

botek[®]

DEEP HOLE DRILLING SYSTEMS
SOLID CARBIDE TOOLS

Grinding machine

Grinding fixture



botek



**For regrinding single flute gundrills
from \varnothing 0.5 mm**



The botek company

Manufacturing deep and precise holes is a technical challenge when processing metal. Accordingly specializing on deep hole drilling technology had been the founding idea in 1974 of botek Präzisionsbohrtechnik GmbH in Riederich.

botek grew to an international operating deep hole drilling tools supplier. Over 500 employees in the main company develop and manufacture single and two fluted drills, deep hole drilling tools system BTA and Ejector as well as special tools.

A complete product program, regarding all deep hole drilling aspects and a team of highly qualified and dedicated cutting specialists make botek being a competent partner for the automobile industry and their suppliers, shipbuilding industry, hydraulic industry as well as motor, gear and machine building companies.



- Please note our safety pointers at www.botek.de.
- Our General Standard Terms and Conditions, which we assume as known, apply.
- We reserve the right to make modifications in the interests of technical improvement. Such modifications cannot, in principle, be accepted as justifiable reasons for complaint.
- Subject to change. The manufacturer accepts no responsibility for misprints and other errors.

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Multi-station grinding machine MS-12 and MS-12/3

Larger batches of tools with same point geometry can be ground highly efficiently on the **botek multi-station grinding machine MS-12**.

The machine is suitable for **tool dia. 1.85 to 12.00 mm and tool lengths up to approx. 1.000 mm**.

After a once-off adjustment of the stations you can – simple and fast – obtain consistent and economical regrinding results.

The botek grinding machine is available in two versions:

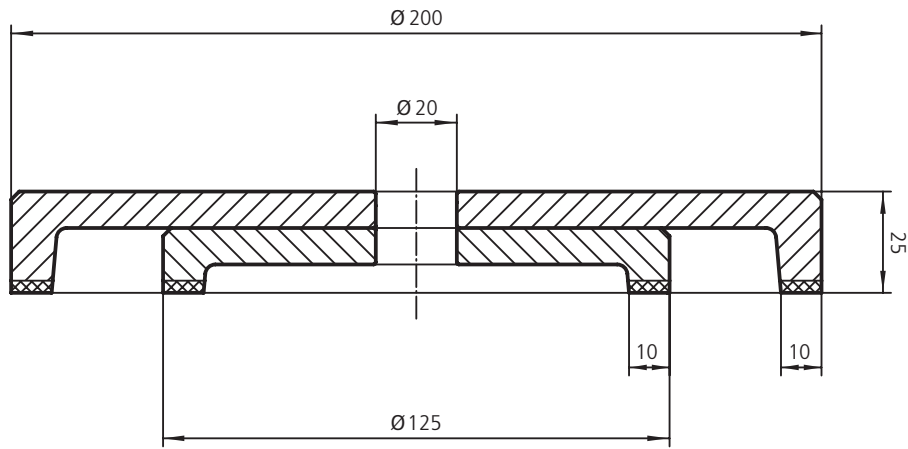
MS-12	MS-12/3
 <p data-bbox="474 1495 582 1524">2 spindles</p> <p data-bbox="394 1526 662 1608">Tool dia. 1.85 - 12.000 mm Tool length approx. 1.000 mm Order no. 729000117</p>	 <p data-bbox="1123 1495 1231 1524">3 spindles</p> <p data-bbox="1043 1526 1311 1608">Tool dia. 1.85 - 12.000 mm Tool length approx. 1.000 m Order no. 729000262</p>
Special voltage on request	

Accessories for MS-12 and MS-12/3

Description	Order no.
Socket 220 V	729000267

Accessories MS-12 and MS-12/3 Grinding wheels/tool holders

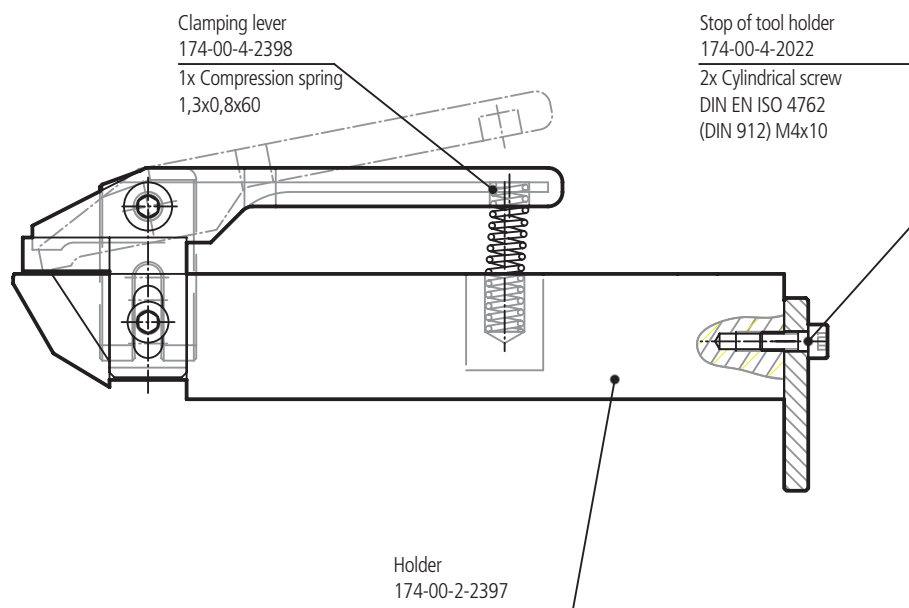
Double grinding wheels



Outside-Ø	Internal-Ø	Grain	Order-no.
200 mm	20 mm	D 54	729000263
200 mm	20 mm	D 91	729000264
125 mm	20 mm	D 30	729000265
125 mm	20 mm	D 54	729000266

Tool holder

Tool-Ø	Order no.
1.85 - 2.49	729000270
2.50 - 3.49	729000271
3.50 - 4.49	729000272
4.50 - 5.49	729000273
5.50 - 6.49	729000274
6.50 - 7.49	729000275
7.50 - 8.50	729000276
8.51 - 9.50	729000277
9.51 - 10.50	729000278
10.51 - 11.50	729000279
11.51 - 12.50	729000280



Single-station grinding machine MS-01

Grinding machine MS-01

- for grinding small batches
- very stabile and versatile machine
- can easily be installed on a table or cabinet at any time
- problem-free installation of the grinding stations type ZS or PS



Technical data	
Longitudinal travel table	250 mm
Cross table travel	160 mm
Vertical adjustment of wheel head	160 mm
Speed of wheel	2850 rev/min
Maximum diameter of wheel	150 mm
Voltage*	380 V/50 Hz/3PH
Colors	RAL 7035 Lightgrey
*special voltage on request	

Delivery content: Machine with 2 sockets 220 V
without grinding station, table, lamp and grinding wheel
 Order no.: 729000105

Accessories for MS-01

Description	Order-no.
Machine lamp Halogen 20 W/ 230 V, 50-60 Hz/ IP20, incl. lamp, 36° frosted glass	110000133
Machine table (dimensions: 750x700x900 mm) with lockable drawer and storage compartment Multiplex plywood table top with tubular steel pedestal	264000011

Accessories MS-01 Grinding fixture type PS

The **botek grinding fixture PS** was developed for re-sharpening single flute gundrills within a diameter range from 0.5 - 6.0 mm. The fixture may be installed on a botek grinding machine MS-01 or a standard tool grinding machine.

By changing the grinding stations, our standard nose grinds 001 (SA-0009), 001/1 (SA-0002) and 002/2 (SA-0227) can be produced. The angles of the cutting edges are fixed, depending on which grinding stations are chosen.

Single flute gundrills are clamped into a tool holder for re-sharpening. Each tool holder is suitable for one gundrill driver diameter of 10, 12 or 12.7 mm. The tool holder is inserted into each grinding station and pressed against the adjustable stop and passed across a rotating diamond wheel. The relief angles are achieved by moving the grinding station to a second position.

Gundrills are clamped in the tool holder using a pre-setting fixture with microscope. A different tool holder bushing may be ordered for each gundrill diameter. Tool holders are available in specific gundrill diameter ranges and driver types. Please refer to the following page for further details.

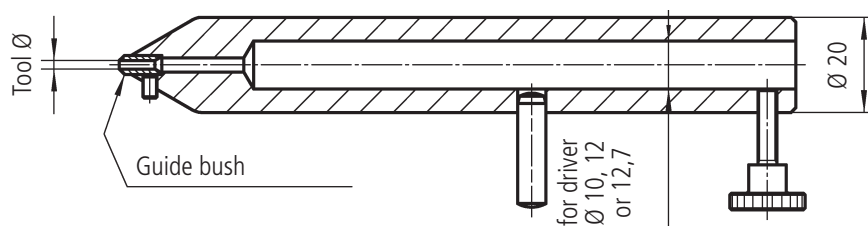


PS-N base plate (without grinding station)	729000118
Grinding station PS-N-001 (only nose grind 40°/30°)	729000104
Grinding station PS-N-001/1 (only for nose grind 40°/30° with larger relief angle)	729000119
Grinding station PS-N-002/2 (only nose grind 30°/20°)	729000120
Centering microscope for PS-N	175000018
Pre-adjustment device for PS-N	729000121

Information for tool holder

Type PS

Tool holder for PS-N



Dimensions of tool holder (special dimensions on request)

For Ø-range	Max. flute length	Driver	Order no.	For Ø-range	Max. flute length	Driver	Order no.		
0.500 - 1.099 mm	145 mm	VH10-...	729000108	1.900 - 2.699 mm	145 mm	VH10-...	729000110		
		VH12-...	729000122			VH12-...	729000156		
		VH12.7-...	729000123			VH12.7-...	729000157		
	115 mm	VH10-...	729000124		115 mm	VH10-...	729000158		
		VH12-...	729000125			VH12-...	729000159		
		VH12.7-...	729000126			VH12.7-...	729000160		
	90 mm	VH10-...	729000127		90 mm	VH10-...	729000161		
		VH12-...	729000128			VH12-...	729000162		
		VH12.7-...	729000129			VH12.7-...	729000163		
	160 mm	ZH10-...	729000130		160 mm	ZH10-...	729000164		
		ZH12-...	729000131			ZH12-...	729000165		
		ZH12.7-...	729000132			ZH12.7-...	729000166		
	130 mm	ZH10-...	729000133		130 mm	ZH10-...	729000167		
		ZH12-...	729000134			ZH12-...	729000168		
		ZH12.7-...	729000135			ZH12.7-...	729000169		
	105 mm	ZH10-...	729000136		105 mm	ZH10-...	729000170		
		ZH12-...	729000137			ZH12-...	729000171		
		ZH12.7-...	729000138			ZH12.7-...	729000172		
	1.100 - 1.899 mm	145 mm	VH10-...		729000109	2.700 - 3.399 mm	145 mm	VH10-...	729000111
			VH12-...		729000139			VH12-...	729000173
			VH12.7-...		729000140			VH12.7-...	729000174
115 mm		VH10-...	729000141	115 mm	VH10-...		729000175		
		VH12-...	729000142		VH12-...		729000176		
		VH12.7-...	729000143		VH12.7-...		729000177		
90 mm		VH10-...	729000144	90 mm	VH10-...		729000178		
		VH12-...	729000145		VH12-...		729000179		
		VH12.7-...	729000146		VH12.7-...		729000180		
160 mm		ZH10-...	729000147	160 mm	ZH10-...		729000181		
		ZH12-...	729000148		ZH12-...		729000182		
		ZH12.7-...	729000149		ZH12.7-...		729000183		
130 mm		ZH10-...	729000150	130 mm	ZH10-...		729000184		
		ZH12-...	729000151		ZH12-...		729000185		
		ZH12.7-...	729000152		ZH12.7-...		729000186		
105 mm		ZH10-...	729000153	105 mm	ZH10-...		729000187		
		ZH12-...	729000154		ZH12-...		729000188		
		ZH12.7-...	729000155		ZH12.7-...		729000189		

Information for tool holder Type PS



For Ø-range	Max. flute length	Driver	Order no.	
3.400 - 4.099 mm	145 mm	VH10-...	729000112	
		VH12-...	729000190	
		VH12.7-...	729000191	
	115 mm	VH10-...	729000192	
		VH12-...	729000193	
		VH12.7-...	729000194	
	90 mm	VH10-...	729000195	
		VH12-...	729000196	
		VH12.7-...	729000197	
	160 mm	ZH10-...	729000198	
		ZH12-...	729000199	
		ZH12.7-...	729000200	
	130 mm	ZH10-...	729000201	
		ZH12-...	729000202	
		ZH12.7-...	729000203	
	105 mm	ZH10-...	729000204	
		ZH12-...	729000205	
		ZH12.7-...	729000206	
	4.100 - 5.099 mm	145 mm	VH10-...	729000113
			VH12-...	729000207
			VH12.7-...	729000208
115 mm		VH10-...	729000209	
		VH12-...	729000210	
		VH12.7-...	729000211	
90 mm		VH10-...	729000212	
		VH12-...	729000213	
		VH12.7-...	729000214	
160 mm		ZH10-...	729000215	
		ZH12-...	729000216	
		ZH12.7-...	729000217	
130 mm		ZH10-...	729000218	
		ZH12-...	729000219	
		ZH12.7-...	729000220	
105 mm		ZH10-...	729000221	
		ZH12-...	729000222	
		ZH12.7-...	729000223	

For Ø-range	Max. flute length	Driver	Order no.
5.100 - 6.099 mm	145 mm	VH10-...	729000115
		VH12-...	729000224
		VH12.7-...	729000225
	115 mm	VH10-...	729000226
		VH12-...	729000227
		VH12.7-...	729000228
	90 mm	VH10-...	729000229
		VH12-...	729000230
		VH12.7-...	729000231
	160 mm	ZH10-...	729000232
		ZH12-...	729000233
		ZH12.7-...	729000234
	130 mm	ZH10-...	729000235
		ZH12-...	729000236
		ZH12.7-...	729000237
	105 mm	ZH10-...	729000238
		ZH12-...	729000239
		ZH12.7-...	729000240

Extension for tool holder/Drill bushing

Adapter for tool holders PS

Extension for tool holder PS-N (available as optional accessory)



Driver	Max. flute length	Min. flute length	Order no.
ZH10-...	295 mm	185 mm	729000241
VH10-...	285 mm	175 mm	729000242
ZH10-...	395 mm	285 mm	729000243
VH10-...	385 mm	275 mm	729000244
ZH12-...	295 mm	185 mm	729000245
VH12-...	280 mm	170 mm	729000246
ZH12-...	395 mm	285 mm	729000247
VH12-...	380 mm	270 mm	729000248
ZH12.7-...	295 mm	185 mm	729000249
VH12.7-...	280 mm	170 mm	729000250
ZH12.7-...	395 mm	285 mm	729000251
VH12.7-...	380 mm	270 mm	729000252

Special dimensions on request

Drill bushing



For Ø-range	Order no.
0.500 - 1.099 mm	729000253
1.100 - 1.899 mm	729000254
1.900 - 2.699 mm	729000255
2.700 - 3.399 mm	729000256
3.400 - 4.099 mm	729000257
4.100 - 5.099 mm	729000258
5.100 - 6.099 mm	729000259

Special dimensions on request

Please specify tool dia. when ordering

Accessories MS-01 Grinding fixture type ZS

The **botek grinding fixture ZS** is designed for low volume production re-sharpening of single flute gundrills.

The fixture may be installed on a botek grinding machine MS-01, or a standard tool grinding machine.
The desired angles are set on the grinding fixture using graduated scales.

The gundrill is inserted into the clamping unit and a vee-shaped jaw holds the gundrill securely in the flute.



When choosing a grinding fixture, please consider the minimum flute length and gundrill diameter of the tools you wish to regrind:

Each grinding fixture ZS consists of one holder and one sleeve

Sleeve for ZS grinding fixture	Clamping range	Minimum flute length of tool	Order no.
ZS16/ 50 - 2	Ø 2.0 - 16.0 mm	50 mm	729000100
ZS32/110 - 2	Ø 2.0 - 32.0 mm	110 mm	729000101
ZS32/160 - 2*	Ø 2.0 - 32.0 mm	160 mm	729000102
ZS50/170 - 2	Ø 5.0 - 50.0 mm	170 mm	729000103

Holder for ZS grinding fixture	Order no.
ZS32/110 - 1	729000260

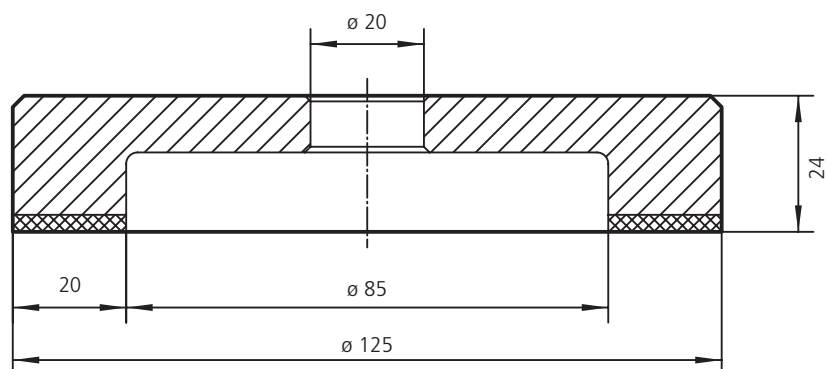
* Standard model with extension tube for tool support (**only** with ZS32/160 - 2 available).

Accessories MS-0

Grinding wheels

Cup wheel

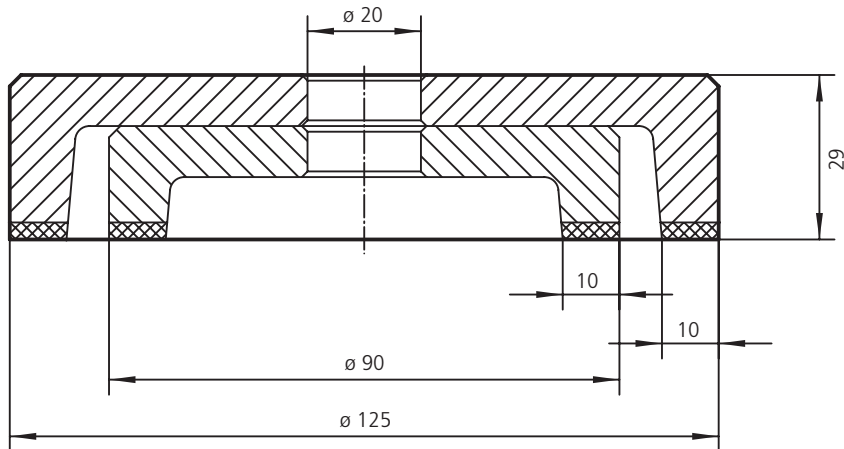
For re-sharpening single flute gundrills within a diameter range from 0.5 to 2.0 mm a cup wheel is most suitable. The grain of the wheel is chosen to keep an excellent grinding quality and sufficient stock removal without overheating the tool.



Ø-range	Order no.
0.500 - 2.000 mm	125000218

Double grinding wheel

The double grinding wheel is ideal for re-sharpening single flute gundrills up to 45 mm diameter. The coarse grain of the outer wheel is for roughing the tool with high stock removal and minimum heating of the tool. The fine grain of the inner grinding wheel provides optimum surface finish with light stock removal.



Remark: we recommend re-sharpening gundrill diameters **larger** than 32 mm on **bigger** machines.

Ø-range	Outside-Ø	Internal-Ø	Grinding pattern	Order no.
2.001 - 45.0 mm	125 mm	20.0 mm	for a normal surface	125000212
	90 mm			125000213
2.001 - 45.0 mm	125 mm	20.0 mm	for a finer surface	125000212
	90 mm			125000217

Standard nose grinds for botek single flute drills

The nose grind geometry affects the following: chip formation, drilling tolerance, centerline deviation (drift) and tool life.

Over the years, botek has successfully tested a number of different nose grinds for drilling various materials. botek's experience has formed the foundation for the development of our standard nose grind geometries. This meets the requirements of most drilling applications. Deep-hole drilling of especially long chipping materials and difficult to machine materials usually call for special nose grind geometries, and in some cases, made to special chip breakers.

Regrinding instructions can be provided from case to case. If there is no other information given, botek single flute drills will be reground as per nose grind No. 001 (SA-0001), 001/1 (SA-0009), 002 (SA-0002), 002/2 (SA-0227) and 003 (SA-0003) as shown below.

<p>No. 001/1 (SA-0009) Tool-Ø 0.5 - 4.000 mm</p>	<p>No. 002/2 (SA-0227) Tool-Ø 0.5 - max.</p>	
<p>No. 001 (SA-0001) Tool-Ø 1.85 - 4.000 mm</p>	<p>No. 002 (SA-0002) Tool-Ø 4.001 - 20.000 mm</p>	<p>No. 003 (SA-0003) Tool-Ø 20.001 - ... mm</p>

Important safety guidelines

Please read manual prior to installation and operation. Installation shall only be carried out by specialised staff. Manual to be stored at a safe place for future reference. Machine and accessories are only to be operated in their intended use by trained staff.

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