

JD1 – Air Separator (Deaerator)

Description

The JD1 is a high efficiency in-line air separator suitable for use on heating and chilled systems. In sealed heating systems free and dissolved air cause a number of problems. Micro-bubbles form on the pump suction as a direct result of localised pressure drop. This directly affects the liquid displacement of rotary pumps, reducing the flow capacity and therefore the efficiency of the system. The presence of micro-bubbles and dissolved gas can reduce the liquid displacement of a pump by 10 to 45%. Heat will also allow dissolved gasses to be drawn out of solution, following Henry's law, placement of this equipment is important to guarantee effective operation. Effective removal of free air is essential for increasing the operational life of the system as a whole.



Product Features

- PALL Ring Technology
- Additional manual air vent for rapid air release during commissioning

Certifications and Standards Applied

- PED 97/23/EC Sound Engineering Practice
- EN 60534-2-3
- DIN 2633
- CE Marked

Maximum Operating Conditions

- Maximum Working pressure: 10 Bar
- Working Temperature Range: -10°C to 120°C
- Maximum Velocity: 3 m/s
- Connections: DIN2633 PN16

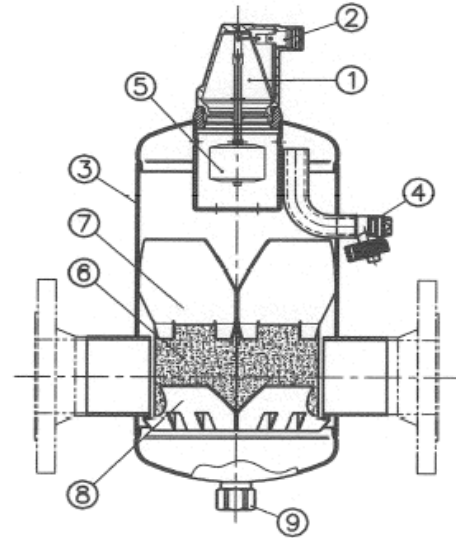
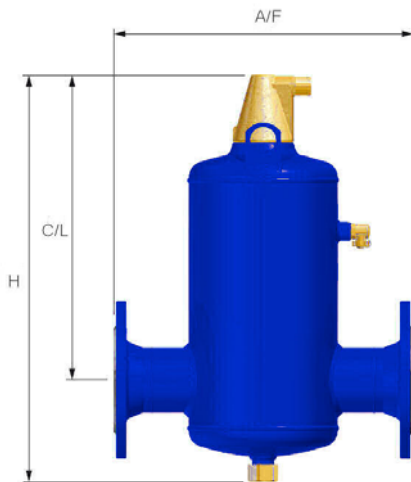
Applications

- Heating system
- Chilled System

Material of Construction

- Main Body: Welded Steel EN/ISO S235JRG2
- Wall Thickness <10mm
- PALL Rings: 316 Stainless Steel
- Air Chamber: Automatic Air Vent
- Colour: 2 Part Epoxy RED (RAL 3002) > 45µm

Components



- | | | | |
|---|---------------|---|---------------|
| 1 | Air chamber | 6 | Pall ring box |
| 2 | Venting valve | 7 | long skirt |
| 3 | Housing | 8 | short skirt |
| 4 | Flushing cock | 9 | Drain valve |
| 5 | Float | | |

Type	Flow Rate (l/s)	Volume (l)	System Connection (DN)	Dimensions (mm)			Weight (Kg)	Order Code
				Across Face	C/L	Height		
JD1 F50	4.9	8	50	350	338	470	13.1	892055
JD1 F65	8.3	8	65	350	338	470	14.1	892056
JD1 F80	12.6	25	80	470	435	621	22.4	892057
JD1 F100	19.6	25	100	470	435	621	24.8	892058
JD1 F125	30.7	59	125	635	515	790	45.6	892059
JD1 F150	44.2	60	150	635	510	790	50	892060
JD1 F200	78.5	123	200	774	670	970	79.5	892061
JD1 F250	122.7	287	250	990	892	1277	154	892062
JD1 F300	176.7	333	300	1016	1032	1442	184	892063
JD1 F350	240.5	646	350	1214	1109	1586	304	892064
JD1 F400	314.2	731	400	1220	1252	1759	346	892065
JD1 F500	490.9	1384	500	1580	1470	2090	635	892066
JD1 F600	706.9	2390	600	1870	1760	2485	1028	892067

Installation & Placement:

The JD1 should preferably be installed in the hottest part of the system, (typically the flow pipe from the heat exchanger). The JD1 should also preferably be situated on the suction side of the circulating pump to take advantage of the localised pressure drop.

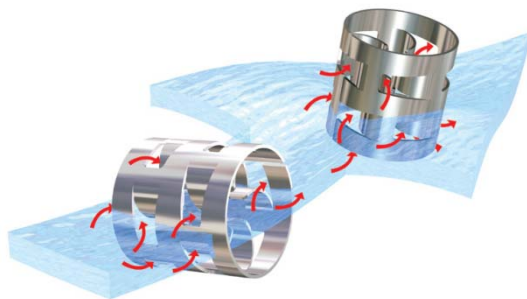
PRESSURE DROP

The expression for the calculation of pressure drop in relation to flow rate on Air and Dirt removal equipment is as follows:

Δp Pressure Drop (KPa)
 f Water Flow Rate (l/s)
 K Equipment Co-efficient (see right)

$$\Delta p = f^2 * K$$

Size	K
50	0.225
65	0.0864198
80	0.046875
100	0.015625
125	0.0073
150	0.0034444
200	0.00125
250	0.0005
300	0.0002667
350	0.0001667
400	0.0001041
500	4.444E-05
600	2.089E-05



PALL RINGS

The cross section presented to the flowing water has no clear path through, all the water is diverted over the PALL rings. The increased surface area and hydrofoil action of the PALL rings allow further pockets of lower pressure to develop accelerating the de-aeration process and promoting coalescence (micro bubbles merging into larger more buoyant bubbles) on the large stainless steel surface area of the PALL rings. The automatic air vent on the top of the unit is then used to vent the larger bubbles to atmosphere.

This unit also utilises a sump / sludge trap. As water borne debris hits the Pall rings the forward momentum is lost, the debris is then free to fall into the sludge trap ready for manual venting at a later stage.

Pressure Loss Chart

