

## PRODUCT OVERVIEW

**OPTIMUM PERFORMANCE  
IN HVAC SYSTEMS**

**SPIRO**  **TECH**  
FOR BETTER PERFORMANCE

**DOMESTIC | COMMERCIAL | INDUSTRY**



## Effective total solutions for optimum fluid quality and maximum system efficiency

The purpose of fluids in heating and cooling systems is to transport heat or cold to where it is needed. The optimum conditions for this are a clean system with fluid that contains as little air and dirt as possible. If air and dirt are not, or are insufficiently, removed, all sorts of hindrances and problems will occur. These can include annoying noises, the necessity of regular manual venting of the system, decreasing pump performance, system imbalance, unnecessary malfunctions, excessive wear and extra energy consumption.

### Continuous development

Spirotech is a firm believer in improvement and innovation. That is why we devote much time to exploring new opportunities and developing even better products. Our major concern is to create optimum fluid conditioning to ensure your system runs at full speed, but we also focus on such crucial aspects as maximum reliability and quality. Thanks to these features, our products and services can **save energy, improve process reliability, improve comfort**, reduce maintenance costs and extend the life of the system.



### Focus on efficiency

Spirotech's products and services are geared for efficiency and optimum operation, with minimum system failure and time spent on system and process maintenance. We take more than just costs into account: we think that responsible energy consumption is just as important. Thanks to over forty years of experience, we have acquired the knowledge and means to deliver products that combine all these features - like no other products can.

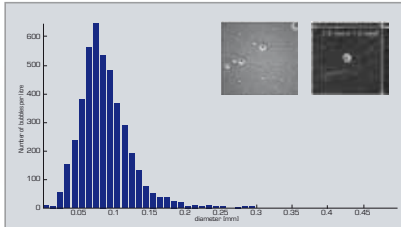
Spirotech's products are suited both to solving problems in existing systems and to preventing problems in new buildings or buildings under renovation.

### Total solutions

Spirotech offers an extensive range of total solutions for HVAC and process systems: accessories, additives and advice to ensure optimum efficiency and guarantee the quality of the system fluid. These products and services reduce faults, wear and maintenance as well as improve system performance and lower energy consumption. And what is more, these total solutions provide major benefits and save time during the design, installation, start-up and commissioning of systems.

“A system free of air and dirt is more efficient.”

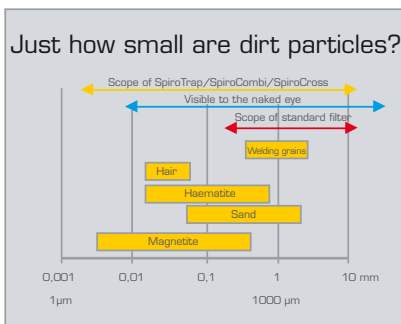




*This graph shows the number of air bubbles in water as it leaves the boiler and the size of these bubbles.*

## Air: a source of trouble in fluid systems

Fluid systems always contain some air. Air leads to excessive wear of expensive components, loose corrosion particles and process interruptions. The result: less efficient operation, more system failures and unnecessary energy consumption. Initial deaeration provides only a limited solution, because many micro bubbles and dissolved gases remain behind. Moreover, air will always get into the system during maintenance work or through leakages.



*Especially small dirt particles (5-10 μm) cause problems.*

## The tiniest dirt particle can cause enormous problems

Dirt in fluid systems leads to malfunctions and heavy wear of system components. This dirt consists mainly of corrosion particles, which are drawn to the magnetic fields around pumps, valves and control valves. Other dirt particles are pumped around the system and eventually accumulate in critical components. This leads to unnecessary energy consumption and persistent hindrances, malfunctions and system failures. A filter is often installed; however, this is not an optimum solution: filters silt up and need to be cleaned and replaced regularly.



## Effects on heating or cooling

- poor heating or cooling efficiency;
- poor heat or cold transfer at critical points;
- unnecessary malfunctions and failure;
- excessive amount of time required for regulating system and delays in system deliveries;
- decreased energy efficiency.



## Effects on the system

- corrosion throughout the system;
- excessive wear and blockages in pumps, heat exchangers and other vital system components;
- magnetite-related problems in electronic control components;
- unnecessary malfunctions and system failures.



## Fluid as a system component

Because fluid quality is an important factor for the efficient functioning of a system, the fluid should be considered a system component and treated as such. The fluid must be carefully selected and then properly maintained to prevent air and dirt becoming problems.



## Effective solutions for improved efficiency

**Spirotech's products all have a common aim: to improve the efficiency of systems and processes. Our products are used for a huge variety of buildings and processes. From the smallest family home to the largest hospital or even collective systems.**



### SPIROTOP®

Automatic air vents

- high venting capacity;
- reliable and leak-free;
- prevent air inclusions.



### SPIROTRAP®

Dirt separators

- also remove the tiniest particles;
- remove dirt while the system remains in operation;
- minimal, constant pressure drop.



### SPIROPLUS®

Flushing agents and additives

- for quality improvement and preservation;
- SpiroPlus Cleaner dirt dissolver (flushing agent);
- SpiroPlus LimeCleaner descaler (flushing agent);
- SpiroPlus Sealer leak sealer;
- SpiroPlus AntiFreeze frost protector.



### SPIROVENT®

Deaerators

- remove circulating air bubbles;
- remove trapped air;
- reliable and leak-free.



### SPIROCOMBI®

Deaerator & dirt separators

- air-free and dirt-free installation fluid with 1 device;
- also remove the tiniest particles;
- maintenance only takes seconds.



### SPIROCARE®

Analysis and advice

- for installation fluids and fluid installations;
- extensive expertise;
- for a wide variety of processes.



### SPIROVENT® Superior

Vacuum degassers

- plug & play;
- remove dissolved gases;
- energy-efficient.



### SPIROCROSS®

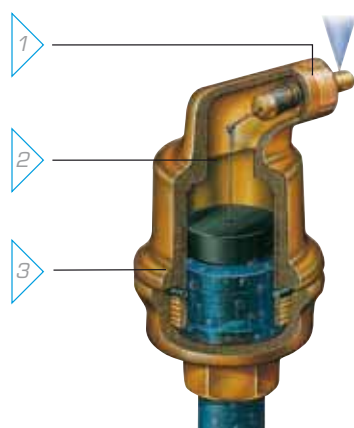
Hydraulic separators

- integrated air and dirt separation;
- 3 functions in 1 device;
- optimum fluid mixing.

**"Spirotech's complete solutions: improved efficiency, fewer malfunctions, less maintenance and reduced energy consumption."**

“SpiroTop: fast and reliable automatic venting.”

## SpiroTop - Automatic air vents



1. The automatic air vent is guaranteed not to leak and cannot be closed. The SpiroTop comes with a thread for connecting a vent pipe as standard.
2. Specially constructed air chamber prevents floating dirt from reaching the valve and provides sufficient volume to absorb pressure fluctuations.
3. The solid construction guarantees a very long life.

**Air accumulates in the highest parts of a system. SpiroTop automatic air vents have been specially developed to remove this air quickly and efficiently. SpiroTop also ensures fast and reliable aeration during system drainage.**

The SpiroTop is the reliable and worry-free solution ideal for:

- filling and venting systems;
- making and keeping the high points in pipe systems air-free;
- preventing air pockets from forming.

### Benefits of SpiroTop

The combination of the characteristics listed below ensures that the automatic SpiroTop will not leak during its very long life:

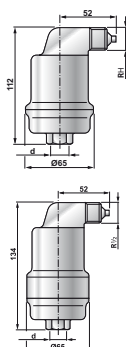
- The special valve construction means that the valve closes completely.
- The special valve seat has a very long life expectancy.
- The robust floats are made of solid plastic so cannot rupture.
- The significant gap between the valve and the water (at least 40 mm) prevents valve contamination which is one of the main causes of leaks.
- The 1/2" connection prevents the pipette effect.
- A complete range, suitable for various pressures and temperatures.
- Three-year guarantee.



10 bar



16 and 25 bar



Type	d	Material	Float material	Max. operating pressure	Max. temperature	Article number
SpiroTop	G1/2	Brass	PP	10 bar	110°C	AB050
SpiroTop HT	G1/2	Brass	TPX	10 bar	180°C	AB050/002
SpiroTop HT	G1/2	Brass	AISI 316	10 bar	180°C	AB050/007
SpiroTop Solar	G1/2	Brass	TPX	10 bar	180°C	AB050/008
SpiroTop HT/HP	G1/2	Brass	TPX	25 bar	150°C	AB050/025
SpiroTop HP	G1/2	Brass	PP	16 bar	110°C	AB050/030
SpiroTop HT	NPT1/2	AISI 316	TPX	10 bar	200°C	AB050/AR002
SpiroTop HT SST	G1/2	AISI 316	TPX	10 bar	180°C	AB050/R002
SpiroTop HT/HP SST	G1/2	AISI 316	TPX	25 bar	200°C	AB050/R004
SpiroTop HT SST	G1/2	AISI 316	AISI 316	10 bar	180°C	AB050/R007

Other materials, pressures and temperatures are available on request.

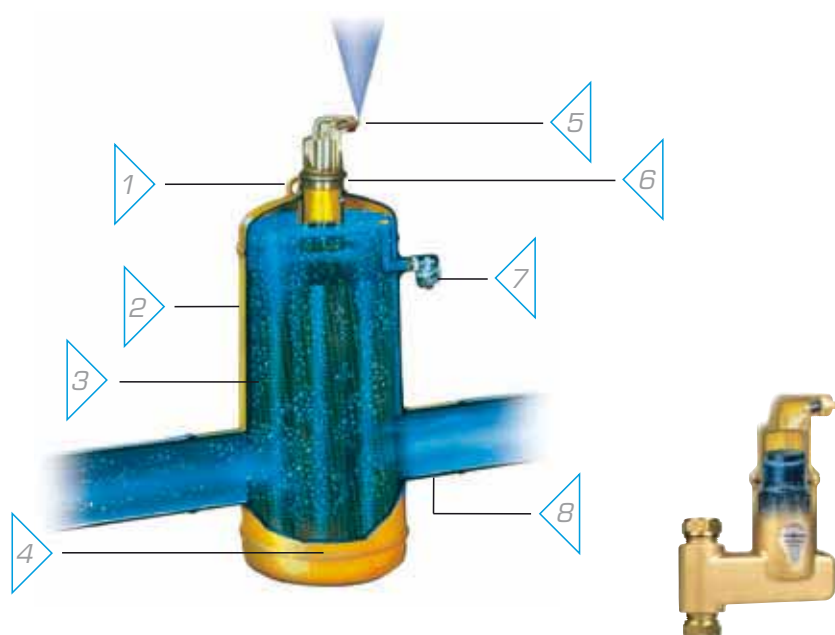
**For a completely air-free system, you need to install SpiroVent deaerators or vacuum degassers as well as SpiroTop air vents.**





## SpiroVent - micro bubble deaerators

**SpiroVent micro bubble deaerators are installed inline and continuously remove free air and micro bubbles from the system fluid.**



### Benefits of SpiroVent

- Removes circulating air and micro bubbles effectively.
- Removes trapped air.
- Greatly reduces commissioning times and manual venting is much less time consuming.
- Minimal constant pressure drop.
- No unnecessary shutdown.
- Connection diameters from ¾" to DN 600 and above.
- A complete range, suitable for various pressures and temperatures.
- Three-year guarantee.

1. Lifting eyes make installation very easy.
2. Solid construction guarantees a very long life.
3. The unique Spirotube is the heart. This component has been specially designed for optimum separation of air and micro bubbles and yet offers very low flow resistance.
4. Drain plug. Also suitable for connecting a drain valve, temperature sensor or pressure sensor.
5. The automatic air vent is guaranteed not to leak and cannot be closed. Comes with thread for connecting a vent pipe as standard.
6. Specially constructed air chamber prevents floating dirt from reaching the valve and provides sufficient volume to absorb pressure fluctuations.
7. Drain valve for admitting or releasing large amounts of air (when filling or emptying the system) and for removing floating dirt.
8. Many different connection options. Brass with compression fittings or female thread, horizontal and vertical. Steel with welded ends or flanges.

**"SpiroVent effectively removes all circulating air and micro bubbles."**

Connection	H (mm)	L (mm)	Max. flow [m³/h]	Max. flow [l/s]	Δp at max. flow [kPa]	Article number
22 mm. comp.	153	106	1.3	0.35	1.3	AA022
22 mm. comp.V	220	104	1.3	0.35	1.5	AA022V
G ¾	153	85	1.3	0.35	1.3	AA075
G ¾V	210	84	1.3	0.35	1.5	AA075V
G1	180	88	2.0	0.55	1.3	AA100
G1V	210	84	2.0	0.55	2.4	AA100V
G1½	200	88	3.6	1.0	1.3	AA125
G1½	234	88	5.0	1.4	1.3	AA150
G2	275	132	7.5	2.1	1.4	AA200

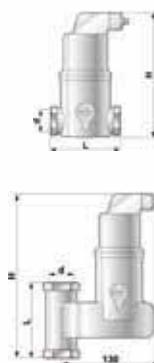
V = Vertical connection

Flow velocity ≤ 1 m/s

Operating pressure: 0 - 10 bar

Fluid temperature 0 - 110 °C

Other sizes, materials, pressures and temperatures are available on request



Brass, horizontal: 22 mm up to 2"

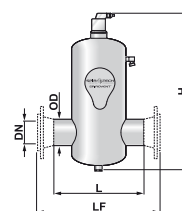
Brass, vertical: 22 mm up to 1"

Connection [DN]	Connection OD [mm]	L [mm]	LF [mm]	Standard type (1.5 m/s)				Hi-flow type (3 m/s)			
				H [mm]	Max. flow [l/s]	Max. flow [m³/h]	Δp at max. flow [kPa]	Article number	H [mm]	Max. flow [l/s]	Max. flow [m³/h]
050	60.3	260	350	470	3.5	12.5	3.0	BA050	630	7	25
065	76.1	260	350	470	5.5	20	2.7	BA065	630	11	40
080	88.9	370	470	590	7.5	27	2.9	BA080	785	15	54
100	114.3	370	475	590	13	47	3.7	BA100	785	26	94
125	139.7	525	635	765	20	72	4.2	BA125	1045	40	144
150	168.3	525	635	765	30	108	4.9	BA150	1045	60	215
200	219.1	650	775	975	50	180	5.8	BA200	1315	100	360
250	273.0	750	890	1215	80	288	6.9	BA250	1715	160	575
300	323.9	850	1005	1430	113	405	7.7	BA300	2025	225	810
350	356	NA	1100	1910	140	500	7.8	BA350	2400	280	1000
400	406	NA	1200	2120	180	650	8.4	BA400	2680	360	1300
450	457	NA	1300	2320	235	850	10.0	BA450	2960	470	1700
500	506	NA	1400	2540	295	1060	11.0	BA500	3250	590	2120
600	610	NA	1600	2980	425	1530	12.0	BA600	3830	835	3000

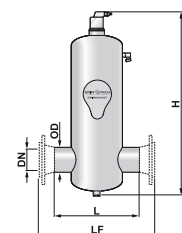
Operating pressure: 0 - 10 bar

Fluid temperature 0 - 110 °C

Other sizes, materials, pressures and temperatures are available on request.



Standard



Hi-flow

A SpiroVent deaerator is preferably to be installed at the hottest point within a system. In the case of a heating system, for example, this is the point where the water exits the boiler. In the case of a cooling system, it is in the return before the chiller unit.

## Select the correct SpiroVent:

1. Determine the pipe diameter.
2. Determine the flow.
3. Determine the correct model using the table.

		Max. flow m³/h and l/s																Applicable SpiroVent	
DN	l/s	12.5	20	25	27	40	47	54	72	94	108	144	180	215	288	360	405	500	575
		3.5	5.5	7	7.5	11	13	15	20	26	30	40	50	60	80	100	113	140	180
DN050																		BA050	HA050
DN065																		BA065	HA065
DN080																		BA080	HA080
DN100																		BA100	HA100
DN125																		BA125	HA125
DN150																		BA150	HA150
DN200																		BA200	HA200
DN250																		BA250	HA250
DN300																		BA300	HA300
DN350																		BA350	HA350
DN400																		BA400	HA400
DN450																		BA450	HA450
DN500																		BA500	HA500
DN600																		BA600	HA600

Standard type; max. 1.5 m/s

Hi-flow type recommended; max. 3 m/s

choose bigger Ø or lower the flow

Other sizes, materials, pressures and temperatures are available on request.



Standard: DN50 to DN600

Hi-flow: DN50 to DN600



## SpiroVent Superior - vacuum degassers

**The SpiroVent Superior is a fully automatic vacuum degasser for heating, cooling and process systems. Because of the fully electronic control system, the Superior offers numerous facilities for reading system information, status and logged data.**

When should a vacuum degasser be used?

1. For systems with many branches and a low flow velocity.
2. When there are slight temperature differences. A vacuum degasser is not dependent on the fluid temperature.
3. When an inline degasser cannot be mounted due to practical reasons. A vacuum degasser can be connected to virtually any point within a system.



### Benefits of SpiroVent Superior

- Removes dissolved gases.
- Absorptive fluid also ensures the removal of trapped gas bubbles.
- Plug & play.
- Greatly reduces commissioning and delivery times.
- Energy-efficient thanks to SmartSwitch.
- Degassed (re)filling and sustained pressure.
- Protected against accidental refilling.
- Ideal for low-temperature systems such as heat pump systems and underfloor heating systems.
- An extensive range for a wide variety of systems.
- Works perfectly in combination with all common expansion systems.
- Two-year guarantee.

### How the SpiroVent Superior works

A continuously operating pump constantly takes a quantity of system fluid from the circulating flow. Closing a solenoid valve creates a vacuum so that the dissolved gases are released. These accumulate at the top of the vessel and are removed via the air vent. The degassed and absorptive fluid is then pumped back into the installation and can start absorbing gases again.

There are various reasons why gas will always be able to enter a system, such as diffusion, micro leaks and expansion system membranes which are never 100% gastight. Because of all this, vacuum degassing is a continuous requirement. It is therefore not a one-off process.



*S3, for heating or cooling systems up to 3.5 bar; up to 15 m³*



*S6, for heating or cooling systems up to 6 bar; up to 300 m³*

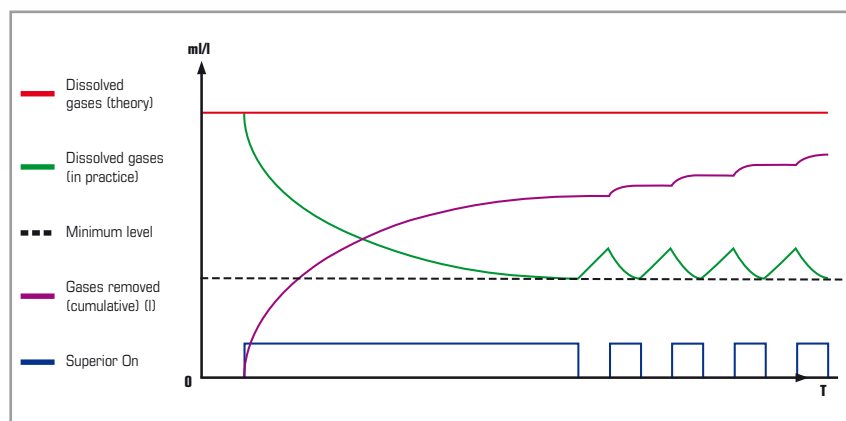


*S10, for heating or cooling systems from 5 to 10 bar; up to 300 m³*

*S16, for heating or cooling systems from 9 to 16 bar; up to 300 m³*



“SpiroVent Superior: the vacuum degasser with multiple options for reading system information.”



This is a simplified graph showing measurements taken from various systems in practice. During initial degassing and after initial commissioning or when restarting a system, the gas level is reduced to the minimum level. The Superior then switches itself off and the gas level slowly increases again. By switching on the Superior at set intervals, the gas level is kept at the minimum level so that problems are prevented.



All SpiroVent Superior vacuum degassers have a fully electronic control system with a user-friendly interface. Various parameters can be adjusted quickly and easily including:

- cut-off times;
- refill pressure;
- start time;
- refill alarms;
- maximum system pressure;
- desired system pressure;
- operating time;
- status;
- refill history;
- fault data;
- degassing history.

## Energy-efficient thanks to SmartSwitch

As soon as any gases are removed, it is registered by the integrated SmartSwitch. If the SmartSwitch has not registered anything for ten minutes, it means that the quantity of dissolved gases in the fluid has reached the minimum value. The degassing process will then stop automatically and start again at the next pre-set time. So the device is only operated when necessary. As a result, energy consumption is reduced considerably and the life of costly components is extended significantly.

Type	S3A	S3A-R	S6A	S6A-R	S6A-R2P	S10A	S10A-R	S16A	S16A-R
Max. system volume [m³]	15	15	300	300	300	300	300	300	300
System pressure [bar]	1 - 3.5	1 - 3.5	1 - 6	1 - 6	1 - 6	5 - 10	5 - 10	9 - 16	9 - 16
Temperature of system fluid [°C]	0 - 70	0 - 70	0 - 90	0 - 90	0 - 90	0 - 90	0 - 90	0 - 90	0 - 90
Fluid treated (degassed) [l/h]	70	70	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Refill volume [l/h] 1)	na	na	na	450	450	na	500	na	500
Refill pressure [bar]	na	≥ 0.5	na	0 - 6	0 - 6	na	0 - 10	na	0 - 10
Ambient temperature [°C]	0 - 50	0 - 50	0 - 40	0 - 40	0 - 40	0 - 40	0 - 40	0 - 40	0 - 40
Dimensions [HxWxD]	490x340x340	490x340x340	880x590x350	880x590x350	880x590x350	1272x744x400	1272x744x400	1272x744x400	1272x744x400
Noise level [dB(A)]	49	49	57	57	57	60	60	60	60
Empty weight [kg]	16	17	57	59	67	77	79	87	89
Supply voltage [V]	230	230	230	230	230	3 x 400	3 x 400	3 x 400	3 x 400
Power consumption [watt]	40	40	800	800	1300	1150	1150	2250	2250
Degree of protection [IP]	x4D	x4D	x4D	x4D	x4D	x4D	x4D	x4D	x4D
Article number	MA03A	MA03R	MA06A	MA06R	MA06P	MA10A	MA10R	MA16A	MA16R

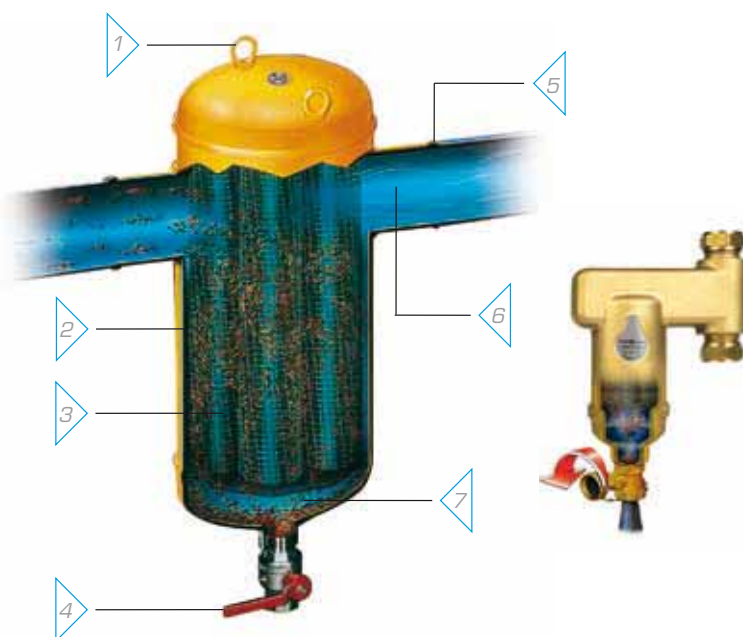
1) An approved non-return protective device (G3/4" male) is available as an option.

SpiroVent Superior vacuum degassers are suitable for water and water/glycol mixtures (max. 40%). Not suitable for drinking water.



## SpiroTrap - dirt separators

**Spirotech offers an extensive programme of SpiroTrap dirt separators, especially designed for the removal of dirt. Separates and removes even the smallest particles (from 5  $\mu\text{m}$  = 0.005 mm).**



1. Lifting eyes make installation very easy.
2. Solid construction guarantees a very long life.
3. The unique Spirotube is the heart. This component has been specially designed for optimum dirt separation and has a very low flow resistance.
4. Drain valve for removing dirt collected.
5. Many different connection options. Brass with compression fittings or female thread, horizontal and vertical. Steel with welded ends or flanges.
6. The flow is not obstructed by the dirt collected.
7. Large capacity dirt collection chamber reduces the need for frequent draining.

When the drain valve is opened, the dirt collected is discharged quickly and effectively. This action - opening and closing the valve - only takes a few seconds.

### Benefits of SpiroTrap

- Very small particles, from 5  $\mu\text{m}$  (= 0.005 mm) are separated and removed.
- Dirt can be discharged while the system is in operation.
- No shut-off valves or bypass required.
- Minimal constant pressure drop.
- Maintenance only takes a few seconds.
- No unnecessary shutdown.
- Connection diameters from  $\frac{3}{4}$ " to DN 600 and above.
- A complete range, suitable for various pressures and temperatures.
- Three-year guarantee.

**"SpiroTrap: removes even the tiniest dirt particles."**

Connection	H (mm)	L (mm)	Max. flow [m³/h]	Max. flow [l/s]	Δp at max. flow [kPa]	Article number
22 mm. comp.	116	106	1.3	0.35	1.3	AE022
22 mm. comp. V	182	104	1.3	0.35	1.5	AE022V
G ¾"	116	85	1.3	0.35	1.3	AE075
G ¾V	172	84	1.3	0.35	1.5	AE075V
G1"	143	88	2.0	0.55	1.3	AE100
G1V	172	84	2.0	0.55	2.4	AE100V
G1½"	161	88	3.6	1.0	1.3	AE125
G1½V	197	88	5.0	1.4	1.3	AE150
G2"	238	132	7.5	2.1	1.4	AE200

V = Vertical connection

Flow velocity ≤ 1 m/s

Operating pressure: 0 - 10 bar

Fluid temperature 0 - 110 °C

Other sizes, materials, pressures and temperatures are available on request.



Brass, horizontal: 22 mm up to 2"

Brass, vertical: 22 mm up to 1"

				Standard type (1.5 m/s)					Hi-flow type (3 m/s)						
Connection [DN]	Connection OD [mm]	L [mm]	LF [mm]	H [mm]	Max. flow [l/s]	Max. flow [m³/h]	Δp at max. flow [kPa]	Article number	Art. number demountable	H [mm]	Max. flow [l/s]	Max. flow [m³/h]	Δp at max. flow [kPa]	Article number	Art. number demountable
050	60.3	260	350	395	3.5	12.5	3.0	BE050	BF050	555	7	25	11.8	HE050	HF050
065	76.1	260	350	395	5.5	20	2.7	BE065	BF065	555	11	40	11.6	HE065	HF065
080	88.9	370	470	515	7.5	27	2.9	BE080	BF080	710	15	54	12.4	HE080	HF080
100	114.3	370	475	515	13	47	3.7	BE100	BF100	710	26	94	14.6	HE100	HF100
125	139.7	525	635	690	20	72	4.2	BE125	BF125	970	40	144	16.8	HE125	HF125
150	168.3	525	635	690	30	108	4.9	BE150	BF150	970	60	215	19.4	HE150	HF150
200	219.1	650	775	900	50	180	5.8	BE200	BF200	1240	100	360	23.1	HE200	HF200
250	273.0	750	890	1145	80	288	6.9	BE250	BF250	1645	160	575	27.7	HE250	HF250
300	323.9	850	1005	1360	113	405	7.7	BE300	BF300	1955	225	810	31.0	HE300	HF300
350	356	NA	1100	1610	140	500	7.8	BE350	BF350	2100	280	1000	31.0	HE350	HF350
400	406	NA	1200	1820	180	650	8.4	BE400	BF400	2380	360	1300	34.0	HE400	HF400
450	457	NA	1300	2020	235	850	10.0	BE450	BF450	2660	470	1700	39.0	HE450	HF450
500	508	NA	1400	2240	295	1060	11.0	BE500	BF500	2950	590	2120	43.0	HE500	HF500
600	610	NA	1600	2680	425	1530	12.0	BE600	BF600	3530	835	3000	47.0	HE600	HF600

Operating pressure: 0 - 10 bar

Fluid temperature 0 - 110 °C

Other sizes, materials, pressures and temperatures are available on request.

## Select the correct SpiroTrap:

1. Determine the pipe diameter.
2. Determine the flow.
3. Determine the correct model using the table.

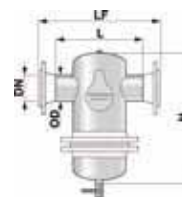
		Max. flow m³/h and l/s																Applicable SpiroTrap	
m³/h	l/s	12.5	20	25	27	40	47	54	72	94	108	144	180	215	288	360	405	Standard	Hi-flow
		3.5	5.5	7	7.5	11	13	15	20	26	30	40	50	60	80	100	113		
DN050																		BE/BF050	HE/HF050
DN065																		BE/BF065	HE/HF065
DN080																		BE/BF080	HE/HF080
DN100																		BE/BF100	HE/HF100
DN125																		BE/BF125	HE/HF125
DN150																		BE/BF150	HE/HF150
DN200																		BE/BF200	HE/HF200
DN250																		BE/BF250	HE/HF250
DN300																		BE/BF300	HE/HF300
DN350																		BE/BF350	HE/HF350
DN400																		BE/BF400	HE/HF400
DN450																		BE/BF450	HE/HF450
DN500																		BE/BF500	HE/HF500
DN600																		BE/BF600	HE/HF600

Standard type; max. 1.5 m/s

Hi-flow type recommended; max. 3 m/s

choose bigger Ø or lower the flow

Other sizes, materials, pressures and temperatures are available on request.



Standard



Hi-flow

A SpiroTrap dirt separator is preferably to be installed in the main return pipe.

## Demountable

If the level of contamination is such that it needs to be possible to replace or clean the separating element (Spirotube assembly), the demountable model can be chosen.



Standard: DN50 to DN600



Hi-flow: DN50 to DN600



Demountable: DN50 to DN600

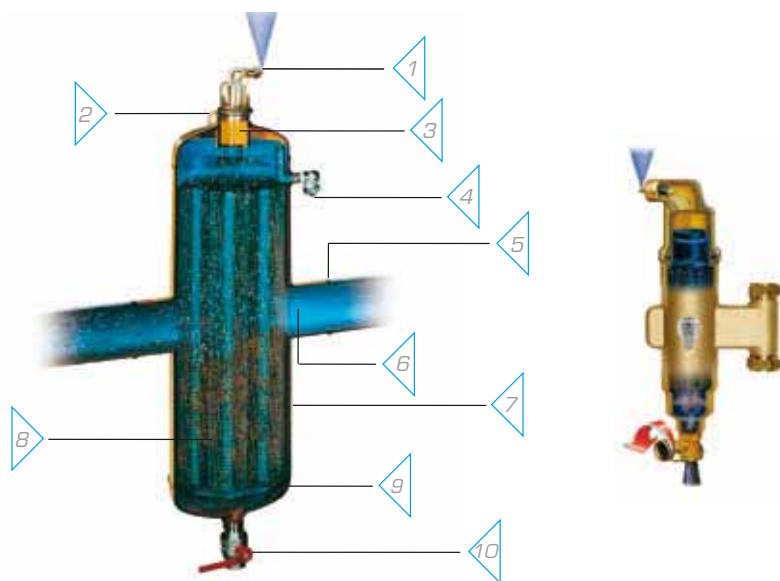
Hi-flow demountable: DN50 to DN600





## SpiroCombi deaerators and dirt separators

**Spirotech offers an extensive programme of SpiroCombi deaerators/dirt separators, especially designed for the simultaneous removal of air and dirt. These remove air, micro bubbles and dirt particles from the system water continuously.**



When the drain valve is opened, the dirt collected is discharged quickly and effectively. This action - opening and closing the valve - only takes a few seconds.

### Benefits of SpiroCombi

- Removes circulating air and micro bubbles effectively.
- Very small particles, from 5 µm (= 0.005 mm), are separated and removed.
- Dirt can be discharged while the system is in operation.
- No shut-off valves or bypass required.
- Minimal constant pressure drop.
- Maintenance only takes a few seconds.
- No unnecessary shutdown.
- Connection diameters from ¾" to DN 600 and above.
- A complete range, suitable for various pressures and temperatures.
- Three-year guarantee.

1. The automatic air vent is guaranteed not to leak and cannot be closed. Comes with thread for connecting a vent pipe as standard.
2. Lifting eyes make installation very easy.
3. Specially constructed air chamber prevents floating dirt from reaching the valve and provides sufficient volume to absorb pressure fluctuations.
4. Drain valve for admitting or releasing large amounts of air (when filling or emptying the system) and for removing floating dirt.
5. Many different connection options. Brass with compression fittings or female thread, horizontal and vertical. Steel with welded ends or flanges.
6. The flow is not obstructed by the dirt collected.
7. Solid construction which guarantees an extremely long life.
8. The unique Spirotube is the heart. This component has been specially designed for optimum separation of air and dirt and has a very low flow resistance.
9. Large capacity dirt collection chamber reduces the need for frequent draining.
10. Drain valve for removing accumulated dirt.

**"SpiroCombi: continuous removal of air and dirt."**

Connection	H (mm)	L (mm)	Max. flow [m³/h]	Max. flow [l/s]	Δp at max. flow [kPa]	Article number
22 mm. comp.	257	106	1.3	0.35	1.3	AC022
22 mm. comp.V	246	97	1.3	0.35	1.7	AC022V
G1	257	88	2.0	0.55	1.3	AC100

V = Vertical connection

Flow velocity ≤ 1 m/s

Operating pressure: 0 - 10 bar

Fluid temperature 0 - 110 °C

Other sizes, materials, pressures and temperatures are available on request.

				Standard type (1.5 m/s)						Hi-flow (3 m/s)					
Connection [DN]	Connection OD [mm]	L [mm]	LF [mm]	H [mm]	Max. flow [l/s]	Max. flow [m³/h]	Δp at max. flow [kPa]	Article number	Art. number demountable	H [mm]	Max. flow [l/s]	Max. flow [m³/h]	Δp at max. flow [kPa]	Article number	Art. number demountable
050	60.3	260	350	630	3.5	12.5	3.0	BC050	BD050	910	7	25	11.8	HC050	HD050
065	76.1	260	350	630	5.5	20	2.7	BC065	BD065	910	11	40	11.6	HC065	HD065
080	88.9	370	470	785	7.5	27	2.9	BC080	BD080	1145	15	54	12.4	HC080	HD080
100	114.3	370	475	785	13	47	3.7	BC100	BD100	1145	26	94	14.6	HC100	HD100
125	139.7	525	635	1045	20	72	4.2	BC125	BD125	1570	40	144	16.8	HC125	HD125
150	168.3	525	635	1045	30	108	4.9	BC150	BD150	1570	60	215	19.4	HC150	HD150
200	219.1	650	775	1315	50	180	5.8	BC200	BD200	1995	100	360	23.1	HC200	HD200
250	273.0	750	890	1715	80	288	6.9	BC250	BD250	2680	160	575	27.7	HC250	HD250
300	323.9	850	1005	2025	113	405	7.7	BC300	BD300	3190	225	810	31.0	HC300	HD300
350	356	NA	1100	2560	140	500	7.8	BC350	BD350	3530	280	1000	31.0	HC350	HD350
400	406	NA	1200	2860	180	650	8.4	BC400	BD400	3970	360	1300	34.0	HC400	HD400
450	457	NA	1300	3150	235	850	10.0	BC450	BD450	4410	470	1700	39.0	HC450	HD450
500	508	NA	1400	3460	295	1060	11.0	BC500	BD500	4860	590	2120	43.0	HC500	HD500
600	610	NA	1600	4070	425	1530	12.0	BC600	BD600	5760	835	3000	47.0	HC600	HD600

Operating pressure: 0 - 10 bar

Fluid temperature 0 - 110 °C

Other sizes, materials, pressures and temperatures are available on request.

## Select the correct SpiroCombi:

1. Determine the pipe diameter.
2. Determine the flow.
3. Determine the correct model using the table.

		Max. flow m³/h and l/s																								Applicable SpiroCombi			
m³/h	l/s	12.5	20	25	27	40	47	54	72	94	108	144	180	215	288	360	405	500	575	650	810	1000	1300	1530	1700	2120	3000	Standard	Hi-flow
		3.5	5.5	7	7.5	11	13	15	20	26	30	40	50	60	80	100	113	140	160	180	225	280	360	425	470	590	835		
DN050																												BC/BD050	HC/HD050
DN065																												BC/BD065	HC/HD065
DN080																												BC/BD080	HC/HD080
DN100																												BC/BD100	HC/HD100
DN125																												BC/BD125	HC/HD125
DN150																												BC/BD150	HC/HD150
DN200																												BC/BD200	HC/HD200
DN250																												BC/BD250	HC/HD250
DN300																												BC/BD300	HC/HD300
DN350																												BC/BD350	HC/HD350
DN400																												BC/BD400	HC/HD400
DN450																												BC/BD450	HC/HD450
DN500																												BC/BD500	HC/HD500
DN600																												BC/BD600	HC/HD600

Standard type; max. 1.5 m/s

Hi-flow type recommended; max. 3 m/s

choose bigger Ø or lower the flow

Other sizes, materials, pressures and temperatures are available on request.



Brass, horizontal: 22 mm and 1"



Standard



Hi-flow

## Demountable

If the level of contamination is such that it needs to be possible to replace or clean the separating element (Spirotube assembly), the demountable model can be chosen.



Standard: DN50 to DN600



Hi-flow: DN50 to DN600



Demountable: DN50 to DN600

Hi-flow demountable: DN50 to DN600



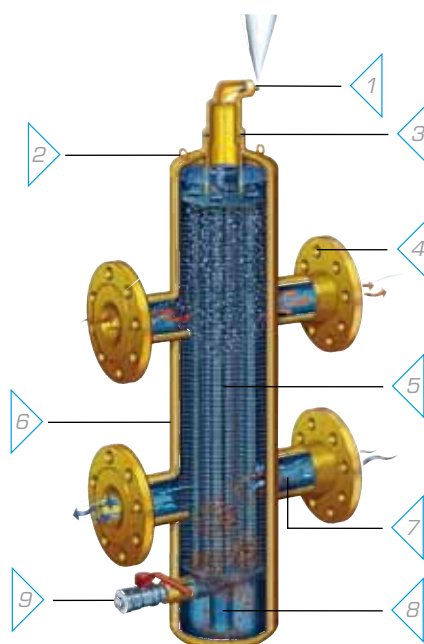
## SpiroCross - hydraulic deaerators and dirt separators

**A good hydraulic balance ensures optimum operation of HVAC and process systems with multiple groups and pumps. The removal of air and dirt is also important. In the compact SpiroCross, hydraulic balance and air/dirt separation are combined. This means that only four instead of eight connections are required. This does not only mean savings in purchase costs, but also in assembly and maintenance costs.**

SpiroCross was developed by Spirotech using Computational Fluid Dynamics and was also tested extensively on our own TÜV-certified test and measurement set-up and in various systems in practice.

### Benefits of SpiroCross

- Three functions in a single component.
- Just four connections instead of eight.
- Optimum hydraulic balance in the system.
- Spirotube guarantees optimum fluid mixing.
- Removes circulating air and micro bubbles.
- Even tiny particles, from 5  $\mu\text{m}$  (= 0.005 mm), are separated and removed.
- Dirt can be discharged while the system is in operation.
- Minimal constant pressure drop.
- Compact design and limited built-in height.
- No unnecessary shutdown.
- Three-year guarantee.



1. The automatic air vent is guaranteed not to leak and cannot be closed.
2. Lifting eyes make installation very easy.
3. Specially constructed air chamber prevents floating dirt from reaching the valve and provides sufficient volume to absorb pressure fluctuations.
4. Connection sizes DN50 up to DN300, with weld ends or flanges.
5. The unique Spirotube ensures optimum fluid mixing.
6. Solid construction which guarantees an extremely long life.
7. The flow is not obstructed by the dirt collected.
8. Large capacity dirt collection chamber.
9. Drain valve for removing accumulated dirt.



When the drain valve is opened, the dirt collected is discharged quickly and effectively. This action - opening and closing the valve - only takes a few seconds.



“Three functions in a single compact appliance.”

## How exactly does a hydraulic separator work?

A hydraulic separator absorbs the differences in volumetric flow between a primary circuit (supply =  $Q_p$ ) and a secondary circuit (demand =  $Q_s$ ). Three operating situations can occur if a hydraulic separator is installed in a system and these are shown on the left.

### Cooling

### Heating

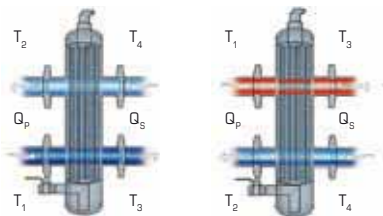
### Cooling

### Heating

### Cooling

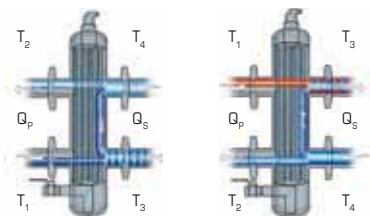
### Heating

Situation 1:  $Q_p = Q_s$   $T_1 = T_3$   $T_2 = T_4$



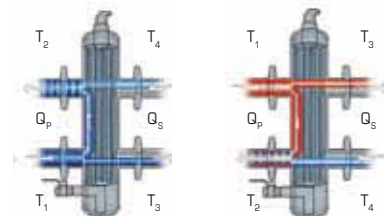
In this rare situation, supply and demand are exactly equal. This is the ideal situation in which the hydraulic separator is actually superfluous.

Situation 2:  $Q_p < Q_s$   $T_1 > T_3$   $T_2 = T_4$



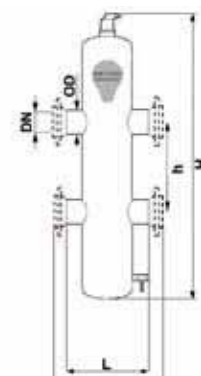
In this situation, demand is greater than supply. This will cause the  $\Delta T$  between  $T_3$  and  $T_4$  to drop. Some of the return water will join the supply, as a result of which it will take longer for the rooms to reach their set temperature. Where possible, the power of the boiler or cooler will then be increased.

Situation 3:  $Q_p > Q_s$   $T_1 = T_3$   $T_2 > T_4$



In the third situation, supply is greater than demand. This will cause the  $\Delta T$  between  $T_1$  and  $T_2$  to drop. Some of the supply water will now join the return water, as a result of which the efficiency of the boiler or cooler will decrease. Where possible, the power will be modulated downwards.

Connection DN (mm)	50	65	80	100	125	150	200	250	300
Connection OD (mm)	60.3	76.1	88.9	114.3	139.7	168.3	219.1	273	323.9
H (mm)	815	905	999	1261	1546	1781	2321	2870	3388
h (mm)	240	305	360	460	560	670	870	1100	1295
L (mm)	260	260	370	370	525	525	650	750	850
LF (mm)	350	350	470	475	635	635	775	890	1005
Primary Flow at 1.5 m/s (m³/h)	12.5	20	27	47	72	108	180	288	405
Primary Flow at 1.5 m/s (l/s)	3.5	5.5	7.5	13	20	30	50	80	113
Capacity ( $\Delta T = 20^\circ\text{C}$ ) (kW)	294	462	630	1092	1680	2520	4200	6720	9450
Capacity ( $\Delta T = 6^\circ\text{C}$ ) (kW)	88	139	189	328	504	756	1260	2016	2835
Article number	XC050	XC065	XC080	XC100	XC090	XC125	XC150	XC250	XC300



The SpiroCross are suitable for water and water/glycol mixtures (max. 50%). They can be used in combination with locally approved chemical additives and inhibitors that are compatible with the materials applied within the system. Not suitable for drinking water.

The standard SpiroCross is suitable for a temperature range of 0 to 110 °C and for an operating pressure of 0 to 10 bar. The SpiroCross housing is made of unalloyed steel. The flange connection is PN 16. Other sizes, connection materials, materials, pressures and temperatures are available on request.



## SpiroPlus – Flushing agents and additives



**SpiroPlus is a range of flushing agents and additives ideal for maintaining the quality of the system fluid and the system itself. The additives have been specially developed for use in heating and cooling systems and come with a KIWA-ATA certificate.**

The SpiroPlus range includes the following additives:



### **SPIROPLUS® Cleaner** - Dirt dissolver (flushing agent)

Dirt accumulates in every heating and cooling system, which can have annoying and costly consequences. Thorough flushing with SpiroPlus Cleaner is the solution for accumulations of dirt in the system. Another solution is the placement of a SpiroTrap dirt separator which will successfully clean out contaminations in an existing system.

### **SPIROPLUS® Sealer** - Leak sealer

Small leakages which let in air occur in every system. SpiroPlus Sealer seals and prevents these leakages occurring. The solution is absorbed in the molecular spaces and forms a protective film over the entire inside of the system.



### **SPIROPLUS® LimeCleaner** - Descaler (flushing agent)

Limescale accumulation in pipes and system components leads to poorer operation, less efficiency and thus unnecessarily high energy consumption. SpiroPlus LimeCleaner is an effective means of removing limescale.



### **SPIROPLUS® AntiFreeze** - Frost protector

It is important that pipes and equipment do not freeze during winter months. SpiroPlus AntiFreeze is the right solution to this problem. Moreover, thanks to SpiroPlus AntiFreeze, the system does not need to be heated excessively during freezing periods.

#### Product overview

	Quantity	Art. no.
SpiroPlus Cleaner Dirt dissolver	10 litre	CC010
SpiroPlus LimeCleaner Descaler	10 litre	CL010
SpiroPlus Sealer Leak sealer	1 litre	CS001
SpiroPlus Sealer Leak sealer	2.5 litre	CS0025
SpiroPlus Sealer Leak sealer	10 litre	CS010
SpiroPlus AntiFreeze Frost protector	2.5 litre	CA0025
SpiroPlus AntiFreeze Frost protector	10 litre	CA010
SpiroPlus AntiFreeze Frost protector	60 litre	CA060
SpiroPlus AntiFreeze Frost protector	200 litre	CA200

**Custom-made additives are also produced for specific applications.**

*All standard SpiroPlus products come with a KIWA-ATA certificate.*



"SpiroCare: made-to-measure solutions for your fluid carrying system."

## SpiroCare - analysis and advice



**Under the name SpiroCare, Spirotech advises customers on the best possible treatment for water-carrying systems. The total solution chosen will comprise an effective combination of deaerators and dirt separators, combined with the right additives and, where necessary, backed up by periodic inspections. Spirotech has its own specialised laboratory and team of experienced experts. Customers are provided with an extensive report containing advice on suitable water treatments.**

### Our service range:

- audits and on-site assessment;
- system design, optimisation and implementation;
- preventative measures;
- continuous process follow-up and adjustment;
- extensive technical service and support;
- customer specific chemicals for the prevention of corrosion, dirt accumulation and biological and mineral accumulations.



We have developed an integrated range of products and services to improve the performance of both new designs as well as existing processes. SpiroCare provides solutions and innovations to help maximise system running time and service life, decrease maintenance, save energy and improve the quality of the product.

### SpiroCare offers its customers added value:

- improved operation of every water carrying system;
- product quality;
- decreased operational costs;
- longer system service life;
- more friendly to the environment.





## Solar applications

### Continuous deaeration also available for solar systems

Extremely high temperatures can occur in solar systems, which leads to the formation of steam. Valves are installed to prevent vapour release and overheating. Without valves, solar systems can even 'boil dry'. Because solar systems are typically secondary heating systems, they can malfunction without the user being aware of it. Some systems are temporarily shut down, for example during the winter months. The air in the system rises, so that when the system is turned on again it should be deaerated at the highest point (of each individual panel, if necessary). For practical reasons, this is often neglected. The unavoidable consequence is circulation problems during system start-up which often turn out to be permanent.

### AutoClose deaerators: opens automatically whenever the situation allows, closes automatically whenever necessary

Thanks to a patented invention, Spirotech can offer a solar product range with the so-called AutoClose function. These valves only close if it is really necessary. The process is completely automatic, so no more climbing onto the roof to deaerate the system. Nor is manual deaeration necessary. Thanks to the AutoClose principle, solar systems can now be kept permanently deaerated. This improves efficiency and prevents all manner of inconveniences, symptoms and system wear.

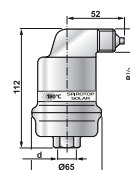


### The benefits of AutoClose:

- system will not boil dry via the deaerator;
- a permanent air-free, efficient installation;
- solar fluid will not prematurely degenerate;
- no more climbing to the top to deaerate;
- prevents false stagnation;
- suitable for new and existing installations.

### SpiroTop Solar

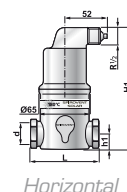
Type	Material	d	Float material	Max. temperature	Max. operating pressure	Weight [kg]	Article number	Art.nr. AutoClose
SpiroTop Solar	Brass	G½	PP	180°C	10 bar	0.7	AB050	AB050/FBA08



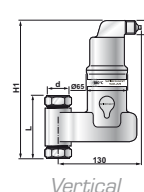
### SpiroVent Solar

Connection	H (mm)	L (mm)	Max. flow [m³/h]	Max. flow [l/s]	Δp at max. flow [kPa]	Article number	Article number AutoClose
22 mm. knel	153	106	1.3	0.35	1.3	AA022/008	AA022/FBA08
22 mm. knel V	220	104	1.3	0.35	1.5	AA022V/008	AA022V/FBA08
G ¾	153	85	1.3	0.35	1.3	AA075/008	AA075/FBA08
G ¾V	210	84	1.3	0.35	1.5	AA075V/008	AA075V/FBA08
G1	180	88	2.0	0.55	1.3	AA100/008	AA100/FBA08
G1V	210	84	2.0	0.55	2.4	AA100V/008	AA100V/FBA08
G1½	200	88	3.6	1.0	1.3	AA125/008	AA125/FBA08
G1½	234	88	5.0	1.4	1.3	AA150/008	AA150/FBA08

V = Vertical connection  
Flow velocity ≤ 1 m/s  
Operating pressure: 0 - 10 bar  
Fluid temperature 0 - 180 °C  
Other sizes, materials, pressures and temperatures are available on request



Horizontal



Vertical

**Both the SpiroTop Automatic Air Vent and the SpiroVent micro bubble deaerator are available with the AutoClose option.**

# Better for the system; benefits for everyone



**Spirotech products and services not only offer attractive benefits for systems. Everyone involved stands to benefit from what Spirotech has to offer, from advisers, designers, distributors and installers to system users and maintenance people.**

### Guaranteed top quality

Spirotech delivers the quality you can expect of a specialist. The basis for this is high quality materials, but there's more to it than that: our experts closely monitor every stage of the production process. One of the key quality requirements is that our products are leak proof. Thanks to strict inspections and the painstaking care taken by our people in the production process, you can rest assured that Spirotech's products are 100% leak proof and that they function perfectly.

### Certified

We are constantly improving our products and processes. It goes without saying that we are certified for quality (NEN-EN-ISO 9001), environmental management (NEN-EN-ISO 14001) and health and safety (OHSAS 18001).

### Custom-made solutions and OEM applications

Spirotech offers not only standard products. If necessary, we work with customers to produce custom-made solutions. These are based on users' specific requirements. If desired, these can also be supplied as OEM products.



#### Insulation

Specially made insulation sets are available for most deaerators and dirt separators.



#### Add-on sets

Spirotech provides complete add-on sets for vertical oil and gas boilers with distributors and mixing groups which are ready for use. These can be installed between the boiler and the mixing group.



#### Digital support

Product data sheets, standard specification texts, line drawings, CAD symbols, project descriptions, etc. are available via our website.

**Separate literature is available which contains detailed product information. You can also find this information on our website.**



## Spirotech: accessories, additives and advice

Spirotech designs and produces innovative total solutions for conditioning fluids in HVAC and process systems. Our products and services reduce faults and wear, less maintenance is required, performance is improved and energy consumption is reduced.

Spirotech is deservedly regarded as the only real specialist in the world. Leading manufacturers of system components recommend Spirotech products on account of their high standard of quality and the company's vision on product development and process improvement.

Thanks to a very extensive international network of suppliers, users all over the world enjoy the benefits of our products and services every day.

*Spirotech is a Spiro Enterprises company.*



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