

Low Pressure Tank Blanketing Valves



Application:

Tank blanketing valves offer complete protection to the storage tank product against contamination and to the storage tank itself against rupture or damage. This type of valve is mainly used in the chemical, bulk storage and pharmaceutical industries to improve recovery efficiency, thereby reducing emissions and lowering the cost of product loss. In addition to preventing outside air and moisture from entering the storage vessel, a blanket gas pressure reduces the evaporation of the stored product to a negligible amount.

Principle of Operation

The operating principle of the tank blanketing valve is to maintain a positive pressure within an enclosed storage tank by introducing a gas such as nitrogen at a required pressure. This 'blanket' also prevents the stored product from vaporising into the atmosphere, prevents contamination to the stored product and also helps to reduce product combustibility by eliminating oxygen-rich air. The valve also offers primary vacuum relief for the storage tank. It does this by supplying gas to the vapour space when pressure decreases within the tank to the valves set point. Once the gas cushion is re-established, the pressure regulator closes.

Benefits

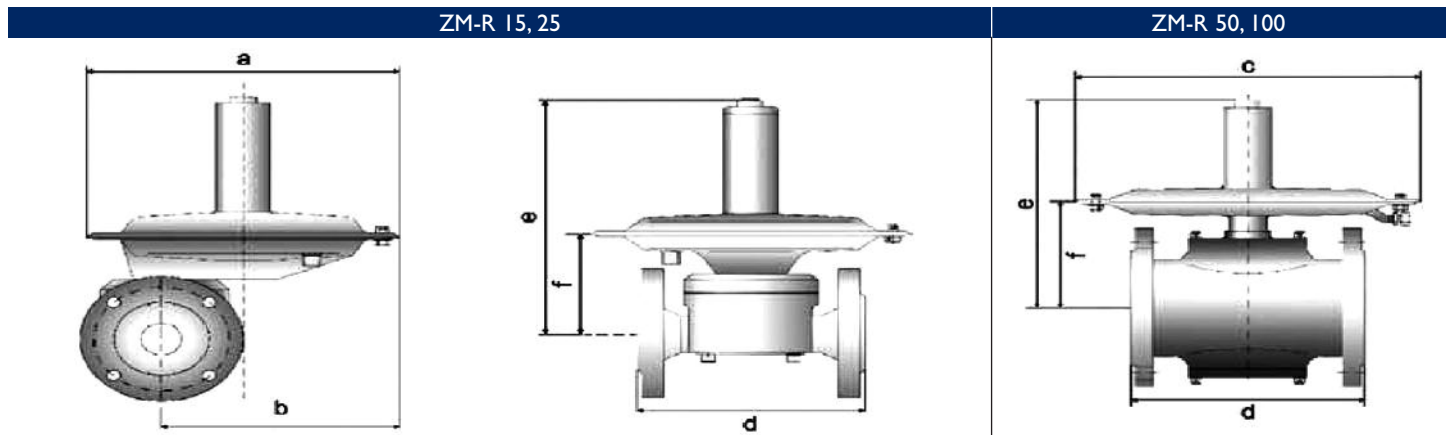
- Range of sizes available from 15mm to 100mm
- The valve can be installed with horizontal or vertical diaphragm housing position (horizontal position is recommended)
- All parts that come into contact with the product consist of stainless steel or Hastelloy with smooth surfaces
- The valve is manufactured in an oil and grease-free environment, is self-actuating, and no control line is required for operation

- The inert (oxygen-free) atmosphere reduces the risk of fire which could reduce the cost of your insurance premium
- Tank corrosion is reduced
- Reduction from very high primary pressure (up to 16 bar) to very low tank design pressures (down to 5 mbar)
- High accuracy settings achieved, in order to avoid any interaction with relief valves

Elmac Expertise

Elmac have been manufacturing protection equipment since 1948, and bring enhanced levels of flame and explosion protection to a diverse range of applications. **Elmac Technologies®** offers considerable technical leadership and using test facilities along with CFD capabilities, employs research teams renowned for developing solutions for the most challenging of industrial applications.

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Model Specifications

Dimension	ZM-R 15 mm (inch)	ZM-R 25 mm (inch)	ZM-R 50 mm (inch)	ZM-R 100 mm (inch)
a	214 (8.4)	214 (8.4)	Device is symmetrical	
b	168 (6.6)	168 (6.6)	Device is symmetrical	
c (depends on size of diaphragm)	–	–	214 (8.4) 360 (14.1)	360 (14.1) 600 (23.6)
d	150 (5.9)	160 (5.9)	150 (5.9)	250 (9.8)
e	214 (8.4)	214 (8.4)	230 (9.0)	275 (10.8)
f	87 (3.4)	87 (3.4)	103 (4.1)	148 (5.8)
Flange DN (ANSI)	DN 15 (½") PN 10-16 (150lbs)	DN 25 (1") PN 10-16 (150lbs)	DN 50 (2") PN 10-16 (150lbs)	DN 100 (4") PN 10-16 (150lbs)

Positioning and Sensing Lines

	Types of sensing line:	
The valve can be installed with horizontal or vertical diaphragm housing. Horizontal position is recommended	DN 15, 25 (ANSI ½", 1") DN 50 (ANSI 2") DN 100 (ANSI 4")	: ¼" female BSP : SERTO screwing : ½" female BSP or SERTO
The sensing line 10 x 1mm shall be installed on the jobsite.	Installation length as per DIN EN 558-1	

Valve Characteristics

Type of Vent	Spring Type	Pressure Range mbar (psi)*	Diaphragm Type	Seat mm (inch)	Kvs	
ZM-R 15	10	2...12 (0.03...0.17)	200	4.5 (0.2)	0.6	Maximum primary pressure PI: 16bar (232 psi)
ZM-R 25	20	3...22 (0.04...0.32)	200	7.5 (0.3)	1.2	
	50	5...60 (0.07...0.87)	200	10 (0.4)	1.7	
	100	10...120 (0.15...1.7)	200	14 (0.6)	2.4	
	200	15...220 (0.22...3.2)	200			
	500	20...520 (0.29...7.5)	200			
	0	+5...-5 (0.07...-0.07)	200			
	-10	-3...-15 (-0.04...-0.22)	200			
	-50	-10...-60 (-0.15...-0.87)	200			
	-100	-20...-120 (-0.29...-1.7)	200			
	-200	-50...-220 (-0.73...-3.2)	200			
ZM-R 25	10	3...10 (0.04...0.15)	360	14 (0.6)	2.8	Temperature application area: up to 150°C (302°F) (above on demand)
	20	4...20 (0.06...0.29)	360	18 (0.7)	6.8	
	50	6...40 (0.09...0.58)	360	26 (1.0)	14.5	
	100	20...100 (0.29...1.45)	200	(double valve seat)		
	200	20...200 (0.29...2.9)	200			
	500	20...500 (0.29...7.25)	200			
ZM-R 100	100	8...50 (0.12...0.73)	600	42 (1.7)	33.5	
	100	10...120 (0.15...1.74)	360	55 (2.2)	68	
	200	10...80 (0.15...1.16)	600	(double valve seat)		
	200	15...180 (0.22...2.61)	360			

* The given pressure ranges are reference values and apply to a primary pressure of 2 bar / 29psi and vertical installation. Different ranges for other operating conditions are available on request.

Customer Support Team

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