BIG DAISHOWA KAISER BORING SYSTEM

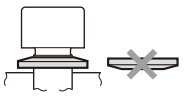
SWS HEAD

OPERATION MANUAL

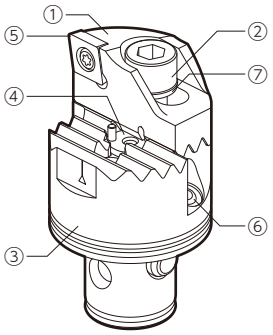
Please read these instructions before use and keep them where the operator may refer to them whenever necessary.

NAME OF EACH PART

①SWS Cartridge	⑤Insert (cutting edge)
②Clamping screw	⑥Coolant nozzle
③SWS Head	⑦Belleville Spring
④Synchro-setter	



Direction of bellevlle spring



Coolant nozzles ⑥ equipped on SWS53 and larger head models are direction-adjustable.

ADJUSTMENT OF BORING DIAMETER

1) Clean the synchro-setter ④ and the mounting surface of the head body and the SWS Cartridge.
2) Mount the cartridge ① to the head body ③. Make sure that the pin on the synchro-setter aligns with the groove on the cartridge.
3) Tighten the clamping screw ② lightly just enough to allow for cartridge move by hand.
4) Set the measuring instrument to the boring diameter and fix it. For a setting value of the boring diameter, refer to “CORRECTION OF ERROR”. It is recommended to use a carbide probe for the measuring instrument.
5) Approach the measuring instrument to the cutting edge and spread the cartridges ① until the two inserts ⑤ contact the probe.
6) Avoid moving the cartridges ①, and move the measuring instrument away from the cutting edge.
7) Make sure to tighten the clamping screws on the SWS Cartridges. Refer to the recommended tightening torque in Table 1.
8) Measure the diameter to verify. When taking the measurement, please read the maximum value. If the error is too large, loosen the clamping screw ② and start over from 3.
9) The scale on the SWS Cartridges helps to rough adjust the diameter setting.

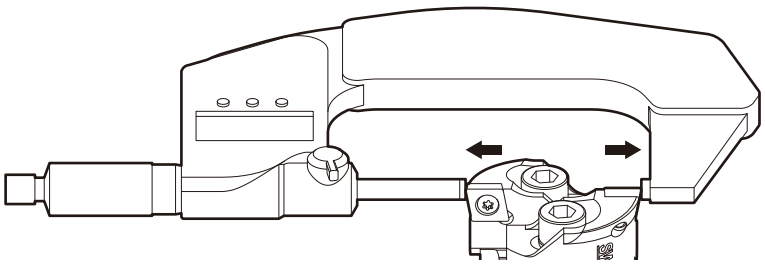


Table 1

Head Model	Tightening torque N·m (lbf・Ft)	Wrench (mm)
SWS41	20 (14.8)	6
SWS53	35 (25.8)	8
SWS68	35 (25.8)	8

⚠ CAUTION

- Cartridges are sold in pairs after being inspected for accuracy. Do not use in different pairs.
- Avoid applying excessive force on the cartridges, as this may damage or deform the synchro-setter.
- To prevent damaging the probe, avoid applying excessive pressure to the cutting edges.

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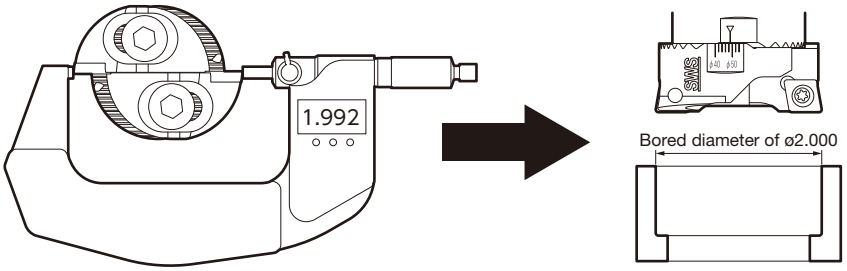
No.0625

CORRECTION OF ERROR

When correcting the error between the setting value on the measuring instrument and the actual diameter of the bored hole, please confirm the amount of error through trial cutting, and adjust the setting value of the measuring instrument by anticipating the amount of error.

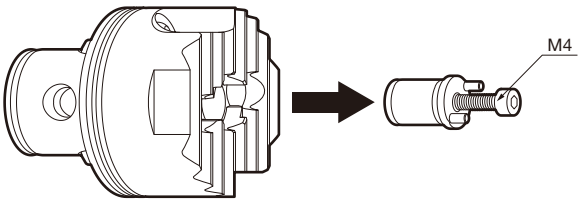
<EX> In the case of a boring diameter of ø2.000

If the actual diameter of the bored hole tends to be .008/ø larger than the setting value on the measuring instrument, adjust the setting value of the measuring instrument .008 (correction value) smaller in advance and set it to 1.992. If the exact error amount is unknown, apply a preliminary correction of .008/ø and observe the outcome. Additionally, when ensuring sufficient allowance for finish boring, it is recommended to select the maximum expected correction value.



REPLACEMENT OF SYNCHRO-SETTER

1) Insert a bolt into the M4 tapped hole of the synchro-setter and then pull it out.
2) Clean the hole in the head body where the synchro-setter was inserted, and then apply spindle oil to the synchro-setter.
3) Insert the synchro-setter into the hole of the head body until it bottoms out.



ADDITIONAL CAUTION

⚠ CAUTION

- Do not use a clamping screw other than genuine or attached one.
- Be aware of cutting your hand with a cutting edge when exchanging the insert.
- Since the insert clamping screw is expendable, exchange them periodically.
- Wipe the each attaching surfaces thoroughly with a waste.
- Boring range of the boring head must not be exceeded.
- It is recommended to conduct trial boring, because the boring diameter may change depending on cutting condition.
- NEVER conduct boring under unsuitable cutting conditions. The recommended cutting conditions are the same as those for the SW boring head. Refer to the General Catalog for recommended cutting conditions.
- Ensure that there are no dust, damage and rust on the part of CK connection, and clamp CK connection securely.
- Do not connect KAISER BORING SYSTEM with any other boring system.
- NEVER continue using the boring head if it has suffered strong impact by bumping.
- Wear safety glasses during boring operation.

MAXIMUM ALLOWABLE SPINDLE SPEED

Head Model	Max. spindle speed (RPM)
SWS41	5,500
SWS53	4,000
SWS68	3,000

⚠ CAUTION

- NEVER exceed the maximum allowable spindle speed.
- This maximum allowable spindle speed is the limit value determined from the structure of the tool. It is not guaranteed to be applicable for actual boring.
- When actually determining cutting condition, check the rigidity of a machine spindle and workpiece and the length of a tool which change the condition of vibration and etc. Therefore, increase the cutting condition gradually from general one.