Cetetherm

MADE IN FRANCE MADE IN

Cetetherm Pressosmart

Complete line of hydraulic expansion systems

APPLICATIONS

Pressosmart is a complete line of pressurisation sets designed to maintain stable pressure in a closed water loop, using low temperature heating networks, overheated water and cooling networks, such as those used in:

- heating systems
- air conditioning systems
- a variety of industrial applications

BENEFITS PRESSOSMART PUMP UNIT

- Robust and long durability, up to 14.500kW and 75 mCW (meter column of water) static height
- Very accurate and visible control compared to a stand-alone membrane expansion technology with Cetetherm's reliable and multi-functional control box
- Extremely silent pump unit with low electrical consumption compared to other pressurisation technologies
- Extremely smaller footprint compared to membrane solutions

Pressosmart is a split system which needs to be piped up to Cetetherm's:

- Closed expansion vessel; made of steel painted outside with inside internal rubber bag,

or

- Open expansion vessel with natural disconnection; made of polypropylene (PPH) with removable cover for internal inspection, available from 200L up to 5000L

BENEFITS PRESSOSMART WITH CLOSED EXPANSION VESSEL

- Water loop is not in contact with oxygen in air, which reduces corrosion and pipeline maintenance and extends the lifetime of the entire installation
- Upgrading from open to a closed vessel for existing Pressosmart installations is very simple as the pump unit does not need to be replaced
- Closed expansion vessels can be installed in serie: one with control equipment and the other(s) without control equipment.

WORKING PRINCIPLE

The units perform 3 main functions:

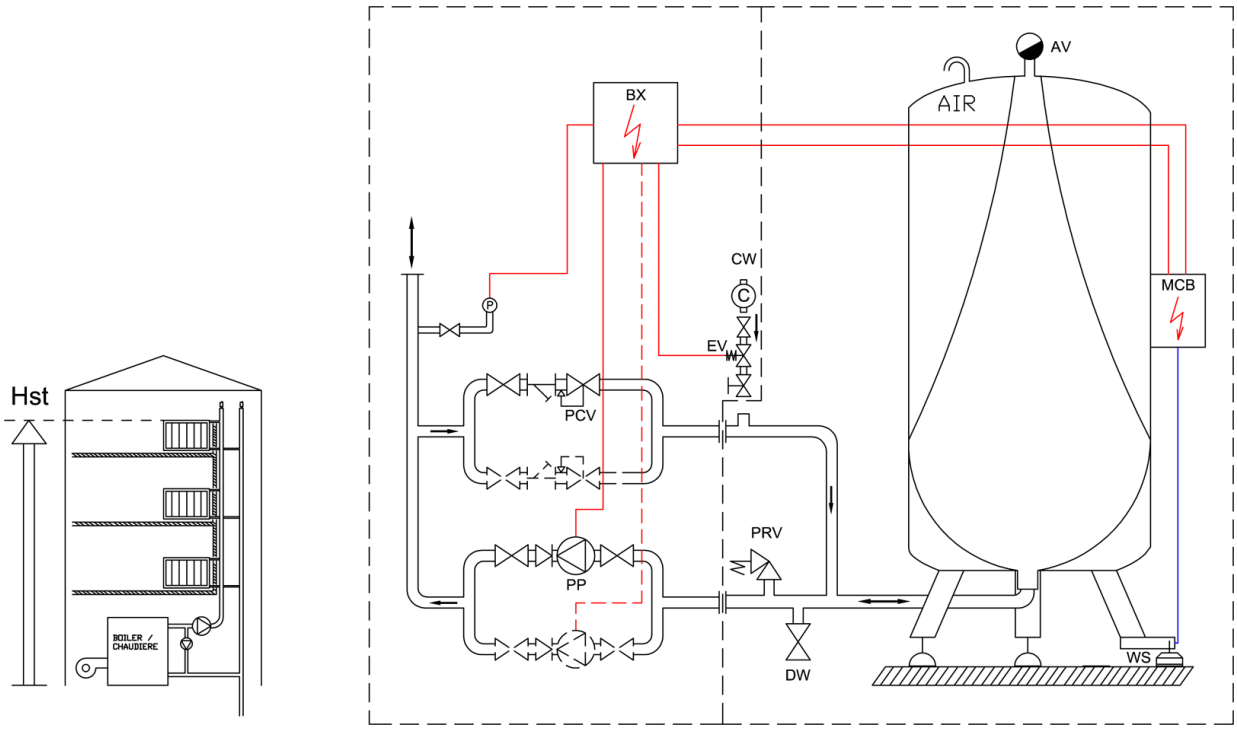
1. Maintain of a constant and steady pressure
2. Answer to expansion
3. Network filling-up if necessary

When the temperature increases in a closed water loop, the water volume expands. When the temperature decreases, the opposite occurs.

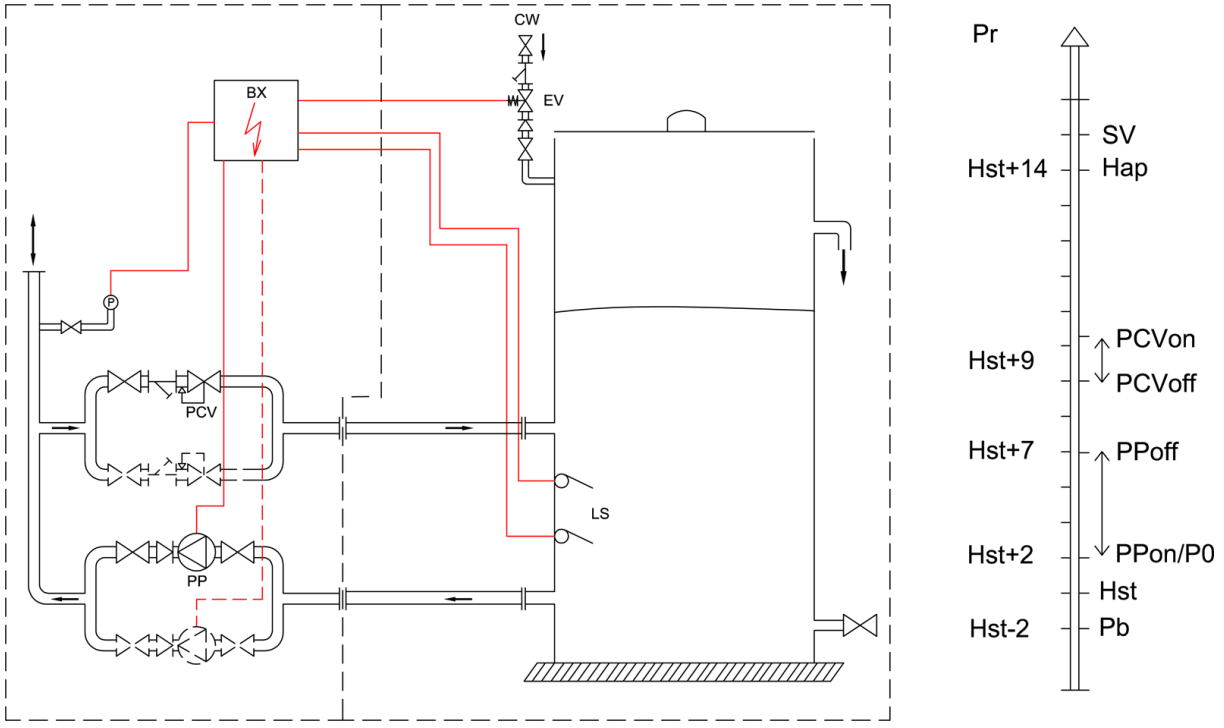
The increased volume generated by thermal expansion in the closed loop will be discharged through the pressure control valves and stored in the expansion vessel. When the pressure sensor detects a pressure drop due to a temperature decrease, water will be pumped back into the loop. Stable and even pressure is thus continuously maintained in the closed loop.

Pressosmart automatically fills the installation when there is not enough water and also protects against overfilling.

HYDRAULIC FLOWCHARTS: PRESSOSMART COMBINED WITH CLOSED EXPANSION VESSEL



HYDRAULIC FLOWCHARTS: PRESSOSMART COMBINED WITH OPEN EXPANSION VESSEL



AV	Air vent	MCB	Measure control box	PP	Pressurization pump
BX	Control box	P	Pressure sensor	PPon	Pressurization pump ON
C	Filled up flow meter	P0	Main pressure setting on controller	PPoff	Pressurization pump OFF
CW	Cold water feed	Pb	Low pressure alarm	Pr	Heating loop pressure
DW	Drain work connection	PCV	Pressure control valve	PRV	Pressure relief valve
EV	Solenoid electro-valve	PCVon	Pressure control valve ON	SV	Heating loop safety valve setting
Hap	High pressure alarm	PCVoff	Pressure control valve OFF	WS	Weight sensor

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QUICK SELECTION GUIDE

The chart below should be used for closed-loop installations running low-pressure hot water at 90/70˚C (average temp. 80˚C).

Example for an installation capacity of 2400 kW with a building static height of 40 mCW:
4 different Pressosmart models are proposed: MP4N716, MP5N616, MP5N626 or MP71016 . In case of a "MP5N626" with a static height of 40 mCW the correct article number is "MP5N6263150" (see Pressosmart equipment table on next page).
These models can be connected to two 500L closed expanion vessels installed in parallel.

Installation Volume (m3)	0	6	12	18	24	30	45	60	75	90	105	120	150	175
Installation Capacity P (kW)	0	500	1000	1500	2000	2500	3750	4650	6850	7500	8750	10000	12500	14500
Open exp. vessel	200 L	400 L	600 L	800 L	1000 L	1800 L		2500 L	3000 L	3500 L	4000 L	5000 L	2x3000 L	
Closed exp. vessel	500 L			2 x 500 L		4 x 500 L								
75 mCW	MP71516	MP71516	MP71516	MP71516	MP71516	MP71516	MP71516							
	MP71526	MP71526	MP71526	MP71526	MP71526	MP71526	MP71526	MP71526*	MP71526**	MP71526**				
	MP71517	MP71517	MP71517	MP71517	MP71517	MP71517	MP71517	MP71517						
	MP71527	MP71527	MP71527	MP71527	MP71527	MP71527	MP71527	MP71527	MP71527*	MP71527*				
65 mCW	MP5N816	MP5N816	MP5N816	MP5N816										
	MP5N826	MP5N826	MP5N826	MP5N826										
		MP71316	MP71316	MP71316	MP71316	MP71316	MP71316							
		MP71326	MP71326	MP71326	MP71326	MP71326	MP71326	MP71326*	MP71326**	MP71326**	MP71526**			
		MP71317	MP71317	MP71317	MP71317	MP71317	MP71317	MP71317						
		MP71327	MP71327	MP71327	MP71327	MP71327	MP71327	MP71327	MP71327*	MP71327*	MP71527**			
55 mCW	MP4N716	MP4N716	MP4N716	MP4N716	MP4N716									
	MP5N716	MP5N716	MP5N716	MP5N716	MP5N716	MP5N816								
	MP5N726	MP5N726	MP5N726	MP5N726	MP5N726	MP5N826	MP5N826*	MP5N826**	MP5N826**					
		MP71016	MP71016	MP71016	MP71016	MP71016	MP71016							
		MP71026	MP71026	MP71026	MP71026	MP71026	MP71026	MP71326*	MP71326**	MP71326**	MP71326**			
		MP71017	MP71017	MP71017	MP71017	MP71017	MP71017	MP71317						
		MP71027	MP71027	MP71027	MP71027	MP71027	MP71027	MP71327	MP71327*	MP71327*	MP71327**	MP71527**		
45 mCW	MP195NL													
Building static height 40 mCW	MP4N616	MP4N616	MP4N616	MP4N616	MP4N716	MP4N716								
	MP5N616	MP5N616	MP5N616	MP5N616	MP5N616	MP5N716								
	MP5N626	MP5N626	MP5N626	MP5N626	MP5N626	MP5N726	MP5N726*	MP5N726**	MP5N726**					
		MP71016	MP71016	MP71016	MP71016	MP71016	MP71016							
						MP71026	MP71026	MP71026*	MP71026**	MP71026**	MP71026**			
						MP71017	MP71017	MP71017						
						MP71027	MP71027	MP71027	MP71027*	MP71027*	MP71027**	MP71327**		
35 mCW	MP195NL													
	MP4N516	MP4N516	MP4N516	MP4N516	MP4N616	MP4N716								
	MP5N516	MP5N516	MP5N516	MP5N516	MP5N516	MP5N516								
	MP5N526	MP5N526	MP5N526	MP5N526	MP5N526	MP5N526	MP5N626*	MP5N626**	MP5N726**					
		MP71016	MP71016	MP71016	MP71016	MP71016	MP71016							
						MP71026	MP71026	MP71026*	MP71026**	MP71026**	MP71026**			
						MP71017	MP71017	MP71017						
						MP71027	MP71027	MP71027	MP71027*	MP71027*	MP71027**	MP71327**	MP71327**	
25 mCW	MP195NL													
	MP4N416	MP4N416	MP4N416	MP4N416	MP4N416	MP4N516								
	MP5N416	MP5N416	MP5N416	MP5N416	MP5N416	MP5N416								
	MP5N426	MP5N426	MP5N426	MP5N426	MP5N426	MP5N426	MP5N526*	MP5N526**	MP5N526**					
		MP71016	MP71016	MP71016	MP71016	MP71016	MP71016							
						MP71026	MP71026	MP71026*	MP71026**	MP71026**	MP71026**			
						MP71017	MP71017	MP71017						
						MP71027	MP71027	MP71027	MP71027*	MP71027*	MP71027**	MP71027**	MP71327**	
15 mCW	MP4N316	MP4N316	MP4N316	MP4N316	MP4N316	MP4N316								
	MP5N316	MP5N316	MP5N316	MP5N316	MP5N316	MP5N316								
	MP5N326	MP5N326	MP5N326	MP5N326	MP5N326	MP5N326	MP5N326*	MP5N326**	MP5N326**					

* Each Pressure Control Valve is 2/3 of expansion flowrate

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CORRECTION FACTOR FOR POWER / AVERAGE T° (°C) = [INLET T°+OUTLET T°] / 2

Average T° (°C)	0	10	20	30	40	50	60	70	80	90	100	110
Correction factor	0.01	0.01	0.07	0.15	0.27	0.41	0.59	0.79	1	1.24	1.5	1.78

- Pressosmart pressure setting = Building static height + 2 mCW
- Average real control pressure in the heating loop = Building static height + 6 mCW
- Equivalent building static height =Average real control pressure in the heating loop - 6 mCW
- Safety valve pressure setting > or = Building static height + 15 mCW
- Building static height < or = Safety valve pressure setting - 15 mCW

PRESSOSMART EQUIPMENT

Model	Number of pumps	Number of PCV (1)	Type of PCV (1)	Static Height (mCW)	1 PCV (1)		2 PCV (1)		Hydraulic connection
					Max. capacity (kW)	Article number	Max. capacity (kW)	Article number	
MP195 (2)	1	1	3/4"	10-35	500	MP195NL	N/A		1"
				10-45	500	MP195NL4150			
MP4	1	1	3/4"	5-15	3750	MP4N316			1"
				5-25	2500	MP4N416			
				15-35	3500	MP4N516			
				5-25	3750	MP4N616			
				26-45	2000	MP4N6163150			
				5-25	3750	MP4N716			
				26-45	3750	MP4N7163150			
				46-55	2500	MP4N7165160			
MP5	2	1 or 2	3/4"	5-15	3750	MP5N316	7500	MP5N326	1½"
				5-25	3750	MP5N416	7500	MP5N426	
				5-25	3750	MP5N516	7500	MP5N526	
				26-35	3750	MP5N5163140	3750	MP5N5263140	
				5-25	3750	MP5N616	7500	MP5N626	
				26-45	2500	MP5N6163150	2500	MP5N6263150	
				5-25	3750	MP5N716	7500	MP5N726	
				20-45	3750	MP5N7163150	7500	MP5N7263150	
				46-55	2500	MP5N7165160	7500	MP5N7265160	
				5-25	3750	MP5N816	7500	MP5N826	
				26-45	3750	MP5N8163150	7500	MP5N8263150	
				46-65	2000	MP5N8165170	2000	MP5N8265170	
MP7 with 44-6 PCV (3)	2	1 or 2	1"	10-45	4650	MP71016	10000	MP71026	2"
				46-55	3750	MP710164555	3750	MP710264555	
				10-45	4650	MP71316	1000	MP71326	
				46-65	4650	MP713164565	7500	MP713264565	
				10-45	4650	MP71516	10000	MP71526	
				46-75	4650	MP715164575	8750	MP715264575	
MP7 with 44-7 PCV (3)	2	1 or 2	1"	10-45	6850	MP71017	14500	MP71027	2"
				46-55	3750	MP710174555	3750	MP710274555	
				10-45	6850	MP71317	14500	MP71327	
				46-65	6850	MP713174555	7500	MP713274555	
				56-65	4650	MP713175565	4650	MP713275565	
				10-45	6850	MP71517	14500	MP71527	
				46-55	6850	MP715174555	12500	MP715274555	
				56-75	6850	MP715175575	10000	MP715275575	

(1) Pressure Control Valve, opens when pressure exceeds the set point.
(2) Pressosmart MP195 has a built-in open expansion vessel. Other models can be combined with open or closed expansion vessels..
(3) Max capacity given for Samson 44-6 PCV type. The use of Samson 44-7 type will increase these values (see MP7 capacity values between 1 and 2 PCV).

Operating limits pump unit	MP195	MP4	MP5	MP7
Max. operating pressure bar (water)	8	10*	10*	10*
Max. operating temperature °C (water)	95	95	95	95

* limited to 8 bar in case of selected option of anti water-hammer vessel

The Pressosmart range is built in compliance with PED 2014/68/EU article 4.3.
Different options are available for the Pressosmart product range; impulsion meter, anti water-hammer vessel, 89 µm core-water strainer, fill-up bypass and a flood detector. Please consult your local Cetetherm company.

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