

**SPIROCOMBI®**



**SPIROCOMBI®** | AUTOMATIC  
DEAERATORS/  
DIRT SEPARATORS  
FOR HEATING,  
COOLING AND  
PROCESS SYSTEMS



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

DOMESTIC | COMMERCIAL | INDUSTRY

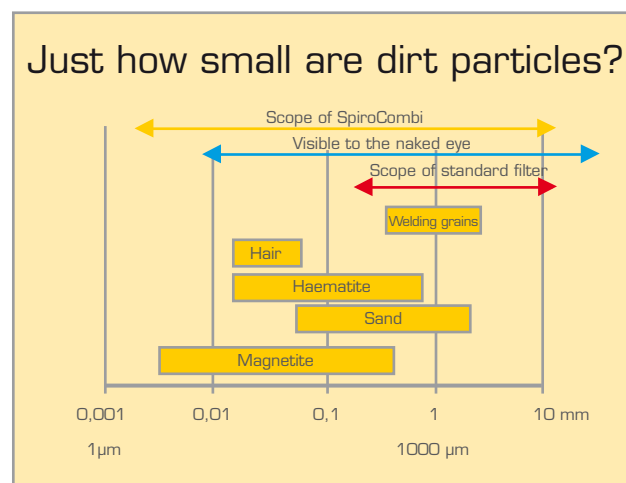


## Air and dirt prevent systems from achieving optimum levels of performance

**Air and dirt in system water are causes of disruption. They can cause excessive wear, damage to expensive system components, process disruptions or even total failure. In short, they are things which users often complain about and often require immediate action. Install a SpiroCombi deaerator/dirt separator and these problems will become a thing of the past.**

A SpiroCombi separates gases and dirt from the system water and removes them from the system. Independent tests have shown that even microscopic dirt particles and tiny micro bubbles are removed from the water flow. Often it is these which cause the most damage. The operation of the SpiroCombi is

not affected by the accumulated dirt. The SpiroCombi is virtually maintenance-free and - unlike a filter - has a very low and constant flow resistance. An additional benefit of a system free of air and dirt is the saving made on energy costs.



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



### 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.

“The presence of air also causes dirt-related problems.”

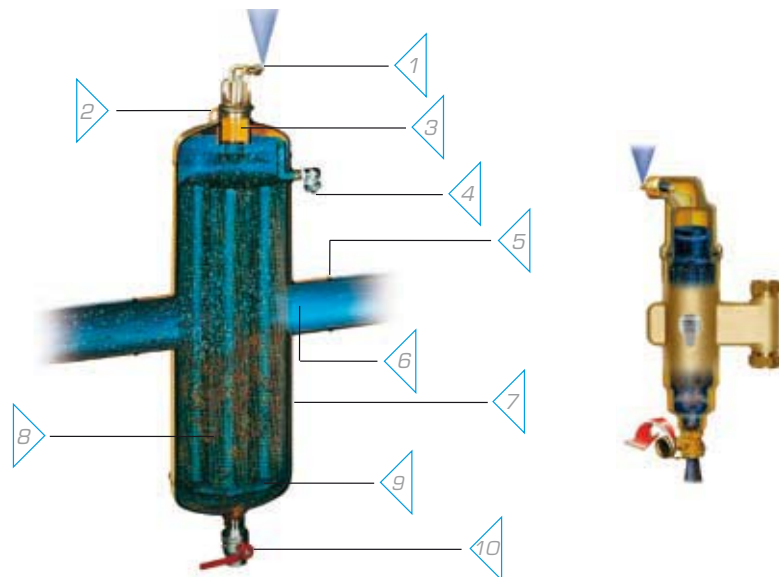


# SpiroCombi deaerators and dirt separators: time-saving and effective

**At the heart of the SpiroCombi is a spiral structure through which the fluid flows. This is the "Spirotube", which ensures that micro bubbles rise automatically and dirt particles sink automatically. Although the Spirotube can trap the smallest micro bubbles and dirt particles, it has a very open structure which means that the SpiroCombi does not clog up. The flow and the low pressure drop are not affected by the accumulated dirt.**

Dirt trapped can be discharged while the system is in operation. This saves a great deal of time and therefore represents a major advantage over filters since with standard filters, the system has to be switched off to enable cleaning to be carried out. If no additional shut-off valves are installed, the system will have to be partially drained before the filter can be cleaned or replaced.

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.



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.



# An extensive range of SpiroCombi deaerators and dirt separators

**Optimum system and process water quality is achieved when air and dirt is kept to a minimum. If air and dirt is not removed, or is not removed sufficiently, numerous complaints and problems can arise such as annoying noises, frequent manual venting, deteriorating pump performance, an imbalance in the system, unnecessary disturbance and excessive wear. All these things result in higher energy consumption, complaints and failure and often require immediate action.**

Spirotech offers a extensive range of SpiroCombi deaerators and dirt separators specially designed for the simultaneous removal of air and dirt. All products can be used for both new build projects and for renovating heating, cooling and process systems. SpiroCombi deaerators and dirt separators are available in brass and in (stainless) steel. The brass separators, suitable for a flow velocity of up to 1 m/s, can be installed in horizontal and vertical pipes. The steel models are available in standard (flow velocity  $\leq 1.5$  m/s) and hi-flow designs (flow velocities  $\leq 3$  m/s).

Connection	H (mm)	L (mm)	Max. flow (m <sup>3</sup> /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  
 Operating pressure: 0 - 10 bar  
 Flow velocity  $\leq 1$  m/s  
 Fluid temperature 0 - 110 °C  
 Other sizes, materials, pressures and temperatures are available on request.



Brass, horizontal: 22 mm and 1"



Brass, vertical: 22 mm

Connection (DN)	Connection OD [mm]	L [mm]	LF [mm]	Standard type (1.5 m/s)					Hi-flow (3 m/s)						
				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



Standard



Hi-flow

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.

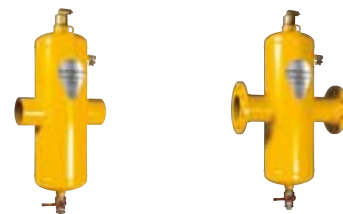
Max. flow m³/h and l/s		Applicable SpiroCombi	
m³/h	l/s	Standard	Hi-flow
3000	835		
2120	590		
1700	470		
1530	425		
1300	360		
1060	295		
1000	280		
850	235		
810	225		
650	180		
575	160		
500	140		
405	113		
360	100		
288	80		
215	60		
180	50		
144	40		
108	30		
94	26		
72	20		
54	15		
47	13		
40	11		
27	7.5		
25	7		
20	5.5		
12.5	3.5		
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.

## 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

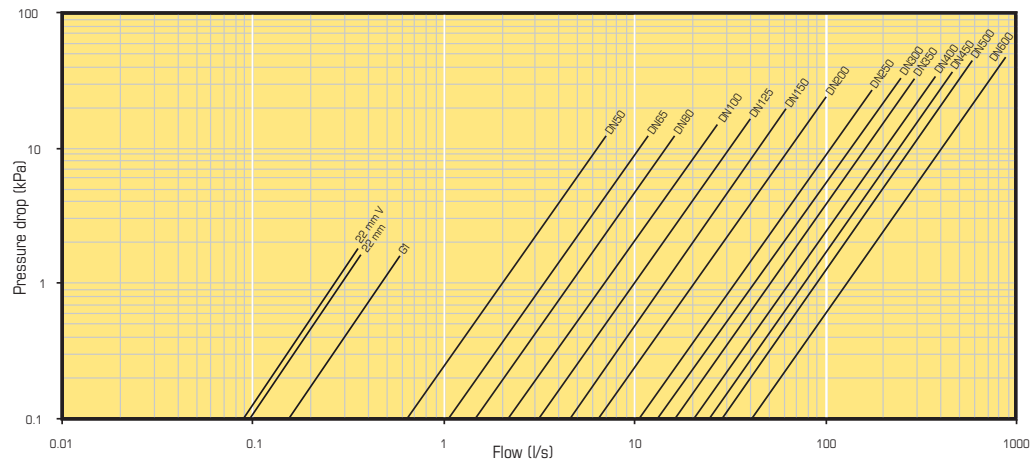


## Installing SpiroCombi

A SpiroCombi deaerator/dirt separator is preferably to be installed at the hottest point within a system. In the case of a heating system, 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.

## Flow resistance graph for SpiroCombi

Unlike filters, SpiroCombi deaerators and dirt separators have a minimal constant pressure drop.



*Measured values according to Spirotech standard. Values shown are maximum values. Please contact us for further information.*

SpiroCombi deaerators and dirt separators 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 installations.

The standard SpiroCombi is suitable for a temperature range of 0 to 110 °C and for an operating pressure of 0 to 10 bar. The SpiroCombi housing (from DN 050) is made of unalloyed steel.

The flange connection is PN 16. The housing of the SpiroCombi 22 mm compression and the 1" is made of brass. Other sizes, materials, pressures and temperatures are available on request.



### Digital support

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

### 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.

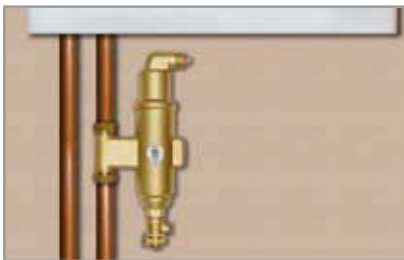
**Separate literature is available which contains detailed product information. You can also find this information on our website.**

“Spirotech air and dirt separation products are being used successfully in cooling systems for diesel and gas engines for the shipping industry and the power generation industry.”



## Real-life examples

**The use of Spirotech products ensures fewer problems and disruptions and consequently fewer complaints. The products also protect the system so that it will have a longer life.**



*The results of the test were quite clear: no follow-up visits needed to be made to the systems fitted with a SpiroCombi.*

### SpiroCombi fitted as standard by housing corporation

While renovating 160 heating systems, a housing corporation decided to fit 50% of the properties with a SpiroCombi deaerator and dirt separator. Circulation problems arose in 24% of the houses without a SpiroCombi. These problems did not occur in the houses with a SpiroCombi; these convincing figures helped the decision for the housing corporation to fit all the boilers for both new and renovation projects with a SpiroCombi. According to the housing corporation, this product provides real value for money, not only in the short term but also in the long term by protecting the systems.



*23 SpiroCombis keep the climate conditioning system at Barcelona Airport constantly free of gases and dirt particles.*

### A comfortable environment at Barcelona Airport thanks to SpiroCombi

A brand new terminal with a total effective area of 525,625 m<sup>2</sup> has been built at the international airport in Barcelona. A great deal of attention was paid to efficiency and sustainability when designing the climate conditioning system. As a result, 23 SpiroCombis were installed which constantly remove the gases and dirt particles present in the system. This has been Spirotech's contribution towards creating a comfortable environment at this Spanish airport.



*The SpiroCombi keeps the water for cooling the ship's engine clean and thus prevents damage and wear to expensive components.*

### Sailing along with a SpiroCombi

A progressive shipowner chose reliability in all areas when designing two new advanced inland vessels. Gases and dirt in the cooling fluid of ships' engines can cause all kinds of problems, wear and (consequential) damage - at the expense of costly parts, vital components and valuable sailing time. The cooling water from both ships is kept clean using a SpiroCombi deaerator/dirt separator.



## 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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