

FEBRUARY 2014  
CATALOGUE

# THERMOHYDRAULICS

STORAGE  
HEATING  
COOLING  
SOLAR

BLADDER AUTOCLAVES FOR SANITARY WATER

MULTI-FUNCTIONAL TANKS

EXPANSION TANKS FOR HEATING

TANKS FOR SOLAR SYSTEMS

PLASTO - POLYETHYLENE STORAGE TANKS  
FOR ABOVE GROUND

PLASTO - POLYETHYLENE STORAGE TANKS  
FOR UNDERGROUND & WASTEWATER TREATMENT

GALVANIZED/GLASSLINED TANKS

HOT WATER TANKS

ASME TANKS



# 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 use in aggressive environments (sea, corrosive, etc.). The technical solutions used during design of these vessels make the HI-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.



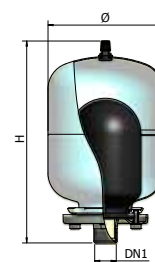
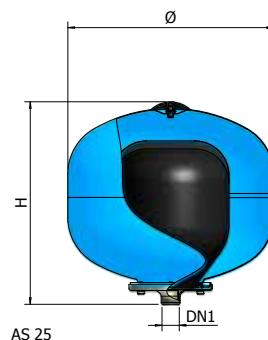
# AS/AC-CE

## REPLACEABLE BLADDER AUTOCLAVES FOR SANITARY WATER

(2 -25 LITRES)

AS 25

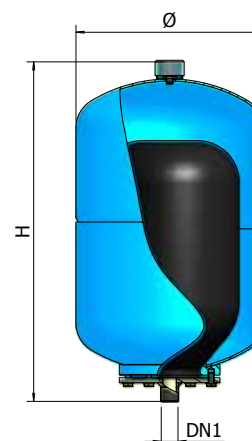
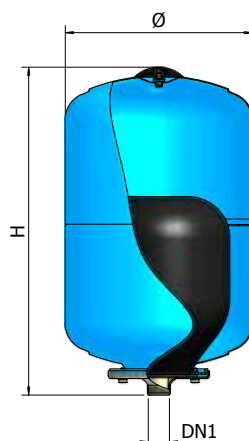
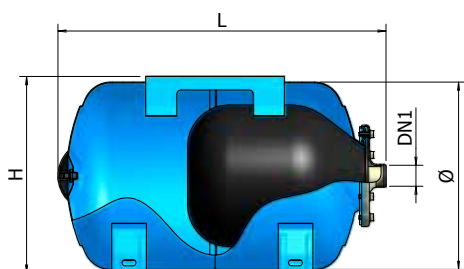
AC-2



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).

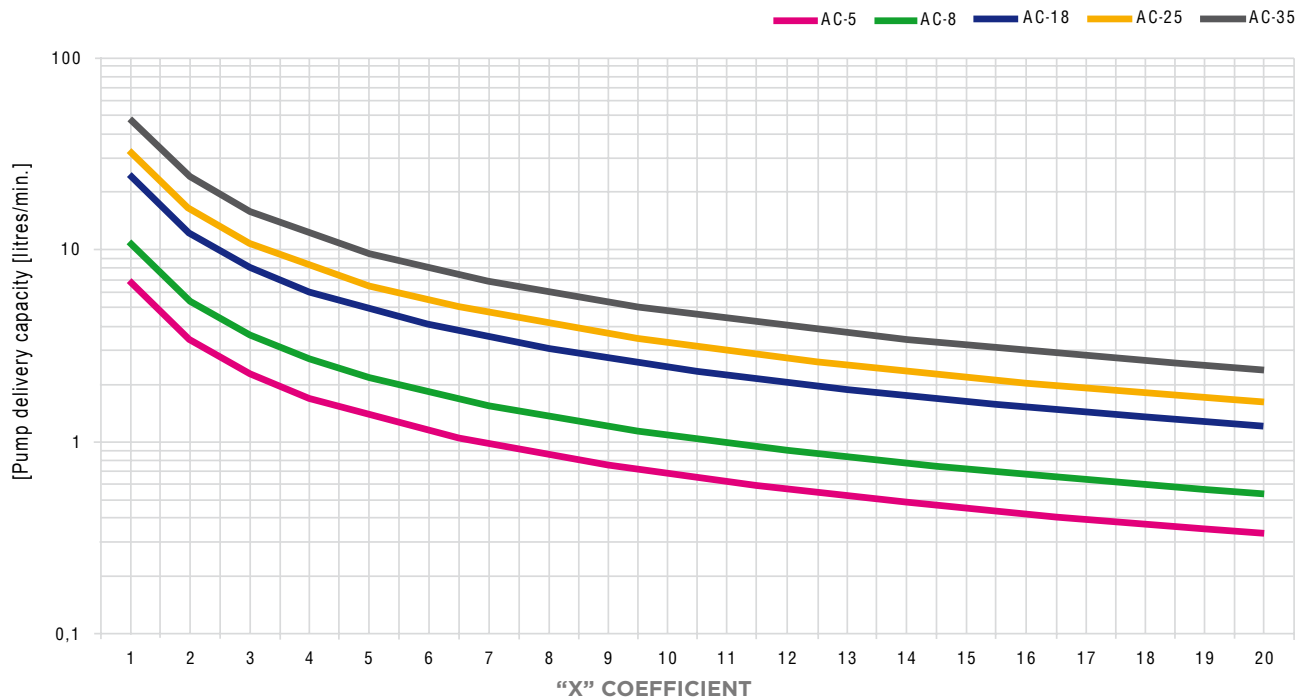
**WARRANTY: 2 YEARS**

## DIMENSIONS

MODEL	CODE		Ppre	Pmax					DN1			NOTES
		LITRES	bar	bar	max	mm	mm	mm		mm		
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

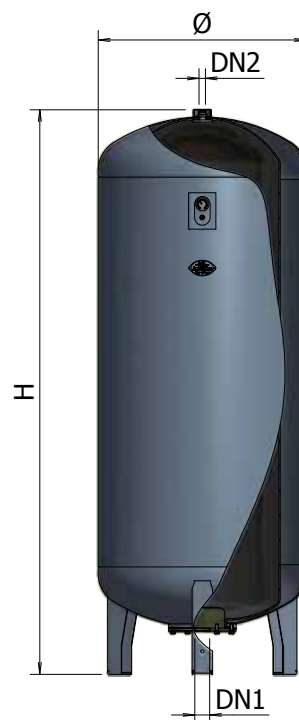


# AF-CE

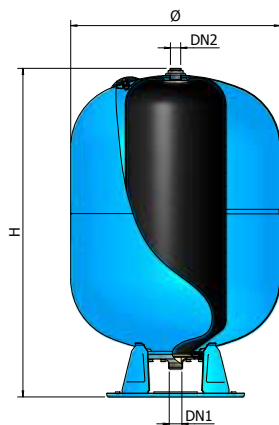
## REPLACEABLE BLADDER AUTOCLAVES FOR SANITARY WATER

(35 - 500 LITRES)

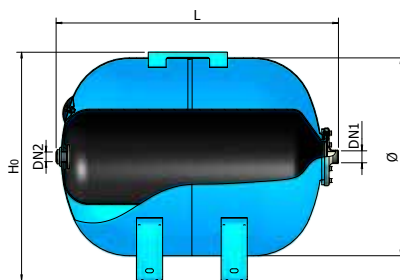
### AFV 500 16 BAR



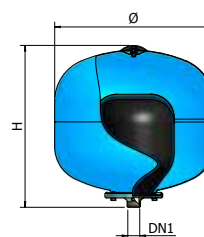
### AFV 50 - 500



### AFH 50 - 300



### AF35



CE certified product



For drinking water



For pressurisation systems

The AF series replaceable bladder tanks are suitable for most residential and industrial installations where considerable water capacities are required. The standard version supplied is 10 bar. CE certified, the AF series autoclaves are also available in customized versions in compliance with the most important international standards. The horizontal version is equipped with an universal engine support bracket to allow the pump to be fastened directly above the tank. Valve and gauge supplied on request.

Galvanized version available from 60 to 500 litres (see page 18)

#### Characteristics:

- Working temperature: -10° / +99°C.
- Alimentary tested EPDM rubber bladder, with elastic characteristics to enable total expansion inside the tank to ensure the best performance and longer product life cycle.
- Epoxy powder paint with long duration for better protection against atmospheric agents. Blue.  
Model AFV 500 16 Bar, solvent-based paint, grey.
- Water and air completely separate.
- Water completely separate from metal parts of the tank.

#### Reference standard:

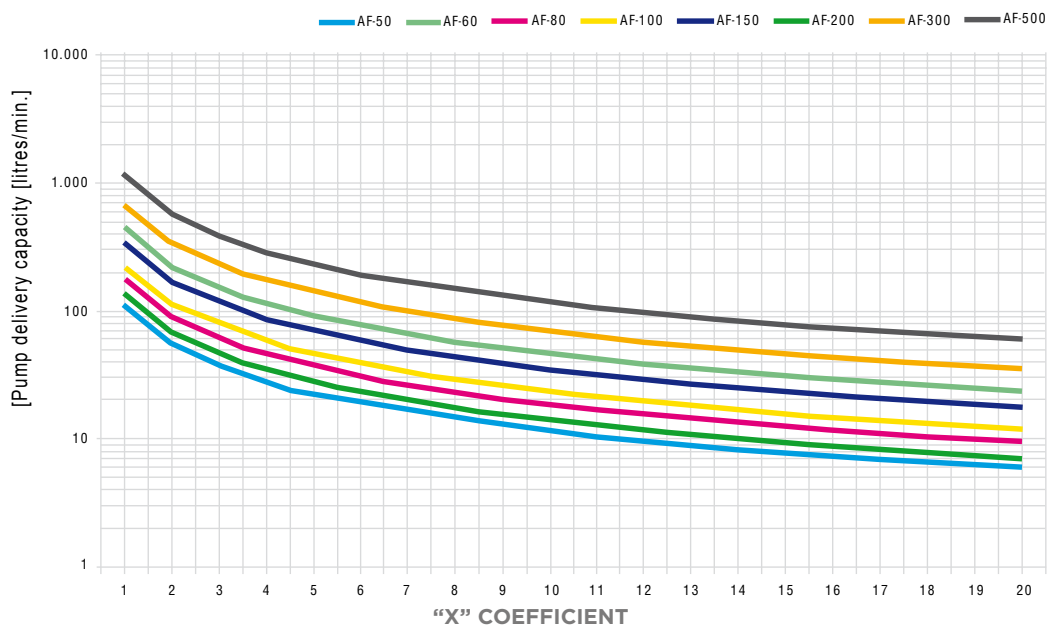
- Declaration of conformity to essential safety requirements specified in Directive 97/23/EC (PED).

**WARRANTY: 2 YEARS**

## DIMENSIONS

MODEL	CODE		Ppre	Pmax					DN1	DN2		NOTES
		LITRES	bar	bar	max	mm	mm	mm			mm	
AF 35 CE	A032L31	35	1,5	10	+99°C	400	400	-	1"	-	410 x 410 x 410	
AFV 50 CE	A032L34	50	1,5	10	+99°C	400	600	-	1"	-	410 x 410 x 610	
AFV 60 CE	A032L35	60	1,5	10	+99°C	400	750	765	1"	1/2"F 3/4"M	410 x 410 x 760	
AFV 80 CE	A032L37	80	1,5	10	+99°C	400	815	970	1"	1/2"F 3/4"M	410 x 410 x 860	
AFV 100 CE	A032L38	100	1,5	10	+99°C	500	805	-	1"	1/2"F 3/4"M	510 x 510 x 830	
AFV 150 CE	A032L43	150	1,5	10	+99°C	500	1030	-	1 1/4"	1/2"F 3/4"M	510 x 510 x 1040	
AFV 200 CE	A032L47	200	1,5	10	+99°C	600	1065	-	1 1/4"	1/2"F 3/4"M	610 x 610 x 1110	
AFV 300 CE	A032L51	300	1,5	10	+99°C	650	1270	-	1 1/4"	1/2"F 3/4"M	660 x 660 x 1290	
AFV 500 CE	A032L55	500	1,5	10	+99°C	775	1420	-	1 1/4"	1/2"F 3/4"M	785 x 785 x 1440	
AFH 50 CE	A042L34	50	1,5	10	+99°C	400	425	515	1"	-	410 x 530 x 440	
AFH 60 CE	A042L35	60	1,5	10	+99°C	400	480	675	1"	1/2"F 3/4"M	410 x 685 x 490	
AFH 80 CE	A042L37	80	1,5	10	+99°C	400	480	720	1"	1/2"F 3/4"M	410 x 775 x 490	
AFH 100 CE	A042L38	100	1,5	10	+99°C	500	585	1130	1"	1/2"F 3/4"M	510 x 730 x 600	
AFH 200 CE	A042L47	200	1,5	10	+99°C	600	665	-	1 1/4"	1/2"F 3/4"M	610 x 950 x 680	
AFH 300 CE	A042L51	300	1,5	10	+99°C	650	705	-	1 1/4"	1/2"F 3/4"M	660 x 1140 x 720	
AFV 100/16 CE	A032R38	100	1,5	16	+99°C	500	805	-	1"	1/2"F 3/4"M	510 x 510 x 830	
AFV 200/16 CE	A032R47	200	1,5	16	+99°C	600	1065	-	1 1/4"	1/2"F 3/4"M	610 x 619 x 1110	
AFV 300/16 CE	A032R51	300	1,5	16	+99°C	650	1270	-	1 1/4"	1/2"F 3/4"M	660 x 660 x 1290	
AFV 500/16 CE	A032R55	500	2,5	16	+99°C	650	1865	-	G 2"	1/2"F 3/4"M	-	

**Bladder accumulator selection chart**



To make sizing easier, a chart has been drawn up to select the most appropriate accumulator according to both 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
10		50	60	35	50	100	50	100	150	35	50	80
20	50	80	150	60	100	200	100	200	300	50	100	200
25	60	100	150	80	150	250	150	250	300	80	150	250
40	100	200	250	150	250	500	200	300	500	100	250	300
45	100	200	300	150	200	500	250	500	-	150	250	500
55	150	250	300	200	300	500	300	500	-	150	300	500
75	200	300	500	250	500	-	300	-	-	200	500	-
95	200	500	-	300	500	-	500	-	-	300	500	-
115	250	500	-	500	-	-	500	-	-	300	-	-
150	300	-	-	500	-	-	-	-	-	500	-	-
200	500	-	-	-	-	-	-	-	-	-	-	-



# MULTI-FUNCTIONAL TANKS

---

The multi-functional bladder vessels are designed to be fitted both into sanitary systems as expansion tanks (suitable to absorb the water expansion volume caused by a changing temperature), as well as pressure tanks for cold water sanitary systems.

The multi-functional tanks are CE certified as required by European Directive 97/23/EC (PED).





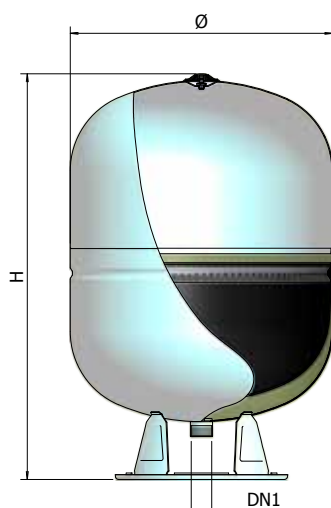
# AC-2 / D-CE

## MULTI-FUNCTIONAL SANITARY TANKS WITH FIXED BLADDER

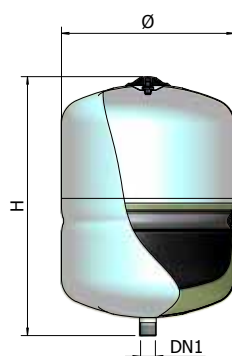
(2 - 500 LITRES)



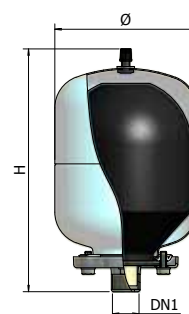
**DV 50-500**



**D5 - 35**



**AC - 2**



CE certified product



For drinking water



For sanitary hot water



For heating systems



For air conditioning systems



For pressurisation systems



Water hammer arrestor



Top-Pro® internal protection  
(NO AC-2)

### Characteristics:

- Min./max. working temperature: -10° / +99°C
- Equipped with a fixed alimentary bladder in butyl (**model AC-2 with replaceable bladder**) that ensures permanent separation of the air cushion from the water;
- Internal protection of the water connection in Nylon 66;
- Long lasting epoxy powder paint, white;

### Reference standard:

- Declaration in compliance with the essential safety requirements of Directive 97/23/CE (PED).  
(The 2 and 5 litre models are without CE marking).

### Fixed bladder multifunctional tanks

Multifunctional sanitary vessels with fixed bladder are designed to be fitted both into sanitary systems as expansion tanks, suitable to absorb the water expansion volume generated by a changing temperature, as well as pressure tanks for cold water sanitary systems.

Both applications are possible thanks to the exclusive Top-Pro® anti-corrosion treatment which ensures the protection against corrosion of the inner surface of the tank and the fitness of all parts in contact with water.

Installing a D series sanitary vessel considerably cuts down operating costs, while suppressing the discharge function of the safety valve.

In your Domestic Hot Water system install Elbi D-DV expansion tanks in the cold water supply pipe; do not install Elbi D-DV expansion tanks in the hot water draw-off pipe.

**WARRANTY: 3 YEARS**

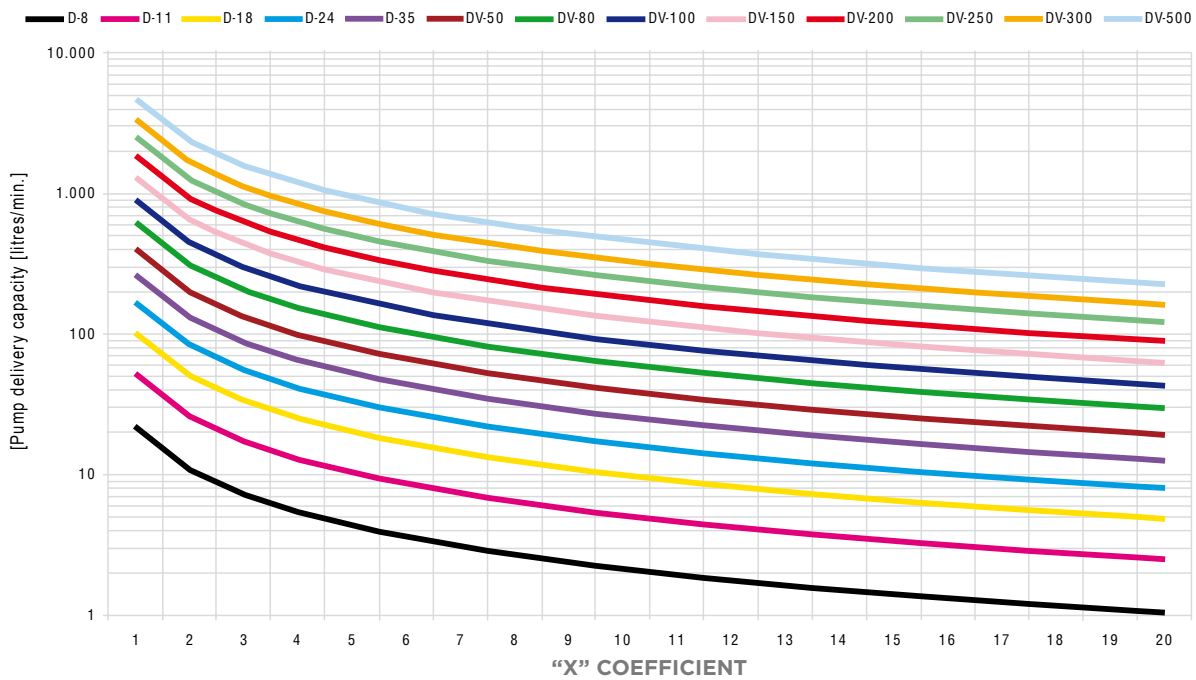


## DIMENSIONS

MODEL	CODE		Ppre	Pmax				DN1		NOTES
		LITRES	bar	bar	max	mm	mm		mm	
AC-2 *	A012J07	2	1,5	8	+99°C	130	230	3/4"	150 x 150 x 240	
D 5 *	A202L11	5	3	10	+99°C	205	225	3/4"	210 x 210 x 250	
D 8 CE	A202L16	8	3	10	+99°C	205	300	3/4"	210 x 210 x 320	
D 11 CE	A202L19	11	3	10	+99°C	270	300	3/4"	280 x 280 x 310	
D 18 CE	A202L24	18	3	10	+99°C	270	410	3/4"	280 x 280 x 450	
D 24 CE	A202L27	24	3	10	+99°C	320	355	1"	330 x 330 x 375	
D 35 CE	A202L31	35	3	10	+99°C	400	390	1"	410 x 410 x 410	
DV 50 CE	A212L34	50	3	10	+99°C	400	585	1"	410 x 410 x 610	
DV 80 CE	A212L37	80	3	10	+99°C	400	820	1"	410 x 410 x 860	
DV 100 CE	A212L38	100	3	10	+99°C	500	775	1 1/4"	510 x 510 x 830	
DV 150 CE	A212L43	150	3	10	+99°C	500	1005	1 1/4"	510 x 510 x 1040	
DV 200 CE	A212L47	200	3	10	+99°C	600	1065	1 1/4"	610 x 610 x 1110	
DV 300 CE	A212L51	300	3	10	+99°C	650	1240	1 1/4"	660 x 660 x 1290	
DV 500 CE	A212L55	500	3	10	+99°C	775	1400	1 1/4"	785 x 785 x 1440	

\* Without 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 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).

Pump max delivery capacity [litres/min.]	Δp System working pressure								
	1,5 - 3,0			2,0 - 3,5			2,5 - 4,0		
	Number of pump starts per hour								
	15	8	5	15	8	5	15	8	5
10	D-35	DV-50	DV-50	D-35	DV-50	DV-80	D-35	DV-50	DV-80
20	DV-50	DV-80	DV-100	DV-80	DV-100	DV-150	DV-80	DV-100	DV-150
25	DV-80	DV-100	DV-150	DV-80	DV-150	DV-150	DV-100	DV-150	DV-200
40	DV-100	DV-200	DV-200	DV-150	DV-200	DV-300	DV-150	DV-200	DV-300
45	DV-150	DV-200	DV-300	DV-150	DV-200	DV-300	DV-150	DV-300	DV-300
55	DV-150	DV-300	DV-300	DV-200	DV-300	DV-500	DV-200	DV-300	DV-500
75	DV-200	DV-300	DV-500	DV-300	DV-500	DV-500	DV-300	DV-500	DV-500
95	DV-300	DV-500	DV-500	DV-300	DV-500	2XDV-300	DV-500	DV-500	2XDV-500
115	DV-300	DV-500	2XDV-300	DV-300	2XDV-300	2XDV-500	DV-500	2XDV-300	2XDV-500



# DL-CE

## REPLACEABLE BLADDER MULTI-FUNCTIONAL TANKS

(750- 5000 LITRES)



DL 750 - 2000

DL 3000 - 5000



CE certified product



For drinking water



For sanitary hot water



For heating systems



For air conditioning systems



For pressurisation systems

### Characteristics:

- Working temperature: -10° / +99°C.
- Water and air completely separate.
- Water completely separate from metal parts of the tank.
- Counter-flange with Top-Pro treatment (750 - 1000 litres)
- Glasslined counter-flange (2000 - 5000 litres)

*The sizes of DL series bladders trace the inner volume of the tank, enabling the bladder to work without any lengthening and ensuring its almost unlimited duration.*

- Pre-charging pressure: 2.5 bar.

### Reference standard:

- Declaration of conformity to essential safety requirements outlined by Directive 97/23/EC (PED).

Models from 750 to 2000 litres with upper tie rod.  
The 3000 and 5000 litre models have an upper flange.


The DL series replaceable bladder tanks represent an effective alternative for installation in plants with high water contents which conventionally made us use traditional tanks without any bladders or install series of smaller tanks.

Installation of DL tanks allows therefore considerable cost savings for installation and maintenance.

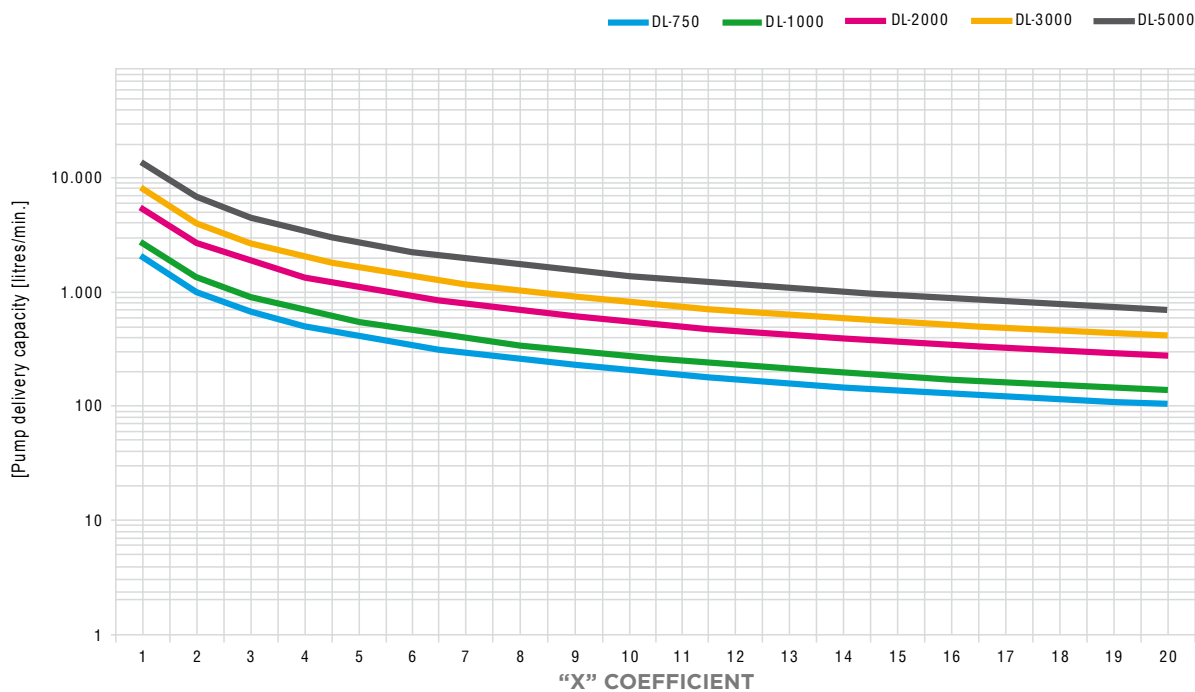
The DL series is equipped with an exclusively designed bladder which work without mechanical stress even in high pressure conditions or an air cushion leak, thus ensuring an almost unlimited bladder life.

**WARRANTY: 2 YEARS**

## DIMENSIONS

MODEL	CODE		Ppre	Pmax				DN1	NOTES
		LITRES	bar	bar	max	mm	mm		
DL 750/10 CE	A282L59	750	2,5	10	+99°C	800	1920	G 2"	
DL 1000/10 CE	A282L62	1000	2,5	10	+99°C	800	2370	G 2"	
DL 2000/10 CE	A282L70	2000	2,5	10	+99°C	1100	2690	G 3"	
DL 3000/10 CE	A282L74	3000	2,5	10	+99°C	1250	3100	G 3"	
DL 5000/10 CE	A282L80	5000	2,5	10	+99°C	1550	3315	G 3"	
DL 750/16 CE	A282R59	750	2,5	16	+99°C	800	1920	G 2"	
DL 1000/16 CE	A282R62	1000	2,5	16	+99°C	800	2370	G 2"	
DL 2000/16 CE	A282R70	2000	2,5	16	+99°C	1100	2690	G 3"	
DL 3000/16 CE	A282R74	3000	2,5	16	+99°C	1250	3100	G 3"	

## Bladder accumulator selection chart



To make sizing easier, a chart has been drawn up to select the most appropriate accumulator according to both 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).

Pump max delivery capacity [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
75	200	300	500	250	500	750	300	750	1000	250	500	750
95	200	500	750	300	750	1000	500	1000	2x750	300	500	1000
115	250	500	750	500	750	1000	500	1000	2x750	300	750	1000
150	300	750	1000	500	1000	2x750	750	2x750	2000	500	1000	2x750
200	500	1000	2x750	750	2x750	2000	1000	2000	3000	750	2x750	2000
300	750	2x750	2000	1000	2000	3000	2x750	3000	2x2000	1000	2x750	3000
500	2x750	2000	3000	2000	3000	5000	3000	5000	5000÷3000	2x750	3000	2x2000
800	2000	3000	5000	3000	5000	4x2000	2x2000	5000÷3000	2x5000	2000	2x2000	5000÷2000
1000	2000	2000	2x3000	2x2000	2x3000	2x5000	5000	2x5000	3x5000	3000	5000	5000÷3000