

GUHRING



EB 800 - Gun Drill System

GUHRING - YOUR WORLD-WIDE PARTNER



- As special solution now available up to 52.0 mm Ø
- Inserts and supporting strips in 1/10 diameters as standard, in 1/100 diameters as special tools with fixed additional charges

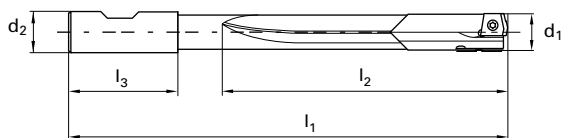
Guhring single-fluted gun drills with interchangeable inserts and supporting strips are also produced as special tools according to customer requirements. They are suitable for nearly every material and available from diameter 12.0 to 52.0 mm up to a maximum total length of 3000 mm.

Your special advantages are:

- The interchangeable component technology for inserts and supporting strips makes any combination of carbide grade and coating possible.
 - The precision interchangeable inserts and supporting strips eliminate complicated adjustments.
 - The precision supporting strips are produced in a special carbide for your individual deep drilling task. They can be reverse-fitted, providing double tool life. In addition, they can be provided with any of the Guhring coatings.
 - Thanks to the precision insert seatings and the interchangeable inserts there is only a small number of interchangeable components. The tool is therefore extremely rigid.
 - Expensive stoppages are eliminated because the worn components can be replaced without removing the tool from the machine.
 - The expensive re-grinding process is eliminated thanks to the interchangeable insert technology.
 - The application orientated selection of the most suitable interchangeable insert always ensures optimal chip breaking – even in problematic materials.
 - Specifically optimised to your individual deep drilling task, the precision inter-changeable inserts are also produced in a special carbide. In addition, all GUHRING coatings are available.
 - Within the diameter range it is possible to modify the nominal diameter at any time by simply interchanging the individual components.
 - The driver is produced in heat-treatable steel acc. to:
 - DIN 6535 HA - DIN 6535 HE
 - DIN 6535 HB - DIN 1835 E
- Also, all the forms generally required for deep drilling machines are possible to be manufactured.

Stock program from Ø 12.0 to 24.0 mm suitable for almost every material

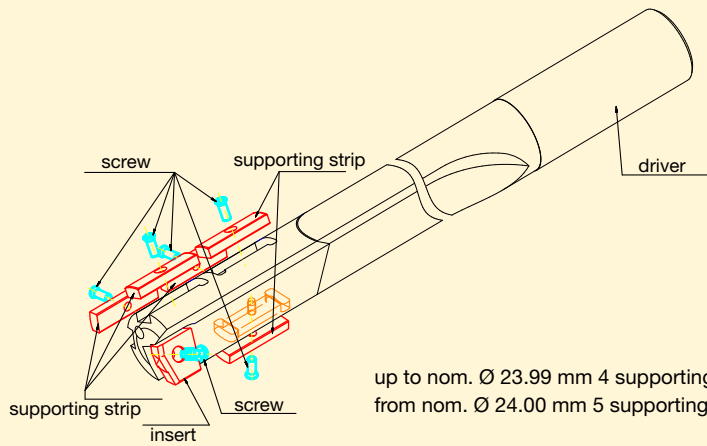
Guhring no.	5644
Standard	Guhring std.
Tool material	Carbide
Carbide grade	K20/K40
Surface	
Type	EB 800
Drilling depth	30xD
Cutting direction	right-hand
Tolerance	h8
Discount group	123



						Availability
d1		d2	l1	l2	l3	
mm	inch	mm	mm	mm	mm	
12.000		20.000	446.00	384.00	50.00	●
12.700	1/2	20.000	468.00	384.00	50.00	●
14.000		20.000	510.00	448.00	50.00	●
15.000		25.000	548.00	480.00	56.00	●
16.000		25.000	580.00	512.00	56.00	●
18.000		25.000	644.00	576.00	56.00	●
20.000		32.000	712.00	640.00	60.00	●
24.000		32.000	840.00	768.00	60.00	●

**Attention: - shortest flute length 15 x D
- possible diameter tolerance IT9/IT10**

Drawing, all Guhring nos. and specifications included with every quote.



up to nom. \varnothing 23.99 mm 4 supporting strips
from nom. \varnothing 24.00 mm 5 supporting strips

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Gun drills

with interchangeable insert and supporting strip, internal cooling

Diameter range: 12.00 mm - 52.00 mm



Drill Ø mm from	Feed column no.							
	11	12	13	14	15	16	17	18
	f (mm/rev.)							
1.50	0.002	0.004	0.006	0.008	0.012	0.020	0.032	0.045
2.00	0.003	0.005	0.007	0.010	0.016	0.028	0.046	0.055
2.50	0.004	0.006	0.008	0.012	0.018	0.030	0.054	0.070
4.00	0.005	0.007	0.010	0.016	0.025	0.043	0.065	0.085
6.00	0.007	0.009	0.013	0.024	0.035	0.061	0.085	0.120
8.00	0.010	0.014	0.022	0.032	0.045	0.068	0.100	0.150
10.00	0.012	0.016	0.028	0.040	0.055	0.075	0.120	0.160
14.00	0.020	0.025	0.035	0.050	0.065	0.085	0.130	0.180
18.00	0.025	0.030	0.040	0.055	0.070	0.095	0.145	0.200
20.00	0.026	0.035	0.045	0.060	0.080	0.110	0.180	0.250
24.00	0.027	0.036	0.047	0.065	0.085	0.130	0.185	0.300
28.00	0.028	0.038	0.049	0.068	0.090	0.140	0.195	0.350
30.00	0.030	0.040	0.050	0.070	0.100	0.150	0.200	0.400
35.00	0.035	0.045	0.055	0.075	0.120	0.180	0.250	0.450
52.00	0.040	0.050	0.060	0.080	0.150	0.200	0.300	0.500

*The feed rates always relate to tools with the recommended coating. In some cases the successful application of un-coated tools cannot be guaranteed.



All deep hole drills must have support for the pilot hole. Deep hole drills must never operate at full speed without support in the machine shop.

Application advice

- For drilling depths in excess than 40 x D we recommend the use of two or more gun drills, e. g. Ø 10 x 400 mm and Ø 9.95 x 800 mm.
- Gun drills for drilling depths of more than 40 x D should enter the pilot hole revolving in the left hand direction.
- When changing tools for drilling depths of more than 40 x D, the tool can be damped by switching on coolant supply for just one second.
- For machining of long-chipping materials we recommend the use of gun drills with polished flutes.
- Generally we recommend the use of soluble oil with a minimum oil content of 10 %.
- Single-fluted gun drills for long-chipping aluminium should be supplied with point grind 180° and coolant chamber.
- When spotting in aluminium with an Si-content of less than 1%, i.e. with recommended cutting rates $v_c > 160$ m/min we recommend to advance to the final speed in several steps. In addition, a deeper pilot hole of approximately 3 x D should be produced.

The sequence of operations for deep hole drilling

- production of pilot hole (L = 1.5 x D, tolerance H8)
- enter at low revolutions, approx. 200 rev./min, feed rate approx. 500 mm/min. With tools for drilling depths in excess than 40 x D enter the pilot hole revolving in left hand direction.
- setting of coolant pressure and revolutions
- uninterrupted drilling to required drilling depth without wood pecking. When applying gun drills with increased length-diameter-ratio, we recommend machining with reduced cutting parameters (approx. 75% of the optimal cutting speed) up to a drilling depth of approx. 25 mm.
- switching off coolant supply after reaching the required hole depth
- withdrawal in top gear with stationary spindle

Material dependent coolants

- air
- neat oil
- ⊙ soluble oil

EB800

single-fluted gun drill
with indexable inserts

12.0 ... 52.0



≤35xD >35xD

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tens.str. Hardn. N/mm ²	Coolant	recom. coating*	≤35xD		>35xD	
					v_c m/min	Feed col. no.	v_c m/min	Feed col. no.
Common structural steels	1.0035 S185, 1.0486 P275N, 1.0345 P235GH, 1.0425 1.0050 E295), 1.0070 E360, 1.8937 P500NH	≤500 ≤1000	○	Ⓢ	90 80	15 15	85 75	15 15
Free-cutting steels	1.0718 11SMnPb30, 1.0736 11SMn37 1.0727 46S20, 1.0728 60S20, 1.0757 46SPb20	≤850 ≤1000	○	Ⓢ	85 75	16 16	80 70	16 16
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E 1.0503 C45, 1.1191 C45E 1.0601 C60, 1.1221 C60E	≤700 ≤850 ≤1000	○	Ⓢ	85 80 75	15 15 15	80 75 70	15 15 15
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1000 ≤1400	○	Ⓢ	75 65	15 15	70 60	15 15
Unalloyed case hard. steels	1.0301 , 1.1121 C10E	≤850	○	Ⓢ	80	15	75	15
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6 1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1000 ≤1400	●	Ⓢ	75 70	15 15	70 65	15 15
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1000 ≤1400	○	Ⓢ	70 60	15 15	65 55	15 15
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 , 1.2767	≤850 ≤1400	○	Ⓢ	65 60	14 14	60 55	14 14
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400	○	Ⓢ	65	14	50	14
Spring steels	1.5026 56Si7, 1.7176 55Cr3, 1.8159 51CrV4	≤350 HB	○	Ⓢ	55	15	60	15
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105	≤900	○	Ⓢ	50	14	45	14
austenitic	1.4301 X5CrNi18-10, 1.4541 X6CrNiTi18-10, 1.4571	≤1100	○	Ⓢ	45	14	40	14
martensitic	1.4057 X20CrNi172, 1.4122 X39CrMo17-1, 1.4521	≤1500	○	Ⓢ	40	14	35	14
Hardened steels	-	≤48 HRC ≤66 HRC	●	Ⓢ	30 25	13 12	25 20	13 12
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000	○	Ⓢ	20	13	20	13
Cast iron	0.6010 EN-GJL-100, 0.6020 EN-GJL-200 0.6025 EN-GJL-250, 0.6035 EN-GJL-350	≤240 HB ≤350 HB	○	Ⓢ	85 80	16 16	80 75	16 16
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7, 0.8035 EN-GJMW-350-4 0.7070 EN-GJS-700-2, 0.8170 EN-GJMB-700-2	≤240 HB ≤350 HB	○	Ⓢ	75 70	16 16	70 65	16 16
Chilled cast iron	-	≤350 HB	○	Ⓢ	55	15	50	15
Ti and Ti-alloys	3.7024 Ti99.5, 3.7114 TiAl5Sn2.5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184	≤850 ≤1400	○	Ⓢ	35 30	13 12	30 25	13 12
Aluminium and Al-alloys	3.0255 Al99.5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400	○	Ⓢ	140	16	135	16
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 , 3.4365	≤650	○	Ⓢ	125	16	120	16
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600	○	Ⓢ	170	17	165	17
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600	○	Ⓢ	140	17	135	17
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05	≤400	○	Ⓢ	115	16	110	16
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500	○	Ⓢ	75	15	70	15
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410	≤600	○	Ⓢ	120	17	115	17
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0.5	≤600	○	Ⓢ	90	17	85	17
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 2.0790 CuNi18Zn19Pb	≤600 ≤850	○	Ⓢ	95 75	17 17	90 70	17 17
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 ≤1000	○	Ⓢ	70 60	17 17	65 55	17 17
Duroplastics	Bakelint, Resopal, Pertinax, Moltopren	≤150	○	Ⓢ	75	16	70	16
Thermoplastics	Plexiglas, Hostalen, Novodur, Makralon	≤100	○	Ⓢ	70	16	65	16
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6	≤220 HB ≤300 HB	○	Ⓢ				
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1000 ≤1400	○	Ⓢ				
Kevlar	GFK/CFK	≤1000	○	Ⓢ	60	15	55	15
Glass, carbon concentr. plastics	GFK/CFK	≤1000	○	Ⓢ	50	15	45	15

DRILLING

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