**Features**

1. Automatically reverses and comes out as soon as tapping is complete to the predetermined depth, regardless of the hole is bottomed or through.

2. Precludes 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 tool.

3. 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.

4. The safety limit of torque can be precisely adjusted arbitrarily; specifically ideal for tapping threads of minute pitch or diameter.

5. The depth (automatic reversing limit) can be set as desired.

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**Operation Manual**

(As of May 2013)

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**Applications**

1. SELF BACK KEY is a tool to thread the inner surface of a hole that is roughly drilled in advance.

2. SELF BACK KEY 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 BACK KEY 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.

---

**Driver specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>SB-400C</th>
<th>SB-650C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tapping capacity (mm)</td>
<td>0.9 - 2.6</td>
<td>2.0 - 4.0</td>
</tr>
<tr>
<td>Chuck diameter (mm)</td>
<td>4mm まで</td>
<td>6.5mm まで</td>
</tr>
<tr>
<td>Range for torque adjustment for safe load</td>
<td>N・m</td>
<td>0.1 - 0.55</td>
</tr>
<tr>
<td></td>
<td>lb・in</td>
<td>0.9 - 4.9</td>
</tr>
<tr>
<td></td>
<td>(kgf・cm)</td>
<td>1.5 - 5.5</td>
</tr>
<tr>
<td>Speed when no load is applied (r.p.m)</td>
<td>HI</td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>LOW</td>
<td>670</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Grip diameter</td>
<td>Ø32.5</td>
</tr>
<tr>
<td></td>
<td>Total length</td>
<td>220</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>450g</td>
<td>750g</td>
</tr>
<tr>
<td>Cord length (m)</td>
<td>1.5 (SP)</td>
<td>2 (SP)</td>
</tr>
<tr>
<td>Compatible power supply</td>
<td>SBT-50</td>
<td></td>
</tr>
</tbody>
</table>

---

**Accessories**

<table>
<thead>
<tr>
<th>Accessories</th>
<th>SB-400C</th>
<th>SB-650C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chuck key</td>
<td>1 piece</td>
<td>1 piece</td>
</tr>
<tr>
<td>Stopper (ø)</td>
<td>Ø2.0, Ø2.3, Ø2.6</td>
<td>Ø2.6, Ø3.0, Ø4.0</td>
</tr>
<tr>
<td></td>
<td>1 each</td>
<td>1 each</td>
</tr>
</tbody>
</table>

(Notice) Please use the taps and other tools that are commercially available. *
In this manual, we assume a tap is used in the description.

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**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.

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**Preparations before use**

- **Power supply**
  1. Connect the cord of the compatible power supply (SBT-50) to the AC100, AC120V or AC220-240V outlet.
  2. Turn on Power SW of the power supply and make sure the LED lamp on its.

   * 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

<table>
<thead>
<tr>
<th>Voltage</th>
<th>100V</th>
<th>120V</th>
<th>220-240V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>AC100V ± 5% (50/60Hz)</td>
<td>AC120V ± 5% (50/60Hz)</td>
<td>AC220-240V ± 5% (50/60Hz)</td>
</tr>
<tr>
<td>Output voltage</td>
<td>Hi(2) : approx.30V</td>
<td>Hi(1) : approx.20V</td>
<td>LOw(1) : approx.20V</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>105W × 185D × 91H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>Approx. 2.7kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compatible drives</td>
<td>SB-400C and SB-650C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td>Power cord; 1.8m, 1 piece (with ground wire)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operation of Driver

Adjustment of torque
Set the adjustment nut to the torque scale (1 to 6) suitable for the operation. Set it to low and repeatedly test with the material to find the suitable torque.

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

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.

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.

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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