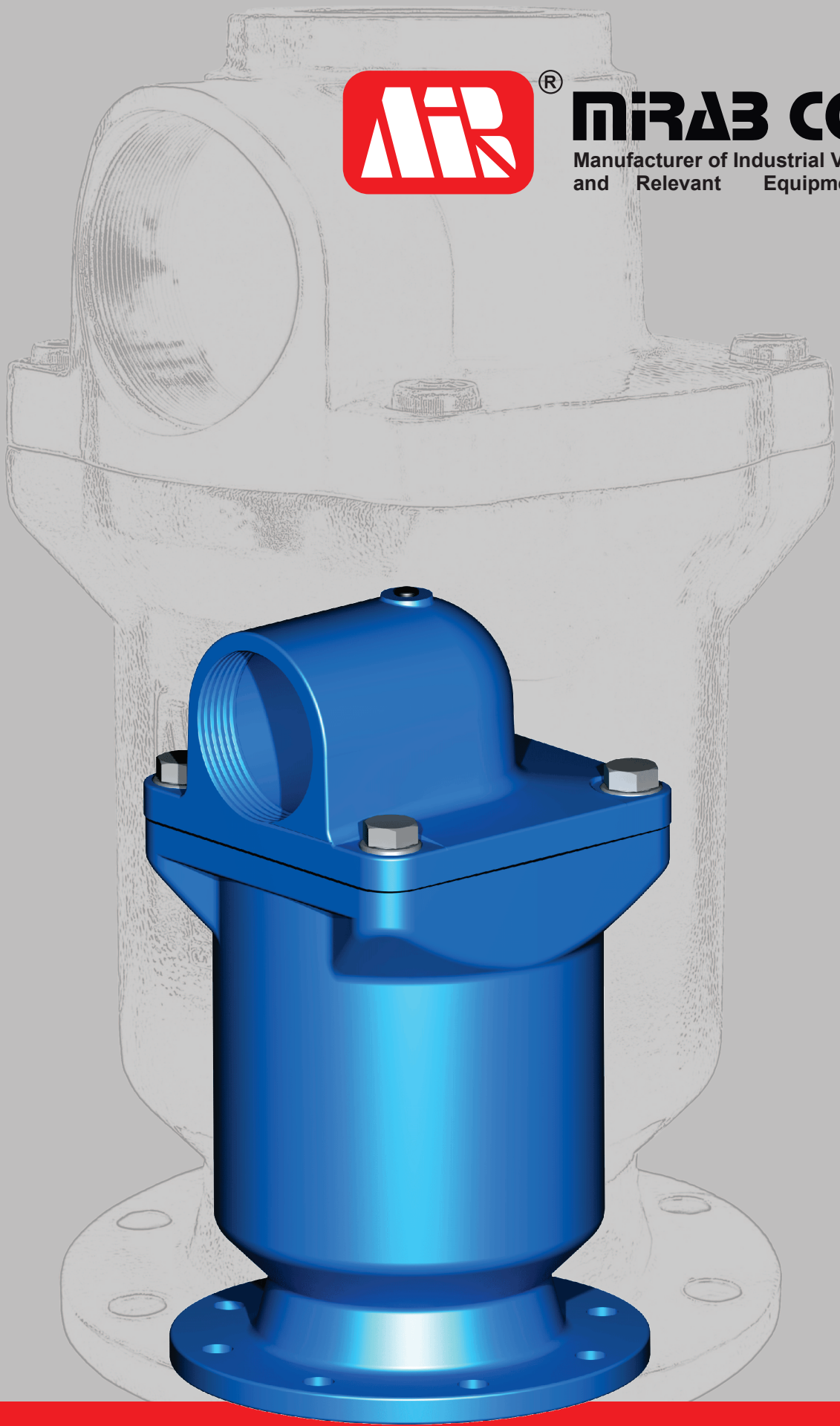
MIRAB CO.

Manufacturer of Industrial Valves and Relevant Equipment



Single Chamber Double Orifices Triple Function Air Valves AST

Single Chambers-Double Orifices Triple Function Air Valves

Size: DN 50 - 200 mm
Pressure rating: PN10 - 63 bar
Flange drilling according to: DIN EN 1092-2 (DIN 2501) & ASME/ ANSI B16.5 Class 150

Function:
This valve automatically vents the air of the fluid in the main and supply lines. The fluid flow activates the venting operation.

Large orifice:
A large venting orifice allows large volumes of air to be released during start-up and injects the air into the pipe for vacuum breaking or shut down.

Small orifice:
Small venting orifice allows small volumes of air to be released under the fluid pressure

Advantages:
- Low weight
- Reliable design.
- Compact dimensions.
- Easy repair of internal parts.
- The high volume of incoming and outgoing air.
- The minimum required sealing pressure is 0.3 bar.
- using corrosion-resistant materials for production of float and guides.
- More capacity compared to double chamber air valve.

Application:
Applicable for fluids with a minimum working pressure of 0.3 bar and temperature up to 70 °C (other conditions on request).

Coating:
Color coating and working temperature are according to the table below.

Temperature of coating	
Coating	**Temperature(°c)**
RAL 5005 (Epoxy Powder)	Up to 70
RAL 7001 (Epoxy Powder)	Up to 110
RAL 9001 (ZINGA)	Up to 150
RAL 9001 (SILICONE ACRYLIC)	Up to 250

Hydrostatic test Pressure:
The test is according to the table below.

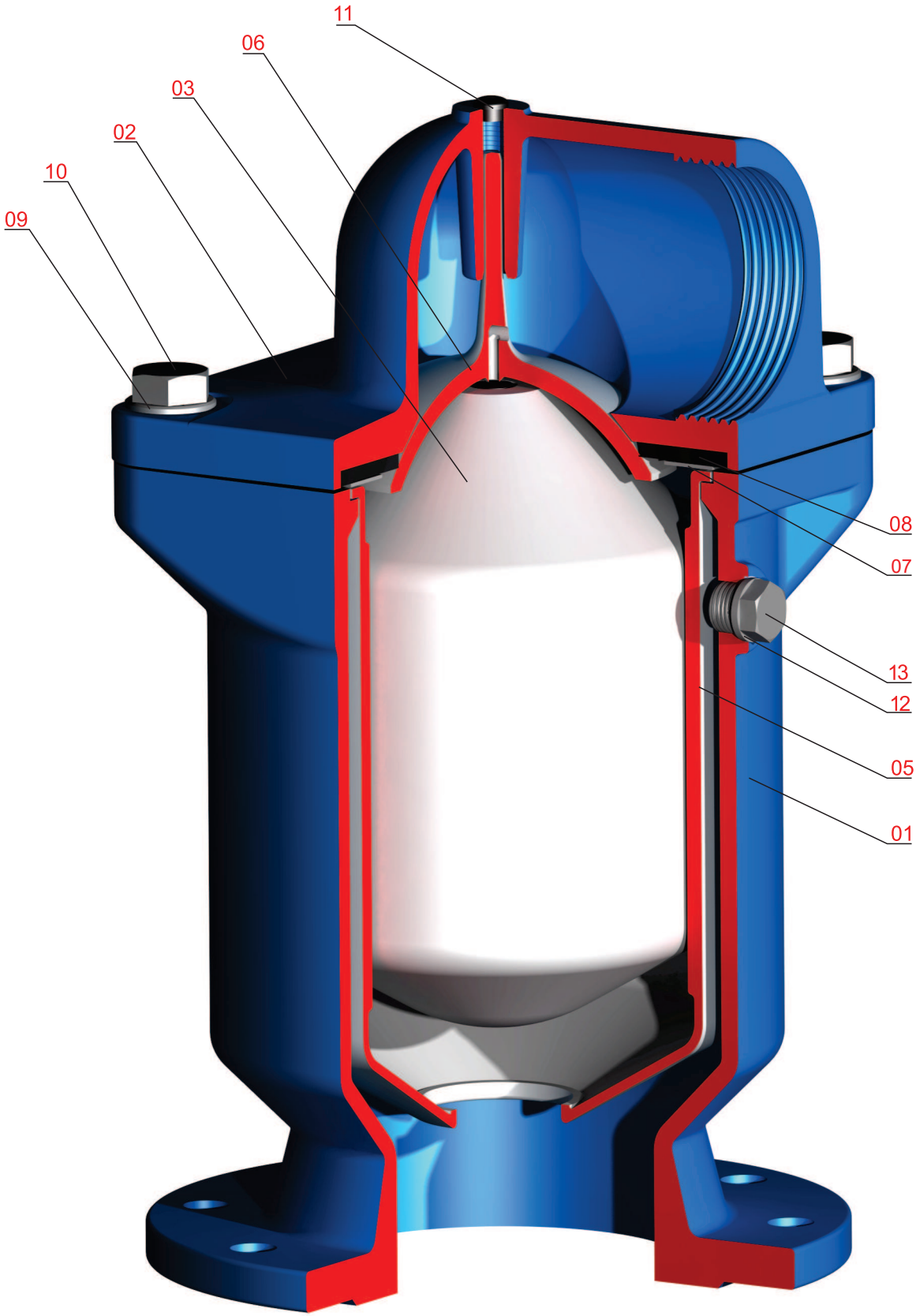
Hydrostatic test Pressure (bar) according to DIN EN 12266-1	
Nominal Pressure PN (bar)	**Test Pressure, with water, (bar)**
	Shell Test
10	17
16	25
25	38
40	60
63	95

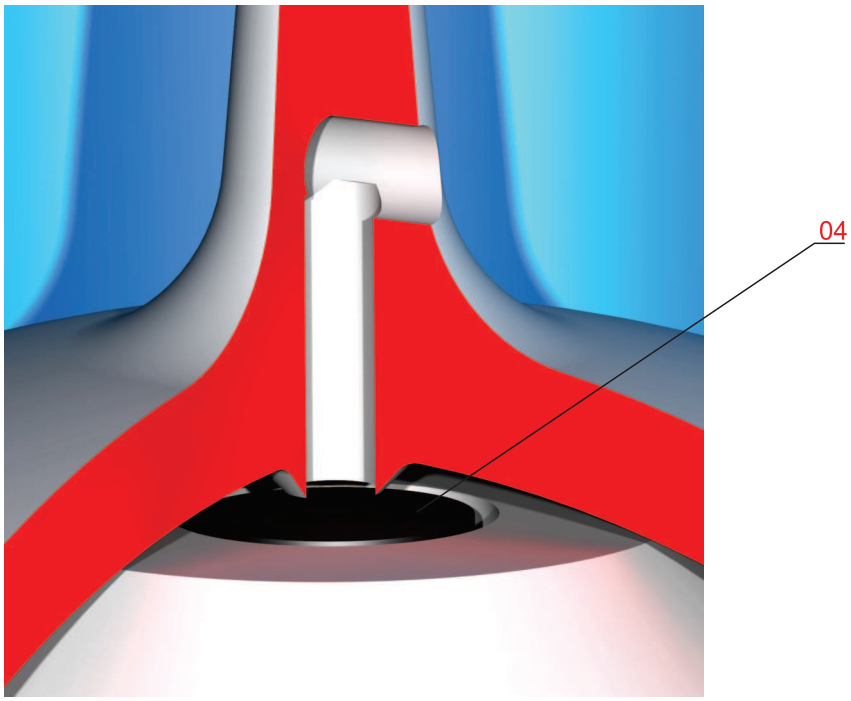
Materials:

The types of materials used in single chamber Air valve, which can be changed based on the type of passing fluid, are specified in the table below.

Material	Description
Body	
Cast Iron	EN 1563/ EN GJS-400-15
Cast Iron	EN 1563/ EN GJS-500-7
Carbon Steel	ASTM A216 Gr. WCB
Stainless Steel	AISI 304 (1.4301)
Stainless Steel	AISI 304L (1.4307)
Stainless Steel	AISI 316 (1.4401)
Stainless Steel	AISI 316L (1.4404)
Stainless Steel	Duplex
Stainless Steel	Super Duplex
Aluminum Bronze	ASTM B148 UNS No. C95200
Nickle Aluminum Bronze	ASTM B148 UNS No. C95800
Seat	
NR	Temp. Up to 50 °C
NBR	Temp. Up to 70 °C
EPDM	Temp. Up to 120 °C
EPDM (Hi Temp.)	Temp. Up to 150 °C
Viton	Temp. Up to 200 °C
Float & Float Guide	
Polymer	Polypropylene
Stainless Steel	AISI 304 (1.4301)
Stainless Steel	AISI 316 (1.4401)
Hemispherical Seat	
Polymer	Polyamide
Stainless Steel	AISI 304 (1.4301)
Stainless Steel	AISI 316 (1.4401)

Part List





Part No.	Part Name	Part Material	1	2
01	Body	EN 1563/ EN-GJS-400-15		
02	Bearing Cover	EN 1563/ EN-GJS-400-15		
03	Float	* Polypropylene	●	
04	Gasket	EPDM	●	●
05	Float Guide	* Polypropylene		
06	Hemispherical Seat	** Polyamide		
07	Disc	DIN EN 10088-3/ 1.4301	●	
08	Sealing ring	EPDM	●	●
09	Hexagonal Bolt	DIN ISO 898-1 Property Class 8.8, Zinc Plated		
10	Washer	DIN ISO 898-2 Property Class 8, Zinc Plated		
11	Cap	EPDM	●	●
12	Washer	CU	●	
13	Plug screw	ISO 3506-1, Gr. A2, Property Class 70		

(1) Recommended Spare Parts

(2) Depreciable Parts

* For pressure up to 40 bar Polypropylene and for higher pressure Ss304.

**For pressure up to 25 bar Polypropylene and for higher pressure Ss304
(SS304 is available for all pressures on request)

Operation

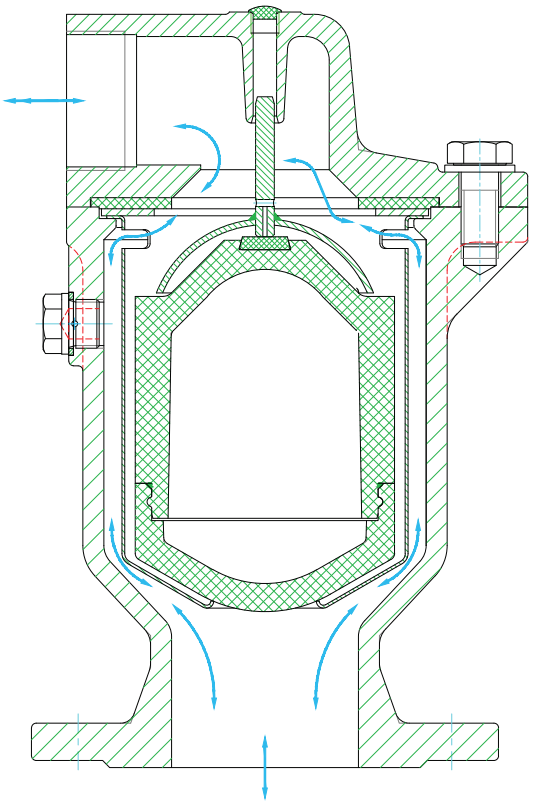


Fig-1

Air venting during discharge
(Fig-1)
When the pipe pressure drops below the atmospheric pressure, in the pipe drainage, the hood drops due to its weight and the opening of the large orifice.

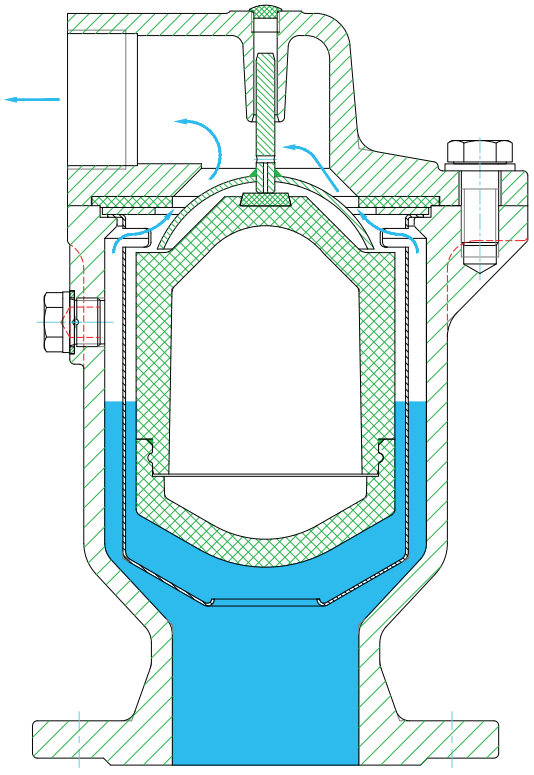


Fig-2

Air release in start-up
(Fig-2)
When the pipeline is filling up, the hood (due to its geometrical shape) stays down until the air is completely released from the pipe. The air exhaust velocity could reach up to the sound velocity (333 m/s)

Filling up the pipe
(Fig 2-3)
When the pipe is being filled, the water level rises in theair valve & push up the float and the hood and close the orifice.

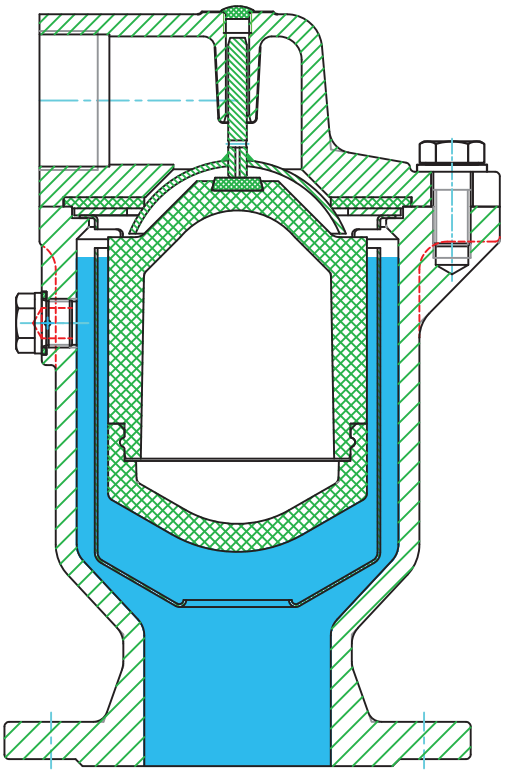


Fig-3

Air release during the line operation and under fluid pressure
(Fig-4)
In pumping conditions, air traps start to accumulate at high points in the pipeline, forcing the water level down, so that the float and the hood of the air valve stays down to allow the air out of the pipeline. The float closes the orifice when the air is completely released from the line, and stays closed under the line pressure.

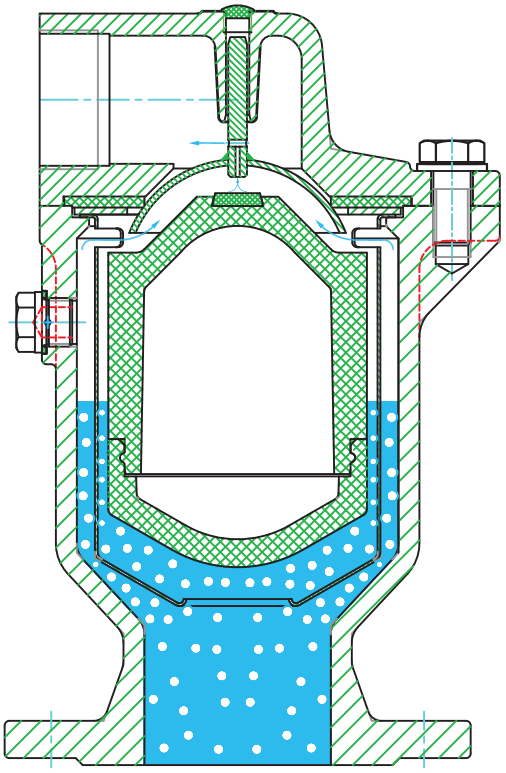
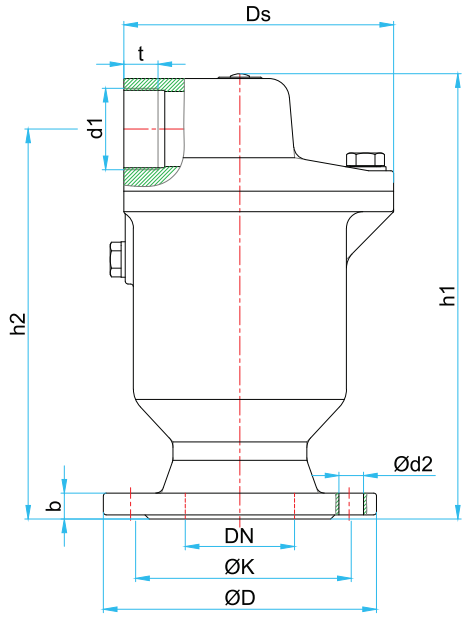


Fig-4

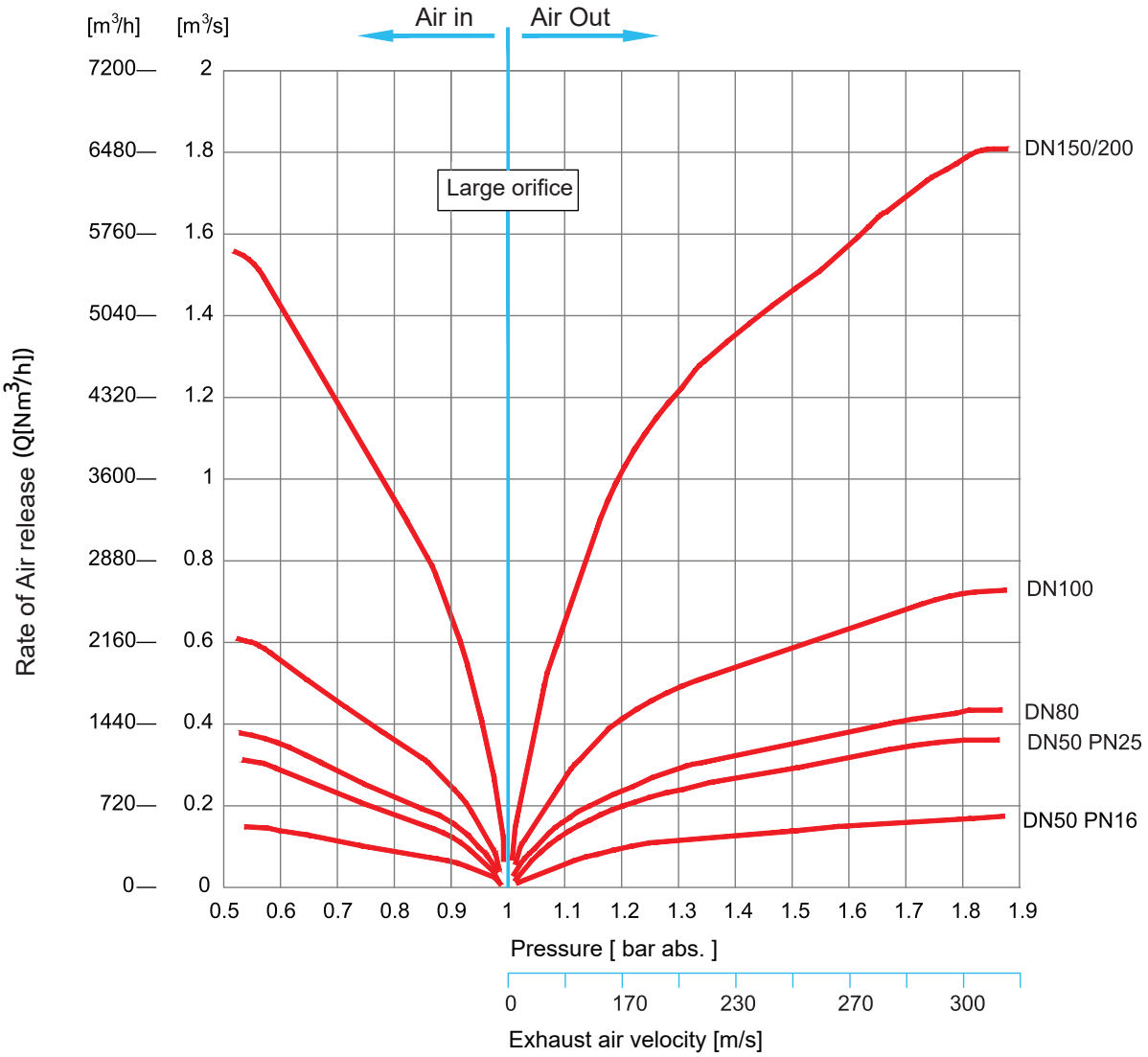
Dimensions and weight

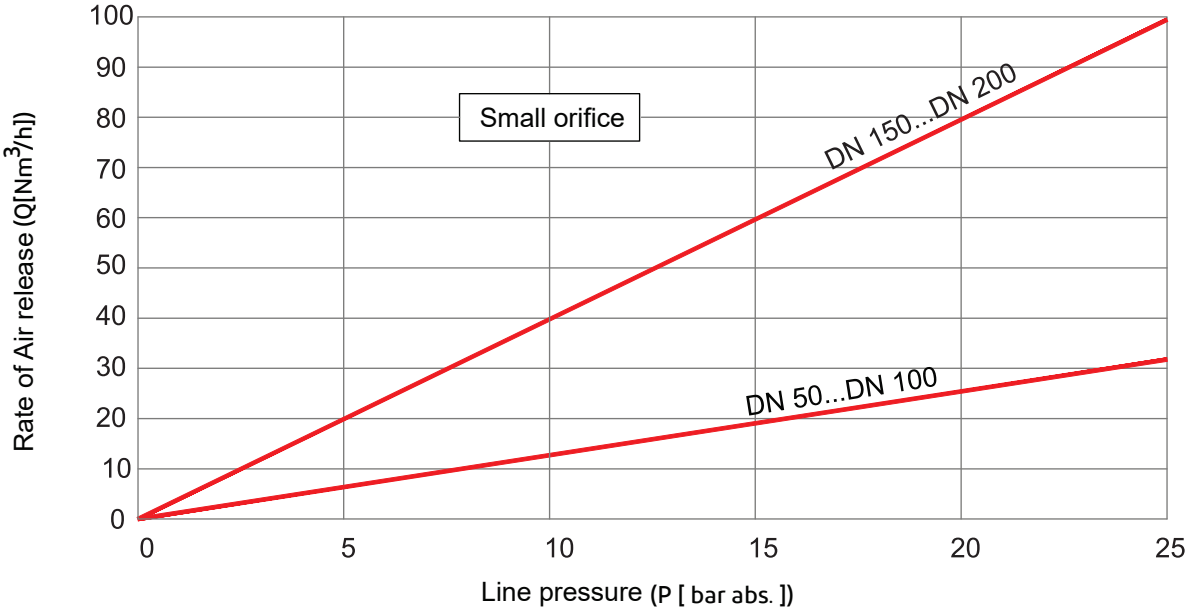


- PN10 to 40 : DIN 1092-2 (DIN 2501)
- ANSI Class150 & 300 : ASME B16.5

DN mm	PN bar	•ØD mm	•ØK mm	•Ød2 mm	•n	•b mm	h1 mm	h2 mm	Ds mm	d1 in	t mm	~W (Kg)	~V (dm^3)
50	10	165	125	19	4	19	280	240	150	G1 ¼″	20	14.5	10
	16												
	25												
	40												
	Class150	152	120.6	19.1		19							
	Class300	165	127		8	22.1							
65	10	185	145	19	4	19	280	240	150	G1 ¼″	20	16.5	10
	16												
	25				8								
	40												
	Class150	178	139.7	19.1	4	22.1						17	
	Class300	190	149.4	22.3	8	25.4						17.6	
80	10	200	160	19	8	19	340	285	179	G2″	25	22	15
	16												
	25												
	40												
	Class150	190	152.4	19.1	4	23.9						22.5	
	Class300	210	168.1	22.3	8	28.4						24.5	
100	10	220	180	19	8	19	384	319	195	G2 ½″	30	28	20
	16												
	25	235	190	23								29.5	
	40												
	Class150	229	190.5	19.1		23.9							
	Class300	254	200.2	22.3		31.7						33.8	
150	10	285	240	23	8	19	510	423	251	G4″	52	55	40
	16												
	25	300	250	28		20						56.5	
	40					26							
	Class150	279	241.3	22.3		25.4							
	Class300	318	269.7		12	36.6						65	
200	10	340	295	23	8	20	510	423	251	G4″	52	59	40
	16				12								
	25	360	310	28		22						61.5	
	40	375	320	31		30						67.5	
	Class150	343	298.4	22.3	8	28.4						63.3	
	Class300	381	330.2	25.4	12	41.1						75	

Flow rate of inlet and outlet air





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