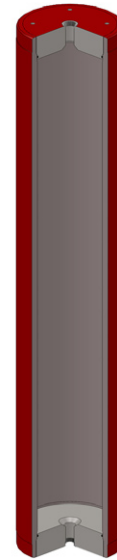


6.4.1 TECHNICAL DATA

- MAX OPERATING PRESSURE (PS):** 375 bar
- PRESSURE TEST (PT):** 1.43 x PS
- NOMINAL CAPACITIES:** 0.1 ÷ 1000 litres
- WORKING TEMPERATURE:** -50 ÷ +150 °C
- BODY MATERIAL:** - carbon steel shell painted with rust inhibitor RAL 8012
- nickel coating 25 - 40 μ
- FLUID PORT CONNECTION:** upon request
- WEIGHT:** see Table 6.4d



6.4a

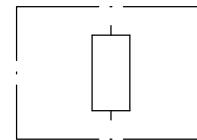
6.4.2 DESCRIPTION

Additional bottles type AB consist of a pipe of high-tensile steel. The same pipe of the piston accumulator type AP. The additional bottles are used to take in and store nitrogen to increase the gas volume in the accumulator station (with bladder or piston accumulator). This means that smaller accumulators can be used for the same gas volume and costs can be reduced. EPE offers a wide selection of bottles type, such as forged "B" version, shell of bladder accumulator "ASS" and "ASSA" version or body piston type "AB" version.

6.4.3 "AB" ADDITIONAL CYLINDERS ADVANTAGES

- compact
- simple construction
- quick, easy installation
- large volume

6.4.4 HYDRAULIC SYMBOL



6.4b

6.4.5 SEALS-TEMPERATURE-LIQUID COMPATIBILITY

When selecting the additional cylinder variant, pay attention to the following non-binding notes with regard to hydraulic fluid, seals material and the permissive temperature range. (see Section)

Code letter	Polymer	ISO	Temperature range (°C)	Some of the liquids compatible with the polymer
P	Standard nitrile (Perburan)	NBR	-20 ÷ +80	Aliphatic hydrocarbons (propane, butane, gasoline, oils, mineral greases, diesel fuel, fuel oil, kerosene), mineral greases and oils, HFA - HFB - HFC fluids, many dilute acids, alkalis, saline solutions, water, water glycol.
F	Low temperature nitrile	NBR	-40 ÷ +70	The same as with standard nitrile + a number of different types of Freon. (This contains less acrylonitrile than the standard and is therefore more suitable for low temperatures, but its chemical resistance is slightly lower).
K	Hydrogenated nitrile	HNBR	-30 ÷ +130	The same as with standard nitrile but with excellent performance at high and low temperatures.
L	Hydrogenated nitrile	HNBR	-60 ÷ +130	The same as with standard nitrile but with excellent performance at high and very low temperatures.
V	Fluorocarbon	FKM	-10 ÷ +150	Mineral oils and greases, non-flammable fluids of HFD group, silicone oils and greases, animal and vegetable oils and greases, aliphatic hydrocarbons (gasoline, butane, propane, natural gas), aromatics hydrocarbons (benzene, toluene), chlorinated hydrocarbons (Tetrachloroethylene, carbon tetrachloride), fuel (regular, super and containing methanol), excellent resistance to ozone, weathering and aging.

For other hydraulic fluid and/or temperatures, please consult us.

6.4c

6.4.6 ORDER CODE

1	2	3	4	5	6	7	8	9	10	11	
AB	200	P	220	C	350	G	6	G	5	-	8

1	Series
	Additional bottle = AB

2	Nominal capacity (litres)
	\varnothing 60 mm = 0.1 ÷ 2.5 \varnothing 100 mm = 1 ÷ 10 \varnothing 180 mm = 6 ÷ 80 \varnothing 250 mm = 30 ÷ 180 \varnothing 350 mm = 80 ÷ 400 \varnothing 520 mm = 180 ÷ 1000

3	Seals material material
	Nitrile rubber (NBR) = P Nitrile for low temp. = F Fluorocarbon (FKM) = V Hydrogenated nitrile = K Hydrogenated nitrile for low temp. = L

4	Max working pressure (bar)
	\varnothing 60 mm = 375 \varnothing 100 mm = 375 \varnothing 180 mm = 250 - 375 \varnothing 250 mm = 250 - 350 \varnothing 350 mm = 220 - 350 \varnothing 520 mm = 220 - 350 (210 only for the version with connection L or other pressure related to connections B or U)

5	Body material
	Carbon steel = C Nickel coated carbon steel 25 μ = N Nickel coated carbon steel 40 μ = M

6	Nominal internal diameter
	\varnothing 60mm = 60 \varnothing 100mm = 100 \varnothing 180mm = 180 \varnothing 250mm = 250 \varnothing 350mm = 350 \varnothing 520mm = 520

11	Test and certification
	Factory testing = 0 ML (China) = 3 PED2014/68/EU (for capacity greater than 1 l) = 8 EAC Passport (Russia) = 11 Algeria passport = 12 Standard regulation (NR13) (Brazil) = 13 Tunisian passport = 14

10	Dimension of port connection B
	See the table on page 2

9	Type of port connection B
	Without connection = 0 Female thread: BSP ISO 228 = G BSP ISO 228 with chamfer for OR = A NPT-F = P SAE = S METRIC = M Holes for flange: SAE 3000 metric threads = L SAE 6000 metric threads = H ANSI metric threads = B UNI - DIN = U CETOP = C Special flange = F

8	Dimension of port connection A
	See the table on page 2

7	Type of port connection A
	Without connection = 0 Female thread: BSP ISO 228 = G BSP ISO 228 with chamfer for OR = A NPT-F = P SAE = S METRIC = M Holes for flange: SAE 3000 metric threads = L SAE 6000 metric threads = H ANSI metric threads = B UNI - DIN = U CETOP = C Special flange = F

8	Dimension of port connection A
Without connection = 0	
For the type of connection:	
G-A-P-L-H 1/8" = 1	
1/4" = 2	
3/8" = 3	
1/2" = 4 (std. DN 60)	
3/4" = 5	
1" = 6 (std. DN 100)	
1"1/4 = 7	
1"1/2 = 8 (std. DN 180-250-350)	
2" = 9 (std. DN 520)	
2"1/2 = 10	
3" = 11	
3"1/2 = 12	
4" = 13	
S = Diameter "inch"-Pitch "inch"	
Former. 9/16-18 = 9/16-18	
M = Diameter/pitch	
Former. M 22x1.5 = 22/1.5	
B = Dimension/Rating	
Former. 4" ANSI 300 = 4/300	
U = DN/PN	
Former. DN100 PN16 = 100/16	
C = Diameter "inch"/max Pressure "bar"	
Former. 3"Cetop 400 = 3/400	
F = to specify and EPE will assign a number	

9	Dimension of port connection B
Without connection = 0	
For the type of connection:	
G-A-P-L-H 1/8" = 1	
1/4" = 2	
3/8" = 3	
1/2" = 4 (std. DN 60)	
3/4" = 5	
1" = 6 (std. DN 100)	
1"1/4 = 7	
1"1/2 = 8 (std. DN 180-250-350)	
2" = 9 (std. DN 520)	
2"1/2 = 10	
3" = 11	
3"1/2 = 12	
4" = 13	
S = Diameter "inch" - Pitch "inch"	
Former. 9/16-18 = 9/16-18	
M = Diameter/pitch	
Former. M 22x1.5 = 22/1.5	
B = Dimension/Rating	
Former. 4" ANSI 300 = 4/300	
U = DN/PN	
Former. DN100 PN16 = 100/16	
C = Diameter "inch"/max Pressure "bar"	
Former. 3"Cetop 400 = 3/400	
F = to specify and EPE will assign a number	

6.4.7 EUROPE MARKET

All hydraulic bottles are pressure vessels and are subject to the national regulations and directives valid at the place of installation.

For additional cylinders type AB, every shipping batch is complete of a conformity declaration and instructions of use and maintenance and/or all documents requested. All vessel categories (see Table 6.4d) must be protected by means of a pressure relief valve in accordance with Directive 2014/68/EU.

6.4.8 ACCESSORIES

For support equipment, see Cap. 7

For gas side's safety equipment, see Cap. 8

For pre-loading and charging set, see Cap. 11

For other components, see Cap. 12

6.4.9 DIMENSIONS

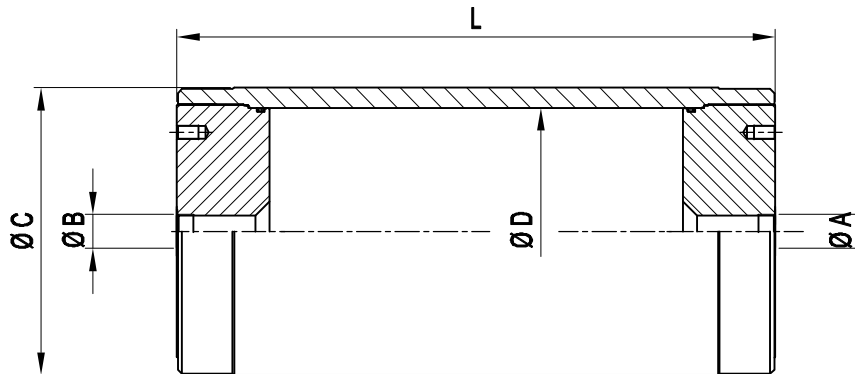


Fig. I

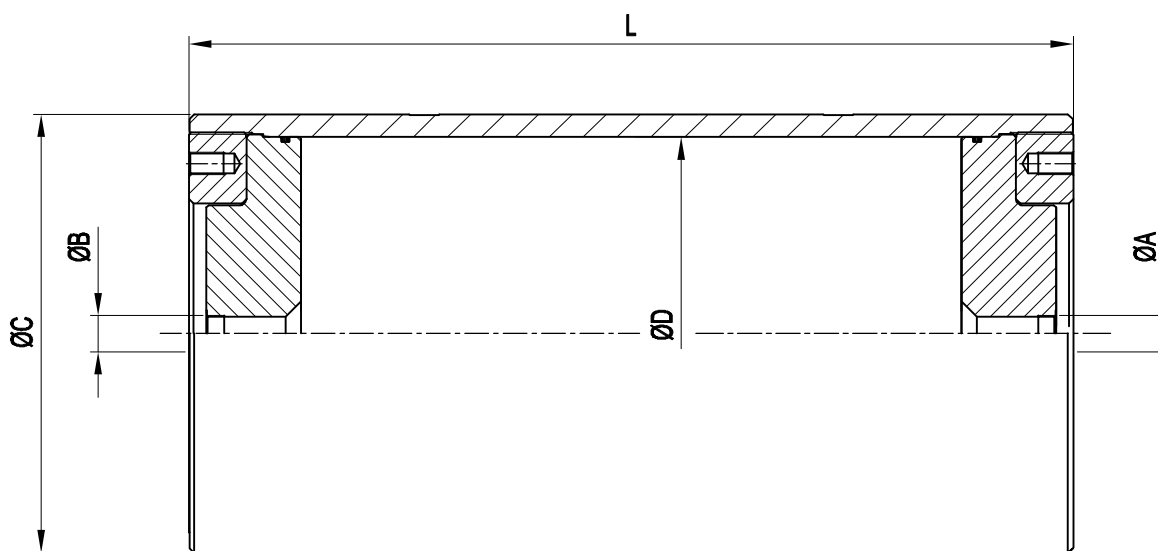


Fig. II

6.4d

Bottle type ABXXX Ø bore (ØD)	Fig	Gas capacity liters	Working pressure bar	Ped category for the liquids of group 2	Maximum differential pressure bar	ØA	ØB	ØC mm	ØD mm	L mm	Dry Weight Kg				
											220 bar	250 bar	350 bar	375 bar	
60	I	0,25	375	Art 4 par. 3	300	M12 x 1,5	1/2" BSP	80	60	169			4,9		
		0,5								257			6,4		
		1		434								9,5			
		1,5		611								12,5			
		2		788								15,5			
100	I	1	375	Art 4 par. 3	300	M12 x 1,5	1" BSP	130	100	240			17,1		
		1,5								303			20,1		
		2		368								22,5			
		2,5		430								25,1			
		3		494								27,9			
		4		622						III			33,2		
		5		750									38,7		
		6		877						IV			44,1		
		8		1132									54,9		
		10		1387									65,5		
180	I	6	250	Art 4 par. 3	180,5	M12 x 1,5	1 1/2" BSP	210	180	416	65,5		76		
		8								495	71		83,5		
		10								573	76,5		91,5		
		15								770	90,5		110,5		
		20								966	104,5		130		
		25								1163	118,5		149		
		30	1360	133		168,5									
		40	1752	161		207									
		50	2145	189		245,5									
		60	2538	197		284									
		80	3324	217		361									
		250	I	30	250	IV	180	M12 x 1,5	1 1/2" BSP	292	250	849	205	300,5	
				40								1065	240	353	
50	1280			274,5								405,5			
60	1496			309,5								453			
80	1928			379,5								558			
100	2359			449,5	663										
120	2790			519,5	768										
150	3457			624,5	925,5										
180	4084			729	1083										
350	I			100	220		IV			165		M12 x 1,5	1 1/2" BSP	406	350
		120	1592	625				726							
		150	1924	718				840,5							
		180	2256	811				954,5							
		200	2478	873		1031									
		250	3032	1028		1221									
		300	3586	1183		1411									
		400	4694	1493		1792									
520	II	200	220	IV	120	M12 x 1,5	2" BSP	584	520	1288	1028		1525,8		
		250								1447	1130,5		1694,2		
		300								1759	1232,5		2162		
		350								1997	1334,6		2030		
		400								2229	1437		2197		
		500	2700		1641,2					2533,4					
		600	3171		1845,7					2869,4					
		800	4113		2555,4					3541,7					
		1000	5055		2663,7					4213,6					

6.4e

- The maximum differential pressure is the maximum allowable difference between the maximum pressure and the minimum working pressure (P2-P1) to have an infinite life cycle of the accumulator (greater than 2,000,000 cycles).

6.4.10 SPARE PARTS CODES

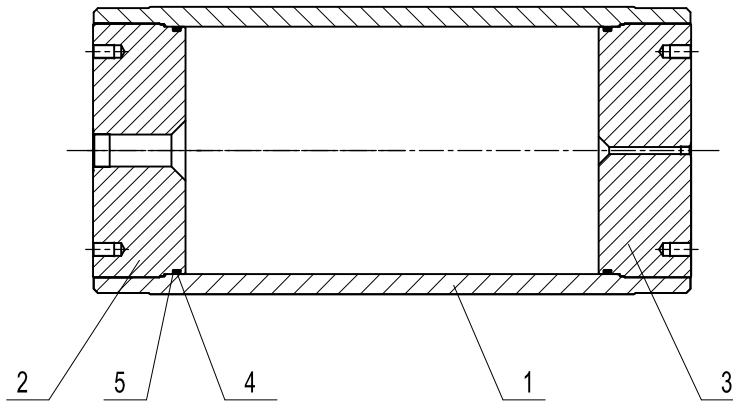


fig. I

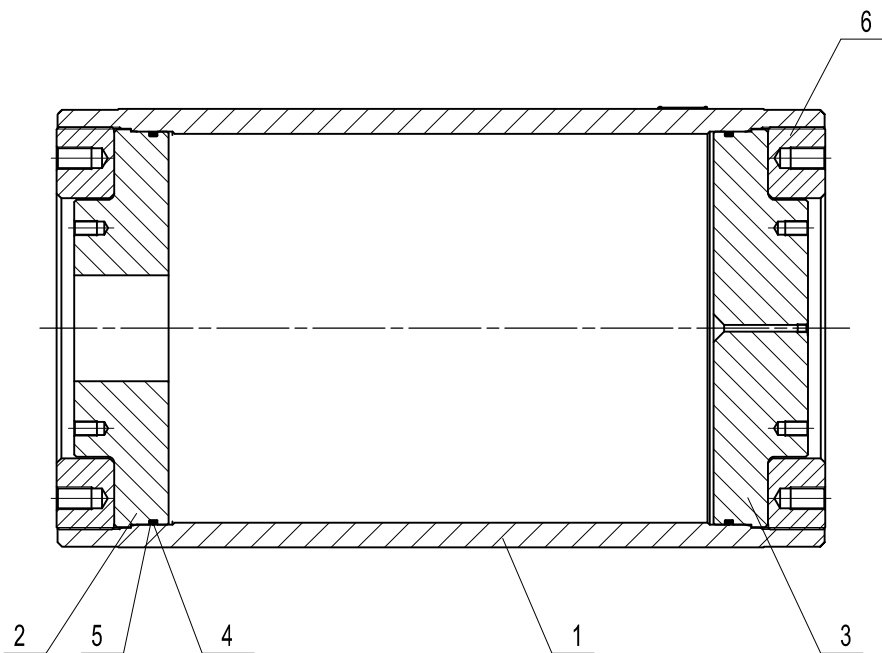


fig. II

6.4f

Pos.	Spare parts	Cylinder diameter	Fig.	Group code	Q.ty	Part description	Type / Code
1	Not supplied as spare parts					Accumulator cylinder	-
2						Oil side cap	
3						Gas side cap	
4	Accumulator gasket set	60	I	B2471-1 *	2	O - ring	0010R6200 - *
5					2	Anti-extrusion ring	0011P8329 - *
4	Accumulator gasket set	100	I	B2472-1 *	2	O - ring	0010R0185 - *
5					2	Anti-extrusion ring	0011P8341 - *
4	Accumulator gasket set	180	I	B2473-1 *	2	O - ring	0010R0228 - *
5					2	Anti-extrusion ring	0011P8439 - *
4	Accumulator gasket set	250	I	B2474-1 *	2	O - ring	0010R8925 - *
5					2	Anti-extrusion ring	0011P8447 - *
4	Accumulator gasket set	350	I	B2475-1 *	2	O - ring	0010R81300 - *
5					2	Anti-extrusion ring	0011P8455 - *
4	Accumulator gasket set	520	II	B2476-1 *	2	O - ring	0010R82000 - *
5					2	Anti-extrusion ring	0011P8469 - *
6	Not supplied as spare parts					Thread ring	-

* Gasket material

6.4g

6.4.11 COMMISSIONING AND MAINTENANCE

Delivery condition

The additional bottles type AB are shipped on pallets or wooden boxes upon request. Unless otherwise required, certificates and documentation are provided together with the bottles.

Handling

The original packaging is suitable for handling and storage. Where necessary, you should use suitable lifting equipment to support the weight of the bottles. However protect from impact the packaging and handle it with care.

Storage

During storage in the warehouse, leave the product in its original packaging, keeping it away from heat sources and naked flames. The storage temperature should be between +10 and +40°C. After six years of storage, it is essential to proceed with the replacement of all elastomeric parts before the commissioning.

Marking on the nameplate of the additional cylinder

With reference to the PED 2014/68/EU classification, Article 3, Paragraph 3 and / or risk categories I or IV depending on the volume and maximum working pressure, the cylinder indicates the following data:

- logo, name and country of the manufacturer
- month / year of production
- product code
- serial number
- maximum PS pressure and PT test pressure in bar
- min. and max. TS working temperature in Celsius
- volume V in litres
- group of fluids allowed
- CE marking (by category I ÷ IV) with the identification number of the notified body

It is strictly forbidden to:

- weld, rivet, bolt or screw any item of the cylinder shell
- engrave or permanently stamp the surfaces of the cylinder shell and / or carry out other operations that could affect or change the mechanical properties of the cylinder
- use the cylinder as a structural element: it should not be subjected to stresses or loads
- change the data of the nameplate and / or the cylinder without the permission of the manufacturer
- use a (dangerous) fluid of Group 1 with equipment designed and manufactured for fluids of Group 2.

Installation

Before installation, you must perform a visual check to verify that the bottles has not suffered any damage during shipping / handling. Verify that the requested type matches with what stamped on the nameplate. We recommend using the additional bottles connected to the accumulator with a suitable safety valve (see Chapter 8). This device provides user and equipment protection against possible damages due to pressure peaks.

The additional bottles type AB may be installed in any position from horizontal to vertical (preferably with the connections vertically) and the nameplate must be visible.

Proceed to the assembly so that no abnormal force affects the pipes connected directly or indirectly to the additional bottles, so we recommend the use of supporting components and also fastening (please see Chapter 7) to avoid the transmission of vibrations.

Make sure that the bottle is connected to the hydraulic circuit through suitable connection devices.

Make sure the gas is compatible with the elastomer of the seals.

Check that the max. allowed bottle pressure is equal to or greater than that of the hydraulic circuit and that the temperature during operation is maintained within the range expected.

Make sure the fluid does not contain contaminants.

Maintenance

- Periodically check the pre-charge pressure of the system: after the commissioning, check after 2-3 weeks of operation and if there were no leaks, repeat the operation after 3 months; if the pressure at the same temperature was stable, repeat the test yearly. For heavy-duty applications, check the pre-charge every 6 months.
- Periodically (yearly) carry out a visual inspection of the bottle in order to detect any early signs of deterioration such as corrosion, deformation, etc.
- Comply with the requirements of the regulations concerning the verification of the functionality of the equipment according to the country of installation of the bottle.

Disassembly

If for failure, scheduled check or retest it is necessary to remove the additional bottle from the system, prior to removal, completely discharge the pressure within the circuit.

All additional EPE cylinders of the AB series can be repaired.

Repair

It may consist in replacing the seals.

For reasons of functionality and security, it is recommended to use only original spare parts.

Demolition and recycling of the additional cylinder

Before demolition or recycling of the additional cylinder, you should always discharge the internal pressure.

If needed, proceed decontaminating in relation to the gas/fluid used prior to demolition.

Reproduction is forbidden.

In the spirit of continuous improvement, our products may be changed.