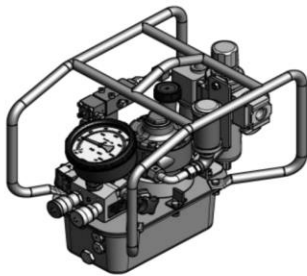
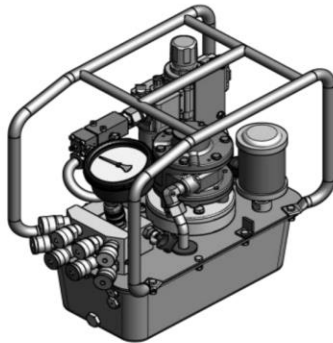


HYTORC



JETPRO S AIR



HY-AIR



HY-TWIN AIR

English translation of the original German operating instructions

for qualified and authorized operating personnel

Status 6/2019

Always store these operating instructions together at the hydraulic unit. Ensure that the operating instructions are available for the qualified and authorized operating personnel. Read and comply with the operating instructions.

Non-observance can lead to injury and possibly death.

EN

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Document no. BA-0060-EN00

Revision no. 00

Document type Operating instructions

Issue date 6/7/2019

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We reserve the right to make technical changes in the course of further development.

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Notes concerning this manual and the manufacturer

These instructions help you to use the following hydraulic units safely:

- JetPro-S-Air
- HY-Air
- HY-Air-2
- HY-Air-SA
- HY-Air 2-SA
- HY-Twin-Air

These hydraulic units are hereinafter referred to as “unit(s)”.

Keep the manual available

These operating instructions are a part of the unit. Make sure that the operating instructions are always accessible for the user at the site and are in legible condition. Enclose the operating instructions when you sell the unit or transfer it in any other way.

Design features of this manual

Various elements of these operation manual have fixed design characteristics. These allow you to easily distinguish the following elements:


Normal text

- Lists
- ▶ Action steps


References to headers are set in quotation marks.

‘Labels’ of switches or other elements are set in inverted commas.

Table titles are set in bold.

 Tips. Contains additional information.

Referenced documents

⚠ WARNING	
	<p>Risk of injury from non-compliance with the applicable documentation.</p> <ul style="list-style-type: none">▶ Prior to working with the unit, read all applicable documents and comply with them.▶ These can be found in the documentation folder of the unit.

More information, instructions and details about the unit components can be found in the documentation from the respective manufacturers. These documents are regarded as a part of these instructions. Store these documents together with this manual. Hand over these documents when selling the unit or passing it on in other ways.

Referenced documents are the following document types in particular:

- operating instructions
 - assembly instructions
 - maintenance or repair instructions
 - wiring diagrams
 - terminal diagrams
 - hydraulic diagrams
 - safety data sheets
 - drawings
 - spare parts lists
 - declarations of conformity or declarations of incorporation
 - ex-protection document of the operator
- ▶ Observe and follow the information from the referenced documents.

These can be found in the documentation folder of the unit.

Manufacturer's address

HYTORC Technologies GmbH
Kleinbeckstr 3–17
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Person responsible for documentation


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Michael Westermann
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Germany

Warranty and liability

In general our General Terms and Conditions apply. Warranty and liability claims for personal injury or property damage are always excluded if they are due to one or more of the following causes:

- Improper use of the unit
- Improper transport, installation, commissioning, operation and maintenance of the unit
- Ignoring the instructions in this manual
- Ignoring the hazard notices on the unit
- Unauthorized modifications of the unit
- Inadequate monitoring of components which are subject to wear.
- Incorrectly executed repairs
- Disasters caused by outside intervention or an act of God.

Safety

⚠ WARNING	
	<p>Severe injuries or death caused by accidents due to disregard of the instructions in this guide.</p> <p>In particular the failure to observe the instructions in the Chapter on Safety, can lead to accidents.</p> <p>► Read and follow all instructions in this manual before you begin working with or on the unit.</p>

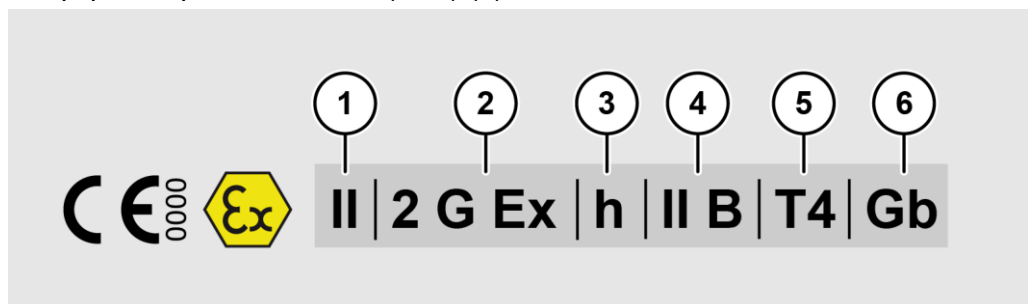
In addition to the notes in these operating instructions, also follow, in any case, the statutory and other regulations, e.g.:

- Accident prevention regulations
- Regulations for safe and professional work
- The applicable on-site regulations for explosion protection and fire protection

ATEX marking

The ATEX marking contains notes on the permissible use of the unit in potentially explosive atmospheres. The following information is displayed:

- Equipment group (1)
- Equipment category (2)
- Ignition protection type (3)
- Explosion group according to DIN EN ISO 80079-36: 2016, DIN EN ISO 80079-37: 2016 (4)
- Temperature class (5)
- Equipment protection level (EPL) (6)



Equipment group (1)

Equipment that is intended for operation in a potentially explosive atmosphere is classified into two groups. Group I includes equipment that is used in mines susceptible to firedamp, e.g. in coal mines. The unit belongs to equipment group II and can therefore be used in all potentially explosive areas except for mining.

Equipment category (2)

Equipment category II comprises equipment that was designed in such a way that ensures a high level of safety if the equipment is used as intended with the prescribed parameters. Equipment of this category can be used in areas where a potentially explosive atmosphere of gases, vapors, mists or dust/air mixtures occurs occasionally. This is indicated with the letter G. Equipment of category III is also included if it is likely that a potentially explosive atmosphere will only occur rarely or for a short period of time. The unit falls under equipment category II. Equipment of this category may only be used in zones 1 and 2 and/or zones 21 and 22.

Ignition protection type (3)

The ignition protection type represents the design principle followed in the unit's development with regard to explosion protection. The ignition protection type "h" stands for "constructional safety" of non-electrical equipment. Constructional safety means that constructional measures have been taken to reduce hazards caused by ignitable temperatures or sparks to a very low level.

Explosion group (4)

Equipment of group II can also be classified according to the type of potentially explosive atmosphere where the equipment may be used. The subgroups IIA, IIB and IIC are used for this purpose. This classification is based on the maximum experimental safe gap (MESG) and the minimum ignition current ratio (MICR) of the gas mixture.

Temperature class (5)

Flammable gases and vapors are split into different temperature classes according to their level of flammability (see table). The maximum surface temperature of a piece of electrical equipment must always be below the ignition temperature of the gas, vapor or air mixture where it is used. Equipment that meets the requirements of a higher temperature class (e. g. T5) is naturally also permitted for applications that require a lower temperature class (e. g. T2 or T3).

Temperature - class	Ignition temperature of gases and vapors in °C	Maximum surface temperature of equipment in °C
T1	> 450	450
T2	> 300 to 450	300
T3	> 200 to 300	200
T4	> 135 to 200	135
T5	> 100 to 135	100
T6	> 85 to 100	85

Equipment protection level (6)

The abbreviation “EPL” stands for “equipment protection level”. According to the 2007 issue of IEC 60079-0, equipment for potentially explosive areas is classified into three different protection levels:

- EPL Ga or Da:
Equipment with a “very high” protection level for use in potentially explosive areas which do not represent an ignition hazard in normal operation or in the event of foreseeable or rare faults / malfunctions.
- EPL Gb or Db:
Equipment with a “high” protection level for use in potentially explosive areas which do not represent an ignition hazard in normal operation or in the event of foreseeable faults / malfunctions.
- EPL Gc or Dc:
Equipment with an “increased” protection level for use in potentially explosive areas which do not represent an ignition hazard in normal operation and which are provided with several additional protective measures to prevent the risk of ignition in the event of commonly foreseeable faults in the equipment.

ATEX marking of the unit

According to DIN EN ISO 80079-36. 2016, Section 11:

EX II 2 G Ex h IIB T4 Gb

This ATEX marking is valid for the following types of HY-Air hydraulic unit:

- JetPro-S-Air
- HY-Air
- HY-Air-2
- HY-Air-SA
- HY-Air 2-SA
- HY-Twin-Air

Responsibilities of the operating company

- The operator must ensure that all accident prevention regulations are complied with.
- The operator must ensure that only qualified and authorized operating personnel performs work on and with the unit.
- The operator must ensure that the unit is grounded in accordance with the applicable standards and regulations.

Persons at particular risk

The following groups of persons must not be granted access to the unit as they might sustain serious or lethal injuries:

- children
- persons with physical or mental limitations
- persons under the influence of drugs and medication
- persons under the influence of alcohol
- unauthorized persons, e. g. pedestrians
- People without the qualifications specified in the following section.

Qualification of personnel

These operating instructions are addressed to qualified and authorized operating personnel.

The following sections list the necessary qualification for each activity on or with the unit.

Connecting the Compressed Air Supply

The operating personnel must have the following knowledge and experience:

- Teaching and training received for the work.
- Knowledge of the fact that improper operation, maintenance and repairs can cause accidents.
- Ability to assess hazards that may arise from compressed air.
- Ability to assess hazards that may arise from the high-pressure components.
- Ability to assess hazards that may arise from noise and heat.
- Ability to detect leaks.
- Ability to handle screw couplings to connect a compressed air supply to the unit.
- Ability to set a predetermined pressure on the unit's maintenance unit.

Tool connection

The following skills and experience are required for the operating personnel:

- have been taught and trained for the work
- know that improper operation, maintenance and repairs can cause accidents
- can assess risks and environmental damage that could be caused by hydraulic oil
- can assess risks that may arise from the high pressure components
- can assess hazards that arise from noise and heat
- can detect leaks
- can handle screw couplings to connect tools to the unit
- can assess hazards that may arise from potentially explosive atmospheres.

Setting pressure/torque

The following skills and experience are required for the operating personnel:

- have been taught and trained for the work
- know that improper operation, maintenance and repairs can cause accidents
- can assess risks that may arise from the high pressure components
- can assess hazards that arise from noise and heat
- can set a predetermined pressure on the unit

Assessing the state of the unit

The operating personnel must have the following knowledge and experience:

- Teaching and training received for the work.
- Knowledge of the fact that improper operation, maintenance and repairs can cause accidents.
- Ability to assess hazards that may arise from compressed air.
- Ability to assess hazards and environmental damage that may arise from hydraulic oil.
- Ability to assess hazards that may arise from the high-pressure components.
- Ability to assess hazards that may arise from noise and heat.
- Ability to detect errors in the unit's condition by performing a visual inspection prior to commissioning.
 - Leaks
 - Kinks in pneumatic hoses
 - Kinks in hydraulic hoses
 - External damage to pneumatic hoses
 - External damage to hydraulic hoses
 - Incorrectly set pressure on the maintenance unit
 - Incorrect fill level in the unit
- can assess hazards that may arise from potentially explosive atmospheres.

Carrying the unit

The following skills and experience are required for the operating personnel:

- have been taught and trained for the work
- can assess hazards that arise from improper carrying
- know that, with a weight of 25 kg, the unit is only permitted to be carried with the help of a second person.

Ban of unauthorized conversions

Unauthorized conversions or changes on the unit will void the warranty and invalidate the approval for explosive atmospheres.

Unauthorized conversions or changes on the unit may lead to serious or even lethal injuries. This applies in particular to changing and altering safety devices.

- ▶ Never bypass or shunt any safety devices.

Personal protective equipment

Feet may be crushed when moving the unit.

- ▶ Wear safety shoes with steel toe caps.

Slipping and thereby risk of fractures when performing hydraulic work is possible!

- ▶ Wear safety shoes with non-slip soles.

Skin irritation and eye damage when in contact with hydraulic oil and hydraulic components is possible!

- ▶ Wear oil resistant nitrile gloves and chemical-resistant goggles.

Burns on contact with hot fluids and components are possible!

- ▶ Wear protective gloves against thermal risks.

Cuts and abrasions of the skin on sharp-edged components are possible!

- ▶ Wear protective gloves against mechanical risks.

Hearing impairments while unit is running are possible!

- ▶ In areas with high noise wear hearing protection.

Risk of poisoning possible in poorly ventilated rooms! The unit may overheat. In this case, oil mist and oil vapors can form.

- ▶ If this is the case, wear a respirator.
- ▶ In addition, observe and follow the operator's instructions on personal protective equipment.

Basic safety information

Preventing serious injury or death

Severe injury or death caused by failure of tools or hoses. Tools or hoses that do not match the tool and hose specifications may fail.

- ▶ Only use tools and hoses, which the manufacturer of the unit allows as an accessory.

Preventing explosion hazards

Connecting tools to or changing tools at the unit in a potentially explosive atmosphere can lead to serious injury or death.

- ▶ Only connect tools to the unit in areas where there is no potentially explosive atmosphere.
- ▶ Only change tools at the unit in areas where there is no potentially explosive atmosphere.

Maintaining the unit in a potentially explosive atmosphere can lead to serious injury or death.

- ▶ Maintain the unit only in areas where there is no potentially explosive atmosphere.

Preventing burns from oil and hot surfaces

During and after operation, burns on metallic surfaces or from hydraulic oil are possible.

- ▶ When working on or with the unit wear protective gloves against thermal risks.

Preventing poisoning

The unit may overheat. In this case, oil mist and oil vapors can form.

- ▶ Make sure there is sufficient ventilation.
- ▶ In poorly ventilated areas and upon formation of oil mist and oil vapors, wear a respirator.
- ▶ Switch the unit off when it overheats.
- ▶ Allow the unit to cool down.
- ▶ With the help of a non-contact infrared thermometer, ensure that the unit is cooled down to 25 °C (77 °F).
- ▶ Check the unit for possible damage.
- ▶ Have the unit repaired, if damaged, by qualified personnel before recommissioning.

When fluids leak, proceed as follows:

- ▶ Wear temperature- and media-resistant gloves.
- ▶ Take up liquid spills immediately with a suitable binding agent and a rag.
- ▶ Dispose of the binding agent and rag environmentally correct.

Preventing bone fractures and crushing

Bone fractures and crushing possible. An unstable set-up can lead to the unit toppling over.

Risk of slipping on leaked liquids and therefore of bone fractures!

- ▶ Never reach into moving parts.
- ▶ Always set up the unit on a flat, solid and stable base.
- ▶ Secure the unit and tools against falling.
- ▶ Secure the unit against unintended movement on site by locking the rollers.
- ▶ Wear safety shoes with steel toe caps when moving the unit.
- ▶ Wear safety shoes with non-slip soles when working on hydraulics.
- ▶ Clean up liquid spillages.

Preventing eye damage

At pressures of more than 700 bar (10,000 psi) and operating the unit outside of the tool and tubing specifications can lead to bursting of the hydraulic hoses and spraying of hydraulic oil.

- ▶ Make sure that the permissible pressure defined by the manufacturer is not exceeded.
- ▶ Observe the tool and hose manufacturer's specifications.
- ▶ Observe and follow the operating instructions of the tools and hose specifications.
- ▶ Wear chemical-resistant goggles.

Preventing skin irritation

Contact with hydraulic oil may cause skin irritation.

- ▶ Always provide a strong and tight connection between the unit and hydraulic tools.
- ▶ Wear nitrile gloves at work where you might come in contact with hydraulic oil.
- ▶ Make sure that the permissible pressure defined by the manufacturer is not exceeded.
- ▶ Observe the tool and hose manufacturer's specifications.
- ▶ Observe and follow the operating instructions for the hydraulic tool.

Preventing material damage

- ▶ Avoid soiling the couplings by installing the protective caps and protective plugs when the couplings are not in use.
- ▶ Always set the hydraulic tool down safely.

Intended use

The unit is used exclusively for driving hydraulic assembly tools for screws and nuts in the commercial sector. With the screwing assembly tool, screw connections can be loosened or tightened with a predetermined torque.

Intended use also includes observing and following all instructions in this manual, especially the safety instructions. Any other use is considered to be improper and will void the warranty and liability claims.

The unit must be properly grounded before commissioning.

The unit may be used with a connected screwing tool in potentially explosive areas in accordance with its marking. The screwing tool and the hoses used must be approved for use in potentially explosive areas by the manufacturer.

Ambient conditions







Make sure that the unit is used under the following environmental conditions:

- Temperature range: +1 °C to +40 °C (34 °F to 104 °F)
- Non-condensing humidity

Make sure that the unit is stored and transported under the following environmental conditions:

- Temperature range: -30 °C to +60 °C (-22 °F to 140 °F)
- Non-condensing humidity

Design characteristics of warning information

 DANGER	
	Sections with the word DANGER warn of imminent dangerous situations that lead to death or serious injury.
 WARNING	
	Sections with the word WARNING warn of imminent dangerous situations that may lead to death or serious injury.
 CAUTION	
	Sections with the word CAUTION warn of dangerous situations that may lead to minor or moderate injuries.

Special symbols may be used in the warnings, in addition to the general danger signs. These symbols indicate the possible danger. The meanings of the individual symbols are found in the following section.

Explanation of symbols



Slipping hazard from leaked media



Burning hazard, scalding hazard



Risk of explosion in potentially explosive areas



Risk of eye damage due to splashing liquid



Risk of explosion and explosive media discharge

Design of information about property damage

ATTENTION!	
	These notes warn of situations that can lead to property damage and limited functionality.

Warning and information signs

- ▶ Make sure that all warnings and signs attached to the unit are clearly visible and legible.
- ▶ Replace damaged or lost warnings and signs immediately.

The following labels are affixed to the unit:

Warning or information sign



Meaning or explanation

- ▶ Change the oil as required or after every major application.
- ▶ Use oil of Class 46.



The remote control may only be operated by the tool user.



Recommendation of the manufacturer for seals and other critical applications:

When using four tools simultaneously.

- ▶ Reduce the number of cycles per workpiece and ensure in this way a more accurate pretension force.
- ▶ Set the pressure or torque here.
- ▶ Always set the pressure from low to high pressure.



- ▶ Switch off the unit when not in use.

Warning or information sign

**Adjust torque
valve only with
connected
hoses**

Meaning or explanation

- ▶ Use the torque valve only when hydraulic hoses are connected.

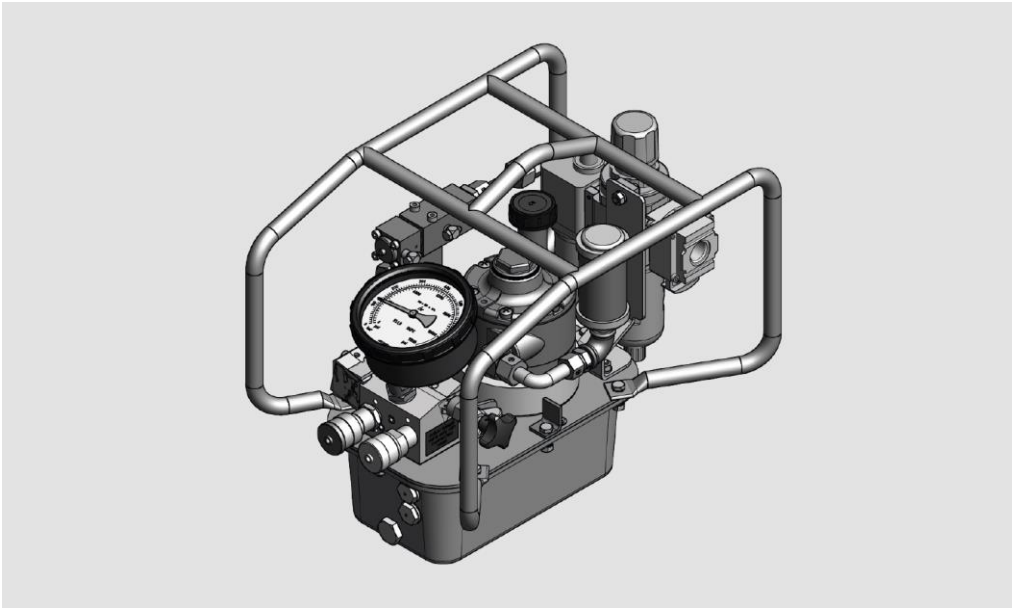
Description

The JetPro-S-Air hydraulic unit can be delivered with one or two tool connections.

The HY-Air hydraulic unit can be delivered with one, two or four tool connections.

The Twin-Air hydraulic unit can be delivered with one, two or four tool connections.

A unit of the JetPro-S-Air type is shown below as an example.



A unit of the Twin-Air type is shown below as an example.

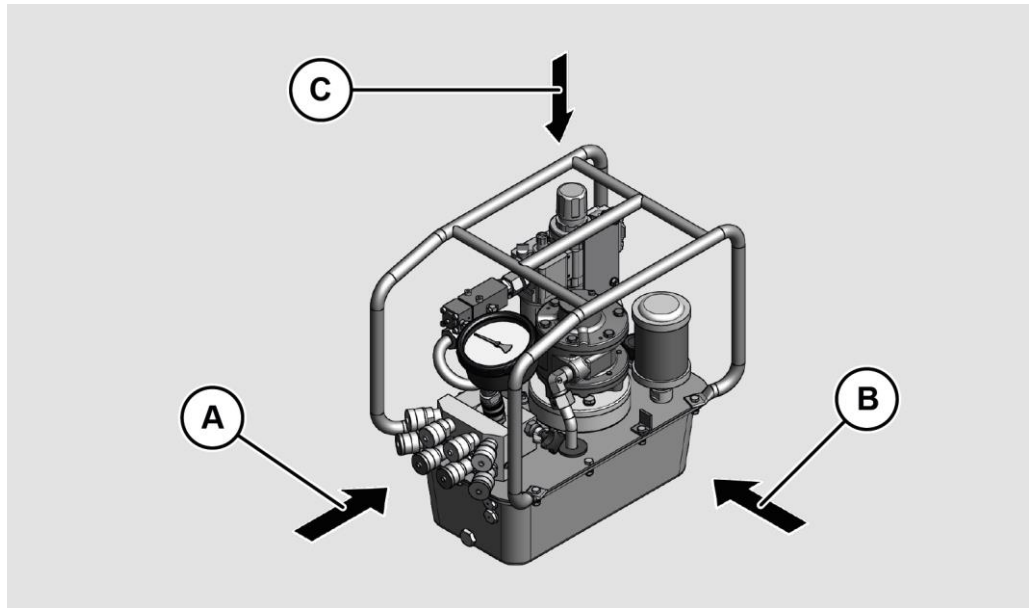


- ❗ The illustrations and descriptions in these instructions refer to the HY-Air hydraulic unit with four tool connections.

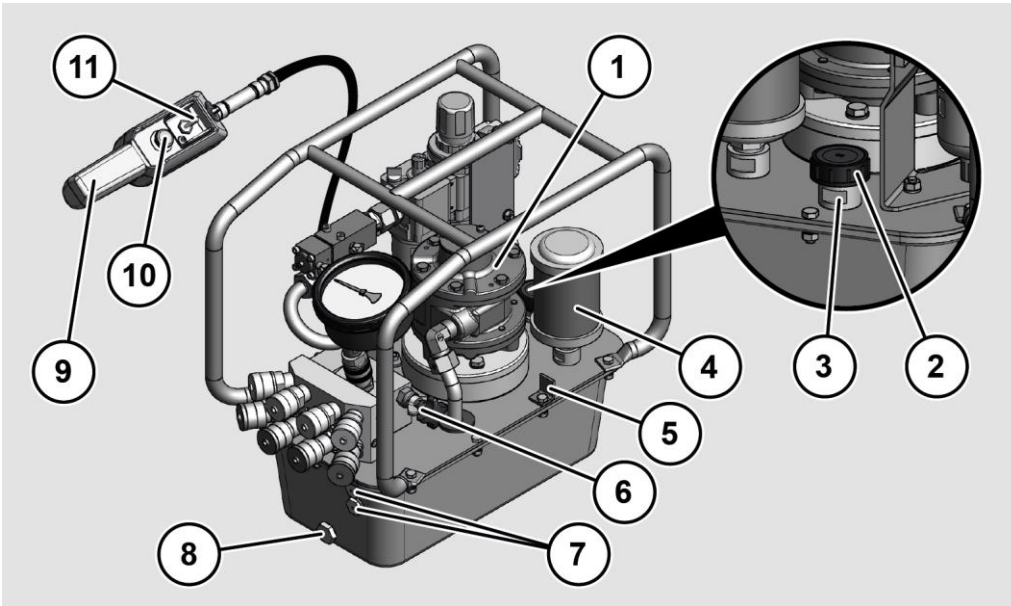
Directional data

In these instructions, the following directions are defined for the unit:

- Front: You can see the couplings on the front (A).
- Right: You can see the torque valve on the right side (B).
- Top: You can see the installed components on the top (C).

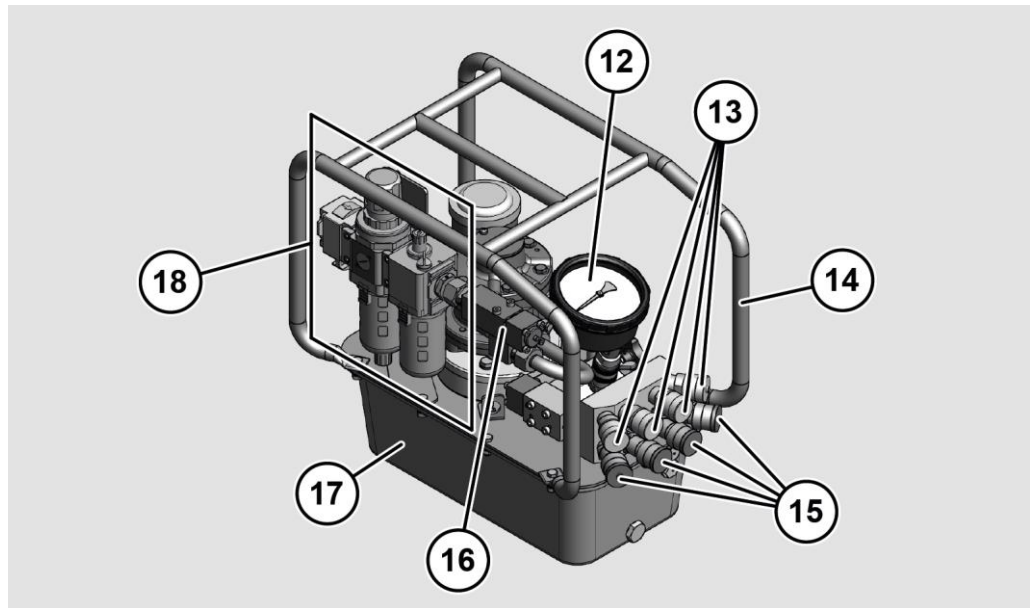


Overview front right



No.	Name
1	Pneumatic motor
2	Ventilation and bleed valve
3	Oil filler neck
4	Sound absorber
5	Grounding bracket
6	Torque valve
7	Sight glasses
8	Oil drain screw
9	Remote control
10	Start button (build up pressure, actuate connected tool)
11	Toggle switch (switch on/off pneumatic motor)

Overview front left



No.	Name
12	Pressure gage
13	Couplings (forward stroke)
14	Bracket
15	Couplings (return stroke)
16	Pneumatic control
17	Oil container
18	Maintenance unit

Layout

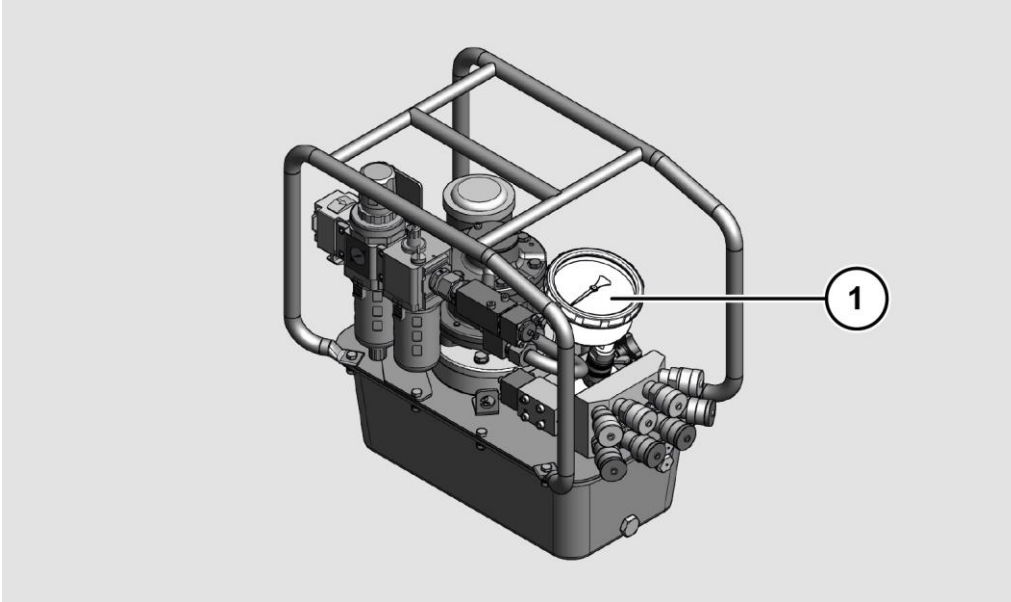
The unit consists of the following main components:

- Pneumatic motor pump unit
- Maintenance unit (2 in the case of the HY-Twin-Air)
- Oil container
- Valve block
- Couplings
- Carrying handles

Display and operating elements

Pressure gage

The pressure gage (1) shows the current pressure in bar or psi.



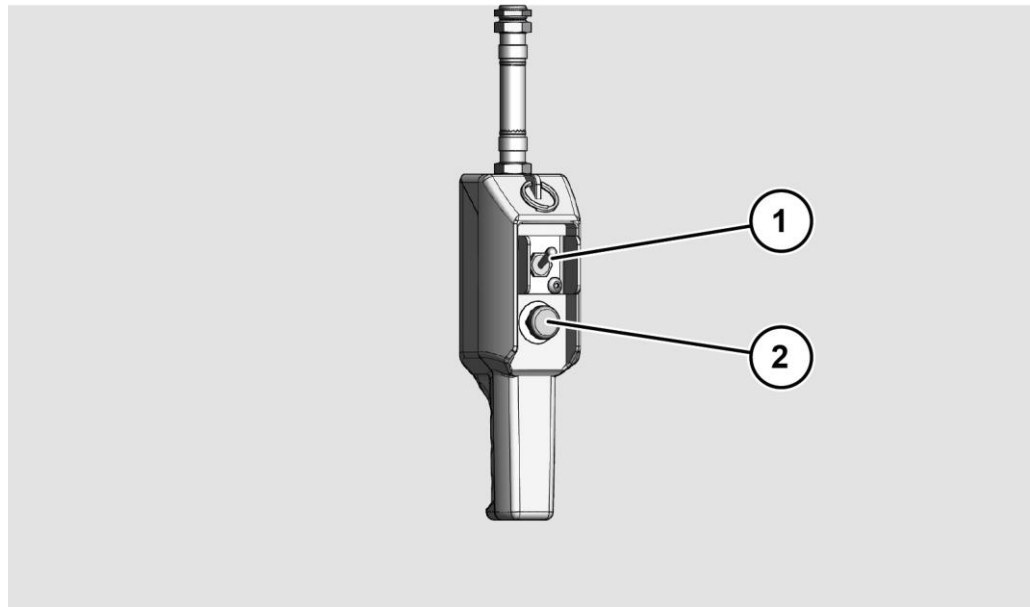
Couplings

The couplings are arranged on the front side of the unit. The couplings are used to connect the tools. Using screw caps provides a tight connection between the tool and the unit.

Remote control for manual version

The remote control is used to:

- Switch the pump on and off
- Operate the tool

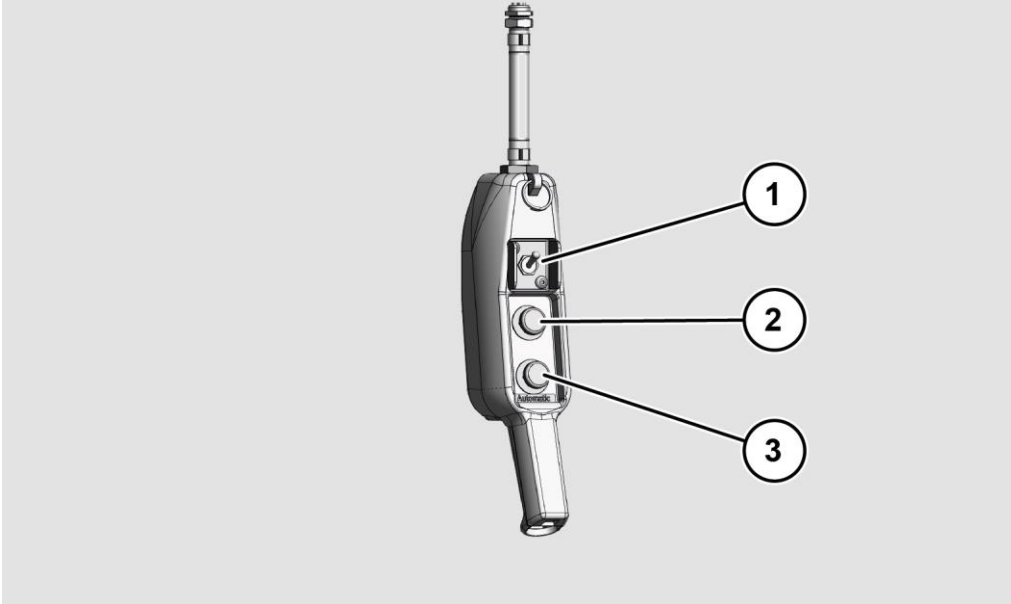


Remote control functions:	
▶ Press the toggle switch (1) (upward)	The motor is started. The connected screwing tool is moved into the starting position (return stroke).
▶ Press the toggle switch (1) (downward)	The motor is stopped.
▶ Press and hold the button (2)	Perform the screwing process with the tool (forward stroke).
▶ Release the button (2)	The connected screwing tool is moved into the starting position (return stroke).

Remote control for semi-automatic version

The remote control is used to:

- Switch the pump on and off
- Operate the tool

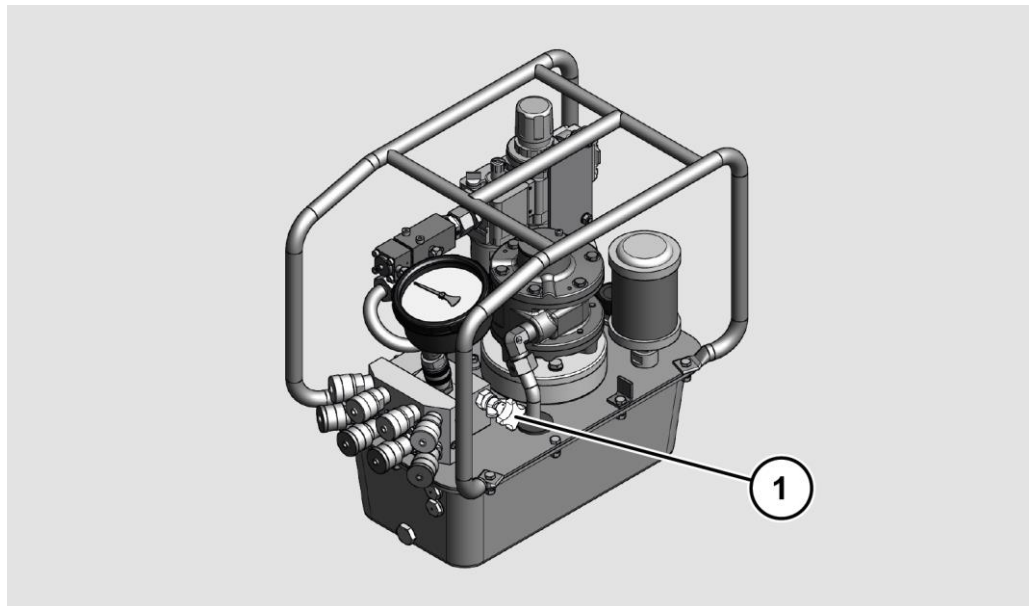


Remote control functions:	
▶ Press the toggle switch (1) (upward)	The motor is started. The connected screwing tool is moved into the starting position (return stroke).
▶ Press the toggle switch (1) (downward)	The motor is stopped.
▶ Press and hold the button (2)	Perform the screwing process manually with the tool (forward stroke).
▶ Release the button (2)	Manually move the connected screwing tool into the starting position (return stroke).
▶ Press and hold the button (3)	Perform the screwing process with the tool (forward stroke and return stroke).
▶ Release the button (3)	End the screwing process.

Torque valve

The torque valve (1) serves for adjusting the required oil pressure. For information on the pressure required for a given torque, refer to the operating instructions of the screwing assembly tool. Alternatively, visit the download area on the HYTORC website.

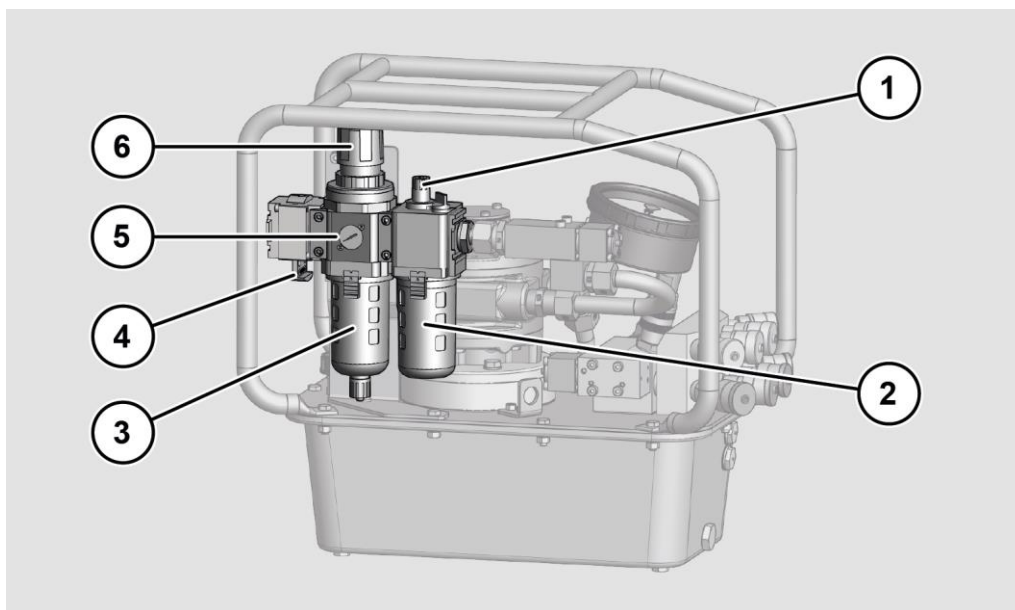
- ▶ If necessary, loosen the wing nut.
- ▶ To increase the pressure, turn the T-handle of the torque valve clockwise.
- ▶ To decrease the pressure, turn the T-handle of the torque valve counterclockwise.
- ▶ To save the setting, turn the wing nut clockwise until it stops, see also, starting from page 48.



Maintenance unit

The compressed air supply is connected to the maintenance unit. The compressed air quality must comply with ISO 8573-1:2010 [7:4:-]. Open or close the compressed air supply with the valve (4). Set the pneumatic system's desired operating pressure (4 – 7 bar) at the pressure relief valve (6). You can read the current pneumatic operating pressure on the pressure gage (5). The condensate separator (3) dehumidifies the supplied compressed air. The oiler (2) supplies the supplied compressed air with oil. You can adjust the desired drop speed for adding oil to the compressed air with the regulating screw (1).

The scale on the adjusting screw indicates the number of drops per minute. We recommend a setting of one drop per minute for normal use.



Type plate

The type plate is attached as a sticker on the cover next to the torque valve. The type plate contains the following information:

- Type designation
- Article number
- Serial number
- Note for use in potentially explosive areas
- ATEX marking
- Confirmation of conformity number
- Unit's operating pressure
- Air volume consumption
- Year of construction
- Name of manufacturer
- Country of manufacture

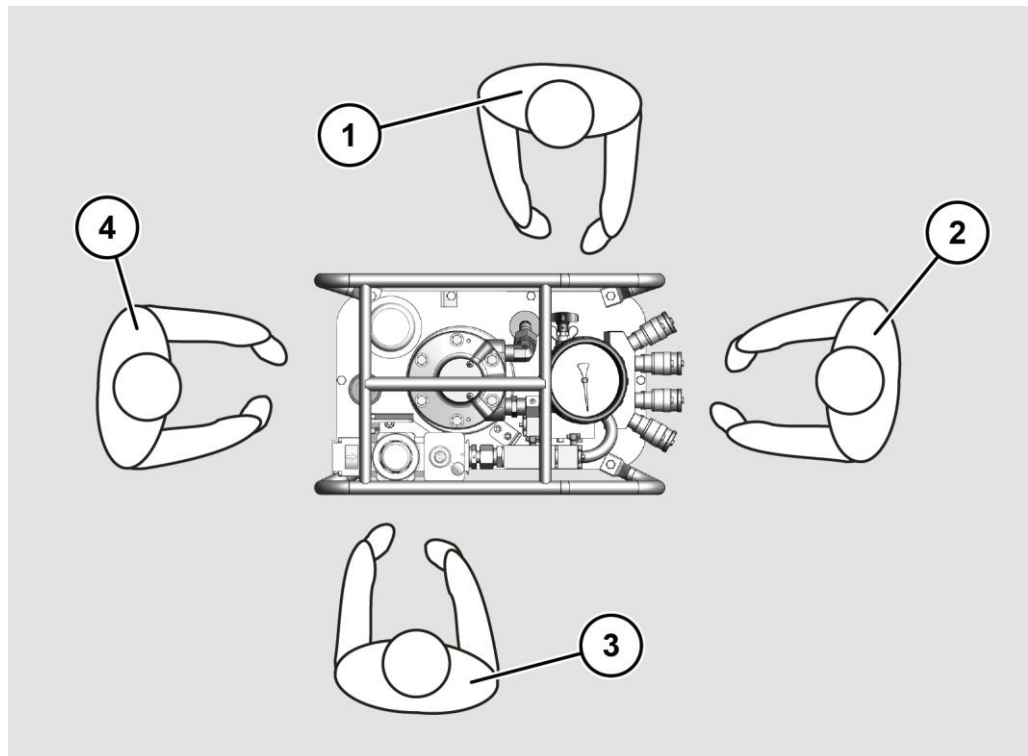
Available accessories

The unit may be used with a connected screwing tool in potentially explosive areas in accordance with its marking. The screwing tool and the hoses used must be approved for use in potentially explosive areas by the manufacturer.

Your local HYTORC branch will provide you with information on suitable screwing tools.

- ❗ The use of HYTORC standard screwing tools with the unit is permitted outside of the potentially explosive area.

Workspaces and positions



No.	Name
1	Read the pressure, set the pressure
2	Connect the tools, read the pressure, drain the oil
3	Operate the maintenance unit
4	Add oil, connect the compressed air supply

Purpose and function

The unit is used to drive hydraulic screwing tools.

One screwing tool can be connected to the version with one coupling pair.

Up to two screwing tools of the same type can be connected simultaneously to the version with two coupling pairs.

Up to four screwing tools of the same type can be connected simultaneously to the version with four coupling pairs. The top four couplings are designed as male connectors and are responsible for the connected screwing tools' forward stroke. The bottom four couplings are designed as female connectors and are responsible for the connected screwing tools' return stroke.

ⓘ The unit is not suitable for operation with screwing tools from other manufacturers.

The unit may be used with a connected tool in the potentially explosive area in accordance with its ATEX marking. Only tools approved by the manufacturer may be used.

The external compressed air supply (4 – 7 bar) is connected to the maintenance unit. It supplies the pneumatic motor pump unit with oiled compressed air.

The pneumatic motor pump unit generates hydraulic pressure. This can be adjusted with the torque valve. The maximum adjustable pressure is 700 bar and is limited by a pressure relief valve. A pressure gage is available for controlling the current pressure. The required torque is set on the screwing tool via the pressure. Refer to the screwing tool's operating instructions for information about the pressure required for a given torque.

A pneumatic control is available to carry out the unit's functions.

Units with the addition "SA" (semi-automatic) in the type designation are semi-automatic versions. The torque valve must be adjusted manually. The screwing process is carried out automatically by pressing the corresponding button on the remote control.

Whether the set torque for the screw connection is achieved is subject to various unpredictable influences (hardness of the screw connection, wear of the tool, contamination of the thread, type of grease used, etc.). It is the user's responsibility to check whether the set pressure/torque has been reached during the screwing process.

Unpacking and checking the delivery

Unpacking

The unit is supplied in a cardboard box. To unpack the unit, proceed as follows:

- ▶ Open the cardboard box.
- ▶ Remove the supplied documents.
- ▶ Remove the foam padding.

The unit is packaged in a plastic bag.

- ▶ Take the unit out of the box and place it on a flat, solid and stable base.
- ▶ Remove the plastic bag.
- ▶ Dispose of the packaging material according to the rules and regulations applicable on site.

Checking package and condition

- ▶ Check the delivery against the delivery note for accuracy and completeness.
- ▶ In case of deviations contact the manufacturer.
- ▶ Check the delivery for any damage.
- ▶ If you notice any damage, please indicate this on the delivery note.
- ▶ Have the damage confirmed by the signature of the supplier.
- ▶ Photograph the damage.
- ▶ Report the damage immediately to the manufacturer.

Storing the unit

- ▶ Store the unit in an upright position on its feet or locked rollers in a dry, dust-free room with a stable temperature.

The permissible temperature range is -30 °C to $+60\text{ °C}$ (-22 °F to $+140\text{ °F}$).

The air humidity must be non-condensing.

Moving the unit

The HY-Air and JetPro-S-Air units can be carried by hand. Proceed as follows:

- ▶ Carry the unit only on the carrying handle.
- ▶ Always place the unit on a flat, solid and stable base.
- ▶ Secure the unit and associated tools against falling.

The HY-Twin-Air unit is equipped with lockable rollers.

To move the unit on site, proceed as follows:

- ▶ Release the roller lock.
- ▶ Hold the unit with both hands at the protective bar.
- ▶ Push the unit to the desired position.
- ▶ Lock the rollers.



Commissioning the unit

When commissioning the unit, we distinguish between the initial commissioning and daily commissioning. Depending on the type of commissioning, you must perform different work tasks.

Initial commissioning

If you want to put the unit into operation for the first time after delivery, you must carry out the following work beforehand:

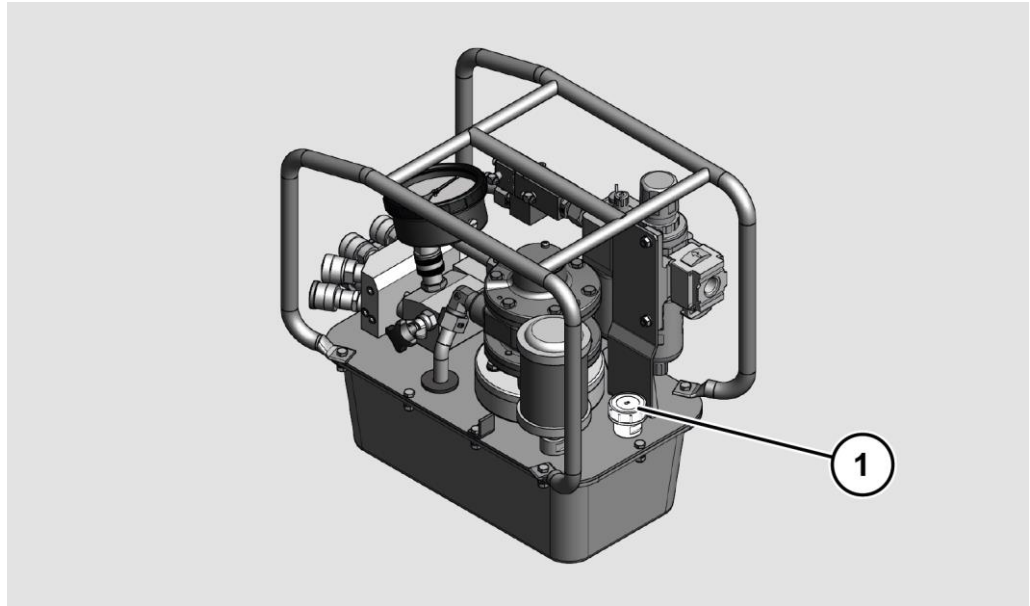
- Add hydraulic oil to the unit's oil container
- All daily commissioning work

⚠ CAUTION	
	<p>Health hazard from contact with hydraulic oil.</p> <ul style="list-style-type: none"> ▶ Wear nitrile gloves and chemical-resistant protective goggles during work that may include contact with hydraulic oil.
⚠ CAUTION	
	<p>Risk of slipping due to leaked oil.</p> <ul style="list-style-type: none"> ▶ Take up spilled oil with a suitable binder agent. ▶ Wear safety shoes with non-slip soles.
ATTENTION!	
	<p>The use of hydraulic oils that do not meet the manufacturer's recommendation may cause damage to the unit. Warranty claims can become invalid.</p> <ul style="list-style-type: none"> ▶ Only use hydraulic oil recommended by the manufacturer.

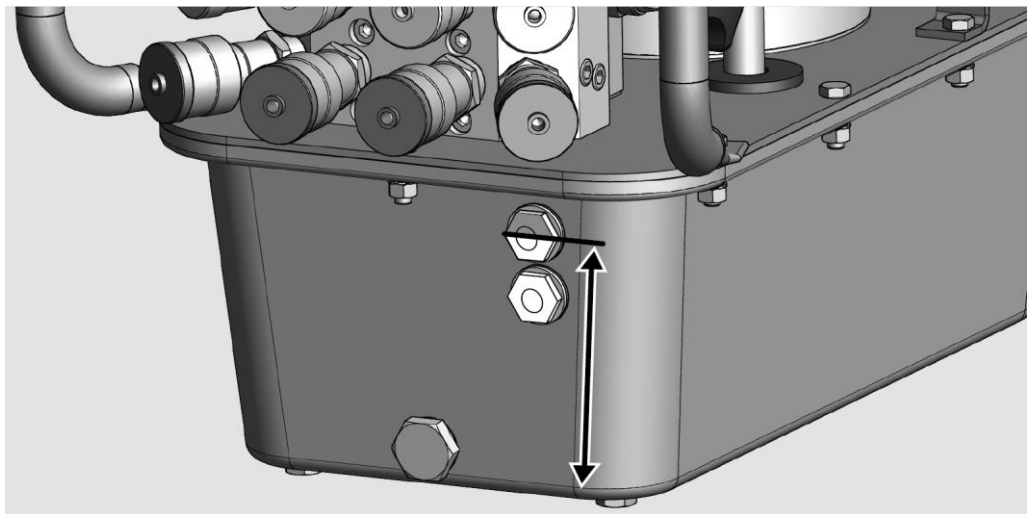
ⓘ The manufacturer-approved oils can be found starting on page 65.

To fill the hydraulic oil in the oil tank of the unit, proceed as follows:

- ▶ Make sure that the unit stands securely on a flat surface.
- ▶ Remove the bleed and ventilation valve (1) of the unit's filling opening.



- ▶ Slowly fill fresh hydraulic oil into the oil container until the oil fills the upper sight glass half up.



- ▶ Put the bleed and ventilation valve on the filler opening.
- ▶ Tighten the bleed and ventilation valve by hand.

The remaining work tasks are no different from those in the daily operation.





- ▶ Proceed as described in the following section.

Daily commissioning

You must carry out the following work if the unit is put into operation daily:

- Remove protective caps and plugs and connect tools
- Connect the compressed air supply
- Adjust the required pneumatic pressure on the maintenance unit
- Bleed the screw system consisting of the unit, hose and tool
- Check the oil level
- Check that the pressure gage is working
- Connect the unit properly to ground.

Tool connection

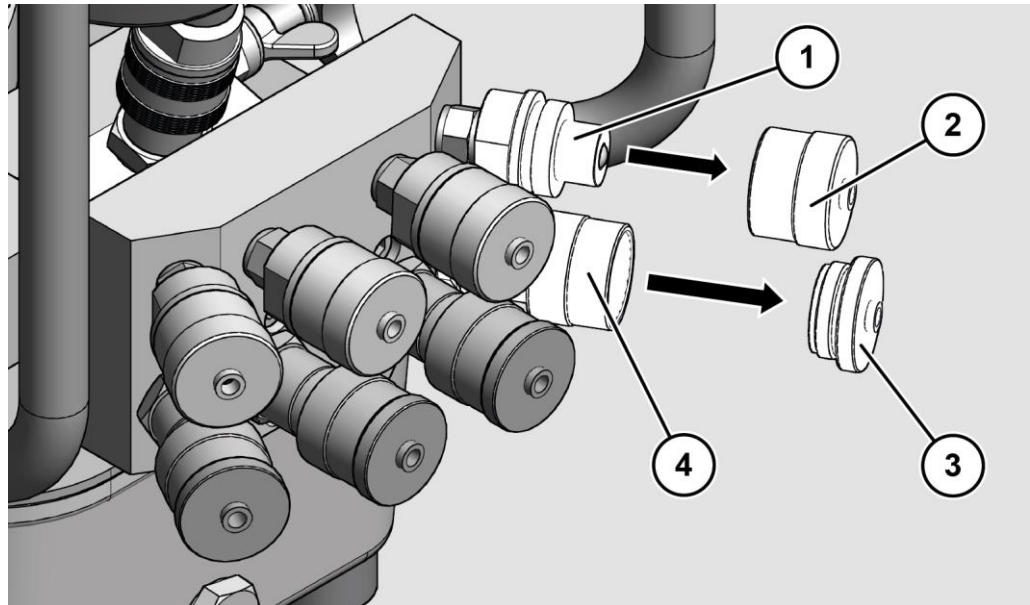
 DANGER	
	<p>Risk of explosion when connecting and removing tools. Connecting tools to or removing tools from the unit in the potentially explosive area can lead to serious injury or death.</p> <ul style="list-style-type: none"> ▶ Only connect tools to the unit outside of the potentially explosive area. ▶ Only remove tools from the unit outside of the potentially explosive area. ▶ Only use tools that are expressly approved by the manufacturer for operation with the unit in the potentially explosive area.
 WARNING	
	<p>Risk to life when using tools or hydraulic hoses that do not comply with the tool and hose specifications. Unsuitable tools or hydraulic hoses can fail.</p> <ul style="list-style-type: none"> ▶ Only use tools and hydraulic hoses which the manufacturer of the unit allows as an accessory. ▶ Observe and follow the operating instructions of the tools and the hose specification.
ATTENTION!	
	<p>Damage and contamination of unprotected couplings. The couplings can become leaky and hydraulic oil will escape.</p> <ul style="list-style-type: none"> ▶ Protect the couplings when not in use with the protective caps and plugs against damage and contamination.

Before you can connect a tool, you must remove the protective cap and the protective plug of two stacked couplings. Proceed as follows:

- ▶ Screw the safety cap (2) counterclockwise from the corresponding connection (1).
- ▶ Screw the protective plug (3) counterclockwise from the corresponding connection (4).

The cap and the protective plugs are permanently connected to the corresponding coupling.

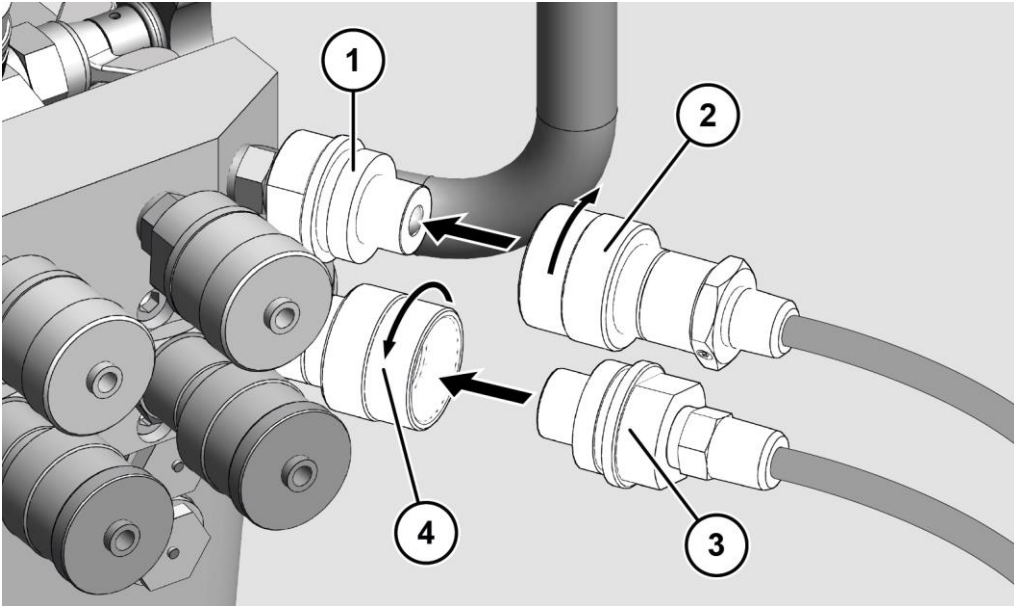
You can now connect a tool.



Commissioning the unit

To connect a tool to the unit, proceed as follows:

- ▶ Ensure that the hydraulic hoses are not damaged.
- ▶ Plug the male connector (3) on the hydraulic hose of the tool on the female connection (4) of the unit.
- ▶ Screw the connection with the union nut hand-tight.
- ▶ Plug the female connection (2) on the hydraulic hose of the tool on the male connection (1) of the unit.
- ▶ Screw the connection with the union nut hand-tight.



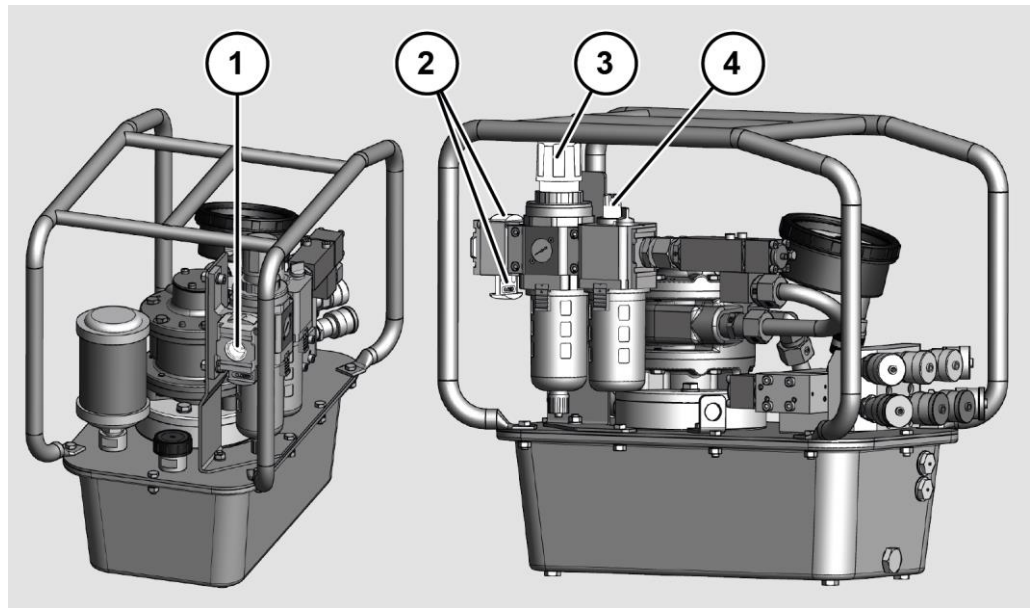
Connecting the Compressed Air Supply

Proceed as follows to connect the compressed air supply:

- ▶ Ensure that the compressed air quality complies with ISO 8573-1:2010 [7:4:-].

The connection (1) is a G1/2" female thread and is to be provided with a coupling by the customer.

- ▶ Plug the external compressed air supply's plug-in coupling into the corresponding connection (1).
- ▶ Open the valve (2) on the maintenance unit.
- ▶ Set the required pneumatic pressure (4–7 bar) with the valve (3).
- ▶ Set a drop speed of 4–6 drops per minute at the oiler's adjusting screw (4).



Bleeding the screw system (generator, hose, tools)



When connecting the tools, air can pass into the hydraulic circuit. To ensure a smooth and safe operation, you need to vent the screw system. Proceed as follows:

- ▶ Switch on the pump by moving the toggle switch (1) upwards.
- ▶ Press and release the button (2) on the remote control several times.

The connected screwing tool moves back and forth.

If the connected screwing tool moves back and forth without interruption, the screwing system is vented.

Check oil level

⚠ CAUTION	
	<p>Health hazard from contact with hydraulic oil.</p> <ul style="list-style-type: none"> ▶ Wear nitrile gloves and chemical-resistant protective goggles during work that may include contact with hydraulic oil.
⚠ CAUTION	
	<p>Risk of slipping due to leaked oil.</p> <ul style="list-style-type: none"> ▶ Take up spilled oil with a suitable binder agent. ▶ Wear safety shoes with non-slip soles.
ATTENTION!	
	<p>The use of hydraulic oils that do not meet the manufacturer's recommendation may cause damage to the unit. Warranty claims can become invalid.</p> <ul style="list-style-type: none"> ▶ Only use hydraulic oil recommended by the manufacturer.

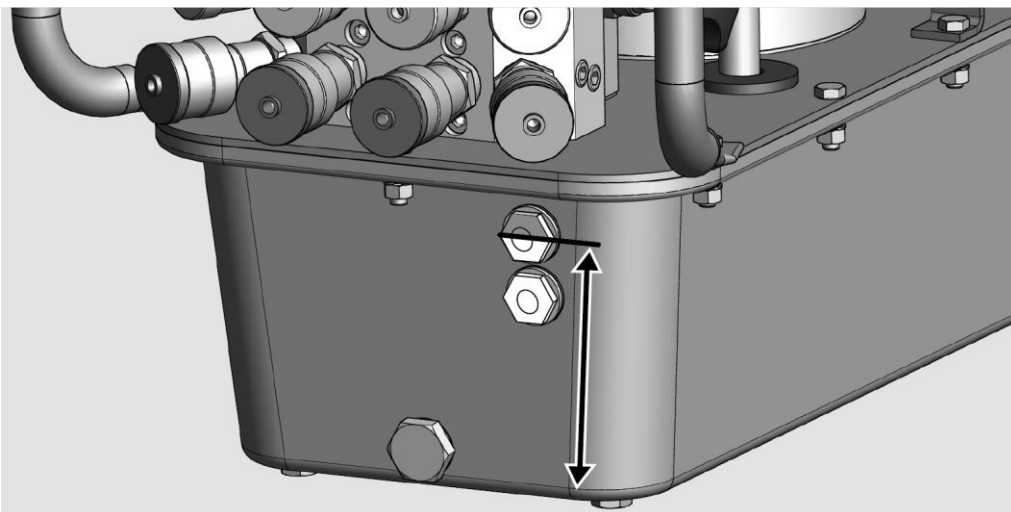
① The manufacturer-approved oils can be found starting on page 65.

To check the oil level, proceed as follows:

- ▶ Make sure that the unit stands securely on a flat surface.
- ▶ Check if the hydraulic oil is visible in the upper sight glass.
- ▶ Ensure that the hydraulic oil is clear and not white in color.

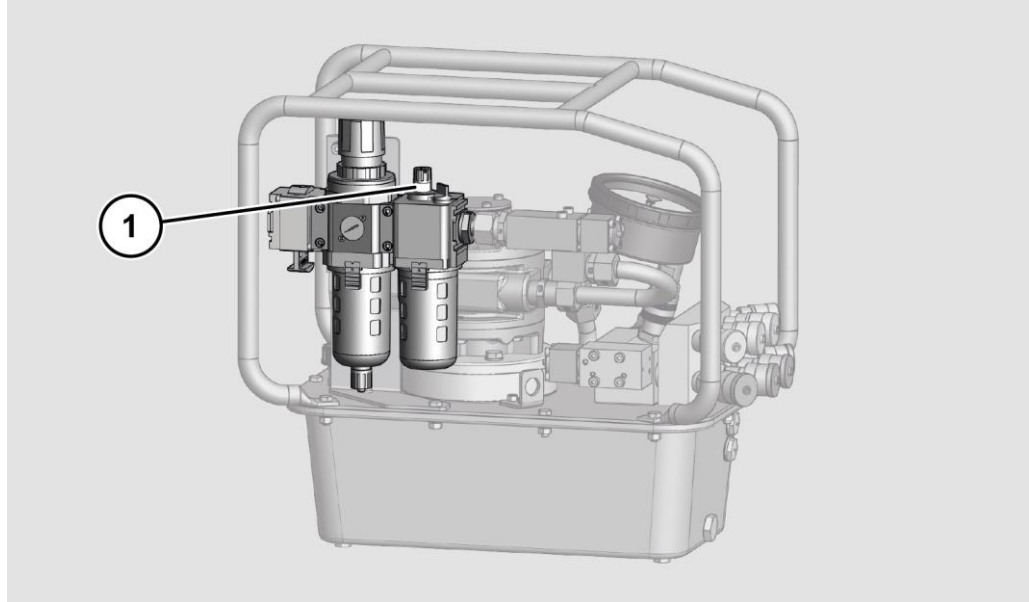
If the hydraulic oil is colored white, water has entered into the hydraulic oil.

- ▶ In this case, you need to change the hydraulic oil.
- ▶ When the hydraulic oil is not visible in the upper sight glass, top up fresh hydraulic oil recommended by the manufacturer, as described on page 36.



Proceed as follows to check the oil level in the maintenance unit's oiler:

- ▶ Ensure that the oil level is between the minimum and maximum marks (1) on the oiler.
- ▶ See page 57 to top up the oiler.



Checking functioning of the manometer

To check the function of the pressure gage, proceed as follows:

- ▶ Press alternately the button start on the remote control and let the button start go again.

The pressure gage needle must move.

- ▶ If the gage needle does not move, stop using the unit.
- ▶ Replace a defective pressure gage for a faultless one of the same type.

Performing a test run

After commissioning, you must perform a test run to make sure that no oil leaks occur and all components are working properly. Proceed as follows:





- ▶ Set the pressure to max. 700 bar (10,000 psi) see page 48.
- ▶ Move the connected tool forward and back a few times.
- ▶ Check the unit and connected tools for proper function.
- ▶ Check the unit and connected tools for visible leaks.
- ▶ Use only a unit that is working properly and has no leakage.
- ▶ Use only tools according to manufacturer recommendation, which function properly and have no leakage.

Operating the unit

To operate the unit, proceed as follows:

- ▶ Make sure that the unit stands on a dry, level, solid and stable base.
- ▶ Turn the torque valve counterclockwise and set the pressure to 0 bar.

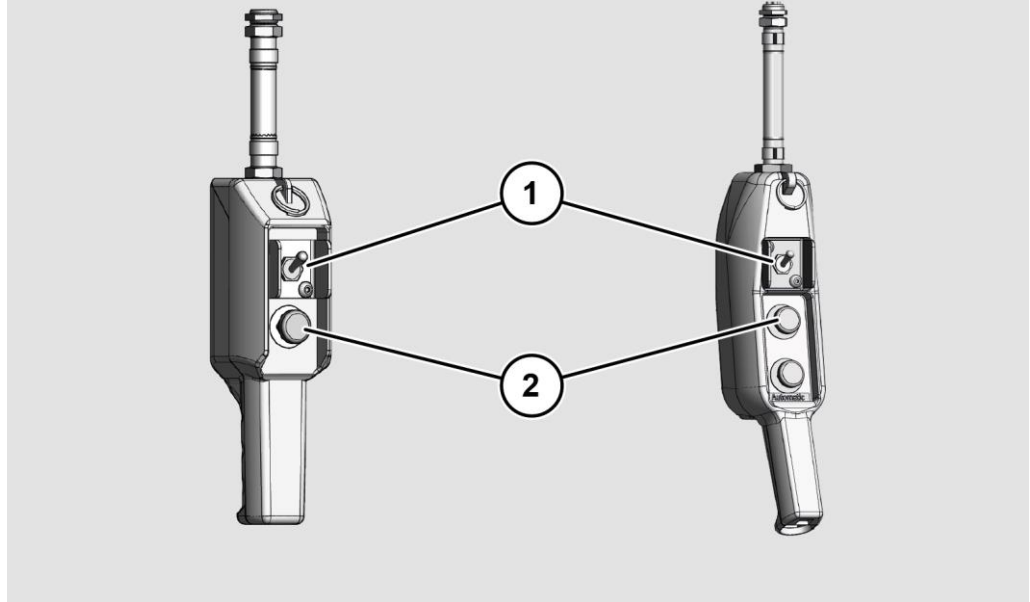
Changing tools

 DANGER	
	<p>Risk of explosion when connecting and removing tools. Connecting tools to or removing tools from the unit in the potentially explosive area can lead to serious injury or death.</p> <ul style="list-style-type: none">▶ Only connect tools to the unit outside of the potentially explosive area.▶ Only remove tools from the unit outside of the potentially explosive area.▶ Only use tools that are expressly approved by the manufacturer for operation with the unit in the potentially explosive area.
 WARNING	
	<p>Risk of severe or fatal injuries due to high-pressure hydraulic oil spouting.</p> <ul style="list-style-type: none">▶ Always switch off the unit with the toggle switch on the remote control.▶ Ensure that the unit is depressurized.

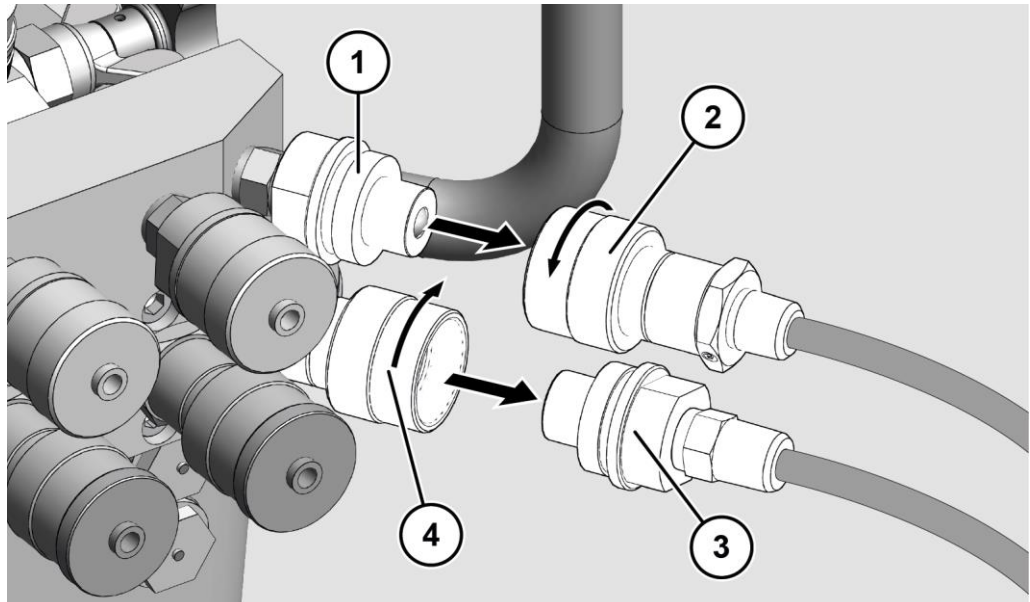
- ▶ Press the toggle switch (1) on the remote control downward.
- ▶ Press the button (2) several times if necessary.

The pressure is decreased.

- ▶ Wait until the pressure is no longer shown on the pressure gage.



- ▶ Loosen the union nut (2).
- ▶ Pull the female connector (2) from the male connector (1) of the unit.
- ▶ Loosen the union nut at the female connector (4).
- ▶ Pull the male connector (3) from the female connector (4) of the unit.



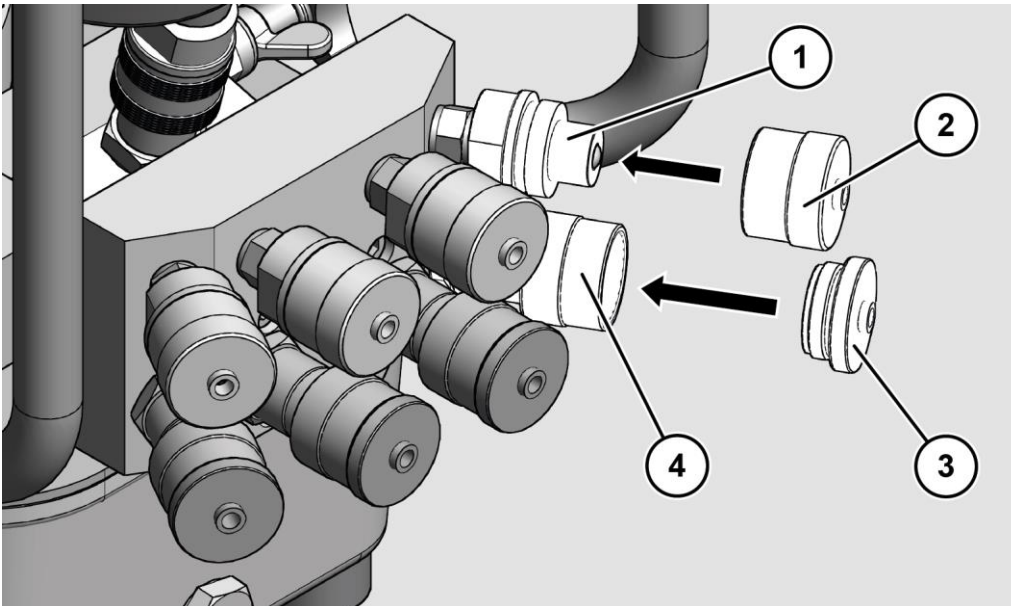
If you want to install the new tool at the same couplings, proceed as follows:

- ▶ Plug the male connector on the hydraulic hose of the tool on the female connection of the unit.
- ▶ Screw the connection with the union nut hand-tight.
- ▶ Plug the female connection on the hydraulic hose of the tool on the male connection of the unit.
- ▶ Screw the connection with the union nut hand-tight.

If you want to install the new tool at another coupling, proceed as follows:

If you have pulled a tool from the connection, you have to close the connection with a cap and protection plug to prevent damage. Proceed as follows:

- ▶ Screw the safety cap (2) clockwise on the corresponding connection (1).
- ▶ Screw the safety plug (3) clockwise on the corresponding connection (4).

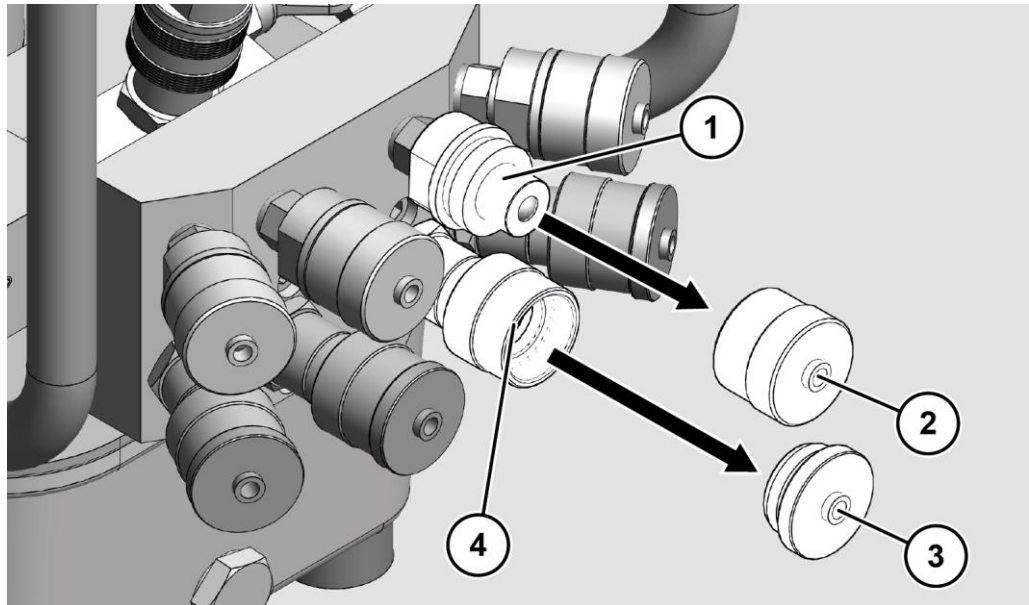


Before you can connect a tool, you must remove the protective cap and the protective plug of two stacked couplings. Proceed as follows:

- ▶ Screw the safety cap (2) counterclockwise from the corresponding connection (1).
- ▶ Screw the protective plug (3) counterclockwise from the corresponding connection (4).

The cap and the protective plugs are permanently connected to the corresponding coupling.

You can now connect a tool.



- ▶ Plug the female connection on the hydraulic hose of the tool on the male connection of the unit.
- ▶ Screw the connection with the union nut hand-tight.
- ▶ Plug the male connector on the hydraulic hose of the tool on the female connection of the unit.
- ▶ Screw the connection with the union nut hand-tight.

Setting the pressure

⚠ WARNING



Risk to life from incorrect procedure when setting the pressure on the unit.
 Faulty adjustment of the pressure causes an incorrect adjustment of the torque for the screwing process.
 ▶ Always set the pressure from a low value to a high value.

⚠ CAUTION



Risk of eye damage during pressure of more than 700 bar (10,000 psi)
 Pressure exceeding 700 bar (10,000 psi) can lead to bursting hydraulic hoses and hydraulic oil can squirt out.
 ▶ Ensure that the permissible pressures are not exceeded.
 ▶ Wear chemical-resistant goggles.

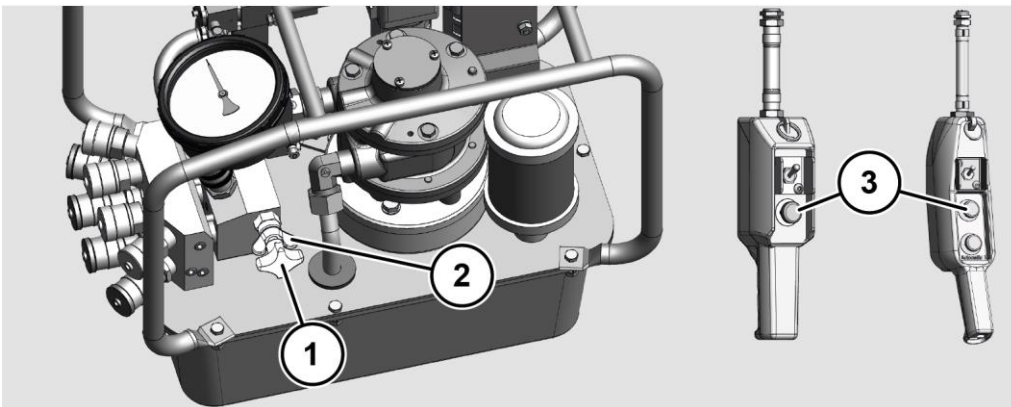
ⓘ The pressure to be set for the desired torque can be found in the operating instructions of the screwing tool.

Proceed as follows to adjust the required pressure:

- ▶ Ensure that the unit is fully connected, the correct compressed air supply is available and the unit is switched on.
- ▶ Place the connected screwing tool safely on the ground.
- ▶ Loosen the wing nut (2).
- ▶ Turn the torque valve (1) in a counter-clockwise direction as far as the stop.
- ▶ Press and hold the button (3) on the remote control.

Hydraulic pressure is built up in the unit.

- ▶ Turn the torque valve in a clockwise direction at the same time.



The current pressure is visible on the pressure gage.

- ▶ Release the button (3) if the pressure exceeds the required value.
- ▶ Turn the torque valve (1) slightly in a counter-clockwise direction.
- ▶ Press the button again to display the currently set pressure.
- ▶ If the pressure is still higher than the required value, repeat the previous steps.

- ▶ Press and hold the button.
- ▶ Turn the torque valve in a clockwise direction until the desired pressure is displayed on the pressure gage.
- ▶ Tighten the wing nut (2) so that the set pressure cannot be changed inadvertently.

The required pressure is set.

- ▶ Release the button.

The unit can be used with the connected screwing tool to perform screwing processes.

Performing a screwing process

Proceed as follows to perform a screwing process:

- ▶ Ensure that the screwing tool is connected.
- ▶ Ensure that the pressure required for the screw connection is set on the unit.
- ▶ Place the screwing tool onto the screw connection so that the tool cannot fall off.
- ▶ Press and hold the button on the remote control.

The screwing tool tightens the screw connection.

- ▶ Release the button when the screwing tool no longer moves.

The cylinder in the screwing tool moves back into its starting position.

- ▶ Repeat the actions above until the screwing tool does not tighten the screw connection any further.

i Proceed as follows if your unit supports the semi-automatic screw function:

- ▶ Ensure that the screwing tool is connected.
- ▶ Ensure that the pressure required for the screw connection is set on the unit.
- ▶ Place the screwing tool onto the screw connection so that the tool cannot fall off.
- ▶ Press and hold the button on the remote control.

The screwing tool tightens the screw connection, moves back into its starting position and repeats the process until the screw connection is completely tightened.

- ▶ Release the button.

After use

⚠ WARNING



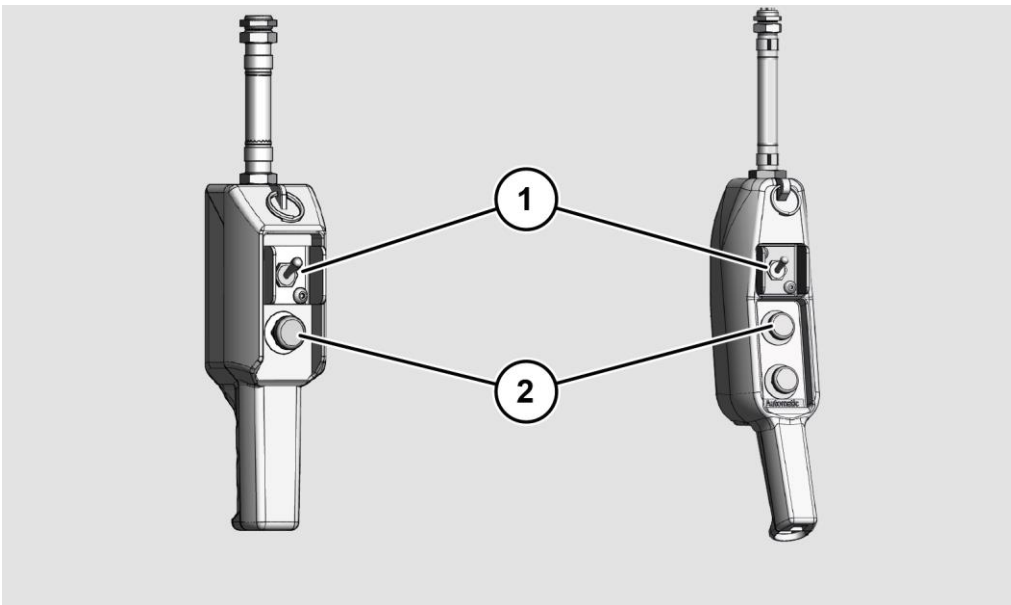
Risk of severe or fatal injuries due to high-pressure hydraulic oil spouting.

- ▶ Always switch off the unit with the toggle switch on the remote control.
- ▶ Ensure that the unit is depressurized.

- ▶ Press the toggle switch (1) on the remote control downward.
- ▶ Press the button (2) several times if necessary.

The pressure is decreased.

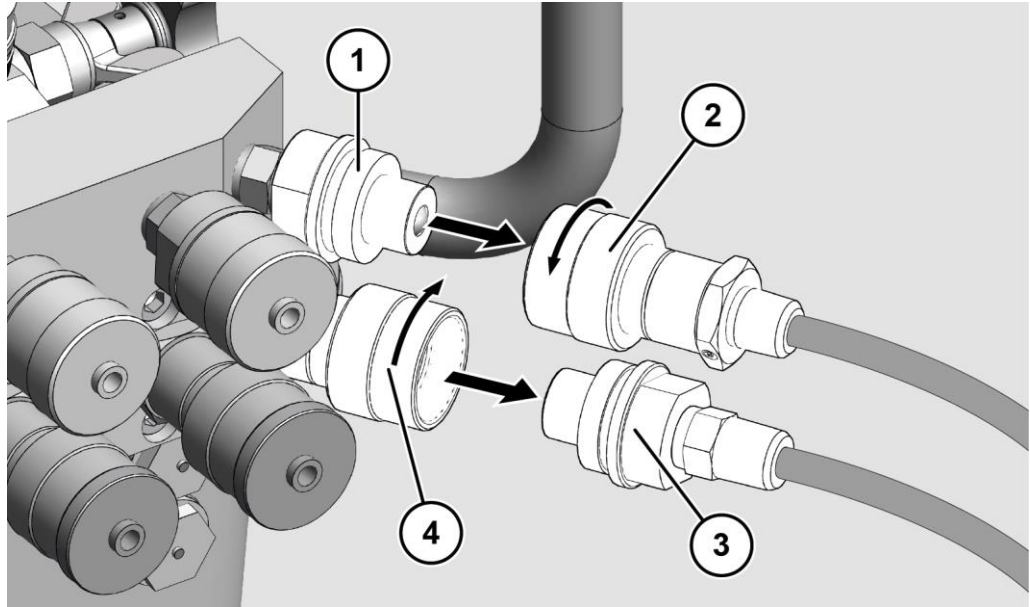
- ▶ Wait until the pressure is no longer shown on the pressure gage.



- ▶ Connect the compressed air supply's valve to the maintenance unit.
- ▶ Remove the external compressed air supply's plug-in coupling from the maintenance unit's connection (coupling not part of the scope of delivery).

To remove the connected screwing tools, proceed as follows:

- ▶ Loosen the union nut (2).
- ▶ Pull the female connector (2) from the male connector (1) of the unit.
- ▶ Loosen the union nut at the female connector (4).
- ▶ Pull the male connector (3) from the female connector (4) of the unit.



- ▶ Screw the protective caps and plugs on the couplings.
- ▶ You can now store or transport the unit.

Decommissioning the unit

Proceed as follows to take the unit out of operation for more than three months:

- ▶ Switch off the unit with the toggle switch on the remote control.
- ▶ Connect the compressed air supply's valve to the maintenance unit.
- ▶ Remove the external compressed air supply's plug-in coupling from the maintenance unit's connection.
- ▶ Remove connected screwing tools; see page 50 onwards.
- ▶ Empty the oil container.

Emptying is described in the section entitled "Changing the hydraulic oil" starting from page 54.

- ▶ Dispose of the hydraulic oil according to the rules and regulations applicable at the installation site.
- ▶ Store the unit as described starting on page 34.

Servicing the unit

Maintenance schedule

Interval	Component	Action
Prior to every operation	Pneumatic hoses	<ul style="list-style-type: none"> ▶ Check the pneumatic hoses for visible damage, twists and kinks. ▶ Eliminate twists. ▶ Have defective or kinked pneumatic hoses replaced by qualified personnel.
	Hydraulic hoses	<ul style="list-style-type: none"> ▶ Check the hydraulic hoses for visible damage, twists and kinks. ▶ Eliminate twists. ▶ Have defective or kinked hydraulic hoses replaced by qualified personnel.
	Pressure gage	<ul style="list-style-type: none"> ▶ Check whether the pressure gage display responds after the unit has been switched on. ▶ Replace a defective pressure gage with a faultless one of the same type.
Before each coupling	Couplings	<ul style="list-style-type: none"> ▶ Clean the couplings with a dry cloth.
As required	Unit	<ul style="list-style-type: none"> ▶ Clean the unit with a dry cloth.
	Oiler on the maintenance unit	<ul style="list-style-type: none"> ▶ Fill the oiler with oil; see page 57.
Every 500 hours of operation	Oil container	<ul style="list-style-type: none"> ▶ Change the hydraulic oil; see page 54.

Changing the hydraulic oil

⚠ WARNING



Slipping hazard from leaked oil.
Bruising and bone fractures possible.

- ▶ Clean up any leaked oil with a cloth or suitable binding agents.
- ▶ Wear safety shoes with non-slip soles.

⚠ CAUTION



Health hazard from contact with hydraulic oil.

- ▶ Wear nitrile gloves and chemical-resistant protective goggles during work that may include contact with hydraulic oil.

ATTENTION!

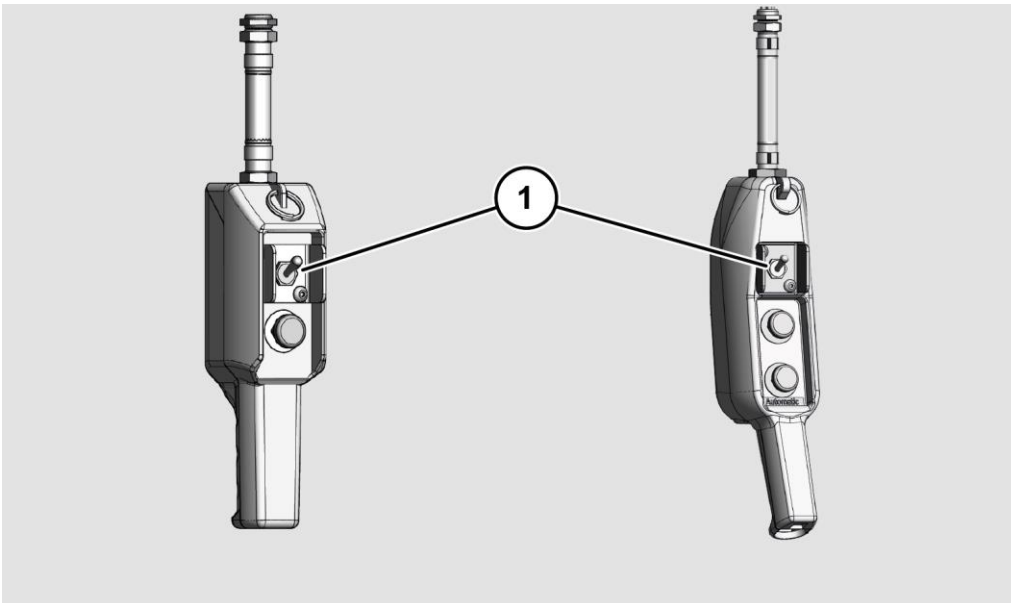
The use of hydraulic oils that do not meet the manufacturer's recommendation may cause damage to the unit.
Warranty claims can become invalid.

- ▶ Only use hydraulic oil recommended by the manufacturer.

① The manufacturer-approved oils can be found starting on page 65.

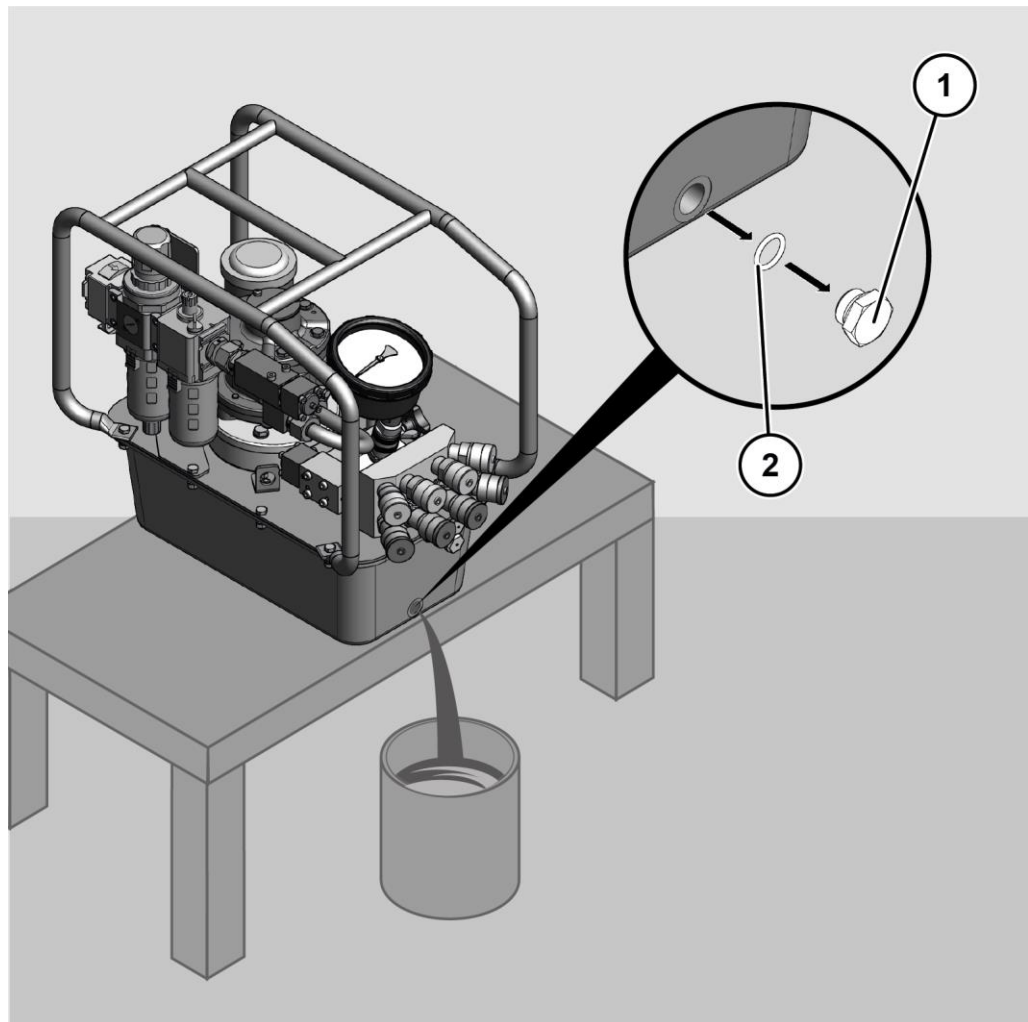
Proceed as follows to change the hydraulic oil:

- ▶ Switch off the unit with the toggle switch (1) on the remote control.



- ▶ Connect the compressed air supply's valve to the maintenance unit.
- ▶ Remove the external compressed air supply's plug-in coupling from the maintenance unit's connection (coupling not part of the scope of delivery).
- ▶ Remove connected screwing tools from the couplings; see page 50.
- ▶ Place the unit on a solid flat surface so that you can put a container beneath the oil drain plug.
- ▶ Arrange the unit so that it is tilted slightly forward.
- ▶ Leave the unit (including the hydraulic oil) to cool down to a lukewarm temperature.
- ▶ Under the oil drain plug, place a container that can hold the amount of oil contained in the unit of up to 8 l (2.1 US.liq.gal).
- ▶ Remove the oil drain plug (1) and the seal (2).

The hydraulic oil flows into the vessel.



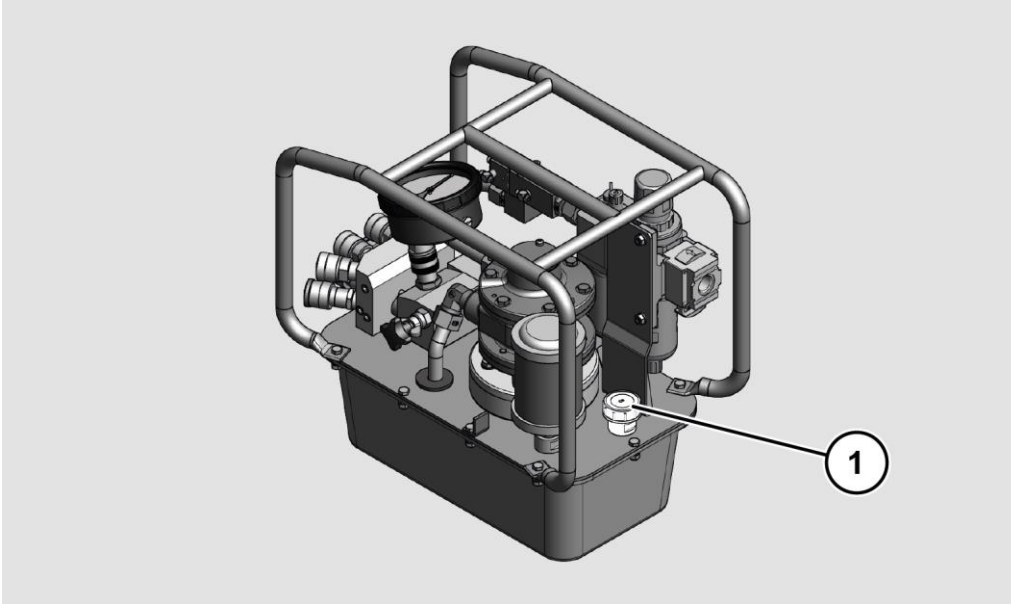
- ▶ Check the seal of the oil drain plug for damage.
- ▶ Replace a damaged seal.
- ▶ Wait until the hydraulic oil has completely drained out of the oil reservoir.

Servicing the unit

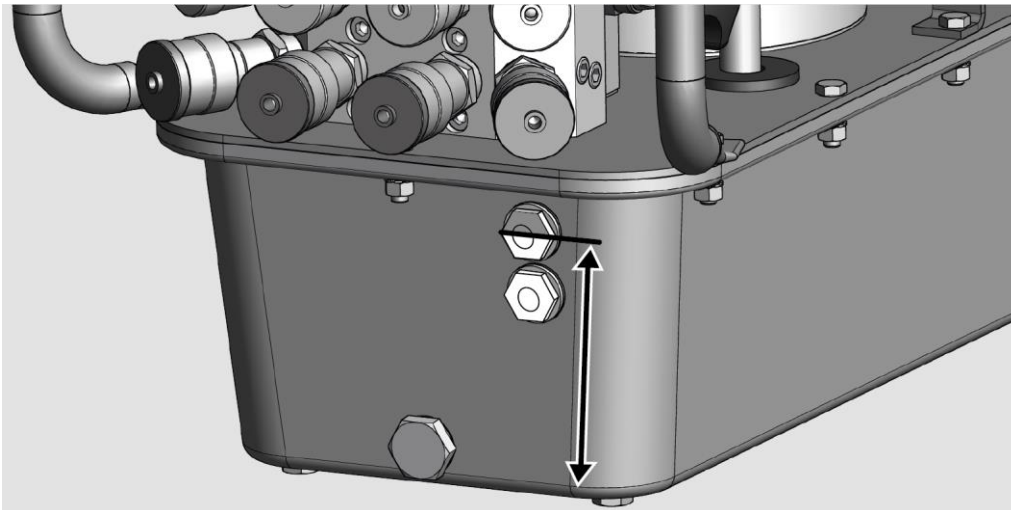
- ▶ Then insert the seal into the oil drain.
- ▶ Close the oil drain with the oil drain plug.
- ▶ Tighten the oil drain plug with a torque of 20 N m.

To fill the hydraulic oil in the oil tank of the unit, proceed as follows:

- ▶ Make sure that the unit stands securely on a flat surface.
- ▶ Remove the bleed and ventilation valve (1) of the unit's filling opening.



- ▶ Slowly fill fresh hydraulic oil into the oil container until the oil fills the upper sight glass half up.

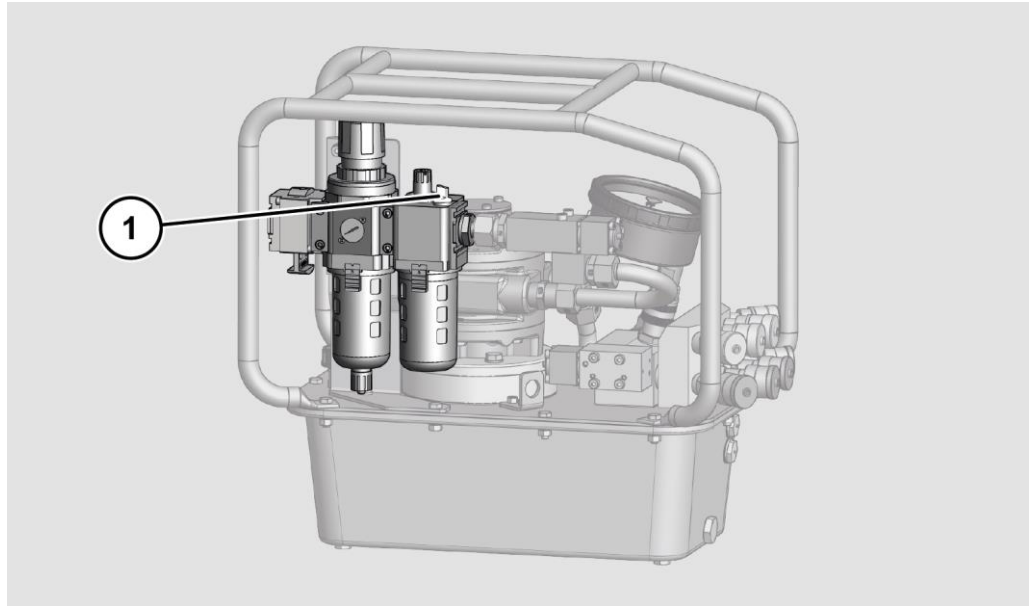


- ▶ Put the bleed and ventilation valve on the filler opening.
- ▶ Tighten the bleed and ventilation valve by hand.
- ▶ Dispose of the drained hydraulic oil according to the environmental regulations applicable on site.

Filling the Maintenance Unit's Oiler

Proceed as follows to fill the maintenance unit's oiler:



- ▶ Open the filler opening (1) on the maintenance unit's oiler.



The maximum fill level is 85 ml.

- ▶ Add an SAE 10 engine oil up to the maximum mark.
- ▶ Close the filler opening again.

Cleaning the unit

⚠ WARNING	
	<p>Slipping hazard from leaked oil. Bruising and bone fractures possible.</p> <ul style="list-style-type: none"> ▶ Clean up any leaked oil with a cloth or suitable binding agents. ▶ Wear safety shoes with non-slip soles.
⚠ CAUTION	
	<p>Health hazard from contact with hydraulic oil.</p> <ul style="list-style-type: none"> ▶ Wear nitrile gloves and chemical-resistant protective goggles during work that may include contact with hydraulic oil.
ATTENTION!	
	<p>Damage or malfunctions caused by water or steam in the unit is possible.</p> <ul style="list-style-type: none"> ▶ Never clean the unit with a pressure washer, cold cleaner or water.

- ▶ Clean the unit with a clean and absorbent cloth.
- ▶ Dispose of the cloth in an environmentally friendly manner.

Remedying faults or malfunctions

Table of faults

Fault	Possible cause	Remedy
The pump is not working.	The compressed air supply is interrupted.	▶ Have the compressed air supply checked and, if necessary, replaced by qualified personnel.
	The remote control is defective.	▶ Have the remote control checked and, if necessary, replaced by qualified personnel.

Fault	Possible cause	Remedy
The pressure is less than 70 bar.	The pneumatic poppet valve is defective.	<ul style="list-style-type: none"> ▶ Have the pneumatic poppet valve checked pneumatically by qualified personnel. ▶ Have a defective pneumatic poppet valve replaced by qualified personnel.
	The torque valve is defective.	<ul style="list-style-type: none"> ▶ Have the torque valve checked hydraulically by qualified personnel. ▶ Have a defective torque valve replaced by qualified personnel.
	Leak at the pump flange.	<ul style="list-style-type: none"> ▶ Have the pump flange checked by qualified personnel. ▶ Have a defective pump flange repaired by the manufacturer.
	The screen filter is clogged.	<ul style="list-style-type: none"> ▶ Have the screen filter checked by qualified personnel. ▶ Have a clogged screen filter cleaned by qualified personnel.
	The maximum pressure valve is leaking.	<ul style="list-style-type: none"> ▶ Have the maximum pressure valve checked by qualified personnel. ▶ Have a defective maximum pressure valve replaced by qualified personnel.
	The piping is leaking.	<ul style="list-style-type: none"> ▶ Have the piping checked by qualified personnel. ▶ Have leaky pipes replaced by qualified personnel. ▶ Have leaky pipe joints sealed by qualified personnel.
The pressure is only 70 bar.	The low pressure switch-off valve is defective.	<ul style="list-style-type: none"> ▶ Have the low pressure switch-off valve checked by qualified personnel. ▶ Have a defective low pressure switch-off valve replaced by qualified personnel.
	The piping is leaking.	<ul style="list-style-type: none"> ▶ Have the piping checked by qualified personnel. ▶ Have leaky pipes replaced by qualified personnel. ▶ Have leaky pipe joints sealed by qualified personnel.



Fault	Possible cause	Remedy
The pressure is only 70 – 80 bar.	The pneumatic poppet valve is defective.	<ul style="list-style-type: none"> ▶ Have the pneumatic poppet valve checked pneumatically by qualified personnel. ▶ Have a defective pneumatic poppet valve replaced by qualified personnel.
	The return pressure valve is leaking.	<ul style="list-style-type: none"> ▶ Have the return pressure valve checked by qualified personnel. ▶ Have a defective return pressure valve replaced by qualified personnel.
	The piping is leaking.	<ul style="list-style-type: none"> ▶ Have the piping checked by qualified personnel. ▶ Have leaky pipes replaced by qualified personnel. ▶ Have leaky pipe joints sealed by qualified personnel.
The max. pressure of 700 bar is not reached, even though there are no visible leaks.	The torque valve is defective.	<ul style="list-style-type: none"> ▶ Have the torque valve checked by qualified personnel to ensure that it is in perfect condition. ▶ Have a defective torque valve replaced by qualified personnel.
	One or more pump elements are defective.	<ul style="list-style-type: none"> ▶ Have the pump elements checked by qualified personnel. ▶ Have defective pump elements replaced by qualified personnel.
	The piping is leaking.	<ul style="list-style-type: none"> ▶ Have the piping checked by qualified personnel. ▶ Have leaky pipes replaced by qualified personnel. ▶ Have leaky pipe joints sealed by qualified personnel.
The display on the pressure gage fluctuates a great deal at about 700 bar.	The non-return valve is defective.	<ul style="list-style-type: none"> ▶ Have a defective non-return valve replaced by the manufacturer.

Fault	Possible cause	Remedy
Oil mist and oil vapor are forming	The unit has overheated.	<ul style="list-style-type: none"> ▶ Wear a breathing apparatus if there is insufficient ventilation. ▶ Wear chemical-resistant safety goggles. ▶ Ensure that there is sufficient ventilation. ▶ Switch the unit off. ▶ Have the unit checked by qualified personnel.
	The piping is leaking.	<ul style="list-style-type: none"> ▶ Have the piping checked by qualified personnel. ▶ Have leaky pipes replaced by qualified personnel. ▶ Have leaky pipe joints sealed by qualified personnel.

Disposal

In the USA


Observe and follow the regulations for disposal. If in doubt, please consult your municipal or local authority.

⚠ WARNING	
	<p>Risk of poisoning from hydraulic oil Hydraulic oil can contaminate ground water and soil.</p> <p>▶ Always dispose of hydraulic oil in an environmentally friendly manner using a specialist firm.</p>
⚠ CAUTION	
	<p>Health hazard from contact with hydraulic oil.</p> <p>▶ Wear nitrile gloves and chemical-resistant protective goggles during work that may include contact with hydraulic oil.</p>

- ▶ Dispose of hydraulic oil in an environmentally friendly manner using a specialist firm.

Replaced wear parts and defective components consist of e. g. the following materials:



- steel
- rubber
- plastic
- copper

⚠ WARNING	
	<p>Risk of poisoning from hydraulic oil Hydraulic oil can contaminate ground water and soil.</p> <p>▶ Use a cloth to remove hydraulic oil from parts to be disposed of.</p> <p>▶ Dispose of the cloth in an environmentally friendly manner after use.</p>

- ▶ Remove any residue of hydraulic oil from the replaced wear parts or defective components with a cloth.
- ▶ Dispose of the cloth in an environmentally friendly manner.
- ▶ Dispose of the unit in an environmentally friendly manner through the manufacturer.

In Europe


Observe and follow the regulations for disposal. If in doubt, please consult your municipal or local authority.

⚠ WARNING	
	<p>Risk of poisoning from hydraulic oil Hydraulic oil can contaminate ground water and soil.</p> <p>▶ Always dispose of hydraulic oil in an environmentally friendly manner using a specialist firm.</p>
⚠ CAUTION	
	<p>Health hazard from contact with hydraulic oil.</p> <p>▶ Wear nitrile gloves and chemical-resistant protective goggles during work that may include contact with hydraulic oil.</p>

- ▶ Dispose of hydraulic oil in an environmentally friendly manner using a specialist firm.

Replaced wear parts and defective components consist of e. g. the following materials:

- steel
- rubber
- plastic
- copper

⚠ WARNING	
	<p>Risk of poisoning from hydraulic oil Hydraulic oil can contaminate groundwater and soil.</p> <p>▶ Remove hydraulic oil from the parts to be disposed using a cloth.</p> <p>▶ Dispose of the cloth in an environmentally friendly manner after use.</p>

- ▶ With a cloth, remove traces of hydraulic oil from the unit, exchanged wearing parts or defective components.
- ▶ Dispose of the unit, replaced worn parts or defective components in accordance with environmental regulations.
- ▶ Dispose of the cloth in accordance with environmental regulations.



Technical specifications

The maximum surface temperature on the unit is 135 °C.

Information about the hydraulics	
Oil recommendation ¹ :	Hyspin HVI 32, alternatively bio-hydraulic oil based on mineral oil, e. g., Shell Naturella HFE
Recommended viscosity grades:	Starting at +10 °C (50 °F) 32-46 mm ² /s, below +10 °C (50 °F) 15-22 mm ² /s
Oils of the maintenance unit	Engine oil SAE 10
Working pressure:	max. 700 bar (10,000 psi)

- 1 Operate the unit exclusively with clean hydraulic oil based on mineral oil. Alternatively, you can operate the unit with bio-oil based on mineral oil, such as Shell Naturella HFE. In order to use the bio-oil, all the equipment of the unit must have been previously flushed with bio-oil.

HY-Air

① Applicable for HY-Air, HY-Air-2, HY-Air-SA, HY-Air-2-SA

Dimensions and weights (four tool connections)	
Width:	
Tank volume 5 l (1.35 gal):	470 mm (18.6 in)
Tank volume 8 l (2.1 gal):	475 mm (18.7 in)
Height:	
Tank volume 5 l (1.35 gal):	390 mm (15.4 in)
Tank volume 8 l (2.1 gal):	440 mm (17.3 in)
Depth:	
Tank volume 5 l (1.35 gal):	260 mm (10.3 in)
Tank volume 8 l (2.1 gal):	300 mm (11.8 in)
Weight:	
Tank volume 5 l (1.35 gal):	approx. 21.0 kg (46.3 lbs) (not including oil)
Tank volume 8 l (2.1 gal):	approx. 23.0 kg (50.7 lbs) (not including oil)

Required oil volume	
Tank volume 5 l (1.35 gal):	approx. 2,700 ml (91 fl oz)
Tank volume 8 l (2.1 gal):	approx. 5,500 ml (186 fl oz)

Pneumatic system	
Working pressure:	4–7 bar (60–100 psi)
Compressed air consumption:	up to 60 l/s (3800 cuin/s)

JetPro-S-Air

Dimensions and weights (one tool connection)	
Width:	400 mm (15.8 in)
Height:	390 mm (15.4 in)
Depth:	250 mm (9.8 in)
Weight:	approx. 16.0 kg (35.0 lbs) (not including oil fill)

Required oil volume	
Tank volume 3 l (0.8 gal):	approx. 1,400 ml (47 fl oz)

Pneumatic system	
Working pressure:	4–7 bar (60–100 psi)
Compressed air consumption:	up to 30 l/s (1900 cuin/s)

HY-Twin-Air

Dimensions and weights (four tool connections)	
Width:	470 mm (18.5 in)
Height:	580 mm (22.9 in)
Depth:	460 mm (18.2 in)
Weight:	approx. 44.0 kg (98.0 lbs) (not including oil fill)

Required oil volume	
Tank volume 20 l (5.2 gal):	approx. 14,500 ml (490 fl oz)

Pneumatic system	
Working pressure:	4–7 bar (60–100 psi)
Compressed air consumption:	up to 120 l/s (7200 cuin/s)