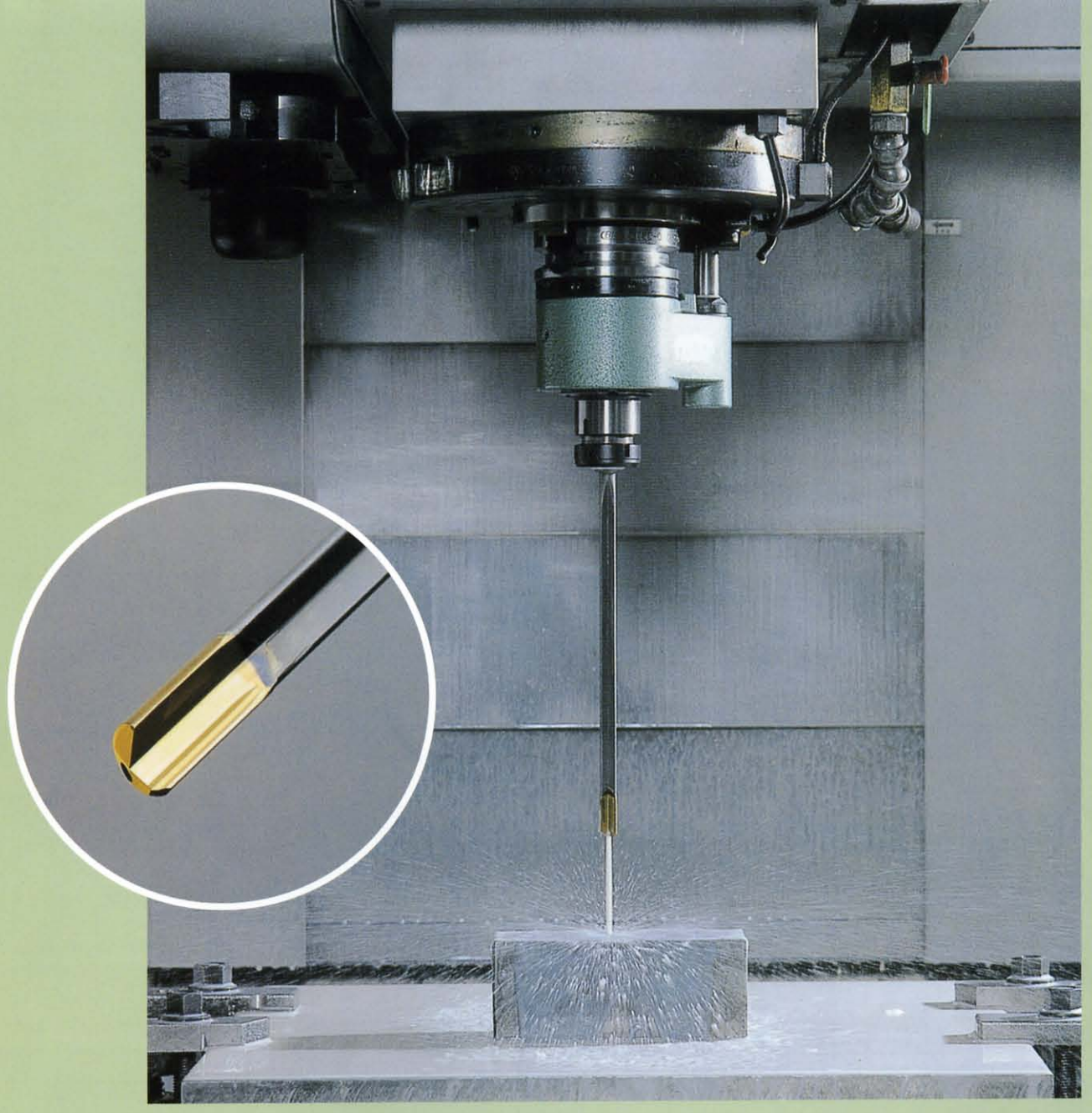


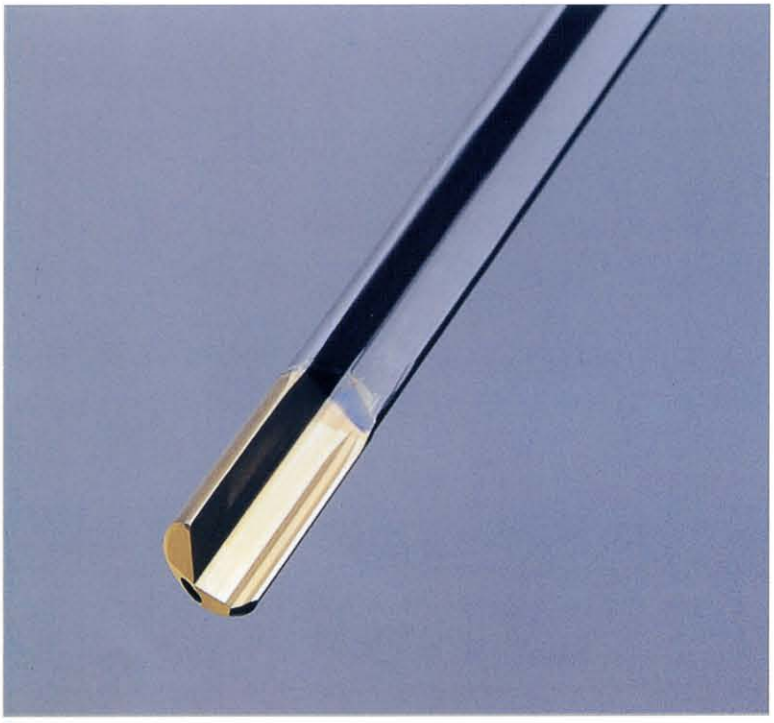
MVR GUN DRILL FOR MACHINING CENTER

MIROKU

MVR GUN DRILL

MVR GUN DRILL

MVR Gun Drills have been developed for all kinds of General Purpose Machines such as Machining Centers and NC Lathes.



FEATURES

1. This is designed for General Purpose Machines such as Machining Centers, Drilling Machines, Turret Lathes, and NC Lathes with low pressure coolant.
2. Small shell-like chips originally developed by Miroku prevents chipping of cutting edge. Chips can be easily discharged because of its shape and high feed drilling can be accomplished.
   V shape breaker keeps the rigidity of the corner of cutting edge high.
3. Most suitable chip discharge is considered in accordance with the features of chips formed by the cutting edge for General Purpose Machines.
4. The guide bushing and bush plate are not necessary because of predrilled hole.
5. Miroku has several job shops of drilling holes all over Japan as a top manufacturer of Gun Drills, utilizing an excellent experience in producing Miroku Guns known world-wide as the finest quality sports guns.

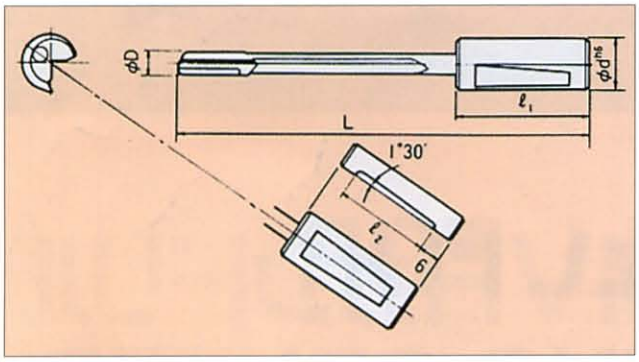
WORK MATERIAL

Materials such as high & medium carbon steel, alloy steel, cast iron, aluminum and light alloy can be drilled.

RANGE OF DRILLING DIAMETER

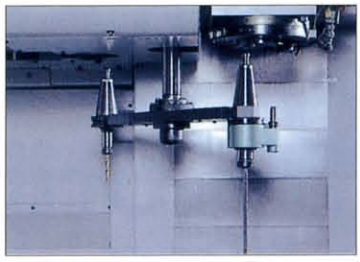
Standard drilling diamters are $\phi 6$ - $\phi 25$ and drilling depth is L/D= 5 ~ 25.

SPECIFICATION OF GUN DRILLS



DRILLING CONDITIONS

Work Material	Cutting Speed (m/min)	Feed(mm/rev)	
		$\phi 6 \sim \phi 12$mm	$\phi 12 \sim \phi 25$mm
Medium/High Carbon Steel Alloy Steel	50–90	0.04–0.08	0.06–0.10
Cast Iron	50–80	0.05–0.09	0.07–0.12
Aluminum Light Alloy	90–170	0.05–0.09	0.07–0.12



STANDARD DRILL DIMENSIONS

(UNIT:mm)

Drill Diameter	Over All Length Drilling Depth			Driver Specification		
	10D	15D	20D	ϕd	ℓ1	ℓ2
$\phi 6 \sim \phi 7$	–	210	250	20	50	38
$\phi 7 \sim \phi 9$	–	250	300	20	50	38
$\phi 9 \sim \phi 11$	–	300	350	20	50	38
$\phi 11 \sim \phi 14$	–	350	420	20	50	38
$\phi 14 \sim \phi 18$	350	420	500	25	55	43
$\phi 18 \sim \phi 20$	350	450	550	25	55	43

(Note) The above drills will be made after order. Other dimension drills are subject to discussion.

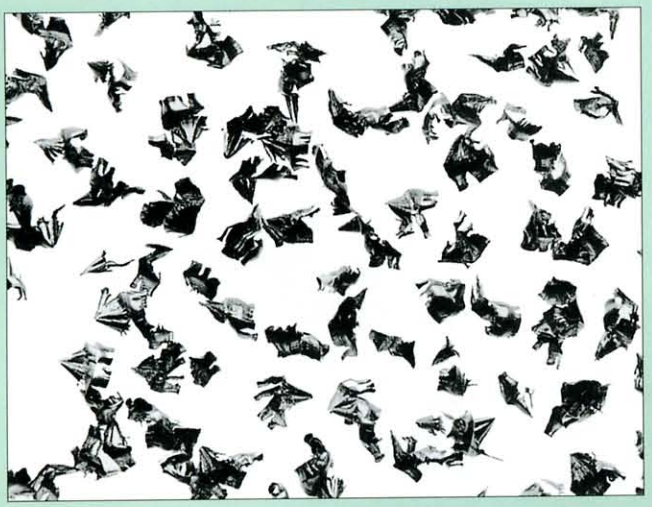
APPLICATION ①

SUS304

Drill Diameter : ϕ12
Cutting Speed : V=40m/min
Feed : f=0.04mm/rev
Coolant Pressure : O/P=12kgf/cm^2

BC-2

Drill Diameter : ϕ12
Cutting Speed : V=70m/min
Feed : f=0.08mm/rev
Coolant Pressure : O/P=30kgf/cm^2

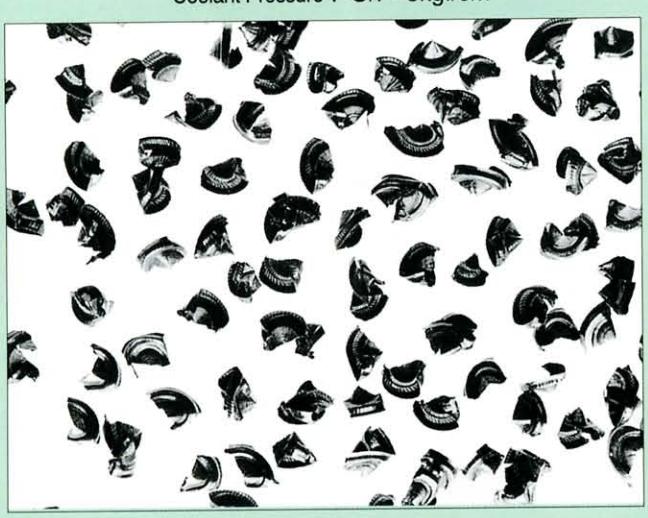


A2017-S

Drill Diameter : ϕ12
Cutting Speed : V=100m/min
Feed : f=0.1 mm/rev
Coolant Pressure : O/P=8kgf/cm^2

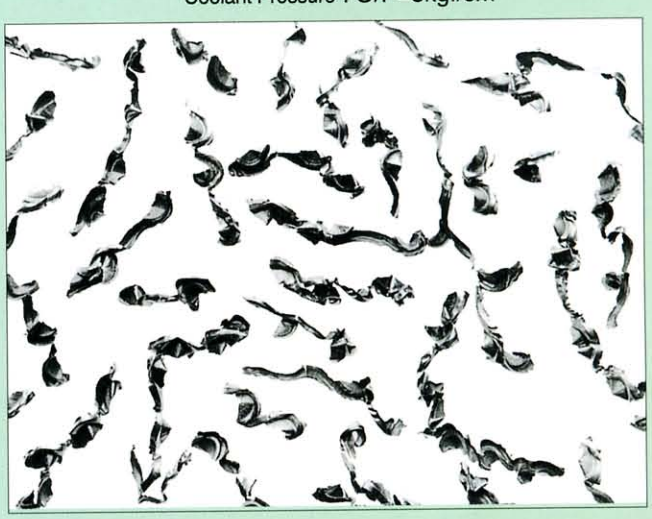
S50C

Drill Diameter : ϕ12
Cutting Speed : V=60m/min
Feed : f=0.08mm/rev
Coolant Pressure : O/P=8kgf/cm^2



SCM415

Drill Diameter : ϕ12
Cutting Speed : V=50m/min
Feed : f=0.06mm/rev
Coolant Pressure : O/P=8kgf/cm^2



APPLICATION ②

Drill Dimension : ϕ11×600mm

Work Material : S48C(Cooling hole for plastic mold)

Machine : Horizontal Machining Center

Cutting Oil : Yushiro Chemical Water Soluble,Dilution with 10 part of water

Drilling Conditions : Cutting Speed : V=60m/min
Feed : f=0.06mm/rev
Coolant Pressure : O/P=30kgf/cm^2

Drill Dimension : ϕ8×300mm

Work Material : SCM440(Annealed)

Machine : Turret Lathe(featured withTrochoid Coolant Pump)

Cutting Oil : Yushiro Chemical, Water Soluble, Dilution with 8 part of water

Drilling Conditions : Cutting Speed : V=50m/min
Feed : f=0.06mm/rev
Coolant Pressure : O/P=12kgf/cm^2

Predrilled hole : 20mm depth by High Speed Steel made Drill

Drill Dimension : ϕ10×450mm

Work Material : Zinc based alloy

Machine : Drill Center

Cutting Oil : Water Soluble, Dilution with 10 part of water

Drilling Conditions : Cutting Speed : V=80m/min
Feed : f=0.08mm/rev
Coolant Pressure : O/P=10kgf/cm^2

Predrilled hole : 20mm depth

Drill Dimension : ϕ18×450mm

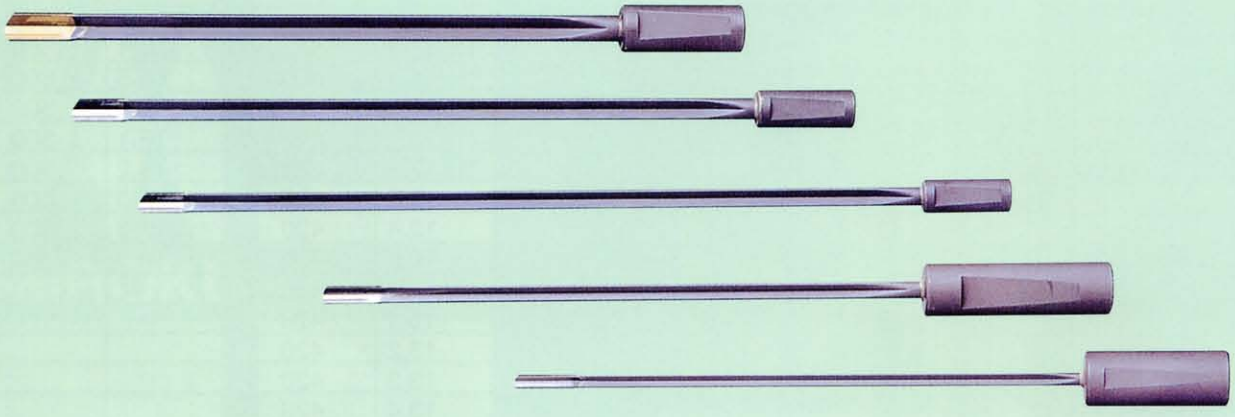
Work Material : SNC415

Machine : NC Lathe

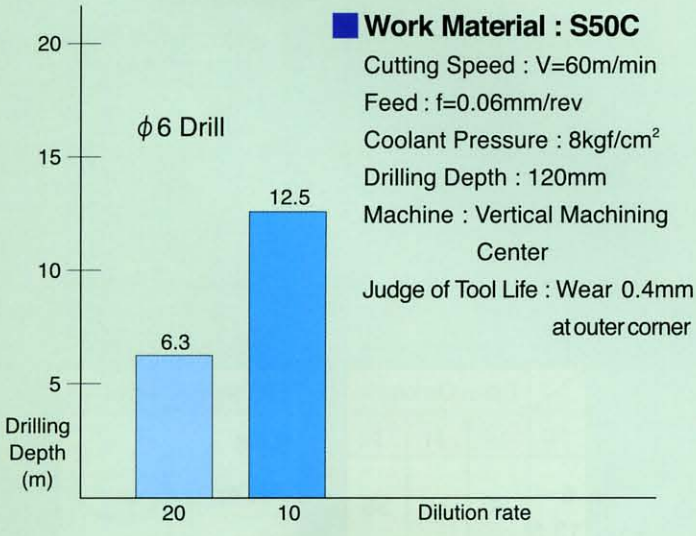
Cutting Oil : Water Soluble, Dilution with 15 part of water

Drilling Conditions : Cutting Speed : V=50m/min
Feed : f=0.08mm/rev
Coolant Pressure : O/P=3kgf/cm^2

Predrilled hole : 40mm depth by High Speed Steel made Drill

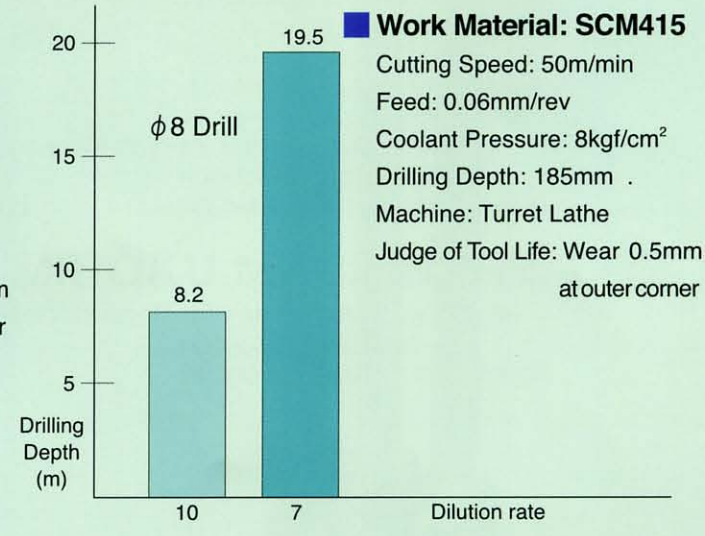


COMPARISON LIST OF WATER SOLUBLE CUTTING OIL DILUTION RATE AND TOOL LIFE



Work Material : S50C

Cutting Speed : V=60m/min
Feed : f=0.06mm/rev
Coolant Pressure : 8kgf/cm^2
Drilling Depth : 120mm
Machine : Vertical Machining Center
Judge of Tool Life : Wear 0.4mm at outer corner

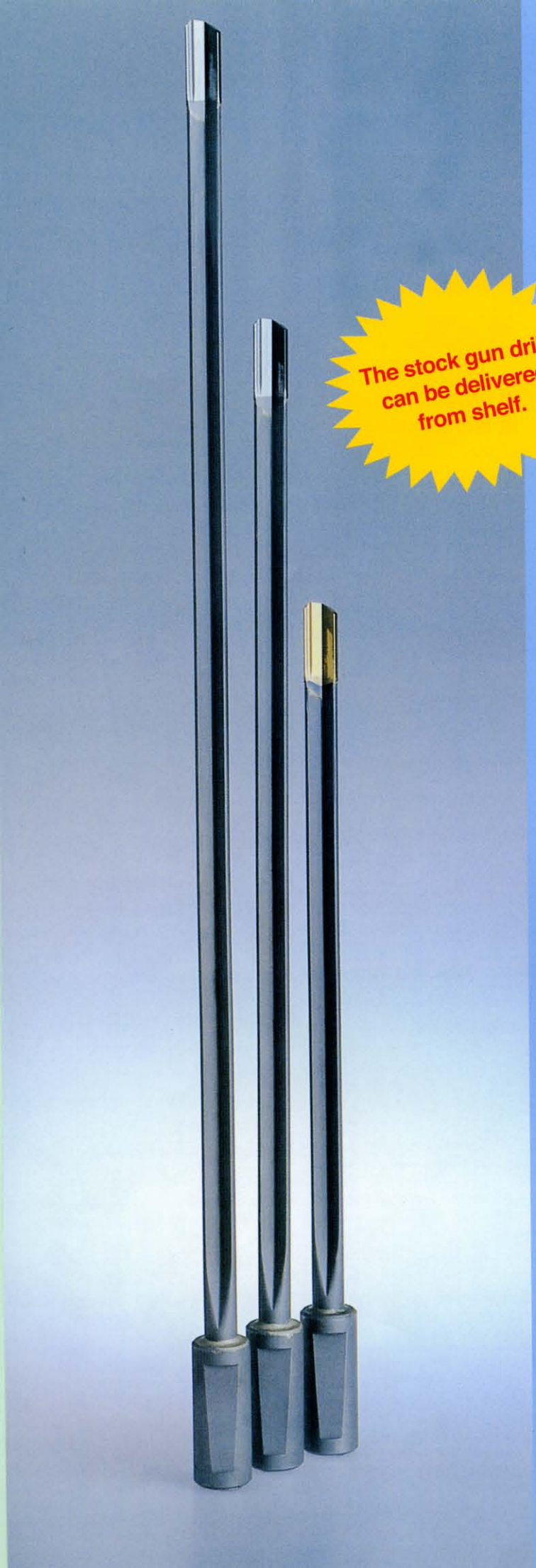


Work Material: SCM415

Cutting Speed: 50m/min
Feed: 0.06mm/rev
Coolant Pressure: 8kgf/cm^2
Drilling Depth: 185mm .
Machine: Turret Lathe
Judge of Tool Life: Wear 0.5mm at outer corner

(Note 1) Feed can be raised by about 30% when High Pressure Coolant pump is applied and coolant pressure is raised by about 30-50kgf/cm^2.Machining troubles caused by clogged chips can be prevented.

Note 2) Water soluble cutting oil can be used but dilution rate is maximum 10 part of water in case of drilling steel.



The stock gun drills can be delivered from shelf.

●STOCK GUN DRILLS LIST
(for 20D)

(mm)

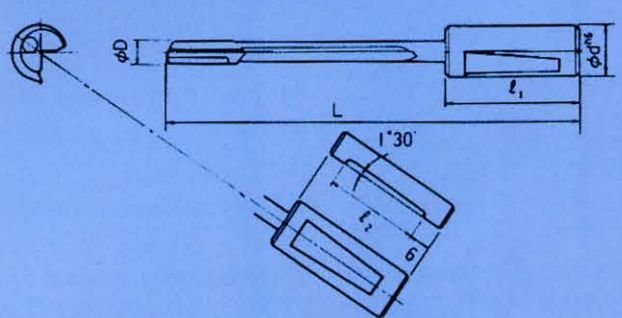
Diameter φD	Over All Length
5	250
5.1	250
5.2	250
5.3	250
5.4	250
5.5	250
6	250
6.1	250
6.2	250
6.3	250
6.4	250
6.5	250
7	300
7.1	300
7.2	300
7.3	300
7.4	300
7.5	300

Diameter φD	Over All Length
8	300
8.1	300
8.2	300
8.3	300
8.4	300
8.5	300
9	350
9.1	350
9.2	350
9.3	350
9.4	350
9.5	350
10	350
10.1	350
10.2	350
10.3	350
10.4	350
10.5	350

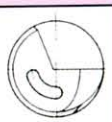
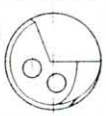
Diameter φD	Over All Length
11	350
11.1	350
11.2	350
11.3	350
11.4	350
11.5	350
12	420
12.1	420
12.2	420
12.3	420
12.4	420
12.5	420
13	420
13.1	420
13.2	420
13.3	420
13.4	420
13.5	420

Diameter φD	Over All Length
14	500
14.1	500
14.2	500
14.3	500
14.4	500
14.5	500
15	500
15.1	500
15.2	500
15.3	500
15.4	500
15.5	500

The above stock gun drills are featured with breaker.

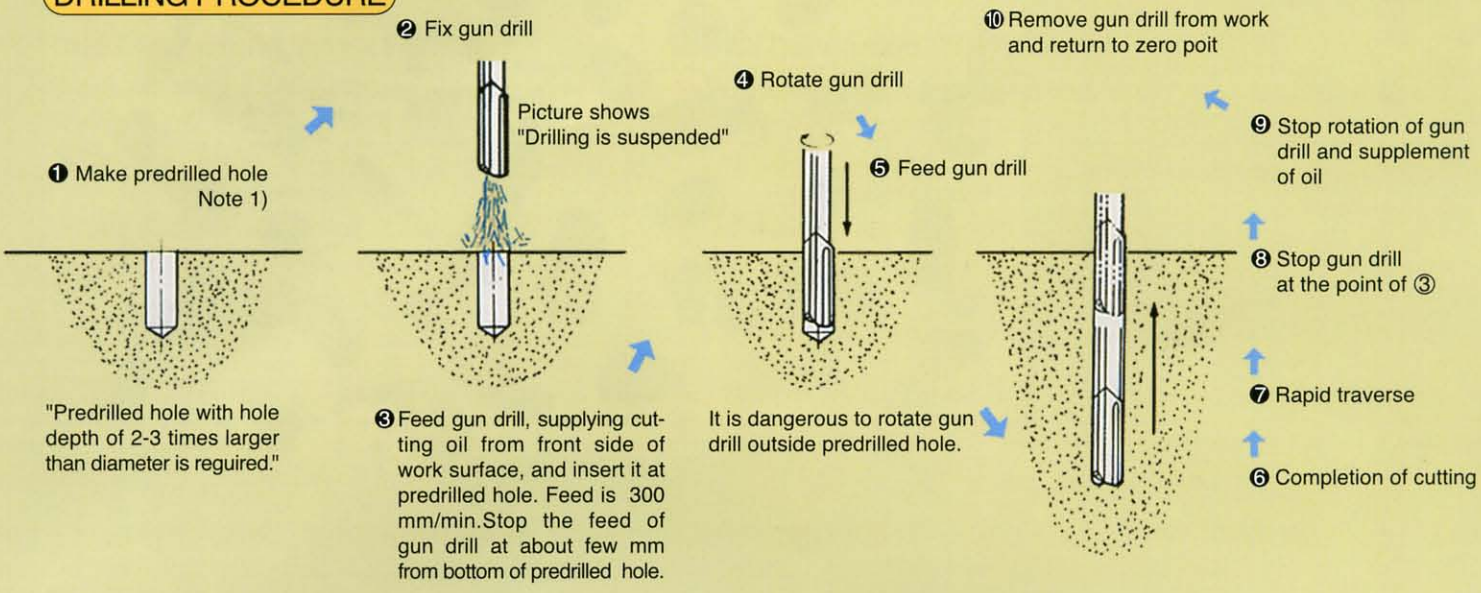


	Driver Dimension		
φD	φd	ℓ1	ℓ2
5~13.5	20	50	38
14~15.5	25	55	43

φD Specification of Oil hole	
5~6 Kidney	
6.1~15.5 Two hole	

MVR GUN DRILL

DRILLING PROCEDURE



Note 1: Reamer is most suitable for making predrilled hole. (We can supply reamer)

Note 2: Keep predrilled hole about + 50 μ m (+10~30 μ m if possible) to diameter of gun drill and in case of precision cutting, keep about +3~10 μ m.

MIROKU

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