

BEST SEPARATION • SAVES ENERGY • LOW MAINTENANCE

**Flamcovent Smart
Flamco Clean Smart
Flamcovent Clean Smart**

COMBINING OPTIMAL PERFORMANCE WITH ENERGY CONSERVATION

FOR CONNECTION SIZES
DN 50 - 600



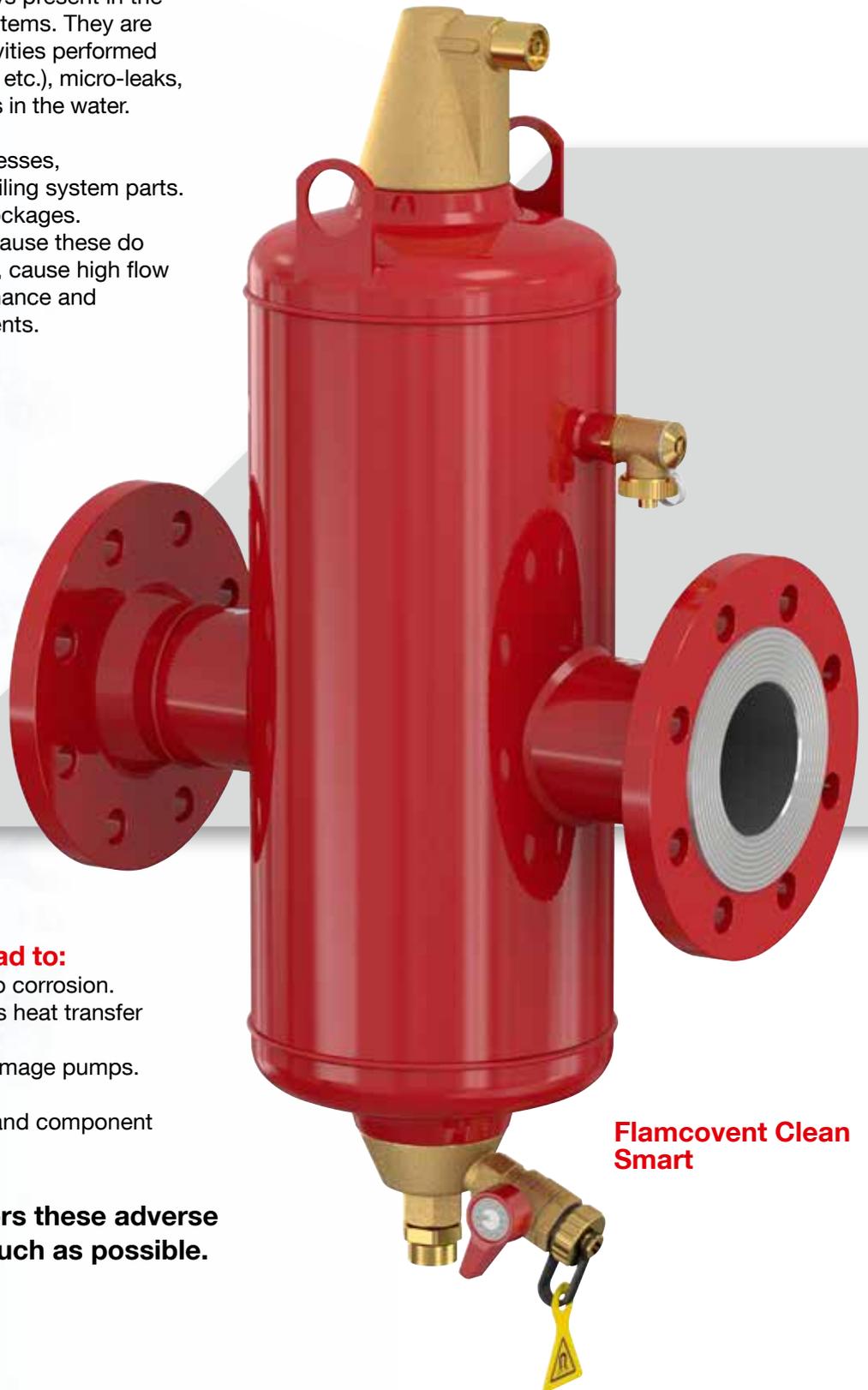
Get rid of air and dirt

Air and dirt in a system causes problems such as reduced heat transfer, unnecessary faults and wear and noise. But also lead to disruptions of the system and reduced pump performance. Higher energy consumption and an unreliable system are the consequence.

Where do air and dirt come from?

Air particles and gases are always present in the water of heating and cooling systems. They are generally a consequence of activities performed (maintenance, draining and filling etc.), micro-leaks, diffusion and chemical processes in the water.

Dirt is caused by corrosion processes, maintenance to the system or failing system parts. It can accumulate and cause blockages. The use of filters is not ideal because these do not trap smaller particles, silt up, cause high flow resistance, need regular maintenance and require replacement of components.



Flamcovent Clean Smart

Air and dirt in a system lead to:

- Shortened system-life due to corrosion.
- Reduced comfort due to less heat transfer and noises.
- Cavitation and magnetite damage pumps.
- Disruptions of the system.
- Loss of image for installers and component suppliers.

With air and dirt separators these adverse factors are reduced as much as possible.

The new standard

Flamco has the answer

The new Flamcovent, Flamco Clean and Flamcovent Clean Smart air and dirt separator range removes even the smallest microbubbles and minuscule dirt particles from the system water. They are close to maintenance-free and the flow resistance is negligibly low, which saves energy.

The new and proven standard

The Smart air and dirt separators are smart products in every aspect. And just as in other innovations from Flamco, their new technology delivers optimal performance.

Just like the Smart range with connection sizes up to 2", the proven effectiveness makes them future ready and the new standard in air and dirt separation.



Flamcovent Smart

Flamco Clean Smart

Main advantages

- Up to 60% better performance compared to conventional air and dirt separators.
- Extremely low flow resistance resulting in the best energy conservation possible.
- Standard flow velocities up to 3 m/s.
- Consistent performance throughout its service life.
- Low maintenance.



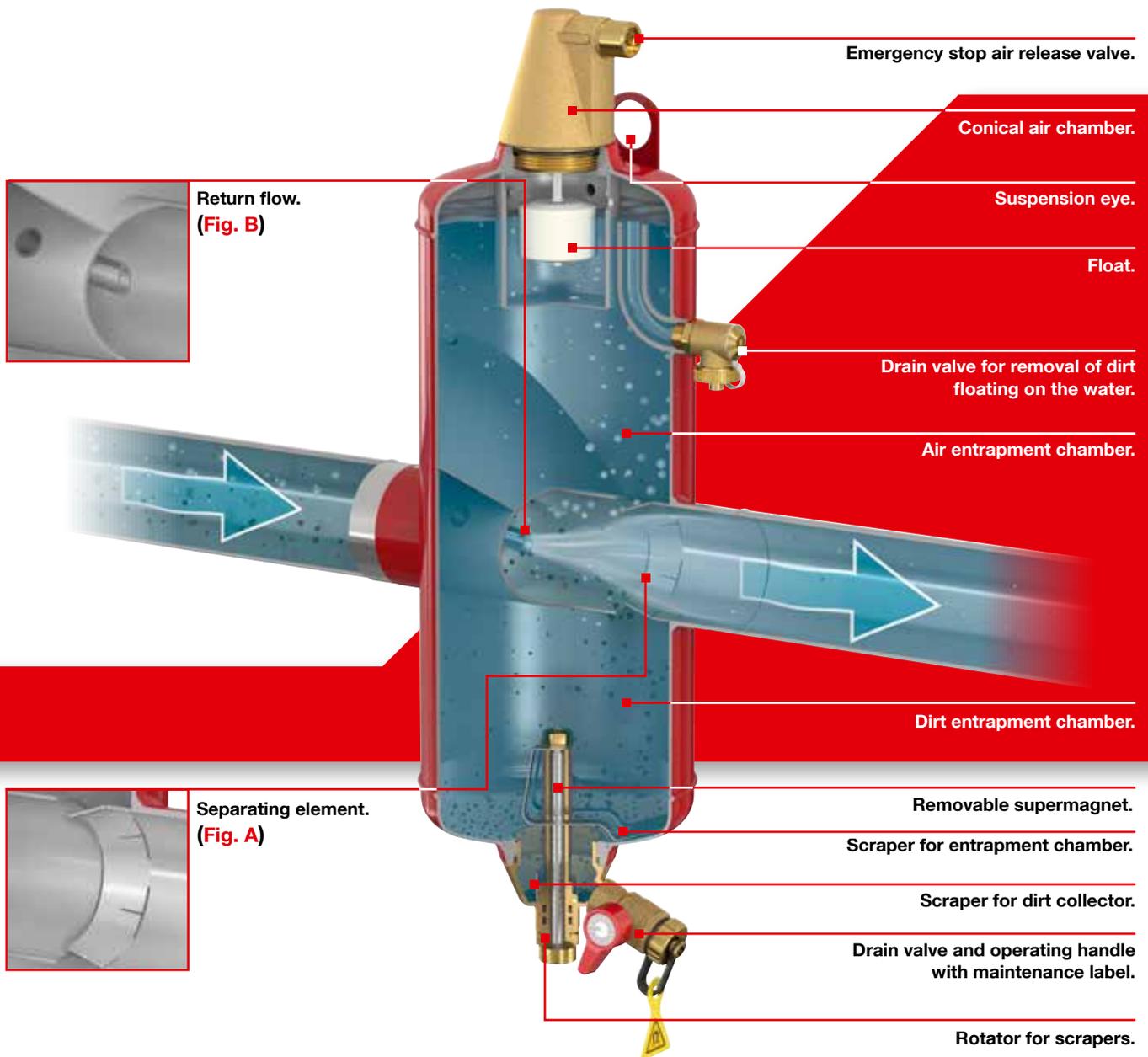
Smart in every regard

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.



Double thrust function

Two thrust functions ensure efficient dirt removal and de-aeration 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 micro-bubbles and dirt particles present in the main flow outwards and into the chambers of the separator to be removed.

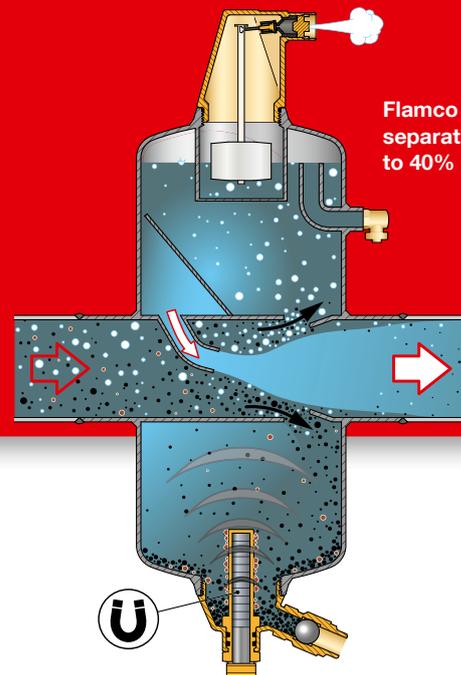
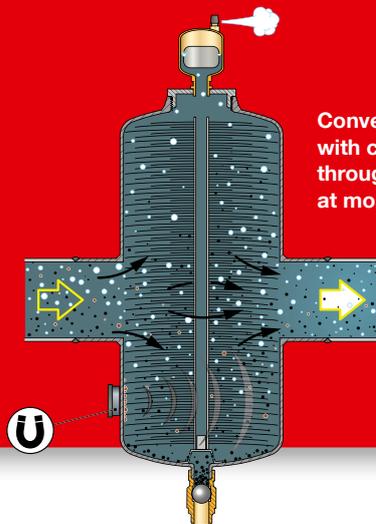
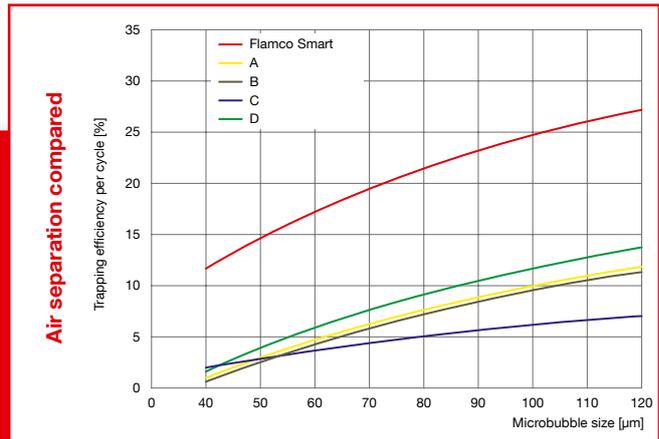
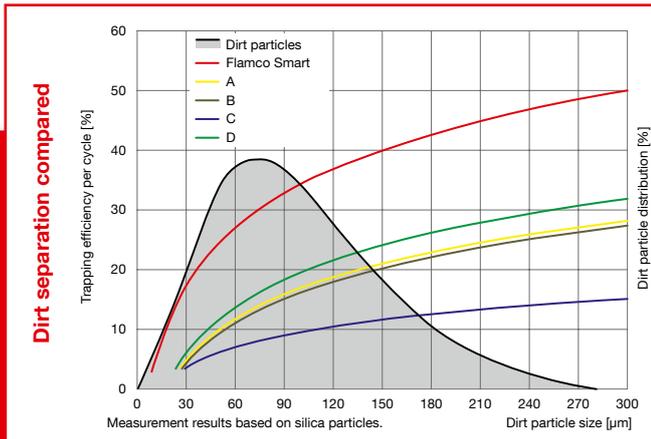
A smart concept

Continuous operation and a long service life

Flamco Smart performs 60% better than conventional air and dirt separators, while 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.

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.

Performs 60% better



Supermagnets

25 Neodymium supermagnets are incorporated into the dirt scraper of the Flamco Clean Smart and the Flamcovent Clean Smart. The magnetic rating per magnet is 13,000 Gauss/1,3 Tesla.

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 (as small as 4 µm).

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.



Low-maintenance

The low-maintenance characteristic of the air and dirt separators is a great advantage. The renewed 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.



Smart in all details



Conical air chamber

The air chamber of the Flamcovent Smart and Flamcovent Clean Smart is conical in shape and fitted with an elongated float for extra distance to the venting valve. This reduces the chance of contamination of the valve seat to a minimum.

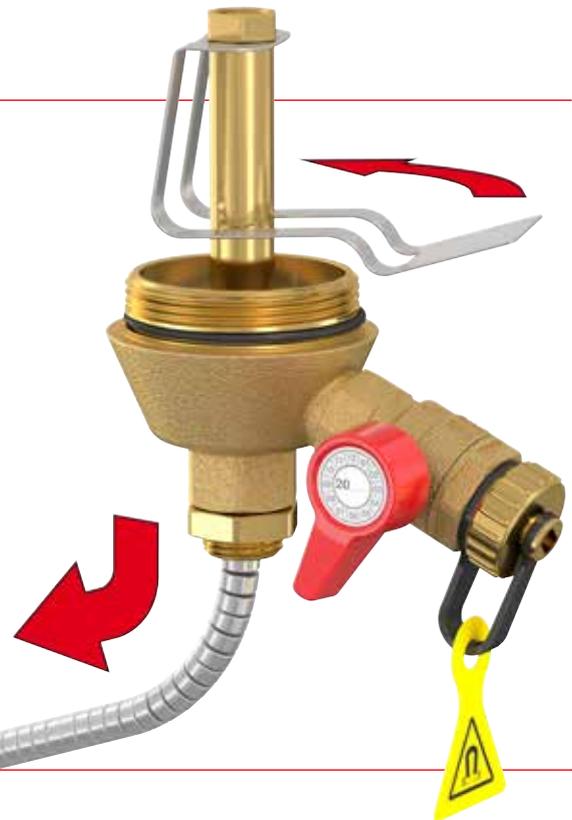
Floating dirt particles collected in the upper entrapment chamber can be drained away periodically with the drain valve.



Dirt scraper with magnet holder and drain valve

The removable dirt scraper consists of several parts: A double scraper, one for the base of the entrapment chamber and one in the cone of the dirt scraper itself. It has also a magnet holder with supermagnets. By pulling the magnet downwards, the magnetite particles are drawn to the underside of the dirt scraper where they can easily be removed via the drain valve.

The removable magnet is designed to allow a minimum of space below the dirt separator when extracting.



IsoPlus insulation

This easy to install insulation set consists of two halves which are joined together by attached hook fasteners and thermoformed deep-drawn covers. The outer polystyrene surface layer (thickness 1 mm) is laminated on the melamine insulation foam (thickness 50 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 DN 200.

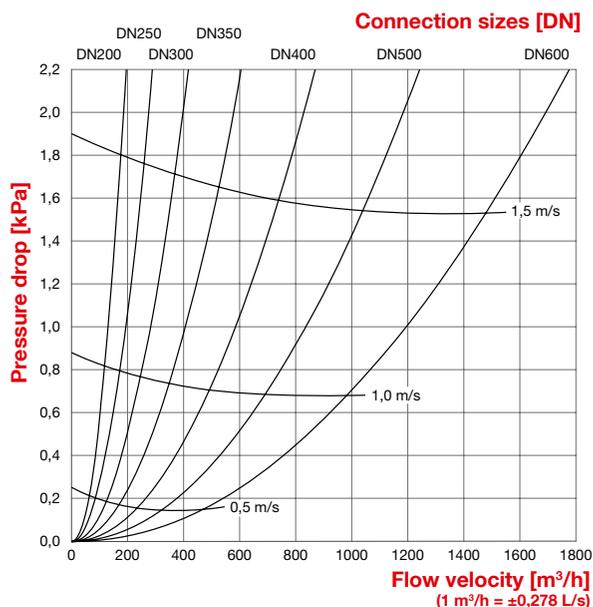
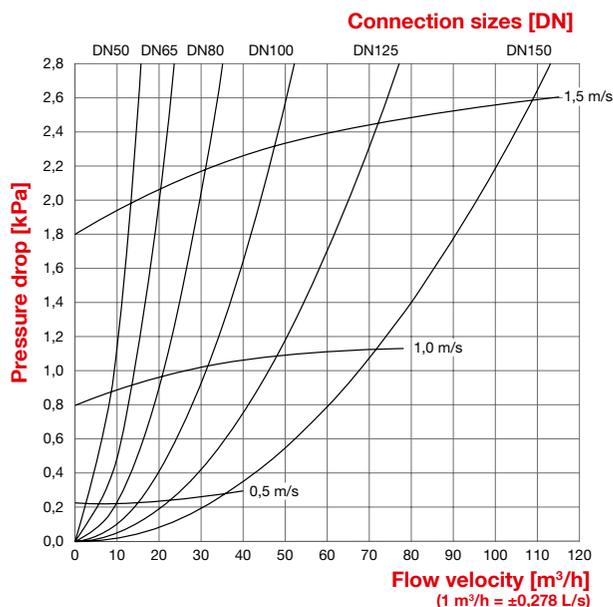
Selection and Installation

Selection graphs

Thanks to the innovative design of this Smart series of Flamco air and dirt separators the pressure loss in the system is kept to a negligible minimum. Even at flow velocities of 3 m/s, the Smart series deliver the best

performance in separation and pressure drop on the market.

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



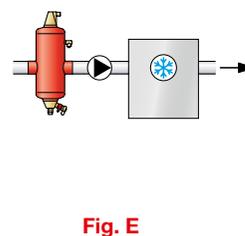
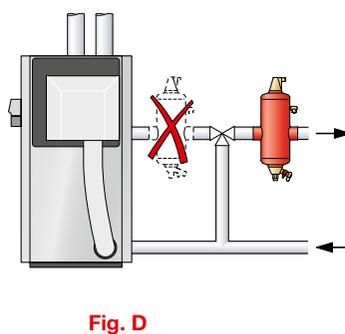
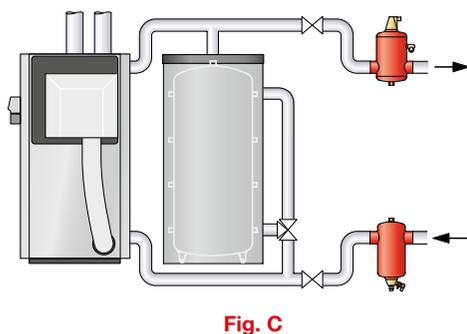
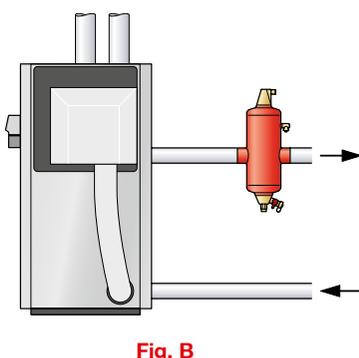
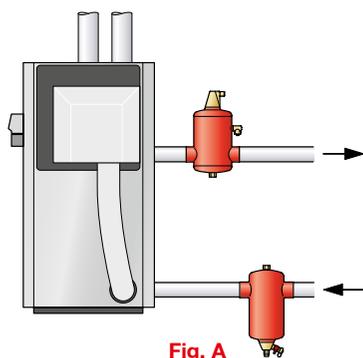
Installation

Depending on the primary function (dirt or air separator), the air, dirt and combined air/dirt separators can be installed in a variety of ways.

Place the product upstream of the boiler in the return line, if dirt separation is the primary function (A, C).

If the primary function is air separation (A, C) or a combined air/dirt separator is being used (B, D), the optimum location is immediately downstream of the boiler or mixing valve, and upstream of the circulation pump. This traps bubbles produced immediately after heating the water. In a cooling system that is just before the chiller (E).

The separators are manufactured with a G 3/4" connection. This enables the connection of any drain line when disposing of captured dirt.



The complete series

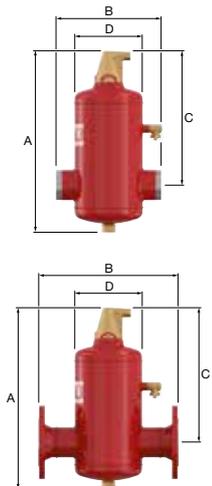
Wide product range

The new air and dirt separators from Flamco are supplied in various connection sizes: DN 50 up to DN 600. Available with welded (S) and flanged (F) connections and with maximum working pressures of 10, 16 or 25* bar.

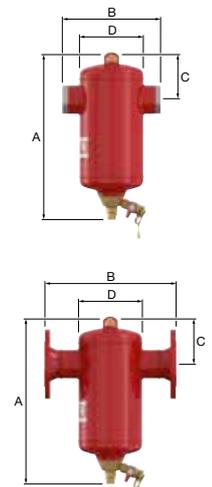
Replacement parts

The dirt collector and conical air chamber are available as replacement parts. IsoPlus insulation mantles are also available, for connection sizes up to DN 200.

Flamcovent Smart												
Type	Capacity [l]	Connection		Dimensions				K _v ** [m³/h] (ΔP = 1 bar)	PN10		PN16	
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]		Weight [kg]	Order Code	Weight [kg]	Order Code
Flamcovent Smart 50 S	8	50	60.3	472	260	338	175	93	9	31101	-	-
Flamcovent Smart 65 S	8	65	76.1	472	260	338	175	140	10	31102	-	-
Flamcovent Smart 80 S	25	80	88.9	612	370	435	270	209	17	31103	-	-
Flamcovent Smart 100 S	25	100	114.3	612	370	435	270	311	20	31104	-	-
Flamcovent Smart 125 S	59	125	139.7	740	525	510	360	459	36	31105	-	-
Flamcovent Smart 150 S	60	150	168.3	740	525	510	360	675	37	31106	-	-
Flamcovent Smart 200 S	123	200	219.1	975	650	670	450	1340	57	31107	-	-
Flamcovent Smart 250 S	287	250	273.0	1290	850	892	600	1952	125	31108	-	-
Flamcovent Smart 50 F	8	50	60.3	472	350	338	175	93	14	31001	17	31061
Flamcovent Smart 65 F	8	65	76.1	472	350	338	175	140	16	31002	18	31062
Flamcovent Smart 65 F ***	8	65	76.1	472	350	338	175	140	16	31003	-	-
Flamcovent Smart 80 F	25	80	88.9	612	470	435	270	209	25	31004	26	31063
Flamcovent Smart 100 F	25	100	114.3	612	470	435	270	311	29	31005	30	31064
Flamcovent Smart 125 F	59	125	139.7	740	635	510	360	459	48	31006	67	31065
Flamcovent Smart 150 F	60	150	168.3	740	635	510	360	675	52	31007	70	31066
Flamcovent Smart 200 F	123	200	219.1	975	774	670	450	1340	80	31008	103	31067
Flamcovent Smart 250 F	287	250	273.0	1290	990	892	600	1952	158	31009	200	31068
Flamcovent Smart 300 F	333	300	323.9	1452	1006	1032	600	2830	184	31010	239	31069
Flamcovent Smart 350 F	646	350	355.6	1600	1214	1109	800	4084	321	31011	387	31070
Flamcovent Smart 400 F	731	400	406.4	1770	1220	1252	800	5866	348	31012	416	31071
Flamcovent Smart 500 F	1384	500	508.0	2096	1580	1470	1000	8387	635	31013	777	31072
Flamcovent Smart 600 F	2390	600	610.0	2492	1870	1760	1200	11939	963	31014	1465	31073



Flamco Clean Smart												
Type	Capacity [l]	Connection		Dimensions				K _v ** [m³/h] (ΔP = 1 bar)	PN10		PN16	
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]		Weight [kg]	Order Code	Weight [kg]	Order Code
Flamco Clean Smart 50 S	8	50	60.3	475	260	129	175	93	9	31121	-	-
Flamco Clean Smart 65 S	8	65	76.1	475	260	129	175	140	10	31122	-	-
Flamco Clean Smart 80 S	25	80	88.9	620	370	172	270	209	17	31123	-	-
Flamco Clean Smart 100 S	25	100	114.3	620	370	172	270	311	20	31124	-	-
Flamco Clean Smart 125 S	59	125	139.7	790	525	219	360	459	36	31125	-	-
Flamco Clean Smart 150 S	60	150	168.3	790	525	224	360	675	37	31126	-	-
Flamco Clean Smart 200 S	123	200	219.1	970	650	361	450	1340	57	31127	-	-
Flamco Clean Smart 250 S	287	250	273.0	1272	850	395	600	1952	125	31128	-	-
Flamco Clean Smart 50 F	8	50	60.3	475	350	129	175	93	14	31021	17	31081
Flamco Clean Smart 65 F	8	65	76.1	475	350	129	175	140	16	31022	18	31082
Flamco Clean Smart 65 F ***	8	65	76.1	475	350	129	175	140	16	31023	-	-
Flamco Clean Smart 80 F	25	80	88.9	620	470	172	270	209	25	31024	26	31083
Flamco Clean Smart 100 F	25	100	114.3	620	470	172	270	311	29	31025	30	31084
Flamco Clean Smart 125 F	59	125	139.7	790	635	219	360	459	48	31026	67	31085
Flamco Clean Smart 150 F	60	150	168.3	790	635	224	360	675	52	31027	70	31086
Flamco Clean Smart 200 F	123	200	219.1	970	774	361	450	1340	80	31028	103	31087
Flamco Clean Smart 250 F	287	250	273.0	1272	990	395	600	1952	158	31029	199	31088
Flamco Clean Smart 300 F	333	300	323.9	1437	1006	420	600	2830	184	31030	238	31089
Flamco Clean Smart 350 F	646	350	355.6	1581	1214	487	800	4084	321	31031	386	31090
Flamco Clean Smart 400 F	731	400	406.4	1754	1220	517	800	5866	348	31032	415	31091
Flamco Clean Smart 500 F	1384	500	508.0	2081	1580	627	1000	8387	635	31033	776	31092
Flamco Clean Smart 600 F	2390	600	610.0	2477	1870	785	1200	11939	963	31034	1464	31093



CE Flamcovent Smart & Flamco Clean Smart (10 bar, 16 bar DN50 - 65) is in accordance with the Pressure Equipment Directive 2014/68/EU.

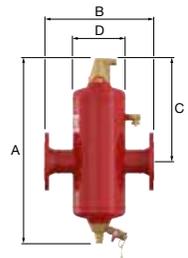
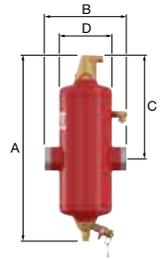
* PN 25 on demand

** K_v = Q / √ΔP Q: Flow [m³/h] ΔP: Pressure loss over product [bar]

*** 4 hole flanged version

Flamcovent Clean Smart

Type	Capacity [l]	Connection		Dimensions				K _v * [m³/h] (ΔP = 1 bar)	PN10		PN16	
		[DN]	[mm]	A [mm]	B [mm]	C [mm]	D [mm]		Weight [kg]	Order Code	Weight [kg]	Order Code
Flamcovent Clean Smart 50 S	10	50	60.3	603	260	338	175	93	11	31141	-	-
Flamcovent Clean Smart 65 S	10	65	76.1	603	260	338	175	140	11	31142	-	-
Flamcovent Clean Smart 80 S	33	80	88.9	795	370	435	270	209	20	31143	-	-
Flamcovent Clean Smart 100 S	33	100	114.3	795	370	435	270	311	23	31144	-	-
Flamcovent Clean Smart 125 S	78	125	139.7	967	525	510	360	459	42	31145	-	-
Flamcovent Clean Smart 150 S	78	150	168.3	967	525	510	360	675	47	31146	-	-
Flamcovent Clean Smart 200 S	158	200	219.1	1280	650	705	450	1340	63	31147	-	-
Flamcovent Clean Smart 250 S	370	250	273.0	1620	850	892	600	1952	132	31148	-	-
Flamcovent Clean Smart 50 F	8	50	60.3	603	350	338	175	93	16	31041	19	31074
Flamcovent Clean Smart 65 F	10	65	76.1	603	350	338	175	140	17	31042	20	31075
Flamcovent Clean Smart 65 F **	10	65	76.1	603	350	338	175	140	17	31043	-	-
Flamcovent Clean Smart 80 F	33	80	88.9	795	470	435	270	209	28	31044	30	31076
Flamcovent Clean Smart 100 F	33	100	114.3	795	470	435	270	311	32	31045	34	31077
Flamcovent Clean Smart 125 F	78	125	139.7	967	635	510	360	459	55	31046	77	31078
Flamcovent Clean Smart 150 F	78	150	168.3	967	635	510	360	675	63	31047	80	31079
Flamcovent Clean Smart 200 F	158	200	219.1	1280	774	705	450	1340	86	31048	118	31080
Flamcovent Clean Smart 250 F	370	250	273.1	1620	990	892	600	1952	165	31049	228	31094
Flamcovent Clean Smart 300 F	415	300	323.9	1784	1006	1032	600	2830	200	31050	267	31095
Flamcovent Clean Smart 350 F	840	350	355.6	2028	1214	1109	800	4084	350	31051	451	31096
Flamcovent Clean Smart 400 F	927	400	406.4	2201	1220	1252	800	5866	385	31052	480	31097
Flamcovent Clean Smart 500 F	1768	500	508.0	2628	1580	1470	1000	8387	745	31053	877	31098
Flamcovent Clean Smart 600 F	3056	600	610.0	3124	1870	1757	1200	11939	1075	31054	1679	31099



Flamcovent Clean Smart (10 bar, 16 bar DN50 - 65) is in accordance with the Pressure Equipment Directive 2014/68/EU.

ACCESSORIES

IsoPlus Insulation

Available for connection sizes from DN 50 up to DN 200.

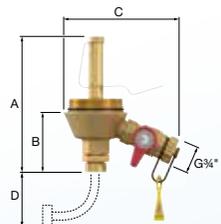
Type	Order Code		
	Flamcovent Smart	Flamco Clean Smart	Flamcovent Clean Smart
IsoPlus 50	28160	28870	28860
IsoPlus 65	28161	28871	28861
IsoPlus 80	28162	28872	28862
IsoPlus 100	28163	28873	28863
IsoPlus 125	28164	28874	28864
IsoPlus 150	28165	28875	28865
IsoPlus 200	28166	28876	28866



Dirt Collector Smart

Available for Flamco Clean Smart and Flamcovent Clean Smart.

Type	Connection	Dimensions				Weight [kg]	Order Code
		A [mm]	B [mm]	C [mm]	D [mm]		
Dirt Collector Smart	G 2" M	148	66	128	60	0,9	31250



Automatic Air Vent

Available for Flamcovent Smart and Flamcovent Clean Smart.

Type	Dimensions				Order Code
	A [mm]	B [mm]	C [mm]	D [mm]	
Automatic Air Vent L	155	94	79	90	28555



* K_v = Q / √ΔP Q: Flow [m³/h] ΔP: Pressure loss over product [bar]
 ** 4 hole flanged version



Flamco

Flow of Innovation



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