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**HIOS CL, SS, and A Series**
Operational Manual

Clutch Type Torque Auto Control

- CL-2000, CL-3000, CL-4000, CL-6000, CL-6500 and CL-7000 (NL and Push-to-Start Type)
- SS-2000, SS-3000, SS-4000, SS-6500 and SS-7000 (Push-to-Start Type)
- A-4500, A-5000 and A-6500 (Push-to-Start Type)
- ESD, Q-CR-ESD, Q

Important: Please read and save the operating instructions.
Warning: When using electric tools, the following basic safety precautions should always be adhered to in order to reduce the risk of fire, electric shock, or personal injury.

**Precautions**

1. Keep Work Area Clean: Cluttered areas and benches can result in injuries.
2. Consider Work Area Environment: Do not expose tools to rain. Do not use tools in damp or wet locations. Keep work area well lit. Never use the tool in an area with dangerous objects present. (gasoline, benzene, thinner, gas glue, metallic objects, etc.)
3. Secure Work: Use clamps or a vice to hold work piece.
4. Guard Against Electric Shock: Prevent body contact with grounded surfaces.
5. Keep Away From Children and Unauthorized Personnel: Do not allow children or unauthorized personnel to use the tool.
6. Store Idle Tools: When not in use, tools should be stored in a dry and high or locked-up place.
7. Remove Adjusting Keys And Wrenches: Make a habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
8. Use The Correct Tool: Use the tool for the correct work for its rated power and design.
9. Dress Properly: Do not wear loose clothing or jewelry as they can be caught in moving parts. Wear protective headwear to contain long hair.
10. Use Safety Glasses: Also use a face or dust mask if the operation involves dust.
11. Do Not Abuse The Cord: Never carry the tool by its cord or pull it to disconnect from the power outlet. Keep the cord away from heat, oil, and sharp edges.
12. Do Not Overreach: Maintain proper footing and balance at all times.
13. Maintain Tools With Care: Keep tools clean for better and safer performance. Follow instructions for lubricating and changing accessories. To use the tool for an extended period of time safely, perform periodical inspections on the tool and if damaged, contact ASG. Keep hands dry, clean, and free from oil and grease. Inspect extension cords periodically and replace if damaged.
14. Disconnect Tools: When the tool is not in use, such as attaching and removing the bit, changing the Carbon Brush, inspection or cleaning, disconnect the tool from the power outlet.
15. Avoid Unintentional Starting: Ensure that the switch is off when plugging in. Do not carry the tool with finger on the switch.
16. Stay Alert: Always remain vigilant, use common sense, and do not operate the tool when you are tired.
17. Check Damaged Parts: Before using the tool, a damaged protective cover or other parts should be carefully checked to determine whether the tool will operate correctly and perform as designed.
18. Ground the tool.
19. This screwdriver uses external carbon brushes. We recommend brush replacement (1) after about 1 million operations, (2) annual maintenance check, (3) when the tool begins to show irregular rotational movement, the motor sound is abnormal, there is overheating or the tool is no longer operating at full strength.

**Cautions in Operation**

1. If there are any problems, do not disassemble the tool. Stop operations and contact ASG immediately.
2. Never lubricate the tool with aerosol oil or similar lubricants.
3. Do not drop, hit, or abuse the tool.
4. Never use chemicals to wipe the body cover
5. Use only the correct voltage.
6. Do not pull the AC cord when unplugging from the power outlet. Grasp the plug.
7. For safety use, do not set the torque adjusting nut higher than 10 on the torque adjusting scale
8. Use the tool intermittently: (Example: 0.5 seconds ON, 4.5 seconds OFF)
9. Do not tighten more than 720 tapping screws in an hour.
10. This tool is not for tightening wood screws
11. Set the power switch to OFF before putting the tool in reverse.
12. If the tool is not being used, turn the tool off and unplug the AC cord plug.

**Operating Procedure**

1. Attach the bit to the driver.
2. See the torque chart and match it with you torque application.
3. Set the fastening torque for the driver unit with torque adjusting nut.
4. Select correct spring by color for corresponding torque according to the torque chart.
5. Plug in the power supply and check red power indicator. If it is not on, check fuse on power pack or AC supply.
6. Connect the cord of driver to power supply. Tighten knurled ring.
7. Set torque adjusting nut at proper position.
8. Turn the FOR/REV switch to OFF and connect the driver plug to an AC power outlet.
9. Turn the switch to either FOR or REV to start the screwdriver.
10. Operate the clutch until the screw is tightened to the set torque value.
11. Always turn the power off before reversing the rotation direction setting.
12. When loosening a tightened screw, turn the FOR/REV switch to REV and loosen in the reverse direction.

**Torque Adjustment Procedure**

- Use the torque adjustment nut to select the desired output setting. Note that this setting should be taken as an approximate value. Adjust the setting by loosening the adjustment nut stopper and adjusting the torque adjustment nut. When the setting has been made, re-tighten the torque adjustment nut stopper securely. Repeat this process to determined the appropriate tightness. Use a torque tester to verify.
- The torque adjusting nut of CL-6000, CL-6500, CL-7000 may be locked after the position is determined. Holding the Torque Adjusting Nut, rotate only the metal band around it until a tapped hole is uncovered. Install a M3 x 3 set screw there and tighten it. Return band to original position.
- The torque adjusting nuts of the CL-2000, CL-3000, CL-4000 can be locked by aligning the red mark on the outer casing with any one of two vertical grooves (or three grooves for the standard-type screwdriver) of the bolt located nearest the torque adjusting scale. To change the position, lift and turn the nut outer casing.
- The CL-2000 (SS-2000) Electric Screwdriver have 'Double nut system' (Nut fixing ring and Torque adjusting nut) to avoid loosening from shock or vibration to the driver. To adjust, hold the nut fixing ring at desired scale then move the torque adjusting nut to secure.
- Disconnect the cord to shut off power when handling the Quick Change Collet for replacing bit to avoid danger from surprise starting.

**Repairs**

Contact ASG with any questions or concerns at +1-888-486-6163 or asginfo@asg-jergens.com

**How to Replace Carbon Brushes**

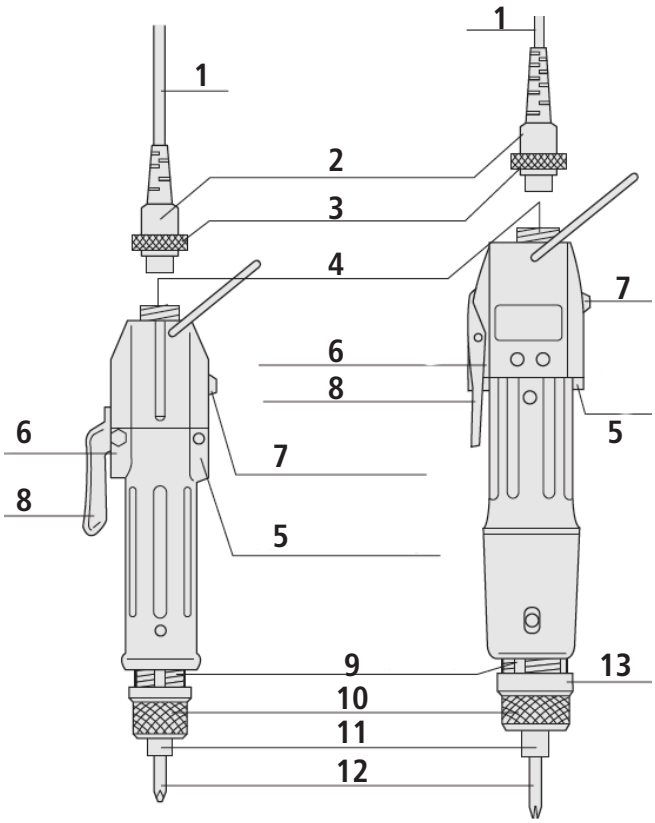
1. To maintain performance, it is recommended to replace the pair of carbon brushes when they wear to approximately half their length.
2. Carbon brush caps have a slot. Unscrew them with a flat tip driver to open them. Be careful not to allow the carbon brush inside to jump out as it is kept there under spring pressure.
3. With the mini-type screwdriver, one of the carbon brush covers is located under the switch lever, therefore, the switch lever must be removed before reaching it.
4. Replace the worn carbon brushes with new pair. Note that the end surface of the carbon piece is slightly concave. The carbon piece should be placed in the correct direction when inserting into the holder so that the curved end of the brush makes a smooth contact with the surface of the commutator. Screw the cap tightly.


**Power Supplies**

CLT-45: Connects to one CL, SS or A-series driver (except CL-7000, SS-7000, A-6500, CL-9000).
CLT-60: Connects to one CL, SS or A-series driver (except CL-9000).

| Model Number | CLT-45 | CLT-60 |
|---|---|---|
| Size (mm) | 71.5x146x42.6 | 88x210x52 |
| Weight (kg) | 0.33 | 0.715 |
| Input | AC100-240V ±5% \| 47/63 Hz | |
| Output Voltage | LOW/HI | |
| AC Cord Length | 1.8m | |

## Parts




| | |
|---|---|
| 1 | Screwdriver cord |
| 2 | Detachable cord (5P at both ends) |
| 3 | Joint Ring |
| 4 | Connector |
| 5 | Carbon Brush Cap ⊖ |
| 6 | Carbon Brush Cap ⊕ |
| 7 | Forward/Reverse Switch |
| 8 | Switch Lever |
| 9 | Adjusting Bolt (Torque adjusting scale) |
| 10 | Torque adjusting nut |
| 11 | Joint Shaft Collar |
| 12 | Bit |
| 13 | Driver Scale |

## Specifications

| Model Number | | CL-2000 | CL-3000 | CL-4000 | CL-6000 | CL-6500 | CL-7000 |
|---|---|---|---|---|---|---|---|
| Output Torque Range | N.m | 0.02-0.2 | 0.03-0.2 | 0.1-0.55 | 0.2-1 | 0.3-1.6 | 0.3-2.5 |
| | lbf.cm | 0.17-1.7 | 0.3-1.7 | 0.9-4.8 | 1.7-8.8 | 2.6-14 | 2.6-22 |
| | kgf.cm | 0.2-2 | 0.3-2 | 1-5.5 | 2.0-10 | 3.0-16 | 3.0-25 |
| Torque Switching | | Stepless Adjustment | | | | | |
| Unloaded Rotation Speed (RPM) | HI | 680 | 1000 | 1000 | 800 | 800 | 750 |
| | LO | 490 | 670 | 690 | 500 | 500 | — |
| Screw Size (mm) | Machine Screw | 1.0-2.3 | 1.0-2.0 | 1.4-2.6 | 2.0-3.0 | 2.0-4.0 | 2.0-5.0 |
| | Tapping Screw | 1.0-2.0 | 1.0-1.7 | 1.4-2.3 | 2.0-2.6 | 2.0-3.0 | 2.0-4.0 |
| Dimensions (mm) | Grip Diameter | 26 | 32.5 | 32.5 | 37 | 37 | 37 |
| | Length | 166 | 183 | 197 | 220 | 235 | 255 |
| Bit Type | HIOS Shank | H4 | | | H5 | | |
| | HEX Shank | — | — | 1/4" Hex or 5Hex | | | |
| Weight (g) | | 200 | 350 (390) | 380(430) | 600(600) | 660(660) | 750(750) |
| Length of Screwdriver Cord (see the table of attached cord reference) | Standard | 1.5m (5P) | 1.5m (5P) | 1.5m (5P) | 2m (5P) | 2m (5P) | 2m (5P) |
| | CL-ESD | A | A | A | A | A | A |
| | CLQ-CR-ESD | B | B | B | B | B | B |
| | CLQ | C | C | C | D | D | D |
| Power Supply | CLT-45 | X | X | X | X | X | — |
| | CLT-60 | X | X | X | X | X | X |

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## Specifications

| Model Number | | SS-2000 | SS-3000 | SS-4000 | SS-6500 | SS-7000 |
|---|---|---|---|---|---|---|
| Output Torque Range | N.m | 0.02-0.2 | 0.03-0.2 | 0.1-0.45 | 0.25-1.3 | 0.3-2.0 |
| | lbf.cm | 0.17-1.7 | 0.3-1.7 | 0.9-3.9 | 2.2-11 | 2.6-17.4 |
| | kgf.cm | 0.2-2 | 0.3-2 | 1-4.5 | 2.5-13 | 3.0-20.0 |
| Torque Switching | | Stepless Adjustment | | | | |
| Unloaded Rotation Speed (RPM) | HI | 680 | 1000 | 1000 | 900 | 750 |
| | LO | 490 | 670 | 690 | 600 | |
| Screw Size (mm) | Machine Screw | 1.0-2.3 | 1.0-2.0 | 1.4-2.6 | 2.0-3.0 | 2.0-4.0 |
| | Tapping Screw | 1.0-2.0 | 1.0-1.7 | 1.4-2.3 | 2.0-3.0 | 2.0-4.0 |
| Dimensions (mm) | Grip Diameter | 26 | 32.5 | 32.5 | 39 | 39 |
| | Length | 166 | 183 | 197 | 235 | 255 |
| Bit Type | HIOS Shank | H4 | | | H5 | |
| | HEX Shank | | | 1/4"Hex or 5Hex | | |
| Weight (g) | | 200 | 350 (390) | 400(450) | 660 | 750 |
| Length of Screwdriver Cord (see the table of attached cord reference) | Standard | 1.5m (5P) | 1.5m (5P) | 1.5m (5P) | 2m (5P) | 2m (5P) |
| | SS-ESD | A | A | A | A | A |
| | SSQ-CR-ESD | B | B | B | B | B |
| | SSQ | C | C | C | D | D |
| Power Supply | CLT-45 | X | X | X | X | |
| | CLT-60 | X | X | X | X | X |

| Model Number | | A-4500 | A-5000 | A-6500 |
|---|---|---|---|---|
| Output Torque Range | N.m | 0.4-0.8 | 0.4-1.2 | 0.5-1.8 |
| | lbf.cm | 3.5-7 | 3.5-10 | 4.3-16.0 |
| | kgf.cm | 4.0-8.0 | 4.0-12 | 5.0-18.0 |
| Torque Switching | | Stepless Adjustment | | |
| Unloaded Rotation Speed (RPM) | HI | 1700 | 1000 | 1700 |
| | LO | 1200 | 700 | |
| Screw Size (mm) | Machine Screw | 2.0-3.0 | 2.0-3.0 | 3.0-4.0 |
| | Tapping Screw | 2.0-2.6 | 2.0-3.0 | 2.6-3.0 |
| Dimensions (mm) | Grip Diameter | 32.5 | 32.5 | 37 |
| | Length | 207 | 207 | 235 |
| Bit Type | HIOS Shank | H4 | | H5 |
| | HEX Shank | 1/4"Hex or 5Hex | | |
| Weight (g) | | 440(490) | 440(490) | 660(660) |
| Length of Screwdriver Cord (see the table of attached cord reference) | Standard | 1.5m (5P) | 1.5m (5P) | 2m (5P) |
| | A-ESD | A | A | A |
| | A-Q | C | C | D |
| Power Supply | CLT-45 | X | X | |
| | CLT-60 | X | X | X |

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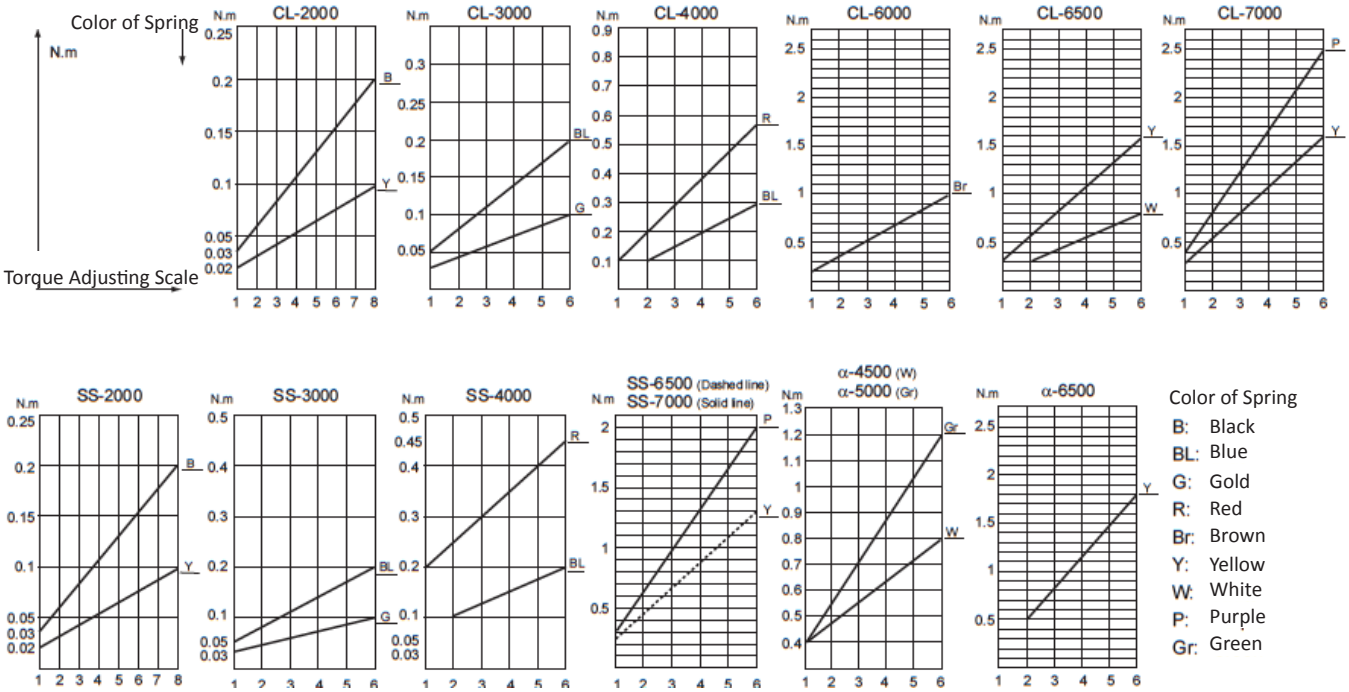
## Reference Chart for Screwdriver Cord

| Type | Attached Cord |
|---|---|
| A | 2m cord ESD type (5P) |
| B | 2m cord ESD type (5P) and include ESD vinyl tube |
| C | 1.5m cord type (5P) and include vinyl tube |
| D | 2m cord type (5P) and include vinyl tube |

## Proper Guidance on Output Torque (at HI input)




## Accessories

- Bits
- Torque adjusting spring
- Carbon brushes