

Operation Manual

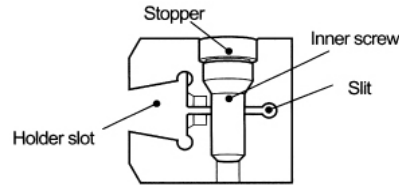
MITSUBISHI MATERIALS CORPORATION

WSTAR Indexable drill <S-TAW type>

Thank you for purchasing Mitsubishi Materials WSTAR indexable drill.
Please read this manual before use.

Insert installation

1. Before inserting the insert into the holder, ensure that there are no foreign objects or dirt in the holder slot or slit. If there are any foreign objects or dirt, use compressed air to remove them.



2. Use the provided wrench to loosen the inner screw to open the tip of the holder slot, then put the insert into the holder slot as shown in figure 1.
*Ensure that the wrench is firmly in contact with the base of the inner screw head when tightening.



Figure.1



3. After the insert has been set in the holder slot, tighten the inner screw as shown in figure 2 to securely clamp and locate the insert.
*Ensure that the wrench is firmly in contact with the base of the inner screw head when tightening.

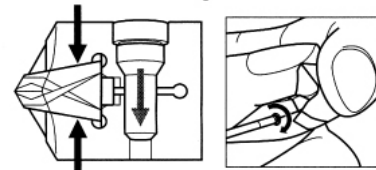
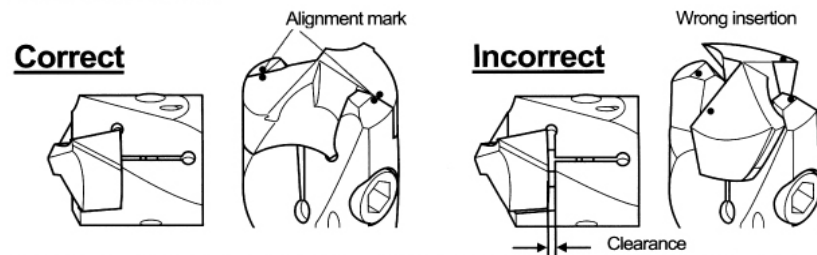


Figure.2



4. Ensure that there is no clearance between the bottom of the insert and holder slot.



Notes) Poor or incorrect clamping of inserts can cause poor drilling performance and/or drill breakage.
Therefore ensure that the alignment marks on both the body and insert are aligned when setting.
Caution) Ensure that the machine has a safety cover and that the operator wears safety glasses when using the drill.

Recommended cutting conditions

Workpiece material	Hardness	Drill diameter 10.0~12.9 mm		13.0~13.9 mm		14.0~15.4 mm		15.5~18.4 mm	
		vc	fr	vc	fr	vc	fr	vc	fr
		(m/min)	(mm/rev)	(m/min)	(mm/rev)	(m/min)	(mm/rev)	(m/min)	(mm/rev)
Mild steel	~180HB	80 (60~100)	0.20 (0.15~0.25)	90 (70~110)	0.25 (0.20~0.30)	100 (80~120)	0.3 (0.25~0.35)	100 (80~120)	0.35 (0.25~0.40)
Carbon steel Alloy steel	180~280HB	80 (60~100)	0.20 (0.15~0.25)	90 (70~110)	0.25 (0.20~0.30)	100 (80~120)	0.3 (0.25~0.35)	100 (80~120)	0.35 (0.25~0.40)
	280~350HB	70 (60~90)	0.20 (0.15~0.25)	80 (60~100)	0.25 (0.20~0.30)	90 (70~110)	0.25 (0.20~0.30)	90 (70~110)	0.3 (0.20~0.35)
Stainless steel	~200HB	40 (30~50)	0.13 (0.10~0.16)	50 (40~60)	0.15 (0.12~0.18)	60 (50~70)	0.17 (0.14~0.20)	60 (50~70)	0.17 (0.14~0.20)
Cast iron	Tensile strength ~350MPa	80 (60~100)	0.20 (0.15~0.25)	90 (70~110)	0.25 (0.20~0.30)	100 (80~120)	0.3 (0.25~0.35)	120 (80~140)	0.45 (0.35~0.55)
Ductile cast iron	Tensile strength ~450MPa	70 (60~90)	0.20 (0.15~0.25)	80 (60~100)	0.25 (0.20~0.30)	90 (70~110)	0.3 (0.25~0.35)	100 (80~120)	0.35 (0.25~0.40)

- Notes 1. When using the 8D type holder, reduce the cutting speed by approx. 20%.
- 2. When using the 8D type holder, it is recommended to drill a pilot guide hole.
- 3. Use the internal coolant system when machining stainless steel.(MQL and mist cooling should not be used.)
- 4. 1.5D type holder allows to increase the feed rate by approx. 20%.

Torque reference value

Drill diameter(mm)	Clamping force(N·m)	Unclamping force(N·m)
φ10.0~φ12.9	1.0	0.8
φ13.0~φ15.4	2.0	1.6
φ15.5~φ18.4	2.5	2.0

For clamping/Unclamping forces of the clamp screw, refer to the torque values in the above table.

Parts table

Holder order number	Clamp screw/Stopper Set model number				
		Clamp screw	Stopper	Wrench	
1000S16	WS203107TPS-35LH	WS203107TPS	WS35LH	①TIP06F	
1050S16	WS203107TPS-35LH	WS203107TPS	WS35LH		
1100S16	WS203108TPS-35LH	WS203108TPS	WS35LH		
1150S16	WS203108TPS-35LH	WS203108TPS	WS35LH		
1200S16	WS203108TPS-35LH	WS203108TPS	WS35LH		
1250S16	WS203108TPS-35LH	WS203108TPS	WS35LH		
1300S16	WS253909TPS-45LH	WS253909TPS	WS45LH	②TIP08W	
1350S16	WS253909TPS-45LH	WS253909TPS	WS45LH		
1400S16	WS253909TPS-45LH	WS253909TPS	WS45LH		
1450S16	WS253909TPS-45LH	WS253909TPS	WS45LH		
1500S20	WS253909TPS-45LH	WS253909TPS	WS45LH		
1600S20	WS304912TPS-55LH	WS304912TPS	WS55LH		
1700S20	WS304912TPS-55LH	WS304912TPS	WS55LH		
1800S20	WS304912TPS-55LH	WS304912TPS	WS55LH		

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