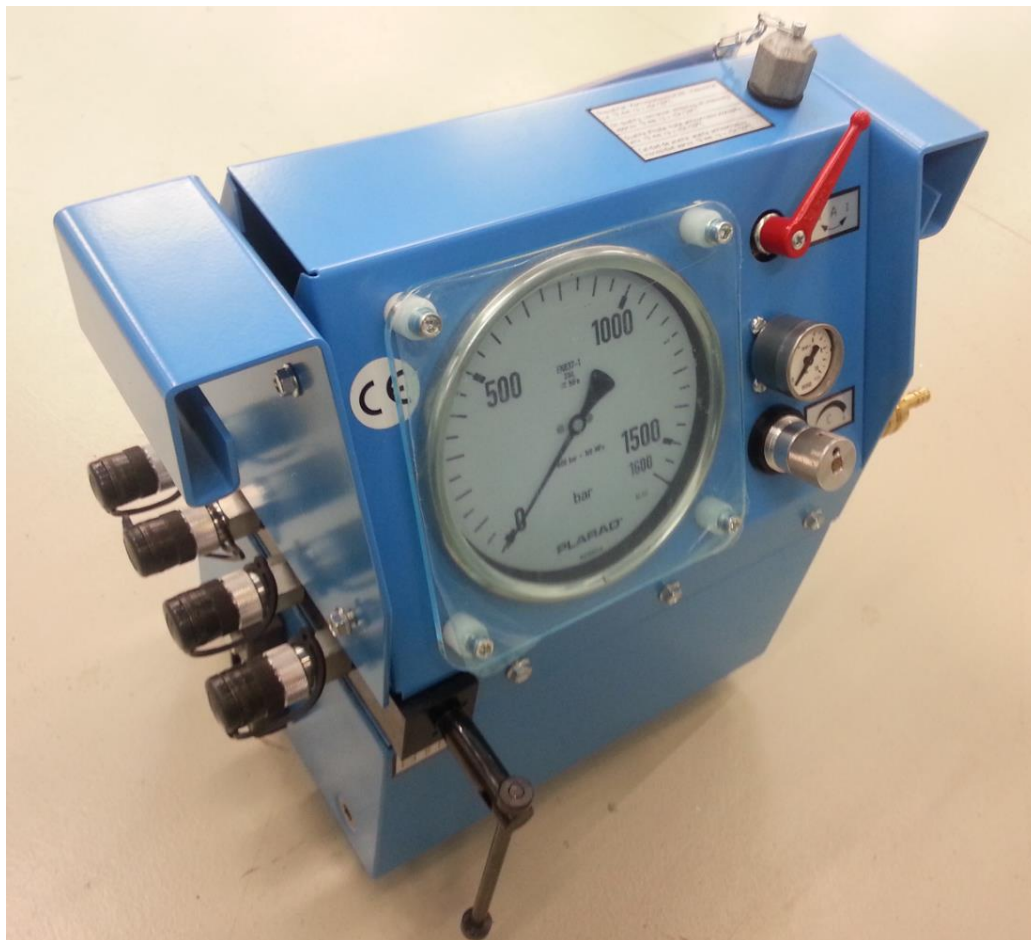


Pneumatic power pack

TBX 1-1500-P

Operating manual



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1. Manufacturer

GERUS Apparatebau GmbH&CO.KG
86316 Friedberg, Germany
Engelschalkstrasse 16

2. Notes

2.1. CE mark

The products are labelled with the CE mark. The Declaration of Conformity verifies that the products are in compliance with the safety directives of the European Union.

2.2. Directives

The product meets the requirements of the EC Machinery Directive 2006/42/EC.

2.3. Information about this manual

This manual contains important instructions on how to operate, set up and connect the unit. Read these instructions carefully before putting the unit into operation.

This is for your own protection and will provide you with important information on how to connect and use the unit in a safe manner.

The operating manual is an integral part of the unit. Store it close to the unit where it is available at all times.

Observing every detail of the operating manual is a requirement for using the tool correctly and as intended. For this reason, pass this operating manual on to the next owner when selling the unit.

Please note that details of the illustrations and technical specifications contained in this operating manual may deviate from the product you purchased.

The information provided in this operating manual is current as of the time it was printed. We reserve the right to make changes without prior notice.

2.4. Information about the workplace

We recommend that you use the hydraulic tensioner in one-man operation. The operation of the unit is restricted to trained and authorised personnel. Conduct a risk assessment before deciding to use the unit in two-person operation. When using the unit in two-person operation, ensure that the two users have previously cleared the application, the communication and the

coordination of the unit with one another. The person positioning the tensioner should give the instructions regarding the operation of the power pack even if he is not operating the remote control.

The safety of the operator and the trouble-free operation of the unit are only guaranteed if you use the original PLARAD components. This applies both to device components and spare parts.

If different components are used, Maschinenfabrik Wagner cannot guarantee safe and reliable operation.

2.5. Risk analysis

- Acting as a pressure intensifier, the pump prevents the unit from reaching impermissible pressure levels on the high-pressure side by regulating the pressure on the low-pressure side.
- Impermissible absolute pressure levels (high-pressure side) are excluded by the use of an additional pressure relief valve that has been integrated into the compressed air circuit (low pressure circuit).
- Even if experiencing leaks or line breakage, the high pressure system does not pose any immediate risk to the operator's health.
- Ruptured lines will cause the pressure to collapse on the high-pressure side.
- If the TBX 1-1500-P fails to build up the necessary pressure within a short period, the unit is probably defective. Should this happen, take the unit out of operation as the oil it contains will otherwise be channelled into the housing compartment, resulting in unnecessary soiling.
- Use great care when closing the cover to avoid damage and injury.
- Since built into the oil tank, the pump is sufficiently lubricated and supplied with hydraulic oil. Should the pump develop a leak, the operating compartment is protected against escaping oil by the tank walls.

2.6. Safe working

1. Keep your work area neat and tidy!
 - Disorganisation in the work area may result in accidents.
2. Take environmental influences into consideration!
 - Do not expose the unit to rain.
 - Provide for proper lighting in the work area.

3. Keep other persons at a distance!
 - Do not allow other people, especially children, to touch the unit. Keep them away from the work area.
4. Store unused units in a safe location!
 - When not in use, the units should be stored in a dry and enclosed location and out of the reach of children.
5. Do not overload your unit
 - You work better and more safely if staying within the specified range of capacity.
6. Use the correct unit
 - Do not use low-capacity units for heavy-duty work.
 - Do not use the unit for purposes for which it is not intended.
7. Wear suitable clothing
 - Do not wear loose-fitting clothing or jewellery as these may become caught in the moving parts of the unit.
 - We recommend that you wear non-slip shoes when working outdoors.
 - When wearing your hair long, secure it with a hairnet.
8. Use protective equipment
 - Wear safety goggles whenever you perform work that may endanger your eyes.
9. Refrain from assuming abnormal body positions
 - Assume a firm stand and keep your balance at all times.
10. Service your units with care
 - Check the connecting cable of the unit on a regular basis and have it replaced by an authorised specialist if you detect any damage.
 - Regularly check extension cords and have them replaced if you discover any damage.
 - Keep grab handles dry, clean and free of oil and grease.
11. Be alert:
 - Pay attention to what you are doing. Use reason while performing your work. Do not use the unit unless you are fully concentrated.
12. Inspect the unit for possible damage
 - Before continuing to use the unit, you must inspect all safety devices or lightly damaged parts carefully to verify that they function properly and as intended.
 - Check if the moving parts work properly without sticking or whether parts have

become damaged. All parts must be fitted properly and meet all requirements in order to ensure that the unit will work faultlessly.

- Unless specified otherwise in the instructions for use, damaged safety devices and parts must be repaired or replaced properly by an authorised specialist workshop.
- Damaged switches must be replaced by a customer service workshop.
- Do not use any units on which switches cannot be turned on and off.

2.7. Maintenance, servicing, and repairs

- Disconnect the power supply before adjusting any settings and prior to servicing or repairs
- Allow only a specialist to repair your unit
- This pneumatic unit conforms to all applicable safety regulations. Repairs may only be performed by a specialist using original spare parts. Otherwise, the user may experience accidents.

2.8. General safety information

When operating the unit, observe all laws and regulations applicable at the site of operation. Verify every time before using the unit that the unit operates in a reliable manner and is in proper condition. The user must be familiar with the operation of the unit. Before putting the unit into operation, check the hose line(s) for damage. Replace any damaged hose lines, couplings and nipples without delay.

Do not couple/uncouple connected devices unless the power pack is switched off. Otherwise, the unit may become damaged and allow hydraulic fluid to escape.

This may result in eye injuries and burns. When contact with operating materials has occurred, follow the material safety data sheets and the product information relating to the operating materials.

When using an extension cord with a small cross-section and a great length, a drop of power may occur which would affect the start-up performance of the motor.

2.9. Product identification

The power pack is marked by the type plate that is found on the cover of the control enclosure.



2.10. Symbols and warnings



- CE mark



- Follow the instructions for installation and use



- Wear hearing protection



- Use protective eyewear



- Hazard warning.
The hazard category is specified in the text found next to the respective warning



- Warning of a hot surface



- Service seal specifying the date of the next inspection



- WEEE recycling/disposal instructions. This product must not be disposed of with regular household waste.

3. Product information

3.1. Intended use

The PLARAD power pack TBX 1-1500-P is a mobile hydraulic power generator that is used to power PLARAD tensioners for the purpose of creating bolted connections.

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

The power pack is designed for indoor and outdoor operation within an ambient temperature range of -10°C to +50 °C. If intending to deviate from these conditions, consult the manufacturer first.

Allow only Maschinenfabrik Wagner or bodies authorised by Maschinenfabrik Wagner to install, readjust, modify, expand and repair the unit. Use the unit only as described in the operating manual. Operating the unit in a safe and reliable manner will otherwise not be possible. Unauthorised modifications may lead to unexpected hazards.

The safety of the operator and the trouble-free operation of the unit are only guaranteed if you use original PLARAD components. This applies both to all units and spare parts.

If different components are used, Maschinenfabrik Wagner (PLARAD) cannot guarantee safe and reliable operation.

3.2. Improper use

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

3.3. Other applicable operating manuals

- BGR/GUV-R 194 Use of hearing protection
- BGR 237, Rules regarding the safe use of hydraulic hose lines
- Shell Tellus S2 V 15, PD / MSDS

4. Scope of delivery

- The Power pack will be supplied WITHOUT oil in the tank and thus is not ready for use. The hydraulic oil is added to the scope of supplies.

Consumables (order more if necessary)

- Hydraulic oil 1 l Shell Tellus S2 V 15
- Hydraulic oil 5 l Shell Tellus S2 V 15

5. Technical specifications

Maximum operating pressure (ps) 1.5 – 7.0 bar
(pb max 15.0 bar)

L x W x H * approx. 431 x 315 x 402 mm

Output and air consumption:

0.53 m³/min at 6 bar Compressed air ≙ 0.37 dm³/min at 1000 bar

1.23 m³/min at 6 bar Compressed air ≙ 0.90 dm³/min at 0 bar

Weight*	empty	26.5 kg
	filled	30.5 kg

Connection	CEJN, series 116
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Tank capacity	7.0 litres
---------------	------------

* actual performance characteristics and dimensions/weights vary with type and model

** when the power pack is in operation, the sound pressure level drops by 6 dB(A) with every meter of distance to the unit.

6. Information about operating temperatures

When operating in temperatures of $-5\text{ }^{\circ}\text{C}$ or less, keep starting the power pack until the motor starts running (several times if necessary). Set the pressure relief valve to 400 bar. Do not connect a hose or tensioner and let the power pack run for approx. 5 minutes while holding down the button. By doing so, you are allowing the hydraulic oil to reach its necessary operating temperature before work begins.

7. Transport



ATTENTION

The Hydraulic oil may spill out during an intermediate transport.
Thus the hydraulic oil first must be cooled down and discharged afterwards prior to such transport.

When using a crane or similar lifting gear for transport, attach the power pack at the attachment points identified below.



ATTENTION

A repositioning of the pump has to be effected only in a horizontal

Preparing operation

This section contains a brief description of all controls and connections. The operating steps explained here are necessary for the safe use of the power pack.

7.1. Safety instructions for operation



Caution! Noise emission of approx. 85 dB(A).

- **Wear hearing protection in accordance with EN 458 if the distance between operator and power pack is less than 2 m during operation (BGR/GUV – R 194)!**



Warning!

The power pack can reach surface temperatures of up to $80\text{ }^{\circ}\text{C}$ during extended operation and in high ambient temperatures.

- **Wear heat-resistant safety gloves! Allow the power pack to cool off before moving it!**



Warning!

Unless set up securely, the power pack may tip over or fall down.

- **Make sure the power pack always stands firmly on a level surface with all four feet!**



Warning!

Hot hydraulic fluid may escape under great pressure and cause severe burns and cutting injuries.

- **Verify that the unit is tight before putting it into service and while operation is in progress. Take the unit out of operation if you find any leakages!**

7.2. Description of operation

The TBX 1-1500-P supplies high static pressures for use in combination with hydraulically tension-bolted connections. ,

Its specification sheet does not allow the TBX 1-1500-P to be used for conveying large volumes under high pressure. Neither the pump capacity nor the oil supply are available at levels high enough to accomplish such a task.

When operating within the limits of its specified range of application, the unit will only require compressed air as its operating medium.

The operating principle of the TBX 1-1500-P is based on a pressure pump with a proportional pressure controller.

The absolute maximum hydraulic output pressure is ensured by a safety pressure limiter fitted on the side of the pneumatic low pressure (see Risk analysis).

To prepare the unit for operation, connect the compressed air supply (<15 bar) to the air connection **G**, check the indicators **I** and flip the start lever **A**. The pressure is built up until it reaches its set limit.

The operating pressure can be re-adjusted using the pressure relief valve until the desired value is indicated on the pressure gauge **F** or the maximum pressure of 1500 bar has been reached.

When high pressure is no longer needed, return the start lever **A** to position **I** .

The high-pressure lines need to be relieved before they can be removed.



Warning!

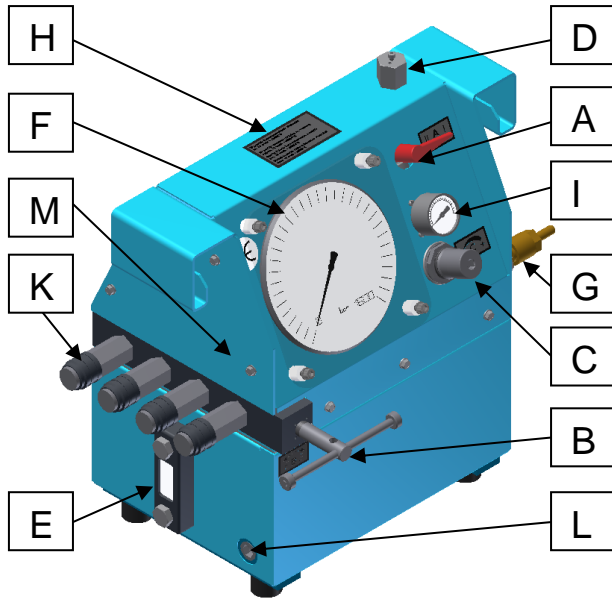
The compressed air pressure must not exceed the maximum of 15 bar!




Warning!

Only if the pressure relief valve **B** is open may high-pressure hoses be connected or removed! The pressure gauge **F** will then indicate that the pressure has dropped to 0 bar.

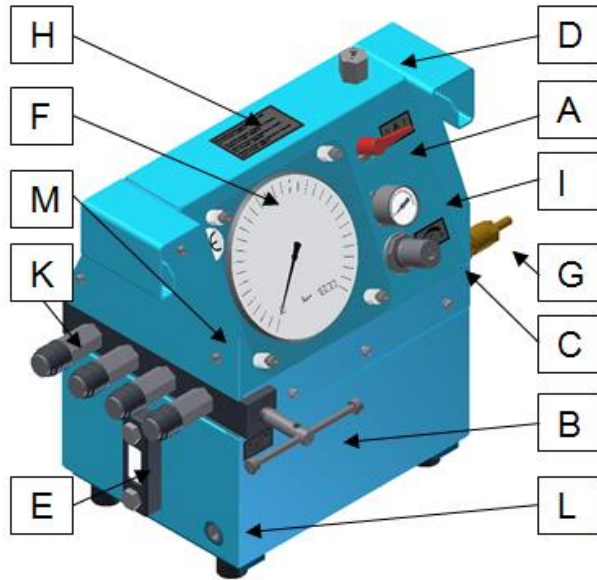
8. Commissioning and shutdown



8.1. Function test of the high-pressure pump

1. Check pressure gauges **F** and **I** for damage and correct needle position.
(Both needles should be at the **0** position.)
 2. Check the oil level at oil level sight glass **E**.
When the oil level is too low, top up the unit with oil as follows:
 - 2.1. Select the oil grade in accordance with the specifications on the indicator label **H**.
 - 2.2. Open the oil filler neck **D** by turning it anti-clockwise.
 - 2.3. Next, pour in oil until the oil level sight glass **E** indicates a 3/4 filling.
 - 2.4. Now, seal the oil filler neck **D** again by turning it clockwise.
 3. Close the pressure relief valve **B** by turning it clockwise as far as it will go
(The valve must be closed all the way).
 4. Turn the start lever **A** to position **II**.
 5. Connect the compressed air supply to the compressed air connection **G**.
-  **Warning!**
The compressed air pressure must not exceed the maximum of 15 bar!
6. Next, turn the filter pressure regulator **C** clockwise as far as it will go.
(the filter pressure regulator is now opened to its maximum setting)
 7. Use the pressure gauge **I** to check the present air pressure.
(The pressure gauge should indicate a compressed air pressure of at least 6 bar).
 8. Set the start lever **A** to position **I**.
 9. The pump starts up and should build up a hydraulic oil pressure of 1,500 bar
(check the air pressure if it fails to do so).
 10. When an oil pressure level of 1,500 bar is indicated on the pressure gauge **F**, return the start lever **A** to position **II**.
 11. The value indicated on the pressure gauge **F** should not drop at this point. If this is the case, the high-pressure pump is operational.
 12. Open the pressure relief valve **B** by turning it anti-clockwise.
 13. The pressure at the pressure gauge **F** drops back down to **0** bar.

9. Working with the high-pressure pump



9.1. Start again with steps 1 through 6 listed under item 9.1..

9.2. Next, use the filter pressure regulator **C** to set the air pressure **I** required to achieve the desired output pressure.

(2 bar air pressure = 500 bar output pressure)

9.3. Now, connect the hydraulic high-pressure hoses to the hydraulic couplings **K**.

9.4. Proceed with steps 7 through 13 listed under item 9.1.

9.5. When finished working, remove the hydraulic high-pressure hoses from the hydraulic couplings **K**.



Attention!

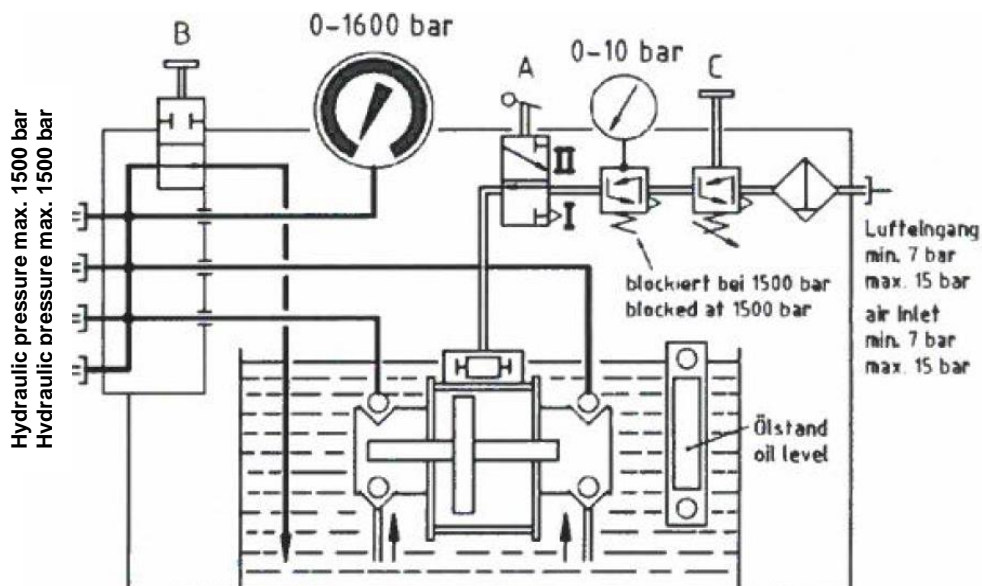
When setting the hydraulic pressure, you must never exceed the maximum permissible operating pressure of the tool you are using (see information on the



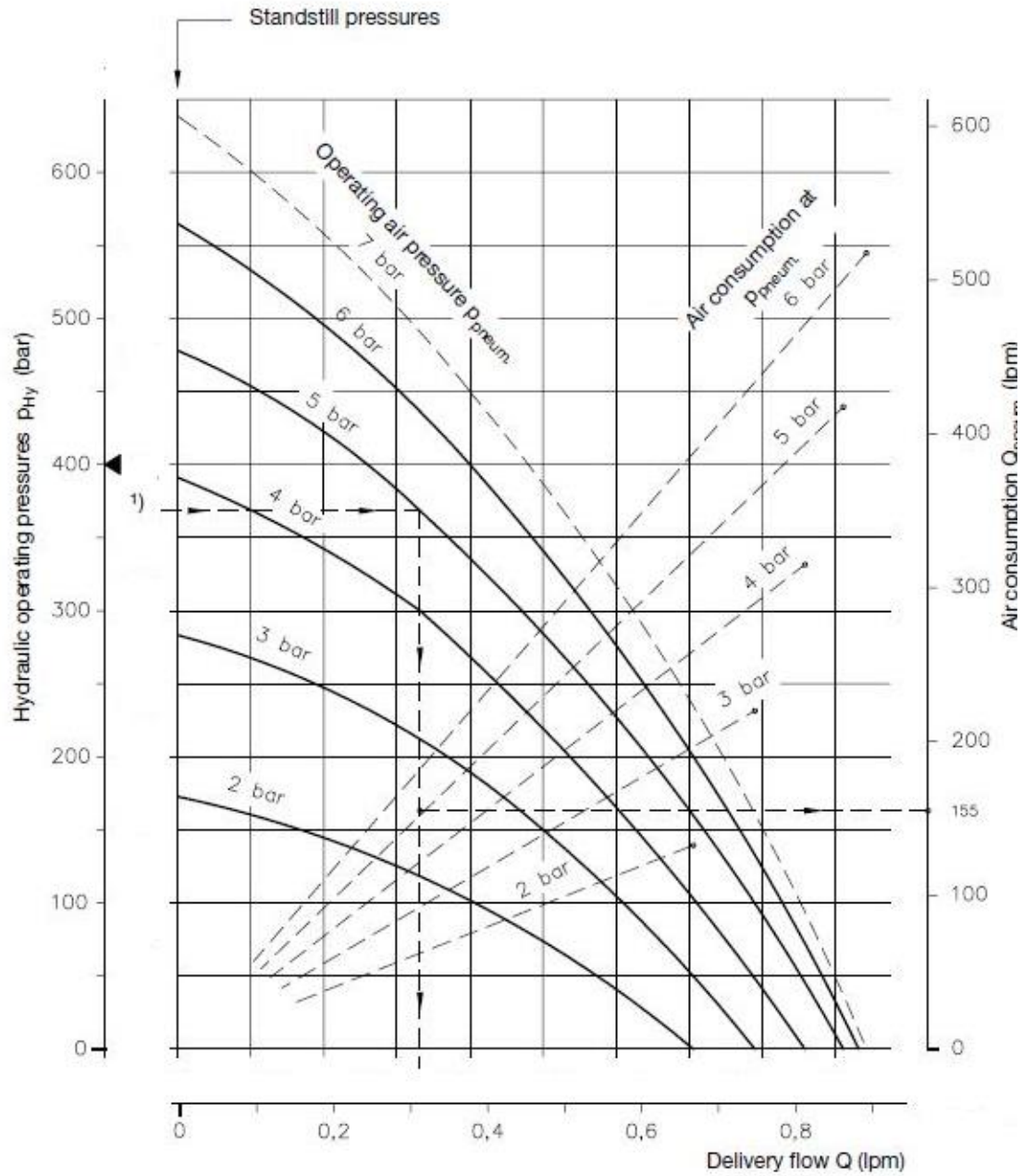
Warning!

Only if the pressure relief valve **B** is open may high-pressure hoses be connected or removed! The pressure gauge **F** will then indicate that the pressure has dropped to 0 bar .

10. Hydraulic diagram



11. Characteristic curve



Oil viscosity during measurement approx. 50 mm²/sec

12. Maintenance instructions

- Seal the couplings and nipples with sealing caps prior to transport and storage.

Also observe the following points:

- Check the oil level of the power pack on a regular basis, but at least every time before you start working.
- Change the hydraulic oil every 150 hours of operation, but no later than every 12 months.
- Keep the couplings and the nipples on the power pack, on the hydraulic hoses and on the hydraulic tool clean. Use a cloth to clean the couplings and nipples before connecting them to the unit.
- Dispose of the power pack as required by local regulations.

12.1. The oil can be drained by opening the oil drain screw **L** and by slightly raising the unit at the opposite side

12.2. ATTENTION: The oil will start exiting immediately once the screw has been loosened!

12.3. The unit is filled with oil through the oil filler neck **D**. The oil level can be read at the oil level indicator **E**. The unit should be filled up to $\frac{3}{4}$.



Attention!

Use only oils that match the following specification:
Shell Tellus S2 V 15

13. Customer service and troubleshooting aid

If, as described under item 12.), the operating pressure indicated on the display unit **F** drops instead of remaining constant, the pump has developed a leak or the pressure control valve **B** is not closed all the way.

This defect can usually be attributed to wear on the seals housed in the pump. These seals cannot be replaced. The complete seal kit is included with the pump.

The wear part kit can be removed by opening the front of the housing **M**.

An explosion drawing is also included with the pump.

14. Instructions on disposal



Attention

This symbol points out that the product must not be disposed of with regular household waste as specified in the WEEE directive (Waste Electrical and Electronic Equipment Directive, 2002/96/EC) and national laws.

- **Dispose of this product at an authorised waste collection facility. Return the product if, for instance, purchasing a similar product or take it to a waste collection facility that is authorised to recycle waste electrical and electronic equipment.**
- **Turn to your local administration office, your public waste disposal authority, a facility that is authorised to dispose of waste electrical and electronic equipment or your waste management company.**



... a successful
connection!

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