

# **QX** Tool Calibration

There are 3 methods for determining the calibration factor (TR) on a QX tool

## Manual calculation of the TR value

- 1. Run 10 Pass cycles with a QX tool connected to some external Torque Measuring Device
- 2. Calculate the average torque from both the tool and the external device
- 3. Calculate the new TR value using the below equation

TR2 = (ET/IT)\*TR1

TR2= New TR Value

TR1= Default or Current TR Value

- IT= Internal Measured Torque, Averaged over 10 cycles. Torque results output on the QX tool display
- ET= External Measured Torque, Averaged over 10 cycles. Torque results output on EXTT/EXTA Torque Analyzer or other monitoring device

## Once the New TR value is calculated

- 1. Connect QX Tool with a MICRO USB cable to the PC running ICS software.
- 2. Choose QX Series Family.
- 3. Open the Diagnostics->System Diagnostics Screen.
- 4. Select the Tool Calibration tab.
- 5. Select the tool from the Location ID drop box.
- 6. In the Manual Data Entry Table, enter a New Value for TR (Torque Calibration factor) or ASC (Angle Scaling Constant).
- 7. Select 'Set'.





Power Tools

## **Technical Customer Service**

## QX Manual Mode Calibration

- 1. Connect the QX Tool with a MICRO USB cable to the PC running ICS software.
- 2. Choose QX Series Family.
- 3. Open the Diagnostics->System Diagnostics Screen.
- 4. Select the Tool Calibration tab.
- 5. Select the tool from the Location ID drop box.
- 6. Click the 'Auto' button. It will change to Manual.
- 7. Click the 'Start' button.
- 8. Run a Pass cycle.

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- 9. The QX tool torque will be populated in the Calibration Results table.
- 10. In the Measured Reading entry box enter the torque measured from the external torque transducer.
- 11. Press the 'Tab' key on PC keyboard or click the mouse on the Calibration Result table.
- 12. This will move the value from the Measure Reading entry box to the Calibration Result table.
- 13. Run the desired number of cycles and then select 'Stop'
- 14. The Resultant TR value will be populated.
- 15. Click 'Send' to send this value to the tool.

#### Setup Status Statistics Diagnostic ICS Data Source View W 🗋 🗶 🚔 📾 🖄 🍜 🛤 A 👪 🕮 🛱 🖥 Family: OX Series 🔲 QX Diagi - - -•🛶 000:5 Location ID Red Boxes indicate locations of drop Tool Test Tool Status Keypad status Tool Calibration PM Alarm Typical Configuration and joint settings when calibrating down menus or fields needing input per Target Torque = Tool Max Torque Factory Value Current Value New Valu desired operation. 24.17 Freespeed = 70% of Max Tool Speed 22.12 0.00 Set Reset 4-0.00 Set Reset 0.50 0.50 Shiftdown Speed = 10% of Max Tool Speed ASC -<u>+</u>--Torque Threshold for Shiftdown = 20% of Target -8.45 Gearbox Loss (%) Send Torque Calbration Settings ng for Next Cycl Manual Status Torque Threshold for Counting Angle = 20% of Target Torque lbration Result From Tool Me asured .... Ourrent TR 22.124 . Joint Type = Medium (150 degrees from 20% to 1.017 1.020 Cycle counte 5 1.014 1.040 finat torque) ----1.009 1.040 1.010 1.020 Start 1.005 1.020 Resultant TR 22.496 Resultant TR value Send MICRO USB Ingersoll Rand.



### QX Auto Mode Calibration

- 1. Connect an Ingersoll Rand EXTT or EXTA Torque Analyzer to the PC.
- 2. Choose QX Series Family.
- 3. From the ICS->Communication->Protocol Assignment->ETA screen set the desired Com Port for EXTT/EXTA communication.
- 4. From the ICS->Communication->Serial Settings screen verify the Com port settings.
- 5. Connect the QX Tool with a MICRO USB cable to the PC running ICS software.
- 6. Open the Diagnostics->System Diagnostics Screen.
- 7. Select the Tool Calibration tab.
- 8. Select the tool from the Location ID drop box.
- 9. Click the 'Start' button.
- 10. Run a Pass cycle on the EXTT joint adapter or on any joint with a transducer connected to the EXTA.
- 11. The QX tool torque and the EXTT/EXTA toque will be populated in the Calibration Results table.
- 12. Run the desired number of cycles and then select 'Stop'.
- 13. The Resultant TR value will be populated.
- 14. Click 'Send' to send this value to the tool.

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		Tool Test Tool Status Keypad status Tool Calibration PM Alarm	Red Boxes indicate locations of drop	
Typic	al Configuration and joint settings when calibrating	· Manual Data Entry	down menus or fields needing input per	
	Target Torque = Tool Max Torque	Factory Value Current Value New Value	desired operation.	
- <mark> </mark>	Freespeed = 70% of Max Tool Speed	TR         24.17         22.12         0.00         Set         Reset           ASC         0.50         0.50         0.00         Set         Reset		
•	Shiftdown Speed = 10% of Max Tool Speed	Gearbox Loss		
	Torque Threshold for Shiftdown	Gearbox Loss (%)		
	Torque	Status Waiting for Next Cycle Auto		
	Torque Threshold for Counting Angle = 20% of	Calbration Result		
	Target Torque Joint Type = Medium (150 degrees from 20% to	Cycle # From Tool From ETA Current TR 22.124		
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	inditorquo)	4 1.013 1.030 5 1.004 1.020 Reject reading Start		
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