ANDERSON GREENWOOD MARVAC 910 PRESSURE RELIEF VALVES

Pilot operated pressure relief valves that pipe away to a closed header system

FEATURES

- Pilot operation ensures accurate pressure relief.
- Choice of body materials.
- Fully open at 10% overpressure, enabling setting close to MAWP and minimizing tank emissions.
- Leakage rate of 0.5 scfh (0.015 Nm^3 /hr) or less at 90% of setpoint.
- Modular design enables all components to be removed and replaced in-situ for quicker, simpler maintenance.
- Optional 'all-weather' coating prevents frozen condensate build-up and sticking of vital components in cold weather applications.

GENERAL APPLICATION

Model 910 valves provide pressure relief to protect tanks from damage or deformation, minimize emissions and loss of product due to evaporation in storage tank farms, oil and gas production, the petroleum, pharmaceutical and chemical sectors.

TECHNICAL DATA

Materials:	Aluminum, carbon steel, low temperature carbon steel, stainless steel, high grade alloys
Sizes:	2" x 3" to 12" x 16" (DN 50 x 80 to 300 x 400)
Seats:	Soft
Pressure settings:	12 to 1034 mbarg
Certification:	ATEX 94/9 EC; GOST-R

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SPECIFICATIONS

APPLICATION

Model 910 provides accurate pressure relief when operating near to the design pressure of the tank and also overcomes the problems of backpressure generated at the discharge of the valve due to pipework, scrubbers etc.

By controlling tank venting, Model 910 pressure relief valves not only minimize emissions to the environment but also the loss of product to evaporation. When combined with a well-designed vapor recovery system, the loss can be cut to essentially zero. Their soft seating design keeps the valve sealed tightly until the pressure inside the tank approaches the valve setting.

They offer the option of a non-frosting and icing-resistant coating which provides additional protection against pallets freezing closed.

TESTING

Each valve is tested for proper setting, for a leakage rate of less than 0.5 scfh (0.015 Nm^3/hr) of air at 90% of the set point and for leak tightness at 75% of set point as required in API standard 2000.

SPECIFICATIONS

Available materials

- Aluminum with aluminum or stainless steel trim
- Carbon steel with stainless steel trim
- Low temperature carbon steel with stainless steel trim
- Stainless steel with stainless steel trim
- Special materials on application

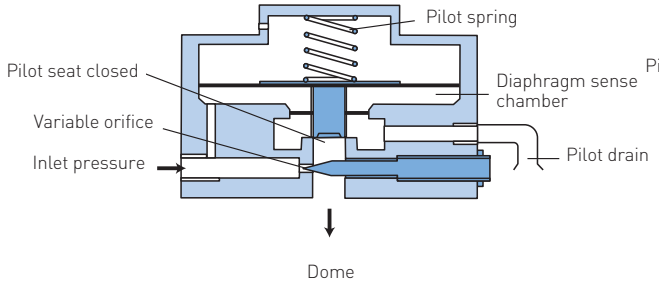
Sizes, inches (DN)
2" x 3" (50 x 80)
3" x 4" (80 x 100)
4" x 6" (100 x 150)
6" x 8" (150 x 200)
8" x 10" (200 x 250)
10" x 12" (250 x 300)
12" x 16" (300 x 400)

Flanged connections - standard flange drilling
Aluminum body
Drilled to ANSI Class 150 dimensions (flat face)
Drilled to DIN 2633 (PN 16) dimensions (flat face)
CS and SS body
Drilled to ANSI Class 150 dimensions (raised or flat face)
Drilled to imperial DIN 2633 (PN 16) dimensions (raised or flat face)

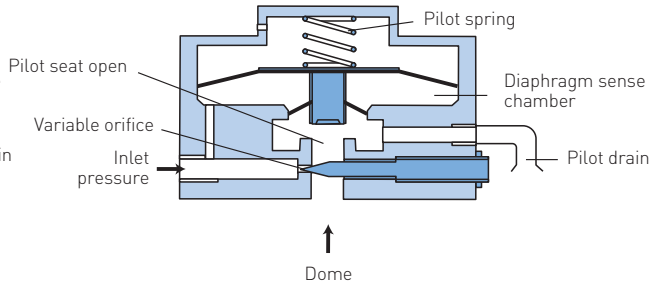
Options

- Back flow preventer
- Field test connection
- Supply filter
- Integral sense
- Cryogenic valves

MAIN VALVE CLOSED



MAIN VALVE OPEN



PILOT VALVE OPERATION

Main valve closed
The systems pressure 'P' is fed from the valve inlet to the pilot, where it passes into the diaphragm sense chamber and also through the variable orifice into the main valve dome. The pilot seat is kept closed by the pilot spring force.

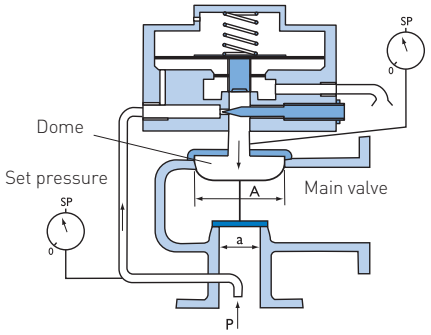
The main valve dome area 'A' is greater than the main nozzle area 'a' and hence provides adequate downward acting force to maintain the main valve closed and leak tight.

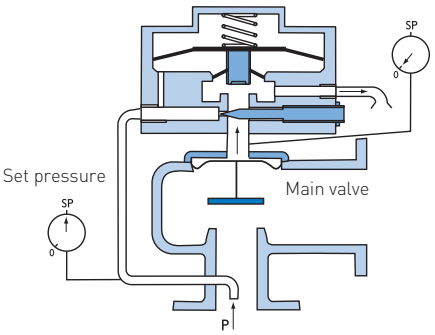
Main valve open
The pilot valve starts to open at approximately 5% below the main valve set pressure. This occurs when forces from the inlet pressure acting upon the diaphragm sense plate are in equilibrium with the pilot spring force. As the inlet pressure rises, the pilot valve begins to open and vents pressure from the dome through the pilot drain.

The reduced pressure within the pilot dome acting upon dome area 'A' is brought into equilibrium with the inlet pressure acting within the main valve nozzle area 'a', this is the main valve set pressure and occurs approximately 5% above the pilot set pressure. As the inlet pressure rises up to 10% above the main valve set pressure, the dome pressure is reduced further and the main valve modulates to a full open position, whereby the valve is discharging its rated capacity.

As the inlet pressure falls, the pilot diaphragm senses a reduced pressure and starts to close off its pilot valve seat; this in turn increases the dome pressure and the main valve starts to close. The main valve will be closed fully at approximately 5% below the main valve set pressure and the pilot will close fully at approximately 10% below the main valve set pressure.

NOTE
The application of the 910 Series pilot operated pressure relief valves in condensable gas service (i.e. n-Butane, Isobutane or Butadiene) with operating fluid saturation temperatures that fall within the expected ambient temperature extremes require special consideration to assure the valve temperature remains above the operating fluid saturation temperature. Please contact us to review all applications which fall within this categorisation.





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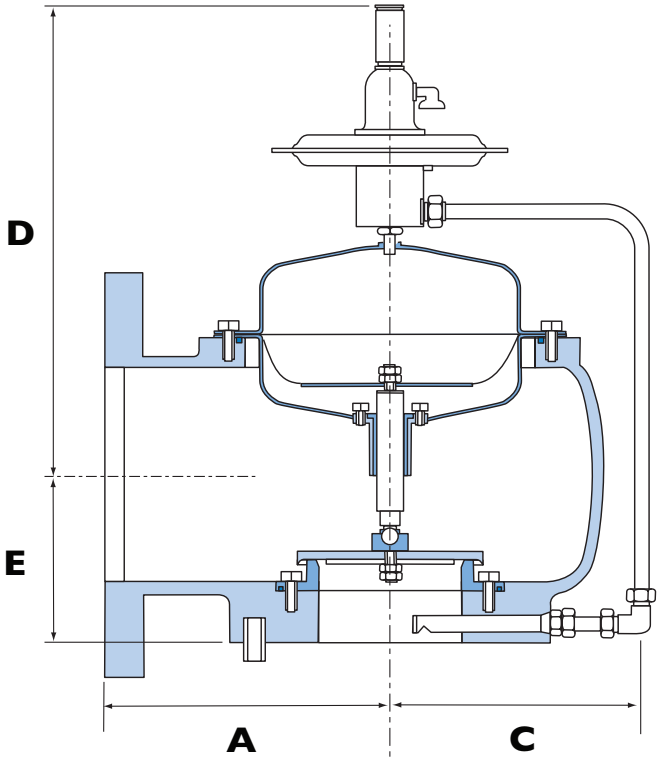
DIMENSIONS



Valve size	Dimensions mm				Approximate weights - kgs	
	A	C	D	E	Alum	CS/SS
2" x 3"	153	180	376	76	15	26
3" x 4"	193	180	404	89	20	40
4" x 6"	200	207	411	116	32	50
6" x 8"	245	220	429	142	45	80
8" x 10"	330	300	492	171	71	130
10" x 12"	410	360	538	201	117	240
12" x 16"	510	500	587	242	186	330