

## Model B12 – Pressure / Vacuum relief valve



### PRODUCT DESCRIPTION

The pressure / vacuum valve is a protection device mounted on a nozzle opening on the top of a fixed roof atmospheric storage tank. Its primary purpose is to protect the tank against rupturing or imploding.

Without an opening or a controlled opening, a fixed roof atmospheric tank would rupture under increasing pressure caused by pumping liquid into the tank or as a result of vapor pressure changes caused by severe thermal changes. Imploding, or the collapsing of a tank, occurs during the pumping out procedure or thermal changes. As the liquid level lowers, the vapor space pressure is reduced to below atmospheric pressure. This vacuum condition must be alleviated through a controlled opening on the tank. In short, the tank needs to breathe in order to eliminate the possibility of rupturing or imploding. Because of its primary function, a vacuum valve is commonly referred to as a “breather valve”.

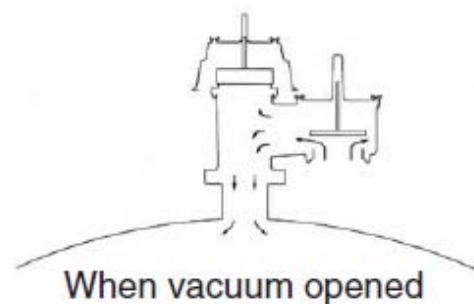
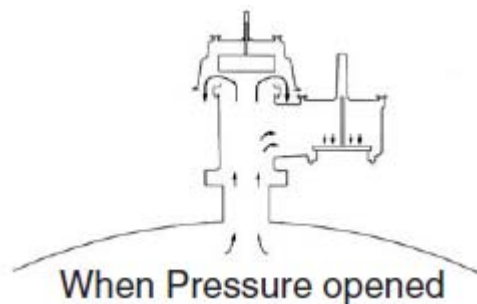
### PRODUCT BENEFITS

- Less need for special materials in corrosive and extreme temperature
- Unique floating diaphragm construction assures tight seal
- Peripheral and stem guided vacuum pallet assures reliable operation
- Pallet contributes to high flow
- Heavy duty construction, yet compact enough for easy handling

## HOW PRESSURE / VACUUM RELIEF VALVE OPERATE

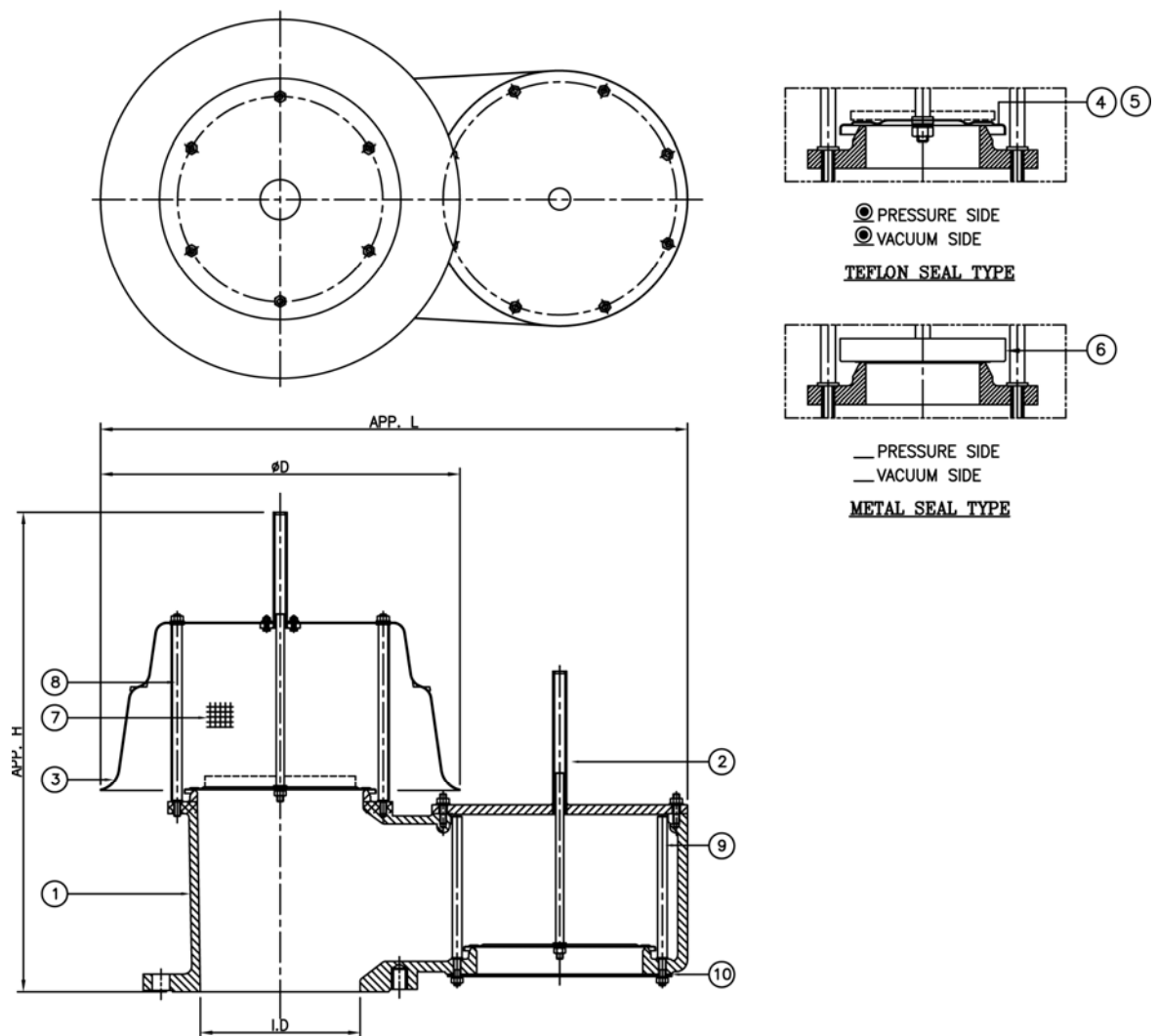
How does a pressure/vacuum valve operate? Most atmospheric tanks require a venting device that will allow large volumes of vapor to escape under relatively low pressures. Usually the allowable set pressure is in inches of water column pressure, both for positive and vacuum conditions. This is because most large storage tanks have a relatively low maximum allowable working pressure. These tanks are generally large volume welded vessels that are built to API650 standard.

In order to accommodate large volumes at low set pressures, these valves have ports that are greater in area than the inlet or nozzle connection. The low setting required necessitates weight loading the valve as opposed to spring loading. Because of the above, a pressure / vacuum valve requires approximately 100% over set pressure in order to reach full opening of the valve. However, when deciding on a set pressure the weight-loaded valve operation MAWP should be at least twice the required set pressure to obtain optimum flow. If the MAWP is less than 100% above the required set, the valve could be larger in size than normally required. The possibility of valve chatter and accelerated seat and diaphragm wear will exist if less than 20% over pressure is allowed. Simply stated, a pressure/vacuum valve is not exactly like a high pressure safety relief valve and should not be sized at 10% or 20% over pressure. When sizing a pressure/vacuum valve, consult the manufacturer flow curves and allow sufficient overset pressure.



**MATERIALS**

REF.	PART	MATERIAL	
		ANSI / ASTM	DIN / EN
1	Body	S. S. (AISI 304)	S. S. (1.4308)
		C.S. (A216WCB)	C.S. (1.6019)
		S.S. (AISI 316)	S. S. (1.4408)
2	Vacuum cover	S. S. (AISI 304)	S. S. (1.4308)
		C.S. (A216WCB)	C.S. (1.6019)
		S.S. (AISI 316)	S. S. (1.4408)
3	Hood	S. S. (AISI 304)	S. S. (1.4308)
4	Disc1	S. S. (AISI 304)	S. S. (1.4308)
		S.S. (AISI 316)	S. S. (1.4408)
5	Seal (diaphragm)	PTFE	
6	Disc2	S. S. (AISI 304)	S. S. (1.4308)
		S.S. (AISI 316)	S. S. (1.4408)
7	Screen mesh	S. S. (AISI 304)	S. S. (1.4308)
8	Pre. guide bar	S. S. (AISI 304)	S. S. (1.4308)
9	Vac. guide bar	S. S. (AISI 304)	S. S. (1.4308)
10	Vacuum mesh	S. S. (AISI 304)	S. S. (1.4308)



<b>Pressure settings [mmH<sub>2</sub>O]</b>	22 up to 10,000
<b>Vacuum settings [mmH<sub>2</sub>O]</b>	22 up to 8,400

## DIMENSIONS

	2"	3"	4"	6"	8"	10"	12"
<b>I.D [mm]</b>	50	80	100	150	200	250	300
<b>H [mm]</b>	314	425	485	637	640	746	828
<b>L [mm]</b>	370	445	492	636	758	869	991
<b>D [mm]</b>	240	270	290	400	450	532	582



### Disclaimer

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