



# Operating manual

## Hydraulic torque wrench

### HPR / HPR - RE



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# 1 Identification

## 1.1 Manufacturer

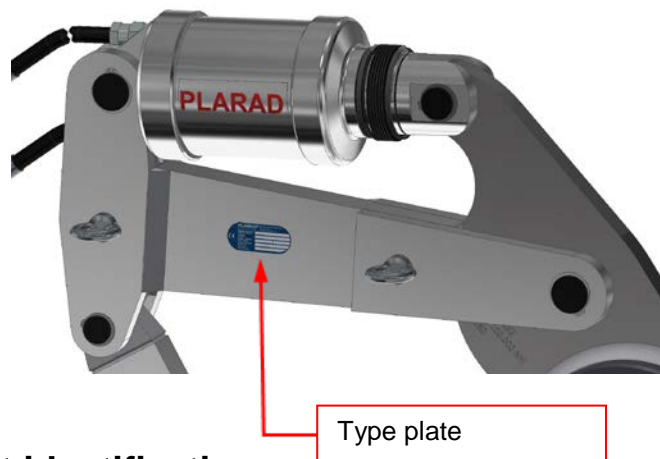
Manufacturer: Maschinenfabrik Wagner GmbH & Co. KG  
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Internet: [www.plarad.de](http://www.plarad.de)

Hereinafter "PLARAD"

## 1.2 Product identification

Machine designation: Hydraulic torque wrench  
Type designation: HPR / HPR – RE

The hydraulic torque wrench is identified by a type plate.



## 1.3 Document identification

PA No.	Version	Date	Reason for change / comments
78465	1.0	03/06/2020	Initial version / NTZ
78465	1.1	29/06/2020	Amendments / PW

File name: 2\_BA\_HPR \_GBR\_1.1\_78465

## 2 User instructions

### 2.1 Purpose of the document

This operating manual is intended to familiarise the owner/operator with the machine and provide information about its possible applications and intended use. The operating manual contains important information that allows the owner/operator to use the machine safely, correctly and efficiently. Observing this information helps avoid hazards, minimise repair costs and downtimes and increase the reliability and service life of the machine.

#### Information about precautions to be taken by the owner:

- Only entrust personnel who have the necessary qualification for the respective work with tasks on the machine.
- Clearly define the responsibilities and accountabilities of the operating and maintenance personnel.
- Supplement the operating manual by rules arising from national regulations regarding occupational health and safety and the environment (e.g. work organisation).
- Order and occasionally verify compliance with the operating manual and its supplements. Keep a copy of the operating manual at the place where the machine is used at all times!
- Only operate the machine when it is in technically faultless condition and maintain this.

Apart from the operating manual, the mandatory accident prevention regulations applicable in the country and the place where the machine is used must be observed. In addition, all recognised technical rules devised to ensure safe and correct working must be observed.

### 2.2 Target groups

- The **owner** as the superior legal person is responsible for the intended use of the machine and the training and deployment of authorised persons. He defines the mandatory competences and authorisations of the authorised personnel for his company.
- A **specialist** is defined as a person who is capable of assessing the tasks assigned to him and recognising possible hazards due to his professional training, knowledge and experience. This person is also familiar with all applicable regulations. Only trained specialist personnel or such personnel who have been selected and found capable by the owner are qualified to work with the machine.
- A **trained/instructed person** is a person who has been instructed and, if necessary, trained in the assigned tasks and the possible risks for incorrect behaviour. This person has also been informed about the necessary safety devices and protective measures. Personnel to be qualified, trained, instructed or undergoing general job training may only act under the constant supervision of an experienced person.

## 2.3 Liability and warranty

All tasks and instructions provided in this operating manual are based on our previous experience and findings and given to the best of our knowledge. The original version of this operating manual was prepared in German and reviewed by us for technical accuracy. The translation into the respective national/contractual language has been prepared by a certified translation agency.

This operating manual has been compiled with the greatest level of care. However, if you discover any parts that are incomplete and/or incorrect, please notify us in writing. Your suggested improvements help us create an operating manual that is more user-friendly.

## 3 Product safety

The prerequisite for the safety-compliant handling and trouble-free operation of this machine is knowledge of the basic safety instructions.

### 3.1 Organisational measures

- The operating manual must always be kept in legible condition and readily available at the place where the machine is used!
- The operating manual needs to be supplemented by rules that incorporate the specific conditions present on site (e.g. duty of supervision and obligation to notify the authorities, work organisation, operational procedures, assigned personnel).
- The operating manual also needs to be supplemented by mandatory local regulations regarding accident prevention and environmental protection (e.g. handling hazardous materials, disposal of auxiliary and/or operating materials, and the provision/requirement to wear personal protective equipment)!
- Personnel must be instructed to observe the operating manual!
- Personnel are required to notify the owner or his agent of any defects or hazards they have discovered.

### 3.2 Technically faultless condition

- All safety instructions and warnings at / on the machine must be maintained in complete and legible condition!
- Do not make any modifications, attachments and conversions to the machine that could impair safety without consultation/agreement with the manufacturer/supplier!

**Substantial changes to the machine may void your warranty claims and render the EC Declaration of Conformity invalid!**






- Observe all intervals for recurring checks/inspections that are required (by law) or set out in the operating manual!
- All spare parts used must comply with the technical requirements specified by the manufacturer. This requirement is always satisfied by the use of original spare parts.
- When having maintenance work performed independently, make sure to provide the appropriate workshop equipment necessary to complete the work!

### 3.3 Safety of persons





- When working with a hydraulic torque wrench, stay alert, pay attention to what you are doing and apply common sense. Never operate it when you are tired or under the influence of drugs, alcohol or medication. Even a brief moment of carelessness during the use of a bolting tool may lead to serious injury.
- Always wear personal protective equipment and safety goggles. Wearing personal protective equipment such as a dust mask, non-slip safety shoes, hard hat or hearing protection - depending on the type and use of the tool - reduces the risk of injury.
- Remove all adjusting tools or spanners before operating the hydraulic torque wrench. Any tool or spanner located in a rotating machine part can result in injuries.
- Refrain from assuming an abnormal body posture. Assume a firm stand and keep your balance at all times. This will help you retain better control over the bolting tool if faced with unexpected situations.
- Wear suitable clothing. Do not wear any loose-fitting clothes or jewellery. Keep hair, clothing and gloves out of reach of moving parts. Loose-fitting clothes, jewellery or long hair may become caught in moving components.

### 3.4 Presentation of safety instructions

The operating manual uses the following illustrations to depict safety instructions:

<p><b>Danger:</b> Specifications / instructions and warnings intended to prevent personal injury</p>	 <p>Danger!</p>
<p><b>Attention:</b> Particular specifications / instructions and warnings intended to prevent property damage</p>	 <p>Attention!</p>
<p><b>Notice:</b> Particular specifications / instructions and warnings regarding the proper and efficient use of the machine</p>	






### 3.5 Symbols on the machine

<p>Crushing hazard warning</p>	
<p>Read all safety information and instructions. Failure to observe the safety information and instructions can result in serious injuries.</p>	
<p>The products are labelled with the CE mark.</p>	
<p>Service seal specifying the date of the next inspection.</p>	

Follow the notices on the max. permissible load in Nm / ft.lbs as specified on the type plate.



### 3.6 Personal protective equipment (PPE)

Use gloves	
Use protective footwear	
Wear hearing protection	
Wear protective headgear	
Use protective eye wear	

### 3.7 Re-orders and copyright

Additional copies of this operating manual can be ordered at the address specified in chapter 1.1. "Manufacturer". All rights are expressly reserved. Copying or disclosing the content of this operating manual to third parties - in which form whatsoever - is not permitted without our written approval.

## 4 Training of personnel

### 4.1 Selection and qualification of personnel

- a) Only reliable personnel are permitted to work on/with the machine. Observe the minimum age requirements stipulated by law!
- b) Only use trained or at least instructed personnel! Instruct and occasionally verify that only authorised personnel are used to work on/with the machine!
- c) Clearly define the responsibilities and accountabilities of the personnel with regard to operation, set-up, maintenance and repair!
- d) Only let personnel undergoing training, instruction or in the context of general training work on the machine while under constant supervision by an experienced person!
- e) Work on hydraulic/pneumatic equipment must be restricted to experienced and qualified experts!



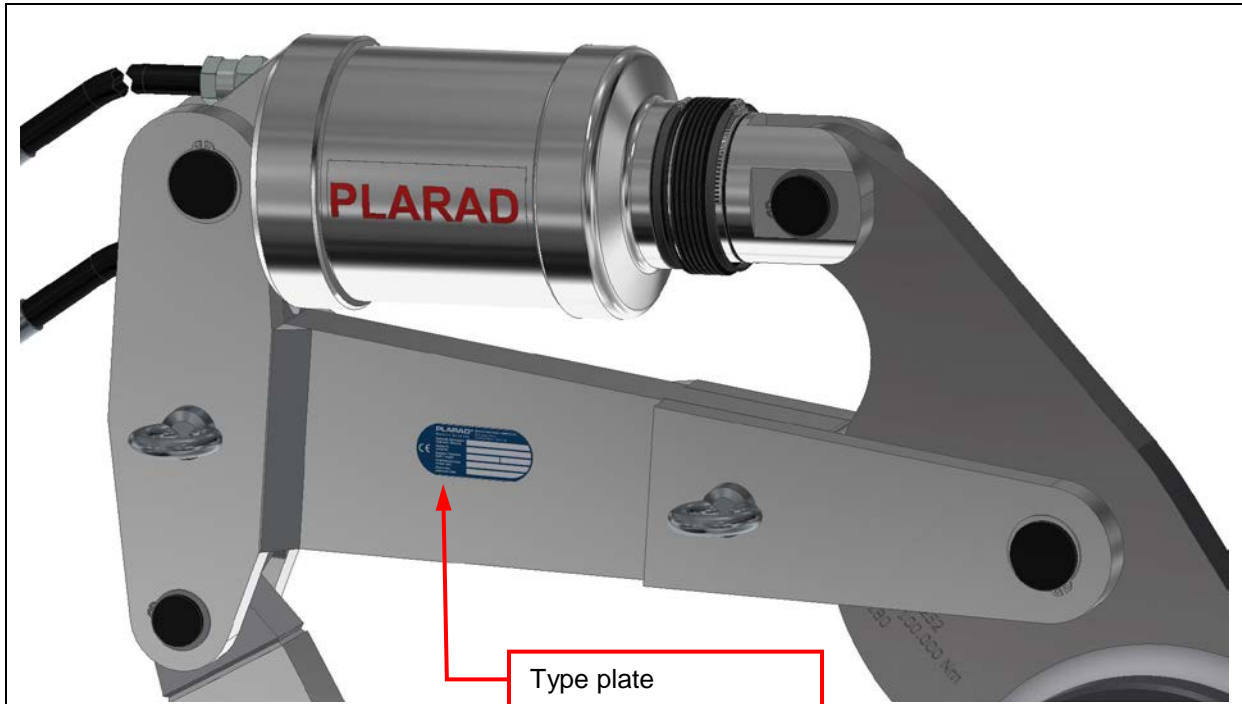
## 5 Product information

### 5.1 Description of the machine

Illustration and identification

The hydraulic torque wrench is identified by a type plate.

The position of the type plate is found in the illustration below:



The following specifications are given on the type plate:

- Company name including complete address
- Type designation:
- Serial no.:
- Year of manufacture:
- Weight:
- Maximum torque:
- Pressure:
- CE mark

### 5.2 Markings and regulations

The products are labelled with the CE mark. The Declaration of Conformity verifies that the products are in compliance with the safety directives of the European Union. The product meets the requirements of the EC Machinery Directive 2006/42/EC.

### 5.3 Intended use

Within the limits of supply, the hydraulic torque wrench has been manufactured in accordance with the state of the art and the recognised technical safety rules. Regardless, the use of the machine involves certain risks to the life and limb of the user or third parties as well as the risk of damage to the machine and other material assets.

The machine may only be used if in proper technical condition, in accordance with its intended use, with an awareness of safety and the risks involved and in observance of the operating manual!


It is of particular importance in this regard to eliminate any faults that may affect safety without delay. The hydraulic torque wrench is a hand-held tool that is designed exclusively for tightening and loosening bolted connections.

It may only be used for commercial purposes.

Any use deviating from or exceeding the scope of intended use is considered to be improper!

The manufacturer/supplier cannot be held liable for any damage resulting from such improper use.

The risk lies solely with the owner.



<p><b>Intended use also includes observing the operating manual and the conditions specified for inspections and maintenance.</b></p>	
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## 5.4 Non-intended use

Any use deviating from or exceeding the scope of intended use is considered to be improper. The risk is borne solely by the owner / user.

### 5.4. Other applicable documents

Operation of the hydraulic torque wrench requires the use of a power pack generating a maximum of 350 bar.

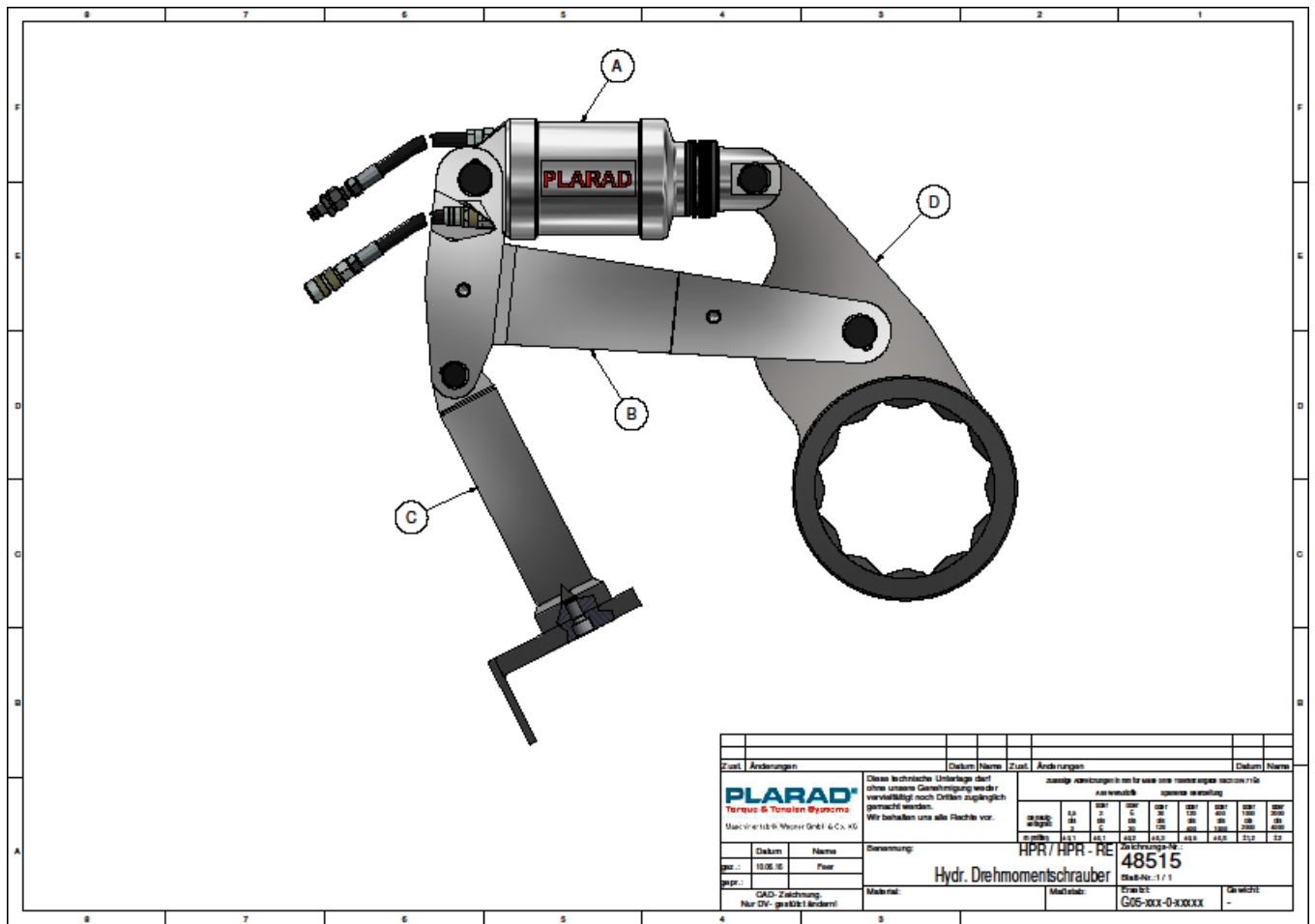
<p><b>Please also observe the operating manual included with the power pack you use.</b></p>	
<p><b>The technical specifications and safety data sheets of accessories must be observed as well!</b></p>	

## 5.5 Technical specifications

Maximum operating pressure:	350 bar
Maximum torque:	see pressure - torque table
Sound pressure level:	< 70 dB(A) 1 m1
Accuracy:	±5% of the nominal value (max. torque)
Ambient temperature:	0°C < T < 50°C

For the dimensions of the hydraulic torque wrench, refer to the technical data sheets which are available at [www.plarad.de](http://www.plarad.de).

## 5.6 Design and components of the machine



### Components of the hydraulic torque wrench:

- Pos. A Hydraulic drive cylinder
- Pos. B Reaction arm
- Pos. C Reaction support (application-specific)
- Pos. D Ring spanner insert (operational accessories)

## 6 Scope of delivery

- Hydraulic torque wrench, ready for operation
- Reaction arm
- Ring spanner insert (optional)
- Circlip pliers for installing the retaining rings on the reaction arm / bolt
- Operating Manual
- Torque table with (optional) test certificate
- Case
- EC Declaration of Conformity within the EU and the EEA

## 7 Components required for operation

### 7.1 Power pack

The PLARAD power pack supplying power to the tool must have the following characteristics:

<b>Maximum operating pressure:</b>	<b>350 bar</b>
<b>Permissible grades of oil:</b>	<b>Shell Tellus S2 VX32</b>
<b>Maximum oil temperature:</b>	<b>90°C</b>

If using a power pack not made by PLARAD, you need to ensure compliance with the characteristics listed above.

- If in doubt, contact the manufacturer.
- Make sure the oil fill level in the power pack is adequate.



**Attention!**

### 7.2 Instructions on the use of hydraulic hose lines

- Use only hydraulic hose lines that have been approved for the maximum operating pressure.
- Ensure sufficient clearance for the hose connection.
- Do not twist or kink the hydraulic hose lines, avoid dragging them across sharp edges and avoid exposing them to temperatures above 70°C.
- Check hoses and couplings for damage before every use.
- Make sure the hose couplings snap into place correctly.
- Shut down the tool immediately if detecting any leaks in the hoses. Replace hoses, couplings, etc. without delay even if they merely show damage on the exterior.

### 7.3 Bolting accessories

- Use only accessories such as ring spanners and reaction arms that are designed for the corresponding levels of load and torque.

## 8 Control and operation

### 8.1 Operating principle of the hydraulic torque wrench

The PLARAD power pack generates a hydraulic pressure which can be set using a pressure relief valve and read at a pressure gauge.

The hydraulic fluid is supplied to the hydraulic torque wrench via high-pressure hoses.

When the corresponding pressure is reached (refer to the enclosed pressure-torque table), a force generated in the cylinder will act on the ring insert via a lever system.

This causes the ring system to rotate around the lever axis at an angle of approx. 30° to 35°, transmitting the torque to the bolted connection.

To absorb the reaction force, position the swivelling reaction arm in a suitable place.

Following the completion of the rotational movement using ring insert spanners without ratchet function, the tool is taken off the bolt / nut and the piston is retracted before being refit onto the bolted connection for the next bolting process.

Ring spanner inserts with ratchet function can remain on the bolt / nut to be tightened, allowing the cylinder to be retracted again.

The rotational movement for "Tensioning" / "Loosening" is controlled by rotating the hydraulic torque wrench while it is positioned on the bolting application.

### 8.2 Absorbing the reaction momentum

Torques cannot be generated without an absorption of the reaction forces. This function on the hydraulic torque wrench is performed by the reaction support (pos. C).

A standard reaction arm is included in the scope of delivery of the tool. The tool is only permitted to be used in combination with the associated reaction arm.

Use only reaction arms that have been approved by PLARAD. The reaction arm must not be altered beyond the permissible dimensions specified by PLARAD. Modifications to the reaction arm can invalidate the included original performance table.

Before switching on the tool, place the reaction arm at the bolting position such that it is positioned against the rotational direction of the thrust bearing.

The following notice applies to the entire swivel range of the reaction arm.

The reaction arm of the hydraulic torque wrench is subjected to tremendous forces during operation.

There is a crushing hazard between the reaction arm and the contact surface.

- **Do not reach between the reaction arm and the contact surface.**
- **Do not place hands close to the contact surface.**
- **Observe the warning included on the reaction arm.**



**Attention!**

### 8.3 Preparing the tool

Only components and accessories that do not impair the function and safety of the tool are permitted to be used.  
Use only PLARAD ring spanner inserts



Attention!




- Attach the ring spanner insert between hydraulic cylinder & reaction arm.



- Pay attention to the correct installation position.
- Fit the ring spanner insert between hydraulic cylinder and reaction arm using the bolts and secure it with the retaining rings.  
Use the included circlip pliers and make sure the retaining rings are seated properly!
- Do not connect the high-pressure hose line to the power pack until the torque has been set (chapter 8.4) and make sure coupling and nipple have locked into place properly.

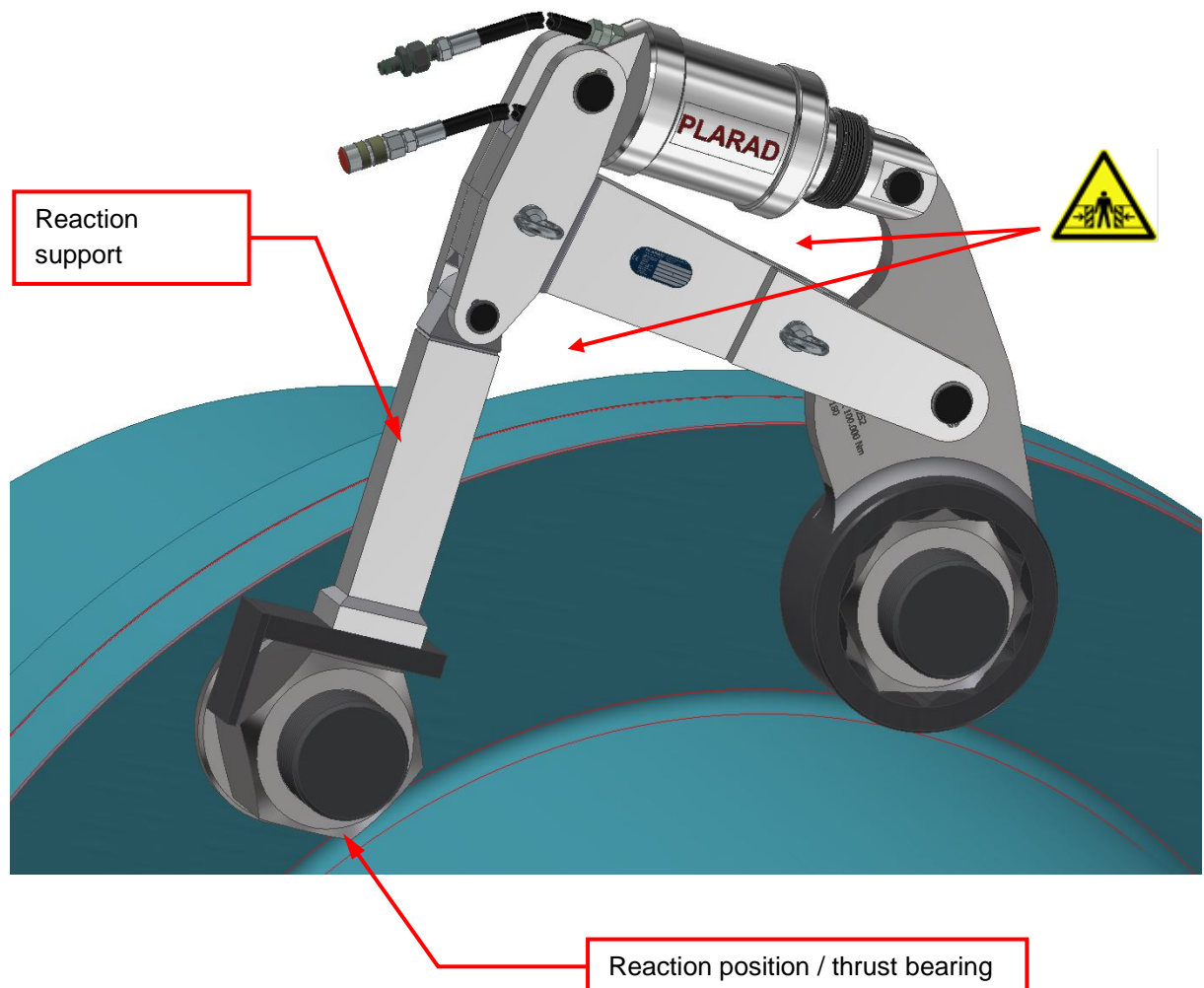
### 8.4 Setting the torque

- Connect the hydraulic hoses to the power pack.
- Switch on the power pack.
- Press and hold the button "ON/An" on the remote control until pressure setting is complete.
- Turn the pressure adjusting valve on the power pack to set the pressure for the required torque and read it at the pressure gauge.  
For the required pressure, refer to the pressure-torque table included with the hydraulic torque wrench.

Check if the torque table valid for the tool is available. The serial number of the correct torque table is specified on the.	 <b>Attention!</b>
When setting the torque, strictly ensure that the maximum permissible torque of the tool and the accessories is not exceeded. The maximum permissible torque is indicated on the tools.	 <b>Attention!</b>
If using a power pack not made by PLARAD, observe the operating manual provided by the manufacturer. The owner must ensure compliance with the characteristics specified in section 7.1.	 <b>Attention!</b>

## 8.5 Operation

- Place the hydraulic torque wrench HPR onto the bolted connection. When doing so, choose a position that takes full advantage of the rotational movement.

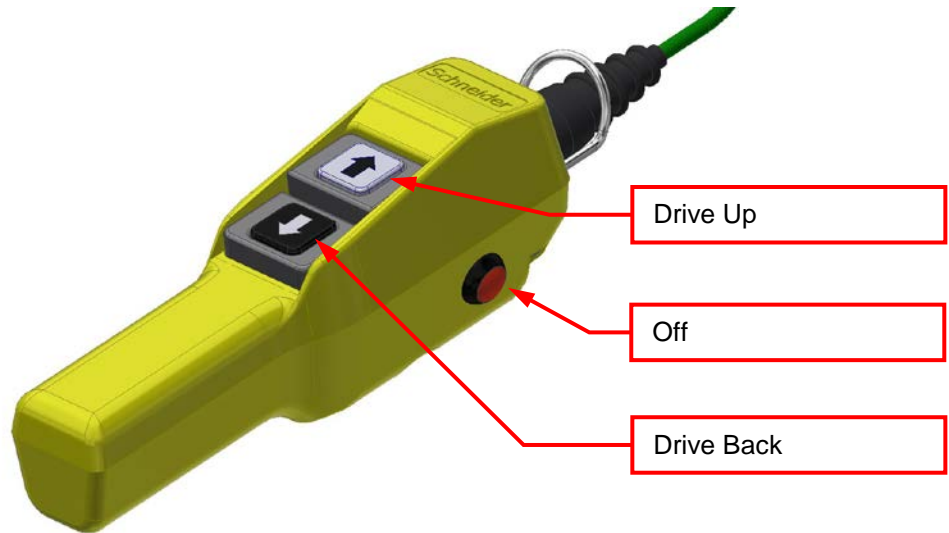





- Position the swivelling reaction support at a suitable reaction position / thrust bearing to absorb the reaction force. Make sure the support scenario of the device is safe. If necessary, secure the hydraulic torque wrench from tilting down.
- Connect the hydraulic hose lines.

For a smoother work flow, it may be advisable to connect the hydraulic hose lines before placing the hydraulic torque wrench.


- Make sure the hydraulic hose lines are clear and untangled!
- Do not reach into the area of the reaction arm with your hands while the hydraulic torque wrench is in operation.
- Press and hold the button “Drive Up” on the remote control to extend the cylinder. The rotational movement of the ring spanner begins.

The rotational movement is stopped by releasing the button “Drive Up”.



<p>Lightly tap the button “Drive Up” first and check the position of the swivelling reaction support. Make corrections if necessary.</p>	 <p><b>Attention!</b></p>
<p>Following the completion of the rotational movement using <i>ring spanner inserts without ratchet function</i>, the tool is taken off the bolt / nut. The cylinder is retracted by pressing the button “Drive Back” and placed back onto the bolted connection for the next bolting process. The swivelling reaction support can be repositioned at the thrust bearing.</p>	 <p><b>Attention!</b></p>
<p>The use of <i>ring spanner inserts with ratchet function</i> allows for the inserts to remain on the bolt / nut to be tightened. The cylinder can be returned to its original position with a press of the button “Drive Back”.</p>	 <p><b>Attention!</b></p>



- The rotational movement is terminated automatically when the set torque has been reached. The bolting process is complete. Press the button “Off” on the remote control to switch the power pack off.
- Repeat the work steps described above until you have reached the desired torque.

<p><b>Unsecured components or tools can be flung out!</b>  <b>Secure reaction arm and impact socket before start-up!</b>  <b>Follow the instructions and warnings provided on the tool and the accessories.</b></p>	 <p><b>Danger!</b></p>
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## 8.6 Loosening a bolted connection

- The bolted connection is loosened by turning the hydraulic torque wrench around.

<p><b>Loosening a bolted connection often requires higher levels of torque than are necessary for tightening.</b></p> <p><b>When faced with a situation like this, you will find that standard sockets and accessories often do not provide the necessary stability.</b></p> <p><b>Also, the power of the tool is usually greater than the load capacity of the accessories.</b></p>	 <p><b>Attention!</b></p>
<p><b>Note that the accessories are only permitted to be loaded with the maximum permissible torque.</b></p>	 <p><b>Danger!</b></p>

## 9 Operation

### 9.1 Operation of the hydraulic torque wrench

<p><b>Do not work in a way that may endanger safety!</b></p> <p><b>Tie back long hair and refrain from wearing loose clothing or jewellery (there is a risk of injury from becoming entangled or drawn in)!</b></p>	 <p><b>Danger!</b></p>
<p><b>Do not use the hydraulic torque wrench unless it operates in a reliable manner and is in proper condition!</b></p>	 <p><b>Danger!</b></p>
<p><b>Before putting the hydraulic torque wrench into operation, make sure that no one is put at risk by the machine starting up!</b></p>	 <p><b>Danger!</b></p>
<p><b>Only use reaction arms and/or ring spanners that have been approved by the manufacturer!</b></p>	 <p><b>Danger!</b></p>
<p><b>Check the machine for visible external damage and defects at least once per shift!</b></p> <p><b>Report any detected changes (including changes in performance) to the supervising staff without delay! If necessary, shut down and secure the machine immediately!</b></p>	 <p><b>Attention!</b></p>
<p><b>Modifications to the reaction arm can invalidate the included original performance table.</b></p>	 <p><b>Attention!</b></p>

Operate the tool as specified in the operating manual; follow control indicators!



Suitable reaction arms - including custom models - are available on request.  
Reaction arms must never be modified.



## 10 Maintenance / Service

Performing regular maintenance and inspections on the machine is of great importance. This minimises the occurrence of faults and increases operational reliability.



### 10.1 Maintenance overview

The tool must be serviced as specified in the maintenance schedule before and after use.

Maintenance schedule				
Component / check	Type of check	Process	Interval	Comment
Surfaces Warnings and pictograms	Visual inspection	Check/clean	Before/ after use	
Check hydro cylinder for: <ul style="list-style-type: none"> <li>• Proper fastening</li> <li>• Damage</li> <li>• Leaks</li> </ul>	Visual inspection	Check	Before/ after use	
Check ring spanner for: <ul style="list-style-type: none"> <li>• Damage</li> </ul>	Visual inspection	Check	Before/ after use	
Check the reaction arm for: <ul style="list-style-type: none"> <li>• Damage</li> <li>• Proper operation, safety pin</li> </ul>	Visual inspection	Check	Before/ after use	

## 10.2 Service overview

**Service work may only be performed by the manufacturer. Only allow Maschinenfabrik Wagner or bodies authorised by Maschinenfabrik Wagner to install, readjust, modify, expand and repair the tool.**



**Attention!**

Throughout the useful life of the machine, it is necessary to perform a variety of service operations. The service intervals need to be shortened if the machine is used in particularly harsh and demanding work environments.

The following service intervals must be observed depending on the conditions of use (see also ch.10.1 Maintenance overview):

### **Every 3 months:**

- in extreme usage conditions
- if application frequency is high / multi-shift operation

### **Every 6 months:**

- in normal usage conditions
- if application frequency is medium
- if used for work in the medium torque range

### **Every 12 months:**

#### **If application frequency is low**

- if application frequency is low

### **Cleaning:**

- clean the surface of the tool
- remove flash rust as necessary

### **Visual inspection:**

- damage
- leaks

### **Function check:**

- all moving parts in order
- ring spanner without damage
- hydro cylinder and reaction arm without damage
- no leaks at the hydro cylinder
- no leaks at the coupling / nipple

## 10.3 Spare and wear parts

All spare parts used must correspond to the technical requirements stipulated by us. This requirement is satisfied by the use of original spare parts. We only grant a warranty on the original spare parts we supply. The installation and/or use of spare parts that are not original may have a negative impact on the specified design properties, thereby impairing active and/or passive safety.




We do not assume any liability and warranty for any damage that can be attributed to the use of spare parts / accessories other than those supplied by us.

We require the following information to process your order in an efficient and expedient manner:

1. Client
2. Serial number of the device
3. Designation of the desired spare part
4. Desired units
5. Desired shipping method

Refer to chapter 1.1 "Manufacturer" for our address

## 11 Disposal

<p><b>All materials, auxiliary and operating materials as well as cleaning agents and replacement parts used need to be disposed of in a safe and environmentally compatible way. Observe all applicable national regulations!</b></p> <p><b>Follow the instructions of the manufacturer when dealing with hazardous materials!</b></p>	 <b>Attention!</b>
<p><b>Dispose of this product at an authorised waste collection facility. Return the product if, for instance, purchasing a similar product or take it to a waste collection facility that is authorised to recycle waste.</b></p>	 <b>Attention!</b>
<p><b>Turn to your local administration office, your public waste disposal authority, a facility that is authorised to dispose of waste hydraulic equipment or your waste management company.</b></p>	 <b>Attention!</b>