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TOOLING

Standard product line
MEGA-Spike-Drill



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MEGA-Spike-Drill



With its three cutting edges and an aggressive designed, self-centering chisel edge the MEGA-Spike-Drill assures at the first point of contact with the workpiece highest positional accuracy. As it cannot deflect even by very high feed rates, the MEGA-Spike-Drill allows a feed rate increase of between 2-3 times that of the equivalent two fluted drill.

The pointing of the MEGA-Spike-Drill is very stable at the center but becomes increasing positive as it moves away from the center and has a practically smooth transition into the chip flute. The resultant chip channel dramatically reduces the friction between the chip and the drill. Also with long chipping materials the chips are easily evacuated. The chips are put into rotation, and turn themselves away from the bottom of the bore and thus break into short curls.

Advantages of MEGA-Spike-Drill:

- Solution for difficult pilot drilling situations
- Aggressive, self-centring chisel edge for precise positional drilling
- Innovative geometry ensures low cutting pressure and temperature
- Minimum burr formation at bore exit

Performance advantages compared to conventional solid carbide drills (two cutting edges):

In steel, grey cast iron:

- Same cutting speed
- Up to 200 % more feed

In acid-resistant steel, INOX:

- Same cutting speed
- Up to 30 % more feed

Positional accuracy
and maximum performance
even in difficult drilling situations!

Explanation of symbols

General symbols:



Cylindrical
shank Form HA



Internal coolant
supply

Suitability symbols:



Non-alloy steels, cast-steel, alloy steels



Inox, stainless and acid-resistant steel (Cr-Ni alloy)



Grey cast iron, alloyed grey

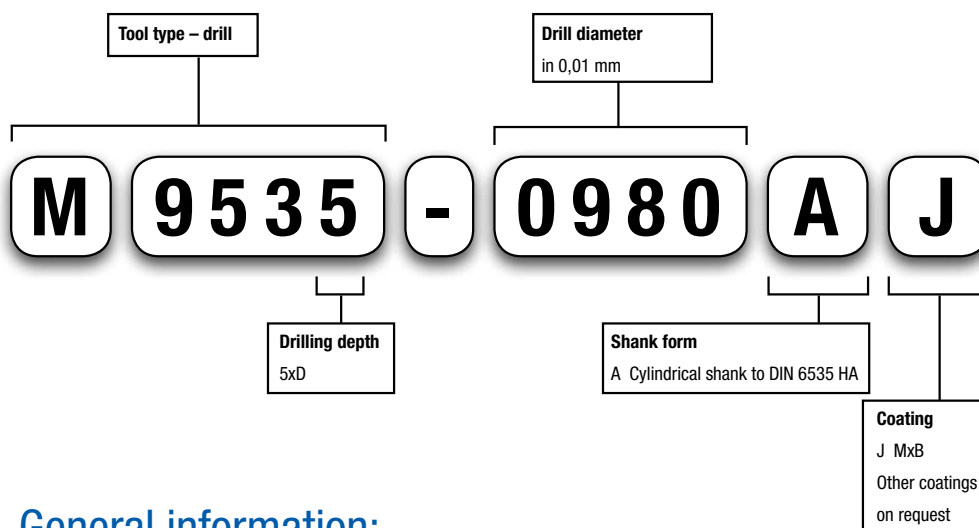


Spheroidal cast iron, vermicular graphite



Aluminium, copper, brass, bronze, CFRP

Technical specification:



General information:

Technical data subject to change. Our general terms and conditions of business apply.

Explanation of dimensions:

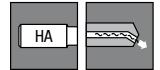
d_1 = Tool diameter
 d_2 = Shank diameter

l_1 = Overall tool length
 l_2 = Length of flute

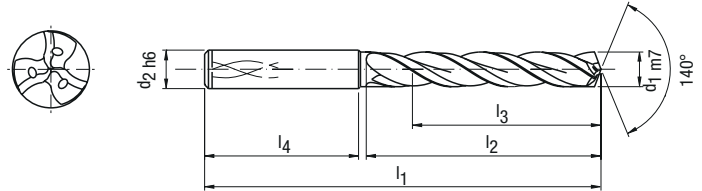
l_3 = Maximum drilling depth
 l_4 = Shank length

MEGA-Spike-Drill / M9535 (5xD)

Solid carbide twist drill, internal coolant supply

**Design:**

Drill diameter:	5.00 – 20.00 mm
Bore tolerance:	IT 9 (achievable)
Shank form:	HA
Number of cutting edges:	3
Number of margins:	3
Point geometry:	Specific point geometry
Point angle:	140°
Helix:	30°



Product code	Cutting material	Coating	P	M	K ₁	K ₂	N	S	H
M9535	Solid carbide	MxB	■	■	■	■	□		

Dimensions						Shank form HA		
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Order designation	Order No.	Stock
5.00	6	82	44	35	36	M9535-0500AJ	30550236	●
5.10	6	82	44	35	36	M9535-0510AJ	30550237	●
5.20	6	82	44	35	36	M9535-0520AJ	30550238	○
5.30	6	82	44	35	36	M9535-0530AJ	30550239	○
5.40	6	82	44	35	36	M9535-0540AJ	30550240	○
5.50	6	82	44	35	36	M9535-0550AJ	30550241	●
5.55	6	82	44	35	36	M9535-0555AJ	30550242	○
5.60	6	82	44	35	36	M9535-0560AJ	30550243	○
5.70	6	82	44	35	36	M9535-0570AJ	30550244	○
5.80	6	82	44	35	36	M9535-0580AJ	30550245	●
5.90	6	82	44	35	36	M9535-0590AJ	30550246	●
6.00	6	82	44	35	36	M9535-0600AJ	30550247	●
6.10	8	91	53	43	36	M9535-0610AJ	30550248	●
6.20	8	91	53	43	36	M9535-0620AJ	30550249	●
6.30	8	91	53	43	36	M9535-0630AJ	30550250	○
6.40	8	91	53	43	36	M9535-0640AJ	30550251	●
6.50	8	91	53	43	36	M9535-0650AJ	30550252	●
6.60	8	91	53	43	36	M9535-0660AJ	30550253	●
6.70	8	91	53	43	36	M9535-0670AJ	30550254	○
6.80	8	91	53	43	36	M9535-0680AJ	30550255	●
6.90	8	91	53	43	36	M9535-0690AJ	30550256	●
7.00	8	91	53	43	36	M9535-0700AJ	30550257	●
7.10	8	91	53	43	36	M9535-0710AJ	30550258	○
7.20	8	91	53	43	36	M9535-0720AJ	30550259	○
7.30	8	91	53	43	36	M9535-0730AJ	30550260	○
7.40	8	91	53	43	36	M9535-0740AJ	30550261	○
7.50	8	91	53	43	36	M9535-0750AJ	30550262	●
7.60	8	91	53	43	36	M9535-0760AJ	30550263	●
7.70	8	91	53	43	36	M9535-0770AJ	30550264	○
7.80	8	91	53	43	36	M9535-0780AJ	30550265	○
7.90	8	91	53	43	36	M9535-0790AJ	30550266	○
8.00	8	91	53	43	36	M9535-0800AJ	30550267	●
8.10	10	103	61	49	40	M9535-0810AJ	30550268	●
8.20	10	103	61	49	40	M9535-0820AJ	30550269	○
8.30	10	103	61	49	40	M9535-0830AJ	30550270	○
8.40	10	103	61	49	40	M9535-0840AJ	30550271	○

Dimensions in mm.

Information on special designs and other coatings on request.

● These products are available ex stock Germany.

○ Standard product not on stock (delivery time on request).

■ Best suitable for this kind of material.

□ Conditionally suitable for this kind of material.

MEGA-Spike-Drill / M9535 (5xD)

Solid carbide twist drill, internal coolant supply



Product code	Cutting material	Coating	P	M	K ₁	K ₂	N	S	H
M9535	Solid carbide	MxB	■	■	■	■	□		

Dimensions						Shank form HA		
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Order designation	Order No.	Stock
8.50	10	103	61	49	40	M9535-0850AJ	30550272	●
8.60	10	103	61	49	40	M9535-0860AJ	30550273	○
8.70	10	103	61	49	40	M9535-0870AJ	30550274	○
8.80	10	103	61	49	40	M9535-0880AJ	30550275	○
8.90	10	103	61	49	40	M9535-0890AJ	30550276	○
9.00	10	103	61	49	40	M9535-0900AJ	30550277	●
9.10	10	103	61	49	40	M9535-0910AJ	30550278	●
9.20	10	103	61	49	40	M9535-0920AJ	30550279	○
9.30	10	103	61	49	40	M9535-0930AJ	30550280	●
9.40	10	103	61	49	40	M9535-0940AJ	30550281	○
9.50	10	103	61	49	40	M9535-0950AJ	30550282	○
9.60	10	103	61	49	40	M9535-0960AJ	30550283	○
9.70	10	103	61	49	40	M9535-0970AJ	30550284	○
9.80	10	103	61	49	40	M9535-0980AJ	30550285	○
9.90	10	103	61	49	40	M9535-0990AJ	30550286	○
10.00	10	103	61	49	40	M9535-1000AJ	30550287	●
10.10	12	118	71	56	45	M9535-1010AJ	30550288	○
10.20	12	118	71	56	45	M9535-1020AJ	30550289	●
10.30	12	118	71	56	45	M9535-1030AJ	30550290	○
10.40	12	118	71	56	45	M9535-1040AJ	30550291	○
10.50	12	118	71	56	45	M9535-1050AJ	30550292	○
10.60	12	118	71	56	45	M9535-1060AJ	30550293	○
10.70	12	118	71	56	45	M9535-1070AJ	30550294	○
10.80	12	118	71	56	45	M9535-1080AJ	30550295	○
10.90	12	118	71	56	45	M9535-1090AJ	30550296	○
11.00	12	118	71	56	45	M9535-1100AJ	30550297	●
11.10	12	118	71	56	45	M9535-1110AJ	30550298	○
11.20	12	118	71	56	45	M9535-1120AJ	30550299	○
11.30	12	118	71	56	45	M9535-1130AJ	30550300	○
11.40	12	118	71	56	45	M9535-1140AJ	30550301	○
11.50	12	118	71	56	45	M9535-1150AJ	30550302	○
11.60	12	118	71	56	45	M9535-1160AJ	30550303	○
11.70	12	118	71	56	45	M9535-1170AJ	30550304	○
11.80	12	118	71	56	45	M9535-1180AJ	30550305	●
11.90	12	118	71	56	45	M9535-1190AJ	30550306	○
12.00	12	118	71	56	45	M9535-1200AJ	30550307	●
12.50	14	124	77	60	45	M9535-1250AJ	30550309	●
12.80	14	124	77	60	45	M9535-1280AJ	30550311	○
13.00	14	124	77	60	45	M9535-1300AJ	30550312	●
13.50	14	124	77	60	45	M9535-1350AJ	30550313	○
13.80	14	124	77	60	45	M9535-1380AJ	30550314	○
14.00	14	124	77	60	45	M9535-1400AJ	30550315	●
14.50	16	133	83	63	48	M9535-1450AJ	30550316	●
14.80	16	133	83	63	48	M9535-1480AJ	30550317	○
15.00	16	133	83	63	48	M9535-1500AJ	30550318	○
15.50	16	133	83	63	48	M9535-1550AJ	30550319	○
15.80	16	133	83	63	48	M9535-1580AJ	30550320	○
16.00	16	133	83	63	48	M9535-1600AJ	30550321	●

Dimensions in mm.

Information on special designs and other coatings on request.

● These products are available ex stock Germany.

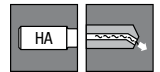
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□ Conditionally suitable for this kind of material.

MEGA-Spike-Drill / M9535 (5xD)

Solid carbide twist drill, internal coolant supply



Product code	Cutting material	Coating	P	M	K ₁	K ₂	N	S	H
M9535	Solid carbide	MxB	■	■	■	■	□		

Dimensions						Shank form HA		
d ₁ m7	d ₂ h6	l ₁	l ₂	l ₃	l ₄	Order designation	Order No.	Stock
16.50	18	143	93	71	48	M9535-1650AJ	30550322	○
16.80	18	143	93	71	48	M9535-1680AJ	30550323	○
17.00	18	143	93	71	48	M9535-1700AJ	30550324	○
17.50	18	143	93	71	48	M9535-1750AJ	30550325	○
17.80	18	143	93	71	48	M9535-1780AJ	30550326	○
18.00	18	143	93	71	48	M9535-1800AJ	30550327	○
18.50	20	153	101	77	50	M9535-1850AJ	30550328	○
18.80	20	153	101	77	50	M9535-1880AJ	30550329	○
19.00	20	153	101	77	50	M9535-1900AJ	30550330	○
19.50	20	153	101	77	50	M9535-1950AJ	30550331	○
19.80	20	153	101	77	50	M9535-1980AJ	30550332	○
20.00	20	153	101	77	50	M9535-2000AJ	30550333	○

Dimensions in mm.
 Informations on special designs and other
 coatings on request.

● These products are available ex stock Germany.
 ○ Standard product not on stock
 (delivery time on request).

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Machining values

MEGA-Spike-Drill (M9535)



	Material	Strength [N/mm ²] Hardness (HB)	Examples	Cutting speed v_c [m/min]	Recommended feed f [mm/rev] for diameter *						
					5 mm	6,8 mm	8,5 mm	12 mm	16 mm	20 mm	
P	Non alloyed steels, cast steel	≤ 600 N/mm ²	St37, St42, C22, GS38	100-140	0,28-0,34	0,36-0,44	0,43-0,53	0,57-0,69	0,70-0,86	0,82-1,00	P
		≤ 700 N/mm ²	St50, St60, C45, GS62	80-120	0,26-0,31	0,33-0,40	0,40-0,48	0,52-0,64	0,64-0,79	0,75-0,91	
		> 700 N/mm ²	St70, C70	60-100	0,23-0,28	0,30-0,37	0,36-0,44	0,47-0,58	0,59-0,72	0,68-0,83	
	Alloyed steels	≤ 900 N/mm ²	16MnCr5, 90MnCrV8	60-90	0,23-0,28	0,30-0,37	0,36-0,44	0,47-0,58	0,59-0,72	0,68-0,83	
		≤ 1000 N/mm ²	100Cr6, 42CrMo4	55-85	0,21-0,25	0,27-0,33	0,32-0,40	0,43-0,52	0,53-0,65	0,61-0,75	
		> 1000 N/mm ²	X210Cr13, 34CrAlNi7	45-75	0,18-0,23	0,24-0,29	0,29-0,35	0,38-0,46	0,47-0,57	0,54-0,67	
M	Inox		X5 CrNi 18 9 (V2A),	40-70	0,15-0,19	0,21-0,25	0,25-0,31	0,34-0,41	0,42-0,51	0,48-0,59	M
	Stainless and acid resistant steels (Cr-Ni-alloys)		X10 CrNiMoTi 18 10, G-X40 CrNi 27 4	30-60	0,11-0,14	0,15-0,18	0,18-0,22	0,24-0,29	0,30-0,36	0,34-0,42	
K₁	Grey cast iron	≤ 200 N/mm ²	GG10, GG15	100-140	0,35-0,43	0,47-0,58	0,58-0,70	0,77-0,94	0,95-1,16	1,10-1,34	K₁
		≤ 250 N/mm ²	GG20, GG25, GTW40	80-120	0,31-0,38	0,41-0,50	0,50-0,62	0,67-0,82	0,83-1,02	0,96-1,17	
		≤ 300 N/mm ²	GG30, GG40, GTS70	70-100	0,28-0,34	0,37-0,45	0,45-0,55	0,61-0,74	0,75-0,92	0,86-1,05	
K₂	Spheroidal cast iron	≤ 400 N/mm ²	GGG40, GGG50	90-130	0,35-0,43	0,47-0,58	0,58-0,70	0,77-0,94	0,95-1,16	1,10-1,34	K₂
		≤ 500 N/mm ²	GGG60, GGG70	75-105	0,31-0,38	0,41-0,50	0,50-0,62	0,67-0,82	0,83-1,02	0,96-1,17	
		≤ 600 N/mm ²	GGG80, GTS65	65-95	0,28-0,34	0,37-0,45	0,45-0,55	0,61-0,74	0,75-0,92	0,86-1,05	
	Vermicular cast iron	400 N/mm ²	GGV Ti	70-100	0,35-0,43	0,47-0,58	0,58-0,70	0,77-0,94	0,95-1,16	1,10-1,34	
		500 N/mm ²	GGV Ti	60-85	0,31-0,38	0,41-0,50	0,50-0,62	0,67-0,82	0,83-1,02	0,96-1,17	
	ADI cast iron	800 N/mm ²	ADI 800	50-70	0,28-0,34	0,37-0,45	0,45-0,55	0,61-0,74	0,75-0,92	0,86-1,05	
		1200 N/mm ²	ADI 1200	45-55	0,28-0,34	0,37-0,45	0,45-0,55	0,61-0,74	0,75-0,92	0,86-1,05	
N	Aluminium (Si content < 10 %)		GD-AlSi9Cu3, AlSi7Mg0,6	120-250	0,45-0,55	0,59-0,72	0,72-0,88	0,96-1,17	1,18-1,45	1,37-1,67	N
	Aluminium (Si content > 10 %)		GD-AlSi2(Cu), AlSi17Cu4Mg (Alusil)	150-300	0,45-0,55	0,59-0,72	0,72-0,88	0,96-1,17	1,18-1,45	1,37-1,67	
	Copper, brass, bronze	< 300 HB	AlSi17Cu4Mg/Alusil	100-250	0,40-0,49	0,53-0,65	0,65-0,79	0,86-1,05	1,07-1,31	1,23-1,50	

* Feed values for other drill diameters have to be interpolated.

Example No. 1:

Progressive distributor

Material: C45PB
Tool diameter: $\varnothing$ 5.85 mm (special tool)
Drilling depth: 50 mm
Feed f_u : 0.29 mm/rev
Cutting speed v_c : 90 m/min
Feed rate v_f : 1,400 mm/min

Despite the doubling of the feed with the same cutting speed the tool life can be doubled to 200 m through the application of the MEGA-Spike-Drill.

Through the use of just one tool (Competitor: pilot drill, 12xD deep hole drill) and the doubling of the feed rate, the customer can achieve a saving of 45 sec./ clamping.

Example No. 2:

Engine block

Material: GG26Cr
Tool diameter: $\varnothing$ 12.5 mm
Machining: $\varnothing$ 12.5 x $\varnothing$ 16 x 32
Feed f_u : 0.33 mm/rev
Cutting speed v_c : 70 m/min
Feed rate v_f : 600 mm/min

Despite uninterrupted cutting and machining with MQL, the MEGA-Spike-Drill achieves maximum positional accuracy with 20 % shorter machining time and tool life 3 times longer than the competition.

MILLER News

NEW – MEGA-Speed-Drill: The high-performance drill for machining casting and hard machining

The MEGA-Speed-Drill has a completely new cutting edge geometry with unequal spacing and three guiding chamfers.

This prevents vibration and reduces friction. The highly polished chip flutes guarantee optimal chip flow.

These features and the particularly heat-resistant cutting material Mx2 enable the MEGA-Speed-Drill to produce bores with more than twice the cutting speed and up to 30 % higher feeds than is possible with conventional drills. The standard product line covers the diameter range from 3 to 20 mm in drilling depths 3xD, 5xD and 8xD.



NEW – OptiMill®-HPC milling cutters: Your guaranty for highly economical machining

MILLER has developed a product line of milling cutters with HPC geometry designed for highly economical universal machining of structural steel, case hardened steel, tool steel, cast steel and cast iron.

Very smooth running, large cutting volumes, high process reliability and low machine load are achieved in machining through the use of unequal helix and unequal deviation, even with extreme cutting data. Plunge and „ramping“ processes are enhanced by the larger chip space at the leading end of the grooves.



For further information,
please visit our Internet site at
www.miller-tools.de

Available from our partners

BECK
MAPAL GROUP

VR reamers: More blades for more performance!

A crucial criterion for the performance of multi-bladed reamers is the number of blades. To allow more room for blades, chip spaces are eliminated in the VR 01 multi-blade reamer from BECK. Despite this, an effective coolant supply directly to the blades is still assured. This produces several positive effects: The machining time is drastically reduced, the tool lives are increased and the bore quality, in particular the circularity of the bore, is improved. For example, honing during fine machining of bores is often no longer required. VR01 reamers from BECK are available with different cutting edge materials including Cermet, carbide, coated cutting edges as well as PCD or PcBN, depending on the machining task.



HPH - High Performance Holder: The ideal clamping system for milling applications.

HPHs (High Performance Holders) from WTE Präzisionstechnik GmbH are a unique class based on an advanced development of conventional expanding technology. The chuck combines maximum holding forces with outstanding damping properties and high bending resistance while ensuring the customary radial-run-out accuracy, setting it apart in the top class of clamping tools and guaranteeing especially high surface quality in practical applications.

WTE
MAPAL GROUP



Would you like to know more?
Just give us a call!
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MILLER GmbH, Präzisionswerkzeuge:
The specialist for solid carbide drills and
milling cutters

- ▶ Solid carbide drills for steel, aluminium, stainless steel and hardened materials
- ▶ High performance drills with more cutting edges and additional guiding chamfers
- ▶ TTD replaceable head drills
- ▶ Solid carbide milling range for steel, aluminium, stainless steel, plastics and hardened materials
- ▶ High performance milling cutters for high machining volumes



MILLER
MAPAL GROUP

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