

## 17.1 General

The EPE bladder is made by two different and separable parts. One is the rubber bladder of which the main feature lies in an original and well developed process that allows the construction in a **single piece**. The second part is the gas valve assembly that is seal connected on the bladder mechanically. This unique method allows to seal connect on the same bladder **different types**

**of gas valve assembly** (see pag. 37).

The two parts, bladder and gas valve assembly, can be ordered separately (for the assembling see pag. 41) so when is necessary the replacement of the bladder, it is possible to use again the gas valve assembly saving in this way money on the purchasing price of the spare bladder.

## 17.2 Technical and constructional features

● **THE BLADDER**, used in the standard version of the accumulators of all the series offered by EPE, is made in butadiene-acrylonitrile rubber (NBR) with medium-high ACN content which we have denoted "**standard nitrile**" and distinguished with the letter **P**. The "**P**" bladder is above all suitable for use with mineral oils but gives also excellent results with many other liquids (see ch. 3.15 page 16). The operating temperature range is between  $-20$  and  $+85^{\circ}\text{C}$ . For special requirements, temperatures exceeding the above limits, special liquids, etc. the bladder can be supplied in the following materials: Nitrile for low temperatures (**F**), Nitrile for hydrocarbons (**H**), Hydrogenated Nitrile (**K**), for foodstuffs (**A**), Butyl (**B**), Ethylene-propylene (**E**), Neoprene (**N**), Epichlorohydrin (**Y**).  
**N.B. Not all the bladders sizes are available in all the materials. Please consult our Technical Service Department before ordering.**

● **THE GAS VALVE** used in the EPE accumulators is made of phosphated carbon steel, in the following three versions:

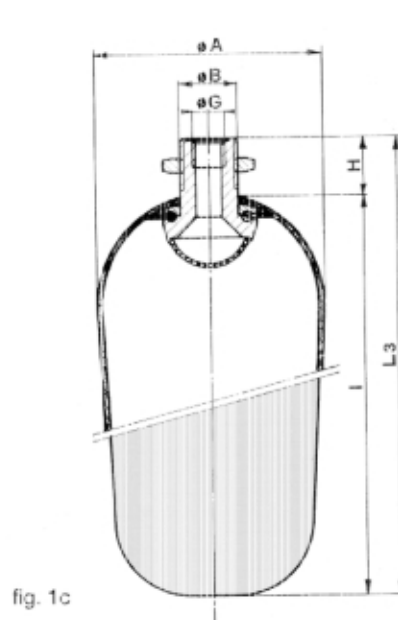
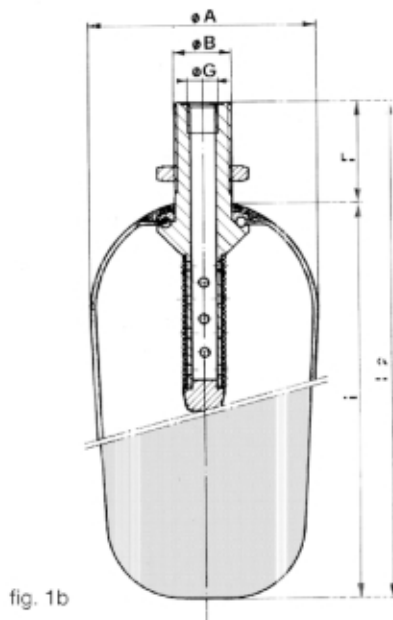
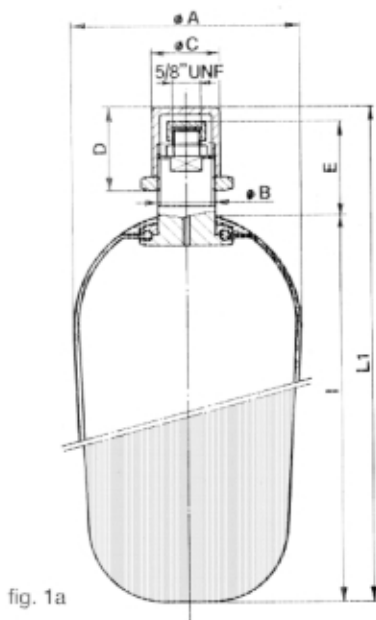
**S = STANDARD**, (fig. 1a). For capacities from 0,2 to 55 litres with inflating valve 5/8" UNF.

This valve can be supplied with  $\varnothing B$  and special inflation connections (see ch. 18.4).

**ST = TRANSFER** (fig. 1b). Suitable for use with the accumulator connected to one or more additional nitrogen bottles. For capacities from 5 to 55 litres.

**SL = LIQUID SEPARATOR** (fig. 1c). It is used when a liquid is also inside the bladder. For capacities from 0,2 to 55 litres.

● **UPON REQUEST**, all the valves can be supplied with chemical nickel coating 25  $\mu\text{m}$ . (other thickness to be specified) or in stainless steel.



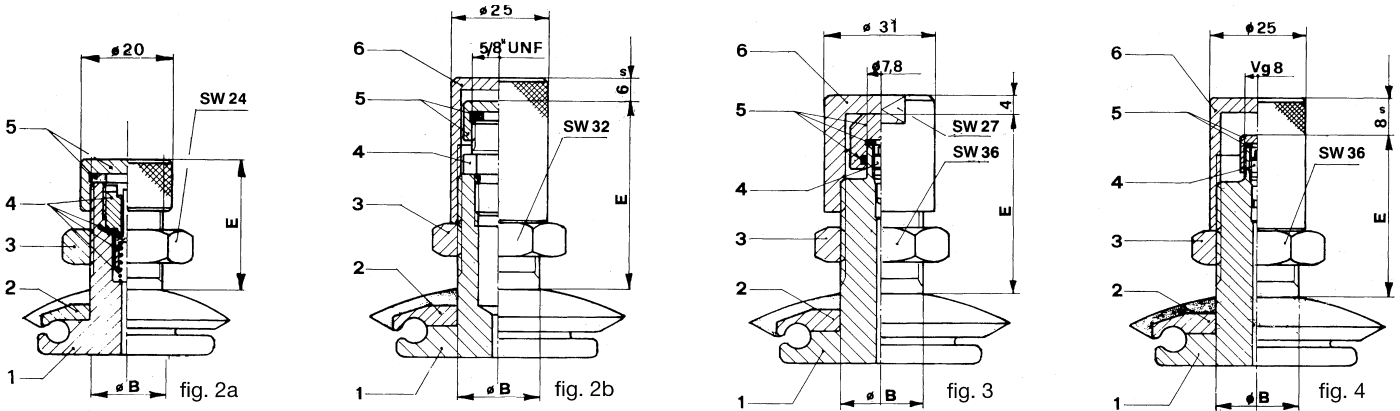
## 17.3 Bladder dimensions and spare codes for standard valves

Nominal capacities (Litres)	Bladder dimensions with valves fig. 1a - 1b - 1c												Bladd. weight kg	Gas valve assembly												
	$\varnothing A$	$\varnothing B$	$\varnothing C$	$\varnothing G$ ISO 228	D	E	F	H	I	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>		fig. 1a code No.	fig. 1a weight kg	fig. 1b code No.	fig. 1b weight kg	fig. 1c code No.	fig. 1c weight kg							
0,2	38	5/8" UNF	20	1/8" BSP	-	25	-	23	155	180	-	178	0,03	2002	0,1	-	-	2003	-							
0,7	75	M22x1,5 (Spec. $\varnothing B$ s. section 18.4)	25	1/4" BSP	47	51	36	28	126	182	-	154	0,07	2021	-	-	2027-1	0,27								
1	148								204	184	176	0,13	2022	0,3	2026	0,55	2027	0,18								
1,5	198								254	234	226	0,17														
2,5	325								381	361	353	0,30														
3	146								M50x1,5 (Spec. $\varnothing B$ s. section 18.4)	55	1" BSP	60	63	72	43	374	430	410	402	0,36	2042	0,42	2043	1,1	2048	0,33
4																215	272	252	247	0,33						
5	284															341	321	316	0,43	2062	1,7	2065	2,6	2073	1,1	
10	315															390	387	358	0,96							
12	400															475	472	443	1,08							
15	450															525	522	493	1,29							
20	583	658	655	626	1,79																					
25	735	810	807	778	2,22																					
35	1080	1155	1152	1123	3,28																					
55	1535	1610	1607	1578	4,59																					

## 17.4 Special gas valve

EPE bladders, in addition to their use in EPE accumulators, are perfectly interchangeable with many others brands available in the market.

In order to do that, gas valves (see below) are available with non-standard stem diameters ( $\varnothing B$ ) and charge-connections.



### 17.4.1 Dimensions and spare codes for special valves

Nominal capacities (litres)	Fig.	Bladder with valve code	Dimensions		Weight Kg	<sup>1)</sup> Spare order codes						
			$\varnothing B$	E		<sup>2)</sup> Gas valve assembly	Item 1 valve body	<sup>2)</sup> Item 2 washer	Item 3 locknut	Item 4 fill valve	Item 5 valve cap	Item 6 protect. cap
0,7 - 1 - 1,5 2,5 - 3	2a	S...2	5/8" UNF	26	0,15	2015	10110	10105	10023	2070	10337	-
	3	S...3	7/8" UNF	46	0,38	2019	10118	10106	10108	2069	10201	10200
	4	S...4			0,3	2020	10119				10134	10135
4 - 5	2a	S...2	5/8" UNF	30	0,27	2041	10255	10257	10023	2070	10337	-
	3	S...3	7/8" UNF	49	0,48	2045	10258	10205	10108	2069	10201	10200
	4	S...4			0,4	2046	10259				10134	10135
10 - 12 - 15 20 - 25 - 35 55	2b	S...2	M22x1,5	57	0,75	2061	10332	10331	10109	2072	10337	10103
	3	S...3	7/8" UNF	52	0,83	2084	10329		10108	2069	10201	10200
	4	S...4			0,75	2085	10330				10134	10135

1) The code denotes components made in carbon steel and washer coated in standard nitrile rubber. For different executions, add the letter N for nickel plated steel and the letter X for stainless steel to the code number.

2) If the washer is coated with an elastomer different from the standard nitrile, the code number should be followed by both the letter denoting the steel and the letter denoting the elastomer.

## 17.5 Identification code

The letter sequence denoting the bladders is very simple and follows the first part code of EPE accumulator (the type without the letter A, size, bladder material), to which is added **0** when the valve is not required and **1** when the bladder has to be completed with valve (fig. 1a-1b-1c).

For bladders used as a replacement in another brand of accumulator, in addition to the size and the material of the bladder, should

be indicated also the exact type of valve. The valve can be selected from either the standard types (fig. 1a/1b/1c), and denoted by 1, or from the special valves, respectively denoted by 2 (fig. 2a-2b), 3 (fig. 3), 4 (fig. 4), 5 (see page 22) and 6 for other types to be specified. When uncertain, the best way is to indicate also the type and brand of the accumulator. The example given is of a standard version bladder, for a 25 litres accumulator, in Nitrile, complete with  $\varnothing B$  valve = M50x1,5 in phosphated C40 steel.

S
25
P
1
-

Bladder Type	Nominal capacities (Litres)	<sup>1)</sup> Bladder material	Gas valve	Gas valve material
<b>S</b> = Standard (fig. 1a) <b>ST</b> = Transfer (fig. 1b) <b>SL</b> = Liquid separator (fig. 1c)	<b>0,2 - 0,7 - 1</b> <b>1,5 - 2,5 - 3</b> <b>4 - 5 - 10</b> <b>12 - 15 - 20</b> <b>25 - 35 - 55</b>	<b>P</b> = Nitrile standard <b>F</b> = Nitrile for low temp. <b>H</b> = Nitrile for hydrocarbons <b>K</b> = Hydrogenated nitrile <b>A</b> = Nitrile for food-stuffs <b>B</b> = Butyl <b>E</b> = Ethylene-propylene <b>N</b> = Chloroprene (Neoprene) <b>Y</b> = Epichloridrin	<b>0</b> = without valve <b>1</b> = with valve: standard $\varnothing B$ (fig. 1a, 1b, 1c) <b>2</b> = with valve: special $\varnothing B$ (fig. 2a, 2b) <b>3</b> = with valve: special $\varnothing B$ and filling connection (fig. 3) <b>4</b> = with valve: special $\varnothing B$ and filling connection (fig. 4) <b>5</b> = with valve for ASME U.S. (see page 22) <b>6</b> = others (on request)	<b>-</b> = Phosphated carbon steel <b>N</b> = Nickel coated carbon steel, thick 25 $\mu m$ <b>X</b> = Stainless steel AISI 316

1) Features and compatibility see page 16

Subject to change