SOLAR®





AUTOMATIC AIR VENTS AND DEAERATORS FOR SOLAR INSTALLATIONS

SPIROTOP® Solar
SPIROVENT® Solar



NEW: AUTOCLOSE

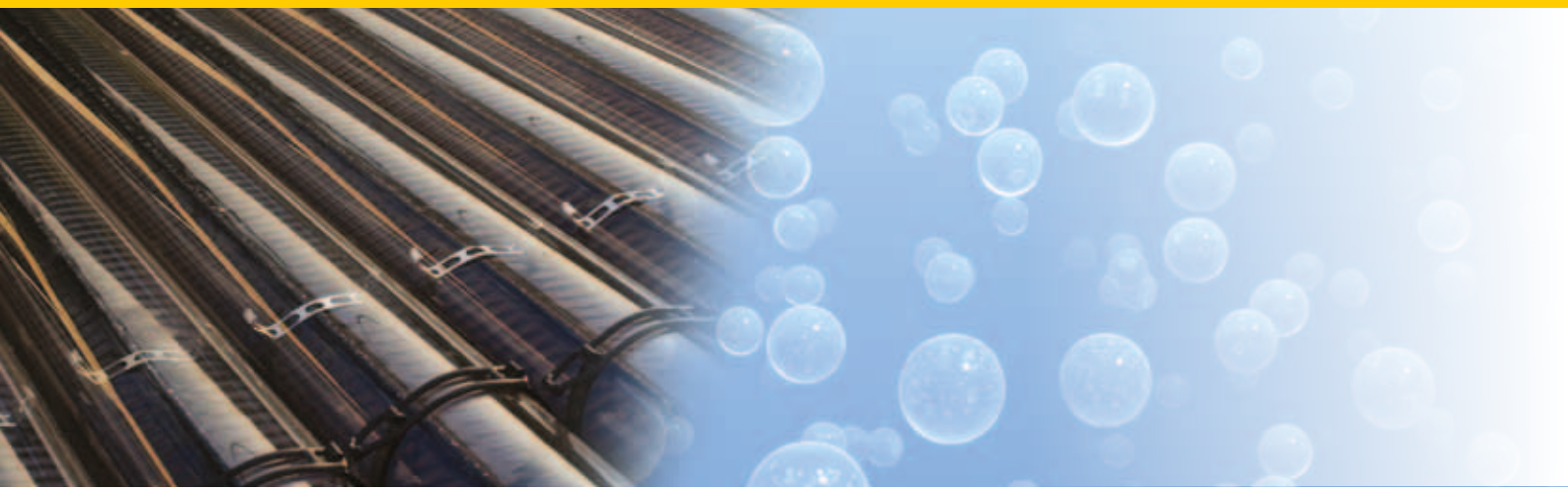
OPEN WHEN POSSIBLE CLOSED WHEN NECESSARY

- No shut-off valves required
- No risk of boiling dry via the deaerator
- Always an air-free installation with optimum efficiency
- For new and existing installations

SPIRO life EXCEPTIONAL GUARANTEE

DOMESTIC | COMMERCIAL

SPIRTECH FOR BETTER PERFORMANCE



Air is a disruptive factor in solar installations

Air in a solar installation causes complaints, excessive wear, low efficiency and process interruptions. All of these are avoidable issues that require follow-up and lead to unnecessary costs. A solar installation may even "boil dry". As these systems often have a supportive heating source, the user will not directly notice the loss of efficiency.



Escaping steam is dangerously hot and boiling dry would be the end result.

The air issue in closer detail

The air issue has a variety of consequences that are easy to explain:

- Very high temperatures occur in solar installations, which may lead to steam formation, vapour release or even boiling dry.
- Air accelerates the degeneration of the solar fluid. This can lump and clog to such an extent that the panel or even the entire system is damaged beyond repair.
- Air in the collectors causes 'false stagnation'. The collector is unable to release its heat, whilst the pump is operating without circulating liquid. The efficiency of the energy-saving installation will then be less than zero.
- The presence of air causes dirt particles to form, which start circulating through the installation. This will eventually cause damage to expensive installation components, malfunctions in the installation and the process, or even complete failure.



The presence of air can also cause dirt-related 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

How can air get into a system?

There are a number of ways in which air can get into a system. The main ones are listed below:

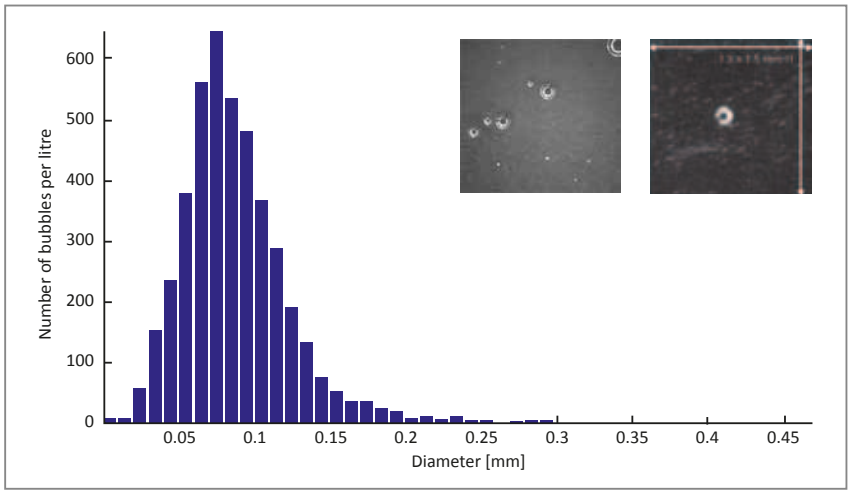
- (re)filling of the system;
- alterations and maintenance;
- micro leaks and diffusion through glands, gaskets and plastic pipes;
- open expansion systems and cooling towers;
- incorrect expansion volume or incorrect initial pressure;
- physical laws, in particular Henry's Law.*

* Henry's Law: "Gas will dissolve in a liquid until there is a balance between the partial pressure of the gas and the pressure in the liquid". That means that as the temperature rises or the pressure drops, the mass of gases that dissolves in a liquid will be reduced. Therefore at certain points within a system, the amount of gas absorbed or dissolved gas emitted will depend on the pressure and temperature.



William Henry

A large amount of air, both free-circulating air and absorbed air in the solar fluid, is always present in the collectors after periods of limited solar activity. When the temperatures start rising again, the dissolved air is released and the system should be deaerated at its highest point. For practical reasons, this is not at all always done or it is done inadequately.
A deaerator is often installed "lower" in the system, where the deaeration efficiency is far from good.



This graph shows the number of air bubbles and their distribution by size in liquids such as water and other solar liquids directly after heating up.



"An air-free solar installation yields a higher efficiency."

The presence and continuous entry of air also leads to the formation of dirt particles that start circulating in the installation. This will eventually cause damage to expensive installation components, malfunctions in the installation and the process, or even complete failure.
All of these are avoidable issues that require follow-up and lead to unnecessary costs.



Also truly continuous deaeration in solar installations

Very high temperatures may occur in a solar installation, leading to steam formation. The deaerators required to keep the system free of air are almost always placed behind shut-off valves to prevent vapour release and boiling dry. As a result, the system is hardly deaerated at all, even though air permanently enters the system. As a solar installation usually includes a secondary heating source, users often never notice that the solar section is not really functioning anymore due to excess air in the system.

AutoClose deaerators – automatically open when possible, automatically closed when necessary

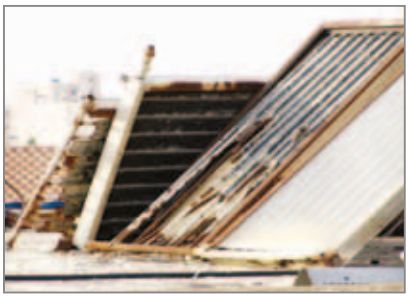
Thanks to a patented invention, Spirotech can offer solar deaerators with what an AutoClose function. As soon as the fluid temperature rises above its boiling point, the deaeration valve closes quickly and fully. No more air is removed from the system, but no steam will escape either, thereby fully preventing the system from boiling dry via the deaerator.
As soon as the temperature has dropped sufficiently, the valve is reopened for deaeration and the deaeration process is restarted.

This means **permanent** deaeration in the **ideal location.** Shut-off valves are now redundant. Thanks to the AutoClose principle, solar installations can remain **permanently** air free. This increases system efficiency and **prevents** all kinds of discomfort and complaints.

The benefits of AutoClose:

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





Don’t let things get out of hand, deaerate automatically and continuously!

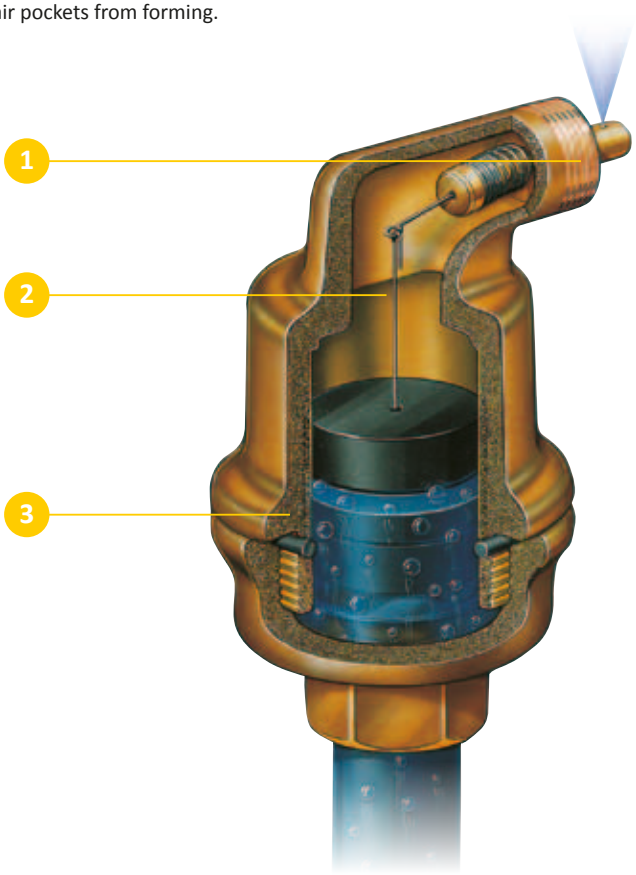
SpiroTop Solar - automatic air vents

SpiroTop Solar automatic air vents are designed to remove free air and trapped air bubbles quickly and effectively. If a solar system has to be drained, the SpiroTop ensures fast and reliable venting.



The SpiroTop Solar 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.



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.

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 ½" connection prevents the pipette effect.
- A complete range, suitable for various pressures and temperatures.
- Five-year guarantee.



New: AutoClose

The SpiroTop Solar is available with AutoClose function.

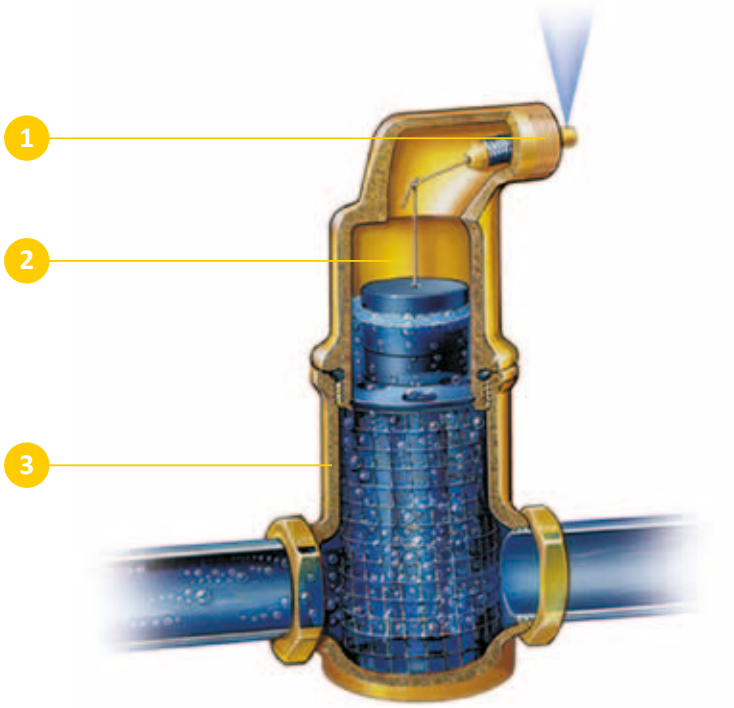
SpiroVent Solar - micro bubble deaerators

This deaerator continuously removes even the smallest bubbles from the solar fluid. At the heart of the SpiroVent is a spiral structure through which the fluid flows. This is the "Spirotube", which ensures that micro bubbles rise automatically. Although the Spirotube can trap the smallest micro bubbles, it has a very open structure which results in a very low pressure drop.

Because the SpiroVent removes the countless micro bubbles effectively, the system fluid becomes absorptive. That means that the fluid can then be returned to the system and can absorb gases and discharge them into the SpiroVent again. Air-related problems become a thing of the past. The main test and measurement set-up used by Spirotech to develop deaerators is TÜV-approved.



Horizontal Vertical



1. The automatic air vent is guaranteed not to leak and cannot be closed.
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.

Benefits of SpiroVent Solar

- Removes circulating air and micro bubbles effectively.
- Removes trapped air.
- Greatly reduces commissioning times.
- Minimal constant pressure drop.
- No unnecessary shutdown.
- Five-year guarantee.

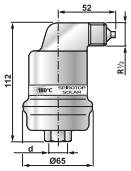


New: AutoClose

The SpiroTop Solar is available with AutoClose function.

SpiroTop Solar

Typa	Material	d	Float material	Max. temperature	Max. operating pressure	Weight [kg]	Article number	Art.nr. AutoClose
SpiroTop Solar	Brass	G½	TPX	180°C	10 bar	0,7	AB050/008	AB050FBA08



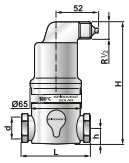
SpiroVent Solar

Connection (d)	H [mm]	h [mm]	L [mm]	Max. flow [m³/h]	Max. flow [l/s]	Δp at max. flow [kPa]	Article number	Article number AutoClose
22 mm. comp.	153	20	106	1,3	0,35	1,3	AA022/008	AA022FBA08
22 mm. comp. V	220	-	104	1,3	0,35	1,5	AA022V/008	AA022VFBA08
G ¾	153	20	85	1,3	0,35	1,3	AA075/008	AA075FBA08
G ¾V	210	-	84	1,3	0,35	1,5	AA075V/008	AA075VFBA08
G1	180	35	88	2,0	0,55	1,3	AA100/008	AA100FBA08
G1V	210	-	84	2,0	0,55	2,4	AA100V/008	AA100VFBA08
G1¼	200	40	88	3,6	1,0	1,3	AA125/008	AA125FBA08
G1½	234	42	88	5,0	1,4	1,3	AA150/008	AA150FBA08

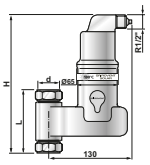
V = Vertical connection
Operating pressure: 0 - 10 bar

Flow velocity ≤ 1 m/s
Fluid temperature 0 - 180 °C

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



Horizontal



Vertical

SpiroTop Solar Automatic Air Vents and SpiroVent Solar Deaerators can be used for new built projects and renovation of solar installations. Both are suitable for:

- AutoClose: water-glycol mixtures (20% minimum, 50% maximum);
- a temperature range of 0 to 180°C;
- an operating pressure of 0 to 10 bar;
- locally approved chemical additives and inhibitors that are compatible with the materials applied within the system.

The SpiroTop Solar must be placed at the highest point of the installation and in any location where air inclusion may occur. The SpiroTop should be installed vertically, with the connection at the bottom.

The SpiroVent Solar should preferably be installed close to the highest and warmest point of the installation between the collector and the boiler/exchanger.





SPIROPLUS®

Protect and optimize the system and its efficiency with SpiroPlus flushing agents and additives.

Better for the system - benefits for everyone



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.

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 www.spirotech.com.



SPIROLIFE
Guarantee of a lifetime

Spirotech's Exceptional Guarantee Terms!

- 20 Brass Products ≤ 110°C: 20 years
- 5 Steel Products and Brass Products > 110°C: 5 years
- 2 Vacuum Degassers: 2 years

Conditions:
Correct selection, installation, maintenance and use of the products, in accordance with our regulations, data sheets and user manuals. Our guarantee does not cover normal wear and tear. Please also see our general terms and conditions.

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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