8.

Venting Range and Air/Dirt Separators

Systems in which the water is properly deaerated and free of contamination are more efficient, produce less noise and have a longer service life. Our products use proven and innovative technology to remove air and solid particles from the water, i.e. using coalescence and flow velocity reduction.
Regardless of whether in a domestic environment or commercial installations with large heating or cooling systems, Flamco's range of automatic air vents and air/dirt separators provide the most efficient solution.

Float vents

Flexvent
- Automatic float vent.
- For domestic and commercial applications.
- 10 bar, 120 °C.

Flexvent H
- Automatic float vent.
- Right-angled 1/2" connection for simple connection to the radiator.
- For domestic applications.
- 10 bar, 120 °C.

Flexvent Top
- Automatic high output float vent.
- For small commercial systems.
- Also available in white.
- 10 bar, 120 °C.
- Also available in white.

Flexvent Super
- Automatic high output float vent.
- For commercial systems.
- 10 bar, 120 °C.

Flexvent Pro
- Automatic high output float vent.
- For commercial systems.
- With bubble breaker.
- 10 bar, 120 °C.

Flexvent Max
- Automatic high output float vent.
- For commercial systems.
- 25 bar, 120 °C.

Flexvent Solar
- Manually operated deaerator for solar installations with or without glycol added.
- Without either shut off valve or radiator key.
- 10 bar, 200 °C.

Flexvent Top Solar
- Automatic float vent with ball valve for solar installations.
- 10 bar, -30 °C - 180 °C.

Flovent
- Automatic float vent.
- 8 bar, 110 °C.

Air reservoirs

LTA air reservoirs
- Vertical installation for central deaeration.
- Suitable for Glycol solutions of up to 50%.
- 10 bar, 120 °C.

Micro-bubble air separators

Flamcovent Smart
- Dirt separator with Compressed Particle Extractor technology.
- Can be installed with all pipe positions.
- 60% better performance compared to conventional air separators.
- Connection 22 mm up to 2".
- 10 bar, 120 °C.

Flamcovent
- Air separator using the principle of coalescence.
- Can also be installed in vertical pipes (Flamcovent V).
- Connection 22 mm up to 2".
- 10 bar, 120 °C.

Flamcovent Solar
- Manually operated air separator using the principle of coalescence.
- Can be installed in vertical pipes (Flamcovent Solar V), too.
- For solar installations.
- Connection 22 mm up to 2".
- 10 bar, 200 °C.
- Including insulation.

Flamcovent Smart S/F/R
- Air separator using the Compressed Particle Extractor technology.
- With welded, grooved or flanged connections (DN 50 - 600).
- 10/16 bar, 120 °C.
- Steel model.

Flamcovent S/F
- Air separator using the principle of coalescence.
- With welded or flanged connections (DN 50 - 150).
- 10 bar, 120 °C.
- Steel model.

Vacuum Degassers

Vacumat Eco
- Pressure-temperature controlled vacuum degasser.
- Extremely accurate and effective.
- Fully programmable and user friendly.
- Working pressure up to 8.7 bar.
- Electrical connection: 230 V / 50 Hz.

Flamco ENA 5
- Vacuum deaerator with top-up function.
- Programmable and user friendly.
- Wall mounted.
- Operating pressure up to 2.5 bar.
- Electrical connection: 230 V / 50 Hz.

Flamco ENA 7-30
- Vacuum deaerator with top-up function.
- Programmable and user friendly.
- Operating pressure up to 8.0 bar.
- Electrical connection: 230 V / 50 Hz.

PSD
- Vacuum degasser combining a pressure step principle with side system configuration.
- For system volumes up to 300,000 litres.
- Working pressure up to 16 bar.
- Electrical connection: 230 V / 50 Hz.

Flexfiller Plus
- Combined digital pressurisation units with vacuum degasser.
- For system volumes up to 300,000 litres.
- Working pressure up to 16 bar.
- Electrical connection: 230 V / 50 Hz.

PressDS Plus
- Combined digital pressurisation unit with vacuum degasser and additive tank.
- For system volumes up to 300,000 litres.
- Working pressure up to 16 bar.
- Electrical connection: 230 V / 50 Hz.

Dirt separators

Flamco Clean Smart
- Dirt separator with Compressed Particle Extractor technology.
- Can be installed with all pipe positions.
- 60% better performance compared to conventional dirt separators.
- Connection 22 mm up to 2".
- 10 bar, 120 °C.

Flamco Clean
- Dirt separator using the principle of coalescence.
- Can also be installed in vertical pipes (Flamco Clean V).
- Connection 22 mm up to 2".
- 10 bar, 120 °C.
- Brass model.

Flamco Clean Smart S/F/R
- Dirt separator using the Compressed Particle Extractor technology.
- With welded, grooved or flanged connections (DN 50 - 600).
- 10/16 bar, 120 °C.
- Steel model.

Flamco Clean S/F
- Dirt separator using the principle of coalescence.
- With welded or flanged connections (DN 50 - 150).
- 10 bar, 120 °C.
- Steel model.

Air and dirt separators

Flamcovent Clean Smart
- Air and Dirt separator with Compressed Particle Extractor technology.
- Can be installed with all pipe positions.
- 60% better performance compared to conventional air and dirt separators.
- Connection 22 mm up to 2".
- 10 bar, 120 °C.

Flamcovent Clean
- Air/dirt separator using the principle of coalescence.
- 10 bar, 120 °C.
- Brass model.

Flamcovent Clean Smart S/F/R
- Air/dirt separator using the Compressed Particle Extractor technology.
- With welded, grooved or flanged connections (DN 50 - 600).
- 10/16 bar, 120 °C.

Flamcovent Clean S/F
- Air/dirt separator using the principle of coalescence.
- With welded or flanged connections (DN 50 - 150).
- 10 bar, 120 °C.
- Steel model.

Air in central heating systems

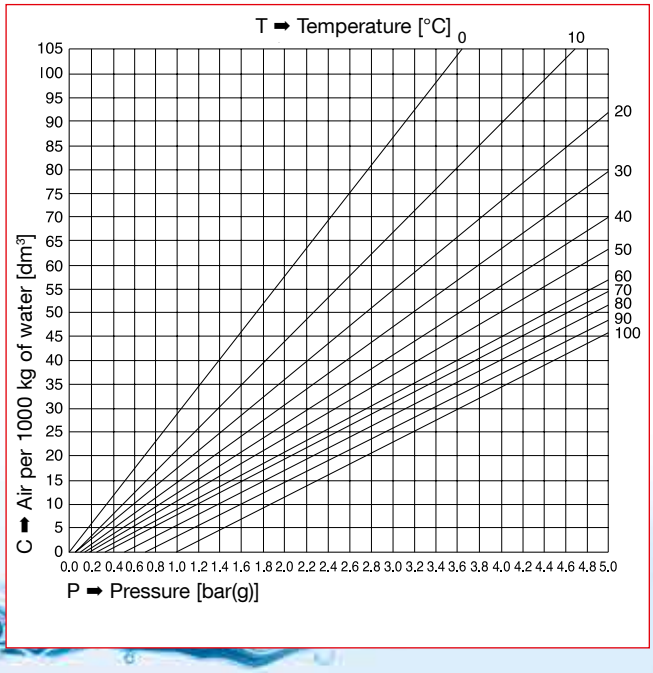
Possible causes of air in central heating systems

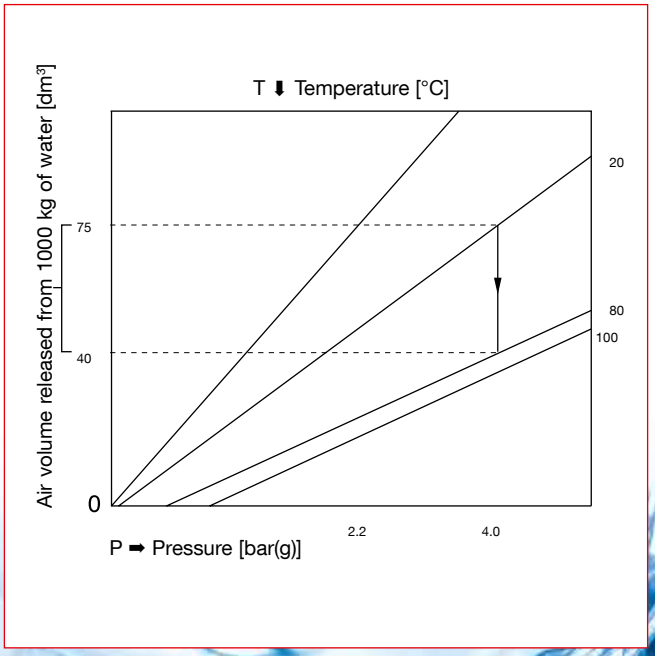
To prevent or eliminate air problems in a system, it is important to understand the causes:

- Air is present in the system before filling.
- Air enters the system during filling.
- Air is dissolved in the water with which the system is filled.
- Air is dissolved in the system water.

Air in a central heating system leads to:

- Increased energy consumption.
- Higher maintenance costs.
- Damage to the circulator pump.
- Shorter service life of the installation.
- Lower heat output from radiators.
- Corrosion.
- Irritating noise.





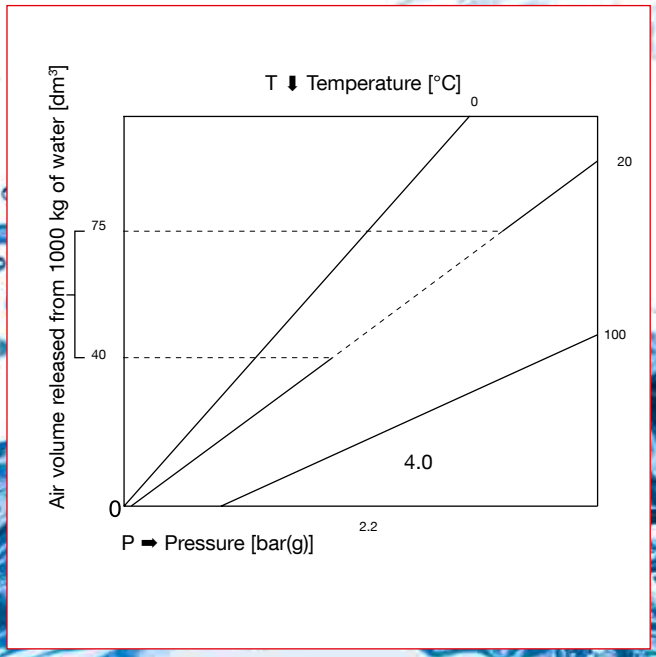
The presence of dissolved air in water can be quantified using Henry's law. which states that: C = K x P
C = concentration of the dissolved air
K = absorption factor (depending on the temperature)
P = pressure

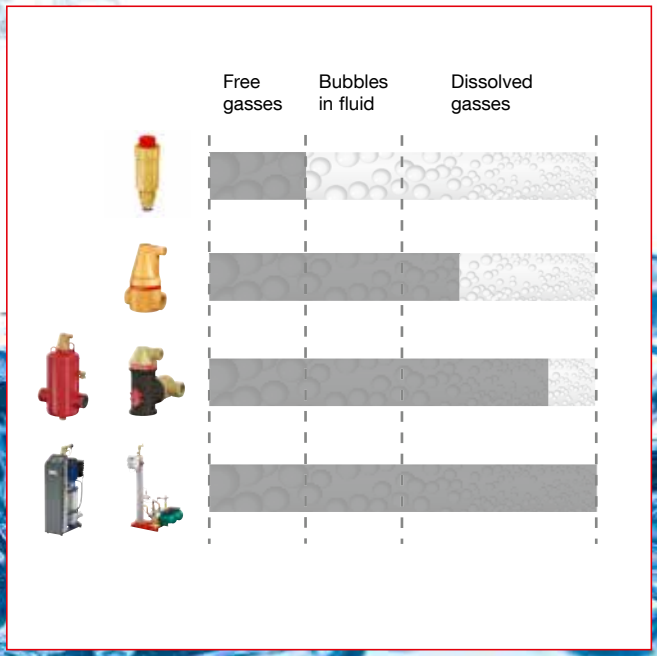
As the diagram shows, the air that can be dissolved in the water depends on both the temperature and the pressure. When the temperature increases or the pressure drops, dissolved air in the water is released.

Henry's law in a central heating system

Very high temperatures can occur at the boiler walls. Aerated water can release tiny bubbles here. These 'micro-bubbles' dissipate in other parts of the central heating system at low temperatures if they are not removed immediately. If the micro-bubbles are immediately removed before the boiler the system water is free of air (unsaturated).

Air from other parts of the system can dissolve and be absorbed by this water. This absorption effect can be exploited to coalesce all the free air in a system and help the air out of the system with the boiler/ Flamcovent absorption air separator combination. This venting procedure is a process that continues until only unsaturated water, which can absorb more air, remains.





Henry's law allows us to calculate how much dissolved air will be released from the water when heated up, for example from 20 °C to 80 °C.
If the pressure decreases or the temperature increases, dissolved air will escape. If the temperature decreases or the pressure increases, air bubbles will be absorbed by the water.

Depending on application and system requirements a good choice can be made from the wide range of air separators.

Flamco Smart-series air and dirt separators

Flamco brings you the newest development in the area of air and dirt separation:
- **Flamcovent Smart**
- **Flamco Clean Smart**
- **Flamcovent Clean Smart**

These air and dirt separators with Compressed Particle Extractor technology removes even the smallest microbubbles and minuscule dirt particles from the system water.
They are practically maintenance-free and their flow resistance is negligibly low. The magnetite particles present in the water are directly attracted by the magnetic field and all other dirt particles are also extracted extremely efficiently.

More compact, lighter, cleaner and even more efficient

The Flamcovent Smart, Flamco Clean Smart and Flamcovent Clean Smart air and dirt separators are smart products in every aspect. As with other innovations from Flamco, their ground-breaking new design also delivers optimal performance. These air and dirt separators for heating and cooling systems are the new standard.

Wide range

The new air and dirt separators from Flamco are supplied in various connection types and sizes, with maximum working pressures of 10, 16 or 25 bar. Available with* or without insulation.

* for heated systems only.

Continuous operation and a long service life

Flamco Smart performs 60% better than conventional air and dirt separators whilst the flow resistance has been reduced to a negligible level. This avoids wear to the pump of the central heating boiler and reduces energy costs.

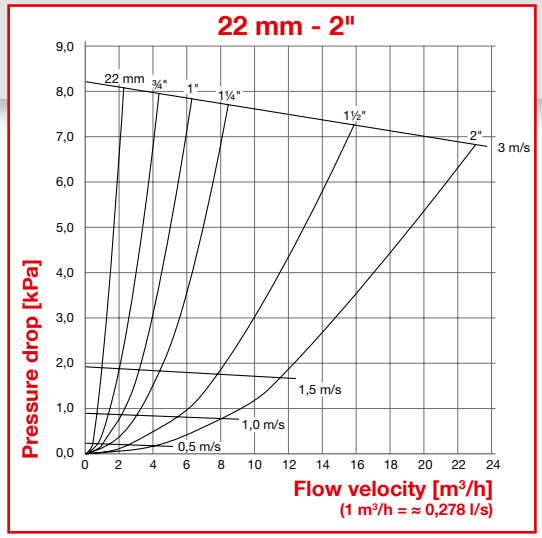
FLAMCOVENT CLEAN SMART ECOPLUS (22 mm - 2")

FLAMCOVENT SMART (22 mm - 2")

FLAMCO CLEAN SMART (22 mm - 2")

Flexible assembly

An important feature of the latest generation of air and dirt separators is that they can be incorporated in a variety of heating and cooling systems and in every desired pipe direction. The compact dimensions of the Flamcovent Smart series enables them to be easily installed even when space is limited.



Main advantages

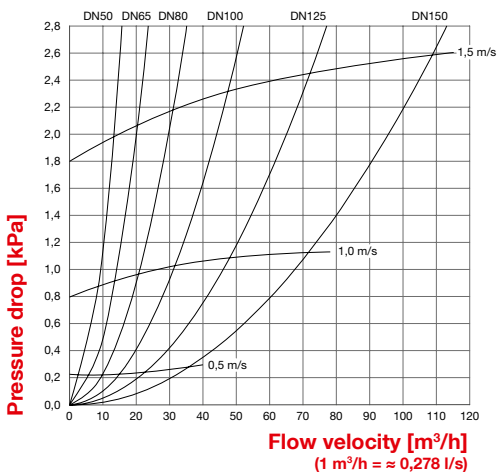
- 60% better performance compared to conventional air and dirt separators.
- Extremely low flow resistance and pressure loss and therefore lower consumption of energy.
- Consistent performance throughout its service life.
- With neodymium magnets (Flamcovent Clean Smart / Flamco Clean Smart).
- Low maintenance.

FLAMCOVENT SMART
(DN 50 - DN 600)

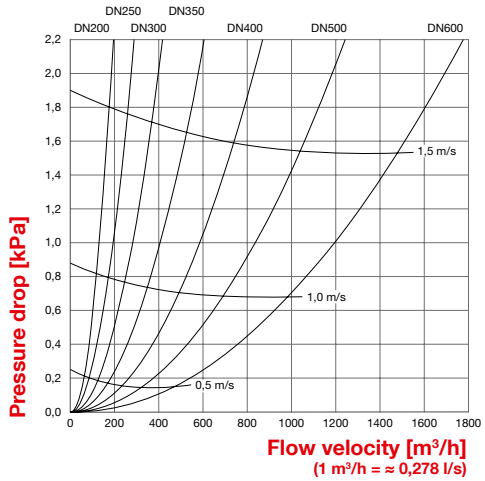
FLAMCO CLEAN
SMART
(DN 50 - DN 600)

The three graphs below are simple tools for selecting the correct model for your installation.

DN 50 - DN 150



DN 200 - DN 600



More info

Flamco Smart-series air and dirt separators standard flow velocities up to 3 m/s.
For further technical information:

www.flamcogroup.com

A smart concept

High separation performance with energy conservation

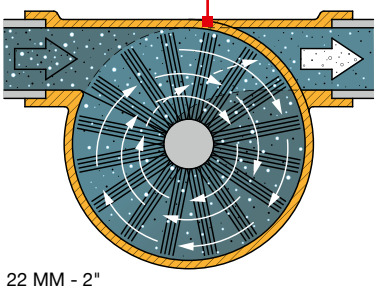
The separation element combined with the return flow ensures excellent air and dirt separation and at the same time saves energy because of the negligible flow resistance. An exceptional rate of at least 40% of the air and dirt is separated per cycle while using only 10% extraction of the main flow.
Inside the chamber of the separator the water velocity is heavily reduced down to less than 1% of the main flow. This efficiently separates microbubbles and dirt particles by allowing the air particles to automatically rise to the air release valve at the top and the dirt particles to sink to the bottom to the dirt collector. A supermagnet additionally contributes in trapping ferrous particles.

Flamco Smart technology compared

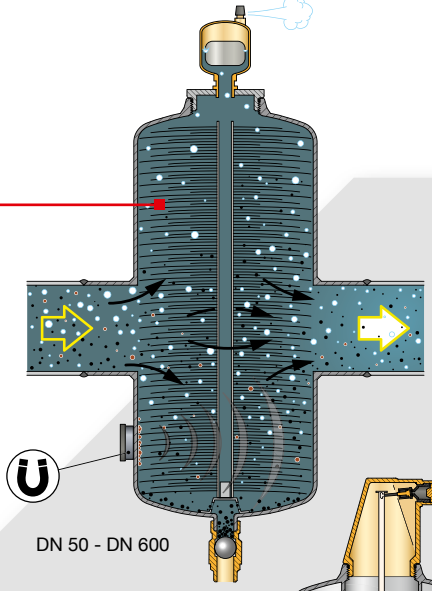
Conventional separator
(with complete flow through)

Separation per cycle:

< 25%



22 MM - 2"

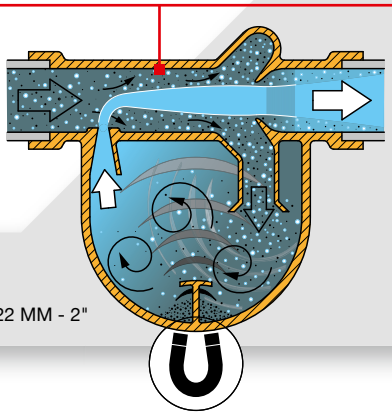


DN 50 - DN 600

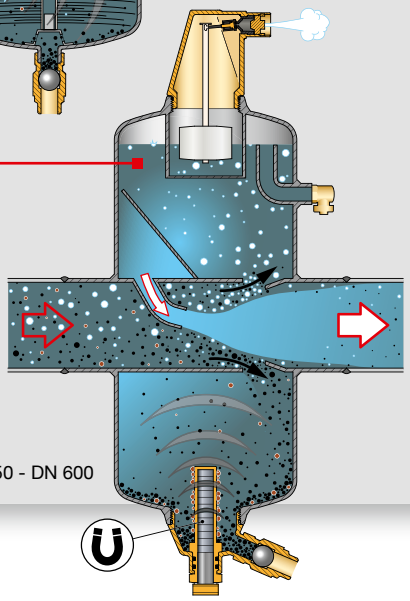
Flamcovent Clean Smart

Separation per cycle:

40%



22 MM - 2"



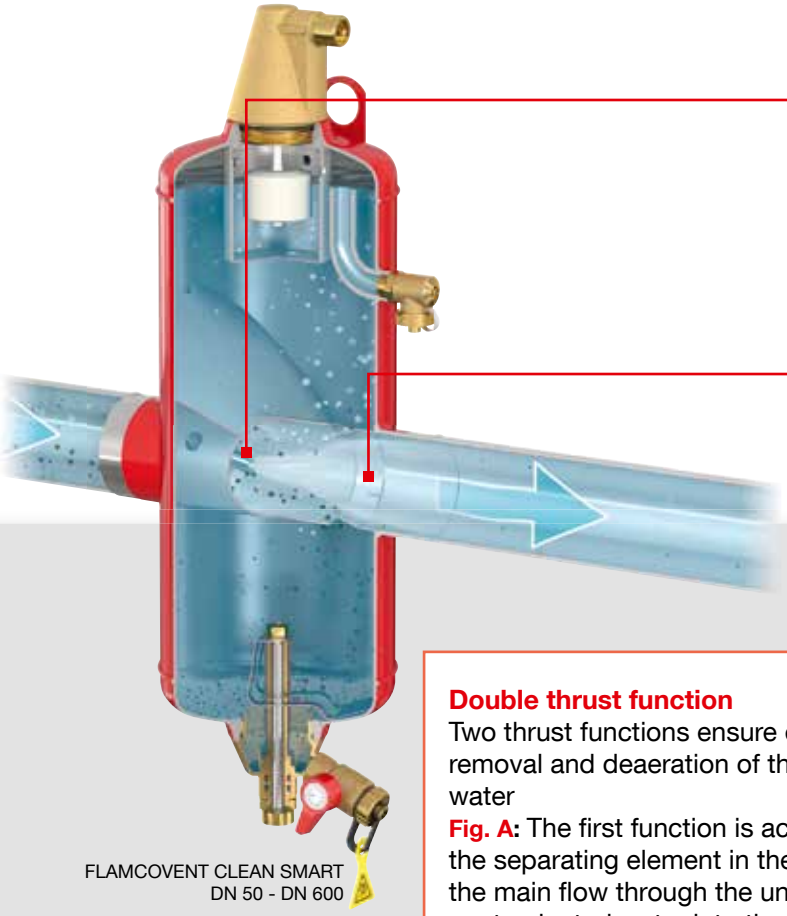
DN 50 - DN 600

Low-maintenance

The low-maintenance characteristic of the air and dirt separators is a great advantage.
The latest technology ensures extended periods between necessary maintenance.
A label can be affixed to the handle of the drain valve that makes it simple to show when maintenance was last performed.

Continuous operation and a long service life

The absence of obstructions in the main flow ensures that clogging or blockage is prevented which guarantees superior and continuous operation over its service life. Moreover, this feature also considerably prolongs the service life of the product.



FLAMCOVENT CLEAN SMART
DN 50 - DN 600

Return flow.
(Fig. B)

Separating element.
(Fig. A)

Double thrust function

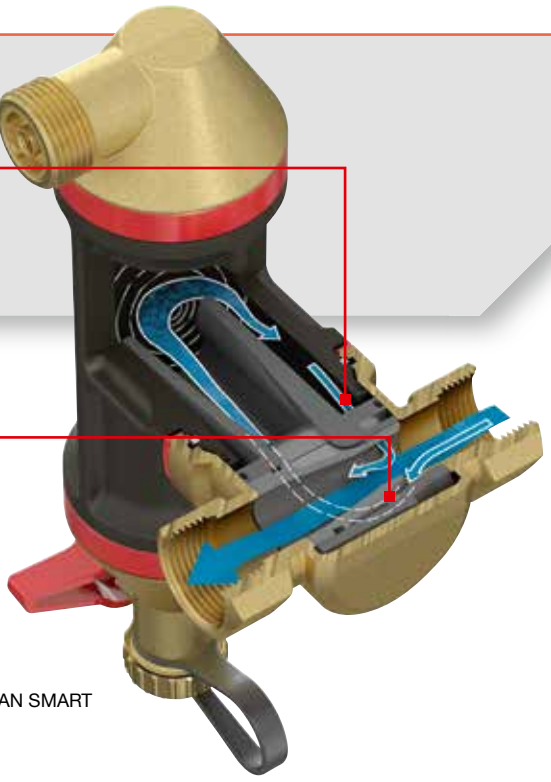
Two thrust functions ensure efficient dirt removal and deaeration of the system water

Fig. A: The first function is achieved by the separating element in the path of the main flow through the unit, diverting contaminated water into the entrapment chamber.

Fig. B: The second effect is achieved by bringing back the clean return flow of water in the centre, upstream of the separating element. This forces the microbubbles and dirt particles present in the main flow outwards and into the chambers of the separator to be removed.

Return flow.
(Fig. B)

Separating element.
(Fig. A)



FLAMCOVENT CLEAN SMART
22 MM - 2"

Flexvent Float Vents
Reliable and Easy to Mount

Most Flexvent types are supplied with a brass shut-off valve to facilitate installation and removal. When the float vent is unscrewed from the shut-off valve, the valve will close automatically and the system need not be de-pressurized or drained. Under normal circumstances, the Flexvent float vent needs no maintenance.

Due to the particularly compact dimensions of the float vent it is possible to install Flexvent float vents in the best suitable places.

Protective cap including expansion sealer rings to prevent leaks.

Substantial distance between the water and the closing mechanism, reducing the chance of contamination.

Flexvent float vents are made of brass.

Mostly supplied as standard with a shut-off valve for easy removal.

The Flexvent H has a ½" right-angled connection which means it can be mounted directly on one of the radiator ports.

Flexvent Automatic Air Vents

The float floats on the water and keeps the venting valve closed. When air is collected in the float vent, the water level will drop and the venting valve will be opened. The collected air will escape causing the water level to rise and the venting valve to close. This process continues as long as air is collected in the float vent during operation.

LTA Air Pots

The Flamco air pot is mounted on riser pipes in the supply or return lines. In the air pot the water returns to a non-turbulent state and the free air can collect in the upper part. The air can be released from the Flexvent mounted on top of the air pot.

LTA AIR POTS


FLEXVENT


FLEXVENT H


FLEXVENT TOP


FLEXVENT MAX


FLEXVENT SUPER


FLEXVENT SOLAR

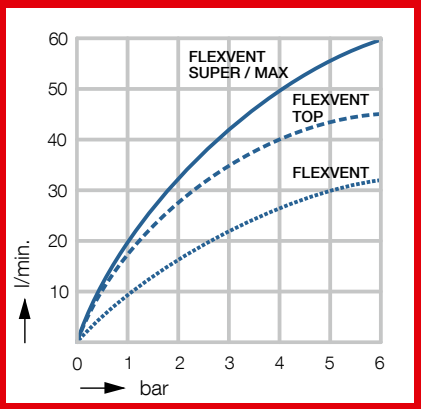

FLEXVENT TOP SOLAR


LTA


Flexvent open


Flexvent closed

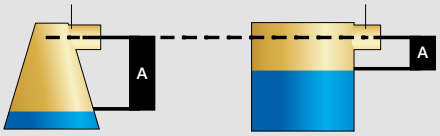
The air cushion in the upper part of each Flexvent protects the valve seat against contamination.



The amount of air that is allowed to escape through the Flexvent float vent depends on the system pressure. The graph above shows the relationship between the amount of air in litres/min at 15 °C and the system pressure.

Flexvent Max / Super

The cap of the Flexvent Super is conical in shape. The advantage of this construction is that the clearance between the water level and venting valve is



maximized. The air escape duct can be opened or closed with an adjusting screw. The venting valve forms an integral part of the cap so that it is impossible to damage the float vent mechanism from outside.

FLEXVENT AUTOMATIC AIR VENTS

The compact, proven design has high efficiency and guaranteed operation for heating and air conditioning.
The water within the installation contains air which can form corrosion and reduce the thermal transfer. A Flexvent is fitted at places where the air collects. Float operated, the air is collected in the Flexvent causing the float to drop and open the air release valve. When the air is eliminated the float rises and closes the valve.

Flexvent float vents are made of brass. Most types are equipped with a shut-off valve for easy fitting and dismantling.
A Flexvent float vent is easy to fit in any installation due to its very small dimensions. The relatively large air cushion at the top of each type of Flexvent float vent protects the valve seat sufficiently against contamination so that the Flexvent will not leak.
To guarantee top quality, we test all Flexvents before they leave our facility!

- Suitable for water and water/glycol solutions up to 50% glycol.

Flexvent

- Min./max. operating temperature: - 10 °C / 90 °C (peak load: 120 °C).
- Min./max. operating pressure: 0.2 / 6.0 bar (peak load: 10.0 bar).

Flexvent ½ Flexvent ⅜ Flexvent ⅛ - ⅜ Flexvent ⅛

Type	Dimensions Ø [mm]	Dimensions H. [mm]	Connection	Shut-off valve	📦	Order Code
Flexvent 1/8	30	67	R 1/8"	no	50	27775
Flexvent 3/8	30	78	R 3/8"	yes	50	27750
Flexvent 3/8 without shut-off valve	30	66	G 3/8"	no	100	27725
Flexvent 3/8	30	78	R 3/8"	yes	100	27753
Flexvent 1/8 - 3/8	30	86 - 75.5	R 1/8" / R 3/8"	yes	50	27780
Flexvent 1/2	30	75.5	R 1/2"	yes	50	27740
Flexvent 1/2 - White with bubble breaker	31	71	G 1/2"	no	50	27743
Flexvent 1/2 - Nickel plated	30	80	R 1/2"	yes	50	27742
Flexvent 3/4	30	74.5	R 3/4"	yes	50	27735
Valve sleeve with shut-off valve Flexvent	-	23	G 3/8" F x R 3/8"	yes	1	27700

Flexvent H

- Min./max. operating temperature: - 10 °C / 90 °C (peak load: 120 °C).
- Min./max. operating pressure: 0.2 / 6.0 bar (peak load: 10.0 bar).

Type	Dimensions Ø [mm]	Dimensions Ø conn. inc. [mm]	Dimensions H. [mm]	Connection	Shut-off valve	📦	Order Code
Flexvent H 1/2 Nickel plated	31	50.5	70	R 1/2"	no	50	27710
Flexvent H 1/2 White	31	50.5	70	R 1/2"	no	50	27711
Shut-off valve Flexvent H	-	-	-	R 1/2"	-	25	27703

Flexvent Top

- Min./max. operating temperature: - 10 °C / 120 °C.
- Min./max. operating pressure: 0.2 / 10.0 bar.

Type	Dimensions Ø [mm]	Dimensions H. [mm]	Connection	Shut-off valve	📦	Order Code
Flexvent Top	54	86	Rp 1/2"	no	25	28515
Flexvent Top White	54	86	R 3/8"	yes	20	28510

Flexvent Super

- Min./max. operating temperature: - 10 °C / 120 °C.
- Min./max. operating pressure: 0.2 / 10.0 bar.

Type	Dimensions Ø [mm]	Dimensions H. [mm]	Connection	Shut-off valve		Order Code
Flexvent Super 1/2	73	119	G 1/2" F	no	1	28520
Shut-off valve Flexvent Super	-	-	1/2"	-	1	28525

Flexvent Pro

- Equipped with bubble breaker.
- Outlet: G ¾" M.
- Min./max. operating temperature: - 10 °C / 120 °C.
- Min./max. operating pressure: 0.2 / 10.0 bar.

Type	Dimensions Ø [mm]	Dimensions H. [mm]	Connection	Shut-off valve		Order Code
Flexvent Pro	63	110	Rp 1/2"	no	1	28519

Flexvent Max

- Min./max. operating temperature: - 10 °C / 120 °C.
- Min./max. operating pressure: 0.2 / 25.0 bar.

Type	Dimensions Ø [mm]	Dimensions H. [mm]	Connection	Shut-off valve		Order Code
Flexvent Max 3/4	77	120	Rp 3/4"	no	1	28550

Flexvent Solar

Manually operated deaerator for solar systems with glycol based solutions.

- Non automatic, without shut off valve and key (manual operation).
- Min./max. operating temperature: -10 °C / 200 °C.
- Maximum operating pressure: 10.0 bar.

Type	Dimensions Ø [mm]	Dimensions H. [mm]	Connection	Shut-off valve		Order Code
Flexvent Solar 3/8	30	75.5	R 3/8"	no	1	27785

Flexvent Top Solar

- With ball valve.
- Min./max. operating temperature: - 30 °C / 180 °C.
- Min./max. operating pressure: 0.2 / 10.0 bar.

Type	Dimensions Ø [mm]	Dimensions H. [mm]	Connection	Shut-off valve		Order Code
Flexvent Top Solar 3/8	30	75.5	G 3/8" M	no	1	28505

Flexvent Adaptor

Type	Connection	Shut-off valve		Order Code
Flexadaptor	1/4" M	no	1	27770

Air intake preventer

Type	Dimensions Ø [mm]	Dimensions H. [mm]	Connection BSP		Order Code
Aeration inhibitor	16	28	M 12 x 1	25	27755

AIR ACCUMULATOR

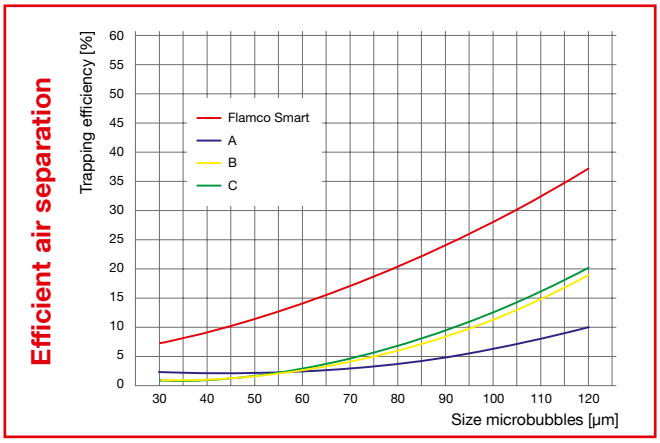
Flamco LTA Air Accumulator

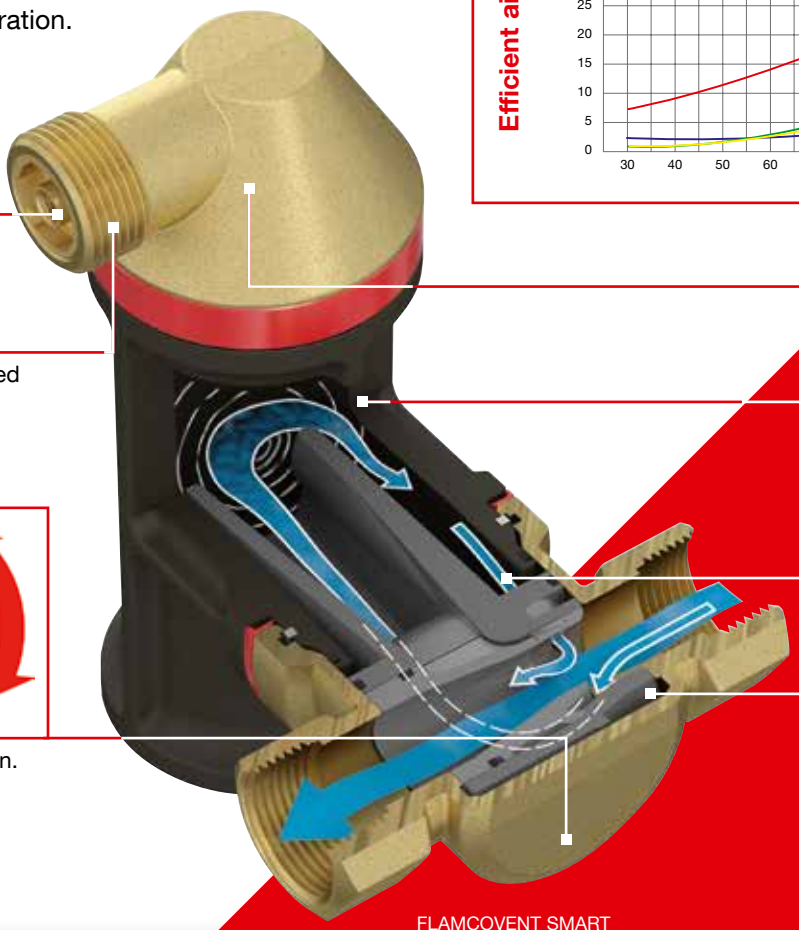
Type	Capacity [l]	Dimensions Ø [mm]	Dimensions H. [mm]	Connection Airvent	Connection System	Weight [kg]		Order Code
LTA 1	1.0	110	185	Rp 3/8"	Rp 1/2"	1.3	1	27581
LTA 2	1.6	110	233	Rp 3/8"	Rp 1/2"	1.7	1	27582
LTA 5	5.0	196	221	Rp 1/2"	Rp 1/2"	4.0	1	27585

Microbubble Air Separators

Flamcovent Smart

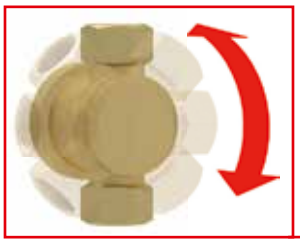
The Flamcovent Smart air separators are smart products in every aspect. As with other innovations from Flamco their new technology delivers optimal performance. The proven effectiveness of these air separators make them future ready and the new standard in air separation.





Emergency stop air release valve.

Connection for controlled gas removal.



360° rotating connection.

Float ventilator section.

Body of high quality plastic.

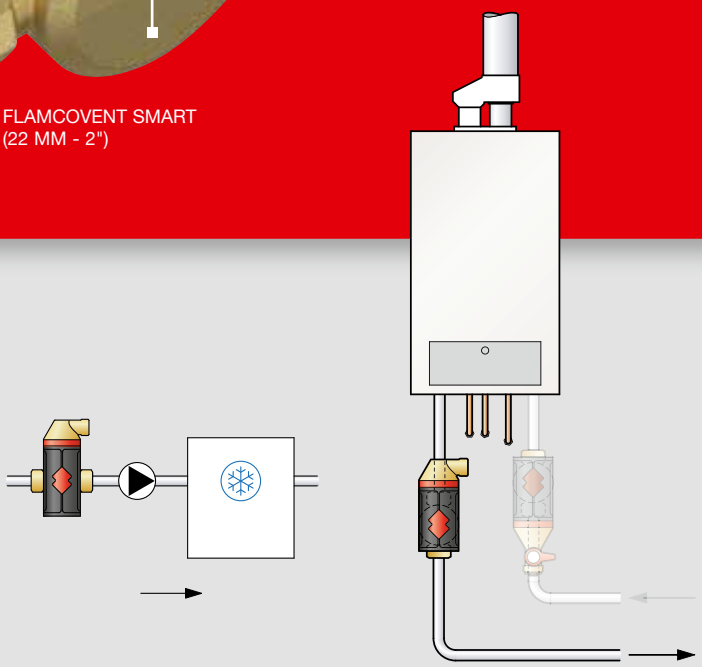
Return flow.

Separating element.

FLAMCOVENT SMART
(22 MM - 2")

Installation

Preferably, an air separator is mounted immediately after the boiler or mixing valve in the supply line, preferably before the circulation pump. As a result bubbles are immediately trapped by the water after heating.
With a cooling system that is right in front of the cooling unit.

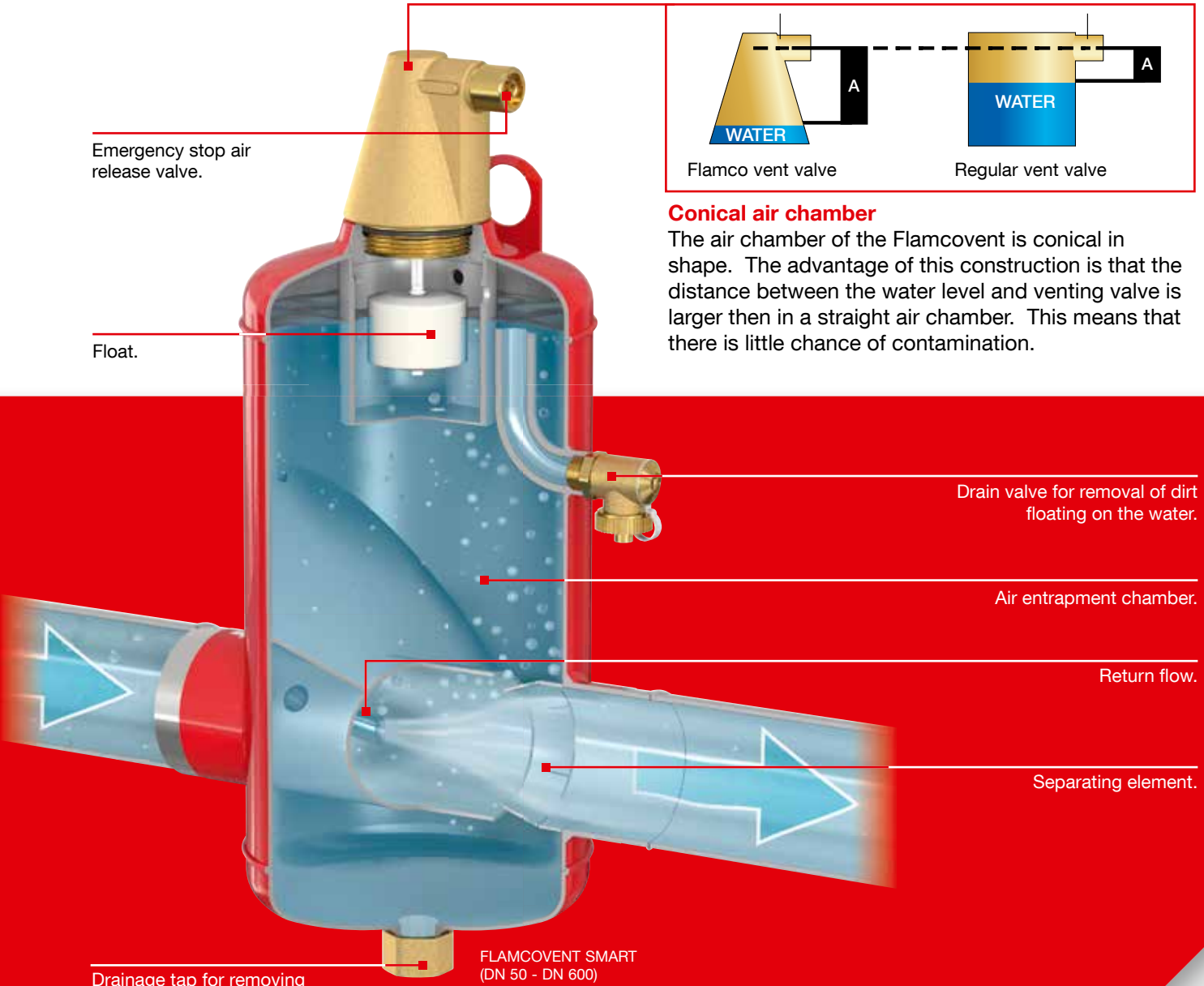


Flamco vent valve

Regular vent valve

Conical air chamber

The air chamber of the Flamcovent is conical in shape. The advantage of this construction is that the distance between the water level and venting valve is larger then in a straight air chamber. This means that there is little chance of contamination.



High quality materials

Thanks to the clever use of high quality pressure and heat resistant materials in the body these air separators minimize the load for the heating system. The EPP insulation material of the Flamcovent Smart up to 2" has a thickness of 20 mm and an insulation value (λ) of 0.036 W / mK. For the larger sizes a 50 mm soft foam insulation mantle is available (λ 0,035 W/ mK).

Flamcovent, Flamcovent EcoPlus and Flamcovent Solar

The Flamcovent (Ecoplus and Solar) use our patented Pall-Ring technology. The water flows around and through every PALL-Ring making the smallest micro bubbles collide and coalesce on the large contact surface of the PALL-Rings.

Flamcovent Solar: With deaeration key for manual operation.

MICROBUBBLE AIR SEPARATORS (22 MM - 2")

For total elimination of air from heating and cooling installations.

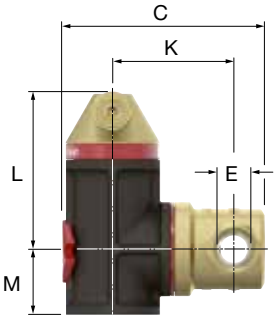
- Maximum operating pressure: 10 bar.
- Suitable for glycol solutions of up to 50%.

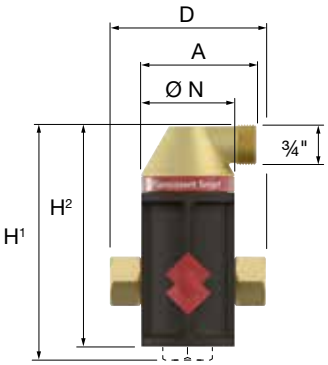
Flamcovent Smart

More compact, lighter, cleaner and more efficient

The Smart air separators remove even the smallest microbubbles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low.

- 60% better performance compared to conventional separators.
- Min./max. working temperature: -10 °C / 120 °C.
- Flow velocity up to 3 m/s.
- Can be used with all kinds of pipework.
- Compact dimensions, light weight.
- Extremely low flow resistance and low loss of energy.
- Consistent performance throughout its service life.

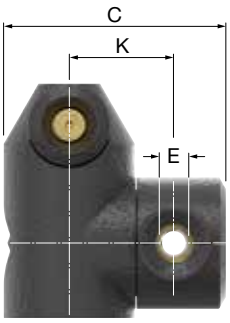


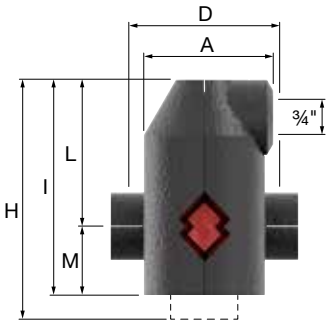


Type	Connection (E)	Dimensions A [mm]	C [mm]	D [mm]	K [mm]	L [mm]	M [mm]	H/H1 [mm]	H2 [mm]	Ø N [mm]	Weight [kg]		Order Code
Flamcovent Smart 22	22 mm	74	134	120	78	101	37	161	138	60	0.95	1	30002
Flamcovent Smart ¾	¾"	74	132	100	78	101	37	151	138	60	0.90	1	30001
Flamcovent Smart 1	1"	82	155	106	91	139	45	192	184	75	1.12	1	30003
Flamcovent Smart 1 ¼	1 ¼"	82	165	110	96	139	45	194	184	75	1.27	1	30004
Flamcovent Smart 1 ½	1 ½"	94	193	129	109	173	54	238	227	92	1.73	1	30005
Flamcovent Smart 2	2"	94	206	140	117	173	54	243	227	92	2.16	1	30006

Flamcovent Smart EcoPlus

Similar to the Flamcovent Smart but with a 20 mm EPP insulation mantle included.





Type	Connection (E)	Dimensions A [mm]	C [mm]	D [mm]	K [mm]	L [mm]	M [mm]	H [mm]	I [mm]	Weight [kg]		Order Code
Flamcovent Smart EcoPlus ¾	¾"	104	164	100	78	118	56	194	174	1.0	1	30011
Flamcovent Smart EcoPlus 22	22 mm	104	164	120	78	118	56	194	174	1.0	1	30012
Flamcovent Smart EcoPlus 1	1"	117	189	106	91	157	63	233	220	1.2	1	30013
Flamcovent Smart EcoPlus 1 ¼	1 ¼"	117	199	110	96	157	63	233	220	1.4	1	30014
Flamcovent Smart EcoPlus 1 ½	1 ½"	134	224	129	109	191	72	279	263	1.9	1	30015
Flamcovent Smart EcoPlus 2	2"	134	237	140	117	191	72	279	263	2.3	1	30016

Flamcovent

For total elimination of air from heating and cooling installations. Removes not only the smallest air bubbles, but even the air which has been absorbed into the water. Even microbubbles from 15 - 20 µm!
To prove this, the Technical University of Delft, the Netherlands, has run tests which have shown that the Flamcovent can remove even the smallest bubbles from the water. The Flamcovent's air chamber is conical in shape, which means that a large distance can be achieved between the water level and the venting valve. This prevents leaks.

- With PALL-Ring technology.
- Maximum flow velocity: 1.5 m/s.
- Maximum working temperature: 120 °C.

Type	Connection	Capacity [l]	Dimensions* W. [mm]	Dimensions* H. [mm]	Weight [kg]		Order Code
Flamcovent 22	22 mm	0.22	98	151	1.4	1	28060
Flamcovent 3/4	Rp 3/4"	0.22	88	151	1.4	1	28020
Flamcovent 1	Rp 1"	0.35	100	171	1.8	1	28021
Flamcovent 1 1/4	Rp 1 1/4"	0.48	114	192	2.4	1	28022
Flamcovent 1 1/2	Rp 1 1/2"	0.48	114	192	2.5	1	28023
Flamcovent 2	Rp 2"	0.75	131	213.5	2.6	1	28024

* Dimensions including insulation.

Flamcovent V

Similar to the Flamcovent but for mounting in vertical rising pipes.

Type	Connection	Capacity [l]	Dimensions* W. [mm]	Dimensions* H. [mm]	Weight [kg]		Order Code
Flamcovent V 22	22 mm	0.4	160.5	189	1.9	1	28069
Flamcovent V 3/4	Rp 3/4"	0.4	160.5	182	1.9	1	28005
Flamcovent V 1	Rp 1"	0.5	184	204	2.9	1	28007
Flamcovent V 1 1/4	Rp 1 1/4"	0.5	184	204	2.8	1	28008

* Dimensions including insulation.

Flamcovent EcoPlus

Similar to the Flamcovent but with a styropor insulation mantle included.

Type	Connection	Capacity [l]	Dimensions*			Weight [kg]		Order Code
			Length [mm]	Width [mm]	Height [mm]			
Flamcovent EcoPlus 22	22 mm	0.22	102	113	188	1.4	1	28660
Flamcovent EcoPlus 3/4	Rp 3/4"	0.22	102	113	188	1.4	1	28620
Flamcovent EcoPlus 1	Rp 1"	0.35	110	117	207	1.8	1	28621
Flamcovent EcoPlus 1 1/4	Rp 1 1/4"	0.48	116	121	227	2.4	1	28622
Flamcovent EcoPlus 1 1/2	Rp 1 1/2"	0.48	116	121	227	2.5	1	28623
Flamcovent EcoPlus 2	Rp 2"	0.75	125	135	258	2.6	1	28624

* Dimensions including insulation.

Flamcovent Solar

For mounting in solar installations.

- With PALL-Ring technology.
- Manually operated, including deaeration key.
- Styropor insulation included.
- Maximum flow velocity: 1.5 m/s.
- Maximum working temperature: 200 °C.

Type	Connection	Capacity [l]	Dimensions*			Weight [kg]		Order Code
			Length [mm]	Width [mm]	Height [mm]			
Flamcovent Solar 22	22 mm	0.22	102	113	188	1.4	1	28062
Flamcovent Solar 3/4	Rp 3/4"	0.22	102	113	188	1.4	1	28663
Flamcovent Solar 1	Rp 1"	0.35	110	117	207	1.8	1	28664
Flamcovent Solar 1 1/4	Rp 1 1/4"	0.48	116	121	227	2.4	1	28665
Flamcovent Solar 1 1/2	Rp 1 1/2"	0.48	116	121	227	2.5	1	28666
Flamcovent Solar 2	Rp 2"	0.60	125	135	258	2.6	1	28667

* Dimensions including insulation.

Flamcovent Solar V

Similar to the Flamcovent Solar but for mounting in vertical riser pipes in solar installations.

Type	Connection	Capacity [l]	Dimensions*			Weight [kg]		Order Code
			Length [mm]	Width [mm]	Height [mm]			
Flamcovent Solar V 22	22 mm	0.4	100	190	215	1.9	1	28065
Flamcovent Solar V 3/4	Rp 3/4"	0.4	100	190	215	2.0	1	28009
Flamcovent Solar V 1	Rp 1"	0.5	115	215	227	3.2	1	28685
Flamcovent Solar V 1 1/4	Rp 1 1/4"	0.5	115	215	227	3.0	1	28686

* Dimensions including insulation.

MICROBUBBLE AIR SEPARATORS (DN 50 - 600)

For use in sealed heating and cooling systems.
Air separators increase comfort and improve the yield. Air separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

- Increases comfort and yield.
- The removal of air from the system water extends the service life of pumps, control equipment and other system accessories.
- Maximum supply temperature: 120 °C.
- Suitable for glycol solutions of up to 50%.

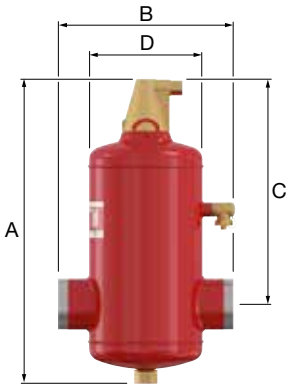
Flamcovent Smart S - 10.0 bar

Optimum deaeration combined with energy retention.

The new steel Flamcovent Smart air separators remove even the tiniest micro-bubbles from the installation water. The Flamco Smart performs 60% better than conventional air separators whilst the flow resistance has been reduced to a negligible level.

- Up to 60% better performance compared to conventional air and dirt separators.
- Extremely low flow resistance resulting in less energy consumption.
- Standard flow speed up to 3 m/s.
- Constant performance during the entire lifespan.
- Low maintenance.

- Including a weld connection.
- Maximum operating pressure: 10 bar.



Type	Capacity [l]	Connection [DN]	Connection [mm]	Dimensions A [mm]	Dimensions B [mm]	Dimensions C [mm]	Dimensions D [mm]	K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
Flamcovent Smart 50 S	8	50	60.3	472	260	338	175	93	9	1	31101
Flamcovent Smart 65 S	8	65	76.1	472	260	338	175	140	10	1	31102
Flamcovent Smart 80 S	25	80	88.9	612	370	435	270	209	17	1	31103
Flamcovent Smart 100 S	25	100	114.3	612	370	435	270	311	20	1	31104
Flamcovent Smart 125 S	59	125	139.7	740	525	510	360	459	36	1	31105
Flamcovent Smart 150 S	60	150	168.3	740	525	510	360	675	37	1	31106
Flamcovent Smart 200 S	123	200	219.1	975	650	670	450	1340	57	1	31107
Flamcovent Smart 250 S	287	250	273.0	1290	850	892	600	1952	125	1	31108
Flamcovent Smart 300 S	333	300	323.9	1452	850	1032	600	2830	140	1	31109
Flamcovent Smart 350 S	646	350	355.6	1600	1050	1109	800	4084	256	1	31110
Flamcovent Smart 400 S	731	400	406.4	1770	1050	1252	800	5866	265	1	31111
Flamcovent Smart 500 S	1384	500	508.0	2096	1400	1470	1000	8387	503	1	31112
Flamcovent Smart 600 S	2390	600	610.0	2500	1680	1760	1200	11939	755	1	31113

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure drop over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamcovent Smart F - 10.0 bar

Similar to the Flamcovent Smart S but with flanged connection according to EN 1092-1 PN16.

- Models with a maximum operating pressure of 25 bar are available upon request.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamcovent Smart 50 F	8	50	60.3	472	350	338	175	93	14	1	31001
Flamcovent Smart 65 F	8	65	76.1	472	350	338	175	140	16	1	31002
Flamcovent Smart 65 F **	8	65	76.1	472	350	338	175	140	16	1	31003
Flamcovent Smart 80 F	25	80	88.9	612	470	435	270	209	25	1	31004
Flamcovent Smart 100 F	25	100	114.3	612	470	435	270	311	29	1	31005
Flamcovent Smart 125 F	59	125	139.7	740	635	510	360	459	48	1	31006
Flamcovent Smart 150 F	60	150	168.3	740	635	510	360	675	52	1	31007
Flamcovent Smart 200 F	123	200	219.1	975	774	670	450	1340	80	1	31008
Flamcovent Smart 250 F	287	250	273.0	1290	990	892	600	1952	158	1	31009
Flamcovent Smart 300 F	333	300	323.9	1452	1006	1032	600	2830	184	1	31010
Flamcovent Smart 350 F	646	350	355.6	1600	1214	1109	800	4084	321	1	31011
Flamcovent Smart 400 F	731	400	406.4	1770	1220	1252	800	5866	348	1	31012
Flamcovent Smart 500 F	1384	500	508.0	2096	1580	1470	1000	8387	635	1	31013
Flamcovent Smart 600 F	2390	600	610.0	2492	1870	1760	1200	11939	963	1	31014

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.
** 4 hole flanged version.

CE

Flamcovent Smart F - 16.0 bar

Similar to the Flamcovent Smart S but with flanged connection according to EN 1092-1 PN16.

- Maximum operating pressure: 16 bar.
- Models with a maximum operating pressure of 25 bar are available upon request.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamcovent Smart 50 F	8	50	60.3	472	350	338	175	93	17	1	31061
Flamcovent Smart 65 F	8	65	76.1	472	350	338	175	140	18	1	31062
Flamcovent Smart 80 F	25	80	88.9	612	470	435	270	209	26	1	31063
Flamcovent Smart 100 F	25	100	114.3	612	470	435	270	311	30	1	31064
Flamcovent Smart 125 F	59	125	139.7	740	635	510	360	459	67	1	31065
Flamcovent Smart 150 F	60	150	168.3	740	635	510	360	675	70	1	31066
Flamcovent Smart 200 F	123	200	219.1	975	774	670	450	1340	103	1	31067
Flamcovent Smart 250 F	287	250	273.0	1290	990	892	600	1952	200	1	31068
Flamcovent Smart 300 F	333	300	323.9	1452	1006	1032	600	2830	239	1	31069
Flamcovent Smart 350 F	646	350	355.6	1600	1214	1109	800	4084	387	1	31070
Flamcovent Smart 400 F	731	400	406.4	1770	1220	1252	800	5866	416	1	31071
Flamcovent Smart 500 F	1384	500	508.0	2096	1580	1470	1000	8387	777	1	31072
Flamcovent Smart 600 F	2390	600	610.0	2492	1870	1760	1200	11939	1465	1	31073

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamcovent Smart R - 10.0 bar

Similar to the Flamcovent Smart S but with grooved pipe connection.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamcovent Smart 50 R	8	50	60.3	472	260	338	175	93	9	1	31201
Flamcovent Smart 65 R	8	65	76.1	472	260	338	175	140	10	1	31202
Flamcovent Smart 80 R	25	80	88.9	612	370	435	270	209	17	1	31203
Flamcovent Smart 100 R	25	100	114.3	612	370	435	270	311	20	1	31204
Flamcovent Smart 125 R	59	125	139.7	740	525	510	360	459	36	1	31205
Flamcovent Smart 150 R	60	150	168.3	740	525	510	360	675	37	1	31206
Flamcovent Smart 200 R	123	200	219.1	975	650	670	450	1340	57	1	31207

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamcovent S

Air separator constructed in steel with Dual Zone Flow Diversion technology.

- Including a weld connection.
- The Flamcovent Dual Zone technology is designed to withstand fluid velocities up to 3 m/s. For optimum separation performance a maximum speed of 1.5 m/s should be maintained.
- Maximum operating pressure: 10 bar.
- Maximum supply temperature: 120 °C.
- Suitable for glycol solutions of up to 50%.

Type	Capacity [l]	Connection		Dimensions			Weight [kg]		Order Code
		[DN]	[mm]	B [mm]	E [mm]	H [mm]			
Flamcovent 50 S	8	50	60	260	338	470	8.0	1	28131
Flamcovent 65 S	8	65	76	260	338	470	8.1	1	28132
Flamcovent 80 S	25	80	89	370	435	621	14.5	1	28133
Flamcovent 100 S	25	100	114	370	435	621	15.5	1	28134
Flamcovent 125 S	59	125	140	525	515	790	33.0	1	28135
Flamcovent 150 S	60	150	168	525	510	790	34.0	1	28136

CE

Flamcovent F

Similar to the Flamcovent S but with flanged connection according to EN 1092-1 PN16.

Type	Capacity [l]	Connection		Dimensions			Weight [kg]		Order Code
		[DN]	[mm]	B [mm]	E [mm]	H [mm]			
Flamcovent 50 F	8	50	60	350	338	470	13.1	1	28141
Flamcovent 65 F	8	65	76	350	338	470	14.1	1	28142
Flamcovent 65 F *	8	65	76	350	338	470	14.1	1	28157
Flamcovent 80 F	25	80	89	470	435	621	22.4	1	28143
Flamcovent 100 F	25	100	114	470	435	621	24.8	1	28144
Flamcovent 125 F	59	125	140	635	515	790	45.6	1	28145
Flamcovent 150 F	60	150	168	635	510	790	50.0	1	28146

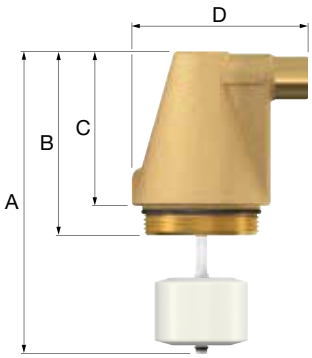
* 4 hole flanged version.

CE

Spare vent cap L

Cone-shaped air chamber equipped with a long float to create more distance to the vent valve.
This reduces the risk of contamination of the valve seat to a minimum.

- Maximum system working pressure: 25 bar.

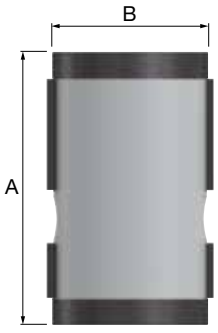


Type	Used for	Dimensions A [mm]	B [mm]	C [mm]	D [mm]		Order Code
Spare vent cap L	Flamcovent (Clean) DN 50 - 600, Flamcovent (Clean) Smart DN 50 - 600, FlexBalance (Plus)	155	94	79	90	1	28555

Flamcovent IsoPlus

This insulation set for Flamcovent (Smart) can be easily attached and consists of two halves that lock into each other by means of hook fasteners and deep-drawn synthetic caps. The melamine insulation foam (thickness 50 mm) glues the polystyrene outer jacket (thickness 1 mm).

- Fire class B2 according to DIN 4102.
- Suitable for retrospective installation.
- 100% recyclable.
- λ-value: 0.035 W/mK.
- Available for connection sizes DN 50 up to and including DN 200.
- Colour: aluminium coloured (RAL 9006).



Type	Dimensions A [mm]	B [mm]	Weight [kg]		Order Code
Flamcovent IsoPlus 50	500	280	1.3	1	28160
Flamcovent IsoPlus 65	500	280	1.4	1	28161
Flamcovent IsoPlus 80	650	380	2.2	1	28162
Flamcovent IsoPlus 100	650	380	2.3	1	28163
Flamcovent IsoPlus 125	790	470	3.4	1	28164
Flamcovent IsoPlus 150	790	470	3.5	1	28165
Flamcovent IsoPlus 200	1000	560	5.0	1	28166

Vacumat Eco: Quick, quiet and extremely economical deaeration

The Vacumat Eco deaerates extremely efficiently and effectively. This pressure-temperature controlled degasser deaerates at least seven times faster through the much greater and fully continuous deaeration capacity.

Removing gases more quickly limits as much damage to the system as possible, avoids unnecessary faults and expensive repairs and extends the life of the system. The Vacumat Eco is also eight times more energy efficient than the deaeration systems currently available on the market.

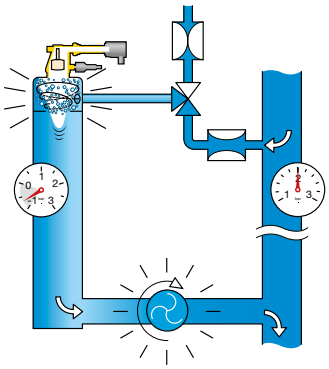
Automatic adjustment

The sensors in the Vacumat Eco continuously measure the temperature and pressure in the system.
The specially developed software supports the new technology of sensitive deaeration and offers greater insight into the water quality and system performance.
But at least as important: The system is monitored fully automatically and adjusted to the presence of gases.
As soon as the system is deaerated the Vacumat Eco checks the deaeration performance and only makes adjustments as necessary. This idle status reduces energy consumption even further.

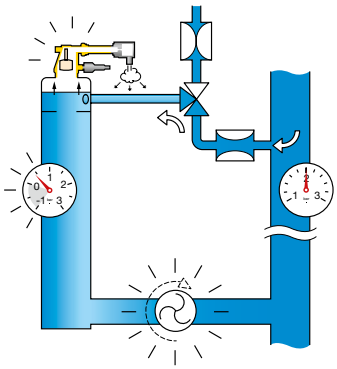
Advantages Vacumat Eco:

- Deaeration up to seven times quicker than comparable products.
- Is eight times more energy-efficient thanks to innovative technologies.
- Gives real-time insight into system performance.
- Low noise.
- Automatic standby function for optimal energy saving.
- Control unit can be set to any level within a given range.
- Rugged design.

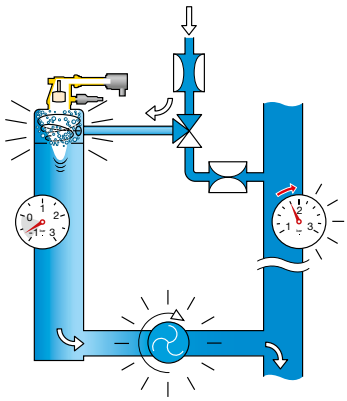
How the Vacumat Eco works



1. Creating a vacuum
Because the pump extracts more water from the column than can flow in a vacuum is created towards the boiling point.
Gas is released and collects above the water line.



2. Deaeration
The pressure in the column is briefly raised by reducing the speed of the pump so that released gases can be vented.



3. Topping up
If the system pressure is too low, deaerated water is added until the correct pressure is reached.

Convenience for installers and users
Quick, quiet and extremely economical: these are the most important characteristics of the Vacumat Eco. What's more, the appliance is extremely user-friendly and shows the deaeration performance via the display.
The Vacumat Eco is protected by an internal filter. An automatic warning is given when the filter needs cleaning.

Intelligent interactive technology
The Vacumat Eco exceeds existing standards in the area of deaeration systems.
The sensors and speed-controlled, energy-saving pump play an essential role in this.
Because the pressure and temperature of the system water are continuously measured, the Vacumat Eco automatically chooses the most effective vacuum for optimal deaeration. The appliance is designed to remove dissolved gases without boiling the water in the process.
This prevents any released water vapour from interfering with the deaeration process.
A boiling process also costs a lot in terms of energy. Prevention of boiling is therefore more

The best performance

Quicker

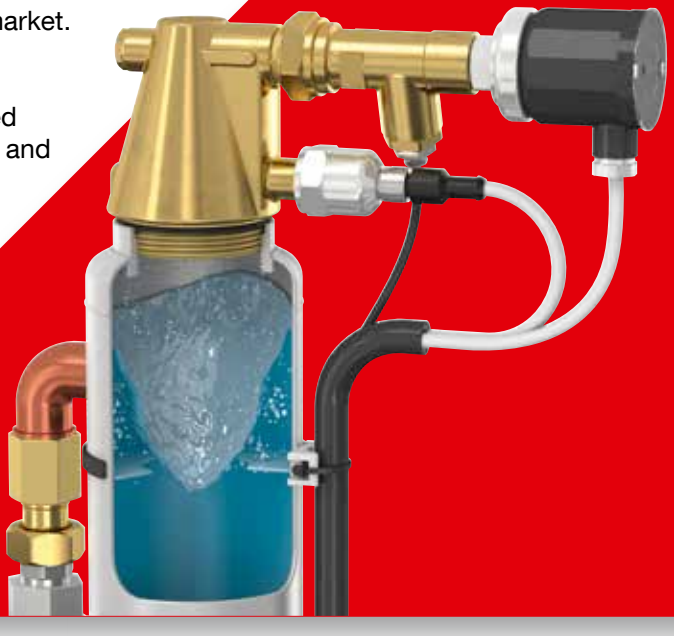
The Vacumat Eco deaerates at least seven times faster through the much greater and fully continuous deaeration capacity. Furthermore, because the pressure and temperature of the system water are continuously measured, the Vacumat Eco automatically chooses the most effective vacuum for optimal deaeration. This speeds up the deaeration process even more.

Quieter

The deaeration system is very quiet. This is because the Vacumat Eco does not require a laborious boiling process. The Vacumat Eco 300 produces only 52 dB of noise. This is comparable to a quiet dishwasher. An important difference from the present generation of vacuum degassers on the market.

More Economical

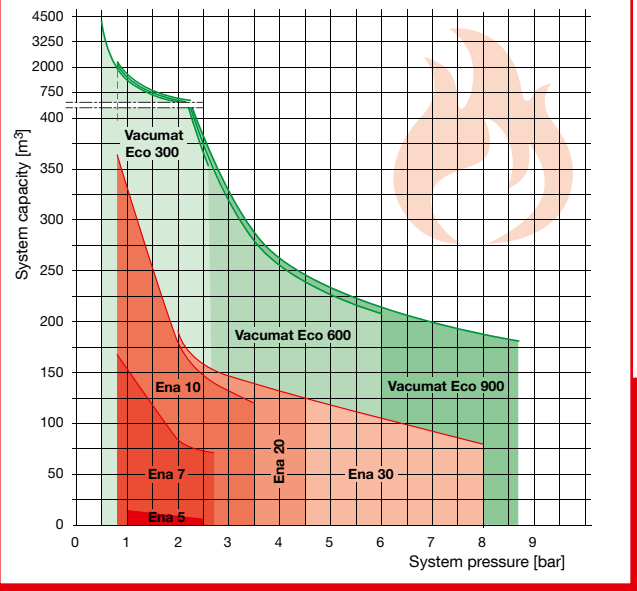
The Vacumat Eco always automatically regulates the desired deaeration level of the system water and only deaerates as and when necessary. The appliance is designed to remove dissolved gases without boiling the water in the process. A boiling process costs a lot in terms of energy. But at least as important: The system is monitored fully automatically and adjusted to the presence of gases. As soon as the system is deaerated, the Vacumat Eco checks the deaeration performance and only makes adjustments as necessary. This idle status reduces energy consumption even further.



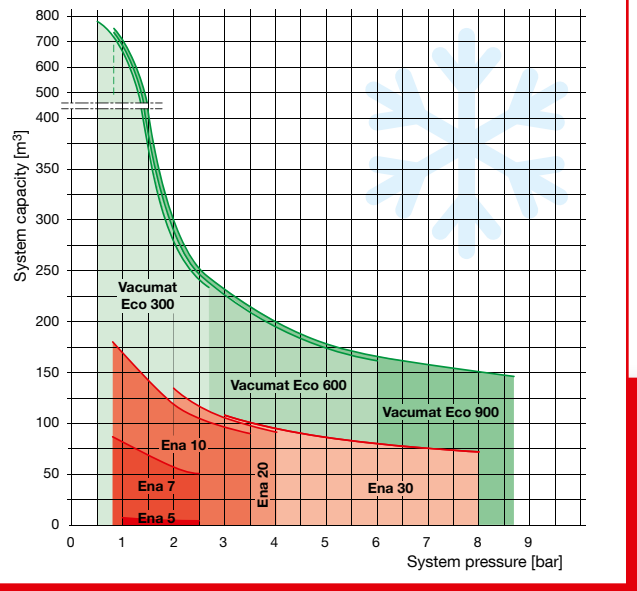
The operation of the Vacumat Eco can be precisely matched to the needs of the user. The appliance offers the choice of three states:

Min can be used on most systems and uses the least energy. The system is deaerated down to 15 ml of gas per litre of system liquid.
Med deaerates more powerfully, but also uses a little more energy. Deaeration down to 12 ml/l.
Max is for optimal deaeration but uses the most energy. Deaeration down to at least 8 ml/l (as per VDI 2035 and 4708).

Selection graph for heating

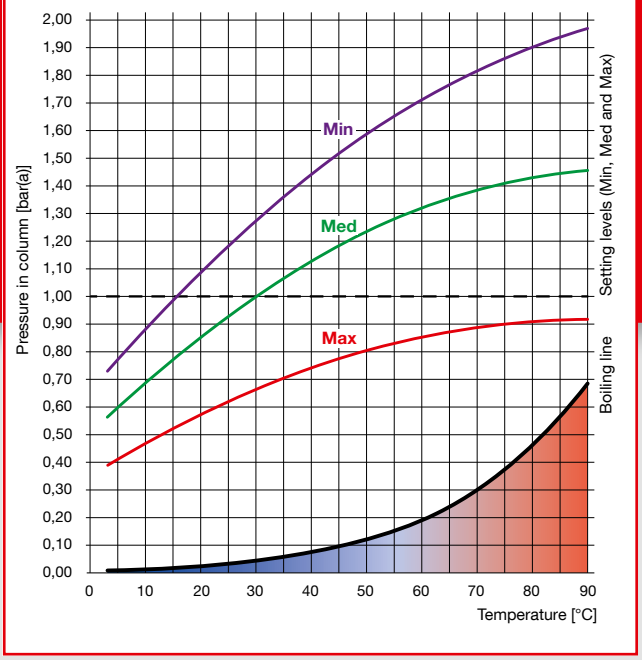


Selection graph for cooling



The Vacumat Eco can be used for a large system capacity and therefore in more situations. In contrast to the ENA series, the appliance makes use of the new technology of sensitive deaeration. This allows the process to run quickly, quietly and extremely economically.

Operating limits of the Vacumat Eco



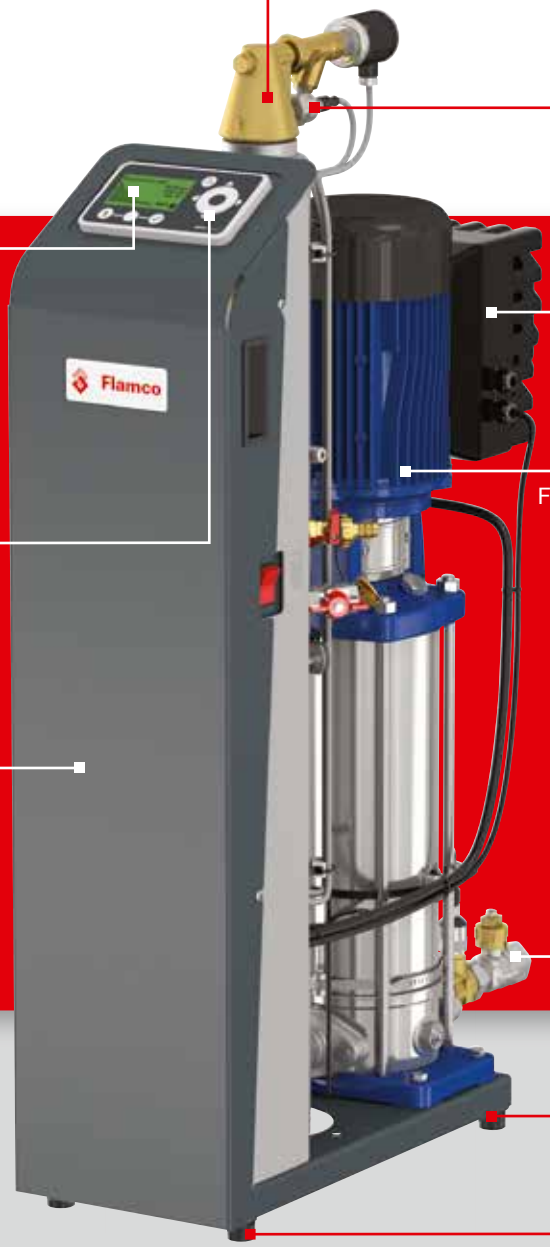
The pressure in the column of the Vacumat Eco follows the boiling line in the graph. The system checks fully automatically whether the system water has been sufficiently deaerated on a short cycle. Depending on the setting level (Min, Med or Max), this deaeration mode follows the respective pressure line. When the gas detector senses that no more gas is released, the system water no longer has to be deaerated. The deaeration cycle stops and a message is shown on the display.

The Vacumat Eco continues to regularly check the gas concentration in the system water. If the gas concentration is too high, the Vacumat Eco automatically activates the deaeration program.

Interactive display.
Gives real-time insight into the deaeration performance and the quality of the system water.

Intuitive operation.

Rugged enclosure.



Bleeding device with gas detector.

Pressure sensor.

Frequency controller.

Frequency-controlled pump.

System connection.

Noise-reducing vibration dampers.

VACUMAT ECO

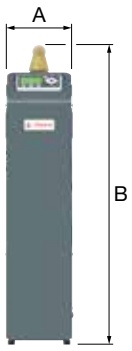
VACUMAT ECO

The Vacumat Eco degasses extremely accurately and effectively. This pressure-temperature controlled degasser degasses faster through the much greater and fully continuous degassing capacity. Removing gases more quickly limits damage to the system as much as possible, avoids unnecessary faults and expensive repairs, and extends the life of the system.

- Degasses up to seven times quicker than comparable products.
- Is eight times more energy-efficient thanks to innovative technologies.
- Gives real-time insight into system performance.
- Automatic standby function for optimal energy saving.
- Control unit can be set to any level within a given range.
- The menu of the control unit is available in 20 languages.
- Compact and rugged design.
- Pressure- and level-controlled topping-up with a wide range of available settings.
- Complies with the following guidelines:
  Machinery Directive 2006/42/EC.
  PED 2014/68/EU.

Vacumat Eco

Medium:
- Water-based heat carrier as per VDI 2035.



Type	System operating pressure [bar]	Connections			Dimensions				Weight [kg]		Order Code
		To system	From system	To supply	A [mm]	B [mm]	C [mm]	D [mm]			
Vacumat Eco 300	0.5 - 2.7	1"	½"	½"	260	1030	670	100	37.5	1	17003
Vacumat Eco 600	0.8 - 5.4	1"	½"	½"	260	1030	670	100	41.5	1	17006
Vacumat Eco 900	0.8 - 8.7	1"	½"	½"	260	1030	670	100	51.5	1	17009

Vacumat Eco - Performance

Specifications		Vacumat Eco		
		300	600	900
Nominal pressure [PN]		3	6	10
Working pressure range [bar]		0.5 - 2.7	0.8 - 5.4	0.8 - 8.7
Max. glycol		30%	30%	30%
System flow temperature [°C]		3 - 120	3 - 120	3 - 120
System water temperature range for deaeration [°C]		3 - 90	3 - 90	3 - 90
Top-up temperature [°C]		3 - 90	3 - 90	3 - 90
Ambient temperature range [°C]		3 - 45	3 - 45	3 - 45
Electrical requirements [V]		1 ~ 230 V 50/60 Hz	1 ~ 230 V 50/60 Hz	1 ~ 230 V 50/60 Hz
Power supply [kW]		0.4	1.1	1.1
Degree of protection / motor position valves		IP 54 / IP 42	IP 54 / IP 42	IP 54 / IP 42
Nominal current [A]		2.85	5.18	6.80
Noise output [dB(A)]		52	55	~55
Saturation level of gasses [ml/l] (acc. to VDI 2035-2 and 4708-2)	Min	15	15	15
	Med	12	12	12
	Max	8	8	8

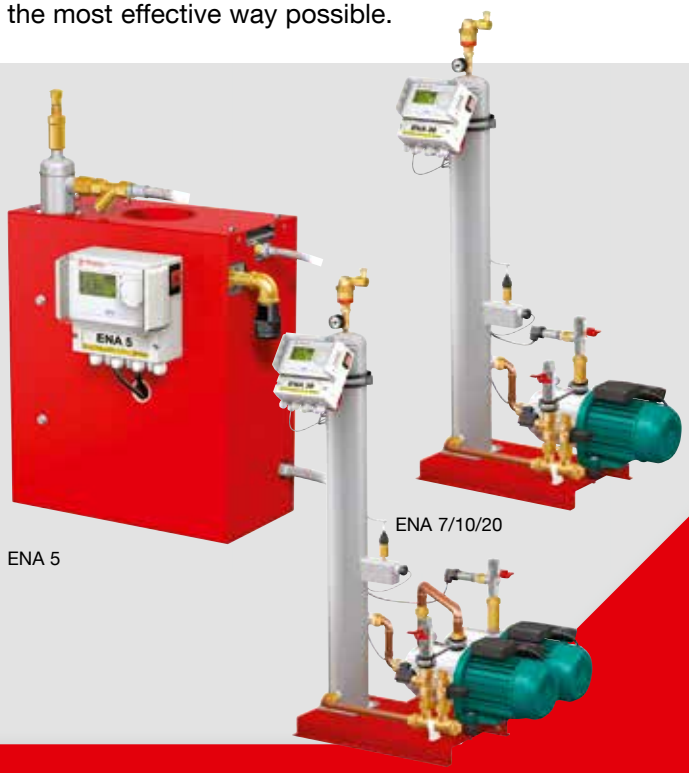
ENA: The Effective Deaeration and Top-Up Unit

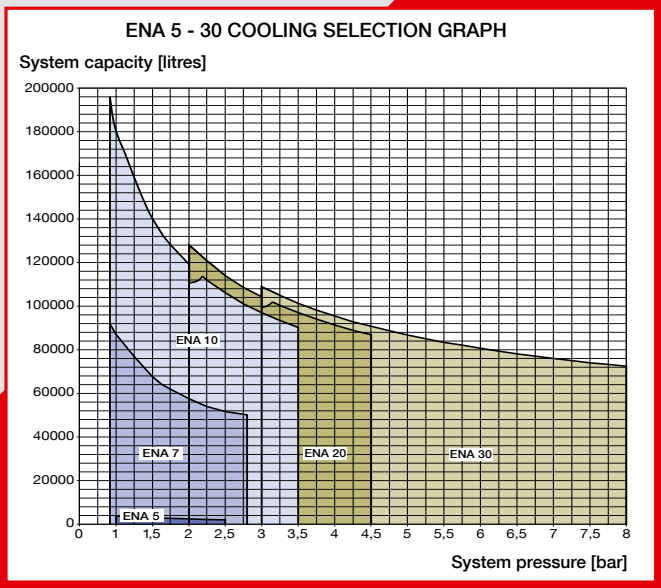
Deaeration and leakage of the system, will reduce the pressure in the system. This may result in damage to the system or impaired performance. The Flamco ENA water deaeration and top-up unit is the solution.

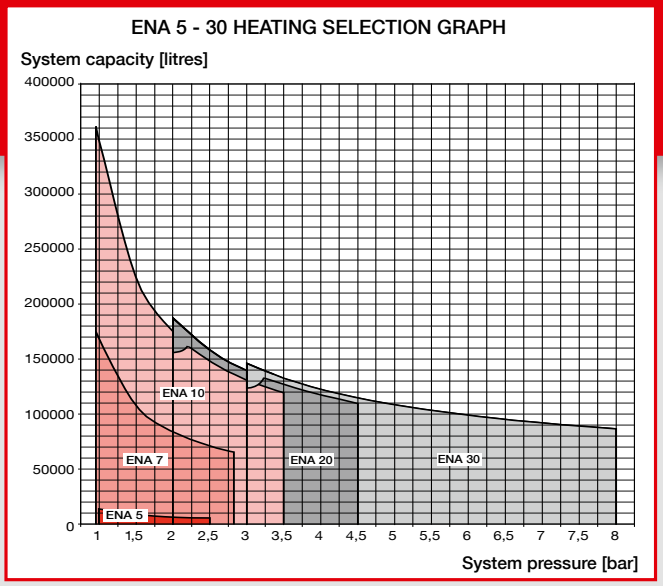
Decreases in pressure can be compensated with automatic topping up. The water is de-gassed before being pumped into the system. The vacuum thus created means that the system can be deaerated in the most effective way possible.

Advantages ENA:

- High performance deaeration.
- Excellent degassing in low temperature systems and systems with significant height.
- Central degassing for both system and top-up water.
- Compact, sturdy design.
- Programmable control unit.
- Easy to operate.
- Assembled and ready for connection.





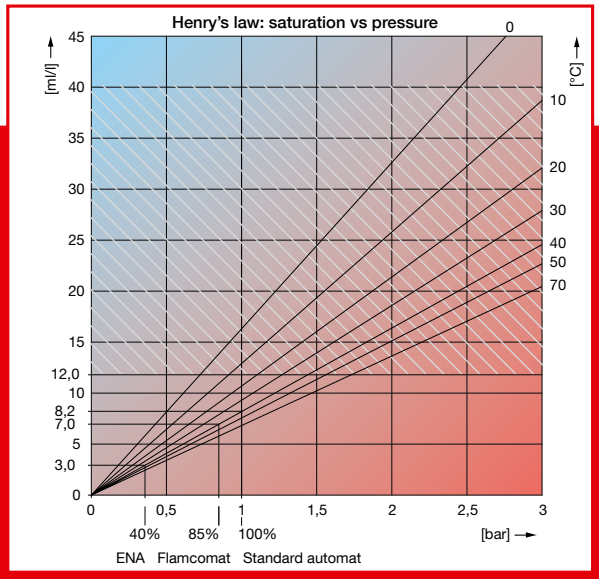


Easy to use

The ENA is suitable for heating and cooling systems and can easily be used in combination with a Flexcon expansion vessel or pressure expansion automat. The ENA has a potential-free contact through which status can be transmitted to a building management system. The clear operation via the display and complete pre-assembly make the ENA very easy to install.

ENA and Henry's law

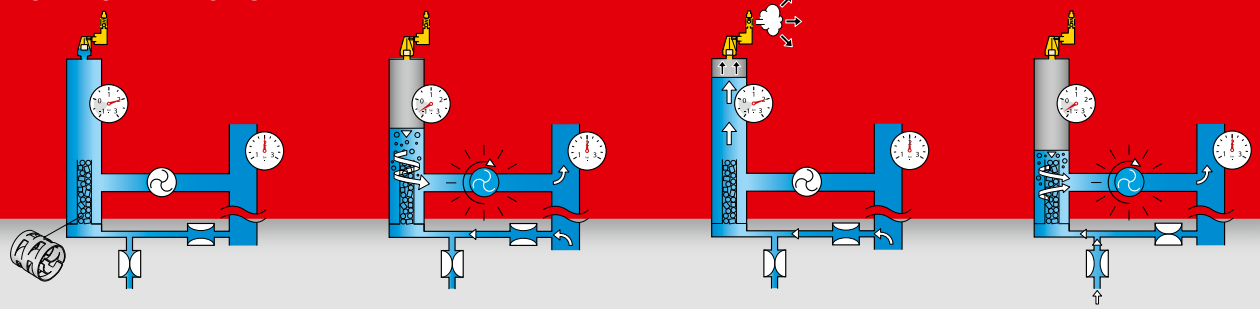
In the graph we see how much of the gas (in ml) can be dissolved in water (in litres), where the temperature lines and pressure lines intersect. When we take a certain amount of water from a system, where a higher pressure prevails, and then expose it to the ambient pressure (or atmospheric pressure), it will only be able to dissolve gasses that belong to the atmospheric pressure (1013 mbar, conveniently gases 1 bar absolute). In practice, with atmospheric pressure 0 bar (g) or 0 bar gauge is meant because we are only interested in a pressure relative to the atmospheric pressure (in the graph the absolute pressure is shown). The difference in the values of dissolved gases (system pressure vs. atmospheric pressure) results in the release of a quantity of gas, equal to this difference (number of litres of water that was set apart => difference in values dissolved gas in ml).



Highly effective

For ENA pressure step degasser is the solution value 60% below that of the atmospheric pressure. This is easily explained because the water from the system that is fed into the reservoir of the ENA is exposed to a lower pressure - 0.4 bar absolute (ie 0.6 bar below - atmospheric). For installations that are degassed with ENA the gas concentration under the most difficult conditions is reduced to a negligible value. Because energy is needed for degassing with the ENA, there is less intense degassing when a favorable value of 12 ml per litre of water is reached (harmless to the plant). The ENA provides a highly efficient way to ensure the best heat transfer of the system!

How the ENA works



1. Not active
When the ENA is inactive, the stainless steel column is filled with water and the pressure is equal to the system pressure.

2. Creating a vacuum
As the pump draws more water out of the column than can flow back in a vacuum is created. Gas is released and collects on the surface of the water.

3. Water intake
The pump stops and the column fills up again with water. The gas is then expelled via the automatic air vent.

4. Topping-up
If water is lost from the system installation the volume, and as a consequence the pressure, will drop. Water for topping-up is deaerated in the column and fed into the system in small doses (until the correct pressure has been restored).

ENA DEAERATION AND MAKE-UP

For active degassing and automatic topping up of closed heating and cooling systems.
The ENA is a pressure step degasser that makes use of vacuum deaeration for highly efficient deaeration of closed systems.
Moreover, the ENA ensures automatic topping up of the system after the top-up water has been deaerated.
Can be easily used in combination with a Flexcon diaphragm pressure expansion vessel or pressure expansion automat.

- Active degassing by patented PALL-Ring technology.
- The menu of the control unit is available in 17 languages.
- Easy to use.
- Fully assembled and ready to connect.
- Compact and robust design.
- Controller can be programmed as required (RS 485).

- Operating temperature: 3 °C to 70 °C.
- Electrical connection 230 V 50 Hz.
- Complies with the following guidelines:
  Machinery Directive 2006/42/EC.
  PED 2014/68/EU.

ENA 5

ENA 5 is able to top-up up to 2.5 bar system pressure in systems with a flow pressure from 1 bar and above and can be directly connected to the water system via the integrated break tank.

- Central deaeration of both system and make-up water.
- Designed for wall mounting.
- Integrated break tank.
- Active process menu (active diagram with switching states, etc.).

- Min. flow pressure: 1 bar.
- Top-up to max 2.5 bar system pressure.
- Maximum (feed) supply temperature in the system: 90 °C.
- Pressure in the make-up feed line: 1 to 10 bar.
- Ambient temperature: 3 °C to 40 °C.
- Noise production: approx. 50 dB(A).

Type	Max. work. press. [bar]	Operating pressure [bar]	Syst. conn.	Dimensions W. [mm]	Dimensions D. [mm]	Dimensions H. [mm]	Weight [kg]		Order Code
ENA 5	6	1.0 - 2.5	G ½"	490	320	710	25	1	17085

kiwa

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

ENA 7 - 30

- Maximum (feed) supply temperature in the system: 120 °C.
- Maximum pressure in the suppletion feed line: 2 to 8 bar.
- Ambient temperature: > 3 °C to 45 °C.
- Noise production: approx. 55 dB(A).

Type	Max. work. press. [bar]	Operating pressure [bar]	Syst. conn.	Dimensions W. [mm]	Dimensions D. [mm]	Dimensions H. [mm]	Weight [kg]		Order Code
ENA 7	8	0.8 - 2.7	Rp ¾"	740	325	1270	40	1	17070
ENA 10	8	0.8 - 3.5	Rp ¾"	740	325	1270	40	1	17090
ENA 20	8	2.0 - 4.5	Rp ¾"	740	325	1270	45	1	17091
ENA 30	10	3.0 - 8.0	Rp ¾"	710	525	1270	60	1	17092

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 Potable water	Connection to System	Weight [kg]		Order Code
NFE 1.1	355	Rp ½"	G ¾"	3	1	23780
NFE 1.2 *	355	Rp ½"	G ¾"	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 Potable water	Connection to System	Weight [kg]		Order Code
NFE 2.1	200	Rp ½"	G ¾"	2	1	23782
NFE 2.2 *	200	Rp ½"	G ¾"	2	1	23783

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

Flamco Vacuum Degassers

The Flamco Vacuum Degasser range is used to remove dissolved gasses from sealed chilled and heating systems. The equipment utilises a multifunction digital controller with a simple user interface. The equipment is an advanced product that combines a pressure step principle with side system configuration to minimize the effects on the sealed system.
The real-time displays show the status of the equipment while monitoring the system pressure and health of its own components.

PSD

- Floor standing vacuum degasser unit.
- Effective, automatically repeated and controlled deaeration.
- With turbo mode for rapid deaeration.

Flexfiller Plus / Midifill Plus

- Floor standing, combined digital top-up pressurisation unit with vacuum degasser.
- 18 litre break tank (Midifill: 4 litre).

PressDS Plus

- Floor standing, combined digital top-up pressurisation unit with vacuum degasser and additive tank.
- 4 litre break tank.
- 18 litre additive tank.

General Technical Data

Housing: Mild Steel CR4, Powder Coating.
Break Tank: WRAS Approved material (Plus only).
Pump: See pump details.
Fluid Category Protection: Type AB Weir Overflow gap / Category 5 (Plus only).
Controller: MODBUS.
Directive: PED 2014/68/EU.
International Protection Marking: IP 54.

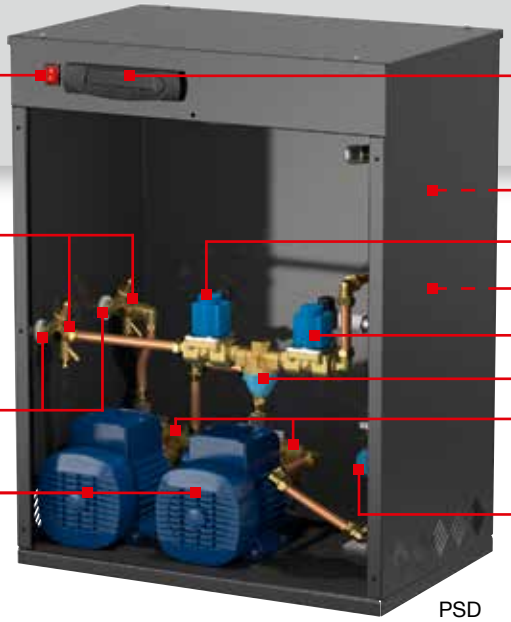
Type		Number of pumps	Pressure Rating [PN]	Max. Delivery Pressure [bar]	Max. Delivery Flow Rate [l/min]	Floor Standing / Wall Mounted	Break Tank Capacity [l]	System Volume (guide) [l]
PSD	Midi PSD	1	10	5.0	12	wall	N/A	< 50000
	250D	2	10	6.0	18	floor	N/A	< 300000
	280D	2	10	8.0	18	floor	N/A	< 300000
	2160D	2	16	16.0	18	floor	N/A	< 300000
Flexfiller Plus	Midifill Plus	1	10	5.0	12	wall	4	< 50000
	250D	2	10	6.0	18	floor	18	< 300000
	280D	2	10	8.0	18	floor	18	< 300000
	2160D	2	16	16.0	18	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

The Flamco active deaeration range is designed to utilise Henry's Law on the solubility of gasses. By creating a low pressure zone (a pressure step) within the equipment, dissolved gasses are dragged out of solution and vented to atmosphere. Flamco equipment is fully configurable and is able to achieve vacuum pressures as low as -0.95 bar (gauge), typically however Chilled systems are degassed to -0.5 bar (gauge) and heating systems to 0.0 bar (gauge). Flamco also offer a CIBSE approved CPD training module on air removal to help determine exactly what level of pressure step is required for different systems.

Features and Options

Type		Function			Mechanical Features															Electrical Features																										Volt Free Contacts 8A/230V								
		Degasser	Pressurisation	Dosing	Cabinet	Wall mounted	Floor mounted	Duty pump	Vacuum Cylinder	Duty / Standby pumps	Pump inlet Strainer	Pump Non return valve	Category 5 A/B air gap to BS13077	WRAS approved float	Additive Tank	Break Tank	Cold fill pressure 3.5-6.0 bar	Cold fill pressure 6.0-8.0 bar	Cold fill pressure 8.0-16.0 bar	Microprocessor control with LED display	Pressure transducer control	Password protection	pump trip and fail monitoring	Pump check routine	System quick-fill mode	System flood detection	Service due reminder	Adjustable differential	Cascade - duty / assist	Manuel run	Turbo Mode	Perge Seconds	Low water alarm	High water alarm	Excessive starts alarm	Hours run	Pump activation counter	Pump interrupted counter	Alarm logging	Audible alarm	Anti seize run (60 days)	Automatic duty rotation (twin pumps units)	MODBUS	BACnet	RS485 Connectivity	Boiler interlock (N/C)	Common alarm (N/C)	Fail safe	Low pressure (N/O)	High pressure (N/O)	Sensor Health (N/O)	Pump trip with VF contacts (N/O)	High/low alarm set points with auto reset with VF contacts (N/O)
PSD	Midi PSD	•			•	•		•	•		•	•					•			•	•	•	•	•	•	•	•		•	•						•	•		•	o	•	•	•	•	•	•	•	•	•
	250D	•			•		•	•	•	•	•	•					•			•	•	•	•	•	•	•	•	o	•	•						•	•		•	o	•	•	•	•	•	•	•	•	•
	280D	•			•		•	•	•	•	•	•						•		•	•	•	•	•	•	•	•	o	•	•						•	•		•	o	•	•	•	•	•	•	•	•	•
	2160D	•			•		•	•	•	•	•	•							•	•	•	•	•	•	•	•	•	o	•	•						•	•		•	o	•	•	•	•	•	•	•	•	•
Flexfiller Plus	Midifill Plus	•	•		•	•		•	•		•	•	•	•		•	•			•	•	•	•	•	•	•	•		•	•	•	o	•	•	•	•	•			•	o	•	•	•	•	•	•	•	•
	250D	•	•		•		•	•	•	•	•	•	•	•		•	•			•	•	•	•	•	•	•	•	o	•	•	•	o	•	•	•	•	•		•	•	o	•	•	•	•	•	•	•	•
	280D	•	•		•		•	•	•	•	•	•	•	•		•		•		•	•	•	•	•	•	•	•	o	•	•	•	o	•	•	•	•	•		•	•	o	•	•	•	•	•	•	•	•
	2160D	•	•		•		•	•	•	•	•	•	•	•		•			•	•	•	•	•	•	•	•	•	o	•	•	•	o	•	•	•	•	•		•	•	o	•	•	•	•	•	•	•	•
PressDS Plus	250	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	o	•	•	•	o	•	•	•	•	•		•	•	o	•	•	•	•	•	•	•	•
	280	•	•	•	•		•	•	•	•	•	•	•	•	•	•		•		•	•	•	•	•	•	•	•	o	•	•	•	o	•	•	•	•	•		•	•	o	•	•	•	•	•	•	•	•
	2160	•	•	•	•		•	•	•	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•	o	•	•	•	o	•	•	•	•	•		•	•	o	•	•	•	•	•	•	•	•

N/O = Normally Open
N/C = Normally Closed
o = Option



PSD

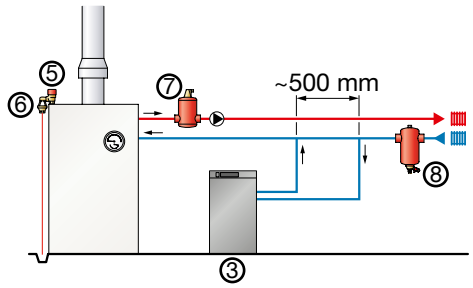
Installation and Pump Details

Installation and Placement

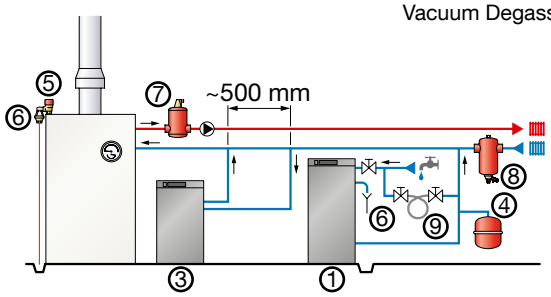
The vacuum degasser should be installed in the return header of the system, on the suction side of the circulating pump, in a frost-free and humidity free area. The point of connection will be the same as the system expansion vessel to provide a neutral pressure reading. The two system connections must be installed on the return pipe approximately 0.5 metre apart.

System Schematics

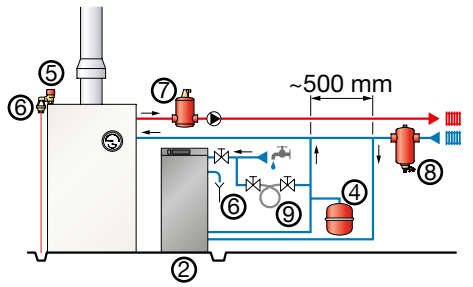
with Vacuum Degasser Unit



with separate Top-Up Unit and Vacuum Degasser Unit



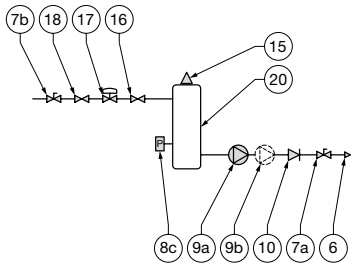
with combined Top-Up/Vacuum Degasser Unit



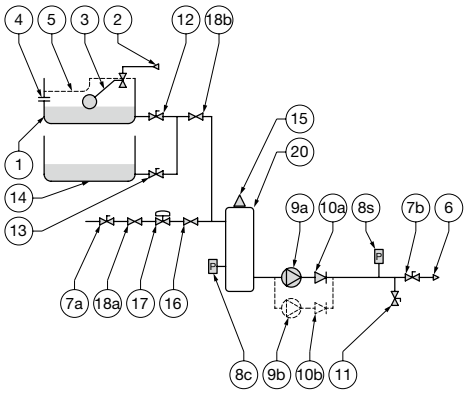
Nr	Description
1	Flexfiller Top-Up Unit
2	Flexfiller Plus / PressDS Plus Combined Unit
3	PSD Pressure Step Degasser
4	Flexcon Expansion Vessel
5	Prescor Safety Valve
6	Tundish
7	Flamcovent Smart Deaerator
8	Flamco Clean Smart Dirt Separator
9	Filling Loop (Optional)

Product Schematics

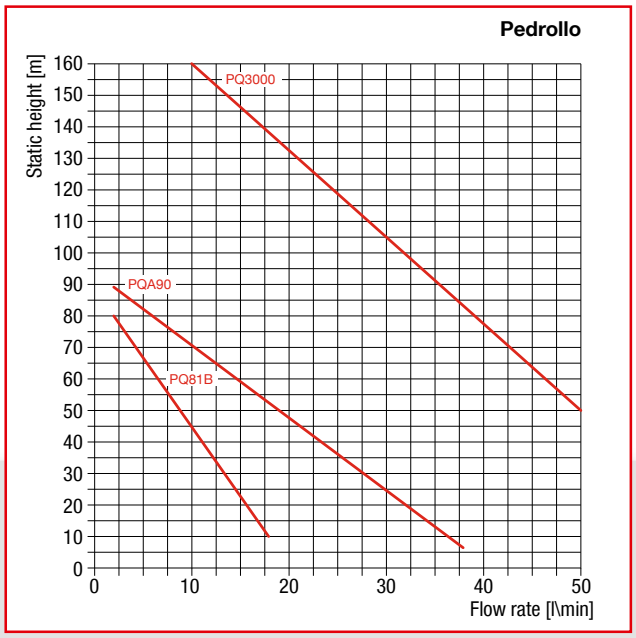
PSD



PressDS Plus

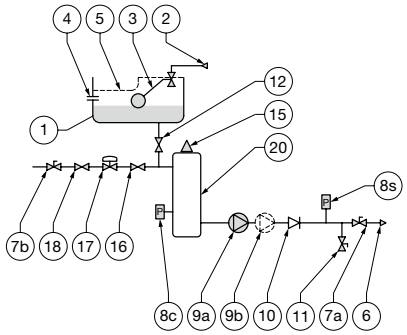


Pump Details



Type		Pump Qty	Pump Type	Pump Body	Impeller	Insulation Class	IP rating
PSD	Midi PSD	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
Flexfiller Plus	Midifill Plus	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
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



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

Spare Parts Vacuum Degassers

Type		Spare Part																														
		Controller	Mini Transformer	Rocker switch	Pressure Transducer (0-10 Bar, 1-6V)	Pressure Sensor 16b (1-6V)	Combined Isolation & Drain Valve	½" Non-Return Valve	½" x 15mm C x MI Coupling	Float Valve	Mini Float Valve	Overflow Connection	Float Switch L90 cm wire	Float Switch L55 cm wire	Float switch for glycol tank	Mesh Strainer	Flanged Tank Connector 15 mm	Extended Tank Connector ½" x 15 mm	DN15 Balancing Valve - Glycol / Water	½" Tee Brass	½" x 15 mm MI Elbow	PSD Controller	Vacuum Cylinder 4.8ltr	Vacuum Cylinder Midi	Vacuum Pressure Sensor	Solenoid Valve ½" (Slam shut)	Solenoid Valve ½" 1mm Hole (Bypass)	AC Solenoid Coil Clip-on BB240AS	RSF86Y100R Cynergy3	Pressure Reducing Valve	PSD & SPC Air Vent With Air Intake Preventor	Gauze	22 mm x ½" F Coupling	Prescor B 6 bar ¾" Inlet 1" Outlet	Prescor ½" 3 Bar Safety Relief Valve	Flexible Hose	Pump Pedrollo PQ81B	Pump Pedrollo PQA90	Pump Pedrollo PQ3000
		Article number																														
		Micro Control	EL-TRANS-001	BSS F014	1-6V TRANSDUCER	060G3853	FCCG NO	FC SC1	BSS F16	BSS P33	BSS M003	BSS M021	EL-TK-FSW-L90	EL-TK-FSW-L55	FLOAT SWT GLYCOL	N/A	BSS F18	BSS F11	FC044	BSS P61	BSS F12	PSD Controller	PSD SS Cylinder	MIDI CYLINDER	Vac Transducer	PSD S001A	PSD S001A Mod	PSD S001B/C	PSD Float Switch	FC PRV 050WG	FC Ventsuper AIV	FC336	FC361	FCBP 75	FCSV050	BSS Flexhose	BSS PQ81b	FC039	FC042
PSD	Midi PSD		•	•			•	•	•												•	•		•	•	•	•	•	•	•	•		•	•	•		
	250		•	•			•	•	•												•	•			•	•	•	•	•	•	•			•	•		
	280		•	•			•	•	•												•	•			•	•	•	•	•	•	•			•		•	
	2160		•	•			•	•	•												•	•			•	•	•	•	•	•	•			•			•
Flexfiller Plus	Midifill Plus	•	•	•	•		•	•	•		•	•		•		•	•				•	•		•	•	•	•	•	•	•	•		•	•	•		
	250D	•	•	•	•		•	•	•	•		•	•			•		•			•	•			•	•	•	•	•	•	•	•		•	•			
	280D	•	•	•	•		•	•	•	•		•	•			•		•			•	•			•	•	•	•	•	•	•	•		•		•		
	2160D	•	•	•		•	•	•	•	•		•	•			•		•			•	•			•	•	•	•	•	•	•	•		•				•
PressDS Plus	250D	•	•	•	•		•	•	•		•	•			•	•	•		•	•	•	•			•	•	•	•	•	•	•	•		•	•			
	280D	•	•	•	•		•	•	•		•	•			•	•	•		•	•	•	•			•	•	•	•	•	•	•	•		•		•		
	2160D	•	•	•		•	•	•	•		•	•			•	•	•		•	•	•	•			•	•	•	•	•	•	•	•		•				•

VACUUM DEGASSER PRODUCT RANGE

Flamco Vacuum Degasser range is used to remove dissolved gasses from sealed chilled and heating system, the equipment utilised a multifunction digital controller with a simple user interface.
The equipment is an advanced product that combines a pressure step principle with side system configuration to minimise the effects the main thermal system.
The real-time displays show the status of the equipment while monitoring the system pressure and health of its own components.

System Volume (Guide): < 300,000 litres (Midi PSD 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.
- 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.
- IP54 (BS EN60529) Rated Controller.
- WRAS Approved Pump.

Operating Conditions:
- Design Pressure: 10.0 bar @ 100 °C.
- System Temperature Range: 0 - 90 °C.
- Ambient Temperature Range: 0 - 45 °C.
- Max. temperature at point of connection: 70 °C.
- Fuse Rating: 13 Amps.
- Safety Rating: IP 54.
- Max. Turbo Runtime: 168 hours (1 week).
- Max. Normal Downtime: 180 minutes (3 hours).
- Volt Free Contacts: Common Fault Contact.
- Relative humidity 95% non-condensing.
- Noise Rating Data: < 75 dBA.

Material of Construction:
- Cabinet: Mild steel CR4.
- Cylinder: Stainless Steel 304.
- Pump: PEDROLLO (Unit dependant. See pump details for more information).
- Valves: Brass.
- Connection: Brass / Polypropylene.
- Pipework: Braided flexihose / EPDM.
- Finish: Powder Coating.

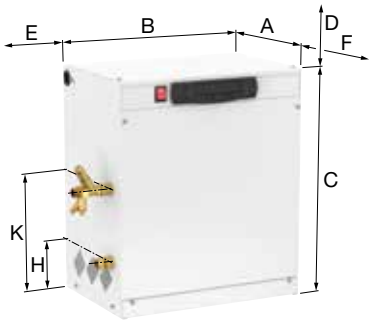
PSD

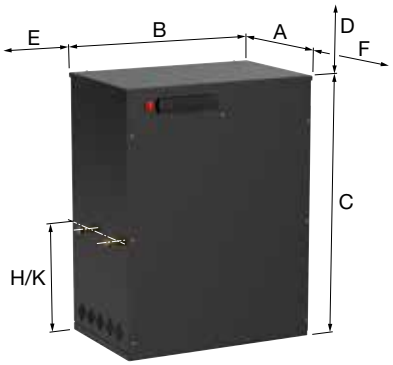
Compact, totally enclosed vacuum degasser unit (Pressure Step Degasser) for use on sealed systems in order to provide effective dissolved gas removal.

- System fluid is sampled from the system, isolated and subjected to a full vacuum.
- All dissolved air within the sample is liberated in accordance with Henry's Law and vented to atmosphere.
- The deaerated fluid is then reintroduced to the system.
- This process is automatically repeated and controlled with a digital processor.
- A turbo mode is available for initial system setup to allow for rapid deaeration of new installations.
- The real-time display shows the status of the mechanical components.

Product Features:

- For system volumes up to 30,0000 litres (Flamco Midi PSD: 50,000 litres).
- 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, pump run hours counter, electrical interruption and common alarm.
- Volt free contacts for common fault.
- Pump fault, pressure transducer.
- Vacuum degassing, turbo and normal interval modes.
- Electric pump, 230V 50Hz 1ph (2160D: 415V 50Hz 3ph).
- Colour: White (RAL 9910) / Black (RAL 9005).





Type	Pump Quantity	Mounting	Connections [mm]	Pressure Rating [PN]	Operating Pressure [bar]	Power Consumption [kW]	Full Load Current [A]	Nom. Weight [kg]		Order Code
Midi PSD 150D	1	Wall	2 x 15 (Rp ½")	10	1 - 5	0.5	3.4	31	1	17106
PSD 250D	2	Floor	2 x 15 (Rp ½")	10	1 - 6	2 x 0.5	2 x 3.4	40	1	17375
PSD 280D	2	Floor	2 x 15 (Rp ½")	10	1 - 8	2 x 0.75	2 x 5.6	46	1	17105
PSD 2160D	2	Floor	2 x 15 (Rp ½")	16	8 - 16	2 x 2.2	2 x 6.6	64	1	17104

Dimensions PSD

Type	Dimensions							
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]
Midi PSD 150D	280	410	480	500	150	800		
PSD 250D	310	465	790	500	150	800	445	445
PSD 280D - 2160D	390	600	790	500	150	800	445	445

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

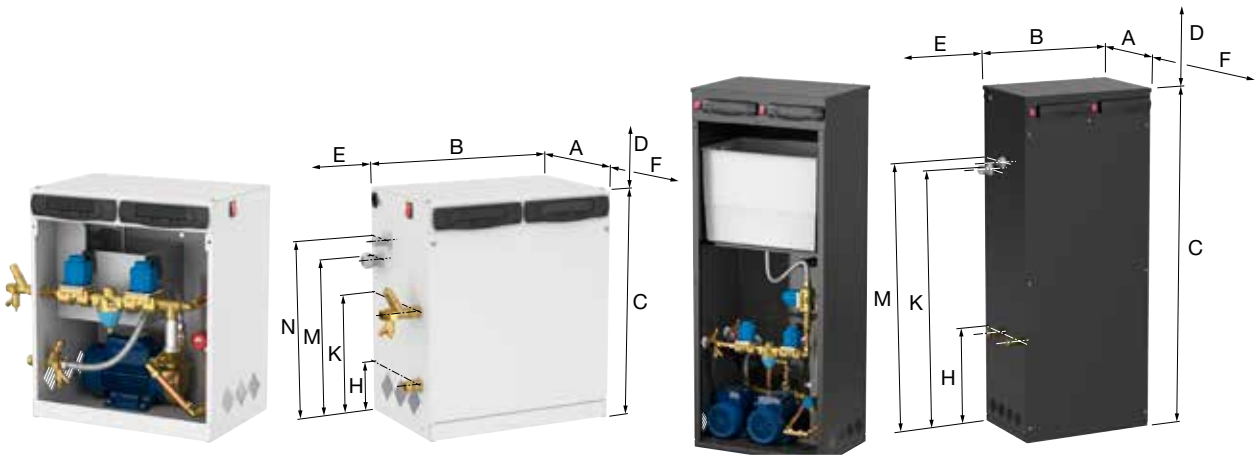
The Flexfiller Plus and Midifill Plus are compact, totally enclosed combined digital pressurisation units with vacuum degasser for use on sealed systems in order to provide a minimum system pressure requirement and effective dissolved gas removal.

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 System [mm]	Dimensions Overflow [mm]	Pressure Rating [PN]	Operating Pressure [bar]	Power Consumption [kW]	Full Load Current [A]		Order Code
Midifill Plus 150D	1	Wall	2 x 15 (½")	22	10	1 - 5	0.5	3.4	1	45053
Flexfiller Plus 250D	2	Floor	2 x 15 (½")	22	10	1 - 6	2 x 0.52	2 x 3.4	1	45045
Flexfiller Plus 280D	2	Floor	2 x 15 (½")	22	10	1 - 8	2 x 0.75	2 x 5.6	1	45121
Flexfiller Plus 2160D	2	Floor	2 x 15 (½")	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

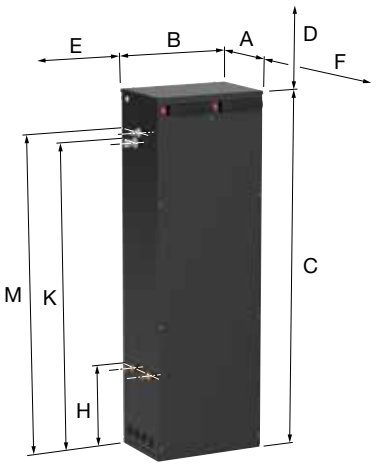
The PressDS Plus (Pressurisation/Degassing/Dosing System) is a compact, totally enclosed combined digital pressurisation unit with vacuum degasser and additive tank for use on sealed systems in order to provide a minimum system pressure requirement, effective dissolved gas removal and adding additives 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 (½")	22	10	1 - 6	2 x 0.52	2 x 3.4	62.7	1	45102
PressDS Plus 280D	2	2 x 15 (½")	22	10	1 - 8	3 x 0.52	3 x 3.4	71.5	1	45119
PressDS Plus 2160D	2	2 x 15 (½")	22	16	8 - 16	4 x 0.52	4 x 3.4	91.3	1	45120

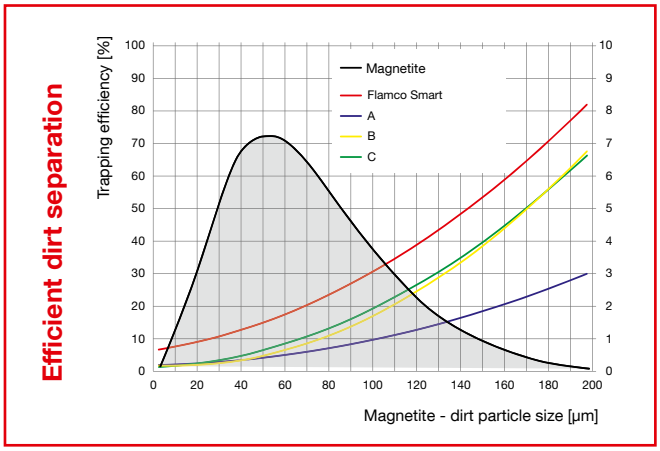
Dimensions PressDS Plus

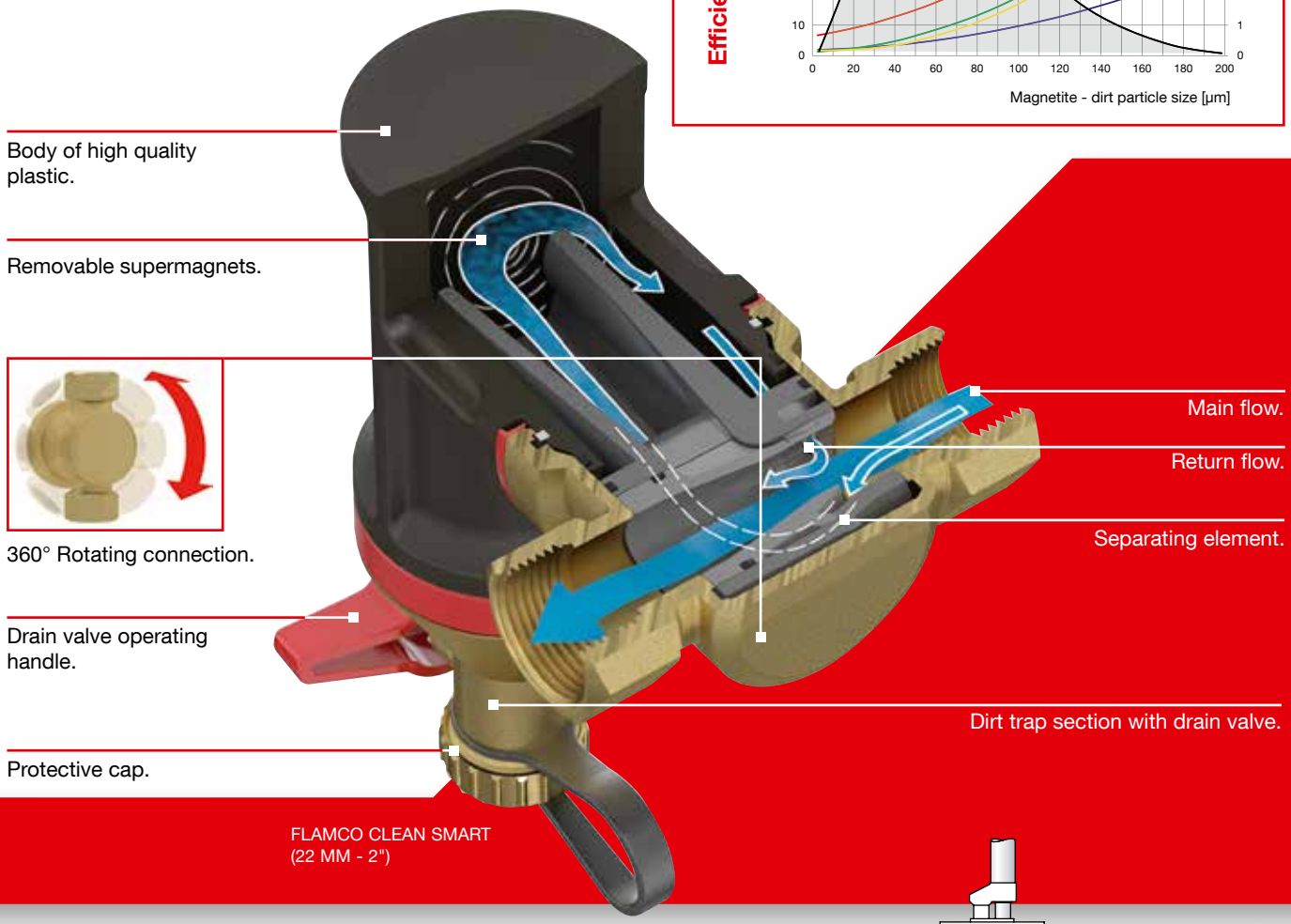
Type	Dimensions								
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	H [mm]	K [mm]	M [mm]
PressDS Plus 250D	470	320	1475						
PressDS Plus 280D	600	320	1475						
PressDS Plus 2160D	600	320	1475						

Dirt Separators

Flamco Clean Smart

The Flamco Clean Smart dirt separators remove even the most minuscule dirt particles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low. By substantially reducing the water velocity in the entrapment chamber the dirt particles are allowed to sink to the dirt collector at the bottom. A supermagnet additionally contributes in trapping ferrous particles.

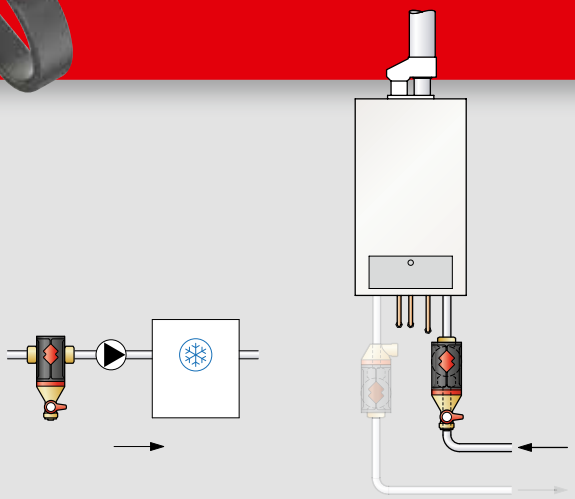




FLAMCO CLEAN SMART
(22 MM - 2")

Installation

A dirt separator is preferably positioned right in front of the boiler, in the boiler return. Also with a cooling system it is recommended to install the dirt separator just before the cooling unit.



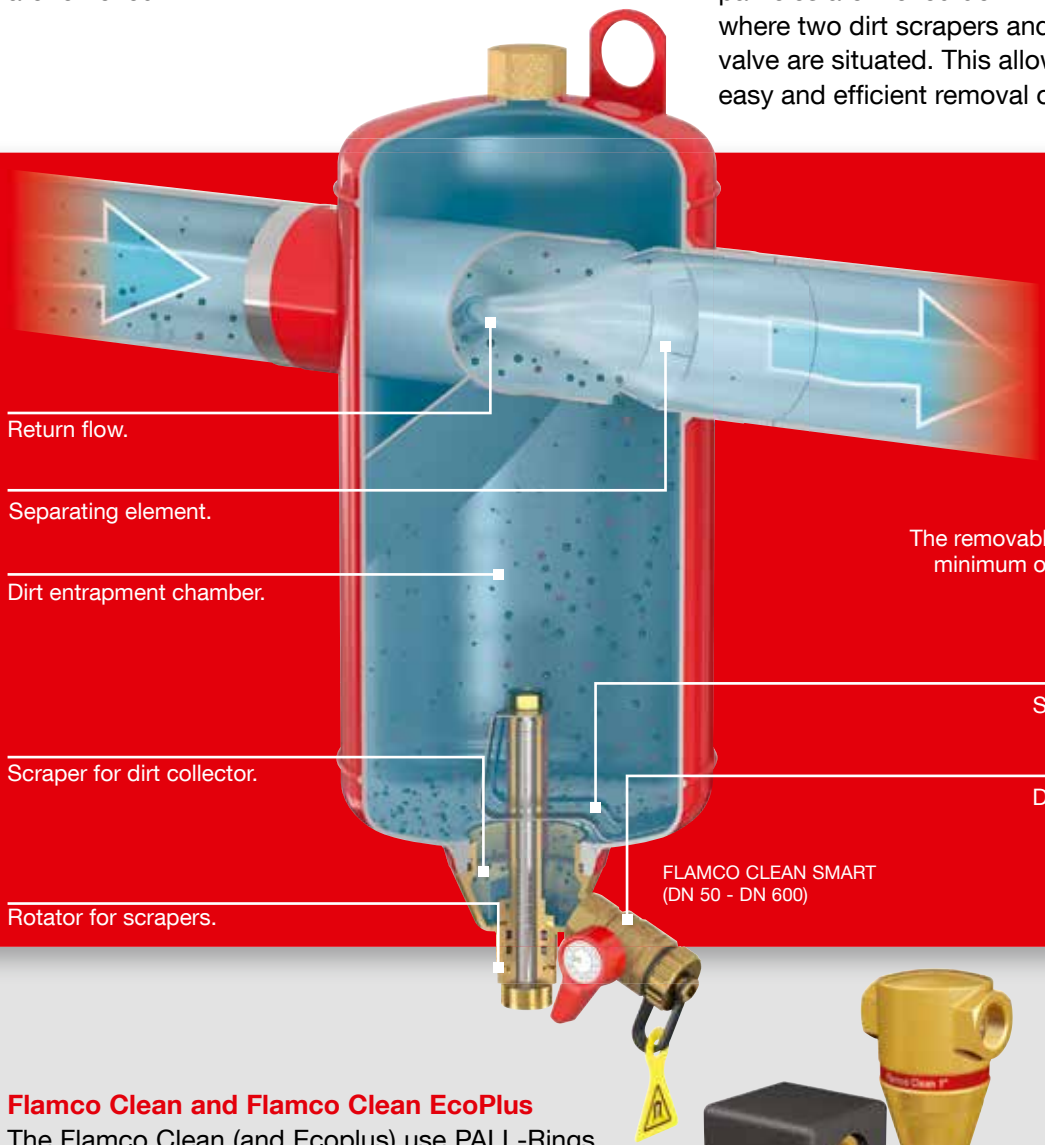
Supermagnets (up to 2")

Four neodymium supermagnets are incorporated into the logo on the outside of the Flamco Clean Smart. The magnetic rating per magnet is 5.855 Gauss. The logo/ magnet holder is situated right opposite the outflow opening through which all ferrous particles are directly attracted and held. Even particles as small as 4 µm are removed.

Dirt scraper (DN 50 - 600) with magnet holder and drain valve

25 Neodymium supermagnets are incorporated into the dirt scraper of the Flamco Clean Smart. The complete flow in the entrapment chamber is directed to pass the magnet. Due to the low flow velocity the magnets are able to trap even the smallest particles.

By extracting the magnet the magnetic particles are moved downwards where two dirt scrapers and the drain valve are situated. This allows for easy and efficient removal of dirt.



FLAMCO CLEAN SMART
(DN 50 - DN 600)

Flamco Clean and Flamco Clean EcoPlus

The Flamco Clean (and Ecoplus) use PALL-Rings. The water flows around and through every PALL-Ring ensuring that the dirt particles collide with the large contact surface of the PALL-Rings and sink to the bottom of the vessel.

FLAMCO CLEAN
(ECOPLUS)

DIRT SEPARATORS (22 MM - 2")

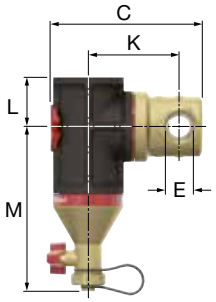
Removes solid particles that need to be flushed out before they can cause damage to the pump or water heater, for example.

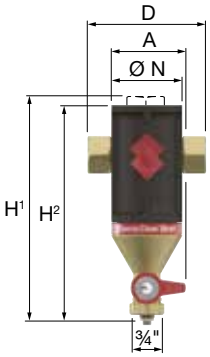
- Maximum operating pressure: 10 bar.
- Suitable for glycol solutions of up to 50%.

Flamco Clean Smart

More compact, lighter, cleaner and even more efficient.
The Flamco Clean Smart dirt separators remove even minuscule dirt particles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low.

- 60% better performance compared to conventional separators.
- Min./max. working temperature: -10 °C / 120 °C.
- Flow velocity up to 3 m/s.
- Four neodymium supermagnets are incorporated into the logo.
- Can be used with all kinds of pipework.
- Compact dimensions, light weight.
- Extremely low flow resistance and low loss of energy.
- Consistent performance throughout its service life.

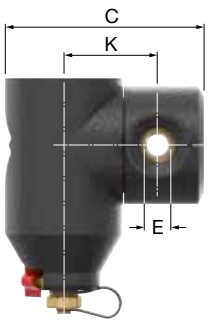


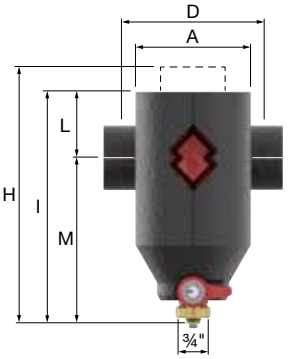


Type	Connection (E)	Dimensions A [mm]	C [mm]	D [mm]	K [mm]	L [mm]	M [mm]	H/H1 [mm]	H2 [mm]	Ø N [mm]	Weight [kg]		Order Code
Flamco Clean Smart ¾	¾"	63	133	100	78	37	140	190	177	60	0.94	1	30021
Flamco Clean Smart 22	22 mm	63	136	120	78	37	140	200	177	60	0.98	1	30022
Flamco Clean Smart 1	1"	76	155	106	91	44	179	231	223	75	1.11	1	30023
Flamco Clean Smart 1 ¼	1 ¼"	76	165	110	96	44	179	233	223	75	1.26	1	30024
Flamco Clean Smart 1 ½	1 ½"	94	193	129	109	54	212	277	266	92	1.72	1	30025
Flamco Clean Smart 2	2"	94	206	140	117	54	212	282	266	92	2.15	1	30026

Flamco Clean Smart EcoPlus

Similar to the Flamco Clean Smart but with a 20 mm EPP insulation mantle included.





Type	Connection (E)	Dimensions A [mm]	C [mm]	D [mm]	K [mm]	L [mm]	M [mm]	H [mm]	I [mm]	Weight [kg]		Order Code
Flamco Clean Smart EcoPlus ¾	¾"	97	164	100	78	56	140	216	196	1.01	1	30031
Flamco Clean Smart EcoPlus 22	22 mm	97	164	120	78	56	140	216	196	1.05	1	30032
Flamco Clean Smart EcoPlus 1	1"	112	189	106	91	63	178	255	241	1.21	1	30033
Flamco Clean Smart EcoPlus 1 ¼	1 ¼"	112	199	110	96	63	178	255	241	1.37	1	30034
Flamco Clean Smart EcoPlus 1 ½	1 ½"	131	224	129	109	73	212	300	285	1.88	1	30035
Flamco Clean Smart EcoPlus 2	2"	131	237	285	117	73	212	300	285	2.32	1	30036

Magnets Smart 22 mm - 2"

- Set of five magnets per bag.

Type	Suitable for		Order Code
Magnets	Flamco(vent) Clean Smart (EcoPlus) 22 mm - 2"	1	40007

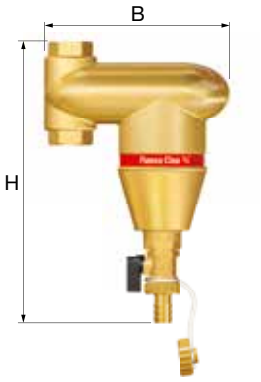
Flamco Clean

- With PALL-Ring technology.
- Maximum flow velocity: 1.5 m/s.
- Maximum working temperature: 120 °C.

Type	Connection	Capacity [l]	Dimensions B [mm]	Dimensions H [mm]	Weight [kg]		Order Code
Flamco Clean 22	22 mm	0.22	118	196	1.4	1	28029
Flamco Clean 3/4	Rp 3/4"	0.22	88	196	1.4	1	28030
Flamco Clean 1	Rp 1"	0.35	100	216	1.8	1	28031
Flamco Clean 1 1/4	Rp 1 1/4"	0.48	114	237	2.4	1	28032
Flamco Clean 1 1/2	Rp 1 1/2"	0.48	114	237	2.5	1	28033
Flamco Clean 2	Rp 2"	0.75	131	255	2.6	1	28034

Flamco Clean V

Similar to the Flamco Clean but for mounting in vertical rising pipes.



Type	Connection	Capacity [l]	Dimensions B [mm]	Dimensions H [mm]	Weight [kg]		Order Code
Flamco Clean V 22	22 mm	0.4	158	230	2.2	1	28039
Flamco Clean V 3/4	Rp 3/4"	0.4	158	223	2.2	1	28035
Flamco Clean V 1	Rp 1"	0.5	184	247	3.2	1	28036
Flamco Clean V 1 1/4	Rp 1 1/4"	0.5	184	247	3.0	1	28037

Flamco Clean EcoPlus

Similar to the Flamco Clean but with a styropor insulation mantle included.

Type	Connection	Capacity [l]	Dimensions* Length [mm]	Dimensions* Width [mm]	Dimensions* Height [mm]	Weight [kg]		Order Code
Flamco Clean EcoPlus 22	22 mm	0.22	102	113	157	1.4	1	28635
Flamco Clean EcoPlus 3/4	Rp 3/4"	0.22	102	113	157	1.4	1	28630
Flamco Clean EcoPlus 1	Rp 1"	0.35	110	117	176	1.8	1	28631
Flamco Clean EcoPlus 1 1/4	Rp 1 1/4"	0.48	116	121	196	2.4	1	28632
Flamco Clean EcoPlus 1 1/2	Rp 1 1/2"	0.48	116	121	196	2.5	1	28633
Flamco Clean EcoPlus 2	Rp 2"	0.6	125	135	258	2.6	1	28634

*Dimensions including insulation.

DIRT SEPARATORS (DN 50 - 600)

For use in sealed heating and cooling systems.
Dirt separators protect the boilers, pumps and fittings from damage caused by the deposit of dirt particles. Dirt separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

- Prevents deposit of dirt particles in the boiler.
- The removal of dirt particles from the system water extends the service life of pumps, control equipment and other system accessories.
- Maximum supply temperature: 120 °C.
- Suitable for glycol solutions of up to 50%.

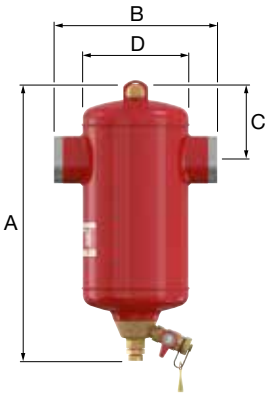
Flamco Clean Smart S - 10.0 bar

Optimum dirt separation combined with energy efficiency.

The new steel Flamco Clean Smart dirt separators remove even the most miniscule dirt particles from the installation water. The Flamco Clean Smart performs 60% better than conventional dirt separators whilst the flow resistance has been reduced to a negligible level.

- Up to 60% better performance compared to conventional dirt separators.
- Extremely low flow resistance resulting in less energy consumption.
- Standard flow speed up to 3 m/s.
- Twenty-five neodymium supermagnets are incorporated into the dirt scraper.
- Constant performance during the entire lifespan.
- Low maintenance.

- Including a weld connection.
- Maximum operating pressure: 10 bar.



Type	Capacity [l]	Connection [DN]	Connection [mm]	Dimensions A [mm]	Dimensions B [mm]	Dimensions C [mm]	Dimensions D [mm]	K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
Flamco Clean Smart 50 S	8	50	60.3	475	260	129	175	93	9	1	31121
Flamco Clean Smart 65 S	8	65	76.1	475	260	129	175	140	10	1	31122
Flamco Clean Smart 80 S	25	80	88.9	620	370	172	270	209	17	1	31123
Flamco Clean Smart 100 S	25	100	114.3	620	370	172	270	311	20	1	31124
Flamco Clean Smart 125 S	59	125	139.7	790	525	219	360	459	36	1	31125
Flamco Clean Smart 150 S	60	150	168.3	790	525	224	360	675	37	1	31126
Flamco Clean Smart 200 S	123	200	219.1	970	650	361	450	1340	57	1	31127
Flamco Clean Smart 250 S	287	250	273.0	1272	850	395	600	1952	125	1	31128
Flamco Clean Smart 300 S	333	300	323.9	1437	850	420	600	2830	140	1	31129
Flamco Clean Smart 350 S	646	350	355.6	1581	1050	487	800	4084	256	1	31130
Flamco Clean Smart 400 S	731	400	406.4	1754	1050	517	800	5866	265	1	31131
Flamco Clean Smart 500 S	1384	500	508.0	2081	1400	627	1000	8387	503	1	31132
Flamco Clean Smart 600 S	2390	600	610.0	2477	1680	785	1200	11939	755	1	31133

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamco Clean Smart F - 10.0 bar

Similar to the Flamco Clean Smart S but with flanged connection according to EN 1092-1 PN16.

- Models with a maximum operating pressure of 25 bar are available upon request.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamco Clean Smart 50 F	8	50	60.3	475	350	129	175	93	14	1	31021
Flamco Clean Smart 65 F	8	65	76.1	475	350	129	175	140	16	1	31022
Flamco Clean Smart 65 F **	8	65	76.1	475	350	129	175	140	16	1	31023
Flamco Clean Smart 80 F	25	80	88.9	620	470	172	270	209	25	1	31024
Flamco Clean Smart 100 F	25	100	114.3	620	470	172	270	311	29	1	31025
Flamco Clean Smart 125 F	59	125	139.7	790	635	219	360	459	48	1	31026
Flamco Clean Smart 150 F	60	150	168.3	790	635	224	360	675	52	1	31027
Flamco Clean Smart 200 F	123	200	219.1	970	774	361	450	1340	80	1	31028
Flamco Clean Smart 250 F	287	250	273.0	1272	990	395	600	1952	158	1	31029
Flamco Clean Smart 300 F	333	300	323.9	1437	1006	420	600	2830	184	1	31030
Flamco Clean Smart 350 F	646	350	355.6	1581	1214	487	800	4084	321	1	31031
Flamco Clean Smart 400 F	731	400	406.4	1754	1220	517	800	5866	348	1	31032
Flamco Clean Smart 500 F	1384	500	508.0	2081	1580	627	1000	8387	635	1	31033
Flamco Clean Smart 600 F	2390	600	610.0	2477	1870	785	1200	11939	963	1	31034

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.
** 4 hole flanged version.

CE

Flamco Clean Smart F - 16.0 bar

Similar to the Flamco Clean Smart S but with flanged connection according to EN 1092-1 PN16.

- Maximum operating pressure: 16 bar.
- Models with a maximum operating pressure of 25 bar are available upon request.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamco Clean Smart 50 F	8	50	60.3	475	350	129	175	93	17	1	31081
Flamco Clean Smart 65 F	8	65	76.1	475	350	129	175	140	18	1	31082
Flamco Clean Smart 80 F	25	80	88.9	620	470	172	270	209	26	1	31083
Flamco Clean Smart 100 F	25	100	114.3	620	470	172	270	311	30	1	31084
Flamco Clean Smart 125 F	59	125	139.7	790	635	219	360	459	67	1	31085
Flamco Clean Smart 150 F	60	150	168.3	790	635	224	360	675	70	1	31086
Flamco Clean Smart 200 F	123	200	219.1	970	774	361	450	1340	103	1	31087
Flamco Clean Smart 250 F	287	250	273.0	1272	990	395	600	1952	199	1	31088
Flamco Clean Smart 300 F	333	300	323.9	1437	1006	420	600	2830	238	1	31089
Flamco Clean Smart 350 F	646	350	355.6	1581	1214	487	800	4084	386	1	31090
Flamco Clean Smart 400 F	731	400	406.4	1754	1220	517	800	5866	415	1	31091
Flamco Clean Smart 500 F	1384	500	508.0	2081	1580	627	1000	8387	776	1	31092
Flamco Clean Smart 600 F	2390	600	610.0	2477	1870	785	1200	11939	1464	1	31093

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamco Clean Smart R - 10.0 bar

Similar to the Flamco Clean Smart S but with grooved pipe connection.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamco Clean Smart 50 R	8	50	60.3	475	260	129	175	93	9	1	31221
Flamco Clean Smart 65 R	8	65	76.1	475	260	129	175	140	10	1	31222
Flamco Clean Smart 80 R	25	80	88.9	620	370	172	270	209	17	1	31223
Flamco Clean Smart 100 R	25	100	114.3	620	370	172	270	311	20	1	31224
Flamco Clean Smart 125 R	59	125	139.7	790	525	219	360	459	36	1	31225
Flamco Clean Smart 150 R	60	150	168.3	790	525	224	360	675	37	1	31226
Flamco Clean Smart 200 R	123	200	219.1	970	650	361	450	1340	57	1	31227

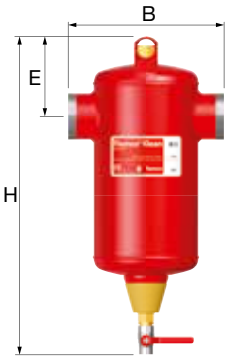
* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamco Clean S

Dirt separator constructed in steel with Dual Zone Flow Diversion technology.

- Including a weld connection.
- The Flamco Clean Dual Zone technology is designed to withstand fluid velocities up to 3 m/s. For optimum separation performance a maximum speed of 1.5 m/s should be maintained.
- Maximum operating pressure: 10 bar.



Type	Capacity [l]	Connection DN	Connection [mm]	Dimensions B [mm]	Dimensions E [mm]	Dimensions H [mm]	Weight [kg]		Order Code
Flamco Clean S 50	8	50	60.3	260	135	525	8.0	1	28118
Flamco Clean S 65	8	65	76.1	260	135	525	8.1	1	28119
Flamco Clean S 80	25	80	88.9	370	180	670	14.5	1	28120
Flamco Clean S 100	25	100	114.3	370	180	670	15.5	1	28121
Flamco Clean S 125	59	125	139.7	525	225	840	33.0	1	28122
Flamco Clean S 150	60	150	168.3	525	230	840	34.0	1	28123
Flamco Clean S 200	123	200	219.1	650	300	1020	56.5	1	28124

CE

Flamco Clean F

Similar to the Flamco Clean S but with flanged connection according to EN 1092-1 PN16.

Type	Capacity [l]	Connection * [DN]	Connection * [mm]	Dimensions B [mm]	Dimensions E [mm]	Dimensions H [mm]	Weight [kg]		Order Code
Flamco Clean F 50	8	50	60.3	350	135	525	13.1	1	28188
Flamco Clean F 65	8	65	76.1	350	135	525	14.1	1	28189
Flamco Clean F 80	25	80	88.9	470	180	670	22.4	1	28190
Flamco Clean F 100	25	100	114.3	470	180	670	24.8	1	28191
Flamco Clean F 125	59	125	139.7	635	225	840	45.6	1	28192
Flamco Clean F 150	60	150	168.3	635	230	840	50.0	1	28193
Flamco Clean F 200	123	200	219.1	774	300	1020	79.5	1	28194

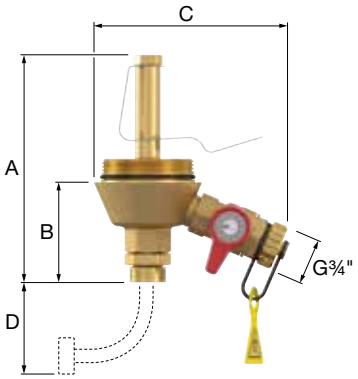
*According to EN1092-1 PN16.

CE

Dirt collector

Removeable dirt collector for Flamco Clean (Smart) and Flamcovent Clean (Smart) consisting of several parts:
- A double scraper - one at the bottom of the collection vessel and one in the cone of the dirt scraper.
- Magnet holder with 25 neodymium super magnets.
- Blow-off cock with operating lever and maintenance label.

By pulling the magnet downwards the magnetite particles are atttracted to the bottom side of the dirt scraper. There they can be removed easily via the blow-off cock.
The removable magnet is designed in such a manner that minimum space is needed under the dirt separator in order to remove it.

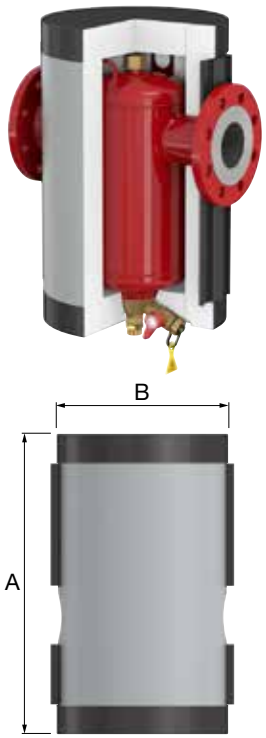


Type	Connection	Dimensions				Weight [kg]		Order Code
		A [mm]	B [mm]	C [mm]	D [mm]			
Dirt Collector	G 2" M	148	66	128	60	0.9	1	31250

Flamco Clean IsoPlus

This insulation set for Flamco Clean (Smart) can be easily attached and consists of two halves that lock into each other by means of hook fasteners and deep-drawn synthetic caps. The melamine insulation foam (thickness 50 mm) is glued to the polystyrene outer jacket (thickness 1 mm).

- Fire class B2 according to DIN 4102.
- Suitable for retrospective installation.
- 100% recyclable.
- λ-value: 0.035 W/mK.
- Available for connection sizes DN 50 up to and including DN 200.
- Colour: aluminium coloured (RAL 9006).



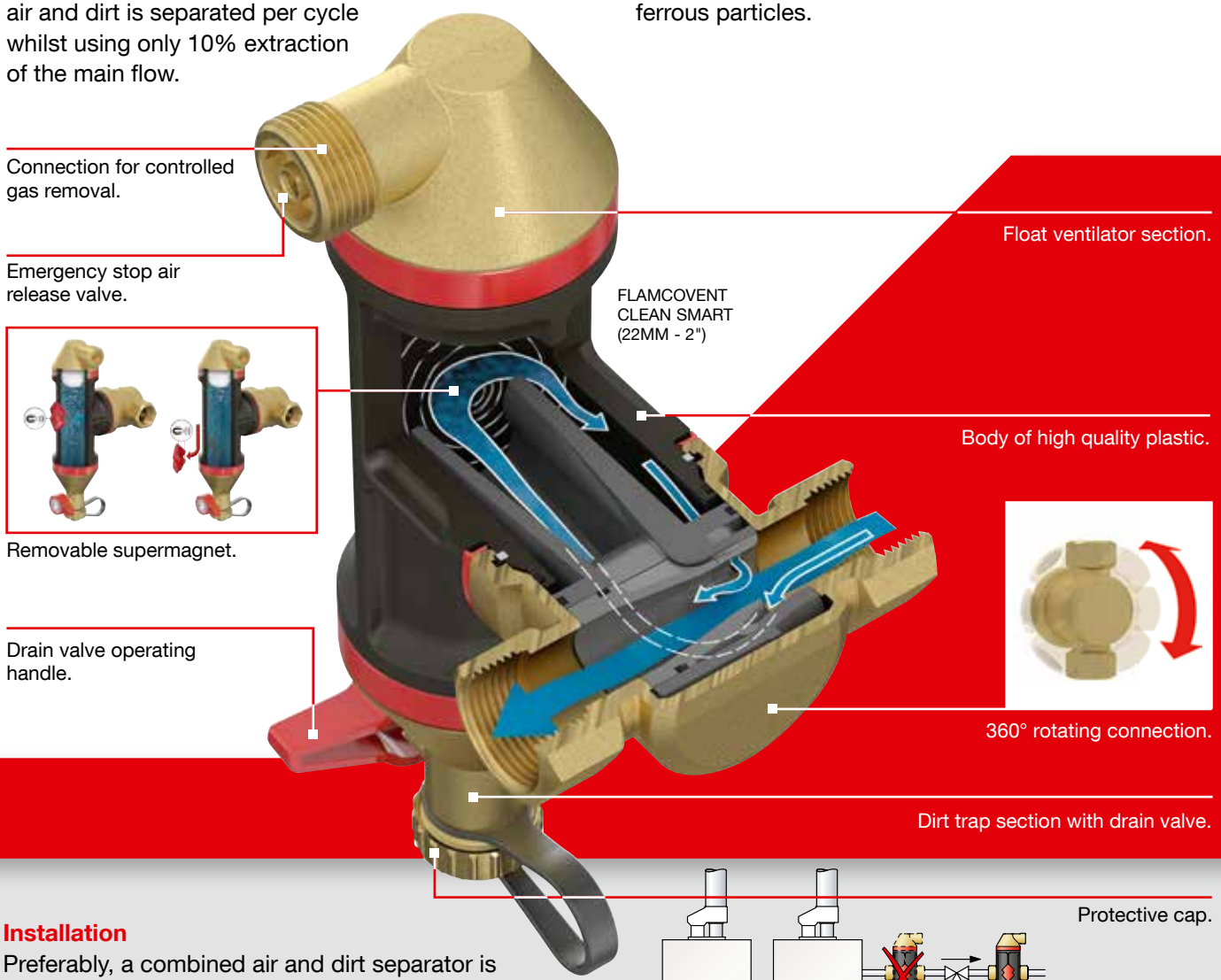
Type	Dimensions A [mm]	Dimensions B [mm]	Weight [kg]		Order Code
Flamco Clean IsoPlus 50	460	280	1.3	1	28870
Flamco Clean IsoPlus 65	460	280	1.4	1	28871
Flamco Clean IsoPlus 80	615	380	2.2	1	28872
Flamco Clean IsoPlus 100	615	380	2.3	1	28873
Flamco Clean IsoPlus 125	755	470	3.5	1	28874
Flamco Clean IsoPlus 150	755	470	3.5	1	28875
Flamco Clean IsoPlus 200	965	560	5.0	1	28876

Combined Air and Dirt Separators

Flamcovent Clean Smart

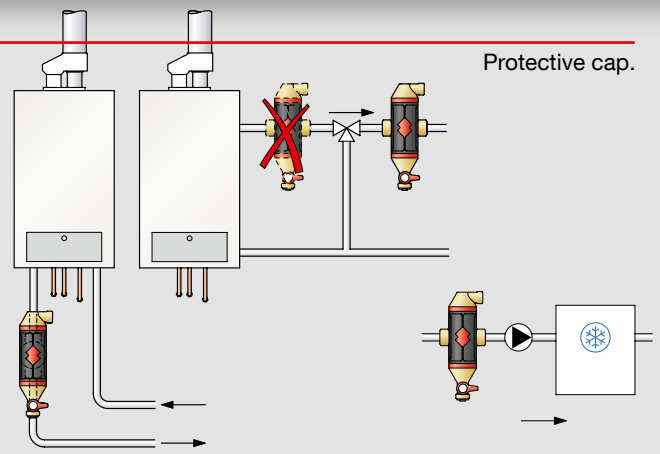
The Flamcovent Clean Smart air and dirt separators combine all the smart advantages of the Flamcovent Smart and Flamco Clean Smart into one product. The separation element combined with the return flow ensures excellent air and dirt separation and at the same time saves energy because of the negligible flow resistance. An exceptional rate of at least 40% of the air and dirt is separated per cycle whilst using only 10% extraction of the main flow.

Inside the chamber of the separator the water velocity is heavily reduced down to less than 1% of the main flow. This efficiently separates microbubbles and dirt particles by allowing the air particles to automatically rise to the air release valve at the top and the dirt particles to sink to the bottom to the dirt collector. A supermagnet additionally contributes in trapping ferrous particles.



Installation

Preferably, a combined air and dirt separator is mounted immediately after the boiler or mixing valve in the supply line before the circulation pump. As a result bubbles are immediately trapped by the water after heating.
With a cooling system that is right in front of the chiller unit.



Conical air chamber.

Float.

Drain valve for removal of dirt floating on the water.

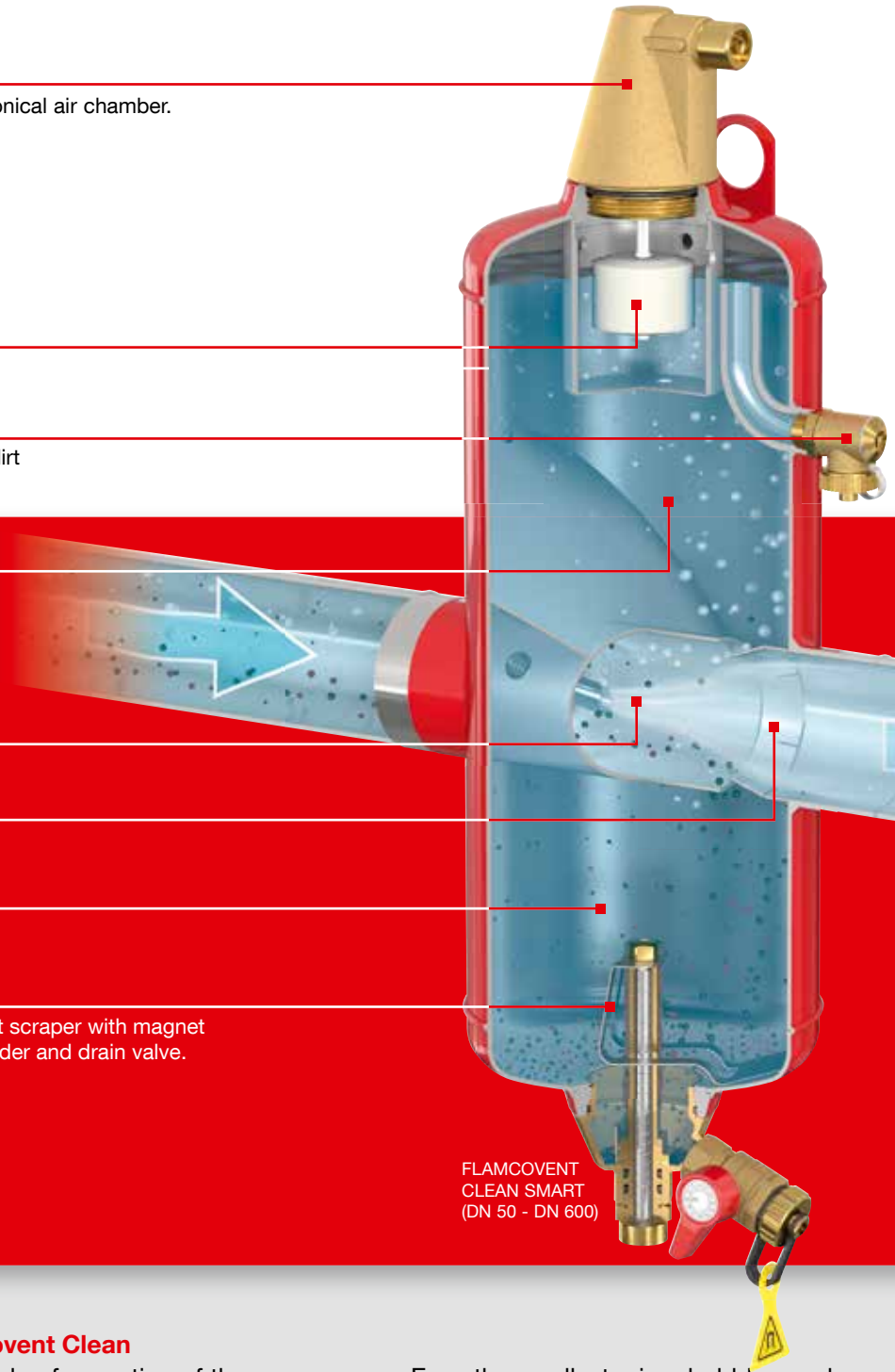
Air entrapment chamber.

Return flow.

Separating element.

Dirt entrapment chamber.

Dirt scraper with magnet holder and drain valve.



FLAMCOVENT CLEAN SMART (DN 50 - DN 600)

Flamcovent Clean

The mode of operation of the Flamcovent Clean air and dirt separators is based on a special process of separating gases from fluids. With the use of PALL-rings, the proven method of coalescence is used for separating gases.

Even the smallest micro bubbles coalesce to the PALL-rings, are slowed down and separated from the system water. The vent valve with regulating screw can be shut off.

MICROBUBBLE AIR & DIRT SEPARATORS (22 MM - 2")

Designed to remove solid particles as well as microbubbles from a heating installation.

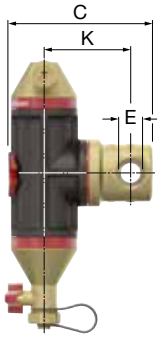
- Maximum operating pressure: 10 bar.
- Suitable for glycol solutions of up to 50%.

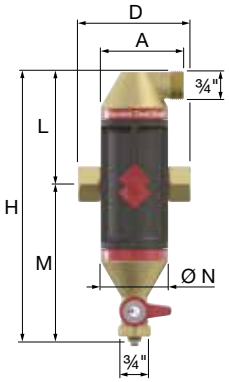
Flamcovent Clean Smart

More compact, lighter, cleaner and more efficient

The Smart air and dirt separators remove even the smallest microbubbles and minuscule dirt particles from the system water. They are virtually maintenance-free and the flow resistance is negligibly low.

- 60% better performance compared to conventional separators.
- Min./max. working temperature: -10 °C / 120 °C.
- Flow velocity up to 3 m/s.
- Four neodymium supermagnets are incorporated into the logo.
- Can be used with all kinds of pipework.
- Compact dimensions, light weight.
- Extremely low flow resistance and low loss of energy.
- Consistent performance throughout its service life.

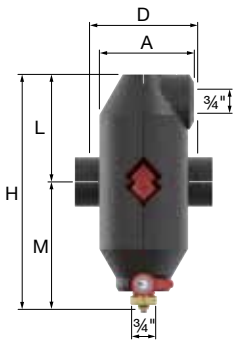




Type	Connection (E)	Dimensions A [mm]	C [mm]	D [mm]	K [mm]	L [mm]	M [mm]	H/H1 [mm]	Ø N [mm]	Weight [kg]		Order Code
Flamcovent Clean Smart ¾	¾"	74	133	100	78	101	140	241	60	1.2	1	30041
Flamcovent Clean Smart 22	22 mm	74	136	120	78	101	140	241	60	1.2	1	30042
Flamcovent Clean Smart 1	1"	82	155	106	91	139	179	318	75	1.5	1	30043
Flamcovent Clean Smart 1 ¼	1 ¼"	82	165	110	96	139	179	318	75	1.6	1	30044
Flamcovent Clean Smart 1 ½	1 ½"	94	193	129	109	173	212	385	92	2.2	1	30045
Flamcovent Clean Smart 2	2"	94	206	140	117	173	212	385	92	2.6	1	30046

Flamcovent Clean Smart EcoPlus

Similar to the Flamcovent Clean Smart but with a 20 mm EPP insulation mantle included.



Type	Connection (E)	Dimensions A [mm]	C [mm]	D [mm]	K [mm]	L [mm]	M [mm]	H [mm]	Weight [kg]		Order Code
Flamcovent Clean Smart EcoPlus ¾	¾"	104	164	100	78	118	140	258	1.3	1	30051
Flamcovent Clean Smart EcoPlus 22	22 mm	104	164	120	78	118	140	258	1.3	1	30052
Flamcovent Clean Smart EcoPlus 1	1"	117	189	106	91	157	178	335	1.6	1	30053
Flamcovent Clean Smart EcoPlus 1 ¼	1 ¼"	117	199	110	96	157	178	335	1.7	1	30054
Flamcovent Clean Smart EcoPlus 1 ½	1 ½"	134	224	129	109	191	212	403	2.4	1	30055
Flamcovent Clean Smart EcoPlus 2	2"	134	237	140	117	191	212	403	2.8	1	30056

Magnets Smart 22 mm - 2"

- Set of five magnets per bag.

Type	Suitable for		Order Code
Magnets	Flamco(vent) Clean Smart (EcoPlus) 22 mm - 2"	1	40007

Flamcovent Clean

Combined air and dirt separator for closed heating and cooling systems, complete with PALL-Rings made of stainless steel with a very large contact surface for trouble-free air and dirt separation of the system water.

- Large distance between the water level and the venting valve through a conical air chamber.
- The bleed valve can be closed with the shut-off valve.
- Solid brass housing.
- Maximum flow velocity: 1.5 m/s.
- Maximum working temperature: 120 °C.

Type	Connection	Dimensions Ø [mm]	Dimensions H. [mm]	Weight [kg]		Order Code
Flamcovent Clean 22	22 mm	115	283	2.0	1	28680
Flamcovent Clean 3/4	Rp 3/4"	90	283	1.8	1	28681
Flamcovent Clean 1	Rp 1"	104	315	2.3	1	28682
Flamcovent Clean 1 1/4	Rp 1 1/4"	114	345	2.9	1	28683
Flamcovent Clean 1 1/2	Rp 1 1/2"	114	345	2.8	1	28684

MICROBUBBLE AIR AND DIRT SEPARATORS (DN 50 - 600)

For use in sealed heating and cooling systems.
Air and dirt separators protect the boilers, pumps and fittings from damage caused by the deposit of dirt particles, increase comfort and improve the yield. Air and dirt separators also offer benefits in the event of application in old systems or when an open system is converted to a closed system.

- Increases comfort and yield.
- Prevents deposit of dirt particles in the boiler.
- The removal of air and dirt from the system water extends the service life of pumps, control equipment and other system accessories.
- Maximum supply temperature: 120 °C.
- Suitable for glycol solutions of up to 50%.

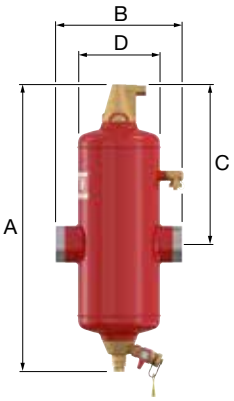
Flamcovent Clean Smart S - 10.0 bar

Optimum air and dirt separation combined with energy efficiency.

The new steel Flamcovent Clean Smart air and dirt separators remove even the tiniest microbubbles and minuscule dirt particles from the system water. The Flamco Clean Smart performs 60% better than conventional air and dirt separators whilst the flow resistance has been reduced to a negligible level.

- Up to 60% better performance compared to conventional air and dirt separators.
- Extremely low flow resistance resulting in less energy consumption.
- Standard flow speed up to 3 m/s.
- Twenty-five neodymium supermagnets are incorporated into the dirt scraper.
- Constant performance during the entire lifespan.
- Low maintenance.

- Including a weld connection.
- Maximum operating pressure: 10 bar.



Type	Capacity [l]	Connection [DN]	Connection [mm]	Dimensions A [mm]	Dimensions B [mm]	Dimensions C [mm]	Dimensions D [mm]	K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
Flamcovent Clean Smart 50 S	10	50	60.3	603	260	338	175	93	11	1	31141
Flamcovent Clean Smart 65 S	10	65	76.1	603	260	338	175	140	11	1	31142
Flamcovent Clean Smart 80 S	33	80	88.9	795	370	435	270	209	20	1	31143
Flamcovent Clean Smart 100 S	33	100	114.3	795	370	435	270	311	23	1	31144
Flamcovent Clean Smart 125 S	78	125	139.7	967	525	510	360	459	42	1	31145
Flamcovent Clean Smart 150 S	78	150	168.3	967	525	510	360	675	47	1	31146
Flamcovent Clean Smart 200 S	158	200	219.1	1280	650	705	450	1340	63	1	31147
Flamcovent Clean Smart 250 S	370	250	273.0	1620	850	892	600	1952	132	1	31148
Flamcovent Clean Smart 300 S	415	300	323.9	1784	850	1032	600	2830	156	1	31149
Flamcovent Clean Smart 350 S	840	350	355.6	2028	1050	1109	800	4084	285	1	31150
Flamcovent Clean Smart 400 S	927	400	406.4	2201	1050	1252	800	5866	303	1	31151
Flamcovent Clean Smart 500 S	1768	500	508.0	2628	1400	1470	1000	8387	613	1	31152
Flamcovent Clean Smart 600 S	3056	600	610.0	3124	1680	1757	1200	11939	867	1	31153

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamcovent Clean Smart F - 10.0 bar

Similar to the Flamcovent Clean Smart S but with flanged connection according to EN 1092-1 PN16.

- Models with a maximum operating pressure of 25 bar are available upon request.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamcovent Clean Smart 50 F	8	50	60.3	603	350	338	175	93	16	1	31041
Flamcovent Clean Smart 65 F	10	65	76.1	603	350	338	175	140	17	1	31042
Flamcovent Clean Smart 65 F **	10	65	76.1	603	350	338	175	140	17	1	31043
Flamcovent Clean Smart 80 F	33	80	88.9	795	470	435	270	209	28	1	31044
Flamcovent Clean Smart 100 F	33	100	114.3	795	470	435	270	311	32	1	31045
Flamcovent Clean Smart 125 F	78	125	139.7	967	635	510	360	459	55	1	31046
Flamcovent Clean Smart 150 F	78	150	168.3	967	635	510	360	675	63	1	31047
Flamcovent Clean Smart 200 F	158	200	219.1	1280	774	705	450	1340	86	1	31048
Flamcovent Clean Smart 250 F	370	250	273.1	1620	990	892	600	1952	165	1	31049
Flamcovent Clean Smart 300 F	415	300	323.9	1784	1006	1032	600	2830	200	1	31050
Flamcovent Clean Smart 350 F	840	350	355.6	2028	1214	1109	800	4084	350	1	31051
Flamcovent Clean Smart 400 F	927	400	406.4	2201	1220	1252	800	5866	385	1	31052
Flamcovent Clean Smart 500 F	1768	500	508.0	2628	1580	1470	1000	8387	745	1	31053
Flamcovent Clean Smart 600 F	3056	600	610.0	3124	1870	1757	1200	11939	1075	1	31054

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.
** 4 hole flanged connection.

CE

Flamcovent Clean Smart F - 16.0 bar

Similar to the Flamcovent Clean Smart S but with flanged connection according to EN 1092-1 PN16.

- Maximum operating pressure: 16 bar.
- Models with a maximum operating pressure of 25 bar are available upon request.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamcovent Clean Smart 50 F	8	50	60.3	603	350	338	175	93	19	1	31074
Flamcovent Clean Smart 65 F	10	65	76.1	603	350	338	175	140	20	1	31075
Flamcovent Clean Smart 80 F	33	80	88.9	795	470	435	270	209	30	1	31076
Flamcovent Clean Smart 100 F	33	100	114.3	795	470	435	270	311	34	1	31077
Flamcovent Clean Smart 125 F	78	125	139.7	967	635	510	360	459	77	1	31078
Flamcovent Clean Smart 150 F	78	150	168.3	967	635	510	360	675	80	1	31079
Flamcovent Clean Smart 200 F	158	200	219.1	1280	774	705	450	1340	118	1	31080
Flamcovent Clean Smart 250 F	370	250	273.1	1620	990	892	600	1952	228	1	31094
Flamcovent Clean Smart 300 F	415	300	323.9	1784	1006	1032	600	2830	267	1	31095
Flamcovent Clean Smart 350 F	840	350	355.6	2028	1214	1109	800	4084	451	1	31096
Flamcovent Clean Smart 400 F	927	400	406.4	2201	1220	1252	800	5866	480	1	31097
Flamcovent Clean Smart 500 F	1768	500	508.0	2628	1580	1470	1000	8387	877	1	31098
Flamcovent Clean Smart 600 F	3056	600	610.0	3124	1870	1757	1200	11939	1679	1	31099

* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamcovent Clean Smart R - 10.0 bar

Similar to the Flamcovent Clean Smart S but with grooved pipe connection.

Type	Capacity [l]	Connection		Dimensions				K_v * [m³/h] (ΔP = 1 bar)	Weight [kg]		Order Code
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]				
Flamcovent Clean Smart 50 R	10	50	60.3	603	260	338	175	93	11	1	31241
Flamcovent Clean Smart 65 R	10	65	76.1	603	260	338	175	140	11	1	31242
Flamcovent Clean Smart 80 R	33	80	88.9	795	370	435	270	209	20	1	31243
Flamcovent Clean Smart 100 R	33	100	114.3	795	370	435	270	311	23	1	31244
Flamcovent Clean Smart 125 R	78	125	139.7	967	525	510	360	459	42	1	31245
Flamcovent Clean Smart 150 R	78	150	168.3	967	525	510	360	675	47	1	31246
Flamcovent Clean Smart 200 R	158	200	219.1	1280	650	705	450	1340	63	1	31247

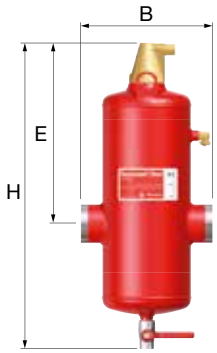
* $K_v = Q / \sqrt{\Delta P}$ Q: Flow [m³/h] ΔP: Pressure loss over the product [bar]
Flow factor K_v: Rate of flow [m³/h] which results in a 1 bar pressure drop across the product.

CE

Flamcovent Clean S

Combined air and dirt separator constructed in steel with Dual Zone Flow Diversion technology.

- Including a weld connection.
- The Flamcovent Clean Dual Zone technology is designed to withstand fluid velocities up to 3 m/s. For optimum separation performance, a maximum speed of 1.5 m/s should be maintained.
- Maximum operating pressure: 10 bar.



Type	Capacity [l]	Connection [DN]	Connection [mm]	Dimensions B [mm]	Dimensions E [mm]	Dimensions H [mm]	Weight [kg]		Order Code
Flamcovent Clean 50 S	10	50	60.3	260	333	560	9.5	1	28070
Flamcovent Clean 65 S	10	65	76.1	260	333	560	9.7	1	28071
Flamcovent Clean 80 S	33	80	88.9	370	435	756	18	1	28072
Flamcovent Clean 100 S	33	100	114.3	370	435	756	19	1	28073
Flamcovent Clean 125 S	78	125	139.7	525	515	970	39	1	28074
Flamcovent Clean 150 S	78	150	168.3	525	515	970	40	1	28075

CE

Flamcovent Clean F

Similar to the Flamcovent Clean S but with flanged connection according to EN 1092-1 PN16.

Type	Capacity [l]	Connection * [DN]	Connection * [mm]	Dimensions B [mm]	Dimensions E [mm]	Dimensions H [mm]	Weight [kg]		Order Code
Flamcovent Clean 50 F	10	50	60.3	350	333	560	15	1	28080
Flamcovent Clean 65 F	10	65	76.1	350	333	560	15.7	1	28081
Flamcovent Clean 80 F	33	80	88.9	470	435	756	26	1	28082
Flamcovent Clean 100 F	33	100	114.3	470	435	756	28.5	1	28083
Flamcovent Clean 125 F	78	125	139.7	635	515	970	52	1	28084
Flamcovent Clean 150 F	78	150	168.3	635	515	970	56	1	28085

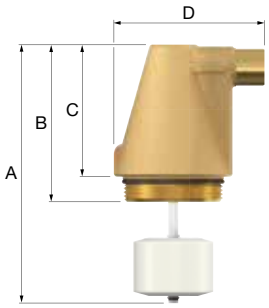
*According to EN1092-1 PN16.

CE

Spare vent cap L

Cone-shaped air chamber equipped with a long float to create more distance to the vent valve.
This reduces the risk of contamination of the valve seat to a minimum.

- Maximum system working pressure: 25 bar.

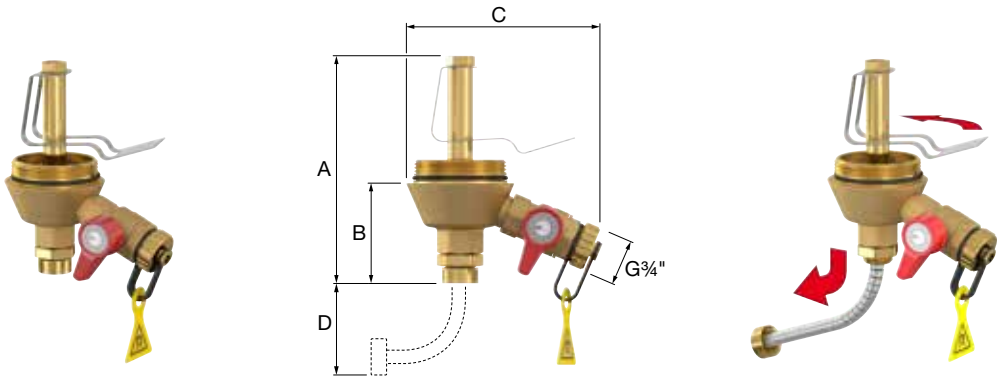


Type	Used for	Dimensions A [mm]	Dimensions B [mm]	Dimensions C [mm]	Dimensions D [mm]		Order Code
Spare vent cap L	Flamcovent (Clean) (Smart) DN 50 - 600, FlexBalance (Plus)	155	94	79	90	1	28555

Dirt collector

Removeable dirt collector for Flamco Clean (Smart) and Flamcovent Clean (Smart) consisting of several parts:
- A double scraper - one at the bottom of the collection vessel and one in the cone of the dirt scraper.
- Magnet holder with 25 neodymium super magnets.
- Blow-off cock with operating lever and maintenance label.

By pulling the magnet downwards the magnetite particles are attracted to the bottom side of the dirt scraper. There they can be removed easily via the blow-off cock.
The removable magnet is designed in such a manner that minimum space is needed under the dirt separator in order to remove it.

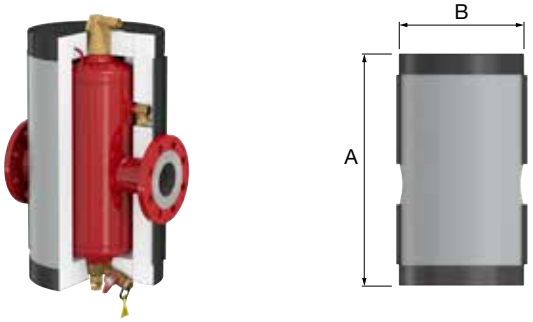


Type	Connection	Dimensions A [mm]	B [mm]	C [mm]	D [mm]	Weight [kg]		Order Code
Dirt Collector	G 2" M	148	66	128	60	0.9	1	31250

Flamcovent Clean IsoPlus

This insulation set for Flamcovent Clean (Smart) can be easily attached and consists of two halves that lock into each other by means of hook fasteners and deep-drawn synthetic caps. The melamine insulation foam (thickness 50 mm) is glued to the polystyrene outer jacket (thickness 1 mm).

- Fire class B2 according to DIN 4102.
- Suitable for retrospective installation.
- 100% recyclable.
- λ-value: 0.035 W/mK.
- Available for connection sizes DN 50 up to and including DN 200.
- Colour: aluminium coloured (RAL 9006).



Type	Dimensions A [mm]	B [mm]	Weight [kg]		Order Code
Flamcovent Clean IsoPlus 50	502	280	1.4	1	28860
Flamcovent Clean IsoPlus 65	502	280	1.5	1	28861
Flamcovent Clean IsoPlus 80	694	380	2.3	1	28862
Flamcovent Clean IsoPlus 100	694	380	2.4	1	28863
Flamcovent Clean IsoPlus 125	866	470	3.5	1	28864
Flamcovent Clean IsoPlus 150	866	470	3.6	1	28865
Flamcovent Clean IsoPlus 200	1178	560	5.5	1	28866