User Manual

MFC

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Subject to technical modifications!

1. Introduction

Congratulation on your purchase of this low profile hydraulic wrench series MFC. The MFC is a professional high performance tool for industrial applications. It is designed for tightening and loosening bolts in low clearance situations. Please make sure, that everyone working with this tool has read and understood this manual and follows the safety instructions.

2. Table of Content

3. Scope of Delivery

- Hydraulic wrench drive cylinder
- Ratchet link
- Link pin
- User manual
- Test certificate
- Pressure/torque conversion chart

4. Technical Specifications

Typ	Wrench size [mm]	Torque [Nm]		Weight [kg]	Dimensions [mm]				
		min.	max.		A	B_R	D_1	D_2	E
2 MFC	19 - 60	225	2.350	2,4	32	27-46	95	132	186
4 MFC	34 - 80	520	5.750	5,7	43	36-61	127	176	251
8 MFC	41 - 105	1.050	11.000	9,6	53	46-78	154	211	308
14 MFC	50 - 115	1.850	18.500	17,8	64	60-87	200	252	378
30 MFC	110 - 175	4.190	44.600	31,0	85	77-128	253	300	460
60 MFC	145 - 230	9.250	101.600	108,0	120	123-173	338	380	590

5. Safety Instructions

CAUTION!
Before operating this tool, read and understand this manual carefully. Call the service immediately in case of visual damage or malfunction, never try to repair on your own.

CAUTION!
Never exceed the hydraulic torque wrench maximum working pressure of 700bar (10.150psi) to avoid personal injuries and / or equipment damage. Use only equipment rated for the same maximum working pressure. Never use a hydraulic torque wrench without a hydraulic gauge to indicate the working pressure.

CAUTION!
Power off the system immediately if you notice any oil leakage, never try to seal by your hands. The leaking oil can cause serious harm to you and others.

CAUTION!
Never open the torque wrench housing or change any parts of it, this can cause serious harm to the operator and / or the wrench. Replacing parts, repair and calibration is only allowed to authorized personal. If not in use or during maintenance disconnect the pump from the power supply and disconnect all hydraulic couplers to prevent accidental starting!

CAUTION!
Before operation, verify all hoses and equipment is in proper working order. Verify all hydraulic torque wrench components, especially the couplers, are properly attached and secure. Verify the head link pin is properly located!

CAUTION!
Verify hoses are in good condition and undamaged. Do not bend hoses beyond their safe bend radius limit or kink the hose.

Furthermore please consider following instructions:

- Keep other personnel clear of the working area and only allow trained personnel to use the equipment.
- Always wear eye protection when operating or performing maintenance on this tool.
- Make sure that the reaction point rests solid on a support point.
- Keep hands and fingers clear of the hydraulic torque wrench head and reaction pad area, before and during operation.
- The safety pin has to be attached properly, so that the ratchet link is connected to the drive.

In case of doubt, please contact the customer service. Damage and injuries caused by failure to observe the operating instructions or by improper use are not covered by warranty.

6. Operating Instructions

The MFC hydraulic torque wrench is designed for tightening and loosening bolts and nuts. Please observe and respect all caution labels shown on the tool and all accessory parts.

6.1. General Information

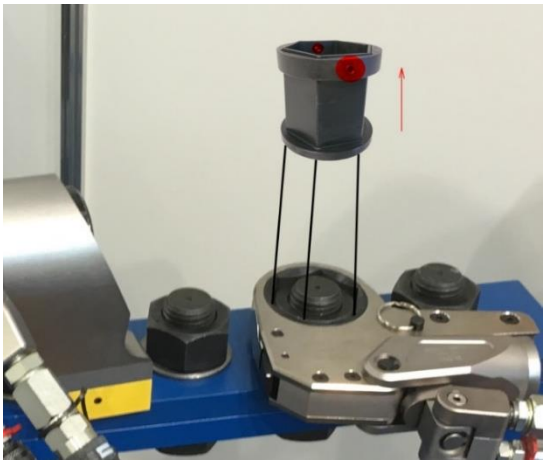
- Protect the tool from external shock and nonrelated forces.
- After uncoupling the equipment place the protection caps back on the couplers.
- Hydraulic oil must not be allowed to escape into the soil or waterways.

6.2. Initial Setup

1. Carefully inspect all components for damage incurred during shipping.
2. Choose the proper ratchet link size and link it to the drive cylinder. Make sure the link pin is located properly.
3. Verify reaction structures are strong and rigid enough to accept the torque wrench reaction forces.
4. The component part, which supports the reaction arm, has to be designed for such high forces, which occur when tightening the bolts.
5. Make sure that the hoses are not bend or in contact with sharp or hot objects.
6. Verify all hoses and equipment is in proper working order. Lock all couplers properly.

6.3. Mounting Direction When Using a Hex Reducer

When operating a hydraulic torque wrench with a hex reducer, the mounting direction of the reducer has to be considered. There are two grub screws at the hex reducer (marked red in the illustration below), which are used to attach the hex reducer to the hydraulic torque wrench. The hydraulic torque wrench has to be put onto the nut, so that the grub screws of the reducer point upwards. The grub screws must not lay on the screwed surface.

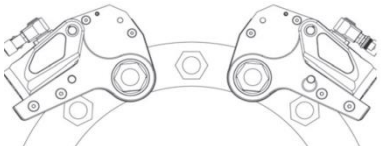


6.4. Setting the Torque

Each torque wrench unit is supplied with a pressure/torque chart. Make sure the serial number on the document accords with the serial on the tool. Choose the proper working pressure for your desired torque. Adjust the designated pressure to the system to this refer the pump manufacturer´s operating instructions.

Information:
The calibration of the tool is valid for the period of one year. The date of calibration is named on the related certificate and also on the pressure/torque chart.

6.5. Tightening and Loosening Bolts


Tightening Loosening

1. Pretighten the bolts manually before starting with the hydraulic torque wrench.
2. Install and secure the torque wrench and accessories.
3. Place the wrench on the bolt or nut to be tightened. Check the orientation by means of the picture:
   - The wrench has to fully engage the nut.
   - Only the plain reaction pad is allowed to be used as reaction surface. Using the curved parts of the wrench as reaction surface will falsify the designated torque and leads to increased wear.
   - Reacting against an edge of a close-by nut or other nearby construction part is allowed.
4. Pressurize the torque wrench with the pressure indicated.
5. After tightening, the hydraulic torque wrench can be depressurized.
6. If the piston is in a retracted position, the next stroke can start (point 4).
7. After several forward strokes the nut is not turning anymore and the pressure is reaching the preset pressure. Cycle the wrench one more time to ensure full total torque.
8. Shut off the pump and remove the wrench from the nut.

7. Troubleshooting

7.1. Torque Wrench Jams on The Nut After Tightening

Should the wrench be jammed on the nut after tightening and it is impossible to remove the wrench from the nut, follow the steps below:

1. Apply full hydraulic pressure to the wrench.
2. Press and hold the button of the retainer ratchet (see picture).
3. Release pressure while holding the button.
4. Release the button after the pressure is fully released.
5. Remove the wrench from the nut.

7.2. Ratchet Link Is Not Rotating Despite Applied Hydraulic Pressure

Check all hydraulic couplers and ensure they are properly connected. For that disconnect them all and reconnect and try again. Check if the pump is running and the gauge is showing the rising pressure.

7.3. Torque Wrench Starts With Backstroke of The Cylinder

The advance (marked with A) and retract (marked with R) of pump and hydraulic wrench are interchanged. Make sure that the advance coupler of the pump is connected to the advance coupler of the wrench and accordingly the retract couplers. If necessary interchange the male and female couplers at the pump (disconnect from power supply) and ensure that they are sealed properly afterwards.

7.4. Oil Leakage

If leakage occurs at the coupler´s threads, try to seal it by retightening them. If oil leakage occurs at the wrench, call the M-PT service immediately.

8. Accessories

8.1. Hex Reducers

Instead of using a further ratchet link size for tightening a smaller nut size, you can use one of our original hex reducers. Please consider the right mounting direction of the reducer (see section **Fehler! V erweisquelle konnte nicht gefunden werden.**).

8.2. In-out Sockets and Adapters

In-out sockets are inserts, which fit into the ratchet link hex. The output geometry can be formed i.e. as allen hex drivers, normal hex drivers or square drives.

8.3. Reaction Paddle

When working with in-out sockets or square drive adapters, you should use an additional reaction paddle to be able to react on equal hight with the nut.

8.4. Inline Reaction Arm

If there is no proper reaction point within the surrounding construction, you can easily elongate the wrench´s reaction pad by using the inline reaction arm. The inline reaction arm is available in different lengths.

9. Disclaimer

This manual has carefully been prepared. In the case of supplementary questions, do not hesitate and consult factory service. The manufacturer does not assume any responsibility for technical or typographic mistakes; technical specifications and corresponding instructions are subject to change without notice. The manufacturer is not responsible for direct or indirect consequential damages in connection with equipment, services or use of the product. No warranty is given for the content of this document.
The warranty exclusively relates to defects in material and workmanship and becomes null and void in the case of misuse, abuse, neglect and improper use. It is strictly forbidden to manipulate components or to perform repair by means of parts not approved by the manufacturer in writing. Improper use or misapplications shall be construed to include excess of any specification of the equipment.

10. Maintenance / Service

10.1. General Remarks

- Safety and correct function of the tool can only be ensured by regular maintenance.
- Procedures like mounting, new adjustment, modifications, functional upgrading and repair are reserved to M-PT factory service, if no other authorization is given in writing.
- Installation of original M-PT spare parts is mandatory, foreign parts are not admissible. This includes all internal components and accessories.

10.2. Visual Inspection

Visual inspection is required in regular intervals and refers to following criteria:

- Absence of external damage
- Function of movable parts
- Damages of shaft, drive and reaction arm

10.3. Service Intervals

- The convenient service interval depends on frequency of use.
- For permanent bolting at an intensity of up to 80% of maximum torque, maintenance after 20,000 procedures is recommended.
- An individual maintenance conception matching the requirements of the application can be discussed with our factory service.

10.4. Spare Equipment

- If during repair or maintenance, a spare tool is reqiured, rental equipment is available any time.

10.5. Calibration

- The period of validity of the factory calibration amounts to 1 year, frequency of use is not taken into consideration.

10.6. Manufacturer's Address

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Germany
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E-Mail: mail@m-pt.de

11. Product Overview

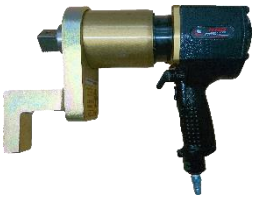
11.1. Battery Torque Wrench


- Torque range 30-15.000 Nm
- Repeatability from ±2,8 %
- Torque/angle controlled tightening
- Data Logging
- Torque Check Function for maintenance
- Limit value monitoring

11.2. Electric Torque Wrench


- Torque range 65-16.500 Nm
- Repeatability from ±2,8 %
- Torque/angle controlled tightening
- Data Logging
- Torque Check Function for maintenance
- Limit value monitoring

11.3. Pneumatic Torque Wrench



- Torque range 35-15.000 Nm
- Repeatability of ±5,0 %
- Available with ATEX certification

11.4. Hydraulic Torque Wrench


- Torque range 110-101.600 Nm
- Repeatability of ±3,0 %
- Square drive and cassette type
- 360° x 180° multi-positional swivel couplings

11.5. Hydraulic High Performance Pumps

- Pressure range 700-2.000 bar
- For hydraulic torque wrenches and bolt tensioners
- Data Logging

11.6. Software for Bolting Systems

- Documentation System for data logging
- Torque Check Function for bolt maintenance
- ProTight™ worker guidance system
- BoltPilot® data monitoring

11.7. Transducer Smart Socket™

- Accuracy of transducer ±1,0 %
- Graphical display of torque curve
- Data logging software

11.8. Rental

- All tools are also available in our rental park.