---	------------------------

W	Without length adjustment
---	---------------------------

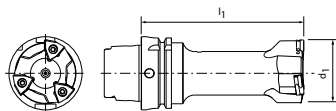


Tool length

TSW 101 + 111	TSW 201 + 211
l_1 = Can be configured as per length-diameter diagram	$l_k = 40.0$

Shank form

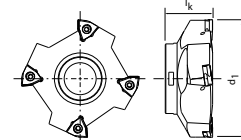
TSW monoblock



TSW 101 + 111		
Connection	Size	Model
HSK-C	63	C63
HSK-C	80	C80
HSK-C	100	C100
HSK-A	63	A63
HSK-A	80	A80
HSK-A	100	A100
SK-AD/AF	40	AD/AF40
SK-AD/AF	50	AD/AF50

Tool adapter

TSW roughing heads



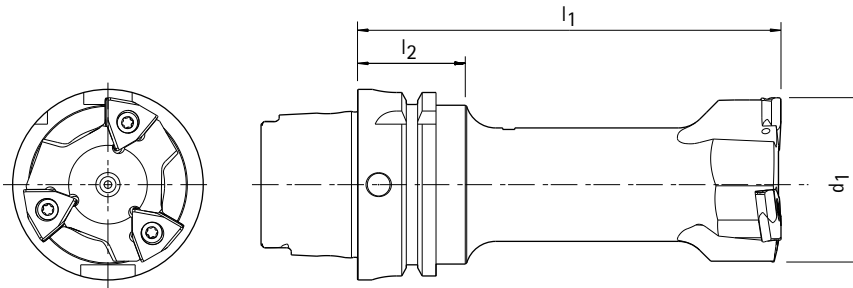
TSW 201 + 211			
Connection	ϕ range	Arbor diameter	Model
Arbor bore	59.50 - 74.40	ϕ 18	D18
	74.50 - 89.40	ϕ 22	D22
	89.50 - 119.40	ϕ 27	D27
	119.50 - 174.40	ϕ 40	D40
	175.50 - 280.00	ϕ 60	D60

TSW 101 – tangential roughing tools


Monoblock design

Contact angle 0°

For blind bores and bores with shoulders



Machine connection HSK

d ₁	Number of cutting edges	HSK	Tool lengths						Indexable insert 	TORX® screw Order No.
			l ₂		l _{1 min}		l _{1 max.}			
			HSK-A	HSK-C	HSK-A	HSK-C	HSK-A	HSK-C		
37.00 - 40.40	2	63	47	20	55	50	See diagram Page 452	WTHQ 0705 L00B026 Page 394	TX15-M4x11 10018468	
		80	47	25	55	55				
		100	55	30	70	70				
40.50 - 59.40	3	63	47	20	60	50				
		80	47	25	55	55				
		100	55	30	65	65				
59.50 - 74.40	3	63	47	20	65	50	See diagram Page 452	WTHQ 0906 L00B041 Page 394	TX20-M5x13 10105084	
		80	47	25	60	55				
		100	55	30	60	65				
74.50 - 104.40	4	63	47	20	75	55				
		80	47	25	70	55				
		100	55	30	70	65				
104.50 - 120.00	5	80	47	25	75	60				
		100	55	30	75	65				

Further dimensions and lengths on request.

Dimensions in mm.

Please note: If the collar diameter at l₂ is smaller than d₁, it is also to be taken into account in the machining length.

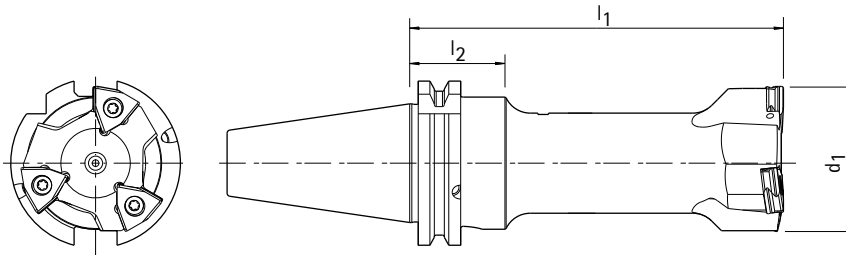
For notes on configuration and ordering see page 452.

TSW 101 – tangential roughing tools


Monoblock design

Contact angle 0°

For blind bores and bores with shoulders



Machine connection SK

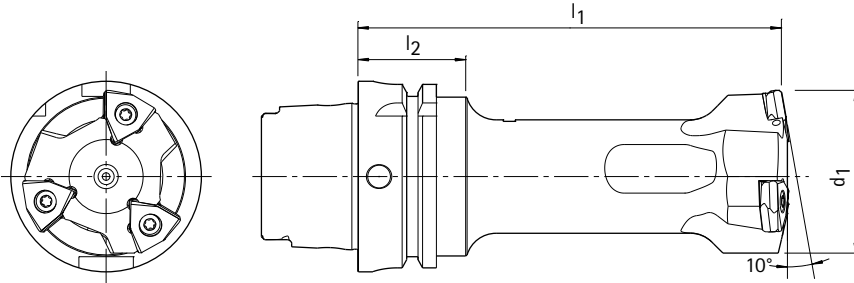
d ₁	Number of cutting edges	SK	Tool lengths			Indexable insert 	TORX® screw Order No.
			l ₂ SK-AD / SK-AF	l ₁ min SK-AD / SK-AF	l ₁ max. SK-AD / SK-AF		
37.00 - 40.40	2	40	40	50	See diagram Page 452	WTHQ 0705 L00B026 Page 394	TX15-M4x11 10018468
		50	45	60			
40.50 - 59.40	3	40	40	55	See diagram Page 452	WTHQ 0906 L00B041 Page 394	TX20-M5x13 10105084
		50	45	60			
59.50 - 74.40	3	40	40	60	See diagram Page 452	WTHQ 0906 L00B041 Page 394	TX20-M5x13 10105084
		50	45	50			
74.50 - 104.40	4	40	40	70	See diagram Page 452	WTHQ 0906 L00B041 Page 394	TX20-M5x13 10105084
		50	45	60			
104.50 - 120.00	5	40	40	75	See diagram Page 452	WTHQ 0906 L00B041 Page 394	TX20-M5x13 10105084
		50	45	65			

Further dimensions and lengths on request.
Dimensions in mm.







Please note: If the collar diameter at l₂ is smaller than d₁, it is also to be taken into account in the machining length.
For notes on configuration and ordering see page 452.

TSW 111 - tangential roughing tools

Monoblock design
Contact angle 10 °
For through bores



Machine connection HSK

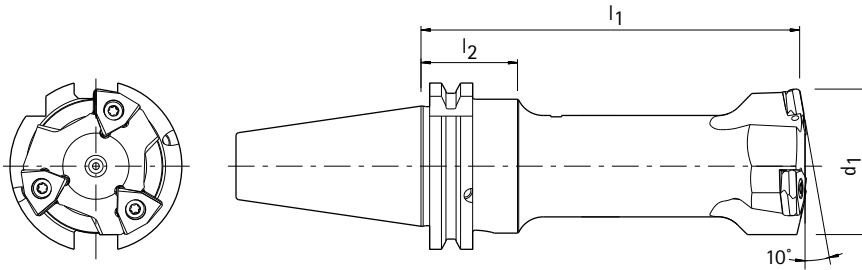
d ₁	Number of cutting edges	HSK	Tool lengths						Indexable insert 	TORX® screw Order No.		
			l ₂		l _{1 min}		l _{1 max.}					
			HSK-A	HSK-C	HSK-A	HSK-C	HSK-A	HSK-C				
37.00 - 40.40	2	63	47	20	55	50	See diagram Page 452		TX15-M4x11 10018468			
		80	47	25	55	55						
		100	55	30	70	70						
40.50 - 59.40	3	63	47	20	60	50				See diagram Page 452		TX20-M5x13 10105084
		80	47	25	55	55						
		100	55	30	65	65						
59.50 - 74.40	3	63	47	20	65	50	See diagram Page 452		TX20-M5x13 10105084			
		80	47	25	60	55						
		100	55	30	60	65						
74.50 - 104.40	4	63	47	20	75	55				See diagram Page 452		TX20-M5x13 10105084
		80	47	25	70	55						
		100	55	30	70	65						
104.50 - 120.00	5	80	47	25	75	60	See diagram Page 452		TX20-M5x13 10105084			
		100	55	30	75	65						

Further dimensions and lengths on request.
Dimensions in mm.


Please note: If the collar diameter at l₂ is smaller than d₁, it is also to be taken into account in the machining length.
For notes on configuration and ordering see page 452.

TSW 111 - tangential roughing tools

Monoblock design
Contact angle 10 °
For through bores



Machine connection SK

d ₁	Number of cutting edges	SK	Tool lengths			Indexable insert 	TORX® screw Order No.
			l ₂ SK-AD / SK-AF	l ₁ min SK-AD / SK-AF	l ₁ max. SK-AD / SK-AF		
37.00 - 40.40	2	40	40	50	See diagram Page 452	WTHQ 0705 L10B026 Page 396	TX15-M4x11 10018468
		50	45	60			
40.50 - 59.40	3	40	40	55	See diagram Page 452	WTHQ 0906 L10B041 Page 396	TX20-M5x13 10105084
		50	45	60			
59.50 - 74.40	3	40	40	60	See diagram Page 452	WTHQ 0906 L10B041 Page 396	TX20-M5x13 10105084
		50	45	50			
74.50 - 104.40	4	40	40	70	See diagram Page 452	WTHQ 0906 L10B041 Page 396	TX20-M5x13 10105084
		50	45	60			
104.50 - 120.00	5	40	40	75	See diagram Page 452	WTHQ 0906 L10B041 Page 396	TX20-M5x13 10105084
		50	45	65			

Further dimensions and lengths on request.
Dimensions in mm.

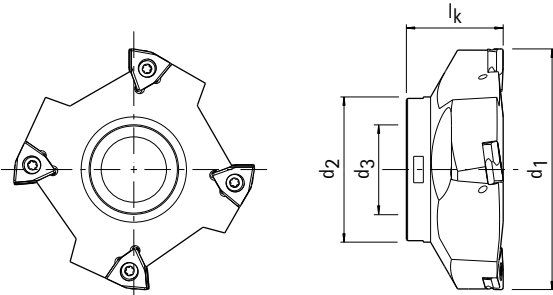
Please note: If the collar diameter at l₂ is smaller than d₁, it is also to be taken into account in the machining length.
For notes on configuration and ordering see page 452.


TSW 201 – tangential roughing heads

Modular design

Contact angle 0°

For blind bores and bores with shoulders



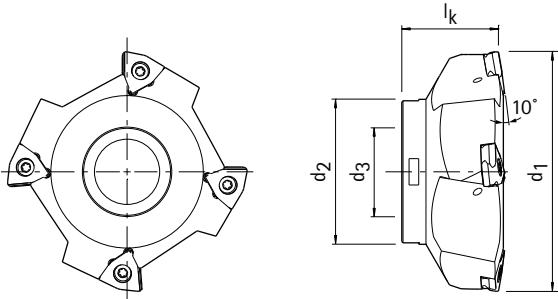
d ₁	Number of cutting edges	d ₃	l _k	d ₂	Indexable insert 	TORX® screw Order No.
59.50 - 74.40	3	18	40	39	WTHQ 0906 L00B041 Page 394	10105084
74.50 - 89.40	4	22		50		
89.50 - 104.40	4	27		60		
104.50 - 119.40	5	27		60		
119.50 - 174.40	5	40		89		
174.50 - 280.00	5	60	40	140	WTHQ 0906 L00B081 Page 394	10105084


Further dimensions and lengths on request.
Dimensions in mm.

For notes on configuration and ordering see page 452.

TSW 211 - tangential roughing heads

Modular design
Contact angle 10 °
For through bores

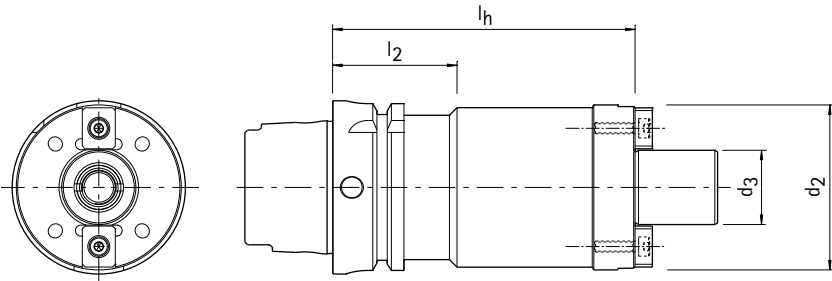


d_1	Number of cutting edges	d_3	l_k	d_2	Indexable insert 	TORX® screw Order No.
59.50 - 74.40	3	18	40	39	WTHQ 0906 L10B041 Page 396	10105084
74.50 - 89.40	4	22		50		
89.50 - 104.40	4	27		60		
104.50 - 119.40	5	27		60		
119.50 - 174.40	5	40		89		
174.50 - 280.00	5	60	40	140	WTHQ 0906 L10B081 Page 396	10105084

Further dimensions and lengths on request.
Dimensions in mm.

For notes on configuration and ordering see page 452.

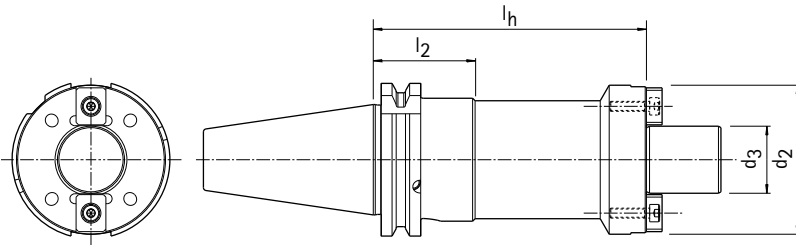
TSW 201 and 211 – tool holders for tangential roughing heads



Machine connection HSK (DIN 69893-1)

For tool \varnothing	d_2	d_3	HSK	Tool holder lengths					
				l_2		$l_{h \text{ min.}}$		$l_{h \text{ max.}}$	
				HSK-A	HSK-C	HSK-A	HSK-C	HSK-A	HSK-C
59,50 - 74,40	39	18	63	47	20	70	60	200	160
			80	47	25	70	60	250	210
			100	55	30	70	60	300	260
74,50 - 89,40	50	22	63	47	20	65	50	200	160
			80	47	25	70	55	250	210
			100	55	30	70	55	300	260
89,50 - 119,40	60	27	80	47	25	70	55	250	210
			100	55	30	70	55	300	260
119,50 - 174,40	89	40	80	47	25	85	70	250	210
			100	55	30	85	70	250	210
174,50 - 280,00	140	60	100	55	30	95	80	250	210

TSW 201 and 211 – tool holders for tangential roughing heads

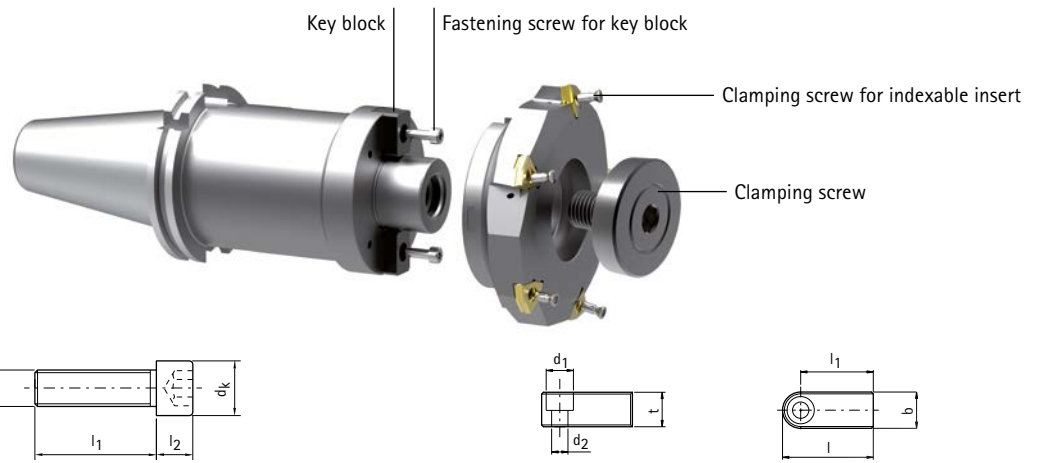


Machine connection SK (ISO 7388-1 Form AD/AF)

For tool \varnothing	d_2	d_3	SK	Tool holder lengths		
				l_2 SK-AD / SK-AF	l_h min. SK-AD / SK-AF	l_h max. SK-AD / SK-AF
59,50 - 74,40	39	18	40	40	50	160
			50	45	50	210
74,50 - 89,40	50	22	40	40	50	160
			50	45	50	210
89,50 - 119,40	60	27	40	40	–	–
			50	45	55	210
119,50 - 174,40	89	40	40	40	–	–
			50	45	65	210
174,50 - 280,00	140	60	40	40	–	–
			50	45	85	210

Accessories and spare parts

Tangential roughing tools TSW

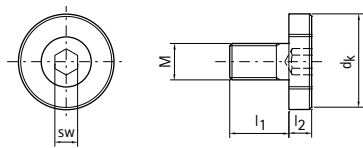


Clamping screw

Dimensions						Comments	Order No.
d*	M	dk	l ₁	l ₂	Wrench size		
Clamping screw ISO 4762							
18	M12	18	40	12	10	-	10003678

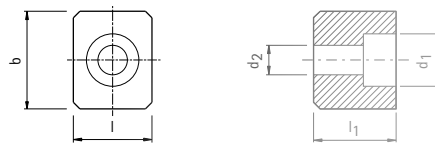
Key block

Dimensions						Order No.
l	b	t	d ₁	d ₂	l ₁	
Key block						
25.0	10.0	9.5	7.5	4.5	20	30273452



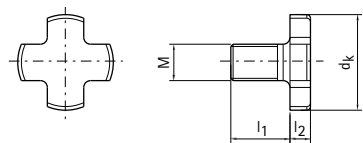
Clamping screw ISO 4762

27	M12	35	22	31	8	-	10006125
40	M20	52	30	41	12	-	10006126



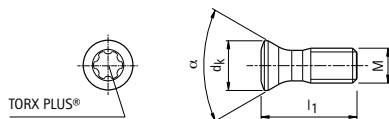
Key block

13.0	10.0	11.2	8.0	4.5	-	10005640
14.9	12.0	12.6	8.0	4.5	-	10005165
23.0	16.0	16.0	10.0	5.5	-	10004064
26.5	25.4	25.0	19.0	13	-	10010103



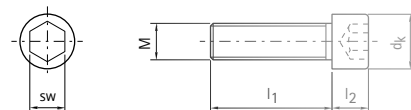
Clamping screw DIN 6367

60	M30	75	45	59	-	-	10017544
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Clamping screw for indexable insert (TORX PLUS®)

Indexable insert size	Dimensions					Order No.
	dk	M	l ₁	TX	α	
0705...	5.7	M4	11	15IP	60	10018468
0906...	6.8	M5	13	20IP	60	10105084



Fastening screw for key block ISO 4762

Dimensions					Order No.
M	dk	l ₁	l ₂	Wrench size	
M4	7.0	10.0	4.0	3	10003583
M4	7.0	16.0	4.0	3	10003586
M5	8.5	16.0	5.0	4	10003601
M12	18.0	25.0	12.0	10	10003675

d* = Arbor diameter.
Dimensions in mm.

Clamping screw for highest clamping force and safety



AT A GLANCE

- TSW with tool holder
- Higher cutting force during machining
- High torques

ADVANTAGES

- Very high clamping force
- Greater safety due to the different pitch on the two threads on the threaded bolt
- Self-locking
- No risk of injury due to slipping wrench
- Higher cost-effectiveness thanks to greater radial and axial run-out accuracy

Note:

Turn threaded bolt until it protrudes 2 mm in relation to the threaded ring.
Only to be used by trained personnel.

TorqueVario®-STplus T-handle torque wrench kit 11-piece set



Model: 5-14 Nm

Items included	Features	Order No.
<ul style="list-style-type: none"> - 1 T-handle torque wrench - 1 Torque-Tplus Setter - 1 universal bit holder 1/4" - 3 TORX® standard bits T25x25 / T30x25 / T40x25 - 3 hex standard bits 4.0x25 / 5.0x25 / 6.0x25 - 2 adapter bits for the sockets <ul style="list-style-type: none"> 1 Torque-Tplus adapter bit 1/4" 1 Torque-Tplus adapter bit 3/8" - Delivery in stable metal box 	<ul style="list-style-type: none"> - Accuracy ± 6%, can be traced to national standards - Numeric torque value indication on window scale - Torque continuously adjustable - Comfortable T-key with soft zones - Click signal on reaching the torque set 	<p>30415173</p>

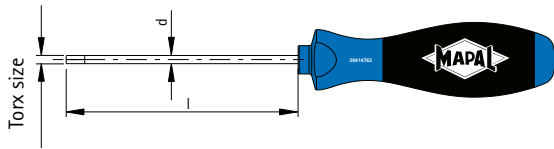
TorqueVario®-S torque screwdriver set 13-piece set



Model: 1-5 Nm

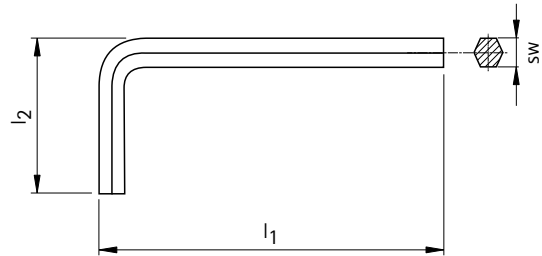
Items included	Features	Order No.
<ul style="list-style-type: none"> - 1 TorqueVario-S torque screwdriver - 1 Torque setter - 1 universal bit holder 1/4" - 5 TORX® standard bits T7x25 / T8x25 / T9x25 / T10x25 / T15x25 - 5 TORX PLUS® standard bits 7IPx25 / 8IPx25 / 9IPx25 / 10IPx25 / 15IPx25 - Delivery in stable metal box 	<ul style="list-style-type: none"> - Accuracy ± 6%, can be traced to national standards - Numeric torque value indication on window scale - Torque continuously adjustable - Ergonomic multiple component handle - Click signal on reaching the torque set 	<p>30415174</p>

Screwdriver



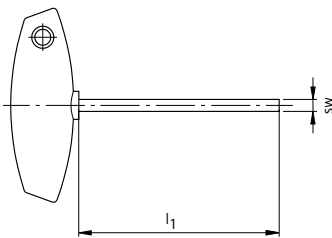
Screwdriver

Dimensions			Model	Order No.
l	d	Torx size		
60	3,5	6IP	TORX PLUS®	30414758
60	3,5	7IP		30414759
60	3,5	8IP		30414760
60	4	9IP		30414761
80	4	10IP		30414763
80	4	15IP		30414764
100	4	20IP		30414766
100	4,5	25IP		30414767
60	3,5	8	TORX®	10019467
80	4	15		10019469



Hexagonal wrench

Dimensions			Model	Order No.
l ₁	l ₂	Wrench size		
46,5	15,5	1,5	ISO2936-X	10004870
52	18	2		10004356



Hexagonal T-key

Wrench size	Short design			Long design	
	l ₁	Specification	Order No.	l ₁	Order No.
2,5	100	-	10006233	200	10032722
3	100	MN5221-31	10006234	200	10025313
4	100	MN5221-32	10006235	200	10018010
5	100	MN5221-33	10006236	200	10013350
6	100	MN5221-34	10006237	-	-
8	100	MN5221-35	10006238	-	-
10	100	-	30353270	-	-
12	-	-	-	200	30353272





ModulBore

High flexibility during boring and fine boring

With the boring programme ModulBore, MAPAL offers a complete system for pre-machining and finishing bores in the diameter range from 6 to 1,000 mm.

Thanks to its modular structure, the system is very flexible and can be configured for the specific machining operation. Double edge boring tools are available for roughing; these tools are very stable and have high performance due to a face side serration on which the insert holders are mounted. The usage of indexable inserts with positive basic geometry, helical chip spaces as well as internal coolant supply ensure a broad range of applications, a high level of work safety and straightforward handling.

The programme includes ModulBore fine boring heads from a diameter of 6 mm. They feature high precision and robust construction, are straightforward to handle and also have internal coolant supply. The fine adjustment of the heads in either adjusting direction is very accurate without "stick-slip effect".

ModulBore

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System overview	306
ModulBore - boring	308
ModulBore - fine boring	315
Adapters	324

ModulBore – boring

Ø 22 – 115 mm

Twin cutting edge tool with ModulBore System (MBS) in seven dimensions for indexable insert holders (indexable insert cassettes).

Ø 87 – 202 mm

Boring heads as bridge construction. Distributed over five bridges for indexable insert holders (indexable insert cassettes).

Ø 200 – 520 mm

Boring heads as bridge construction. Distributed over four bridges for equipping with slides for commercially available ISO cartridges.

Ø 358 – 1,000 mm

Boring heads as bridge construction (large boring range). Distributed over eight bridges for equipping with slides for commercially available ISO cartridges.



* Required order quantity: 2 pieces

Boring tools



Twin cutting edge tool with MBS

For roughing in the diameter range from 22 - 115 mm, double edge boring tools are available. Due to a serration on the face side on which the indexable insert holders are mounted, the system is very stable and effective. The usage of indexable inserts with positive basic geometry, helical chip spaces as well as internal coolant supply ensure a broad range of applications, a high level of work safety and straightforward handling.

The twin cutting edge tools are available both as a modular tool, and as monoblock tool with HSK or SK connection.

* Required order quantity: 2 pieces



Boring heads with bridge module and ISO cartridges

The boring heads with bridge module are available in the range from 87 - 1,000 mm. From a diameter of 200 mm the bridge modules are equipped with ISO cartridges that are mounted on slides with serration on the face side on the bridges. For weight optimisation, the bridge modules are made of aluminium in the diameter range from 358 - 1,000 mm.

ModulBore – fine boring

Ø 10 – 28 mm

Fine boring heads with boring bar.

Ø 87 – 202 mm

Fine boring heads as bridge construction. Distributed over four bridges for equipping with slides for ModulBore fine boring cartridges.

Ø 200 – 520 mm

Fine boring heads as bridge construction. Distributed over four bridges for equipping with slides for ModulBore fine boring cartridges.

Ø 358 – 1,000 mm

Fine boring heads as bridge construction (large boring range). Distributed over eight bridges for equipping with slides for ModulBore fine boring cartridges.



Fine boring tools



Fine boring head with boring bar

The ModulBore fine boring heads are available from a diameter of 6 mm. They feature high precision and robust construction, are straightforward to handle and also have internal coolant supply. The fine adjustment of the heads in either adjusting direction is very accurate without "stick-slip effect".

The fine boring heads are available both as a modular tool, and as monoblock tool with HSK or SK connection.



Fine boring heads with bridge module and fine boring cartridge

From a diameter of 87 mm the fine boring heads are designed with a bridge module. On the bridge module there are slides that are equipped with adjustable fine boring cartridges. For larger diameters the bridge tools are designed with one cutting edge. The slide opposite is used to compensate for the imbalance. For weight optimisation, the bridge modules are made of aluminium in the diameter range from 358 – 1,000 mm.

ModulBore-Plus - fine boring

The ModulBore-Plus tools with fine adjustment feature a simple, precise adjusting mechanism. This makes possible defined, error-free feed directly on the machine using a standard Torx wrench. The high accuracy and simple handling reduce the non-productive time during fine boring, increase the quality and increase the productivity.

MODULBORE-PLUS

- **Fine adjustment feature:**
2 µm per graduation mark referred to the diameter
- **Reversing error:**
< 2 µm

ADVANTAGES

- Error-free reading (vernier not required)
- Free of stick-slip
- Low maintenance
- Easy to install
- Durable and robust: three-year guarantee

Fine boring bar

The ModulBore-Plus fine boring bar is suitable for usage in series production and large-scale series production and provides maximum tool lives at the same time.

Fine boring head

The reliable ModulBore-Plus fine boring head is suitable for fine boring from prototype manufacture to large-scale series production. The additional coarse adjusting unit gives the drill head a variable action radius of up to 9 mm. The complete range permits bore machining operations for diameters from 21 - 115 mm.

Fine boring cartridges

The ModulBore-Plus fine boring cartridges are suitable for usage in single or multiple cutting edge custom tools or in fine boring bridges for the large boring area. They do not require adjustment to the machine spindle.

ModulBore-Plus tool systems

Fine boring bar ø 14 - 23 mm



Fine boring head ø 21 - 115 mm

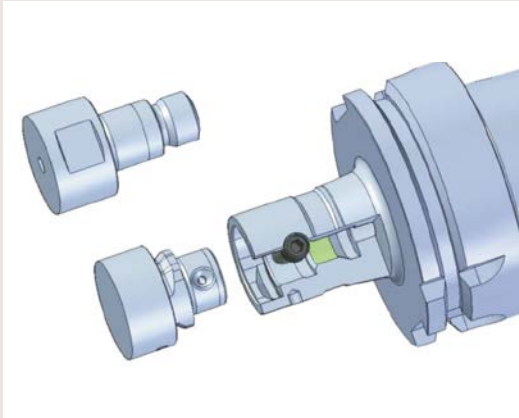


Fine boring cartridges



ModulBore – adapters

MBS connection



The MBS connection is the central feature of the ModulBore system. High torques are transmitted by the bayonet coupling, which forms a cylinder-face connection. Two radial clamping screws make it possible to preload the coupling and rotate the tool in both directions.

ADVANTAGES

- Simple handling, straightforward assembly and disassembly
- Highly precise bayonet coupling and cutting edge orientation
- High radial run-out accuracy due to face connection
- Internal coolant supply via the connection to the cutting edge
- Compatible with Starflex RFX

MBS adapter



The MBS adapters offer the possibility of adapting from the connection on the machine to the MBS connection. In this way the comprehensive ModulBore programme can be utilised without limitation. The common connections such as hollow shank taper (HSK), various steep tapers and KM are included in the standard programme in a large number of nominal sizes and nominal lengths. MBS extensions and reducers further increase the flexibility of the system. Other adapters can be manufactured as custom tools.

Milling cutter arbors



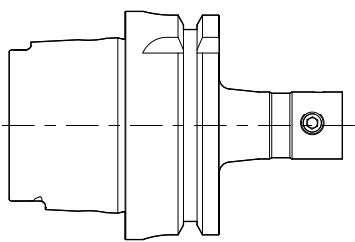
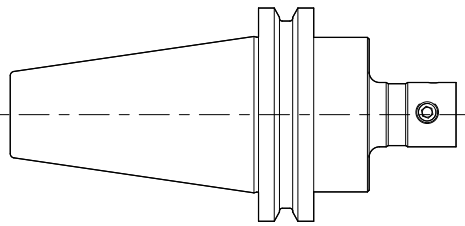
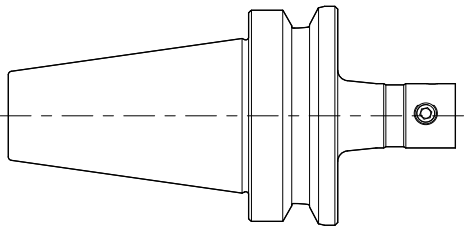
The combined milling cutter arbor/cross slot arbors are the basis for a large number of variations of the ModulBore bridge tools. The standard programme covers the common connections such as hollow shank taper (HSK), various steep tapers and MBS in a large number of nominal sizes and nominal lengths. In addition, other machine connections such as KM in accordance with DIN ISO 26622 as a combined milling cutter arbor can be equipped with the bridge tools.

ModulBore - system overview

ModulBore | Adapters

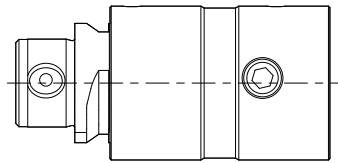
MBS adapter

Page 330 - 333



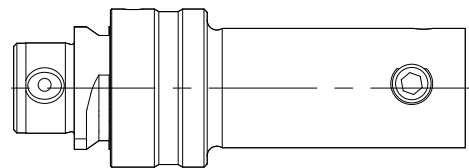
MBS extensions

Page 328



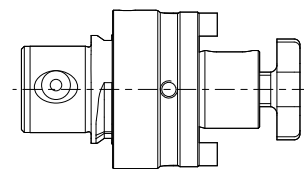
MBS reducers

Page 329



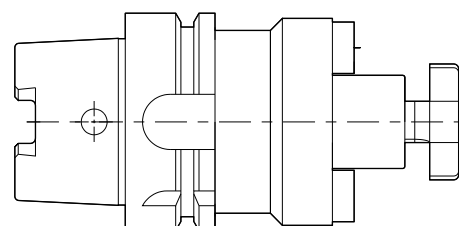
MBS cross slot arbors

Page 324



Milling cutter arbors

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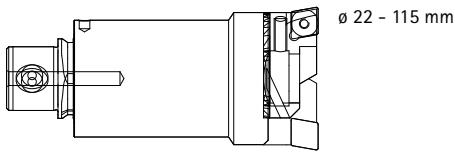
▶ MBS connection

▶ Milling cutter arbor

ModulBore | Boring

Twin cutting edge tool with MBS

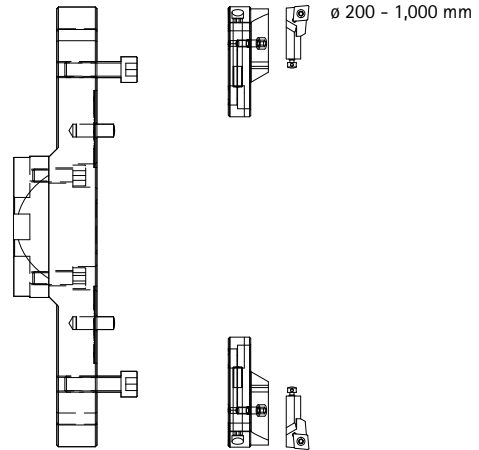
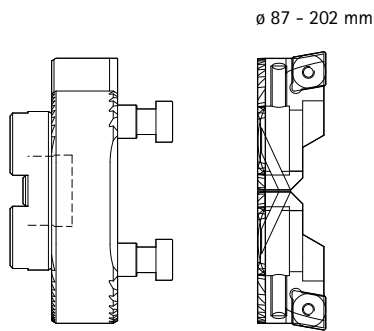
Page 308/309



Also available as Monoblock tool!

Boring head with bridge module

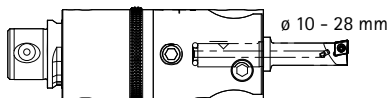
Page 310 - 314



ModulBore | Fine boring

ModulBore - fine boring head with MBS

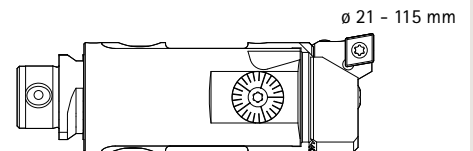
Page 315/316



Also available as monoblock tool with HSK/SK connection!

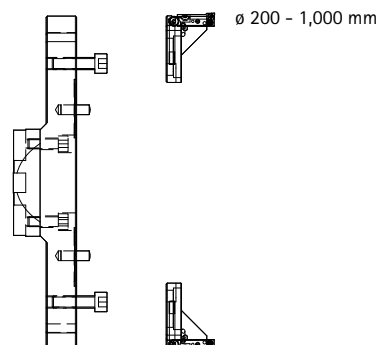
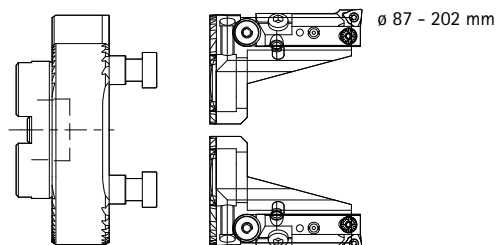
ModulBore-Plus fine boring head with MBS

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ModulBore fine boring head with bridge module

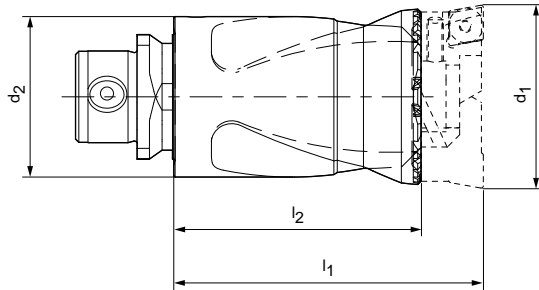
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ModulBore - twin cutting edge tools with MBS

Boring tool for roughing

Ø 22 - 115 mm



Tool bodies without indexable insert cassettes

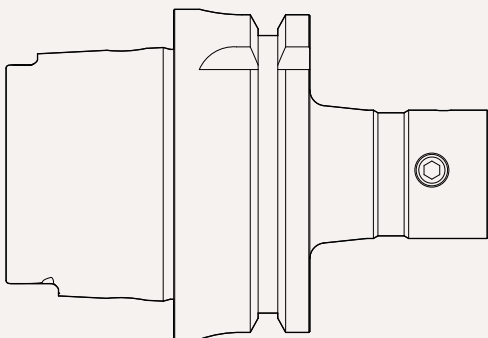
d ₁ min. - max.	d ₂ MBS size	l ₁	l ₂	Wrench size	Weight kg	Specification	Order No.
22 - 30	18,5	40	27,7	17	0,2	MBO100-022030-Z2-MBS185	30415217
30 - 39	24,5	50	37,7	22	0,2	MBO100-030039-Z2-MBS254	30415218
39 - 50	32	65	48,7	27	0,5	MBO100-039050-Z2-MBS320	30415219
50 - 67	42	90	68,2	36	1	MBO100-050067-Z2-MBS420	30415220
67 - 88	55	115	90,7	46	2	MBO100-067088-Z2-MBS550	30415221
88 - 115	72	150	113,7	60	4,5	MBO100-088115-Z2-MBS720	30415222

Example

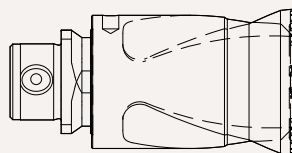
System overview - twin cutting edge tool with MBS

Ø 22 - 115 mm

MBS adapter



Twin cutting edge tool with MBS

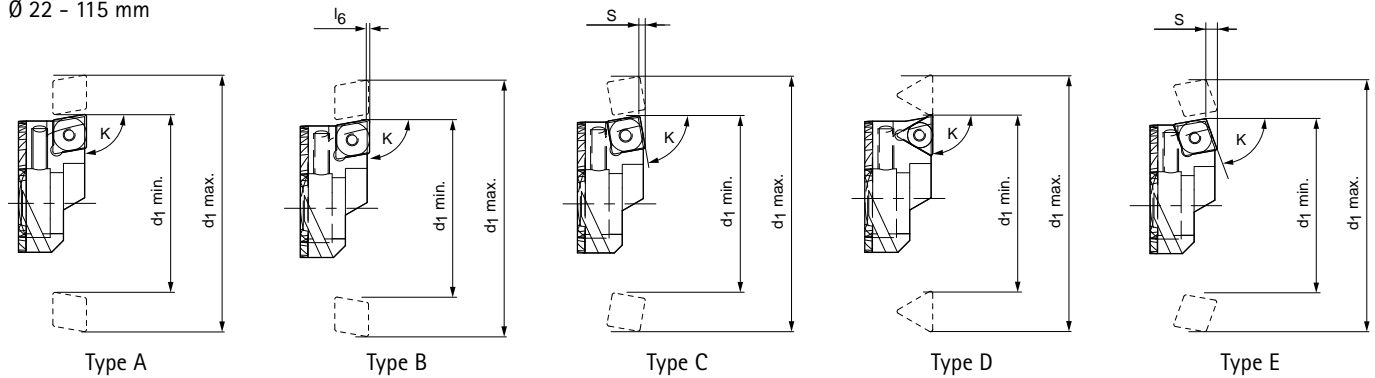


Indexable insert cassettes
(insert holders)



ModulBore - indexable insert cassettes for twin cutting edge tools

Ø 22 - 115 mm



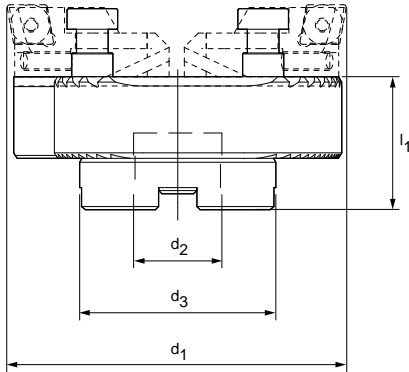
d_1 min. - max.	Type	K	Height offset l_6	S	Indexable insert	Specification	Order No.
22 - 30	A	90°			CC/CP.. 0602	IC-MBO100-022030-A90-C_06	30415185
	B	90°	0,3		CC/CP.. 0602	IC-MBO100-022030-B90-C_06	30415186
	E	70°		2	CC/CP.. 0602	IC-MBO100-022030-E70-C_06	30415187
30 - 39	A	90°			CC/CP.. 0602	IC-MBO100-030039-A90-C_06	30415188
	B	90°	0,3		CC/CP.. 0602	IC-MBO100-030039-B90-C_06	30415189
	C	80°		2	SP.. 0703	IC-MBO100-030039-C80-S_07	30415190
	E	70°		2	CC/CP.. 0602	IC-MBO100-030039-E70-C_06	30415191
35 - 50	A	90°			CC/CP.. 09T3	IC-MBO100-039050-A90-C_09	30415192
	B	90°	0,3		CC/CP.. 09T3	IC-MBO100-039050-B90-C_09	30415193
	C	80°		1,5	SC/SP.. 09T3	IC-MBO100-039050-C80-S_09	30415194
	D	90°			TC/TP.. 09T3	IC-MBO100-039050-D90-T_09	30415195
	E	70°		3,1	CC/CP.. 09T3	IC-MBO100-039050-E70-C_09	30415196
50 - 67	A	90°			CC/CP.. 1204	IC-MBO100-050067-A90-C_12	30415197
	B	90°	0,3		CC/CP.. 1204	IC-MBO100-050067-B90-C_12	30415198
	C	80°		2,1	SC/SP.. 09T3	IC-MBO100-050067-C80-S_09	30415199
	D	90°			TC/TP.. 09T3	IC-MBO100-050067-D90-T_09	30415200
	E	70°		4,1	CC/CP.. 1204	IC-MBO100-050067-E70-C_12	30415201
67 - 88	A	90°			CC/CP.. 1204	IC-MBO100-067088-A90-C_12	30415202
	B	90°	0,3		CC/CP.. 1204	IC-MBO100-067088-B90-C_12	30415203
	C	80°		2,1	SC/SP.. 1204	IC-MBO100-067088-C80-S_12	30415204
	D	90°			TNM.. 16T3	IC-MBO100-067088-D90-T_16	30415205
	E	70°		4,1	CC/CP.. 1204	IC-MBO100-067088-E70-C_12	30415206
88 - 115	A	90°			CC/CP.. 1204	IC-MBO100-088115-A90-C_12	30415207
	B	90°	0,3		CC/CP.. 1204	IC-MBO100-088115-B90-C_12	30415208
	C	80°		2,5	SC/SP.. 1204	IC-MBO100-088115-C80-S_12	30415209
	D	90°			TNM.. 2204	IC-MBO100-088115-D90-T_22	30415210
	E	70°		4,1	CC/CP.. 1204	IC-MBO100-088115-E70-C_12	30415211

Required order quantity: 2 pieces

ModulBore - boring heads with bridge module

Boring tool for roughing

Ø 87 - 202 mm



Tool bodies without indexable insert cassettes

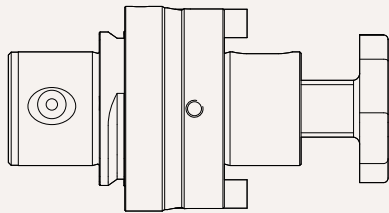
d_1 min. - max.	d_2	d_3	l_1	Weight kg	Specification	Order No.
87 - 110	27	61,5	42	1,7	MB0110-087110-Z2-CA27	30415224
109 - 133	27	61,5	42	1,9	MB0110-109133-Z2-CA27	30415225
132 - 156	27	62	42	2,1	MB0110-132156-Z2-CA27	30415226
155 - 179	27	62	42	2,3	MB0110-155179-Z2-CA27	30415227
178 - 202	27	62	42	2,5	MB0110-178202-Z2-CA27	30415228

Example

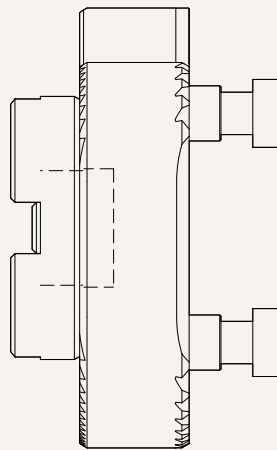
System overview - boring head with bridge module

Ø 87 - 202 mm

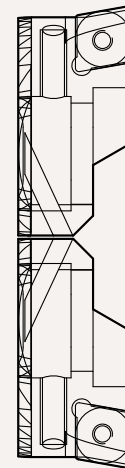
MBS adapter



Bridge module

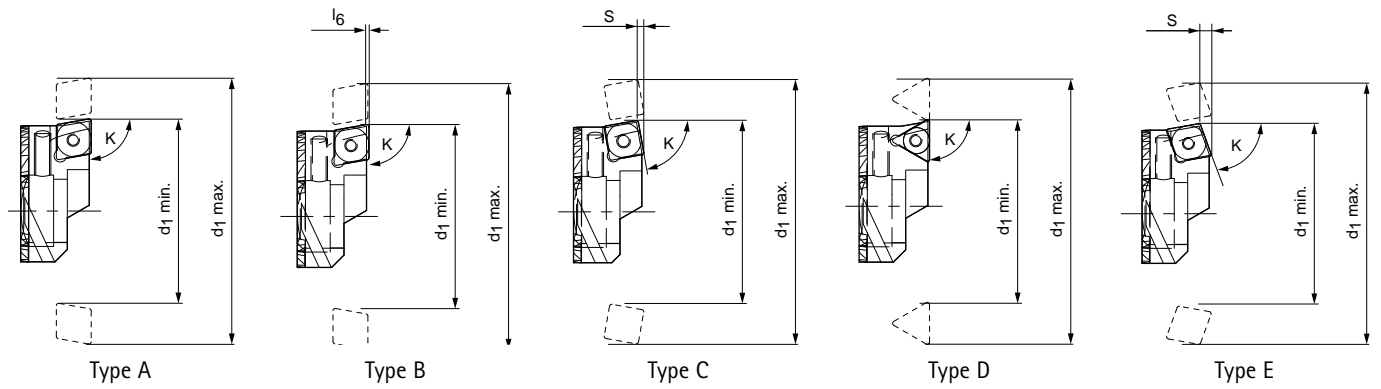


Indexable insert cassettes
(insert holders)



ModulBore - indexable insert cassettes for twin cutting edge tools

Ø 87 - 202 mm

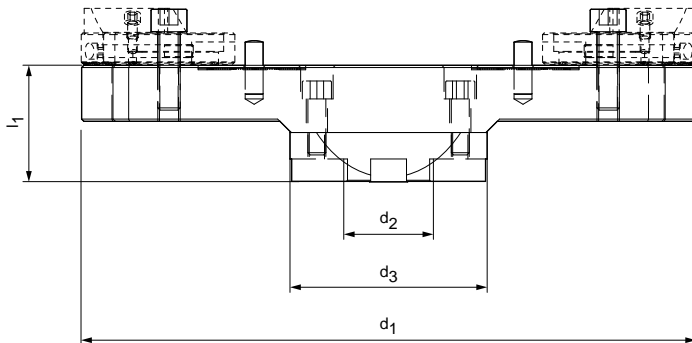


d_1 min. - max.	Type	K	Height offset l_6	S	Indexable insert	Specification	Order No.
87 - 202	A	90°			CC/CP.. 1204	IC-MBO100-067088-A90-C_12	30415202
	B	90°	0,3		CC/CP.. 1204	IC-MBO100-067088-B90-C_12	30415203
	C	80°		2,1	SC/SP.. 1204	IC-MBO100-067088-C80-S_12	30415204
	D	90°			TNM.. 16T3	IC-MBO100-067088-D90-T_16	30415205
	E	70°			CC/CP.. 1204	IC-MBO100-067088-E70-C_12	30415206

Required order quantity: 2 pieces

ModulBore – boring heads with bridge module

Boring tool for roughing, standard
 Ø 200 - 520 mm

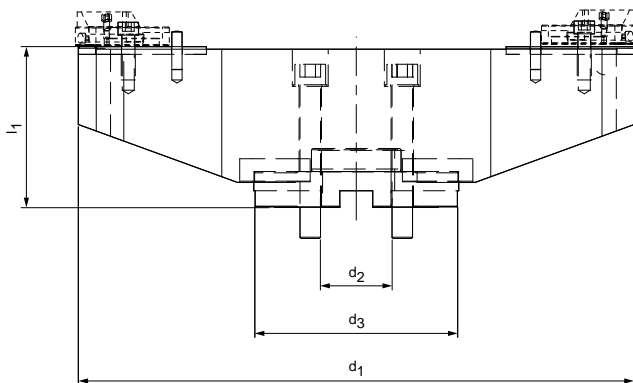


Bridge modules without slide or cartridge

d ₁ min. - max.	d ₂	d ₃	l ₁	Weight kg	Specification	Order No.
200 - 280	40	88	51	1,7	MB0120-200280-Z2-CA40	30415229
280 - 360	40	88	51	1,9	MB0120-280360-Z2-CA40	30415230
360 - 440	40	88	61	2,1	MB0120-360440-Z2-CA40	30415231
440 - 520	40	88	61	2,3	MB0120-440520-Z2-CA40	30415232

ModulBore – boring heads with bridge module

Boring tool for roughing, aluminium version
 Ø 358 - 1,000 mm

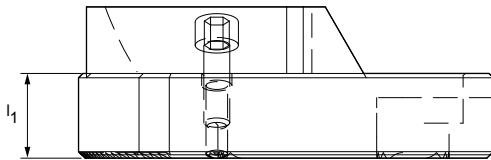


Bridge modules without slide or cartridge

d ₁ min. - max.	d ₂	d ₃	l ₁	Weight kg	Specification	Order No.
358 - 400	60	130	91	On request	MB0130-358440-Z2-CA60	30415233
438 - 520	60	130	126		MB0130-438520-Z2-CA60	30415234
518 - 600	60	130	126		MB0130-518600-Z2-CA60	30415235
598 - 680	60	130	126		MB0130-598680-Z2-CA60	30415236
678 - 760	60	130	126		MB0130-678760-Z2-CA60	30415237
758 - 840	60	130	126		MB0130-758840-Z2-CA60	30415238
838 - 920	60	130	126		MB0130-838920-Z2-CA60	30415239
918 - 1000	60	130	126		MB0130-918000-Z2-CA60	30415240

ModulBore – slides for ISO cartridges

Ø 200 - 1,000 mm

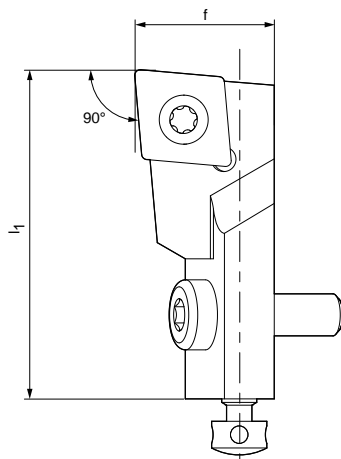


Bridge modules without slide or cartridge

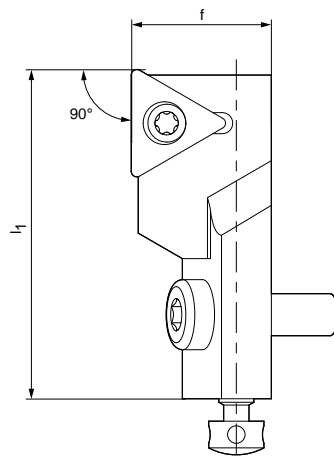
For tool ø d ₁	l ₁	Specification	Order No.
200 - 1.000	19,4	SL-MBO140-2001000	30415309

ModulBore – ISO cartridge

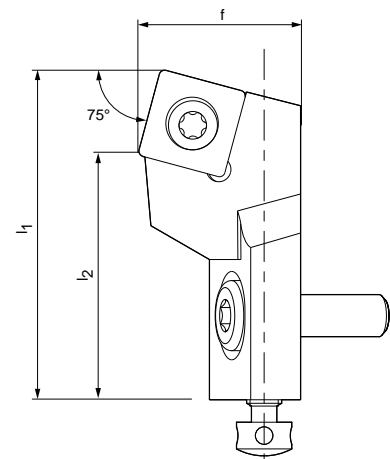
Ø 200 - 1,000 mm



Type A



Type B



Type C

Bridge modules without slide or cartridge

Type	f	l ₁	a	Indexable insert	Specification	Order No.		
SCG...	SCGCL 12 CA-12	CC__1204__	20	0,8	55	-	1	30011071
STG...	STGCL 12 CA-16	TC__16T3__	20	0,8	55	-	6	30011077
SSR...	SSRCL 12 CA-12	SC__1204__	20	0,8	55	43,5	1	30011103

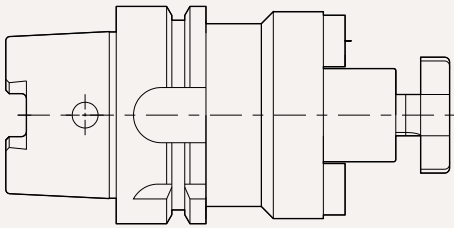
Dimensions in mm.

Example

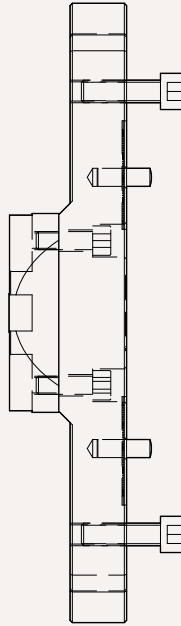
System overview - boring head with bridge module

Ø 200 - 1,000 mm

Adapter



Bridge module

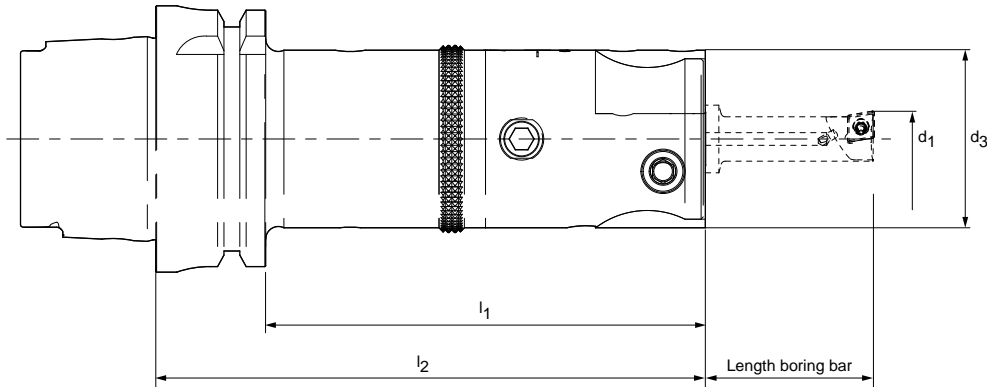


Slide + ISO cartridge



ModulBore - fine boring head

Turning tool for fine machining
 \varnothing 10 - 28 mm



Tool body without boring bar

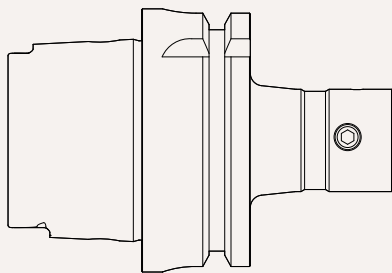
d_1 min. - max.	Shank	d_3	l_1	l_2	Weight kg	Specification	Order No.
10 - 28	MBS	42		95	1,1	MB0201-006028-Z1-MBS420	30415248
	MAS BT40	42	76	103	1,9	MB0201-006028-Z1-BT040	30415241
	SK40	42	84	103	1,8	MB0201-006028-Z1-SK040	30415249
	HSK-A40	42	110	130	1	MB0201-006028-Z1-HSK-A040	30415242
	HSK-A50	42	104	130	1	MB0201-006028-Z1-HSK-A050	30415243
	HSK-A63	42	104	130	1,2	MB0201-006028-Z1-HSK-A063	30415244
	HSK-A80	42	104	130	1,5	MB0201-006028-Z1-HSK-A080	30415245
	HSK-A100	42	101	130	1,8	MB0201-006028-Z1-HSK-A100	30415246
	KM40	42		100	1,1	MB0201-006028-Z1-KM40	30415247

Example

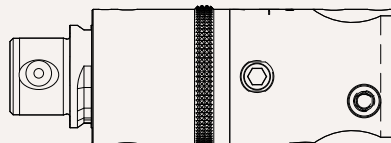
MBS system overview - fine boring heads

\varnothing 10 - 28 mm

Adapter



Fine boring head with MBS

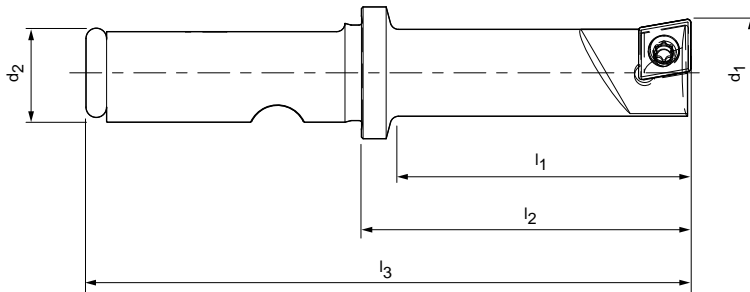


Boring bar



ModulBore – boring bars for fine boring head

Ø 10 - 28 mm



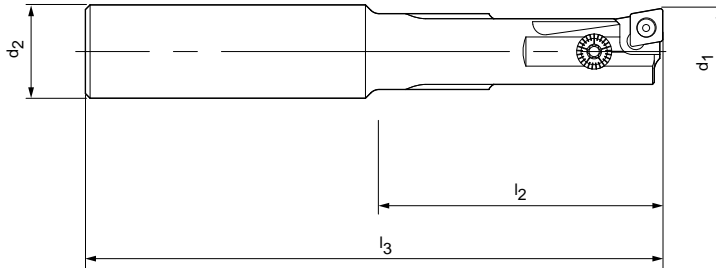
With internal coolant supply

d_1 min. - max.	d_2	l_1	l_2	l_3	Indexable insert	Specification	Order No.
10 - 13	12	30	35	70	CC.. 0602	MB0211-010013-Z1-22	30415260
13 - 16	12	35	40	75	CC.. 0602	MB0211-013016-Z1-22	30415261
16 - 19	12	40	45	80	CC.. 0602	MB0211-016019-Z1-22	30415262
19 - 22	12	50	55	90	CC.. 0602	MB0211-019022-Z1-22	30415263
22 - 25	12	60	65	100	CC.. 0602	MB0211-022025-Z1-22	30415264
25 - 28	12	70	75	110	CC.. 0602	MB0211-025028-Z1-22	30415265

ModulBore-Plus - fine boring bars

Boring tool for fine machining

Ø 14 - 23 mm



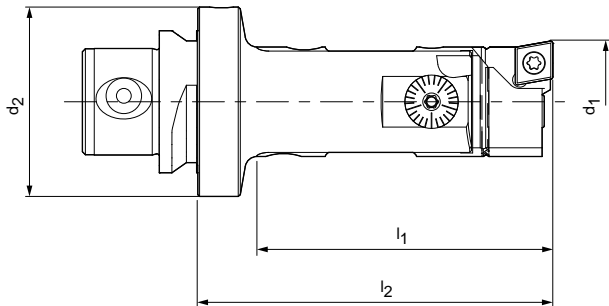
Adjustment range nominal diameter d_1 $+0,3 \text{ mm}$
 $-0,1 \text{ mm}$

d_1	d_2	l_2	Indexable insert	Specification	Order No.
14,0	16	48	CC.. 0602	MB0311-0140-Z1-WC16	30415266
14,5	16	48	CC.. 0602	MB0311-0145-Z1-WC16	30415267
15,0	16	48	CC.. 0602	MB0311-0150-Z1-WC16	30415268
15,5	16	48	CC.. 0602	MB0311-0155-Z1-WC16	30415269
16,0	20	54	CC.. 0602	MB0311-0160-Z1-WC20	30415270
16,5	20	54	CC.. 0602	MB0311-0165-Z1-WC20	30415271
17,0	20	54	CC.. 0602	MB0311-0170-Z1-WC20	30415272
17,5	20	54	CC.. 0602	MB0311-0175-Z1-WC20	30415273
18,0	20	60	CC.. 0602	MB0311-0180-Z1-WC20	30415274
18,5	20	60	CC.. 0602	MB0311-0185-Z1-WC20	30415275
19,0	20	60	CC.. 0602	MB0311-0190-Z1-WC20	30415276
19,5	20	60	CC.. 0602	MB0311-0195-Z1-WC20	30415277
20,0	20	70	CC.. 0602	MB0311-0200-Z1-WC20	30415278
20,5	20	70	CC.. 0602	MB0311-0205-Z1-WC20	30415279
21,0	20	70	CC.. 0602	MB0311-0210-Z1-WC20	30415280
21,5	20	70	CC.. 0602	MB0311-0215-Z1-WC20	30415281
22,0	20	70	CC.. 0602	MB0311-0220-Z1-WC20	30415282
22,5	20	70	CC.. 0602	MB0311-0225-Z1-WC20	30415284
23,0	20	70	CC.. 0602	MB0311-0230-Z1-WC20	30415283

ModulBore-Plus - fine boring head with MBS

Boring tool for fine machining

Ø 21 - 115 mm

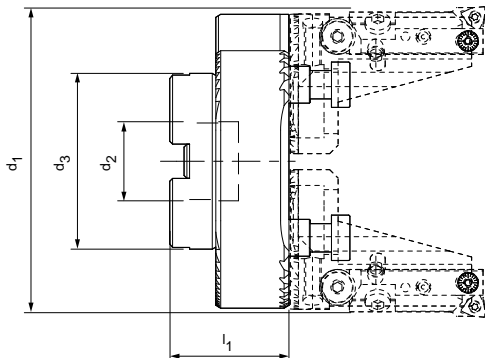


d_1 min. - max.	d_2 MBS size	l_1	l_2	Indexable insert	Specification	Order No.
21 - 29	32	50	60	CC.. 0602	MBO401-021029-Z1-MBS320	30415285
29 - 39	24,5	65	65	CC.. 0602	MBO401-029039-Z1-MBS245	30415286
38 - 50	32	75	75	CC.. 0602	MBO401-038050-Z1-MBS320	30415287
50 - 65	42	95	95	CC.. 0602	MBO401-050065-Z1-MBS420	30415289
65 - 88	55	120	120	CC.. 0602	MBO401-065088-Z1-MBS550	30415291
88 - 115	72	150	150	CC.. 0602	MBO401-088115-Z1-MBS720	30415294

ModulBore – fine boring head with bridge module

Boring tool for fine machining

Ø 87 - 202 mm

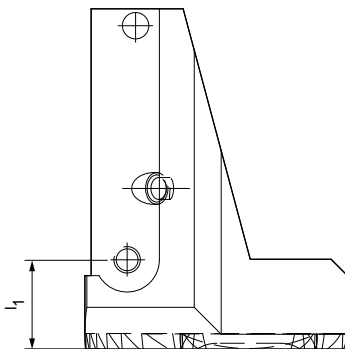


Bridge module without slide or fine boring cartridge

d_1 min. - max.	d_2	d_3	l_1	Weight kg	Specification	Order No.
87 - 110	27	61,5	42	1,7	MB0110-087110-Z2-CA27	30415224
109 - 133	27	61,5	42	1,9	MB0110-109133-Z2-CA27	30415225
132 - 156	27	62	42	2,1	MB0110-132156-Z2-CA27	30415226
155 - 179	27	62	42	2,3	MB0110-155179-Z2-CA27	30415227
178 - 202	27	62	42	2,5	MB0110-178202-Z2-CA27	30415228

ModulBore – slides for fine boring cartridge

Ø 87 - 202 mm



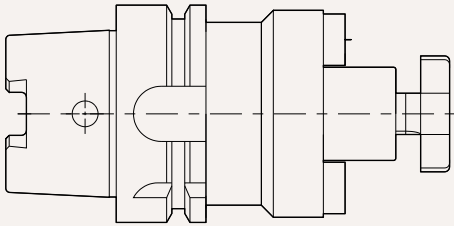
For tool ø d_1	l_1	Specification	Order No.
87 - 202	16,9	SL-MB0150-087202	30415310

Example

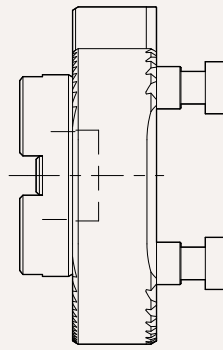
System overview - fine boring head with bridge module

Ø 87 - 202 mm

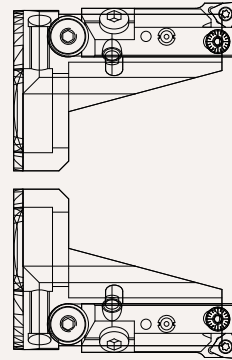
Adapter



Bridge module

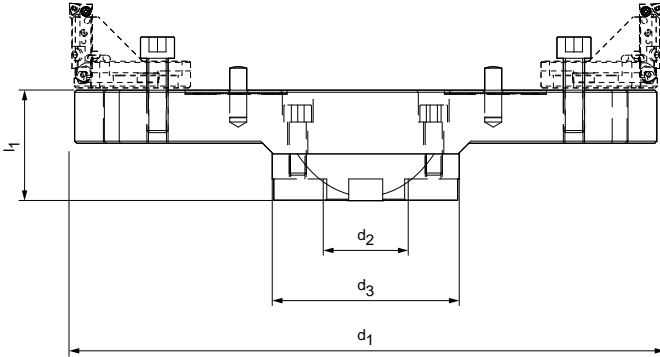


Slide + fine boring cartridge



ModulBore – fine boring head with bridge module

Boring tool for fine machining, standard
 \varnothing 200 - 520 mm

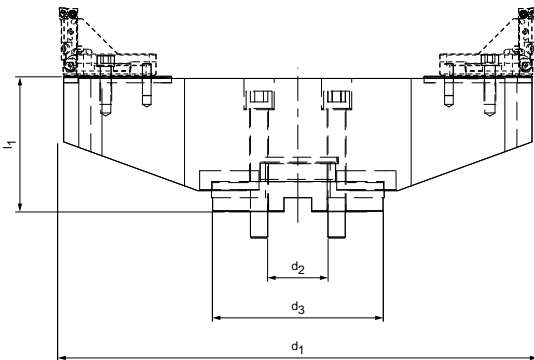


Bridge module without slide or fine boring cartridge

d_1 min. - max.	d_2	d_3	l_1	Weight kg	Specification	Order No.
200 - 280	40	88	51	1,7	MB0120-200280-Z2-CA40	30415229
280 - 360	40	88	51	1,9	MB0120-280360-Z2-CA40	30415230
360 - 440	40	88	61	2,1	MB0120-360440-Z2-CA40	30415231
440 - 520	40	88	61	2,3	MB0120-440520-Z2-CA40	30415232

ModulBore – fine boring head with bridge module

Boring tool for fine machining
 \varnothing 358 - 1,000 mm



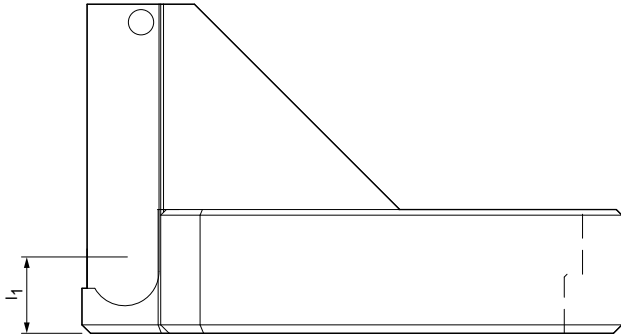
Bridge module without slide or fine boring cartridge

d_1 min. - max.	d_2	d_3	l_1	Weight kg	Specification	Order No.
358 - 440	60	130	91	On request	MB0130-358440-Z2-CA60	30415233
438 - 520	60	130	126		MB0130-438520-Z2-CA60	30415234
518 - 600	60	130	126		MB0130-5186000-Z2-CA60	30415235
598 - 680	60	130	126		MB0130-598680-Z2-CA60	30415236
678 - 760	60	130	126		MB0130-678760-Z2-CA60	30415237
758 - 840	60	130	126		MB0130-758840-Z2-CA60	30415238
838 - 920	60	130	126		MB0130-838920-Z2-CA60	30415239
918 - 1.000	60	130	126		MB0130-918000-Z2-CA60	30415240

Dimensions in mm.

ModulBore – slides for fine boring cartridge

Ø 358 - 1,000 mm



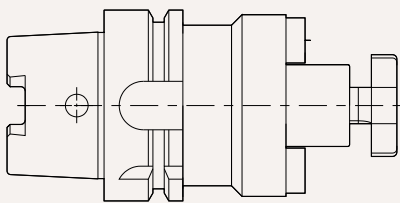
For tool ø d ₁	l ₁	Specification	Order No.
358 - 1.000	13,1	SL-MBO150-2001000	30415311

Example

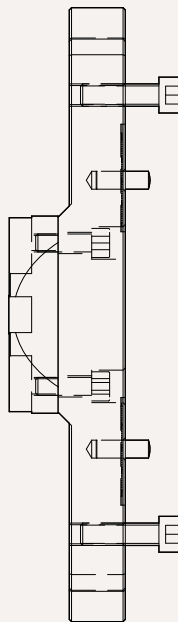
System overview – fine boring head with bridge module

Ø 200 - 1,000 mm

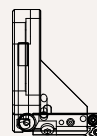
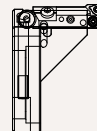
Adapter



Bridge module

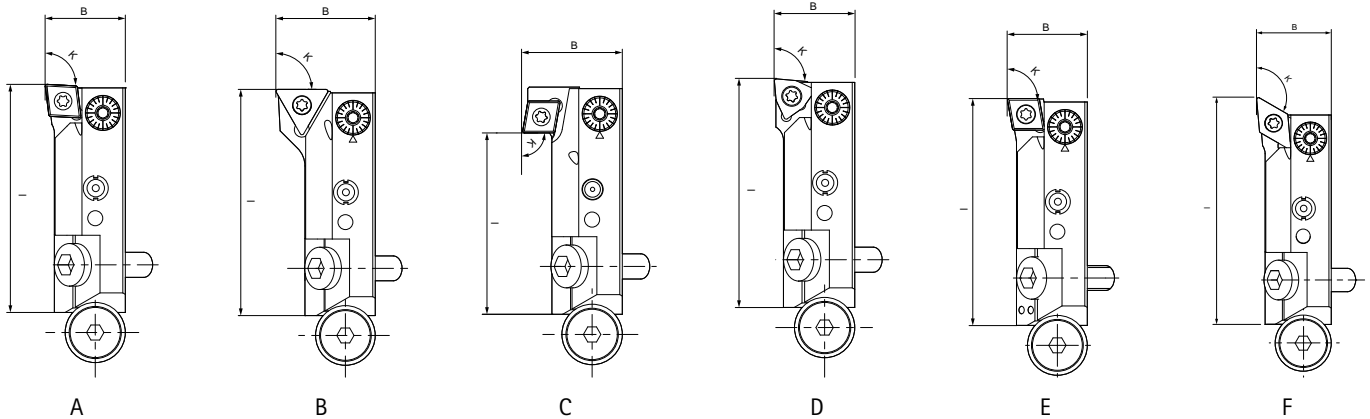


Slide + fine boring cartridge + imbalance compensation



ModulBore – fine boring head cartridges

Ø 87 – 1,000 mm



Type	l	B	K	Design	Indexable insert	Specification	Order No.
A	45.5	16	93 °	Right	CC.. 0602	MBO501-R-093-16-CC_0602	10030384
A	45.5	16	93 °	Left	CC.. 0602	MBO501-L-093-16-CC_0602	30415298
B	45.5	20	90 °	Right	TC.. 1102	MBO501-R-090-20-TC_1102	30355664
B	45.5	20	90 °	Left	TC.. 1102	MBO501-L-090-20-TC_1102	30353989
D	45.5	16	95 °	Right	WC.. 0402	MBO501-R-095-16-WC_0402	30415303
D	45.5	16	95 °	Left	WC.. 0402	MBO501-L-095-16-WC_0402	30415300
C	36	20	90 °	Backward	CC.. 0602	MBO501-B-090-20-CC_0602	30415297
A	45.5	16	95 °	Right	CC.. 0602	MBO501-R-095-16-CC_0602	10078197
A	45.5	16	95 °	Left	CC.. 0602	MBO501-L-095-16-CC_0602	30415299
E	45.5	16	90 °	Right	CC.. 0602	MBO501-R-090-16-CC_0602	10078198
E	45.5	16	90 °	Left	CC.. 0602	MBO501-L-090-16-CC_0602	10078199

Semi-standard

Type	l	B	k	Design	Indexable insert	Specification	Order No.
F	48.5	16	120° (5°)	Left	DC.. 0702	MBO501-L-120-16-DC_0702	30415305
F	45.8	16	120° (5°)	Right	DC.. 0702	MBO501-R-120-16-DC_0702	30415302
A	45.5	22	95 °	Left	CC.. 09T3	MBO501-L-095-22-CC_09T3	30415304
A	45.5	22	95 °	Right	CC.. 09T3	MBO501-R-095-22-CC_09T3	30415301

ModulBore-Plus – fine boring head cartridges

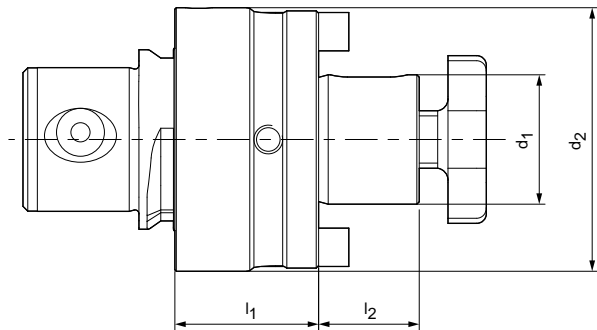
With 2 µm fine adjustment

Type	l	B	K	Design	Indexable insert	Specification	Order No.
A	45.5	16	93 °	Right	CC.. 0602	MBO511-R-093-16-CC_0602	30415307
A	45.5	16	95 °	Right	CC.. 0602	MBO511-R-095-16-CC_0602	30415308
A	45.5	20	90 °	Right	CC.. 0602	MBO511-R-090-16-CC_0602	30415306

ModulBore - milling cutter arbors

With cross slot and MBS

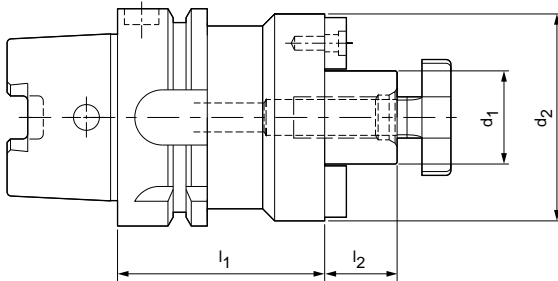
Shank MBS



MBS size	d_1	d_2	l_1	l_2	Specification	Order No.
MBS420	27	42	30	21	MCA-MBS420-27-30-1-0-W	30415312
MBS550	27	55	30	21	MCA-MBS550-27-30-1-0-W	30415313
MBS720	40	72	35	27	MCA-MBS720-40-35-1-0-W	30415314

Milling cutter arbors

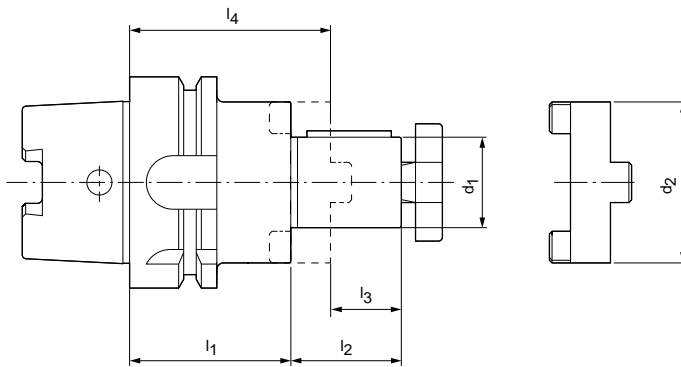
With enlarged face connection diameter in accordance with DIN 69882-3
Shank HSK-A in accordance with DIN 69893-1



HSK-A	d_1	d_2	l_1	l_2	Weight kg	Specification	Order No.
63	27	60	60	21	1,3	MCA-HSK-A063-27-060-1-0-W	30329256
63	40	89	60	27	1,9	MCA-HSK-A063-40-060-1-0-W	30329259
100	27	60	50	21	2,7	MCA-HSK-A100-27-060-1-0-W	10066813
100	40	89	60	27	3,8	MCA-HSK-A100-40-060-1-0-W	10066815
100	60	140	70	40	5,5	MCA-HSK-A100-60-070-1-0-W	10066817

Milling cutter arbors

For tools with longitudinal or cross slot in accordance with DIN 69882-2
Shank HSK-A in accordance with DIN 69893-1

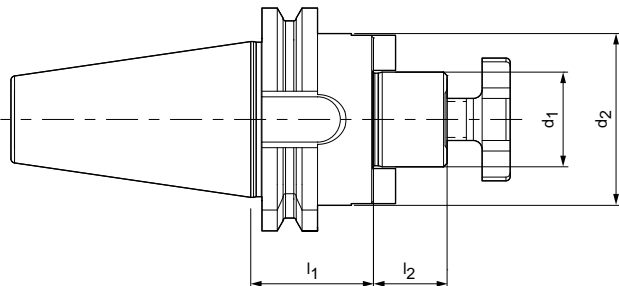


HSK-A	d_1	d_2	l_1	l_2	l_3	l_4	Weight Kg	Specification	Order No.
63	27	48	48	33	21	60	1,2	MCA-HSK-A063-27-048-1-0-W	30319350
63	40	70	56	41	27	70	1,8	MCA-HSK-A063-40-056-1-0-W	30319353
100	27	48	48	33	21	60	2,8	MCA-HSK-A100-27-048-1-0-W	30319361
100	40	70	56	41	27	70	3,4	MCA-HSK-A100-40-056-1-0-W	30319363

Milling cutter arbors

With enlarged face connection diameter

Shank SK in accordance with ISO 7388-1 Form AD/AF

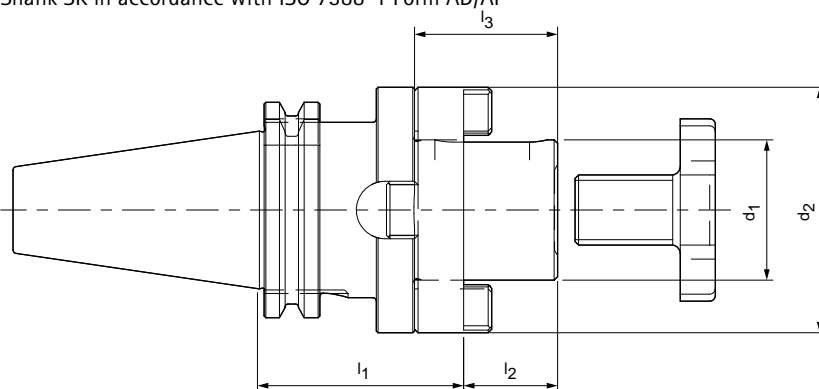


SK	d ₁	d ₂	l ₁	l ₂	Weight kg	Specification	Order No.
40	27	50	35	21	1,1	MCA-HSK-A063-27-060-1-0-W	10066834
40	40	89	50	27	1,9	MCA-HSK-A063-40-060-1-0-W	10066836
40	60	129	70	27	4,3	MCA-HSK-A100-27-060-1-0-W	On request
50	27	60	35	21	3,3	MCA-HSK-A100-40-060-1-0-W	10073743
50	40	89	50	27	4,3	MCA-HSK-A100-60-070-1-0-W	10073745
50	60	129	70	40	5	MCA-HSK-A100-40-060-1-0-W	10073746

Milling cutter arbors

For tools with longitudinal or cross slot

Shank SK in accordance with ISO 7388-1 Form AD/AF

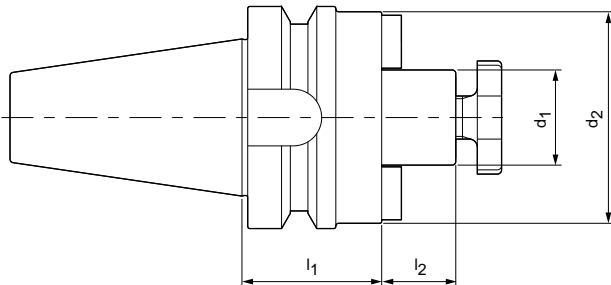


SK	d ₁	d ₂	l ₁	l ₂	l ₃	Weight kg	Specification	Order No.
40	27	50	55	21	33	On request	MCA-SK040-27-055-3-0-W	30415316
40	27	50	100	21	33		MCA-SK040-27-100-3-0-W	30415317
40	40	80	55	27	41		MCA-SK040-40-055-3-0-W	30415318
40	40	80	100	27	41		MCA-SK040-40-100-3-0-W	30415319
50	27	50	55	21	33		MCA-SK050-27-055-3-0-W	30415320
50	27	50	100	21	33		MCA-SK050-27-100-3-0-W	30415321
50	40	80	55	27	41		MCA-SK050-40-055-3-0-W	30415322
50	40	80	100	27	41		MCA-SK050-40-100-3-0-W	30415323

Milling cutter arbors

With enlarged face connection diameter

Shank BT in accordance with ISO 7388-2 Form JD (JIS B 6339)

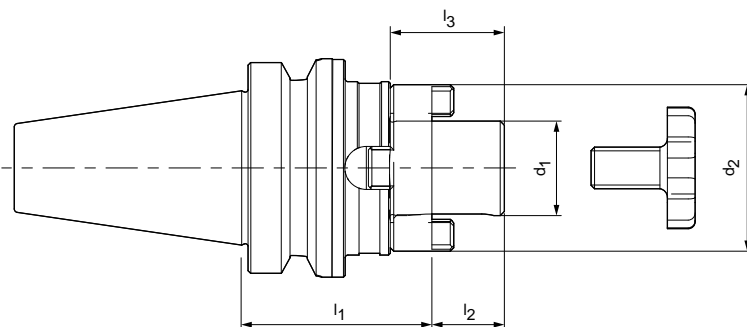


BT	d ₁	d ₂	l ₁	l ₂	Weight kg	Specification	Order No.
40	27	60	35	21	1,4	MCA-BT040-27-035-1-0-W	10073630
40	40	89	50	27	2,4	MCA-BT040-27-050-1-0-W	10073632
50	27	58	60	21	On request	MCA-BT050-27-060-1-0-W	On request
50	40	88	60	27	On request	MCA-BT050-40-060-1-0-W	On request
50	60	128	80	40	On request	MCA-BT050-60-080-1-0-W	On request

Milling cutter arbors

For tools with longitudinal or cross slot in accordance with DIN 69882-2

Shank BT in accordance with ISO 7388-2 Form JD (JIS B 6339)

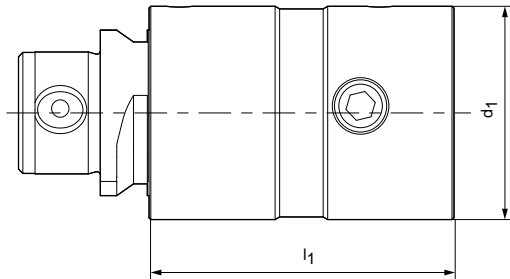


BT	d ₁	d ₂	l ₁	l ₂	l ₃	Weight kg	Specification	Order No.
40	27	50	55	21	33	On request	MCA-BT040-27-055-1-0-W	30415324
40	27	50	100	21	33		MCA-BT040-27-100-1-0-W	30415325
40	40	80	60	27	41		MCA-BT040-40-060-1-0-W	30415326
40	40	80	100	27	41		MCA-BT040-40-100-1-0-W	30415327
50	27	50	55	21	33		MCA-BT050-27-055-1-0-W	30415328
50	27	50	100	21	33		MCA-BT050-27-100-1-0-W	30415329
50	40	80	60	27	41		MCA-BT050-40-060-1-0-W	30415330
50	40	80	100	27	41		MCA-BT050-40-100-1-0-W	30415331

Dimensions in mm.

MBS extensions

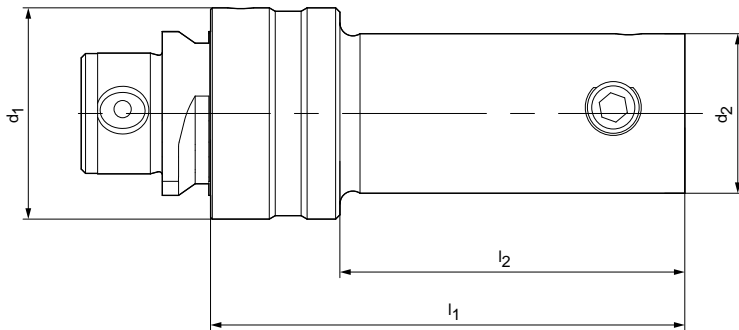
MBS to MBS



d ₁ MBS size	l ₁	Specification	Order No.
18,5	30	MBS185-MBS185-030-01	30415380
18,5	35	MBS185-MBS185-035-01	30415381
24,5	30	MBS245-MBS245-030-01	30415382
24,5	35	MBS245-MBS245-035-01	30415383
24,5	45	MBS245-MBS245-045-01	30415384
32	40	MBS320-MBS320-040-01	30415385
32	50	MBS320-MBS320-050-01	30415386
32	60	MBS320-MBS320-060-01	30415387
42	50	MBS420-MBS420-050-01	30415388
42	60	MBS420-MBS420-060-01	30415389
42	80	MBS420-MBS420-080-01	30415390
55	70	MBS550-MBS550-070-01	30415391
55	90	MBS550-MBS550-090-01	30415392
55	105	MBS550-MBS550-105-01	30415393
72	75	MBS720-MBS720-075-01	30415394
72	100	MBS720-MBS720-100-01	30415395
72	135	MBS720-MBS720-135-01	30415396

MBS reducers

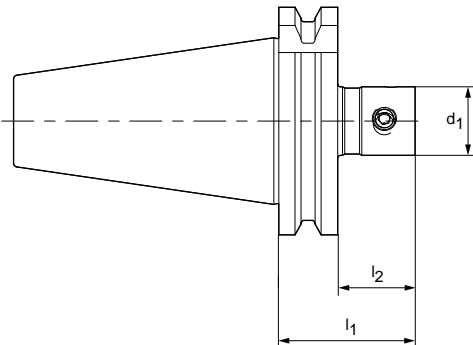
MBS to MBS



d_1 MBS size	d_2 MBS size	l_1	l_2	Specification	Order No.
24,5	18,5	30	15	MBS245-MBS185-030-01	30415399
32	18,5	30	51	MBS320-MBS185-030-01	30415401
32	24,5	40	25	MBS320-MBS245-040-01	30415403
42	18,5	35	15	MBS420-MBS185-035-01	30415405
42	24,5	45	25	MBS420-MBS245-045-01	30415407
42	32	45	25	MBS420-MBS320-045-01	30415409
55	18,5	40	15	MBS550-MBS185-040-01	30415411
55	24,5	50	25	MBS550-MBS245-050-01	30415413
55	32	50	25	MBS550-MBS320-050-01	30415415
55	42	55	30	MBS550-MBS420-055-01	30415417
72	42	60	30	MBS720-MBS420-060-01	30415419
72	55	60	30	MBS720-MBS550-060-01	30415420

MBS adapter

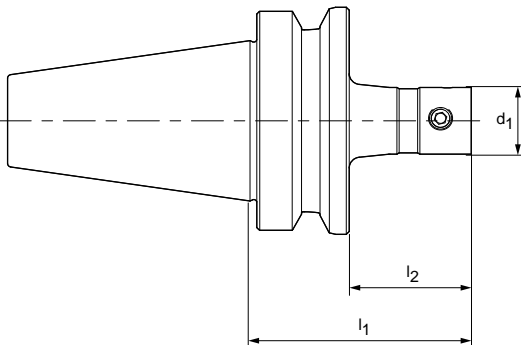
Shank SK in accordance with ISO 7388-1 Form AD/AF



SK	d_1 MBS size	l_1	l_2	Specification	Order No.
40	18,5	60	40	MBS101-N-185-040-SK040-S	30415332
40	24,5	60	40	MBS101-N-245-060-SK040-S	30415333
40	32	60	40	MBS101-N-320-060-SK040-S	30415334
40	42	60	40	MBS101-N-420-060-SK040-S	30415335
40	55	65	45	MBS101-N-550-065-SK040-S	30415336
50	18,5	40	20	MBS101-N-185-040-SK050-S	30415337
50	24,5	40	20	MBS101-N-245-040-SK050-S	30415338
50	32	60	40	MBS101-N-320-060-SK050-S	30415339
50	42	60	40	MBS101-N-420-060-SK050-S	30415340
50	55	60	40	MBS101-N-550-060-SK050-S	30415341
50	72	65	45	MBS101-N-720-065-SK050-S	30415342

MBS adapter

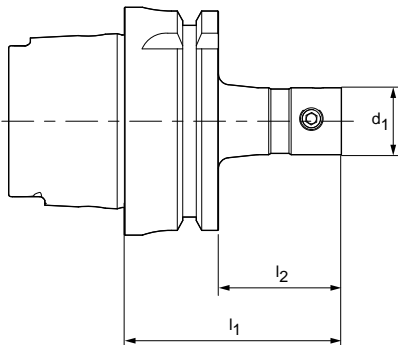
Shank BT to ISO 7388-2 Form J (JIS B 6339)



BT	d_1 MBS size	l_1	l_2	Specification	Order No.
40	18,5	40	33	MBS101-N-185-060-BT040-S	30415344
40	24,5	40	33	MBS101-N-245-060-BT040-S	30415345
40	32	60	33	MBS101-N-320-060-BT040-S	30415346
40	42	60	33	MBS101-N-420-060-BT040-S	30415347
40	55	60	33	MBS101-N-550-065-BT040-S	30415348
50	18,5	40	-	MBS101-N-185-040-BT050-S	30415349
50	24,5	40	-	MBS101-N-245-040-BT050-S	30415350
50	32	60	22	MBS101-N-320-060-BT050-S	30415351
50	42	60	22	MBS101-N-420-060-BT050-S	30415352
50	55	60	27	MBS101-N-550-065-BT050-S	30415353
50	72	60	32	MBS101-N-720-070-BT050-S	30415354

MBS adapter

Shank "CAT" in accordance with ASME B 5.50 - 1994



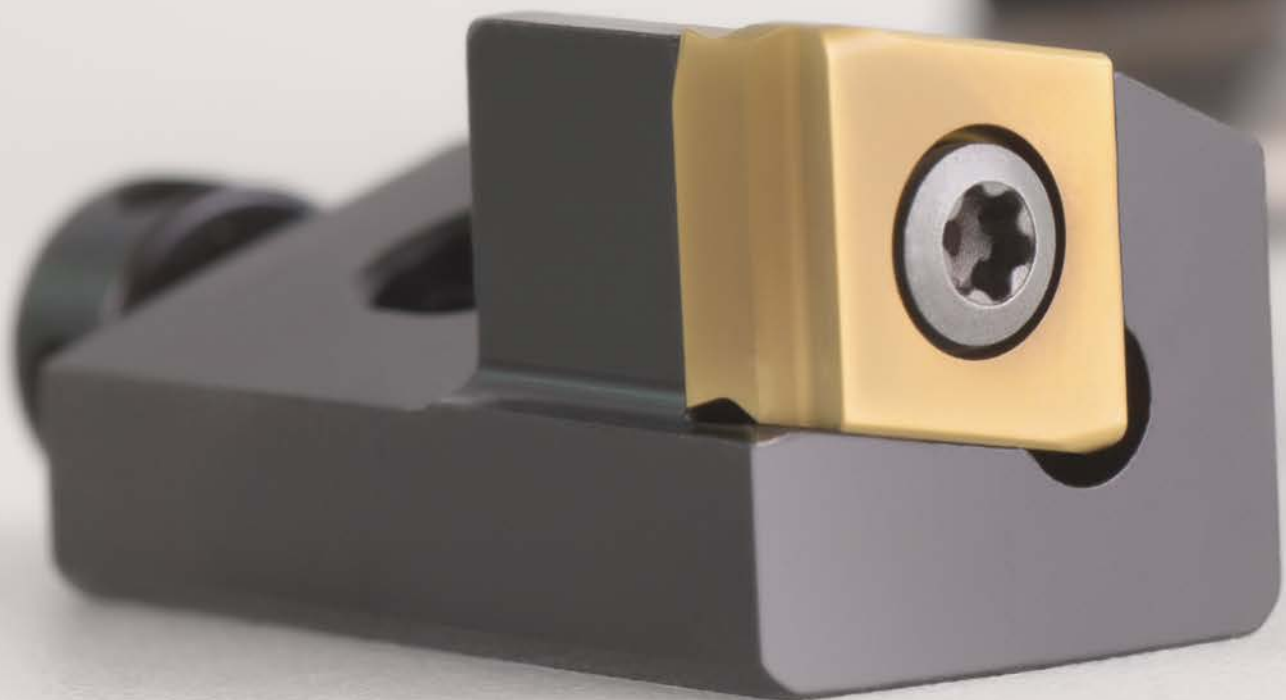
SK	d_1 MBS size	l_1	l_2	Specification	Order No.
63	18,5	60	34	MBS101-N-185-060-HSK-A063-S	30415367
63	24,5	60	34	MBS101-N-245-060-HSK-A063-S	30415368
63	32	60	34	MBS101-N-320-060-HSK-A063-S	30415369
63	42	70	44	MBS101-N-420-070-HSK-A063-S	30415370
63	55	80	54	MBS101-N-550-080-HSK-A063-S	30415371
63	72	95	69	MBS101-N-720-095-HSK-A063-S	30415372
100	32	70	41	MBS101-N-320-070-HSK-A100-S	30415373
100	42	80	51	MBS101-N-420-080-HSK-A100-S	30415374
100	55	90	61	MBS101-N-420-550-HSK-A100-S	30415375
100	72	105	76	MBS101-N-720-105-HSK-A100-S	30415376

MBS adapter

Shank HSK-A in accordance with DIN 69893-1

HSK-A	d_1 MBS size	l_1	l_2	Specification	Order No.
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Dimensions in mm.



CARTRIDGES

Along with the adjusting feature with a long adjustment travel, cartridges offer numerous possibilities for various applications as they can be interchanged quickly and straightforwardly. Cartridges are used for both internal and external machining tasks. In case of changes, for example, to chamfer angles, or in case of repair, cartridges can be interchanged without major effort.

The range of MAPAL cartridges covers a large part of the installation design variants. Along with the standardised ISO cartridges, a series of compact cartridges for radial and tangential indexable inserts are available. Due to short lengths these offer even more design freedom during the design of custom tools.

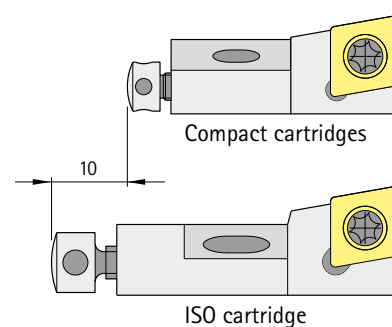
On request MAPAL also supplies cartridges and compact cartridges in custom designs.

Cartridges

Model key	336
ISO cartridge	338
Compact cartridges	342
Compact cartridges for tangential indexable inserts	348
Accessories	352

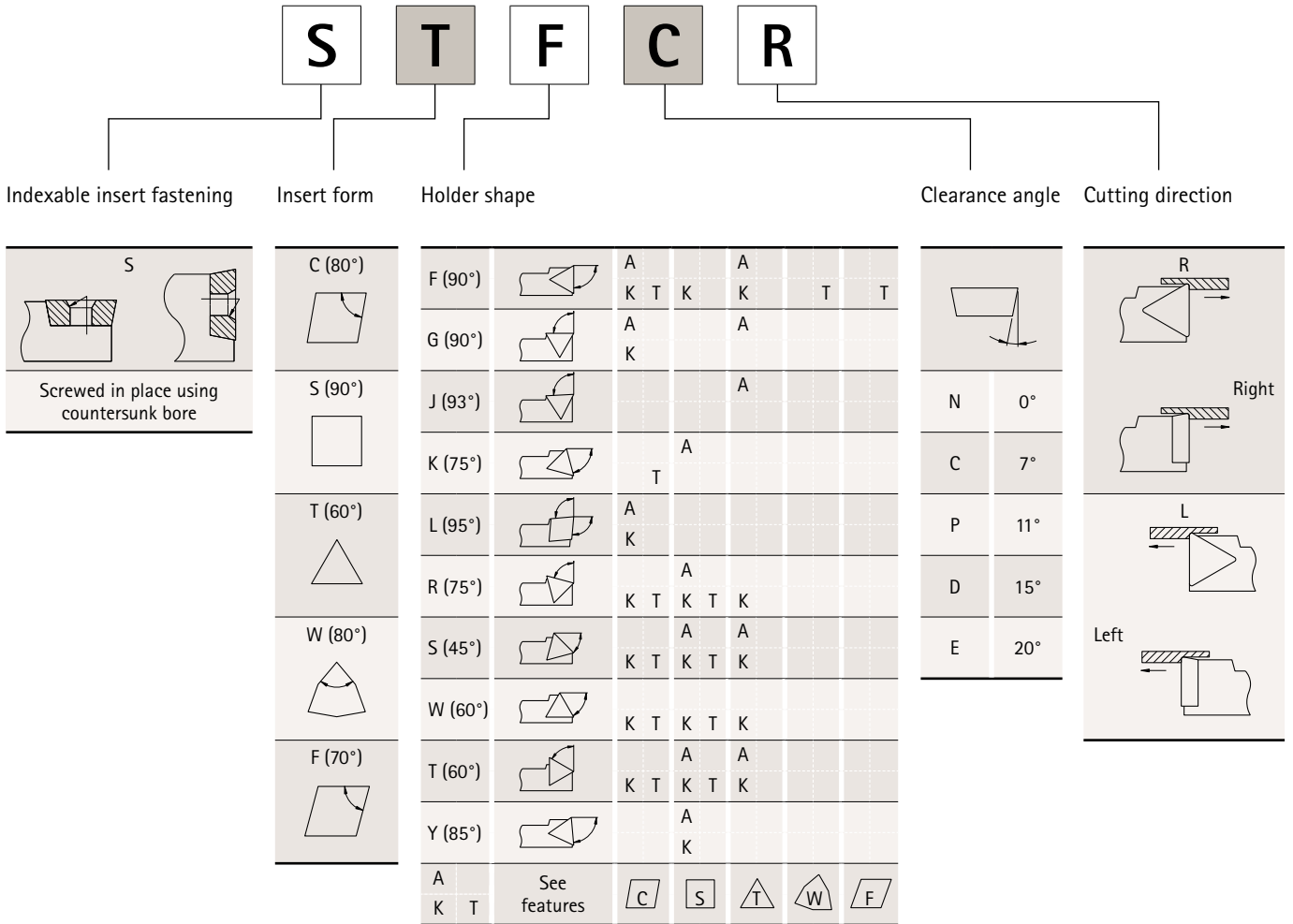
Size comparison MAPAL compact cartridges against ISO cartridges

Example: Indexable insert size 09



Model key

Cartridges and compact cartridges

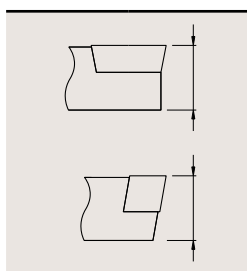
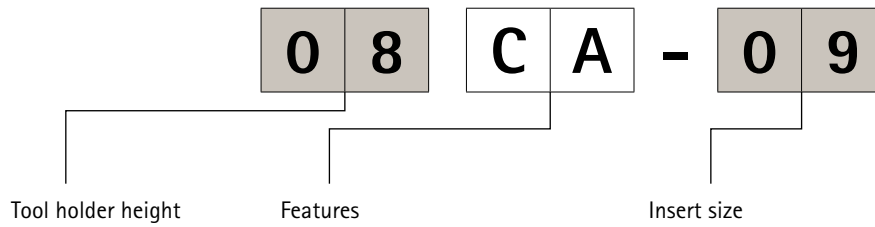


A = Cartridge
 K = Compact cartridge
 T = Compact cartridges for tangential indexable inserts

Compact cartridges with custom angle
 Data on the tool holder shape directly via the setting angle

z. B. ST70CR 08CK-09

z. B. SW80NR 18CT-09



Height data	
Code	[mm]
06	6.0
08	8.0
10	10.0
12	12.0
14	14.0
18	18.0

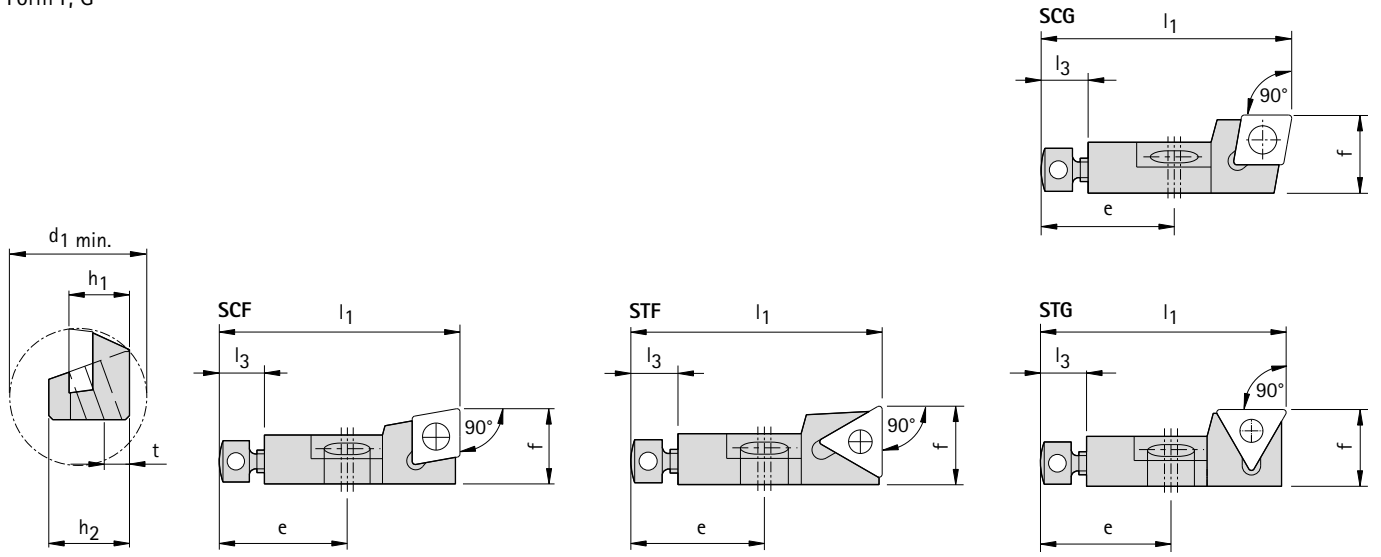
1st digit	Significance
C	Cartridge

2nd digit	Significance
A	Cartridge in accordance with DIN 4985
K	Compact cartridge similar to DIN 4985
T	Compact cartridge similar to DIN 4985 for tangential indexable inserts

Incircle					
	C	S	T	W	F
d [mm]	C	S	T	W	F
5.56	05	-	09	-	-
6.35	06	06	11	-	06
9.525	09	09	16	-	09
10.16	-	-	-	07	-
12.7	12	12	-	-	12
13.65	-	-	-	09	-

ISO cartridge

Form F, G



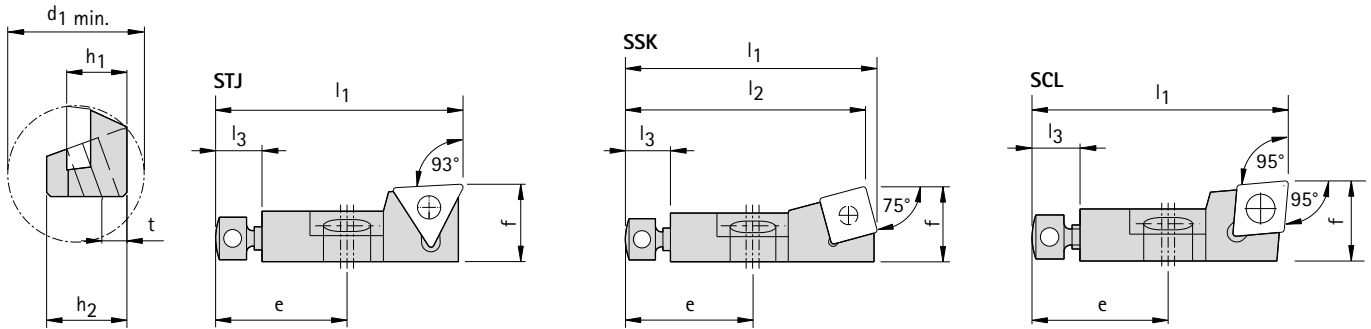
Drawings of right design, example SCFCR.

	Specification	Related indexable insert	Dimensions									Accessory group	Order No.
			h_1	f <small>(referred to R-Nom)</small>	R-Nom	l_1	e	l_3	h_2	t	$d_1 \text{ min.}$		
SCF...	SCFCR 08 CA-06	CC_0602_	8	10	0,4	32	17	6	9,5	4,5	25	3	30011050
	SCFCL 08 CA-06	CC_0602_	8	10	0,4	32	17	6	9,5	4,5	25	3	30011051
	SCFPR 08 CA-06	CP_0602_	8	10	0,4	32	17	6	9,5	4,5	25	3	30011052
	SCFPL 08 CA-06	CP_0602_	8	10	0,4	32	17	6	9,5	4,5	25	3	30011053
	SCFCR 10 CA-09	CC_09T3_	10	14	0,8	50	20	8	13	5	40	5	30011054
	SCFCL 10 CA-09	CC_09T3_	10	14	0,8	50	20	8	13	5	40	5	30011055
	SCFCR 12 CA-12	CC_1204_	12	20	0,8	55	20	8	17	6	50	1	30011056
	SCFCL12 CA-12	CC_1204_	12	20	0,8	55	20	8	17	6	50	1	30011057
STF...	STFCR 08 CA-09	TC_0902_	8	10	0,4	32	17	6	9,5	4,5	25	2	30011058
	STFCL 08 CA-09	TC_0902_	8	10	0,4	32	17	6	9,5	4,5	25	2	30011059
	STFCR 10 CA-11	TC_1102_	10	14	0,4	50	20	8	13	5	40	4	30011060
	STFCL 10 CA-11	TC_1102_	10	14	0,4	50	20	8	13	5	40	4	30011061
	STFCR 12 CA-16	TC_16T3_	12	20	0,8	55	20	8	17	6	50	6	30011062
	STFCL 12 CA-16	TC_16T3_	12	20	0,8	55	20	8	17	6	50	6	30011063
SCG...	SCGCR 08 CA-06	CC_0602_	8	10	0,4	32	17	6	9,5	4,5	25	3	30011064
	SCGCL 08 CA-06	CC_0602_	8	10	0,4	32	17	6	9,5	4,5	25	3	30011065
	SCGPR 08 CA-06	CP_0602_	8	10	0,4	32	17	6	9,5	4,5	25	3	30011066
	SCGPL 08 CA-06	CP_0602_	8	10	0,4	32	17	6	9,5	4,5	25	3	30011067
	SCGCR 10 CA-09	CC_09T3_	10	14	0,8	50	20	8	13	5	40	5	30011068
	SCGCL 10 CA-09	CC_09T3_	10	14	0,8	50	20	8	13	5	40	5	30011069
	SCGCR 12 CA-12	CC_1204_	12	20	0,8	55	20	8	17	6	50	1	30011070
	SCGCL 12 CA-12	CC_1204_	12	20	0,8	55	20	8	17	6	50	1	30011071
STG...	STGCR 08 CA-09	TC_0902_	8	10	0,4	32	17	6	9,5	4,5	25	2	30011072
	STGCL 08 CA-09	TC_0902_	8	10	0,4	32	17	6	9,5	4,5	25	2	30011073
	STGCR 10 CA-11	TC_1102_	10	14	0,4	50	20	8	13	5	40	4	30011074
	STGCL 10 CA-11	TC_1102_	10	14	0,4	50	20	8	13	5	40	4	30011075
	STGCR 12 CA-16	TC_16T3_	12	20	0,8	55	20	8	17	6	50	6	30011076
	STGCL 12 CA-16	TC_16T3_	12	20	0,8	55	20	8	17	6	50	6	30011077

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately.
Dimensions in mm.

ISO cartridge

Form J, K, L



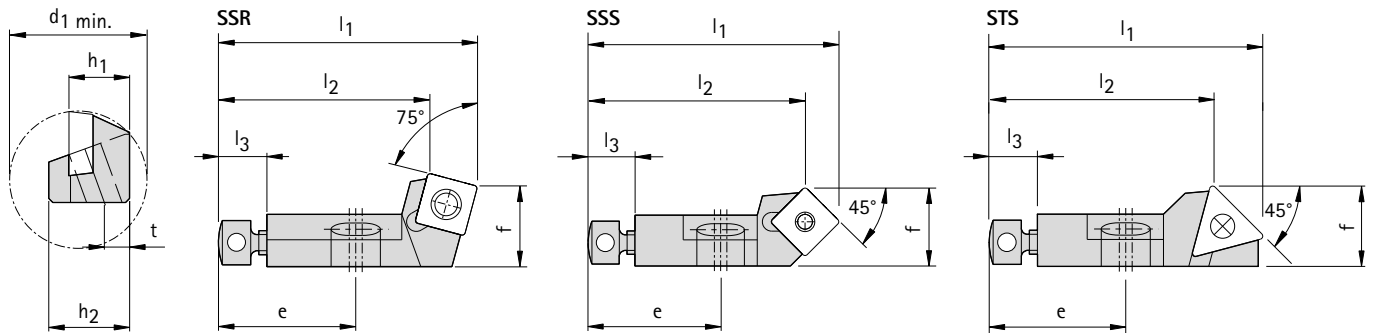
Drawings of right design, example STJCR.

	Specification	Related indexable insert	Dimensions										Accessory group	Order No.
			h_1	f	R-Nom	l_1	l_2	e	l_3	h_2	t	$d_1 \text{ min.}$		
STJ...	STJCR 08 CA-09	TC_0902__	8	10	0,4	32	-	17	6	9,5	4,5	25	2	30011078
	STJCL 08 CA-09	TC_0902__	8	10	0,4	32	-	17	6	9,5	4,5	25	2	30011079
	STJCR 10 CA-11	TC_1102__	10	14	0,4	50	-	20	8	13	5	40	4	30011080
	STJCL 10 CA-11	TC_1102__	10	14	0,4	50	-	20	8	13	5	40	4	30011081
	STJCR 12 CA-16	TC_16T3__	12	20	0,8	55	-	20	8	17	6	50	6	30011082
	STJCL 12 CA-16	TC_16T3__	12	20	0,8	55	-	20	8	17	6	50	6	30011083
SSK...	SSKCR 08 CA-06	SC_0602__	8	10	0,4	33,5	32	17	6	9,5	4,5	25	3	30011084
	SSKCL 08 CA-06	SC_0602__	8	10	0,4	33,5	32	17	6	9,5	4,5	25	3	30011085
	SSKCR 10 CA-09	SC_09T3__	10	14	0,8	52,2	50	20	8	13	5	40	5	30011086
	SSKCL 10 CA-09	SC_09T3__	10	14	0,8	52,2	50	20	8	13	5	40	5	30011087
	SSKCR 12 CA-12	SC_1204__	12	20	0,8	58,1	55	20	8	17	6	50	1	30011088
	SSKCL 12 CA-12	SC_1204__	12	20	0,8	58,1	55	20	8	17	6	50	1	30011089
SCL...	SCLCR 08 CA-06	CC_0602__	8	10	0,4	32	-	17	6	9,5	4,5	25	3	30011090
	SCLCL 08 CA-06	CC_0602__	8	10	0,4	32	-	17	6	9,5	4,5	25	3	30011091
	SCLPR 08 CA-06	CP_0602__	8	10	0,4	32	-	17	6	9,5	4,5	25	3	30011092
	SCLPL 08 CA-06	CP_0602__	8	10	0,4	32	-	17	6	9,5	4,5	25	3	30011093
	SCLCR 10 CA-09	CC_09T3__	10	14	0,8	50	-	20	8	13	5	40	5	30011094
	SCLCL 10 CA-09	CC_09T3__	10	14	0,8	50	-	20	8	13	5	40	5	30011095
	SCLCR 12 CA-12	CC_1204__	12	20	0,8	55	-	20	8	17	6	50	1	30011096
	SCLCL 12 CA-12	CC_1204__	12	20	0,8	55	-	20	8	17	6	50	1	30011097

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately.
Dimensions in mm.

ISO cartridge

Form R, S



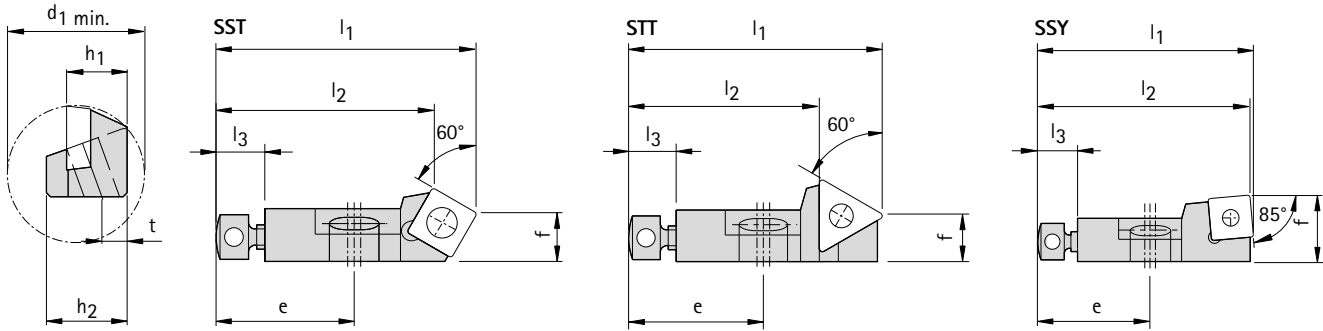
Drawings of right design, example SSRCR.

Specification	Related indexable insert	Dimensions										Accessory group	Order No.	
		h_1	f	R-Nom	l_1	l_2	e	l_3	h_2	t	d_1 min.			
SSR...	SSRCR 08 CA-06	SC_0602__	8	10	0,4	32	26,4	17	6	9,5	4,5	25	3	30011098
	SSRCL 08 CA-06	SC_0602__	8	10	0,4	32	26,4	17	6	9,5	4,5	25	3	30011099
	SSRCR 10 CA-09	SC_09T3__	10	14	0,8	50	41,3	20	8	13	5	40	5	30011100
	SSRCL 10 CA-09	SC_09T3__	10	14	0,8	50	41,3	20	8	13	5	40	5	30011101
	SSRCR 12 CA-12	SC_1204__	12	20	0,8	55	43,5	20	8	17	6	50	1	30011102
	SSRCL 12 CA-12	SC_1204__	12	20	0,8	55	43,5	20	8	17	6	50	1	30011103
SSS...	SSSCR 08 CA-06	SC_0602__	8	10	0,4	32,4	28	17	6	9,5	4,5	25	3	30011104
	SSSCL 08 CA-06	SC_0602__	8	10	0,4	32,4	28	17	6	9,5	4,5	25	3	30011105
	SSSCR 10 CA-09	SC_09T3__	10	14	0,8	50,1	44	20	8	13	5	40	5	30011106
	SSSCL 10 CA-09	SC_09T3__	10	14	0,8	50,1	44	20	8	13	5	40	5	30011107
	SSSCR 12 CA-12	SC_1204__	12	20	0,8	55,3	47	20	8	17	6	50	1	30011108
	SSSCL 12 CA-12	SC_1204__	12	20	0,8	55,3	47	20	8	17	6	50	1	30011109
STS...	STSCR 08 CA-09	TC_0902__	8	10	0,4	34,1	28	17	6	9,5	4,5	25	2	30011110
	STSCl 08 CA-09	TC_0902__	8	10	0,4	34,1	28	17	6	9,5	4,5	25	2	30011111
	STSCR 10 CA-11	TC_1102__	10	14	0,4	51	44	20	8	13	5	40	4	30011112
	STSCl 10 CA-11	TC_1102__	10	14	0,4	51	44	20	8	13	5	40	4	30011113
	STSCR 12 CA-16	TC_16T3__	12	20	0,8	57,2	47	20	8	17	6	50	6	30011114
	STSCl 12 CA-16	TC_16T3__	12	20	0,8	57,2	47	20	8	17	6	50	6	30011115

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately.
Dimensions in mm.

ISO cartridge

Form T, Y



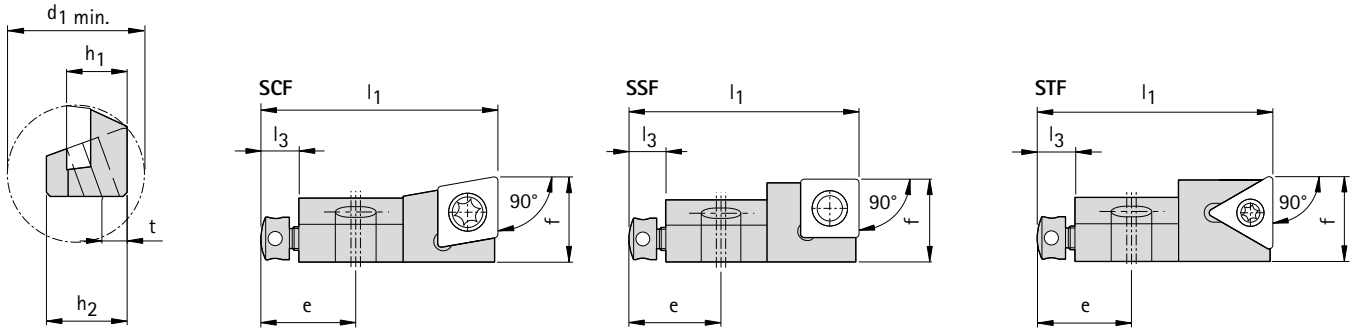
Drawings of right design, example SSTCR.

	Specification	Related indexable insert	Dimensions										Accessory group	Order No.
			h_1	f <small>(referred to R-Nom)</small>	R-Nom	l_1	l_2	e	l_3	h_2	t	d_1 min.		
SST...	SSTCR 08 CA-06	SC_0602__	8	9	0,4	32	26,9	17	6	9,5	4,5	25	3	30011116
	SSTCL 08 CA-06	SC_0602__	8	9	0,4	32	26,9	17	6	9,5	4,5	25	3	30011117
	SSTCR 10 CA-09	SC_09T3__	10	13,3	0,8	50	40,6	20	8	13	5	40	5	30011118
	SSTCL 10 CA-09	SC_09T3__	10	13,3	0,8	50	40,6	20	8	13	5	40	5	30011119
	SSTCR 12 CA-12	SC_1204__	12	18,9	0,8	55	44,8	20	8	17	6	50	1	30011120
	SSTCL 12 CA-12	SC_1204__	12	18,9	0,8	55	44,8	20	8	17	6	50	1	30011121
STT...	STTCR 08 CA-09	TC_0902__	8	10,3	0,4	32	24,6	17	6	9,5	4,5	25	2	30011122
	STTCL 08 CA-09	TC_0902__	8	10,3	0,4	32	24,6	17	6	9,5	4,5	25	2	30011123
	STTCR 10 CA-11	TC_1102__	10	14	0,4	50	41,4	20	8	13	5	40	4	30011124
	STTCL 10 CA-11	TC_1102__	10	14	0,4	50	41,4	20	8	13	5	40	4	30011125
	STTCR 12 CA-16	TC_16T3__	12	20,2	0,8	55	42,5	20	8	17	6	50	6	30011126
	STTCL 12 CA-16	TC_16T3__	12	20,2	0,8	55	42,5	20	8	17	6	50	6	30011127
SSY...	SSYCR 08 CA-06	SC_0602__	8	10	0,4	32,5	32	17	6	9,5	4,5	25	3	30011128
	SSYCL 08 CA-06	SC_0602__	8	10	0,4	32,5	32	17	6	9,5	4,5	25	3	30011129
	SSYCR 10 CA-09	SC_09T3__	10	14	0,8	50,8	50	20	8	13	5	40	5	30011130
	SSYCL 10 CA-09	SC_09T3__	10	14	0,8	50,8	50	20	8	13	5	40	5	30011131
	SSYCR 12 CA-12	SC_1204__	12	20	0,8	56	55	20	8	17	6	50	1	30011132
	SSYCL 12 CA-12	SC_1204__	12	20	0,8	56	55	20	8	17	6	50	1	30011133

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately.
Dimensions in mm.

Compact cartridges

Form F



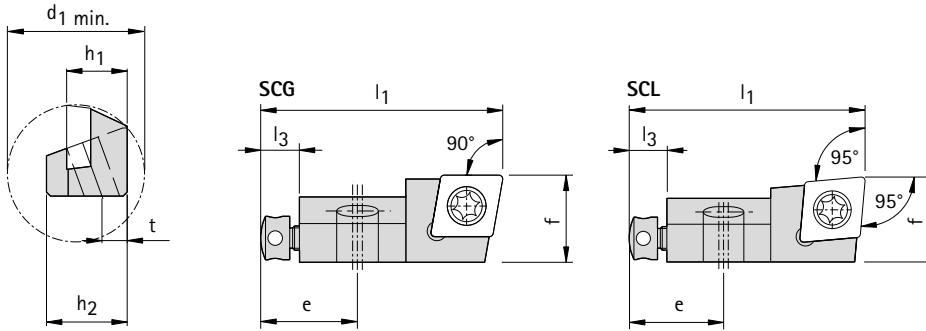
Drawings of right design, example SCFCR.

	Specification	Related indexable insert	Dimensions									Accessory group	Order No.
			h_1	f (referred to R-Nom)	R-Nom	l_1	e	l_3	h_2	t	d_1 min.		
SCF...	SCFCR 06 CK-06V1	CC_0602_	6	8,5	0,4	25	11	5	6	2,5	18	9	30011134
	SCFCL 06 CK-06V1	CC_0602_	6	8,5	0,4	25	11	5	6	2,5	18	9	30011135
	SCFCR 06 CK-06V2	CC_0602_	6	9,7	0,4	25	11	5	6	2,5	18	9	30011136
	SCFCL 06 CK-06V2	CC_0602_	6	9,7	0,4	25	11	5	6	2,5	18	9	30011137
	SCFCR 10 CK-09	CC_09T3_	10	14	0,8	40	17	8	15	5	33	14	30011138
	SCFCL 10 CK-09	CC_09T3_	10	14	0,8	40	17	8	15	5	33	14	30011139
	SCFCR 12 CK-12	CC_1204_	12	18	0,8	50	20	8	16	5	37	7	30011140
	SCFCL 12 CK-12	CC_1204_	12	18	0,8	50	20	8	16	5	37	7	30011141
SSF...	SSFPR 08 CK-06	SP_0603_	8	10	0,4	32	17	5	10	4,5	24	13	30011142
	SSFPL 08 CK-06	SP_0603_	8	10	0,4	32	17	5	10	4,5	24	13	30011143
	SSFCL 10 CK-09	SC_09T3_	10	14	0,8	44	17	8	15	5	33	16	30011144
	SSFCL 10 CK-09	SC_09T3_	10	14	0,8	44	17	8	15	5	33	16	30011145
	SSFCL 12 CK-12	SC_1204_	12	18	0,8	50	20	8	16	5	37	7	30011146
	SSFCL 12 CK-12	SC_1204_	12	18	0,8	50	20	8	16	5	37	7	30011147
STF...	STFCR 06 CK-09	TC_0902_	6	10	0,4	25	11	5	6	2,5	18	17	30011148
	STFCL 06 CK-09	TC_0902_	6	10	0,4	25	11	5	6	2,5	18	17	30011149
	STFCR 10 CK-11	TC_1102_	10	14	0,4	40	17	8	15	5	33	11	30011150
	STFCL 10 CK-11	TC_1102_	10	14	0,4	40	17	8	15	5	33	11	30011151
	STFCR 12 CK-16	TC_16T3_	12	18	0,8	50	20	8	16	5	37	12	30011152
	STFCL 12 CK-16	TC_16T3_	12	18	0,8	50	20	8	16	5	37	12	30011153

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately.
Dimensions in mm.

Compact cartridges

Form G, L



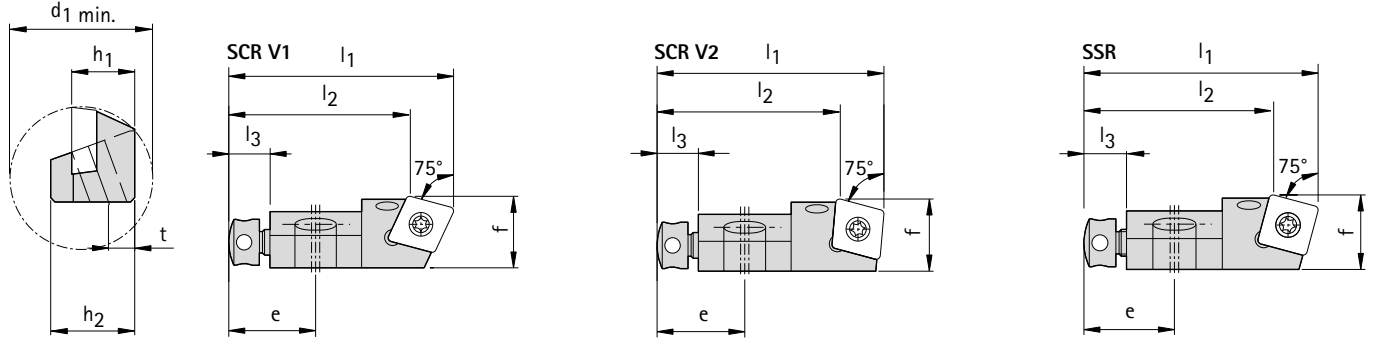
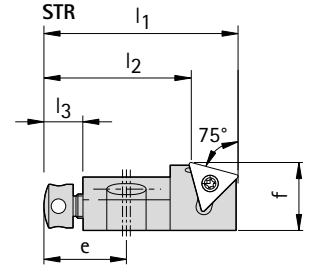
Drawings of right design, example SCGCR.

	Specification	Related indexable insert	Dimensions									Accessory group	Order No.
			h_1	f (referred to R-Nom)	R-Nom	l_1	e	l_3	h_2	t	$d_{1 \text{ min.}}$		
SCG...	SCGCR 06 CK-06V1	CC_0602_	6	8,5	0,4	25	11	5	6	2,5	18	10	30011154
	SCGCL 06 CK-06V1	CC_0602_	6	8,5	0,4	25	11	5	6	2,5	18	10	30011155
	SCGCR 06 CK-06V2	CC_0602_	6	9,7	0,4	25	11	5	6	2,5	18	10	30011156
	SCGCL 06 CK-06V2	CC_0602_	6	9,7	0,4	25	11	5	6	2,5	18	10	30011157
	SCGCR 10 CK-09	CC_09T3_	10	14	0,8	40	17	8	15	5	33	15	30011158
	SCGCL 10 CK-09	CC_09T3_	10	14	0,8	40	17	8	15	5	33	15	30011159
	SCGCR 12 CK-12	CC_1204_	12	18	0,8	50	20	8	16	5	37	8	30011160
	SCGCL 12 CK-12	CC_1204_	12	18	0,8	50	20	8	16	5	37	8	30011161
SCL...	SCLCR 06 CK-06V1	CC_0602_	6	8,5	0,4	25	11	5	6	2,5	18	10	30011162
	SCLCL 06 CK-06V1	CC_0602_	6	8,5	0,4	25	11	5	6	2,5	18	10	30011163
	SCLCR 06 CK-06V2	CC_0602_	6	9,7	0,4	25	11	5	6	2,5	18	10	30011164
	SCLCL 06 CK-06V2	CC_0602_	6	9,7	0,4	25	11	5	6	2,5	18	10	30011165
	SCLCR 10 CK-09	CC_09T3_	10	14	0,8	40	17	8	15	5	33	15	30011166
	SCLCL 10 CK-09	CC_09T3_	10	14	0,8	40	17	8	15	5	33	15	30011167
	SCLCR 12 CK-12	CC_1204_	12	18	0,8	50	20	8	16	5	37	7	30011168
	SCLCL 12 CK-12	CC_1204_	12	18	0,8	50	20	8	16	5	37	7	30011169

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately.
Dimensions in mm.

Compact cartridges

Form R



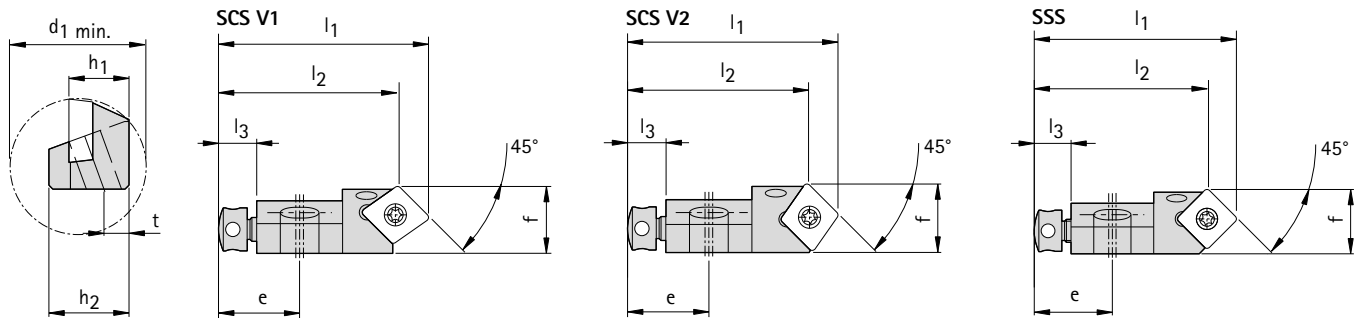
Drawings of right design, example SCRCR.

	Specification	Related indexable insert	Dimensions										Accessory group	Order No.
			<i>h</i> ₁	<i>f</i>	R-Nom	<i>l</i> ₁	<i>l</i> ₂	<i>e</i>	<i>l</i> ₃	<i>h</i> ₂	<i>t</i>	<i>d</i> _{1 min.}		
SCR...V1	SCRCR 06 CK-06 V1	CC_0602_	6	9,7	0,4	25	19,2	11	5	6	2,5	18	9	30011170
	SCRCL 06 CK-06 V1	CC_0602_	6	9,7	0,4	25	19,2	11	5	6	2,5	18	9	30011171
	SCRCR 10 CK-09 V1	CC_09T3_	10	14	0,8	44	35,5	17	8	15	5	33	14	30011172
	SCRCL 10 CK-09 V1	CC_09T3_	10	14	0,8	44	35,5	17	8	15	5	33	14	30011173
SCR...V2	SCRCR 06 CK-06 V2	CC_0602_	6	10	0,4	25	19,2	11	5	6	2,5	18	9	30011174
	SCRCL 06 CK-06 V2	CC_0602_	6	10	0,4	25	19,2	11	5	6	2,5	18	9	30011175
	SCRCR 10 CK-09 V2	CC_09T3_	10	14	0,8	44	35,5	17	8	15	5	33	16	30011176
	SCRCL 10 CK-09 V2	CC_09T3_	10	14	0,8	44	35,5	17	8	15	5	33	16	30011177
SSR...	SSRPR 08 CK-06	SP_0603_	8	10	0,4	32	26,3	17	5	10	4,5	24	13	30011178
	SSRPL 08 CK-06	SP_0603_	8	10	0,4	32	26,3	17	5	10	4,5	24	13	30011179
	SSRCR 10 CK-09	SC_09T3_	10	14	0,8	44	35,7	17	8	15	5	33	16	30011180
	SSRCL 10 CK-09	SC_09T3_	10	14	0,8	44	35,7	17	8	15	5	33	16	30011181
	SSRCR 12 CK-12	SC_1204_	12	18	0,8	50	38,6	20	8	16	5	37	7	30011182
	SSRCL 12 CK-12	SC_1204_	12	18	0,8	50	38,6	20	8	16	5	37	7	30011183
STR...	STRCR 06 CK-09	TC_0902_	6	10	0,4	25	16,7	11	5	6	2,5	18	17	30011184
	STRCL 06 CK-09	TC_0902_	6	10	0,4	25	16,7	11	5	6	2,5	18	17	30011185
	STRCR 10 CK-11	TC_1102_	10	14	0,4	40	30,4	17	8	15	5	33	11	30011186
	STRCL 10 CK-11	TC_1102_	10	14	0,4	40	30,4	17	8	15	5	33	11	30011187
	STRCR 12 CK-16	TC_16T3_	12	18	0,8	50	36,1	20	8	16	5	37	12	30011188
	STRCL 12 CK-16	TC_16T3_	12	18	0,8	50	36,1	20	8	16	5	37	12	30011189

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately. Dimensions in mm.

Compact cartridges

Form S



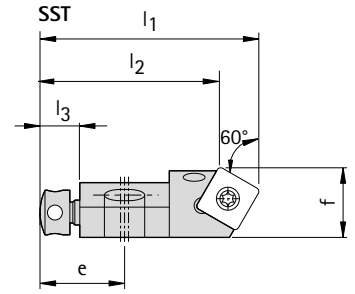
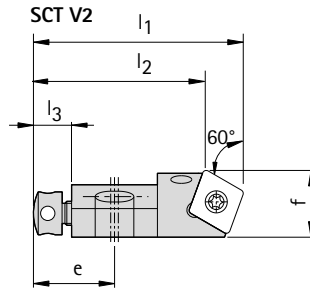
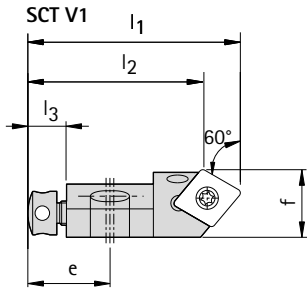
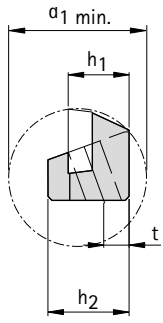
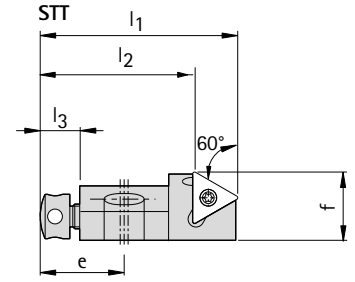
Drawings of right design, example SCSCR.

	Specification	Related indexable insert	Dimensions										Accessory group	Order No.
			h_1	f	R-Nom	l_1	l_2	e	l_3	h_2	t	$d_1 \text{ min.}$		
SCS...V1	SCSCR 06 CK-06 V1	CC_0602_	6	9,7	0,4	25	20,8	11	5	6	2,5	18	9	30011190
	SCSCL 06 CK-06 V1	CC_0602_	6	9,7	0,4	25	20,8	11	5	6	2,5	18	9	30011191
	SCSCR 10 CK-09 V1	CC_09T3_	10	14	0,8	44	37,8	17	8	15	5	33	14	30011192
	SCSCL 10 CK-09 V1	CC_09T3_	10	14	0,8	44	37,8	17	8	15	5	33	14	30011193
SCS...V2	SCSCR 06 CK-06 V2	CC_0602_	6	10	0,4	25	20,8	11	5	6	2,5	18	9	30011194
	SCSCL 06 CK-06 V2	CC_0602_	6	10	0,4	25	20,8	11	5	6	2,5	18	9	30011195
	SCSCR 10 CK-09 V2	CC_09T3_	10	14,3	0,8	44	37,8	17	8	15	5	33	14	30011196
	SCSCL 10 CK-09 V2	CC_09T3_	10	14,3	0,8	44	37,8	17	8	15	5	33	14	30011197
SSS...	SSSPR 08 CK-06	SP_0603_	8	10	0,4	32	27,8	17	5	10	4,5	24	13	30011198
	SSSPL 08 CK-06	SP_0603_	8	10	0,4	32	27,8	17	5	10	4,5	24	13	30011199
	SSSCR 10 CK-09	SC_09T3_	10	14	0,8	44	37,9	17	8	15	5	33	14	30011200
	SSSCL 10 CK-09	SC_09T3_	10	14	0,8	44	37,9	17	8	15	5	33	14	30011201
	SSSCR 12 CK-12	SC_1204_	12	18	0,8	50	41,7	20	8	16	5	37	7	30011202
	SSSCL 12 CK-12	SC_1204_	12	18	0,8	50	41,7	20	8	16	5	37	7	30011203
STS...	STSCR 06 CK-09	TC_0902_	6	10	0,4	25	18,9	11	5	6	2,5	18	17	30011204
	STSCL 06 CK-09	TC_0902_	6	10	0,4	25	18,9	11	5	6	2,5	18	17	30011205
	STSCR 10 CK-11	TC_1102_	10	14	0,4	40	33	17	8	15	5	33	11	30011206
	STSCL 10 CK-11	TC_1102_	10	14	0,4	40	33	17	8	15	5	33	11	30011207
	STSCR 12 CK-16	TC_16T3_	12	18	0,8	50	39,8	20	8	16	5	37	12	30011208
	STSCL 12 CK-16	TC_16T3_	12	18	0,8	50	39,8	20	8	16	5	37	12	30011209

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately. Dimensions in mm.

Compact cartridges

Form T



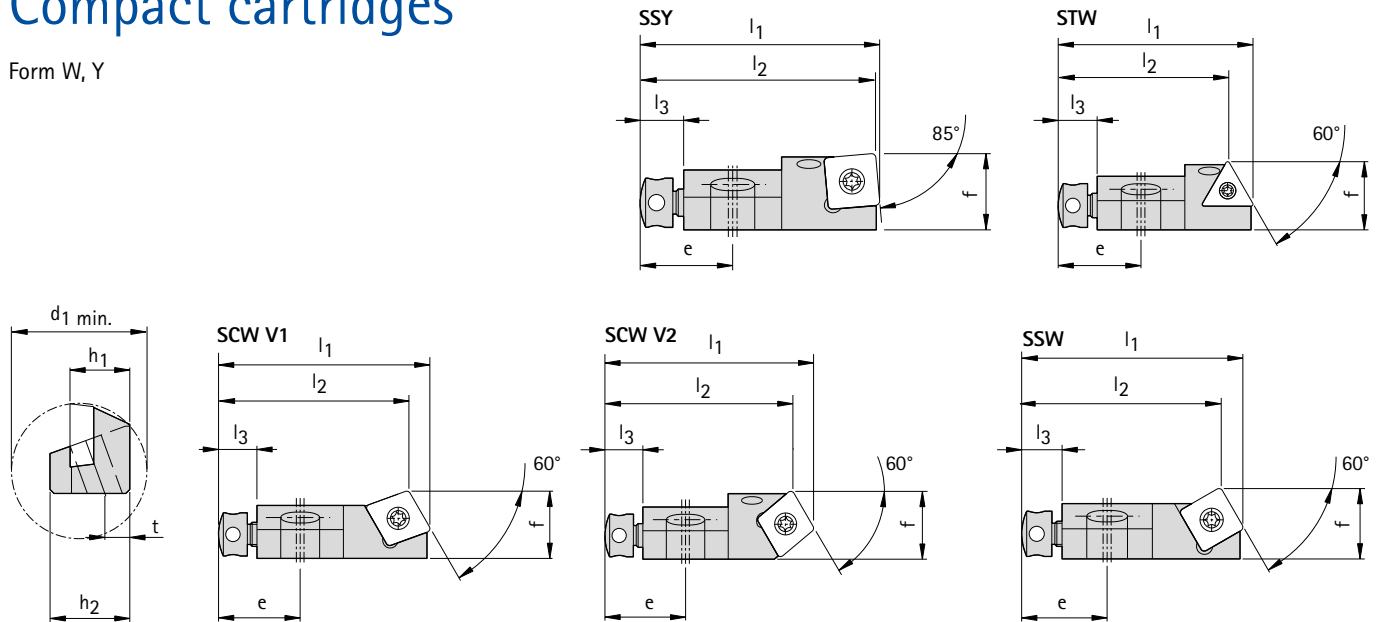
Drawings of right design, example SCTCR.

Specification	Related indexable insert	Dimensions											Accessory group	Order No.
		h_1	f	R-Nom	l_1	l_2	e	l_3	h_2	t	$d_1 \text{ min.}$			
SCT...V1	SCTCR 06 CK-06 V1	CC_0602_	6	9,7	0,4	25	19,8	11	5	6	2,5	18	9	30011210
	SCTCL 06 CK-06 V1	CC_0602_	6	9,7	0,4	25	19,8	11	5	6	2,5	18	9	30011211
	SCTCR 10 CK-09 V1	CC_09T3_	10	14	0,8	44	36,5	17	8	15	5	33	14	30011212
	SCTCL 10 CK-09 V1	CC_09T3_	10	14	0,8	44	36,5	17	8	15	5	33	14	30011213
SCT...V2	SCTCR 06 CK-06 V2	CC_0602_	6	10	0,4	25	19,8	11	5	6	2,5	18	9	30011214
	SCTCL 06 CK-06 V2	CC_0602_	6	10	0,4	25	19,8	11	5	6	2,5	18	9	30011215
	SCTCR 10 CK-09 V2	CC_09T3_	10	14	0,8	44	36,5	17	8	15	5	33	16	30011216
	SCTCL 10 CK-09 V2	CC_09T3_	10	14	0,8	44	36,5	17	8	15	5	33	16	30011217
SST...	SSTPR 08 CK-06	SP_0603_	8	10	0,4	32	26,9	17	5	10	4,5	24	13	30011218
	SSTPL 08 CK-06	SP_0603_	8	10	0,4	32	26,9	17	5	10	4,5	24	13	30011219
	SSTCR 10 CK-09	SC_09T3_	10	14	0,8	44	36,6	17	8	15	5	33	14	30011220
	SSTCL 10 CK-09	SC_09T3_	10	14	0,8	44	36,6	17	8	15	5	33	14	30011221
	SSTCR 12 CK-12	SC_1204_	12	18	0,8	50	39,8	20	8	16	5	37	7	30011222
	SSTCL 12 CK-12	SC_1204_	12	18	0,8	50	39,8	20	8	16	5	37	7	30011223
STT...	STTCR 06 CK-09	TC_0902_	6	10	0,4	25	17,6	11	5	6	2,5	18	17	30011224
	STTCL 06 CK-09	TC_0902_	6	10	0,4	25	17,6	11	5	6	2,5	18	17	30011225
	STTCR 10 CK-11	TC_1102_	10	14	0,4	40	31,4	17	8	15	5	33	11	30011226
	STTCL 10 CK-11	TC_1102_	10	14	0,4	40	31,4	17	8	15	5	33	11	30011227
	STTCR 12 CK-16	TC_16T3_	12	18	0,8	50	37,5	20	8	16	5	37	12	30011228
	STTCL 12 CK-16	TC_16T3_	12	18	0,8	50	37,5	20	8	16	5	37	12	30011229

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately. Dimensions in mm.

Compact cartridges

Form W, Y



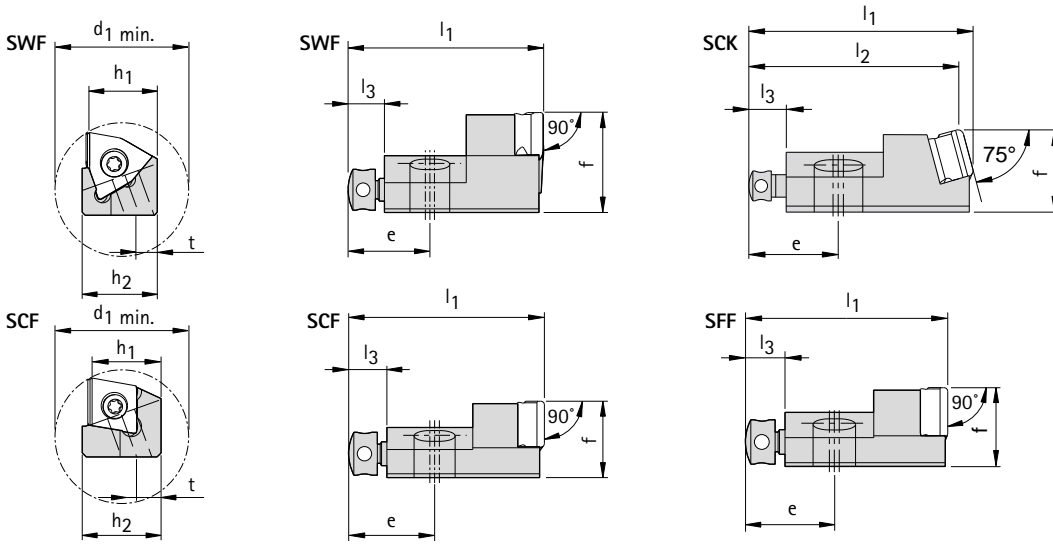
Drawings of right design, example SCWCR.

	Specification	Related indexable insert	Dimensions										Accessory group	Order No.
			h_1	f	R-Nom	l_1	l_2	e	l_3	h_2	t	$d_1 \text{ min.}$		
SCW...V1	SCWCR 06 CK-06 V1	CC_0602_	6	9,7	0,4	25	22	11	5	6	2,5	18	9	30011230
	SCWCL 06 CK-06 V1	CC_0602_	6	9,7	0,4	25	22	11	5	6	2,5	18	9	30011231
	SCWCR 10 CK-09 V1	CC_09T3_	10	14	0,8	44	39,6	17	8	15	5	33	16	30011232
	SCWCL 10 CK-09 V1	CC_09T3_	10	14	0,8	44	39,6	17	8	15	5	33	16	30011233
SCW...V2	SCWCR 06 CK-06 V2	CC_0602_	6	10	0,4	25	22	11	5	6	2,5	18	9	30011234
	SCWCL 06 CK-06 V2	CC_0602_	6	10	0,4	25	22	11	5	6	2,5	18	9	30011235
	SCWCR 10 CK-09 V2	CC_09T3_	10	14,3	0,8	44	39,6	17	8	15	5	33	14	30011236
	SCWCL 10 CK-09 V2	CC_09T3_	10	14,3	0,8	44	39,6	17	8	15	5	33	14	30011237
SSW...	SSWPR 08 CK-06	SP_0603_	8	10	0,4	32	29,1	17	5	10	4,5	24	13	30011238
	SSWPL 08 CK-06	SP_0603_	8	10	0,4	32	29,1	17	5	10	4,5	24	13	30011239
	SSWCR 10 CK-09	SC_09T3_	10	14	0,8	44	39,7	17	8	15	5	33	16	30011240
	SSWCL 10 CK-09	SC_09T3_	10	14	0,8	44	39,7	17	8	15	5	33	16	30011241
	SSWCR 12 CK-12	SC_1204_	12	18	0,8	50	44,1	20	8	16	5	37	7	30011242
	SSWCL 12 CK-12	SC_1204_	12	18	0,8	50	44,1	20	8	16	5	37	7	30011243
STW...	STWCR 06 CK-09	TC_0902_	6	10	0,4	25	20,7	11	5	6	2,5	18	17	30011244
	STWCL 06 CK-09	TC_0902_	6	10	0,4	25	20,7	11	5	6	2,5	18	17	30011245
	STWCR 10 CK-11	TC_1102_	10	14	0,4	40	35	17	8	15	5	33	11	30011246
	STWCL 10 CK-11	TC_1102_	10	14	0,4	40	35	17	8	15	5	33	11	30011247
	STWCR 12 CK-16	TC_16T3_	12	18	0,8	50	42,8	20	8	16	5	37	12	30011248
	STWCL 12 CK-16	TC_16T3_	12	18	0,8	50	42,8	20	8	16	5	37	12	30011249
SSY...	SSYPR 08 CK-06	SP_0603_	8	10	0,4	32	31,5	17	5	10	4,5	24	13	30011250
	SSYPL 08 CK-06	SP_0603_	8	10	0,4	32	31,5	17	5	10	4,5	24	13	30011251
	SSYCR 10 CK-09	SC_09T3_	10	14	0,8	44	43,2	17	8	15	5	33	16	30011252
	SSYCL 10 CK-09	SC_09T3_	10	14	0,8	44	43,2	17	8	15	5	33	16	30011253
	SSYCR 12 CK-12	SC_1204_	12	18	0,8	50	49	20	8	16	5	37	7	30011254
	SSYCL 12 CK-12	SC_1204_	12	18	0,8	50	49	20	8	16	5	37	7	30011255

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately.
Dimensions in mm.

Compact cartridges for tangential indexable inserts

Form F, K



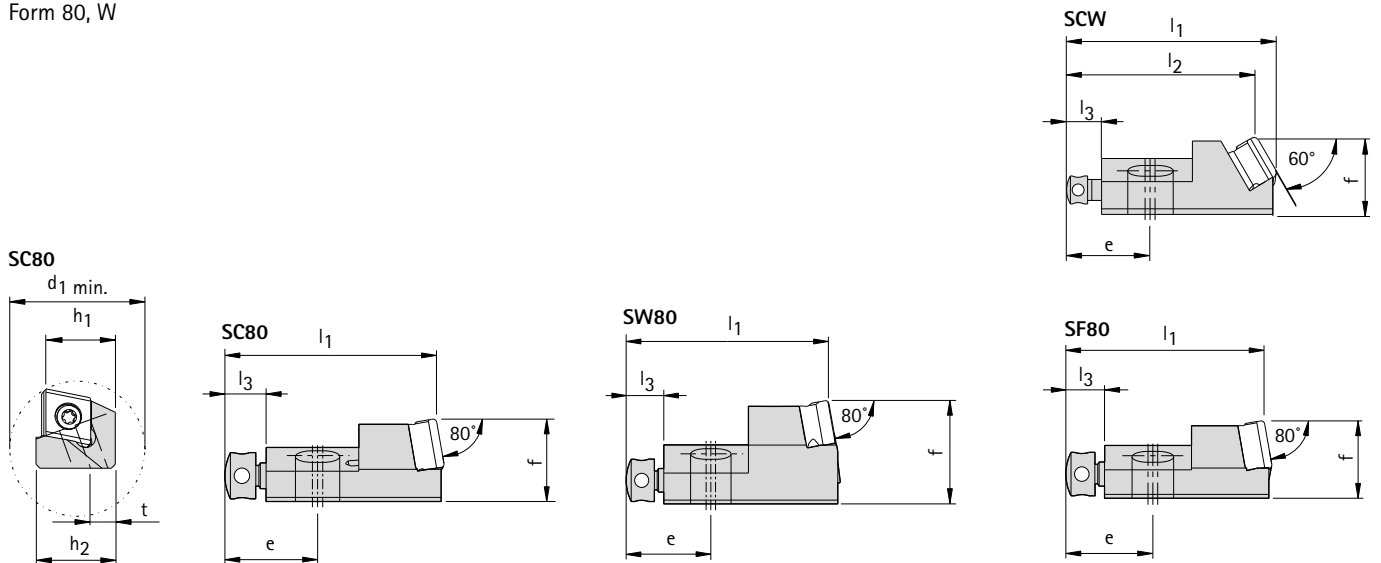
Drawings of right design, example SCFNR.

Specification	Related indexable insert	Dimensions											Accessory group	Order No.
		h_1	f <small>(referred to R-Nom)</small>	R-Nom	l_1	l_2	e	l_3	h_2	t	$d_1 \text{ min.}$			
SCF...	SCFNR 10 CT-06	CTHQ0604__	10	11	0,8	29	-	12	5	10,5	5	40	22	30305015
	SCFNR 14 CT-09	CTHQ0905__	14	16	0,8	41	-	18	8	16	7	65	24	30305018
	SCFNR 18 CT-12	CTHQ1206__	18	22	0,8	43	-	18	8	20	7	75	26	30305020
	SCFDR 10 CT-06	CTHD0603__	10	11	0,8	29	-	12	5	10,5	5	40	22	30552260
	SCFDR 14 CT-09	CTHD09T3__	14	16	0,8	41	-	18	8	16	7	65	20	30552263
	SCFDR 18 CT-12	CTHD1204__	18	22	0,8	43	-	18	8	20	7	75	18	30552264
SWF...	SWFNR 14 CT-07	WTHQ0705__	14	16	0,8	41	-	18	8	16	7	44	20	30305010
	SWFNR 18 CT-09	WTHQ0906__	18	22	0,8	43	-	18	8	20	7	59,5	18	30305013
SFF...	SFFNR 10 CT-06	FTHQ0604__	10	11	0,8	29	-	12	5	10,5	5	35	22	30305022
	SFFNR 14 CT-09	FTHQ0905__	14	16	0,8	41	-	18	8	16	7	44	24	30305024
	SFFNR 18 CT-12	FTHQ1206__	18	22	0,8	43	-	18	8	20	7	59,5	26	30305026
SCK...	SCKNR 10 CT-06	CTHQ0604__	10	11	0,8	30	28,5	12	5	10,5	5	40	23	30552278
	SCKNR 14 CT-09	CTHQ0905__	14	16	0,8	42,5	40,2	18	8	16	7	65	21	30552279
	SCKDR 10 CT-06	CTHD0603__	10	11	0,8	30	28,5	12	5	10,5	5	40	23	30552270
	SCKDR 14 CT-09	CTHD09T3__	14	16	0,8	42,5	40,2	18	8	16	7	65	21	30552271

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately. Dimensions in mm.

Compact cartridges for tangential indexable inserts

Form 80, W



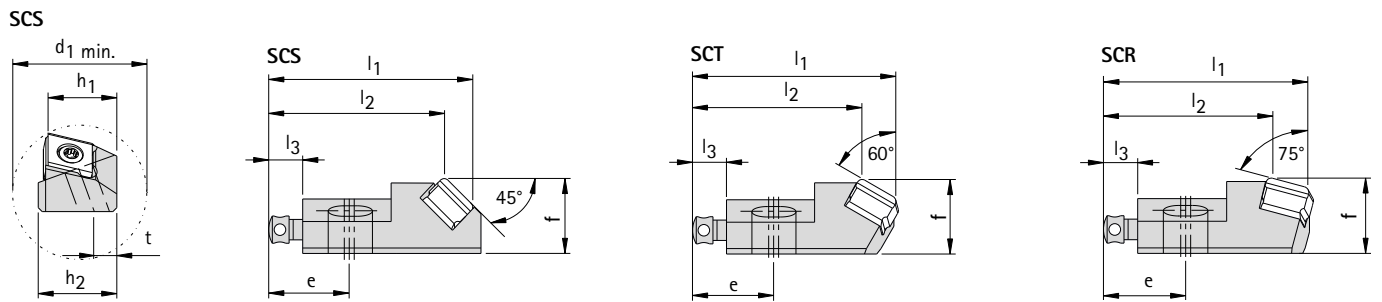
Drawings of right design, example SC80NR.

Specification	Related indexable insert	Dimensions											Accessory group	Order No.
		h_1	f	R-Nom	l_1	l_2	e	l_3	h_2	t	$d_1 \text{ min.}$			
SC80...	SC80NR 10 CT-06	CTHQ0604__	10	11	0,8	29	-	12	5	10,5	5	40	23	30305016
	SC80NR 14 CT-09	CTHQ0905__	14	16	0,8	41	-	18	8	16	7	65	25	30305019
	SC80NR 18 CT-12	CTHQ1206__	18	22	0,8	43	-	18	8	20	7	75	27	30305021
	SC80DR 10 CT-06	CTHD0603__	10	11	0,8	29	-	12	5	10,5	5	40	23	30552265
	SC80DR 14 CT-09	CTHD09T3__	14	16	0,8	41	-	18	8	16	7	65	21	30552266
	SC80DR 18 CT-12	CTHD1204__	18	22	0,8	43	-	18	8	20	7	75	19	30552267
SW80...	SW80NR 14 CT-07	WTHQ0705__	14	16	0,8	41	-	18	8	16	7	44	21	30305012
	SW80NR 18 CT-09	WTHQ0906__	18	22	0,8	43	-	18	8	20	7	59,5	19	30305014
SF80...	SF80NR 10 CT-06	FTHQ0604__	10	11	0,8	29	-	12	5	10,5	5	35	23	30305023
	SF80NR 14 CT-09	FTHQ0905__	14	16	0,8	41	-	18	8	16	7	44	25	30305025
	SF80NR 18 CT-12	FTHQ1206__	18	22	0,8	43	-	18	8	20	7	59,5	27	30305027
SCW...	SCWNR 10 CT-06	CTHQ0604__	10	11	0,8	30	27,1	12	5	10,5	5	40	23	30552280
	SCWNR 14 CT-09	CTHQ0905__	14	16	0,8	42,5	38	18	8	16	7	65	21	30552281
	SCWDR 10 CT-06	CTHD0603__	10	11	0,8	30	27,1	12	5	10,5	5	40	23	30552272
	SCWDR 14 CT-09	CTHD09T3__	14	16	0,8	42,5	38	18	8	16	7	65	21	30552273

Items included: Cartridge with add-on parts. Please order indexable inserts and accessories separately.
Dimensions in mm.

Compact cartridges for tangential indexable inserts

Form S, T, R

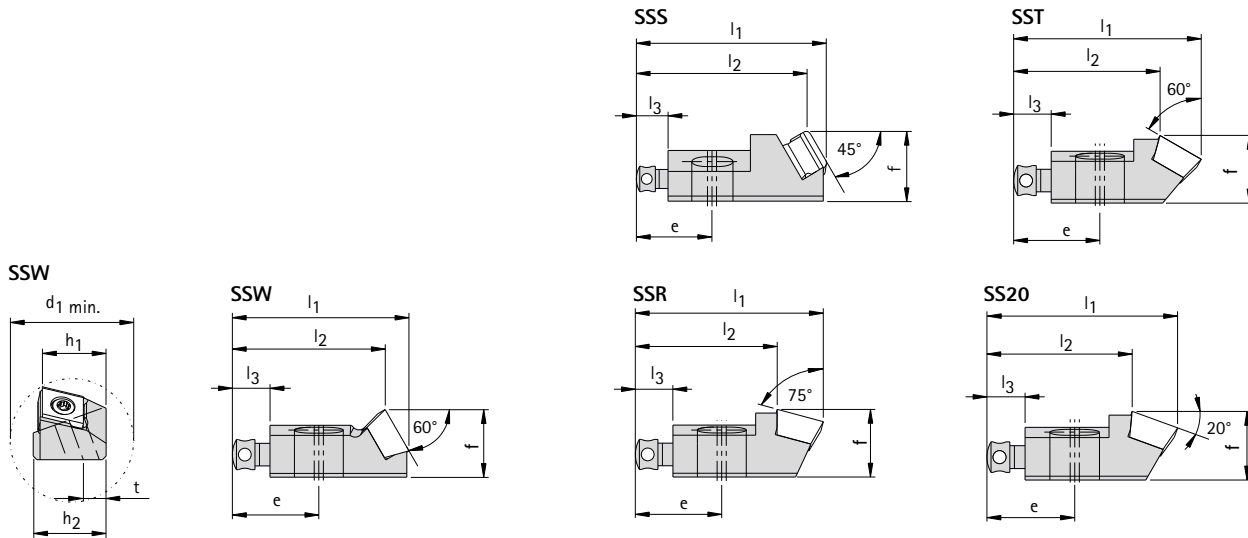


Drawings of right design, example SCSNR.

	Specification	Related indexable insert	Dimensions										Accessory group	Order No.
			h_1	f (referred to R-Nom)	R-Nom	l_1	l_2	e	l_3	h_2	t	d_1 min.		
SCS...	SCSNR 10 CT-06	CTHQ0604__	10	11	0,8	30	25,8	12	5	10,5	5	40	31	30552282
	SCSNR 14 CT-09	CTHQ0905__	14	16	0,8	42,5	36	18	8	16	7	65	30	30552283
	SCSDR 10 CT-06	CTHD0603__	10	11	0,8	30	25,8	12	5	10,5	5	40	31	30552268
	SCSDR 14 CT-09	CTHD09T3__	14	16	0,8	42,5	36	18	8	16	7	65	30	30552269
SCT...	SCTNR 10 CT-06	CTHQ0604__	10	11	0,8	30	24,7	12	5	10,5	5	40	22	30552284
	SCTNR 14 CT-09	CTHQ0905__	14	16	0,8	42,5	34,4	18	8	16	7	65	20	30552285
	SCTDR 10 CT-06	CTHD0603__	10	11	0,8	30	24,7	12	5	10,5	5	40	22	30552274
	SCTDR 14 CT-09	CTHD09T3__	14	16	0,8	42,5	34,4	18	8	16	7	65	20	30552275
SCR...	SCRNR 10 CT-06	CTHQ0604__	10	11	0,8	30	24	12	5	10,5	5	40	22	30552286
	SCRNR 14 CT-09	CTHQ0905__	14	16	0,8	42,5	33,3	18	8	16	7	65	20	30552287
	SCRDR 10 CT-06	CTHD0603__	10	11	0,8	30	24	12	5	10,5	5	40	22	30552276
	SCRDR 14 CT-09	CTHD09T3__	14	16	0,8	42,5	33,3	18	8	16	7	65	20	30552277

Compact cartridges for tangential indexable inserts

Form W, S, T, 20, R



Drawings of right design, example SSWDR.

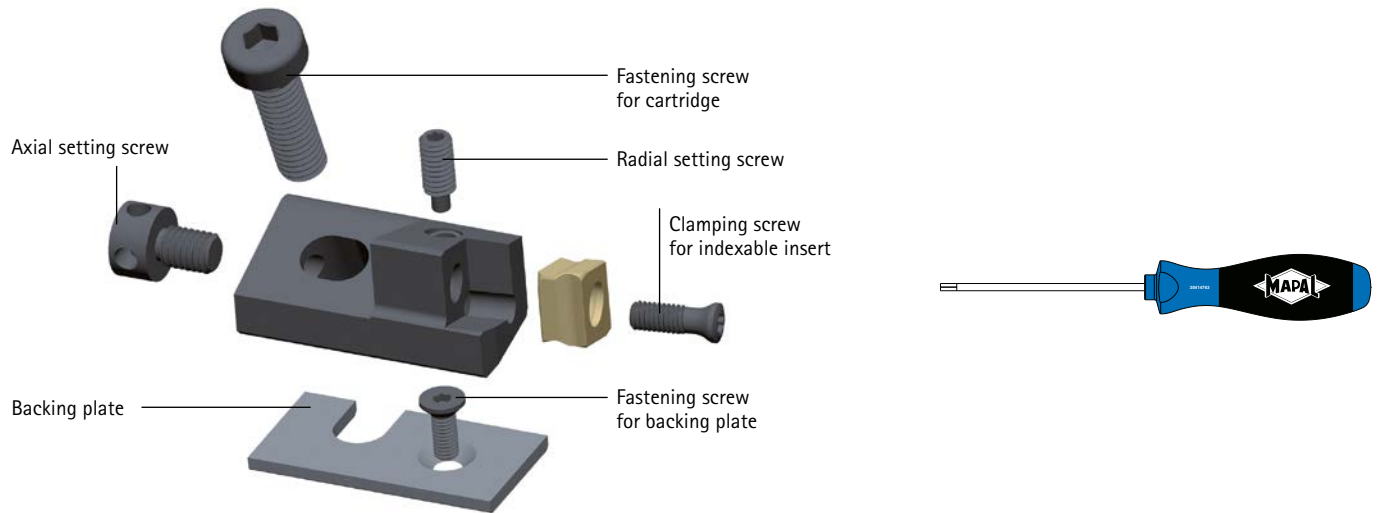
Specification	Related indexable insert	Dimensions										Accessory group	Order No.
		h_1	f (referred to R-Nom)	R-Nom	l_1	e	l_3	h_2	t	$d_1 \text{ min.}$			
SSWDR...	SSWDR 08 CT-06	STHD0603__	8,5	9	23,5	20,3	11,5	5	8,2	3,2	33	28	30552290
	SSWDR 14 CT-09	STHD09T3__	14	13,5	35,7	31	18	8	13,5	5	50	32	30552291
SSSDR...	SSSDR 08 CT-06	STHD0603__	8,5	9	23,5	19	11,5	5	8,2	3,2	33	28	30474905
	SSSDR 14 CT-09	STHD09T3__	14	13,5	35,7	29	18	8	13,5	5	50	32	30474906
SSTD...	SSTD 08 CT-06	STHD0603__	8,5	9	25	19,5	11,5	5	8,2	3,2	33	28	30552292
	SSTD 14 CT-09	STHD09T3__	14	13,5	38	29,8	18	8	13,5	5	50	32	30552293
SS20DR...	SS20DR 08 CT-06	STHD0603__	8,5	9	25	19	11,5	5	8,2	3,2	33	28	30552294
	SS20DR 14 CT-09	STHD09T3__	14	13,5	38	29	18	8	13,5	5	50	32	30552295
SSRDR...	SSRDR 08 CT-06	STHD0603__	8,2	9	25	18,9	11,5	5	8,2	3,2	33	28	30552288
	SSRDR 14 CT-09	STHD09T3__	14	13,5	38	28,8	18	8	13,5	5	50	32	30552289

Accessories for ISO cartridges and compact cartridges

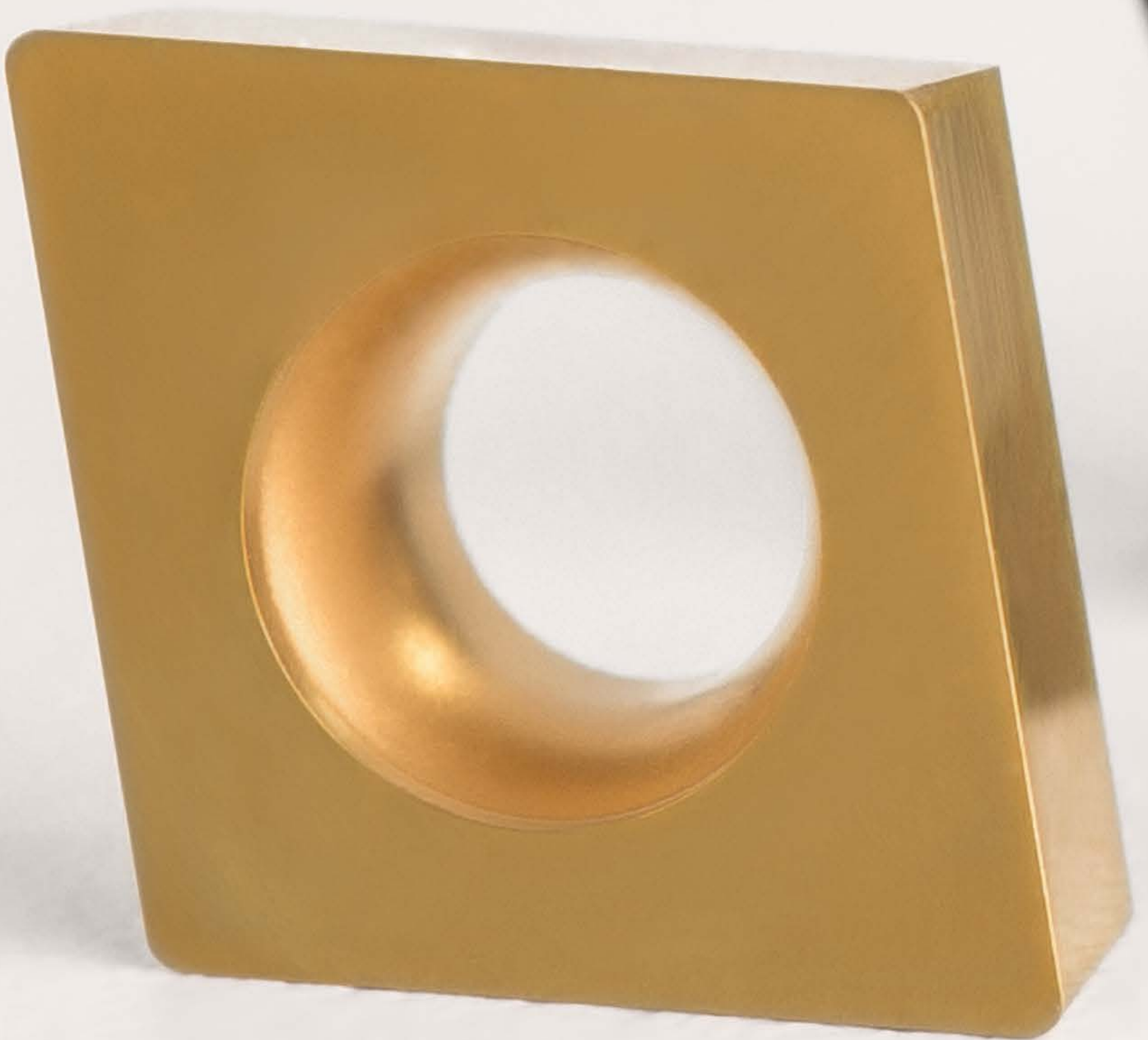
Radial and tangential design



Accessory group	Fastening screw for cartridge			Axial setting screw		Radial setting screw		
	Order designation cylinder head screw	Tightening torque [Nm]	Order No.	Order designation capstan screw	Order No.	Order designation threaded pin	Order No.	
ISO cartridge	1	DIN7984 M6x20-10.9	12	10019671	M5 x 10	10029150	DIN913 M4x10-45H	10003433
	2	DIN7984 M4x12-10.9	3	10019695	M3 x 8	10002641	DIN913 M3x6-45H	10003422
	3	DIN7984 M4x12-10.9	3	10019695	M3 x 8	10002641	DIN913 M3x6-45H	10003422
	4	DIN7984 M6x16-10.9	12	10019703	M5 x 10	10029150	DIN913 M4x8-45H	10003432
	5	DIN7984 M6x16-10.9	12	10019703	M5 x 10	10029150	DIN913 M4x8-45H	10003432
	6	DIN7984 M6x20-10.9	12	10019671	M5 x 10	10029150	DIN913 M4x10-45H	10003433
Compact cartridges	7	MN685 M6x25-TX25-IP	12	30606074	M5 x 7	10018493	DIN915 M4x10-45H	10003900
	8	MN685 M6x25-TX25-IP	12	30606074	M5 x 7	10018493	DIN915 M4x10-45H	10003900
	9	MN685 M3x10-TX9-IP	1.8	30606065	M3 x 5	10025039	DIN915 M3x6-45H	10003894
	10	MN685 M3x10-TX9-IP	1.8	30606065	M3 x 5	10025039	DIN915 M3x6-45H	10003894
	11	MN685 M6x20-TX25-IP	12	30606068	M5 x 7	10018493	DIN915 M4x10-45H	10003900
	12	MN685 M6x25-TX25-IP	12	30606074	M5 x 7	10018493	DIN915 M4x10-45H	10003900
	13	MN685 M4x14-TX15-IP	3	30606067	M3 x 5	10025039	DIN915 M3x6-45H	10003894
	14	MN685 M6x20-TX25-IP	12	30606068	M5 x 7	10018493	DIN915 M4x10-45H	10003900
	15	MN685 M6x20-TX25-IP	12	30606068	M5 x 7	10018493	DIN915 M4x10-45H	10003900
	16	MN685 M6x20-TX25-IP	12	30606068	M5 x 7	10018493	DIN915 M4x10-45H	10003900
	17	MN685 M3x10-TX9-IP	1.8	30606065	M3 x 5	10025039	DIN915 M3x6-45H	10003894
Tangential compact cartridges	18	ISO 4762-M6X25-12.9	12	10003620	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	19	ISO 4762-M6X25-12.9	12	10003620	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	20	DIN 7984-M6X20-10.9	12	10019671	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	21	DIN 7984-M6X20-10.9	12	10019671	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	22	DIN 7984-M4X16-10.9	3	10019685	M3 x 5	10025039	ISO 4028-M3x6-45H-KL	30351529
	23	DIN 7984-M4X16-10.9	3	10019685	M3 x 5	10025039	ISO 4028-M3x6-45H-KL	30351529
	24	DIN 7984-M6X20-10.9	12	10019671	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	25	DIN 7984-M6X20-10.9	12	10019671	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	26	ISO 4762-M6X25-12.9	12	10003620	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	27	ISO 4762-M6X25-12.9	12	10003620	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	28	MN685 M4x14-TX15-IP	3	30606067	M3 x 5	10025039	-	-
	29	ISO 4762-M6X25-12.9	12	10003620	M5 x 7	10018493	-	-
	30	DIN 7984-M6X20-10.9	12	10019671	M5 x 7	10018493	ISO 4028-M4x10-45H-KL	30351530
	31	DIN 7984-M4X16-10.9	3	10019685	M3 x 5	10025039	ISO 4028-M3x6-45H-KL	30351529
	32	MN685 M6x20-TX25-IP	12	30606068	M5 x 7	10018493	-	-



	Backing plate right		Backing plate left		Fastening screw for backing plate		
	Order designation backing plate	Order No.	Order designation backing plate	Order No.	Order designation countersunk screw	Tightening torque [Nm]	Order No.
	UR 12-1A	10022309	UL 12-1A	10022310	ISO 10642-M3X8-10.9	1.8	10003769
	UR 08-1A	10022305	UL 08-1A	10022306	ISO 10642-M3X6-10.9	1.8	10003768
	UR 08-1A	10022305	UL 08-1A	10022306	ISO 10642-M3X6-10.9	1.8	10003768
	UR 10-1A	10015042	UL 10-1A	10022304	ISO 10642-M3X8-10.9	1.8	10003769
	UR 10-1A	10015042	UL 10-1A	10022304	ISO 10642-M3X8-10.9	1.8	10003769
	UR 12-1A	10022309	UL 12-1A	10022310	ISO 10642-M3X8-10.9	1.8	10003769
	UR 12-1K	30035042	UL 12-1K	30035050	ISO 10642-M3X8-10.9	1.8	10003769
	UR 12-2K	30035043	UL 12-2K	30035051	ISO 10642-M3X8-10.9	1.8	10003769
	UR 06-1K	30035024	UL 06-1K	30035044	ISO 2009-M2X4-4.8	0.5	10029153
	UR 06-2K	30035025	UL 06-2K	30035045	ISO 2009-M2X4-4.8	0.5	10029153
	UR 10-1K	30035029	UL101K	30035047	ISO 10642-M3X8-10.9	1.8	10003769
	UR 12-1K	30035042	UL 12-1K	30035050	ISO 10642-M3X8-10.9	1.8	10003769
	UR 08-1K	30035028	UL 08-1K	30035046	ISO 10642-M3X6-10.9	1.8	10003768
	UR 10-1K	30035029	UL 10-1K	30035047	ISO 10642-M3X8-10.9	1.8	10003769
	UR 10-2K	30035040	UL 10-2K	30035048	ISO 10642-M3X8-10.9	1.8	10003769
	UR 10-3K	30035041	UL 10-3K	30035049	ISO 10642-M3X8-10.9	1.8	10003769
	UR 06-1K	30035024	UL 06-1K	30035044	ISO 2009-M2X4-4.8	0.5	10029153
	UR 18-1T	30310606	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 18-4T	30310845	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 14-1T	30310601	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 14-4T	30310844	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 10-1T	30310598	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 10-2T	30310599	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 14-2T	30310602	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 14-3T	30310604	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 18-2T	30310607	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 18-3T	30310608	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	UR 14-5T	30562278	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	UR 10-3T	30562279	-	-	ISO 10642-M3X8-10.9	1.8	10003769
	-	-	-	-	-	-	-



ISO INDEXABLE INSERTS

MAPAL has a wide range of radial and tangential indexable inserts that covers all requirements for different cutting materials and coatings as well as the related cutting edge geometries and accuracies. Ground, highly accurate indexable inserts in tolerance class (H) make possible, in conjunction with precisely machined insert seats, the smallest variations between the cutting edges on multi-cutting edge tools, even in case of fixed installation, which provides a "real" multi-cutting edge capability and as a result permits significant performance increases.

Sintered radial and tangential indexable inserts in tolerance class (M) expand the programme with particularly cost-effective alternatives, in particular for machining with larger permissible tolerances.



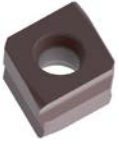
Introduction

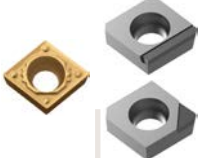
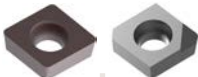

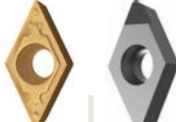

Programme overview	356
Model key	358
Cutting material overview	362

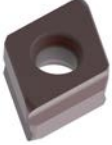

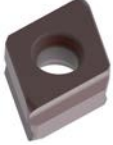



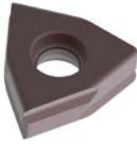

Indexable inserts











Tangential indexable inserts	376
Radial indexable inserts	400
Accessories	430

Programme of indexable inserts for boring

Insert type		Tangential technology					
		CTHD...		CTHQ...		CTMQ...	
							
Features	Number of cutting edges	2		1		4	
	Insert size	06 / 09 / 12		06 / 09 / 12		09 / 12	
	Diameter range	from 28 mm		from 28 mm		from 54 mm	
	Cutting direction	L / R		L / R		L	
	Boring-neutral	■		■		■	
	Boring-arc shaped land			■		■	
	Countersinking / chamfering						
Application	Roughing	■		■		■	
	Medium machining	■		■		■	
	Finishing						
Cutting material	Carbide	■		■		■	
	PCD			■		■	
	PcBN			■		■	
	Ceramic						
	Cermet						
Page		376		380		380	

Insert type		Radial technology									
		CCMT - CCGT...		CCGW...		CCHT...		DCMT - DCGT - DCGW...		SPMT - SCMT - SCGT - SPGT...	
											
Features	Number of cutting edges	2		1		2		2		1	
	Insert size	06 / 09 / 12		06 / 09		06 / 09 / 12		07 / 11		06 / 09 / 12	
	Diameter range	from 17 mm		from 17 mm		from 17 mm		from 18.6 mm		from 17 mm	
	Cutting direction	N		L / R		L / R		N		N	
	Boring-neutral	■		■		■		■		■	
	Boring-arc shaped land										
	Countersinking / chamfering										
Application	Roughing										
	Medium machining	■		■		■		■		■	
	Finishing	■		■		■		■		■	
Cutting material	Carbide	■		■		■		■		■	
	PCD			■				■		■	
	PcBN			■				■		■	
	Ceramic										
	Cermet	■						■		■	
Page		400		402		404		408		410	

FTHQ...		FTMQ...		STHD / STHE...		WTHQ...	
							
4	1	4	4	1	1	6	1
06 / 09 / 12		09		06 / 09		07 / 09	
from 22 mm		from 30 mm		-		from 37 mm	
L / R	L	L / R	N		L / R		
■	■	■		■		■	■
■	■		■	■		■	■
■	■	■				■	
■	■					■	
■		■		■			■
	■				■		■
						■	
386		390		392		394	

SPGW - SCGW...		SPHT - SCHT...		SPHT - SCHT...		TCMT - TCGW...		TCHT...		VBMT - VCMT - VBGW - VCGT - VCGW...	
											
4	1	4	2	3	1	3	1	2	1		
06 / 09 / 12	09 / 12	06 / 09 / 12	06 / 09 / 12	09 / 11 / 16	11	09 / 11 / 16		11 / 16	16		
from 17 mm		from 17 mm		from 17 mm		from 17 mm		VB from 29.1 mm* / VC from 22.2 mm			
N		L / R		N		L / R		N			
■		■		■		■		■			
■		■		■		■		■			
	■				■						■
	■				■						■
412		414		420		422		428			

* With favourable installation situation

Designation code tangential indexable inserts

W
T
H
Q
0
9
0
6
0
8

Insert form

C (80°)
F (70°)
S (90°)
W (80°)

Tolerance

	d [mm]	s [mm]
H	±0.013	±0.025
G	±0.025	±0.13
M	±0.05 - ±0.15	±0.13

Insert type

	D 15° 40°-60°
	F 20° 40°-60°
	Q 40°-60°

Insert size

Incircle					
d [mm]	W	C	F	L	S
6.35	-	06/09	06	-	06
10.16	07	-	-	-	-
9.525	-	09/13	09	15	09
12.7	-	12/18	12	-	-
13.65	09	-	-	-	-

Indexable insert

T
Tangential

Insert thickness

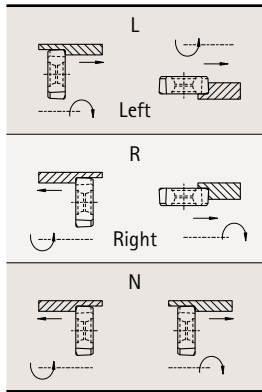
Code	s [mm]
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94

Corner radius

Code	r [mm]
00	0
04	0.4
08	0.8
12	1.2
20	2.0
30	3.0

A 3 2 **L** **0 0** **B 0 4 1** - **H U 6 1 5**

Cutting direction



Contact angle

Boring

Arc shaped land

Code	Angle
00	0°
10	10°

Cutting material

HU615

(Example)

Chip guiding stage

Code letter
A 01...99
C 01...99
D 01...99
G 01...99
H 01...99

Arc shaped land

	Code	Radius	
Installation position	B012	12	CTHQ/FTHQ/WTHQ
	B016	16	
	B021	21	
	B026	25	
	B041	40	
	B081	80	

Designation code radial indexable inserts

S C H T 09 T3

Insert form

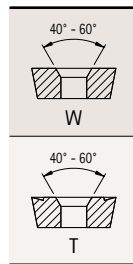
S (90°)	
C (80°)	
T (60°)	
D (55°)	
V (35°)	

Tolerance

	d [mm]	m [mm]	s [mm]
H	±0.013	±0.013	±0.025
G	±0.025	±0.025	From ±0.05 To ±0.13 *
M	From ±0.05 To ±0.15 *	From ±0.08 To ±0.20 *	From ±0.05 To ±0.13 *

* Tolerance independent of the insert size

Insert type



Insert size

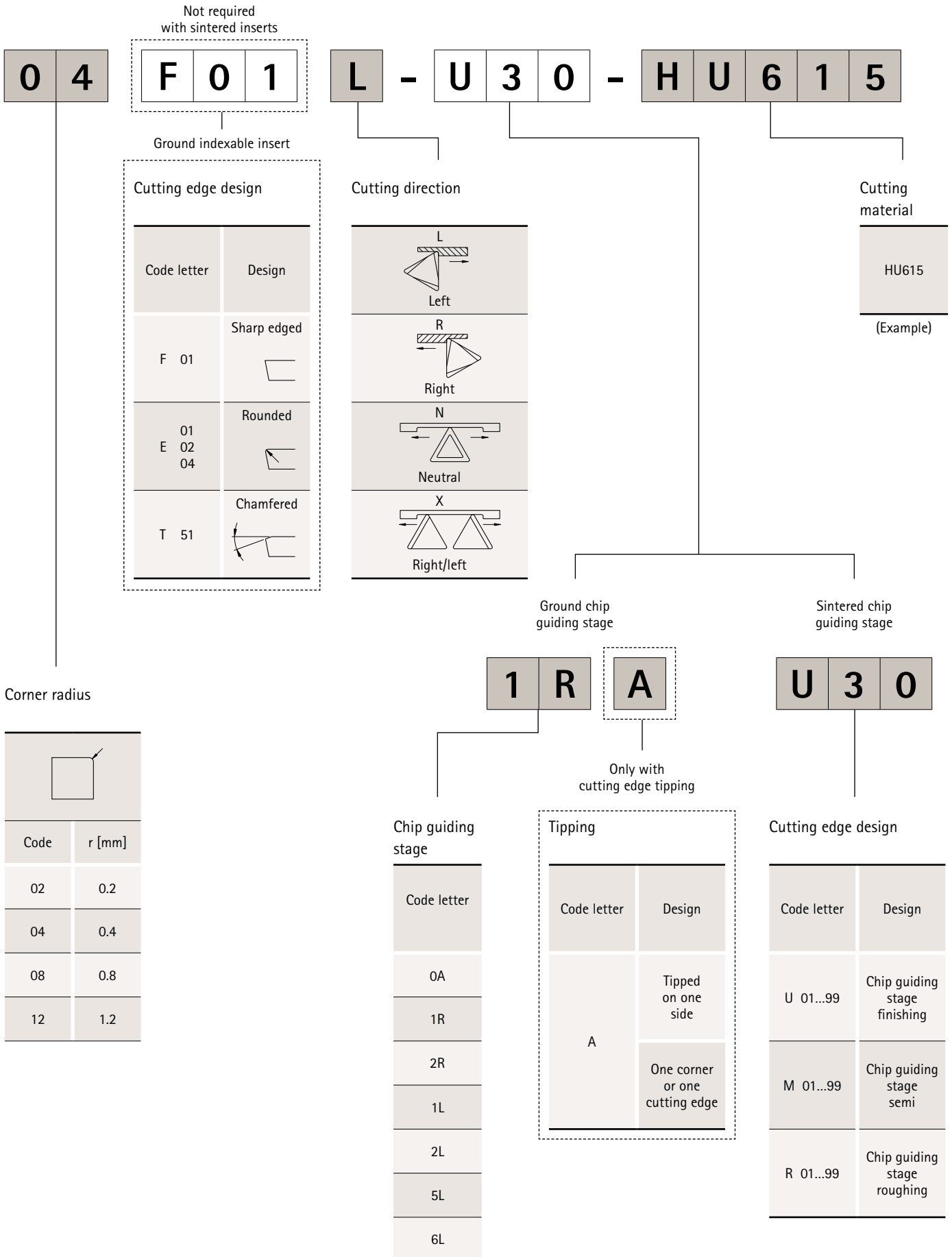
Incircle					
d [mm]	S	C	T	D	V
5.56	-	05	09	-	-
6.35	06	06	11	07	11
6.70	-	-	-	-	-
7.938	07	08	-	-	-
9.525	09	09	16	11	16
9.60	-	-	-	-	-
12.70	12	12	22	15	-
15.875	15	-	-	-	-

Clearance angle

B	5°
C	7°
P	11°

Insert thickness

Code	s [mm]
T1	1.98
02	2.38
03	3.18
T3	3.97
04	4.76



Cutting material overview: Grades and grade description

Cutting material	Cutting material code	Coating composition	Coating colour	Applications	Recommended application
Cermet CVD-coated	CC112	TiCN+ Al ₂ O ₃	Multi-coloured	●	Finest grain cermet grade with Al ₂ O ₃ coating with the emphasis on finishing and semi-machining of steel and cast iron materials with elevated cutting speeds.
Cermet PVD-coated	CP871	AlTiN	Black-red	●	Ultrafine grain cermet with extremely heat-resistant PVD coating with excellent wear resistance and improved ductility for finishing steel and stainless steel. For stable conditions and high requirements on surface quality.
	CP872	AlTiN	Black-red	✚	Ultrafine grain cermet with extremely heat-resistant PVD coating with a very balanced relationship between wear resistance and ductility for finishing and medium machining of steel and stainless steel. For slightly unstable conditions and slightly interrupted cuts.
PcBN	FU430	-	-	●	PcBN grade with high CBN-content for finishing and semi-finishing GJL and sintered metal.
Carbide CVD-coated	HC840	TiCN+ Al ₂ O ₃	Black-grey	●	Finest grain carbide with high wear resistance and a multi-layer CVD coating comprising TiCN with Al ₂ O ₃ function coating for finishing GJL and GJS at high cutting speeds. For smoother to slightly interrupted cut.
	HC841	TiCN+ Al ₂ O ₃	Black-grey	✚	Fine grain carbide with a multi-layer CVD coating made of TiCN and an Al ₂ O ₃ function coating. First choice for machining GJL and GJS with slightly to heavily interrupted cut.
	HC851	TiCN+ Al ₂ O ₃ +TiN	Gold	●	Wear-free P substrate with a wear-resistant, multi-layer CVD coating made of TiCN, an Al ₂ O ₃ function coating and a very smooth TiN top coating. Finishing steel at high cutting speeds and smooth to slightly interrupted cut.
	HC852	TiCN+ Al ₂ O ₃ +TiN	Gold	✚	P substrate with a good mixture of wear resistance and ductility, as well as a multi-layer CVD coating made of TiCN, an Al ₂ O ₃ function coating and a very smooth TiN top coating. General machining of steel with slightly to heavily interrupted cut and also high stock removal.
	HC861	TiCN+ Al ₂ O ₃ +TiN	Gold	●	Wear-resistant substrate with a multi-layer CVD coating made of TiCN, an Al ₂ O ₃ function coating and a very smooth TiN top coating. Specially for machining stainless steel with smooth to slightly interrupted cut.
	HC862	TiCN+ Al ₂ O ₃ +TiN	Gold	✚	Carbide substrate with a good mixture of wear resistance and ductility, as well as a multi-layer CVD coating made of TiCN, an Al ₂ O ₃ function coating and a very smooth TiN top coating. Specially for machining stainless steel with slightly to heavily interrupted cut and high stock removal.
	HC709	TiCN+ TiN	Gold	●	Fine grain carbide with a wear-resistant CVD coating for finishing GJL and GJS. For smoother to slightly interrupted cut.
	HC720	TiCN+ Al ₂ O ₃	Black	●	Fine grain carbide with extremely high wear resistance and a multi-layer CVD coating comprising TiCN with Al ₂ O ₃ function coating for machining GJL and GJS at high cutting speeds. For smoother to slightly interrupted cut.
	HC725	TiCN+ Al ₂ O ₃	Black	●	Fine grain carbide with high wear resistance and a multi-layer CVD coating comprising TiCN with Al ₂ O ₃ function coating for machining GJL and GJS at high cutting speeds. For smoother to slightly interrupted cut.
	HC735	TiCN+ Al ₂ O ₃	Black	✚	Finest grain carbide with a very balanced relationship between wear and ductility and a multi-layer CVD coating with Al ₂ O ₃ function coating for machining GJL and GJS at high cutting speeds. For heavily interrupted cut and/or unstable conditions.

Applications:

✚ Unstable machining

● General machining

● Stable machining

Cutting material overview: Grades and grade description

Cutting material	Cutting material code	Coating composition	Coating colour	Applications	Recommended application
Carbide PVD-coated	HP181	TiAlN	Black-anthracite	✚	Ductile finest grain carbide with PVD top coating. For boring in the area of roughing to semi-machining. For steel and stainless steel with low to medium tensile strengths. Suitable for wet or dry machining.
	HP182	TiAlN	Black-anthracite	✚	Ductile finest grain carbide with PVD top coating. For boring in the area of roughing to semi-machining with interrupted cuts or in case of unstable conditions. For steel and stainless steel with low to medium tensile strengths. Suitable for wet or dry machining.
	HP350	AlTiN	Black-anthracite	✚	Ductile finest grain carbide with PVD top coating. Universal grade for turning and boring in the area of roughing to semi-machining with interrupted cuts or in case of unstable conditions. First choice for boring high strength steel and stainless steel with tangential inserts. Suitable for wet or dry machining.
	HP353	TiAlSiN	Copper	✚	Ductile finest grain carbide with PVD coating. For turning and boring in the area of roughing to semi-machining with interrupted cuts or in case of unstable conditions. Suitable for stainless steels, titanium and also mixed machining of aluminium/cast iron.
	HP354	TiAlSiN	Copper	✚	Ductile finest grain carbide with PVD coating. For turning and boring in the area of roughing to semi-machining with interrupted cuts or in case of unstable conditions. Suitable for stainless steels, titanium and also mixed machining of aluminium/cast iron.
	HP362	TiAlN	Black-anthracite	✚	Ductile finest grain carbide with PVD coating. For turning and boring in the area of roughing to semi-machining with interrupted cuts or in case of unstable conditions. For steels and stainless steels with low to medium tensile strengths. Suitable for wet or dry machining.
	HP382	TiAlN	Black-anthracite	✚	Ductile finest grain carbide with PVD coating. For turning and boring in the area of roughing to semi-machining with interrupted cuts or in case of unstable conditions. For steel and stainless steel with low to medium tensile strengths. Suitable for wet or dry machining.
	HP386	AlTiN	Black-anthracite	✚	Finest grain carbide with thick PVD coating. Universal grade for turning and boring in the area of roughing to semi-machining with interrupted cuts or in case of unstable conditions. First choice for boring higher strength steels and stainless steels with tangential inserts. Suitable for wet or dry machining.
	HP455	AlTiN	Black-anthracite	●	Fine grain carbide with PVD top coating. Universal grade for boring in the area of semi-machining and roughing. Suitable for wet or dry machining. First choice for GJL and GJS machining using tangential inserts.
	HP457	AlTiN	Black-anthracite	●	Fine grain carbide with PVD top coating. Universal grade for turning and boring in the area of semi-machining and roughing. Suitable for wet or dry machining. First choice for GJL and GJS machining using tangential inserts.
	HP615	TiB2	Silver-grey	●	Fine grain carbide with a partially reduced PVD coating for machining adhesive materials. First choice for increasing tool life compared to uncoated cutting edges in aluminium alloys with 7-12% silicon.
	HP678	TiB2	Silver-grey	●	Fine grain carbide with a partially reduced PVD coating for machining adhesive materials. First choice for increasing tool life compared to uncoated cutting edges in aluminium alloys with 3-12% silicon.

Applications:



Unstable machining



General machining



Stable machining

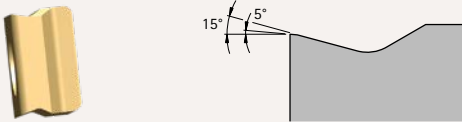
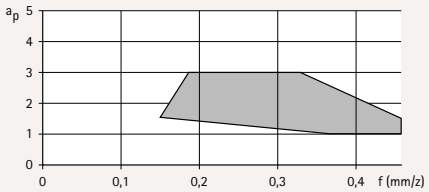
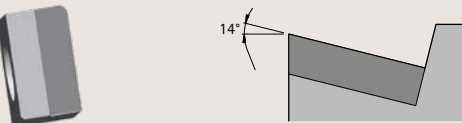
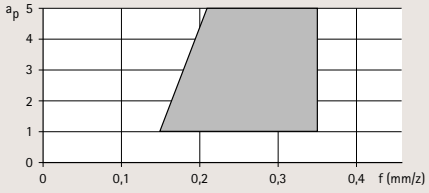

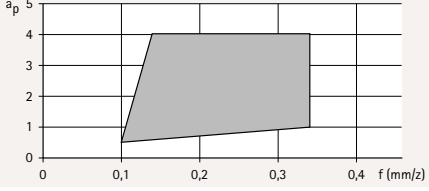
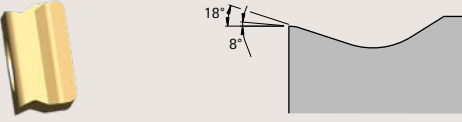
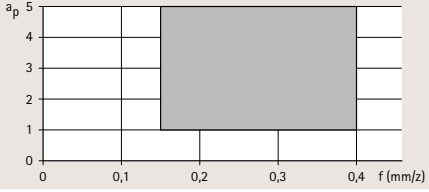
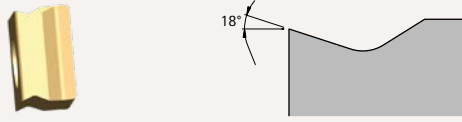
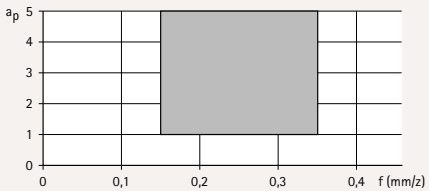
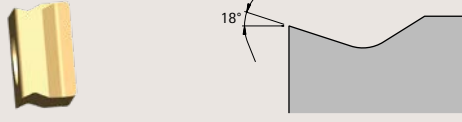
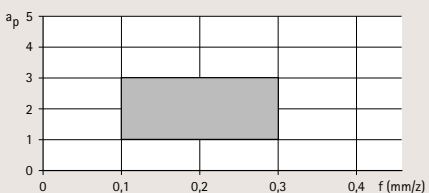
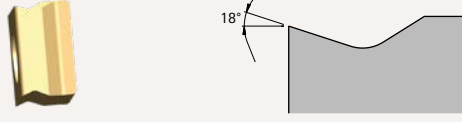
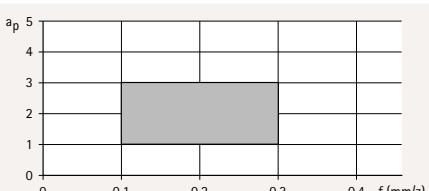
Cutting material overview: Grades and grade description

Cutting material	Cutting material code	Coating composition	Coating colour	Applications	Recommended application
Uncoated carbide	HU615	-	-	●	Fine grain carbide with very smooth surface for the general machining of aluminium wrought alloys and aluminium cast alloys with Si content < 7 %.
	HU616	-	-	●	Fine grain carbide with very smooth surface for the general machining of aluminium wrought alloys and aluminium cast alloys with Si contents < 3 %.
	HU810	-	-	●	Finest grain carbide with very smooth surface for the machining of aluminium wrought alloys and aluminium cast alloys with Si contents < 7 % with stable cutting conditions.
Ceramic	KU450	-	-	●	The universal silicon nitride ceramic grade for machining GJKL workpiece materials in a particularly wide range of applications from roughing to semi-machining as well as with smooth or slightly interrupted cut.
PCD	PU617	-	-	●	PCD grade with medium particle size for roughing to semi-machining in non-ferrous metals and for machining very abrasive materials.
	PU620	-	-	●	Fine grain PCD grade for finishing non-ferrous metals.

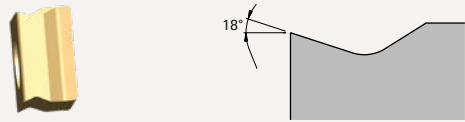
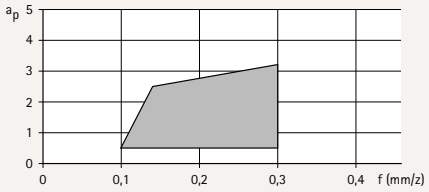
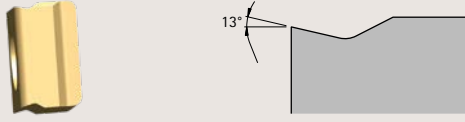
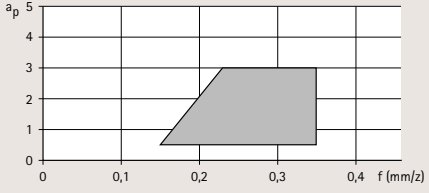
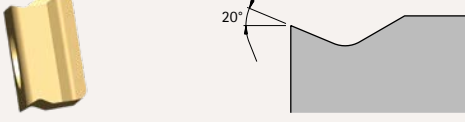
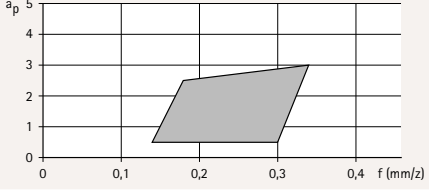
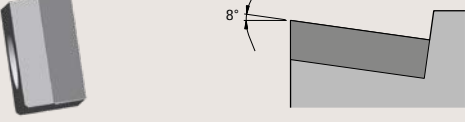
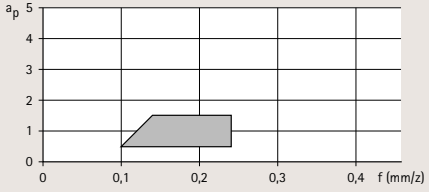
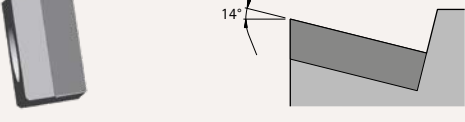
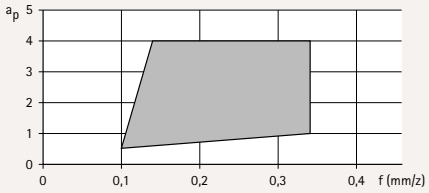
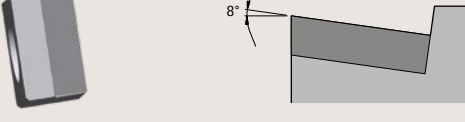
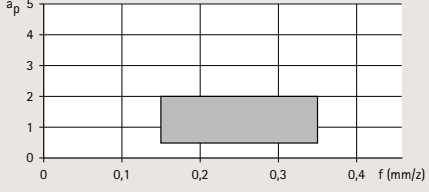
	P Steel						M Stainless steel						K Cast iron						N Non-ferrous metals						S High-temperature alloys and titanium alloys					
	Harder ←			More ductile →			Harder ←			More ductile →			Harder ←			More ductile →			Harder ←			More ductile →								
	01	10	20	30	40	50	01	10	20	30	40	50	01	10	20	30	40	50	01	10	20	30	40	50	01	10	20	30	40	50

Overview of chip guiding stages - boring

Tangential indexable inserts

	Type	ISO 513	Edge rounding	Diagram
Roughing	A54 	P M K N S	+++	
	A81 	P M K N S	+	
	D80 	P M K N S	+	
	H03 	P M K N S	+++	
Medium machining – roughing	A31 	P M K N S	+	
	A32 	P M K N S	++	
	A33 	P M K N S	+++	



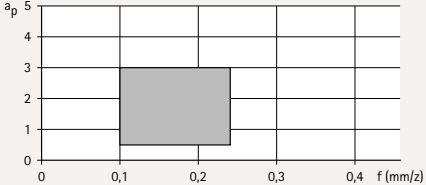


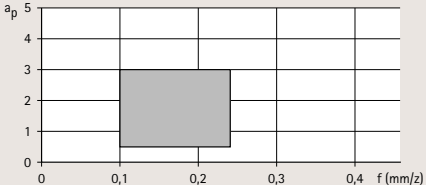


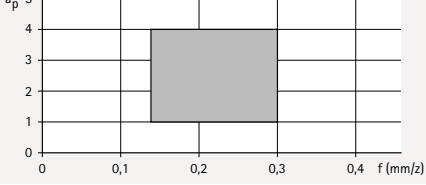

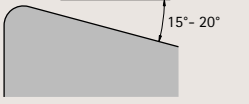
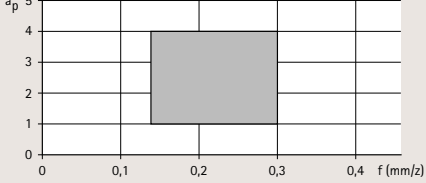
- 0 = Sharp edged
- + = Slightly rounded
- ++ = Medium rounded
- +++ = Heavily rounded

	Type	ISO 513	Edge rounding	Diagram
Medium machining	A30 	P M K N S	0	
	A50 	P M K N S	+++	
	A56 	P M K N S	+++	
	A79 	P M K N S	0	
	A80 	P M K N S	0	
	A88 	P M K N S	+	

- 0 = Sharp edged
- + = Slightly rounded
- ++ = Medium rounded
- +++ = Heavily rounded

Overview of chip guiding stages - boring

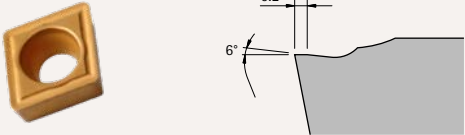
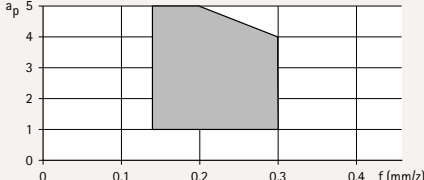
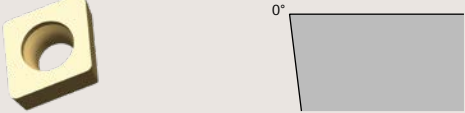
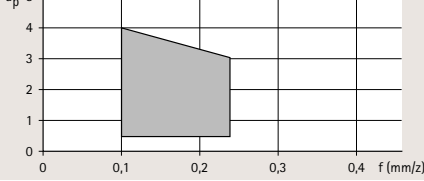
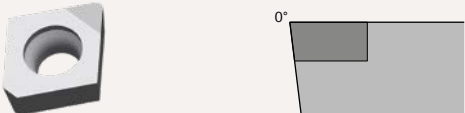
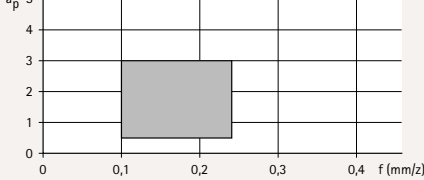
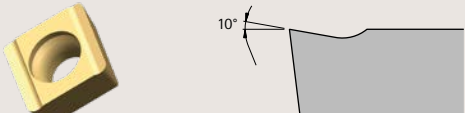
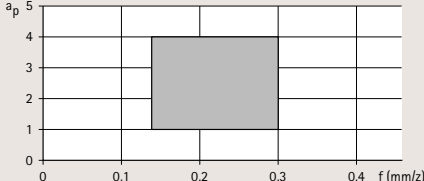
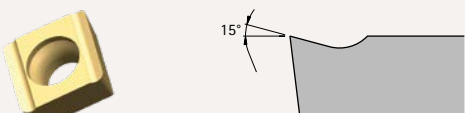
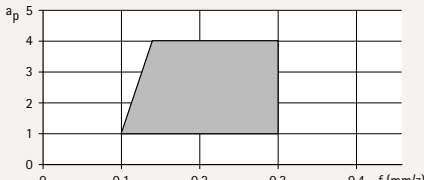
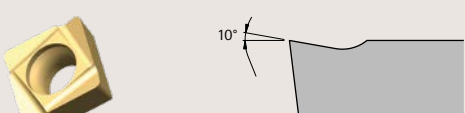
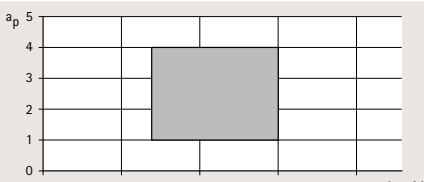
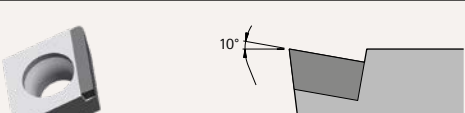
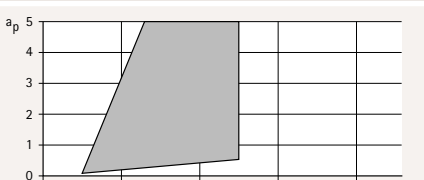
Tangential indexable inserts

	Type	ISO 513	Edge rounding	Diagram
Of universal application	D00  	P M K N S	0	
	D01  	P M K N S	+	
	D02  	P M K N S	++	
	D03  	P M K N S	+++	

0 = Sharp edged
 + = Slightly rounded
 ++ = Medium rounded
 +++ = Heavily rounded

Overview of chip guiding stages - boring

Radial indexable inserts

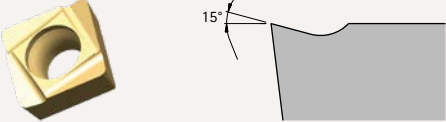
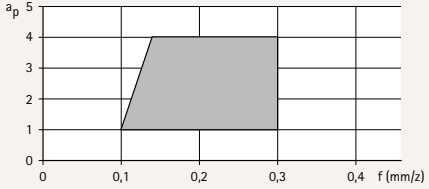
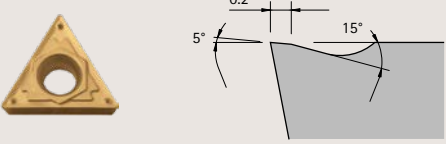
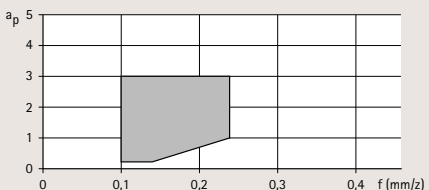
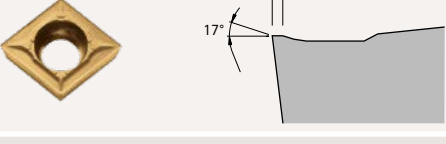
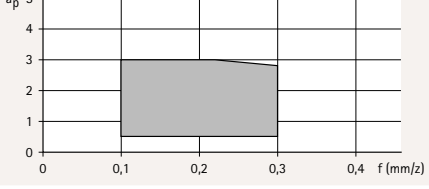

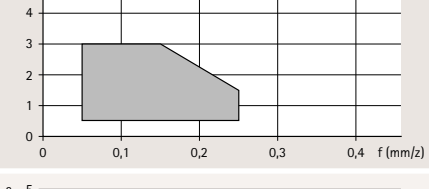
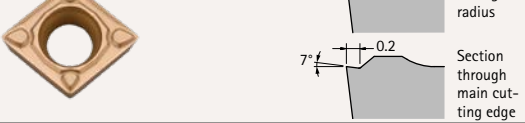
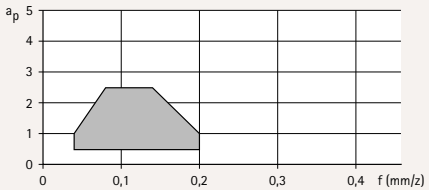
	Type	ISO 513	Edge rounding	Diagram
Medium machining roughing	R30 	P M K N S	+++	
	0A* 	P M K N S	+ ++	
Medium machining - finishing	0A* 	P M K N S	0 + ++ +++	
	1L* 	P M K N S	+ ++	
	1R* 	P M K N S	0 +	
	2L* 	P M K N S	+ ++	
	6L 	P M K N S	0	

* This chip guiding stage is available with different edge rounding.

- 0 = Sharp edged
- + = Slightly rounded
- ++ = Medium rounded
- +++ = Heavily rounded

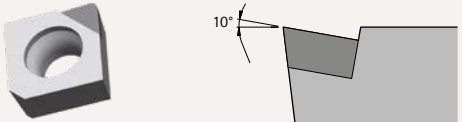
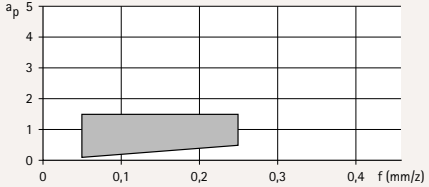
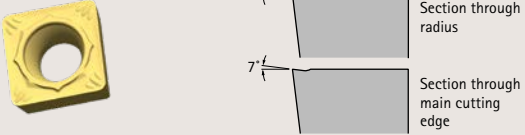
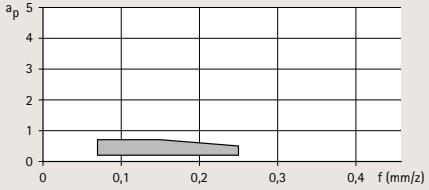
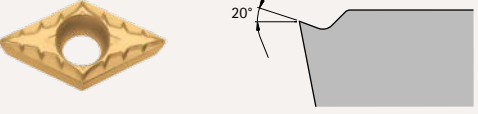
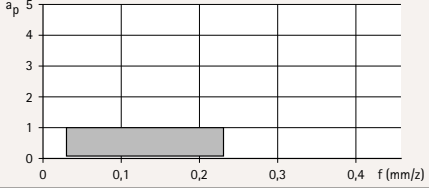
Overview of chip guiding stages - boring

Radial indexable inserts

	Type	ISO 513	Edge rounding	Diagram
Medium machining - finishing	2R* 	P M K N S	0 +	
	M30 	P M K N S	++	
	M31 	P M K N S	++	
	M32 	P M K N S	0	
	U31 	P M K N S	++	

* This chip guiding stage is available with different edge rounding.

- 0 = Sharp edged
- + = Slightly rounded
- ++ = Medium rounded
- +++ = Heavily rounded

	Type	ISO 513	Edge rounding	Diagram
Finishing	<p>5L</p> 	<p>P M K N S</p>	0	
	<p>U22</p> 	<p>P M K N S</p>	+	
	<p>U30</p> 	<p>P M K N S</p>	++	

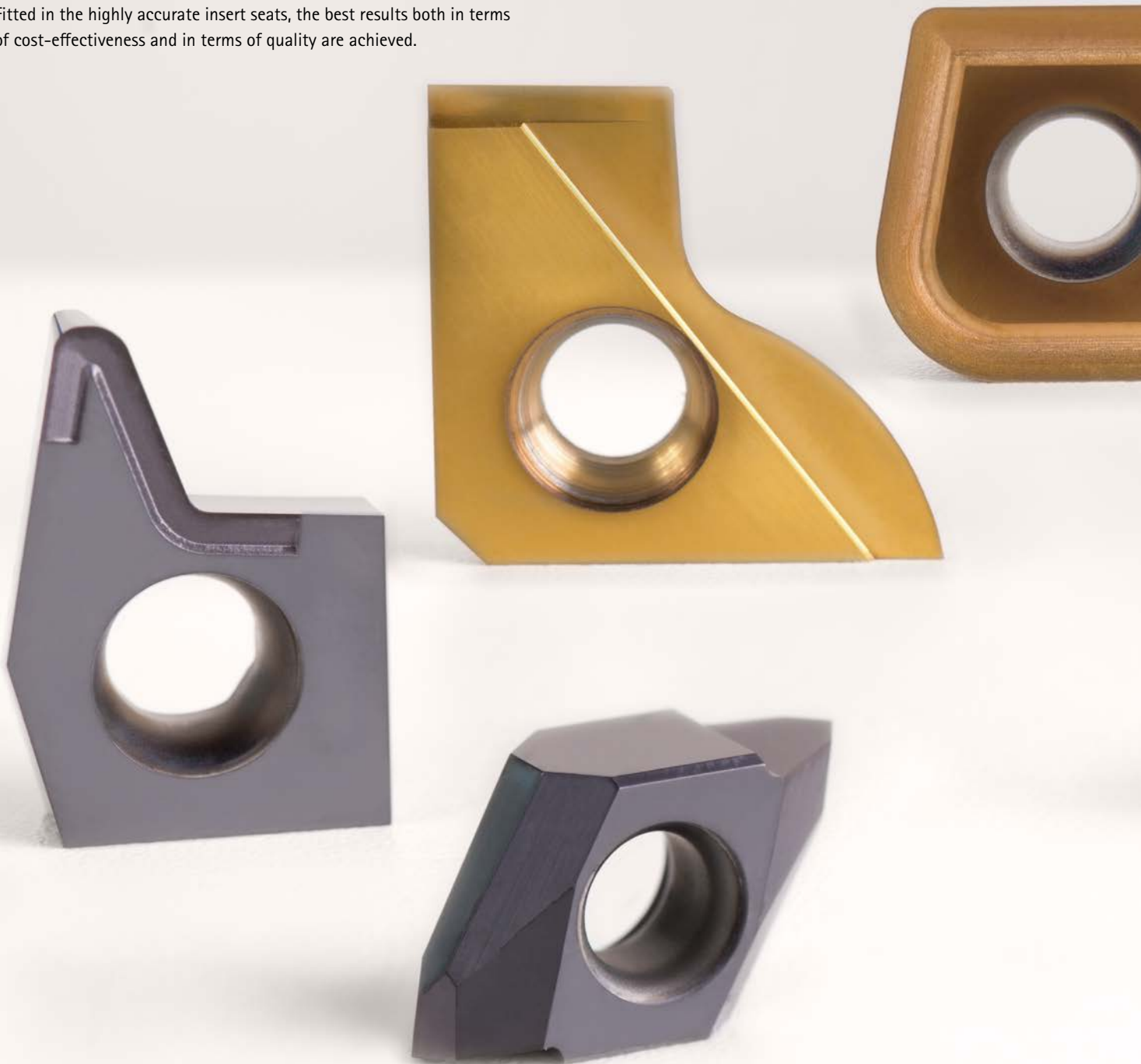
- 0 = Sharp edged
- + = Slightly rounded
- ++ = Medium rounded
- +++ = Heavily rounded

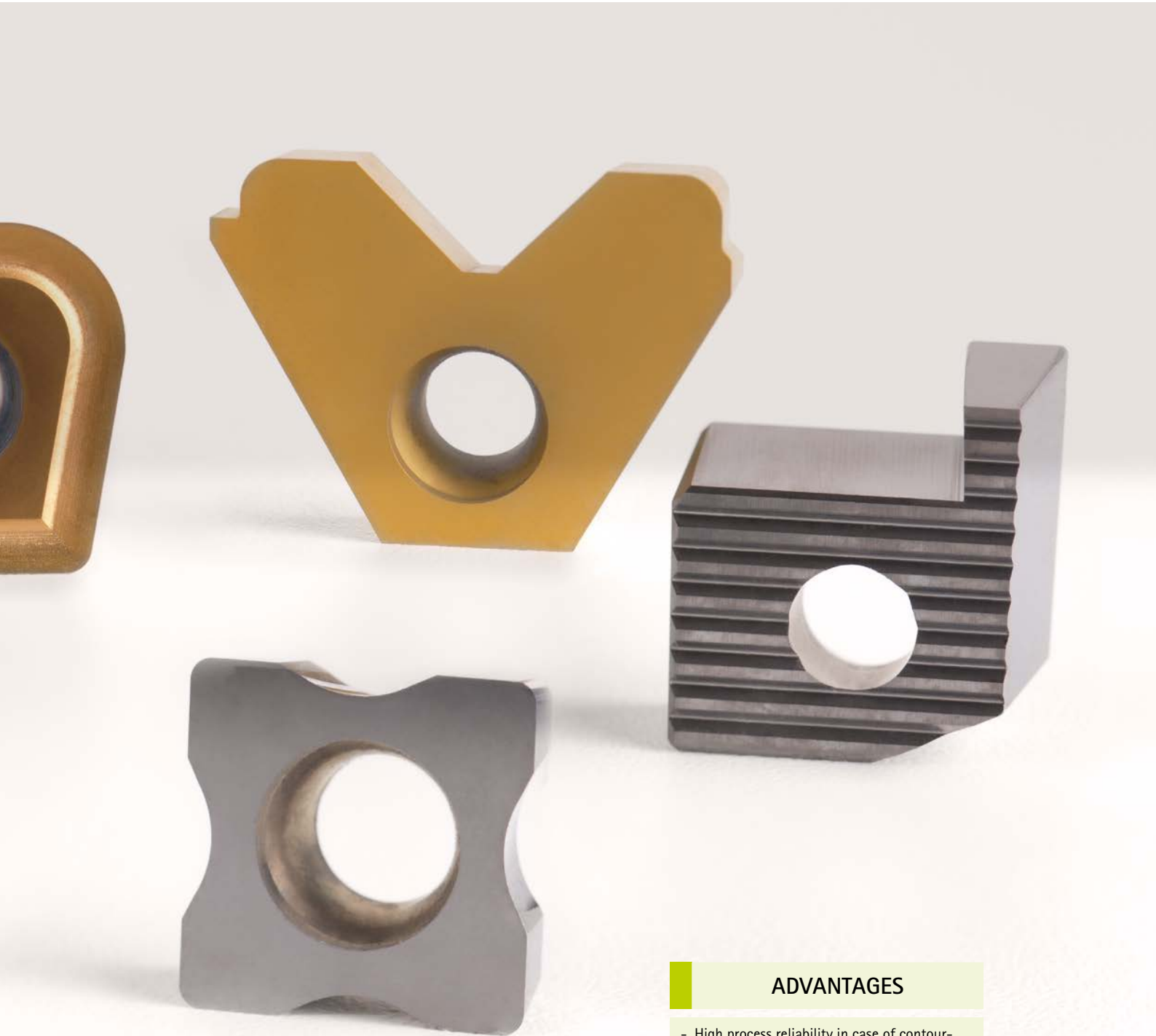
INDEXABLE INSERTS IN SPECIAL DESIGN

Form cutting edges are often used to efficiently machine complex contours with high shape accuracy.

MAPAL offers all possible options in relation to shape, cutting material and coating for these inserts. Modern production facilities guarantee the highest precision and flexibility of special MAPAL inserts.

PCD and PcBN-tipped indexable inserts are also available in this variety. Fitted in the highly accurate insert seats, the best results both in terms of cost-effectiveness and in terms of quality are achieved.



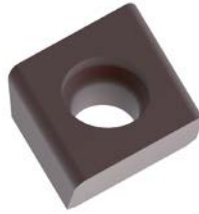


ADVANTAGES

- High process reliability in case of contour-dependent shapes and geometries
- Saving in complex machining sequences
- Multi-cutting edge capability on manufacture of complex contours

CTHD

Tangential indexable inserts, double edge, without arc shaped land



		Carbide								
Material		P			M			K		
Cutting material types							HP455	HP350		
Cutting edge design							D03	D03		
From ø 35 mm		a_p max. [mm]								
Roughing	CTHD060304...L-...	1.5 - 3.0					30477981	30492502		
	CTHD060304...R-...	1.5 - 3.0					30477865	30492505		
	CTHD060308...L-...	1.5 - 3.0					30477983	30492508		
	CTHD060308...R-...	1.5 - 3.0					30477984	30492511		
	From ø 50 mm									
	CTHD09T304...L-...	1.5 - 4.0					30477993	30492514		
	CTHD09T304...R-...	1.5 - 4.0					30477994	30492517		
	CTHD09T308...L-...	1.5 - 4.0					30248276	30492520		
	CTHD09T308...R-...	1.5 - 4.0					30248277	30492523		
	CTHD09T312...L-...	1.5 - 4.0					30478003	30492526		
	CTHD09T312...R-...	1.5 - 4.0					30478004	30492529		
	From ø 80 mm									
	CTHD120404...L-...	1.5 - 5.0					30477866	30492532		
	CTHD120404...R-...	1.5 - 5.0					30477867	30492535		
	CTHD120408...L-...	1.5 - 5.0					30477868	30492538		
	CTHD120408...R-...	1.5 - 5.0					30478008	30492541		
	CTHD120412...L-...	1.5 - 5.0					30477869	30492544		
	CTHD120412...R-...	1.5 - 5.0					30477870	30492547		

Tipped variant, single edge

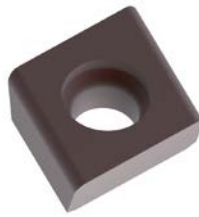


Carbide				PcBN		PCD	
N			S	K	N		
HU616	HP615					PU617	
D01	D02					D80	
30477979	30492503					30492504	
30477980	30492506					30492507	
30477982	30492509					30492510	
30175927	30492512					30492513	
30477986	30492515					30492516	
30477989	30492518					30492519	
30477996	30492521					30383869	
30211709	30492524					30374036	
30478001	30492527					30492528	
30478002	30492530					30492531	
30478005	30492533					30492534	
30477909	30492536					30492537	
30478006	30492539					30492540	
30478007	30492542					30492543	
30477910	30492545					30492546	
30477911	30492548					30492549	

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

CTHD

Tangential indexable inserts, double edge, without arc shaped land



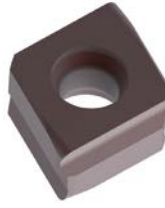
		Carbide							
Material		P			M		K		
Cutting material types						HP455	HC725	HP350	
Cutting edge design						D02	D02	D02	
From ø 35 mm		a_p max. [mm]							
Medium machining	CTHD060304...L-...	1.5 - 3.0					30225780	30789863	30492550
	CTHD060304...R-...	1.5 - 3.0					30228624	30789864	30492552
	CTHD060308...L-...	1.5 - 3.0					30222653	30789865	30492554
	CTHD060308...R-...	1.5 - 3.0					30222652	30789866	30492556
	From ø 50 mm								
	CTHD09T304...L-...	1.5 - 4.0					30225911	30789867	30492558
	CTHD09T304...R-...	1.5 - 4.0					30207102	30789868	30492559
	CTHD09T308...L-...	1.5 - 4.0					30042913	30789869	30492560
	CTHD09T308...R-...	1.5 - 4.0					30219382	30789870	30492561
	CTHD09T312...L-...	1.5 - 4.0					30211853	30789871	30492562
	CTHD09T312...R-...	1.5 - 4.0					30294069	30789872	30492564
	From ø 80 mm								
	CTHD120404...L-...	1.5 - 5.0					30292389	30790031	30492566
	CTHD120404...R-...	1.5 - 5.0					30253223	30789873	30492568
	CTHD120408...L-...	1.5 - 5.0					30225823	30645040	30492570
	CTHD120408...R-...	1.5 - 5.0					30225908	30789874	30492572
	CTHD120412...L-...	1.5 - 5.0					30322663	30789875	30492574
	CTHD120412...R-...	1.5 - 5.0					30322511	30789876	30492576

Carbide				PcBN		PCD		
N				S			K	N
HU616	HP615							
D00	D01							
30029679	30492551							
30029729	30492553							
30029690	30492555							
30029730	30492557							
30029697	30477985							
30029737	30477987							
30029698	30477995							
30029738	30477997							
30029699	30492563							
30029739	30492565							
30029705	30492567							
30029745	30492569							
30029706	30492571							
30029746	30492573							
30029707	30492575							
30029747	30492577							

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

CTHQ

Tangential indexable inserts, four cutting edges, blind bore, with arc shaped land, left design

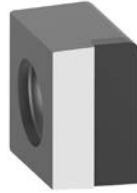


		Carbide								
Material		P			M		K			
Cutting material types		HP182	HP350	HP382	HP382	HP353	HC725	HP455	HP350	
Cutting edge design		A54		A54	A32	A32	H03	H03	H03	
From ø 35 mm		a_p max. [mm]								
Roughing	CTHQ060408...L00B021-...	1.5 - 3.0	30477764		30492578	30478011	30492579			
	From ø 65 mm									
	CTHQ090508...L00B041-...	1.5 - 3.0	30478019		30492581	30478015	30492582			
		1.5 - 4.0						30679855	30477873	30477802
	CTHQ090512...L00B041-...	1.5 - 3.0	30492585		30492586	30492587	30492588			
		1.5 - 4.0						30789878	30492589	30492590
	From ø 78 mm									
	CTHQ120608...L00B081-...	1.5 - 3.0	30478024		30492593	30478022	30492594			
		1.5 - 5.0						30679856	30477879	30477809
	CTHQ120612...L00B081-...	1.5 - 3.0	30492597		30492598	30492599	30492600			
		1.5 - 5.0						30789879	30492601	30492602
	Cutting edge design		A50		A50	A56	A56	A32	A32	A32
From ø 35 mm		a_p max. [mm]								
Medium machining	CTHQ060404...L00B021-...	0.5 - 2.0	30477761		30492605	30477822	30492606	30789880	30294866	30478009
	CTHQ060408...L00B021-...	0.5 - 2.0	30492608		30492609	30492610	30492611	30679857	30294875	30492612
	From ø 65 mm									
	CTHQ090504...L00B041-...	0.5 - 2.0	30477766		30492617	30477825	30492618	30679858	30477871	30477798
	CTHQ090508...L00B041-...	0.5 - 2.0	30344102		30492620	30477831	30492621	30679859	30478871	30374284
	CTHQ090512...L00B041-...	0.5 - 2.0	30492585		30492586	30492587	30492588	30679855	30492589	30492590
	From ø 78 mm									
	CTHQ120604...L00B081-..	0.5 - 2.0	30477768		30492634	30477835	30492635	30789881	30477875	30477806
	CTHQ120608...L00B081-..	0.5 - 2.0	30477770		30492637	30477839	30492638	30789882	30382124	30492639
	CTHQ120612...L00B081-...	0.5 - 2.0	30492641		30492642	30492643	30492644	30679856	30492645	30492646

* Roughing



Tipped variant, single edge

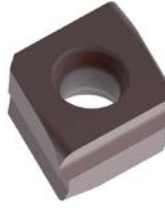


Carbide				PcBN			PCD	
N			S	K			N	
HU616	HP615		HP354	FU430			PU617	PU617
A31	A31						A81	A80
30477917	30492613							
30477924	30492622							30492584
30492591	30492633							
30477933	30492640						30492596	
30492603	30492648							
A30	A31		A31	A88			A79	A80
30477912	30492607							
30477915	30492613		30492614	30492615			30492616	
30328643	30492619							
30307194	30492622		30492623	30492624				30492584
30492591	30492633							
30477928	30492636							
30477931	30492640							
30492647	30492648							

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

CTHQ

Tangential indexable inserts, four cutting edges, through bore, with arc shaped land, left design

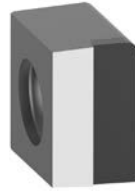


		Carbide								
Material		P			M			K		
Cutting material types		HP182	HP350	HP382	HP382	HP353	HC725	HP455	HP350	
Cutting edge design		A54		A54	A32	A32	H03	H03	H03	
Roughing										
		From ø 40 mm		ap max. [mm]						
	CTHQ060408...L10B021-...	1.5 - 3.0	30492649		30492650	30492651	30492652			
	From ø 65 mm									
	CTHQ090508...L10B041-...	1.5 - 3.0	30478020		30492655	30478017	30492656			
		1.5 - 4.0						30679860	30477874	30477803
	From ø 78 mm									
	CTHQ120608...L10B081-...	1.5 - 3.0	30477771		30492658	30477838	30492659			
1.5 - 5.0							30679861	30477880	30477810	
Medium machining										
		From ø 35 mm		ap max. [mm]						
	CTHQ060404...L10B021-...	0.5 - 2.0	30477762		30492662	30477823	30492663	30679862	30294879	30492664
	CTHQ060408...L10B021-...	0.5 - 2.0	30492666		30492667	30492668	30492669	30679863	30294894	30492670
	From ø 65 mm									
	CTHQ090504...L10B041-...	0.5 - 2.0	30477767		30492675	30477826	30492676	30679864	30477872	30492677
	CTHQ090508...L10B041-...	0.5 - 2.0	30492679		30492680	30492681	30492682	30679865	30434675	30492683
	From ø 78 mm									
CTHQ120604...L10B081-...	0.5 - 2.0	30492688		30492689	30492690	30492691	30679866	30492692	30492693	
	0.5 - 2.0	30492696		30492697	30492698	30492699	30679867	30477878	30492700	

* Roughing



Tipped variant, single edge

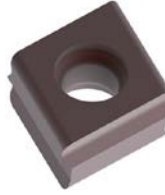


Carbide				PcBN			PCD	
N		S		K			N	
HU616	HP615		HP354	FU430			PU617	PU617
A31	A31						A81	A80
30492653	30492671							
30477925	30492684							30492657
30477934	30492701						30492661	
A30	A31		A31	A88			A79	A80
30477913	30492665							
30477916	30492671		30492672	30492673			30492674	
30477920	30492678							
30307197	30492684		30492685	30492686				30492657
30492694	30492695							
30477932	30492701							

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

CTHQ

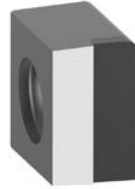
Tangential indexable inserts, four cutting edges, without arc shaped land



		Carbide									
Material		P			M		K				
Cutting material types		HP182	HP382		HP382	HP353	HC725	HP455	HP350		
Cutting edge design		A54	A54		A32	A32	H03	H03	H03		
From ø 28 mm		a_p max. [mm]									
Roughing	CTHQ060408...L-...	1.5 - 3.0	30492702	30492703		30492704	30492705				
	CTHQ060408...R-...	1.5 - 3.0	30492708	30492709		30492710	30492711				
	From ø 41 mm										
	CTHQ090508...L-...	1.5 - 3.0	30492716	30492717		30359863	30359862				
		1.5 - 4.0						30679868	30355198	30374287	
	CTHQ090508...R-...	1.5 - 3.0	30492721	30492722		30359859	30359858				
		1.5 - 4.0						30679869	30352420	30374285	
	From ø 54 mm										
	CTHQ120608...L-...	1.5 - 3.0	30492725	30492726		30492727	30492728				
		1.5 - 5.0						30789883	30492729	30469325	
	CTHQ120608...R-...	1.5 - 3.0	30492734	30492735		30492736	30492737				
		1.5 - 5.0						30789884	30492738	30492739	
Cutting edge design		A50	A50		A56	A56	A32	A32	A32		
From ø 28 mm		a_p max. [mm]									
Medium machining	CTHQ060404...L-...	0.5 - 2.0	30492742	30492743		30492744	30492745	30679872	30325722	30492746	
	CTHQ060404...R-...	0.5 - 2.0	30477763	30492752		30477824	30492753	30679873	30340224	30218287	
	From ø 41 mm										
	CTHQ090504...L-...	0.5 - 2.0	30492755	30492756		30492757	30492758	30679874	30301637	30483352	
	CTHQ090504...R-...	0.5 - 2.0	30492765	30492766		30492767	30492768	30679875	30368070	30492769	
	CTHQ090508...L-...	0.5 - 2.0	30602973	30602976		30602983	30602982	30724676	30325643	30257792	
	CTHQ090508...R-...	0.5 - 2.0	30602979	30602981		30602985	30602984	30789885	30325723	30257796	
	From ø 54 mm										
	CTHQ120604...L-...	0.5 - 2.0	30478021	30375823		30477836	30492772	30789886	30477876	30477807	
	CTHQ120604...R-...	0.5 - 2.0	30477769	30492775		30477837	30492776	30789887	30477877	30477808	



Tipped variant, single edge

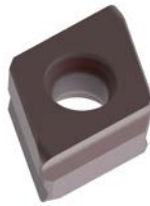


Carbide				PcBN			PCD	
N			S	K			N	
HU616	HP615		HP354	FU430	FU430	FU430	PU617	PU617
A31	A32						A81	A80
30492706	30492707							
30492714	30492715							
30492718	30492719							30492720
30492723	30492724							30515656
30492731	30492732						30492733	
30492740	30492741						30518328	
A30	A31		A31	A88	A61	A67	A79	A80
30492747	30492748		30492749	30492750			30492751	
30477914	30492754		30518390	30515425			30515410	
30492760	30492761		30492762	30492763	30626528	30493219		30492764
30492770	30492771		30518396	30515427	30626531	30493218		30515411
					30626537	30493221		
					30626539	30493220		
30477929	30492773		30492774					
30477930	30492777		30518397					

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

FTHQ

Tangential indexable inserts, four cutting edges, blind bore, with arc shaped land, left design



		Carbide									
Material		P			M		K				
Cutting material types		HP182	HP382		HP382	HP353	HC725	HP455	HP350		
Cutting edge design		A54	A54		A32	A32	H03	H03	H03		
From ø 30 mm		a_p max. [mm]									
Roughing	FTHQ090508...L00B016-...	1.5 - 3.0	30478049	30492781		30478044	30492782				
		1.5 - 4.0						30679876	30402510	30477811	
	FTHQ090512...L00B016-...	1.5 - 3.0	30492785	30492786		30492787	30492788				
		1.5 - 4.0						30679877	30492789	30492790	
	From ø 40 mm										
	FTHQ120608...L00B021-...	1.5 - 3.0	30477788	30492793		30477850	30492794				
		1.5 - 5.0						30679878	30478058	30478057	
	FTHQ120612...L00B021-...	1.5 - 3.0	30492797	30492798		30492799	30492800				
		1.5 - 5.0							30492801	30492802	
	Cutting edge design		A50	A50		A56	A56	A32	A32	A32	
From ø 22 mm		a_p max. [mm]									
Medium machining	FTHQ060404...L00B012-...	0.5 - 1.5	30477772	30492805		30477840	30492806	30679879	30323146	30478031	
	FTHQ060408...L00B012-...	0.5 - 1.5	30492808	30492809		30492810	30492811	30679880	30339160	30492812	
	From ø 30 mm										
	FTHQ090504...L00B016-...	0.5 - 2.0	30477778	30492817		30478042	30492818	30679881	30294458	30478038	
	FTHQ090508...L00B016-...	0.5 - 2.0	30478048	30492820		30477845	30492821	30679882	30294499	30492822	
	From ø 40 mm										
	FTHQ120604...L00B021-...	0.5 - 2.0	30477783	30492827		30477848	30492828		30478055	30478054	
	FTHQ120608...L00B021-...	0.5 - 2.0	30477785	30492830		30477852	30492831		30477882	30492832	
FTHQ120612...L00B021-...	0.5 - 2.0	30492836	30492837		30492838	30492839		30492840	30492841		



Tipped variant, single edge

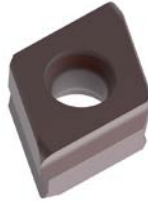


Carbide				PcBN		PCD	
N				S	K	N	
HU616	HP615			HP354	FU430	PU617	PU617
A31	A32					A81	A80
30477946	30492783						30492784
30492791	30492792						
30477955	30492795					30492796	
30492803	30492804						
A30	A31			A31	A88	A79	A80
30477935	30492807						
30477936	30492813			30492814	30492815	30492816	
30477942	30492819						
30478043	30492823			30492824	30492825		30492784
30477950	30492829						
30477952	30492833			30492834	30492835		
30492842	30492843						

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

FTHQ

Tangential indexable inserts, four cutting edges, through bore, with arc shaped land, left design



		Carbide									
Material		P			M		K				
Cutting material types		HP182	HP382		HP382	HP353	HC725	HP455	HP350		
Cutting edge design		A54	A54		A32	A32	H03	H03	H03		
From ø 30 mm		a_p max. [mm]									
Roughing	FTHQ090508...L10B016-...	1.5 - 3.0	30478050	30492847		30478046	30492848				
		1.5 - 4.0						30679883	30318881	30478051	
	From ø 40 mm										
	FTHQ120608...L10B021-...	1.5 - 3.0	30492851	30492852		30492853	30492854				
		1.5 - 5.0						30679884	30492855	30492856	
Cutting edge design		A50	A50		A56	A56	A32	A32	A32		
From ø 22 mm		a_p max. [mm]									
Medium machining	FTHQ060404...L10B012-...	0.5 - 1.5	30477773	30492860		30478033	30492861	30679885	30298019	30478032	
	FTHQ060408...L10B012-...	0.5 - 1.5	30381430	30492863		30477841	30492864	30679886	30425996	30374725	
	From ø 30 mm										
	FTHQ090504...L10B016-...	0.5 - 2.0	30477779	30492869		30477843	30492870	30679887	30478041	30478040	
	FTHQ090508...L10B016-...	0.5 - 2.0	30335135	30492872		30477846	30492873	30679888	30294500	30492874	
	From ø 40 mm										
FTHQ120604...L10B021-...	0.5 - 2.0	30477784	30492879		30477849	30492880	30789888	30294644	30478056		
FTHQ120608...L10B021-...	0.5 - 2.0	30477786	30492882		30477853	30492883	30789889	30433884	30492884		



Tipped variant, single edge

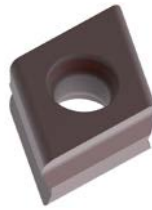


Carbide				PcBN		PCD	
N			S	K	N		
HU616	HP615		HP354	FU430		PU617	PU617
A31	A32					A81	A80
30477947	30492849						30492850
30492857	30492858					30492859	
A30	A31		A31	A88		A79	A80
30428999	30492862			30492867		30492868	
30477937	30492865		30492866	30492877			30492850
30477943	30492871						
30477944	30492875		30492876				
30477951	30492881						
30477953	30492885		30492886	30492887			

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

FTHQ

Tangential indexable inserts, four cutting edges, without arc shaped land



		Carbide									
Material		P			M		K				
Cutting material types		HP182	HP382		HP382	HP353	HC725	HP455	HP350		
Cutting edge design		A54	A54		A32	A32	H03	H03	H03		
From ø 30 mm		a_p max. [mm]									
Roughing	FTHQ090508...L-...	1.5 - 3.0	30477781	30492899		30417055	30492900				
		1.5 - 4.0						30679889	30467978	30381475	
	FTHQ090508...R-...	1.5 - 3.0	30477782	30492903		30477844	30492904				
		1.5 - 4.0						30789890	30467977	30492905	
	From ø 40 mm										
	FTHQ120608...L-...	1.5 - 3.0	30477789	30492907		30477851	30492908				
		1.5 - 5.0						30679891	30478060	30478059	
	FTHQ120608...R-...	1.5 - 3.0	30492911	30492912		30492913	30492914				
		1.5 - 5.0						30789891	30492915	30492916	
	Cutting edge design		A50	A50		A56	A56	A32	A32	A32	
From ø 22 mm		a_p max. [mm]									
Medium machining	FTHQ060404...L-...	0.5 - 1.5	30492919	30492920		30492921	30492922	30679892	30293004	30302214	
	FTHQ060404...R-...	0.5 - 1.5	30492930	30492931		30492932	30492933	30789892	30287096	30492934	
	FTHQ060408...L-...	0.5 - 1.5	30477774	30492924		30477842	30492925	30679893	30371812	30478036	
	FTHQ060408...R-...	0.5 - 1.5	30518398	30518399		30518400	30518401	30789893	30518405	30518409	
	From ø 30 mm										
	FTHQ090504...L-...	0.5 - 2.0	30492937	30492938		30492939	30492940	30679894	30492941	30492942	
	FTHQ090504...R-...	0.5 - 2.0	30492952	30492953		30492954	30492955	30789894	30492956	30492957	
	FTHQ090508...L-...	0.5 - 2.0	30477780	30492946		30477847	30492947	30679895	30478047	30469998	
	FTHQ090508...R-...	0.5 - 2.0	30518420	30518423		30518425	30518426	30789895	30518429	30518430	
	From ø 40 mm										
	FTHQ120604...L-...	0.5 - 2.0	30492960	30492961		30492962	30492963	30789896	30492964	30488787	
	FTHQ120604...R-...	0.5 - 2.0	30492973	30492974		30492975	30492976	30789897	30492977	30492978	
	FTHQ120608...L-...	0.5 - 2.0	30477787	30492967		30477854	30492968	30789898	30477883	30477812	



Tipped variant, single edge

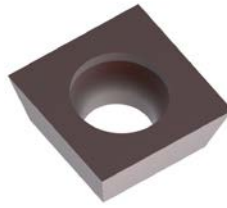


Carbide				PcBN			PCD	
N			S	K			N	
HU616	HP615		HP354	FU430			PU617	PU617
A31	A32						A81	A80
30477948	30492901							30492902
30477949	30492906							30515414
30477956	30492909						30492910	
30492917	30492918						30518332	
	A30	A31		A31			A79	A80
					A88			
30309422	30492923				30518360		30518335	
30492935	30492936				30518362		30518338	
30477938	30492926		30492927		30492928		30492929	
30518415	30518417		30518418		30515428		30515416	
30492944	30492945				30518370			30518354
30492958	30492959				30518371			30518355
30477945	30492948		30492949		30492950			30492902
30518551	30518434		30518433		30515430			30515414
30492965	30492966				30518373			30518359
30492979	30492980				30518377			30518357
30477954	30492969		30492970		30492971			30492972

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

STHD - STHE

Tangential indexable inserts, four cutting edges, chamfers, neutral design



		Carbide								
Material		P			M			K		
Cutting material types		HP455			HP455		HP455	HC725		
Cutting edge design		D02			D02		D02	D02		
		<i>a_p max. [mm]</i>								
Chamfering	STHD060300...N-...	0.1 - 4.2	30209349		30209349		30209349	30774242		
	STHE060300...N-...	0.1 - 4.2	30190637		30190637		30190637	30789899		
	STHD09T300...N-...	0.1 - 6.3	30220270		30220270		30220270	30631370		
	STHE09T300...N-...	0.1 - 6.3	30349489		30349489		30349489	30631351		



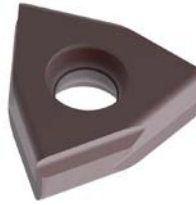
Tipped variant, single edge



Carbide				PcBN		PCD	
N			S	K		N	
HU616						PU617	
D00						D80	
30213884						30493003	
30228119						30370122	
30215016						30493005	
30257365						30493006	

WTHQ

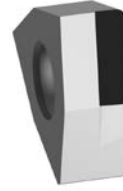
Tangential indexable inserts, six cutting edges, blind bore, with arc shaped land, left design



		Carbide										
Material		P			M		K					
Cutting material types		HP181	HP362		HP362	HP353	HC720	HC735	HP457	HP386		
Cutting edge design		A54	A54		A32	A32	H03	H03	H03	H03		
		From ø 37 mm		ap max. [mm]								
Roughing	WTHQ070504...L00B026-...	1.5 - 3.0	30339971	30339972		30339973	30339974	30789900		30339975	30339976	
	WTHQ070508...L00B026-...	1.5 - 3.0	30339979	30339980		30339981	30339982	30679896	30789901	30339983	30339984	
	From ø 59.5 mm											
	WTHQ090604...L00B041-...	1.5 - 3.0	30339987	30339988		30339989	30339990					
		1.5 - 5.0						30679897	30789903	30339991	30339992	
	WTHQ090608...L00B041-...	1.5 - 3.0	30339996	30339997		30339998	30339999					
		1.5 - 5.0						30679898	30679899	30340000	30340001	
	From ø 159.5 mm											
	WTHQ090604...L00B081-...	1.5 - 3.0	30340005	30340006		30340007	30340008					
		1.5 - 5.0						30789904	30789905	30340009	30340010	
	WTHQ090608...L00B081-...	1.5 - 3.0	30340014	30340015		30340016	30340017					
		1.5 - 5.0						30679900	30679901	30340018	30340019	
		From ø 37 mm		ap max. [mm]								
Medium machining	WTHQ070504...L00B026-...	0.5 - 2.0	30340075	30340076		30340077	30340078	30679902		30323615	30340080	
	WTHQ070508...L00B026-...	0.5 - 2.0	30340083	30340084		30340085	30340086	30679903		30340087	30340088	
	From ø 59.5 mm											
	WTHQ090604...L00B041-...	0.5 - 2.0	30340091	30340092		30340093	30340094	30679904		30323616	30340096	
	WTHQ090608...L00B041-...	0.5 - 2.0	30340100	30340101		30340102	30340103	30789906	30789907	30340104	30340105	
	From ø 159.5 mm											
	WTHQ090604...L00B081-...	0.5 - 2.0	30340109	30340110		30340111	30340112	30679905		30340113	30340114	
WTHQ090608...L00B081-...	0.5 - 2.0	30340118	30340119		30340120	30340121		30789908	30340122	30340123		



Tipped variant, single edge

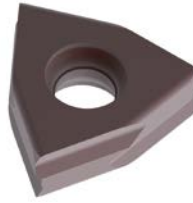


Carbide				Ceramic		PcBN		PCD	
N		S		K		K		N	
HU615	HP678		HP353	KU450		FU430		PU617	PU617
A31	A32			H03					A80
30477958	30339978								
30477962	30339986								
30493007	30339995			30339993					
30477972	30340004			30340002				30493008	
30493009	30340013			30340011					
30477973	30340022			30340020				30493010	
A30	A31		A31		A88		A79	A80	
30340081	30340082								
30340089	30340090		30493011		30493012		30493013		
30340098	30340099								
30340107	30340108		30493014		30493015			30493008	
30340116	30340117								
30340125	30340126		30654136		30493018			30493010	

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

WTHQ

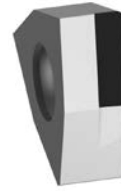
Tangential indexable inserts, six cutting edges, through bore, with arc shaped land, left design



		Carbide									
Material		P			M		K				
Cutting material types		HP181	HP362		HP362	HP353	HC720	HC735	HP457	HP386	
Cutting edge design		A54	A54		A32	A32	H03	H03	H03	H03	
Roughing											
From ø 37 mm		ap max. [mm]									
	WTHQ070504...L10B026-...	1.5 - 3.0	30340023	30340024		30340025	30340026	30789909		30340027	30340028
	WTHQ070508...L10B026-...	1.5 - 3.0	30340031	30340032		30340033	30340034	30679906	30679907	30340035	30340036
From ø 59.5 mm											
	WTHQ090604...L10B041-...	1.5 - 3.0	30340039	30340040		30340041	30340042				
		1.5 - 5.0						30789910		30340043	30340044
	WTHQ090608...L10B041-...	1.5 - 3.0	30340048	30340049		30340050	30340051				
		1.5 - 5.0						30656324	30679908	30327072	30340053
From ø 159.5 mm											
	WTHQ090604...L10B081-...	1.5 - 3.0	30340057	30340058		30340059	30340060				
		1.5 - 5.0						30789911		30340061	30340062
	WTHQ090608...L10B081-...	1.5 - 3.0	30340066	30340067		30340068	30340069				
		1.5 - 5.0						30679909	30679910	30324850	30340071
Medium machining											
From ø 37 mm		ap max. [mm]									
	WTHQ070504...L10B026-...	0.5 - 2.0	30340127	30340128		30340129	30340130	30679911	30789912	30340131	30340132
	WTHQ070508...L10B026-...	0.5 - 2.0	30340135	30340136		30340137	30340138	30789913	30789914	30275455	30340140
From ø 59.5 mm											
	WTHQ090604...L10B041-...	0.5 - 2.0	30340143	30340144		30340145	30340146	30789915	30789916	30340147	30340148
	WTHQ090608...L10B041-...	0.5 - 2.0	30340152	30340153		30340154	30340155	30679912	30789917	30340156	30340157
From ø 159.5 mm											
	WTHQ090604...L10B081-...	0.5 - 2.0	30340161	30340162		30340163	30340164	30789918		30340165	30340166
	WTHQ090608...L10B081-...	0.5 - 2.0	30340170	30340171		30340172	30305970	30789919		30306957	30340175



Tipped variant, single edge

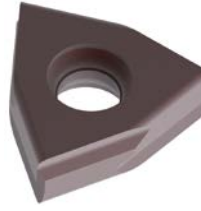


Carbide				Ceramic		PcBN		PCD	
N		S		K		K		N	
HU615	HP678		HP353	KU450		FU430		PU617	PU617
A31	A32			H03					A80
30493020	30340030								
30477963	30340038								
30493021	30340047			30340045					
30477974	30340056			30340054				30493022	
30493023	30340065			30340063					
30477975	30340074			30340072				30493024	
A30	A31		A31		A88		A79	A80	
30340133	30340134								
30340141	30340142		30493025		30493026		30493027		
30340150	30340151								
30340159	30340160		30493028		30493029			30493022	
30340168	30340169								
30340177	30340178		30493031		30493032			30493024	

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

WTHQ

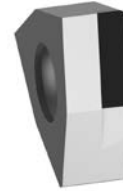
Tangential indexable inserts, six cutting edges, without arc shaped land



		Carbide											
Material		P			M			K					
Cutting material types		HP181	HP362		HP362	HP353	HC720	HC735	HP457	HP386			
Cutting edge design		A54	A54		A32	A32	H03	H03	H03	H03			
		From ø 37 mm		ap max. [mm]									
Roughing	WTHQ070504...L-...	1.5 - 3.0	30493034	30493035		30493036	30493037	30789920	30789921	30477885	30493038		
	WTHQ070504...R-...	1.5 - 3.0	30493040	30493041		30493042	30493043			30493044	30493045		
	WTHQ070508...L-...	1.5 - 3.0	30477792	30493048		30477856	30493049	30679913	30789922	30477889	30477815		
	WTHQ070508...R-...	1.5 - 3.0	30477793	30493051		30477857	30493052			30477890	30493053		
			From ø 59.5 mm										
	WTHQ090604...L-...	1.5 - 3.0	30477795	30493055		30477860	30493056						
		1.5 - 5.0						30679914	30789923	30477893	30477817		
	WTHQ090604...R-...	1.5 - 3.0	30493059	30493060		30493061	30493062						
		1.5 - 5.0								30477894	30493063		
	WTHQ090608...L-...	1.5 - 3.0	30477797	30493065		30477862	30493066						
		1.5 - 5.0						30679915	30679916	30477897	30477819		
	WTHQ090608...R-...	1.5 - 3.0	30493069	30493070		30493071	30493072						
		1.5 - 5.0								30477898	30493073		
			From ø 37 mm		ap max. [mm]								
		A50		A50		A56		A56		A32			
		A50		A56		A32		A32		A32			
Medium machining	WTHQ070504...L-...	0.5 - 2.0	30493076	30493077		30493078	30493079	30679917		30477884	30493080		
	WTHQ070504...R-...	0.5 - 2.0	30493085	30493086		30493087	30493088	30679918		30493089	30493090		
	WTHQ070508...L-...	0.5 - 2.0	30477790	30493093		30477858	30493094	30679919	30679920	30477887	30477814		
	WTHQ070508...R-...	0.5 - 2.0	30477791	30493100		30477859	30493101	30679921		30477888	30493102		
			From ø 59.5 mm										
	WTHQ090604...L-...	0.5 - 2.0	30477794	30493104		30477861	30493105	30679922	30679923	30477891	30477816		
	WTHQ090604...R-...	0.5 - 2.0	30493110	30493111		30493112	30493113	30679924		30477892	30493114		
	WTHQ090608...L-...	0.5 - 2.0	30477796	30493117		30477863	30493118	30679925	30679926	30477895	30477818		
	WTHQ090608...R-...	0.5 - 2.0	30493123	30493124		30493125	30493126	30679927		30477896	30493127		



Tipped variant, single edge

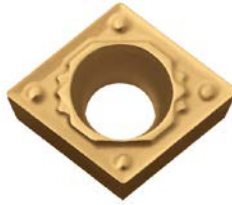


Carbide				Ceramic		PcBN		PCD	
N		S		K		K		N	
HU615	HP678		HP353	KU450		FU430		PU617	PU617
A31	A32			H03					A80
30477959	30493039								
30493046	30493047								
30477964	30493050								
30477965	30493054								
30477968	30493057								30493058
30477969	30493064								30515417
30477976	30493067			30477978					30493068
30477977	30493074			30493075					30515421
A30	A31		A31		A88		A79	A80	
30477957	30493081		30493082		30515718		30493099		
30493091	30493092		30518553		30493083		30493084		
30477960	30493095		30493096		30516444		30516446		
30477961	30493103		30518554		30493097		30493098		
30477966	30493106		30493107		30493108			30493058	
30477967	30493115		30518556		30515432			30515417	
30477970	30493119		30654139		30493121			30493068	
30477971	30493128		30518558		30515433			30515421	

For general figures for the minimum boring diameter as a function of the number of teeth see page 449.
 For clamping screws and screwdriver for indexable inserts see page 430.

CCMT - CCGT

Radial indexable inserts, double edge, neutral design



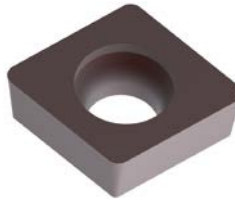
		Carbide								
Material		P			M		K			
Cutting material types		HC851	HC852		HC861	HC862	HC840	HC841		
		<i>a_p max. [mm]</i>								
*	CCMT09T308N-R30-...	1.0 - 4.0	30410861	30410863		30410864	30410865	30410866	30410867	
	CCMT120408N-R30-...	1.0 - 6.0		30591791					30591789	
		<i>a_p max. [mm]</i>								
Finishing - medium machining	CCMT060204N-M31-...	1.0 - 2.5	30410869	30410870		30410871	30410872		30410873	
	CCMT09T304N-M31-...	1.0 - 3.0	30410876	30410877		30410878	30410879	30410880	30410881	
	CCMT09T308N-M31-...	1.0 - 3.0						30410884		
	CCMT120408N-M31-...	1.0 - 3.0	30410885	30410886		30410887	30410888		30410889	
	CCMT060202N-M30-...	0.25 - 2.5	30410892	30410893		30410894	30410895			
	CCMT060204N-M30-...	0.5 - 2.5	30410898	30410899		30410900	30410901			
	CCMT09T304N-M30-...	0.5 - 2.5	30410904	30410905		30410906	30410907			
	CCMT09T308N-M30-...	0.75 - 2.5	30410910	30410911		30410912	30410913			
	CCMT09T304N-U31-...	0.25 - 2.0				30411094	30411095			
	CCMT09T308N-U31-...	0.5 - 2.0				30411096	30411097			
	CCGT09T304N-M32-...	0.5 - 3.0								
	CCGT09T308N-M32-...	0.5 - 3.0								
		<i>a_p max. [mm]</i>								
**	CCGT060204N-U22-...	0.1 - 0.5								
	CCGT060208N-U22-...	0.2 - 0.5								
		<i>a_p max. [mm]</i>								
Finishing - medium mach'g	CCGT060204F01L-6LA-...	0.1 - 3.0								
	CCGT060204F01R-6LA-...	0.1 - 3.0								
	CCGT060208F01L-6LA-...	0.1 - 3.0								
	CCGT060208F01R-6LA-...	0.1 - 3.0								
	CCGT09T304F01L-6LA-...	0.1 - 4.5								
	CCGT09T304F01R-6LA-...	0.1 - 4.5								
	CCGT09T308F01L-6LA-...	0.1 - 4.5								
	CCGT09T308F01R-6LA-...	0.1 - 4.5								
		<i>a_p max. [mm]</i>								
Finishing	CCGT060204F01N-5LA-...	0.1 - 1.0								
	CCGT060208F01N-5LA-...	0.1 - 1.5								
	CCGT09T304F01N-5LA-...	0.1 - 2.0								
	CCGT09T308F01N-5LA-...	0.1 - 2.0								

* Medium machining

** Finishing

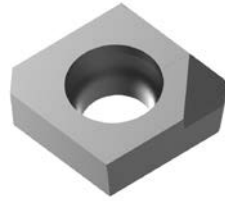
CCGW

Radial indexable inserts, double edge, neutral design



		Carbide						
Material		P	M	K				
Cutting material types						HC725	HC709	HP455
		<i>a_p max. [mm]</i>						
Medium machining	CCGW060204E04N-0A-...	0.5 - 3.2					30679928	30478136
	CCGW060208E04N-0A-...	0.5 - 3.2					30679929	30492170
	CCGW09T304E04N-0A-...	0.5 - 4.0					30679930	30492172
	CCGW09T308E04N-0A-...	0.5 - 4.0					30679931	30262328
	CCGW09T312E04N-0A-...	0.5 - 4.0					30679932	30492175
	CCGW060204T51N-0AA-...	0.5 - 2.0						
	CCGW09T304T51N-0AA-...	0.5 - 2.5						
	CCGW09T308T51N-0AA-...	0.5 - 2.5						
	CCGW060204E01N-0AA-...	0.5 - 1.5						
	CCGW09T304E01N-0AA-...	0.5 - 2.0						
	CCGW09T308E01N-0AA-...	0.5 - 2.0						
			<i>a_p max. [mm]</i>					
Finishing	CCGW060204E02N-0A-...	0.2 - 1.0					30679933	30478120
	CCGW060208E02N-0A-...	0.2 - 1.0					30679934	30478129
	CCGW09T304E02N-0A-...	0.2 - 2.0					30679935	30478121
	CCGW09T308E02N-0A-...	0.2 - 2.0					30679936	30478130
	CCGW060204E01N-0AA-...	0.1 - 1.0						
	CCGW09T304E01N-0AA-...	0.1 - 1.0						
	CCGW09T308E01N-0AA-...	0.1 - 1.0						
	CCGW060202F01N-0AA-...	0.1 - 1.0						
	CCGW060204F01N-0AA-...	0.1 - 1.0						
	CCGW09T304F01N-0AA-...	0.1 - 1.0						
	CCGW09T308F01N-0AA-...	0.1 - 1.0						

Tipped variant, single edge

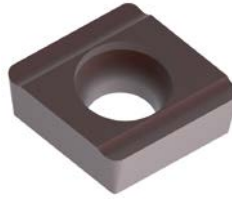


Carbide					PcBN			PCD		
N				S	K			N		
HU616	HP615				FU430			PU617	PU620	
30492169										
30492171										
30492173										
30492174										
30492176										
					10105523					
					10105636					
					10105650					
								30536906		
								30545439		
								30672286		
30492179	30492180									
30492181	30492182									
30492183	30492184									
30492185	30492186									
					10105520					
					10105634					
					10105648					
								30035143		
								30011027		
								30011031		
								30011032		

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

CCHT

Radial indexable inserts, double edge, left design



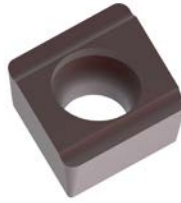
		Carbide							
Material		P			M		K		
Cutting material types						HC725	HC709	HP455	
Cutting edge design						1L	1L	1L	
		a_p max. [mm]							
Medium machining	CCHT060204E04L-...-...	0.5 - 3.2					30679937	30478137	
	CCHT060208E04L-...-...	0.5 - 3.2					30679938	30478139	
	CCHT09T304E04L-...-...	0.5 - 4.0					30679939	30454738	
	CCHT09T308E04L-...-...	0.5 - 4.0					30679940	30478140	
	CCHT09T312E04L-...-...	0.5 - 4.0					30679941	30492188	
	CCHT120404E04L-...-...	0.5 - 5.0					30679942	30492190	
	CCHT120408E04L-...-...	0.5 - 5.0					30679943	30478142	
	CCHT120412E04L-...-...	0.5 - 5.0					30679944	30492192	
		a_p max. [mm]							
Cutting edge design							1L	1L	
Finishing	CCHT060204E02L-...-...	0.1 - 1						30679945	30387114
	CCHT060208E02L-...-...	0.1 - 1						30679946	30478131
	CCHT060202F01L-...-...	0.1 - 1							
	CCHT060204F01L-...-...	0.1 - 1							
	CCHT060208F01L-...-...	0.1 - 1							
	CCHT09T304E02L-...-...	0.1 - 2						30679947	30286141
	CCHT09T308E02L-...-...	0.1 - 2						30679948	30478133
	CCHT09T302F01L-...-...	0.1 - 2							
	CCHT09T304F01L-...-...	0.1 - 2							
	CCHT09T308F01L-...-...	0.1 - 2							
	CCHT09T312F01L-...-...	0.1 - 2							
	CCHT120402F01L-...-...	0.1 - 3							
	CCHT120404F01L-...-...	0.1 - 3							
	CCHT120408F01L-...-...	0.1 - 3							
CCHT120412F01L-...-...	0.1 - 3								

Carbide				PcBN		PCD	
N				S			
HU616	HP615			K			
1R	1R						
30478171							
30492187							
30478173							
30478175							
30492189							
30492191							
30478178							
30492193							
1R	1R						
30492194							
30010702							
30010703							
30010704							
30492195	30492196						
30478128	30478170						
30010705	30492197						
30010706	30478168						
30010707	30484471						
30084580							
30010708							
30010709							
30010710							
30010711							

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

CCHT

Radial indexable inserts, double edge, right design



		Carbide							
Material		P			M		K		
Cutting material types						HC725	HC709	HP455	
Cutting edge design						1L	1L	1L	
		<i>a_p max. [mm]</i>							
Medium machining	CCHT060204E04R-...-...	0.5 - 3.2					30679949	30478138	
	CCHT060208E04R-...-...	0.5 - 3.2					30679950	30492198	
	CCHT09T304E04R-...-...	0.5 - 4.0					30679951	30492200	
	CCHT09T308E04R-...-...	0.5 - 4.0					30679952	30478141	
	CCHT09T312E04R-...-...	0.5 - 4.0					30679953	30492202	
	CCHT120404E04R-...-...	0.5 - 5.0					30679954	30492204	
	CCHT120408E04R-...-...	0.5 - 5.0					30679955	30478143	
	CCHT120412E04R-...-...	0.5 - 5.0					30679956	30492206	
		<i>a_p max. [mm]</i>							
Cutting edge design							1L	1L	
Finishing	CCHT060204E02R-...-...	0.1 - 1						30679957	30492208
	CCHT060208E02R-...-...	0.1 - 1						30679958	30478132
	CCHT060202F01R-...-...	0.1 - 1							
	CCHT060204F01R-...-...	0.1 - 1							
	CCHT060208F01R-...-...	0.1 - 1							
	CCHT09T304E02R-...-...	0.1 - 2						30679959	30254512
	CCHT09T308E02R-...-...	0.1 - 2						30679960	30478134
	CCHT09T302F01R-...-...	0.1 - 2							
	CCHT09T304F01R-...-...	0.1 - 2							
	CCHT09T308F01R-...-...	0.1 - 2							
	CCHT09T312F01R-...-...	0.1 - 2							
	CCHT120402F01R-...-...	0.1 - 3							
	CCHT120404F01R-...-...	0.1 - 3							
	CCHT120408F01R-...-...	0.1 - 3							
	CCHT120412F01R-...-...	0.1 - 3							

Carbide				PcBN		PCD	
N				S			
HU616	HP615			K			
1R	1R						
30478172							
30492199							
30492201							
30478176							
30492203							
30492205							
30478179							
30492207							
1R	1R						
30492209							
30010732							
30010733							
30010734							
30492210							
30478174							
30010735							
30010736	30478169						
30010737	30492211						
30492212							
30010738							
30010739							
30010740							
30010741							

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

SCMT - SPMT - SCGT - SPGT

Radial indexable inserts, four cutting edges, neutral design

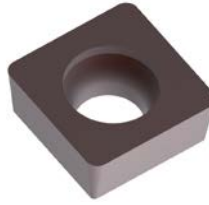


		Carbide								
Material		P			M		K			
Cutting material types		HC851	HC852		HC861	HC862	HC840	HC841		
		<i>a_p max. [mm]</i>								
*	SCMT09T308N-R30-...	1.0 - 4.0		30410973		30524642			30410974	
	SCMT120408N-R30-...	1.0 - 6.0		30542836		30524641			30411100	
		<i>a_p max. [mm]</i>								
Finishing – med. mach'g	SPMT060304N-M30-...	0.5 - 2.5	30429453	30410975					30410976	
	SCMT09T304N-M30-...	0.5 - 2.5	30410978	30410979				30410980	30410981	
	SCMT09T308N-M30-...	0.75 - 2.5	30410985	30410986				30410987	30410988	
	SCMT120408N-M30-...	0.75 - 3.0	30411101	30429452					30542837	
	SPMT060304N-U30-...	0.5 - 2.5	30591792	30591793					30591795	
	SCMT09T304N-U30-...	0.5 - 2.5	30591796	30591797				30591798	30591799	
		<i>a_p max. [mm]</i>								
Finishing	SCGT09T304N-U22-...	0.1 - 0.5								
	SCGT09T308N-U22-...	0.1 - 0.5								
	SPGT060304F01L-6LA-...	0.1 - 3.0								
	SPGT060304F01R-6LA-...	0.1 - 3.0								
	SPGT060308F01L-6LA-...	0.1 - 3.0								
	SPGT060308F01R-6LA-...	0.1 - 3.0								
	SCGT09T304F01L-6LA-...	0.1 - 4.5								
	SCGT09T304F01R-6LA-...	0.1 - 4.5								
	SCGT09T308F01L-6LA-...	0.1 - 4.5								
	SCGT09T308F01R-6LA-...	0.1 - 4.5								
	SPGT060304F01N-5LA-...	0.1 - 0.5								
	SPGT060308F01N-5LA-...	0.1 - 0.5								
	SCGT09T304F01N-5LA-...	0.1 - 0.5								
	SCGT09T308F01N-5LA-...	0.1 - 0.5								

* Medium machining

SPGW - SCGW

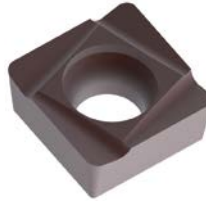
Radial indexable inserts, four cutting edges, neutral design



		Carbide						
Material		P	M	K				
Cutting material types						HC725	HC709	HP455
		<i>a_p max. [mm]</i>						
Medium machining	SPGW060304E04N-0A-...	0.5 - 3.2					30679961	30263792
	SPGW060308E04N-0A-...	0.5 - 3.2					30679962	30435365
	SCGW09T304E04N-0A-...	0.5 - 4.0					30679963	30262326
	SCGW09T308E04N-0A-...	0.5 - 4.0					30679964	30037171
	SCGW120404E04N-0A-...	0.5 - 5.0					30679965	30492215
	SCGW120408E04N-0A-...	0.5 - 5.0					30679966	30478144
	SCGW09T304T51N-0AA-...	0.5 - 2.5						
	SCGW09T308T51N-0AA-...	0.5 - 2.5						
	SCGW09T304E01N-0AA-...	0.5 - 2.0						
	SCGW09T308E01N-0AA-...	0.5 - 2.0						
		<i>a_p max. [mm]</i>						
Finishing	SPGW060304E02N-0A-...	0.2 - 1.0					30679967	30433437
	SPGW060308E02N-0A-...	0.2 - 1.0					30679968	30492218
	SPGW060304F01N-0AA-...	0.1 - 1.0						
	SPGW060308F01N-0AA-...	0.1 - 1.0						
	SCGW09T304E02N-0A-...	0.2 - 2.0					30679969	30437753
	SCGW09T308E02N-0A-...	0.2 - 2.0					30679970	30492219
	SCGW09T304E01N-0AA-...	0.1 - 1.0						
	SCGW09T308E01N-0AA-...	0.1 - 1.0						
	SCGW09T304F01N-0AA-...	0.1 - 1.0						
	SCGW09T308F01N-0AA-...	0.1 - 1.0						
SCGW120404F01N-0AA-...	0.1 - 1.0							
SCGW120408F01N-0AA-...	0.1 - 1.0							

SPHT - SCHAT

Radial indexable inserts, four cutting edges, left design



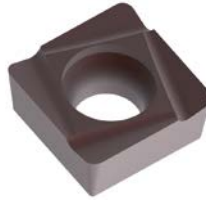
		Carbide						
Material		P			M		K	
Cutting material types						HC725	HC709	HP455
Cutting edge design						2L		2L
		<i>a_p max. [mm]</i>						
Medium machining	SPHT060304E04L-...-...	0.5 - 3.2					30679971	30478150
	SPHT060308E04L-...-...	0.5 - 3.2					30679972	30399891
	SCHT09T304E04L-...-...	0.5 - 4.0					30679973	30478124
	SCHT09T308E04L-...-...	0.5 - 4.0					30679974	30252804
	SCHT09T312E04L-...-...	0.5 - 4.0					30679975	30227255
	SCHT120404E04L-...-...	0.5 - 5.0					30679976	30492220
	SCHT120408E04L-...-...	0.5 - 5.0					30679977	30478147
	SCHT120412E04L-...-...	0.5 - 5.0					30679978	30492224
		<i>a_p max. [mm]</i>						
Cutting edge design							2L	2L
		<i>a_p max. [mm]</i>						
Finishing	SPHT060304E02L-...-...	0.1 - 1.0					30679979	30238928
	SPHT060308E02L-...-...	0.1 - 1.0					30679980	30389014
	SPHT060302F01L-...-...	0.1 - 1.0						
	SPHT060304F01L-...-...	0.1 - 1.0						
	SPHT060308F01L-...-...	0.1 - 1.0						
	SCHT09T304E02L-...-...	0.1 - 2.0					30679981	30283822
	SCHT09T308E02L-...-...	0.1 - 2.0					30679982	30282885
	SCHT09T304F01L-...-...	0.1 - 2.0						
SCHT09T308F01L-...-...	0.1 - 2.0							

Carbide					PcBN		PCD	
N				S	K	N		
HU616	HP615							
2R	2R							
30492221								
30492222	30492223							
30492225	30492226							
2R	2R							
30492227	30492228							
30492229	30492230							
30092077	30492231							
30010644	30239958							
30057636	30492232							
30478180	30492233							
30478182	30492234							
30010645	30492235							
30010646	30042582							

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

SPHT - SCHAT

Radial indexable inserts, four cutting edges, right design



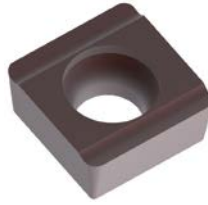
		Carbide						
Material		P			M		K	
Cutting material types						HC725	HC709	HP455
Cutting edge design						2L		2L
		<i>a_p max. [mm]</i>						
Medium machining	SPHT060304E04R-...-...	0.5 - 3.2					30679983	30272808
	SPHT060308E04R-...-...	0.5 - 3.2					30679984	30478151
	SCHT09T304E04R-...-...	0.5 - 4.0					30679985	30478126
	SCHT09T308E04R-...-...	0.5 - 4.0					30679986	30252800
	SCHT09T312E04R-...-...	0.5 - 4.0					30679987	30492236
	SCHT120404E04R-...-...	0.5 - 5.0						30492237
	SCHT120408E04R-...-...	0.5 - 5.0						30478148
	SCHT120412E04R-...-...	0.5 - 5.0						30492241
		<i>a_p max. [mm]</i>						
		Cutting edge design						
		<i>a_p max. [mm]</i>						
Finishing	SPHT060304E02R-...-...	0.1 - 1.0					30679988	30254511
	SPHT060308E02R-...-...	0.1 - 1.0					30679989	30478135
	SPHT060302F01R-...-...	0.1 - 1.0						
	SPHT060304F01R-...-...	0.1 - 1.0						
	SPHT060308F01R-...-...	0.1 - 1.0						
	SCHT09T304E02R-...-...	0.1 - 2.0					30679990	30257683
	SCHT09T308E02R-...-...	0.1 - 2.0					30679991	30294145
	SCHT09T304F01R-...-...	0.1 - 2.0						
SCHT09T308F01R-...-...	0.1 - 2.0							

Carbide				PcBN		PCD	
N				S			
HU616	HP615			K			
2R	2R						
30492238							
30492239	30492240						
30492242	30492243						
2R	2R						
30492244	30492245						
30492246	30492247						
30089678	30492248						
30010662	30492249						
30438143	30492250						
30478181	30281351						
30478183	30492251						
30010663	30492252						
30010664	30492253						

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

SPHT - SCHAT

Radial indexable inserts, double edge, neutral design



		Carbide							
Material		P			M		K		
Cutting material types						HC725	HC709	HP455	
Cutting edge design						1L		1L	
		<i>a_p max. [mm]</i>							
Medium machining	SPHT060304E04X-...-...	0.5 - 3.2					30679992	30262298	
	SPHT060308E04X-...-...	0.5 - 3.2					30679993	30478152	
	SCHT09T304E04X-...-...	0.5 - 4.0					30679994	30433743	
	SCHT09T308E04X-...-...	0.5 - 4.0					30679995	30478146	
	SCHT09T312E04X-...-...	0.5 - 4.0					30679996	30492254	
	SCHT120404E04X-...-...	0.5 - 5.0					30679997	30492255	
	SCHT120408E04X-...-...	0.5 - 5.0					30679998	30478149	
	SCHT120412E04X-...-...	0.5 - 5.0					30679999	30492259	
		<i>a_p max. [mm]</i>							
Cutting edge design							1L	1L	
Finishing	SPHT060304E02X-...-...	0.1 - 1.0						30680000	30492262
	SPHT060308E02X-...-...	0.1 - 1.0						30680001	30478127
	SPHT060302F01X-...-...	0.1 - 1.0							
	SPHT060304F01X-...-...	0.1 - 1.0							
	SPHT060308F01X-...-...	0.1 - 1.0							
	SCHT09T304E02X-...-...	0.1 - 2.0						30680002	30478123
	SCHT09T308E02X-...-...	0.1 - 2.0						30680003	30478145
	SCHT09T302F01X-...-...	0.1 - 2.0							
	SCHT09T304F01X-...-...	0.1 - 2.0							
	SCHT09T308F01X-...-...	0.1 - 2.0							
	SCHT09T312F01X-...-...	0.1 - 2.0							
	SCHT120404F01X-...-...	0.1 - 3.0							
	SCHT120408F01X-...-...	0.1 - 3.0							

Carbide					PcBN		PCD		
N					K		N		
HU616	HP615								
1R	1R								
30492256									
30492257	30492258								
30492260	30492261								
1R	1R								
30492264	30492265								
30492267	30492268								
30165700	30492269								
30010680	30486508								
30478185	30492270								
30492272									
30478184									
30141062									
30010681									
30010682									
30492274									
30010683	30492275								
30010684	30492276								

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
For clamping screws and screwdriver for indexable inserts see page 431.

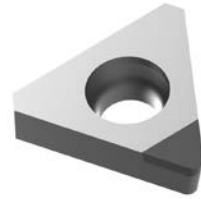
TCMT - TCGW

Radial indexable inserts, three cutting edges, neutral design



		Carbide								
Material		P			M		K			
Cutting material types		HC851	HC852		HC861	HC862	HC840	HC841		
		<i>a_p max. [mm]</i>								
Medium machg	TCGW110204T51N-0AA-...	0.5 - 2.5								
	TCGW110208T51N-0AA-...	0.5 - 2.5								
	TCGW110204E01N-0AA-...	0.5 - 2.0								
	TCGW110208E01N-0AA-...	0.5 - 2.0								
		<i>a_p max. [mm]</i>								
Finishing - medium machining	TCMT090202N-M30-...	0.25 - 2.0		30410991						
	TCMT090204N-M30-...	0.5 - 2.0		30410994						
	TCMT110202N-M30-...	0.25 - 2.5		30410997						
	TCMT110204N-M30-...	0.5 - 2.5	30411000	30411001				30411002		
	TCMT110208N-M30-...	0.75 - 2.5	30411005	30411006				30411007		
	TCMT16T304N-M30-...	0.5 - 2.5	30411010	30411011						
	TCMT16T308N-M30-...	0.75 - 2.5	30411013	30411014				30411015		
	TCMT16T312N-M30-...	1.0 - 2.5	30411017	30411018				30411019		
		<i>a_p max. [mm]</i>								
Finishing	TCGW110204E01N-0AA-...	0.1 - 1.0								
	TCGW110208E01N-0AA-...	0.1 - 1.0								
	TCGW110204F01N-0AA-...	0.1 - 1.0								
	TCGW110208F01N-0AA-...	0.1 - 1.0								

Tipped variant, single edge

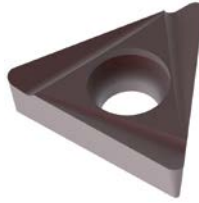


Carbide					Cermet		PcBN		PCD	
N				S	P		K		N	
					CP871	CP872	FU430		PU617	PU620
							30227880			
							30227892			
									30492277	
									30492278	
					30410992	30410993				
					30410995	30410996				
					30410998	30410999				
					30411003	30411004				
					30411008	30411009				
						30411012				
						30411016				
							30227878			
							30227890			
										30011043
										30011044

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

TCHT

Radial indexable inserts, three cutting edges, left design



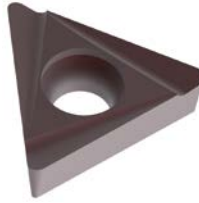
		Carbide						
Material		P			M		K	
Cutting material types						HC725	HC709	HP455
Cutting edge design						2L		2L
		<i>a_p max. [mm]</i>						
Medium machining	TCHT090204E04L-...-...	0.5 - 2.5					30680004	30492279
	TCHT090208E04L-...-...	0.5 - 2.5					30680005	30478156
	TCHT110204E04L-...-...	0.5 - 3.0					30680006	30492282
	TCHT110208E04L-...-...	0.5 - 3.0					30680007	30478162
	TCHT16T304E04L-...-...	0.5 - 4.0					30680008	30492285
	TCHT16T308E04L-...-...	0.5 - 4.0					30680009	30478165
		<i>a_p max. [mm]</i>						
Cutting edge design							2L	2L
Finishing	TCHT06T104E02L-...-...	0.1 - 1.0					30680010	30492288
	TCHT06T104F01L-...-...	0.1 - 1.0						
	TCHT090204E02L-...-...	0.1 - 1.0					30680011	30478153
	TCHT090208E02L-...-...	0.1 - 1.0					30680012	30492292
	TCHT090204F01L-...-...	0.1 - 1.0						
	TCHT110204E02L-...-...	0.1 - 1.5					30680013	30478159
	TCHT110208E02L-...-...	0.1 - 1.5					30680014	30492295
	TCHT110202F01L-...-...	0.1 - 1.5						
	TCHT110204F01L-...-...	0.1 - 1.5						
	TCHT110208F01L-...-...	0.1 - 1.5						
	TCHT16T304F01L-...-...	0.1 - 2.5						
	TCHT16T308F01L-...-...	0.1 - 2.5						

Carbide				PcBN		PCD	
N				S			
HU616							
2R							
30492280							
30492281							
30492283							
30492284							
30492286							
30492287							
2R							
30492289							
30492290							
30492291							
30492293							
30010759							
30492294							
30492296							
30010761							
30010762							
30010763							
30478187							
30019882							

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

TCHT

Radial indexable inserts, three cutting edges, right design



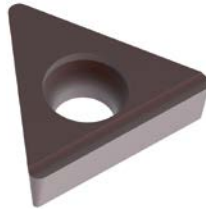
		Carbide						
Material		P			M		K	
Cutting material types						HC725	HC709	HP455
Cutting edge design						2L		2L
		<i>a_p max. [mm]</i>						
Medium machining	TCHT090204E04R-...-...	0.5 - 2.5					30680015	30468044
	TCHT090208E04R-...-...	0.5 - 2.5					30680016	30478157
	TCHT110204E04R-...-...	0.5 - 3.0					30680017	30492299
	TCHT110208E04R-...-...	0.5 - 3.0					30680018	30478163
	TCHT16T304E04R-...-...	0.5 - 4.0					30680019	30492302
	TCHT16T308E04R-...-...	0.5 - 4.0					30680020	30478166
		<i>a_p max. [mm]</i>						
		Cutting edge design						
		<i>a_p max. [mm]</i>						
Finishing	TCHT06T104E02R-...-...	0.1 - 1.0					30680021	30492305
	TCHT06T104F01R-...-...	0.1 - 1.0						
	TCHT090204E02R-...-...	0.1 - 1.0					30680022	30478154
	TCHT090208E02R-...-...	0.1 - 1.0					30680023	30492309
	TCHT090204F01R-...-...	0.1 - 1.0						
	TCHT110204E02R-...-...	0.1 - 1.5					30680024	30478160
	TCHT110208E02R-...-...	0.1 - 1.5					30680025	30492312
	TCHT110202F01R-...-...	0.1 - 1.5						
	TCHT110204F01R-...-...	0.1 - 1.5						
	TCHT110208F01R-...-...	0.1 - 1.5						
	TCHT16T304F01R-...-...	0.1 - 2.5						
	TCHT16T308F01R-...-...	0.1 - 2.5						

Carbide				PcBN		PCD	
N				S			
HU616							
2R							
30492297							
30492298							
30492300							
30492301							
30492303							
30492304							
2R							
30492306							
30492307							
30492308							
30492310							
30010777							
30492311							
30492313							
30010779							
30010780							
30478186							
30478188							
30478189							

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

TCHT

Radial indexable inserts, single edge, neutral design



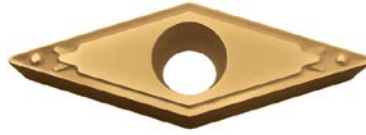
		Carbide							
Material		P			M		K		
Cutting material types						HC725	HC709	HP455	
Cutting edge design						1L		1L	
		<i>a_p max. [mm]</i>							
Medium machining	TCHT090204E04X-...-...	0.5 - 2.5					30680026	30492314	
	TCHT090208E04X-...-...	0.5 - 2.5					30680027	30478158	
	TCHT110204E04X-...-...	0.5 - 3.0					30680028	30492317	
	TCHT110208E04X-...-...	0.5 - 3.0					30680029	30478164	
	TCHT16T304E04X-...-...	0.5 - 4.0					30680030	30492320	
	TCHT16T308E04X-...-...	0.5 - 4.0					30680031	30478167	
		<i>a_p max. [mm]</i>							
Cutting edge design							1L	1L	
		<i>a_p max. [mm]</i>							
Finishing	TCHT06T104E02X-...-...	0.1 - 1.0						30680032	30492323
	TCHT06T104F01X-...-...	0.1 - 1.0							
	TCHT090204E02X-...-...	0.1 - 1.0						30680033	30478155
	TCHT090208E02X-...-...	0.1 - 1.0						30680034	30492327
	TCHT090204F01X-...-...	0.1 - 1.0							
	TCHT110204E02X-...-...	0.1 - 1.5						30680035	30478161
	TCHT110208E02X-...-...	0.1 - 1.5						30680036	30492330
	TCHT110202F01X-...-...	0.1 - 1.5							
	TCHT110204F01X-...-...	0.1 - 1.5							
	TCHT110208F01X-...-...	0.1 - 1.5							
	TCHT16T304F01X-...-...	0.1 - 2.5							
	TCHT16T308F01X-...-...	0.1 - 2.5							

Carbide				PcBN		PCD	
N				S			
HU616							
1R							
30492315							
30492316							
30492318							
30492319							
30492321							
30492322							
1R							
30492324							
30492325							
30492326							
30492328							
30010795							
30492329							
30492331							
30010797							
30010798							
30010799							
30019940							
30019941							

For general figures for the minimum boring diameter as a function of the number of teeth see page 448.
 For clamping screws and screwdriver for indexable inserts see page 431.

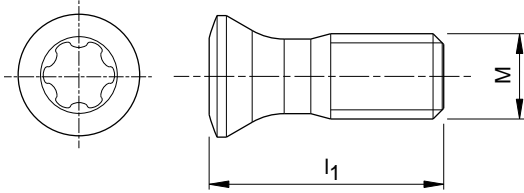
VBMT - VCMT - VBGW - VCGT - VCGW




Radial indexable inserts, double edge, neutral design



		Carbide									
Material		P		M		K					
Cutting material types		HC851	HC852		HC861	HC862					
		<i>a_p max. [mm]</i>									
Finishing - medium machining	VBMT110304N-M30-...	0.25 - 1.5	30385094	30411021		30411022	30411023				
	VBMT110308N-M30-...	0.5 - 1.5	30411026	30411027		30411028	30411029				
	VBMT160404N-M30-...	0.5 - 2.0	30411032	30411033		30411034	30411035				
	VBMT160408N-M30-...	0.75 - 2.0	30411038	30411039		30411040	30411041				
	VCMT110304N-M30-...	0.25 - 1.5	30477495	30477496							
	VCMT160404N-M30-...	0.5 - 2.0	30477497	30477498							
	VCMT160408N-M30-...	0.75 - 2.0		30477500							
	VCGT160404N-M32-...	0.5 - 3.0									
			<i>a_p max. [mm]</i>								
	Finishing	VBGW160404E01N-OAA-...	0.1 - 1.0								
VBGW160408E01N-OAA-...		0.1 - 1.0									
VBGW160404F01N-OAA-...		0.1 - 1.0									
VBGW160408F01N-OAA-...		0.1 - 1.0									
VCGW160404E01N-OAA-...		0.1 - 1.0									
VCGW160408E01N-OAA-...		0.1 - 1.0									
VCGW160404F01N-OAA-...		0.1 - 1.0									
VCGW160408F01N-OAA-...		0.1 - 1.0									

Accessories for tangential indexable inserts











Indexable insert	Indexable insert size	Clamping screw					Screwdriver
		Dimension [MxI]	Model	Tightening torque [Nm]	Torx size	Order No.	Order No.
CT... 	603	M2.5 x 6	MN659 M2.5x6-TX8-IP	1	TX8-IP	10105073	30414760
	604	M2.5 x 8.7	MN659 M2.5x8.7-TX8-IP	1	TX8-IP	30533284	30414760
	09T3	M3.5 x 9.4	MN659 M3.5x9.4-TX10-IP	2.8	TX10-IP	10007315	30414763
	905	M3.5 x 11	MN659 M3.5x11-TX10-IP	2.8	TX10-IP	10105079	30414763
	1206	M5 x 14	MN659 M5x14-TX20-IP	7.5	TX20-IP	10006485	30414766
FT... 	604	M2.5 x 8.7	MN659 M2.5x8.7-TX8-IP	1	TX8-IP	30533284	30414760
	905	M3.5 x 11	MN659 M3.5x11-TX10-IP	2.8	TX10-IP	10105079	30414763
	1206	M5x14	MN659 M5x14-TX20-IP	7.5	TX20-IP	10006485	30414766
ST... 	603	M2.5 x 6	MN659 M2.5x6-TX8-IP	1	TX8-IP	10105073	30414760
WT... 	705	M4 x 11	MN659 M4x11-TX15-IP	4	TX15-IP	10018468	30414764
	906	M5 x 13	MN659 M5x13-TX20-IP	7.5	TX20-IP	10105084	30414766

High-temperature screw paste

Ceramic paste/re-sealable PE tube 30 g	30861389
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Accessories for radial indexable inserts

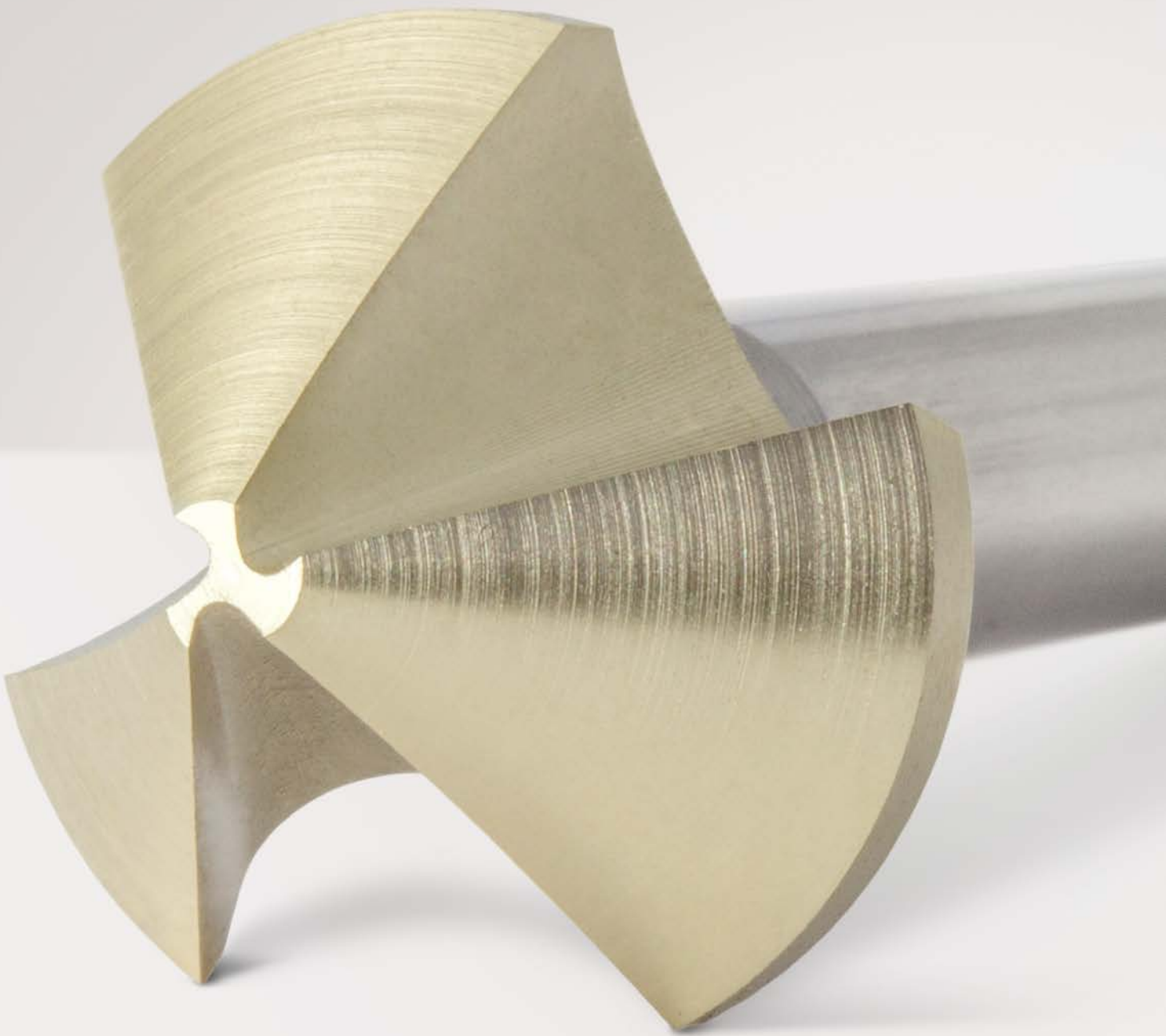
Indexable insert	Indexable insert size	Clamping screw					Screwdriver
		Dimension [Mx]	Model	Tightening torque [Nm]	Torx size	Order No.	Order No.
BD... 	11T3	M2.5 x 5.4	M2.5x5.4-TX8	1	TX8	30419328	10019467
	1704	M4 x 6.9	M4x6.9-TX15	3.5	TX15	30419329	10019469
CC... 	602	M2.5 x 6	MN659 M2.5x6-TX8-IP	1	TX8-IP	10105073	30414760
	09T3	M3.5 x 9	MN659 M3.5x9-TX15-IP	2.8	TX15-IP	10105078	30414764
	1204	M5 x 11	MN659 M5x11-TX20-IP	7.5	TX20-IP	10105082	30414766
DC... 	702	M2.5 x 6	MN659 M2.5x6-TX8-IP	1	TX8-IP	10105073	30414760
	11T3	M3.5 x 9	MN659 M3.5x9-TX15-IP	2.8	TX15-IP	10105078	30414764
SP... 	603	M2.5 x 6	MN659 M2.5x6-TX8-IP	1	TX8-IP	10105073	30414760
TC... 	06T1	M2 x 4.95	MN659 M2x4.95-TX6-IP	0.5	TX6-IP	10002712	30414758
	902	M2.2 x 5.5	MN659 M2.2x5.5-TX7-IP	0.8	TX7-IP	10105070	30414759
	1102	M2.5 x 6	MN659 MN2.5x6-TX8-IP	1	TX8-IP	10105073	30414760
	16T3	M3.5 x 9	MN659 M3.5x9-TX15-IP	2.8	TX15-IP	10105078	30414764
SC... 	09T3	M3.5 x 9	MN659 M3.5x9-TX15-IP	2.8	TX15-IP	10105078	30414764
	1204	M5 x 11	MN659 M5x11-TX20-IP	7.5	TX20-IP	10105082	30414766
SE... 	09T3	M3 x 8.5	MN659 M3x8.5-TX8-IP	1.8	TX8-IP	10105076	30414760
	1504	M5 x 11	MN659 M5x11-TX20-IP	7.5	TX20-IP	10105083	30414766
VB-/VC... 	1103	M2.5 x 6	MN659 MN2.5x6-TX8-IP	1	TX8-IP	10105073	30414760
	1604	M3.5 x 9	MN659 M3.5x9-TX15-IP	2.8	TX15-IP	10105078	30414764



COUNTERSINKING USING EXTREMELY UNEVEN PITCH COUNTERSINKS

Quiet, fast and precise for optimal countersinking





COUNTERSINKS WITH EXTREMELY UNEVEN PITCH

Introduction

Product overview	436
------------------------	-----

Countersinks

HSS variant, coated	438
Solid carbide variant, coated	439



REVOLUTION IN COUNTERSINKING

Finally quiet, fast and precise

Every machining process has latent potential for boosting productivity. There is significant potential for improvement even in seemingly secondary machining operations. This issue is demonstrated by the new generation of countersinks.

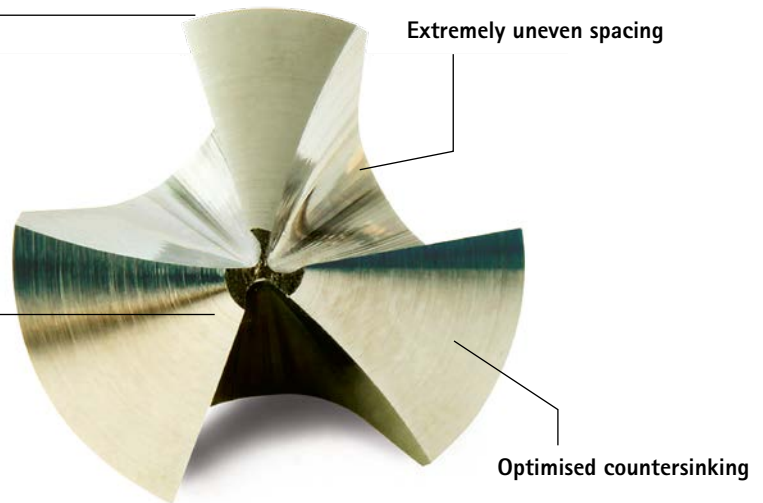
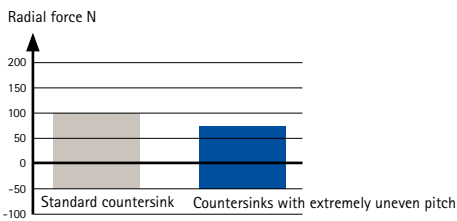
The newly developed countersink operates with significantly reduced axial forces. The cutting edges on the countersinks have an unequal spacing. With this spacing, the axial forces are reduced by more than 50% and the radial forces by 25% compared with conven-

tional countersinks. Such optimised operating conditions create far less vibrations at the tool, allowing higher accuracies and better surface finishes to be achieved. The precision of the countersink leads to an immediately improved contact of bolted and riveted joints, eliminating settling of the joint under load after assembly. The reduced load on the machine also increases the life of the tools. Thanks to the smooth and stable running, the tools can also be operated with higher cutting values. The result is significant time savings.

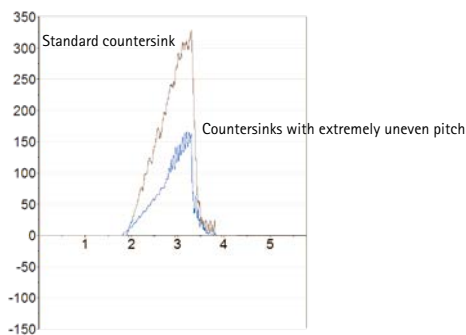


Tool features in detail

Radial force reduced by 25 %



Axial force reduced by 50 %

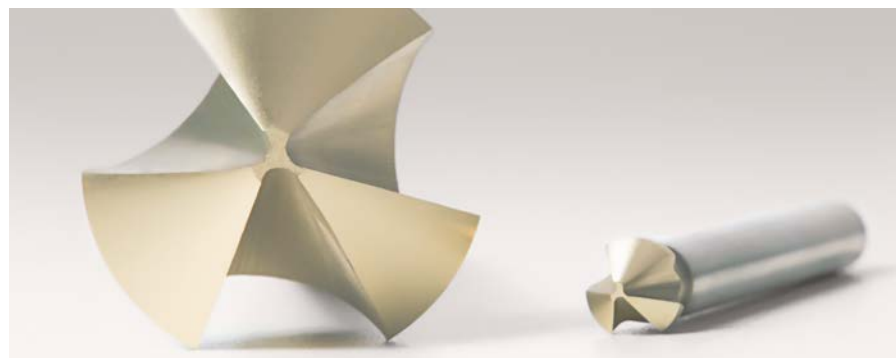


Countersinks with extremely uneven pitch



Standard countersink

HSS and solid carbide design, coated



HSS design, coated

The three cutting edges on the countersinks from MAPAL made of HSS with high-performance coating have extremely unequal spacing. As a consequence the axial forces are reduced and significantly less vibration is generated on the tool. In this way higher accuracies and better surface finishes are achieved. The precision of the countersink leads to the directly improved contact of bolted and riveted joints (page 438).

Solid carbide design, coated

In addition to the high-performance coated HSS designs of countersinks, MAPAL also offers selected diameters as a coated solid carbide version. Along with the advantages of the unequal spacing, the solid carbide design offers additional advantages during the machining of demanding workpiece materials such as titanium, high-alloy cast iron, Inconel or CFRP. Longer tool lives and higher cutting speeds are reliably achieved compared with the coated HSS design (page 439).

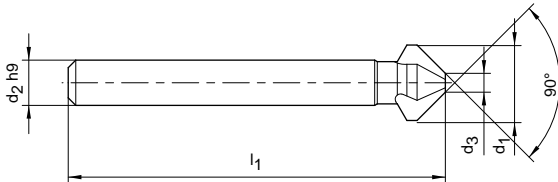
Special drill designs with countersink step



MAPAL offers the possibility of manufacturing a countersink step for almost all solid carbide drills as a special solution. In this way two machining operations, drilling and countersinking, can be realised using one tool and non-productive times reduced. The latest production technologies as well as flexible manufacturing at MAPAL make possible short delivery times for custom solutions worldwide.

90° countersinks

HSS design, coated
Extremely uneven pitch



90°

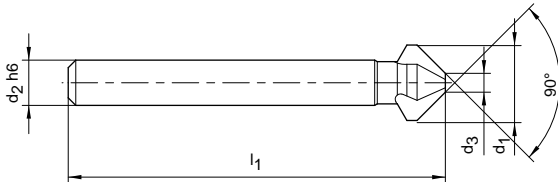
Dimensions					Specification	Order No.
d ₁	d ₂	d ₃	l ₁	z		
4,30	4	1,3	40	3	COS110-0430-335C-SP345	30662991
6,00	5	1,5	45	3	COS110-0600-335C-SP345	30662992
6,30	5	1,5	45	3	COS110-0630-335C-SP345	30633783
8,00	6	2,0	50	3	COS110-0800-335C-SP345	30662993
8,30	6	2,0	50	3	COS110-0830-335C-SP345	30662994
10,00	6	2,5	50	3	COS110-1000-335C-SP345	30662996
10,40	6	2,5	50	3	COS110-1040-335C-SP345	30633784
11,50	8	2,8	56	3	COS110-1150-335C-SP345	30662997
12,40	8	2,8	56	3	COS110-1240-335C-SP345	30662998
15,00	10	3,2	60	3	COS110-1500-335C-SP345	30662999
16,50	10	3,2	60	3	COS110-1650-335C-SP345	30633786
19,00	10	3,5	63	3	COS110-1900-335C-SP345	30663000
20,50	10	3,5	63	3	COS110-2050-335C-SP345	30633787
23,00	10	3,8	67	3	COS110-2300-335C-SP345	30663001
25,00	10	3,8	67	3	COS110-2500-335C-SP345	30633788
31,00	12	4,2	71	3	COS110-3100-335C-SP345	30663003

Countersink set

d ₁	Specification	Order No.
6,30 - 25,00	COS110-6.3-25-335C-SP345-SET	30634356

90° countersinks

Solid carbide design, coated
Extremely uneven pitch




90°

Dimensions					Specification	Order No.
d ₁	d ₂	d ₃	l ₁	z		
6,30	5	1,5	45	3	COS110-0630-335C-HP437	30799189
8,30	6	2,0	50	3	COS110-0830-335C-HP437	30799191
10,40	6	2,5	50	3	COS110-1040-335C-HP437	30799192
12,40	8	2,8	56	3	COS110-1240-335C-HP437	30799195
16,50	10	3,2	60	3	COS110-1650-335C-HP437	30799198
20,50	10	3,5	63	3	COS110-2050-335C-HP437	30799199
25,00	10	3,8	67	3	COS110-2500-335C-HP437	30799201
31,00	12	4,2	71	3	COS110-3100-335C-HP437	30799203

TECHNICAL APPENDIX

Notes on usage, handling as well as cutting data







Antriebsauslastung - Anzeige

Service Info

NC/UKS/4_1471_SPM1_STANDARDPROG/SPM1_2_2

Position [mm]

X 226.533

Y 33.867

Z 46.362

C 0.000

B 0.000

TFS

T SPM1_STANDARD D1

F SPM1_STANDARD 0.000

S1 Master 0

mm/min

0.0%

100%

T.S.M

NPU setzen

Nullp. Werkst

Werkz. messen

Position

Planfräsen

Schwenken

TECHNICAL APPENDIX

General technical information

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Cutting data recommendation

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General machining formulae, boring

Velocity and feed

Spindle speed	$n = \left[\frac{1}{\text{min}} \right]$	$n = \frac{v_c \cdot 1000}{\pi \cdot D_c}$
Cutting speed	$v_c = \left[\frac{\text{m}}{\text{min}} \right]$	$v_c = \frac{\pi \cdot D_c \cdot n}{1000}$
Feed rate	$v_f = \left[\frac{\text{mm}}{\text{min}} \right]$	$v_f = f_z \cdot z \cdot n$
Feed/tooth	$f_z = \left[\text{mm} \right]$	$f_z = \frac{v_f}{z \cdot n}$
Feed	$f = \left[\text{mm} \right]$	$f = f_z \cdot z$
Number of cutting edges	z	

Cutting force

Cutting force F_c	$F_c = A \cdot k_c = b \cdot h \cdot k_c$	F_c in N k_c in N/mm ²
Specific cutting force	$k_c = \left[\frac{k_c \cdot 1.1}{h \cdot mc} \right]$	



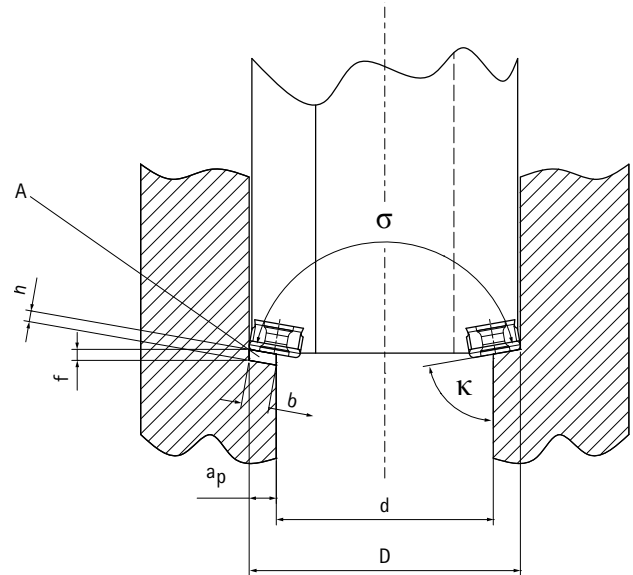
Cutting parameters during boring

Along with the specific cutting force for the material, the cutting cross section A essentially defines the machining force. The feed element per cutting edge f_z and cutting depth a_p are key parameters here.

The following relationships apply:

Feed	$f = [\text{mm}]$	$f = f_z \cdot z$
Setting angle	$\kappa = [^\circ]$	$\kappa = \frac{\sigma}{2}$
Cutting width	$b = [\text{mm}]$	$b = \frac{a_p}{\sin \kappa}$
Chipping thickness	$h = [\text{mm}]$	$h = f_z \cdot \sin \kappa$
Cutting depth	$a_p = [\text{mm}]$	$a_p = \frac{(D - d)}{2}$

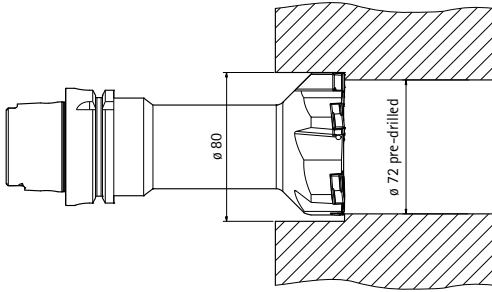
The figure shows the cutting cross section A during boring.



Cutting cross section for boring	$A = [\text{mm}^2]$	$A = \frac{(D - d) \cdot f_z}{2}$	or	$A = a_p \cdot f_z$
----------------------------------	---------------------	-----------------------------------	----	---------------------

Calculation of cutting forces, boring

Simplified



Example calculation:

Boring tool \varnothing 80 mm;
 $Z = 5$; pre-drilled \varnothing 72 mm, $\kappa = 90^\circ$

Material: EN-GJL-250
 $k_{c1.1}^* = 1160$, $M_C = 0.26$
 $v_C = 200$ m/min, $f_z = 0.2$ mm
 Blunting 30%

	Basic formula	Calculation	Result
1. Spindle speed	$n = \frac{V_C \cdot 1000}{\pi \cdot D}$	$n = \frac{200 \cdot 1000}{\pi \cdot 80}$	$n = 800$ 1/min
2. Cutting depth	$a_p = \frac{(D - d)}{2}$	$a_p = \frac{(80 - 72)}{2}$	$a_p = 4$ mm
3. Cutting cross section	$A = a_p \cdot f \cdot z$	$A = 4 \text{ mm} \cdot 0,2 \text{ mm} \cdot 5$	$A = 4$ mm ²
4. Chipping thickness	$h = f_z \cdot \sin \kappa$	$h = 0,2 \text{ mm} \cdot \sin 90^\circ$	$h = 0,2$ mm
5. Specific cutting force without blunting factor	$k_c = \frac{k_{c1.1}}{h^{m_c}}$	$k_c = \frac{1160}{0,2^{0,26}}$	$k_c = 1763$ N/mm ² with 30% blunting: $1763 \text{ N/mm}^2 \times 1.3 = 2292 \text{ N/mm}^2$
6. Cutting force	$F_C = A \cdot k_c = b \cdot h \cdot k_c$	$F_C = 4 \text{ mm}^2 \cdot 2292 \text{ N/mm}^2$	$F_C = 9,17$ kN
7. Cutting torque <small>d_m = average diameter in metres</small>	$M_C = F_C \frac{d_m}{2}$	$M_C = 9167,3 \text{ N} \frac{0,076 \text{ m}}{2}$	$M_C = 348,3$ Nm
8. Cutting power	$P_C = \frac{2 \cdot \pi \cdot n \cdot M_C}{60s}$	$P_C = \frac{2 \cdot \pi \cdot 800 \text{ min}^{-1} \cdot 348,3 \text{ Nm}}{60s}$	$P_C = 29,2$ kW

Machine tool selection

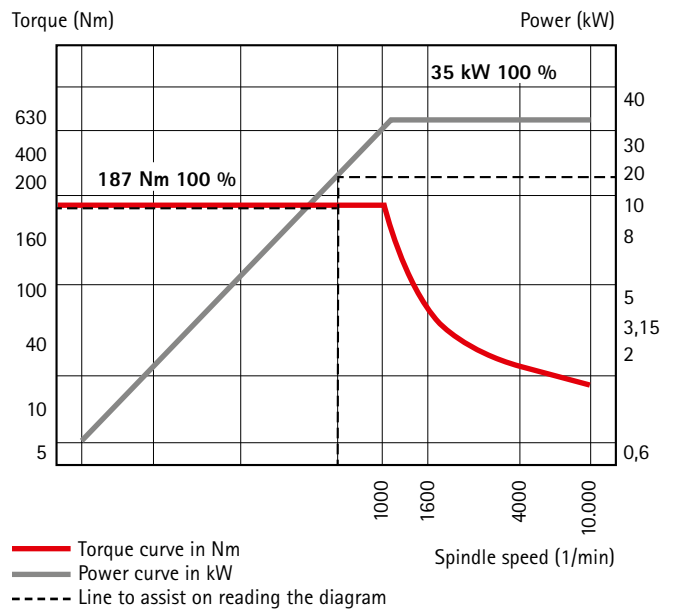
Comparison with torque and output power of the machine tool

There follow two spindle speed/power diagrams.

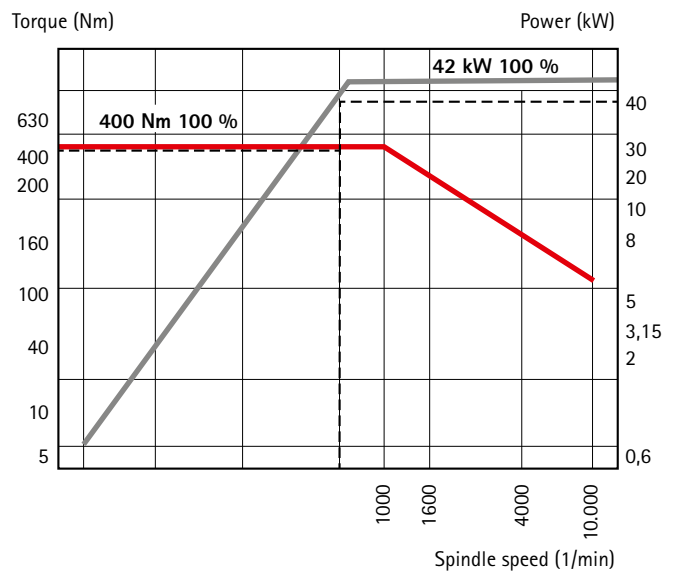
The number of teeth and cutting parameters are to be defined as a function of the machine.

In the example calculation the machine with the motor spindle is unsuitable, as here at a spindle speed of 800 min^{-1} a torque of 187 Nm and a power of approx. 20 kW are achieved (Figure 1).

Motor spindle (Figure 1)



Geared spindle (Figure 2)



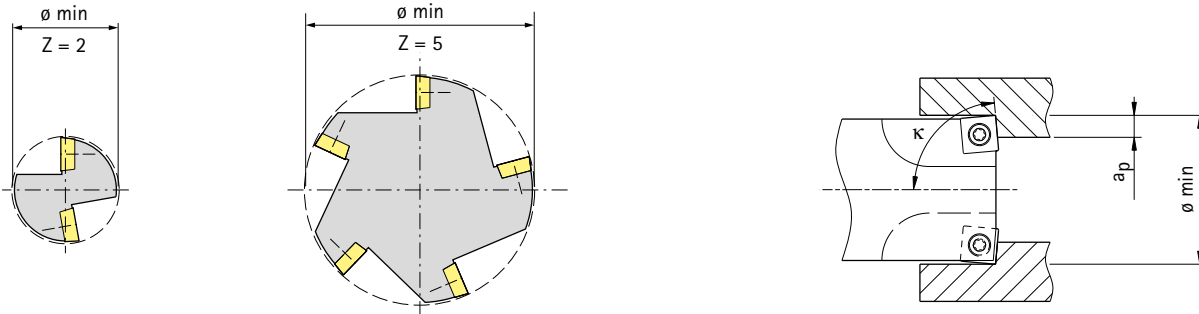
Solution:

Either reduce number of teeth, reduce cutting speed and feed, divide cut between two tools or select more powerful machine (e.g. with geared spindle, Figure 2).




The example diagrams are shown in a simplified form.

General figures for the minimum boring diameter – radial

Subject to the number of teeth and indexable insert

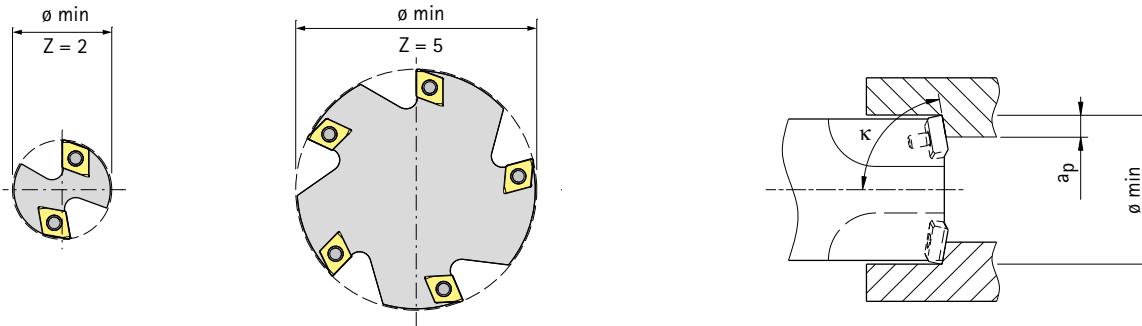


Radial boring inserts without arc shaped land

Indexable insert form	Indexable insert size				Number of teeth	Comment
	0603	09T3	1204			
S (90°)	Minimum boring diameter at κ 85°					Suitable for through bore
	17	25	28		1	
	17	25	31		2	
	23	32	39		3	
	31	43	53		4	
	51	63	73		5	
C (80°)	0602	09T3	1204			Suitable for 90° shoulder machining
	Minimum boring diameter at κ 90°					
	17	24	28		1	
	18	26	33		2	
	23	34	41		3	
	31	45	54		4	
49	63	77		5		
T (60°)	06T1	0902	1102	16T3		Suitable in some situations for through bores and 90° shoulder machining
	Minimum boring diameter at κ 90°					
	15	17	17	24	1	
	18	21	24	37	2	
	21	25	28	43	3	
	27	34	37	57	4	
37	51	67	76	5		

General figures for the minimum boring diameter – tangential

Subject to the number of teeth and indexable insert



Tangential boring inserts without arc shaped land

Indexable insert form	Indexable insert size			Number of teeth	Comment
	0603/0604	09T3/0905	1204/1206		
C (80°)	Minimum boring diameter at κ 80° and 90°				Suitable for through bore and 90° shoulder machining
	28	41	54	1	
	28	41	54	2	
	30	41	54	3	
	40	56	64	4	
	59	84	94	5	

Tangential boring cutting edges with arc shaped land

Indexable insert form	Indexable insert size			Number of teeth	Comment
	0604	0905	1206		
C (80°)	Minimum boring diameter at κ 80° and 90°				Suitable for through bore and 90° shoulder machining
	40	65	78	1	
	40	65	78	2	
	40	65	78	3	
	41	65	78	4	
	64	86	102	5	

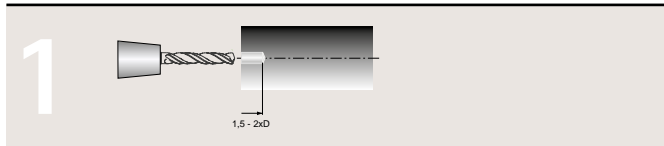
Tangential boring cutting edges with and without arc shaped land

Indexable insert form	Indexable insert size			Number of teeth	Comment
	0604	0905	1206		
F (70°)	Minimum boring diameter at κ 80° and 90°				Suitable for through bore and 90° shoulder machining
	22	30	40	1	
	22	30	40	2	
	31	43	53	3	
	42	56	67	4	
	64	83	99	5	
W (80°)	0705	0906			Suitable for through bore and 90° shoulder machining
	Minimum boring diameter at κ 80° and 90°				
	37	59.5		2	
	40.5	59.5		3	
	54.5	74.5		4	
	79.5	89.5		5	

Dimensions in mm.

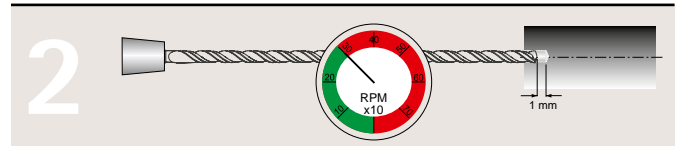
Deep hole drilling

For MEGA-Deep-Drill | MEGA-Deep-Drill-Alu



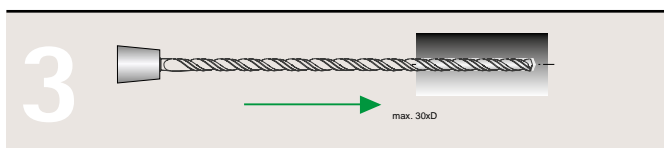
Make pilot bore

- Pilot drill tip angle 140° / tolerance m7 (or 0.01 – 0.02 > ø deep hole drill)
- Pilot bore depth between 1.5 and 2xD



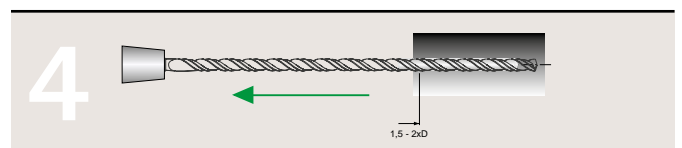
MEGA-Deep-Drill – enter the pilot bore

- Enter at max. 300 min⁻¹ and v_f = 1000 mm/min
- Without coolant – up to 1 mm before the bottom of the pilot bore
- Turn on coolant



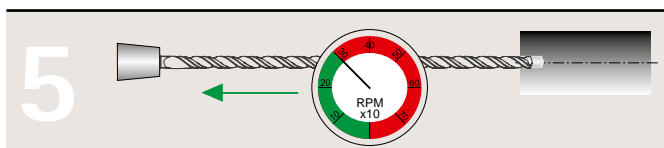
Drill using MEGA-Deep-Drill

- Cutting speed (v_c) and feeds (f) as per table (see page 474).
- Drill without relief cycles



MEGA-Deep-Drill – move back

- Move back at current spindle speed (= v_c) and double feed (= 2 x v_f) – to 1.5 – 2xD to the end of the bore



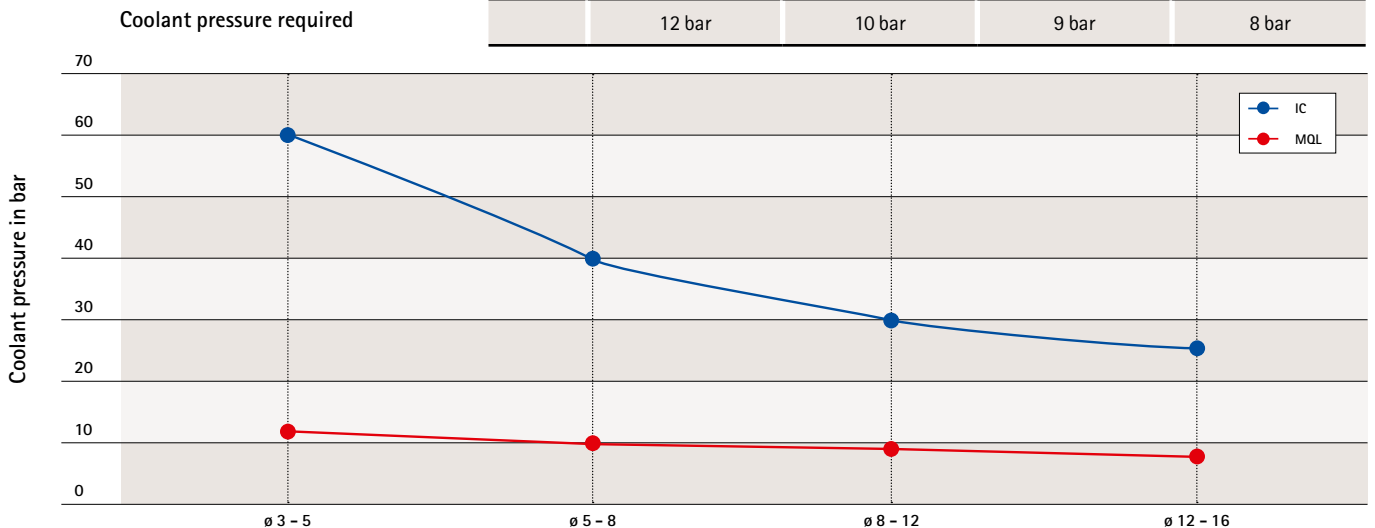
MEGA-Deep-Drill – run out of the bore

- Switch off coolant
- Run out at max. 300 min⁻¹ and v_f = 1000 mm/min

Coolant pressure required

For MEGA-Deep-Drill | MEGA-Deep-Drill-Alu

	ø 3 – 5	ø 5 – 8	ø 8 – 12	ø 12 – 16
	60 bar	40 bar	30 bar	25 bar
	12 bar	10 bar	9 bar	8 bar



Deep hole drilling 15xD – 30xD in two steps:

Deep hole drilling 15xD – 30xD with MEGA-Deep-Drill | SCD17 and MEGA-Deep-Drill-Alu | SCD18

1

Pilot bore
 140° | d₁ m7
 MEGA-Drill-Steel | SCD10
 MEGA-Drill-Alu | SCD13
 Tolerance consideration m7 in µm

≤ ø3	≤ ø6	≤ ø10
+12	+16	+21
+2	+4	+6

Please use the corresponding drill with internal coolant supply and the same nominal diameter for the pilot bore.

2

Deep bore 15xD - 30xD
 135° | d₁ h7
 MEGA-Deep-Drill | SCD17
 MEGA-Deep-Drill-Alu | SCD18
 Tolerance consideration h7 in µm

≤ ø3	≤ ø6	≤ ø10
0	0	0
-10	-12	-15

Please use the corresponding deep hole drill with internal coolant supply and the same nominal diameter for the deep hole bore.

Deep hole drilling 40xD in three steps:

Deep hole drilling 40xD with MEGA-Deep-Drill | SCD17 and MEGA-Deep-Drill-Alu | SCD18
 Optimally designed for reliable machining.

1

Pilot bore
 140° | d₁ m7
 MEGA-Drill-Steel | SCD10
 MEGA-Drill-Alu | SCD13
 Tolerance consideration m7 in µm

≤ ø3	≤ ø6	≤ ø10
+12	+16	+21
+2	+4	+6

Please use the corresponding drill with internal coolant supply and the same nominal diameter for the pilot bore.

2

Deep hole bore 20xD
 135° | d₁ h7
 MEGA-Deep-Drill | SCD17
 MEGA-Deep-Drill-Alu | SCD18
 Tolerance consideration h7 in µm

≤ ø3	≤ ø6	≤ ø10
0	0	0
-10	-12	-15

Please use the corresponding drill with same nominal diameter for the deep hole bore.

3

Final deep hole drilling 40xD
 130° | d₁ e7
 MEGA-Deep-Drill | SCD17
 MEGA-Deep-Drill-Alu | SCD18
 Tolerance consideration e7 in µm

≤ ø3	≤ ø6	≤ ø10
-14	-20	-25
-24	-32	-40

Please use the corresponding 40xD deep hole drill to machine the final deep hole bore.

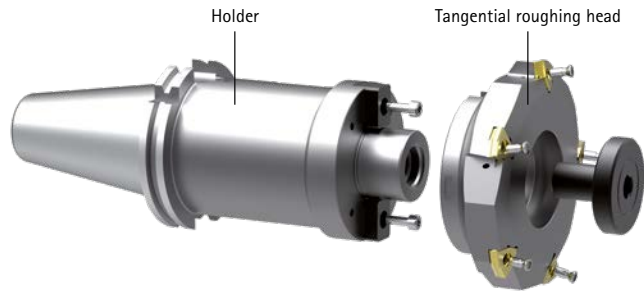
Tip angle and diameter tolerances are matched for optimal functionality, as well as for the interaction of pilot drill and deep hole drill.

Application notes TSW

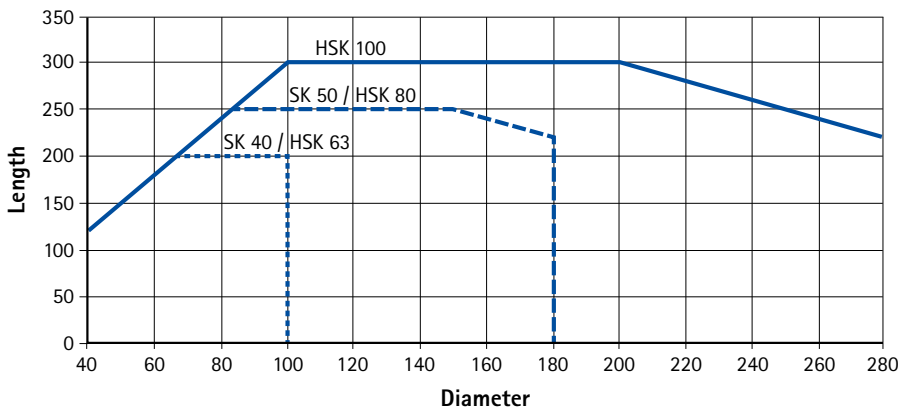
TSW monoblock \varnothing 37 - 120 mm



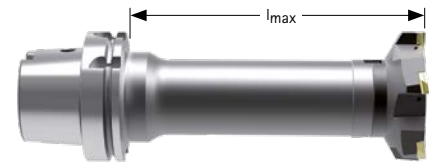
TSW modular design \varnothing 60 - 280 mm



General figures for determining the maximum tool length



In case of unfavourable diameter-length ratios a pilot bore is recommended.

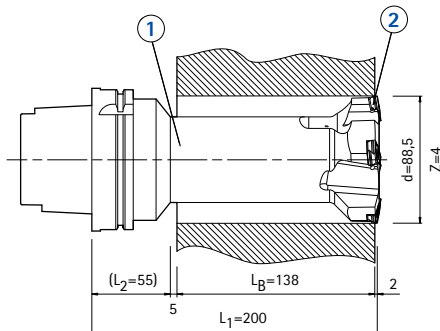


Ordering example TSW 111

Pre-machining a through bore in EN-GJS-400-15

The following are required:

Nominal diameter	88.5 mm
Depth of the bore	138.0 mm
Workpiece material	EN-GJS-400-15
Machine spindle	HSK-A100
Number of cutting edges (pay attention to machine performance)	Z = 4



Tool model for the stated machining application

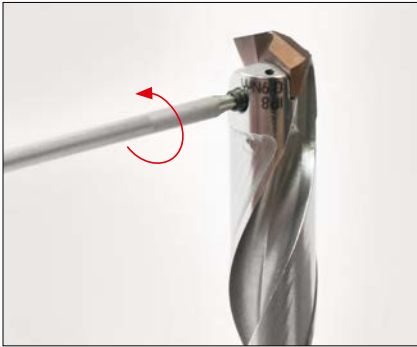
① TSW111- \varnothing 088.50-Z4-200.0-A100

For indexable inserts selected (see page 396)

② WTHQ090608H03L10B041-HP457

Handling notes for indexable insert drill QTD

Changing and setting QTD inserts straightforwardly



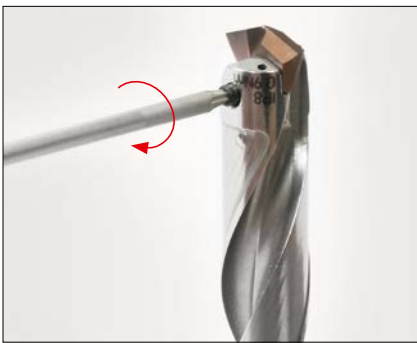
1. Undo the special clamping screw with the aid of the TORX® PLUS wrench supplied by turning counter clockwise.



2. Remove the indexable insert from the insert seat.



3. Clean the insert seat using compressed air.



4. Fit the new indexable insert in the insert seat. Tighten hand-tight the special clamping screw with the aid of the TORX® PLUS wrench supplied by turning clockwise.



5. Tighten the special clamping screw to the stipulated tightening torque.

NOTE

- Only use the original screws!
- At the latest on the 5th drill head change, the special clamping screw must be replaced
- The applicable tightening torque is engraved on the tool

Result:

Changing the indexable insert has now been completed and the tool can be used.



Handling notes replaceable head drills TTD

Practical notes

PILOTING

- From drilling depths of 8xD a pilot bore is to be recommended
- With the replaceable drill head type 02, a pilot bore is to be recommended from a drilling depth of 5xD
- For a pilot bore with the replaceable drill head type 02 a reduction of the feed stated by 50 % is to be recommended
- For a pilot bore with the replaceable drill heads type 01 and type 03, the recommended machining values can be used
- The movement into the pilot bore is with the same drill head geometry and reduced machining values (recommendation: $v_c = 50\%$ and approx. $f = 50\%$) up to 1 mm before the bottom of the bore
- Drilling after piloting is then undertaken using the recommended machining values (see section Technical Appendix in the sub-section Cutting data recommendation for replaceable head drills TTD)

NOTES ON DRILLING USING 12xD HOLDERS

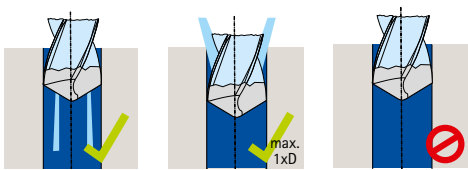
- At a drilling depth of 12xD a pilot bore is necessary
- Coolant pressure must be at least 40 bar
- During the machining of steel materials, chip removal may be necessary
- Usage on a lathe is possible with a powered tool
- Increasing the cutting speed by 30 % over the standard value is to be recommended

Stationary tool

If the tool is stationary, position chip flute runout horizontal so that chip congestion does not occur.

Coolant situation

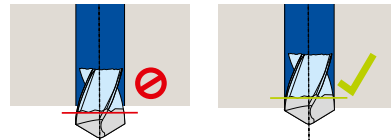
Coolant pressure as a function of the drilling depth:



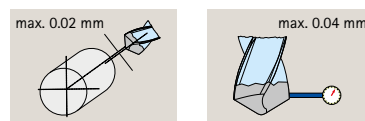
1xD: 8 bar | 3xD: 8 bar | 5xD: 12 bar | 8xD: 25 bar | 12xD: 40 bar

Through bore

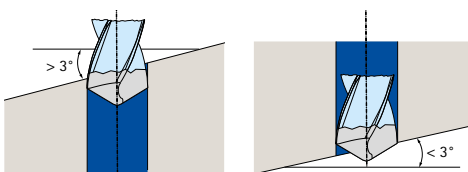
It is recommended not to reduce the cutting values at the bore outlet.



Radial run-out accuracy

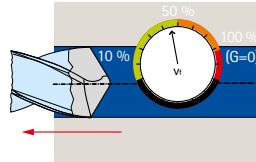


Max. entry and exit angle

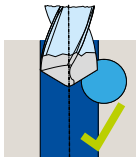


No rapid traverse on withdrawal

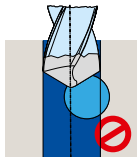
Five times the feed speed is recommended for the withdrawal speed.



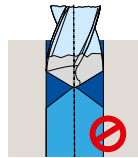
Machining situations



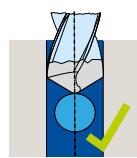
Bore off-centre
chisel edge in contact



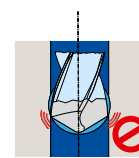
Bore off-centre
chisel edge not in contact



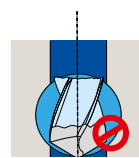
Breakthrough to bore
in opposite direction



Bore centred
and $<< D$



Bore centred
and $= D$



Bore centred
and $>> D$

Assembly

Releasing drill head

1. On each drill head change, check the clamping screw for stiffness. If the clamping screw can be undone easily, the clamping screw must be replaced. Only use the original clamping screws!



2. Undo the clamping screw with the aid of the hex wrench supplied.



3. Pull the drill head out of the serration.

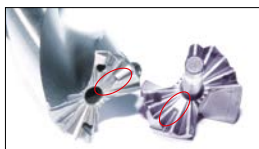
Note:

At the latest on the 8th drill head change the clamping screw must be replaced.

Clamping drill head



1. Clean the TTS connection on the tool holder with a brush.



2. Fit the new drill head to the tool holder.



3. Tighten hand-tight the clamping screw by turning clockwise.

Note:

Ensure the positioning aid on the drill head is engaged in the positioning aid on the tool holder and that the chip flute and serration on the drill head and tool holder are aligned.

Troubleshooting - indexable inserts

Forms of wear on indexable inserts

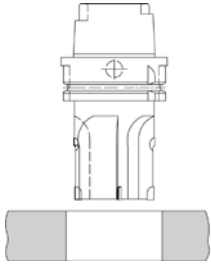
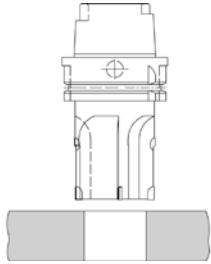
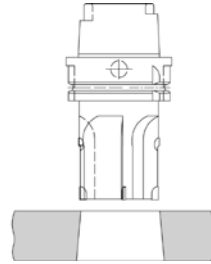
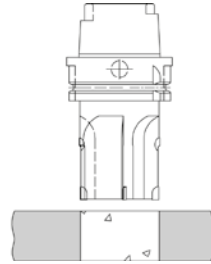
Form of wear

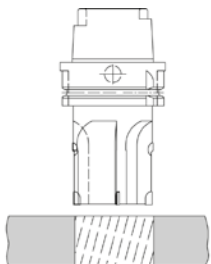
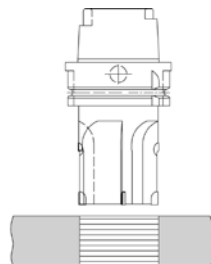
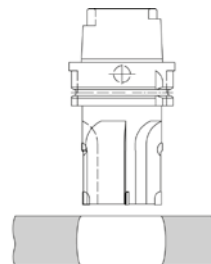
Rectification measures

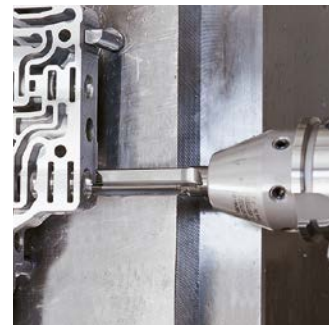
Form of wear		Rectification measures
Clearance surface wear		
tangential	radial	<ul style="list-style-type: none"> - Reduce cutting speed - Select more wear-resistant cutting material
Crater wear		
tangential	radial	<ul style="list-style-type: none"> - Reduce feed - Reduce cutting speed - Select more wear-resistant cutting material - Use coolant
Scoring		
tangential	radial	<ul style="list-style-type: none"> - Reduce cutting speed - Select smaller setting angle - Reduce feed
Built-up edge		
tangential	radial	<ul style="list-style-type: none"> - Increase cutting speed - Increase feed - Select geometry with lighter cut (sharp cutting edges)
Chipping		
tangential	radial	<ul style="list-style-type: none"> - Increase cutting speed - Reduce feed - Select more ductile type of carbide - Select stronger geometry - Improve stability (for example short tool) - Cooling, continuous or dry (avoid thermal shock)
Cutting edge fracture		
tangential	radial	<ul style="list-style-type: none"> - Reduce feed - Reduce cutting depth - Select stronger indexable insert geometry - Select more ductile type of carbide - Select thicker indexable insert

Troubleshooting - boring

Inspired by practical applications, designed for practical applications

Bore becomes too large	Bore becomes too small	Bore becomes conical	Poor surface finish in the bore
<p>Cause?</p> <ul style="list-style-type: none"> - Tool diameter possibly too large - Cutting speed too high - Feed too high - Radial run-out error too large - Lead uneven - Cooling lubricant unsuitable 	<p>Cause?</p> <ul style="list-style-type: none"> - Tool worn - Cutting speed too low - Feed too low - Workpiece material ductile, pulls together after machining - Stock removal too low 	<p>Cause?</p> <ul style="list-style-type: none"> - Radial run-out error too large - Lead not correct - Pre-machining not correct 	<p>Cause?</p> <ul style="list-style-type: none"> - Cooling lubricant unsuitable - Build up on the cutting edge - Tool blunt, possibly chipping on the cutting edge - Chip removal poor - Residual imbalance too large
			

Bore has chatter marks	Bore shows signs of feed scoring	Bore becomes convex
<p>Cause?</p> <ul style="list-style-type: none"> - Build up on the cutting edge - Tool blunt - Cooling lubricant unsuitable - Radial run-out error too large - Residual imbalance too large - Clamping system not correct 	<p>Cause?</p> <ul style="list-style-type: none"> - Tool blunt, possibly chipping on the cutting edge - Build up on the cutting edge - Cooling lubricant unsuitable 	<p>Cause?</p> <ul style="list-style-type: none"> - Workpiece not clamped correctly
		



Cutting data recommendation

Drilling

Solid carbide drills

Product name	Specification	Page
ECU-Drill-Uni	SCD35	460
ECU-Drill-Steel	SCD36	462
ECU-G-Drill	SCD21	462
ECU-Centre-Drill	SCD45	464
MEGA-Drill-Steel-Plus	SCD60	466
MEGA-Drill-Steel-Step-Drill	SCD11	466
MEGA-Drill-Inox	SCD12	468
MEGA-Drill-Alu	SCD13	470
MEGA-Drill-Inco	SCD29	470
MEGA-Drill-Hardened	SCD14	470
MEGA-SMART-Drill	SCD15	472
MEGA-Deep-Drill	SCD17	474
MEGA-Deep-Drill-Alu	SCD18	474
MEGA-Drill-Composite-MD	SCD25	476
MEGA-Drill-Composite-UDX	SCD27	476
MEGA-Drill-Composite-MD-Micro	SCD40	478
Tritan-Drill	SCD44	480
MEGA-180°-Drill	SCD23	482
MEGA-180°-Drill-Alu	SCD24	482
MEGA-Drill-Reamer	SCD20	484
MEGA-Quadro-Drill	SCD16	486
MEGA-Speed-Drill	SCD22	488
MEGA-Speed-Drill Iron	SCD42	488
MEGA-Speed-Drill-Titan	SCD30	488
MEGA-Speed-Drill-Inox	SCD41	490
Mono-Drill-Plastic	SCD57	492

Replaceable head drills

Product name	Specification	Page
Indexable insert drill QTD	Type 01 - Steel	494
Indexable insert drill QTD	Type 02 - Inox	494
Indexable insert drill QTD	Type 03 - Alu	496
Indexable insert drill QTD	Type 04 - Iron	496
Replaceable head drill TTD	Type 01 - Steel	498
Replaceable head drill TTD	Type 02 - Inox	498
Replaceable head drill TTD	Type 03 - Alu	500
Replaceable head drill TTD	Type 04 - Steel	500
Replaceable head drill TTD	Type 05 - Iron	500

Boring

Boring tools with ISO elements

Cutting material	Specification	Page
Uncoated carbide	HU	502
Carbide CVD-coated	HC	502
Carbide PVD-coated	HP	504
Ceramic	KU	506
Cermet CVD-coated	CC	506
Cermet PVD-coated	CP	506
PcBN	FU	506
PCD	PU	506

Countersinking

Countersinks

Product name	Specification	Page
Countersinks	HSS	508
Countersinks	Solid carbide	510

Cutting data recommendation for solid carbide drills

Feed and cutting speed

ECU-Drill-Uni | SCD35

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
M	M1.1 Stainless steels, austenitic	< 700 N/mm ²
	M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
N4.3 Plastic, foams		

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.5	6.5	9.5	14.0	20.0
	75	70	70		0.04	0.05	0.07	0.11	0.16	0.22
	70	55	55		0.05	0.06	0.09	0.13	0.20	0.27
	75	65	65		0.05	0.06	0.08	0.13	0.19	0.26
	55	45	45		0.04	0.05	0.07	0.10	0.15	0.20
	55	50	50		0.04	0.05	0.08	0.11	0.17	0.23
	45	40	40		0.04	0.05	0.06	0.10	0.14	0.19
	45	35	40		0.03	0.04	0.05	0.08	0.11	0.15
	75	65	65		0.05	0.06	0.08	0.13	0.19	0.26
	45	35	40		0.03	0.04	0.05	0.08	0.11	0.15
	45	30	30		0.03	0.04	0.06	0.09	0.14	0.19
	45	25	25		0.03	0.04	0.05	0.08	0.12	0.16
	45	30	30		0.03	0.04	0.06	0.09	0.14	0.19
	45	25	25		0.03	0.04	0.05	0.08	0.12	0.16
	90	65	65	65	0.05	0.08	0.13	0.21	0.33	0.45
	120	75	90	90	0.06	0.08	0.13	0.20	0.31	0.41
	75	55	55		0.06	0.08	0.11	0.17	0.26	0.36
	70	60	60		0.06	0.08	0.12	0.19	0.28	0.38
	60	55	55		0.06	0.07	0.10	0.15	0.23	0.30
	255	170	215		0.05	0.06	0.09	0.13	0.20	0.27
	215	155	170		0.06	0.08	0.11	0.17	0.26	0.36
	185	130	155		0.06	0.08	0.11	0.17	0.26	0.36
	155	100	130		0.06	0.08	0.11	0.17	0.26	0.36
	120	85			0.05	0.06	0.09	0.13	0.20	0.27
	100	75			0.06	0.08	0.11	0.17	0.26	0.36
	170	135	135	100	0.05	0.08	0.13	0.21	0.33	0.45

The cutting data stated are indicative.
The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

ECU-Drill-Steel | SCD36

MMG*		Material	Strength/hardness [N/mm ²] [HRC]
P	P1	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
		P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
		P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
		P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4	P4.1 Stainless steels, ferritic and martensitic	
	P5	P5.1 Cast steel	
P6	P6.1 Stainless cast steel, ferritic and martensitic		
K	K1	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
		K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
		K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
		K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²

ECU-G-Drill | SCD21

MMG*		Material	Strength/hardness [N/mm ²] [HRC]	
K	K1	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²	
		K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²	
	K2	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²	
		K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²	
	K3	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²	
		K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²	
N	N1	N1.1 Aluminium, non-alloy and alloy < 3 % Si		
		N1.2 Aluminium, alloy ≤ 7 % Si		
		N1.3 Aluminium, alloy > 7-12 % Si		
		N1.4 Aluminium, alloy > 12 % Si		
	N2	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²	
		N2.2 Copper, alloy	> 300 N/mm ²	
		N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²	
	N3	N3.1 Graphite		
		N4	N4.1 Plastic, thermoplastics	
			N4.2 Plastic, thermosets	
N4	N4.3 Plastic, foams			

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.5	6.5	9.5	14.0	20.0
	75	70	70		0.08	0.11	0.13	0.17	0.22	0.27
	70	55	55		0.10	0.13	0.17	0.22	0.28	0.34
	75	65	65		0.10	0.12	0.16	0.21	0.26	0.32
	55	45	45		0.08	0.10	0.13	0.17	0.21	0.25
	55	50	50		0.09	0.11	0.14	0.18	0.24	0.29
	45	40	40		0.07	0.09	0.12	0.15	0.19	0.23
	45	35	40		0.06	0.07	0.09	0.12	0.16	0.19
	75	65	65		0.10	0.12	0.16	0.21	0.26	0.32
	45	35	40		0.06	0.07	0.09	0.12	0.16	0.19
	80	55	55	55	0.11	0.15	0.21	0.28	0.37	0.45
	110	70	80	80	0.11	0.15	0.20	0.26	0.34	0.41
	70	50	50		0.10	0.13	0.17	0.23	0.29	0.36
	60	55	55		0.11	0.14	0.19	0.24	0.31	0.38
	55	45	45		0.09	0.12	0.15	0.20	0.25	0.30

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.5	6.5	9.5	14.0	20.0
	145	100	100	100	0.10	0.14	0.18	0.25	0.32	0.40
	190	120	145	145	0.10	0.13	0.18	0.23	0.30	0.37
	300	215	240		0.09	0.12	0.15	0.20	0.26	0.32
	265	180	215		0.09	0.12	0.15	0.20	0.26	0.32
	215	145	180		0.09	0.12	0.15	0.20	0.26	0.32
	240	190		145	0.10	0.14	0.18	0.25	0.32	0.40

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

ECU-Centre-Drill | SCD45

MMG*		Material	Strength/hardness [N/mm ²] [HRC]
P	P1	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
		P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
		P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
		P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4	P4.1 Stainless steels, ferritic and martensitic	
	P5	P5.1 Cast steel	
P6	P6.1 Stainless cast steel, ferritic and martensitic		
M	M1	M1.1 Stainless steels, austenitic	< 700 N/mm ²
		M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
		K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
		K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
		K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
		N1.2 Aluminium, alloy ≤ 7 % Si	
		N1.3 Aluminium, alloy > 7-12 % Si	
		N1.4 Aluminium, alloy > 12 % Si	
	N2	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
		N2.2 Copper, alloy	> 300 N/mm ²
		N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3	N3.1 Graphite	
	N4	N4.1 Plastic, thermoplastics	
		N4.2 Plastic, thermosets	
N4.3 Plastic, foams			

* MAPAL machining groups

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Drill-Steel-Plus | SCD60

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
H	H1.1 Hardened steel/cast steel	45-55 HRC
	H1.2 Hardened steel/cast steel	55-64 HRC
	H1.3 Hardened steel/cast steel	64-70 HRC
	H2.3 Wear-resistant cast iron/chilled cast iron, GJN	

MEGA-Drill-Steel-Step-Drill | SCD11

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
H	H1.1 Hardened steel/cast steel	45-55 HRC
	H1.2 Hardened steel/cast steel	55-64 HRC
	H1.3 Hardened steel/cast steel	64-70 HRC
	H2.3 Wear-resistant cast iron/chilled cast iron, GJN	

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	ML	Air	3.0	4.5	6.5	9.5	14.0	20.0
	110	100	100		0.10	0.13	0.16	0.21	0.27	0.33
	100	85	85		0.13	0.16	0.21	0.27	0.34	0.41
	110	95	95		0.12	0.15	0.19	0.25	0.32	0.39
	75	65	65		0.10	0.13	0.16	0.20	0.26	0.31
	85	70	70		0.11	0.14	0.17	0.23	0.29	0.35
	65	60	60		0.09	0.12	0.15	0.19	0.24	0.29
	65	50	55		0.07	0.09	0.12	0.15	0.19	0.23
	110	95	95		0.12	0.15	0.19	0.25	0.32	0.39
	65	50	55		0.07	0.09	0.12	0.15	0.19	0.23
	120	85	85	85	0.14	0.19	0.25	0.34	0.45	0.55
	160	100	120	120	0.14	0.18	0.24	0.32	0.41	0.51
	100	75	75		0.12	0.16	0.21	0.28	0.36	0.43
	90	80	80		0.13	0.18	0.23	0.30	0.38	0.47
	80	70	70		0.12	0.15	0.19	0.24	0.31	0.37
	25	25	25		0.05	0.06	0.08	0.10	0.13	0.16

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	ML	Air	3.0	4.5	6.5	9.5	14.0	20.0
	100	90	90		0.09	0.12	0.15	0.19	0.25	0.30
	90	75	75		0.11	0.15	0.19	0.24	0.31	0.38
	100	85	85		0.11	0.14	0.18	0.23	0.29	0.36
	70	60	60		0.09	0.12	0.14	0.18	0.23	0.28
	75	65	65		0.10	0.12	0.16	0.20	0.26	0.32
	60	55	55		0.08	0.10	0.13	0.17	0.22	0.26
	60	45	50		0.06	0.08	0.10	0.14	0.17	0.21
	100	85	85		0.11	0.14	0.18	0.23	0.29	0.36
	60	45	50		0.06	0.08	0.10	0.14	0.17	0.21
	110	75	75	75	0.12	0.17	0.23	0.31	0.41	0.50
	145	90	110	110	0.13	0.17	0.22	0.29	0.38	0.46
	90	70	70		0.11	0.15	0.19	0.25	0.32	0.40
	80	70	70		0.12	0.16	0.21	0.27	0.35	0.43
	70	65	65		0.11	0.13	0.17	0.22	0.28	0.34
	25	25	25		0.04	0.06	0.07	0.09	0.12	0.14

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Drill-Inox | SCD12

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
M	M1.1 Stainless steels, austenitic	< 700 N/mm ²
	M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
N4.3 Plastic, foams		
S	S1.1 Titanium, titanium alloys	< 400 N/mm ²
	S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy	> 900 N/mm ²
	S4.1 High-temperature super alloy Ni, Co and Fe-based	
S5.1 Tungsten and molybdenum alloys		

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.5	6.5	9.5	14.0	20.0
	100	90	90		0.07	0.09	0.12	0.15	0.20	0.24
	90	75	75		0.09	0.12	0.15	0.19	0.25	0.30
	100	85	85		0.09	0.11	0.14	0.18	0.23	0.28
	70	60	60		0.07	0.09	0.12	0.15	0.19	0.22
	75	65	65		0.08	0.10	0.13	0.16	0.21	0.26
	60	55	55		0.07	0.08	0.11	0.14	0.17	0.21
	60	45	50		0.05	0.07	0.08	0.11	0.14	0.17
	100	85	85		0.09	0.11	0.14	0.18	0.23	0.28
	60	45	50		0.05	0.07	0.08	0.11	0.14	0.17
		35	35		0.06	0.08	0.10	0.14	0.17	0.21
	50	30	30		0.05	0.07	0.09	0.12	0.15	0.18
	55	35	35		0.06	0.08	0.10	0.14	0.17	0.21
	50	30	30		0.05	0.07	0.09	0.12	0.15	0.18
	120	85	85	85	0.12	0.17	0.23	0.31	0.41	0.50
	160	100	120	120	0.13	0.17	0.22	0.29	0.38	0.46
	100	75	75		0.11	0.15	0.19	0.25	0.32	0.40
	90	80	80		0.12	0.16	0.21	0.27	0.35	0.43
	80	70	70		0.11	0.13	0.17	0.22	0.28	0.34
	120	90			0.11	0.15	0.19	0.25	0.32	0.40
	200	160		120	0.12	0.17	0.23	0.31	0.41	0.50
	40	25			0.06	0.08	0.10	0.14	0.17	0.21
	30	20			0.05	0.07	0.09	0.12	0.15	0.18
	25	15			0.05	0.06	0.07	0.10	0.12	0.15
	20	15			0.04	0.05	0.06	0.08	0.10	0.12
	15	10			0.05	0.06	0.07	0.10	0.12	0.15
	15	10			0.04	0.05	0.06	0.08	0.10	0.12
	15	10			0.04	0.05	0.06	0.08	0.10	0.12

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Drill-Alu | SCD13

MMG*		Material	Strength/hardness [N/mm ²] [HRC]
N	N1	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
		N1.2 Aluminium, alloy ≤ 7 % Si	
		N1.3 Aluminium, alloy > 7-12 % Si	
		N1.4 Aluminium, alloy > 12 % Si	
	N2	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
		N2.2 Copper, alloy	> 300 N/mm ²
		N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3	N3.1 Graphite	
		N4.1 Plastic, thermoplastics	
	N4	N4.2 Plastic, thermosets	
		N4.3 Plastic, foams	

MEGA-Drill-Inco | SCD29

MMG*		Material	Strength/hardness [N/mm ²] [HRC]
S	S1	S1.1 Titanium, titanium alloys	< 400 N/mm ²
		S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
		S3	S3.1 Nickel, non-alloy and alloy
	S3.2 Nickel, non-alloy and alloy		> 900 N/mm ²
	S4	S4.1 High-temperature super alloy Ni, Co and Fe-based	
	S5	S5.1 Tungsten and molybdenum alloys	

MEGA-Drill-Hardened | SCD14

MMG*		Material	Strength/hardness [N/mm ²] [HRC]
H	H1	H1.1 Hardened steel/cast steel	45-55 HRC
		H1.2 Hardened steel/cast steel	55-64 HRC
		H1.3 Hardened steel/cast steel	64-70 HRC
	H2	N2.3 Wear-resistant cast iron/chilled cast iron, GJN	

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.5	6.5	9.5	14.0	20.0
	300	200	250		0.09	0.12	0.15	0.19	0.25	0.30
	250	180	200		0.11	0.15	0.19	0.25	0.32	0.40
	220	150	180		0.11	0.15	0.19	0.25	0.32	0.40
	180	120	150		0.11	0.15	0.19	0.25	0.32	0.40
	140	100			0.09	0.12	0.15	0.19	0.25	0.30
	200	160		120	0.10	0.14	0.18	0.25	0.32	0.40

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
	40	25			0.06	0.08	0.10	0.14	0.17	0.21
	30	20			0.05	0.07	0.09	0.12	0.15	0.18
	25	15			0.05	0.06	0.07	0.10	0.12	0.15
	20	15			0.04	0.05	0.06	0.08	0.10	0.12
	15	10			0.05	0.06	0.07	0.10	0.12	0.15
	15	10			0.04	0.05	0.06	0.08	0.10	0.12
	15	10			0.04	0.05	0.06	0.08	0.10	0.12

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	2.6	3.7	5.3	7.7	11.1	16.0
	30	30	30		0.05	0.06	0.08	0.10	0.13	0.16
		20	20		0.03	0.04	0.05	0.06	0.07	0.09
		30	30		0.03	0.04	0.05	0.07	0.09	0.11

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-SMART-Drill | SCD15

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
M	M1.1 Stainless steels, austenitic	< 700 N/mm ²
	M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
N4.3 Plastic, foams		

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	1.0	1.2	1.6	1.9	2.4	3.0
	80	70	70		0.05	0.06	0.06	0.07	0.08	0.09
	70	60	60		0.07	0.07	0.08	0.09	0.10	0.11
	80	70	70		0.06	0.07	0.08	0.08	0.10	0.11
	55	50	50		0.06	0.06	0.07	0.07	0.08	0.09
	60	50	50		0.06	0.06	0.07	0.07	0.08	0.10
	50	45	45		0.05	0.06	0.06	0.07	0.07	0.08
	50	35	40		0.04	0.04	0.05	0.05	0.06	0.06
	80	70	70		0.06	0.07	0.08	0.08	0.10	0.11
	50	35	40		0.04	0.04	0.05	0.05	0.06	0.06
		30	30		0.04	0.04	0.05	0.05	0.06	0.06
	40	25	25		0.03	0.04	0.04	0.04	0.05	0.05
	45	30	30		0.04	0.04	0.05	0.05	0.06	0.06
	40	25	25		0.03	0.04	0.04	0.04	0.05	0.05
	95	70	70	70	0.06	0.07	0.08	0.09	0.10	0.12
	130	80	95	95	0.07	0.07	0.08	0.09	0.11	0.13
	80	60	60		0.06	0.07	0.08	0.09	0.10	0.11
	70	65	65		0.07	0.08	0.08	0.09	0.11	0.12
	65	55	55		0.06	0.07	0.08	0.08	0.09	0.11
	240	160	200		0.05	0.06	0.06	0.07	0.08	0.09
	200	145	160		0.06	0.07	0.08	0.09	0.10	0.11
	175	120	145		0.06	0.07	0.08	0.09	0.10	0.11
	145	95	120		0.06	0.07	0.08	0.09	0.10	0.11
	110	80			0.05	0.06	0.06	0.07	0.08	0.09
	95	70			0.06	0.07	0.08	0.09	0.10	0.11
	160	130		95	0.06	0.07	0.08	0.09	0.10	0.12

The cutting data stated are indicative.

The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Deep-Drill | SCD17

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
	P6.1 Stainless cast steel, ferritic and martensitic	
	K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL
K2.1 Cast iron with spheroidal graphite, GJS		< 500 N/mm ²
K2.2 Cast iron with spheroidal graphite, GJS		500-800 N/mm ²
K2.3 Cast iron with spheroidal graphite, GJS		> 800 N/mm ²
K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		< 500 N/mm ²
K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		> 500 N/mm ²

MEGA-Deep-Drill-Alu | SCD18

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
N1	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
N2	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
N3	N3.1 Graphite	
N4	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
	N4.3 Plastic, foams	

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.0	5.5	7.5	10.5	16.0
	90	80	80		0.09	0.11	0.13	0.16	0.21	0.27
	80	70	70		0.11	0.14	0.17	0.21	0.26	0.33
	90	75	75		0.11	0.13	0.16	0.19	0.24	0.32
	65	55	55		0.09	0.11	0.13	0.16	0.20	0.25
	70	60	60		0.10	0.11	0.14	0.17	0.22	0.29
	55	50	50		0.08	0.10	0.12	0.15	0.18	0.23
	55	40	45		0.06	0.08	0.09	0.12	0.14	0.19
	90	75	75		0.11	0.13	0.16	0.19	0.24	0.32
	55	40	45		0.06	0.08	0.09	0.12	0.14	0.19
	110	75	75	75	0.15	0.19	0.24	0.31	0.40	0.53
	145	90	110	110	0.15	0.18	0.23	0.29	0.37	0.49
	90	70	70		0.14	0.16	0.20	0.25	0.32	0.42
	80	70	70		0.15	0.18	0.22	0.27	0.35	0.45
	70	65	65		0.13	0.15	0.18	0.22	0.28	0.36

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.0	5.5	7.5	10.5	16.0
	300	200	250		0.11	0.13	0.16	0.20	0.25	0.32
	250	180	200		0.14	0.16	0.20	0.25	0.32	0.42
	220	150	180		0.14	0.16	0.20	0.25	0.32	0.42
	180	120	150		0.14	0.16	0.20	0.25	0.32	0.42
	140	100			0.09	0.11	0.13	0.16	0.21	0.27
	120	90			0.11	0.14	0.17	0.21	0.27	0.35
	200	160		120	0.15	0.19	0.24	0.31	0.40	0.53

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Drill-Composite-MD | SCD25

MMG*	Material	Strength/hardness [N/mm ²] [HRC]	
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si		
	N1.2 Aluminium, alloy ≤ 7 % Si		
	N1.3 Aluminium, alloy > 7-12 % Si		
	N1.4 Aluminium, alloy > 12 % Si		
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²	
	N2.2 Copper, alloy	> 300 N/mm ²	
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²	
	N3.1 Graphite		
	N4.1 Plastic, thermoplastics		
	N4.2 Plastic, thermosets		
	N4.3 Plastic, foams		
	C	C1.1 Plastic matrix, aramide fibre-reinforced (AFRP)	
		C1.2 Plastic matrix (thermosetting), CFRP/GFRP	
C1.3 Plastic matrix (thermoplastic), CFRP/GFRP			
C2.1 Carbon matrix, carbon fibre-reinforced (CFC)			
C3.1 Metal matrix (MMC)			
C4.1 Sandwich construction, honeycomb core made of paper			
C4.2 Sandwich construction, honeycomb core made of aluminium			
C4.3 Sandwich construction, honeycomb core made of plastic and fibre composite material			
C4.4 Sandwich construction, core made of rigid foam panels			
C5.1 Stack (hybrid structure), CFRP aluminium			
C5.2 Stack (hybrid structure), CFRP titanium/stainless steel			

MEGA-Drill-Composite-UDX | SCD27

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
C	C1.1 Plastic matrix, aramide fibre-reinforced (AFRP)	
	C1.2 Plastic matrix (thermosetting), CFRP/GFRP	
	C1.3 Plastic matrix (thermoplastic), CFRP/GFRP	
	C2.1 Carbon matrix, carbon fibre-reinforced (CFC)	
	C3.1 Metal matrix (MMC)	
	C4.1 Sandwich construction, honeycomb core made of paper	
	C4.2 Sandwich construction, honeycomb core made of aluminium	
	C4.3 Sandwich construction, honeycomb core made of plastic and fibre composite material	
	C4.4 Sandwich construction, core made of rigid foam panels	
	C5.1 Stack (hybrid structure), CFRP aluminium	
C5.2 Stack (hybrid structure), CFRP titanium/stainless steel		

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	2.5	3.4	4.7	6.4	8.8	12.0
				200	0.07	0.08	0.10	0.12	0.15	0.18
				90	0.03	0.04	0.05	0.05	0.06	0.08
				75	0.03	0.04	0.05	0.05	0.06	0.08
				75	0.03	0.04	0.05	0.05	0.06	0.08
				400	0.03	0.04	0.05	0.05	0.06	0.08
				400	0.03	0.04	0.05	0.05	0.06	0.08
				250	0.03	0.04	0.05	0.05	0.06	0.08
				250	0.03	0.04	0.05	0.05	0.06	0.08

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.0	5.5	7.5	10.0	12.0
				90	0.04	0.04	0.05	0.06	0.07	0.08
				75	0.04	0.04	0.05	0.06	0.07	0.08
				75	0.04	0.04	0.05	0.06	0.07	0.08

The cutting data stated are indicative.
The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Drill-Composite-MD-Micro | SCD40

MMG*	Material	Strength/hardness [N/mm ²] [HRC]	
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si		
	N1.2 Aluminium, alloy ≤ 7 % Si		
	N1.3 Aluminium, alloy > 7-12 % Si		
	N1.4 Aluminium, alloy > 12 % Si		
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²	
	N2.2 Copper, alloy	> 300 N/mm ²	
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²	
	N3.1 Graphite		
	N4.1 Plastic, thermoplastics		
	N4.2 Plastic, thermosets		
	N4.3 Plastic, foams		
	C	C1.1 Plastic matrix, aramide fibre-reinforced (AFRP)	
		C1.2 Plastic matrix (thermosetting), CFRP/GFRP	
C1.3 Plastic matrix (thermoplastic), CFRP/GFRP			
C2.1 Carbon matrix, carbon fibre-reinforced (CFC)			
C3.1 Metal matrix (MMC)			
C4.1 Sandwich construction, honeycomb core made of paper			
C4.2 Sandwich construction, honeycomb core made of aluminium			
C4.3 Sandwich construction, honeycomb core made of plastic and fibre composite material			
C4.4 Sandwich construction, core made of rigid foam panels			
C5.1 Stack (hybrid structure), CFRP aluminium			
C5.2 Stack (hybrid structure), CFRP titanium/stainless steel			

* MAPAL machining groups

Cutting data recommendation for solid carbide drills

Feed and cutting speed

Tritan-Drill | SCD44

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
M	M1.1 Stainless steels, austenitic	< 700 N/mm ²
	M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
N4.3 Plastic, foams		

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3.0	4.5	6.5	9.5	14.0	20.0
	100	90	90		0.25	0.30	0.36	0.43	0.51	0.60
	90	75	75		0.31	0.37	0.45	0.53	0.63	0.75
	100	85	85		0.30	0.35	0.42	0.50	0.60	0.71
	70	60	60		0.25	0.29	0.34	0.40	0.48	0.56
	75	65	65		0.26	0.32	0.38	0.45	0.54	0.64
	60	55	55		0.22	0.26	0.31	0.37	0.44	0.52
	60	45	50		0.18	0.21	0.25	0.30	0.35	0.42
	100	85	85		0.30	0.35	0.42	0.50	0.60	0.71
	60	45	50		0.18	0.21	0.25	0.30	0.35	0.42
		35	35		0.13	0.16	0.19	0.22	0.27	0.32
	50	30	30		0.11	0.13	0.16	0.19	0.23	0.27
	55	35	35		0.13	0.16	0.19	0.22	0.27	0.32
	50	30	30		0.11	0.13	0.16	0.19	0.23	0.27
	120	85	85	85	0.37	0.46	0.57	0.69	0.83	1.00
	160	100	120	120	0.36	0.44	0.53	0.64	0.77	0.92
	100	75	75		0.32	0.38	0.46	0.55	0.66	0.79
	60	40	50		0.17	0.20	0.24	0.28	0.33	0.39
	90	80	80		0.34	0.41	0.50	0.60	0.71	0.85
	80	70	70		0.29	0.34	0.40	0.48	0.57	0.67
	300	200	250		0.25	0.30	0.36	0.43	0.51	0.60
	250	180	200		0.32	0.38	0.46	0.55	0.66	0.79
	220	150	180		0.32	0.38	0.46	0.55	0.66	0.79
	180	120	150		0.32	0.38	0.46	0.55	0.66	0.79
	120	90			0.24	0.29	0.35	0.42	0.50	0.59
	200	160		120	0.37	0.46	0.57	0.69	0.83	1.00

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-180°-Drill | SCD23

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
M	M1.1 Stainless steels, austenitic	< 700 N/mm ²
	M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²

MEGA-Drill-Alu-180° | SCD24

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
	N4.3 Plastic, foams	

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
	80	70	70		0.07	0.09	0.12	0.15	0.20	0.24
	70	60	60		0.09	0.12	0.15	0.19	0.25	0.30
	80	70	70		0.09	0.11	0.14	0.18	0.23	0.28
	55	50	50		0.07	0.09	0.12	0.15	0.19	0.22
	60	50	50		0.08	0.10	0.13	0.16	0.21	0.26
	50	45	45		0.07	0.08	0.11	0.14	0.17	0.21
	50	35	40		0.05	0.07	0.08	0.11	0.14	0.17
	80	70	70		0.09	0.11	0.14	0.18	0.23	0.28
	50	35	40		0.05	0.07	0.08	0.11	0.14	0.17
		30	30		0.05	0.07	0.08	0.11	0.14	0.17
	40	25	25		0.04	0.06	0.07	0.09	0.12	0.14
	45	30	30		0.05	0.07	0.08	0.11	0.14	0.17
	40	25	25		0.04	0.06	0.07	0.09	0.12	0.14
	95	70	70	70	0.10	0.14	0.18	0.25	0.32	0.40
	130	80	95	95	0.10	0.13	0.18	0.23	0.30	0.37
	80	60	60		0.09	0.12	0.15	0.20	0.26	0.32
	70	65	65		0.10	0.13	0.17	0.22	0.28	0.34
	65	55	55		0.08	0.11	0.14	0.17	0.22	0.27

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
	240	160	200		0.07	0.09	0.12	0.15	0.20	0.24
	200	145	160		0.09	0.12	0.15	0.20	0.26	0.32
	175	120	145		0.09	0.12	0.15	0.20	0.26	0.32
	145	95	120		0.09	0.12	0.15	0.20	0.26	0.32
	110	80			0.07	0.09	0.12	0.15	0.20	0.24
	95	70			0.09	0.12	0.15	0.20	0.26	0.32
	160	130		95	0.10	0.14	0.18	0.25	0.32	0.40

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Drill-Reamer | SCD20

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
	P6.1 Stainless cast steel, ferritic and martensitic	
	K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL
K2.1 Cast iron with spheroidal graphite, GJS		< 500 N/mm ²
K2.2 Cast iron with spheroidal graphite, GJS		500-800 N/mm ²
K2.3 Cast iron with spheroidal graphite, GJS		> 800 N/mm ²
K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		< 500 N/mm ²
K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		> 500 N/mm ²
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
N4.3 Plastic, foams		

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
	80	70	70		0.11	0.13	0.14	0.15	0.17	0.19
	70	60	60		0.14	0.16	0.17	0.19	0.21	0.23
	80	70	70		0.13	0.15	0.16	0.18	0.20	0.22
	55	50	50		0.11	0.12	0.13	0.15	0.16	0.18
	60	50	50		0.12	0.13	0.15	0.16	0.18	0.20
	50	45	45		0.10	0.11	0.12	0.14	0.15	0.16
	50	35	40		0.08	0.09	0.10	0.11	0.12	0.13
	80	70	70		0.13	0.15	0.16	0.18	0.20	0.22
	50	35	40		0.08	0.09	0.10	0.11	0.12	0.13
	95	70	70	70	0.17	0.19	0.22	0.25	0.27	0.30
	130	80	95	95	0.16	0.19	0.20	0.23	0.26	0.28
	80	60	60		0.14	0.16	0.18	0.20	0.22	0.24
	70	65	65		0.16	0.17	0.19	0.22	0.24	0.26
	65	55	55		0.13	0.14	0.16	0.17	0.19	0.21
	240	160	200		0.11	0.13	0.14	0.15	0.17	0.19
	200	145	160		0.14	0.16	0.18	0.20	0.22	0.24
	175	120	145		0.14	0.16	0.18	0.20	0.22	0.24
	145	95	120		0.14	0.16	0.18	0.20	0.22	0.24
	160	130		95	0.17	0.19	0.22	0.25	0.27	0.30

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Quadro-Drill | SCD16

MMG*		Material	Strength/hardness [N/mm ²] [HRC]		
P	P1	P1.1	Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²	
		P1.2	Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²	
	P2	P2.1	Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²	
		P2.2	Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²	
	P3	P3.1	Tool, bearing, spring and high-speed steels	< 900 N/mm ²	
		P3.2	Tool, bearing, spring and high-speed steels	< 1500 N/mm ²	
	P4	P4.1	Stainless steels, ferritic and martensitic		
	P5	P5.1	Cast steel		
	P6	P6.1	Stainless cast steel, ferritic and martensitic		
	K	K1	K1.1	Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
K2.1			Cast iron with spheroidal graphite, GJS	< 500 N/mm ²	
K2		K2.2	Cast iron with spheroidal graphite, GJS	500-800 N/mm ²	
		K2.3	Cast iron with spheroidal graphite, GJS	> 800 N/mm ²	
K3		K3.1	Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²	
		K3.2	Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²	
H	H1	H1.1	Hardened steel/cast steel	45-55 HRC	
		H1.2	Hardened steel/cast steel	55-64 HRC	
		H1.3	Hardened steel/cast steel	64-70 HRC	
	H2	N2.3	Wear-resistant cast iron/chilled cast iron, GJN		

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
	100	90	90		0.09	0.12	0.15	0.19	0.25	0.30
	90	75	75		0.11	0.15	0.19	0.24	0.31	0.38
	100	85	85		0.11	0.14	0.18	0.23	0.29	0.36
	70	60	60		0.09	0.12	0.14	0.18	0.23	0.28
	75	65	65		0.10	0.12	0.16	0.20	0.26	0.32
	60	55	55		0.08	0.10	0.13	0.17	0.22	0.26
	60	45	50		0.06	0.08	0.10	0.14	0.17	0.21
	100	85	85		0.11	0.14	0.18	0.23	0.29	0.36
	60	45	50		0.06	0.08	0.10	0.14	0.17	0.21
	120	85	85	85	0.12	0.17	0.23	0.31	0.41	0.50
	160	100	120	120	0.13	0.17	0.22	0.29	0.38	0.46
	100	75	75		0.11	0.15	0.19	0.25	0.32	0.40
	90	80	80		0.12	0.16	0.21	0.27	0.35	0.43
	80	70	70		0.11	0.13	0.17	0.22	0.28	0.34
	25	25	25		0.04	0.06	0.07	0.09	0.12	0.14

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Speed-Drill | SCD22

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
	P6.1 Stainless cast steel, ferritic and martensitic	
	K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL
K2.1 Cast iron with spheroidal graphite, GJS		< 500 N/mm ²
K2.2 Cast iron with spheroidal graphite, GJS		500-800 N/mm ²
K2.3 Cast iron with spheroidal graphite, GJS		> 800 N/mm ²
K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		< 500 N/mm ²
K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		> 500 N/mm ²
H	H1.1 Hardened steel/cast steel	45-55 HRC
	H1.2 Hardened steel/cast steel	55-64 HRC
	H1.3 Hardened steel/cast steel	64-70 HRC
	H2.3 Wear-resistant cast iron/chilled cast iron, GJN	

MEGA-Speed-Drill-Iron | SCD42

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²

MEGA-Speed-Drill-Titan | SCD30

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
S	S1.1 Titanium, titanium alloys	< 400 N/mm ²
	S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy	> 900 N/mm ²
	S4.1 High-temperature super alloy Ni, Co and Fe-based	
	S5.1 Tungsten and molybdenum alloys	

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
	170	155	155		0.11	0.14	0.18	0.23	0.30	0.36
	155	130	130		0.14	0.18	0.22	0.29	0.37	0.45
	170	145	145		0.13	0.17	0.21	0.27	0.35	0.43
	120	100	100		0.11	0.14	0.17	0.22	0.28	0.34
	130	110	110		0.11	0.15	0.19	0.25	0.32	0.38
	100	95	95		0.10	0.13	0.16	0.20	0.26	0.31
	100	75	85		0.08	0.10	0.13	0.16	0.21	0.25
	170	145	145		0.13	0.17	0.21	0.27	0.35	0.43
	100	75	85		0.08	0.10	0.13	0.16	0.21	0.25
	150	105	105	105	0.14	0.19	0.25	0.34	0.45	0.55
	200	125	150	150	0.14	0.18	0.24	0.32	0.41	0.51
	125	95	95		0.12	0.16	0.21	0.28	0.36	0.43
	115	100	100		0.13	0.18	0.23	0.30	0.38	0.47
	100	90	90		0.12	0.15	0.19	0.24	0.31	0.37
	35	35	35		0.04	0.06	0.07	0.09	0.12	0.14

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
	170	120	120	120	0.16	0.21	0.29	0.38	0.51	0.63
	225	140	170	170	0.16	0.21	0.27	0.36	0.47	0.58
	140	105	105		0.14	0.19	0.24	0.31	0.41	0.49
	85	55	70		0.10	0.13	0.17	0.21	0.27	0.33
	125	110	110		0.15	0.20	0.26	0.34	0.44	0.53
	110	100	100		0.13	0.17	0.21	0.27	0.35	0.42

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air						
	50	30			0.06	0.07	0.09	0.12	0.16	0.19
	40	25			0.05	0.06	0.08	0.10	0.13	0.16
	30	20			0.04	0.05	0.07	0.09	0.11	0.14
	20	15			0.03	0.04	0.05	0.07	0.09	0.11
	15	10			0.04	0.05	0.07	0.09	0.11	0.14
	15	10			0.03	0.04	0.05	0.07	0.09	0.11
	15	10			0.03	0.04	0.05	0.07	0.09	0.11

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

MEGA-Speed-Drill-Inox | SCD41

MMG*		Material	Strength/hardness [N/mm ²] [HRC]	
P	P1	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²	
		P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²	
	P2	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²	
		P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²	
	P3	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²	
		P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²	
	P4	P4.1 Stainless steels, ferritic and martensitic		
	P5	P5.1 Cast steel		
P6	P6.1 Stainless cast steel, ferritic and martensitic			
M	M1	M1.1 Stainless steels, austenitic	< 700 N/mm ²	
		M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²	
	M2	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²	
	M3	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²	
K	K1	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²	
		K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²	
	K2	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²	
		K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²	
	K3	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²	
		K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²	
N	N1	N1.1 Aluminium, non-alloy and alloy < 3 % Si		
		N1.2 Aluminium, alloy ≤ 7 % Si		
		N1.3 Aluminium, alloy > 7-12 % Si		
		N1.4 Aluminium, alloy > 12 % Si		
	N2	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²	
		N2.2 Copper, alloy	> 300 N/mm ²	
		N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²	
	N3	N3.1 Graphite		
		N4	N4.1 Plastic, thermoplastics	
			N4.2 Plastic, thermosets	
N4.3 Plastic, foams				
S	S1	S1.1 Titanium, titanium alloys	< 400 N/mm ²	
		S2.1 Titanium, titanium alloys	< 1200 N/mm ²	
	S2	S2.2 Titanium, titanium alloys	> 1200 N/mm ²	
		S3	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy		> 900 N/mm ²	
	S4	S4.1 High-temperature super alloy Ni, Co and Fe-based		
	S5	S5.1 Tungsten and molybdenum alloys		

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
	150	135	135		0.09	0.12	0.15	0.19	0.25	0.30
	135	115	115		0.11	0.15	0.19	0.24	0.31	0.38
	150	130	130		0.11	0.14	0.18	0.23	0.29	0.36
	105	90	90		0.09	0.12	0.14	0.18	0.23	0.28
	115	100	100		0.10	0.12	0.16	0.20	0.26	0.32
	90	85	85		0.08	0.10	0.13	0.17	0.22	0.26
	70	55	60		0.06	0.08	0.10	0.14	0.17	0.21
	150	130	130		0.11	0.14	0.18	0.23	0.29	0.36
	70	55	60		0.06	0.08	0.10	0.14	0.17	0.21
		50	50		0.08	0.10	0.13	0.17	0.22	0.26
	75	45	45		0.07	0.09	0.11	0.14	0.19	0.23
	80	50	50		0.08	0.10	0.13	0.17	0.22	0.26
	75	45	45		0.07	0.09	0.11	0.14	0.19	0.23
	150	105	105	105	0.12	0.17	0.23	0.31	0.41	0.50
	200	125	150	150	0.13	0.17	0.22	0.29	0.38	0.46
	125	95	95		0.11	0.15	0.19	0.25	0.32	0.40
	115	100	100		0.12	0.16	0.21	0.27	0.35	0.43
	100	90	90		0.11	0.13	0.17	0.22	0.28	0.34
	145	110			0.11	0.15	0.19	0.25	0.32	0.40
	50	30			0.08	0.10	0.13	0.16	0.21	0.25
	35	25			0.07	0.08	0.11	0.14	0.18	0.22
	30	20			0.05	0.07	0.09	0.12	0.15	0.18
	25	20			0.04	0.06	0.07	0.09	0.12	0.14
	20	10			0.05	0.07	0.09	0.12	0.15	0.18
	20	10			0.04	0.06	0.07	0.09	0.12	0.14
	20	10			0.04	0.06	0.07	0.09	0.12	0.14

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for solid carbide drills

Feed and cutting speed

Mono-Drill-Plastic | SCD57

MMG*	Material	Strength/hardness [N/mm ²] [HRC]	
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si		
	N1.2 Aluminium, alloy ≤ 7 % Si		
	N1.3 Aluminium, alloy > 7-12 % Si		
	N1.4 Aluminium, alloy > 12 % Si		
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²	
	N2.2 Copper, alloy	> 300 N/mm ²	
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²	
	N3.1 Graphite		
	N4.1 Plastic, thermoplastics		
	N4.2 Plastic, thermosets		
	N4.3 Plastic, foams		
	C	C1.1 Plastic matrix, aramide fibre-reinforced (AFRP)	
		C1.2 Plastic matrix (thermosetting), CFRP/GFRP	
C1.3 Plastic matrix (thermoplastic), CFRP/GFRP			
C2.1 Carbon matrix, carbon fibre-reinforced (CFC)			
C3.1 Metal matrix (MMC)			
C4.1 Sandwich construction, honeycomb core made of paper			
C4.2 Sandwich construction, honeycomb core made of aluminium			
C4.3 Sandwich construction, honeycomb core made of plastic and fibre composite material			
C4.4 Sandwich construction, core made of rigid foam panels			
C5.1 Stack (hybrid structure), CFRP aluminium			
C5.2 Stack (hybrid structure), CFRP titanium/stainless steel			

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	3	4.5	6.5	9.5	14.0	20
		60		50	0.05	0.06	0.08	0.11	0.15	0.21
		65		40	0.04	0.05	0.06	0.08	0.12	0.17
				55	0.03	0.03	0.04	0.05	0.06	0.08

The cutting data stated are indicative.

The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for replaceable head drills

Feed and cutting speed

QTD - type 01 - Steel

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
	P6.1 Stainless cast steel, ferritic and martensitic	
	K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL
K2.1 Cast iron with spheroidal graphite, GJS		< 500 N/mm ²
K2.2 Cast iron with spheroidal graphite, GJS		500-800 N/mm ²
K2.3 Cast iron with spheroidal graphite, GJS		> 800 N/mm ²
K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		< 500 N/mm ²
K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		> 500 N/mm ²

QTD - type 02 - Inox

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
	P6.1 Stainless cast steel, ferritic and martensitic	
	M	M1.1 Stainless steels, austenitic
M1.2 Stainless steels, ferritic/austenitic (duplex)		< 1000 N/mm ²
M2.1 Stainless cast steel, austenitic		< 700 N/mm ²
M3.1 Stainless cast steel, ferritic/austenitic (duplex)		< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
S	S1.1 Titanium, titanium alloys	< 400 N/mm ²
	S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy	> 900 N/mm ²
	S4.1 High-temperature super alloy Ni, Co and Fe-based	
	S5.1 Tungsten and molybdenum alloys	

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	8.0	11.0	15.0	20.5	27.5	36.0
	100	90	90		0.20	0.24	0.30	0.35	0.38	0.37
	90	75	75		0.25	0.31	0.37	0.44	0.48	0.47
	100	85	85		0.23	0.29	0.35	0.41	0.45	0.45
	70	60	60		0.19	0.23	0.28	0.33	0.36	0.35
	75	65	65		0.21	0.26	0.32	0.37	0.41	0.40
	60	55	55		0.17	0.21	0.26	0.30	0.33	0.32
	60	45	50		0.14	0.17	0.21	0.24	0.27	0.26
	100	85	85		0.23	0.29	0.35	0.41	0.45	0.45
	60	45	50		0.14	0.17	0.21	0.24	0.27	0.26
	95	70	70	70	0.24	0.31	0.38	0.46	0.50	0.49
	130	80	95	95	0.23	0.29	0.35	0.42	0.46	0.45
	80	60	60		0.20	0.25	0.30	0.36	0.39	0.38

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	8.0	11.0	15.0	20.5	27.5	36.0
	100	90	90		0.17	0.21	0.26	0.30	0.33	0.32
	90	75	75		0.22	0.27	0.32	0.38	0.42	0.41
	100	85	85		0.20	0.25	0.30	0.36	0.39	0.39
	70	60	60		0.16	0.20	0.24	0.28	0.31	0.30
	75	65	65		0.18	0.23	0.27	0.32	0.36	0.35
	60	55	55		0.15	0.19	0.22	0.26	0.29	0.28
	60	45	50		0.12	0.15	0.18	0.21	0.23	0.23
	100	85	85		0.20	0.25	0.30	0.36	0.39	0.39
	60	45	50		0.12	0.15	0.18	0.21	0.23	0.23
	55	35	35		0.14	0.17	0.21	0.24	0.27	0.26
	50	30	30		0.12	0.15	0.18	0.21	0.23	0.22
	55	35	35		0.14	0.17	0.21	0.24	0.27	0.26
	50	30	30		0.12	0.15	0.18	0.21	0.23	0.22
	110	75	75	75	0.24	0.31	0.38	0.46	0.50	0.49
	145	90	110	110	0.23	0.29	0.35	0.42	0.46	0.45
	90	70	70		0.20	0.25	0.30	0.36	0.39	0.38
	55	35	45		0.14	0.17	0.20	0.24	0.26	0.25
	80	70	70		0.22	0.27	0.33	0.39	0.42	0.41
	70	65	65		0.17	0.22	0.26	0.31	0.34	0.33
	40	25			0.13	0.16	0.18	0.21	0.24	0.25
	30	20			11.23	13.36	15.77	18.30	20.47	21.31
	25	15			9.36	11.13	13.14	15.25	17.05	17.76

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for replaceable head drills

Feed and cutting speed

QTD - type 03 - Alu

MMG*		Material	Strength/hardness [N/mm ²] [HRC]
N	N1	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
		N1.2 Aluminium, alloy ≤ 7 % Si	
		N1.3 Aluminium, alloy > 7-12 % Si	
		N1.4 Aluminium, alloy > 12 % Si	
	N2	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
		N2.2 Copper, alloy	> 300 N/mm ²
		N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3	N3.1 Graphite	
		N4.1 Plastic, thermoplastics	
	N4	N4.2 Plastic, thermosets	
		N4.3 Plastic, foams	

QTD - type 04 - Iron

MMG*		Material	Strength/hardness [N/mm ²] [HRC]
K	K1	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
		K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
		K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
		K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	8.0	11.0	15.0	20.5	27.5	36.0
	300	200	250		0.17	0.21	0.26	0.30	0.33	0.32
	250	180	200		0.22	0.28	0.34	0.40	0.44	0.43
	220	150	180		0.22	0.28	0.34	0.40	0.44	0.43
	180	120	150		0.22	0.28	0.34	0.40	0.44	0.43
	140	100			0.17	0.21	0.26	0.30	0.33	0.32
	120	90			0.22	0.28	0.34	0.40	0.44	0.43
	200	160	160	120	0.27	0.34	0.42	0.51	0.56	0.54

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	8.0	11.0	15.0	20.5	27.5	36.0
	120	85	85	85	0.32	0.41	0.51	0.61	0.67	0.65
	160	100	120	120	0.31	0.38	0.47	0.56	0.61	0.60
	100	75	75		0.27	0.33	0.41	0.48	0.53	0.51
	60	40	50		0.18	0.22	0.27	0.32	0.34	0.34
	90	80	80		0.29	0.36	0.44	0.52	0.57	0.55
	80	70	70		0.23	0.29	0.35	0.41	0.45	0.44

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for replaceable head drills

Feed and cutting speed

TTD – type 01 – Steel

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
	P6.1 Stainless cast steel, ferritic and martensitic	
	K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL
K2.1 Cast iron with spheroidal graphite, GJS		< 500 N/mm ²
K2.2 Cast iron with spheroidal graphite, GJS		500–800 N/mm ²
K2.3 Cast iron with spheroidal graphite, GJS		> 800 N/mm ²
K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		< 500 N/mm ²
K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		> 500 N/mm ²

TTD – type 02 – Inox

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
	P6.1 Stainless cast steel, ferritic and martensitic	
	M	M1.1 Stainless steels, austenitic
M1.2 Stainless steels, ferritic/austenitic (duplex)		< 1000 N/mm ²
M2.1 Stainless cast steel, austenitic		< 700 N/mm ²
M3.1 Stainless cast steel, ferritic/austenitic (duplex)		< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500–800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
S	S1.1 Titanium, titanium alloys	< 400 N/mm ²
	S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy	> 900 N/mm ²
	S4.1 High-temperature super alloy Ni, Co and Fe-based	
	S5.1 Tungsten and molybdenum alloys	

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	12.0	15.5	19.5	25.0	32.0	40.0
	100	90	90		0.23	0.26	0.30	0.33	0.33	0.30
	90	75	75		0.28	0.33	0.37	0.41	0.42	0.38
	100	85	85		0.27	0.31	0.35	0.39	0.40	0.37
	70	60	60		0.21	0.25	0.28	0.30	0.31	0.28
	75	65	65		0.24	0.28	0.32	0.35	0.36	0.33
	60	55	55		0.20	0.23	0.26	0.28	0.29	0.26
	60	45	50		0.16	0.18	0.21	0.23	0.23	0.21
	100	85	85		0.27	0.31	0.35	0.39	0.40	0.37
	60	45	50		0.16	0.18	0.21	0.23	0.23	0.21
	95	70	70	70	0.33	0.39	0.44	0.49	0.50	0.46
	130	80	95	95	0.31	0.36	0.41	0.45	0.46	0.42
	80	60	60		0.26	0.31	0.35	0.39	0.40	0.36

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	12.0	15.5	19.5	25.0	32.0	40.0
	100	90	90		0.20	0.24	0.27	0.29	0.30	0.27
	90	75	75		0.25	0.30	0.33	0.37	0.38	0.34
	100	85	85		0.24	0.28	0.32	0.35	0.36	0.33
	70	60	60		0.19	0.22	0.25	0.27	0.28	0.26
	75	65	65		0.22	0.25	0.28	0.31	0.32	0.30
	60	55	55		0.18	0.21	0.23	0.25	0.26	0.24
	60	45	50		0.14	0.17	0.19	0.21	0.21	0.19
	100	85	85		0.24	0.28	0.32	0.35	0.36	0.33
	60	45	50		0.14	0.17	0.19	0.21	0.21	0.19
	55	35	35		0.18	0.21	0.24	0.26	0.27	0.24
	50	30	30		0.16	0.18	0.20	0.22	0.23	0.21
	55	35	35		0.18	0.21	0.24	0.26	0.27	0.24
	50	30	30		0.16	0.18	0.20	0.22	0.23	0.21
	95	70	70	70	0.33	0.39	0.44	0.49	0.50	0.46
	130	80	95	95	0.31	0.36	0.41	0.45	0.46	0.42
	80	60	60		0.26	0.31	0.35	0.39	0.40	0.36
	50	30	40		0.18	0.21	0.23	0.25	0.26	0.24
	70	65	65		0.28	0.33	0.38	0.42	0.43	0.39
	65	55	55		0.23	0.27	0.30	0.33	0.34	0.31
	40	25			0.16	0.18	0.21	0.23	0.23	0.21
	30	20			0.14	0.16	0.18	0.20	0.20	0.18
	25	15			0.11	0.13	0.15	0.16	0.17	0.15
	20	15			0.09	0.11	0.12	0.13	0.13	0.12
	15	10			0.11	0.13	0.15	0.16	0.17	0.15
	15	10			0.09	0.11	0.12	0.13	0.13	0.12
	15	10			0.09	0.11	0.12	0.13	0.13	0.12

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for replaceable head drills

Feed and cutting speed

TTD – type 03 – Alu

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
	N4.3 Plastic, foams	

TTD – type 04 – Steel

MMG*	Material	Strength/hardness [N/mm ²] [HRC]	
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²	
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²	
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²	
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²	
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²	
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²	
	P4.1 Stainless steels, ferritic and martensitic		
	P5.1 Cast steel		
	P6.1 Stainless cast steel, ferritic and martensitic		
	K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
		K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
		K2.2 Cast iron with spheroidal graphite, GJS	500–800 N/mm ²
K2.3 Cast iron with spheroidal graphite, GJS		> 800 N/mm ²	
K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		< 500 N/mm ²	
K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM		> 500 N/mm ²	

TTD – type 05 – Iron

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500–800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²

* MAPAL machining groups

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	12.0	15.5	19.5	25.0	32.0	40.0
	300	200	250		0.23	0.26	0.30	0.33	0.33	0.30
	250	180	200		0.29	0.35	0.39	0.43	0.44	0.40
	220	150	180		0.29	0.35	0.39	0.43	0.44	0.40
	180	120	150		0.29	0.35	0.39	0.43	0.44	0.40
	140	100			0.23	0.26	0.30	0.33	0.33	0.30
	120	90			0.29	0.35	0.39	0.43	0.44	0.40
	200	160	160	120	0.37	0.43	0.49	0.55	0.56	0.51

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	12.0	15.5	19.5	25.0	32.0	40.0
	110	100	100		0.26	0.30	0.34	0.37	0.38	0.35
	100	85	85		0.32	0.38	0.43	0.47	0.48	0.44
	110	95	95		0.31	0.36	0.40	0.44	0.46	0.42
	75	65	65		0.24	0.28	0.32	0.35	0.36	0.33
	85	70	70		0.27	0.32	0.36	0.40	0.41	0.38
	65	60	60		0.23	0.26	0.30	0.32	0.33	0.30
	65	50	55		0.18	0.21	0.24	0.26	0.27	0.24
	110	95	95		0.31	0.36	0.40	0.44	0.46	0.42
	65	50	55		0.18	0.21	0.24	0.26	0.27	0.24
	110	75	75	75	0.37	0.43	0.49	0.55	0.56	0.51
	145	90	110	110	0.34	0.40	0.45	0.50	0.51	0.47
	90	70	70		0.29	0.35	0.39	0.43	0.44	0.40
	55	35	45		0.20	0.23	0.26	0.28	0.29	0.26
	80	70	70		0.32	0.37	0.42	0.46	0.47	0.43
	70	65	65		0.25	0.29	0.33	0.37	0.38	0.35

	Cutting speed v_c [m/min]				Feed f [mm] for drill diameter					
	Internal cooling	External cooling	MQL	Air	12.0	15.5	19.5	25.0	32.0	40.0
	120	85	85	85	0.35	0.44	0.53	0.62	0.67	0.61
	160	100	120	120	0.33	0.41	0.49	0.57	0.62	0.56
	100	75	75		0.29	0.35	0.42	0.49	0.53	0.48
	60	40	50		0.20	0.24	0.28	0.32	0.35	0.32
	90	80	80		0.31	0.38	0.45	0.53	0.57	0.52
	80	70	70		0.25	0.30	0.36	0.42	0.45	0.42

The cutting data stated are indicative.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for boring tools with ISO elements

Cutting speed [m/min]


MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
M	M1.1 Stainless steels, austenitic	< 700 N/mm ²
	M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
N4.3 Plastic, foams		
S	S1.1 Titanium, titanium alloys	< 400 N/mm ²
	S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy	> 900 N/mm ²
	S4.1 High-temperature super alloy Ni, Co and Fe-based	
	S5.1 Tungsten and molybdenum alloys	

* MAPAL machining groups

	Uncoated carbide			Carbide CVD-coated										
	HU615	HU616	HU810	HC709	HC720	HC725	HC730	HC735	HC840	HC841	HC851	HC852	HC861	HC862
											120-200	100-180		
											120-200	100-180		
											120-200	100-180		
											100-180	80-150		
											120-200	100-180		
											80-150	80-130		
											80-150	80-130		
											80-150	80-130		
											80-150	80-130		
													100-180	100-180
													80-130	80-130
													100-180	100-180
													80-130	80-130
				140-230	140-300	140-300	130-250	130-250	140-220	140-220				
				120-210	120-260	120-260	110-240	110-240	120-200	120-200				
				120-190	120-220	120-220	100-200	100-200	120-180	120-180				
				80-150	80-140	80-140	80-120	80-120	80-140	80-140				
				60-140	60-130	60-130	60-120	60-120	60-130	60-130				
				60-130	60-120	60-120	60-120	60-120	60-120	60-120				
	150-500	150-500	150-400											
	100-450	100-450	100-400											
	100-400	100-400	100-360											
	100-250	100-250	100-250											
	100-220	100-220	100-220											
	80-220	80-220	80-220											
	120-480	120-480	120-480											
	250-500	250-500	250-500											
	250-500	250-500	250-500											
													20-80	20-80

The machining values shown are indicative values.
The optimal data for the specific machining case should be determined in trials or during the machining.

Next page:
Carbide, PVD-coated



Cutting data recommendation for boring tools with ISO elements

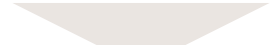
Cutting speed [m/min]

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
	P4.1 Stainless steels, ferritic and martensitic	
	P5.1 Cast steel	
P6.1 Stainless cast steel, ferritic and martensitic		
M	M1.1 Stainless steels, austenitic	< 700 N/mm ²
	M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
N4.3 Plastic, foams		
S	S1.1 Titanium, titanium alloys	< 400 N/mm ²
	S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy	> 900 N/mm ²
	S4.1 High-temperature super alloy Ni, Co and Fe-based	
	S5.1 Tungsten and molybdenum alloys	

* MAPAL machining groups

Carbide PVD-coated												
HP181	HP182	HP350	HP353	HP354	HP362	HP382	HP386	HP455	HP457	HP615	HP678	
120-200	100-180				120-200	100-180						
120-200	100-180				120-200	100-180						
120-200	100-180				120-200	100-180						
100-180	80-150				100-180	80-150						
120-200	100-180				120-200	100-180						
90-150	90-130				90-150	90-130						
90-150	90-130				90-150	90-130						
90-150	90-130				90-150	90-130						
90-150	90-130				90-150	90-130						
			100-160	100-160	90-150	80-150						
			80-130	60-120	80-120	60-120						
			100-160	100-160	90-150	80-150						
			80-130	60-120	80-120	60-120						
		130-200					130-200	140-220	140-220			
		120-180					120-180	120-200	120-200			
		120-180					120-180	120-180	120-180			
		80-120					80-120	80-140	80-140			
		60-100					60-100	60-130	60-130			
		60-100					60-100	60-120	60-120			
										150-600		
										100-500		
										100-400		
											100-350	100-350
											100-300	100-300
											100-250	100-250
			30-100	30-100								
			30-70	30-70								
			30-70	30-70								
			30-65	30-65								
			30-65	30-65								
			30-50	30-50	20-60	20-60						

Next page:
Ceramic, cermet, PcBN, PCD



The machining values shown are indicative values.
The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for boring tools with ISO elements

Cutting speed [m/min]

MMG*		Material	Strength/hardness [N/mm ²] [HRC]	
P	P1	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²	
		P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²	
	P2	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²	
		P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²	
	P3	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²	
		P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²	
	P4	P4.1 Stainless steels, ferritic and martensitic		
	P5	P5.1 Cast steel		
P6	P6.1 Stainless cast steel, ferritic and martensitic			
M	M1	M1.1 Stainless steels, austenitic	< 700 N/mm ²	
		M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²	
	M2	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²	
	M3	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²	
K	K1	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²	
		K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²	
	K2	K2.2 Cast iron with spheroidal graphite, GJS	500–800 N/mm ²	
		K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²	
	K3	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²	
		K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²	
N	N1	N1.1 Aluminium, non-alloy and alloy < 3 % Si		
		N1.2 Aluminium, alloy ≤ 7 % Si		
		N1.3 Aluminium, alloy > 7–12 % Si		
		N1.4 Aluminium, alloy > 12 % Si		
	N2	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²	
		N2.2 Copper, alloy	> 300 N/mm ²	
		N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²	
	N3	N3.1 Graphite		
		N4	N4.1 Plastic, thermoplastics	
			N4.2 Plastic, thermosets	
N4.3 Plastic, foams				
S	S1	S1.1 Titanium, titanium alloys	< 400 N/mm ²	
		S2.1 Titanium, titanium alloys	< 1200 N/mm ²	
	S2	S2.2 Titanium, titanium alloys	> 1200 N/mm ²	
		S3	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy		> 900 N/mm ²	
	S4	S4.1 High-temperature super alloy Ni, Co and Fe-based		
	S5	S5.1 Tungsten and molybdenum alloys		

* MAPAL machining groups

	Ceramic	Cermet CVD-coated	Cermet PVD-coated		PcBN	PCD	
	KU450	CC112	CP871	CP872	FU430	PU617	PU620
		160-600	200-300	200-300			
		160-500	120-220				
		160-600	200-300	120-220			
		140-400	120-220				
		160-600	200-300	120-220			
		140-400	120-180				
		140-400	120-180				
		140-400	120-180				
		140-400	120-180				
		100-500					
		100-450					
		100-500					
		100-450					
	500-800				400-1000		
	400-700				350-800		
						450-2200	450-2000
						400-1700	400-1500
						350-1300	350-1200
						200-800	200-800
						250-600	250-600
						200-600	200-600
						200-500	200-500
						300-600	300-600
						400-1000	400-1000
						400-1000	400-1000

The machining values shown are indicative values.
The optimal data for the specific machining case should be determined in trials or during the machining.

Cutting data recommendation for countersinks

Extremely uneven pitch countersinks – HSS, coated
Feed and cutting speed

MMG*		Material	Strength/hardness [N/mm ²] [HRC]
P	P1	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
		P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
		P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
		P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
P4	P4.1 Stainless steels, ferritic and martensitic		
P5	P5.1 Cast steel		
P6	P6.1 Stainless cast steel, ferritic and martensitic		
M	M1	M1.1 Stainless steels, austenitic	< 700 N/mm ²
		M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
		K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2	K2.2 Cast iron with spheroidal graphite, GJS	500–800 N/mm ²
		K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
		K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
		N1.2 Aluminium, alloy ≤ 7 % Si	
		N1.3 Aluminium, alloy > 7–12 % Si	
		N1.4 Aluminium, alloy > 12 % Si	
	N2	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
		N2.2 Copper, alloy	> 300 N/mm ²
		N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3	N3.1 Graphite	
		N4.1 Plastic, thermoplastics	
		N4.2 Plastic, thermosets	
N4	N4.3 Plastic, foams		
	C1	C1.1 Plastic matrix, aramide fibre-reinforced (AFRP)	
		C1.2 Plastic matrix (thermosetting), CFRP/GFRP	
C1.3 Plastic matrix (thermoplastic), CFRP/GFRP			
C	C2	C2.1 Carbon matrix, carbon fibre-reinforced (CFC)	
		C3.1 Metal matrix (MMC)	
	C4	C4.1 Sandwich construction, honeycomb core made of paper	
		C4.2 Sandwich construction, honeycomb core made of aluminium	
		C4.3 Sandwich construction, honeycomb core made of plastic and fibre composite material	
		C4.4 Sandwich construction, core made of rigid foam panels	
	C5	C5.1 Stack (hybrid structure), CFRP aluminium	
		C5.2 Stack (hybrid structure), CFRP titanium/stainless steel	
S	S1	S1.1 Titanium, titanium alloys	< 400 N/mm ²
		S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
		S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3	S3.2 Nickel, non-alloy and alloy	> 900 N/mm ²
		S4.1 High-temperature super alloy Ni, Co and Fe-based	
S5	S5.1 Tungsten and molybdenum alloys		
H	H1	H1.1 Hardened steel/cast steel	45–55 HRC
		H1.2 Hardened steel/cast steel	55–64 HRC
		H1.3 Hardened steel/cast steel	64–70 HRC
	H2	N2.3 Wear-resistant cast iron/chilled cast iron, GJN	

* MAPAL machining groups

$\varnothing < 5$ [mm]		$\varnothing < 5 - 8$ [mm]		$\varnothing < 8 - 12$ [mm]		$\varnothing < 12 - 16$ [mm]		$\varnothing < 16 - 20$ [mm]		$\varnothing < 20 - 25$ [mm]		$\varnothing < 25 - 31$ [mm]	
v_c [m/min]	f [mm/rev]	v_c [m/min]	f [mm/rev]	v_c [m/min]	f [mm/rev]	v_c [m/min]	f [mm/rev]	v_c [m/min]	f [mm/rev]	v_c [m/min]	f [mm/rev]	v_c [m/min]	f [mm/rev]
40	0.06	40	0.08	40	0.10	40	0.12	40	0.14	40	0.18	40	0.22
30	0.04	30	0.06	30	0.08	30	0.10	30	0.12	30	0.14	30	0.18
30	0.04	30	0.06	30	0.08	30	0.10	30	0.12	30	0.14	30	0.18
12	0.03	12	0.04	12	0.05	12	0.06	12	0.08	12	0.10	12	0.12
30	0.04	30	0.06	30	0.08	30	0.10	30	0.12	30	0.14	30	0.18
12	0.03	12	0.04	12	0.05	12	0.06	12	0.08	12	0.10	12	0.12
15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
30	0.04	30	0.06	30	0.08	30	0.10	30	0.12	30	0.14	30	0.18
15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
10	0.04	10	0.05	10	0.06	10	0.07	10	0.08	10	0.09	10	0.12
15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
20	0.06	20	0.10	20	0.12	20	0.14	20	0.18	20	0.20	20	0.25
20	0.06	20	0.10	20	0.12	20	0.14	20	0.18	20	0.20	20	0.25
20	0.06	20	0.10	20	0.12	20	0.14	20	0.18	20	0.20	20	0.25
20	0.06	20	0.10	20	0.12	20	0.14	20	0.18	20	0.20	20	0.25
20	0.06	20	0.10	20	0.12	20	0.14	20	0.18	20	0.20	20	0.25
20	0.06	20	0.10	20	0.12	20	0.14	20	0.18	20	0.20	20	0.25
50	0.08	50	0.10	50	0.12	50	0.14	50	0.18	50	0.22	50	0.26
50	0.08	50	0.10	50	0.12	50	0.14	50	0.18	50	0.22	50	0.26
40	0.08	40	0.10	40	0.12	40	0.14	40	0.18	40	0.22	40	0.26
40	0.08	40	0.10	40	0.12	40	0.14	40	0.18	40	0.22	40	0.26
40	0.10	40	0.12	40	0.14	40	0.18	40	0.20	40	0.24	40	0.30
40	0.10	40	0.12	40	0.14	40	0.18	40	0.20	40	0.24	40	0.30
40	0.10	40	0.12	40	0.14	40	0.18	40	0.20	40	0.24	40	0.30
40	0.10	40	0.12	40	0.14	40	0.18	40	0.20	40	0.24	40	0.30
40	0.10	40	0.12	40	0.14	40	0.18	40	0.20	40	0.24	40	0.30
10	0.04	10	0.05	10	0.06	10	0.07	10	0.08	10	0.09	10	0.12
6	0.04	6	0.05	6	0.06	6	0.08	6	0.08	6	0.10		

The machining values shown are indicative values.
The optimal data for the specific machining case should be determined in trials or during the machining.



Cutting data recommendation for countersinks

Extremely uneven pitch countersinks – solid carbide, coated
Feed and cutting speed

MMG*	Material	Strength/hardness [N/mm ²] [HRC]
P	P1.1 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ²
	P1.2 Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ²
	P2.1 Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ²
	P2.2 Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ²
	P3.1 Tool, bearing, spring and high-speed steels	< 900 N/mm ²
	P3.2 Tool, bearing, spring and high-speed steels	< 1500 N/mm ²
P4	P4.1 Stainless steels, ferritic and martensitic	
P5	P5.1 Cast steel	
P6	P6.1 Stainless cast steel, ferritic and martensitic	
M	M1.1 Stainless steels, austenitic	< 700 N/mm ²
	M1.2 Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ²
	M2.1 Stainless cast steel, austenitic	< 700 N/mm ²
	M3.1 Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²
K	K1.1 Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ²
	K2.1 Cast iron with spheroidal graphite, GJS	< 500 N/mm ²
	K2.2 Cast iron with spheroidal graphite, GJS	500-800 N/mm ²
	K2.3 Cast iron with spheroidal graphite, GJS	> 800 N/mm ²
	K3.1 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ²
	K3.2 Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ²
N	N1.1 Aluminium, non-alloy and alloy < 3 % Si	
	N1.2 Aluminium, alloy ≤ 7 % Si	
	N1.3 Aluminium, alloy > 7-12 % Si	
	N1.4 Aluminium, alloy > 12 % Si	
	N2.1 Copper, non-alloy and low-alloy	< 300 N/mm ²
	N2.2 Copper, alloy	> 300 N/mm ²
	N2.3 Brass, bronze, gunmetal	< 1200 N/mm ²
	N3.1 Graphite	
	N4.1 Plastic, thermoplastics	
	N4.2 Plastic, thermosets	
N4.3 Plastic, foams		
C	C1.1 Plastic matrix, aramide fibre-reinforced (AFRP)	
	C1.2 Plastic matrix (thermosetting), CFRP/GFRP	
	C1.3 Plastic matrix (thermoplastic), CFRP/GFRP	
	C2.1 Carbon matrix, carbon fibre-reinforced (CFC)	
	C3.1 Metal matrix (MMC)	
	C4.1 Sandwich construction, honeycomb core made of paper	
	C4.2 Sandwich construction, honeycomb core made of aluminium	
	C4.3 Sandwich construction, honeycomb core made of plastic and fibre composite material	
	C4.4 Sandwich construction, core made of rigid foam panels	
	C5.1 Stack (hybrid structure), CFRP aluminium	
C5.2 Stack (hybrid structure), CFRP titanium/stainless steel		
S	S1.1 Titanium, titanium alloys	< 400 N/mm ²
	S2.1 Titanium, titanium alloys	< 1200 N/mm ²
	S2.2 Titanium, titanium alloys	> 1200 N/mm ²
	S3.1 Nickel, non-alloy and alloy	< 900 N/mm ²
	S3.2 Nickel, non-alloy and alloy	> 900 N/mm ²
	S4.1 High-temperature super alloy Ni, Co and Fe-based	
S5.1 Tungsten and molybdenum alloys		
H	H1.1 Hardened steel/cast steel	45-55 HRC
	H1.2 Hardened steel/cast steel	55-64 HRC
	H1.3 Hardened steel/cast steel	64-70 HRC
	H2.1 Wear-resistant cast iron/chilled cast iron, GJN	

* MAPAL machining groups

	ø < 5 [mm]		ø < 5 - 8 [mm]		ø < 8 - 12 [mm]		ø < 12 - 16 [mm]		ø < 16 - 20 [mm]		ø < 20 - 25 [mm]		ø < 25 - 31 [mm]	
	v _c [m/min]	f [mm/rev]	v _c [m/min]	f [mm/rev]	v _c [m/min]	f [mm/rev]	v _c [m/min]	f [mm/rev]	v _c [m/min]	f [mm/rev]	v _c [m/min]	f [mm/rev]	v _c [m/min]	f [mm/rev]
	60	0.06	60	0.08	60	0.10	60	0.12	60	0.14	60	0.18	60	0.22
	50	0.04	50	0.06	50	0.08	50	0.10	50	0.12	50	0.14	50	0.18
	50	0.04	50	0.06	50	0.08	50	0.10	50	0.12	50	0.14	50	0.18
	40	0.03	40	0.04	40	0.05	40	0.06	40	0.08	40	0.10	40	0.12
	50	0.04	50	0.06	50	0.08	50	0.10	50	0.12	50	0.14	50	0.18
	40	0.03	40	0.04	40	0.05	40	0.06	40	0.08	40	0.10	40	0.12
	30	0.04	30	0.05	30	0.06	30	0.07	30	0.08	30	0.09	30	0.12
	50	0.04	50	0.06	50	0.08	50	0.10	50	0.12	50	0.14	50	0.18
	30	0.04	30	0.05	30	0.06	30	0.07	30	0.08	30	0.09	30	0.12
	30	0.04	30	0.05	30	0.06	30	0.07	30	0.08	30	0.09	30	0.12
	25	0.04	25	0.05	25	0.06	25	0.07	25	0.08	25	0.09	25	0.12
	30	0.04	30	0.05	30	0.06	30	0.07	30	0.08	30	0.09	30	0.12
	25	0.04	25	0.05	25	0.06	25	0.07	25	0.08	25	0.09	25	0.12
	50	0.06	50	0.10	50	0.12	50	0.14	50	0.18	50	0.20	50	0.25
	45	0.06	45	0.10	45	0.12	45	0.14	45	0.18	45	0.20	45	0.25
	45	0.06	45	0.10	45	0.12	45	0.14	45	0.18	45	0.20	45	0.25
	45	0.06	45	0.10	45	0.12	45	0.14	45	0.18	45	0.20	45	0.25
	35	0.06	35	0.10	35	0.12	35	0.14	35	0.18	35	0.20	35	0.25
	35	0.06	35	0.10	35	0.12	35	0.14	35	0.18	35	0.20	35	0.25
	80	0.08	80	0.10	80	0.12	80	0.14	80	0.18	80	0.22	80	0.26
	80	0.08	80	0.10	80	0.12	80	0.14	80	0.18	80	0.22	80	0.26
	60	0.08	60	0.10	60	0.12	60	0.14	60	0.18	60	0.22	60	0.26
	60	0.08	60	0.10	60	0.12	60	0.14	60	0.18	60	0.22	60	0.26
	70	0.10	70	0.12	70	0.14	70	0.18	70	0.20	70	0.24	70	0.30
	70	0.10	70	0.12	70	0.14	70	0.18	70	0.20	70	0.24	70	0.30
	70	0.10	70	0.12	70	0.14	70	0.18	70	0.20	70	0.24	70	0.30
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	70	0.10	70	0.12	70	0.14	70	0.18	70	0.20	70	0.24	70	0.30
	70	0.10	70	0.12	70	0.14	70	0.18	70	0.20	70	0.24	70	0.30
	70	0.10	70	0.12	70	0.14	70	0.18	70	0.20	70	0.24	70	0.30
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	25	0.06	25	0.10	25	0.12	25	0.14	25	0.18	25	0.20	25	0.25
	15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
	15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
	15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
	15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
	15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
	15	0.04	15	0.05	15	0.06	15	0.07	15	0.08	15	0.09	15	0.12
	12	0.04	12	0.05	12	0.06	12	0.08	12	0.08	12	0.10		
	8	0.04	8	0.05	8	0.06	8	0.08	8	0.08	8	0.10		
		0.04		0.05		0.06		0.08		0.08		0.10		
	12	0.04	12	0.05	12	0.06	12	0.08	12	0.08	12	0.10		

The machining values shown are indicative values.
 The optimal data for the specific machining case should be determined in trials or during the machining.

Pictograms

1

Drilling

Monolithic

Modular QTS

Modular TTS

Internal cooling

External cooling

Maximum drilling depth

Interrupted cut

Inclined bore outlets

Flat 180° bottom of the bore

Achievable bore tolerance

Inclined bore entrances

Shank form HB in accordance with DIN

Shank form HE in accordance with DIN

Shank form HA in accordance with DIN

2

Boring

Through bore

Blind bore

Internal cooling

BS L00 Arc shaped land - blind bore

BS L10 Arc shaped land - through bore

Chamfering / countersinking

3

Countersinking

90°

90° countersinking

4

Product class

Basic Line:
Universal tools, broad application area, low procurement costs

Expert Line:
Specialist tools for selected applications, maximum precision and productivity

Performance Line:
High-performance tools, broad application area, high productivity in series production manufacturing

5

Material suitability

■ Highly suitable

■ Suitable in some situations

Example standard material suitability table

P	1	2	3	4	5	6	M	1	2	3	K	1	2	3	N	1	2	3	4	S	1	2	3	4	5	H	1	2
	■	■	■	■								■	■															

Example material suitability table for non-ferrous metals and lightweight materials

N	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	4.1	4.2	4.3	C	1.1	1.2	1.3	2.1	3.1	4.1	4.2	4.3	4.4	5.1	5.2
													■	■	■			■	■	■	■		

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MAPAL machining groups

The MAPAL machining groups make it possible to provide precise information on the suitability of a tool for certain workpiece materials. Crucial for the categorisation of the groups is the machinability in relation to the cutting data (cutting speed and feed) for a material. It is necessary to sub-divide certain workpiece material groups based on the strength/hardness of the related workpiece material.

Machining group		Material	Tensile strength - hardness [N/mm ² - HRC]	Frequently machined workpiece materials	
P	P1	P1.1	Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 700 N/mm ² 1.0122 (S235/St 37), 1.0401 (C15), 1.0503 (C45), 1.0570 (S355/St 52), 1.1213 (Cf53)	
		P1.2	Structural, free-cutting, case hardened and heat-treated steels, non-alloy	< 1200 N/mm ² 1.1249 (C70)	
	P2	P2.1	Nitrided, case hardened and heat-treated steels, alloy	< 900 N/mm ² 1.7131 (16MnCr5)	
		P2.2	Nitrided, case hardened and heat-treated steels, alloy	< 1400 N/mm ² 1.7227 (42CrMo54)	
	P3	P3.1	Tool, bearing, spring and high-speed steels	< 900 N/mm ² 1.2343 (X38CrMoV5-1)	
		P3.2	Tool, bearing, spring and high-speed steels	< 1500 N/mm ² 1.3505 (100Cr6)	
P4	P4.1	Stainless steels, ferritic and martensitic	1.4510 (X3CrTi17), 1.4589 (X5CrNiMoTi15-2)		
P5	P5.1	Cast steel	1.7231 (G42CrMo4)		
P6	P6.1	Stainless cast steel, ferritic and martensitic			
M	M1	M1.1	Stainless steels, austenitic	< 700 N/mm ² 1.4301 (V2A), 1.4571 (V4A)	
		M1.2	Stainless steels, ferritic/austenitic (duplex)	< 1000 N/mm ² 1.4362 (Alloy 2304), 1.4501, 1.4662 (LDX 2404)	
	M2	M2.1	Stainless cast steel, austenitic	< 700 N/mm ²	
M3	M3.1	Stainless cast steel, ferritic/austenitic (duplex)	< 1000 N/mm ²		
K	K1	K1.1	Cast iron with lamellar graphite (grey cast iron), GJL	< 300 N/mm ² GJL-250 (GG-25), GJL-260 (GG-26 C)	
		K2.1	Cast iron with spheroidal graphite, GJS	< 500 N/mm ² GJS-400 (GGG-40), GJS-450 (GGG-45)	
	K2	K2.2	Cast iron with spheroidal graphite, GJS	500-800 N/mm ² GJS-600 (GGG-60), GJS-800-2 (GGG-80), GJS-800-8 (ADI 800)	
		K2.3	Cast iron with spheroidal graphite, GJS	> 800 N/mm ² GJS-900-2 (GGG-90), GJS-1000-5 (ADI 1000), GJS-1200-2 (ADI 1200), GJS-1400-1 (ADI 1400)	
	K3	K3.1	Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	< 500 N/mm ² GJV-300, GJV-400, GJMW-400-5 (GTW-40)	
K3.2		Cast iron with spheroidal graphite, GJV; malleable cast iron, GJM	> 500 N/mm ² GJV-500		
N	N1	N1.1	Aluminium, non-alloy and alloy < 3 % Si	Alloy 2024, Alloy 7075, Al99	
		N1.2	Aluminium, alloy ≤ 7 % Si	AlSi7	
		N1.3	Aluminium, alloy > 7-12 % Si	AlSi9, AlSi9Cu	
		N1.4	Aluminium, alloy > 12 % Si	AlSi12, AlSi17	
	N2	N2.1	Copper, non-alloy and low-alloy	< 300 N/mm ² SE-Cu	
		N2.2	Copper, alloy	> 300 N/mm ² CuSn6	
		N2.3	Brass, bronze, gunmetal	< 1200 N/mm ² CuZn33, CuAl9Mn3	
	N3	N3.1	Graphite		
		N4	N4.1	Plastic, thermoplastics	PA, PE, PC, PS, PVC, PP, PTFE, POM, PMMA
			N4.2	Plastic, thermosets	PU, PF, EP, UP, VE, CR
N4.3	Plastic, foams	EPS, PUR, PVC-E, PS-E, PP-E			
C	C1	C1.1	Plastic matrix, aramide fibre-reinforced (AFRP)	Nomex, Kevlar, Twaron, KOREX	
		C1.2	Plastic matrix (thermosetting), CFRP/GFRP	IMS, HTA	
		C1.3	Plastic matrix (thermoplastic), CFRP/GFRP	GMT-PP, PEEK	
	C2	C2.1	Carbon matrix, carbon fibre-reinforced (CFC)	CF222, CF225, CF226, CF227, CF260	
		C3	C3.1	Metal matrix (MMC)	CeramTec AO-403 (AlSi9MgMn-Al2O3), Al/Cu/Mg-SiO2/Al2O3/AlN/TiC/SiC/BN/TiB2
	C4	C4.1	Sandwich construction, honeycomb core made of paper		
		C4.2	Sandwich construction, honeycomb core made of aluminium	PLASCORE PAMG-XR1 5052, PCGA-XR1 3003, PAMG-XR1 5056, Micro-Cell (Kern aus Alloy 5052/5056)	
	C4	C4.3	Sandwich construction, honeycomb core made of plastic and fibre composite material	CORMASTER, TUBUS, KOREX, HFT-G, TPU, HFT, HRH (HRH-10, HRH-310, HRH-78, HRH-49, HRH-327), HDC-F	
		C4.4	Sandwich construction, core made of rigid foam panels	AIREX R63, AIREX C70, ROHACELL IG-F	
	C5	C5.1	Stack (hybrid structure), CFRP aluminium	IMS/HTA + Alloy 2024/6061/7075	
C5.2		Stack (hybrid structure), CFRP titanium/stainless steel	IMS/HTA + TiAl6V4/AMS4905		
S	S1	S1.1	Titanium, titanium alloys	< 400 N/mm ²	
		S2	Titanium, titanium alloys	< 1200 N/mm ² TiAl6V4	
	S2	S2.1	Titanium, titanium alloys	< 1200 N/mm ²	
		S2.2	Titanium, titanium alloys	> 1200 N/mm ²	
	S3	S3.1	Nickel, non-alloy and alloy	< 900 N/mm ² 1.3912 (Invar, Ni36)	
S3.2		Nickel, non-alloy and alloy	> 900 N/mm ²		
S4	S4.1	High-temperature super alloy Ni, Co and Fe-based	Hardox, Hastelloy, Incoloy, Inconel, NIMONIC, Stellite, Waspaloy		
S5	S5.1	Tungsten and molybdenum alloys			
H	H1	H1.1	Hardened steel/cast steel	45-55 HRC	
		H1.2	Hardened steel/cast steel	55-64 HRC	
		H1.3	Hardened steel/cast steel	64-70 HRC	
	H2	H2.1	Wear-resistant cast iron/chilled cast iron, GJN		



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