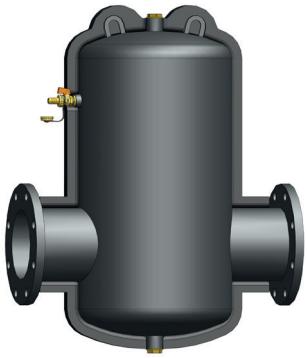
DEAERATORS



Description

The deaerator eliminates the air contained in heating and air-conditioning systems. It is installed in the points where the fluid reaches the highest temperatures, allowing the microbubbles to gather on the mesh of the internal grid and to be evacuated through the air vent, which has to be installed on the top (added separately).
Eliminating air from systems avoids noise problems, pump cavitation, wear of the installed devices and increases the efficiency of the thermal exchange.
The deaerators are complete with insulation for heating and air-conditioning systems.

Range of articles

Series F08 Deaerator with painted steel body for heating and air-conditioning systems, complete with insulation. Flanged connections

Features

Working temperature range: **0–110 °C (no frost)**
Max. working pressure: **6 bar**
Suitable fluids: **water for thermal systems, glycol solutions (max 50%)**
Connections: **flanged EN 1092 PN 16**

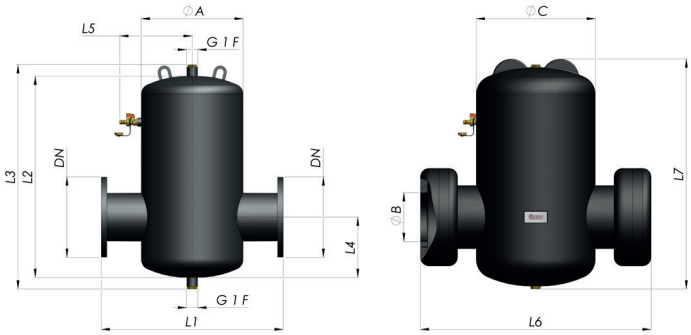
Materials

Body: **painted steel**
Plugs: **brass CW617N**
Inner mesh: **steel**
Side drain cock: **brass CW617N**
Gaskets: **EPDM, PTFE**
Insulation:

- Material: **closed cell expanded PE-X**
- Thickness: **30 mm**
- Density: **30-80 kg/m³ (inner-outer)**
- Thermal conductivity (ISO 2581):
- **- 0,036-0,043 W/(m·K) (10 °C) (inner-outer)**
- **- 0,041-0,047 W/(m·K) (40 °C) (inner-outer)**

Coefficient of resistance to water vapour diffusion (ISO 12572): **1300**

Dimensions

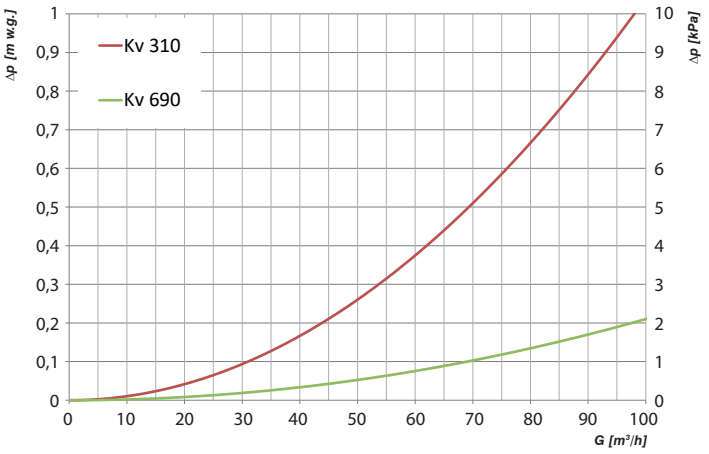


Series	Code	DN	Max flow rate [m³/h]	Power output [kW] ΔT=10 K	Power output [kW] ΔT=20 K	ϕA [mm]	ϕB [mm]	ϕC [mm]
F08	F08100000	DN 100 PN 16	33	384	768	273	115	340
	F08150000	DN 150 PN 16	74	861	1721	355	165	420

Kv [m³/h]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	L5 [mm]	L6 [mm]	L7 [mm]	Volume [l]	Weight [kg]	N. P/B	N. P/C
310	470	500	580	194	215	640	610	27,7	27,5	-	1
690	635	700	780	210	255	830	800	67,4	53	-	1

N. P/B: number of pieces in box - N. P/C: number of pieces in carton

Diagrams

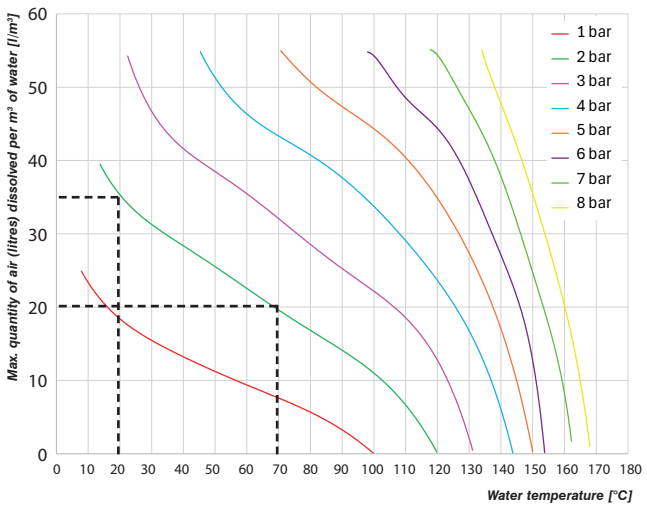


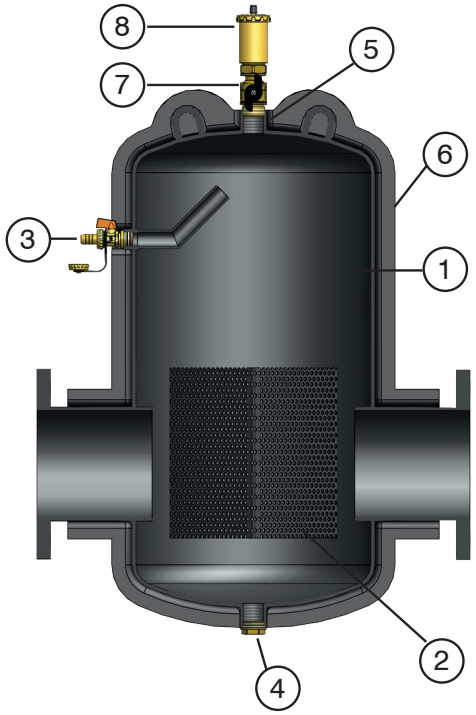
Working way

Henry's law, known as the "Law of gas solubility", states that the amount of air dissolved in water is directly proportional to the pressure and inversely proportional to the temperature.
This means air is released from water, forming microbubbles, when the temperature increases and/or pressure decreases, for example in these cases:
- **Increase of the water temperature**: this is what happens in the boiler after its ignition. Microbubbles form especially on the thermal exchange surfaces between the combustion chamber and the system water.
- **Increase of the fluid speed** with consequent pressure drop: this is what happens in pumps where the fluid is accelerated and supplied to the circuit.
- **Decrease of the fluid pressure:** for example the bubbles that are released when opening a bottle of a carbonated drink.
In thermal systems, the released air is partly reabsorbed by the water (in the coldest areas) and partly accumulates in various points of the circuit, from which it must be removed through devices such as deaerators or air vents. Deaeration therefore avoids noise or cavitation phenomena (implosion of microbubbles) in pumps and control devices as well as increases the thermal exchange efficiency.

Example of reading the graph (Henry's law): when heating the water from 20 to 70 °C, keeping it at an absolute pressure of 2 bar (green line), the quantity of air dissolved in water decreases from 35 to 20 l/m³. Therefore, 15 l/m³ of air are released and should be removed from the system.

Henry's law: air dissolved in water depending on temperature and absolute pressure





The deaerator is composed of: (1) body with flanged connections and eyelets for lifting, (2) inner mesh, (3) side drain cock, (4) lower plug, (5) upper plug, (6) insulation.
The shut-off device (7) and the air vent (8) are not integrated into the body but should be added during installation by purchasing them separately (after removing the plug (5)).

Working way
The internal mesh promotes the turbulent flow of the fluid and the microbubble release from the water. These gather on the mesh surface, increase in volume until they detach and rise towards the upper part of the deaerator from which they are extracted by means of the air vent.

The side drain cock (3) allows the release of a large amount of air, during the filling phase of the system, and the discharge of impurities floating on the fluid surface.
The lower connection (4) can be used to discharge impurities accumulated at the bottom of the deaerator, by adding a specific drain valve.

Features

Advantages

Separate air vent
The air vent (8) must be purchased separately and added to the top of the deaerator.
The advantages of the air vent not integrated into the body are:
- possibility of choosing air vents of different sizes and performances
- possibility of adding the shut-off valve (7)
- easy maintenance for the air vent: in case of problems it can be removed, checked and quickly replaced if necessary.

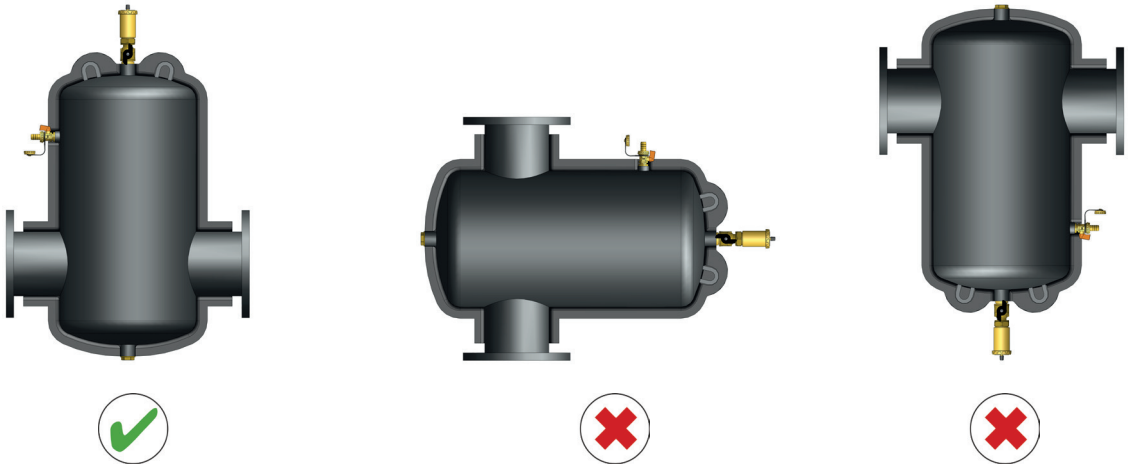
Side drain cock
Thanks to its position, this cock speeds up the system filling phase, combining the air vent during the elimination of the air that accumulates towards the top of the deaerator.

Flow direction
The fluid can pass through the deaerator in both directions.

Insulation
The insulation material allows the use of the deaerator in heating and air-conditioning systems. It is equipped with a Velcro closure to allow any further checks and maintenance.

Installation

The deaerator must be installed only in vertical position on the high temperature fluid pipe, possibly upstream of the devices that may favor the microbubble formation, for example on the boiler flow upstream of the pumps.
It is recommended to take care about the installation in vertical in order to allow the correct functioning of the air vent (8) with floating device. The flow direction is irrelevant.



Maintenance

The deaerator body doesn't need any maintenance.
It is necessary instead to check the functionality of the additional air vent, by following the manufacturer instructions.
The amount of sludge and impurities that are deposited in the device depend on the system conditions and materials.
If the deaerator is equipped with a drain valve at the bottom, a periodic flushing can be performed.

Accessories

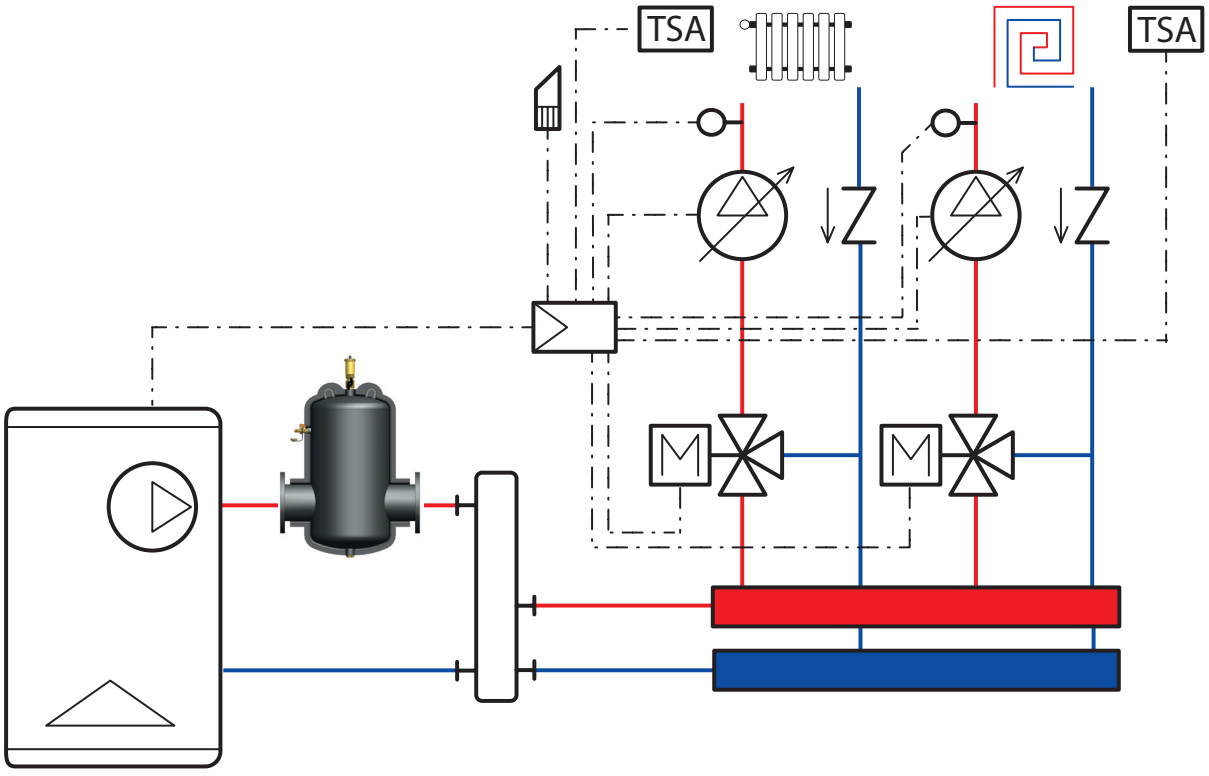
Y47L

Automatic air vent. With manual pin for functionality check.

Max working temperature: ***95 °C***
Max working pressure: ***10 bar***

Code	Size		
Y47 025 000 L	G 1 M	10	100

System diagrams



Specifications

Series F08
Flanged deaerator for heating and air-conditioning systems. Flanged connections DN 100 PN 16 (and DN 150 PN 16). Body in painted steel. Brass plugs. Steel inner mesh. Side drain cock in brass. Gaskets in EPDM, PTFE. Insulation in closed-cell expanded PE-X. Working temperature range 0–110 °C. Maximum working pressure 6 bar. Suitable fluids water, glycol solutions (max. 50%).

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