

BTA Drilling Tools

日本製工具



FUJI BC ENGINEERING CO., LTD.
OSAKA OFFICE

1-9-13, ITACHIBORI, NISHI-KU, OSAKA, 550-0012, Japan

TEL : +(81)-6-6531-5631

FAX : +(81)-6-6531-5606

URL : <http://www.fuji-bc.com>

E-mail : tool.sales@fuji-bc.com

About us

Trade Name	Fuji BC Engineering
Founded Year	May, 1972
Capital Fund	€672,985
Head Office	3-1, Shioiri-Cho, Mizuho-Ku, Nagoya-Shi 467-0851, Japan TEL:+81-52-819-5411 FAX:+81-52-819-5410
Tokyo Office	5-2-34, Nakamachi-Dai Tsuzuki-Ku Yokohama-Shi Kanagawa 224-0041, Japan TEL:+81-45-942-7782 FAX:+81-45-942-7425
Osaka Office	1-9-13, Itachibori, Nishi-Ku, Osaka 550-0012, Japan TEL:+81-6-6531-5631 FAX:+81-6-6531-5606
Union FBC (Factory)	80-42, Yotsuyama-Machi, Omuta-Shi, Fukuoka (836-0067, Japan TEL:+81-944-41-8230 FAX:+81-944-41-8231



Best BTA Drill

For more than 20 years we have been supplying high-quality products which are produced by craftsmanship to all customers.

1. Compatible Boring Bar with SANDVIK, BOTEK and ISCAR.
2. Best quality and cost performance.
3. Quick delivery and High quality service.

Please contact us !!



— Index —

▪ Drilling Systems		P.5-6
▪ Type of Drill Head		P.7
▪ Connection methods of Drill Head and Tube		P.8
▪ Disposable Drill Head		P.9
▪ Indexable Drill Head		
- STS -		
Inner Diameter (ID) 1 Start Thread		P.10-12
Outer Diameter (OD) 4th Start Thread		P.13-15
- DTS -		
Outer Diameter (OD) 4th Start Thread		P.16-17
*Direct mount type is selectable.		
In case of direct mounting, cartridges and lock screws are unnecessary.		
▪ Special Tools		P.18-19
*Including counter boring and trepanning		
▪ Boring Bar		
- STS -		
Inner Diameter (ID) 1 Start Thread		P.20
Outer Diameter (OD) 4th Start Thread		P.21
- DTS -		
Outer Diameter (OD) 4th Start Thread		P.22
▪ Insert and Cartridge		P.23
▪ Guide Pad		P.24
▪ Resin Guide and Sub Guide		P.25
▪ Guide Bush		P.26
▪ Cutting Condition		P.27



Our BTA Drill Head

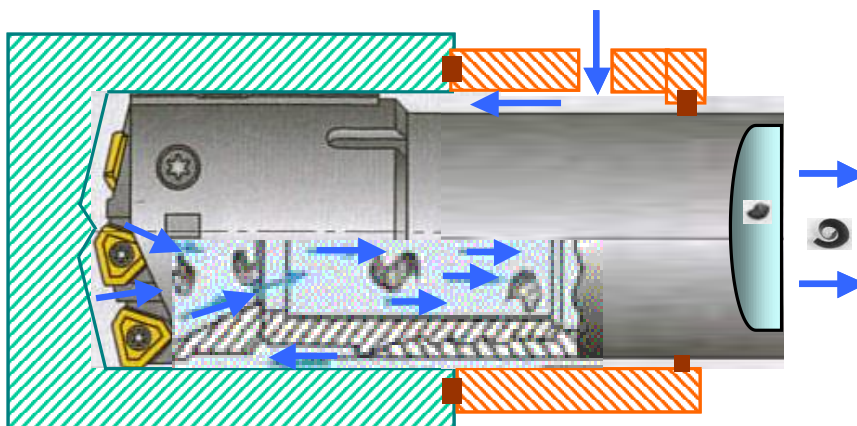
Our product is applicable to Single Tube Systems (STS) and Double Tube Systems (DTS).

1. Single Tube System (STS)

About the STS, the cutting fluid is forced in between the drill tube and the walls of the hole. The STS assembly consists of a drill head that is attached to a ground cylindrical tube by either an internal or external fast lead thread. The drill tube or boring bar is smaller in diameter than the drill head which forms an annular space between the hole being drilled and the OD of the drill tube or boring bar. This space is known as “oil room” and in conjunction with a coolant induction unit or a pressure head, makes it possible to direct filtered high volume coolant to the drill head cutting edge.

This pressure head seals against the entry side of the part to be drilled and directs the coolant to the detachable drill head. The coolant provides lubrication for the drill head and assures that all of the chips produced by the drill head are directed through the detachable cutting head are flushed internally through the ID of a cylindrical hollow drill tube or boring bar. This is better known as an external coolant supply / internal (ID) chip exhaust method of drilling.

This system allow depth to diameter ratios in excess of 100x's dia. In most cases the STS is setup on dedicated deep hole drilling machines. This system is the best choice for extremely deep bores and for materials with poor chip forming properties such as stainless steel, Titanium, and low carbon steel.



Drilling Systems

2. Double Tube System (DTS) / Ejector System (EJS)

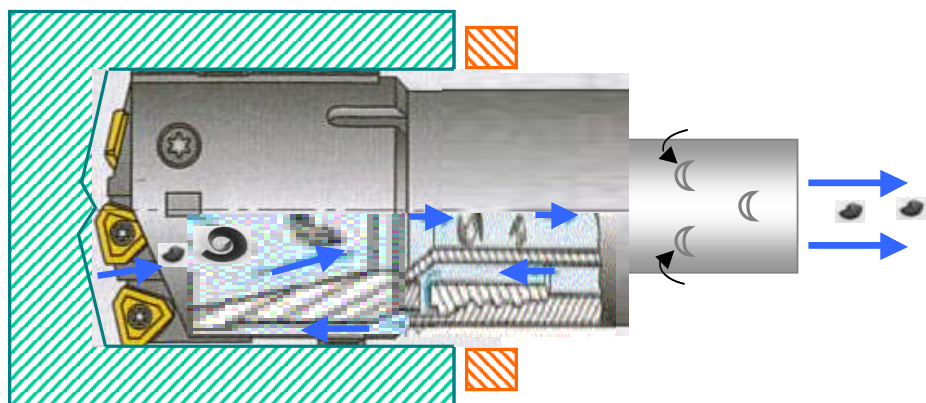
The DTS (Ejector System) of drilling is where the coolant is supplied at the machine spindle through a special coolant inducer or connector.

This drilling system consists of an outer and inner tube that is connected to the coolant inducer at one end and to a drill head at the other end by means of a fast lead, four-start thread.

The principal of this system of drilling is where pressurized coolant is introduced via the coolant connector to flow through the resulting annular space between the outer and the inner drill tubes towards the drill head. The majority of the coolant flow is forced through a series of holes in the drill head that provides lubrication and chip evacuation through the inner tube.

A small portion of the coolant flow is diverted through the rear end of the inner tube via a series of slots that are cut into the inner tube. This small flow of coolant creates a partial vacuum in the inner drill tube and sucks the coolant and the chips from the drill head through the inner tube, then to a chip exhaust port that is an interracial part of the coolant connector.

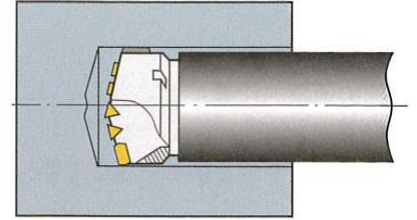
This system allow depth to diameter ratios of up to 100x's dia. The DTS system can be used on conventional machine tools such as: lathes, horizontal boring mills and machining centers which have suitable feed mechanisms, rigidity, and our self contained coolant system.



Type of Drill Head

1. Solid Drill

This is the most common method for solid material.
 Straightness and surface roughness are excellent.
 Most of the second process is not necessary.



2. Counter Boring / Reaming and Pull Boring

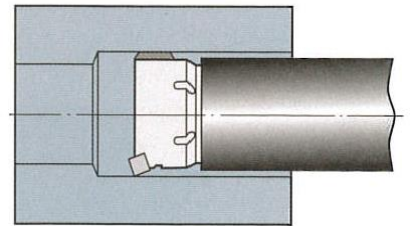
Counter boring is used for expanding and honing pre-drilled hole. This is suitable for forged, cast, extruded components to obtain a better machined surface and tolerance.

In case that machine power is not sufficient in one operation, we recommend following method.

Step1 : Pre-drilling with smaller size solid drill

Step2 : Counter boring to the desired diameter

Pull boring is one of the counter boring which is suitable for machining inner of tube.



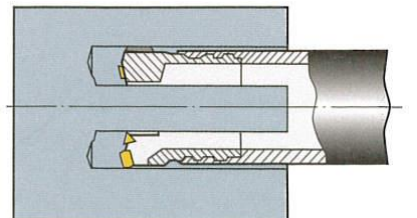
3. Trepanning

Trepanning is used principally for large diameter hole in one operation by low power equipment.

However, instead of drilling away all the material in the form of chips, a core is left in the center of the hole.

When drilling expensive materials, the core is often used for other purpose.

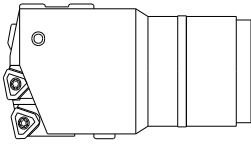
For example, test pieces of mechanical and material properties.



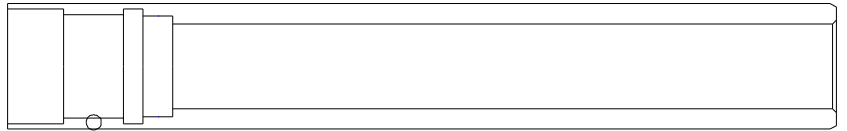
Connection Methods of Drill Head and Tube

1. Single Tube System

Outer Diameter 4start Thread

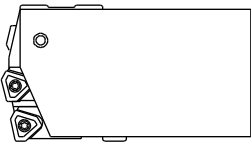


Drill Head

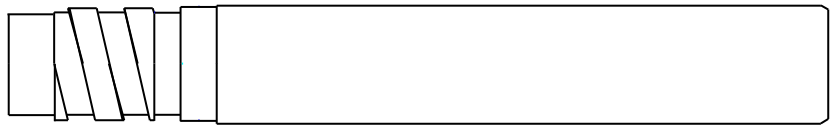


Boring Bar

Inner Diameter 1start Thread



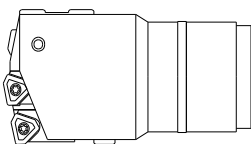
Drill Head



Boring Bar

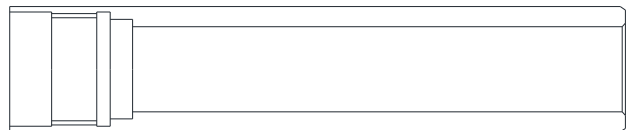
2. Double Tube System

Outer Diameter 4start Thread



Drill Head

Outer Tube



Inner Tube



Boring Bar

Disposable Drill Head

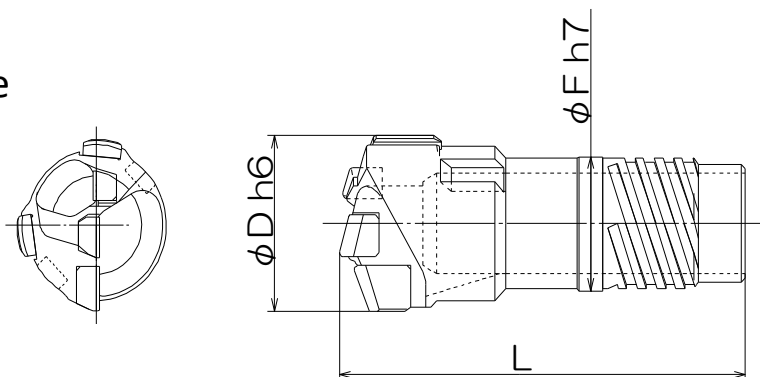
日本製工具

φ.15.61 – 20.00 mm *>20.00 mm Special Product



Outer Diameter 4start Thread Type

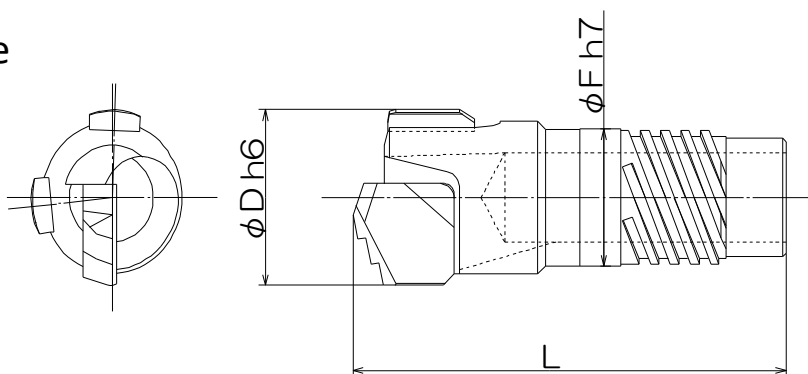
3 Insert Type



Part No.	Drill Dia (mm)	Dimensions		Boring Bar	
		L	F	Part No.	Dia
YTT-0097	15.61-16.70	43.0	12.6	BIF0097	14
YTT-0098	16.71-17.70	43.0	13.6	BIF0098	15
YTT-0099	17.71-18.40	43.0	14.5	BIF0099	16
YTT-0000	19.21-20.00	52.5	15.5	BIF0000	17

*Regarding D>20.00 mm, Please ask us!

1 Insert Type



Part No.	Drill Dia (mm)	Dimensions		Boring Bar	
		L	F	Part No.	Dia
YTS-0097	15.61-16.70	40	12.6	BIF0097	14
YTS-0098	16.71-17.70	40	13.6	BIF0098	15
YTS-0099	17.71-18.90	40	14.5	BIF0099	16

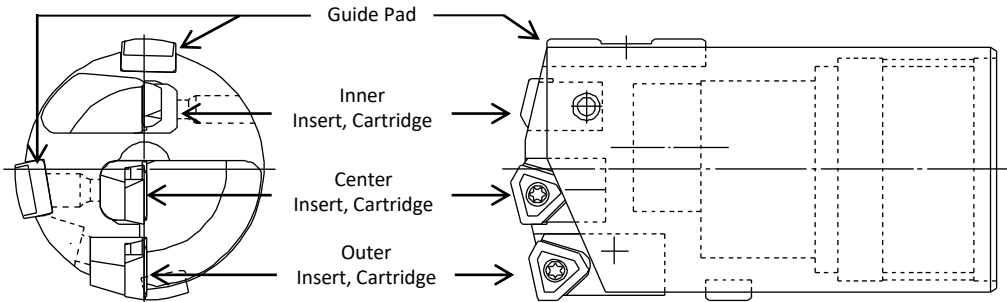
*Regarding D>18.90 mm, Please ask us!

Indexable Drill Head

日本製工具

STS : Inner Diameter 4start Thread

φ30.00 – 134.99 mm *>134.99 mm Special Product



【Ordering Example】
 D=30.00, Bar Size=BOS26
 ⇒ YSE 30.00 - 26

【Please Request!】 *Direct Mount Type (Cartridge is unnecessary)
 *D>134.99mm (7 cartridges are necessary)

Tool Dia (mm)	Position	Cartridge 	Insert 	Screw		Guide Pad 	Sub Guide 	Screw		Boring bar
				Lock	Insert			Guide	Sub guide	
30.00-31.99	Outer	COT07	UPM07	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BOS26
	Center	CIT07	UPM07T	LS3	TS2.5					
	Inner	CIT07	UPM07	LS3	TS2.5					
32.00-33.99	Outer	COT07	UPM07	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BOS28
	Center	CIT07	UPM07T	LS3	TS2.5					
	Inner	CIT07	UPM07	LS3	TS2.5					
34.00-36.99	Outer	COT05	UPM05	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BOS30
	Center	CIT05	UPM05	LS3	TS2.2					
	Inner	CIT07	UPM07	LS3	TS2.5					
37.00-39.99	Outer	COT05	UPM05	OLS3	TS2.2	GP08	SGP08	LS3S	LS3S	BOS33
	Center	CIT05	UPM05	LS3	TS2.2					
	Inner	CIT07	UPM07	LS3	TS2.5					
40.00-44.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP08	SGP08	LS3S	LS3S	BOS36 BOS39(45.00-)
	Center	CIT05	UPM05	LS3	TS2.2					
	Inner	CIT05	UPM05	LS3	TS2.2					
45.00-47.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP10	SGP08	LS4S	LS3S	BOS39 BOS43(47.00-)
	Center	CIT05	UPM05	LS3	TS2.2					
	Inner	CIT04	UPM04	LS3.5	TS2.5					

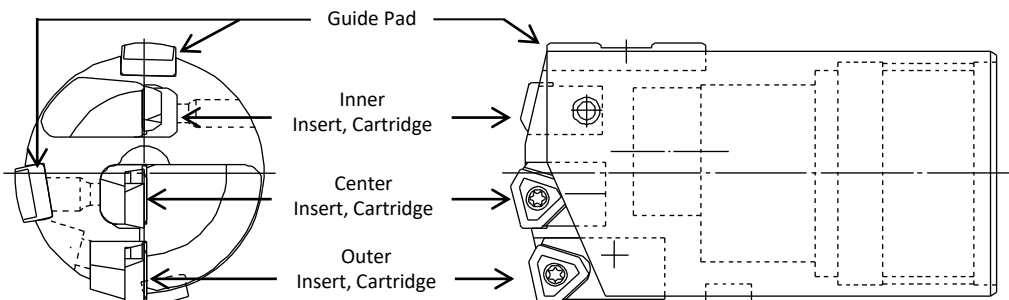
Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.
 But Not Inserts. Please see Page of Insert and Cartridge P.23.

Indexable Drill Head

日本製工具

STS : Inner Diameter 4start Thread

φ30.00 – 134.99 mm *>134.99 mm Special Product



【Ordering Example】
 D=30.00, Bar Size=BOS26
 ⇒ YSE 30.00 - 26

【Please Request!】 *Direct Mount Type (Cartridge is unnecessary)

*D>134.99mm (7 cartridges are necessary)

Tool Dia (mm)	Position	Cartridge 	Insert 	Screw		Guide Pad 	Sub Guide 	Screw		Boring bar
				Lock	Insert			Guide	Sub guide	
48.00-51.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP10	SGP08	LS4S	LS3S	BOS43
	Center	CIT04	UPM04	LS3.5	TS2.5					
	Inner	CIT04	UPM04	LS3.5	TS2.5					
52.00-54.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BOS47
	Center	CIT04	UPM04	LS3.5	TS2.5					
	Inner	CIT04	UPM04	LS3.5	TS2.5					
55.00-57.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BOS47(-56.99) BOS51(57.00-)
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner	CIT04	UPM04	LS3.5	TS2.5					
58.00-59.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BOS51
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner	CIT32	UPM32	LS5	TS3.5D					
60.00-63.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BOS51(-60.99) BOS56(61.00-)
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner	CIT32	UPM32	LS5	TS3.5D					
64.00-67.99	Outer	COT43	UPM43	OLS6	TS4M	GP14	SGP10	LS5S	LS3S	BOS56
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner	CIT32	UPM32	LS5	TS3.5D					
68.00-77.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BOS62(-74.99) BOS68(75.00-)
	Center	CIT43	UPM43	LS6	TS4M					
	Inner	CIT43	UPM43	LS6	TS4M					
78.00-91.99	Outer	COT43	UPM43	OLS6	TS4M	GP14	SGP10	LS5S	LS3S	BOS68(-80.99) BOS75(81-90.99) BOS82(91.00-)
	Center	CIT43	UPM43	LS6	TS4M					
	Inner	CIT43	UPM43	LS6	TS4M					

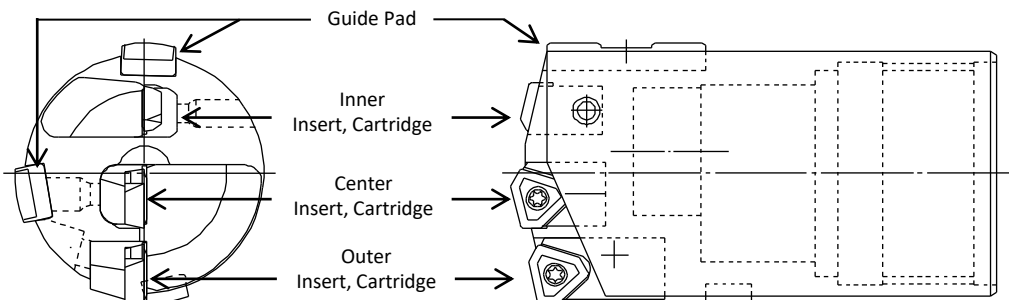
Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.

But Not Inserts. Please see Page of Insert and Cartridge P.23.

Indexable Drill Head

STS : Inner Diameter 4start Thread

φ30.00 – 134.99 mm *>134.99 mm Special Product



【Ordering Example】
D=30.00, Bar Size=BOS26
⇒ YSE 30.00 - 26

【Please Request!】 *Direct Mount Type (Cartridge is unnecessary)

*D>134.99mm (7 cartridges are necessary)

Tool Dia (mm)	Position	Cartridge	Insert	Screw		Guide Pad	Sub Guide	Screw		Boring bar
				Lock	Insert			Guide	Sub guide	
92.00-98.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BOS82
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D					
99.00-110.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BOS94
	Center	CIT32	UPM32	LS6	TS4M					
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D					
111.00-114.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BOS106
	Center	CIT43	UPM43	LS6	TS4M					
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D					
115.00-122.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BOS106
	Center	CIT43	UPM43	LS6	TS4M					
	Inner(3pcs.)	CIT43	UPM43	LS6	TS4M					
123.00-134.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BOS118
	Center	CIT43	UPM43	LS6	TS4M					
	Inner(3pcs.)	CIT43	UPM43	LS6	TS4M					

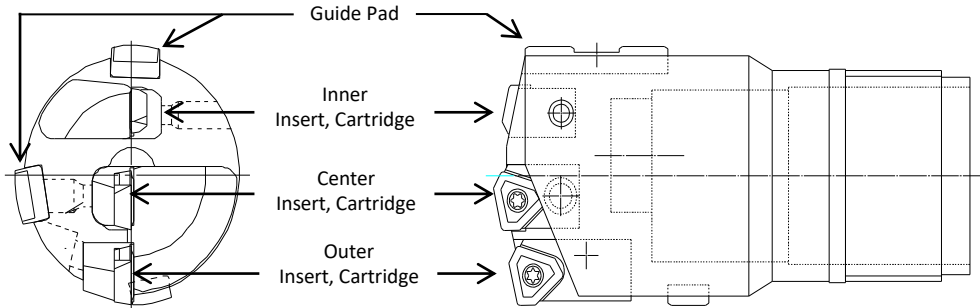
Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.

But Not Inserts. **Please see Page of Insert and Cartridge P.23.**

Indexable Drill Head

STS : Outer Diameter 4start Thread

φ30.00 – 134.99 mm *>134.99 mm Special Product



【Ordering Example】
 D=30.00, Bar size=BIF04
 ⇒ YSS 30.00 - 04

【Please Request!】 *Direct Mount Type (Cartridge is unnecessary)
 *D>134.99mm (7 cartridges are necessary)

Tool Dia (mm)	Position	Cartridge	Insert	Screw		Guide Pad	Sub Guide	Screw		Boring bar
				Lock	Insert			Guide	Sub guide	
30.00-31.99	Outer	COT07	UPM07	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BIF04 BIF05(31.01-)
	Center	CIT07	UPM07T	LS3	TS2.5					
	Inner	CIT07	UPM07	LS3	TS2.5					
32.00-33.99	Outer	COT07	UPM07	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BIF05(-33.30) BIF06(33.31-)
	Center	CIT07	UPM07T	LS3	TS2.5					
	Inner	CIT07	UPM07	LS3	TS2.5					
34.00-36.99	Outer	COT05	UPM05	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BIF06(-36.20) BIF07(36.21-)
	Center	CIT05	UPM05	LS3	TS2.2					
	Inner	CIT07	UPM07	LS3	TS2.5					
37.00-39.99	Outer	COT05	UPM05	OLS3	TS2.2	GP08	SGP08	LS3S	LS3S	BIF07(-39.60) BIF08(39.61-)
	Center	CIT05	UPM05	LS3	TS2.2					
	Inner	CIT07	UPM07	LS3	TS2.5					
40.00-43.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP08	SGP08	LS3S	LS3S	BIF08(-43.00) BIF09(43.01-)
	Center	CIT05	UPM05	LS3	TS2.2					
	Inner	CIT05	UPM05	LS3	TS2.2					
44.00-47.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP08	SGP08	LS3S	LS3S	BIF09(-47.00) BIF10(47.01-)
	Center	CIT05	UPM05	LS3	TS2.2					
	Inner	CIT05	UPM05	LS2.5	TS2.2					

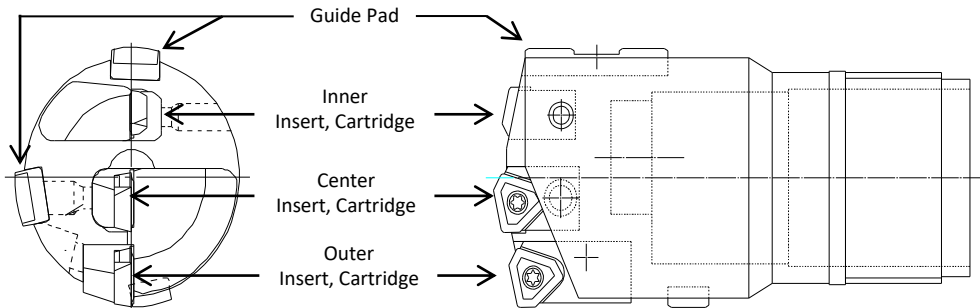
Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.
 But Not Inserts. **Please see Page of Insert and Cartridge P.23.**

Indexable Drill Head

STS : Outer Diameter 4start Thread

φ30.00 – 134.99 mm *>134.99 mm Special Product

日本製工具



【Ordering Example】
 D=30.00, Bar Size=BIF04
 ⇒ YSS 30.00 - 04

【Please Request!】 *Direct Mount Type (Cartridge is unnecessary)

*D>134.99mm (7 cartridges are necessary)

Tool Dia (mm)	Position	Cartridge	Insert	Screw		Guide Pad	Sub Guide	Screw		Boring bar
				Lock	Insert			Guide	Sub guide	
48.00-51.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP10	SGP08	LS4S	LS3S	BIF10(-51.70) BIF11(-51.99)
	Center	CIT04	UPM04	LS3.5	TS2.5					
	Inner	CIT04	UPM04	LS3.5	TS2.5					
52.00-54.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BIF11
	Center	CIT04	UPM04	LS3.5	TS2.5					
	Inner	CIT07	UPM04	LS3.5	TS2.5					
55.00-57.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BIF11(-56.20) BIF12(-56.21)
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner	CIT04	UPM04	LS3.5	TS2.5					
58.00-59.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BIF12
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner	CIT32	UPM32	LS5	TS3.5D					
60.00-63.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BIF12(-60.60) BIF13(60.61-)
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner	CIT32	UPM32	LS5	TS3.5D					
64.00-67.99	Outer	COT43	UPM43	OLS6	TS4M	GP14	SGP10	LS5S	LS3S	BIF13(-65.00) BIF14(65-66.99) BIF15(67.00-)
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner	CIT32	UPM32	LS5	TS3.5D					
68.00-77.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BIF15(-72.99) BIF16(73.00-)
	Center	CIT43	UPM43	LS6	TS4M					
	Inner	CIT43	UPM43	LS6	TS4M					
78.00-91.99	Outer	COT43	UPM43	OLS6	TS4M	GP14	SGP10	LS5S	LS3S	BIF16(-79.99) BIF17(80-86.99) BIF18(87.00-)
	Center	CIT43	UPM43	LS6	TS4M					
	Inner	CIT43	UPM43	LS6	TS4M					

Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.

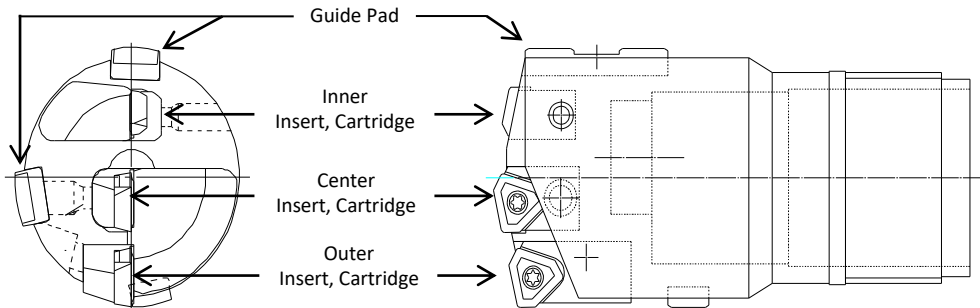
But Not Inserts. Please see Page of Insert and Cartridge P.23.

Indexable Drill Head

STS : Outer Diameter 4start Thread

φ30.00 – 134.99 mm *>134.99 mm Special Product

日本製工具



【Ordering Example】
 D=30.00, Bar Size=BIF04
 ⇒ YSS 30.00 - 04

【Please Request!】 *Direct Mount Type (Cartridge is unnecessary)
 *D>134.99mm (7 cartridges are necessary)

Tool Dia (mm)	Position	Cartridge	Insert	Screw		Guide Pad	Sub Guide	Screw		Boring bar
				Lock	Insert			Guide	Sub guide	
92.00-96.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BIF18
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D					
97.00-98.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BIF18
	Center	CIT32	UPM32	LS5	TS3.5D					
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D					
99.00-110.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BIF18(-99.99) BIF19(100.00-)
	Center	CIT43	UPM43	LS6	TS4M					
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D					
111.00-114.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BIF19(-111.99) BIF20(112.00-)
	Center	CIT43	UPM43	LS6	TS4M					
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D					
115.00-122.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BIF20
	Center	CIT43	UPM43	LS6	TS4M					
	Inner(3pcs.)	CIT43	UPM43	LS6	TS4M					
123.00-134.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BIF20(-123.99) BIF21(124.00-)
	Center	CIT43	UPM43	LS6	TS4M					
	Inner(3pcs.)	CIT43	UPM43	LS6	TS4M					

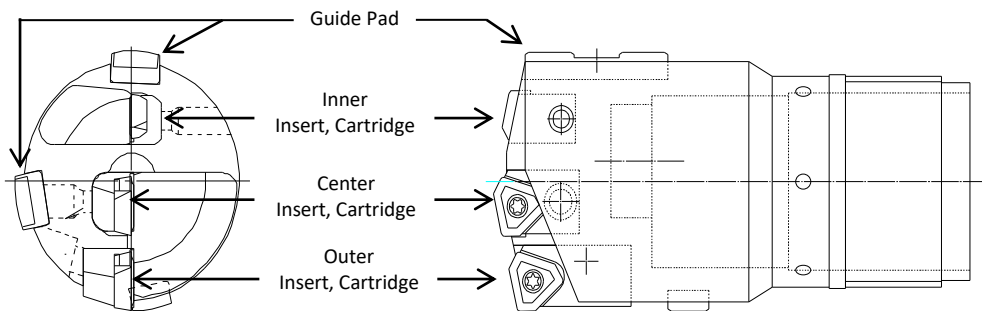
Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.
 But Not Inserts. **Please see Page of Insert and Cartridge P.23.**

Indexable Drill Head

DTS : Outer Diameter 4start Thread

φ30.00 – 134.99 mm *>134.99 mm Special Product

日本製工具



【Ordering Example】

D=30.00,
Bar Size
Outer:BOW05
Inner:BIW05
⇒ YSW 30.00 – 05J

【Please Request!】 *Direct Mount Type (Cartridge is unnecessary)

*D>134.99mm (7 cartridges are necessary)

Tool Dia (mm)	Position	Cartridge	Insert	Screw		Guide Pad	Sub Guide	Screw		Boring Bar	
				Lock	Insert			Guide	Sub Guide	Outer Tube	Inner Tube
30.00-31.00	Outer	COT07	UPM07	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BOW05	BIW05
	Center	CIT07	UPM07T	LS3	TS2.5						
	Inner	CIT07	UPM07	LS3	TS2.5						
31.01-31.99	Outer	COT07	UPM07	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BOW06	BIW06
	Center	CIT07	UPM07T	LS3	TS2.5						
	Inner	CIT07	UPM07	LS3	TS2.5						
32.00-33.99	Outer	COT07	UPM07	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BOW06(-33.30) BOW07(33.31-)	BIW06(-33.30) BIW07(33.31-)
	Center	CIT07	UPM07T	LS3	TS2.5						
	Inner	CIT07	UPM07	LS3	TS2.5						
32.00-33.99	Outer	COT07	UPM07	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BOW07	BIW07
	Center	CIT07	UPM07T	LS3	TS2.5						
	Inner	CIT07	UPM07	LS3	TS2.5						
34.00-36.99	Outer	COT05	UPM05	OLS3	TS2.5	GP08-140	SGP06	LS3S	LS2.2S	BOW07(-36.20) BIW08(36.21-)	BIW07(-36.20) BIW08(36.21-)
	Center	CIT05	UPM05	LS3	TS2.2						
	Inner	CIT07	UPM07	LS3	TS2.5						
37.00-39.99	Outer	COT05	UPM05	OLS3	TS2.2	GP08	SGP08	LS3S	LS3S	BOW08(-39.60) BOW09(39.61-)	BIW08(-39.60) BIW09(39.61-)
	Center	CIT05	UPM05	LS3	TS2.2						
	Inner	CIT07	UPM07	LS3	TS2.5						
40.00-43.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP08	SGP08	LS3S	LS3S	BOW09(-43.00) BOW10(43.01-)	BIW09(-43.00) BIW10(43.01-)
	Center	CIT05	UPM05	LS3	TS2.2						
	Inner	CIT05	UPM05	LS3	TS2.2						
44.00-47.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP08	SGP08	LS3S	LS3S	BOW10(-47.00) BOW11(47.01-)	BIW10(-47.00) BIW11(47.01-)
	Center	CIT05	UPM05	LS3	TS2.2						
	Inner	CIT05	UPM05	LS2.5	TS2.2						
48.00-51.99	Outer	COT04	UPM04	OLS3.5	TS2.5	GP10	SGP08	LS4S	LS3S	BOF11(-51.70) BOF12(-51.99)	BIF11(-51.70) BIF12(-51.99)
	Center	CIT04	UPM04	LS3.5	TS2.5						
	Inner	CIT04	UPM04	LS3.5	TS2.5						
52.00-54.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BOW12	BIW12
	Center	CIT04	UPM04	LS3.5	TS2.5						
	Inner	CIT07	UPM04	LS3.5	TS2.5						
55.00-57.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BOW12(-56.20) BOW13(56.21-)	BIW12(-56.20) BIW13(56.21-)
	Center	CIT32	UPM32	LS5	TS3.5D						
	Inner	CIT04	UPM04	LS3.5	TS2.5						
58.00-59.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP10	SGP08	LS4S	LS3S	BOW13	BIW13
	Center	CIT32	UPM32	LS5	TS3.5D						
	Inner	CIT32	UPM32	LS5	TS3.5D						
60.00-63.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BOW13	BIW13
	Center	CIT32	UPM32	LS5	TS3.5D						
	Inner	CIT32	UPM32	LS5	TS3.5D						

Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.

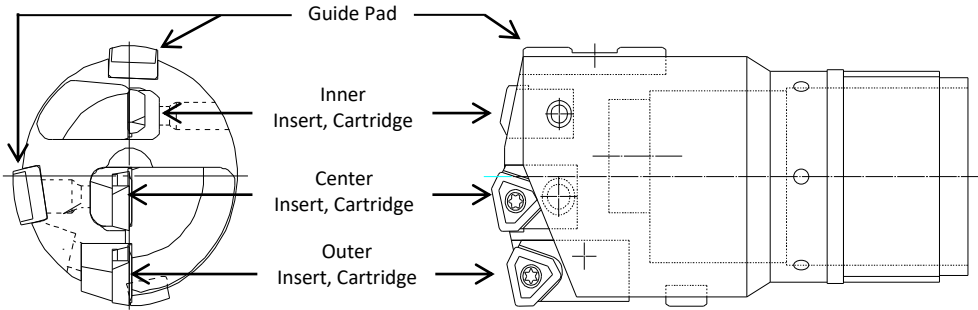
But Not Inserts. Please see Page of Insert and Cartridge P.23.

Indexable Drill Head

DTS : Outer Diameter 4start Thread

φ30.00 – 134.99 mm *>134.99 mm Special Product

日本製工具



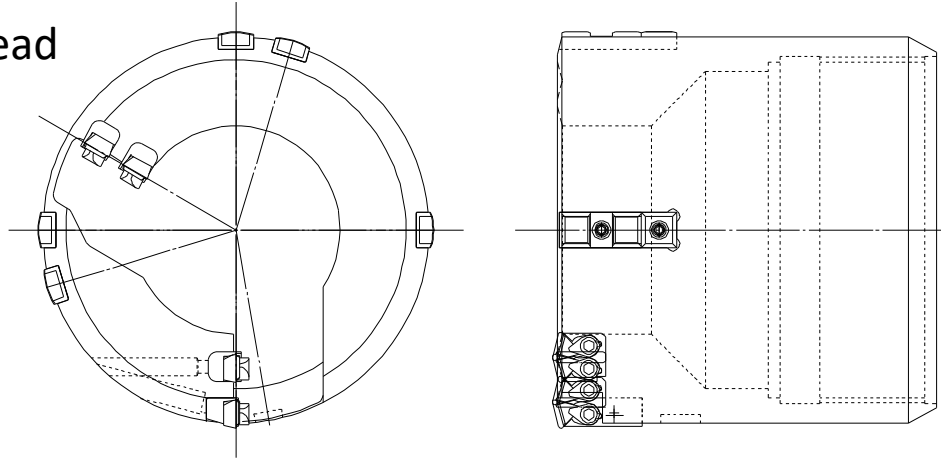
【Ordering Example】
 D=30.00,
 Bar Size
 Outer:BOW05
 Inner:BIW05
 ⇒ YSW 30.00 – 05J

【Please Request!】 *Direct Mount Type (Cartridge is unnecessary)
 *D>134.99mm (7 cartridges are necessary)

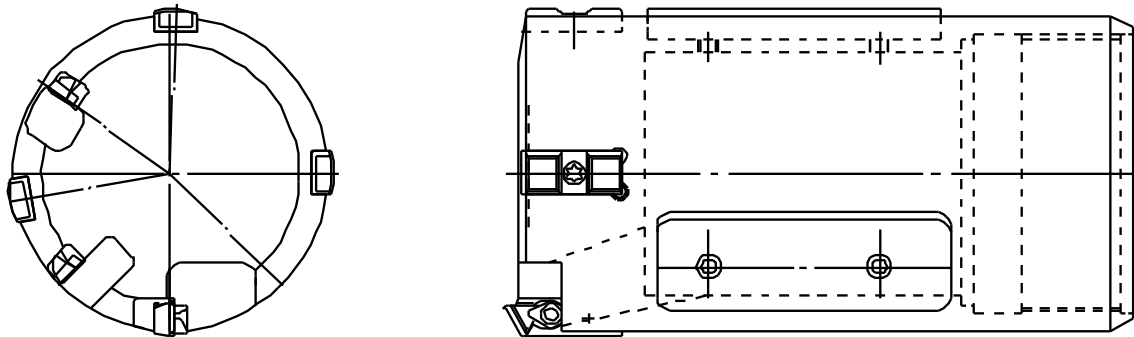
Tool Dia (mm)	Position	Cartridge 	Insert 	Screw		Guide Pad 	Sub Guide 	Screw		Boring bar	
				Lock 	Insert 			Guide 	Sub guide 	Outer tube 	Inner tube
64.00-67.99	Outer	COT43	UPM43	OLS6	TS4M	GP14	SGP10	LS5S	LS3S	BOW13(-65.00) BOW14(65.01-66.99) BOW15(70.00-)	BIW13(-65.00) BIW14(65.01-66.99) BIW15(70.00-)
	Center	CIT32	UPM32	LS5	TS3.5D						
	Inner	CIT32	UPM32	LS5	TS3.5D						
68.00-77.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BOW15(-72.99) BOW16(73.00-)	BIW15(-72.99) BIW16(73.00-)
	Center	CIT43	UPM43	LS6	TS4M						
	Inner	CIT43	UPM43	LS6	TS4M						
78.00-91.99	Outer	COT43	UPM43	OLS6	TS4M	GP14	SGP10	LS5S	LS3S	BOW16(-79.99) BOW17(80.00-86.99) BOW18(87.00-)	BIW16(-79.99) BIW17(80.00-86.99) BIW18(87.00-)
	Center	CIT43	UPM43	LS6	TS4M						
	Inner	CIT43	UPM43	LS6	TS4M						
92.00-96.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BOW18	BIW18
	Center	CIT32	UPM32	LS5	TS3.5D						
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D						
97.00-98.99	Outer	COT32	UPM32	OLS5	TS3.5D	GP14	SGP10	LS5S	LS3S	BOW18	BIW18
	Center	CIT32	UPM32	LS5	TS3.5D						
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D						
99.00-110.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BOW18(-99.99) BOW19(100.00-)	BIW18(-99.99) BIW19(100.00-)
	Center	CIT43	UPM43	LS6	TS4M						
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D						
111.00-114.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BOW19(-111.99) BOW20(112.00-)	BIW19(-111.99) BIW20(112.00-)
	Center	CIT43	UPM43	LS6	TS4M						
	Inner(3pcs.)	CIT32	UPM32	LS5	TS3.5D						
115.00-122.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BOW20	BIW20
	Center	CIT43	UPM43	LS6	TS4M						
	Inner(3pcs.)	CIT43	UPM43	LS6	TS4M						
123.00-134.99	Outer	COT43	UPM43	OLS6	TS4M	GP18	SGP14	LS6S	LS4S	BOW20(-123.99) BOW21(124.00-)	BIW20(-123.99) BIW21(124.00-)
	Center	CIT43	UPM43	LS6	TS4M						
	Inner(3pcs.)	CIT43	UPM43	LS6	TS4M						

Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.
 But Not Inserts. **Please see Page of Insert and Cartridge P.23.**

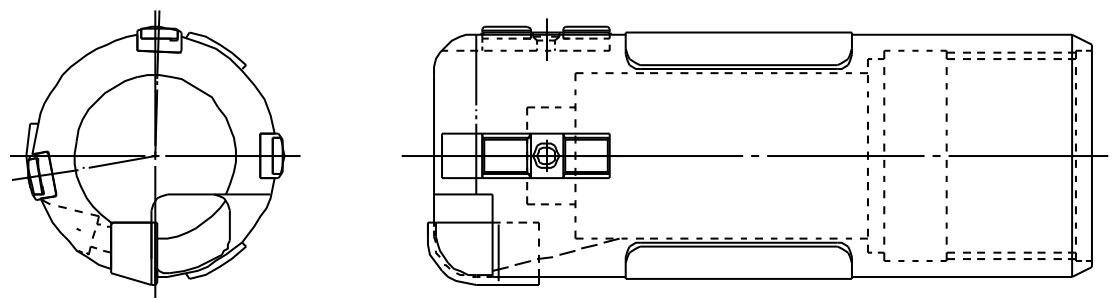
Trepanning Head



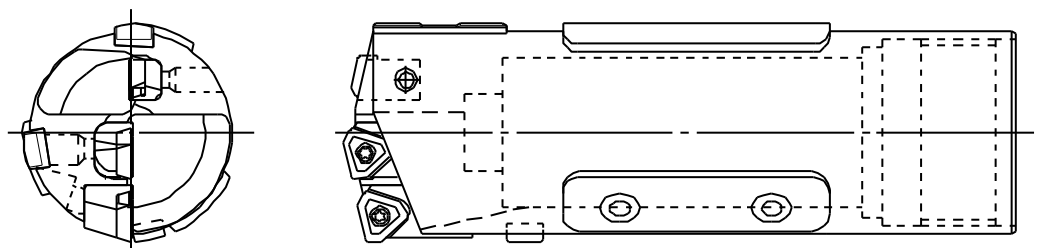
Counter Head



Counter-R Drill Head

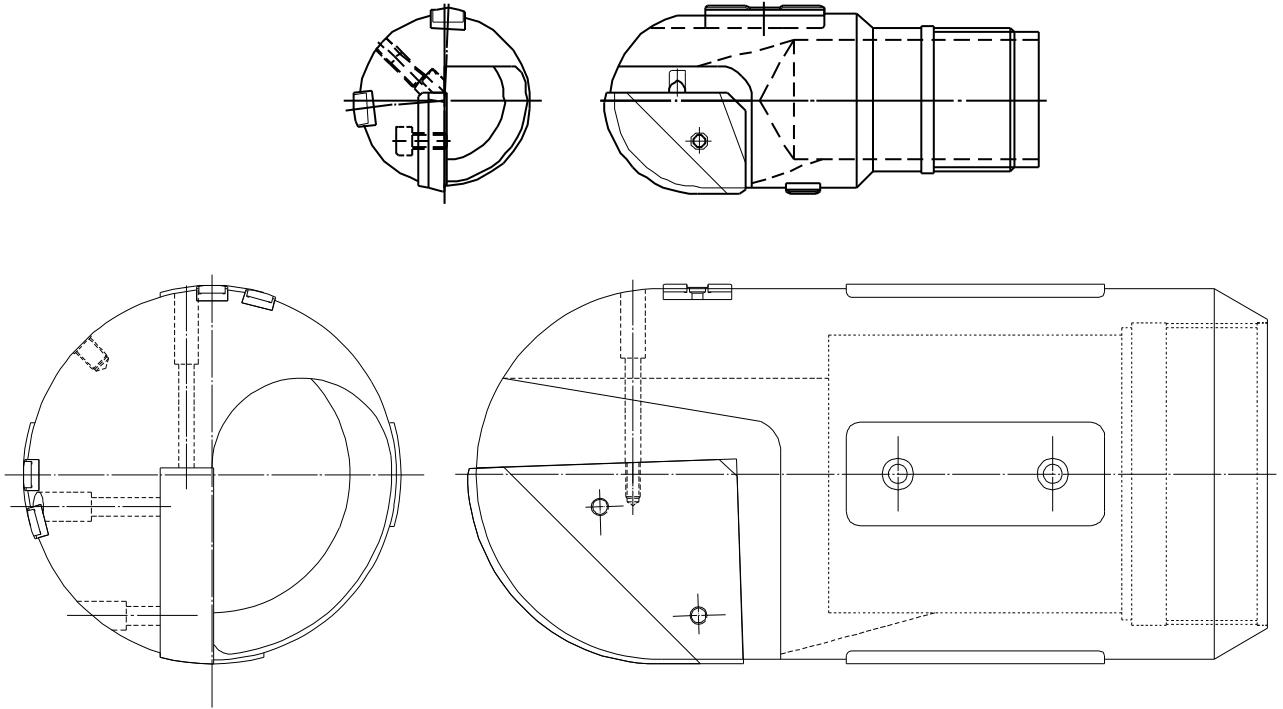


Drill Head X Resin Guide

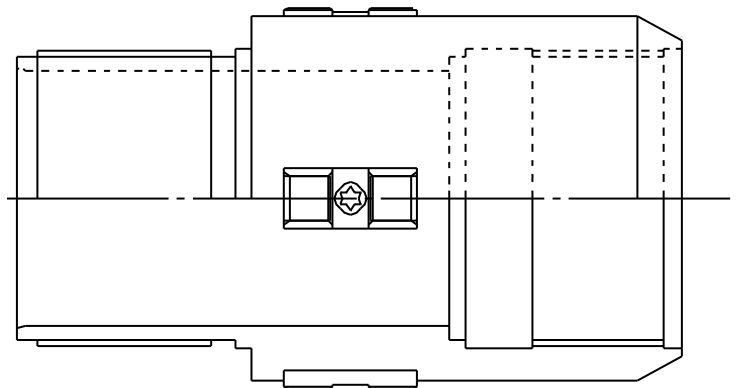


Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.
 But Not Inserts. **Please see Page of Insert and Cartridge P.23.**

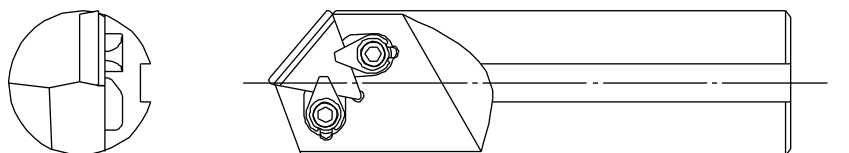
Full-R Drill Head



Adapter X Guide



Counter Boring

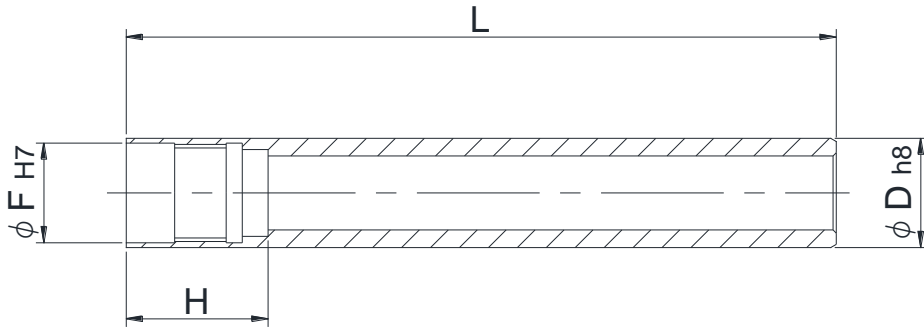


Note: Parts of Drill Head ⇒ Cartridge, Guide pads, Sub Guide, Screw and Spanners.
But Not Inserts. **Please see Page of Insert and Cartridge P.23.**

Boring Bar

STS : Inner Diameter 4start Thread
 $\phi 15.60 - 243.99$ mm

日本製工具



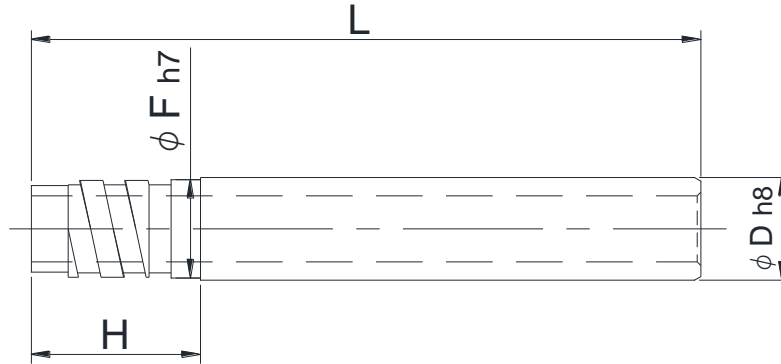
Drill Range (mm)	Type	Dimension(mm)		
		D	F	H
15.60 - 16.70	BIF0097	14	12.6	21
16.71 - 17.70	BIF0098	15	13.6	21
17.71 - 18.90	BIF0099	16	14.5	22
18.91 - 20.00	BIF0000	17	15.5	22
20.01 - 21.80	BIF00	18	16	27.5
21.81 - 24.10	BIF01	20	18	30
24.11 - 26.40	BIF02	22	19.5	30
26.41 - 28.70	BIF03	24	21	30
28.71 - 31.00	BIF04	26	23.5	33
31.01 - 33.30	BIF05	28	25.5	33
33.31 - 36.20	BIF06	30	28	33
36.21 - 39.60	BIF07	33	30	40
39.61 - 43.00	BIF08	36	33	40
43.01 - 47.00	BIF09	39	36	40
47.01 - 51.70	BIF10	43	39	40
51.71 - 56.20	BIF11	47	43	44
56.21 - 60.60	BIF12	51	47	44
60.61 - 65.00	BIF13	56	51	44
65.00 - 66.99	BIF14	56	52	75
67.00 - 72.99	BIF15	62	58	75
73.00 - 79.99	BIF16	68	63	75
80.00 - 86.99	BIF17	75	70	97
87.00 - 99.99	BIF18	82	77	97
100.00 - 111.99	BIF19	94	89	97
112.00 - 123.99	BIF20	106	101	118
124.00 - 135.99	BIF21	118	113	118
136.00 - 147.99	BIF22	130	125	118
148.00 - 159.99	BIF23	142	137	139
160.00 - 171.99	BIF24	154	149	139
172.00 - 183.99	BIF25	166	161	139
184.00 - 195.99	BIF26	178	173	144
196.00 - 207.99	BIF27	190	185	144
208.00 - 219.99	BIF28	202	197	144
220.00 - 231.99	BIF29	214	208	164
232.00 - 243.99	BIF30	226	220	164

Boring Bar

STS : Outer Diameter 4start Thread

φ14.50 – 245.99 mm

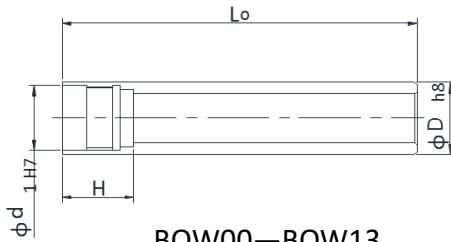
日本製工具



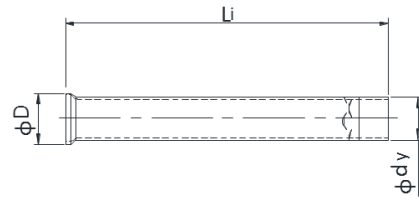
Drill Range (mm)	type	Dimension(mm)		
		D	H	F
14.50 - 15.00	BOS12-1	12	23	11.5
15.01 - 15.50	BOS12-2	12	23	11.8
15.51 - 16.00	BOS13-1	13	23	12.4
16.01 - 16.50	BOS13-2	13	23	12.7
16.51 - 17.25	BOS14-1	14	23	13.4
17.26 - 18.00	BOS14-2	14	23	13.7
18.01 - 19.00	BOS15	15	23	14.4
19.01 - 19.99	BOS16.5	16.5	23	15.4
20.00 - 21.99	BOS18	18	26	16.5
22.00 - 24.99	BOS20	20	26	19
25.00 - 26.99	BOS22	22	26	20
27.00 - 29.99	BOS24	24	26	22
30.00 - 31.99	BOS26	26	26	24
32.00 - 33.99	BOS28	28	26	26
34.00 - 36.99	BOS30	30	41	27
37.00 - 39.99	BOS33	33	41	30
40.00 - 43.99	BOS36	36	41	33
44.00 - 46.99	BOS39	39	41	37
47.00 - 51.99	BOS43	43	41	41
52.00 - 56.99	BOS47	47	41	44
57.00 - 60.99	BOS51	51	41	49
61.00 - 67.99	BOS56	56	41	53
68.00 - 74.99	BOS62	62	41	59
75.00 - 80.99	BOS68	68	71	65
81.00 - 90.99	BOS75	75	71	71
91.00 - 98.99	BOS82	82	71	79
99.00 - 110.99	BOS94	94	71	90
111.00 - 122.99	BOS106	106	71	102
123.00 - 134.99	BOS118	118	71	114
135.00 - 148.99	BOS130	130	71	126
149.00 - 161.99	BOS142	142	71	139
162.00 - 173.99	BOS154	154	86	151
174.00 - 185.99	BOS166	166	86	163
186.00 - 197.99	BOS178	178	86	175
198.00 - 209.99	BOS190	190	86	187
210.00 - 221.99	BOS202	202	86	199
222.00 - 233.99	BOS214	214	86	211
234.00 - 245.99	BOS226	226	86	223

Boring Bar

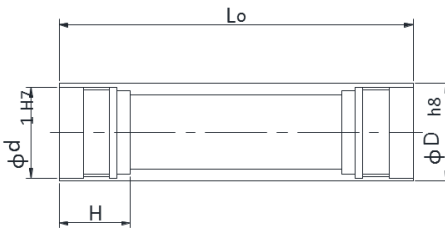
DTS : Outer Diameter 4start Thread
 $\phi 18.40 - 183.99$ mm



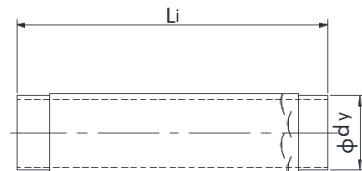
BOW00—BOW13



BIW00—BIW13



BOW14—BOW25

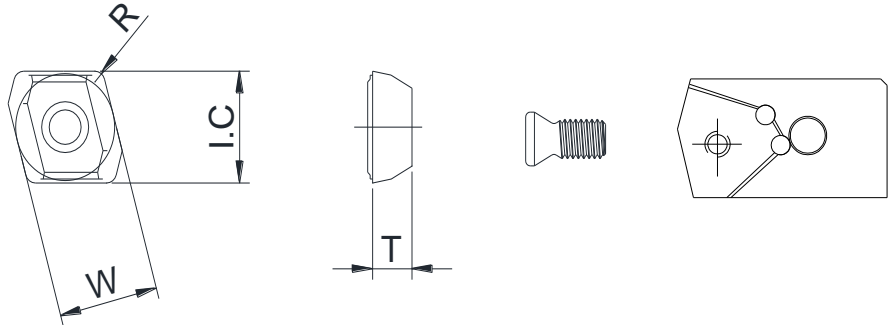


BIW14—BIW25

Drill Range (mm)	Outer Tube				Inner Tube		
	Type	Dimension(mm)			Type	Dimension(mm)	
		ϕD	ϕd_1	H		ϕD	ϕdy
18.40-20.00	BOW00	18	16	27.5	BIW00	12	10
20.01-21.80	BOW01	19.5	18	30	BIW01	14	12
21.81-24.10	BOW02	21.5	19.5	30	BIW02	15	13
24.11-26.40	BOW03	23.5	21	30	BIW03	16	14
26.41-28.70	BOW04	26	23.5	33	BIW04	18	16
28.71-31.00	BOW05	28	25.5	33	BIW05	20	18
31.01-33.30	BOW06	30.5	28	33	BIW06	22	20
33.31-36.20	BOW07	33	30	40	BIW07	24	22
36.21-39.60	BOW08	35.5	33	40	BIW08	26	24
39.61-43.00	BOW09	39	36	40	BIW09	29	27
43.01-47.00	BOW10	42.5	39	40	BIW10	32	30
47.01-51.70	BOW11	46.5	43	44	BIW11	35	32
51.71-56.20	BOW12	51	47	44	BIW12	39	36
56.21-65.00	BOW13	55.5	51	44	BIW13	43	40
65.00-66.99	BOW14	56	52	75	BIW14	-	40
67.00-72.99	BOW15	62	58	75	BIW15	-	44
73.00-79.99	BOW16	68	63	75	BIW16	-	48
80.00-86.99	BOW17	75	70	97	BIW17	-	54
87.00-99.99	BOW18	82	77	97	BIW18	-	60
100.00-111.99	BOW19	94	89	97	BIW19	-	70
112.00-123.99	BOW20	106	101	118	BIW20	-	80
124.00-135.99	BOW21	118	113	118	BIW21	-	80
136.00-147.99	BOW22	130	125	118	BIW22	-	95
148.00-159.99	BOW23	142	137	139	BIW23	-	100
160.00-171.99	BOW24	154	149	139	BIW24	-	120
172.00-183.99	BOW25	166	161	139	BIW25	-	130

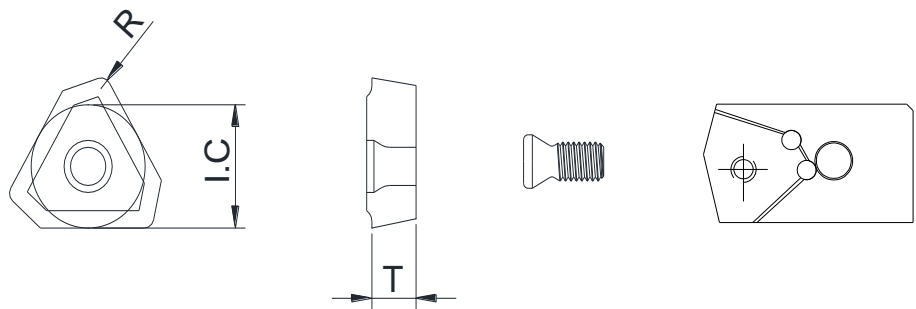
Insert and Cartridge

2 Corner Type



Insert Type	Dimension (mm)			Screw	Wrench	Suitable Cartridge	
	IC	T	R				
UPM-07(R/L)	7.0	3.18	0.4	TS2.5	T8	COT-07	CIT-07
UPM-05(R/L)	8.362	3.18	0.8	TS2.2	T7	COT-05	CIT-05

3 Corner Type

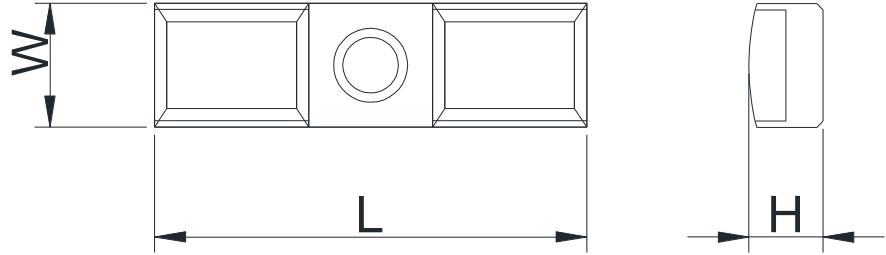


Insert Type	Dimension (mm)			Screw	Wrench	Suitable Cartridge	
	IC	T	R				
UPM-04	8.45	3.5	0.8	TS2.5	T8	COT-04	CIT-04
UPM-32	10.3	4.0	0.8	TS3.5D	T9	COT-32	CIT-32
UPM-43	14.2	5.5	1.2	TS4M	T15	COT-43	CIT-43
UPM-04S	8.45	3.5	0.8	TS2.5	T8	COT-04	CIT-04
UPM-32S	10.3	4.0	0.8	TS3.5D	T9	COT-32	CIT-32
UPM-43S	14.2	5.5	1.2	TS4M	T15	COT-43	CIT-43

*Insert Type : UPM-OOS is for difficult-to-cut material

Guide Pad

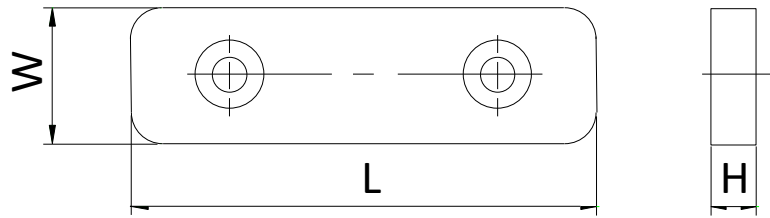
Guide Pad



Guide Pad		Dimension (mm)			Screw	Wrench
		L	W	H		
Steel + Carbide Type	GP08-140	25	8.0	3.5	LS3S	T-9
	GP08	25	8.0	4.5	LS3S	T-9
	GP10	35	10	6.0	LS4S	T-15
	GP14	40	14	7.5	LS5S	T-15
	GP18	40	18	9.0	LS6S	H3
Full Carbide Type	GP08-140S	25	8.0	3.5	LS3S	T-9
	GP08S	25	8.0	4.5	LS3S	T-9
	GP10S	35	10	6.0	LS4S	T-15
	GP14S	40	14	7.5	LS5S	T-15
	GP18S	40	18	9.0	LS6S	H3

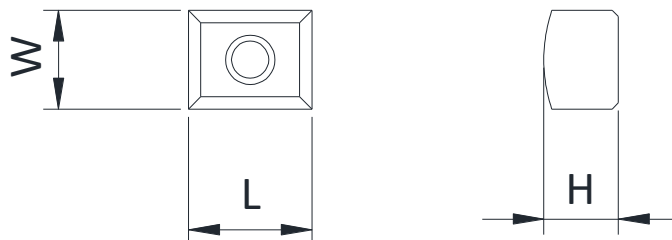
Resin Guide and Sub Guide

Resin Guide



Guide Pad	Dimension (mm)			Screw	Wrench
	L	W	H		
RRG15	50	15	5.8	FB90-0410	H2.5
RRG20	70	20	7.5	FB90-0512	H3
RRG30	80	30	12.5	FB90-0615	H4
RRG35	100	35	15.5	FB90-0615	H4
RRG40	120	40	18	FB90-0820	H5
RRG50	140	50	22	CB-1025	H8
RRG60	150	60	23	CB-1025	H8
RRG70	150	70	26	CB-1225	H10
RRG80	150	80	26	CB-1225	H10

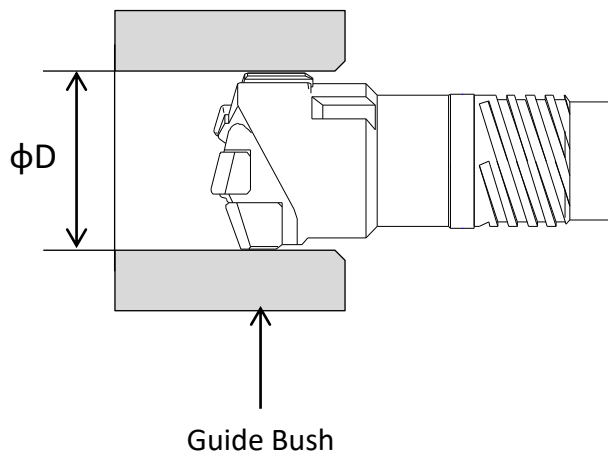
Sub Guide



Guide Pad	Dimension (mm)			Screw	Wrench
	L	W	H		
SGP06	10	6.0	3.0	LS2.2S	T-7
SGP08	25	8	4.5	LS3S	T-9
SGP10	35	10	6	LS3S	T-9
SGP14	40	14	7.5	LS4S	T-15

Guide Bush

Material	Rotating Method	Advantage
Hardened Steel	Work Piece Rotating	Economical
Carbide	Tool Rotating Work Piece Rotating	Long Life



ϕD (mm)	G6 Tolerance (mm)
6.00 – 10.00	0.005 – 0.014
10.0 – 18.00	0.006 – 0.017
18.0 – 30.00	0.007 – 0.020
30.0 – 50.00	0.009 – 0.025
50.0 – 80.00	0.010 – 0.029
80.0 – 140.00	0.012 – 0.034
140.0 – 200.00	0.014 – 0.039
200.0 – 250.00	0.015 – 0.044
250.0 – 315.00	0.017 – 0.049

— Cutting Conditions —

Group	Material	Hardness	Cutting Condition	
		[H B]	[M/min]	[mm/rev]
	[Non - Alloy Carbon Steel]			
0 1 . 1 . 0	C = 0.15	125	100	0.15
0 1 . 2 . 0	C = 0.35	150	70	0.20
0 1 . 3 . 0	C = 0.55	250	60	0.20
0 1 . 4 . 0	Hardened & Tempered	250-300	40 - 50	0.15 - 0.2
	[Alloy steel]			
0 2 . 1 . 0	Annealed	150 - 200	90 - 100	0.25 - 0.27
0 2 . 2 . 0	Hardened & Tempered	200 - 275	70 - 80	0.20 - 0.25
0 2 . 3 . 0	- # -	275 - 325	50 - 60	0.15 - 0.25
0 2 . 4 . 0	- # -	325 - 450	30 - 40	0.10 - 0.20
	[Stainless Steel]			
0 3 . 1 . 0	Annealed, Ferritic, Martenstic	180 - 220	60 - 70	0.25 - 0.27
0 3 . 2 . 0	- # - Austenitic	150 - 280	50 - 60	0.25 - 0.30
	[Steel Casting]			
0 4 . 1 . 0	Non Alloy	150	80 - 100	0.20 - 0.25
0 4 . 2 . 0	Low Alloy	150 - 250	70 - 90	0.17 - 0.23
0 4 . 3 . 0	High Alloy (Stain , Aust , Cast)	150 - 200	60 - 80	0.15 - 0.20
	[Heat Resistant Alloy]			
0 4 . 1 . 0	Type A ; Nimonic 75 & Othres	140 - 180	50 - 70	0.15 - 0.20
0 4 . 4 . 3	Type B ; Inconel 600 & Others	120 - 210	40 - 60	0.15 - 0.20
0 4 . 4 . 5	Type C ; Inconel 750 & Others	140 - 280	30 - 50	0.10 - 0.20
0 4 . 4 . 7	Type D ; Inconel 718 & Others	130 - 190	30 - 50	0.10 - 0.15
0 4 . 4 . 9	Type E ; Inconel PK3 & Others	330 - 540	15 - 30	0.05 - 0.15
0 5 . 1 . 0	Hardened Steel	200	30 - 50	0.10 - 0.20
0 5 . 2 . 0	- # -	477 - 745	10 - 30	0.10 - 0.15
	[Malleable Cast - Iron]			
0 6 . 1 . 0	Short Chipping, Ferritic	110 - 145	70 - 100	0.15 - 0.25
0 6 . 2 . 0	Long Chipping, Pearlitic	200 - 250	60 - 80	0.10 - 0.20
0 7 . 1 . 0	Low - Tensile Grey Cast-Iron	180	70 - 100	0.15 - 0.25
0 7 . 2 . 0	High - Tensile Grey & Alloy C-Iron		60 - 80	0.10 - 0.15
	[Nodular & Cast - Iron]			
0 8 . 1 . 0	Ferritic	160	70 - 100	0.15 - 0.25
0 8 . 2 . 0	Pearlitic	250	60 - 80	0.10 - 0.20
0 9 . 1 . 0	Chilled Cast-Iron	400	10 - 15	0.10 - 0.15
0 9 . 2 . 0	- # -	600	10 - 15	0.05 - 1.10
1 0 . 1 . 0	Electrolytic Cooper	50 - 85	100 - 200	0.20 - 0.30
	[Bronze - Brass Alloy]			
1 1 . 1 . 0	Lead Alloyed	80 - 150	100 - 200	0.15 - 0.25
1 1 . 2 . 0	Brass, Red Brass	60 - 110	100 - 200	0.15 - 0.25
1 1 . 3 . 0	Phosphor - Bronze	85 - 110	100 - 200	0.15 - 0.25
	[Aluminium Alloy]			
1 2 . 1 . 0	Not Heat - Treatable	30 - 80	100 - 200	0.05 - 0.15
1 2 . 2 . 0	Heat - Treatable	80 - 120	150 - 300	0.05 - 0.15
	[Cast Aluminium Alloy]			
1 3 . 1 . 0	Not Heat - Treatable	100	100 - 200	0.05 - 0.10
1 3 . 2 . 0	Heat - Treatable	130	150 - 300	0.05 - 0.10
	[Titanium]			
2 3 . 1 . 0	Pure - Titanium & 6v 4Al	300 - 450	15 - 30	0.10 - 0.20
	[Manganese]			
2 6 . 1 . 0	Manganese 12 - 14%	250	30 - 50	0.10 - 0.20



FUJI BC

ENGINEERING

FUJI BC ENGINEERING CO., LTD.

OSAKA OFFICE

1-9-13, ITACHIBORI, NISHI-KU, OSAKA, 550-0012, JAPAN

TEL : +(81)-6-6531-5631

FAX: +(81)-6-6531-5606