

2.

Expansion Automats and Pressurisation Equipment

For large or high sealed systems traditional expansion vessels are not the most efficient solution in terms of operational pressure or physical footprint. Flamco Expansion Automats balance the system pressure, using a highly efficient vessel design and control equipment.

We produce a comprehensive range of models that offer high-quality performance and versatility which may be further enhanced by the addition of numerous optional accessories. This makes the Flamco expansion automats suitable for use in a variety of situations.

As demands and preferences differ worldwide, Flamco has opted for an adaptable, modular range to suit every client's requirements.



Compressor-driven

Flexcon M-K/U

- Expansion system with the 'next generation' SPC control unit.
- 400 - 3,500 litres.
- Operating pressure: 6 / 10 bar.
- Maximum heating capacity: 12 MW.
- Maximum cooling capacity: 24 MW.
- With removable butyl-rubber bladder.



Flexcon M-K auxiliary vessels

- Auxiliary vessels for the M-K/U Compressor automat.
- Exclusive air-side connection between the vessel (and control unit) and the additional vessel, using a pressure hose. The water-side connection must be made in situ.
- With removable butyl-rubber bladder.



Flexcon M-K/C

- Expansion system with an SCU control unit.
- 110 - 425 litres.
- Maximum operating pressure: 6 bar.
- Maximum heating capacity: 7 MW.
- Maximum cooling capacity: 11 MW.
- With fixed diaphragm.



Pump-driven

Flamcomat

- Combined expansion, de-aeration and topping-up device.
- 200 - 10,000 litres.
- With 'next generation' SPC control unit.
- Maximum operating pressure: 16 bar.
- Maximum heating capacity: 12 MW.
- Maximum cooling capacity: 24 MW.
- Available with one or two pumps.



Flexcon MPR-S

- Combined expansion and topping-up device.
- Pressure range: 16 - 25 bar.
- Maximum heating capacity: 0.9 MW.
- Maximum cooling capacity: 6.1 MW.
- Available in models with one or two pumps.



Topping-up devices

MVE 1 / 2 units

- Solenoid valve units for systems with expansion vessels or devices.
- With ball valve, digital control, pressure sensor or with ball valve only.
- Maximum operating pressure: 10 bar.



NFE 1 / 2 / 3 refill units

- Used for topping up from a water supply.
- Consists of dirt collector, ball valve and with or without water meter or backflow preventor.
- Maximum operating pressure: 10 bar.



Flamco-Fill Compact

- Used for topping-up mains water in smaller sealed heating systems and cooling systems with expansion vessels and devices.
- With backflow preventor.



Flamco-Fill PE top-up device

- For topping-up mains water in sealed heating systems and for cooling systems with expansion vessels and devices.
- Water main pressure: 1 - 10 bar.
- System operating pressure: 1 - 9 bar (PN 10).



Flamco-Fill P top-up device

- Identical to the Flamco-Fill PE, but without digital control unit.
- Developed for use in combination with automats with SPC control unit (Flamcomat, Flexcon M-K/U).



Flexfiller Standard

- Floor standing, high flow rate (<18 l/min) top-up pressurisation unit.
- 18 Litre break tank.



Flexfiller Mini

- Wall mounted, low flow rate (<0.4 l/min) digital top-up pressurisation unit.
- 2 Litre break tank.
- Ideal for residential or small commercial application.



Flexfiller Midi/IP66

- Wall mounted, <12 l/min flow rate top-up pressurisation unit.
- 4 Litre break tank.
- IP66: With IP66 rated cabinet.



Digifiller

- Wall mounted, <12 l/min flow rate digital top-up pressurisation unit.
- 4 Litre break tank.
- A self-bleed pump configuration.



Flexfiller Twin

- Floor standing unit, with two high flow rate (<18 l/min) top-up pressurisation units.
- 18 Litre break tank.
- Ideal where space restrictions make it beneficial to locate two systems in a single enclosure.



PressDS

- Floor standing, high flow rate (<18 l/min) top-up glycol mixing pressurisation unit.
- 4 Litre break tank.
- 18 Litre tank for glycol top-up.
- The correct fluid mix is blended on demand at the time of system top-up.



Flexfiller Plus

- Combined digital top-up pressurisation unit with vacuum degasser.
- 18 Litre break tank (Midifill: 4 litre).



PressDS Plus

- Combined digital top-up pressurisation unit with vacuum degasser and additive tank.
- 4 Litre break tank.
- 18 Litre additive tank.



Packaged sealed system sets

Presspak

- Digital Packaged Sealed System Set.
- Presspak pressurisation unit, Flexcon expansion vessel(s) and connecting hose kit included.
- One pump.



Basepak

- Skid Mounted Packaged Sealed System Set.
- Flexfiller pressurisation unit, Flexcon expansion vessel and connecting hose kit included.
- One pump.



Sizing of expansion automats

Calculating the size of a Flexcon expansion automat with exchangeable membrane in accordance with EN12828 for central heating and cooling systems with additional information from Flamco based on practical experience.

Basic concepts for calculating the size of a Flexcon expansion automat

More or less the same concepts apply for calculating the size of expansion automats as for calculating standard expansion vessels. For this see the introduction to Chapter 1.

Calculation and choice of expansion equipment

An expansion calculation consists of a number of fixed steps.

1) Collect the data required

- Total volume of the system components V_a
- Output of the system $Q_{n,tot}$
- Static height above the vessel H_{st}
- Maximum system temperature t_{max}
- Minimum system temperature t_{min} (Standard 4 °C)
- Return temperature t_R

2) Determine expansion coefficient n

Water expansion as a result of temperature change can be calculated using the density:

$$n = 1 - (\rho_{t,max} / \rho_{t,min}) \Rightarrow \text{(see the tables later on in the book as well)}$$

Remark from Flamco:

- As in modern systems multiple temperature variations occur (e.g. underfloor heating in combination with radiators), it is advisable to calculate the expansion factor per subsystem.
- The density of the system-fluid changes as soon as additives like anti-freeze are added. Consult the manufacturer for exact data.

3) Determine the expansion volume V_e

This is determined by multiplying the system volume by the expansion coefficient:

$$V_e = V_a \times n$$

4) Water reserve V_{wr}

A volume equivalent to 0.5% of the system is needed as standard to compensate losses. However, with smaller systems, the effect of a small loss on the pressure is much greater. For this reason, a minimum of 3 litres is maintained.

Remarks from Flamco:

- Maintain a minimum of 6 litres. Increasing the water reserve means that the maintenance interval in smaller systems can be extended considerably.

5) Gross volume of Flexcon expansion vessel V_{gross}

The gross volume of the Flexcon expansion vessel is calculated by dividing the net volume by the maximum acceptance volume η_{max} :

$$V_{gross} = (V_e + V_{wr}) / 0.85$$

Remark from Flamco:

- If the maximum useful capacity of an expansion vessel is exceeded, the diaphragm may be subjected to tensile stress. This could lead to damage or even rupture of the diaphragm.

Thermal expansion of water in %

The table and graph in Chapter 1 show data on the increase in volume of water in per cent with increases in the temperature of water from 4 °C to 105 °C.

Source: George S. Kell (1975), Åke Melinder

Operational pressure in automats

In general, a working pressure is set in automats that ensures a minimum pressure of 1 bar at the highest point. Depending naturally on the system's limiting conditions.

Calculating the volume flow of an expansion automat (source: VDI4708-1).

The capacity of the pump or compressor must be properly coordinated with the expected volume flows that arise as a result of the expansion and contraction of the system capacity. This may be calculated as follows:

- V_{DH} = the compensation volume flow.
 $V_{t(max)}$ = the volume of the liquid at the maximum supply temperature in the system.
 $V_{t(min)}$ = the volume of the liquid at the return temperature in the system.
 t_{avg} = the average temperature in the system.
 f_v = the volume flow factor
 $Q_{n,tot}$ = the total system output in MW.
 C_p = the specific heat of the liquid in J.kg⁻¹.K⁻¹.
 This is virtually constant for water at around 4.21

$$V_{t(max)} = 1,000 / \rho_{t(max)}$$

$$V_{t(min)} = 1,000 / \rho_{t(min)}$$

$$f_v [m^3/h] = \frac{V_{t(max)} - V_{t(min)}}{C_p(t_{avg}) \times \Delta t} \times 3,600$$

$$V_{DH} = f_v \times Q_{n,tot}$$

Summary of volume flow factors at $\Delta t = 20 \text{ }^\circ\text{C}$

$t_{(max)}$	t_R	$t_{(min)}$	$f_v [m^3/h.kW]$
30	10	4	0.33*
40	20	4	0.33*
50	30	4	0.33
60	40	4	0.40
70	50	4	0.46
80	60	4	0.51
90	70	4	0.57
100	80	4	0.62

* In accordance with VDI 4708-1, f_v may not be selected below 50 °C.

All parameters and logarithms are included in our calculation program on the website. For manual selection, you will find the graphs on the following page.

Example: Expansion automat for central heating system

Data

- Total system volume V_a heating system = 75 m³.
- Output of the system = 6 MW
- Maximum heating temperature (90/70 °C) = 90 °C
- Height of building = 15 m
- Pressure set on safety valve P_{sv} = 4.0 bar
- Flexcon expansion automat and boiler installed **below**, so: $H_{st} \leq 15$ m.

Calculation

Expansion coefficient $n = 2.82\%$

Expansion volume $V_e = 75,000 \times 2.82\% = 2,115$ litres

Water reserve $V_{wr} = 75,000 \times 0.5\% (\geq 6) = 375$ litres

Determine the operating pressure of the expansion automat:

$$P_{ini} = (15/10) + 0.8 = 2.3 \text{ bar}$$

$$\text{End pressure } P_e = 4.0 - 10\% = 3.6 \text{ bar}$$

Gross volume of the expansion automat required:

$$V_{gross} = \frac{2,115 + 375}{0.85} \approx 2,930 \text{ litres}$$

Select: 1 x Flexcon M-K/U 3,500

Alternatively: 1 x Flamcomat FG 3,500 main vessel
+ pump module (to be determined)

Selecting a pump module for Flamcomat:

Volume flow calculation: $V_{DH} = f_v \times Q_{n,tot}$

$$V_{DH} = 0.57 \times 6 \text{ MW} \approx 3.4 \text{ m}^3/\text{h}$$

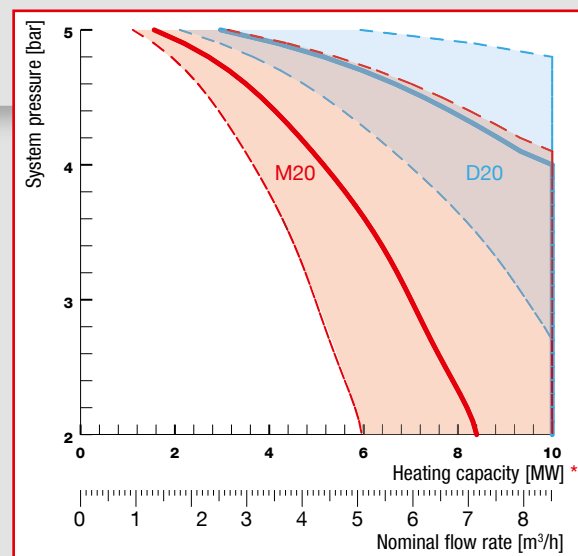
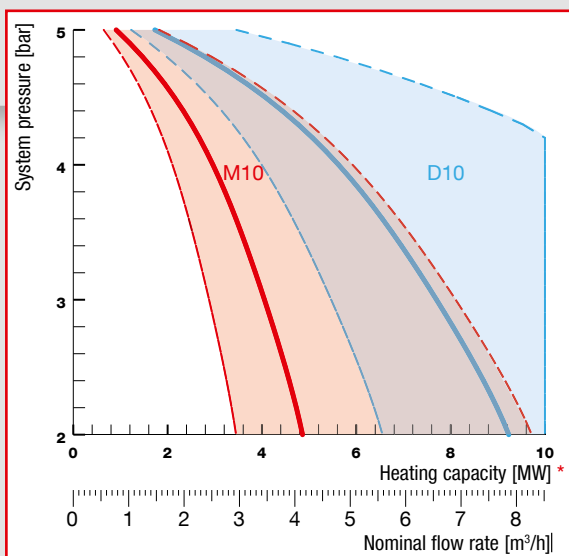
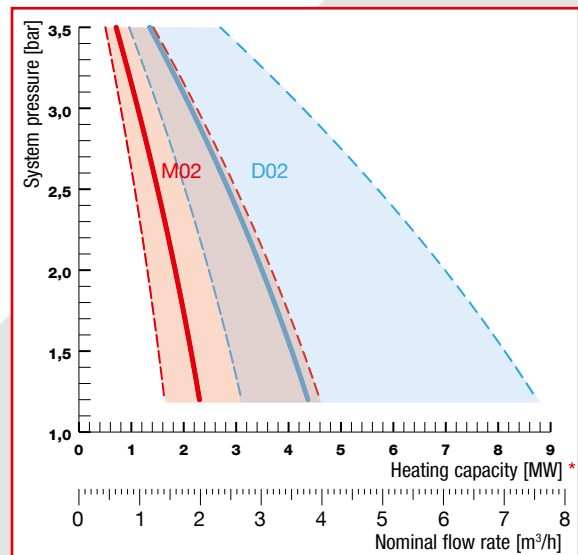
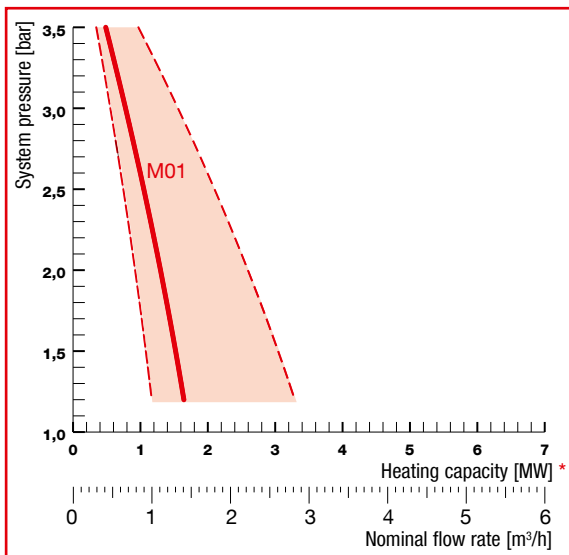
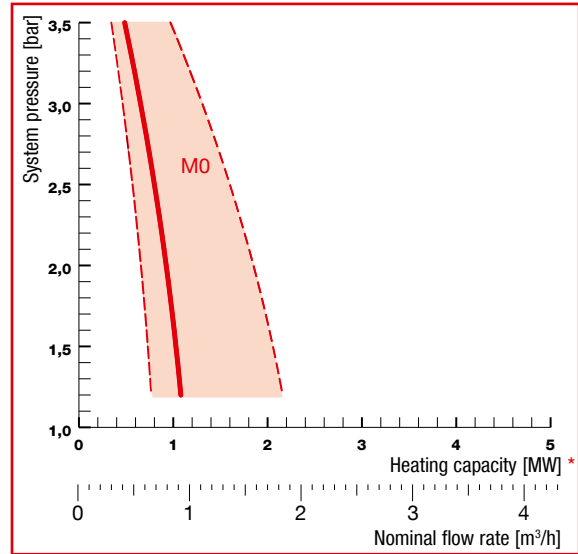
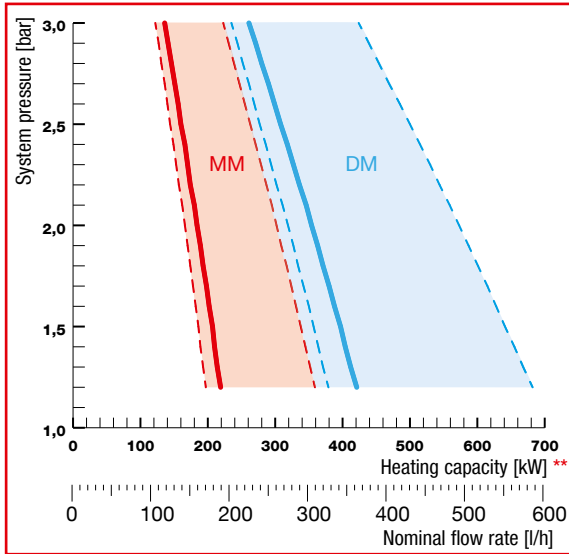
Consult pump graphs on the following page in the book:

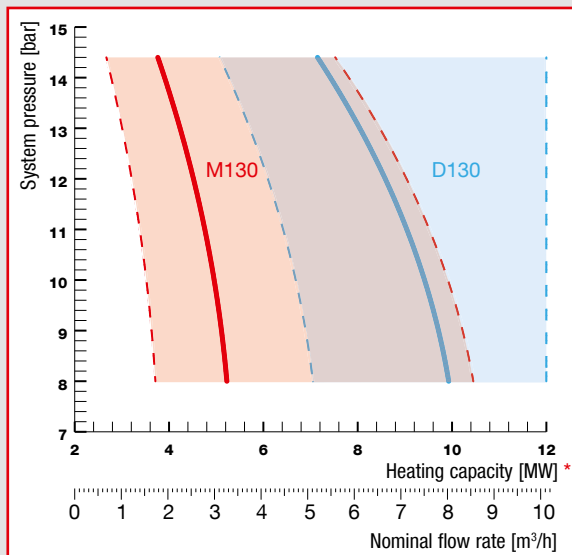
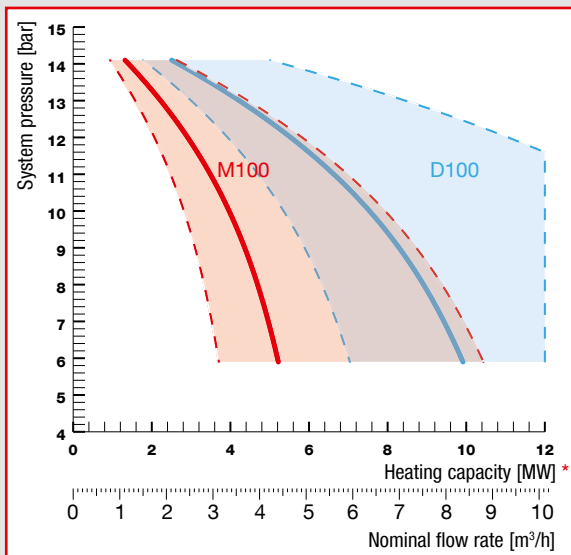
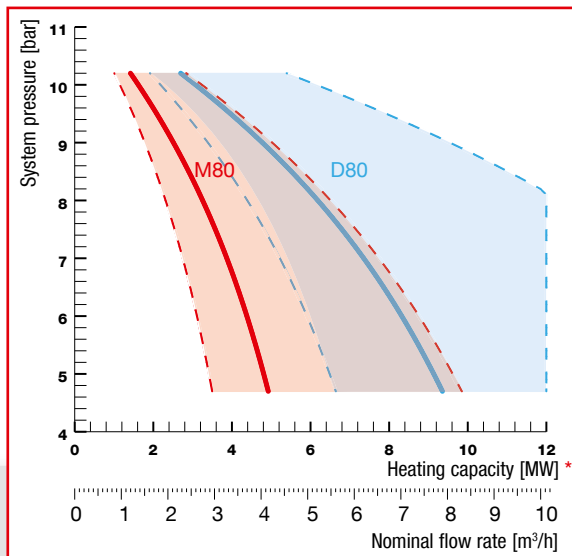
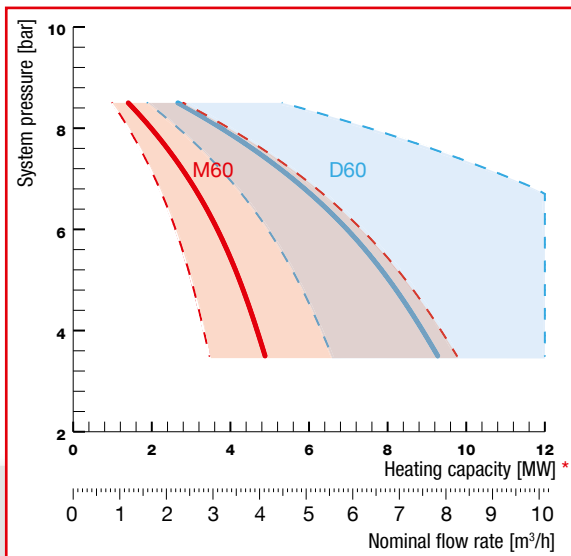
- Nominal flow: 3.4 m³/h.
- System pressure: 2.3 bar.

Select: Pump set D02 (load-dependent).

Expansion automats selection graphs

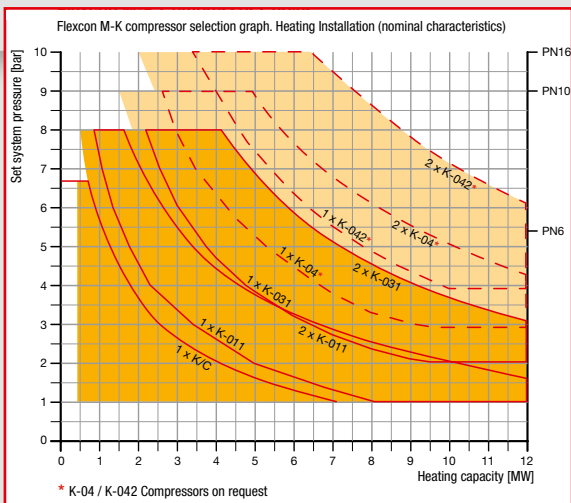
Flamcomat (pump choice)





* based on 0.85 l/(kW*h)
 ** based on 0.65 l/(kW*h)

Flexcon M-K (Compressor choice)



Flexcon M-K/U, the reliable compressor expansion automat

The Flexcon M-K/U compressor expansion automats store the expansion water from the system. They also hold the system pressure at the pre-set level within clearly defined limits. Water and compressed air are separated from each other by a removable high-quality butyl-rubber bladder which has a high diffusion density (low gas permeability).

Noticeable features of the Flexcon M-K/U are the high level of reliability and sturdiness. The Flexcon M-K/U is adaptable to a wide range of situations and there are plenty of optional accessories which mean that it can be put to many different uses in countless systems. They are low-noise compressors that require no oil.

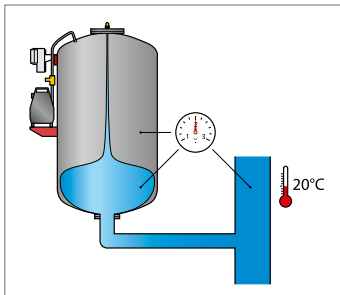
The entirely micro-processor driven control unit in the Flexcon M-K/U expansion automat has a number of parameters that can be set to any variable within a given range.

The benefits of the Flexcon M-K/U

- Stable system pressure and a large working vessel volume.
- With or without internal coating.
- Easy to install and commission.
- Intuitive SPC controller. This is a 'plug and play' control system, with clear on-screen instructions, intuitive and easy to use and with economic energy-save mode.

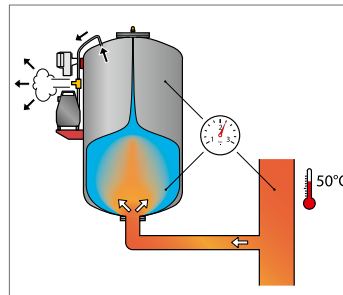


How it works



1. Cold

The automat contains a small amount of water. The automat is at rest.



2. Warming up

The volume of water, and thus the system pressure, increases. The controller responds to this by discharging air from the vessel and, as a result, the expansion water flows into the bladder.



SPC-control unit.

On top of the vessel of a Flexcon MK, a Flexvent Super automatic floatvent can (optionally) be installed.



Compressor.

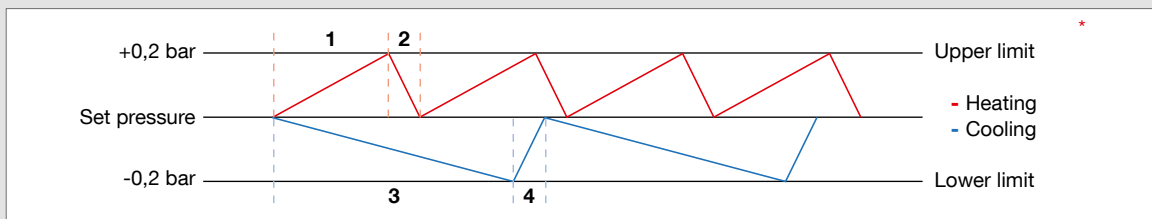
Exchangeable bladder of high-quality butyl-rubber.

Foot-height adjuster for leveling.

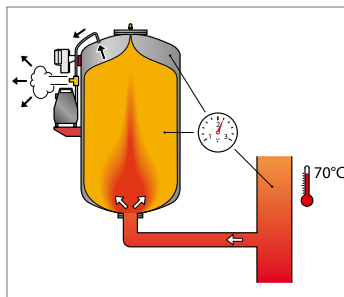
Weight/capacity sensor.

Accurate pressure monitoring

- **When the temperature rises:**
 Pressure rises and reaches the upper limit (1):
 The solenoid valve blows off air =>
 Pressure drops to the set pressure (2).
- **When the temperature drops:**
 Pressure drops and reaches the lower limit (3):
 The compressor pumps in air =>
 Pressure rises to the set pressure (4).

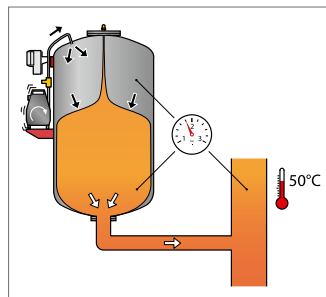


* Graph concerns a heating system



3. Full power

By storing increasing amounts of water in the vessel the controller keeps the system pressure at a constant level. When the system has warmed up completely, the vessel will be almost full to capacity.



4. Cooling down

When the volume of water and thus the system pressure decreases, the controller will respond by increasing the air-pressure in the vessel with displacement of water back into the system as a result. This restores equilibrium in the system pressure.



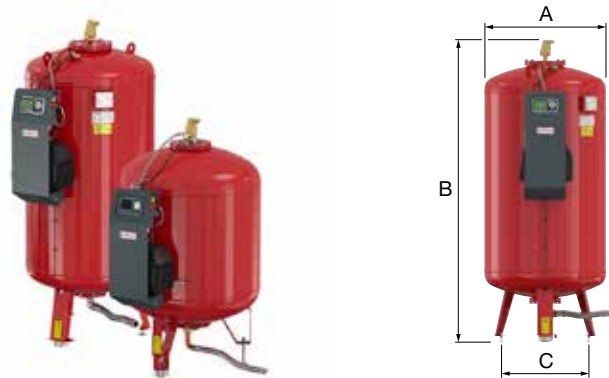
FLEXCON M-K/U COMPRESSOR EXPANSION AUTOMAT

For heating and chilled water (cooling) installations.

Ideal for larger systems and systems which cannot tolerate the rise in pressure associated with standard sealed system equipment. These units are distinguished by their wide range of applications. Installation is both simple and cost-effective due to the adjustable system connection. The unit is combined with the latest technology SPC control unit.

- Compact, space saving unit, which has a low noise, oil free compressor.
- This compressor unit has a simple and clear control panel which can be connected to a building management system or system monitoring device.
- Replaceable bladder.
- Delivered with oil free compressor, weight-capacity sensor and height adjustable feet.
- As an option, the Flexcon M-K/U can be fitted with a Flexvent Super.
- Suitable for addition of glycol-based anti-freeze up to 50%.
- Vessels 400 - 1,000 litres: in accordance with EN13831 / 1,200 - 10,000 litres: in accordance with AD2000.
- Suitable for systems with a maximum flow temperature of 120 °C.
- Max. temperature bladder: 70 °C.
- In accordance with European Pressure Equipment Directive 2014/68/EU and Machinery Directive 2006/42/EC.
- Red (RAL 3002) epoxy powder coating.

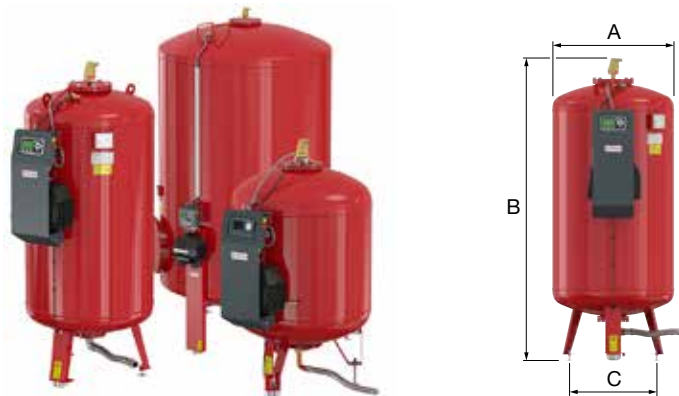
Flexcon M-K/U



Type	Capacity [l]	Max. working pressure (Compressor) [bar]	Design pressure [PN]	Dimensions			Compressor	Syst. conn.	Weight [kg]		Order Code
				A [mm]	B [mm]	C [mm]					
Flexcon M-K/U 400	400	5.4	6.0	790	1437	610	K-011	G 1 1/4" M	90	1	23430
Flexcon M-K/U 400	400	8.0	10.0	790	1437	610	K-011	G 1 1/4" M	117	1	23440
Flexcon M-K/U 600	600	5.4	6.0	790	1737	610	K-011	G 1 1/4" M	105	1	23431
Flexcon M-K/U 600	600	8.0	10.0	790	1737	610	K-011	G 1 1/4" M	140	1	23441
Flexcon M-K/U 800	800	5.4	6.0	790	2144	610	K-031	G 1 1/4" M	120	1	23432
Flexcon M-K/U 800	800	8.0	10.0	790	2144	610	K-031	G 1 1/4" M	165	1	23442
Flexcon M-K/U 1000	1000	5.4	6.0	790	2493	610	K-031	G 1 1/4" M	135	1	23433
Flexcon M-K/U 1000	1000	8.0	10.0	790	2493	610	K-031	G 1 1/4" M	190	1	23443
Flexcon M-K/U 1200	1200	5.4	6.0	1000	2110	850	K-031	R 1 1/2"	313	1	22422
Flexcon M-K/U 1200	1200	8.0	10.0	1000	2110	850	K-031	R 1 1/2"	418	1	22472
Flexcon M-K/U 1600	1600	5.4	6.0	1000	2610	850	K-031	R 1 1/2"	368	1	22427
Flexcon M-K/U 1600	1600	8.0	10.0	1000	2610	850	K-031	R 1 1/2"	508	1	22477
Flexcon M-K/U 2000	2000	5.4	6.0	1200	2362	1050	K-031	R 2"	453	1	22432
Flexcon M-K/U 2000	2000	8.0	10.0	1200	2362	1050	K-031	R 2"	618	1	22482
Flexcon M-K/U 2800	2800	5.4	6.0	1200	2962	1050	K-031	R 2 1/2"	538	1	22437
Flexcon M-K/U 2800	2800	8.0	10.0	1200	2962	1050	K-031	R 2 1/2"	758	1	22487
Flexcon M-K/U 3500	3500	5.4	6.0	1200	3762	1050	K-031	R 2 1/2"	648	1	22442
Flexcon M-K/U 3500	3500	8.0	10.0	1200	3762	1050	K-031	R 2 1/2"	938	1	22492



Flexcon M-K/U - internal coating



Type	Capacity [l]	Max. working pressure (Compressor) [bar]	Design pressure [PN]	Dimensions			Compressor	Syst. conn.	Weight [kg]		Order Code
				A [mm]	B [mm]	C [mm]					
Flexcon M-K/U 400	400	5.4	6.0	790	1437	610	K-011	G 1 1/4" M	90	1	23450
Flexcon M-K/U 400	400	8.0	10.0	790	1437	610	K-011	G 1 1/4" M	117	1	23470
Flexcon M-K/U 600	600	5.4	6.0	790	1737	610	K-011	G 1 1/4" M	105	1	23451
Flexcon M-K/U 600	600	8.0	10.0	790	1737	610	K-011	G 1 1/4" M	140	1	23471
Flexcon M-K/U 800	800	5.4	6.0	790	2144	610	K-031	G 1 1/4" M	120	1	23452
Flexcon M-K/U 800	800	8.0	10.0	790	2144	610	K-031	G 1 1/4" M	165	1	23472
Flexcon M-K/U 1000	1000	5.4	6.0	790	2493	610	K-031	G 1 1/4" M	135	1	23453
Flexcon M-K/U 1000	1000	8.0	10.0	790	2493	610	K-031	G 1 1/4" M	190	1	23473
Flexcon M-K/U 1200	1200	5.4	6.0	1000	2110	850	K-031	R 1 1/2"	313	1	23554
Flexcon M-K/U 1200	1200	8.0	10.0	1000	2110	850	K-031	R 1 1/2"	418	1	23574
Flexcon M-K/U 1600	1600	5.4	6.0	1000	2610	850	K-031	R 1 1/2"	368	1	23555
Flexcon M-K/U 1600	1600	8.0	10.0	1000	2610	850	K-031	R 1 1/2"	508	1	23575
Flexcon M-K/U 2000	2000	5.4	6.0	1200	2362	1050	K-031	R 2"	453	1	23556
Flexcon M-K/U 2000	2000	8.0	10.0	1200	2362	1050	K-031	R 2"	618	1	23576
Flexcon M-K/U 2800	2800	5.4	6.0	1200	2962	1050	K-031	R 2 1/2"	538	1	23557
Flexcon M-K/U 2800	2800	8.0	10.0	1200	2962	1050	K-031	R 2 1/2"	785	1	23577
Flexcon M-K/U 3500	3500	5.4	6.0	1200	3762	1050	K-031	R 2 1/2"	648	1	23558
Flexcon M-K/U 3500	3500	8.0	10.0	1200	3762	1050	K-031	R 2 1/2"	938	1	23578
Flexcon M-K/U 5000	5000	2.4	3.0	1500	3635	1520	K-031	Rp 1 1/2"	976	1	23559
Flexcon M-K/U 6500	6500	2.4	3.0	1800	3550	1820	K-031	Rp 1 1/2"	1476	1	23560
Flexcon M-K/U 8000	8000	2.4	3.0	1900	3650	1920	K-031	Rp 1 1/2"	1581	1	23561
Flexcon M-K/U 10000	10000	2.4	3.0	2000	4070	2020	K-031	Rp 1 1/2"	1821	1	23562



EXTRA COMPRESSORS

The second compressor unit is assembled on a second console on the Flexcon M-K/U compressor expansion automat. Both compressors must be of equal capacity and type. Delivered complete, assembled and ready for use.

Note: This configuration comes with failure changeover operation option only.

Second Compressor Unit



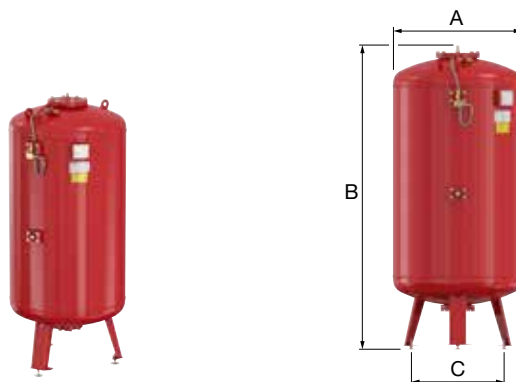
Type	Application	Max. operating pressure [bar]		Order Code
2nd Compressor unit K-011	Flexcon M-K/U	8	1	On Request
2nd Compressor Unit K-031	Flexcon M-K/U	8	1	On Request

FLEXCON M-K AUXILIARY VESSELS


For heating and chilled water (cooling) installations.

- Without control unit.
- Replaceable bladder.
- Delivered with height adjustable feet.
- As an option, the Flexcon M-K can be fitted with a Flexvent Super.
- Accessories to be ordered separately.
- Suitable for addition of glycol-based anti-freeze up to 50%.
- Vessels 400 - 1,000 litres: in accordance with EN13831 / 1,200 - 10,000 litres: in accordance with AD2000.
- Max. temperature bladder: 70 °C.
- Suitable for systems with a maximum flow temperature of 120 °C.
- In accordance with European Pressure Equipment Directive 2014/68/EU and Machinery Directive 2006/42/EC.
- Red (RAL 3002) epoxy powder coating.


Flexcon M-K - internal coating



Type	Capacity [l]	Design pressure [PN]	Dimensions			Syst. conn.	Weight [kg]		Order Code
			A [mm]	B [mm]	C [mm]				
Flexcon M-K 400	400	6.0	790	1352	610	G 1 1/4" F	77	1	23460
Flexcon M-K 400	400	10.0	790	1352	610	G 1 1/4" F	104	1	23480
Flexcon M-K 600	600	6.0	790	1652	610	G 1 1/4" F	92	1	23461
Flexcon M-K 600	600	10.0	790	1652	610	G 1 1/4" F	127	1	23481
Flexcon M-K 800	800	6.0	790	2059	610	G 1 1/4" F	107	1	23462
Flexcon M-K 800	800	10.0	790	2059	610	G 1 1/4" F	152	1	23482
Flexcon M-K 1000	1000	6.0	790	2408	610	G 1 1/4" F	122	1	23463
Flexcon M-K 1000	1000	10.0	790	2408	610	G 1 1/4" F	177	1	23483
Flexcon M-K 1200	1200	6.0	1000	2025	850	Rp 1 1/2"	290	1	23524
Flexcon M-K 1200	1200	10.0	1000	2025	850	Rp 1 1/2"	395	1	23544
Flexcon M-K 1600	1600	6.0	1000	2525	850	Rp 1 1/2"	345	1	23525
Flexcon M-K 1600	1600	10.0	1000	2525	850	Rp 1 1/2"	485	1	23545
Flexcon M-K 2000	2000	6.0	1200	2277	1050	Rp 2"	430	1	23526
Flexcon M-K 2000	2000	10.0	1200	2277	1050	Rp 2"	595	1	23546
Flexcon M-K 2800	2800	6.0	1200	2877	1050	Rp 2 1/2"	515	1	23527
Flexcon M-K 2800	2800	10.0	1200	2877	1050	Rp 2 1/2"	735	1	23547
Flexcon M-K 3500	3500	6.0	1200	3677	1050	Rp 2 1/2"	625	1	23528
Flexcon M-K 3500	3500	10.0	1200	3677	1050	Rp 2 1/2"	915	1	23548
Flexcon M-K 5000	5000	3.0	1500	3550	1520	Rp 1 1/2"	953	1	23529
Flexcon M-K 6500	6500	3.0	1800	3465	1820	Rp 1 1/2"	1453	1	23530
Flexcon M-K 8000	8000	3.0	1900	3565	1920	Rp 1 1/2"	1558	1	23531
Flexcon M-K 10000	10000	3.0	2000	3985	2020	Rp 1 1/2"	1798	1	23532

Flexcon M-K Connecting Kit (pneumatic)			
Type	Suitable for		Order Code
Connecting kit (2 vessels)	Flexcon M-K/U / Flexcon M-K	1	22380
Connecting kit (3 or more vessels)	Flexcon M-K	1	22381



Flange Connection						
<ul style="list-style-type: none"> • With flange connection PN 16. • Suitable for 6.0 and 10.0 bar vessels. 						
Volume of tank [l]	Connections		L. [mm]	Suitable for		Order Code
	In	PN 16				
400 - 1000	G 1 1/4" M	DN 32	350	Flexcon M-K / M-K/U	1	23795
1200 - 1600	G 1 1/2" M	DN 40	470	Flexcon M / M-K / M-K/U	1	23796
2000	G 2" M	DN 50	560	Flexcon M / M-K / M-K/U	1	23797
2800 - 5200	G 2 1/2" M	DN 65	560	Flexcon M / M-K / M-K/U	1	23798





FLEXCON M-K/C COMPRESSOR EXPANSION AUTOMAT

Compressor controlled expansion vessel with fixed diaphragm for smaller sealed heating and refrigerating systems. This product is especially designed for smaller commercial systems with limited space, providing all the benefits of an automat at an affordable price.

- Materials: Top-quality steel.
- Diaphragm: Flexible rubber with rolling action.
- Suitable for addition of glycol-based anti-freeze up to 50%.
- Red (RAL 3002) epoxy powder coating.
- Max. temperature diaphragm: 70 °C.
- Min. temperature at (heating) outlet: -10 °C.
- Suitable for systems with a maximum flow temperature of 120 °C.
- In accordance with European Pressure Equipment Directive 2014/68/EU and Machinery Directive 2006/42/EC.

For stand-alone applications only.

Flexcon M-K/C									
									
Type	Capacity [l]	Max. working pressure [bar]	Design pressure [PN]	Dimensions		Syst. conn.	Weight [kg]		Order Code
				Ø [mm]	H. [mm]				
Flexcon M-K/C 110	110	5.4	6.0	509	1215	G 1" F	37	1	23225
Flexcon M-K/C 200	200	5.4	6.0	600	1391	G 1" F	71	1	23226
Flexcon M-K/C 350	350	5.4	6.0	790	1459	G 1" F	81	1	23227
Flexcon M-K/C 425	425	5.4	6.0	790	1612	G 1" F	91	1	23228



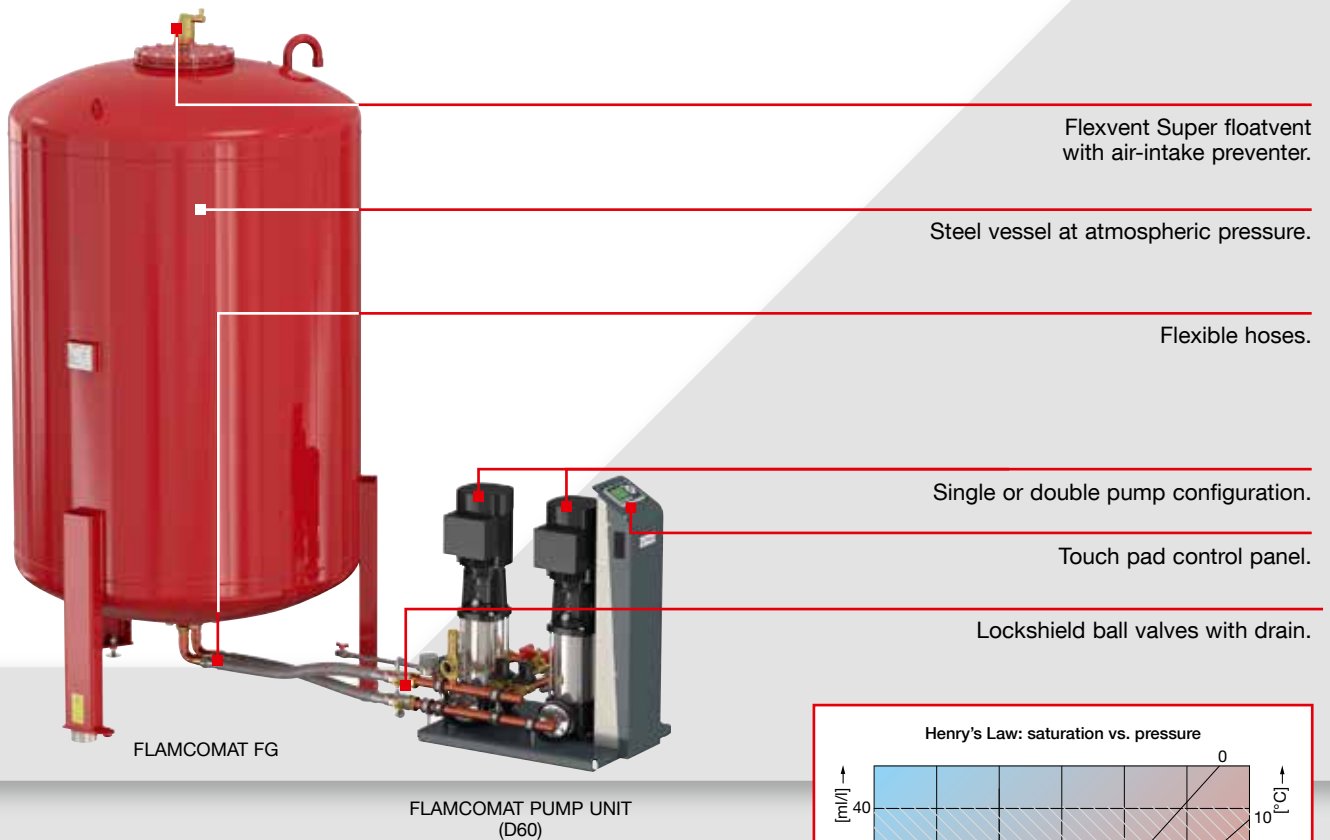
Tomorrow's Technology in Today's Flamcomat

The Flamcomat is a modern, pump-driven pressurisation unit. Thanks to its sophisticated construction we have made it possible to incorporate important functions into one compact unit.

The Flamcomat consists of a pump unit and a pressureless vessel. This modular expansion system can be expanded with additional vessels and accessories from our comprehensive range.

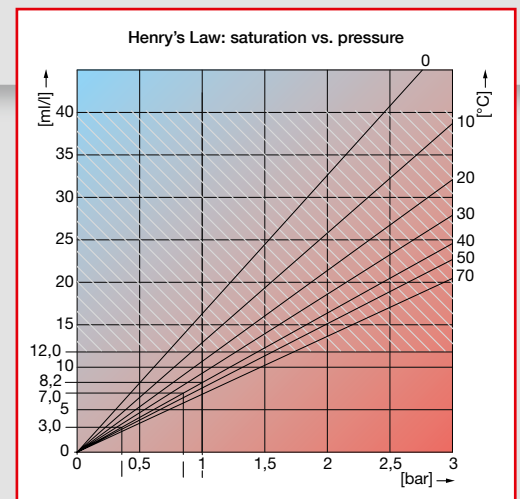
In this way we can tailor the equipment precisely to the needs of your system.

The Flamcomat is suitable for any size of heating installation and for both refrigeration and air-conditioning installations. The Flamcomat makes sure that the system pressure remains within precise limits and that the system is topped-up automatically should there be any requirements. The venting process is incorporated, dynamic and energy-efficient.



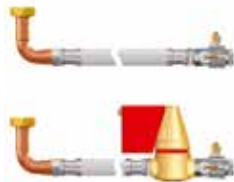
Active de-aeration

By using an integrated PALL ring box it is possible to de-aerate the installation continuously and completely. The 'Turbo-vent' function significantly increases the de-aeration capacity.



Gas sensor connection assembly (optional)

The Flamcomat de-aeration process can be performed even more economically. When the pre-set minimum gas volume has been reached, the normal de-aeration process is stopped until the next time the sensor detects an excessive level of gas in the expansion fluid.



Benefits of the Flamcomat

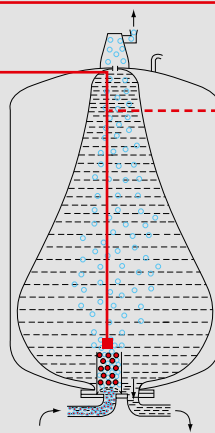
- The Flamcomat combines pressure-control unit, dynamic de-aeration and topping-up all in one.
- Choice of a range of pump modules.
- Proven de-aeration results, as tested independently by WL / Delft Hydraulics.
- Expansion fluid is stored at atmospheric pressure in a removable butyl-rubber bladder.



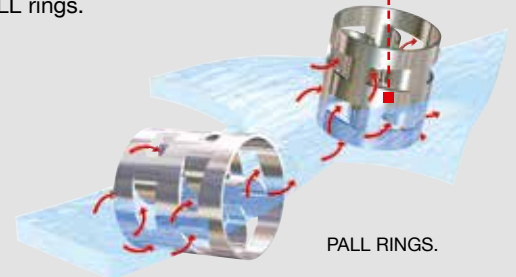
FLAMCOMAT FG

Atmospheric ventilation between the vessel and the surrounding area.

Removable bladder of high-quality butyl-rubber.



Integrated micro bubble separator with PALL rings.



PALL RINGS.

Gas-rich water from the system.

De-aerated water to the system.

Flamcomat and Henry's Law

Due to its special properties, the Flamcomat is able to degas to a value down to 15% below that of the atmospheric pressure. This is extraordinary when we consider that the expansion water in the Flamcomat is exposed to atmospheric pressure! This makes the Flamcomat very effective and extremely efficient at the same time.

Because the degassed water from the Flamcomat is constantly exchanged in the system, the concentration of bound gases in the system water is further reduced, eventually to a favorable value for the system.

How the Automat Works

The Flamcomat is a versatile expansion equipment with supreme technical performance. The de-aeration capacity is not dependent on the circulation speed or the pressure in the system. In systems with a large difference between summer and winter operation, we recommend using a double (load-dependant) pump unit.

Top-up hose.

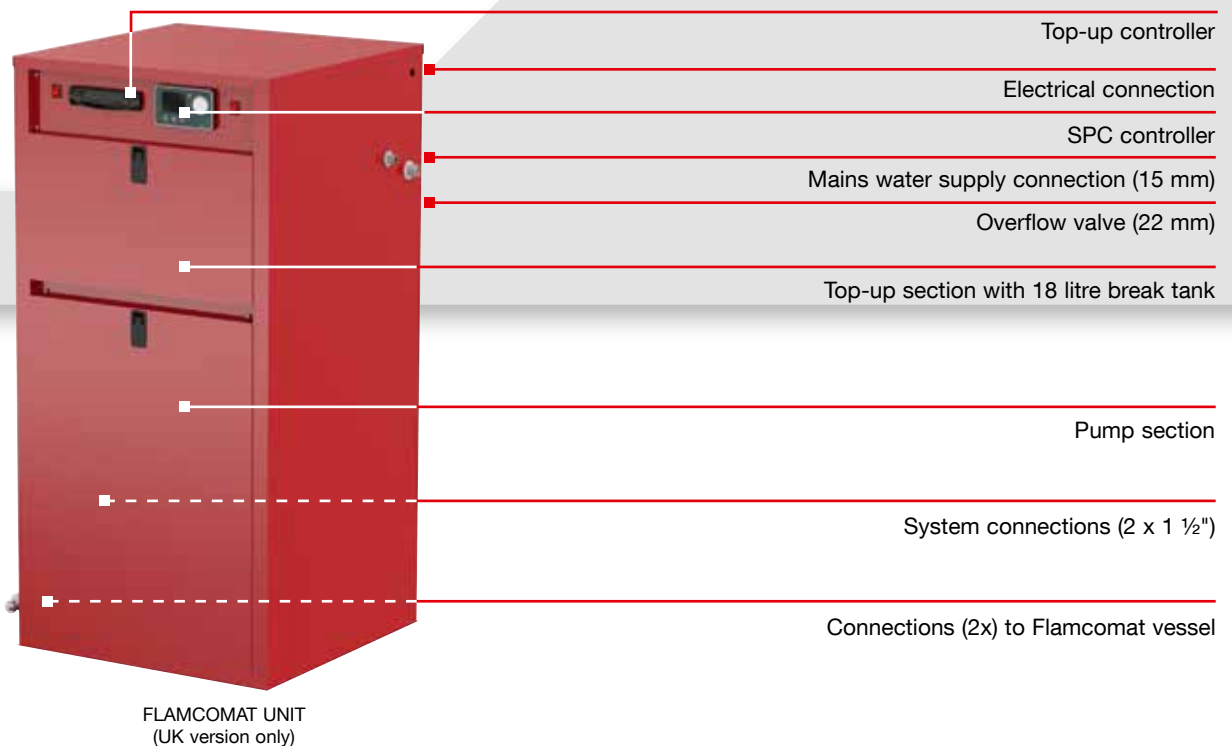
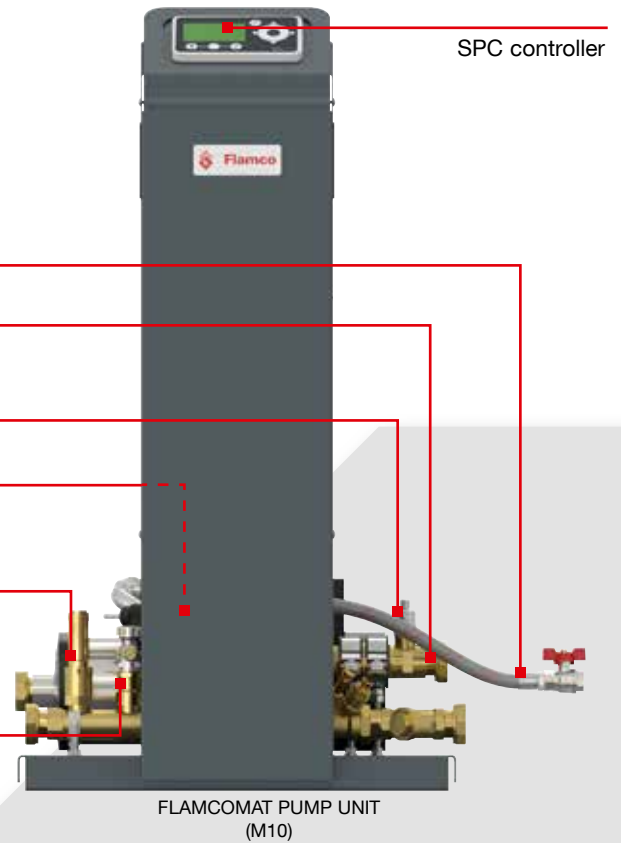
Pump discharge line, from expansion vessel to the system.

Pressure sensor.

Solenoid valve.

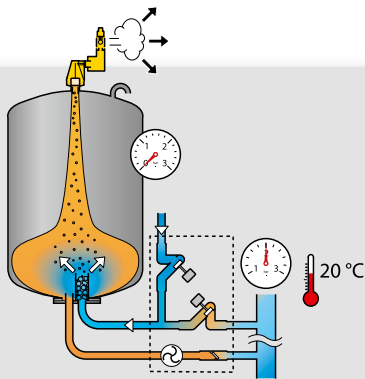
Safety valve, to protect the FG vessel.

Sealable filling/draining valve.



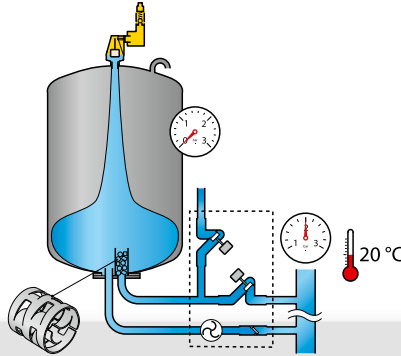
5. Topping-up

If the water level in the vessel drops to a critical level, an appropriate amount of water will be carefully pumped into the system from the water mains. This water will be de-aerated (by pressure loss and the PALL rings), before entering the vessel.



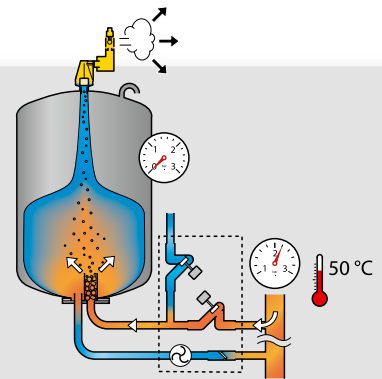
1. Cold

The automat contains a small amount of water. The automat is still at rest.



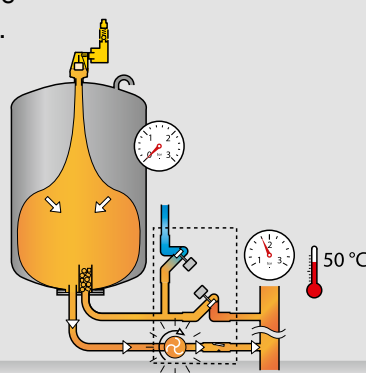
2. Warming up

The volume of water and the system pressure increases. The unit responds to this by opening the solenoid valve. Water flows into the pressureless vessel. The water in the vessel is de-aerated due to both the drop in pressure and the presence of the PALL rings.



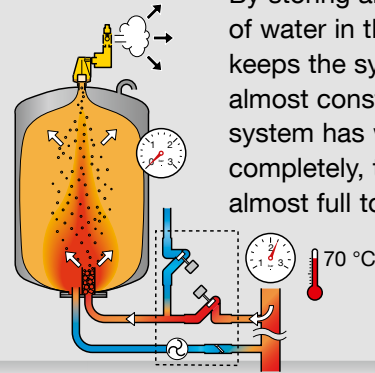
4. Cooling down

The volume of water and the system pressure decreases. The de-aerated water is pumped from the pressureless vessel back into the system. This restores the system pressure.



3. Full power

By storing an increasing amount of water in the tank, the automat keeps the system pressure almost constant. When the system has warmed up completely, the vessel will be almost full to capacity.



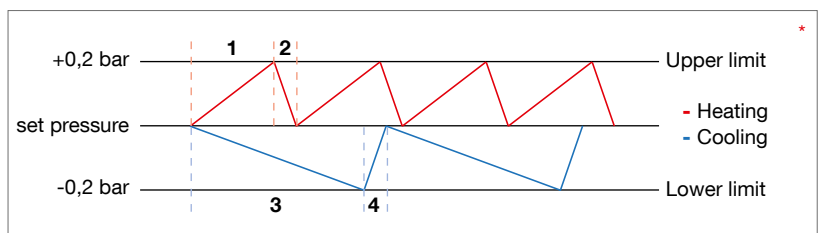
Accurate Pressure Monitoring

• **Temperature rises:**

Pressure rises and reaches the upper limit (1): The solenoid valve discharges water into the vessel => Pressure drops to the set pressure (2).

• **Temperature drops:**

Pressure drops and reaches the lower limit (3): The pump sends the water back into the system => Pressure rises to the set pressure (4).



* Graph shows heating system.

Flamcomat Installation and Schematic Layouts

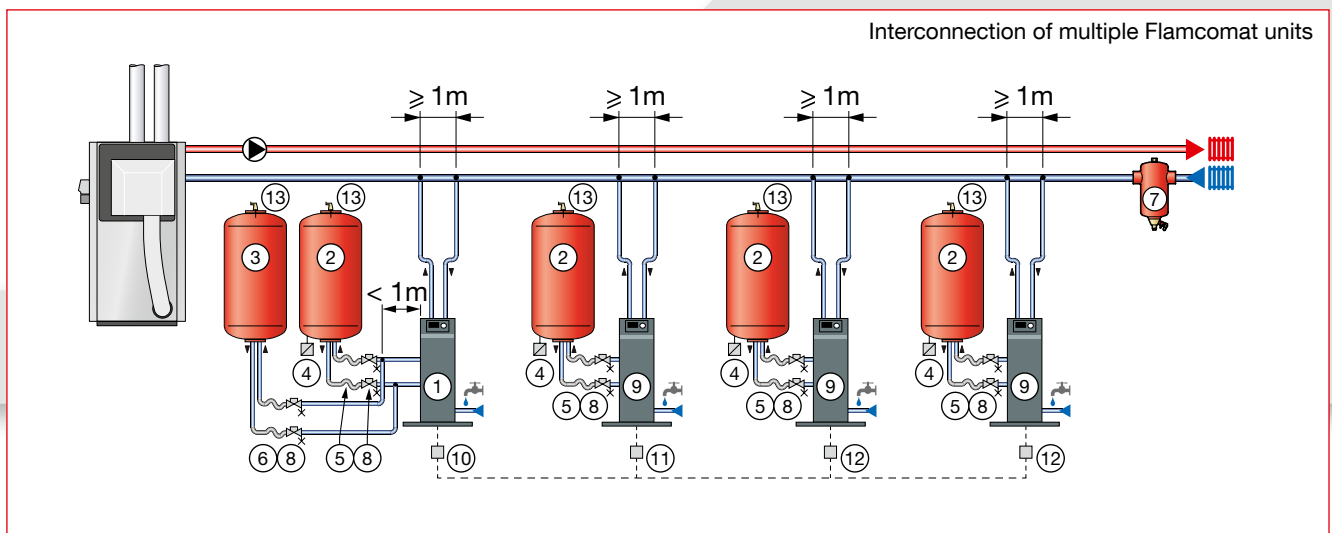
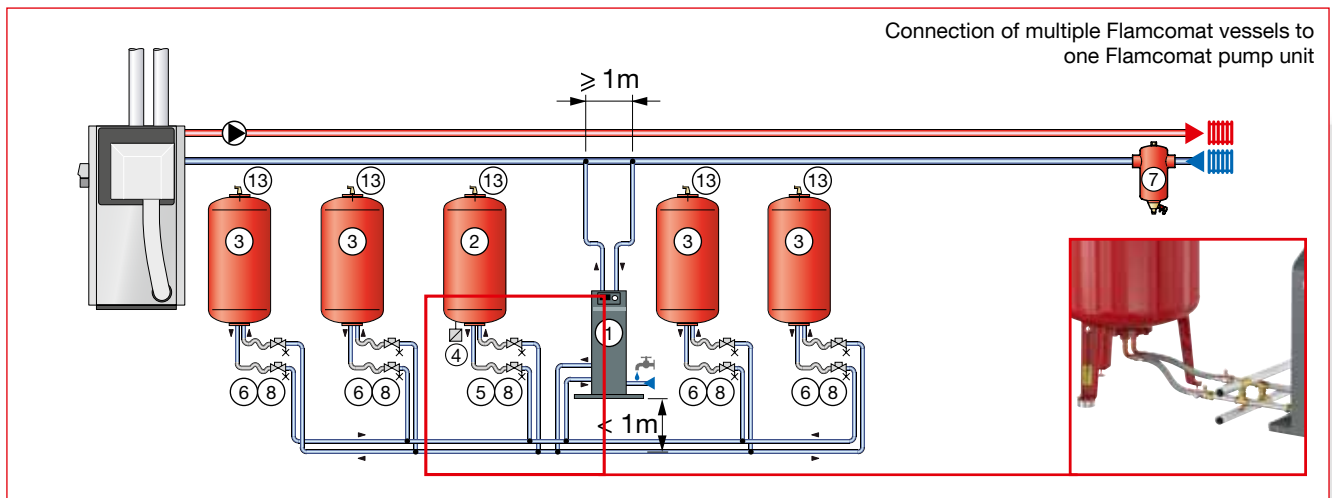
Installation and Placement

- The Flamcomat should be installed in a frost-free and low humidity area.
- All vessels must be installed at the same height.
- The connections of the Flamcomat pump unit from and to the system must be connected to the return header at least one metre apart.
- The equipment must be located within five metres of the return header.

Selection Details

- Static Height of the building above the pressurisation unit (metres).
- Total system content (litres). If unknown provide the boiler power (kW) which can be used to estimate the systems content.
- Flow and return temperatures.
- Glycol content (%) if required.
- Max working pressure.

System Schematics

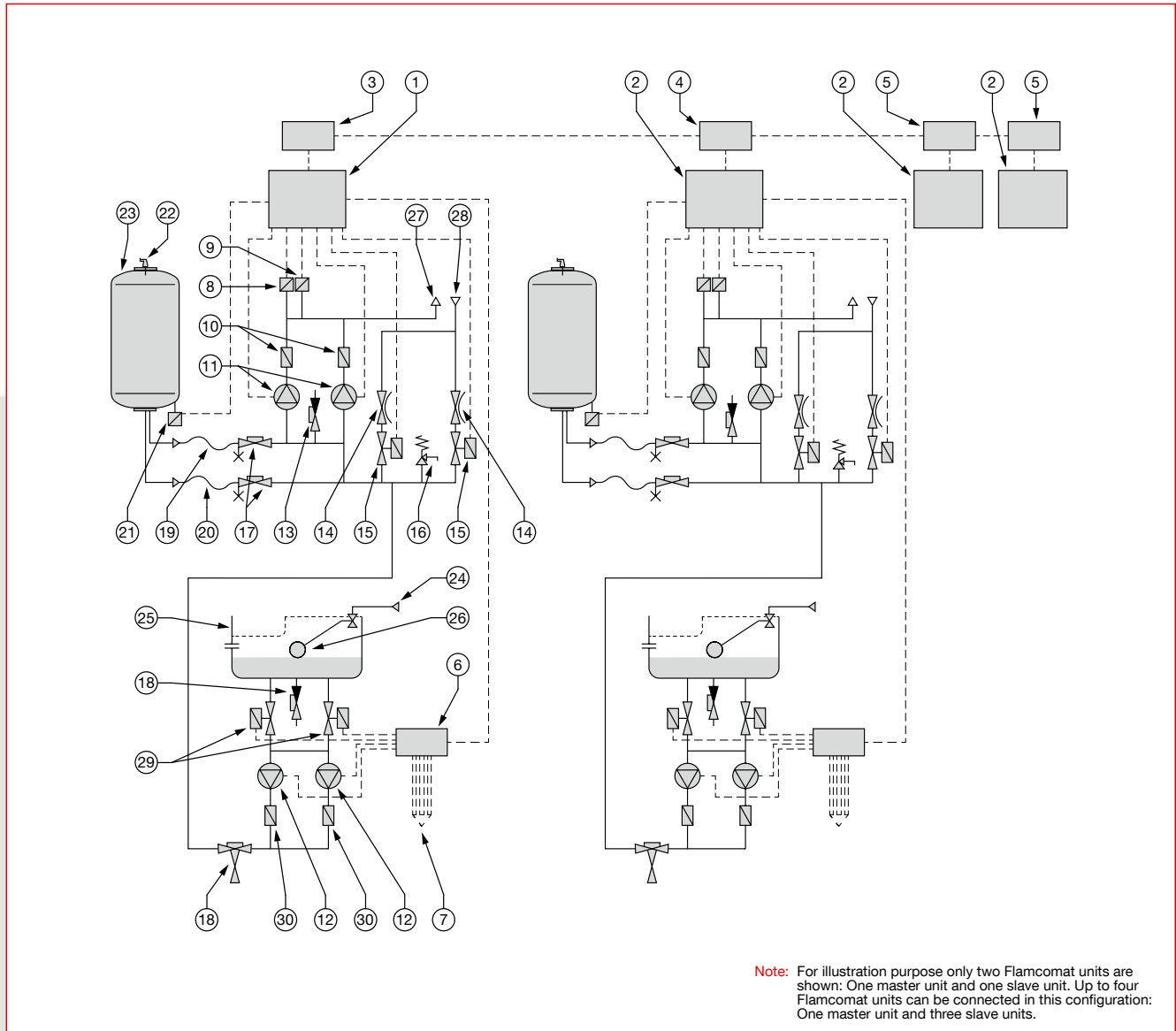


Nr	Description
1	Flamcomat Pump Unit (Master) ***
2	Flamcomat FG vessel *
3	Flamcomat FB vessel **
4	Weight/capacity sensor *
5	Flexible hoses (obligatory) *
6	Flexible hoses (optional) **
7	Flamco Clean Smart
8	Isolation and drain valve ****
9	Flamcomat Pump Unit (Slave) ***
10	SPC Extension module (Master) ***

Nr	Description
11	SPC Extension module (Slave) ***
12	SPC Extension module (Extra Slave) ***
13	Flexvent Super with air intake preventer

- * The Flamcomat FG main vessel must have a weight sensor and therefore must be connected to the Flamcomat pump unit using flexible hoses.
- ** Additional Flamcomat FB auxiliary vessels can be connected using rigid pipe or flexible hoses.
- *** Wired SPC extension modules interconnect master and slave units. The master unit will share load with the slave units (switches operation after 24 hours). In case of malfunction, master operation will switch over to another Flamcomat unit.
- **** Individual isolation and drain valves for each vessel are recommended.

Product Schematics



Nr	Description
1	SPC Controller (Master)
2	SPC Controller (Slave)
3	SPC Extension module (Master)
4	SPC Extension module (Slave)
5	SPC Extension module (Extra Slave)
6	Top-Up Control *
7	BMS interface (VFC/RS485) *
8	Pressure sensor (Top-Up Control) *
9	Pressure sensor (System pressure monitor)
10	Check valve for pump
11	Pump 1
12	Pump 2 *
13	Vent valve
14	Flow regulator valve 1
15	Inlet solenoid
16	Safety relief valve
17	Pumpset connection valve from vessel
18	Isolation and drain valve *

Nr	Description
19	Flexible hose return from vessel
20	Flexible hose flow to vessel
21	Weight/capacity sensor
22	Flexvent Super with air intake preventer
23	Flamcomat vessel
24	Mains water inlet *
25	Break tank *
26	Float operated valve *
27	Supply to sealed system
28	Supply from sealed system
29	Inlet solenoid *
30	Check valve for pump *

* Flamcomat unit UK version only.



FLAMCOMAT - PUMP UNITS

For heating and chilled water (cooling) installations.

Flamcomats with pump units are used for storage of expansion water, deaeration and topping up your installation automatically as an integrated controlled unit carried out with state of the art micro-electronics. The Flamcomat balanced pressure expansion equipment is sized according to the total system volume and the boiler or chiller load. The Flamcomat vessel is 80% efficient irrespective of the static height of the system. It is the ideal solution for large installations or high installations where standard diaphragm expansion equipment is limited.

- The easy to use control unit shows all system operation, fault conditions and the status of the mechanical components clearly and conveniently while monitoring the vessel contents and the system pressure.
- By using Flamco-patented PALL-rings, gas bubbles down to a size of 18 microns can be removed from the system. The PALL-rings have a large adhesive surface which means that the Flamcomat can eliminate large and small air bubbles from your system. This is described further in the independent research report commissioned from the Technical University of Delft, the Netherlands which can be obtained from Flamco.
- State-of-the-art technology gives low power usage, long life and ease of maintenance.

Single Pump Control



Type*	Design pressure [PN]	Pump orientation	For boiler output [kW]	Working pressure [bar]	Dimensions L. x W. x H. [mm]	Connection to				Order Code
						Tank	System	Water supply		
MM	PN 6	hor.	100 - 200	3.0 - 1.2	390 x 430 x 925	G 1" F	Rp 3/4"	Rp 1/2"	1	17880
M 0	PN 10	hor.	500 - 1100	3.5 - 1.2	520 x 530 x 930	G 1 1/4" F	G 1 1/4" F	Rp 1/2"	1	17786
M 01	PN 10	hor.	500 - 1700	3.5 - 1.2	520 x 530 x 930	G 1 1/4" F	G 1 1/4" F	Rp 1/2"	1	17787
M 02	PN 10	hor.	700 - 2300	3.5 - 1.2	520 x 530 x 930	G 1 1/4" F	G 1 1/4" F	Rp 1/2"	1	17789
M 10	PN 10	hor.	900 - 4700	5.0 - 2.0	520 x 530 x 930	G 1 1/4" F	G 1 1/4" F	Rp 1/2"	1	17780
M 20	PN 10	hor.	1600 - 8400	5.0 - 2.0	520 x 530 x 930	G 1 1/4" F	G 1 1/4" F	Rp 1/2"	1	17781
M 60	PN 10	vert.	1400 - 4700	8.5 - 3.5	520 x 605 x 930	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17784
M 80	PN 16	vert.	1400 - 4900	10.2 - 4.7	540 x 605 x 945	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17882
M 100	PN 16	vert.	1300 - 5200	14.1 - 5.9	540 x 605 x 1030	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17884
M 130	PN 16	vert.	3300 - 5300	14.4 - 8.0	540 x 605 x 1190	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17886

* For larger, more powerful systems please contact Flamco.

Double Pump Control

Type*	Design pressure [PN]	Pump orientation	For boiler output [kW]	Maximum working pressure [bar]	Dimensions L. x W. x H. [mm]	Connection to				Order Code
						Tank	System	Water supply		
DM	PN 6	hor.	100 - 400	3.0 - 1.2	500 x 395 x 925	G 1" F	Rp 3/4"	Rp 1/2"	1	17881
D 02	PN 10	hor.	700 - 4400	3.5 - 1.2	665 x 730 x 930	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17788
D 10	PN 10	hor.	900 - 9200	5.0 - 2.0	665 x 730 x 930	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17782
D 20	PN 10	hor.	1600 - 10000	5.0 - 2.0	665 x 730 x 930	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17783
D 60	PN 10	vert.	1400 - 9400	8.5 - 3.5	930 x 530 x 945	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17785
D 80	PN 16	vert.	1400 - 9400	10.2 - 4.7	930 x 530 x 945	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17883
D 100	PN 16	vert.	1300 - 10000	14.1 - 5.9	930 x 530 x 1030	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17885
D 130	PN 16	vert.	3300 - 10000	14.4 - 8.0	930 x 530 x 1190	G 1 1/2" F	G 1 1/2" F	Rp 1/2"	1	17887

* For larger, more powerful systems please contact Flamco.

Flamcomat D Pump Set Units

The Flamcomat D Pump Set Unit is an advanced product that combines a balanced pressure system with an effective pressure step de-aerator function and an inter-link to a top up pressurisation unit.


Product Features:

- On/Off switch, with indicator neon.
- Constructed as type AB air gap with weir overflow, fluid category 5.
- Electric pump, 230v 50Hz single phase.
- Electronic pressure transducer.
- Normally closed, common fault, volt free boiler interlock.
- Normally open high pressure, low pressure, transducer health and pump health volt free contacts.
- System logging.
- Easy setup and commissioning.
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer fault.
- 18 Litre break tank with type AB Air Gap Fluid Cat 5.

Certifications and Standards Applied:

- PED 97/23/EC Sound Engineering Practice.
- IEE - Electrical Safety Guidance.
- EMC 2004/108/EC.
- BS 7074 Parts 1 to 3.
- Machinery Directive 95/16/EC.
- Electronic Components have been tested and comply with the EMC Directives.
- EN 61000-6-2: Generic Standards – Immunity standard for industrial environments.
- EN 61000-6-3: Generic Standards – Emission standard for residential, commercial and light industrial environment.
- CE marked components, where applicable.
- EN 13831/8 - Closed expansion vessels.
- IP54 (BS EN60529) Rated Controller.
- IPX5 (BS EN60529) Rated Pump.
- WRAS approved float valve to BS1212 part 2.



Type	Dimensions			Connections			Dry Weight [kg]		Order Code
	D. [mm]	W. [mm]	H. [mm]	Vessel	System	Top-Up			
Pump Set D0	680	680	1400	1 1/2"	1 1/2"	1/2"	105	1	17900
Pump Set D1	680	680	1400	1 1/2"	1 1/2"	1/2"	110	1	17901
Pump Set D2	680	680	1400	1 1/2"	1 1/2"	1/2"	115	1	17902
Pump Set D3	680	680	1400	1 1/2"	1 1/2"	1/2"	150	1	17903
Pump Set D4	680	680	1600	1 1/2"	1 1/2"	1/2"	215	1	17904
Pump Set D5	680	680	1600	1 1/2"	1 1/2"	1/2"	225	1	17905
Pump Set D6	680	680	1600	1 1/2"	1 1/2"	1/2"	240	1	17906

Flamcomat D Pump Set Units - Performance

Type	Noise Rating [dBA]	Pump Model	Full Load Current [A]	Power Consumption [kW]	Required Supply Voltage [V]
Pump Set D0	58	Grundfos CM1-4	6.2	1	230V/1ph/50Hz
Pump Set D1	58	Grundfos CM3-6	8.8	1.34	230V/1ph/50Hz
Pump Set D2	65	Grundfos CM5-6	10.6	2.6	415V/3ph/50Hz
Pump Set D3	52	Grundfos CR3-15	14.8	2.2	230V/1ph/50Hz
Pump Set D4	54	Grundfos CR3-17	6.4	3	415V/3ph/50Hz
Pump Set D5	54	Grundfos CR3-23	9	4.4	415V/3ph/50Hz
Pump Set D6	55	Grundfos CR3-31	12.6	6	415V/3ph/50Hz
Top Up Equipment (Integral)	61	Pedrollo PQA60	2.1	0.37	230V/1ph/50Hz



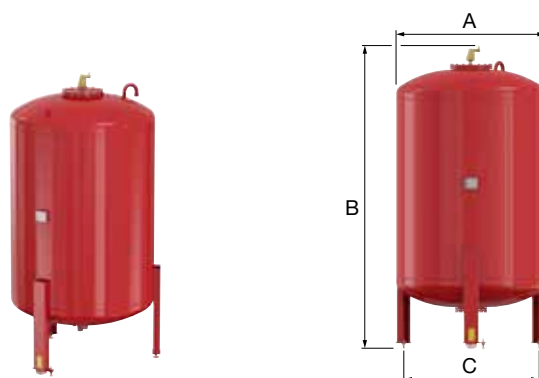
FLAMCOMAT VESSELS

For heating and chilled water (cooling) installations.

A multi function product which provides all the essential requirements for a sealed chilled or heated water system i.e. automatic expansion control, pressurisation, de-aeration and make-up.

- FG: Pressureless vessel without automat for the Flamcomat pump units.
FB: Pressureless auxiliary vessel (more expansion volume, in combination with FG).
- Replaceable bladder.
- FG: Delivered with Flexvent Super, height adjustable feet and weight-capacity sensor.
FB: Delivered with Flexvent Super and height adjustable feet.
- Flexible connections and hoses between pump unit and vessel to be ordered separately.
- Suitable for addition of glycol-based anti-freeze up to 30%.
- Vessels 200 - 1,000 litres: in accordance with EN13831 / 1,200 - 10,000 litres: in accordance with AD2000.
- Suitable for systems with a maximum flow temperature of 120 °C.
- Max. temperature bladder: 70 °C.
- In accordance with European Pressure Equipment Directive 2014/68/EU and Machinery Directive 2006/42/EC.

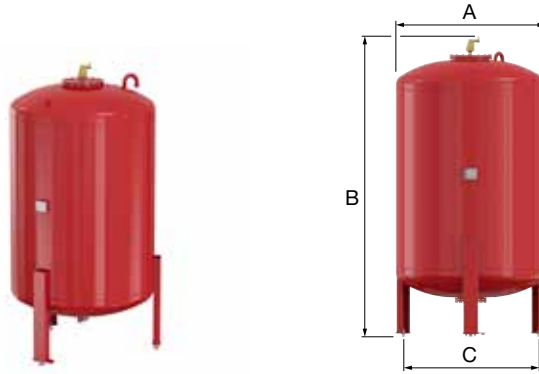
Flamcomat FG Main Vessels



Type	Capacity [l]	Dimensions			Syst. conn.	Weight [kg]		Order Code
		A [mm]	B [mm]	C [mm]				
FG 200	200	484	1560	360	G 1 1/2" M	31	1	17820
FG 300	300	600	1596	450	G 1 1/2" M	41	1	17821
FG 400	400	790	1437	610	G 1 1/2" M	62	1	17822
FG 500	500	790	1587	610	G 1 1/2" M	70	1	17823
FG 600	600	790	1737	610	G 1 1/2" M	77	1	17824
FG 800	800	790	2144	610	G 1 1/2" M	92	1	17825
FG 1000	1000	790	2493	610	G 1 1/2" M	106	1	17826
FG 1200	1200	1000	2210	1060	G 1 1/2" M	291	1	17717
FG 1600	1600	1000	2710	1060	G 1 1/2" M	346	1	17718
FG 2000	2000	1200	2440	1265	G 1 1/2" M	431	1	17719
FG 2800	2800	1200	3040	1265	G 1 1/2" M	516	1	17720
FG 3500	3500	1200	3840	1265	G 1 1/2" M	626	1	17721
FG 5000	5000	1500	3570	1570	G 1 1/2" M	1241	1	17722
FG 6500	6500	1800	3500	1885	G 1 1/2" M	1711	1	17723
FG 8000	8000	1900	3650	1985	G 1 1/2" M	1831	1	17724
FG 10000	10000	2000	4050	2085	G 1 1/2" M	2026	1	17725



Flamcomat FB Auxiliary Vessels



Type	Capacity [l]	Dimensions			Syst. conn.	Weight [kg]		Order Code
		A [mm]	B [mm]	C [mm]				
FB 200	200	484	1560	360	G 1 1/2" M	31	1	17830
FB 300	300	600	1596	450	G 1 1/2" M	41	1	17831
FB 400	400	790	1437	610	G 1 1/2" M	62	1	17832
FB 500	500	790	1587	610	G 1 1/2" M	70	1	17833
FB 600	600	790	1737	610	G 1 1/2" M	77	1	17834
FB 800	800	790	2144	610	G 1 1/2" M	92	1	17835
FB 1000	1000	790	2493	610	G 1 1/2" M	106	1	17836
FB 1200	1200	1000	2210	1060	G 1 1/2" M	290	1	17767
FB 1600	1600	1000	2710	1060	G 1 1/2" M	345	1	17768
FB 2000	2000	1200	2440	1265	G 1 1/2" M	430	1	17769
FB 2800	2800	1200	3040	1265	G 1 1/2" M	515	1	17770
FB 3500	3500	1200	3840	1265	G 1 1/2" M	625	1	17771
FB 5000	5000	1500	3570	1570	G 1 1/2" M	1240	1	17772
FB 6500	6500	1800	3500	1885	G 1 1/2" M	1710	1	17773
FB 8000	8000	1900	3650	1985	G 1 1/2" M	1830	1	17774
FB 10000	10000	2000	4050	2085	G 1 1/2" M	2025	1	17775

CE



ACCESSORIES FOR FLAMCOMAT

Flamcomat drain sets

Drain off module for Flamcomat with SPC controller. Prevents against overfilling of main vessel when the expansion volume is temporarily larger than the volume of the vessel.

Available with water meter or pulse water meter for a flow (Kvs) of 16 or 20 m³/h. The versions with a pulse water meter allow the monitoring of the flow rate by the SPC controller.

- Nominal pressure: PN 10.
- Max. temperature flow: 3 - 105 °C.
- Max. temperature backflow: 3 - 70 °C
- Electricity supply: 230V 1Ph N PE 50Hz ca. 10W.
- Applicable with controller: SPC-lw respectively -hw.



Type		Order Code
Drain set with water meter pulse large - 20 m³/h	1	17651
Drain set with water meter large - 20 m³/h	1	17653

Flamcomat signal doubler

The signal doubler has been developed to connect one Flamcomat main vessel with two (identical) Flamcomat pump sets, it allows a failure change-over operation with only one vessel.



Type		Order Code
Flamcomat signal doubler for FG 150 - 1000	1	17818
Flamcomat signal doubler for FG 1200 - 10000	1	17819

Pressure Safety Switch

Type	Connection ["]		Order Code
Minimum pressure switch	G 1/2"	1	27459
Maximum pressure switch	G 1/2"	1	27458



Bimetallic Temperature Switch

Electromechanical switch with fixed switching temperature of 70 °C.

Flamcomat: Reaching 70 °C is detected as an error and is stored in the error memory. When this temperature is reached the temperature switch prevents the system from degassing until the temperature falls below 70 °C again.

M-K automats: Reaching 70 °C is detected as an error and is stored in the error memory.

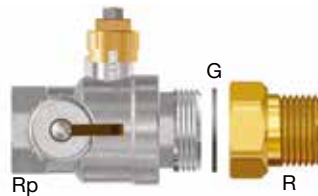
- Max. working pressure: 25 bar.
- Working temperature: 3 - 95 °C.
- Switching point: 70 °C.
- Applicable with controller: SPC-lw respectively -hw.



Type		Order Code
Bimetallic Temperature Switch	1	17659

Ball Valve

With drain connection, PN 16, 120 °C.



Type	Connection			Drain connection	Application			Order Code
	Rp	G	R		Pump	Vessel		
Ball valve DN 20 with adapter	3/4"	1"	3/4"	G 3/4"	MM, DM	Flamcomat FB	1	17734
Ball valve DN 25 with adapter	1"	1 1/4"	1"	G 3/4"	-	Flamcomat FB	1	17737
Ball valve DN 32 with adapter	1 1/4"	1 1/2"	1 1/4"	G 3/4"	-	Flamcomat FB	1	17738
Ball valve DN 25 without adapter (set)	1"	1 1/4"	-	G 3/4"	M 0 - M 20	-	2	17660
Ball valve DN 32 without adapter (set)	1 1/4"	1 1/2"	-	G 3/4"	M 60 - M 130, D 02 - D 130	-	2	17661

Impulse Output Water Meter

- PN 10, 90 °C.
- 50 Hz.

Type	Features	Length [mm]		Order Code
Impulse output water meter	1 impulse/10 litres	80	1	17739





Flexible Connecting Kit (set of 2)

For connecting the Flamcomat main or auxiliary vessel to the pump-unit, face sealed female, with ball valve and drainage valve.



Type	Suitable for		Connection		Length [mm]	Weight [kg]		Order Code
	Pump-unit	Vessel sizes [l]	Vessel	Pump-unit				
Flexible connection 1	MM, DM	200 - 1600	G 1 1/2" F	G 1" M	500	2.5	1	17841
Flexible connection 3	M 0 - M 20	200 - 1600	G 1 1/2" F	G 1 1/4" M	500	3.5	1	17741
Flexible connection 4	M 0 - M 20	2000 - 10000	G 1 1/2" F	G 1 1/4" M	750	4.0	1	17742
Flexible connection 5	M 60 - M 130, D 02 - D 130	200 - 1000	G 1 1/2" F	G 1 1/2" M	500	5.0	1	17755
Flexible connection 6	M 60 - M 130, D 02 - D 130	1200 - 5000	G 1 1/2" F	G 1 1/2" M	750	5.5	1	17756
Flexible connection 7	M 60 - M 130, D 02 - D 130	6500 - 10000	G 1 1/2" F	G 1 1/2" M	1000	6.5	1	17757

Gas Sensor Connecting Group

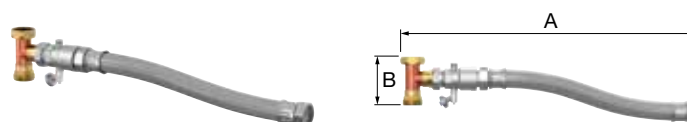
For connecting the Flamcomat main vessel to the pump unit, face sealed female, with ball valve and drainage valve. Includes a de-aeration sensor for signalling the control unit to continue or stop active de-aeration.



Type	Optional for		Connection to			Order Code
	Pump-unit	Vessel sizes [l]	Vessel	Pump-unit		
Sensor connecting group 1	MM, DM	200 - 1600	G 1 1/2" F	G 1" M	1	17810
Sensor connecting group 2	MM, DM	2000 - 10000	G 1 1/2" F	G 1" M	1	17811
Sensor connecting group 3	M 0 - M 20	200 - 1600	G 1 1/2" F	G 1 1/4" M	1	17812
Sensor connecting group 4	M 0 - M 20	2000 - 10000	G 1 1/2" F	G 1 1/4" M	1	17813
Sensor connecting group 5	M 60 - M 130, D 02 - D 130	200 - 1000	G 1 1/2" F	G 1 1/2" M	1	17814
Sensor connecting group 6	M 60 - M 130, D 02 - D 130	1200 - 5000	G 1 1/2" F	G 1 1/2" M	1	17815
Sensor connecting group 7	M 60 - M 130, D 02 - D 130	6500 - 10000	G 1 1/2" F	G 1 1/2" M	1	17816

Auxiliary vessel connection Flamcomat

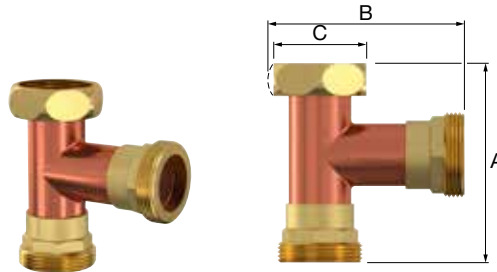
Connection set including T-piece PN10, hose and a block & bleed valve for easy installation of a Flamcomat FB auxiliary vessel. Use the pump connection from the FG main vessel for installing a FB auxiliary vessel with the connection set.



Type	Connection		Dimensions		Weight [kg]		Order Code
	Flamcomat FG	Flamcomat FB	A [mm]	B [mm]			
Auxiliary vessel connection Flamcomat	G 1 1/2" F	G 1 1/2" F	710	120	3.2	1	17647

T-piece

T-piece PN 10 for an easy installation of a Flamcomat FB auxiliary vessel. Use the pump connection from the FG main vessel for installing an FB auxiliary vessel with the T-piece.



Type	Dimensions			Weight [kg]		Order Code
	A [mm]	B [mm]	C [mm]			
T-Piece G 1 1/2"	110	110	58	0.6	1	17664

Rotating Connection, Face Sealed



Type	Suitable for		Connection to		Weight [kg]		Order Code
	Pump	Nom.	Vessel	Pump			
Vessel connection type 3	MM, DM	DN 25	G 1 1/2" F	R 3/4"	0.4	1	17754
Vessel connection type 4	M 0 - M 20	DN 25	G 1 1/2" F	R 1"	0.4	1	17730
Vessel connection type 5	M 60 - M 130, D 02 - D 130	DN 32	G 1 1/2" F	R 1 1/4"	0.5	1	17731

Backflow Security

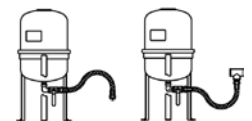
Including strainer and shut-off valves.
With multiple potable water approvals.

Type	Connection	Weight [kg]		Order Code
Backflow preventer	Rp 1/2" - R 1/2"	0.6	1	17736



Surge Vessel (PN 6)

Type	Capacity [l]	Dimensions		Syst. conn.	Weight [kg]		Order Code
		Ø [mm]	H. [mm]				
Surge vessel type M	18	286	600	1/2"	8.5	1	17732
Surge vessel type D	18	286	600	1 1/4"	10	1	17733





OPTIONAL CONTROL UNITS

Easycontact

Remote volt free failure contacts for pressure, level and thermal motor protection.

Type	Control unit		For automat				Order Code
	SCU	SPC	M-K/C	M-K/U	Flamcomat		
Easycontact	✓	✓	✓	✓	✓	1	23649



Diaphragm Rupture Sensor

Remote monitoring.

- Can be integrated at a later date.

Type	Control unit		For automat				Order Code
	SCU	SPC	M-K/C	M-K/U	Flamcomat		
Diaphragm rupture sensor	-	✓	-	✓	✓	1	22386



Analogue Signalling

- Internal.
- For analogue signalling (0-10 V) of vessel volume (0-100 %) and system pressure (0-16 bar).
- Build-in afterwards is possible.
- Setting up data processing and visualisation is left up to the contractor.

Type	Control unit		For automat				Order Code
	SCU	SPC	M-K/C	M-K/U	Flamcomat		
Analogue signalling	-	✓	-	✓	✓	1	17802



SD Card Module

External.

For saving parameter files.

SD Card module used for:

- Saving of SPC parameter files.
- Downloading of files via SD Card to PC.
- Transmission of the files to Service centre.
- Firmware updates by the service support.

Type	Control unit		For automat				Order Code
	SCU	SPC	M-K/C	M-K/U	Flamcomat		
SD card module	-	✓	-	✓	✓	1	17803



SPC Extension module

- For SPC control.

Type	Control unit		For automat				Order Code
	SCU	SPC	M-K/C	M-K/U	Flamcomat		
SPC Extension modules Master + Slave	-	✓	-	✓	✓	1	17500
Extra Slave Module	-	✓	-	✓	✓	1	17501




FLEXCON MPR-S - PUMP UNITS

For expansion water control and topping up of heating and chilled water (cooling) installations.

- Expansion water can be stored and topped up in your installation automatically as an integrated unit controlled and carried out with state of the art electronics.
- The control unit is the proven "Steuerautomat" with convenient methods of programming.

MPR-S Single Pump Unit


Suitable for boiler heating power range: 0.9 - 3.2 MW.

Type	Pressure range [bar]	Dimensions L. x W. x H. [mm]	Weight [kg]		Order Code
MPR-S / 1.8 PN 10	2.0 - 4.3	1716 x 1015 x 700	113	1	19741
MPR-S / 1.9 PN 10	2.0 - 6.0	1716 x 1015 x 700	115	1	19743
MPR-S / 1.10 PN 16	3.4 - 9.6	1716 x 1015 x 700	120	1	19744
MPR-S / 1.11 PN 16	5.2 - 13.9	1716 x 1015 x 700	135	1	19760
MPR-S / 1.12 PN 25	6.9 - 15.0	1716 x 1015 x 700	141	1	19761
MPR-S / 1.12 PN 25	15.0 - 18.3	1716 x 1015 x 700	141	1	19770
MPR-S / 1.13 PN 25	7.9 - 17.0	1716 x 1015 x 700	157	1	19771
MPR-S / 1.13 PN 25	17.0 - 21.1	1716 x 1015 x 700	157	1	19772



MPR-S Double Pump Unit

Suitable for boiler heating power range: 0.9 - 6.1 MW.

Type	Pressure range [bar]	Dimensions L. x W. x H. [mm]	Weight [kg]		Order Code
MPR-S / 2.8 PN 10	2.0 - 4.3	1716 x 1015 x 700	139	1	19750
MPR-S / 2.9 PN 10	2.0 - 6.0	1716 x 1015 x 700	143	1	19751
MPR-S / 2.10 PN 16	3.4 - 9.6	1716 x 1015 x 700	153	1	19752
MPR-S / 2.11 PN 16	5.2 - 13.9	1716 x 1015 x 700	161	1	19765
MPR-S / 2.12 PN 25	6.9 - 15.0	1716 x 1015 x 700	195	1	19766
MPR-S / 2.12 PN 25 BU*	6.9 - 15.0	1716 x 1015 x 700	195	1	19767
MPR-S / 2.12 PN 25	15.0 - 18.3	1716 x 1015 x 700	195	1	19775
MPR-S / 2.12 PN 25 BU*	15.0 - 18.3	1716 x 1015 x 700	195	1	19780
MPR-S / 2.13 PN 25	7.9 - 17.0	1716 x 1015 x 700	227	1	19776
MPR-S / 2.13 PN 25 BU*	7.9 - 17.0	1716 x 1015 x 700	227	1	19781
MPR-S / 2.13 PN 25	17.0 - 19.0	1716 x 1015 x 700	227	1	19777
MPR-S / 2.13 PN 25 BU*	17.0 - 21.1	1716 x 1015 x 700	227	1	19782
MPR-S / 2.13 PN 25	19.0 - 21.1	1716 x 1015 x 700	227	1	19778

* For back-up operational mode only.





FLEXCON M-P

Pump controlled, pressureless vessels with replaceable butyl rubber bladder for high pressures.

Special microprocessor controlled automatic systems for water expansion management, pressure maintenance and controlled top-up/pressurisation of hydronic cooling and heating installations with high pressure ratings or large heating/cooling outputs.


The system comprises of one or more expansion vessels, a single or dual pump unit, a microprocessor controller and the appropriate sensors, valves and connection hardware.

- Red (RAL 3002) epoxy powder coating.
- Maximum temperature (EN 13831/8): 70 °C.
- Maximum temperature at (heating) outlet: 120 °C.
- In accordance with EN 13831/8.
- Factory tested to PED97/23/EC standard.
- Material quality:
 - S235JR.
 - EN/ISO: P245N.

Flexcon M-P/G Main Vessels

First vessel in combination with MPR-S pump unit. Includes weight sensor and flexible connection 2".


- Nominal pressure ratings: PN10, 16 and 25.
- Maximum boiler output: 7 MW.
- Maximum chiller output: 17 MW.
- Larger volumes 6,500 - 10,000 litres available on request.

Type	Capacity [l]	Dimensions		Weight [kg]		Order Code
		Ø [mm]	H. [mm]			
Flexcon M-P/G 200	200	550	1530	71	1	22180
Flexcon M-P/G 400	400	750	1535	131	1	22181
Flexcon M-P/G 600	600	750	1955	161	1	22182
Flexcon M-P/G 800	800	750	2355	196	1	22183
Flexcon M-P/G 1000	1000	750	2855	227	1	22184
Flexcon M-P/G 1200	1200	1000	2210	291	1	22186
Flexcon M-P/G 1600	1600	1000	2710	346	1	22187
Flexcon M-P/G 2000	2000	1200	2440	431	1	22188
Flexcon M-P/G 2800	2800	1200	3040	516	1	22189
Flexcon M-P/G 3500	3500	1200	3840	626	1	22190
Flexcon M-P/G 5200	5200	1500	3570	1241	1	22191



Flexcon M-P/B Auxiliary Vessels

As M-P/G but without a weight sensor.

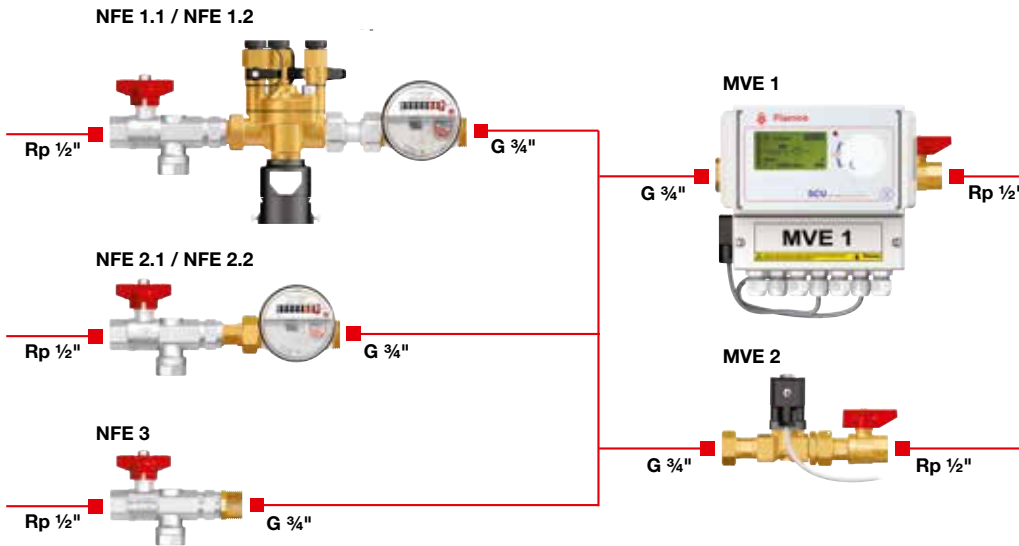
Type	Capacity [l]	Dimensions		Weight [kg]		Order Code
		Ø [mm]	H. [mm]			
Flexcon M-P/B 200	200	550	1530	71	1	22301
Flexcon M-P/B 400	400	750	1535	131	1	22302
Flexcon M-P/B 600	600	750	1955	161	1	22303
Flexcon M-P/B 800	800	750	2355	196	1	22304
Flexcon M-P/B 1000	1000	750	2855	227	1	22305
Flexcon M-P/B 1200	1200	1000	2210	291	1	22306
Flexcon M-P/B 1600	1600	1000	2710	346	1	22307
Flexcon M-P/B 2000	2000	1200	2440	431	1	22308
Flexcon M-P/B 2800	2800	1200	3040	516	1	22309
Flexcon M-P/B 3500	3500	1200	3840	626	1	22310
Flexcon M-P/B 5200	5200	1500	3570	1241	1	22311



ACCESSORIES FOR FILLING

For heating and chilled water (cooling) installations.

Twin outlet option available.



MVE 1 Direct Pressurisation Control

Automatic topping-up direct from water mains expansion automats (signal controlled) or self supported with pressure sensor.

- With digital control, pressure sensor and ball valve.
- Maximum operating pressure: 10.0 bar.
- Maximum working temperature: 90 °C.

Type	L. [mm]	Connection to		Weight [kg]		Order Code
		Potable water	System			
MVE 1	300	G 3/4"	Rp 1/2"	9	1	23785



MVE 2 Solenoid Valve Unit

Solenoid valve units for systems with expansion automats with SDS control units.

- With ball valve.
- Maximum operating pressure: 10.0 bar.
- Maximum working temperature: 90 °C.

Type	L. [mm]	Connection to		Weight [kg]		Order Code
		Potable water	System			
MVE 2	175	G 3/4"	Rp 1/2"	2	1	23786





NFE 1 Top-up Unit

Used for direct top up from potable water supply.

- Consists of a backflow preventer, water meter, ball valve and and non-return valve.
- Max. operating pressure: 10 bar.
- Max. operating temperature: 65 °C.



Type	L. [mm]	Connection to		Weight [kg]		Order Code
		Potable water	System			
NFE 1.1	355	Rp 1/2"	G 3/4"	3	1	23780
NFE 1.2 *	355	Rp 1/2"	G 3/4"	3	1	23781

* NFE 1.2 has an impulse output water meter (10 litres / impulse).

NFE 2 Top-up Unit

Used for top up from a water supply where a backflow preventer is not needed.

- Consists of a water meter, ball valve and non-return valve.
- Max. operating pressure: 10 bar.
- Max. operating temperature: 90 °C.



Type	L. [mm]	Connection to		Weight [kg]		Order Code
		Potable water	System			
NFE 2.1	200	Rp 1/2"	G 3/4"	2	1	23782
NFE 2.2 *	200	Rp 1/2"	G 3/4"	2	1	23783

* NFE 2.2 has an impulse output water meter (10 litres / impulse).

NFE 3 Top-up Unit

Used for top up from a water supply, where a backflow preventor is not needed.

- Consists of a ball valve and non-return valve.
- Max. operating pressure: 10 bar.
- Max. operating temperature: 90 °C.



Type	L. [mm]	Connection to		Weight [kg]		Order Code
		Potable water	System			
NFE 3 *	130	Rp 1/2"	G 3/4"	0.5	1	23784

* NFE 3 is not necessary if the top-up water is free from impurities > 0.2 mm, the system has not been filled from a district-heating system and sufficient filters have been fitted for the solenoid valve (MVE).

Flamco-Fill Compact

Used for top-up from a mains water supply in smaller sealed heating systems and cooling systems with expansion vessels and devices.

- With a backflow preventor.

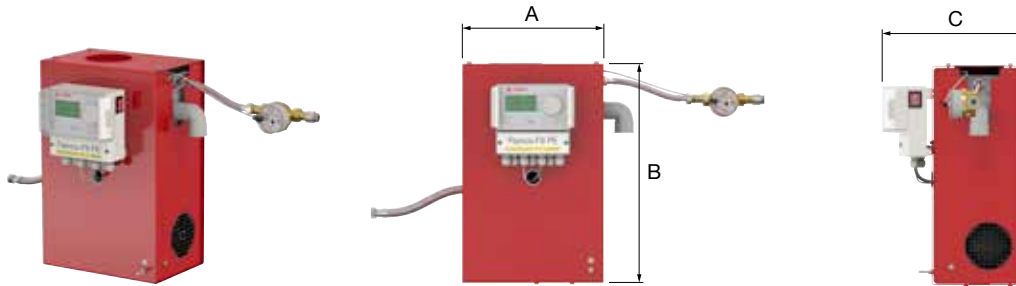


Type	Connection		Order Code
Flamco-Fill Compact	G 3/4"	1	23752

Flamco-Fill PE Top-up Unit (pressurisation)

The Flamco-Fill PE pressurisation units monitor the pressure in sealed heating and cooling installations and tops them up as necessary. Topping-up depends on the pressure or level at a pre-set interval. There are two working methods available. One for installations with expansion automats (command based on level in automat) and one for installations with Flexcon expansion vessels (command based on installation pressure).

- All models have an impulse water meter for monitoring the amount of water topped up.
- Any malfunctions will result in a visible alarm and may be made visible automatically in the malfunction log, even via remote control (dead socket).



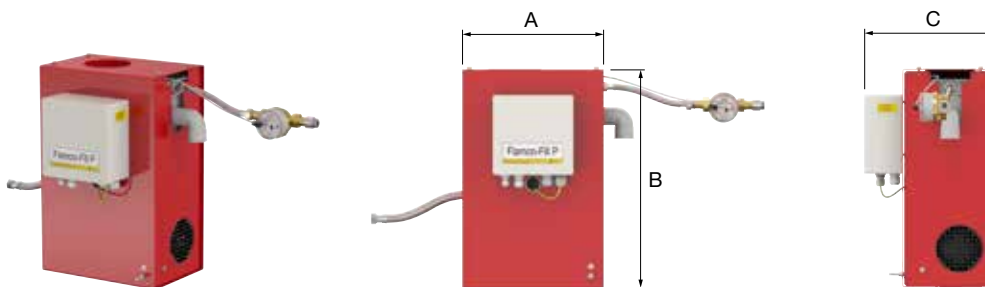
Type	Dimensions			Connection to		Weight [kg]		Order Code
	A [mm]	B [mm]	C [mm]	Potable water	System			
Flamco-Fill PE	400	495	320	G 1/2"	G 1/2"	25	1	23757

Flamco-Fill P

Flamco-Fill P refills water in heating- and cooling systems.

It is specially developed to use in conjunction with a pressurisation automat (Flamcomat, M-K/U) with SPC controller. The controller of the automat monitors and manages all functions of the Flamco-Fill P. Same construction as Flamco-Fill PE, but without a controller.

- Separates heating water from potable water according to DIN EN 1717 and DIN 1988.
- Inflow flowing pressure: 1 - 10 bar.
- Nominal system pressure: 1 - 9 bar (PN 10).
- Max. operating temperature: 3 - 30 °C.
- Max. flow rate: 210 l/h.
- Nominal power: 0,3 kW.
- Electricity supply (pump): 230V / 50Hz.



Type	Dimensions			Connection to		Weight [kg]		Order Code
	A [mm]	B [mm]	C [mm]	Potable water	System			
Flamco-Fill P	400	495	305	G 1/2"	G 1/2"	24	1	17665

Feet for Flamco-Fill PE / P

Set of two feet for a floor standing installation of the Flamco-Fill PE and Flamco-Fill P.

Type		Order Code
Feet for Flamco-Fill PE / P (2x)	1	17666





Flamco pressurisation equipment

The Flamco compact wall mounted and free standing pressurisation units are fully automatic heating / chiller system topup devices, offering accurate control and reliability. They are suitable for pressure management in domestic, commercial and industrial sealed heating and cooling systems. With a choice of single or twin pump system for topping up water using a break-tank and a digital controller. With AB type break tank for back flow protection.

Digital pressurisation equipment including:

- Digital equipment comes with bright LED display scrolling messages including pump operation and alarm modes.
- Single or twin pump configurations.
- Complete with integral AB type water break tank utilising a WRAS approved float valve.
- Twin pump equipment operates as cyclic duty - standby with automatic changeover.
- Internal alarm with mute function.
- Security password protected.
- Auto resetting low water detection, for pump protection.
- Auto resetting high and low pressure alarm.
- Digital pressure setpoint with adjustable differential.
- Flood protection through a pump run limit timer.
- Normally closed, common fault, volt free contact (Boiler interlock).
- Normally open, individual volt free contacts for pump trip, high pressure, low pressure and sensor health.
- All volt free contacts are for use with electrical supplies up to 240V with a maximum current draw of 5 amps.
- RS 485 Connectivity with MODBUS protocol.
- Hours run counter (per pump).
- 12 month service reminder.
- Excessive start alarm (>3 times in 8 hours).
- Pump pulse option (2 second pulse per pump if inactive for 60 days).
- Fill system option (Not available on 130D/230D).

Selection Essentials

- Static Height of the building above the pressurisation unit (metres).
- Systems content [ltr] or boiler power [kW] (which can be used to estimate the systems content).
- Flow and return temperatures (or maximum ambient temperature in the case of a chilled water system).
- Glycol content (%) if required.
- Maximum allowable system pressure and/or safety relief valve setting.

Flexfiller Standard

- Floor standing, high flow rate (<18 l/min) top-up pressurisation unit.
- 18 litre break tank.
- 60Hz version available on request.



Flexfiller Midi / IP66

- Wall mounted, <12 l/min flow rate top-up pressurisation unit.
- 4 litre break tank.
- IP66: With IP66 rated cabinet.



PressDS

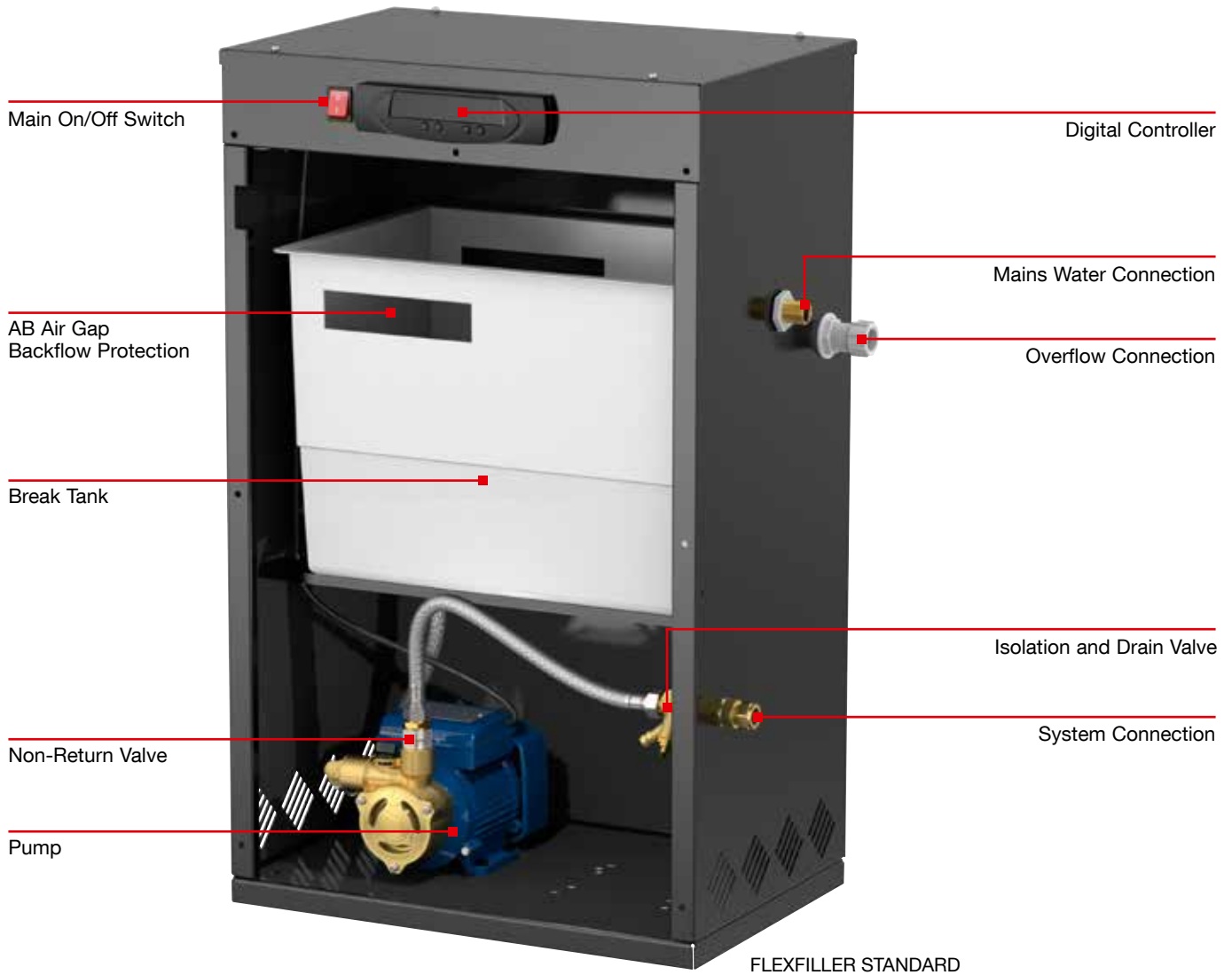
- Floor standing, high flow rate (<18 l/min) top-up glycol mixing pressurisation unit.
- 4 litre break tank.
- 18 litre tank for glycol top-up.
- The correct fluid mix is blended on demand at the time of system top-up.



Flexfiller Twin System

- Floor standing unit, with two high flow rate (<18 l/min) top-up pressurisation units.
- 18 litre break tank.
- Ideal where space restrictions make it beneficial to locate two systems in a single enclosure.





Digifiller

- Wall mounted, <12 l/min flow rate digital top-up pressurisation unit.
- 4 litre break tank.
- A self-bleed pump configuration.



Flexfiller Plus & Midifill Plus

- Combined digital top-up pressurisation unit with vacuum degasser.
- 18 litre break tank (Midifill: 4 litre).



Flexfiller Mini Digital

- Wall mounted, low flow rate (<0.4 l/min) digital top-up pressurisation unit.
- 2 litre break tank.
- Ideal for residential or small commercial application.



PressDS Plus

- Combined digital top-up ressurisation unit with vacuum degasser and additive tank.
- 4 litre break tank.
- 18 litre additive tank.





Pressurisation Units Features & Options

Pressurisation units are required anywhere where the mains water supply must be kept wholesome and protected from sealed system water, and essential anywhere where the mains water pressure is insufficient to fill and maintain the integrity of a sealed system.

Flamco have created a range of pressurisation equipment to meet every need. While the standard range will meet most demands, at Flamco we also offer a bespoke equipment service when the out of the ordinary occurs.

General Technical Data and System Limits

Materials & Technical:

Housing: Mild Steel CR4.
 Finish: Powder Coating.
 Break Tank: WRAS Approved material.
 Pump: See pump details.
 Fluid Category Protection: Type AB Weir Overflow gap / Category 5.
 Controller: MODBUS.
 Directive: PED 2014/68/EU.
 Required Supply Voltage: 230V/1/50Hz (2160D: 415V/3/50Hz).

System:

International Protection Marking: IP 54.
 Ambient Temperature: 5 - 40 °C.
 Operating Temperature: 5 - 85 °C.
 Noise rating : <75 dBA.
 Pressure rating: PN10 (2160D: PN16).
 Nominal Operating Pressure Range: 1-16 bar.

Type	Function			Number of Pumps	Pressure Rating [PN]	Max. Delivery Pressure [bar]	Max. Delivery Flow Rate [l/min]	Floor Standing / Wall Mounted	Break Tank Capacity [l]	System Volume (guide) [l]	
	Pressurisation	De-gasser	Dosing								
Flexfiller + Flexfiller 60Hz	125D	•		1	10	2.5	18	floor	18	< 60000	
	225D	•		2	10	2.5	18	floor	18	< 60000	
	150D	•		1	10	5.0	18	floor	18	< 60000	
	250D	•		2	10	5.0	18	floor	18	< 60000	
	180D	•		1	16	8.0	18	floor	18	< 60000	
	280D	•		2	16	8.0	18	floor	18	< 60000	
	2160D	•		2	16	16.0	18	floor	18	< 60000	
Midi + IP66	125D	•		1	10	2.5	12	wall	4	< 16000	
	225D	•		2	10	2.5	12	wall	4	< 16000	
	150D	•		1	10	5.0	12	wall	4	< 16000	
	250D	•		2	10	5.0	12	wall	4	< 16000	
Mini Digital	130D	•		1	10	3.0	0.4	wall	2	< 2600	
	230D	•		2	10	3.0	0.4	wall	2	< 2600	
Digifiller	0.5	•		1	10	2.5	12	wall	4	< 16000	
	1.0	•		1	10	2.5	12	wall	4	< 16000	
	1.5	•		1	10	2.5	12	wall	4	< 16000	
	2.0	•		1	10	2.5	12	wall	4	< 16000	
Twin System	2x125D	•		2 *	10	2.5	18	floor	18	< 60000	
	2x225D	•		4 **	10	2.5	18	floor	18	< 60000	
	2x250D	•		4 **	10	5.0	18	floor	18	< 60000	
PressDS	225	•		2	10	2.5	18	floor	4	< 60000	
	250	•		2	10	5.0	18	floor	4	< 60000	
	280	•		2	16	8.0	18	floor	4	< 60000	
Flexfiller Plus	Midifill	•	•	1	10	5.0	12	wall	4	< 50000	
	225D	•	•	2	10	6.0	12	floor	18	< 300000	
	150D	•	•	2	10	8.0	12	floor	18	< 300000	
	250D	•	•	2	16	16.0	12	floor	18	< 300000	
PressDS Plus	250	•	•	•	2	10	6.0	18	floor	4	< 300000
	280	•	•	•	2	10	8.0	18	floor	4	< 300000
	2160	•	•	•	2	16	16.0	18	floor	4	< 300000

* = 1 pump for each system
 ** = 2 pumps for each system.



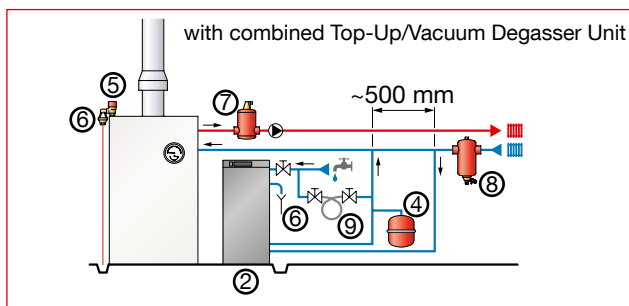
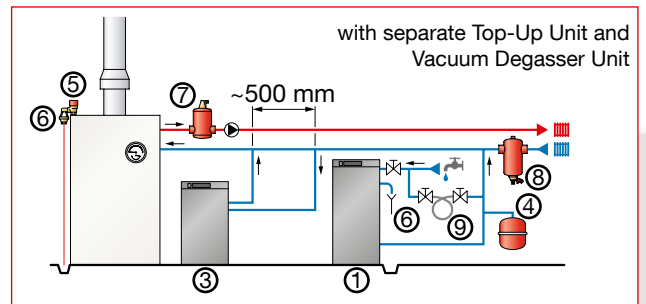
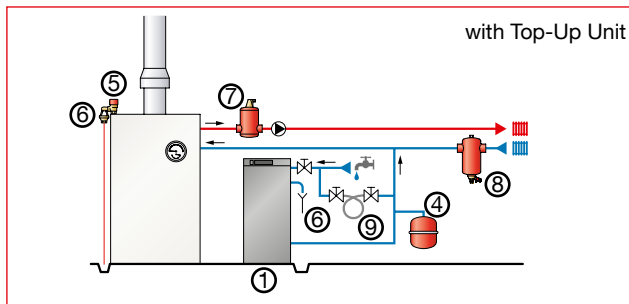
Installation and Schematic Layouts

Installation and Placement

The pressurisation unit should be installed in the return header of the system on the suction side of the circulating pump, in a frost-free and low humidity area. The point of connection will be the same as the system expansion vessel.

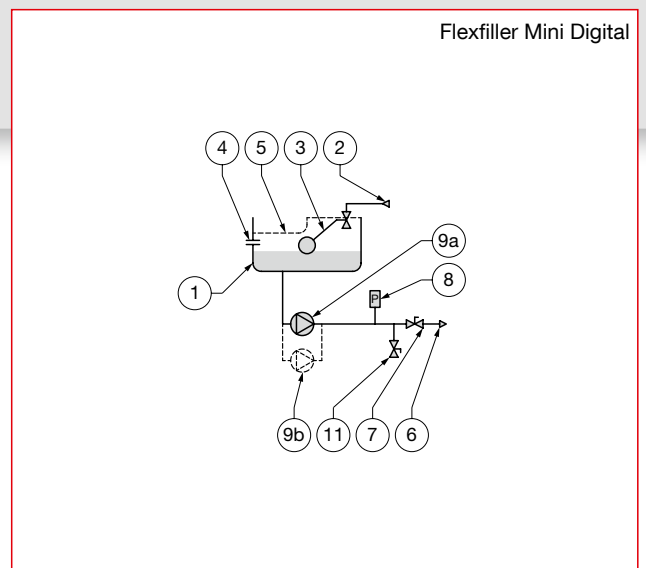
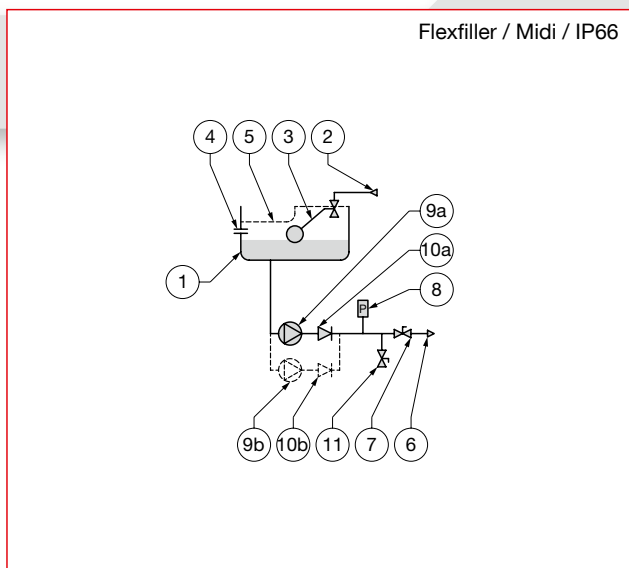
Connected to the system return pipe, to provide a neutral pressure reading. With combined units the two system connections must be installed on the return pipe approximately 0.5 metre apart.

System Schematics

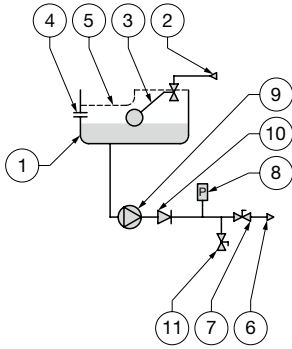


Nr	Description
1	Flexfiller Top-Up Unit
2	Flexfiller Plus / PressDS Plus Combined Unit
3	PSD Pressure Step Degasser
4	Flexcon Expansion Vessel
5	Prescor Safety Valve
6	Tundish
7	Flamcovent Smart Deaerator
8	Flamco Clean Smart Dirt Separator
9	Filling Loop (Optional)

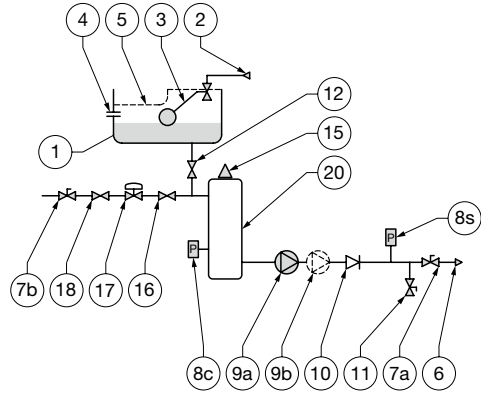
Product Schematics



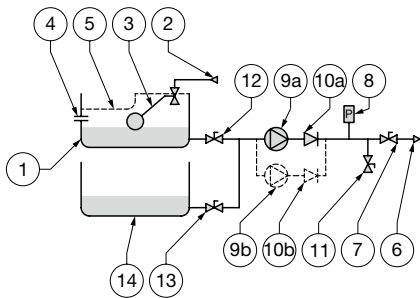
Digifiller



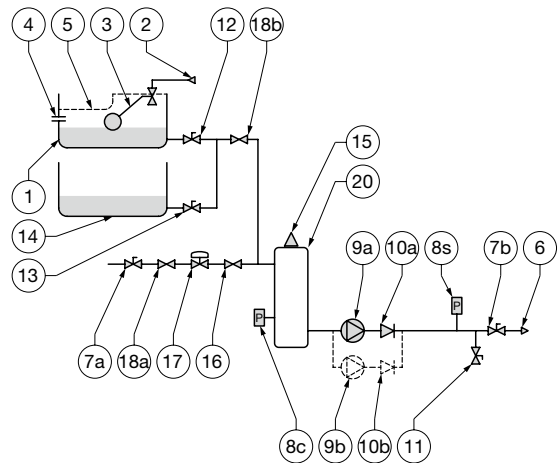
Flexfiller Plus



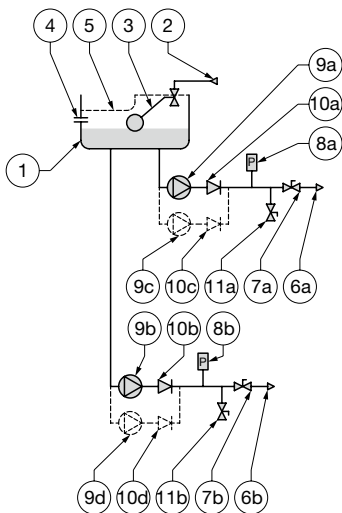
PressDS



PressDS Plus



Flexfiller Twin



Number	Description
1	Break tank
2	Mains water inlet
3	Float Operated valve
4	Overflow connection
5	AB air gap backflow protection
6	Supply to sealed system
7 (7a/7b)	Isolation valve
8 (8a/8b)	Pressure transmitter
8s	Pressure sensor (system)
8c	Pressure sensor (cylinder)
9 (9a/9b)	Pump(s)
10 (10a/10b)	Non Return valve
11 (11a/11b)	Drain valve
12	Water balancing valve
13	Additive balancing valve
14	Additive tank
15	Automatic air vent
16	Variable bypass valve
17	Reducing valve
18(18a/18b)	Solenoid valve
20	Cylinder
PS	Pressure switch
H/L	High/Low switch (boiler control)



Pressurization Units Pump Details

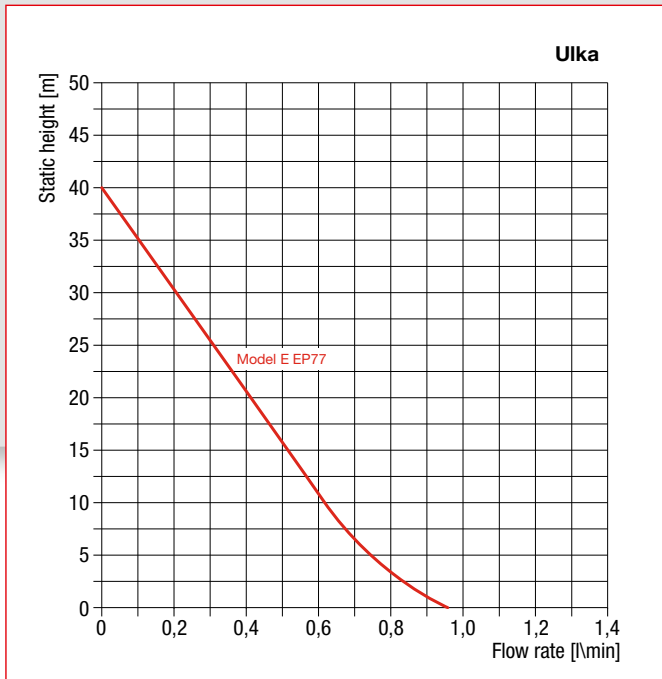
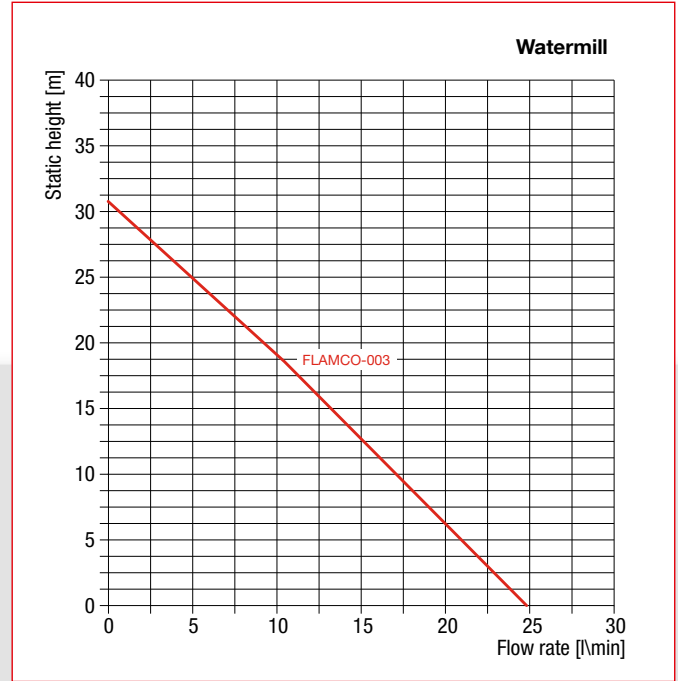
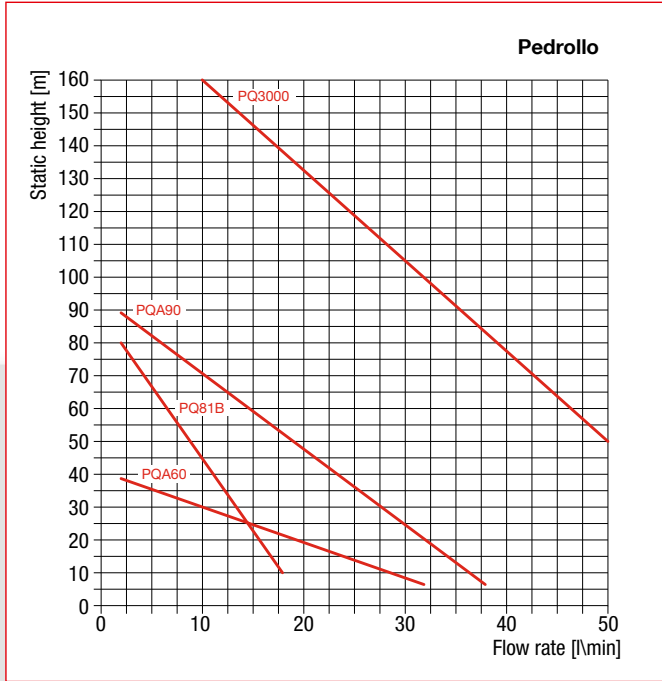
Before pumps are introduced to Flamco equipment, they are subjected to rigorous testing. Each pump is run for 744 hours (1 month, day and night) and then checked that the delivery pressure is within the design parameters.

Pump Characteristics

Type		Pump Qty	Pump Type	Pump Body	Impeller	Insulation Class	IP rating
Flexfiller	125D	1	Pedrollo PQA60	Ryton	Brass	F	IPX4
	225D	2	Pedrollo PQA60	Ryton	Brass	F	IPX4
	150D	1	Pedrollo PQ81B	Brass	Brass	F	IPX4
	250D	2	Pedrollo PQ81B	Brass	Brass	F	IPX4
	180D	1	Pedrollo PQA90	Ryton	Brass	F	IPX4
	280D	2	Pedrollo PQA90	Ryton	Brass	F	IPX4
	2160D	2	Pedrollo PQ3000	Cast Iron	Bronze	H	IPX5
Flexfiller 60Hz	125D - 60Hz	1	Pedrollo PQA60 - 60Hz	Ryton	Brass	F	IPX4
	225D - 60Hz	2	Pedrollo PQA60 - 60Hz	Ryton	Brass	F	IPX4
	150D - 60Hz	1	Pedrollo PQ81B - 60Hz	Brass	Brass	F	IPX4
	250D - 60Hz	2	Pedrollo PQ81B - 60Hz	Brass	Brass	F	IPX4
	180D - 60Hz	1	Pedrollo PQA90 - 60Hz	Ryton	Brass	F	IPX4
	280D - 60Hz	2	Pedrollo PQA90 - 60Hz	Ryton	Brass	F	IPX4
	2160D - 60Hz	2	Pedrollo PQ3000 - 60Hz	Cast Iron	Bronze	H	IPX5
Flexfiller Midi + Flexfiller IP66	125D	1	Pedrollo PQA60	Ryton	Brass	F	IPX4
	225D	2	Pedrollo PQA60	Ryton	Brass	F	IPX4
	150D	1	Pedrollo PQ81B	Brass	Brass	F	IPX4
	250D	2	Pedrollo PQ81B	Brass	Brass	F	IPX4
Flexfiller Mini Digital	130D	1	Ulka Model E EP77	Metal	Plastic	F	IPX2
	230D	2	Ulka Model E EP77	Metal	Plastic	F	IPX2
Digifiller	0.5	1	Watermill Flamco-003	Brass	Brass	F	IPX2
	1.0	1	Watermill Flamco-003	Brass	Brass	F	IPX2
	1.5	1	Watermill Flamco-003	Brass	Brass	F	IPX2
	2.0	1	Watermill Flamco-003	Brass	Brass	F	IPX2
Twin System	2 x 125D	1 per sys	Pedrollo PQA60	Ryton	Brass	F	IPX4
	2 x 225D	2 per sys	Pedrollo PQA60	Ryton	Brass	F	IPX4
	2 x 250D	2 per sys	Pedrollo PQ81B	Brass	Brass	F	IPX4
PressDS	225	2	Pedrollo PQA60	Ryton	Brass	F	IPX4
	250	2	Pedrollo PQ81B	Brass	Brass	F	IPX4
	280	2	Pedrollo PQA90	Brass	Brass	F	IPX4
PressDS Plus	250	2	Pedrollo PQ81B	Brass	Brass	F	IPX4
	280	2	Pedrollo PQA90	Brass	Brass	F	IPX4
	2160	2	Pedrollo PQ3000	Cast Iron	Bronze	H	IPX5
Flexfiller Plus	Midifill	1	Pedrollo PQ81B	Brass	Brass	F	IPX4
	250D	2	Pedrollo PQ81B	Brass	Brass	F	IPX4
	280D	2	Pedrollo PQA90	Ryton	Brass	F	IPX4
	2160D	2	Pedrollo PQ3000	Cast Iron	Bronze	H	IPX5

Pump Graphs

Characteristics curves and operating range of the pumps used in Flamco Pressurization units.





Spare Parts Pressurisation Units

Type	Spare Part		Article number	
	Control	Spare Part	Article number	Spare Part
Flexfiller + Flexfiller 60Hz	125D	Micro Control	BSS M006	
	225D	Mini Transformer	BSS M007	
	150D	Rocker switch	BSS F18	
	250D	Pressure Transducer (0-10 Bar, 1-6V)	BSS F11	
	180D	Pressure Sensor 16h (1-6V)	BSS P62	
	280D	Combined Isolation & Drain Valve	BSS M005	
Flexfiller Midi + Flexfiller IP66	125D	1/2" x 15mm C x MI Coupling	BSS M004	
	225D	Float Valve	BSS M008	
	150D	Overflow Connection	FC TBV BOSS	
Digifiller	0.5	Float Switch L90 cm wire	FC TBV TWIN	
	1.0	Float switch for glycol tank	BSS R002	
	1.5	Mesh Strainer	FC MANIFOLD 8X6	
	2.0	1/4" Brass Locking Nut	FC044	
Flexfiller Mini Digital	130D	1/4" BSP M x 8mm Push-Fit	BSS P61	
	230D	Extended Tank Connector 15mm	FC384	
PressDS	225D	1/4" BSP F Tee	FC045	
	250D	1/4" Ball Valve	FC392	
Flexfiller Twin System	2 x 125D	40 mm Pressure Gauge c/w Capillary	BSS F12	
	2 x 225D	8mm Push-Fit Tee	BSS M022	
	2 x 250D	Pump Control Pressure Switch	BSS M014	
Flexfiller Plus	Midifill	High/Low Pressure Switch	BSS M023	
	250D	Fused Terminal Block	BSS M015	
	280D	6mm x 8mm Push-Fit Manifold	PSD Controller	
	2160D	DNT15 Balancing Valve - Glycol / Water	PSD SS Cylinder	
PressDS Plus	250D	1/2" Tee Brass	MIDI CYLINDER	
	280D	Pump Elbow 4mm	Vac Transducer	
	2160D	Tank Elbow 4mm	PSD S001A	
		4mm Tube	PSD S001A Mod	
		1/2" x 15 mm MI Elbow	PSD S001B/C	
		Flexible Pump Support	PSD Float Switch	
		6 mm Poly-tube	FC PRV 050WG	
		8 mm Hose Tail	FC Ventisuper AIV	
		8 mm Poly-tube	FC336	
		PSD Controller	FC361	
		Vacuum Cylinder 4.8ltr	FCBP 75	
		Vacuum Cylinder Midi	FC3V050	
		Vacuum Pressure Sensor	BSS Flexhose	
		Solenoid Valve 1/2" (Slam shut)	BSS POA 60	
		Solenoid Valve 1/2" 1mm Hole (Bypass)	BSS POA1b	
		AC Solenoid Coil Clip-on BB240AS	FC039	
		RSF86Y100R Cynergy3	FC042	
		Pressure Reducing Valve	Fiamco 003	
		PSD & SPC Air Vent With Air Intake Preventor	BSS M024	
		Gauze		
		22 mm x 1/2" F Coupling		
		Prescor B 6 bar 3/4" Inlet 1" Outlet		
		Prescor 1/2" 3 Bar Safety Relief Valve		
		Flexible Hose		
		Pump Pedrollo PQJA60		
		Pump Pedrollo PQ81B		
		Pump Pedrollo PQA90		
		Pump Pedrollo PQ3000		
		Pump Fiamco 003 2.5 bar		
		Pump UKLA EP77 Model E		

STANDARD DIGITAL PRESSURISATION PRODUCT RANGE

Compact and totally enclosed digital pressurisation units with electronic pressure transducer and user-friendly microprocessor for use on sealed system in order to provide a minimum system pressure requirement. Available in Single or Twin pump configuration.

Application of Use:

- Commercial.
- Industrial.
- Residential.

System Volume (Guide): < 60,000 litres - Flexfiller

System Volume (Guide): < 16,000 litres - Flexfiller Midi

System Volume (Guide): < 2,600 litres - Flexfiller Mini Digital

Certifications and Standards Applied:

- PED 2014/68/EU Sound Engineering Practice.
- IEE - Electrical Safety Guidance.
- EMC 2004/108/EC.
- BS 7074 Parts 1 to 3.
- Machinery Directive 95/16/EC.
- Electronic Components have been tested and comply with the EMC Directives.
- EN 61000-6-2: Generic Standards – Immunity standard for industrial environments.
- EN 61000-6-3: Generic Standards – Emission standard for residential, commercial and light industrial environment.
- CE marked components, where applicable.
- WRAS approved float valve to BS1212.
- IP54 (BS EN60529) Rated Controller.

Operating Conditions:

- Max. system temperature: 85 °C.
- Max. ambient temperature: 40 °C.
- Relative humidity 95% non-condensing.
- Noise Rating Data: < 75 dBA.

Material of Construction:

- Cabinet: Mild steel CR4.
- Float: WRAS Approved Torbeck Side Entry.
- Break Tank: Stainless Steel 304.
- Pump: PEDROLLO / ULKA (Unit dependant. See pump details for more information).
- Connection: Brass / Polypropylene.
- Pipework: Braided flexihose / EPDM.
- Finish: Powder Coating.





Flexfiller

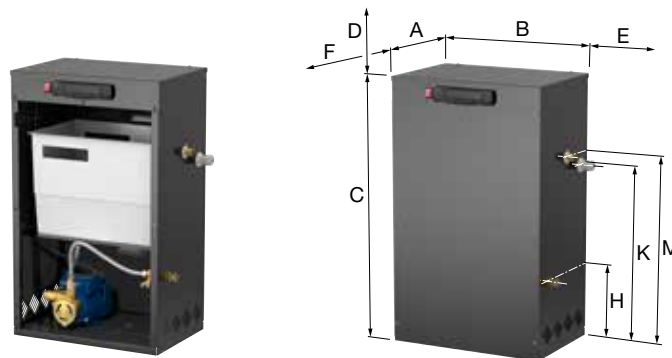
The Flexfiller is a floor standing, high flow rate (<18 l/min) top-up pressurisation unit with 18 litre break tank.

Product Features:

- For system volumes up to 60,000 litres.
- Break Tank: 18 litre break tank with type AB Air Gap Fluid Cat 5.
- MODBUS Communication output.
- System quick-fill mode.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- High Flow applications (<18.0 l/min).
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer fault.
- Electric pump, 230V 50Hz 1ph (110V 60Hz 1ph available upon request).
- Colour: Black (RAL 9005).

Factory fit options:

- Single or Twin pump version.
- High water level.
- BACnet communication protocol in place of MODBUS connection.



Type	Pump quantity	Connections			Max. Delivery Pressure [bar]	Power Consumption [kW]	Full Load Current [A]	Weight [kg]		Order Code
		System [mm]	Mains Supply [mm]	Over-flow [mm]						
Flexfiller 125D	1	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	29	1	17395
Flexfiller 150D	1	15 (1/2" M)	15 (1/2" M)	22	5	0.5	3.4	31	1	17396
Flexfiller 225D	2	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	35	1	17397
Flexfiller 250D	2	15 (1/2" M)	15 (1/2" M)	22	5	0.5	3.4	39	1	17398
Flexfiller 180D	2	15 (1/2" M)	15 (1/2" M)	22	8	0.75	5.6	34	1	45049
Flexfiller 280D	2	15 (1/2" M)	15 (1/2" M)	22	8	0.75	5.6	45	1	17394
Flexfiller 2160D	2	15 (1/2" M)	15 (1/2" M)	22	16	2.2	6.6	67	1	17393



Dimensions Flexfiller

Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]	
Flexfiller 125D - 280D	470	320	800	500	150	800	225	550	590	
Flexfiller 2160D	600	390	800	500	150	800	225	550	590	

Flexfiller Mini Digital

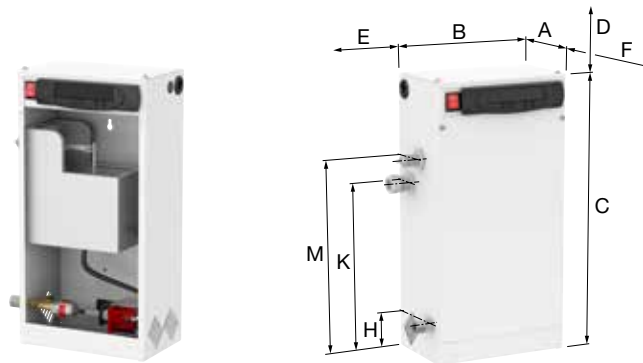
The Flexfiller Mini Digital is a narrow wall mounted, low flow rate (0.4 l/min) top-up pressurisation unit with 2 litre break tank. Ideal for large residential or small commercial application. For use on heating systems utilising a 300 litre expansion vessel or less, or chilled systems utilising a 50 litre expansion vessel or less.

Product Features:

- For system volumes up to 2,600 litres.
- Break Tank: 2 litre break tank with type AB Air Gap Fluid Cat 5.
- MODBUS Communication output.
- System quick-fill mode.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- Flow applications (0.4 l/min).
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer fault.
- Electric pump, 230V 50Hz 1ph.
- Colour: White (RAL 9910).

Factory fit options:

- Single or Twin pump version.
- High water level.
- BACnet communication protocol (in addition to MODBUS communications).



Type	Pump quantity	Connections			Max. Delivery Pressure [bar]	Power Consumption [kW]	Full Load Current [A]	Weight [kg]		Order Code
		System [mm]	Mains Supply [mm]	Over-flow [mm]						
Flexfiller Mini 130D	1	8 (1/4" M)	15 (1/2" M)	22	3	0.035	0.3	7	1	17455
Flexfiller Mini 230D	2	8 (1/4" M)	15 (1/2" M)	22	3	2 x 0.035	2 x 0.3	8	1	17456



Dimensions Flexfiller Mini Digital

Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]	
Flexfiller Mini 130D/230D	150	240	480	500	150	800	70	305	345	



Flexfiller Midi

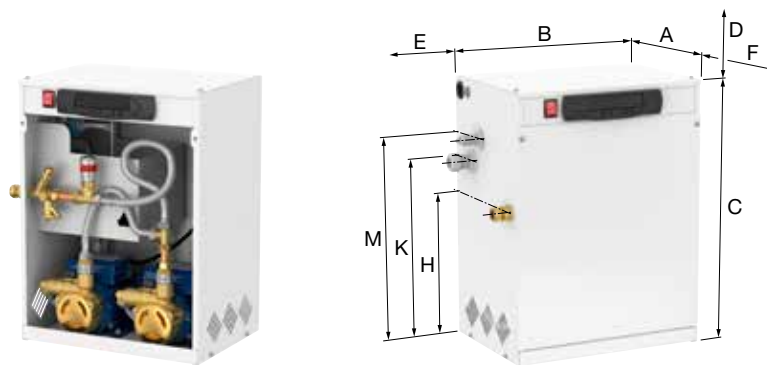
The Midi is a deep wall mounted, 12 l/min flow rate top-up pressurisation unit with 4 litre break tank.


Product Features:

- For system volumes up to 16,000 litres.
- Break Tank: 4 litre break tank with type AB Air Gap Fluid Cat 5.
- MODBUS Communication output.
- System quick-fill mode.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- High Flow applications (12.0 l/min).
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer fault.
- Electric pump, 230V 50Hz 1ph.
- Colour: White (RAL 9910).

Factory fit options:

- Single or Twin pump version.
- High water level.
- BACnet communication protocol in place of MODBUS connections.



Type	Pump quantity	Connections			Max. Delivery Pressure [bar]	Power Consumption [kW]	Full Load Current [A]	Weight [kg]		Order Code
		System [mm]	Mains Supply [mm]	Over-flow [mm]						
Flexfiller Midi 125D	1	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	17	1	17460
Flexfiller Midi 150D	1	15 (1/2" M)	15 (1/2" M)	22	5	0.5	3.4	32.5	1	17461
Flexfiller Midi 225D	2	15 (1/2" M)	15 (1/2" M)	22	2.5	2 x 0.37	2 x 2.6	25.5	1	17462
Flexfiller Midi 250D	2	15 (1/2" M)	15 (1/2" M)	22	5	2 x 0.5	2 x 3.4	42	1	17463

kiwa 

Dimensions Flexfiller Midi

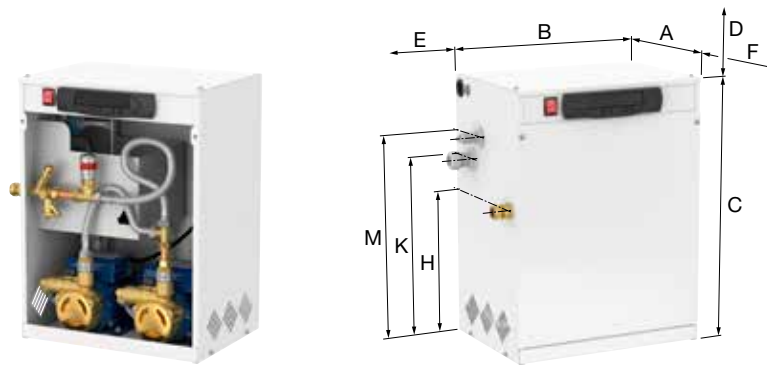
Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]	
Flexfiller Midi 125D	230	240	480	500	150	800	330	335	380	
Flexfiller Midi 150D - 250D	260	360	485	500	150	800	330	335	380	


Flexfiller IP66

The Flexfiller IP66 is a deep, compact and totally enclosed wall mounted, 12 l/min flow rate digital top-up pressurisation unit with electronic pressure transducer, user-friendly microprocessor and a 4 litre break tank.

Product Features:

- For system volumes up to 16,000 litres.
- Break Tank: 4 litre break tank with type AB Air Gap Fluid Cat 5.
- AB air gap to EN13077:2008.
- WRAS approved break tank and float valve.
- IP66 Rated Cabinet.
- Internal Thermosat & heater.
- Neon power indicator.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- High Flow applications (12.0 l/min).
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer fault.
- Electric pump, 230V 50Hz 1ph.
- Colour: White (RAL 9910).



Type	Pump quantity	Connections			Max. Delivery Pressure [bar]	Power Consumption [kW]	Full Load Current [A]	Weight [kg]		Order Code
		System [mm]	Mains Supply [mm]	Over-flow [mm]						
Flexfiller IP66 125D	1	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	28	1	45090
Flexfiller IP66 150D	1	15 (1/2" M)	15 (1/2" M)	22	5	0.5	3.4	28	1	45123
Flexfiller IP66 225D	2	15 (1/2" M)	15 (1/2" M)	22	2.5	2 x 0.37	2 x 2.6	34	1	45091
Flexfiller IP66 250D	2	15 (1/2" M)	15 (1/2" M)	22	5	2 x 0.5	2 x 3.4	36	1	45124

Dimensions Flexfiller IP66

Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]	
Flexfiller IP66 125D	230	240	480	500	150	800	330	335	380	
Flexfiller IP66 150D - 250D	260	360	485	500	150	800	330	335	380	



DIGIFILLER PRESSURISATION PRODUCT RANGE

Compact, wall mounted, totally enclosed digital pressurisation unit with electronic pressure transducer and user-friendly microprocessor for use on sealed systems in order to provide a minimum system pressure requirement. Self bleeding pumps can be factory preset to meet your system requirements.

Application of Use:

- Commercial.
- Industrial.
- Residential.

System Volume (Guide): < 16,000 litres

Certifications and Standards Applied:

- PED 2014/68/EU Sound Engineering Practice.
- IEE - Electrical Safety Guidance.
- EMC 2004/108/EC.
- BS 7074 Parts 1 to 3.
- Machinery Directive 95/16/EC.
- Electronic Components have been tested and comply with the EMC Directives.
- EN 61000-6-2: Generic Standards – Immunity standard for industrial environments.
- EN 61000-6-3: Generic Standards – Emission standard for residential, commercial and light industrial environment.
- CE marked components, where applicable.
- WRAS approved float valve to BS1212.
- IP54 (BS EN 60529) Rated Controller.
- IPX2 (BS EN60529) Rated Pump.

Operating Conditions:

- Max. system temperature: 85 °C.
- Max. Ambient temperature: 40 °C.
- Relative humidity 95% non-condensing.
- Noise Rating Data: < 75 dBA.

Material of Construction:

- Cabinet: Mild steel CR4.
- Float: WRAS Approved Torbeck Side Entry.
- Break Tank: Stainless Steel 304.
- Pump: Watermill Flamco-003 (See pump details for more information).
- Connection: Brass / Polypropylene.
- Pipework: Braided flexihose / EPDM.
- Finish: Powder Coating.

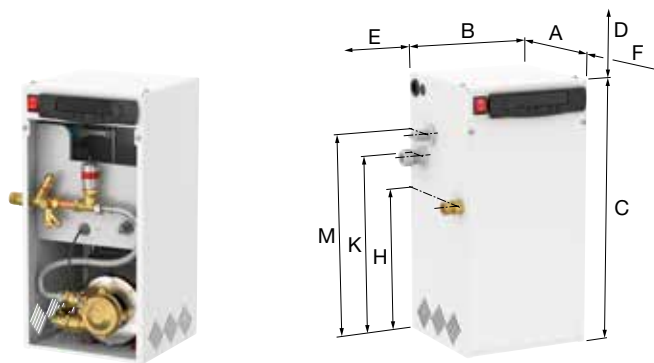


Digifiller

The Digifiller is a deep wall mounted, 12 l/min flow rate top-up pressurisation unit with 4 litre break tank. A self-bleed pump configuration.

Product Features:

- For system volumes up to 16,000 litres.
- Break Tank: 4 litre break tank with type AB Air Gap Fluid Cat 5.
- Pre-commissioned.
- Pre-set (Bar).
- Plug & play, but easily adjustable on site if required.
- System quick-fill mode.
- Self-bleed pump.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- High Flow applications (12.0 l/min).
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer fault.
- Electric pump, 230V 50Hz 1ph.
- Colour: White (RAL 9910).



Type	Pump quantity	Connections			Max. Delivery Pressure [bar]	Power Consumption [kW]	Full Load Current [A]	Weight [kg]	Preset Settings			Order Code	
		System [mm]	Mains Supply [mm]	Over-flow [mm]					Cold Fill	Low Alarm	High Alarm		
Digifiller 0.5	1	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	0.5	0.2	2.7	17	1	45115
Digifiller 1.0	1	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	1.0	0.5	2.7	17	1	45034
Digifiller 1.5	1	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	1.5	1.0	2.7	17	1	45035
Digifiller 2.0	1	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	2.0	1.5	2.7	17	1	45036

Dimensions Digifiller 0.5 - 2.0

Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]	
Digifiller 0.5 - 2.0	230	240	480	500	150	800	330	335	380	



OTHER PRESSURISATION PRODUCT RANGE

Twin System

Compact, totally enclosed digital pressurisation unit with electronic pressure transducer and user-friendly microprocessor for use on two sealed systems in order to provide a minimum system pressure requirement.

System Volume (Guide): < 60,000 litres per system

PressDS (Pressurisation/Dosing System)

Compact, totally enclosed digital pressurisation unit with electronic pressure transducer and user-friendly microprocessor for use on sealed systems in order to provide a minimum system pressure requirement. The correct fluid mix is blended on demand at the time of system top-up.

System Volume (Guide): < 60,000 litres

Application of Use:

- Commercial.
- Industrial.
- Residential.

Certifications and Standards Applied:

- PED 2014/68/EU Sound Engineering Practice.
- IEE - Electrical Safety Guidance.
- EMC 2004/108/EC.
- BS 7074 Parts 1 to 3.
- Machinery Directive 95/16/EC.
- Electronic Components have been tested and comply with the EMC Directives.
- EN 61000-6-2: Generic Standards – Immunity standard for industrial environments.
- EN 61000-6-3: Generic Standards – Emission standard for residential, commercial and light industrial environment.
- CE marked components, where applicable.
- WRAS approved float valve to BS1212.
- IP54 (BS EN60529) Rated Controller.

Operating Conditions:

- Max. system temperature: 85 °C.
- Max. Ambient temperature: 40 °C.
- Relative humidity 95% non-condensing.
- Noise Rating Data: < 75 dBA.

Material of Construction:

- Cabinet: Mild steel CR4.
- Float: WRAS Approved Torbeck Side Entry.
- Break Tank: Stainless Steel 304.
- Pump: PEDROLLO (Unit dependant. See pump details for more information).
- Connection: Brass / Polypropylene.
- Pipework: Braided flexihose / EPDM.
- Finish: Powder Coating.



Flexfiller Twin System

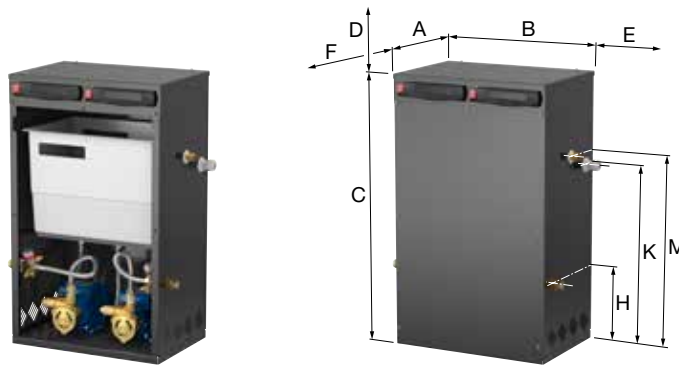
The Twin system is a floor standing unit, ideal where space restrictions make it beneficial to locate two systems in a single enclosure. The system combines two high flow rate (<18 l/min) top-up pressurisation units and two controllers with a single 18 litre break tank.

Product Features:

- For system volumes up to 60,000 litres per system.
- Break Tank: 18 litre break tank with type AB Air Gap Fluid Cat 5.
- MODBUS Communication output.
- System quick-fill mode.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- High Flow applications (<18.0 l/min).
- Event logging for pump start, individual pump run hour's counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer fault.
- Electric pump, 230V 50Hz 1ph.
- Colour: Black (RAL 9005).

Factory fit options:

- High water level.
- BACnet communication protocol in place of MODBUS connection.



Type	Pump quantity	Connections			Max. Delivery Pressure [bar]	Power Consumption [kW]	Full Load Current [A]	Weight [kg]		Order Code
		System [mm]	Mains Supply [mm]	Drain [mm]						
Twin System 2 x 125D	2 *	2 x 15 (1/2" M)	15 (1/2" M)	22	2.5	2 x 0.37	2 x 2.6	29	1	17425
Twin System 2 x 225D	4 **	2 x 15 (1/2" M)	15 (1/2" M)	22	2.5	2 x 0.37	2 x 2.6	35	1	45062
Twin System 2 x 150D	2 *	2 x 15 (1/2" M)	15 (1/2" M)	22	5	2 x 0.5	2 x 3.4	31	1	17426
Twin System 2 x 250D	4 **	2 x 15 (1/2" M)	15 (1/2" M)	22	5	2 x 0.5	2 x 3.4	39	1	45063

* 1 pump for each system.
 ** 2 pumps for each system.



Dimensions Flexfiller Twin System 125D - 250D

Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]	
Twin System 2 x 125D - 2 x 250D	320	470	800	500	150	800	225	549	590	



PressDS

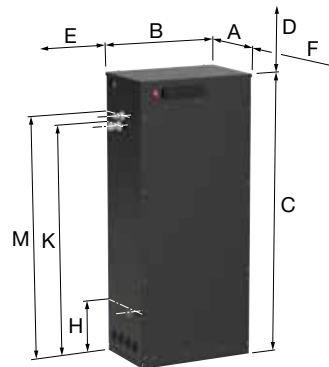
The PressDS (Pressurisation/Dosing System) is a floor standing, high flow rate (<18 l/min) additive top-up mixing pressurisation unit with a 4 litre break tank. 18 litre tank for additive top-up. Each time the unit tops-up the system with water, it also automatically adds additive from a dedicated tank at a predetermined rate, reducing intervention and maximising system protection.

Product Features:

- For system volumes up to 60,000 litres.
- Break Tank: 4 litre water break tank with type AB Air Gap Fluid Cat 5.
- MODBUS communication output.
- System quick-fill mode.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer fault.
- 18 litre additive tank.
- Mix ratios from 1% to 50% user configurable balancing valves.
- Top-up pressurisation unit (<18.0 l/min).
- Electric pump, 230V 50Hz 1ph.
- Colour: Black (RAL 9005)

Factory fit options:

- High water level.
- BACnet communication protocol in place of MODBUS connection.



Type	Pump quantity	Connections			Max. Delivery Pressure [bar]	Power Consumption [kW]	Full Load Current [A]	Weight [kg]		Order Code
		System [mm]	Mains Supply [mm]	Drain [mm]						
PressDS 225	2	15 (1/2" M)	15 (1/2" M)	22	2.5	0.37	2.6	35	1	45046
PressDS 250	2	15 (1/2" M)	15 (1/2" M)	22	5	0.5	3.5	39	1	45047
PressDS 280	2	15 (1/2" M)	15 (1/2" M)	22	8	0.75	5.6	45	1	17392

Dimensions PressDS 225 - 280

Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	K [mm]	M [mm]	N [mm]	
PressDS 225 - 280	470	320	1160	500	150	800	125	160	260	

COMBINED PRESSURISATION AND DEGASSING PRODUCT RANGE**Flexfiller Plus & Midifill Plus**

Compact, totally enclosed combined digital pressurisation unit with vacuum degasser for use on sealed systems in order to provide a minimum system pressure requirement and effective dissolved gas removal.

PressDS Plus

Compact, totally enclosed combined digital pressurisation unit with vacuum degasser and additive tank for use on sealed systems in order to provide a minimum system pressure requirement and effective dissolved gas removal and adding additive to system. The correct fluid mix is blended on demand at the time of system top-up.

System Volume (Guide): < 300,000 litres (Midifill Plus 150D: < 50,000 litres)

Application of Use:

- Commercial.
- Industrial.
- Residential.

Certifications and Standards Applied:

- PED 2014/68/EU Sound Engineering Practice.
- IEE - Electrical Safety Guidance.
- EMC 2004/108/EC.
- BS7074 Parts 1 to 3.
- Machinery Directive 95/16/EC.
- Electronic Components have been tested and comply with the EMC Directives.
- EN61000-6-2: Generic Standards – Immunity standard for industrial environments.
- EN61000-6-3: Generic Standards – Emission standard for residential, commercial and light industrial environment.
- CE marked components, where applicable.
- WRAS approved float valve to BS1212 part 2.
- IP54 (BS EN60529) Rated Controller.

Material of Construction:

- Cabinet: Mild steel CR4.
- Float: WRAS Approved Beta Side Entry.
- Break Tank: WRAS Approved Polypropylene.
- Cylinder: Stainless steel 304.
- Pump: PEDROLLO (Unit dependant. See pump details for more information).
- Valves: Brass.
- Connection: Brass / Polypropylene.
- Pipework: Braided flexihose / EPDM / Copper.
- Finish: Powder Coating.



Flexfiller Plus & Midifill Plus

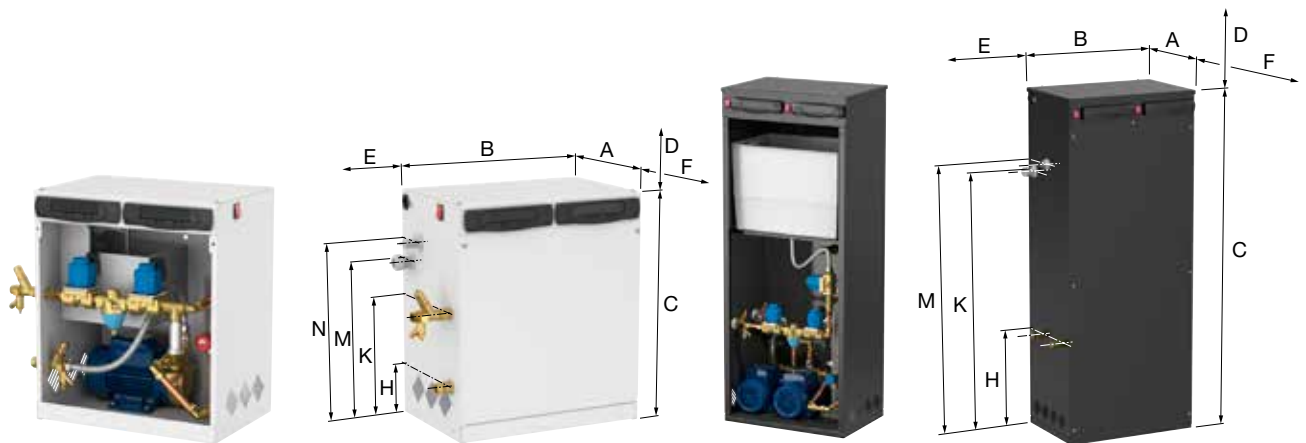
The Flexfiller Plus and Midifill Plus are compact, totally enclosed combined digital pressurisation units with vacuum degasser for use on sealed systems in order to provide a minimum system pressure requirement and effective dissolved gas removal.


Product Features:

- For system volumes up to 300,000 litres.
- Break Tank: 18 litre break tank with type AB Air Gap Fluid Cat 5 (Midifill Plus: 4 litre).
- System quick-fill mode.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer (Top-up controller only).
- Individual controllers for pressurisation and degassing function.
- Vacuum degassing, turbo and normal interval modes.
- Electric pump, 230V 50Hz 1ph (2160D: 415V 50Hz 3ph).
- Colour Flexfiller Plus: Black (RAL 9005).
- Colour Midifill Plus: White (RAL 9910).

Operating Conditions:

- System Temperature Range: 0 - 90 °C.
- Ambient Temperature Range: 0 - 45 °C.
- Max. system temperature at the Point of connection: 70 °C.
- Safety Rating: IP 54.
- Max. Turbo Runtime: 168 hours (1 week).
- Max. Normal Downtime: 180 minutes (3 hours).
- Relative humidity 95% non-condensing.
- Noise Rating Data: < 75 dBA.



Type	Pump quantity	Mounting	Dimensions		Pressure Rating [PN]	Operating Pressure [bar]	Power Consumption [kW]	Full Load Current [A]		Order Code
			System [mm]	Overflow [mm]						
Midifill Plus 150D	1	Wall	2 x 15 (1/2")	22	10	1 - 5	0.5	3.4	1	45053
Flexfiller Plus 250D	2	Floor	2 x 15 (1/2")	22	10	1 - 6	2 x 0.52	2 x 3.4	1	45045
Flexfiller Plus 280D	2	Floor	2 x 15 (1/2")	22	10	1 - 8	2 x 0.75	2 x 5.6	1	45121
Flexfiller Plus 2160D	2	Floor	2 x 15 (1/2")	22	16	8 - 16	2 x 2.2	2 x 2.2	1	45122

Dimensions Flexfiller Plus & Midifill Plus

Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]	N [mm]
Midifill Plus 150D	280	410	480	500	150	800				
Flexfiller Plus 250D	320	470	1160	500	150	800	455	915	955	-
Flexfiller Plus 280D	320	600	1160	500	150	800	455	915	955	-
Flexfiller Plus 2160D	320	600	1160	500	150	800	455	915	955	-

PressDS Plus

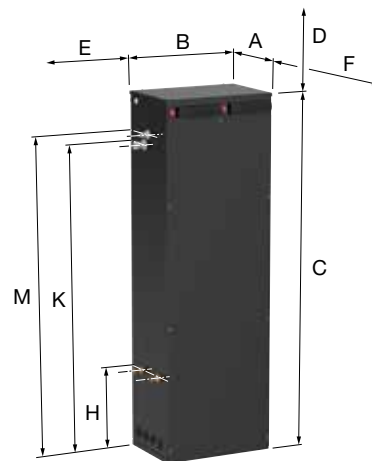
The PressDS Plus (Pressurisation/Degassing/Dosing System) is a compact, totally enclosed combined digital pressurisation unit with vacuum degasser and additive tank for use on sealed systems in order to provide a minimum system pressure requirement, effective dissolved gas removal and adding additives to the system. The correct fluid mix is blended on demand at the time of system top-up.

Product Features:

- For system volumes up to 300,000 litres.
- Break Tank: 4 litre break tank with type AB Air Gap Fluid Cat 5.
- MODBUS Communication output.
- System quick-fill mode.
- Password protection for parameter entry.
- Pressure settings in 0.1 bar increments.
- Service reminder option (12 months).
- Pump pulse option (2 second pulse if inactive for 60 days).
- Flood protection options.
- Event logging for pump start, individual pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault, high pressure, low pressure, pump fault, pressure transducer (Top-up controller only).
- Individual controllers for pressurisation and degassing function.
- Vacuum degassing, turbo and normal interval modes.
- 18 litre additive tank.
- Mix ratios from 1% to 50% user configurable balancing valves.
- Top-up pressurisation unit (<18.0 l/min).
- Electric pump, 230V 50Hz 1ph (2160D: 415V 50Hz 3ph).
- Colour: Black (RAL 9005).

Operating Conditions:

- Max. system temperature: 85 °C.
- Max. ambient temperature: 40 °C.
- Relative humidity 95% non-condensing.



Type	Pump quantity	Connections		Pressure Rating [PN]	Operating Pressure [bar]	Power Rating [kW]	Full Load Current [A]	Nom. Weight [kg]		Order Code
		System [mm]	Overflow [mm]							
PressDS Plus 250D	2	2 x 15 (1/2")	22	10	1 - 6	2 x 0.52	2 x 3.4	62.7	1	45102
PressDS Plus 280D	2	2 x 15 (1/2")	22	10	1 - 8	3 x 0.52	3 x 3.4	71.5	1	45119
PressDS Plus 2160D	2	2 x 15 (1/2")	22	16	8 - 16	4 x 0.52	4 x 3.4	91.3	1	45120

Dimensions PressDS Plus

Type	Dimensions									
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]	
PressDS Plus 250D	470	320	1475							
PressDS Plus 280D	600	320	1475							
PressDS Plus 2160D	600	320	1475							