Disc check valve

Mod. 172 | EN | ASME/ANSI

Operation

The disc check valve works by the action of the pressure of the fluid, allowing it to pass downstream and preventing it from flowing back upstream. They are unidirectional valves that open in the direction of flow and close in the opposite direction of flow by the action of the spring incorporated.
It incorporates a centring ring for placement between EN flanges (PN-6, 10, 16, 25 and 40) and ASME flanges (class 150 and 300).

Specifications

Size

- DN-125 to DN-300

Temperature range

- -60 ˚C to +400 ˚C*

Applications

- Gas, steam and liquids

Materials

- Carbon steel
- Stainless steel
- Cast iron
- Bronze

Maximum pressure

- Up to 40 bar

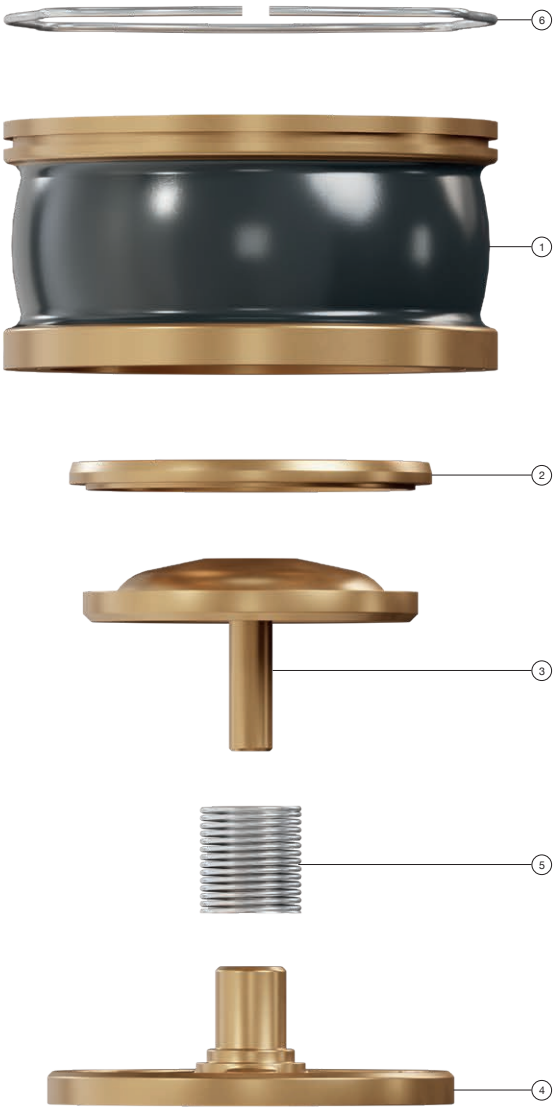
Regulation

- PED 2014/68/UE
- UNE EN 16767
- UNE EN 558 basic series 49
- UNE EN 12516-2
- UNE EN 12516-4
- UNE EN 12266-1

Certification

N°. PIECE	PIECE	MATERIAL															
		CAST IRON				BRONZE				CARBON STEEL				STAINLESS STEEL			
1	Body	Fundición gris perl. (EN-5.1301)				Bronce (EN-CC493K-GS)				Acero al carbono (EN-1.0619)				Acero inoxidable (EN-1.4408)			
2	Seating	Fundición gris perl. (EN-5.1301)				Bronce (EN-CC493K-GS)				Acero inoxidable (EN-1.4401)				Acero inoxidable (EN-1.4408)			
3	Sealing disc	Fundición nodular (EN-5.3106)				Bronce (EN-CC493K-GS)				Acero inoxidable (EN-1.4408)				Acero inoxidable (EN-1.4408)			
4	Lead	Fundición nodular (EN-5.3106)				Bronce (EN-CC493K-GS)				Acero inoxidable (EN-1.4408)				Acero inoxidable (EN-1.4408)			
5	Spring	Acero inoxidable (EN-1.4571)				Acero inoxidable (EN-1.4571)				Acero inoxidable (EN-1.4571)				Acero inoxidable (EN-1.4571)			
6	Centering ring	Acero inoxidable (EN-1.4310)				Acero inoxidable (EN-1.4310)				Acero inoxidable (EN-1.4310)				Acero inoxidable (EN-1.4310)			
DN		125 to 300															
PN		16				16				40				40			
OPERATING CONDITIONS	PRESSURE [bar]	16	12,8	11,2	9,6	16	13,5	8	7	37,4	33,6	27,8	24	38,1	30,2	25,8	23,5
	TS [°C]	100	200	250	300	100	200	250	260	100	200	300	400(1)	100	200	300	400(1)
	ts [°C]	-60				-10				-10				-60			

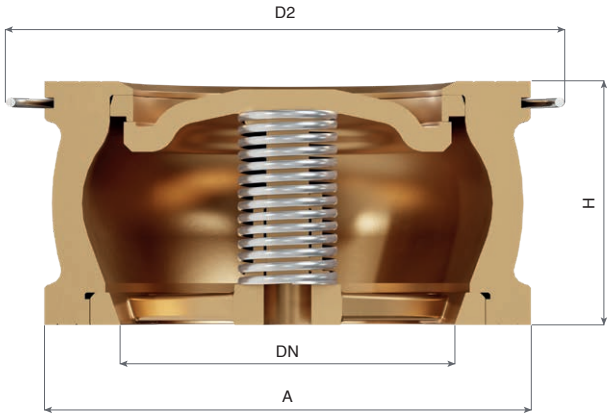
Isometric view DN-125

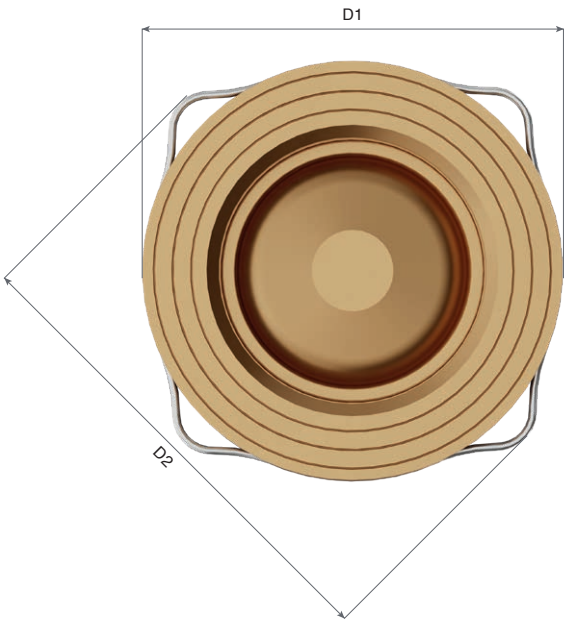


Exploded view DN-125

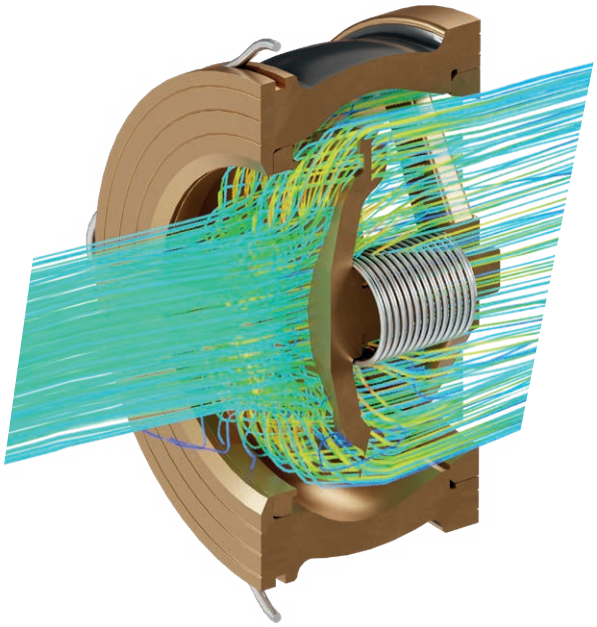
(1) For temperatures over 300 ˚C only without spring or with special spring, on request.

DN		125	150	200	250	300
H [mm]		90	106	140	140	181
A [mm]		180	205	262	315	368
D1 [mm]		180	205	262	315	368
D2 [mm]		205	240	300	412,5	456,5
WEIGHT [kg]	CAST IRON	6,8	9,9	19,6	28,1	42,7
	BRONZE	8,1	12,1	21,7	33,9	53,2
	CARBON STEEL	6,9	10,8	19,1	30,3	47,4
	STAINLESS STEEL	6,9	10,8	19,2	30,9	48,5
CODE 2003-172.	CAST IRON	5506	5606	5806	5006	5016
	BRONZE	5501	5601	5801	5001	5011
	CARBON STEEL	8504	8604	8804	8004	8014
	STAINLESS STEEL	8502	8602	8802	8002	8012



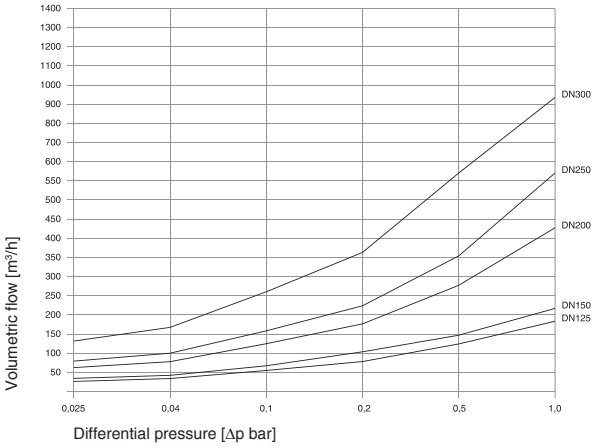


DN-125



Fludi dynamics

	OPENING PRESSURE [mbar]												FLOW COEFFICIENT	
	WITHOUT SPRING			WITH SPRING									Kv [m³/h] ΔP = 1 bar	Cv [US gpm] ΔP = 1 psi
DIRECTION OF FLUID FLOW	▲			▲			►			▼				
VALVE MATERIAL	CAST IRON	BRONZE	C.STEEL S.STEEL	CAST IRON	BRONZE	C.STEEL S.STEEL	CAST IRON	BRONZE	C.STEEL S.STEEL	CAST IRON	BRONZE	C.STEEL S.STEEL		
DN-125	8,56	11,99	11,43	28,56	29,84	29,27	19,85	19,85		9,29	5,85	6,42	183,00	211,59
DN-150	10,39	16,00	14,82	30,39	34,80	33,62	20,80	20,80		8,41	2,80	3,98	218,00	252,06
DN-200	10,24	16,68	16,68	30,24	30,55	30,55	15,86	15,86		3,62	1,34	2,51	426,00	492,55
DN-250	10,62	13,26	12,10	43,62	46,26	45,10	35,00	35,00		22,37	19,73	20,40	570,00	659,05
DN-300	11,61	14,52	13,23	43,67	46,58	45,28	34,05	34,00		20,44	17,53	18,82	918,00	1061,41



Load losses

The attached diagram shows the pressure drop curves for water at 20 °C. Values are based on spring loaded valves installed horizontally. In the case of vertical flow direction, the variations are practically negligible. To determine the pressure drop of other fluids, calculate the equivalent flow rate of these fluids to water.

$$Q_A = \sqrt{\frac{\varrho}{1.000}} \cdot Q$$

Q_A = Equivalent flow rate in water in m³ /h.

ϱ = Density of the fluid at service conditions in kg/m³.

Q = Density of the fluid at service conditions in m³/h.

	Δp [bar]							
	0,025	0,04	0,1	0,2	0,5	1,0	2,0	3,0
	m3/h							
DN-125	27,80	34,99	55,40	78,08	122,47	183,00	244,30	298,73
DN-150	33,05	41,80	66,42	93,00	147,74	218,00	293,22	362,88
DN-200	62,21	79,06	124,74	175,61	276,70	426,00	557,28	677,16
DN-250	79,38	100,44	158,44	223,56	353,16	570,00	709,56	894,24
DN-300	132,19	168,16	260,50	362,88	570,24	918,00	1156,68	1419,12

Depending on demand

- Possibility of manufacturing in other types of material, for special working conditions (high temperatures, fluids, etc.).
- The sealing disc can be equipped with seals made of PTFE (Teflon), Silicone rubber, Fluoroelastomer (Viton), etc.

Specifications

- Minimal pressure loss.
- Avoids water hammer when closing at zero pressure point, remaining completely watertight when the fluid is reversed.
- Easy assembly in any position depending on the direction of flow. Springless only in vertical upward direction.
- The valves are provided with a single centring ring for placement between flanges according to EN 1092-1/2/3 (PN-6, 10, 16, 25 and 40), and ASME B16.5 (Class 150 and 300).

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