Operating Instructions for Hydraulic Accumulators

General

This equipment is designed, manufactured and tested in compliance with European Directive PED 2014/68/EC 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 damages to property or personal injury and all responsibility for consequential damages 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.

Safety Instructions

Current regulations for safe use of hydraulic accumulators require compliance with safety-related measures such as:

- Appropriate safety overpressure protection devices
- Safety standards governing the use of nitrogen as filling gas
- Use of appropriate pressure gauges
- Correct connection of pressure gauges
- Use of shut-off valves, etc.

The operator is required to comply with all relevant regulations.
OLAER accessories such as safety blocks have to comply with minimum requirements, additional requirements may also be applicable.
OLAER accessories support compliance with the relevant prescriptions.

Handling - Storage

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

Handling

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

Storage

General:
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 litres (maximum 2 tiers). If the accumulators are to be stored for more that 5 years, all parts made of elastomeric material must be replaced before they are put into service (contact OLAER). If they are to be stored for a period of 5 years or less, this period should be borne in mind when determining the dates of the first maintenance operations. Storing a bladder- or diaphragm accumulator filled to its filling pressure P_0 for a long period of time is not recommended (see under:
Filling pressure P_0 – Maximum allowable filling pressure).

Piston accumulators:
To store piston accumulators for a longer period, fill them with dry nitrogen (mind. 99,8 % pure) and anti-corrosive oil. In addition all not corrosive-resistant surfaces must be conserved with grease.

Accumulator labelling and marking

It is strictly forbidden to change any information and markings without the prior written agreement of 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:

- OLAER-Logo
- Product description
- Date of manufacture: MM/YY
- Accumulator reference
- Admissible operating data
- Temperature range TS in °C
- Maximal pressure PS in bar
- Fluid group
- Nominal volume V of the accumulator in litres
- Test pressure PT in bar
- Test date: YY/MM.

And for volumes of more than 1 litre:

- CE-Logo and accreditation number of the notified body.

And on some models:

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

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

Commissioning

The equipment must only be commissioned by qualified technicians (contact 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 OLAER. Explosion hazard and/or danger of bursting!***

For further information about the commissioning or use of the accumulator, contact OLAER.

Commissioning Recommendations

Filling pressure P_0 – Maximum allowable filling pressure

The filling pressure (P_0) is calculated according to the operating conditions indicated by the customer. On some models, the maximum allowable filling pressure is indicated on the accumulator. The accumulators are supplied as follows:

- Ready for use, filled to P_0
- Filled to approximately 5 bar (storage pressure).

In this case, the accumulator must be filled to P_0 before it is put into service (see under: Filling).

Filling 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!

Maximum allowable pressure (PS)

The maximum pressure (PS) is indicated on the accumulator. Check that the maximum allowable pressure is higher than that of the hydraulic circuit. For any other pressure, it will be necessary to contact OLAER.

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, it will be necessary to contact OLAER.

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.

A group 1 fluid, in particular, must not be used in an accumulator designed to use a group 2 fluid.
Group 1 (dangerous fluids) includes explosive, highly flammable, easily flammable, flammable, highly toxic, toxic, combustive fluids.
Group 2 (non-dangerous fluids) contains all the other fluids.

When a group 1 (dangerous) fluid is used, all possible safety precautions must be taken in accordance with current site regulations.

Other fluids than hydraulic fluid must be identified outside at the accumulator.

For further information, contact OLAER.

Installation site

Ensure that the labels and markings are clearly visible. Leave at least 200 mm above the filling valve for the tester and pressurizer VGU.

Where the accumulator used is fitted with a venting 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 filling valve upwards or it can be mounted horizontally.

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. 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.

Final check before startup

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

Filling with nitrogen

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 tester and pressurizer (refer to the instructions on how to use the latter) to fill, unfill and check the filling pressure P0.

OLAER tester and pressuriser VGU (supplied as optional extras) are used to fill, unfill and check the pressure of the accumulators.

Note: The nitrogen pressure varies according to the temperature of the gas. Whenever nitrogen is used to fill or unfill 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 filling valve for leaks (for example using soapy water). Use the safety cap to protect the filling valve.

Hydraulic Pressurization

First check the filling pressure P0 (see under: Filling). 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 venting when the hydraulic system is pressurized.

Maintenance / Repair

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 filling pressure remains (see under: Commissioning). 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 series). For accumulators with the bladder support grid (EBV 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 OLAER!

The relevant repair instruction OSP 810 (EHV series) or OSP 815 (EBV series) has to be respected. Those are available under www.olaer.ch additionally.

Once they have been commissioned, OLAER accumulators require practically - except nitrogen check - no maintenance.

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

Filling pressure P_0 checks

When the accumulator has been commissioned, check the filling 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 under: Filling).

Other Operations

You are advised to carry out the following checks (at the intervals recommended by 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 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, contact OLAER.

Accumulator disposal recycling

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

Decontaminate if necessary.