

TWM – High Capacity Aluminium Manual Torque Wrench Range



glasses/ visor and protective gloves should be worn at all times. All relevant risk assessments should be completed prior to use of the equipment.

Available Models:

MODEL NO.	SQUARE DRIVE	TORQUE RANGE		SCALE GRAD NM	NR OF EXT. RODS	OVERALL LENGTH MM	RECOM. RATCHET HEAD	WEIGHT KG
		NM	LBF.FT					
TWM1000	3/4"	520 - 1000	380 - 730	10	1	1413	TWM075R	5.6
TWM1500	1"	600 - 1500	-	25	1	1608	TWM100R	10.8
TWM2000	1"	750 - 2000	-	50	2	2353	TWM100R	11.6

Important Note:

Before putting this Hand Torque Wrench into operation, please validate the certificate (provided along with this tool) by completing the section "date of first issue, sign and stamp."

1.0 Inspection of the product upon receipt:

On receipt of the product, visually inspect the item for any evidence of shipping damage. Please note shipping damage is not covered by warranty. If shipping damage is found notify the carrier immediately and refrain from putting the product into service. The carrier is responsible for repair and replacement costs resulting from damage in transit shipment.



2.0 Safety Precautions:



Read and follow all the instructions and safety warnings carefully prior to use of the equipment. Failure to do so could result in equipment damage or failure of the equipment or personal injury. Hi-Force will not be held responsible for any damage to the equipment or personal injury resulting from unsafe use of the product, lack of maintenance or incorrect operation. If in doubt on the correct usage of any Hi-Force equipment, contact your nearest Hi-Force office or distributor. If the operator has not been trained on high pressure hydraulic equipment and its safe use consult your local Hi-Force sales office who can offer you training courses for operators.



All operators should ensure that all necessary personal protective equipment as specified by their employer is worn when operating any hydraulic equipment. Safety shoes, safety



Safety

Read this entire manual before operating the torque wrench.

Failure to observe the following warnings could result in serious bodily injury.

These instructions are part of the torque wrench. They must be kept in a safe place for later use and be passed along with the torque wrench if it is sold, loaned, or otherwise transferred.

The torque wrench should be used only by TRAINED PERSONNEL who have been taught how to safely use and handle the torque wrench. Using the torque wrench without training may result in SERIOUS INJURIES or DEATH.

Employers purchasing this torque wrench MUST ensure employees using the torque wrench have read and understood these Operating Instructions prior to using the torque wrench. The Operating Instructions MUST be available to the employees for reference at all times.

OVERLOAD HAZARD

The torque wrench can be overloaded during use and break causing SERIOUS INJURY or DEATH.

ALWAYS use only original accessory parts. Accessory parts not approved by the manufacturer may cause the torque wrench to overload or fail.

ALWAYS inspect the torque wrench for damage BEFORE use.

NEVER use a damaged torque wrench.

NEVER use the torque wrench if it has been dropped, used to strike other objects, or if anything has fallen on it.

INACCURATE TORQUE SETTINGS

An out-of-calibration torque wrench can cause part or tool breakage and inaccurate torque settings, resulting in **SERIOUS INJURY** or **DEATH**. ALWAYS use only tested and calibrated torque wrenches, ALWAYS use an approved torque tester.

EXPLOSION AND FIRE HAZARD

Sparks can occur when using the torque wrench, which can cause an explosion or a fire and can cause **SERIOUS INJURY** or **DEATH**. NEVER use the torque wrench in areas where sparks can cause explosions or fires.

TEMPERATURE WARNINGS

When the torque wrench is exposed to temperatures below 64°F and above 82°F, or high levels of humidity (above 90%), it may cause inaccurate torque settings. ALWAYS check the torque wrench with an approved torque tester before and during use in these conditions.

The torque wrench is designed to tighten bolts and nuts to a specific tightening or torque specification.



- DO NOT use the torque wrench for any other purpose.
- MISUSE can lead to **SERIOUS INJURY** or **DEATH**.
- DO NOT allow children to use the torque wrench.

NEVER use non-standard extension end fittings with a torque wrench with a built-in ratchet or ratchet adaptor.

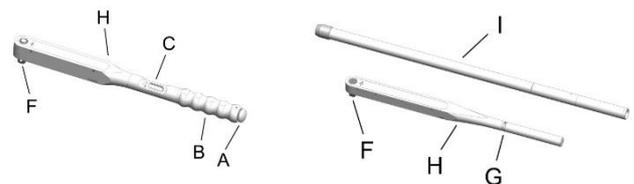
Take the following safety precautions to prevent injuries and damage caused by improper handling and unsafe use of the torque wrench:

- NEVER use the torque wrench for loosening bolts and nuts.
- NEVER use a damaged torque wrench.
- NEVER modify any parts of the torque wrench or accessory parts.
- NEVER use a torque wrench or an accessory part that has been modified.
- ALWAYS inspect the torque wrench, especially the square drive and the housing, for damage before use.
- ALWAYS release the torque wrench IMMEDIATELY after you hear the click indicating that you have reached the desired torque setting.

- ALWAYS use the torque wrench ONLY in the direction of rotation indicated on the housing.
- ALWAYS use only original accessory parts or parts approved by the manufacturer.
- ALWAYS reset the torque wrench to the lowest setting after each use or at the end of the workday.
- ALWAYS hold the torque wrench in the center of the handle when using the tool accessories.
- ALWAYS transport the torque wrench in the shockproof packaging material.

Product Description

A: Hexagon Key **B:** End of the handle **C:** Scale window **F:** Square drive **G:** Stop mark on extension piece **H:** Torque wrench **I:** Extension piece.



Using the Torque Wrench

ALWAYS read the Important Safety Information (Section 1) BEFORE using the torque wrench.

These instructions describe the use of the following product types:

- Torque wrenches with aluminum alloy housing
- Torque wrench with plastic housing

ALWAYS use the torque wrench ONLY in the direction of rotation indicated on the housing. The specified direction of rotation is visibly marked on the housing



Right-Handed and Left-Handed Tightening:

- Single square drive for right-handed tightening:



- Double square drive for right- and left-handed tightening*:



Important Note*: Only torque wrenches with aluminum alloy housing are available with a double square drive.

Throughout these Operating Instructions, the procedures are described, and depicted graphically for a torque wrench with a single square drive. Please note that the procedures are the same for torque wrenches with a double square drive

Setting the Torque

ALWAYS make sure that you set the torque wrench in the appropriate scale. Failure to use the appropriate scale can result in incorrectly torque loaded bolts causing DAMAGE.

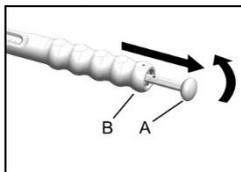
The TWM1000 torque wrench is equipped with a double scale (N•m / lbf•ft or lbf•in). Check the unit and scale. Familiarize yourself with the torque wrench and its scales.

If using nonstandard extensions end fittings, the torque wrench setting must be adjusted. Non-standard extension end fittings increase the effective length of the wrench. As a result, the actual torque applied to the bolt you are tightening will be higher than the setting on the torque wrench.

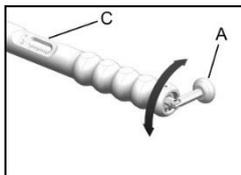
ALWAYS set the desired torque before using the torque wrench. The procedures for setting the torque are different depending on type of torque wrench you are using:

Aluminium alloy housing:

Pull out the Hexagon-Key (A) on the end of the handle (B) and angle it up

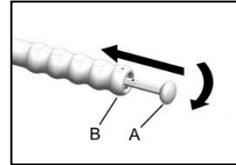


Turn the Hexagon-Key (A) until the desired torque in the particular scale (C) N•m or lbf•ft corresponds with the mark on the housing. (If using extension pieces, see section 3.4.)



Bring the Hexagon-Key (A) back into the

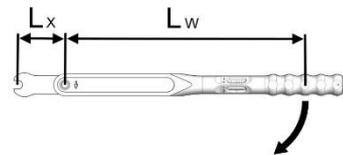
starting position and push it into the end of the handle (B).



Working with Non-standard Extension End Fittings

NEVER use non-standard extension end fittings with a torque wrench with a built-in ratchet or ratchet adaptor.

You must read and understand these instructions before using non-standard extension end fittings with the torque wrench. Bolts incorrectly torque loaded can cause DAMAGE and SERIOUS INJURY. Non-standard extension end fittings increase the effective length of the wrench. As a result, the actual torque applied to the bolt you are tightening will be higher than the setting on the torque wrench.



The new setting for the torque wrench (M_{xw}) must be calculated according to the following formula:

$$M_{xw} = \frac{M_A \times L_w}{L_x + L_w}$$

M_{xw} = Torque Wrench Setting: the torque that has to be set on the torque wrench scale.

M_A = Desired Torque Setting: the torque that the bolt or nut needs to be tightened to.

L_w = Torque Wrench Length: the distance between the center of the torque wrench's square drive and the center of the handle (see table in section 7).

L_x = Extension Length: the distance between the center of the torque wrench's square drive and the center of the bolt or nut (also called depth gauge of the end fitting)

Tightening Bolts

OVERLOAD HAZARD

The torque wrench can overload during use and break causing SERIOUS INJURY

ALWAYS use only original accessory parts.

Accessory parts not approved by the manufacturer may overload. ALWAYS inspect the torque wrench for damage BEFORE every use. NEVER use a damaged torque wrench. NEVER use the torque wrench if it has been dropped, used to strike other objects, or if anything has fallen on it. ALWAYS IMMEDIATELY release the torque wrench after you hear the click indicating that you have reached the desired torque setting. DO NOT continue to tighten the bolt after you hear the click!

INACCURATE TORQUE SETTINGS

An out-of-calibration torque wrench can cause part or tool breakage and inaccurate torque settings, ALWAYS use tested and calibrated torque wrenches only. ALWAYS use an approved torque tester.

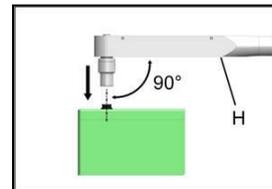
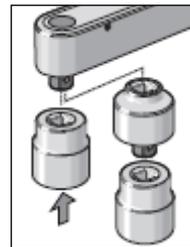
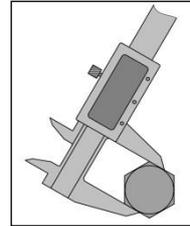
Safety Precautions

Take the following safety precautions to prevent injuries and damage when using the torque wrench:

- ALWAYS use only original accessory parts or parts approved by the manufacturer.
- ALWAYS check the torque wrench for the proper torque setting prior to tightening every bolt.
- ALWAYS position the torque wrench and socket extensions at a 90° angle.
- Use ratchet adapters when working in tight work areas. Reverse the torque wrench without removing it.
- When using ratchet adapters, e.g. for deep seated bolt positions, ALWAYS hold them for as short a time as possible.
- If the resistance changes unexpectedly while tightening a bolt, release the torque wrench immediately. Check the torque wrench and the bolt for damage.
- NEVER use reducers with the torque wrench. Reducers will not bear the load of the forces created when using the torque wrench.
- Only turn the torque wrench in the direction of the arrow on the housing of the torque wrench.
- When using non-standard extension end fittings, always hold the torque wrench tool in the center of the handle.

Tightening Bolts:

- 1) ALWAYS check the bolt for damage and excessive wear.
- 2) ALWAYS determine the width of the bolt head before tightening the bolt.
- 3) ALWAYS select the appropriate socket according to the width of the bolt.
- 4) Attach the socket (or other accessory) to the torque wrench's square drive.
- 5) Make sure the connection between the ratchet head and the socket (or accessory) is secure by gently pulling on it.
- 6) Place the torque wrench (H) with the attached socket onto the bolt at a 90° angle.



- 7) Turn the torque wrench by the handle (B) slowly and steadily in the direction of the arrow indicated on the housing until you hear a click and feel a slight jerk of the handle.

IMMEDIATELY release the torque wrench after you hear the click indicating that you have reached the desired torque setting. DO NOT continue to tighten the bolt after you hear the click!

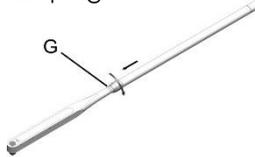


Section: 3.4.

Tightening Bolts Using Extension Pieces:

ALWAYS use only original extension pieces or parts approved by the manufacturer.

- 1) Attach the extension piece to the torque wrench by pushing it onto the torque wrench until it reaches the "stop mark" (G).
- 2) Secure the extension piece by turning the clamping nut.

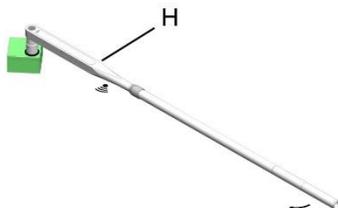


- 3) Make sure the connection between the torque wrench and the extension piece is secure by gently pulling on the extension piece.
- 4) Torque wrenches with 1" and 1½" drives only:
Insert the second extension piece into the previously inserted extension piece.
- 5) Turn the second extension piece until the locking pin locks into place in the hole on the first extension piece.



- 6) Clasp the torque wrench (H) with extension piece on the knurled section of the extension piece.
- 7) Turn the torque wrench slowly and steadily in the direction of the arrow indicated on the housing until you hear a click and feel a slight jerk of the handle.

IMMEDIATELY release the torque wrench after you hear the click indicating that you have reached the desired torque setting. DO NOT continue to tighten the bolt after you hear the click!



The torque wrench is immediately operational.

Maintenance

Checking and Calibrating

An out-of-calibration torque wrench can cause part or tool breakage and inaccurate torque settings.

ALWAYS use tested and calibrated torque wrenches only. ALWAYS use an approved torque tester.

During use, the torque wrench creates very powerful forces. When torque wrenches are not checked or not serviced there is a risk that they will overload or indicate inaccurate torque settings.

ALWAYS take the following safety precautions.

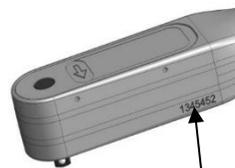
- ALWAYS check the accuracy of the torque wrench with an approved torque tester before each use.
- DO NOT use the torque wrench if inaccurate.
- ALWAYS have your torque wrench periodically recalibrated.

According to DIN EN ISO 6789, the minimum calibration interval requirement for a torque wrench is one year or 5000 load cycles (whichever occurs first). A firm's own specifications or quality requirements for specific applications can lead to considerably shorter calibration intervals.

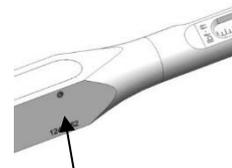
DO NOT attempt to recalibrate your torque wrench. Improper calibration can cause damage to your torque wrench.

Calibration should be conducted by authorized personnel ONLY, such as an accredited calibration laboratory or the manufacturer.

A calibration certificate as per DIN EN ISO 6789 comes with every new torque wrench. The torque wrench and the calibration certificate are labeled with the identical serial number.



Serial Number



Serial Number