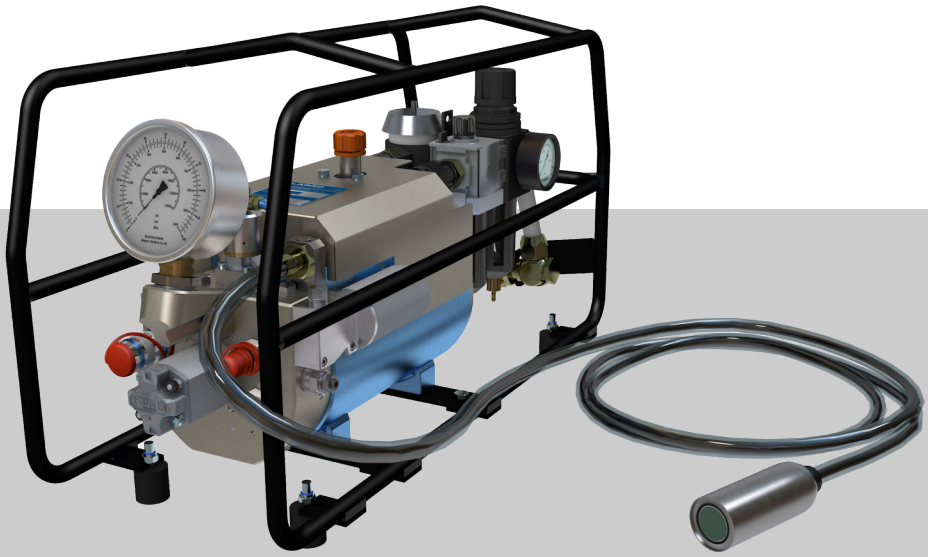
# Operating instructions

## Pneumatic hydraulic power pack
## XP1*eco* ATEX



II 1 G Ex h T4 Ga
II 1 D Ex h < 135° Da

PLARAD®
Torque & Tension Systems

**PLARAD® PowerPaX**
XP1*eco*-20 2Stage ATEX

**Read the manual carefully before use!**
**Keep for future use.**

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Translation of the original operating instructions
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# Information about this manual

This manual enables safe and efficient handling of the pneumatic hydraulic power pack XP1*eco* (referred to in the following as “hydraulic power pack”).

The manual is a component of the hydraulic power pack and must be kept in its immediate vicinity where the user can access it at any time.

The user must have read and understood this manual prior to commencing any tasks. A basic prerequisite for ensuring that work is performed safely is compliance with all safety instructions and guidelines in this manual. In addition, the local accident prevention regulations and general safety provisions for the hydraulic power pack’s area of application apply.

Illustrations in this manual serve to provide a basic understanding and may differ from the actual design.

In an explosive atmosphere, use the pneumatic hydraulic power pack only in the approved EX zones ↳ *Chapter 2.4 ‘EX rating’ on page 13*.

**PLARAD® PowerPaX**

The PLARAD® PowerPaX pneumatic hydraulic power packs are available in different versions and configurations.

Overview of the options ↳ *Chapter 2 ‘Getting to know the hydraulic power pack’ on page 12*.

**Other applicable documents**

The following documents must be observed in addition to this manual:

- Rating plate
- EU declaration of conformity
- Certificates/test reports (option)
- Technical data sheet (dimension sheet)
  ↳ www.plarad.de

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- *www.plarad-manuals.com*

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**Further development of the manual**

This manual was compiled with great care. If you notice any errors, have any questions or identify any inconsistencies, please notify us in writing. Your suggestions for improvement will help us design a user-friendly manual.

**Follow-up order**

Further copies of this manual can be ordered subject to an additional fee.

Contact ↬ *'PLARAD® service' on page 4*.

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**PLARAD® service**

Information about PLARAD® service and authorised PLARAD® partners:

- *www.plarad.de*

# Table of contents

# 1 Unpacking and transporting

## Delivery


*Fig. 1: Example, shipping crate*

The hydraulic power pack is delivered together with the rest of the scope of delivery in packaging adapted to the transport route and delivery location.

For example, this could be a wooden crate delivered on a pallet. The hydraulic power pack is wrapped in film to ensure that no hydraulic oil can escape.

## EX zones

**WARNING!**

**Danger of explosion from static charge!**

Discharging static electricity can cause explosions.

- Before moving transport packages into the EX zone, always remove all packaging material that may accumulate static electricity charges.
- Always unpack transport packages outside of the EX zone.

## Friction and impact sparks

**WARNING!**

**Danger of explosion from friction and impact sparks!**

Dropping or bumping into objects during transport or operation may produce sparks through friction or impact and cause explosions.

- Take great care during transport.
- Always secure the hydraulic power pack against falling.
- Avoid contact with rusty metal.

## Loss of ignition protection

**WARNING!**

**Danger of explosion due to loss of ignition protection!**

Incorrect accessories and unapproved materials can become sources of ignition and cause explosions.

- Within a potentially explosive atmosphere, only use accessories that are approved for the EX zone in question.

## Checking the delivery

*Check the delivery for transport damage and ensure it is complete immediately upon receipt. If it is incomplete or if there are defects, note the extent of the damage on the transport documents and lodge a complaint immediately.*

## Scope of delivery

The scope of delivery includes:

- Hydraulic power pack filled with hydraulic oil
- Operating instructions
  Download document from:
  *www.plarad-manuals.com*
- Document folder
  – EU declaration of conformity

Options:

- Any accessory ordered
- Test reports

## Handling packaging material

The individual packages are packed according to the expected transport conditions. Only environmentally friendly materials are used for the packaging.

The packaging should provide protection against transport damage, corrosion and other damage. For this reason, do not destroy the packaging and do not remove it until shortly before use.

Dispose of packaging material in accordance with the applicable statutory provisions and local regulations.

**ENVIRONMENT!**

**Danger to the environment due to incorrect disposal!**

Packaging materials are valuable raw materials and, in many cases, can be further utilised or appropriately reconditioned and recycled. Incorrect disposal of packaging materials can be hazardous to the environment.

– Reuse pallets.
– Dispose of packaging materials in an environmentally sound manner.
– Observe the locally applicable disposal regulations. If necessary, engage the services of a specialist company with regard to disposal.

### Transport by a forwarding agent

Observe the following points when the hydraulic power pack is transported in a vehicle by a forwarding agent or parcel service:

1. **WARNING!**
   **Danger of crushing from unsecured load!**

   Ensure that the load is properly secured in the vehicle. Secure the hydraulic power pack in such a way that it cannot slide out of position during transport.

2. **ENVIRONMENT!**
   **Danger to the environment due to hydraulic oil leakage!**

   Ensure that the hydraulic power pack is horizontal and protected from shocks and impacts for the entire duration of transport.

   Never put the hydraulic power pack on its side or position it upside down.

3. Put the hydraulic power pack in a foil bag to prevent oil spillage in the event of an accident.

### Transport with an industrial truck

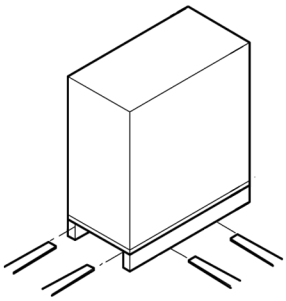


*Fig. 2: Transport with an industrial truck*

1. Ensure that the industrial truck is designed for the weight of the transport item. For details of the weight, see *Chapter 2.3 'Rating plate' on page 13*.
2. Drive the forks of the industrial truck between or under the bars of the pallet.
3. Drive in the forks until they protrude on the opposing side.
4. **WARNING!**
   **Danger of crushing due to the package tipping over!**

   If the centre of gravity is eccentric, ensure that the pallet cannot tip over.

5. Lift the pallet with the transport item and commence transport.

### Transport by crane

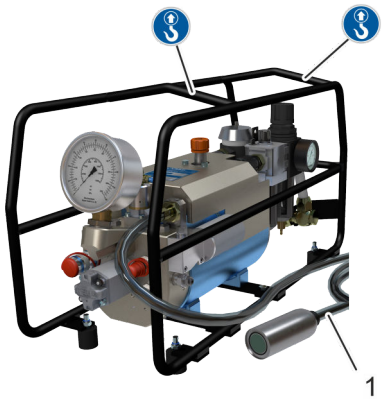



*Fig. 3: Transport*

Protective equipment: ■ Industrial safety helmet

If unpacked, the hydraulic power pack can be transported by crane.

The attachment points are marked with .

Remove the hose for the remote control (Fig. 3/1) before transport and store it safely.

1. Make sure that hoists and lifting accessories are designed for the weight of the hydraulic power pack. For details of the weight, see *Chapter 2.3 'Rating plate' on page 13*.
2. Attach the ropes, slings or multi-point suspension gear in the proper manner.
3. **WARNING!**
   **Danger of crushing due to the hydraulic power pack falling!**

   Ensure that the hydraulic power pack hangs straight. Observe the eccentric centre of gravity as necessary.
4. Transport to the operating site.

   Do not loiter under suspended loads.

### Transport by hand

1. Remove any hoses that are connected.
2. **WARNING!**
   **Danger of tripping!**

   Roll up the hose of the remote control properly and store it safely.
3. Seal the couplings and nipples with the caps prior to transport.
4. Ensure that all openings (e.g. cover of the surge tank) are sealed.
5. **WARNING!**
   **Danger of injury due to high weight!**

   Carry with the aid of a second person. In doing so, keep the transport item horizontal at all times. Never turn the hydraulic power pack upside down.

## Transport after operation

**WARNING!**

**Danger of burns due to hot surfaces or hydraulic oil!**

In the event of a high ambient temperature and prolonged operation, the hydraulic power pack can reach surface temperatures of up to 80 °C. The hydraulic oil gets hot when pressurised. Contact with hot surfaces and hot hydraulic oil could result in severe burns.

– Let the hydraulic power pack cool down prior to transport.
– Seal all openings.
– Wear personal protective equipment.

## Storage

- Disconnect from the compressed air port.
- Put it in a horizontal position.
- Comply with ambient conditions ↳ *Chapter 11 'Technical data' on page 62*.
- Seal all openings (couplings, nipples, surge tank).
- Roll up the hose of the remote control. Do not twist, kink or subject to any other mechanical loads.

# 2 Getting to know the hydraulic power pack

## 2.1 Overview of the hydraulic power pack

**XP1*eco***

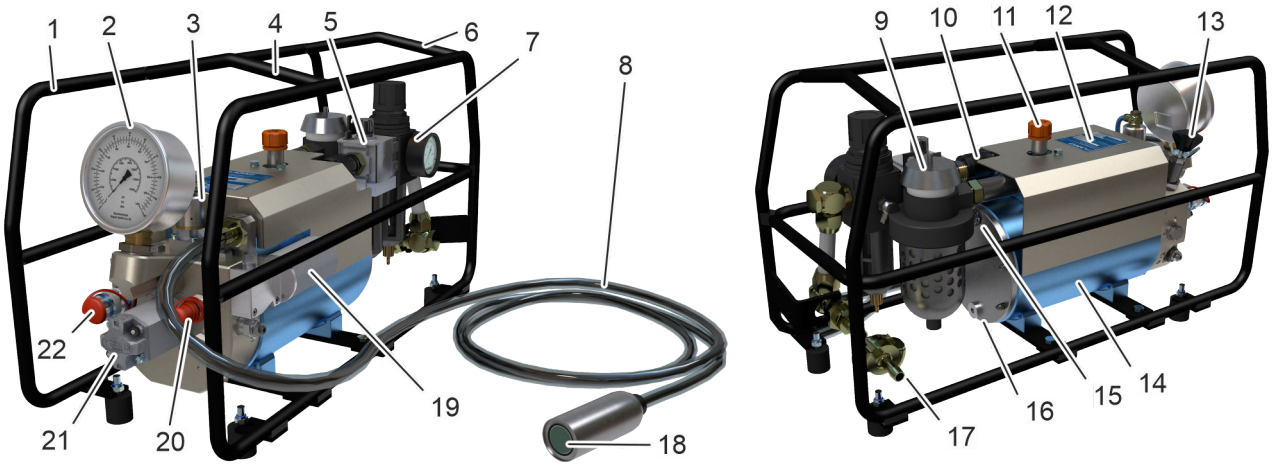



*Fig. 4: XP1eco-20*

| | |
|---|---|
| 1 | Supporting frame |
| 2 | Pressure display |
| 3 | Main valve |
| 4 | Attachment point for transport by crane |
| 5 | Compressed air service unit, oil mist lubricator |
| 6 | Attachment point for transport by crane |
| 7 | Compressed air service unit, pressure reducer |
| 8 | Remote control hose |
| 9 | Compressed air service unit, filter muffler |
| 10 | Slide valve compressed air supply drive |
| 11 | Oil filling neck |
| 12 | Rating plate |
| 13 | Pressure adjustment valve with adjustment lock |
| 14 | Drive (oil-immersed motor) |
| 15 | Oil sight glass |
| 16 | Oil drain plug |
| 17 | Compressed air port |
| 18 | Remote control button |
| 19 | Oil filter |
| 20 | Hydraulic connection, return-side |
| 21 | Gear pump |
| 22 | Hydraulic connection, pressure-side |

## 2.2 Brief description

The hydraulic power pack is a transportable, hydraulic pressure generator for operating PLARAD® hydraulic wrenches to produce manual bolted connections.

The hydraulic power pack may only be used for commercial purposes.

The hydraulic power pack is pneumatically driven by compressed air.

In an explosive atmosphere, use the pneumatic hydraulic power pack only in the approved EX zones ↬ *Chapter 2.4 'EX rating' on page 13*.

## 2.3 Rating plate


*Fig. 5: Rating plate xxx ATEX rating plate? XXX*

The following data is inscribed on the rating plate:

- Name of the manufacturer including their full address
- CE mark
- Machine designation
- Type designation
- Serial number
- Year of construction
- Weight
- Hydraulics: Maximum pressure
- Pneumatics: Maximum pressure
- Air consumption
- Hydraulic oil
- EX rating

## 2.4 EX rating

**What the EX rating tells you**

| Marking as per 2014/34/EU | Specific marking as per ISO 80036-37 |
|---|---|
| CE Ex | II 1 G Ex h T4 Ga |
| | II 1 D Ex h < 135 °C Da |

| Marking | Name | Meaning |
|---|---|---|
| CE | CE marking | Conformity marking according to Directive 2014/34/EU |
| Ex | EX marking | Indicates equipment suitable for use in potentially explosive atmospheres |
| II | Equipment group | The hydraulic power pack may be used in potentially explosive atmospheres, except in mining. |
| 1 | Equipment category | For equipment category 1, explosive atmospheres may occur. The hydraulic power pack ensures a very high level of safety and can be used in the following zones:<br>■ Gas<br>Zone 0, Zone 1 and Zone 2<br>■ Dust<br>Zone 20, Zone 21 and Zone 22 |
| G | Explosive atmosphere | The explosive atmosphere occurs when involving<br>G – gases |
| D | Explosive atmosphere | The explosive atmosphere occurs when involving<br>D – dust |

| Marking | Name | Meaning |
|---|---|---|
| Ex h | Ignition protection type | Ignition protection types for non-electrical equipment in potentially explosive atmospheres according to DIN EN ISO 80079-37 |
| T4 | Temperature class | The maximum permitted surface temperature is 135 °C. |
| < 135 °C | Temperature class | Maximum permissible surface temperature<br>Products in Group II for use in potentially explosive dusty atmospheres are marked with the actually occurring maximum surface temperature. |
| Ga/Da | Equipment protection level (EPL) | Equipment protection level according to IEC 60079-0:<br>Equipment with “very high” level of protection for use in potentially explosive atmospheres where there is no risk of ignition during normal operation, foreseeable or rare faults/malfunctions. |

## 2.5 PowerPaX versions

PLARAD® hydraulic power pack:

- XP1eco-20 2Stage

**Process connections**

*‘Process connections’ on page 18*

**Cable length – remote control**

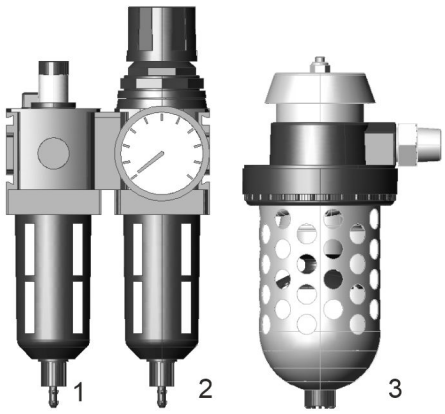
- 5 m
- Others on request

**Gear pump**

2Stage:

2-stage hydraulic power packs are equipped with a gear pump on the valve block. The gear pump increases the volume flow in the low pressure range.

## 2.6 Compressed air service unit




1 Oil mist lubricator
2 Pressure reducer
3 Filter muffler

*Fig. 6: Compressed air service unit*

**Pressure reducer**

The pressure reducer in the compressed air maintenance unit has several functions:

- Reducing the inlet pressure of the compressed air system to the desired operating pressure for the hydraulic power pack
- The operating pressure remains constant even in the event of fluctuations in the inlet pressure.
- Protection against overpressure

**Oil mist lubricator**

The oil mist lubricator enriches the compressed air with finely atomised oil to lubricate pneumatic components.

The amount of oil can be adjusted as required during operation.

The number of drops can be observed in the sight glass.

**Filter muffler**

The compressed air filter removes solid particles such as dust, rust and other impurities from the compressed air.

The muffler reduces the noise level caused by escaping compressed air.

## 2.7 Display elements and controls

The hydraulic power pack is equipped with the following display elements and controls:

### Hydraulic pressure display

A pressure gauge is installed to display the hydraulic pressure.


*Fig. 7: Example, pressure gauge*

### Pneumatic pressure display

A display for the air pressure is installed on the pressure reducer of the compressed air service unit.


*Fig. 8: Pneumatic pressure display*

### Pressure adjustment valve with adjustment lock

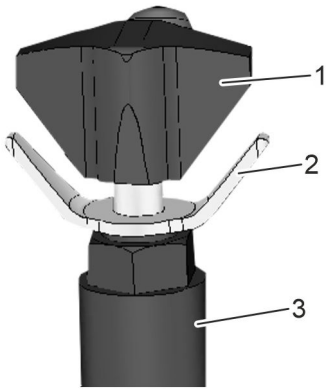



*Fig. 9: Pressure adjustment valve*

1 Knob
2 Adjustment lock
3 Pressure adjustment valve

The hydraulic pressure used to supply the connected tool is adjusted with the aid of the pressure adjustment valve.

An adjustment lock prevents the pressure being changed unintentionally. Prior to any pressure adjustment, the adjustment lock needs to be loosened and secured again after the adjustment has been made.

↺ Reduce pressure – turn the knob anti-clockwise

↻ Increase pressure – turn the knob clockwise

**Pressure valve**

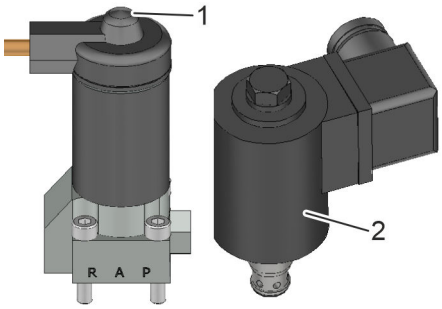



*Fig. 10: Pressure valves*

The main valve (Fig. 10/1) is equipped with a button that can be used to release the pressure in the respective system.

**Main valve**

The main valve (Fig. 10/1) switches between forward and return stroke.

## 2.8 Operating modes

**Stages**

- 1-stage
- 2-stage

2-stage hydraulic power packs are equipped with a gear pump on the valve block. The gear pump increases the power of the hydraulic power pack by means of higher volume flows in low pressure ranges.

**Manual**

During manual bolting processes, the tool operates for as long as the relevant button on the hydraulic power pack is pressed. The maximum pressure set on the hydraulic power pack is not exceeded.

The return stroke is performed automatically when the relevant button is released.

## 2.9 Remote control

*Fig. 11: Pneumatics remote control*

A remote control is connected to operate the hydraulic power pack.

Pressing the button on the remote control activates the forward stroke.

When the button is released, the return stroke is activated.

## 2.10 Connections

### Compressed air port

*Fig. 12: Compressed air port*

The hydraulic power pack is supplied with compressed air from the operator's compressed air supply via the compressed air connection.

The free end of the compressed air hose must be pushed fully onto the compressed air connection of the hydraulic power pack and fastened with a hose clamp.

### Process connections

*Fig. 13: Example, CEJN SE 115*

Various coupling/nipple versions are available for connecting the hose lines to the hydraulic power pack.

The hydraulic power pack is equipped with pressure-dependent hydraulic quick-release couplings (process connections) from Cejn, Lukas, Pioneer or Parker for 350, 700, 800 bar applications as standard.

## 2.11 Accessories

### Explosion protection

**WARNING!**

**Danger of explosion due to loss of ignition protection!**

Incorrect accessories and unapproved materials can become sources of ignition and cause explosions.

– Within a potentially explosive atmosphere, only use accessories that are approved for the EX zone in question.

The following accessories are available for ordering together with the hydraulic power pack and may be included in the delivery:

- Transport trolley
  Transport and assembly trolley for power pack, tools, and accessories
- PLARAD® hydraulic oil – refill canister
  1, 3 or 5 litre
- Hydraulic hose
  Different lengths
  For different pressure rangers
- Ball valve
  For shutting off the process pressure
- Distributor
  2-/3-/4-way distributor
- 2-stage pressure valve
  Enables rapid switching between two preset pressures
- Certificate (e.g. for pressure gauge)

**Special accessories**

Contact PLARAD® service.

# 3 Before you begin – safety

This section provides an overview of all important safety aspects for protecting personnel and for ensuring safe and fault-free operation. Further task-specific safety instructions can be found in the sections of the individual chapters.

## 3.1 Symbols in this manual

**Safety warnings**

Safety warnings in this manual are indicated by symbols. Safety warnings are introduced by signal words that identify the severity of the hazard.

**DANGER!**
This combination of symbol and signal word indicates an immediate danger that will cause serious injury or death if not avoided.

**WARNING!**
This combination of symbol and signal word indicates a potential danger that may cause serious injury or death if not avoided.

**CAUTION!**
This combination of symbol and signal word indicates a potential danger that may cause minor or slight injury if not avoided.

**NOTICE!**
This combination of symbol and signal word indicates a potential danger that may cause damage if not avoided.

**ENVIRONMENT!**
This combination of symbol and signal word indicates potential pollution of the environment.

**Safety warnings in step-by-step instructions**

Safety warnings may apply to specific, individual instructions. Such safety warnings will be embedded in the list of instructions to maintain readability when executing the respective action. The signal words listed above are used.

Example:

1. Loosen the bolt.
2. 

**CAUTION!**
**Risk of getting trapped by lid!**

Close lid carefully.

3. Tighten the bolt.

### Tips and recommendations

*This symbol highlights useful tips and recommendations as well as information to help you use your equipment efficiently and without disruption.*

### Other markings

The following markings are used in this manual in order to highlight instructions, outcomes, lists, references and other elements:

| Marking | Explanation |
|---|---|
| → | Step by step instructions |
| ⇨ | Outcomes of steps |
| ↳ | References to sections of this manual and to other applicable documents |
| ■ | Lists without a fixed order |
| *[Button]* | Controls (e.g. buttons, switches), indicators (e.g. signal lamps) |
| *'Display'* | Display elements (e.g. on-screen buttons, assignment of function keys) |
| *'Menu'* → *'Submenu'* → *'Setting'* | Shortened description of navigation:<br>Call up menu, call up submenu, change settings |

## 3.2 Symbols on the hydraulic power pack

### Overview

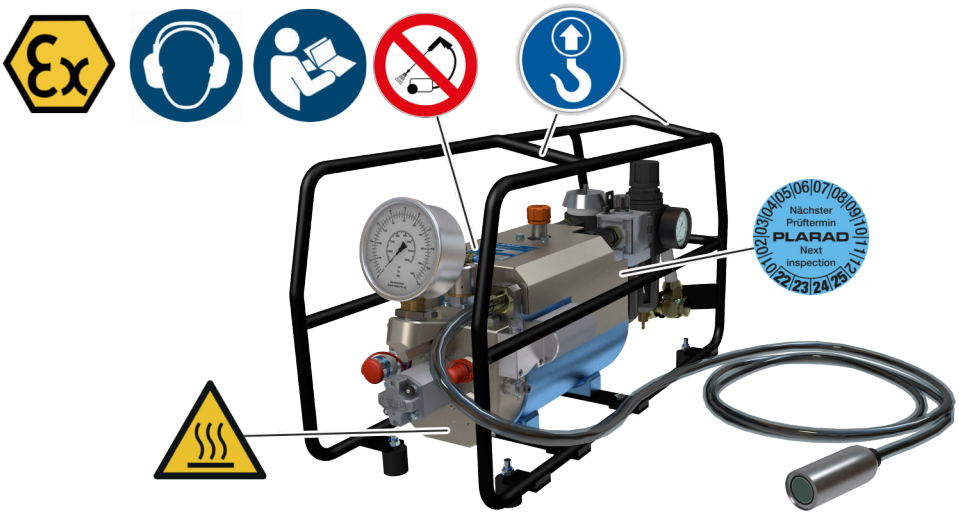



*Fig. 14: Symbols on the hydraulic power pack*

- *'Hot surface' on page 22*
- *'Follow the manual' on page 23*
- *'Hearing protection' on page 23*
- *'Test badges' on page 23*
- *'High-pressure cleaners prohibited' on page 23*
- *'EX marking' on page 23*
- *'Attachment point' on page 23*

### Illegible signage

**WARNING!**

**Danger in the event of illegible signage!**

Over time, signs and stickers can become dirty or be rendered unrecognisable by other means, such that hazards cannot be recognised and necessary operating instructions cannot be followed. This creates a danger of injury.

– Keep all safety notices, warnings and operating instructions in a clearly legible state at all times.
– Replace damaged signs and stickers immediately.

You will find the following symbols and information notices on the hydraulic power pack:

### Hot surface

Hot surfaces, such as the housing of the drive motor, cannot always be identified as such. Do not touch surfaces marked in this way without protective gloves.

**Follow the manual**

Read the operating instructions prior to using the hydraulic power pack.

**Hearing protection**

Hearing protection is used to protect against hearing damage cause by noise.

**Test badges**

Test badges state the dates of the respective tests.


Date of the next PLARAD® service

**High-pressure cleaners prohibited**

Do not use any high-pressure cleaners when cleaning. The pressure of the cleaning jet can result in property damage.

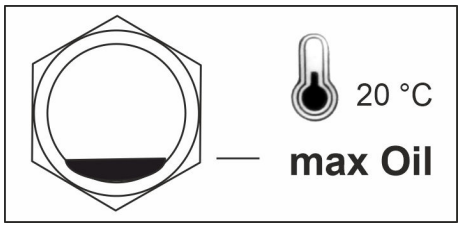
**Attachment point**

Attach the hoist only at the marked points for lifting.

**EX marking**


A device marked like this is suitable for use in potentially explosive atmospheres. In addition, always note the EX rating on the rating plate.

**Maximum oil level**




The marking indicates the maximum permissible oil level at 20 °C. Never fill oil above this marking.

## 3.3 Intended use

The pneumatic hydraulic power pack is a transportable hydraulic pressure generator and may only be used to operate PLARAD® tools in order to produce bolted joints in line with the given specifications (*Chapter 11 'Technical data' on page 62*).

The hydraulic power pack may only be used for commercial purposes and only in conjunction with PLARAD® hydraulic tensioners.

The hydraulic power pack is driven pneumatically. For this purpose, the hydraulic power pack must be supplied with compressed air via the compressed air service unit as described in *Chapter 11 'Technical data' on page 62*.

Only hydraulic power packs with the ATEX marking are intended for use in EX zones.

In an explosive atmosphere, use the pneumatic hydraulic power pack only in the approved EX zones *Chapter 2.4 'EX rating' on page 13*.

The hydraulic power pack may only be used in a dry environment.

Intended use includes compliance with all of the stipulations in this manual.

## 3.4 Misuse

Any use beyond the intended use as well as any other use is considered misuse.

**WARNING!**

**Danger in the event of misuse!**

Misuse of the hydraulic power pack can lead to dangerous situations.

- Do not operate the hydraulic power pack outside the defined specifications.
- Do not operate the hydraulic power pack with compressed air other than as specified.
- Do not operate the hydraulic power pack in continuous operation.
- Never operate outside the permissible environmental conditions.
- Do not switch on in a damp environment.
- Never operate in EX zones the equipment is not approved for.
- Never exceed the maximum permissible surface temperature.
- Never operate tools or equipment in EX zones that they are not approved for.
- Never carry out maintenance tasks or troubleshooting inside EX zones.

## 3.5 Residual risks

The following section outlines the residual risks potentially posed by the hydraulic power pack even when it is used as intended.

To reduce the risks of personal injury and property damage and to avoid dangerous situations, observe the safety instructions listed here and the safety instructions in the other sections of this manual.

### 3.5.1 Dangers due to potentially explosive atmosphere

**Explosion protection**


**WARNING!**

**Danger of explosion!**

Bringing ignition sources such as sparks, open flame and hot surfaces into EX zones may cause explosions.

- Obtain a written work permit before beginning work in an EX zone.
- Prevent the formation of potentially explosive atmospheres when working wherever possible.
- Only use tools approved for use in EX zones.
- Immediately and properly remove any accumulated dust. Do not disperse dust.
- Take precautions against build-up of explosive gases, leaks etc. leading to changes in the atmosphere's explosive potential.
- Make sure that all required plant-/operator-specific protective barriers are in place and fully operational.
- Never use (spare) parts without obtaining PLARAD® approval.

Failure to observe these instructions will lead to a loss of explosion protection.

### Incorrect operating site


**WARNING!**

**Danger of explosion from use in wrong operating site!**

The hydraulic power pack is approved for use in potentially explosive atmospheres:

- Note the ATEX specifications on the rating plate.
- EX zone 0, 1 and 2
- ATEX code:
  II 1 G Ex h T4 Ga
  II 1 D Ex h < 135 °C Da
- Observe the maximum permissible surface temperatures (< 135°C).

Using the equipment in other potentially explosive atmospheres can lead to dangerous situations.

### Paintwork


**WARNING!**

**Danger of explosion from wrong paint!**

The low ignition energy required to combust gases means that static charges and sparks can cause explosions.

- Never change the paintwork without authorisation. Contact PLARAD® prior to any work.

### Static charge


**WARNING!**

**Danger of explosion from static charge!**

Discharging static electricity can cause explosions.

- Always remove the packaging film before moving transport packages into the EX zone.
- Always pack/unpack transport packages outside of the EX zone.
- Place dissipative feet completely on dissipative ground.
- Connect the equipotential bonding immediately after setting down at the operating site.
- Only disconnect the hydraulic power pack from the equipotential bonding immediately before further transport.

**Friction and impact sparks**


**WARNING!**

**Danger of explosion from friction and impact sparks!**

Dropping or bumping into objects during transport or operation may produce sparks through friction or impact and cause explosions.

– Take great care during transport. Avoid contact with other objects.
– Always secure the hydraulic power pack against falling.
– Avoid contact with rusty metal.

## 3.5.2 Danger due to hydraulics

**Pressurised hydraulic fluid**

**WARNING!**

**Lethal danger from pressurised hydraulic components!**

Inadvertent opening or defects could result in the discharge of hydraulic fluid under high pressure.

Hydraulically powered drives could move unexpectedly.

Contact with hot hydraulic oil could result in severe burns.

– Prior to commencing all work, check the hydraulic power pack, connections, hoses and tools for visible damage and leaks.
  Have all identified defects remedied immediately.
– Prior to commencing work on the hydraulic system, first switch it off, then depressurise it and let it cool down. Fully relieve all accumulators of pressure. Check to ensure a depressurised state.
– Do not change pressure settings such that they exceed the maximum values.
– Comply with the maintenance intervals.
– Always ensure that hydraulic hoses are properly connected and locked. Quick-release couplings must be engaged. Bolted connections must be fully secured.

### Exceeding the maximum pressure

**WARNING!**

**Danger of bursting due to excessive hydraulic pressure!**

If the hydraulic pressure exceeds the maximum permissible pressure for connections, hoses, tools or components of the hydraulic power pack, these could burst. Airborne parts and hydraulic fluid discharged under high pressure could cause serious injuries.

- Ensure that all components are designed for the maximum applied hydraulic pressure and that none of the components are damaged.
- Check for defects, damage and leaks.
  Have all identified defects remedied immediately.
- Comply with the maintenance intervals.

### Hydraulic oil

**WARNING!**

**Damage to health and secondary illnesses due to contact with hydraulic oil!**

Contact with hydraulic oil could cause allergic reactions, skin and eye irritation, nausea and other secondary illnesses.

- Wear personal protective equipment for all work with hydraulic oil.
- Do not eat, drink or smoke in areas in which work involving hydraulic oil is performed.
- Upon completion of the work, clean or dispose of clothing and personal protective equipment contaminated with hydraulic oil in the proper manner.
- Note the safety data sheet for the hydraulic oil in use.

## Oil specifications

**NOTICE!**

**Property damage due to non-compliance with the oil specifications!**

Incorrect hydraulic oils, an incorrect oil level and the use of contaminated hydraulic oils could result in property damage. If hydraulic oil overflows due to the oil level being too high, this could result in environmental damage.

- Check and correct the oil level as follows as a minimum requirement:
  - In the course of commissioning
  - After connecting/disconnecting the hydraulic hoses
  - After flushing
  - After transport, maintenance, repair, troubleshooting
- Top up using only new and clean hydraulic oil ↬ *'Oil specifications' on page 63*.
- Fill hydraulic oil via a funnel with an oil filter.
- Always pay attention to the maximum oil level marking (see sticker).
- Comply with the maintenance intervals.

### 3.5.3 Hazards due to pneumatics

**Compressed air escaping uncontrollably**

**WARNING!**

**Danger of injury from compressed air!**

If compressed air escapes in an uncontrolled manner, there is a risk of injury.

Stored residual energy also poses a danger of crushing due to suddenly moving parts when the compressed air system is switched off.

- Do not exceed maximum inlet pressure.
- When working on the pneumatic system and on the compressed air hoses, proceed with caution.
- Do not expose compressed air hoses to any external stress. Do not let them come into contact with heat sources, oils or greases. Do not drive over, kink, jam or expose to excessive tensile and compressive loads.
- Check the compressed air hose for damage and wear before each use. Replace immediately if necessary.
- Before putting the machine out of operation, disconnect the compressed air supply completely.
- Adhere to the replacement intervals for the compressed air hoses.
- Never loosen compressed air hoses while they are still under pressure.
- Carry out all maintenance and troubleshooting work on the hydraulic power pack without a connected compressed air supply.

### 3.5.4 Mechanical dangers

**Moving components and rotational movements**

**WARNING!**

**Danger of injury due to moving components!**

Moving components and tools could cause serious injuries. There is a danger of being pulled in during rotational movements.

- During operation, do not reach into moving components or handle moving components.
- Prior to commissioning, secure the reaction arm, impact wrench socket and other such tool components in the proper manner.
- Do not switch on the nutrunner while carrying it.
- Wear tight fitting work clothing with seams that will tear readily.
- Wear safety goggles.
- Wear a protective cap (hair net) to prevent long hair from being pulled in by rotating parts.

**Crushing**

**WARNING!**

**Danger of crushing due to high weight!**

The high weight can cause crushing if it falls down.

- Handle the hydraulic power pack with care and as intended.
- Give due consideration to the weight during transport and during all work.
- Carry with the aid of a second person or use suitable hoists.
- Secure the hydraulic power pack against falling when working at height.
- Wear safety shoes.
- Always set up the hydraulic power pack securely.
- Put the hydraulic power pack with all its four feet on firm and level ground.

**Dirt and scattered objects**

**CAUTION!**

**Danger of injury from falling over dirt and scattered objects!**

People may slip on or stumble over dirt and scattered objects. Falling may cause injuries.

– Always keep the work area clean.
– If objects are no longer needed, remove them from the work area and especially if such objects are at ground level.
– Mark unavoidable stumbling points with hazard tape.

### 3.5.5 Noise and ergonomics

**Noise**

**WARNING!**

**Danger of injury due to noise!**

The noise level of 89 dB(A) (3 dB(A) measurement uncertainty) occurring in the work area can cause hearing damage.

– Always wear hearing protection when working.
– Remain in the danger zone only for as long as your presence is required.
– Set up the hydraulic power pack as far away from the operating site of the tool as possible.

**Hot surfaces**

**WARNING!**

**Danger of injury due to hot surfaces!**

The surfaces of components, such as the drive motor or gearbox, could heat up significantly during operation. Surface temperatures of up to 80 °C could develop. Contact between the skin and hot surfaces will result in severe burns to the skin.

– Always wear heat-resistant protective work clothing and safety gloves when working in the vicinity of hot surfaces.

### Inattention

**WARNING!**

**Danger of injury due to distraction, inattention or irresponsible use!**

Distraction, inattention or irresponsible use can result in losing control of the hydraulic power pack and thus cause serious injuries.

- Always keep the work area well-lit when working on the hydraulic power pack.
- Keep children and unauthorised persons away.
- Work purposefully and in a responsible manner. Do not allow yourself to be distracted.
- Do not work if you are tired or under the influence of drugs, alcohol or medicine.
- Do not be lulled into a false sense of security. Do not disregard the safety information and instructions in this manual, even if the hydraulic power pack seems familiar to you after frequent use.
- When the hydraulic power pack is not in use, always store it safely out of reach of unauthorised persons.
- Wear the prescribed personal protective equipment.

### Faulty safety devices

**WARNING!**

**Danger of death due to inoperative safety devices!**

If safety devices or safety functions are inoperative or disabled, there is a danger of serious injuries.

- Prior to commencing work, check that all safety devices are operative and correctly installed.
- Never disable or bypass safety devices or safety functions.

## 3.6 Operator's obligations

The hydraulic power pack is used in the commercial sector. The operator of the hydraulic power pack is therefore subject to the statutory obligations pertaining to occupational safety.

In addition to the safety instructions in this manual, the applicable safety, occupational safety and environmental protection regulations for the hydraulic power pack's area of application must be adhered to.

The following specifically applies in this regard:

- Operators must familiarise themselves with the applicable occupational safety regulations and, as part of a risk assessment, determine additional dangers that arise as a result of the specific operating conditions at the operating site of the hydraulic power pack. The findings of this risk assessment must be used to draft safety instructions for operating the hydraulic power pack.
- During the entire time the hydraulic power pack is in use, the operator must check whether the safety instructions they have compiled reflect current regulations and, if necessary, the operator must change the instructions accordingly.
- The operator must clearly define and regulate responsibilities for all work on and with the hydraulic power pack. The authority and responsibilities of personnel regarding operation, set-up, maintenance and repair must be clearly defined.
- The operator must reliably check the use of the hydraulic power pack and ensure that only commissioned and instructed personnel work with the hydraulic power pack. Personnel being trained or instructed and personnel undertaking vocational training must always be supervised by an experienced person when working on the hydraulic power pack.
- The operator must ensure that no unauthorised persons open the hydraulic power pack or perform work on the pneumatic or hydraulic equipment.

The operator is also responsible for ensuring that the hydraulic power pack is in technically flawless condition at all times. The following applies for this reason:

- The operator must ensure adherence to the maintenance intervals described in this manual.
- The operator must have the functionality and integrity of all safety devices checked on a regular basis.
- Some parameters are set by the manufacturer prior to initial commissioning, e.g. some valve settings. The operator must ensure that these parameters are not changed.

**Operator's obligations under ATEX**

When operating in potentially explosive atmospheres, the following obligations must be met:

- Divide the potentially explosive atmosphere into EX zones.
- Ensure that all supplied components possess the ignition protection type matching the EX zone.
- Only assign specially qualified explosion-protection personnel to work in potentially explosive atmospheres.
- Ensure that dust does not accumulate.

- Ensure that all safety devices specified by the manufacturer and required on-site are fully operational.
- Maintain an explosion protection log.
- Mandate separate approval for all work items in EX zones.
- Provide tools approved for working in potentially explosive atmospheres have all work in EX zones performed using these tools only.
- Define and track all procedures for cleaning, servicing and repair work, including what tools, aids and cleaners to use.
- Strictly enforce a smoking ban. Prevent any source of ignition.
- Conduct a risk assessment for all lifecycle phases and implement the corresponding precautions identified to prevent friction and impact sparks during transport. Take precautions to prevent the hydraulic power pack from dropping onto or knocking against other metal surfaces, especially rusty ones, or the floor.

## 3.7 Who may use the hydraulic power pack?

**WARNING!**

**Danger of injury if personnel are insufficiently qualified!**

If unqualified personnel perform work on or with the hydraulic power pack or if such persons are present in the danger zone while work is being performed, dangers arise that could cause serious injuries and considerable property damage.

– Have all tasks performed by suitable qualified personnel without exception.
– Keep unqualified personnel away from the danger zones and work areas.

**User**

Users of the hydraulic power pack have the requisite knowledge and the requisite training for handling pneumatic and hydraulic power generators. Furthermore, during training by the operator, users have been trained in relation to the tasks assigned to them and the potential dangers associated with improper conduct.

Users are trained in how to use the personal protective equipment, are familiar with the most important specifications, situations and information relating to working with pneumatic and hydraulic systems and are capable of using the hydraulic power pack safely. This includes connecting and purging hydraulic hoses.

Users must satisfy the legal minimum age requirements.

Users may only perform tasks that exceed operation under normal operating conditions if this is specified in this manual and the operator has expressly entrusted the users with the performance of such tasks.

Users know who their supervisor is, can contact their supervisor if they have questions or in an emergency, and are able to communicate with their supervisor.

The user is familiar with all residual risks and is trained in the practical handling of the hydraulic power pack.

When working in a potentially explosive atmosphere, the user is aware of the applicable EX zone and is fully capable of determining whether the hydraulic power pack is approved for working in this EX zone.

**Qualified hydraulic power pack personnel**

Qualified hydraulic power pack personnel are trained for the specific task area in which they work and are familiar with the relevant standards and regulations.

Due to their professional training and experience, qualified hydraulic power pack personnel are able to perform work with the hydraulic power pack, recognise and avoid potential dangers independently and convey this to users.

Specific capabilities of qualified hydraulic power pack personnel include:

- Identify the EX zone in question.
- Determine whether the hydraulic power pack is approved for use in the EX zone at hand.
- Determine whether the accessories are approved for use in the EX zone at hand.
- Use all functions of the hydraulic power pack.
- Uphold safety, occupational safety and health protection when using the hydraulic power pack and convey this to users.
- Identify damage on the hydraulic power pack and arrange for repairs or get in touch with the manufacturer.
- Instruct users in the proper manner.

**Operator**

Operators are persons who operate the hydraulic power pack for commercial or economic purposes themselves, or make it available for a third party to use, and who bear legal responsibility for the product vis-à-vis protection of personnel and third parties during operation.

*Chapter 3.6 ‘Operator's obligations’ on page 34*

**PLARAD® service**

Certain work may only be performed by PLARAD® service or by personnel authorised by Maschinenfabrik Wagner GmbH & Co. KG. Other personnel are not authorised to perform this work. Contact PLARAD® service or authorised PLARAD® partners regarding performance of the work that is due.

Contact: *www.plarad.de*

*Chapter 8.4 ‘Having service tasks performed by the manufacturer’ on page 57*

### Unauthorised persons

**WARNING!**

**Danger of death for unauthorised persons due to dangers in the danger zone and work area!**

Unauthorised persons, who do not meet the requirements described in this manual, are not aware of the dangers in the danger zone. There is therefore a danger of serious injuries or even death for unauthorised persons.

- Keep unauthorised persons away from the danger zone and work area.
- If in doubt, address the respective persons and instruct them to leave the danger zone and work area.
- Suspend work while there are unauthorised persons loitering in the work and danger zone.

## 3.8 Personal protective equipment

### Explosion protection

**WARNING!**

**Danger of explosion due to loss of ignition protection!**

Personal protective equipment that is not approved for EX zones may be a source of ignition and result in explosions.

- Within a potentially explosive atmosphere, only use personal protective equipment that is designed and manufactured to prevent the formation of electrically, electrostatically or mechanically caused arcs or sparks that could ignite a potentially explosive mixture.

### Safety gloves

Safety gloves are used to protect the hands from friction, abrasions, punctures or deeper injuries and from contact with hot surfaces.

### Safety shoes

Safety shoes protect the feet from crushing, falling parts and from slipping on slippery ground.

**Hearing protection**

Hearing protection is used to protect against hearing damage cause by noise.

**Safety goggles**

Safety goggles are used to protect the eyes from airborne parts and liquid jets.

**Protective work clothing**

Protective work clothing is tight fitting work clothing with a low tearing resistance, with tight sleeves and without any protruding parts.

**Industrial safety helmet**

Industrial safety helmets are used to protect the head from falling objects, suspended and swinging objects and from bumping into stationary objects.

## 3.9 Environmental protection

**Environmentally hazardous substances**

**ENVIRONMENT!**

**Danger of pollution from incorrect handling of environmentally hazardous substances!**

If environmentally hazardous substances are handled incorrectly, especially if such substances are disposed of incorrectly, this could cause significant damage to the environment.

– Always adhere to the instructions given below in relation to the handling of environmentally hazardous substances and the disposal thereof.
– If environmentally hazardous substances accidentally enter the environment, adopt suitable measures immediately. If in doubt, notify the competent local authority of the damage and inquire about suitable measures to be taken.

**The following environmentally hazardous substances are used:**

**Lubricants**

Lubricants, such as greases and oils, contain toxic substances. Such substances must not enter the environment.

**Hydraulic oil**

Hydraulic oil can contain harmful and environmentally hazardous substances. It must not enter the environment (soil, water), sewage system or household waste. Dispose of hydraulic oil and waste containing hydraulic oil separately via an approved disposal company.

Observe the manufacturer’s safety data sheet.

# 4 Choosing the installation site

### Incorrect operating site


**WARNING!**

**Danger of explosion from use in wrong operating site!**

The hydraulic power pack is approved for use in potentially explosive atmospheres:

– Note the ATEX specifications on the rating plate.
– EX zone 0, 1 and 2
– ATEX code:
  II 1 G Ex h T4 Ga
  II 1 D Ex h < 135 °C Da
– Observe the maximum permissible surface temperatures (< 135°C).

Using the equipment in other potentially explosive atmospheres can lead to dangerous situations.

### Incorrect installation site

**WARNING!**

**Danger of injury due to careless choice of installation site!**

Risks could arise from the choice of installation site. If the hydraulic power pack falls, this could result in serious crushing. The noise emissions could cause hearing damage.

– Adhere to the following principles when choosing the installation site.

### Installation site

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety gloves
- Safety shoes

1. 


**WARNING!**

**Danger of explosion from use in wrong operating site and from sources of ignition!**

Ensure that the ambient conditions are adhered to:

- ↳ *Chapter 11 ‘Technical data’ on page 62*
- Approved EX zones ↳ *Chapter 2.4 ‘EX rating’ on page 13*
- Dry
- No objects can fall on the hydraulic power pack.

2. **ENVIRONMENT!**
**Environmental damage due to oil leakage!**

Ensure that the hydraulic power pack is horizontal.

3. **WARNING!**
**Danger of crushing due to falling or moving hydraulic power pack!**

Ensure that the hydraulic power pack cannot fall from elevated installation sites or slide out of position. If there is any doubt, secure the hydraulic power pack against falling.

4. **WARNING!**
**Danger of explosion from static charge!**

Ensure equipotential bonding.

If the equipotential bonding cannot be ensured via the dissipative feet of the hydraulic power pack, earth the hydraulic power pack properly and equalise it with the electrical potential of its surroundings. To do this, consult a qualified electrician with ATEX experience.

5. Ensure the supply of compressed air.
6. Observe the maximum length of the hose for the remote control.
7. **WARNING!**
**Hearing damage due to noise!**

As far as possible, install the hydraulic power pack in such a way that the noise emissions do not affect the workplace. Observe the maximum length of the hose for the remote control.

8. Check the stability.

# 5 Supplying with energy

## 5.1 Supplying pneumatic energy

**Air compressor system**

In order to operate the hydraulic power pack, the operator must supply compressed air within the given specifications.

*Compressed air requirements ↪ Chapter 2.3 ‘Rating plate’ on page 13.*

→ Ensure that the operator’s compressed air system meets the requirements.

## 5.2 Checking the filter

Personnel: ■ User

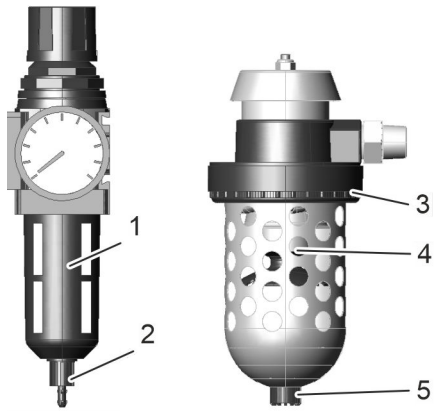



*Fig. 15: Checking the filter*

1 Pressure reducer filter
2 Drain plug
3 Bolted connection
4 Filter muffler sinter filter
5 Drain plug

To ensure error-free operation, the filters must function correctly.

1. → **Condensate**

   Drain the condensate. To do this, slightly open the drain plugs (Fig. 15/2 and 5) on the pressure reducer and on the filter muffler. Collect condensate and dispose of it in an environmentally friendly manner.

   Close the drain plugs.

2. → **Filter**

   Check the filter of the pressure reducer (Fig. 15/1) for dirt and damage. Replace or clean as necessary.

3. → Check the sinter filter of the filter muffler (Fig. 15/4) for dirt. To do this, loosen the bolted connection (Fig. 15/3), remove the container, loosen the fastening nut from the sinter filter, and remove the sinter filter.

4. → To clean, place the sinter filter in solvent, swirl and dry.

5. → Install the sinter filter. Make sure that the seal is undamaged.

## 5.3 Connecting to the compressed air

Personnel: ■ User

*Fig. 16: Compressed air port*

**Prerequisite:**

The compressed air supply meets the requirements ↪ *Chapter 5.1 ‘Supplying pneumatic energy’ on page 42*.

1. → Clean the compressed air port (Fig. 16).

2. → Use only an undamaged air compressor hose. Ensure that the air compressor hose is routed properly. Avoid routing it over sharp edges, squashed, in small radii, in loops, etc.

**3.** Push the free end of the compressed air hose fully onto the compressed air connection of the hydraulic power pack and fasten it with a hose clamp.

## 5.4 Setting the oil mist lubricator

Personnel: ■ User

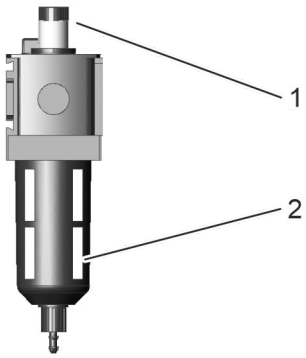



*Fig. 17: Setting the oil mist lubricator*

1 Dosing screw
2 Oil tank

The oil requirements are system-dependent. Guide value:

■ 1 mm³ of oil per 1 m³ of compressed air

**1.** Check the oil level on the oil tank (Fig. 17/2). If the level is low, unscrew the oil tank. Top up the oil. Screw on the oil tank.

**2.** Set the oil quantity (drops per minute) during operation at the dosing screw (Fig. 17/1). The number of drops is visible in the sight glass.

↺ Increase oil quantity – turn the dosing screw anti-clockwise

↻ Reduce oil quantity – turn the dosing screw clockwise

## 5.5 Setting the pressure reducer

Personnel: ■ User

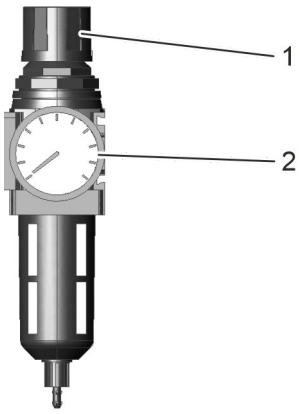



*Fig. 18: Setting the pressure reducer*

1 Pressure adjustment
2 Pressure display

The operating pressure of the pneumatic motor is set with the help of the pressure regulator.

**1.** Relieve the pressure reducer. To do this, unscrew the pressure setting (Fig. 18/1).

**2.**

*The operating pressure to be set is the flow pressure of the air compressor system provided by the operator.*

Set the operating pressure using the pressure adjustment (Fig. 18/1). To do this, screw in the pressure setting again until the pressure gauge (pressure display Fig. 18/2) on the pressure reducer shows the desired operating pressure.

Set the operating pressure to a maximum of 4–6 bar.

↻ Increase pressure – rotate pressure adjustment clockwise

↺ Decrease pressure – rotate pressure adjustment anti-clockwise

*Maximum operating pressure 6 bar.*

*Minimum flow pressure (pressure while the engine is running) 4 bar.*

# 6 Preparing for operation

## 6.1 Prior to switching on

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety goggles
- Safety gloves
- Safety shoes

**Installation**

1. Install the hydraulic power pack securely *Chapter 4 'Choosing the installation site' on page 40*.
2. Check for leaks. If the hydraulic power pack is damaged, do not put it into service.

**Oil level**


*Fig. 19: "max Oil" sticker*

3. **WARNING!**
   **Danger of burns and environmental damage due to hydraulic oil!**
   Hydraulic oil expands when it heats up during operation. If filled above the marking, hydraulic oil could escape from the sealing plug. Contact with hot oil could result in burns. If hydraulic oil escapes, this could result in environmental damage.

   Check the oil level in the sight glass to ensure it matches the "max Oil" sticker. In doing so, ensure that the hydraulic power pack is horizontal so that the correct value can be read.

   The "max Oil" sticker indicates the intended maximum oil level in the surge tank when the hydraulic power pack has cooled down (20 °C).
4. Top up the oil if the display and oil level in the sight glass do not match.

   To do so, open the cover of the oil filling neck.
5. Fill hydraulic oil (*'Oil specifications' on page 63*) through an oil filter and into the surge tank until the oil level in the sight glass matches the marking on the "max Oil" sticker.
6. Mop up any spilled hydraulic oil in the proper manner and clean the work environment.

   ⇨ The hydraulic power pack can be started.

## 6.2 Starting the hydraulic power pack

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety goggles
- Safety gloves
- Safety shoes

**Compressed air supply**

1. Safeguard the power supply *Chapter 5 'Supplying with energy' on page 42*.
2. Open the slide valve (Fig. 20/1).
   ⇨ The pneumatic motor is driven by compressed air.
3. Press the button on the remote control.

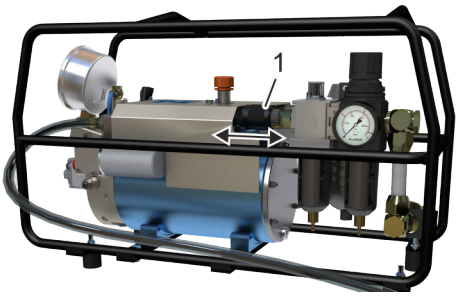



*Fig. 20: Slide valve*

## 6.3 Using the hydraulic power pack at low temperatures

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety goggles
- Safety gloves
- Safety shoes

Proceed as follows in relation to operation below -5 °C:

**Starting multiple times**

1. If need be, start the hydraulic power pack multiple times until the drive motor is running.
2. Set the pressure relief valve to 400 bar *Chapter 6.5 'Setting the operating pressure' on page 47*.

**Bring the hydraulic power pack to operating temperature**

3. *Do not connect any hydraulic hoses or tools.*

   Press the button of the remote control for 5 minutes to let the hydraulic power pack run.

   ⇨ The hydraulic oil is brought to operating temperature.

## 6.4 Connecting the hose

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety goggles
- Safety gloves
- Safety shoes

**Period of use**

**1.** Ensure that the hydraulic hoses have not exceeded the maximum period of use.

*Hose check:*
- *The maximum period of use must not be exceeded.*
  *Comply with the replacement interval.*
  *Use for a maximum of 5 years.*
- *The maximum pressure must not be reached.*
- *Use filled hydraulic hoses only.*
- *Oil specifications must match.*
- *Couplings and nipples must be compatible and be undamaged.*
- *There is no visible damage.*

**Coupling**

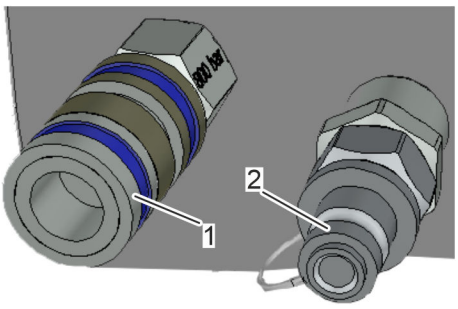



*Fig. 21: Example, coupling (1) – nipple (2)*

**2.**

*The hydraulic power pack can be equipped with various coupling systems.*

The pressure connection is the connection on the hydraulic power pack that is fitted with a coupling.

Ensure that the coupling/nipple combination is suitable and free of damage.

Ensure that the maximum permissible pressures of all components are sufficient.

Ensure that the hydraulic hose is fully filled with suitable hydraulic oil *'Oil specifications' on page 63*.

Connect the hydraulic hoses to the hydraulic power pack.

Check the lock.

*Older couplings have counter-threads.*
*Tighten to lock.*

*New couplings have a bayonet closure. Let it fully engage.*

**3.** Do not connect the tool yet.

**Purging**

**4.** Purge *Chapter 6.6 'Flushing' on page 48*.

**Sequence**

*Connect hydraulic hoses only in a depressurised state!*

*The motor may run.*

Adhere to the following sequence when connecting the tools:

1. - Hydraulic power pack pressure connection
2. - Tool pressure connection
3. - Hydraulic power pack return line
4. - Tool return

## 6.5 Setting the operating pressure

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety goggles
- Safety gloves
- Safety shoes

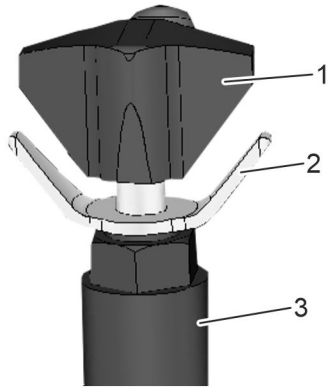



*Fig. 22: Pressure adjustment valve*

1 Knob
2 Adjustment lock
3 Pressure adjustment valve

**1.** Read the pressure to be set from the torque chart/tensile force chart for the tool.

**2.** Release the adjustment lock (Fig. 22/2). To do this, turn the adjustment lock anti-clockwise.

**3.** Fully open the knob (Fig. 22/1). To do this, turn the knob anti-clockwise.

**4.** Start the hydraulic power pack with the remote control.

**5.**

**WARNING!**
**Danger of injury from exceeding the maximum permissible tool pressure!**

Set the pressure during the forward stroke. To do so, slowly turn the knob clockwise. Note the pressure display.

⇨ The pressure is increased.

**6.** Activate the forward stroke again if the maximum forward stroke time is exceeded. To do so, release the button and press it again.

**7.** Save the setting when the desired pressure is reached. To do so, turn the adjustment lock clockwise until the knob is secured.

## 6.6 Flushing

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety goggles
- Safety gloves
- Safety shoes

To prevent air pockets, the hoses need to be purged prior to use.

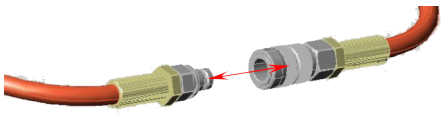


*Fig. 23: Purging*

1. Ensure that the hydraulic hoses are properly connected ↳ *Chapter 6.4 'Connecting the hose' on page 46*.
2. Connect the hydraulic hoses together at the ends. For tandem use, connect both pairs of hoses together.

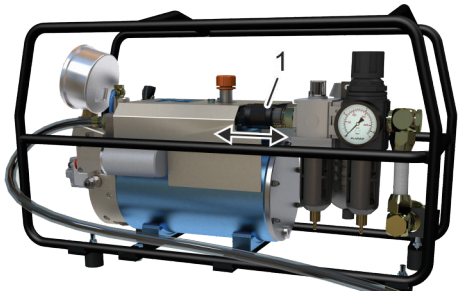



*Fig. 24: Slide valve*

3. Open the slide valve (Fig. 24/1).
   ⇨ The pneumatic motor is driven by compressed air. The hydraulic power pack starts.

   As the hydraulic power pack performs a return stroke after every start but no pressure can build up via the connected hydraulic hoses, this return stroke is never completed.

   The ongoing return stroke ensures that the hydraulic hoses are flushed. Any air pockets present are cleared from the hoses.
4. Let it run for at least 30 seconds (for a standard hose length of 4 m).
5. Check for leaks. Replace the hydraulic hoses if there are any leaks.
6. Switch off the hydraulic power pack.
7. Disconnect the ends of the hydraulic hoses.
   ⇨ The hydraulic power pack is operational.

# 7 Working with hydraulic wrenches

**Explosion protection**


**WARNING!**

**Danger of explosion from spark ignition!**

Mechanically generated sparks can cause a potentially explosive atmosphere to explode.

- Ensure that only specifically approved hydraulic wrenches are used in EX zones.
- Prevent contact between rusty steel and aluminium when using the reaction arm on a bracing surface (abutment).
- Handle the hydraulic wrench with care.

**Exceeding the maximum pressure**

**WARNING!**

**Danger of bursting due to excessive hydraulic pressure!**

If the hydraulic pressure exceeds the maximum permissible pressure for connections, hoses, tools or components of the hydraulic power pack, these could burst. Airborne parts and hydraulic fluid discharged under high pressure could cause serious injuries.

- Ensure that all components are designed for the maximum applied hydraulic pressure and that none of the components are damaged.
- Check for defects, damage and leaks.
  Have all identified defects remedied immediately.
- Comply with the maintenance intervals.

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety goggles
- Safety gloves
- Safety shoes

**Installation**

1. Install the hydraulic power pack securely ↳ *Chapter 4 'Choosing the installation site' on page 40*.

**Power supply**

2. Supply the hydraulic power pack with power and prepare the compressed air service unit ↳ *Chapter 5 'Supplying with energy' on page 42*.

**Oil level**

3. Check the oil level ↳ *Chapter 6 'Preparing for operation' on page 44*.

**Starting**

4. Open the slide valve (Fig. 24/1).

   ⇨ The pneumatic motor is driven by compressed air.

   The hydraulic power pack starts.

**Leaks**

5. Check again for leaks and ensure that the oil level is correct. Correct the oil level if necessary.

**Connecting the hoses**

6. Check the hydraulic hose and couplings for leaks. Note the maximum period of use. Do not use the hydraulic hose if there are leaks or if the maximum period of use is exceeded ↳ *Chapter 6.4 'Connecting the hose' on page 46*.
7. Ensure that the hydraulic hose is fully filled with the specified hydraulic oil ↳ *'Oil specifications' on page 63*.
8. First connect the pressure side. Connect the couplings in the proper manner. Let the circlip lock in place or secure the bolted connection.

> *The hydraulic connections of the hydraulic power pack and the hydraulic hose must be compatible.*

9. Connect the hydraulic hose for the return.
10. Check the connections for leaks and reconnect them if there are leaks.

**Purging**

11. Purge ↳ *Chapter 6.6 'Flushing' on page 48*.
12. Ensure that the fastening operation is known.

**Setting the hydraulic pressure**

13. Read the required hydraulic pressure from the torque chart for the tool (↳ operating instructions of the tool).
14. Press and hold the button on the remote control until the pressure adjustment is complete.
15. Set the hydraulic pressure ↳ *Chapter 6.5 'Setting the operating pressure' on page 47*.

**Hydraulic wrench**

16. **WARNING!**
**Risk of explosion due to hydraulic wrenches that are not approved for the EX zone!**

Connect the tool ↳ Operating instructions for the tool.

**Tightening or loosening**

1. Press and hold the remote control button until the pressure adjustment is complete.
2. Make sure that the correct hydraulic pressure is set ↳ *Chapter 6.5 'Setting the operating pressure' on page 47*.
3. Make sure that the maximum permissible torque of the bolting devices and accessories is not exceeded.
4. Attach the tool to the bolt in the proper manner.
5. Press the remote control button.
   ⇨ The tool rotates the bolt.

6. Ensure that the tool is rotating in the desired direction. If the bolt is rotating in the wrong direction, turn the tool.
7. Release the remote control button.
   ⇨ The tool retracts.
8. Press and hold the button and release it again until there is no further visibly discernible rotation of the tool.
9. Switch off the hydraulic power pack.

# 8 Performing maintenance

## 8.1 Maintenance schedule

**Improperly performed maintenance tasks**

**WARNING!**

**Danger of injury from improperly performed maintenance tasks!**

Improper maintenance can cause serious injuries and significant damage.

- Ensure sufficient assembly space prior to commencing the tasks.
- Ensure that the assembly site is clean and tidy. Loosely stacked or randomly scattered components and tools may cause accidents.
- Only the following maintenance activities can be carried out by the user:
  - Checking that the oil level is correct
  - Cleaning
  - Ensuring compliance with the maximum duration of use of the hydraulic hoses
  - Changing the oil
  - Servicing the pressure unit and having it checked for damage
- Have all repairs performed by the manufacturer.
- Never open components of the hydraulic power pack.
- Use only PLARAD® original parts.

**Faultless operation**

The following sections describe the maintenance tasks that are required in order to ensure optimum and faultless operation.

If routine checks reveal increased wear, shorten the requisite maintenance intervals according to the actual signs of wear. If you have questions about maintenance tasks and intervals, contact PLARAD® service.

| Interval | Maintenance task | Personnel |
|---|---|---|
| Before and after every use | ■ Maintain the compressed air service unit:<br>– Check seals and replace in the event of damage.<br>– Drain the condensate.<br>– Clean or replace the filter.<br>– Top up oil.<br>■ Check the oil level.<br>■ Clean.<br>■ Remove dust deposits.<br>■ Check surfaces, warning symbols and pictograms for damage.<br>■ Check compressed air hoses and fasteners for damage.<br>■ Check for leaks and visible damage.<br>■ Ensure that the maximum period of use for the hydraulic hoses has not been reached. Note the exchange intervals for the hydraulic hoses. See the hose manufacturer's specifications.<br>↳ *Chapter 8.2 'Having the hydraulic power pack maintained by the user' on page 54* | User |
| After 150 operating hours or yearly | ■ Change the oil ↳ *Chapter 8.3 'Changing the oil' on page 56*. | User |
| Every 3 months<br>■ In the event of extreme operating conditions (e.g. dust, dirt)<br>■ In the event of high frequency of use, multi-shift operation<br>Every 6 months<br>■ In the event of standard operating conditions<br>■ In the event of average frequency of use<br>Every 12 months<br>■ In the event of low frequency of use | ■ Oil-immersed motor<br>Perform service as stipulated by the motor manufacturer.<br>■ Gearbox<br>Perform service as stipulated by the manufacturer.<br>■ Change the oil filter.<br>■ Change the hydraulic oil.<br>■ Replace wear parts such as seals.<br>■ Exchange damaged markings.<br>■ Accessories<br>Check for damage; exchange.<br>↳ *Chapter 8.4 'Having service tasks performed by the manufacturer' on page 57* | PLARAD® service |

**Accessories, spare parts and wear parts**

Spare parts must meet the technical requirements specified by PLARAD®. This is always ensured by original spare parts. A warranty can only be provided for original spare parts supplied by PLARAD®.

The installation or use of other spare parts can, under certain circumstances, adversely alter the specified design properties and, consequently, impair active or passive safety.

Any liability and warranty for damage resulting from the use of parts other than the original spare parts and accessory parts is excluded.

Have at least the following information about the hydraulic power pack to hand to enable quick and easy processing:

- Client
- Serial number
- Desired spare part
- Desired quantity
- Desired mode of shipping

↳ *'PLARAD® service' on page 4*

## 8.2 Having the hydraulic power pack maintained by the user

**Explosion protection**


**WARNING!**

**Risk of explosion during maintenance and troubleshooting!**

Bringing ignition sources such as sparks, open flames and hot surfaces into EX zones and the use of incorrect components or tools may cause explosions.

– Only use tools, aids and media approved for the EX zone.
– Carry out any maintenance and troubleshooting work that could potentially result in ignition sources outside the EX zone only.
– Only install (spare) parts that have been coordinated with PLARAD®.

Failure to observe these instructions will lead to a loss of explosion protection.

Personnel: ■ User

Perform the following maintenance steps before and after every use:

**Oil level**

1. Check the oil level. Top up the oil if the depiction of the “max Oil” sticker and the oil level in the sight glass do not match ↳ *Chapter 6 ‘Preparing for operation’ on page 44*.

**Cleaning**

2. **NOTICE!**
**Damage from improper cleaning!**

Remove dust deposits properly. Do not disperse dust.

Clean the hydraulic power pack with a soft cloth. Never use strong cleaning agents, water, brushes, sharp-edged tools or high-pressure cleaners.

**WARNING!**
**Fire hazard!**

When using isopropyl alcohol, do not clean the hydraulic power pack near ignition sources. Do not smoke. Let it evaporate.

**Surfaces and markings**

3. Check surfaces and markings for damage. Arrange for repairs if there is damage or illegible markings.

**Remote control**

4. Check the remote control and the remote control hose for damage and insufficient fastening. Have them exchanged by PLARAD® service if they are damaged.

**Hydraulic hoses**

5. Check the hydraulic hoses and connections for damage and leaks. Check the period of use. Have the hoses replaced if they are damaged or if the maximum permissible service life has been exceeded.

**Maintaining the compressed air service unit**

6. Drain the condensate.
7. Pressure reducer: lightly grease the O-rings on the sealing cone. To do this, unscrew the sealing cap (knurled nut) and remove the sealing cone. Lightly grease the O-ring.

   Assemble the pressure reducer.
8. Filter muffler: clean the sinter filter. To do this, loosen the bolted connection, remove the container, loosen the fastening nut from the sinter filter and remove the sinter filter.

   Place the sinter filter in solvent, swirl and dry.

   Check seals for damage and replace as necessary.

   Assemble the filter muffler.

9. **WARNING!**
**Danger of injury due to faulty hydraulic power pack!**

Do not use the hydraulic power pack if it is faulty. Have it repaired immediately or have the faulty parts exchanged. Contact PLARAD® service.

## 8.3 Changing the oil

Personnel:
- User

Protective equipment:
- Protective work clothing
- Safety goggles
- Safety gloves
- Safety shoes

The hydraulic oil must be changed yearly or after 150 operating hours.

**Draining the oil**

1. Put a container with sufficient volume (*Chapter 11 'Technical data' on page 62*) under the hydraulic power pack. Open the oil drain plug.
2. Close the oil drain plug if the oil has been fully discharged.

**Topping up the oil**

3. Open the cover of the oil filling neck.
4. Carefully fill clean new hydraulic oil (*'Oil specifications' on page 63*) into the surge tank via a funnel and oil strainer until the correct oil level is reached.

**Oil level**


*Fig. 25: Sticker for oil level*

5. Do not add any more oil if the oil level in the sight glass matches the depiction on the "max Oil" sticker.
6. Close the cover of the oil filling neck.

**Cleaning**

7. Clean the work environment in the proper manner. Dispose of the oil in an environmentally sound manner or reuse it.

## 8.4 Having service tasks performed by the manufacturer

**Service intervals**

The service intervals are dependent on the conditions of use and the operating site.

| Service interval | Conditions |
|---|---|
| Every 3 months | ■ In the event of extreme operating conditions (e.g. dust, dirt)<br>■ In the event of high frequency of use, multi-shift operation |
| Every 6 months | ■ In the event of standard operating conditions<br>■ In the event of average frequency of use |
| Every 12 months | ■ In the event of low frequency of use |

**Contacting service**

→ 

**WARNING!**
**Danger of injury from improperly performed service tasks!**

Contact PLARAD® service in good time regarding the following service tasks.

Do not perform service tasks yourself.

**Service tasks**

Personnel: ■ PLARAD® service

→ Perform service tasks as per the manufacturer's specifications.

| Component | Service task |
|---|---|
| Hydraulic power pack | Check for damage. Rectify any damage. |
| | Change the oil and oil filter. |
| | Replace wear parts (e.g. seals). |
| | Exchange damaged markings. |
| | Check the oil-immersed motor and gearbox for damage. Rectify any damage. |
| Pressure gauge | Perform service as stipulated by the manufacturer. |
| | Replace the pressure gauge certificate. |
| Accessories | Check for damage; exchange. |
| | Exchange damaged markings. |

# 9 Troubleshooting

## 9.1 Identifying faults

Malfunctions and faults can become noticeable in different ways:

- Hydraulic power pack is not working for no apparent reason:
  First note the list of typical errors and issues *'FAQs' on page 58*.
- Hydraulic power pack or accessory is faulty or shows signs of damage.
  Contact *'PLARAD® service' on page 4*.

**FAQs**

Below is a summary of typical malfunctions, issues and answers. This is intended to provide rapid assistance. For problems that cannot be solved in this way, contact *'PLARAD® service' on page 4*.

| Fault symptom | Measure |
|---|---|
| The hydraulic power pack will not start. | Check the pressure setting. |
| Compressed air escapes. | Clean the quick-release couplings. |
| | Check the air compressor hose and compressed air ports for damage.<br>Replace the air compressor hose if it is damaged. Have the compressed air ports replaced. Contact *'PLARAD® service' on page 4*. |
| | Have the hydraulic power pack checked for damage. Contact *'PLARAD® service' on page 4*. |
| Insufficient flow rate (pressure fluctuations) | No compressed air lubrication. Fill the oil mist lubricator *Chapter 5.4 'Setting the oil mist lubricator' on page 43*. |
| | Clean the filter *Chapter 5.2 'Checking the filter' on page 42*. |

## 9.2 Performing troubleshooting

**Explosion protection**


**WARNING!**

**Risk of explosion during maintenance and troubleshooting!**

Bringing ignition sources such as sparks, open flames and hot surfaces into EX zones and the use of incorrect components or tools may cause explosions.

- Only use tools, aids and media approved for the EX zone.
- Carry out any maintenance and troubleshooting work that could potentially result in ignition sources outside the EX zone only.
- Only install (spare) parts that have been coordinated with PLARAD®.

Failure to observe these instructions will lead to a loss of explosion protection.

**Improperly performed troubleshooting**

**WARNING!**

**Danger of injury from improperly performed troubleshooting!**

Improper troubleshooting can cause serious injuries and significant property damage.

- Have all repairs performed by the manufacturer.
- Never open components of the hydraulic power pack.
- Use only PLARAD® original parts.

**Device damage**

→ Contact *'PLARAD® service' on page 4* if there is any damage to the hydraulic power pack.

**Power supply**

1. → Check compressed air and connections and have them replaced in the event of damage.
2. → Check the pneumatic parameters and correct the power supply.

### Returning to service after remedying the error

**WARNING!**

**Danger of injury due to faulty hydraulic power pack!**

If a hydraulic power pack is not properly repaired, this can cause serious injuries.

– Never return a defective hydraulic power pack to service.

→ Start up the hydraulic power pack.

# 10 Disposal

The hydraulic power pack must be disposed of in an environmentally sound manner at the end of its service life.

## Disassembly

**WARNING!**
**Danger of injury from stored residual energy!**
Damaged components can cause injuries due to undissipated residual energy.

1. Disconnect the hydraulic power pack from the compressed air supply. Relieve the residual pressure.
2. Remove the hydraulic hoses.
   ⇨ Reuse these components if necessary.

## Draining the oil

3. Put a container with sufficient volume (*Chapter 11 'Technical data' on page 62*) under the hydraulic power pack. Open the oil drain plug.
4. Close the oil drain plug if the oil has been fully discharged. Clean the work environment in the proper manner. Dispose of the oil in an environmentally sound manner or reuse it.
5. Do not dismantle the hydraulic power pack any further.

## Disposal

If no take-back or disposal agreement has been put in place, dispose of the hydraulic power pack as electronic waste in accordance with local regulations.

Dispose of waste oil in an environmentally sound manner as per local regulations.

**ENVIRONMENT!**
**Danger to the environment due to incorrect disposal!**
Incorrect disposal can be hazardous to the environment.

Have lubricants and other auxiliary materials disposed of by approved specialist companies.

If in doubt, obtain information about environmentally sound disposal from the local municipal authority or from specialist disposal companies.

# 11 Technical data

## Technical data sheet

*Technical data sheet is available online at: https://www.plarad.de/download-center.html*

## Dimensions and weight

Dimensions and weight are dependent on the hydraulic power pack version. See the technical data sheet regarding specific values for the hydraulic power pack.

| Data | Value | Unit |
|---|---|---|
| Weight* | 22 | kg |
| Length | 634 | mm |
| Width | 257 | mm |
| Height | 395 | mm |

* See the rating plate for specific details.

## Performance values

| Data | Value | Unit |
|---|---|---|
| Pressure, maximum* | 800 | bar |
| Flow rate at 10 bar (2stage) | 7 | l/min |
| Flow rate at 10 bar | 1.6 | l/min |
| Flow rate at 800 bar | 1.6 | l/min |

* See the rating plate for specific details.

## Pneumatic connected loads

Specific details on the rating plate:

- Maximum operating pressure for compressed air
- Air consumption for compressed air

## Ambient conditions

| Data | Value | Unit |
|---|---|---|
| Temperature range | -10 – 50 | °C |
| Relative humidity, maximum | Non-con-densing | |

## Emissions

Emission levels as per EN 60745

| Data | Value | Unit |
|---|---|---|
| Emission sound pressure level | 89 | dB(A) |

| Data | Value | Unit |
|---|---|---|
| Measurement uncertainty of emitted sound pressure level | 3 | dB(A) |

**Oil specifications**

| Data | Value | Unit |
|---|---|---|
| Usable oil volume | 0.45 | l |
| Filter insert | 10 | µm |
| Hydraulic oil | Shell Tellus S2 VX 15 | |

# 12 Index

# Appendix

In addition to this manual, the following documents are supplied in a document folder enclosed with the hydraulic power pack.

- EU declaration of conformity
- Certificates (option)

ISO 9001:2015
ISO 14001:2015
Management System
www.tuv.com
ID 1100012007

PLARAD®
Torque & Tension Systems

# EC Declaration of Conformity

## Translation of original

| | |
|---|---|
| Manufacturer | Maschinenfabrik Wagner GmbH & Co. KG |
| | Birrenbachshöhe 17<br>53804 Much<br>Germany |
| Authorised representative | Claudia Beyert-Wagner |
| Product name | XP1eco -20 ATEX<br>XP1eco -20 2Stage ATEX |
| Type | See rating plate |
| Serial number<br>Year of manufacture | See rating plate |

The manufacturer hereby declares that the machine conforms to all applicable requirements of Directive:

| | |
|---|---|
| 2014/34/EU | ATEX Directive |
| Marking | II 1 G Ex h T4 Ga<br>II 1 D Ex h <135 °C Da |

The machinery further conforms to all requirements of Directives:

| | |
|---|---|
| 2006/42/EC | EC Machinery Directive |

The following harmonised standards have been applied:

| | |
|---|---|
| EN ISO 12100:2010 | Safety of machinery – General principles for design – Risk assessment and risk reduction |
| DIN EN ISO 11148-1:2013-05 | Hand-held non-electrically operated machinery - Safety requirements |
| DIN EN ISO 4413:2011-04 | Fluid Power - General principles and safety requirements for hydraulic systems and their components |
| DIN EN ISO 4414:2011-04 | Fluid Power - General principles and safety requirements for pneumatic systems and their components |
| DIN EN 1127-1:2019 | Explosive atmospheres – Explosion prevention and protection – Part 1: Basic concepts and methodology |
| DIN EN ISO 80079-36:2016-12 | Explosive atmospheres – Part 36: Non-electrical equipment for explosive atmospheres – Basic methods and requirements |
| DIN EN ISO 80079-37:2016-12 | Explosive atmospheres – Part 37: Non-electrical equipment for explosive atmospheres – Non-electrical type of protection constructional safety “c”, control of ignition sources “b”, liquid immersion “k” |
| ISO 15744:2008 | Hand-held non-electric power tools – Noise measurement code |

| | |
|---|---|
| Much, 09/05/2025 | Claudia Beyert-Wagner<br>(Managing Director) |

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