

Read all instructions, warnings and cautions carefully. Follow all basic safety precautions to avoid personal injury or property damage during system operation. ITORQ cannot be held responsible for damage or injury resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. Contact ITORQ when in doubt as to the safety precautions and operations.

Important points to remember for:

Hydraulic Torque Wrench:

- Do not exceed the allowable maximum torque of the Hydraulic Torque Wrench.
- Do not disconnect the Hydraulic Couplers during operation or when under pressure.

Hydraulic Power Pack:

- Utilise the pressure gauge mounted in front of the Hydraulic Power Pack as it is a window to see what is happening in the hydraulic system.
- Always check the oil level indicator before starting the operation. Make sure sufficient oil is present. Change the oil periodically after every 6 months.

Hydraulic Twin Hose:

- Avoid high temperature exposure.
- Do not disconnect the Hydraulic Couplers during operation or when under pressure.
- Do not drop heavy objects on the Hydraulic Twin Hose assembly. A sharp impact may cause internal damage to the Hydraulic Twin Hose. Applying pressure to a damaged Hydraulic Twin Hose may cause it to rupture which could lead to failure and injury.

Socket:

- Never use a chrome plated socket.
- Do not use old or damaged socket.
- Make sure not to use wrong size socket.



Hydraulic Couplers:

- Incorrect system connection may cause failure and injury. Before connecting the Hydraulic Torque Wrench, Hydraulic Twin Hose and Hydraulic Power Pack, make sure all the Hydraulic Couplers are clean and free of debris.
- Always use dust caps whenever the Hydraulic Couplers are not in use.

- Immediately replace any worn or damaged parts with genuine ITORQ replacement parts/spares.

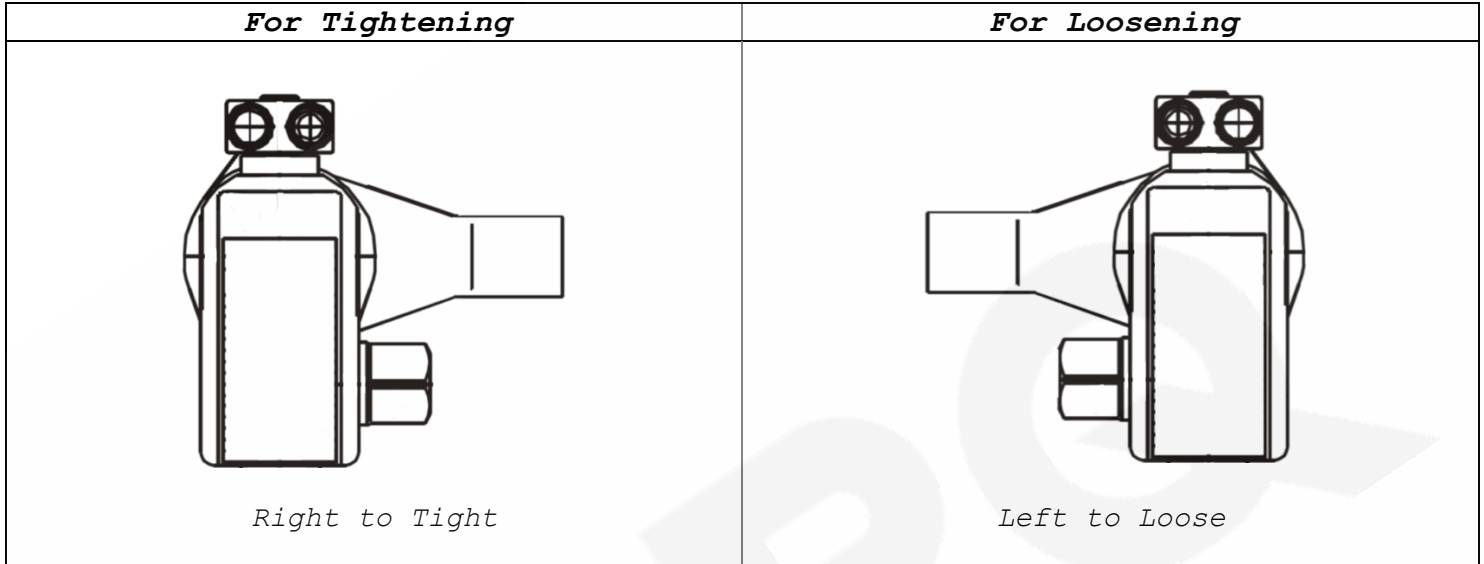


ITS Series
(Square Drive)
Hydraulic Torque Wrenches

Instructions Manual

Setup:	Operation:
<p>1) Ascertain the size of the nut or bolt head, material, strength grade and determine the desired torque required for tightening/loosening.</p> <p>2) Ensure the torque value needed and then determine the corresponding pressure of the Hydraulic Power Pack.</p> <p>Note: Use the Torque Chart provided by the manufacturer to determine at what pressure the desired torque will be achieved.</p> <p>3) Inspect the Hydraulic Torque Wrench set. Also verify that the Hydraulic Twin Hose assembly is not kinked, crushed or damaged.</p> <p>4) Set the desired pressure on the Hydraulic Power Pack.</p> <p>5) <u>Connect the Hydraulic Torque Wrench with the Hydraulic Power Pack with the help of the Hydraulic Twin Hose assembly.</u> To connect the Hydraulic Twin Hose assembly to the Hydraulic Torque Wrench swivel, ensure that all the Hydraulic Couplers are fully engaged and fastened snugly together.</p> <p>Connection: Male coupler of Hydraulic Twin Hose with female coupler of Hydraulic Torque Wrench & female coupler of Hydraulic Twin Hose with male coupler of Hydraulic Torque Wrench. In order to remember this important step at all times, please remember the saying: <u>Opposites attract each other.</u></p>	<p>1) Make sure the Setup procedure is completed.</p> <p>2) Start the Hydraulic Power Pack and place the Hydraulic Torque Wrench and the necessary socket onto the bolt which is to be tightened/loosened</p> <p>Note: Check Figure 1 for the correct way to position the Hydraulic Torque Wrench.</p> <p>3) By pressing the advance button on the remote control of the Hydraulic Power Pack, the rear of the Hydraulic Torque Wrench will be pushed back until the reaction arm makes contact with the reaction point.</p> <p>4) Continue to hold the advance button as the square drive turns until you hear an audible 'click' which will signify that the Hydraulic Cylinder inside the Hydraulic Torque Wrench is fully extended and will not turn the socket further. Release the advance button.</p> <p>5) Releasing the advance button will retract the Hydraulic Cylinder. The Hydraulic Torque Wrench will automatically reset itself and the operator will hear an audible 'click' indicating that he can press the advance button again and the square drive will turn. Each time the Hydraulic Cylinder is extended and retracted, it is called as a 'cycle'. Successive cycles are made until the equipment 'stalls' at the set pressure with accuracy of +/- 3%.</p> <p>Note: Always attempt one final cycle to ensure that the 'Stall' point has been reached.</p> <p>6) Repeat this process until all bolts have been tightened/loosened.</p>

Positioning of the Hydraulic Torque Wrench:



(Figure 1)

Troubleshooting Guide:

Trouble	Probable Cause	Solution
Piston will not advance	Couplers aren't connected properly	Check the connections and ensure that they are properly connected
	Couplers are defective	Replace any defective coupler
	Defective remote control unit	Replace the buttons/remote control
Piston will not retract	Retract hose not connected properly	Connect the retract hose securely
	Retract pin and/or spring damaged	Replace the damaged item
Square Drive will not turn	Grease or dirt build-up in the teeth of the ratchet and segment pawl	Disassemble the ratchet and clean the grease or dirt out of the teeth
	Worn or damaged teeth on ratchet and/or segment pawl	Replace any worn or damaged items
Hydraulic Cylinder will not build up pressure	Piston seal and/or End Plug seal is defective	Replace any defective seals
	Couplers are defective	Replace any defective coupler
Hydraulic Power Pack will not build up pressure	Electric power source is too low	Ensure the voltage, extensions etc. comply with the Hydraulic Power Pack
	Defective Pressure Gauge	Replace the Pressure Gauge
	Low hydraulic oil level	Check and fill the Hydraulic Power Pack reservoir
	Clogged filter	Inspect, clean and/or replace the Hydraulic Power Pack filter



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Recommended Bolt Tightening Force:

Strength Grade:		4.8	6.8	8.8	10.9	12.9
Minimum Breaking Strength:		4,000 bar	6,000 bar	8,000 bar	10,000 bar	12,000 bar
Bolt	A/F (mm)	Torque (Nm)	Torque (Nm)	Torque (Nm)	Torque (Nm)	Torque (Nm)
M16	24 mm	87	131	174	245	294
M18	27 mm	128	192	256	360	432
M20	30 mm	170	256	341	479	575
M22	34 mm	232	348	465	653	784
M24	36 mm	294	442	589	828	994
M27	41 mm	432	647	863	1,214	1,457
M30	46 mm	585	877	1,171	1,646	1,975
M33	50 mm	796	1,195	1,593	2,240	2,688
M36	55 mm	1,023	1,535	2,046	2,878	3,453
M39	60 mm	1,324	1,986	2,649	3,725	4,469
M42	65 mm	1,638	2,457	3,277	4,608	5,529
M45	70 mm	2,045	3,068	4,090	5,752	6,903
M48	75 mm	2,461	3,691	4,921	6,921	8,305
M52	80 mm	3,181	4,771	6,362	8,946	10,736
M56	85 mm	3,956	5,934	7,912	11,127	13,352
M60	90 mm	4,932	7,398	9,864	13,871	16,645
M64	95 mm	5,960	8,940	11,920	16,762	20,115
M68	100 mm	7,230	10,845	14,460	20,335	24,401
M72	105 mm	8,669	13,003	17,337	24,381	29,257
M76	110 mm	10,287	15,430	20,573	28,931	34,717
M80	115 mm	12,094	18,141	24,188	34,014	40,815
M85	120 mm	14,636	21,953	29,271	41,163	49,395
M90	130 mm	17,510	26,266	35,021	49,248	59,098
M100	145 mm	24,341	36,512	48,683	68,460	82,152
M110	155 mm	32,751	49,126	65,501	92,111	1,10,533
M120	175 mm	42,902	64,354	85,805	1,20,663	1,44,795
M125	180 mm	48,683	73,024	97,366	1,36,920	1,64,304

Note:

- o The recommended tightening torque is 80% of above values.
- o The recommended loosening torque is 150% of tightening torque.
- o Example:
For 8.8 grade M36 bolt, the tightening torque will be $2,046 \times 80\% = 1,636$ Nm
For 8.8 grade M36 bolt, the loosening torque will be $2,046 \times 150\% = 3,069$ Nm

(above mentioned values are for reference only, exact bolt tightening force depends upon the variety of bolt used, variation in friction etc. Please consult with the bolt manufacturer for the exact torque value)