BLADDER AUTOCLAVES FOR SANITARY WATER

WHAT IT IS AND HOW IT WORKS

The accumulator vessel with replaceable bladder is a device that fitted into a pressurised water system will provide system water at a pre-set, sustained pressure. Its most common application is to supply systems in which the main supply pressure is too low and a pump is fitted to boost the pressure to an acceptable level.
As system demands take place the accumulator vessel will sustain system pressure by feeding additional water into the system at the required pressure. This process will limit the number of times the pump needs to start (pump hunting) in order that system pressure remains at the optimum level.
The process is achieved by the addition of a pre-charged air cushion at higher than atmospheric pressure within the vessel shell. This pre-charged cushion is stored between the water bladder and the inner surface of the tank. Any water pressure rise (pumping) causes the cushion to be additionally compressed. As system demands arise the nitrogen cushion forces the water from the bladder into the system thus maintaining optimum system pressure.
As the retained pressure finally exhausts and system pressure falls a pressure switch will turn the pump on, re-pressurising the system and the accumulator ready for further use.
This way the accumulator will prevent the need for the pump to start every time there is a demand on the water system and will flatten the system pressure curve at the optimum pressure.
Elbi accumulator vessels with replaceable bladders are the result of 50 years of experience in the design, manufacture and installation of tanks in hydraulic systems. The range is currently the most complete on the market in terms of product availability. The range has been subdivided into various series, each of which is designed for the various applications required by modern systems technology.
All the products have been designed to comply with the most stringent international standards, mainly through the use of the latest design technology and industrial automation. The Elbi plants are on the edge of technological solutions with regard to design, production, automated welding and robot manufacturing systems.
All manufacturing processes are carried out within the Elbi plant facilities, including bladder production, which is critical as it determines the operation, life cycle and performance of the finished product.
Elbi accumulators with replaceable bladder are manufactured from the highest quality UNI standard steel plate and welded using certified materials and procedures.
The versions for water-pressurisation systems, comprising the AS, AC, AF and DL series, come in capacities ranging from 2 to 5000 litres. All the models have been designed to hold potable (drinking) water and each features specific technical options to prevent the liquid from coming in contact with the inner surface of the tank. Over the years Elbi has become one of the undisputed leaders in the achievement of stringent quality standards in terms of its sanitary procedures.
All the models are designed to contain drinking water and each model offers particular manufacturing solutions to eliminate contact of the liquid with the metal parts of the tank.
Elbi' s decades of experience in international markets has lead to the manufacture of products that comply with a wide range of international regulations (CE, ASME).
Elbi accumulators with replaceable bladders also come in tailored-made versions that reflect the latest evolution of the market. Special attention paid to emerging consumer requirements has lead to the implementation of the HI-NOX series, entirely made up of stainless steel. These vessels are particularly suited for us ein aggressive environments (sea, corrosive, etc.). The technical solutions used during design of these vessels make theHI-NOX series a reference standard for bladder-equipped tanks.

Financial benefits

Unlike standard air-cushioned accumulators without bladder, the accumulators with bladders feature the following advantages:

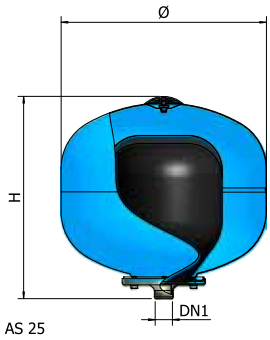
- **energy saving** reduced number of pump start-ups;
- **installation cost reduction** lack of water contact means that air is no longer dispersed into the water and therefore, there is no further need to supply a compressor to restore the cushion;
- **maintenance costs reduction** only the tank pre-charge pressure has to be checked. Additionally the bladder can be replaced, disassembled and reassembled easily in a very short time;
- **stored volume reduction** space saving;
- **water contamination risk is reduced** the bladder also serves as protection against any substance suspended in the air, such as: oil, smoke, bacteria, smells, dust, etc. that may alter the quality of water. Bladders are certified for alimentary use;
- **long-lasting** tank the fact that the bladder prevents water from being in direct contact with the inner surface of the tank significantly reduces corrosion;
- **dual purpose** this type of tank will also cushion water hammer.

AS/AC-CE

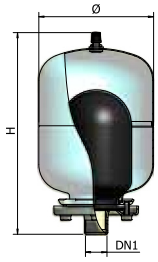
REPLACEABLE BLADDER AUTOCLAVES FOR SANITARY WATER

(2 -25 LITRES)

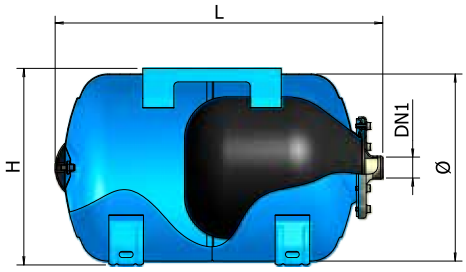
AS 25



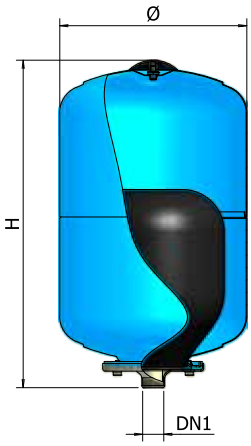
AC-2



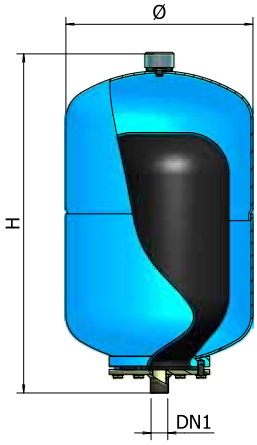
AC 25 GPM



AC 5-25; AFV 24



AC 20 PN25



CE certified product

For drinking water

For pressurisation systems

The AS-AC series replacement bladder tanks are a valid solution for small household installations, garden irrigation systems and all other applications where small capacities are required.
All the models are supplied as standard with a bladder in EPDM; this means they can also be used as sanitary expansion tanks up to a maximum design temperature of +99°C.
The AS-25 model combines practicality and financial benefits, and is suitable for direct installation on the pump.
The AC GPM-25 model has been designed to implement small, compact type pressurization units.
CE certified.

Characteristics:

• Working temperature: -10° / +99°C
(Mod. AC20 PN25: -10° / + 50°C)

• Blue epoxy powder paint.
(Model AC-2: white)

• Replaceable bladder in EPDM rubber
(Model AC-2: replaceable bladder in butyl)

• Water and air completely separate.

• No contact between water and tank inner surface.

• Replaceable alimentary non-toxic bladder with elastic characteristics to enable total expansion inside the tank to ensure the best performance and longer product life cycle.

Reference standard:

• Declaration of conformity to essential safety requirements specified in Directive 97/23/EC (PED). (The 2 and 5 litre models are without the CE marking).

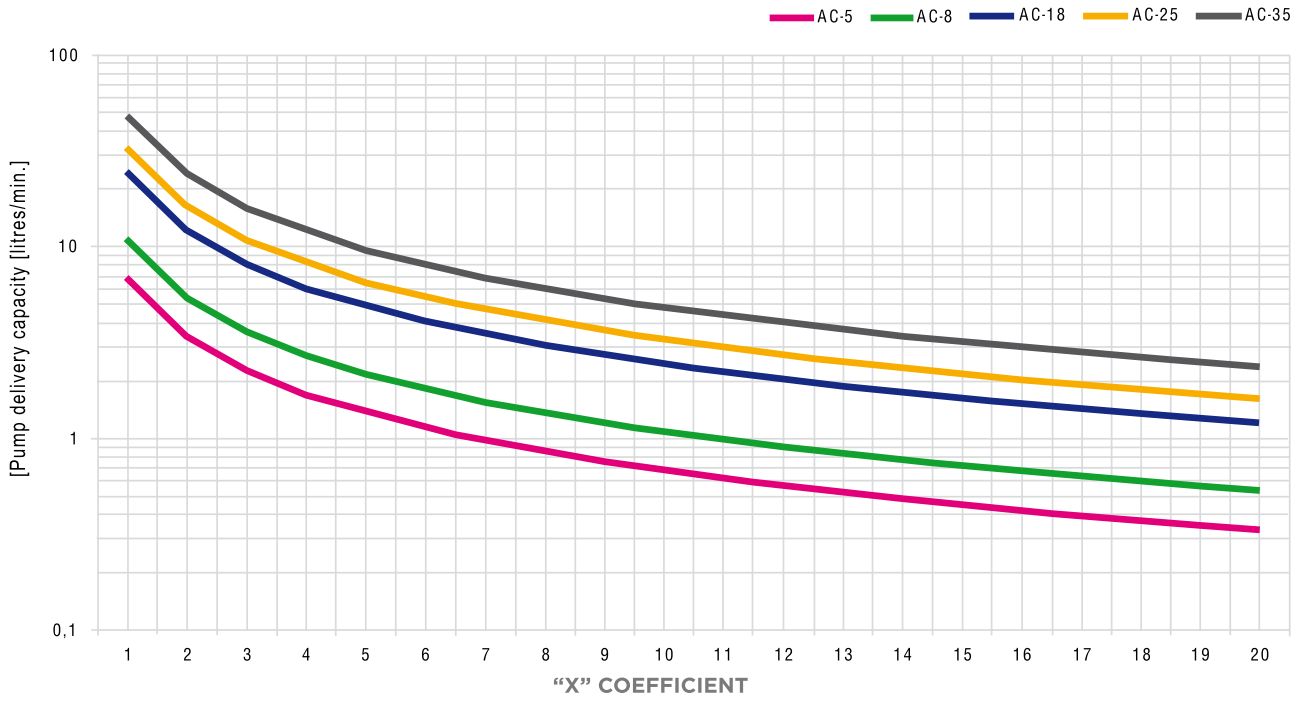
WARRANTY: 2 YEARS

DIMENSIONS

MODEL	CODE		Ppre	Pmax					DN1		
		LITRES	bar	bar	max	mm	mm	mm		mm	NOTES
AC-2 *	A012J07	2	1,5	8	+99°C	130	230	-	3/4"	150 x 150 x 240	
AC 5 *	A012J11	5	1,5	8	+99°C	205	240	-	3/4"	210 x 210 x 250	
AC 8 CE	A012J16	8	1,5	8	+99°C	205	297	-	3/4"	210 x 210 x 320	
AC 18 CE	A012J24	18	1,5	8	+99°C	270	430	-	1"	280 x 280 x 450	
AC 25 CE	A012J27	24	1,5	8	+99°C	270	470	-	1"	280 x 280 x 470	
AC 25 GPM CE	A022J27	24	1,5	8	+99°C	270	290	470	1"	280 x 300 x 470	
AS 25 CE	A002J27	24	1,5	8	+99°C	360	365	-	1"	360 x 360 x 380	
AFV 24/16 CE	A032R27	24	1,5	16	+99°C	270	470	-	1"	280 x 280 x 470	
AC 20 PN25 CE	A012T25	20	5	25	+50°C	270	485	-	3/4"	280 x 280 x 500	

* No CE marking

Bladder accumulator selection chart



To make sizing easier, a chart has been drawn up to select the most appropriate accumulator according to both the working pressure and delivery criteria. Note that the chart is based on the following hypothesis: standard precharge and 15 pump starts per hour (see p. 27 to identify the "X" coefficient).

Maximum delivery capacity of the pump [litres/min.]	Δp System working pressure											
	1,5 - 3,0			2,0 - 3,5			2,5 - 4,0			2,5 - 4,0		
	Number of pump starts per hour											
	15	8	5	15	8	5	15	8	5	15	8	5
2	5	8	18	8	18	24	8	18	35	5	8	18
8	18	35	50	24	50	80	80	35	100	24	50	80
10	24	50	60	35	60	100	100	50	150	35	50	100