

Hand Pumps
HP 32/3,0-350
350bar



Operating Manual



Store for future reference.

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1. Manufacturer

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Notice!

The parts and components specified in the description refer to the different hand pumps described in the appendix.

2. Notes

2.1. Receiving your pumps

Check all parts for possible transport damage immediately after receiving them. Notify your carrier right away when detecting such damage.

2.2. Safety information

Before putting the pump into operation, carefully read the operating manual, paying particular attention to the sections printed in bold.



NOTICE!

and



WARNING!

Maschinenfabrik Wagner GmbH & Co.KG rejects any responsibility for damages that can be attributed to using their products in an improper way.

If in doubt about the proper use of the equipment, turn to our customer service department.

2.3. Information about this manual

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

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

The operating manual is an integral part of the hand pump. Store it close to the hand pump 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 hand pump.

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 hand pump 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 hand

pump with one another.

The person positioning the tensioner should give the instructions regarding the operation of the hand pump.

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

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

2.5. Non-intended 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.

2.6. Other applicable operating manuals

- BGR 237, Rules regarding the safe use of hydraulic hose lines

2.5. Product identification

All relevant data is given on the type plate which is located below the carrying handle.

Figs.1 and 2

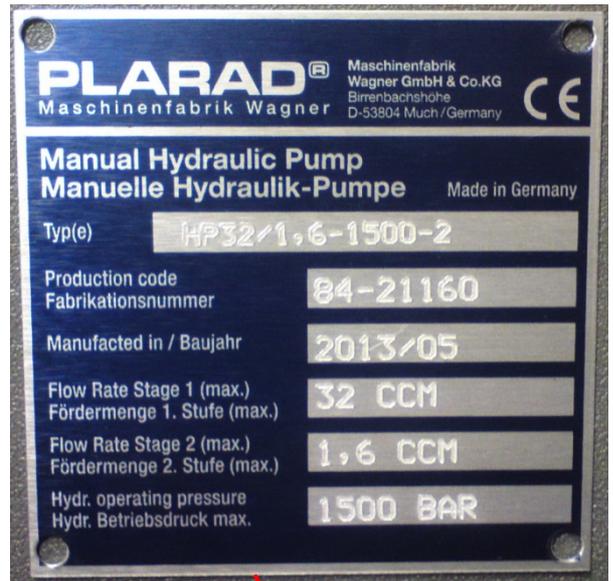


Fig.1 (similar)

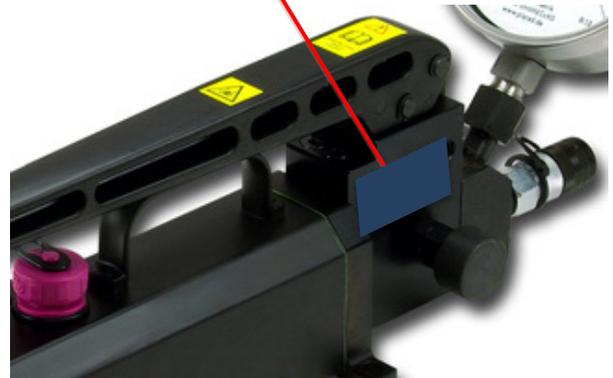


Fig.2

2.6. Symbols and warnings



Follow the instructions for installation and use



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

3. General

The size of the tank on the hand pump must be large enough to supply all connected consumers (usually hydraulic hose + cylinder) with oil.



Notice!

It is absolutely prohibited to refill oil to compensate for the disadvantage of a tank that is too small.

Refilling oil would cause the tank to overflow when the cylinder retracts or may result in a bursting pump tank when the filler screw is closed!



Warning!

While normally not pressurised, the oil filled in the pump tank may become pressurised when the tank is added to the hydraulic circuit.

Two-stage hand pumps are equipped with a stepped piston and sport a low-pressure and a high-pressure stage. The low-pressure stage is used to move the cylinder quickly without load. (fast stroke= low pressure – high flow rate). When the low-pressure level is exceeded, the low-pressure stage will be cut off automatically by the pressure shutoff valve. The pump will then only operate with the smaller high-pressure stage and lower leverage force (low flow rate – high pressure).

The pumps can be installed in the horizontal or the vertical position with the pump head facing down.

Most hand pumps come with a pressure relief valve with fixed factory settings and a pressure gauge connection bore.

If missing, a pressure gauge connection bore must be provided. If requested, we can also supply hand pumps with a pressure gauge and special tank sizes for higher operating pressures and special fluids. Please contact our engineering department with your special requests.

4. Scope of delivery

- Hand pump, filled with oil and ready for use

Consumables (order more if necessary)

- Hydraulic oil 1 l

5. Technical specifications

Maximum operating pressure 350 bar

HP 32/3,0-3500-2

<u>L x W x H (mm)</u>	755 x 125 x 316
<u>Flow rate 1stStage</u>	32 ccm
<u>2ndStage</u>	3,0 ccm
<u>Serial number</u>	see type plate
<u>Tank volume</u>	2,3L
<u>Useable volume</u>	1,9L
<u>Weight</u>	approx.10,3 kg

6. Transport

Use the grab handle to transport the pump.

7. Preparing operation

7.1. Pump selection

The pump must be equipped with a 2/2 relief valve and a 4-way valve for single-acting cylinders and double-acting cylinders, respectively.

The size of the oil tank must be large enough to supply all connected consumers with oil.

If the cylinder stroke without load (idle stroke) is greater and reaches the maximum load, we recommend that you use a two-stage high/low-pressure pump that makes it possible to span this idle stroke or the pre-fill area as swiftly as possible. If higher operating speeds are required, we recommend using motorised pumps with an electric, gasoline or air motor or compressed air translation pumps.



Notice!

We recommend that you always fit the pump or the cylinder with a pressure gauge in order to prevent damage to the components. Besides, monitoring the operating pressure is helpful at any stage of the work especially when you are lifting loads with an unknown weight. Observing the information provided in this operating manual guarantees a long service life of our equipment.

7.2. Pressure port relief valve

The flow direction of the oil inside the circuit is defined by the relief valve integrated in the pump head. Pumps featuring only one pressure port and one relief valve (2/2-way valve) are suitable to control single-acting cylinders with or without a spring return. These pumps are fitted with only one flow/return pressure port.



(Fig.3)

When the relief valve is closed all the way and the pump lever has been actuated, oil is pressed into the circuit, causing the cylinder to be extended. Opening the pressure relief (bypass) presses the oil back into the pump tank, i.e. the cylinder is retracted. Since the oil is not pressurised when returned into the tank by the pump with the relief valve open, this process is only relevant for the bleeding of the pump.



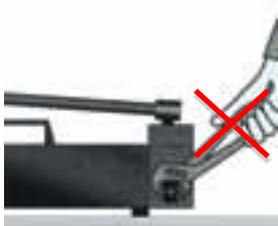
(Fig.4)
Hand pumps fitted with a 4/2-way valve are intended for double-acting cylinders. The pump head houses two pressure ports, port "A" for the pressure output and port "B" for the oil return. The control valve flange-mounted directly to the pump head can be toggled between two positions using a ratchet lever. ("A" = extend, "B" = retract). These pumps also feature an additional manual relief valve that provides for slow pressure build-up/reduction processes both at port "A" and port "B".

7.3. Proper use of the pump



Notice!

The pump can operate both in the horizontal and the vertical position with the pump head facing down.



(Fig.5)
The pump must always be positioned on a stable surface to prevent it from slipping off or tipping over

while the pumping process is ongoing. The relief valve may only be actuated manually! Refrain from using pliers!

7.4. Bleeding

Since compressible, air trapped in oil circuits may result in accidents. It is, therefore, essential to bleed the system composed of pump, hose and cylinder every time before starting to work. The simplest way to do so is by:



(similar to Fig.6)

- actuating the pump until the cylinder is extended all the way;
- standing the cylinder on its head and positioning the pump higher than the cylinder (e.g. work bench);
- opening the relief valve;
- pressing on the cylinder bottom, causing the piston to retract faster and allowing the oil and the air bubbles to be pressed (up and) into the tank where oil and air can unmix.

8. Working with hand pumps

8.1. Start-up



Warning!

High-pressure power packs generate enormous forces despite their small dimensions;
This is why you need to exercise extreme caution when using them.

Before beginning work, verify that the oil level in the pump tank is where it is supposed to be. Normally, the oil level should be approx. 1cm below the tank cover. Refill oil as necessary. Never fill the tank up completely as this will result in a vacuum in hermetically sealed tanks (i.e. the pump will no longer aspirate) or cause the tank to overflow or even burst.

Never use brake fluid or other types of abrasive oils which may damage the seals.



Warning!

Check if all components and bolted connections are able to withstand the maximum operating pressure.



Notice!

Check, in particular, the operating pressure of the hoses used.



Warning!

Never use the hoses as carrying handles!

Route the high-pressure hose as straight and directly as possible, making sure not to pick a bending radius that is under the minimum of 60mm.

Never allow the hose to be driven over or subjected to loads.

The hose can be damaged by sharp-edged components.



Notice!

Ensure, in particular, that the threaded connection fits properly.

The hoses come standard with an external NPT threaded nipple (1/4" or 3/8") which provides for a simple and reliable seal.

When pulling off the bolted connection, we recommend that you use an ordinary open-ended spanner in order to avoid exercising excessive strain on the thread. We recommend the use of Teflon tape as a sealant as this material makes it easier to loosen the connection and prevents dirt from entering the oil circuit (do not use sealing hemp). When fitting hose connections 1/4" BSP or 3/4"-16 UN, use only the boltings listed in our catalogue under accessories.



Notice!

Special notice regarding the use of quick-release couplings.

Dirt particles trapped in the hydraulic system may damage the cylinder sliding surfaces and the valve seats.



Notice!

Cleaning both halves of the coupling thoroughly prior to coupling is of great importance.

Soiled coupling halves also make it harder to complete a full coupling cycle, slowing down the oil flow, as both balls may no longer open all the way.



Notice!

As a result, check every time that the coupling is engaged completely/has been screwed in all the way if using screw couplings.

We recommend to screw on the dust caps only when the system is uncoupled

We reject any liability claims for damages that can be attributed to any improper use of our equipment or result from the use of third-party products or spare parts.

Please contact our representatives if you require any additional information or advice.



Notice!

Every repair or modification on the pumps must be performed by qualified personnel. Faulty interventions may result in the voiding of your warranty.



Warning!

It is absolutely prohibited to prolongate the handle!

Pressure setting

The hand pumps ship with a pressure relief valve with fixed factory settings that varies with the model of the pump. You can also set this valve to a lower value.

This lower pressure value can be set at the factory for free if you request it when placing your order.



Warning!

It is absolutely prohibited to set the pressure relief valve to an operating pressure that exceeds the maximum pressure specified in the catalogue!

9. Troubleshooting

Most disruptions in operation can be attributed to a simple cause and, therefore, remedied right away at your work location, allowing you to save time and transportation costs.

Listed below are descriptions of the most common disruptions of operation. If the information provided here is not sufficient to solve your problem, please contact our engineering department.

9.1. Cylinder piston not extending

- the hand pump was positioned with its head facing up;
- the relief valve on the hand pump was not closed or not closed all the way;
- air trapped in the oil circuit or too little oil in the tank;
- start by checking if the pump operates properly, i.e. conveys oil to the cylinder.

9.2. Avoid overloading

- the cylinder piston fails to extend when the exterior load exceeds the maximum force the cylinder is capable of generating as, in that case, the relief valve of the pump will trip, preventing the system from overloading.

9.3. Cylinder piston jerks or stops while extending

- air in the oil circuit (for countermeasures, see "Bleeding");
- the cylinder piston is bent or damaged and, consequently, slowed down by mechanical friction forces;
- there is too little oil in the pump tank, preventing the piston from being extended all the way. Refill oil (see "Start-up");
- the oil level required by the cylinder is higher

than the usable oil volume available in the hand pump tank. Use a pump with a larger-capacity tank.

9.4. Cylinder piston retracts under load

These phenomenon can be caused by the following:

- The hand pump does not function properly (the return valve is not tight).
- Cylinder seals leak.
- Leaks at the couplings or hose fittings.

9.5. Cylinder not extending all the way or returning only slowly

This means that the oil cannot flow freely back into the tank and you need to check the following:

- Is the relief valve open all the way;
- Are the coupling halves screwed together completely;
- Release spring of the cylinder piston defective or slackened; sliding surface possibly worn out as well;
- The piston cannot retract all the way as there is too much oil in the pump tank, ATTENTION the pump tank may also burst!



Notice!

Single-acting cylinders without spring return need to be pushed back by exercising external force.

Increase the smoothness with which the piston is retracted by pressing on the breather filter on the tank, thereby releasing the pressure inside the tank (only for PML series)

9.6. Oil loss

A leak detected at the pump piston can usually be attributed to worn seals.

Changing seals is straightforward and can be done on site.



Notice!

We recommend keeping a seal kit for the pump readily available at all times.



... a successful
connection!

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