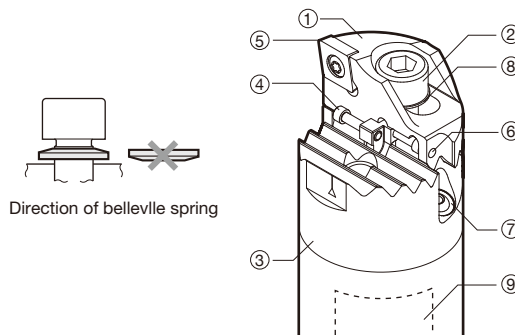


OPERATION MANUAL

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

NAME OF EACH PART

- | | |
|-------------------------|---------------------|
| ① SW Cartridge | ⑥ Adjusting access |
| ② Clamping screw | ⑦ Coolant nozzle |
| ③ SW head | ⑧ Belleville spring |
| ④ Radial adjust screw | ⑨ Damper |
| ⑤ Insert (cutting edge) | |



Coolant nozzles ⑦ equipped on SW53 and larger head models are direction-adjustable.

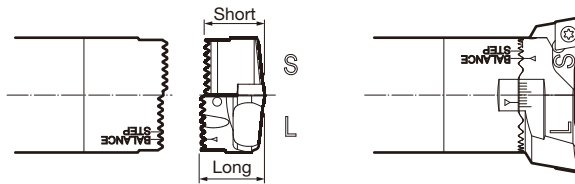
HOW TO CHOOSE THE CUTTING METHODS

Only with SW cartridges type E for blind hole, 2 different cutting methods, “Balance cut” and “Step cut”, can be made by changing the mounting positions of 2 different SW cartridges ① on the SW head ③. Please make sure to set the proper SW cartridges on the proper mounting positions. If the positions are incorrect, proper boring cannot be achieved.

Balance cut

A type **E** type

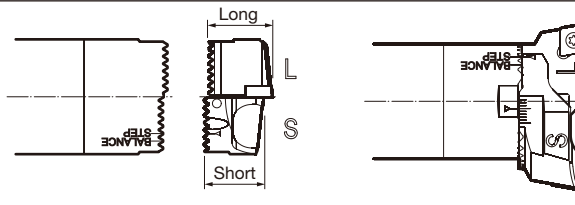
By setting the height and diameter between 2 different cutting edges the same, high feed rate is achieved.



Step cut

E type

By setting height and diameter between 2 different cutting edges differently, boring with large stock removal is possible.



CAUTION

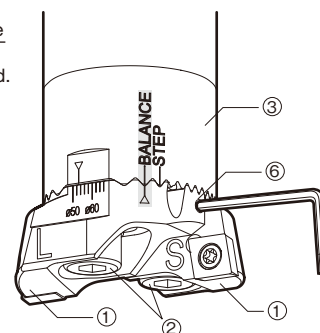
Type A cartridge for through hole operations can be used only for “Balance cut” and cannot be used for “Step cut”.

ADJUSTMENT OF BORING DIAMETER

Balance cut

A type **E** type

- 1) Mount the SW cartridge ① on the SW head ③. Make sure to align “△” on the SW cartridge to “BALANCE” on the SW head.
- 2) Adjust the cutting edges to the same diameter by rotating the Radial adjusting screw with the hexagon wrench provided.
- 3) The scale on the SW cartridges helps to rough adjust the diameter setting. For fine adjustment, use a Tool Presetter.
- 4) Make sure to tighten the Clamping screws on SW cartridges, refer to the recommended tightening torque in Table 1.



Step cut

E type

- 1) Mount the SW cartridge ① on the SW head ③. Make sure to align "△" on the SW cartridge to "STEP" on the SW head.
- 2) Adjust the cutting edge of "S" marked SW cartridge ① to the final diameter.
- 3) Adjust the cutting edge of "L" marked SW cartridge ① to half of the stock allowance.
- 4) Cutting edges can be adjusted by rotating the Radial adjust screw with the hexagon wrench provided.
- 5) The scale on the SW cartridges helps to rough adjust the diameter setting. For fine adjustment, use a Tool Presetter.
- 6) Make sure to tighten the Clamping screws on SW cartridges, refer to the recommended tightening torque in Table 1.

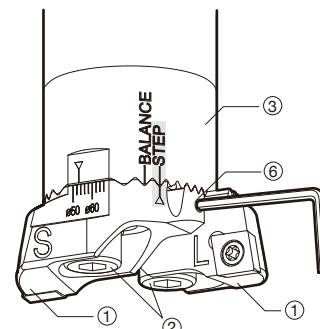


Table1

Head Model	Tightening torque N·m(lbf·Ft)	Wrench (mm)
SW 20	4 (2.95)	3
SW 25	7 (5.2)	4
SW 32	12 (8.9)	5
SW 41	20 (14.8)	6
SW 53	35 (25.8)	8
SW 68	35 (25.8)	8
SW 98	40 (29.5)	10
SW148	40 (29.5)	10

CAUTION

Make sure that the boring head is always assembled with a short SW Cartridge "S" and a long SW Cartridge "L". If "△" on the SW Cartridges is aligned to both "BALANCE" and "STEP" markings, an incorrect insert holder ① has been mounted and should be checked again.

ADDITIONAL CAUTION

CAUTION

- Do not use a clamping screw other than genuine or attached one.
- Since the insert clamping screw is expendable, exchange them periodically.
- It is recommended to conduct trial boring, because the boring diameter may change depending on cutting conditions.
- 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.
- Never clamp the section of the damper with a vise, or the damper is damaged.
- Heat generated by cutting deteriorates parts of the damper and decrease its performance. Air blow or coolant must be supplied through the tools.
- The damper head includes consumable parts in the damper whose age-related deterioration debases its performance. When the dampening effect becomes poor, or in about one year of constant use, consult **BIG** for overhaul through your store.
- When the boring head is not used for a long period of time, detach from a machine spindle or tool magazine and store it in an upright position.
- The maximum coolant pressure is 3MPa.

THE MAXIMUM ALLOWABLE SPINDLE SPEED

Head Model	Projection length at 7D [G.L.-] (inch)	Max. spindle speed (RPM)	
		≤7D	>7D
CK1-SW20DP-105	—	4,800	
CK2-SW25DP-130	8.661	7,600	3,800
CKB3-SW32DP-170	10.630	6,000	3,000
CKB4-SW41DP-190	12.992	4,600	2,300
CKB5-SW53DP-220	16.142	3,600	1,800

Head Model	Projection length at 7D [G.L.-] (inch)	Max. spindle speed (RPM)	
		≤7D	>7D
CKB6-SW 68DP-245	20.472	2,800	1,400
CKB6-SW 98DP-260		1,900	1,000
CKB7-SW 98DP-260	26.378	1,900	1,000
CKB6-SW148DP-260	20.472	1,400	700
CKB7-SW148DP-260	26.378		

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 projection length which change the condition of vibration and etc. Therefore, increase the cutting condition gradually from general one.
- Use a cover on a machine tool and a protector such as glasses against shattering chips and broken tools due to misuse.

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