ITORQ®	**ITN Series** Pneumatic Torque Wrenches **Instructions Manual**

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.

Safety:

- *Do not disconnect the Hydraulic Couplers during operation or when under pressure.*
- *Do not drop heavy objects on the Pneumatic Hose.*
  A sharp impact may cause internal damage to the Pneumatic Hose.
  Applying pressure to a damaged Pneumatic Hose may cause it to rupture which could lead to failure and injury.
- *Never use a chrome plated socket.*
- *Do not use old or damaged socket.*
- *Make sure not to use wrong size socket.*
- *Incorrect system connection may cause failure and injury.*
  Before connecting the Pneumatic Torque Wrench, Pneumatic Hose and FRL, make sure all the Hydraulic Couplers are clean and free of debris.
- *Keep hands away from the reaction arm during operation.*
- *Immediately replace any worn or damaged parts with genuine ITORQ replacement parts/spares.*

Setup:

1) *Inspect the Pneumatic Torque Wrench set.*
   Also verify that the Pneumatic Hose isn't kinked, crushed or damaged.

2) *Connect the Pneumatic Hose Assembly from the FRL air outlet to the Pneumatic Torque Wrench air inlet. To do so, ensure that all the Pneumatic Couplers are fully engaged and fastened snugly together.*

   Connection: *Female coupler of Pneumatic Hose assembly with male coupler of Pneumatic Torque Wrench & male coupler of Pneumatic Hose assembly with female coupler of FRL.*
   In order to remember this important step at all times, please remember the saying: Opposites attract each other.

3) *Check that the lubricator has been filled to the required levels and set to achieve 5 – 7 drops per minute.*

Operation (for Tightening):	***Operation (for Loosening):***
1) Make sure the Setup procedure is completed. *2) Ascertain the size of the nut or bolt head, material, strength grade and determine the desired torque required for tightening.* *3) Set the torque by pressing the trigger on the Pneumatic Torque Wrench and adjusting the air inlet pressure on the FRL to the required pressure.* ***Note:*** *Use the Torque Chart provided by ITORQ to determine at what pressure the desired torque will be achieved.* *4) Make sure that the Pneumatic Torque Wrench is in tightening mode by shifting the direction toggle to 'R'.* ***Note:*** *The direction toggle is located just above the trigger.* *5) Connect the square drive of the Pneumatic Torque Wrench to the chosen socket.* *Now, place the Pneumatic Torque Wrench on the nut or bolt to be tightened.* ***To Remember:*** *Make sure to have the reaction arm correctly positioned in accordance to the direction that the socket will be rotating at.* ***Note:*** *The reaction arm will rotate in the opposite direction to the rotation of the socket.* *6) Press the trigger and tighten until the Pneumatic Torque Wrench stalls, thereby, achieving the set torque.* 7) *Continue this process until all nuts or bolts are successfully tightened.*	*1) Make sure the Setup procedure is completed.* *2) Ascertain the size of the nut or bolt head, material, strength grade and determine the desired torque required for tightening.* *3) Make sure that the Pneumatic Torque Wrench is in loosening mode by shifting the direction toggle to 'L'.* ***Note:*** *The direction toggle is located just above the trigger.* *4) Connect the square drive of the wrench to the chosen socket.* *Now, place the Pneumatic Torque Wrench on the nut or bolt to be loosened.* ***To Remember:*** *Make sure to have the reaction arm correctly positioned in accordance to the direction that the socket will be rotating at.* ***Note:*** *The reaction arm will rotate in the opposite direction to the rotation of the socket.* *5) Press the trigger and operate until the nut or bolt is loose.* *6) Continue this process until all nuts or bolts are successfully loosened.*

Recommended Bolt Tightening Force:

Strength Grade:		***4.8***	***6.8***	***8.8***	***10.9***	***12.9***
Bolt	***A/F***	***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:

- *The recommended tightening torque is 80% of above values.*
- *The recommended loosening torque is 150% of tightening torque.*
- *Example:*
  For 8.8 grade M36 bolt, the tightening torque will be 2,046 x 80% = 1,636 Nm
  For 8.8 grade M36 bolt, the loosening torque will be 1,636 x 150% = 2,454 Nm

(The 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)