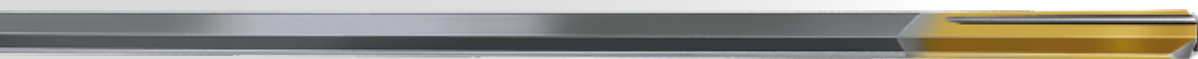




## Gun drills

Single- and two-fluted  
gun drills for highest precision



Chip – by Chip – to the Top

up to 850 N/mm<sup>2</sup>



optimal chip building  
general steel machining

## SuperT-N

carbide head  
chip breaker  
TiN-coating

over 800 - 1400 N/mm<sup>2</sup> (up to 50 HRc)



optimal tool life  
high tensile, stainless and acid-resistant steels

## SuperT-NX

carbide head  
without chip breaker  
TiCN-coating

Al-wrought alloys

Al-alloys

Al-cast-alloys



the optimal alternative to spiralized solid carbide drills  
for machining aluminium  
also for MQL

## SuperT-Al

solid carbide  
integrally made from solid carbide  
AlTiN nano-coating  
standard and special tool  
deeper than 75 x D in one step with one tool  
high feed rates (7% from d<sub>1</sub>)

grey cast iron

malleable iron

cast with vermicular graphite

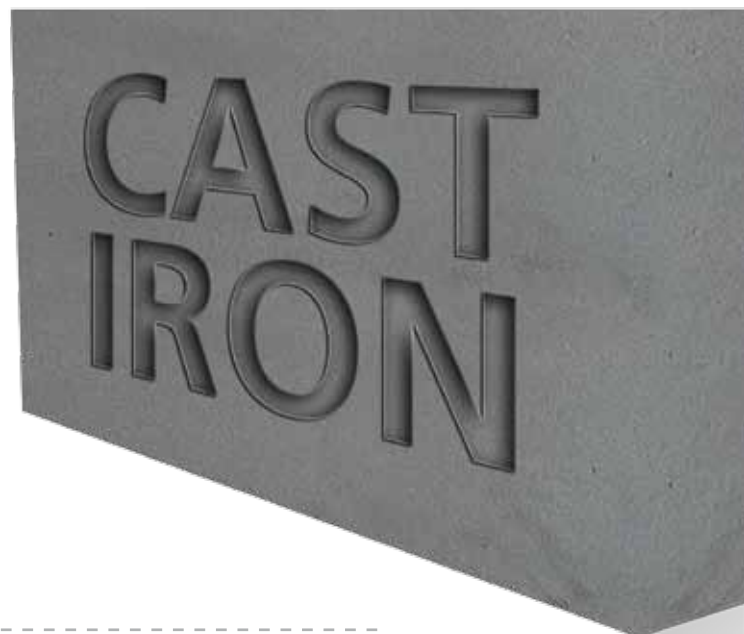
cast with ductile iron



high wear protection  
high feed rates  
total length up to 1200 mm possible

## SuperT-GG

carbide head  
two-fluted drill  
special point grind with radius



# Gun drills

## Tool overview

Type	Catalogue no.	Drilling depth/ flute length (mm)	Diameter range (mm)	Tool material	Standard	Surface finish
 SuperT-AL	55027	25 x D	1,000 - 12,000	Solid carbide	Stock std.	AlTiN nano
	55028	50 x D	1,000 - 8,000			
	55029	75 x D	1,000 - 6,000			
 SuperT-N	75018	20 x D	4,000 - 12,000	Carbide head	Stock std.	TiN
	75017	30 x D	4,000 - 12,000			
	75022	40 x D	4,000 - 12,000			
	75023	80 x D	4,950 - 11,950			
 SuperT-NX	55018	20 x D	3,970 - 12,700	Carbide head	Stock std.	TiCN
	55017	30 x D	3,970 - 12,700			
	55022	40 x D	3,970 - 12,700			
	55023	80 x D	4,950 - 12,650			
 TBE-STC	75024	45,00	1,200 - 3,200	Solid carbide	Stock std.	bright
	75020	80,00	1,200 - 5,000			
	75026	120,00	1,500 - 5,000			
	75021	160,00	1,500 - 8,000			
 TBE-STC	55024	45,00	2,000 - 3,200	Solid carbide	Stock std.	AlTiN+
	55020	80,00	2,000 - 5,000			
	55026	120,00	2,000 - 5,000			
	55021	160,00	2,000 - 8,000			
 SuperT-GG	75030	30 x D	8,000 - 12,000	Carbide head	Stock std.	bright

## Application by materials

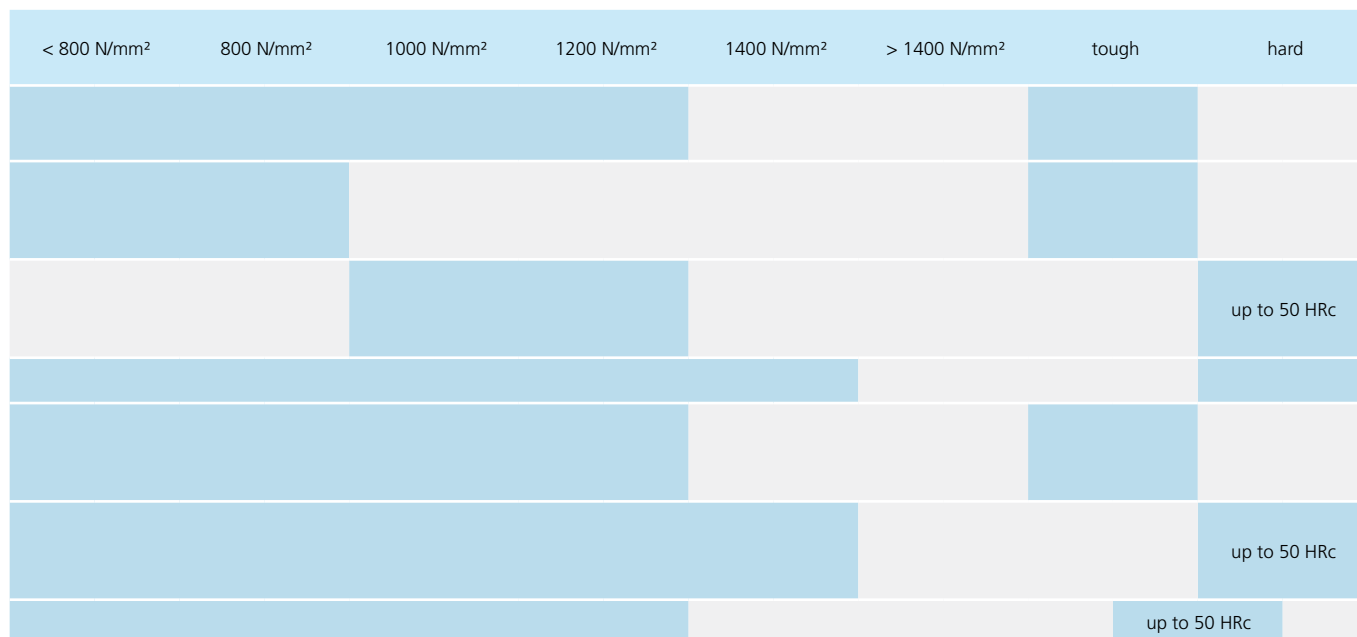
Type	Catalogue no.	Surface finish	Non-ferrous metals, Aluminium	Steels	Cast iron	Stainless and acid- resistant steels	Nickel, Titan- alloys	Hardened steels
SuperT-AL	55027 55028 55029	AlTiN nano				Pilot 71998 51776		
SuperT-N	75018 75023 75070 75022	TiN				Pilot 71998 51776		
SuperT-NX	55018 55023 55070 55022	TiCN		Pilot 51776		Pilot 51770		
SuperT-GG	75019	bright				Pilot 51776		
TBE-STC	75024 75020 75026 75021	bright			Pilot 51776 71998 51770			
TBE-STC	55024 55020 55026 55021	AlTiN+			Pilot 51776 71998			
TBE WP	special solutions							

# Gun drills

## Index

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Precision of single-fluted deep hole gun drills	22
Single-fluted gun drills with interchangeable insert TBE-WP	23

## by tensile strength



# Application recommendations for gun drills

		Feed column no.							
Code-Letter		K	L	M	N	O	P	Q	R
Drill Ø mm	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
	40.00	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.



Gun drills must be guided during spot-drilling.  
Gun drills must never operate at full speed without support in the machine shop.

Please consider the additional informations on page 9!

### Lubricants:

- cutting oil, highly activated, surface active lubricant with effective additives which chemically react and result in a special adhesive and abrasion reducing lubricant film.
- soluble oil (emulsion)
- without lubricant
- air only

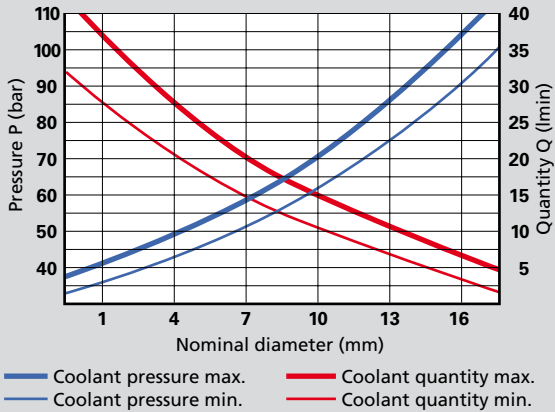
Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm <sup>2</sup> )	Hardness	Coolant
General purpose steels	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/>
Free-cutting steels	<b>1.0718</b> 11SMnPB30 (9SMnPB28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/>
Unalloyed tempering steels	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/>
Alloyed tempering steels	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Unalloyed case hardened steels	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Alloyed case hardened steels	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Nitriding steels	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≥850-≤1000 >1000-1200		<input checked="" type="checkbox"/>
Tool steels	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 850-1000		<input checked="" type="checkbox"/>
High speed steels	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>
Spring steels	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Stainless steels, sulphured	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9	≤850		<input checked="" type="checkbox"/>
austenitic	<b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A)	≤850		<input checked="" type="checkbox"/>
martensitic	<b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤850		<input checked="" type="checkbox"/>
Hardened steels	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/>
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Cast iron	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)		≤240 HB <300 HB	<input checked="" type="checkbox"/>
Spheroidal graphite iron and maleable cast iron	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMW-350-4(GTW35) <b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/>
Chilled cast iron	-		≤350 HB	<input checked="" type="checkbox"/>
Ti and Ti-alloys	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/>
Aluminium and Al-alloys	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>
Aluminium and Al-alloys	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al cast alloys ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		<input checked="" type="checkbox"/>
> 10 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input checked="" type="checkbox"/>
Magnesium alloys	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤450		<input checked="" type="checkbox"/>
Copper, low alloyed	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPB	≤400		<input checked="" type="checkbox"/>
Brass, short-chipping	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		<input checked="" type="checkbox"/>
long-chipping	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		<input checked="" type="checkbox"/>
Bronze, short-chipping	<b>2.1090</b> CuSn7ZnPB, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn <b>2.0790</b> CuNi18Zn19Pb	≤600 >600-850		<input checked="" type="checkbox"/>
Bronze, long-chipping	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/>
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	<input type="checkbox"/>
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	<input checked="" type="checkbox"/>
Kevlar	Kevlar		-	<input type="checkbox"/>
Glass/carbon-concentr. plastics	GFK/CFK		-	<input type="checkbox"/>



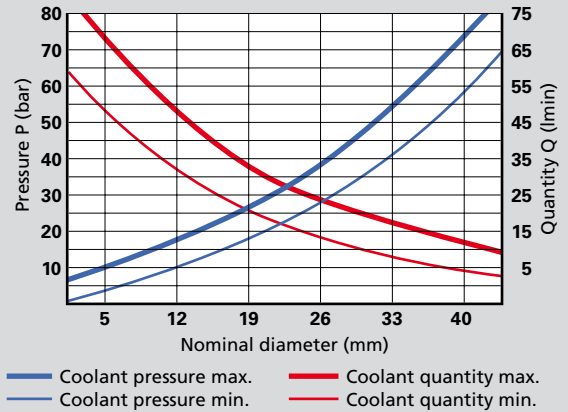
# Stock Gun drills

## Coolant values

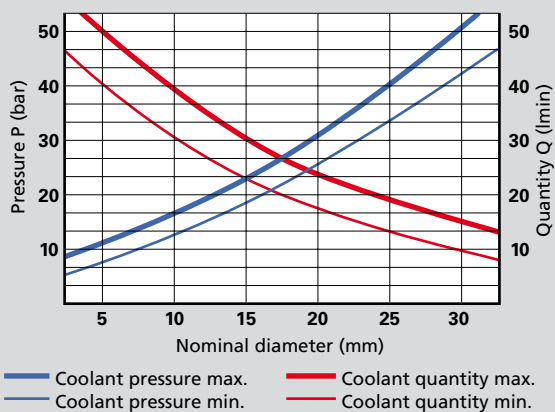
**Coolant values TBE-STC/SuperT-AI**  
(Recommended values for soluble oil)



**Coolant values SuperT-N/-NX**  
(Recommended values for soluble oil)



**Coolant values SuperT-GG**  
(Recommended values for soluble oil)

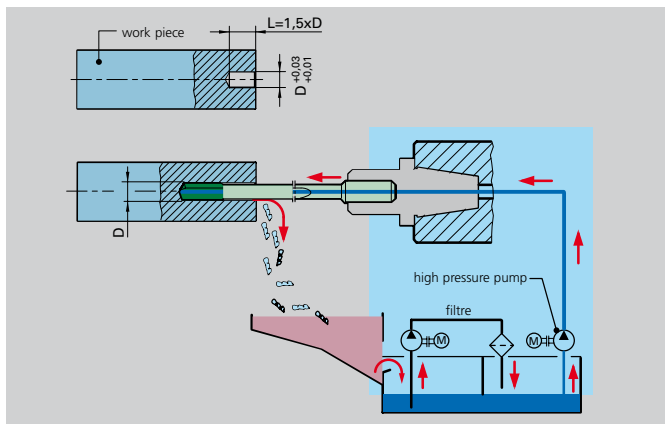


# Stock Gun drills

## The drilling process

### A brief introduction to the subject of deep hole gun drilling

In the machining world, drilling depths of  $10 \times D$  and deeper are regarded as deep hole drilling operations, whereby smaller drilling depths can naturally also be produced with gun drills. Advantage is taken of the positive side effects, as for example good surface quality, low deviation from concentricity and optimised alignment accuracy.



### Procedure

In order to achieve optimal machining results when producing deep holes especially spotting on radii or on an uneven surface structure, we recommend the following machining steps:

1. Initial milling of surface, i.e. with our centre cutting end mill SuperF-UT-N. The surface must be machined at right angles to the entry angle of the drilling operation.
2. Production of a cylindrical pilot hole (tolerance F9) with a minimum drilling depth of  $1 \times D$ . For this operation we recommend our SuperV drills respectively. Thanks to a  $140^\circ$  point angle and a m7 tolerance on diameter these drills are especially suitable for this machining task.
3. Entry of spiral-flute deep hole drill in the pilot hole at a speed of approx. 300 rev./min and with a feed rate of approx. 500 mm/min.
4. Setting of coolant pressure and speed.
5. Continuous drilling to complete hole depth without wood pecking.
6. For through holes with plain - i.e.  $90^\circ$  - exit, reduce feed rate  $v_f$  to 50 % approx. 1 mm prior to break-through.
7. For through holes with oblique exit, reduce the feed rate  $v_f$  to 40% approx. 1 mm prior to break-through.
8. After reaching hole depth stop machine spindle and coolant supply, withdrawal in top gear.

### The sequence of operations for deep hole drilling


- production of pilot hole ( $L = 1.5 \times D$ ), tolerance H8
  - enter at low revolutions, approx. 200 rev./min, feed rate approx. 500 mm/min
  - setting of coolant pressure and revolutions
  - uninterrupted drilling to required drilling depth without wood pecking.
- When applying gun drills with increased length-diameter-ratio (e.g. TBE-STC from flute length 160 mm), 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

Cutting parameters can be reduced if cooling parameters are insufficient. Pressure increase systems are also an option.



# Single-fluted gun drill with carbide head

## Type SuperT-N

Type	Catalogue no.	Drilling depth	Diameter range (mm)	Tool material	Standard	Surface finish
 SuperT-N with chip breaker	75018	20 x D	4.000 - 12.000	carbide head	Stock std.	TiN
	75017	30 x D	4.000 - 12.000			
	75022	40 x D	4.000 - 12.000			
	75023	80 x D	4.950 - 11.950			

## Recommendation

Feed column no.					
Code-letter	L	M	N		
Tool- $\Phi$ mm	4.00	0.007	0.010	0.016	f (mm/rev)
	6.00	0.009	0.013	0.024	
	8.00	0.014	0.022	0.032	
	10.00	0.016	0.028	0.040	
	14.00	0.025	0.035	0.050	

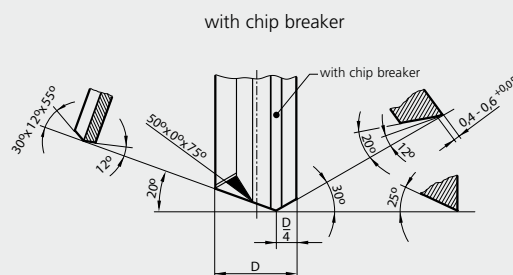
Material group	Tensile strength MPa (N/mm <sup>2</sup> )	Coolant
Common structural steels	≤500	■
	>500-850	■
Free-cutting steels	≤850	■
	850-1000	■
Unalloyed heat-treatable steels	≤700	■
	700-850	■
	850-1000	■
Alloyed heat-treatable steels	850-≤1000	■
	1000-1200	■
Unalloyed case hardened steels	≤750	■
Alloyed case hardened steels	850-≤1000	■
	1000-1200	■

$\leq 35 \times D$ 
 $> 35 \times D$

$v_c$ m/min	Feed col. no.
100	N
85	N
90	N
80	N
90	M
80	M
75	M
75	M
65	M
80	N
75	M
65	M

$v_c$ m/min	Feed col. no.
95	M
80	M
85	M
75	M
85	L
75	L
70	L
70	L
60	L
75	M
70	L
60	L

**Standard point grinds** (special point grinds possible, examples see page 21)



# Questionnaire

## Type SuperT-N

 Enquiry

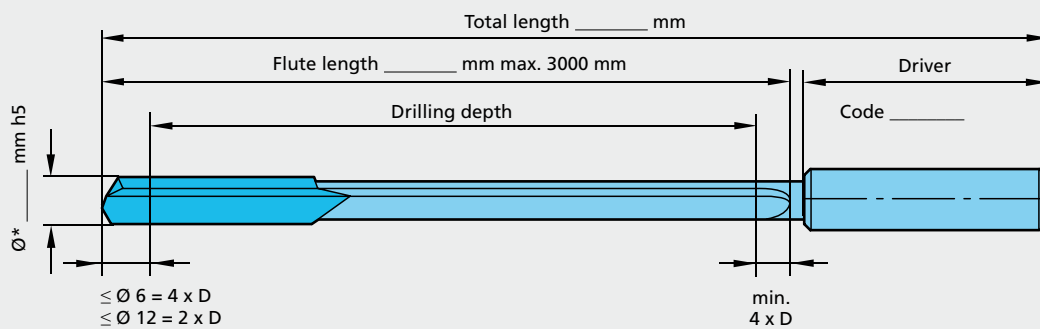
 Order

Quantity \_\_\_\_\_ pieces

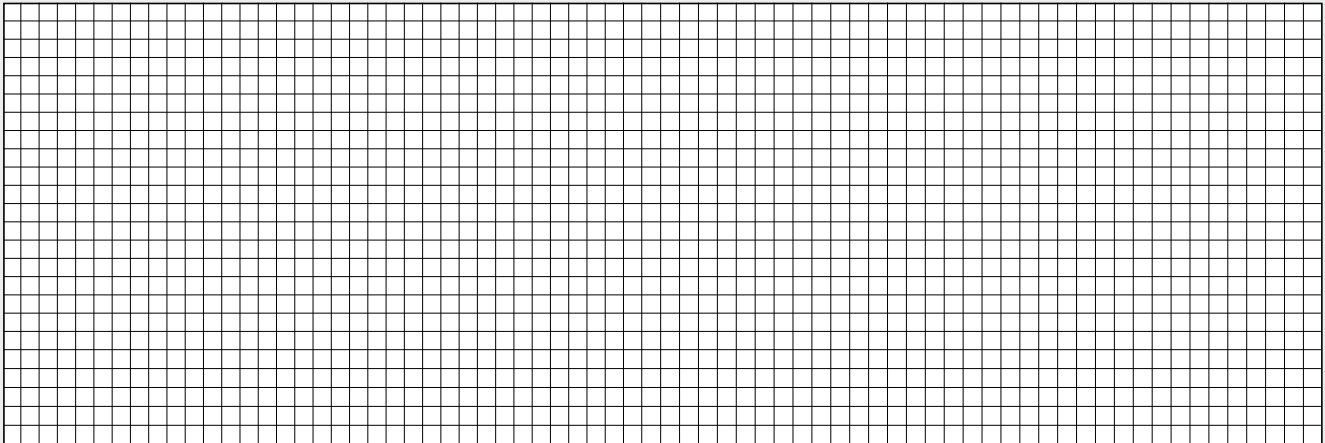
Bore tolerance \_\_\_\_\_



Max. flute length of each tool 40xD,  
for deeper drilling depths please use  
catalogue no. 75022 as first tool!



### Drawing of lay-out



required in special cases only

Company: \_\_\_\_\_

Company stamp: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Customer no. \_\_\_\_\_

Contact: \_\_\_\_\_

Signature: \_\_\_\_\_


**R. Stock AG**  
Precision cutting tools  
Lengeder Straße 29-35  
13407 Berlin • Germany

Phone +49 30 40903-33 300  
Fax +49 30 40903-33 324

eMail sales@stock.de  
[www.stock.de](http://www.stock.de)

# Single-fluted gun drill with carbide head

## Type SuperT-NX

Type	Catalogue no.	Drilling depth	Diameter range (mm)	Tool material	Standard	Surface finish
	55018	20 x D	3.970 - 12.700	carbide head	Stock std.	TiCN
	55017	30 x D	3.970 - 12.700			
	55022	40 x D	3.970 - 12.700			
	55023	80 x D	4.950 - 12.650			

## Recommendation

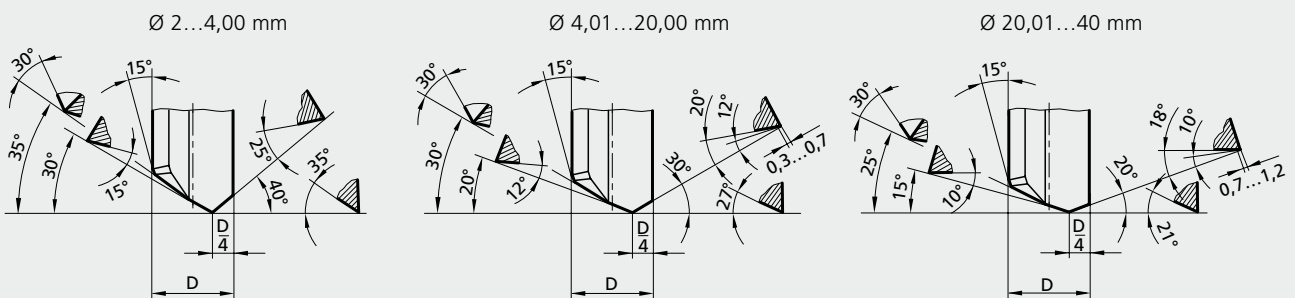
Feed column no.					
Code-letter	K	L	M	N	
Tool- $\varnothing$ mm	4.00	0.005	0.007	0.010	0.016
	6.00	0.007	0.009	0.013	0.024
	8.00	0.010	0.014	0.022	0.032
	10.00	0.012	0.016	0.028	0.040
	14.00	0.020	0.025	0.035	0.050

f (mm/rev)

Material group	Tensile strength MPa (N/mm <sup>2</sup> )	Hardness	Coolant
Nitrided steels	≥850-≤1000		■
	>1000-1200		■
Tool steels	≤850		■
	>850-1000		■
High speed steels	≥650-1000		■
Spring steels		≤330 HB	■
Stainless steels, sulphured	≤850		■
austenitic	≤850		■
martensitic	≤850		■
Hardened steels		≤40-48 HRC	■
		>48-60 HRC	■
Spacial alloys	≤1200		■
Ti and Ti-alloys	≤850		■
	>850-1200		■
Copper, low alloyed	≤400		■

≤35xD		>35xD	
V <sub>c</sub> m/min	Feed col. no.	V <sub>c</sub> m/min	Feed col. no.
75	M	70	L
65	M	60	L
75	L	70	K
65	L	60	K
55	K	50	K
65	L	60	L
55	M	50	L
45	M	40	L
35	M	35	L
30	L	25	K
25	K	20	K
35	K	30	K
35	K	30	K
30	K	25	K
75	N	70	M

Standard point grinds (special point grinds possible, examples see page 21)



# Questionnaire

## Type SuperT-NX

 Enquiry

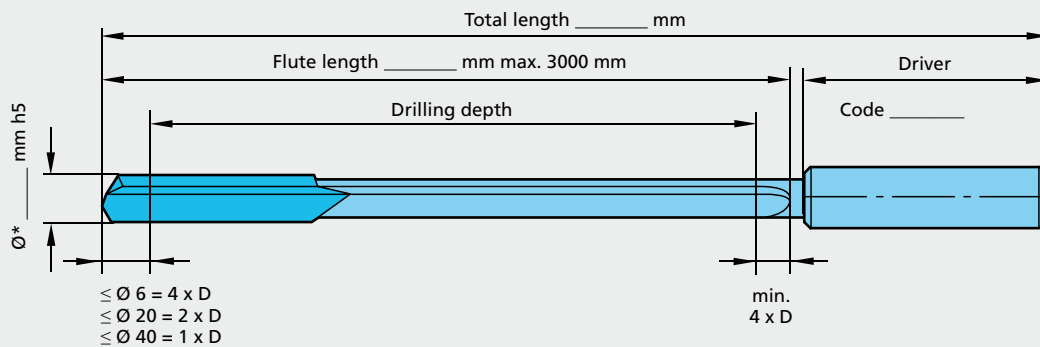
 Order

Quantity \_\_\_\_\_ pieces

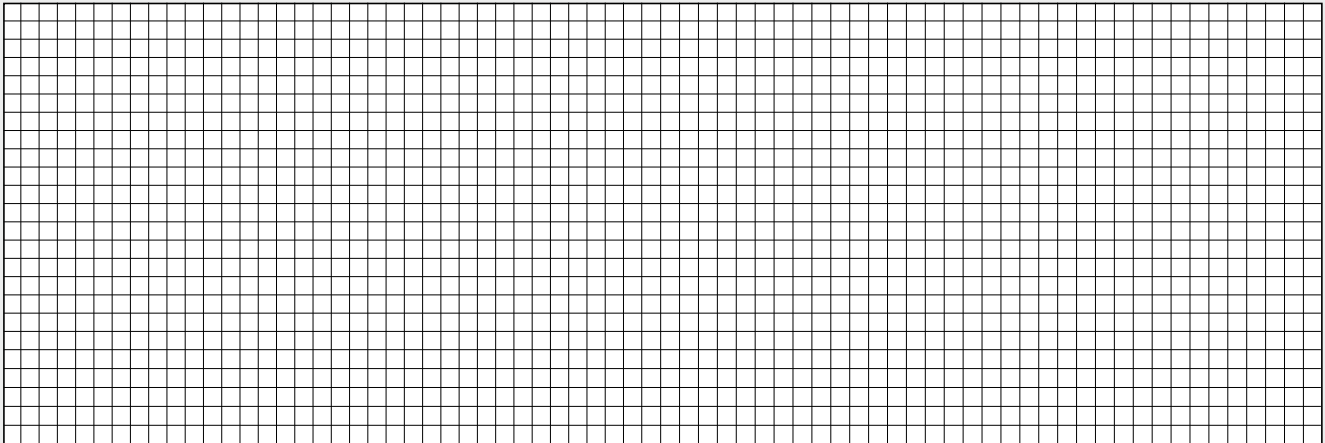
Bore tolerance \_\_\_\_\_



Max. flute length of each tool 40xD,  
for deeper drilling depths please use  
catalogue no. 55022 as first tool!



### Drawing of lay-out



required in special cases only

Company: \_\_\_\_\_

Company stamp: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Customer no. \_\_\_\_\_

Contact: \_\_\_\_\_

Signature: \_\_\_\_\_


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# Solid carbide single-fluted gun drill

## Type SuperT-AL

Type	Catalogue no.	Drilling depth	Diameter range (mm)	Tool material	Standard	Surface finish
 SuperT-AL	55027	25 x D	1.000 - 12.000	Solid carbide	Stock std.	AlTiN nano
	55028	50 x D	1.000 - 8.000			
	55029	75 x D	1.000 - 6.000			

## Recommendation

Feed column no.						
Code-letter	K	L	M	N	O	Feed f (mm/rev)
4.00	0.005	0.007	0.010	0.016	0.025	
6.00	0.007	0.009	0.013	0.024	0.035	
8.00	0.010	0.014	0.022	0.032	0.045	
10.00	0.012	0.016	0.028	0.040	0.055	
14.00	0.020	0.025	0.035	0.050	0.065	

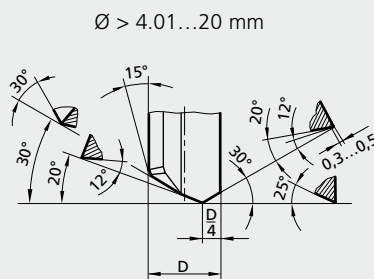
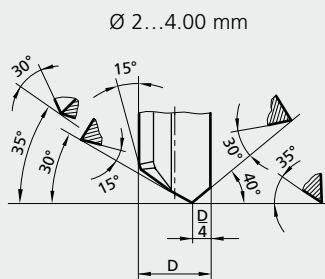
Material group	Tensile strength MPa (N/mm <sup>2</sup> )	Hardness	Coolant
Alloyed heat-treatable steels	850-≤1000 1000-1200		■
Unalloyed case hardened steels	≤750		■
Nitrided steels	≥850-≤1000 >1000-1200		■ ■
Tool steels	≤850 >850-1000		■ ■
High speed steels	≥650-1000		■ ■
Spring steels		≤330 HB	■ ■
Stainless steels, sulphured	≤850		■
austenitic	≤850		■
martensitic	≤850		■
Ti and Ti-alloys	≤850 >850-1200		■
Copper, low alloyed	≤400		■ ■

≤35xD      >35xD

v <sub>c</sub> m/min	Feed col. no.	v <sub>c</sub> m/min	Feed col. no.
75	N	70	M
65	N	60	M
80	O	75	N
75	N	70	M
65	N	60	M
75	M	70	L
65	M	60	L
55	L	50	K
65	M	60	L
55	N	50	M
45	N	40	M
35	N	35	M
35	L	30	K
30	L	25	K
75	O	70	N

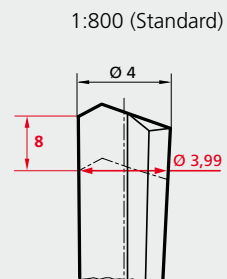
### Standard point grinds

(special point grinds available)



### Back taper ratio

(dimensions in mm)



# Questionnaire

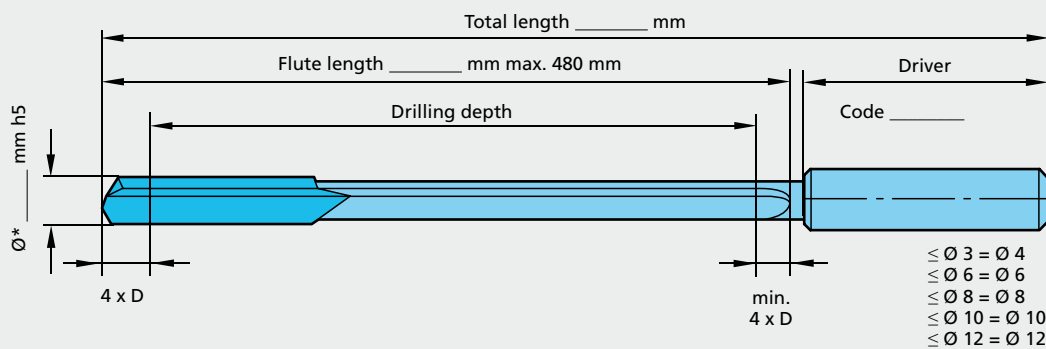
## Type SuperT-AL

 Enquiry

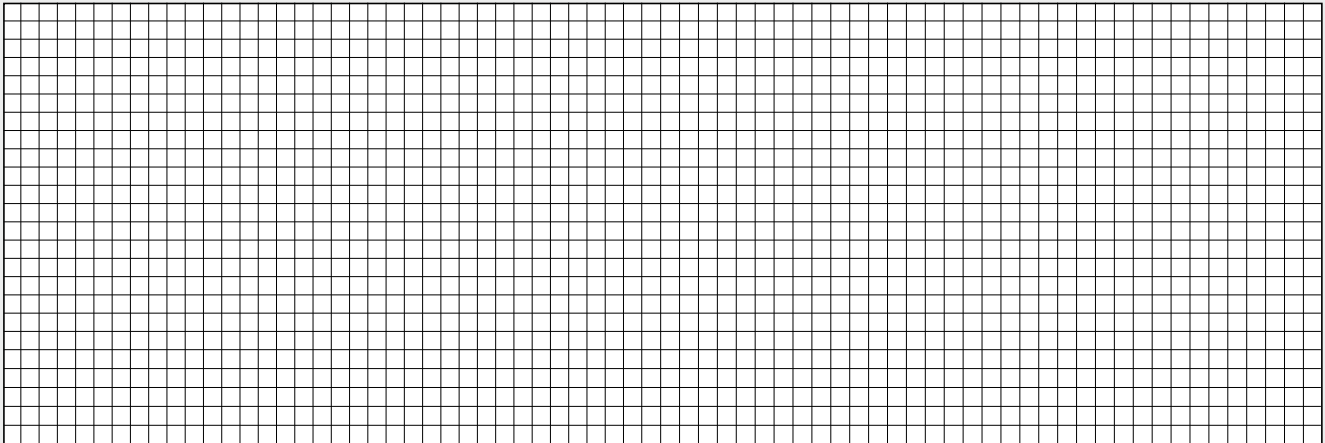
 Order

Quantity \_\_\_\_\_ pieces

Bore tolerance \_\_\_\_\_



### Drawing of lay-out



required in special cases only

Company: \_\_\_\_\_

Company stamp: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Customer no. \_\_\_\_\_

Contact: \_\_\_\_\_

Signature: \_\_\_\_\_

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 13407 Berlin • Germany

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 Fax +49 30 40903-33 324

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# Two-fluted gun drills with carbide head

## Type SuperT-GG

Type	Catalogue no.	Drilling depth	Diameter range (mm)	Tool material	Standard	Surface finish
SuperT-GG	75030	30 x D	8.000 - 12.000	carbide head	Stock std.	bright

## Recommendation

Feed column no.			
Code-letter	P	Q	R
4.00	0.043	0.065	0.085
6.00	0.061	0.085	0.120
8.00	0.068	0.100	0.150
10.00	0.075	0.120	0.160
14.00	0.085	0.130	0.180

Tool- $\Phi$  mm (left), Feed f (mm/rev) (right)

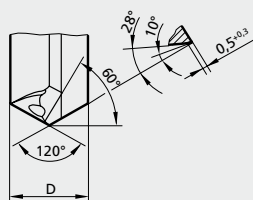
Material group	Tensile strength MPa (N/mm <sup>2</sup> )	Hardness	Coolant
Cast iron		≤240 HB <300 HB	■ □
Spheroidal graphite iron and maleable cast iron		≤240 HB <300 HB	■
Chilled cast iron		≤350 HB	■
Aluminium and Al-alloys	≤400		■
Al wrought alloys	≤450		■
Al cast alloy ≤ 10 % Si	≤600		■
> 10 % Si	≤600		■
Brass, short-chipping	≤600		■ ■
long-chipping	≤600		■ ■
Bronze, short-chipping	≤600		■ ■
	>600-850		■ ■
Bronze, long-chipping	≤850		■
	>850-1000		■

≤35xD		>35xD	
v <sub>c</sub> m/min	Feed col. no.	v <sub>c</sub> m/min	Feed col. no.
85	R	80	Q
80	R	75	Q
75	Q	70	P
70	Q	65	P
65	P	60	O
120	R	115	Q
110	R	105	Q
135	R	130	Q
120	Q	115	P
130	R	125	Q
120	R	115	Q
110	Q	105	P
110	Q	105	P
95	Q	90	P
95	Q	90	P

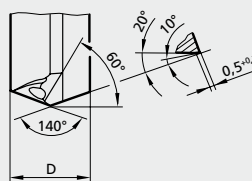
### Standard point grinds

(special point grinds possible)

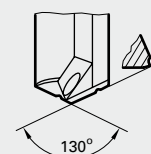
Point grind G for machining cast iron



Point grind A for machining aluminium



Point grind with chip breaker and chip splitter







# Questionnaire

## Type TBE-STC

 Enquiry

 Order

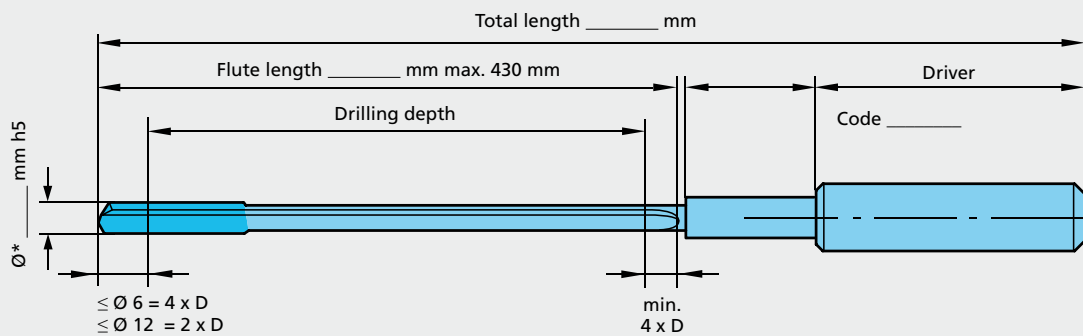
Quantity \_\_\_\_\_ pieces

Bore tolerance \_\_\_\_\_

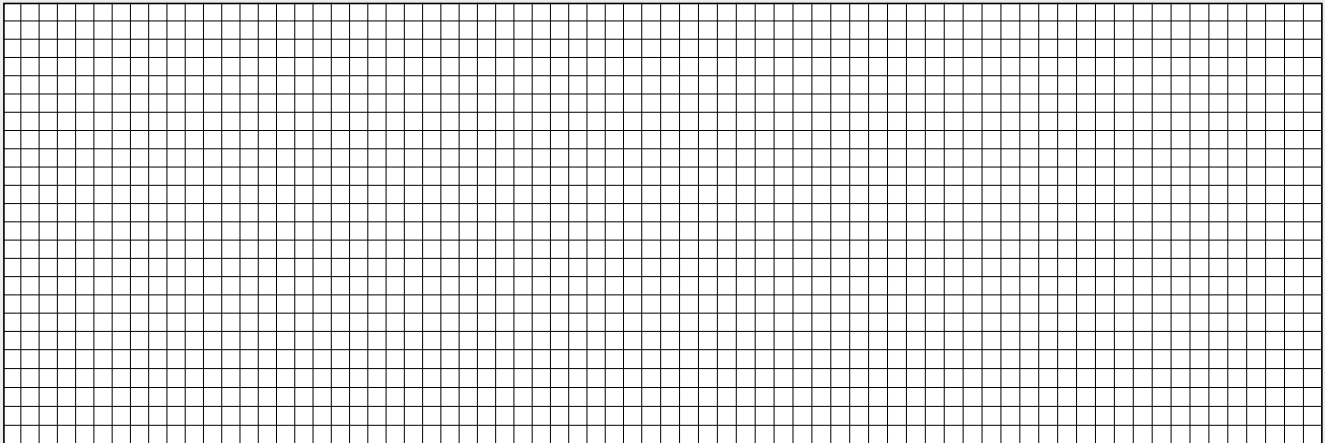


Coating:

- bright for Ni- and Ti-alloys
- AlTiN+ for steel, cast iron and stainl./ acid-resist. and hardened steels up to 1400 N/mm<sup>2</sup> (50 HRC)



### Drawing of lay-out



required in special cases only

Company: \_\_\_\_\_

Company stamp: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

Customer no. \_\_\_\_\_

Contact: \_\_\_\_\_

Signature: \_\_\_\_\_

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# Drivers and accessories

The range of drivers introduced below is available ex stock. However, it only represents a small selection of drivers from our complete range. We naturally also produce individual drivers of the highest precision according to customer drawings.

**Attention! TBE-STC** requires drivers with positioning lugs. Further information on request.

## Drivers for deep drilling machines

Code	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>
1.1	10	40	24	-
1.2	10	40	24	45
1.3	10	40	24	55
1.4	16	45	31,2	-
1.5	25	70	34	-
1.6	25	70	34	78

Code	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>
2.1	16	50	47	-
2.2	16	50	47	55
2.3	16	50	47	70

Code	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>
3.1	25	70	34	100

Code	d <sub>1</sub>	l <sub>1</sub>
4.1	19,05	70

Code	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>
5.1	10	60	20
5.2	16	80	28
5.3	25	100	50

Code	d <sub>1</sub> (inch)	l <sub>1</sub>
6.1	1/2	38
6.2	3/4	70

Code	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>
7.1	16	112	73
7.2	20	126	82

## Drivers to DIN 1835

9 Form E

Code	d <sub>1</sub>	l <sub>1</sub>
9.1	8	36
9.2	10	40
9.3	12	45
9.4	16	48
9.5	20	50
9.6	25	56
9.7	32	60

## Drivers to VDI draft

12

Code	d <sub>1</sub>	l <sub>1</sub>
12.1	10	68
12.2	16	90
12.3	25	112

## Drivers to Speed-Bit-System

13

Code	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>
13.1	16	40	16
13.2	25	50	25

## Drivers to DIN 6535

10 Form HA

Code	d <sub>1</sub>	l <sub>1</sub>
10.1	8	40
10.2	10	40
10.3	12	45
10.4	16	48
10.5	20	50
10.6	25	56
10.7	32	60

8

8.6, 8.7, 8.8

Code	d <sub>1</sub>	l <sub>1</sub>
8.1	8	36
8.2	10	40
8.3	12	45
8.4	16	48
8.5	20	50
8.6	25	56
8.7	32	60
8.8	40	70

11 Form HE

Code	d <sub>1</sub>	l <sub>1</sub>
11.1	8	36
11.2	10	40
11.3	12	45
11.4	16	48
11.5	20	50



### Accessories for deep hole drilling machines

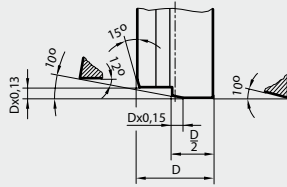
In contrast to conventional machine tools, certain accessories, i.e. drilling bushes, seal discs, steady rest bushings etc., are part of the standard equipment on deep hole drilling machines. Because of the multitude of accessories currently available, it is

impossible to list tables with dimensions for each item in this brochure. However, we can supply most of products generally applied on request (with drawing if possible).

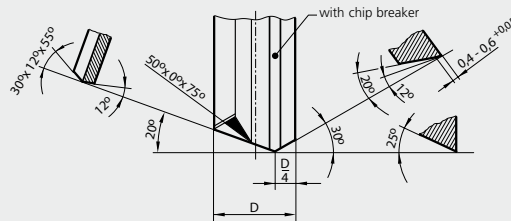
# Additional technical parameters

## Special point grinds for single-fluted gun drills

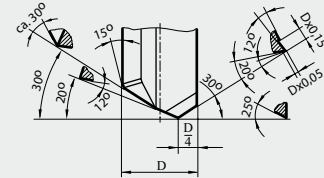
with recessed coolant chamber



with chip breaker



with chip guiding step



## Head forms

(position of supporting strips)

**Standard design**

**G** Suitable for all materials, but for smaller hole tolerances

**C** Suitable for difficult-to-machine materials, i.e. high-alloyed steels

Supporting strip

**Special designs**

**E** Suitable for all materials, but for larger hole tolerances

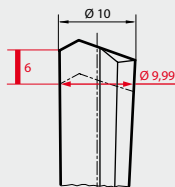
**A** Suitable for all materials, but only when spotting conditions are unfavourable

**D** This design is predominantly suitable for grey cast iron

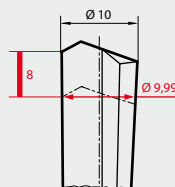
## Backtaper ratio for gun drills

(dimensions in mm)

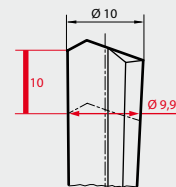
1:600



1:800 (Standard)

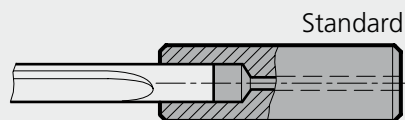


1:1000

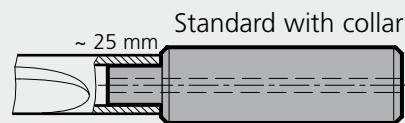


## Variations for drivers at gun drills with tube shank

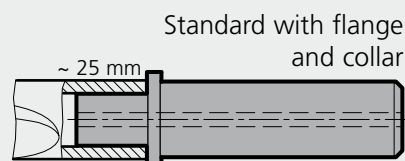
Solution for  $\text{nom.-}\varnothing < \text{driver-}\varnothing$   
(difference must be appr. 6 mm):  
tube shank installed in driver



Solution for  $\text{nom.-}\varnothing - \text{driver-}\varnothing$   
(close to parallel):  
tube shank installed over collar



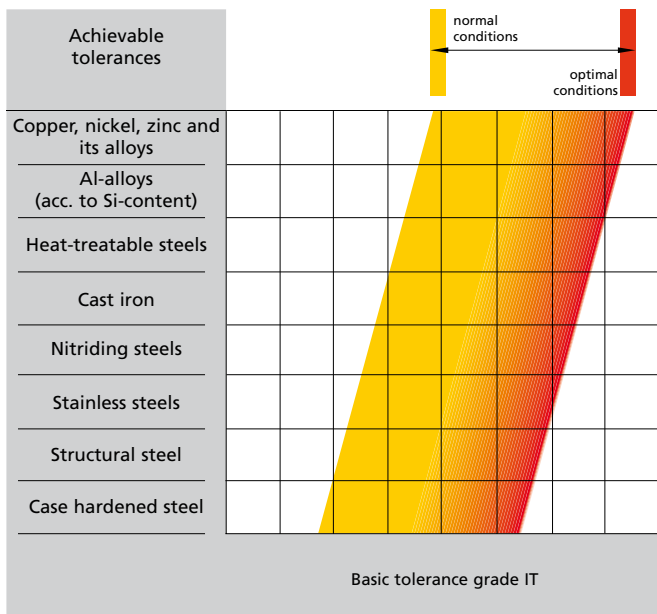
Solution for  $\text{nom.-}\varnothing > \text{driver-}\varnothing$ :  
tube shank installed over collar,  
inside- $\varnothing$  of tube shank  $>$  driver- $\varnothing$ ,  
tube shank fits against flange shoulder.



# Precision of single-fluted deep hole gun drills

## Basic tolerance

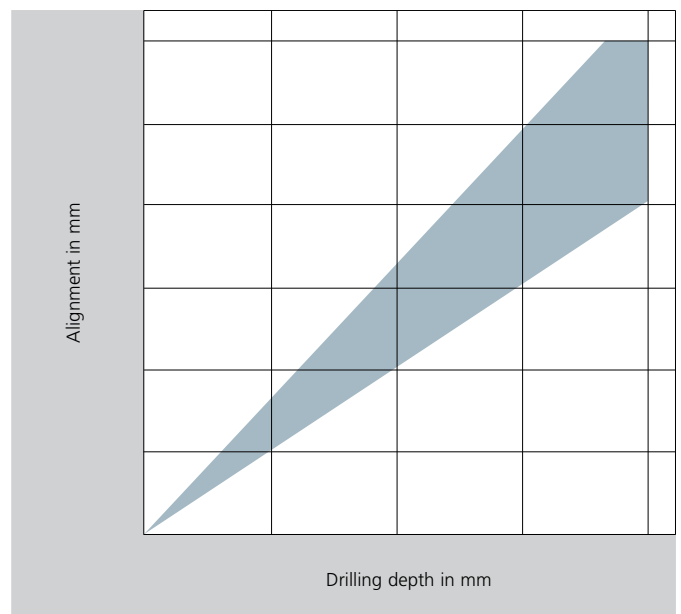
The application of single-fluted gun drills can achieve a lower basic tolerance, as the cutting forces at the cutting edge are absorbed by the supporting strips, unlike twist drills where the slightest deviation of the two cutting edges causes a larger hole.



## Alignment accuracy

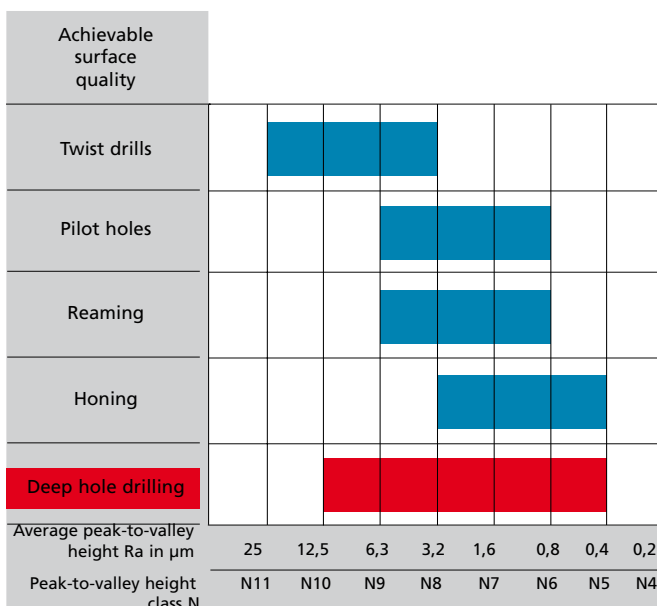
Because brazed single-fluted gun drills always have the precision carbide head brazed on to a flexible tube, the tool achieves very accurate aligned holes remaining unaffected by possible concentricity errors.

However, extreme material fluctuations and other influencing factors can impair the alignment accuracy.



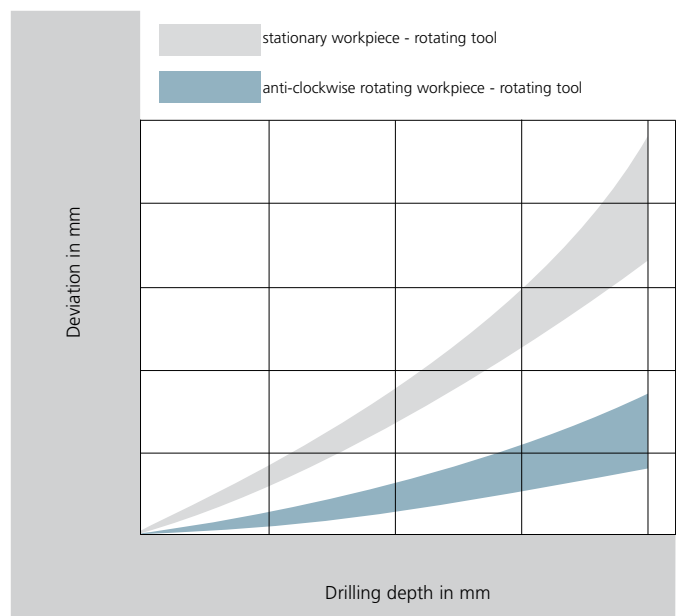
## Surface quality

The forces at the cutting edge are absorbed by the support bushes, which in return burnishes the surface. Lubrication between the supporting strips and hole surface is therefore very important. The better the lubricant, the better the surface quality.



## Deviation from concentricity

When a hole is produced with for example, a commercial twist drill, the quality of the point grind affects the concentricity of the hole. An imbalance of forces is created at the cutting edges. With gun drills, these cutting forces are absorbed by the supporting strips, resulting in excellent concentricity.

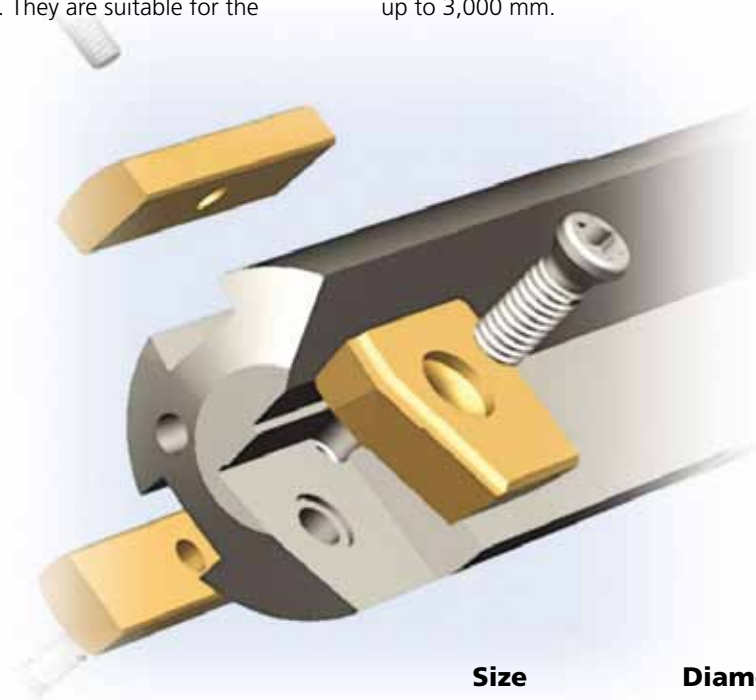


# Single-fluted gun drills with interchangeable inserts

## Type TBE-WP

Stock single-fluted gun drills with interchangeable inserts and supporting strips are solely available as special tools for customers specific applications. They are suitable for the

machining of nearly every material and can be manufactured from diameter 16.0 mm to 40.0 mm with maximum total length up to 3,000 mm.



The 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 out of a special carbide for your individual deep drilling task. They can be reverse-fitted, providing double tool life.
- Thanks to the precision insert seatings and the interchangeable inserts there is only a small number of inter-changeable 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 inter-changeable 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 made out of a special carbide grade.
- 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 HB
  - DIN 6535 HE
  - DIN 1835 E

Also, all the forms which are generally required for deep drilling machines are possible to be manufactured.

Size	Diameter range (mm)
1.00	16.00 - 16.49
1.01	16.50 - 16.99
1.02	17.00 - 17.49
1.03	17.50 - 17.99
1.04	18.00 - 18.49
1.05	18.50 - 18.99
1.06	19.00 - 19.49
1.07	19.50 - 19.99
2.00	20.00 - 20.49
2.01	20.50 - 20.99
2.02	21.00 - 21.49
2.03	21.50 - 21.99
2.04	22.00 - 22.49
2.05	22.50 - 22.99
2.06	23.00 - 23.49
2.07	23.50 - 23.99
2.08	24.00 - 24.49
2.09	24.50 - 24.99
2.10	25.00 - 25.49
2.11	25.50 - 25.99
3.00	26.00 - 26.49
3.01	26.50 - 26.99
3.02	27.00 - 27.49
3.03	27.50 - 27.99
3.04	28.00 - 28.49
3.05	28.50 - 28.99
3.06	29.00 - 29.49
3.07	29.50 - 29.99
4.00	30.00 - 30.49
4.01	30.50 - 30.99
4.02	31.00 - 31.49
4.03	31.50 - 31.99
4.04	32.00 - 32.49
4.05	32.50 - 32.99
4.06	33.00 - 33.49
4.07	33.50 - 33.99
5.00	34.00 - 34.49
5.01	34.50 - 34.99
5.02	35.00 - 35.49
5.03	35.50 - 35.99
5.04	36.00 - 36.49
5.05	36.50 - 36.99
5.06	37.00 - 37.49
5.07	37.50 - 37.99
6.00	38.00 - 38.49
6.01	38.50 - 38.99
6.02	39.00 - 39.49
6.03	39.50 - 40.00

Every tool can be altered within its diameter range



## Our Program

### Products

- | Twist Drills
- | Taps
- | Milling Cutters
- | Reamers
- | Countersinks & -bores
- | Chamfering Tools
- | Special HSS and Carbide Tools  
(to your specifications, or our solutions)

### Services

- | Regrinding
- | Modifications
- | Recoating
- | Paid labour coating
- | Coating removal
- | Technical assistance
- | Intelligent Tool Depot Systems

Your local contact:

**R. Stock AG**  
**Precision Cutting Tools**  
Lengeder Straße 29-35  
13407 Berlin • Germany

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Fax               +49 30 40903-33 324  
eMail            sales@stock.de

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