

SELF BACKKEY

SB-400C

SB-650C

Compatible power supply: SBT-50

Operation Manual

(As of May 2013)

Applications

1. SELF BACKKEY is a tool to thread the inner surface of a hole that is roughly drilled in advance.
2. SELF BACKKEY is most suitable for finishing touches after tapping because it can easily remove the burr, paint or adhesive from a screw hole when it is difficult to remove.
3. SELF BACKKEY is a tool for "thread cleaning". In other words, it is a tool to easily remove paint or adhesive remaining in the screw hole; such residue may lead to a screwing error.

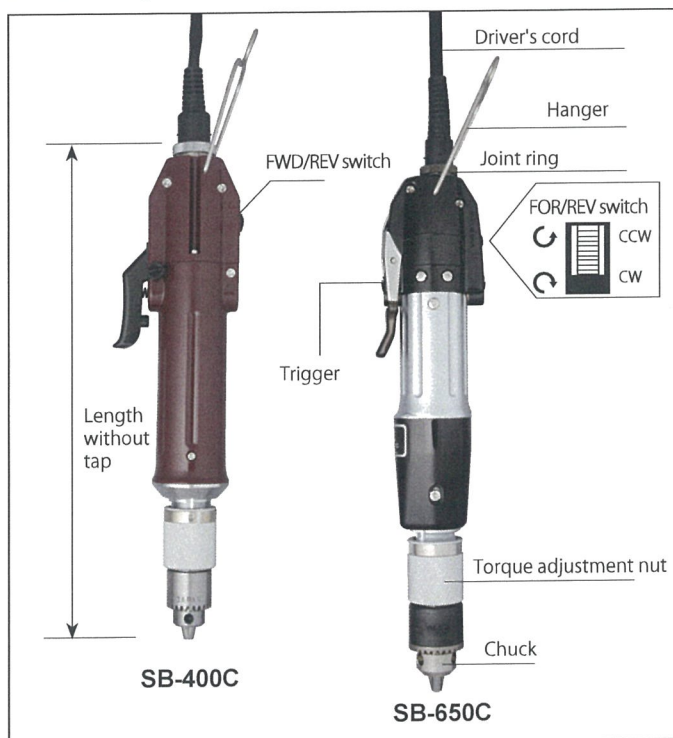
■ Features

- Automatically reverses and comes out as soon as tapping is complete to the predetermined depth, regardless of the hole is bottomed or through.
- Prevents accidental damage to taps by automatically turning back when excess burden to the tap is applied due to the wrong insert angle or unbalance between the tap and diameter of the pilot hole.
- Since the tool is manually held while being operated, the tapping process is performed only through its rotational running without thrust in feeding or reversing direction. This way, risks of loss in thread accuracy or accidental damage to the tap because of inconsistency of rotation caused by the difference between feeding thrust and reversing thrust can be eliminated.
- The safety limit of torque can be precisely adjusted arbitrarily; specifically ideal for tapping threads of minute pitch or diameter.
- The depth (automatic reversing limit) can be set as desired.

* Definition of terms

- SELF BACKKEY is mentioned as the "driver" in this operation manual.
- A bottomed hole is sometimes called a sac hole or a blind hole. In this manual, we call it "sac hole".

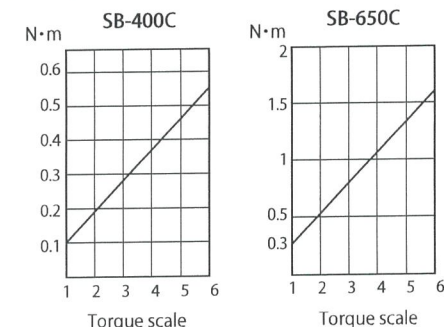
■ Name of parts



■ Driver specifications

Model		SB-400C	SB-650C
Tapping capacity (mm)		0.9 - 2.6	2.0 - 4.0
Chuck diameter(mm)		4mm まで	6.5mm まで
Range for torque adjustment for safe load	N · m	0.1 - 0.55	0.3 - 1.6
	lbf · in	0.9 - 4.9	2.7 - 14
	(kgf · cm)	(1 - 5.5)	(3 - 16)
Speed when no load is applied (r.p.m)	HI	1,000	900
	LOW	670	600
Dimensions	Grip diameter	∅32.5	∅37
	Total length	220	295
Weight (g)		450g	750g
Cord length (m)		1.5 (5P)	2 (5P)
Compatible power supply		SBT-50	

■ Torque guideline



■ Accessories

Accessories	SB-400C	SB-650C
Chuck key	1 piece	1 piece
Stopper (∅)	∅2.0, ∅2.3, ∅2.6 : 1 each	∅2.6, ∅3.0, ∅4.0 : 1 each



(Note) Please use the taps and other tools that are commercially available.

* In this manual, we assume a tap is used in the description.

■ Instructions and directions for use

1. Never apply oil inside the driver. Unnecessary greasing may cause failure.
2. Disconnect power supply to the driver before installing or removing a tap.
If you install or remove a tap while the driver is powered, it may injure your fingers or arms.

■ Preparations before use

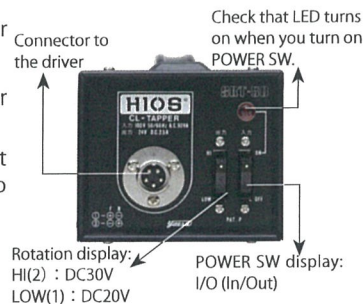
● Power supply

1. Connect the cord of the compatible power supply (SBT-50) to the AC100, AC120V or AC220-240V out let.
2. Turn on Power SW of the power supply and make sure the LED lamp on lits.
* If the LED lamp doesn't turn on, contact HIOS distributor.
3. Connect the driver's cord to the power supply's connector. Then, turn off Power SW of the power supply.

● About output of the power supply

Output can be set approx. 30V for HI, and approx. 20V for LOW.

Usually, it is set to HI (30V). Set it LOW (20V) when you want to reduce the rotation speed.



■ Specifications of Power Supply SBT-50

Voltage	100V	120V	220-240V
Input	AC100V \pm 5% (50/60Hz)	AC120V \pm 5% (50/60Hz)	AC220-240V \pm 5% (50/60Hz)
Output voltage	HI(2) : approx.30V LOW(1) : approx.20V (2 stage)		
Dimensions (mm)	105(W) \times 185(D) \times 91(H)mm		
Weight (kg)	Approx. 2.7kg		
Compatible drivers	SB-400C and SB-650C		
Accessories	Power cord: 1.8m, 1 piece (with ground wire)		

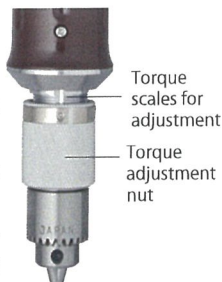
■ Operation of Driver

● Adjustment of torque

Set the adjustment nut to the torque scale (1 to 6) suitable for the operation.

First, set it to low and repeatedly test with the material to find the suitable torque.

* When you start adjustment from a lower torque, select a scale where the clutch works for testing.



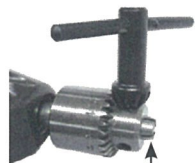
● How to use the driver

1. Fix the stopper on the tap.
2. Use a chuck key to open the chuck wide for the tap to be inserted.
 - Loose the screw of the stopper and fix it on the tap.
 - Use the chuck key to open the chuck end for the tap.



Note for fixing the stopper:

Select a smooth section of the tap where there is no thread and fix the stopper.



Chuck end

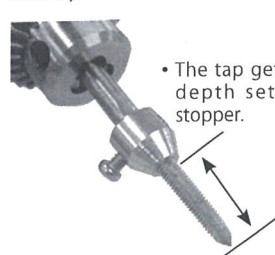
(Example of NOT OK)



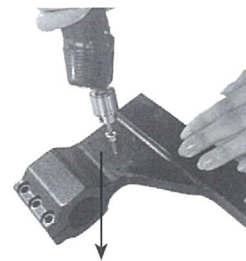
You cannot fix the stopper on the threaded section of the tap.

When you turn the key clockwise, the chuck end closes. When you turn the key counterclockwise, the chuck end opens.

3. Fix the stopper at the target depth (where automatic reversing occurs).



• The tap gets to the depth set by the stopper.



• When the specified depth is reached, the tap will loosen through automatic reversing.

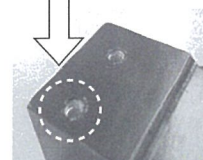
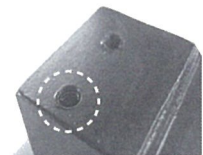
■ How to position the stopper (setting of automatic reversing)

1. For a sac hole

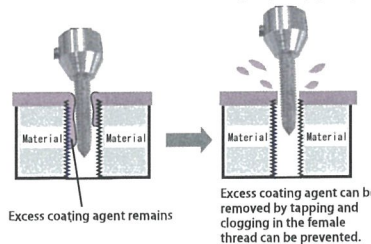
When the tap end reaches the hole bottom, the driver detects this and makes the clutch move to start reverse rotation automatically.

2. For a through hole

When the tap root touches the material surface, the driver stops and starts reverse rotation. However, because unnecessary rotation is useless, preset the stopper at the tap root; thus, the driver starts reverse rotation when the stopper touches the material surface.



• Effect of the thread cleaning by tapping



Excess coating agent remains

Excess coating agent can be removed by tapping and clogging in the female thread can be prevented.

● Forward rotation

Select FOR of the FOR/REV SW.

When you pull the trigger, the driver starts rotating to go into the hole and automatically returns after it finishes cutting the thread in the hole. When you release the trigger, the driver stops.

● Reverse rotation

Usually, this operation is not required. However, if you happen to release the trigger before the tap has completely come out, you need to perform this operation. Select REV and start rotation. When the stopper reaches the specified position, the driver automatically starts reverse rotation and the tap comes out.

■ Adjustment of safety limit of load

When the tap end touches the sac hole bottom or the stopper touches the material of a through hole, if strong resistance is applied to the tap, the thread may be damaged or the tap may be broken. In addition, excessive torque may occur due to unbalance between the tap and the diameter of the pilot hole, or slanted insertion of the tap. Therefore, it is necessary to promptly detect excessive torque for automatic reverse rotation.

■ How to adjust safety limit load

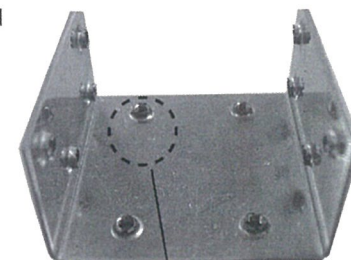
1. Set the torque of the driver to low. (The clutch should move even when the torque is low.)
2. Conduct a tapping to a pilot hole as a test.
3. If the clutch moves before the tap reaches the target position, fasten the adjustment nut a little; repeat testing to determine the ideal position.
4. When it is confirmed that the tap has reached the target position and reversed automatically, you can start the actual operation.

(Notes)

- Always start adjustment from low torque. (The clutch should start even when low torque is selected.)
- Do not start actual operation without testing. It may cause a broken tap or other damage. Sufficient testing is required before actual operation.

■ Other applications

- Tapping for burring
- Removal of burrs
- Restoration of thread (rework); repair of minor damage
- Removal of arcs



It is effective for finishing insecure thread such as that caused by burring.

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