

# Hydro accumulators according ASME

## Operating instruction

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### 1. General

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This equipment is designed, manufactured and tested in compliance with American ASME VIII Regulation.

Strict compliance with the instructions given in this document and all relevant documents is essential.

The supplier disclaims all liability for any direct or indirect damage to property or personal injury and all responsibility for consequential damage such as, for example, operating losses arising from the failure to follow the instructions given below.

Before commissioning and during operation, it is important to refer to the regulations for the use of hydraulic accumulators in force on the installation site. Compliance with current regulations is the responsibility of the operator who must ensure that the documents supplied with the equipment are kept in a safe place. They may be required for inspection purposes.

### 2. Safety Devices

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Current site regulations require the use of all or some of the following safety devices

- Overpressure protection device
- Decompression device
- Pressure gauge
- Pressure gauge connector, isolator and so on

The operator is required to comply with these regulations. Parker Olaer units use all or some of these devices (supplied as optional extras).

### 3. Handling - Storage

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The original packing is suitable for handling and storing the equipment, unless otherwise specified.

#### 3.1 Handling

Handle with care! Provide lifting gear that is suitable for the weight of the accumulator. The inflation valve must not be subjected to any impact, however slight.

#### 3.2 Storage

Store in a cool dry place. Do not expose to flames or heat. It is recommended that accumulators be stored in a horizontal position. When storing accumulators in their original packaging, do not stack them unless their volume is less than 4 liters (maximum 2 tiers).

If the accumulators are to be stored for more than five years, all parts made of elastomeric material must be replaced before they are put into service (contact Parker Olaer).

If they are to be stored for a period of five years or less, this period should be borne in mind when determining the dates of the first maintenance operations (see section 6).

Storing a bladder- or diaphragm accumulator inflated to its inflation pressure  $P_0$  for a long period of time is not recommended (see section 5.1.1)

#### Piston accumulators

To store piston accumulators for a longer period, fill them with dry nitrogen (mind. 99,99% pure) and anti-corrosive oil. In addition you have to conserve all not corrosive-resistant surfaces with grease.

### 4. Accumulator Labeling and Marketing

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It is strictly forbidden to change any informations and markings without the prior written agreement of Parker Olaer.

In the event of any discrepancy between the information indicated on the nameplate and that given on other parts of the accumulator (body, mouth, etc.), always refer to the nameplate.

The following information is indicated on the accumulator:

- Logo
- Product description
- Date of manufacture: MM/YY
- Accumulator reference
- Basic allowable limits

#### **4. Accumulator Labeling and Marketing**

- Temperature range TS in °C
- Maximal pressure PS in bar
- Nominal volume V of the tank in liters
- Test pressure PT in bar
- Test date: YY/MM

And on some models

- Warning messages and safety instructions ("Danger", "use only nitrogen" etc. or similar)
- Maximum inflation pressure in bar
- Total dry weight in kg

Damaged or missing nameplates have to be replaced! Operation without nameplate is not allowed!

#### **5. Commissioning**

The equipment must only be commissioned by qualified technicians (please contact Parker Olaer). Before installation, visually check that the accumulator is not damaged.

Before carrying out any work on the hydraulic system, ensure that it is depressurized. Incorrect installation may result in serious accidents.

It is strictly forbidden to:

- Weld, solder, drill or perform any other operation that may change any mechanical properties!
- Modify the accumulator or its components without the prior written agreement of Parker Olaer. Explosion hazard and/or danger of bursting!

For further information about the commissioning or use of the accumulator, please contact Parker Olaer.

#### **5.1 Commissioning Recommendations**

##### **5.1.1 Inflation pressure $P_0$ - maximum allowable inflation pressure**

The inflation pressure ( $P_0$ ) is calculated according to the operating conditions indicated by the customer.

On some models, the maximum allowable inflation pressure is indicated on the accumulator. The accumulators are supplied as follows:

- Ready for use, inflated to  $P_0$
- Inflated to approx. 5 bar (storage pressure)

In this case, the accumulator must be inflated to  $P_0$  before it is put into service (see section 5.2).

Without any indication the accumulator could be pre-charge according following rules

Pre-charge press.  $P_0$ : Between 0,9  $P_1$  und 0,25  $P_2$

##### **5.1.2 Inflation gas**

Use only nitrogen that is at least 99,8% pure. It is strictly forbidden to use oxygen or air to inflate the accumulator. Explosion hazard!

##### **5.1.3 Maximum allowable pressure PS**

The maximum pressure (PS) is indicated on the accumulator. Check that the maximum allowable pressure is greater than that of the hydraulic circuit. For any other pressure, you will have to contact Parker Olaer.

##### **5.1.4 Allowable temperature range TS**

The temperature range (TS) is indicated on the accumulator. Check that the allowable temperature range covers the operating temperatures (environment and hydraulic fluid temperatures). For any other temperature, you will have to contact Parker Olaer.

##### **5.1.5 Hydraulic fluid used**

The accumulator materials are determined according to the hydraulic fluid used. Check that the fluid is compatible with the equipment.

It is strictly forbidden to use an accumulator with a fluid for which it is not designed.

When dangerous fluid is used, all possible safety precautions must be taken in accordance with current site regulations.

Other fluids than hydraulic fluid have to be identified outside at the accumulator. For further information please contact Parker Olaer.

##### **5.1.6 Installation site**

Ensure that the labels and markings are clearly visible. Leave at least 200 mm above the inflation valve for the checking and inflation instruments.

Where the model used is fitted with a bleeder screw, ensure that this is fully accessible. Take the environmental conditions into account and, if necessary, protect heat sources, electric and magnetic fields against lightning, moisture, bad weather and so on.

For optimum performance place the accumulator as close as possible to the unit being used. It can be installed vertically with the inflation valve upwards or it can be mounted horizontally.

### 5.1.7 Mounting

Mount the accumulator as follows:

- Ensure that the pipes connected directly or indirectly to the accumulator are not subjected to any abnormal force
- Ensure that the accumulator cannot move, or minimize any movement that may occur as a result of broken connections

Parker Olaer collars and brackets are designed for this purpose and can be supplied as optional extras:

- The accumulator must not be subjected to any stress or load, in particular from the structure with which it is associated
- Some models include a venting screw. Control this screw regularly. It must be tightened and free from leakage.

### 5.1.8 Final check before startup

The pre-startup check must be carried out in accordance with current site regulations.

### 5.2 Inflation

Secure the accumulator. Determine a safety area not in line with the openings (hydraulic and nitrogen side). Caution: Parts may be ejected in the event of component breakage.

Use a checking and inflation instrument (refer to the instructions on how to use the latter) to inflate, deflate and check the inflation pressure  $P_0$ .

Parker Olaer checking-inflation tools (supplied as optional extras) are used to inflate, deflate and check the pressure of the accumulators.

Note: The nitrogen pressure varies according to the temperature of the gas. Whenever nitrogen is used to inflate or deflate the accumulator, allow the temperature to stabilize before checking the pressure.

Never exceed the maximum allowable pressure PS indicated on the accumulator (or the maximum inflation pressure, if applicable). Check the inflation valve for leaks (for example using soapy water). Use the safety cap to protect the inflation valve.

### 5.3 Hydraulic Pressurization

First check the inflation pressure  $P_0$  (see section 5.2). Check the hydraulic circuit for leaks.

Check that the hydraulic pressure never exceeds the maximum allowable pressure PS indicated on the accumulators.

A screw that can be used to bleed the hydraulic circuit is provided on some models. Control this screw regularly. It must be tightened and free from leakage.

Caution! Never open the vent when the hydraulic system is pressurized.

### 6. Maintenance / Repair

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Before removing the accumulator from the hydraulic circuit, you must ensure that there is no residual hydraulic pressure in the accumulator.

Before dismantling the accumulator, ensure that no inflation pressure remains (see section 5). If necessary the accumulator has to be separated on the fluid side completely from the system.

Attention: Some fluids could remove gases!

Before disassembling an accumulator all parts mounted to the fluid side connection, like reducers, connectors or any other accessories have to be removed.

With the accumulator completely free of pressure, the poppet valve in the fluid port is open or can be pushed inside with hand force (EHV/IHV series).

For accumulators with the bladder support grid (EBV/IBV series) a loose fit of the grid has to be detected. If this is not the case all further work has to be stopped! Please contact Parker Olaer!

The relevant repair instruction doc 6.130 IHV/EHV series, or doc 6.140 or 6.145 IBV/EBV series, has to be respected. Those are available under [www.olaer.de](http://www.olaer.de) additionally.

Once they have been commissioned, Parker Olaer accumulators require practically no maintenance.

To keep the equipment in good working order and ensure a long service life, the following maintenance work is recommended:

## 6.1 Inflation pressure $P_0$ checks

When the accumulator has been commissioned, check the inflation pressure  $P_0$  once a week for the first month. After that, adjust the frequency of such checks (weekly, monthly, six-monthly, annually) depending on the pressure drop (see section 5.2).

## 6.2 Other Operations

You are advised to carry out the following checks (at the intervals recommended by Parker Olaer and depending on the operating conditions):

- Check the safety devices and connections
- Some models include a venting screw. Control this screw regularly. It must be tightened and free from leakage.
- Check the accumulator mountings
- Visually inspect the accumulator for any sign of wear and tear such as corrosion or deformation. If you are using an abrasive or corrosive fluid, check the inside of the accumulator
- To maintain an accumulator when it is in service (regular requalification operations, etc.), refer to the current site regulations

For disassembly, cleaning and reassembly operations please contact Parker Olaer.

## 7. Accumulator disposal recycling

Before recycling or disposing of an accumulator, depressurize it and remove the inflation valve. Decontaminate if necessary.