EN

5570

AUTOMATIC DEAERATOR WITH INSULATION

DESCRIPTION

The deaerators Art. 5570 **are used in heating and cooling systems to eliminate any air trapped in the circuits during filling, or which may form during normal operation.**

Operating principle: The presence of air in the system reduces the level of water contained in the storage chamber, resulting in the float lowering and the gas expulsion device opening. On the contrary, if there is no air in the circuit, the water keeps the float in a position that closes the gas expulsion device.
The separation of micro-bubbles is optimised thanks to the rings present in the deaerator body.
The micro-bubbles of gas present in the fluid, adhere to the large surfaces of these rings to result in larger bubbles (by coalescence), which, thanks to their greater buoyancy, rise to the top of the device and are subsequently discharged by the expulsion device.

By eliminating the air in the circuits, problems such as system noise and wear on parts are avoided, to guarantee better performance of the radiant terminals and to result in a reduction in operating costs (to learn more, see the "INFORMATION FROM TIEMME" section of this technical data sheet).

ADVANTAGES / STRENGTHS

- Automatic air discharge function.
- Guarantees better performance of the system, resulting in a reduction in management costs.
- Avoids system noise problems and wear of parts.
- High air discharge capacity.
- Bi-directional.
- Equipped with insulation.

PRODUCTION RANGE

Art.	Code	Connection fittings
5570	556 0001	G 3/4" F (ISO 228)
	556 0002	G 1" F (ISO 228)
	556 0003	G 1" 1/4 F (ISO 228)
	556 0004	G 1" 1/2 F (ISO 228)
	556 0395 *	G 2" F (ISO 228)

* Without insulation

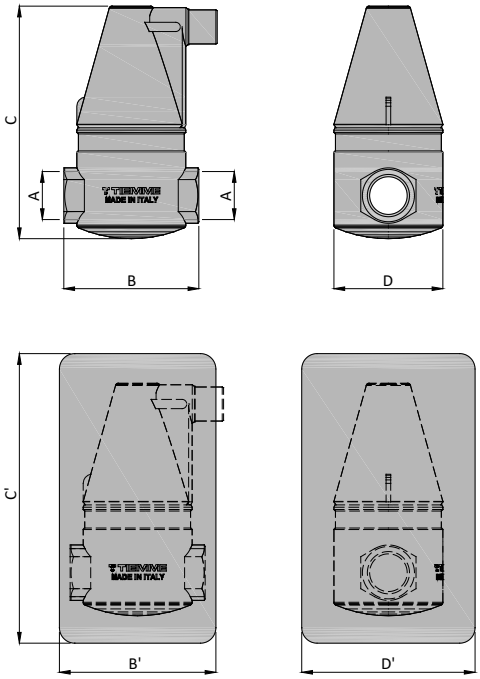
CONSTRUCTION SPECIFICATIONS

- Body: Brass
- Rings: Stainless steel
- O-ring seal: EPDM
- Insulation: EPP
- Threads: ISO 228

TECHNICAL SPECIFICATIONS

- Maximum working temperature: + 120 °C
- Minimum working temperature: - 10 °C (as long as the fluid remains in the liquid phase)
- Maximum working pressure: 10 bar
- Maximum discharge pressure: 6 bar
- Maximum flow speed: 1.5 m/s
- Fluid compatibility: Water, water and glycol solutions (maximum glycol percentage 50%)

DIMENSIONAL SPECIFICATIONS

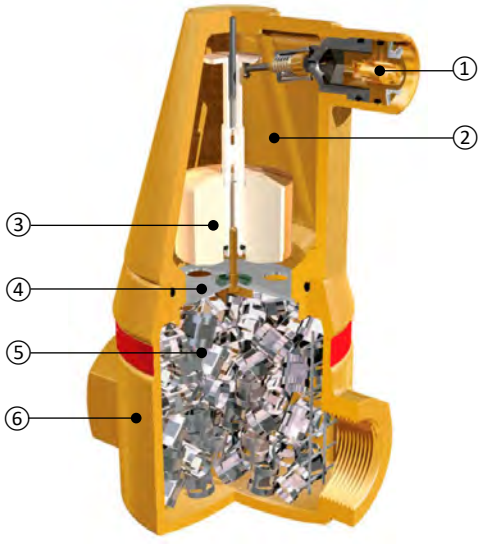


Art.	Code	A	B	B' *	C	C' *	D	D' *
5570	556 0001	G 3/4" F	88	102	151	188	71	113
	556 0002	G 1" F	100	110	171	207	80	117
	556 0003	G 1"1/4 F	114	116	192	227	87	121
	556 0004	G 1"1/2 F	114	116	192	227	87	121
	556 0395	G 2" F	131	-	213	-	93	-

* Measurements of the insulating box.

Dimensions in mm

DESCRIPTION OF PARTS



1) Gas expulsion device: in the event of a possible leak from the deaerator, this can be closed using the special screw.

2) Conical storage chamber equipped with an extended float to increase the distance from the relief valve: this minimises the possibility of contamination of the valve seat.

3) Float.

4) Protection plate.

5) Steel rings: these encourage the release of micro bubbles thanks to their ample contact surfaces.

6) Brass body.

HYDRAULIC SPECIFICATIONS

Diagram 1: Flow rate/pressure drops.

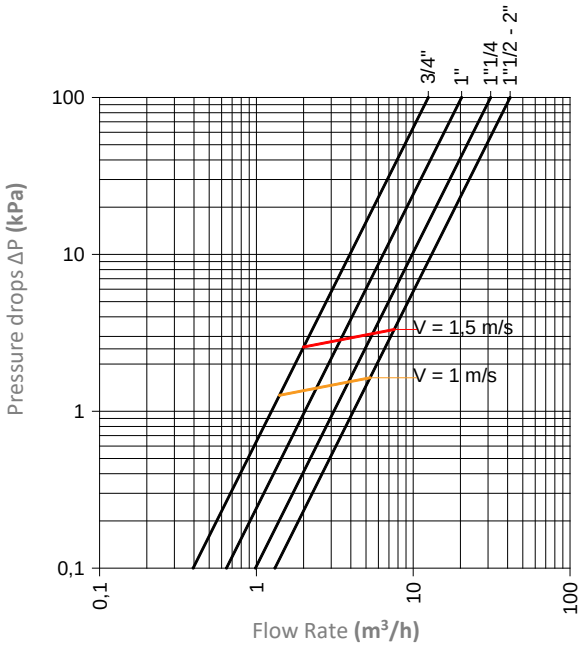
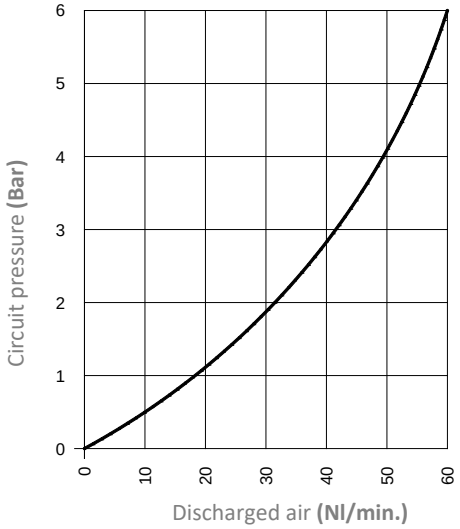


Diagram 2: Air venting capacity



Measurement	3/4"	1"	1"1/4	1"1/2	2"
Kv (m³/h)	12,48	20,36	31,18	41,50	41,50

INSTALLATION / WARNINGS

- Install the deaerator in a **vertical position** only (on horizontal pipes), with the gas expulsion device facing upwards.
- Tre deaerator art. 5570 is a bi-directional component, therefore it has the same efficiency irrespective of the direction of the flow running through it.
- The deaerators are used in the hottest area of the system, as there is greater formation of micro bubbles there.
In the case of **heating systems**, the deaerator must therefore be installed **on the delivery pipe**, immediately downstream of the generator or the mixing valve, preferably upstream of the circulation pump (Diagram 1).
In the case of a **cooling system**, the deaerator must be installed on the **return circuit**, at the input of the cooling unit (Diagram 2).

Diagram 1: Heating system

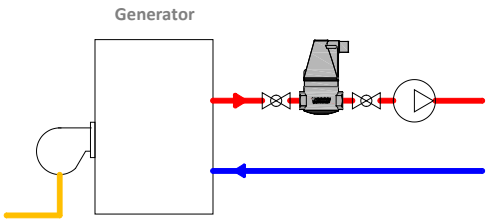
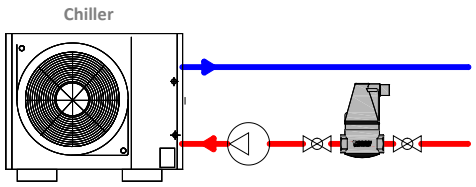


Diagram 2: Cooling system



- Installation in locations that cannot be inspected and are at risk of freezing, is not recommended.
- Automatic air venting can be interrupted by simply fully tightening the locking screw. Vice versa, to guarantee correct functionality, it is enough to unscrew the screw at least one turn from the completely closed position.

N.B. To guarantee the correct functionality of the device, in its automatic deaerator function, make sure that the water pressure remains below 6 bar (maximum discharge pressure value).

TIEMME RACCORDERIE S.p.A. will not be held responsible for any failures and/or accidents resulting from failure to comply with these instructions and/or from improper use of the system. The information given does not exempt the user from scrupulously following the regulations and good technical standards that are currently in force.

MAINTENANCE

Any accidental pressures of the sealing device can cause leakage of dirty fluid from the valve, which may result in soiling of the sealing seats. In this case the component must be disassembled and cleaned.

INFORMATION FROM TIEMME

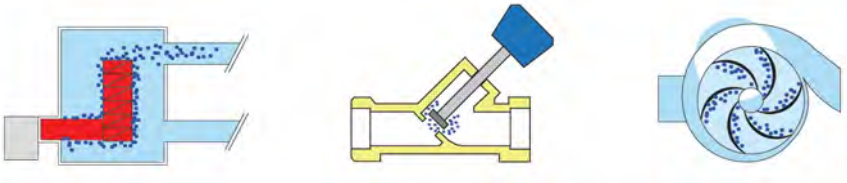
AIR IN SYSTEMS: COMMON PROBLEMS

The presence of air in circuits is a common phenomenon and calls for some specific precautions to guarantee that the system will function correctly. In fact, if the air is not eliminated properly, it can cause several different problems:

- Noise in the pipes, terminals and valves:

Noise in the pipes can occur, above all, when the system is started-up, when the air introduced during filling has not yet reached the deaerators. Noise in the valves, on the other hand, is closely linked to the presence of air microbubbles which, when passing through the regulating organs, undergo a sudden pressure decrease, causing cavitation.

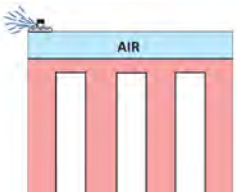
These air microbubbles are spheres of between 0.02 and 0.10 mm, they can be formed on the separation surfaces between the water and the combustion chamber of the generator (generator microbubbles), or where the fluid threads reach very high speeds, for example near bottlenecks in the system or circulation pump impellers (cavitation microbubbles).



- Carrier fluid circulation is blocked or flow to the emission terminals is insufficient:

The air that accumulates inside the system can cause the circulation pumps to malfunction, as they cannot transfer energy to an incompressible fluid like water, but to a water-air mixture that loses its properties.

The air also occupies volume, to the detriment of the vector fluid, in the pipes and the emission terminals, causing bottlenecks and overpressure, resulting in a decrease in the yield of the system.



- Corrosive phenomena of metal components:

The oxygen present in the air can trigger corrosion of ferrous materials, according to the following chemical formula: $2Fe + 3H_2O \rightarrow Fe_2O3 + 3H_2$

ITEM SPECIFICATIONS

Art. 5570

Automatic deaerator with insulation made of: body in brass, rings in stainless steel, o-ring seal in EPDM, insulation in EPP, ISO 228 threading. Maximum working temperature +120 °C. Minimum working temperature - 10 °C (as long as the fluid remains in the liquid phase). Maximum working pressure 10 bar. Maximum discharge pressure 6 bar. Maximum flow speed 1.5 m/s. Fluid compatibility water and glycol solutions (maximum percentage of glycol 50%). Available in 3/4" ÷ 2" sizes.

CERTIFICATIONS