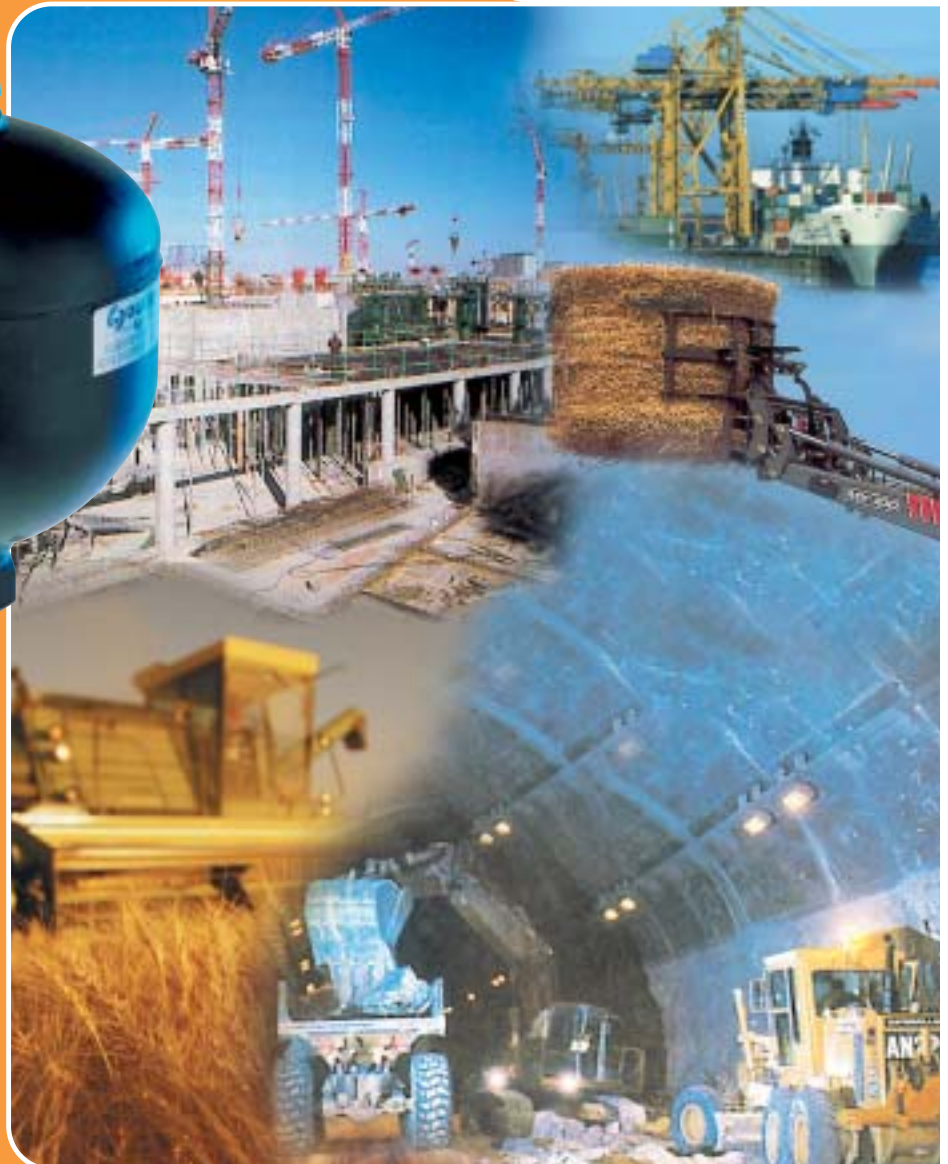


Accumulator

High-pressure diaphragm accumulator
conforming to EC regulations



ELM-ELV Series



- Day to day, the agricultural, forestry, construction and public works sectors are faced with the fundamental question

How

How to enhance driver and vehicle comfort

- Thanks to our comprehensive range of diaphragm accumulators, we offer our customers flexibility of driving and record speeds while guaranteeing enhanced machinery longevity
- The accumulator offers the possibility of extending the range of use of your machine and tools.
- Don't wait any longer; you can be a winner by standardizing the EC regulation compliant diaphragm accumulator on your machines.



Speed 50 kph



Load variation

An eloquent example^{*} of application

Faced with difficult working conditions, a farm supervisor wants to increase his driving comfort and reduce breakage among his fleet of machines.

Without accumulator

With accumulator

Critical

Uncomfortable

Uncomfortable

Critical

comfortable



^{*}Study carried out in cooperation with one of the largest manufacturers of agricultural machinery

on front axle from **3,5 à 100 %**

● OPERATING PRINCIPLE

ELM

This non-repairable accumulator comprises a body electron beam welded and an elastomer diaphragm compatible with a large number of fluids, with a specific profile allowing large compression ratios.

ELV

This repairable accumulator comprises a two-part screwed body with a strategic elastomer bladder which deforms in 3 lobes.

Thanks to the compressibility of the nitrogen gas used, these accumulators can store, maintain and restore a pressurized fluid at any time

● THE BENEFITS FOR YOU

The adaptation of a hydraulic shock absorber made up of a diaphragm accumulator improves driver comfort and offers immediate response times when driving over obstacles and the same flexibility for variable operating conditions.

0 < speed < 50 kph

3.5 < load variation < 100%

Identical flexibility depending on your use.

The same EC regulation compliant accumulator can be used in over 35 destination countries, thus facilitating their free movement.

● TECHNICAL CHARACTERISTICS

The technical characteristics are as follows:

Minimum/maximum temperature allowable (° Celsius) :

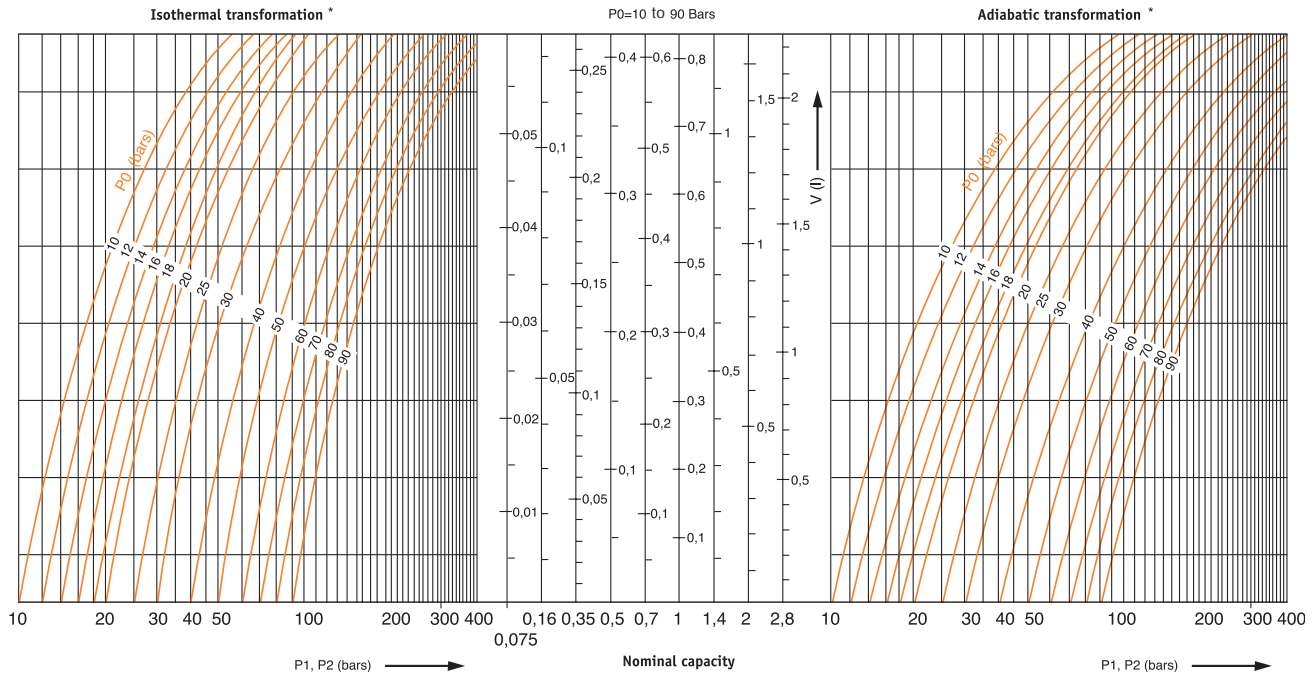
- 10/+80

Materials: steel casing, nitrile diaphragm or bladder depending on model, for other constructions, **get in touch with us.**



Olaer has developed highly advanced calculation software applications designed to simulate the operation of accumulators in terms of water hammer arresting, pulsation dampening, thermal expansion, and energy storage. These software applications are available on CD-ROM and on our website: www.olaer.com.

Energy storage calculation abacus



This abacus can be used, on the basis of the arrangement of the various parameters, to determine the volume of oil available, the size of the accumulator or the pressures. It does not take account of the correction for actual compressibility of the real gas, the actual adiabatic coefficient or the polytropic coefficient of the application. Depending on the conditions of use, these can have a significant effect and may entail the need for certain corrections.

*Reminder

Isothermal

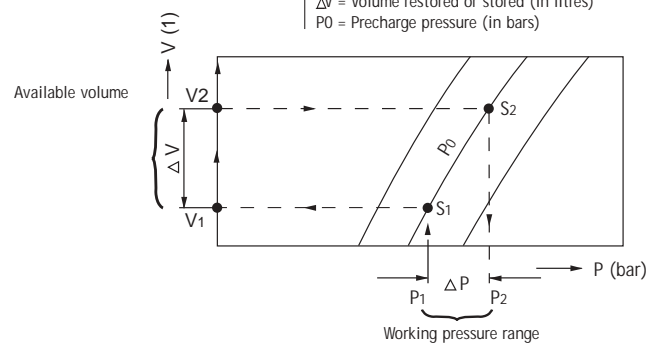
The conversion is referred to as isothermal when the compression or expansion of the gas occurs slowly to allow for heat exchange so as to maintain a constant temperature

Adiabatic

The conversion is referred to as adiabatic when the compression or expansion occurs rapidly without exchange of heat with the ambient surroundings.

Using the abacus

- P0 = Maximum operating pressure (in bars)
- P1 = Minimum operating pressure (in bars)
- ΔV = Volume restored or stored (in litres)
- P0 = Precharge pressure (in bars)



We recommend

In load dampening configuration

$P0 = 0.6 \text{ to } 0.9 P_m$ (P_m = average working pressure)

Pulsation dampening

$P0 = 0.6 \text{ to } 0.8 P_m$ (P_m = average working pressure)

Energy storage

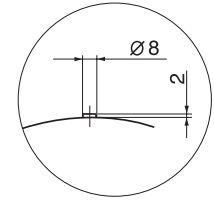
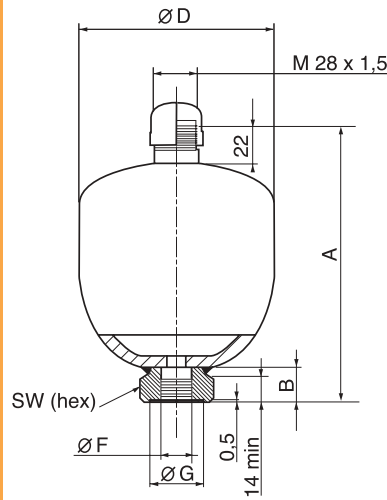
$P0 = 0.9 P1$ ($P1$ = minimum working pressure)



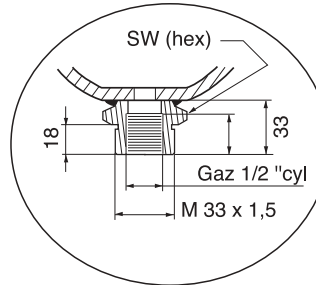
Form A

Standart F execution
nitrogen rechargeable

G execution at request
nitrogen pre-charged in factory



Form C

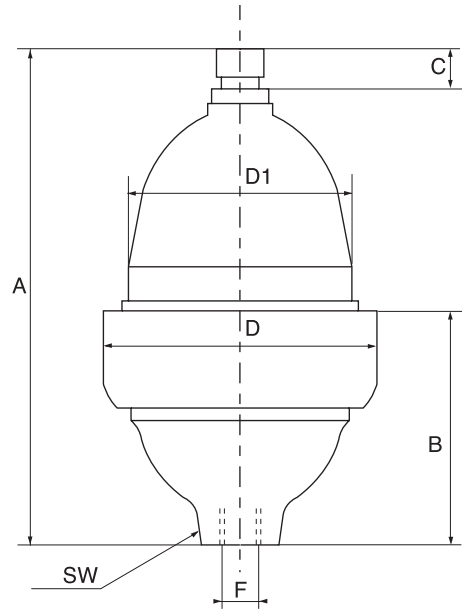


Other connection
at request

Designation	Execution Form	Volume V0 in litres	Max pressure in bars	Compression ratio P max / PO	Pressure amplitude P max / P mini	Weight in kg	A	B	SW	D	G	Oilport F	H	Clamp designation	Counternut designation
ELM 0.075-250/00/AF	AF	0,075	250	8:1	210	0,7	111	20	32	64	29	G 1/2	-	-	-
ELM 0.16-250/00/AF	AF	0,16	250	6:1	210	1	120	20	32	75	29	G 1/2	-	-	-
ELM 0.32-210/00/AF	AF	0,32	210	8:1	175	1,7	140	20	32	95	29	G 1/2	-	E95	-
ELM 0.5-210/00/AF	AF	0,5	210	8:1	175	2	152	22	41	106	34	G 1/2	-	E106	-
ELM 0.5-210/00/CF	CF	0,5	210	8:1	175	2	163	33	41	106	-	G 1/2	M33x1,5	E106	M33x1,5 DIN 936
ELM 0.75-160/00/CF*	CF	0,75	160	8:1	120	2,6	176	33	41	121	-	G 1/2	G1	E124	-
ELM 0.75-210/00/AF	AF	0,75	210	8:1	175	2,9	169	22	41	124	34	G 1/2	-	E124	-
ELM 0.75-210/00/CF	CF	0,75	210	8:1	175	2,9	180	33	41	124	-	G 1/2	M33x1,5	E124	M33x1,5 DIN 936
ELM 0.75-330/00/AF	AF	0,75	330	8:1	150	3,6	169	18	41	131	34	G 1/2	-	E136	-
ELM 1-200/00/AF	AF	1	200	8:1	170	3,5	180	22	41	136	34	G 1/2	-	E136	-
ELM 1-200/00/CF	CF	1	200	8:1	170	3,5	191	33	41	136	-	G 1/2	M33x1,5	E136	M33x1,5 DIN 936
ELM 1.4-140/90/AF	AF	1,4	140	8:1	120	4,2	191	22	41	147	34	G 1/2	-	E147	-
ELM 1.4-140/90/CF	CF	1,4	140	8:1	120	4,2	202	33	41	147	-	G 1/2	M33x1,5	E147	M33x1,5 DIN 936
ELM 1.4-250/90/AF	AF	1,4	250	8:1	120	6	199	22	41	155	34	G 1/2	-	E155	-
ELM 1.4-250/90/CF	CF	1,4	250	8:1	120	6	199	22	41	155	-	G 1/2	M33x1,5	E155	M33x1,5 DIN 936
ELM 2-100/90/AF	AF	2	100	6:1	80	3,5	240	22	41	144	34	G 1/2	-	E147	-
ELM 2-250/90/AF	AF	2	250	6:1	80	7,5	251	22	41	155	33	G 3/4	-	E155	-
ELM 2.8-250/90/AF	AF	2,8	250	4:1	140	9	268	21	41	174	32	G 3/4	-	E174	-
ELM 3.5-250/90/AF	AF	3,5	250	4:1	140	11	307	22	41	174	32	G 3/4	-	E174	-

Range conforms to EC standart group 2

* Stainless stell version **ISO 228



Designation	Volume V0 in litres	Max pressure in bars	Compression ratio P max / P0	Weight in kg	A	B	C	SW	D	D1	Oilport F	Clamp Designation
ELV 0.7-330/00	0,7	330	4:1	5,5	220	104	25	32	130	106	G 1/2	E136
ELV 0.7-330/00	0,7	330	4:1	5,5	220	104	25	32	130	106	M18x150	E136
ELV 1.5-330/90	1,5	330	4:1	8,6	362	104	25	32	130	106	G 1/2	E136
ELV 1.5-330/90	1,5	330	4:1	8,6	362	104	25	32	130	106	M18x150	E136

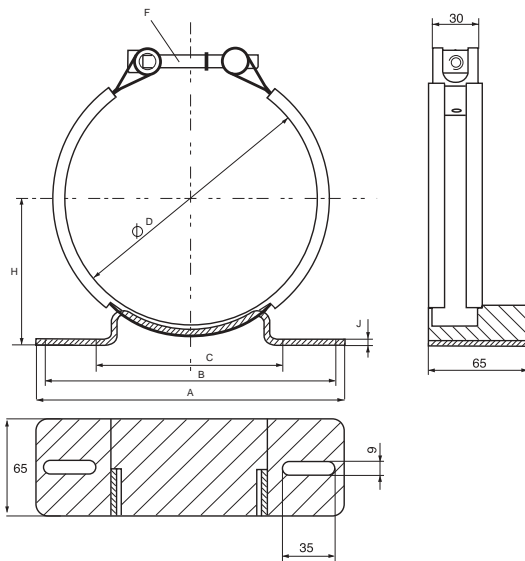
Range conforms to EC standard group 2

Accessories

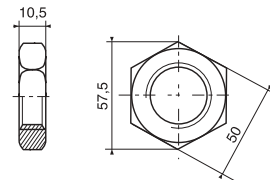
These accessories are designed so that the accumulator can be securely attached in all configurations.

Clamp

Form E



Conternut



Designation	A	B	C	D	F	H	J
E95	160	148	78	95	M10x65 8.8	66,5	3
E106	160	148	78	106	M10x65 8.8	72	3
E124	160	148	78	124	M10x65 8.8	77,5	3
E136	160	148	78	136	M10x65 8.8	83,5	3
E147	210	198	128	147	M10x80 8.8	86,7	4
E155	210	198	128	155	M10x80 8.8	90,7	4
E174	210	198	128	174	M10x80 8.8	100,7	4

Range conforms to EC standard group 2

The above measurements are given in mm and do not take manufacturing tolerance into consideration

CHARGING AND GAUGING ASSEMBLY

Suitable for use with all accumulators, the charging and gauging assembly is designed to check, fill and bleed nitrogen. It is screwed onto the filling valve, and connected via a hose to the pressure regulator valve fitted onto the nitrogen source.

VGU MODEL

The universal charging and gauging assembly (VGU) is designed for use with all accumulators on the market

TECHNICAL CHARACTERISTIC

Maximum operating pressure: 340 bars

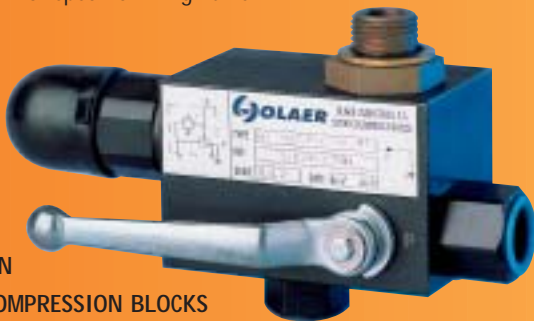
HOW TO ORDER

Example: VGU/F 25/250 7 TS2 3

25/250 = possible choice of pressure gauges depending on the pressure ranges: 6/10/25/60/100/160/250/400

Optional, at request

- Adapters for foreign nitrogen cylinders, specify the country
- Hoses of different lengths
- Connection for specific filling valve

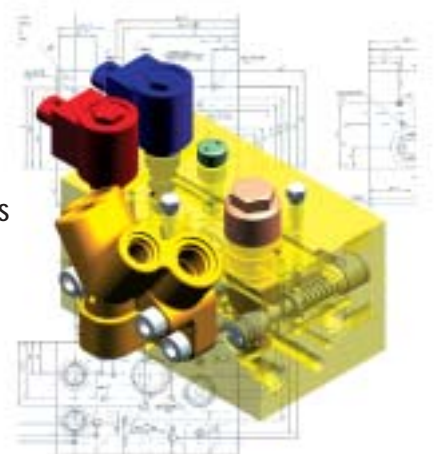


ISOLATION AND DECOMPRESSION BLOCKS

These appliances are designed to bring together, on a single compact block, all the components necessary for the operation of a hydraulic installation fitted with hydro-pneumatic accumulators. The functions they perform include manual and/or electric decompression, isolation, flow regulation and pressure limitation.

Various nominal passage diameters: 10 mm (DI 10 block), 16 mm (DI 16 block), 20 mm (DI 20 block), 24 mm (DI 24 block), 32 mm (DI 32 block).

Maximum operating pressure from 330 to 550 bars depending on the model. Contact us at Olaer for our documentation and selection program.



FUNCTION BLOCKS

Olaer has a broad range of function blocks adapted to your specific use. Contact our technical department for further information.

• Ordering the ELM accumulator

ELM 0,75 - 330/00/AF 01125 Po=90 b

Accumulator series _____

European range of ELM diaphragm accumulators

Volume _____

in litres

Maximum operating pressure _____

in bars

Regulation code _____

00: EC regulations for volumes ranging from 0.075 to 1 l.
90: EC regulations for volumes ranging from 1.4 to 3.5 l.

Form _____

A – internal tapped outlet
C – internal tapped end external threaded outlet

Execution _____

Standard (nitrogen rechargeable)
G at request (precharged with nitrogen in factory)

Construction _____

Mineral oils, operating temperature from -10 to + 80 °C, construction 01125 (standard construction).
Other fluids and temperatures, contact Olaer

Nitrogen precharge pressure _____

in bars at 20° C
(See calculation abacus on page 5 or contact the Olaer technical departments)

• Ordering the ELV accumulator

ELV 0,7 - 330/00 01125 Po=90b G1/2 cyl.

Accumulator series _____

European range of ELV bladder accumulators

Volume _____

in litres

Maximum operating pressure _____

in bars

Regulation code _____

00: EC regulation for 0.7 L volume.
90: EC regulation for 1.5 L volume.

Construction _____

Mineral oils, operating temperature from -10 to + 80 °C, construction 01125 (standard construction).
Other fluids and temperatures, contact Olaer

Nitrogen precharge pressure _____

in bars at 20° C
(see calculation abacus on page 5 or contact the Olaer technical departments)

Connection to be specified _____

(see bulk table on pages 6 and 7)

• Ordering accessories and peripherals

Indicate the designation of the accessories mentioned in the tables on pages 6 and 7 and peripherals on page 8.

Before installing the accumulator, it is essential to perform a visual inspection to detect any damage. For optimum operation, the accumulator should be placed as closely as possible to the operating device or to be protected

The ELM can be mounted vertically, filling valve at the top, or horizontally

The ELV can be mounted vertically, filling valve at the top

- Do not stand in front of the openings
- Keep an eye on the environmental conditions and, if need be, protect the accumulator from sources of heat, electrical fields, magnetic fields, lightning, humidity and the bad weather
- Leave a space of 200 mm above the filling valve for connecting it to the gauging and charging assembly
- Ensure that the markings are visible
- Install it in a manner that ensures that the pipes directly or indirectly attached to it are not subject to any abnormal stress
- Place the body of the accumulator on a support or surround it by a guard capable of preventing it from moving or of limiting its movement.
- Connect the accumulator to the hydraulic circuit by means of the appropriate connecting devices, such as unions and flanges
- Make sure that the fluid is compatible with the equipment
- Make sure that the maximum allowable pressure of the accumulator is equal to or greater than that of the hydraulic circuit
- Ensure that the temperature and pressure limits are complied with
- Fit the hydraulic circuit with a pressure limiting system
- If necessary, make provision for a rupture disk or relief valve to cover the risk of excess pressure linked to thermodynamic phenomena
- Fill with nitrogen only

It is strictly forbidden to:

- Weld, rivet or screw any part onto the accumulator
- Carry out any operation which could affect the mechanical properties of the accumulator
- Use the accumulator as a construction part: it should not support any constraint or load
- Modify the accumulator without the prior agreement of the manufacturer

Commissioning

For commissioning, see the instructions delivered with the accumulator



Number	Spare parts
1	Spare parts kit
2*	Complete bladder
3*	Filling valve
4*	Valve cap
5*	Seal

* These parts are delivered in the form of a spare parts kit with instructions

How to order the spare parts kit

Example : KIT ELV 0.7-330/00 01125

Extract from European legislation. Directive 97/23/ EC is applicable from 29-11-1999 and mandatory from 29-05-2002. Decree 99-1046, which applies to new machinery and the ministerial order of 15-03-2000, which applies to the operation of all machinery, transposed the directive into French domestic legislation.

What you need to know:

Free movement of machinery within the European Union

Group 2 fluid accumulators whose V ≤ 1 L and PS ≤ 1000 bar are not entitled to bear EC marking

The EC marking should be accompanied by the identification number of the notified authority

EC type accumulators are delivered with instructions for operation and a declaration of conformity

Other designs and manufactures hydro-pneumatic accumulators for use in all countries and which comply with national regulations in force.

INTERNATIONAL NETWORK

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Fawcett Christie Hydraulics SA (PTY)
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Fax +27.11.474.83.84

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www.fluidpower.com

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Czech Republic

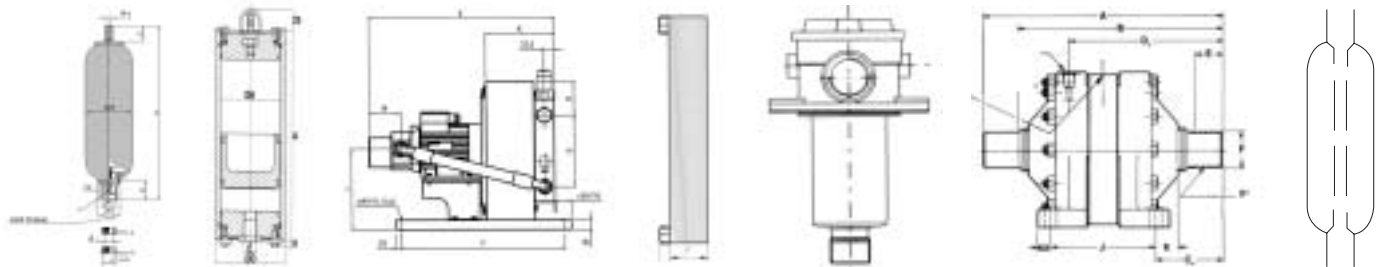
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