



Diaphragm Accumulator

Type Code

Accumulator serie

OL / EL
PT

Accumulator type

M = Diaphragm accumulator

Nominal size

Max. allowable working pressure acc. 97/23/EG (bar)

Characteristic number of approval

Max. allowable working pressure for other approvals

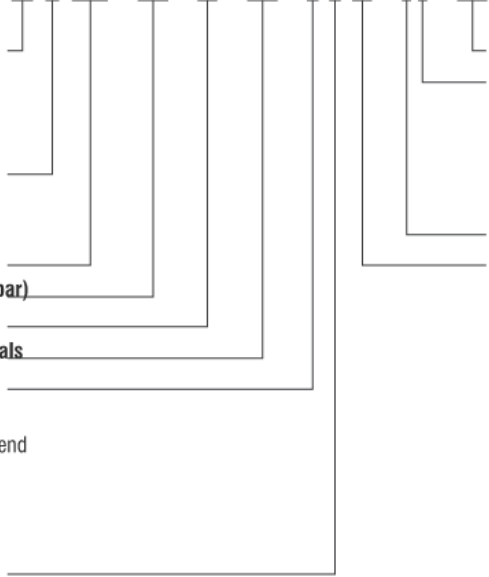
Accumulator shell

A = carbon steel, primed
B = A, inside coated with plastic component
C = A, inside chemically nickel plated
D = D, low-temperature steel
R = R, stainless steel (f.e. 1.4571)

Fluid line

A = carbon steel
B = low-temperature steel
F = stainless steel (f.e. 1.4571)

OL M 0,75 - 210 / 00 - 210 - A A 25 - 2 9 - 002



Nitrogen precharge pressure P_0 in bar

Fluid connection¹

0 = G 1/2"
1 = G 3/4"
9 = connection design C
Thread see data sheet

Gas connection (internal index)¹

Diaphragm¹

25 = NBR (Standard)
02 = ECO (Hydrin)
80 = FKM (Viton)

- ¹ With standard accumulators this indication could be scrapped.
- Not all combinations available

Gas plug.

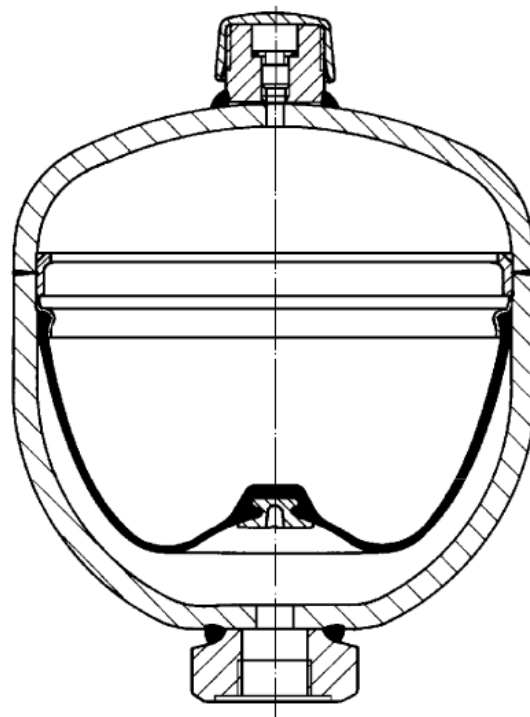
The diaphragm guarantees a clean separation between gas and liquid.

Those practically inertia and smooth deformation of the diaphragm results in an efficiency of nearly 100 %.

The plate trained in the diaphragm prevents their damage in the case of emptying and/or in the case of only gas-laterally filled accumulator.

No dynamic seals.

OL / EL Diaphragm accumulator with button, vessel in welded execution



How a diaphragm accumulator works:

Over the gas plug screw the gas area is filled with nitrogen. The diaphragm sets itself on the wall of the lower half shell and the in-attached plate locks the oil inlet port. (Fig. A)

If hydraulic fluid is now promoted to the accumulator, then the gas in the gas area is compressed. The gas volume becomes smaller under simultaneous increase of pressure and stores the hydraulic fluid. (Fig. C)

Turned around the accumulator empties itself, as soon as the pressure on the liquid side sinks more deeply than the gas pressure (Fig. B)

The deformation of the diaphragm is well-known. Those practically inertia and smooth deformation results in an efficiency of nearly 100 %.



General information

Hydropneumatic accumulators are pressure vessels according official regulations. Thermal treatment, welding, soldering or mechanical working may not be accomplished at OLAER-hydropneumatic accumulators. For the operation of the accumulator and the strict adherence to official operational procedures only the operator is exclusively responsible. OLAER-hydropneumatic accumulators, which are equipped with a OLAER safety block, fulfill the safety regulations after German legislation. We refer also for this to the column "accessories" of this catalog.

Function

Liquids are practically not compressible. Therefore they cannot be used directly for storage of pressure energy. Hydropneumatic accumulators use the compressibility of a gas (nitrogen) for the storage of liquids. OLAER-bladder accumulators are based on this principle. Gas and liquid side are separated by a bladder. The liquid area is located in connection with a hydraulic system. With rising hydraulic pressure by the liquid flowing in into the hydropneumatic accumulator the gas is compressed. If the pressure sinks, the gas relaxes and displaces the liquid from the hydropneumatic accumulator into the hydraulic system.

Max. allowable operating pressure

The max. allowable operating pressure is the pressure, to which the accumulator may be maximally exposed. The max. allowable operating pressure can deviate with different approvals from the nominal pressure.

Allowable Operating Temperature

These data are to be inferred from the data sheets of the individual accumulator series.

Pressure Fluids

Fluids of fluid group 2 acc. Pressure Vessel Regulation (Druckgeräterichtlinie) 97/23/EG based on mineral oil. Other fluids on request. Please consider also the table of "elastomers".

Installation position

Preferably vertically (liquid connection downwards), also deviating depending upon application. For the assembly of the filling and testing set an area of 200mm is to be released above the accumulator.

Maximum flow rate Q

The maximum values indicated in the tables apply with vertical installation (liquid valve down). Furthermore, it is to be noted that liquid-laterally a remainder volume of approx. 10% of the effective gas volume for the protection of the bladder must remain in the accumulator.

Gas filling pressure

These data are to be inferred from the data sheets of the individual accumulator series.

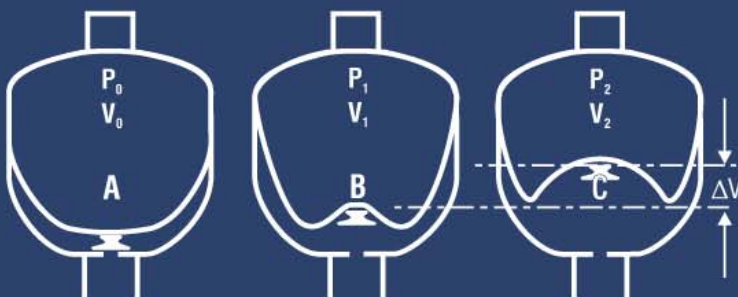
Design-conditioned restrictions of individual accumulator types are to be considered.

Gas filling

As gas filling only nitrogen is permissible, never use oxygen or compressed air (danger of explosion).

Attachment

The accumulator is to be fastened according to size and weight. The attachment is to be selected in such a way that outside effects are avoided on the accumulator (oscillations, auxiliary forces etc.). For the safe attachment of the accumulator we recommend OLAER fastening parts. These you will find in the column "accessories".



V_0 = total gas volume of the accumulator

V_1 = Gas volume at P_1

V_2 = Gas volume at P_2

ΔV = delivered or taken up utilizable volume between P_1 and P_2

P_0 = precharge pressure

P_1 = min. working pressure

P_2 = max. working pressure

The three basic positions of the diaphragm:

- A** The diaphragm is in "precharge pressure position", i.e. it is filled with nitrogen. The buttoned-in plate locks the oil opening and prevents the destruction of the diaphragm.
- B** Position with minimum operating pressure. Between diaphragm and oil opening a small liquid quantity must remain, so that the diaphragm/the buttoned-in plate does not close the oil opening with each emptying. P_0 must therefore ever be lower than P_1 .
- C** Position with maximum operating pressure. The variation in volume ΔV between the position with minimum and maximum operating pressure corresponds the storage fluid quantity.

Approval Codes

The here specified accumulator series are in principle manufactured, examined and documented according Pressure Vessel Regulation 97/23/EG.

Other approvals on request.

Selection examples of different elastomers

Due to the permanent advancement of the hydraulic fluids this table gives only one overview of the basis fluids.

Code	Elastomer	
02	Hydrin C (ECO)	Especially for low temperature range ¹
25	Nitril (NBR)	on mineral oil based liquids,
		HFA HFB ¹
		HFC ¹
40	Butyl (IIR)	liquids on phosphatic ester basis and synthetic liquids ¹
80	Viton (FKM)	difficulty inflammable and/or synthetic liquids

¹Confirmation of the supplier of the liquids about compatibility

²for temperatures higher than +80°C please consult OLAER

³for temperatures lower than -20°C please consult OLAER



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