555 Kimberly Drive, Carol Stream, IL 60188
Phones: 847/455-8677 800/877-1347
Fax: 847/455-0347
E-mail: CustomerService@srtorque.com

# 1350 SERIES EXACTA 2 DIGITAL TORQUE WRENCH
# Calibration Instructions


The calibration process for the Exacta 2 1350 tools has three sub-processes. The first is testing the tool to determine the "as found" condition. If the tool is out of calibration, then two subsequent processes are performed; calibration adjustment to bring the tool into calibration, and subsequent repetition of tool testing to assure that the adjustments were effective and the results are valid.

We strongly recommend that when performing the calibration process a torque tester of not less than 0.25% Indicated Value Accuracy be used, and that it be used in conjunction with a mechanical loader to obtain proper loading of the tool. We have designed these tools to be as hand-position insensitive as we can within other constraints, but the use of a mechanical loader is still recommended. The load applied during testing must be at the loading point on the grip indicated by the plain ring at the middle of the grip.

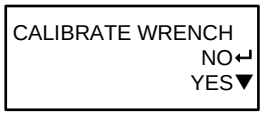
When calibrating and testing tools having the SR dovetail, it is recommended that the calibration be performed with the same Common Centerline Head Length as the head length used in the original calibration. We recommend that the tool be temperature stabilized before testing and that a fully charged battery be used during the procedure to assure that the tool does not suffer a loss of battery power during the process.

**TORQUE CALIBRATION ADJUSTMENT PROCEDURE**

To begin the calibration process, the tool must be placed in calibration mode. There are three ways that this can be accomplished:

1. Use the connected Global to force the tool into calibrate mode.
    a. From the Main Tools screen on the Global, highlight the desired tool and press the EDIT soft key. Then press the CALIBRATE soft key.
    b. The tool can reconnect with the Global on the next power cycle.
2. Replace the tool with a backup tool.
    a. From the Main Tools screen on the Global, highlight the desired tool and press the REPLACE soft key. Power on the other tool to learn it into the Global.
    b. The tool to be calibrated is no longer associated with that Global.
    c. Use the tool menu to begin the calibration process as described below.
3. Use the tool menu (on tools with V0.37 firmware or higher).
    a. Access the tool menu by holding the ↵ key for 3 seconds.
    b. Use ▲/▼ to highlight CALIBRATION and press ↵ to select.
    c. Highlight and select CAL WRENCH.

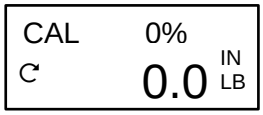
When calibration mode is enabled, the CALIBRATE WRENCH screen will be displayed:





- Press ▼ on the tool keypad to enter calibration mode. The Calibration Password screen appears.
- Enter the password using ▲/▼ to change the value of the digit. Press ↵ to move to the next digit. The default password is "3112". After all four digits have been entered, press ↵ to submit the password for verification.
- The "CAL HEAD LENGTH" screen is displayed next. Press ▲/▼ to change the displayed value if it is not correct for the head being used. NOTE: Units are in mm. Press ↵ to accept the value and enter torque calibration mode.

The first calibration point, clockwise 0%, is displayed.

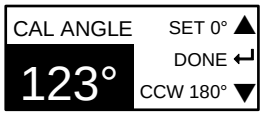



As torque is applied, a torque value will replace the target value.
Press ▼ to save a calibration point. The green LED will quickly flash to show acceptance of the point. This can be repeated as needed.
Press ▲ to advance to the next calibration point. The full torque calibration sequence is clockwise (CW) 0%, 100%, 60%, and 20%, followed by counterclockwise (CCW) 0%, 100%, 60%, and 20%.

- Install a drive adapter on the torque tester, if needed. Set the tester to Track mode. Place the tool with the proper head on the tester.
- Load and unload the tool clockwise to 100% of tool full scale capacity as indicated on the tester.
- Remove the tool from the tester and hold in a vertical position. Press **ZERO** on tester. Press ▼ on the tool to save the zero point. Replace the tool on the tester after tester has zeroed.
- Press ▲ so "CAL 100%", "↻", and the target torque value appear on the display. Apply **100**% CW FS load to the tool. When the tester shows exactly **100**% CW FS torque is applied, press ▼ to save the value. Unload the tool.
- Press ▲ so "CAL 60%", "↻", and the target torque value appear on the display. Apply **60**% CW FS load to the unit. When the tester shows exactly **60**% CW FS torque is applied, press ▼ to save the value. Unload the tool.
- Press ▲ so "CAL 20%", "↻", and the target torque value appear on the display. Apply **20**% CW FS load to the unit. When the tester shows exactly **20**% CW FS torque is applied, press ▼ to save the value. Unload the tool.
- Press ▲ so "CAL -0%", "↺", and "0.0 IN LB" appear on the display. Apply 3 full-scale loads to the tool in the CCW direction.
- Remove the torque load from the tool. Remove the tool from the tester and hold in a vertical position. Press **ZERO** on tester, then ▼ on the tool to save the zero point. Replace the tool on the tester after the tester has zeroed.
- Press ▲ so "CAL -100%" "↺", and the target torque value appear on the display. Apply **100**% CCW FS load to the unit. When the tester shows exactly **100**% CCW FS torque is applied, press ▼ to save the value. Unload the tool.
- Press ▲ so "CAL -60%" "↺", and the target torque value appear on the display. Apply **60**% CCW FS load to the unit. When the tester shows exactly **60**% CCW FS torque is applied, press ▼ to save the value. Unload the tool.
- Press ▲ so "CAL -20%" "↺", and the target torque value appear on the display. Apply **20**% CCW FS load to the unit. When the tester shows exactly **20**% CCW FS torque is applied, press ▼ to save the value. Unload the tool.
- Press ▲ so "CAL TORQUE ▲" and "SET CAL DATE ↵" appear on the display. Press ↵ to set the calibration date. Press ▲ to return to torque calibration if desired.
- On the SET CAL DATE screen, use ▲/▼ to change the value of the month. Press ↵ to move to the day. Use ▲/▼ to change the value of the day. Press ↵ to move to the year. Use ▲/▼ to change the value of the year. Press ↵ to set the year. Press ▼ to set the date and move to the NEXT CAL DATE screen. Follow the steps above to set the next calibration date and move to angle calibration.
- Remove the tool from the tester.

## 1350 SERIES EXACTA 2 Operating Instructions

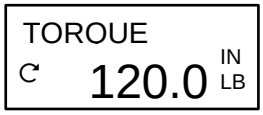
**ANGLE CALIBRATION ADJUSTMENT PROCEDURE**




- Place the tool on the angle calibration fixture with the handle to the right of the head.
- Press the "SET 0° ▲" arrow key on the tool to set the 0° value.
- Swing the tool CCW 180°, press the "CCW 180° ▼" arrow key on the wrench to set the 180° value.
- Swing the tool CW 180°. The angle reading should display 0° +/-1°. If not, press the "SET 0° ▲" to set the 0° value.
- The sequence of CCW 180° and CW 180° may be repeated to allow touch ups to the recorded values.
- Press ↵ to exit calibration.
- Remove the tool from the fixture.

**Accuracy Verification**

There are two additional screens after angle calibration. The first is a torque check screen which puts the tool in Track mode to allow torque readings to be verified. Load the tool and compare the torque value to that shown on the tester. If the values are not acceptable, repeat the torque calibration procedure.




Press ↵ to exit and move to angle check mode.

The angle check screen displays the number of degrees the tool has been rotated. Press ⟲ to zero the angle value at any time. Swing the tool to a known angle and compare the angle reading. If the values are not acceptable, repeat the angle calibration procedure.


Press ↵ to exit the verification routine.

Power off the tool. The next power cycle will reconnect the tool with the Global if it is in range.

**Troubleshooting**

| Issue | Possible Cause | Resolution |
|---|---|---|
| Torque reading out of spec. | Incorrect head length. | Set proper head length in calibration procedure. |
| | | Use proper head during calibration. |
| | Improper point captured. | Rerun torque calibration adjustment and make sure to press ▼ while tool is loaded at the proper value. |
| Angle values change while tool is at rest. | Sensor resting position out of calibration. | Allow the tool to sit for 30 seconds. The tool will recalculate its zero/resting point. |
| | Sensor scaling not correct. | Power cycle tool and rerun angle calibration adjustment. |

## 1350 SERIES EXACTA 2 Operating Instructions

### ACCURACY CHARTS

Accuracy tables are based on +/-2% tolerance for 20% to 100% of rated capacity and +/-4% tolerance for 5% to 19% of rated capacity.

| Exacta 1350-5 – 5 Foot-Pound Capacity | | | | |
|---|---|---|---|---|
| Capacity Ft.Lb | % Full Scale | Torque In.Lb | + Tol. | -Tol. |
| 5 | 10 | 6 | 6.24 | 5.76 |
| | 20 | 12 | 12.24 | 11.76 |
| | 30 | 18 | 18.36 | 17.64 |
| | 40 | 24 | 24.48 | 23.52 |
| | 50 | 30 | 30.60 | 29.40 |
| | 60 | 36 | 36.72 | 35.28 |
| | 70 | 42 | 42.84 | 41.16 |
| | 80 | 48 | 48.96 | 47.04 |
| | 90 | 54 | 55.08 | 52.92 |
| | 100 | 60 | 61.20 | 58.80 |

| Exacta 1350-25 – 25 Foot-Pound Capacity | | | | |
|---|---|---|---|---|
| Capacity Ft.Lb | % Full Scale | Torque In.Lb | + Tol. | -Tol. |
| 25 | 10 | 30 | 31.2 | 28.8 |
| | 20 | 60 | 61.2 | 58.8 |
| | 30 | 90 | 91.8 | 88.2 |
| | 40 | 120 | 122.4 | 117.6 |
| | 50 | 150 | 153.0 | 147.0 |
| | 60 | 180 | 183.6 | 176.4 |
| | 70 | 210 | 214.2 | 205.8 |
| | 80 | 240 | 244.8 | 235.2 |
| | 90 | 270 | 275.4 | 264.6 |
| | 100 | 300 | 306.0 | 294.0 |

| Exacta 1350-75 – 75 Foot-Pound Capacity | | | | |
|---|---|---|---|---|
| Capacity Ft.Lb | % Full Scale | Torque In.Lb | + Tol. | -Tol. |
| 75 | 10 | 90 | 93.6 | 86.4 |
| | 20 | 180 | 183.6 | 176.4 |
| | 30 | 270 | 275.4 | 264.6 |
| | 40 | 360 | 367.2 | 352.8 |
| | 50 | 450 | 459.0 | 441.0 |
| | 60 | 540 | 550.8 | 529.2 |
| | 70 | 630 | 642.6 | 617.4 |
| | 80 | 720 | 734.4 | 705.6 |
| | 90 | 810 | 826.2 | 793.8 |
| | 100 | 900 | 918.0 | 882.0 |

| Exacta 1350-150 – 150 Foot-Pound Capacity | | | | |
|---|---|---|---|---|
| Capacity Ft.Lb | % Full Scale | Torque In.Lb | + Tol. | -Tol. |
| 150 | 10 | 180 | 187.2 | 172.8 |
| | 20 | 360 | 367.2 | 352.8 |
| | 30 | 540 | 550.8 | 529.2 |
| | 40 | 720 | 734.4 | 705.6 |
| | 50 | 900 | 918.0 | 882.0 |
| | 60 | 1080 | 1101.6 | 1058.4 |
| | 70 | 1260 | 1285.2 | 1234.8 |
| | 80 | 1440 | 1468.8 | 1411.2 |
| | 90 | 1620 | 1652.4 | 1587.6 |
| | 100 | 1800 | 1836.0 | 1764.0 |

| Exacta 1350-250 – 250 Foot-Pound Capacity | | | | |
|---|---|---|---|---|
| Capacity Ft.Lb | % Full Scale | Torque In.Lb | + Tol. | -Tol. |
| 250 | 10 | 300 | 312.0 | 288.0 |
| | 20 | 600 | 612.0 | 588.0 |
| | 30 | 900 | 918.0 | 882.0 |
| | 40 | 1200 | 1224.0 | 1176.0 |
| | 50 | 1500 | 1530.0 | 1470.0 |
| | 60 | 1800 | 1836.0 | 1764.0 |
| | 70 | 2100 | 2142.0 | 2058.0 |
| | 80 | 2400 | 2448.0 | 2352.0 |
| | 90 | 2700 | 2754.0 | 2646.0 |
| | 100 | 3000 | 3060.0 | 2940.0 |