



Precision deep hole drilling system solid carbide tools.

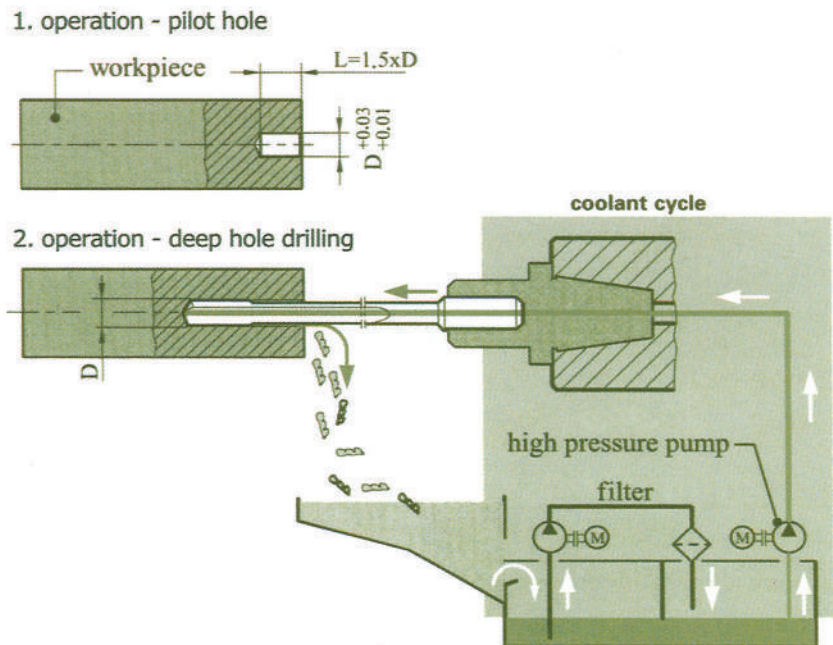
www.sxkhindia.com



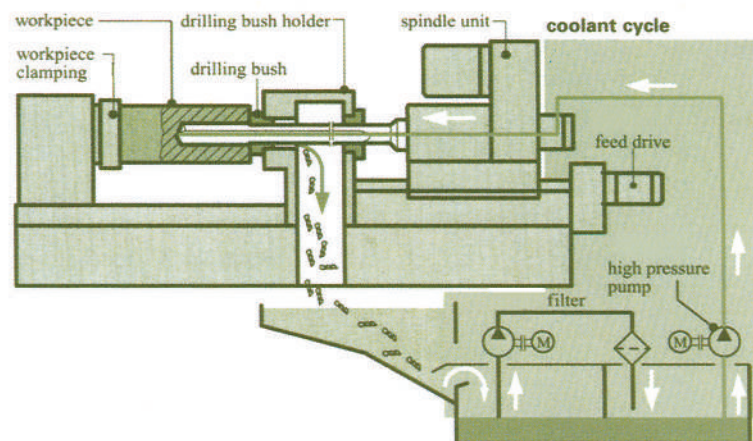


Machine application

Deep hole drilling on conventional machine tools



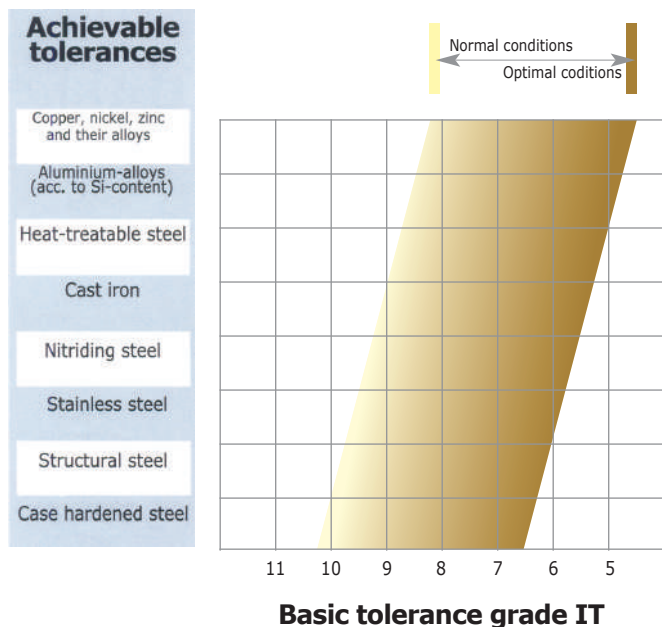
Deep hole drilling on deep hole drilling machine



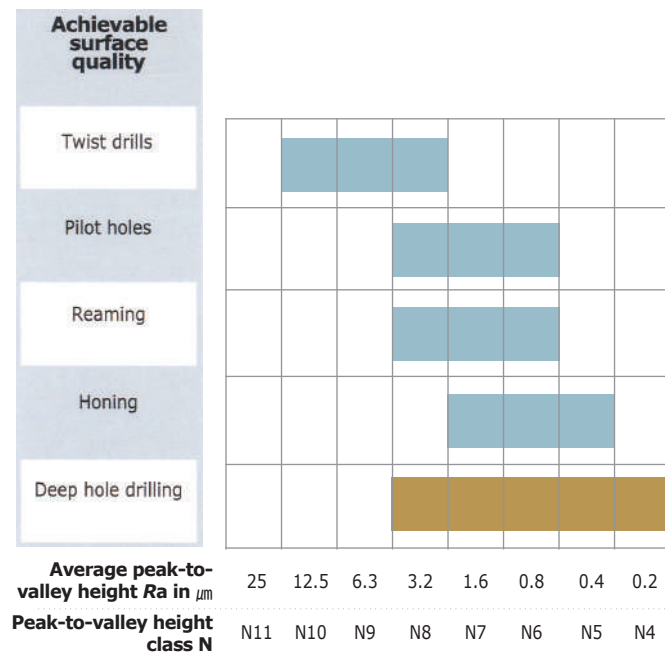


Precision of single-fluted deep hole gun drills

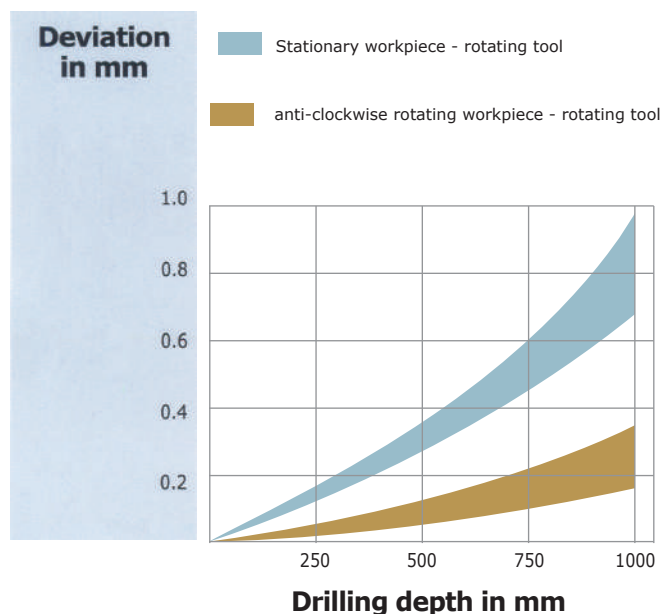
Basic tolerances



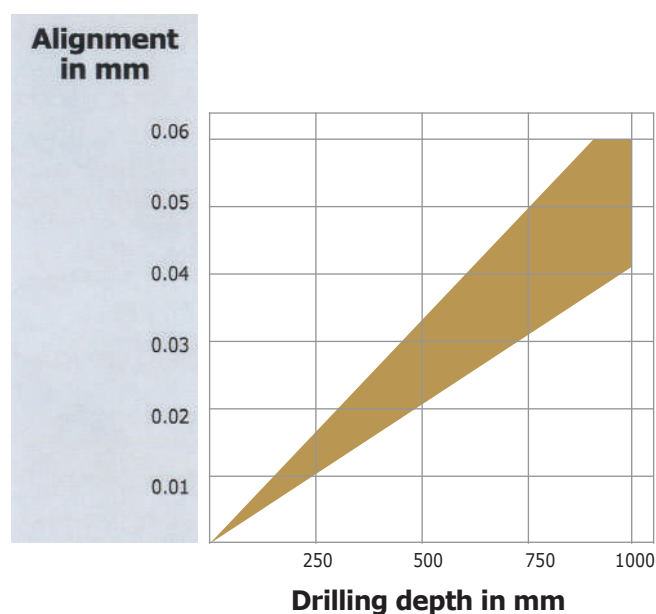
Surface quality



Deviation form concentricity



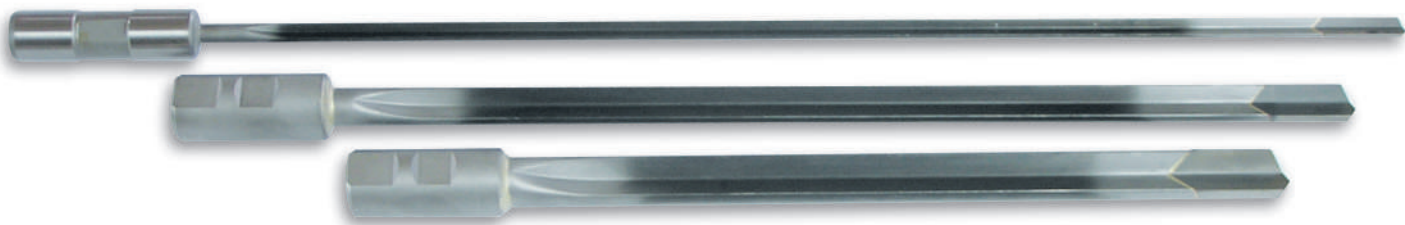
Alignment accuracy





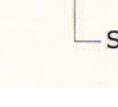
Single-fluted gun drill with solid carbide head

suitable for almost every material, from $\varnothing 2-40.0\text{mm}$,
max. total length 3000mm

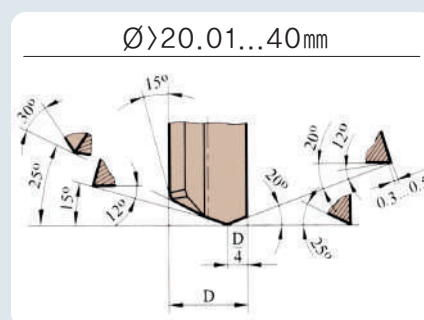
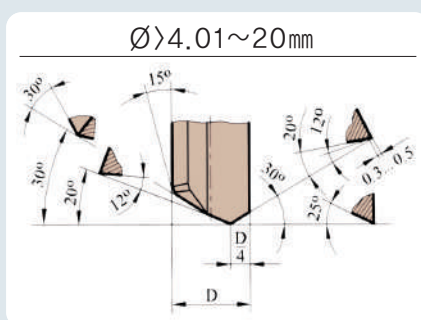
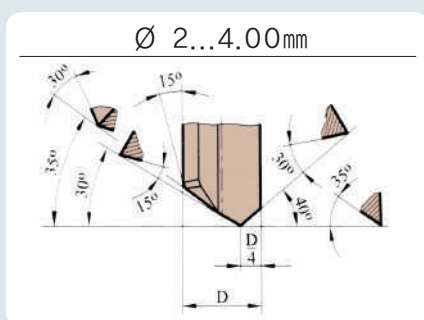


Drilling depth more than
 $10 \times D$
High drilling performance
Precision roundness &

Coating Available !
TiN, TiCN, TiAlN – 코팅가능

	Standard designs	Special designs
Head forms (position of supporting pad)	 Suitable for all materials, but for smaller hole tolerances	 Suitable for all materials, but for smaller hole tolerances
	 Suitable for difficult-to-machine materials, i.e. high-alloyed steels	 Suitable for all materials, but only when supporting conditions are unfavourable
	 Supporting pad	 This design is predominantly suitable for grey cast iron

Standard point grinds (special point grinds available)





Cutting data for single-fluted gun drill

Cutting speed

Cutting parameters

Al-alloys
(acc. to Si-content)

Structural and free
cutting steels

Heat-treatable steels

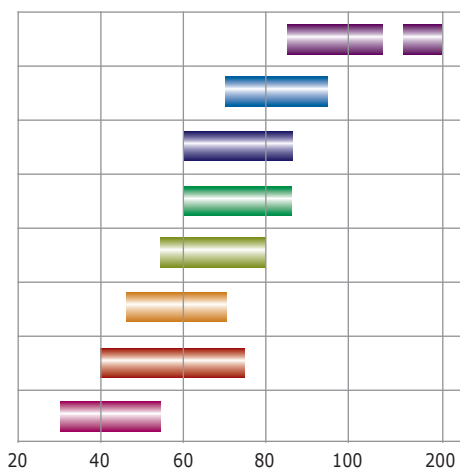
Cast iron
GGG, GGL, GTS, GTW

Case hardened steels

Nitriding steels

Stainless steels

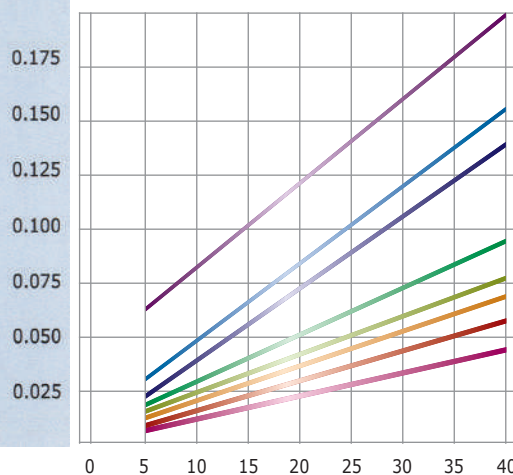
High temperature
Ni-Co-Fe-based alloys



Cutting speed v_c m/min

Feed rate

Feed rate f in mm tour



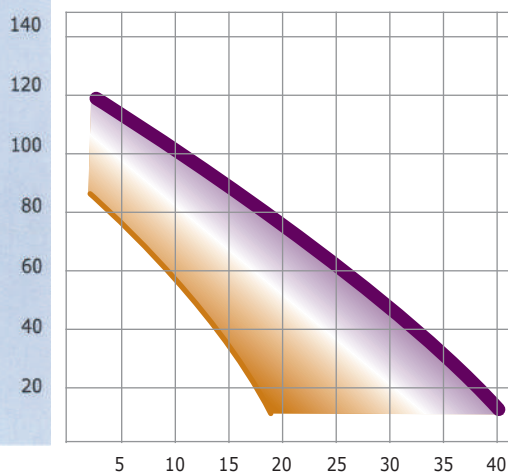
Tool diameter(mm)

Lubricant pressure

Pressure p in bar

Oil

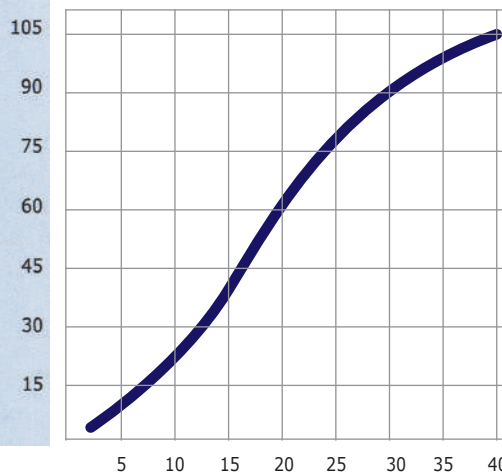
Soluble Oil



Tool diameter(mm)

Lubricant volume

Volume of flow Q in l/min



Tool diameter(mm)



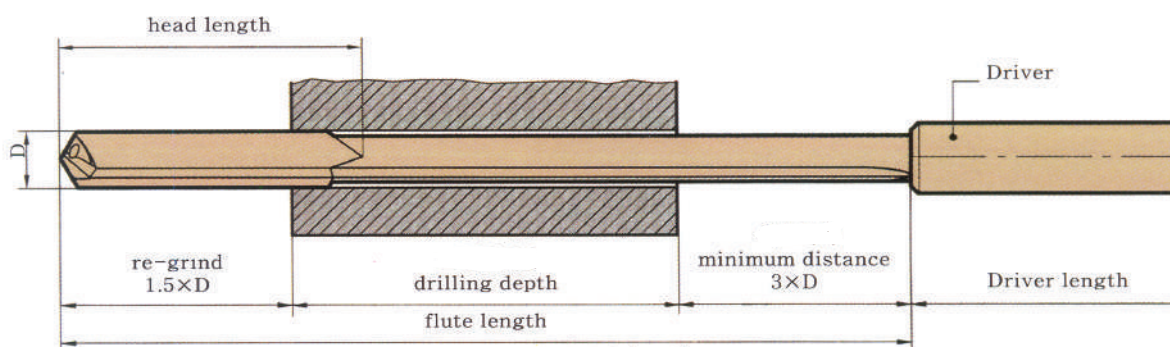
Two-fluted gun drill with solid carbide head

suitable for cast iron, aluminium and short-chipping non-ferrous metals,
from $\varnothing$ 6.0-27.0 mm, max. total length 1000 mm



● Two Cutting Edges & Two Flutes.

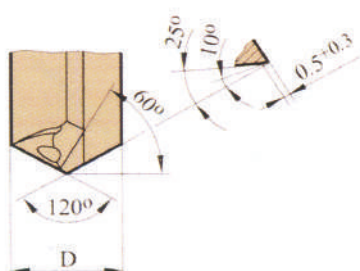
● Faster Production of Hole.



Standard point grinds (special point grinds available)

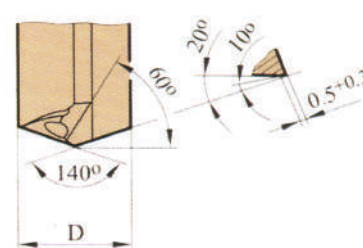
Point grind for
machining cast
iron

주물용



Point grind for
machining
aluminium

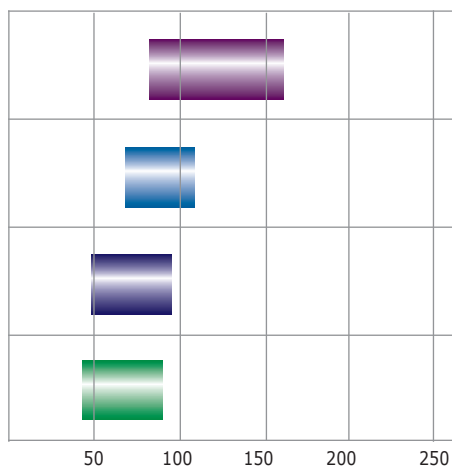
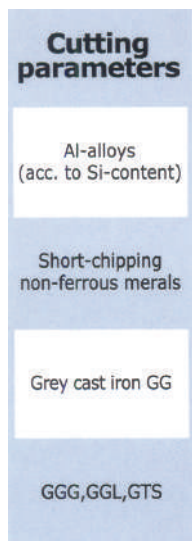
알루미늄용





Cutting data for two-fluted gun drill

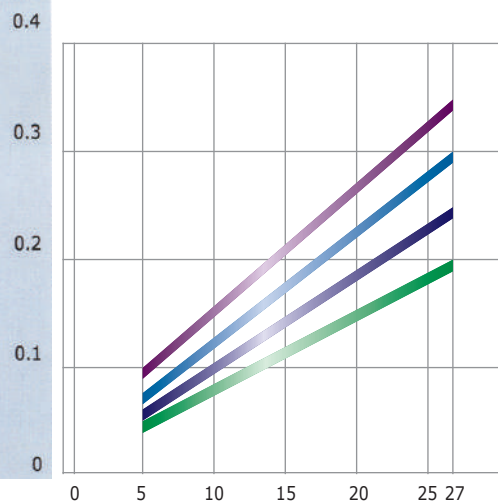
Cutting speed



Cutting speed V_c m/min

Feed rate

Feed rate f
in mm tour



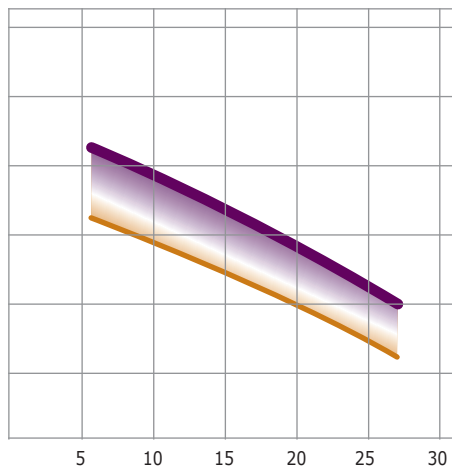
Tool diameter (mm)

Lubricant pressure

Pressure p
in bar

60
50
40
30
20
10

Oil
Soluble Oil

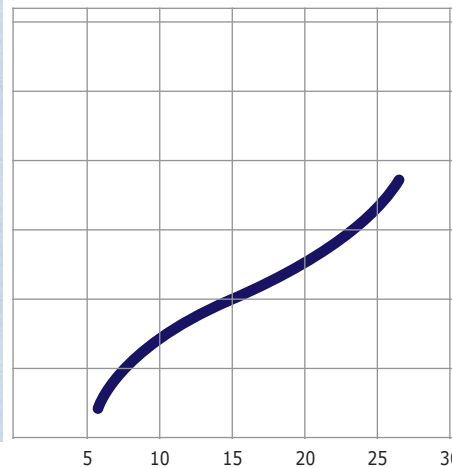


Tool diameter (mm)

Lubricant volume

Volume of
flow Q in
l/min

90
75
60
45
30
15



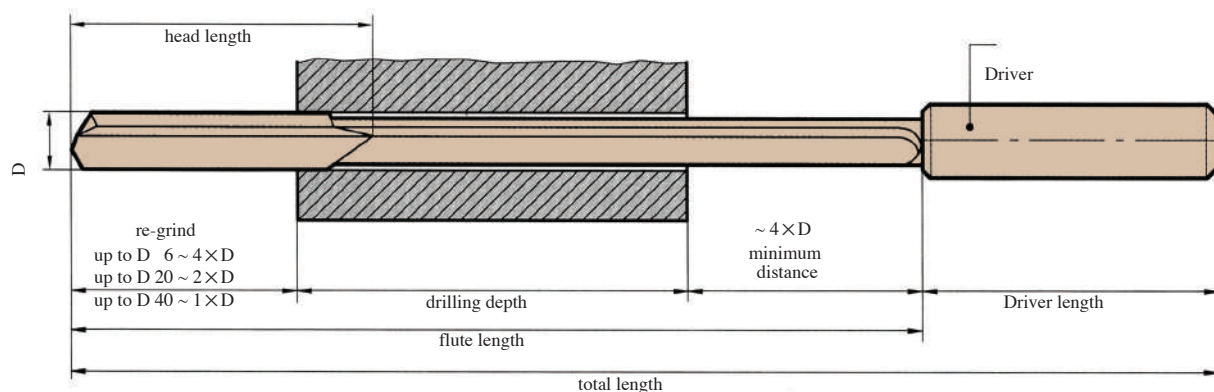
Tool diameter (mm)



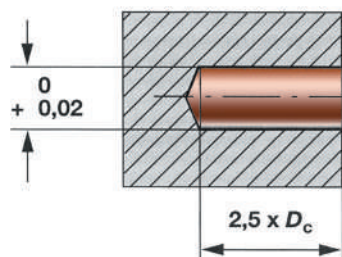
Gundrilling in Machining Centers

Gundrill dimension for Machining Centers

Max. flute length per tool $40 \times D$.



1

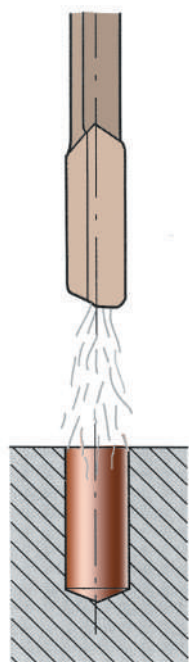


가이드 홀 가공
(Producing Guide Hole)

Pilot hole as guide bush

The guide hole should be drilled to tolerance $+0,01$ to $0,02$ mm (H7) larger than gun drill diameter

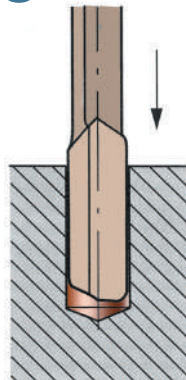
2



Feeding gun drill into guide hole

- ① Outside of the hole, the gun drill must not be rotating
- ② Feed to insert the drill into the guide hole while supplying

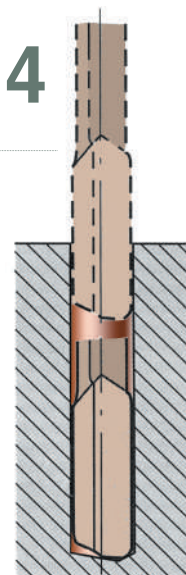
3



Start drilling

- ① Start cutting rotation
- ② Start cutting feed

4

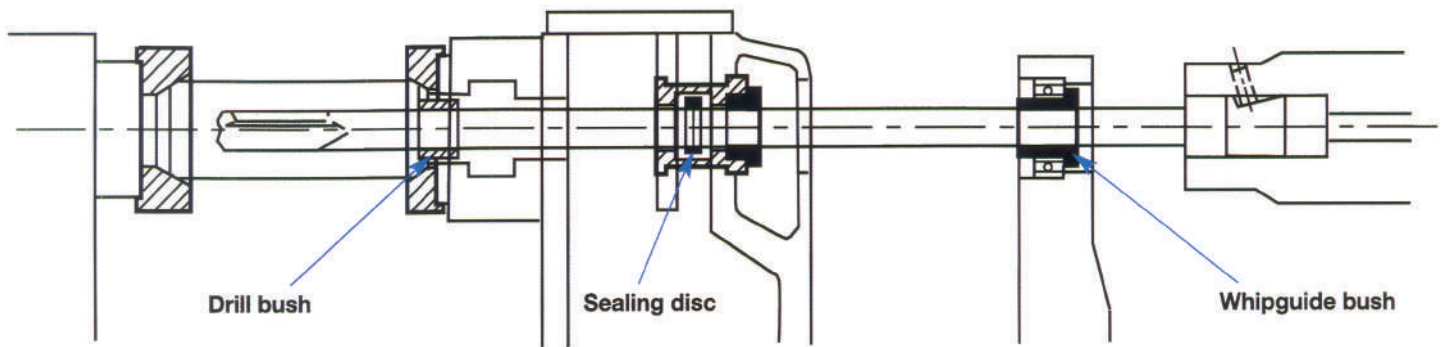


After the hole been drilled

- ① Rapid return
- ② Stop at the guide hole position 2.2
- ③ Stop cutting rotation and coolant supply
- ④ Pull out the gun drill from the workpiece



Accessories



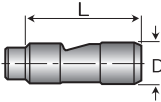
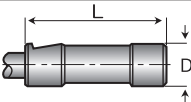
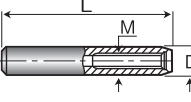
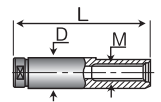
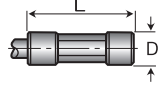
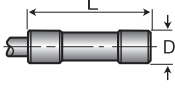
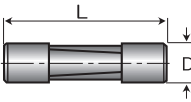
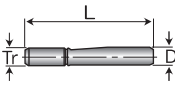
- Gundrill guide bush, Whipguide bush, rubber bush.
- BTA-tube, BTA-guide bush, tube bush,
- Special spare parts on request.





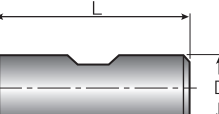
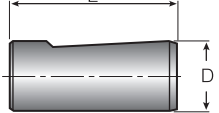
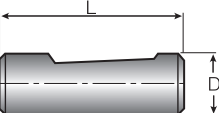
Standard Drivers for Gun drill Machines

● Recommended style

Driver Type	Drawing	ØD×L	Driver Code	Carbide Tipped Gundrills	Solid Carbide Gundrills
Central Clamping Surface 15°		6×30	1		●
		10×40	2	●	●
		16×45	3	●	
		19.05×69.8	4	●	
		25×70	5	●	
		25.4×69.8	6	●	
		31.75×69.8	7	●	
		38.1×69.8	8		
Frontal Clamping Surface 15°		16×50	9	●	
Cylindrical with Thread		10×50 M6×0.5	10		●
		10×60 M6×0.5	11	●	
		12.7×50 M6×0.5	12		●
		16×80 M10×1	13	●	●
		25×100 M16×1.5	14	●	
		36×120 M24×1.5	15		
VDI Design		10×68 M6×0.5	16	●	
		16×90 M10×1	17	●	●
		25×112 M16×1.5	18	●	
		36×135 M24×1.5	19		
Central Clamping Hexagonal		25×70	20	●	
		32×70	21	●	
Central Clamping Tapered		12.7×38.1	22	●	●
		16×70	23		
		19.05×69.8	24	●	
		20×70	25		
Central Clamping Surface 2°		12.7×38.1	26	●	●
		19.05×69.8	27	●	
		25.4×69.8	28	●	
		25.4×100	29	●	
		31.75×69.8	30	●	
		31.75×100	31	●	
		38.1×69.8	32	●	
		38.1×100	33	●	
Trapezoidal Thread		16×112 Tr16×1.5	34	●	
		20×126 Tr20×2	35	●	
		28×126 Tr28×2	36	●	
		36×162 Tr36×2	37		
Spraymist Driver		16×40	38	●	
		25×50	39	●	
		35×60	40	●	



Standard Gun drill Drivers for Machines Centers, Lathes ect ...

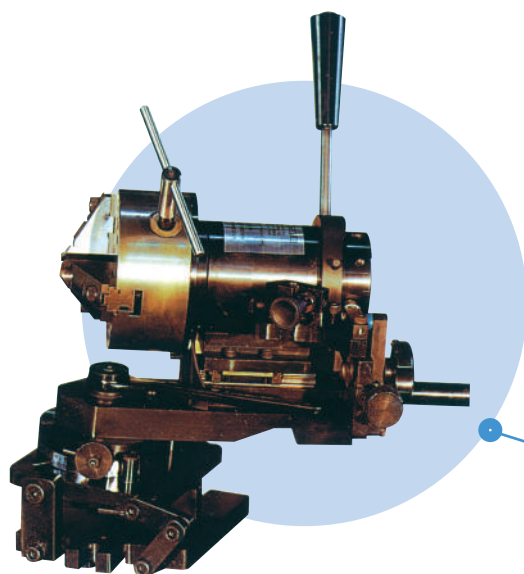
● Recommended style					
Driver Type	Drawing	ØD×L	Driver Code	Carbide Tipped Gundrills	Solid Carbide Gundrills
Cylindrical DIN1835A DIN6535HA		4×28	41	●	●
		5×28	42		●
		6×36	43	●	●
		8×36	44	●	●
		10×40	45	●	●
		12×45	46	●	●
		14×45	47		●
		16×48	48	●	●
		18×48	49		
		20×50	50	●	
		25×56	51	●	
		32×60	52	●	
		40×70	53		
		50×80	54		
		63×90	55		
weldon DIN1835B		6×36	56	●	
		8×36	57	●	
		10×40	58	●	●
		12×45	59	●	●
		16×48	60	●	●
		18×48	61		
		20×50	62	●	●
		25×56	63	●	
		32×60	64	●	
		40×70	65		
		50×80	66		
		63×90	67		
DIN6535HB		6×36	68	●	
		8×36	69	●	
		10×40	70	●	●
		12×45	71	●	●
		16×48	72	●	●
		18×48	73		
		20×50	74	●	●
		25×56	75	●	
		32×60	76	●	
		40×70	77		
Whistle Notch DIN1835E		6×36	78	●	
		8×36	79	●	
		10×40	80	●	●
		12×45	81	●	●
		16×48	82	●	●
		18×48	83		
		20×50	84	●	●
Whistle Notch DIN6535HE		6×36	78	●	
		8×36	79	●	
		10×40	80	●	●
		12×45	81	●	●
		16×48	82	●	●
		18×48	83		
		20×50	84	●	●



Gundrill Regrind Machine&Fixture

Dia2.00-44.0mm

- Easy operation
- Three pointed chuck clamp
- Easy regrinding outer & inner cutting angle
- Easy operation by spring cam
- Spindle with ball bearings
- Stepless control of cam

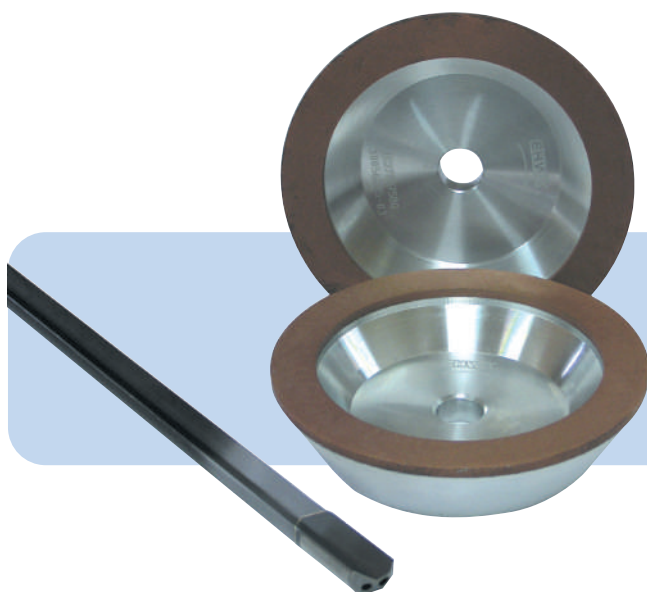
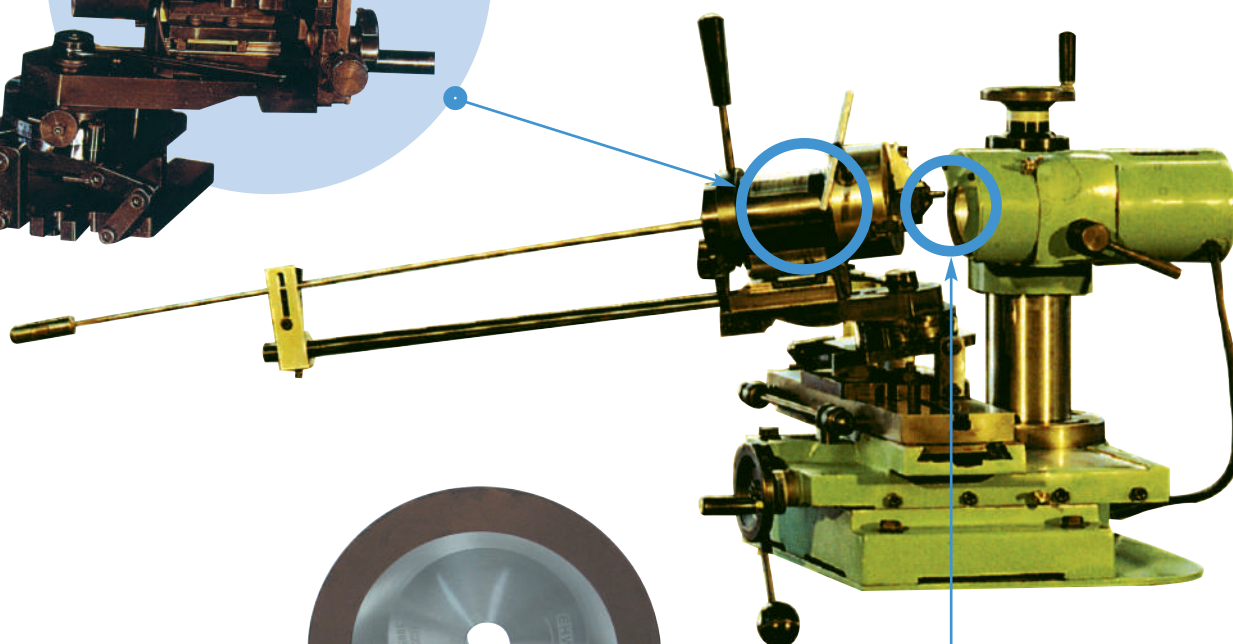


SPECIFICATIONS

Size(mm) : 700W×1400H×700L

Weight(Kg) : 150

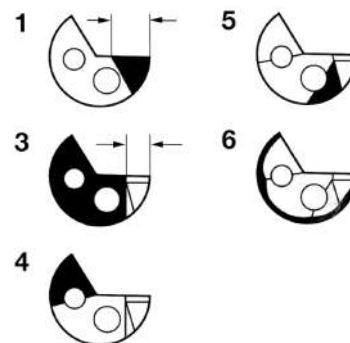
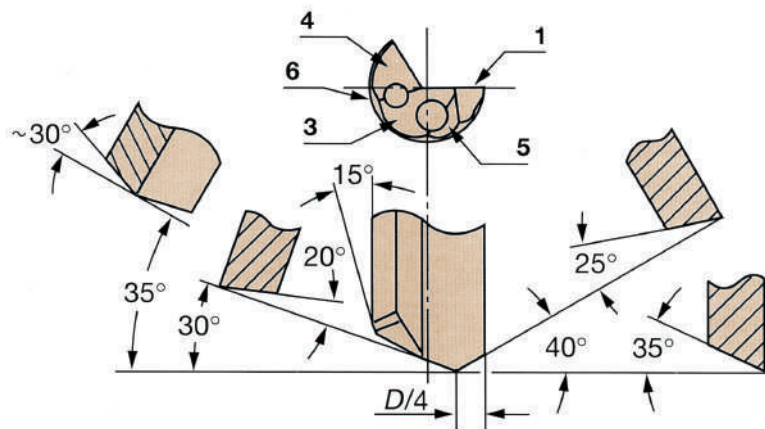
Power(Kw/P) : 0.2/2



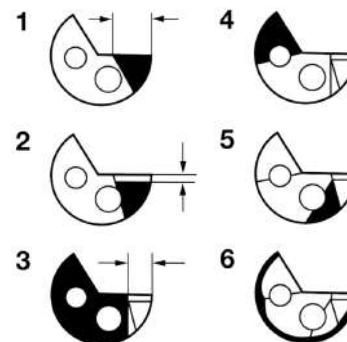
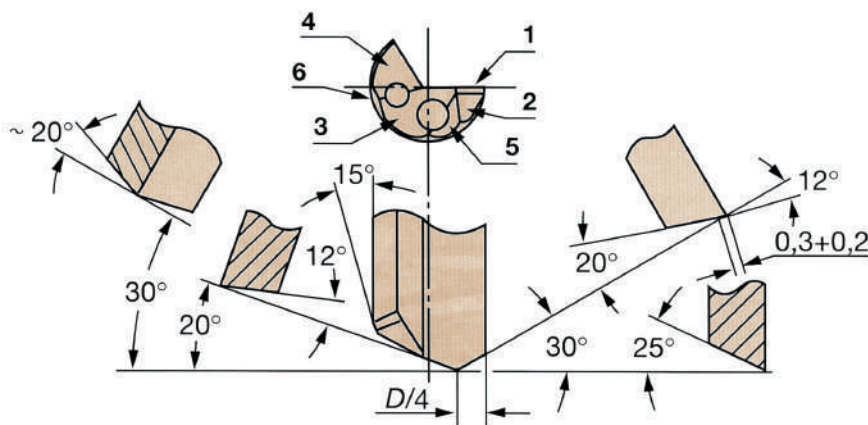


Resharpener angle of single-fluted gun drill

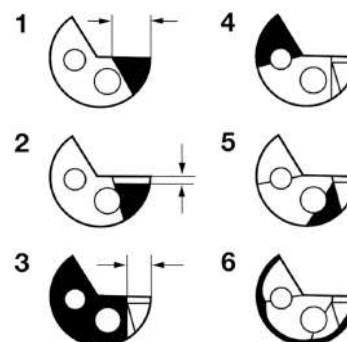
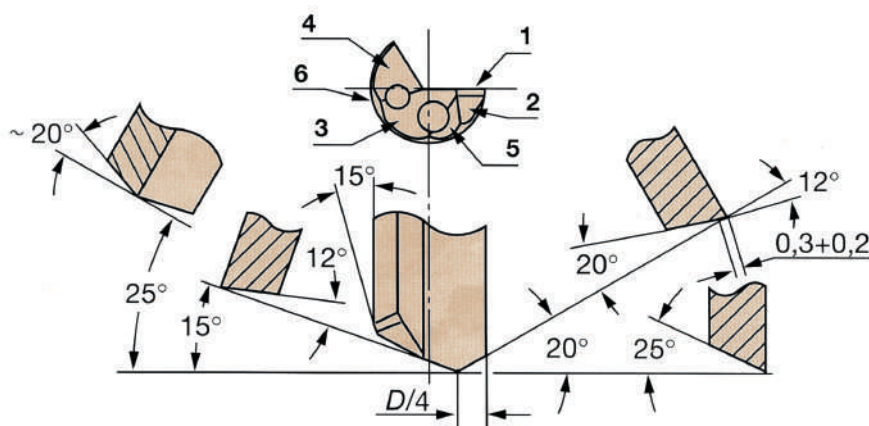
dia2.0-4.00mm



dia4.01-20.0mm

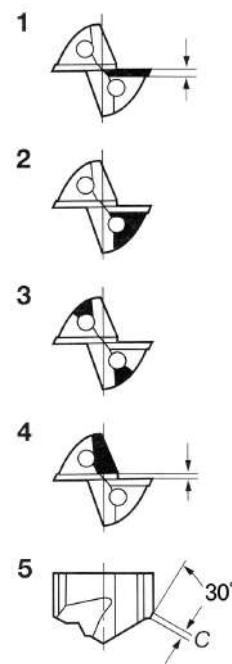
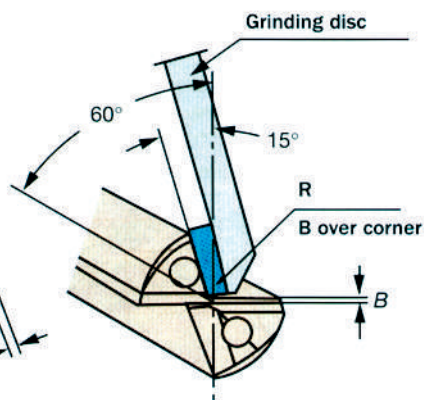
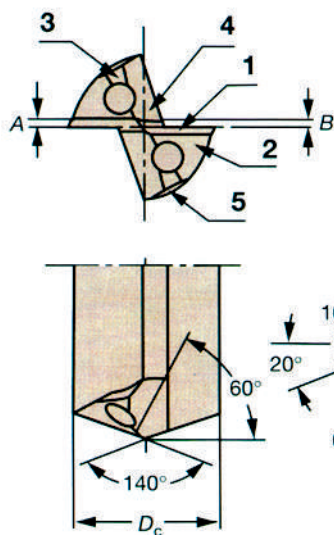


dia20.01-40.0mm





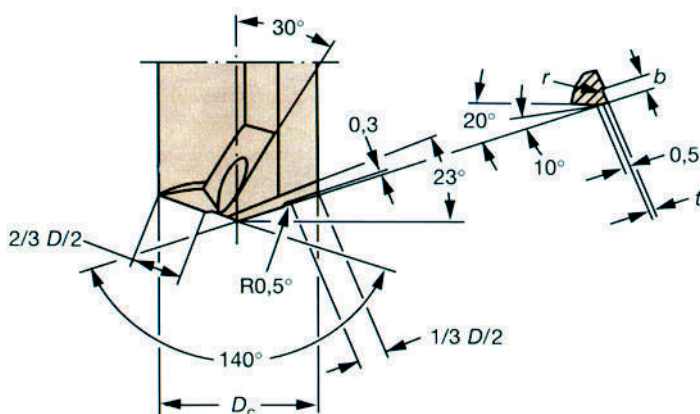
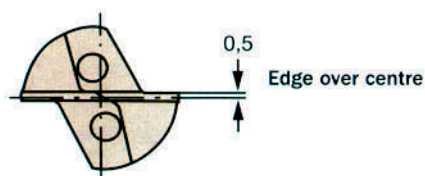
Resharpener angle of two fluted gun drill Dia5.00-27.0mm



Dimensions, mm

Dc (직경)	A	B	C	R
5,00-10,00	0,4	0,2	0,5	1,0
10,01-15,00	0,5	0,3	0,6	1,5
15,01-20,00	0,6	0,4	0,7	2,0
20,01-27,00	0,7	0,4	0,8	2,5

Grinding of chipbreaker on two fluted gun drill



Chipbreaker, mm

Dc(직경)	B	t	r
5,00-9,00	0,9	0,25	0,8
9,01-11,00	1,1	0,30	0,8
11,01-14,00	1,2	0,35	0,8
14,01-17,00	1,3	0,40	0,8
17,01-20,00	1,4	0,45	0,8
20,01-23,00	1,5	0,50	0,8
23,01-27,00	1,6	0,55	0,8

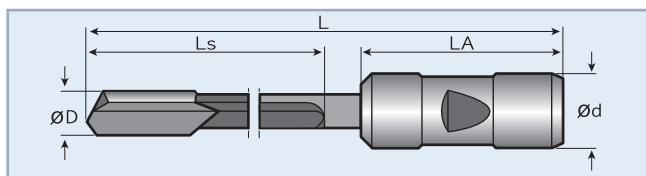
Gundrill inquiry sheet

1. Tool

Quantity _____

Nominal diameter and tolerance _____

Please fill in dimensions on the sketch.



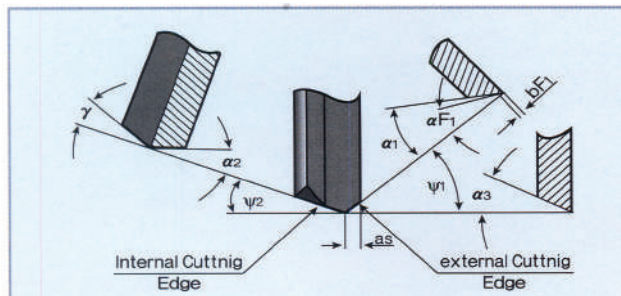
Drive

Drive: for standard drivers please use codes from pages 10, 11.

: Code No. _____

: Special, please attach sketch and specifications

Grind: Special (fill in dimension and angles below)



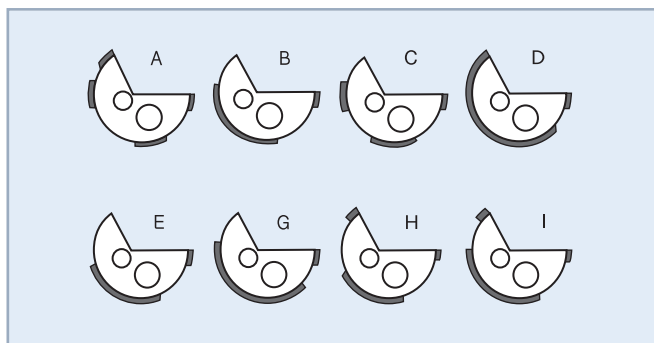
$\alpha 1 =$ _____ $\alpha F1 =$ _____ $\psi 1 =$ _____
 $\alpha 2 =$ _____ $\alpha F2 =$ _____ $\psi 2 =$ _____
 $\alpha 3 =$ _____ $\alpha F3 =$ _____ $\psi 3 =$ _____

: Standard (see page 4)

Coat ing

: TiN : TiCN : TiN+TiCN : TiAlN

Type



2. Workpiece (If possible, please attach a drawing)

1 Material

Material description _____

Hardness and Properties: _____

: Short Chips : Long Chips _____

2 Hole Type

: Blind Hole : Drilling into Prehole : Angled Entry

: Drilling into Solid : Boring : Angled Exit

Drilling Depth mm Hole Tolerance _____

3 Application

Workpiece : Stationary : Rotating

Tool : Stationary : Rotating

3. Machine

1 Technical Data

Machine Type: _____

Power: _____ kW

2 Cutting Data

Cutting Speed Vc _____ m/min

Revolution Nmin _____ RPM, Nmax _____ RPM

Feed Fmin _____ mm/rev, Fmax _____ mm/rev

Feed Rate VF _____ mm/min

Coolant

Oil : Soluble Oil : Other

Coolant Pressure : _____ Bar

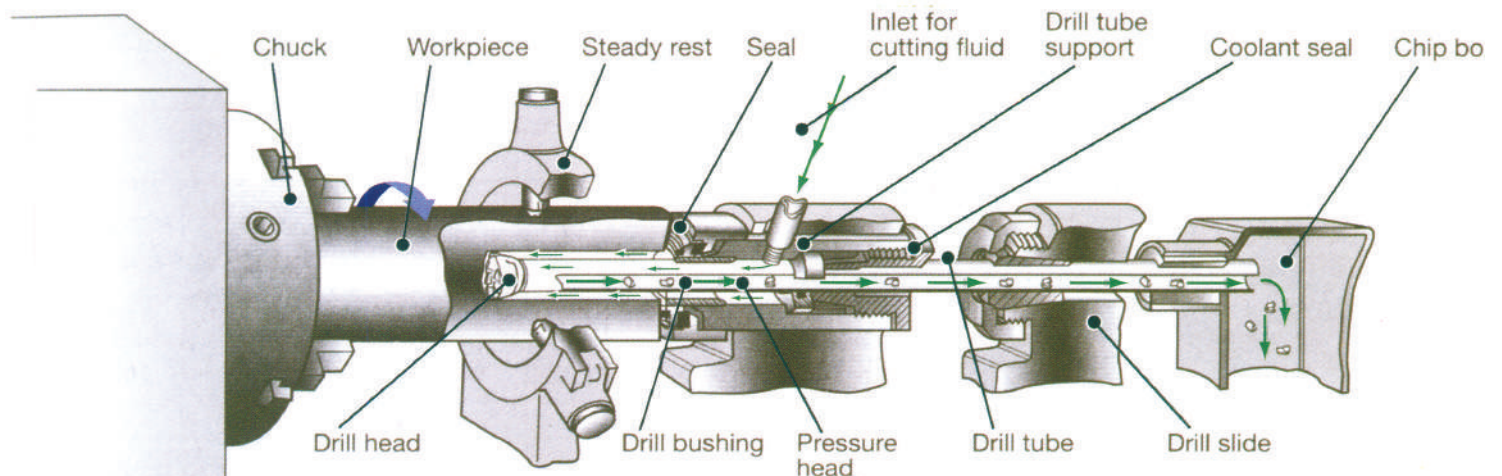
Sketch of drilling application



Single Tube System



1. Coolant oil fluid supply is fed through an oil pressure head between the outside of the drill tube and the hole wall.
2. A seal between the workpiece and the drill bush is necessary.
3. Double the coolant pressure and quantity are required than with the Ejector system.
4. Preferably used for materials with long chip formation, such as stainless steel, low carbon steel and materials with an uneven structure.
5. Single tube system is more advantageous for extremely long workpieces and





Ground brazed BTA-head YM10

Dia18.91-65.00mm

Y M 1 0



Coating Available!
TiN, TiCN, TiAlN

Drill Diameter	Order No.	Drill Tube Dia
18.91-19.20	10-0110-...	17
19.21-20.00	10-0120-...	17
20.01-20.90	10-0210-...	18
20.91-21.80	10-0220-...	18
21.81-22.90	10-0310-...	20
22.91-24.10	10-320-...	20
24.11-25.20	10-0410-...	22
25.21-26.40	10-0420-...	22
26.41-27.50	10-0510-...	24
27.51-28.70	10-0520-...	24
28.71-29.80	10-0610-...	26
29.81-31.00	10-0620-...	26
31.01-32.10	10-0710-...	28
32.11-33.30	10-0720-...	28
33.31-34.80	10-0810-...	30
34.81-36.20	10-0820-...	30

Drill Diameter	Order No.	Drill Tube Dia
36.21-37.30	10-0910-...	33
37.31-38.40	10-0920-...	33
38.41-39.60	10-0930-...	33
39.61-40.60	10-1010-...	36
40.61-41.80	10-1020-...	36
41.81-43.00	10-1030-...	36
43.01-44.30	10-1110-...	39
44.31-45.60	10-1120-...	39
45.61-47.00	10-1130-...	39
47.01-48.50	10-1210-...	43
48.51-50.10	10-1220-...	43
50.11-51.70	10-1230-...	43
51.71-53.20	10-1310-...	47
53.21-54.70	10-1320-...	47
54.21-56.20	10-1330-...	47
56.21-58.40	10-1410-...	51
58.41-65.10	10-1420-...	51

Carbide grade	Workpieces material
*011	steel, alloy steel, stainless steel
012	steel, alloy steel
013	cast iron, aluminium
014	alloy steel, stainless steel

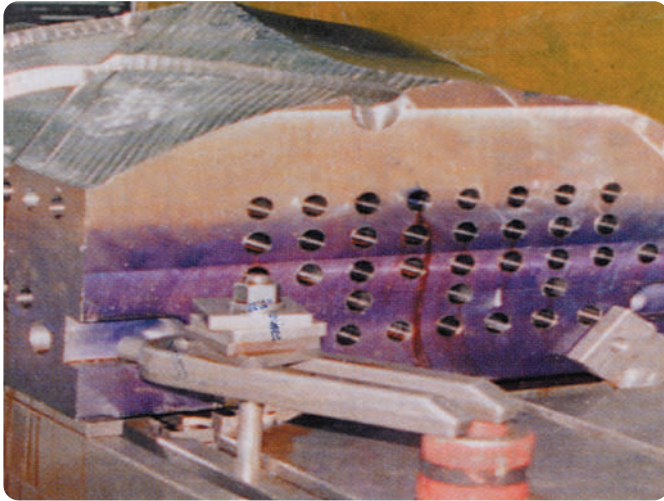
*Standard Carbide Grade



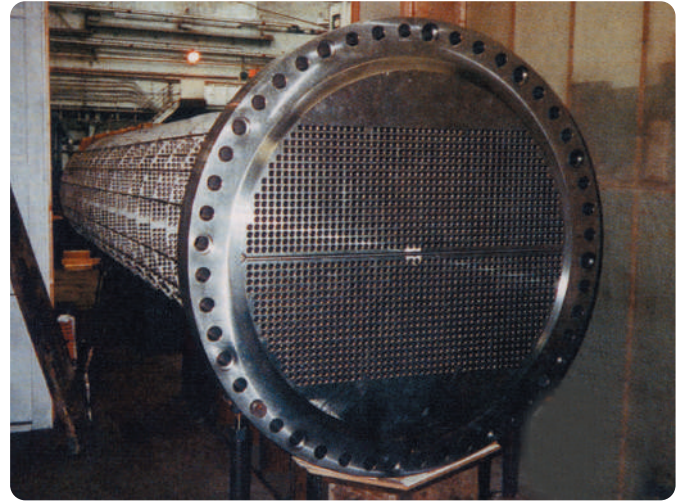
Cutting data for ground brazed BTA-head YM10

Material				Cutting speed Vc m/min	Drill diameter,mm			
					18.91-20.00	20.01-31.00	31.01-43.00	43.01-65.00
HB					Feed, fn mm/r			
Unalloyed steel	Non-hardened	0.05-0.25% C	90-200	60-130	0.14-0.20	0.15-0.20	0.15-0.25	0.18-0.28
	Non-hardened	0.25-0.55% C	125-225					
	Non-hardened	0.55-0.80% C	150-225	60-120	0.14-0.20	0.17-0.25	0.20-0.30	0.24-0.32
	High carbon & carbon tool steel		180-225					
Low alloy steel	Non-hardened		150-260	70-100	0.14-0.20	0.17-0.25	0.20-0.30	0.24-0.32
	hardened		220-400					
High alloy steel	Annealed		150-250	60-90	0.14-0.20	0.17-0.25	0.20-0.30	0.24-0.32
	Annealed HSS		150-250					
	hardened tool steel		250-350	60-90	0.14-0.20	0.17-0.25	0.20-0.30	0.24-0.32
	hardened steel		250-400					
Steel castings	Unalloyed		90-225	50-90	0.12-0.18	0.15-0.22	0.20-0.28	0.24-0.32
	Low alloyed(alloying elements<5%)		150-250					
Stainless steel	Ferritic, Martensitic	13-25% Cr	150-270	35-85	0.16-0.20	0.18-0.25	0.22-0.30	0.24-0.36
	Austenitic Ni > 8%,	18-25% Cr	150-270					
Steel castings	Stainless austenitic		150-180	40-80	0.16-0.20	0.18-0.25	0.22-0.30	0.24-0.36
	Mangness 12-14% MN		250					
Heat resistant alloys	Fe-based		180-300	10-40	0.10-0.18	0.14-0.20	0.18-0.26	0.20-0.30
	Ni-based		220-300					
	Co-based		220-300					
Titanium	(Wrought or cast) Alpha and Alpha-beta alloys		300-450	30-50	0.14-0.16	0.16-0.22	0.18-0.26	0.20-0.30
Malle-able castiron	Ferritic(short chipping)		110-145	70-110	0.14-0.20	0.18-0.25	0.20-0.30	0.24-0.32
	pearlitic(long chipping)		150-270					
Grey cast iron	Low tensile strength		150-220	70-110	0.12-0.18	0.15-0.25	0.20-0.28	0.24-0.32
	High tensile strength		200-330					
Nodular castiron	Ferritic		125-230	50-100	0.12-0.18	0.15-0.25	0.20-0.28	0.24-0.32
	Pearlitic		200-300					
Aluminium	Wrought and cold drawn		30-80	65-130	0.10-0.20	0.16-0.25	0.18-0.30	0.20-0.45
	Wrought solution treated and aged		75-150					
	Cast		40-100					
	Cast, solution treated and aged		70-125					
Copper and copper alloys	Free cutting alloys (Pb≥1%)		50-160	65-130	0.10-0.20	0.16-0.25	0.18-0.30	0.20-0.45
	Brass and leaded bronzes (Pb≥1%)		50-160					

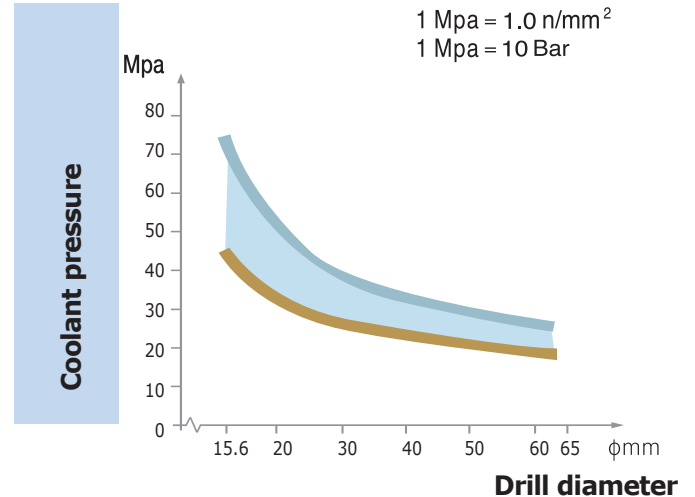
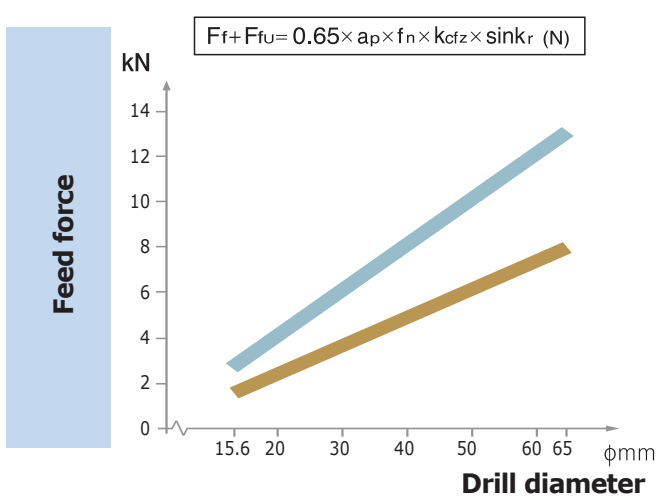
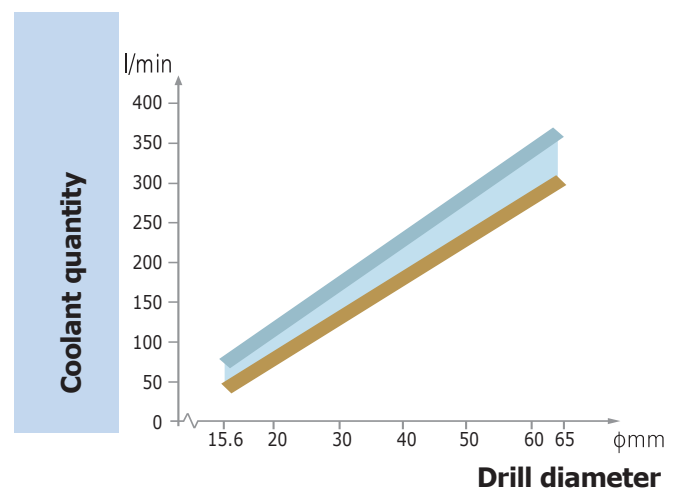
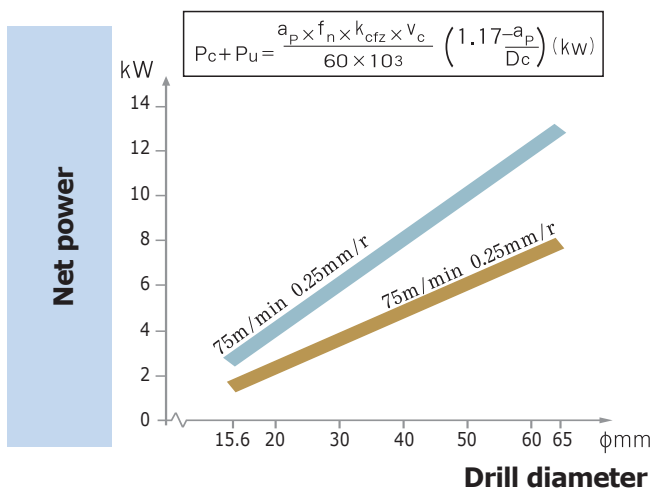
As above cutting data may need adjusting depending on the machine conditions



Coolant holes in a mould base.



Heat exchanger plate for steam generator.



- The graphs show nominal value.
- The values may need adjusting depending on the machine conditions and workpiece material.



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