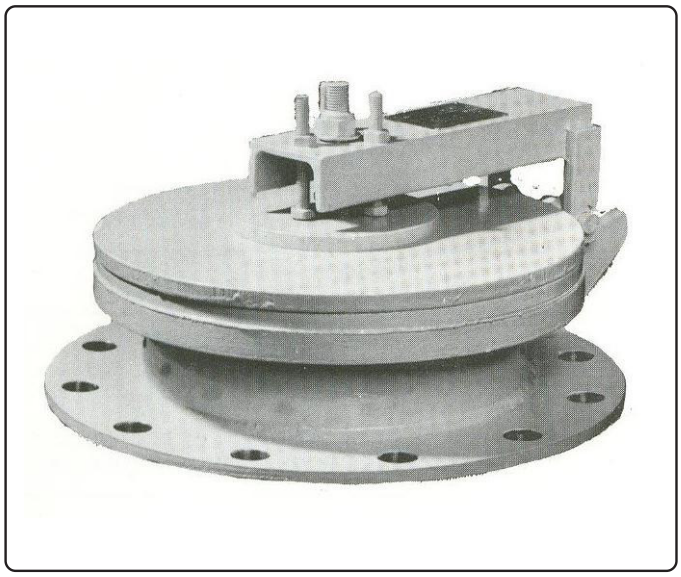
Tank Fitting

Emergency Vent & Manhole Cover



The Emergency Vent (Figure 4210) is an economical solution to the present day emergency venting requirements. It is not intended as protection against an internal explosion, but to prevent excessive vapour pressure rise in the event of an external fire. It is available for use in normal, chemical or low temperature service.

For lightly loaded vents, the entire hinged cover may be lifted open, providing a convenient inspection or access point through the unobstructed opening. Since unbolting and gasket replacement are unnecessary, the time saving alone is often sufficient to justify the use of this design of vent.

Emergency Vent is available in 250 mm (10”) and 500 mm (20”) sizes with flat face flanges to match a 10” ASA Class 125 and a 20” API Roof Manhole respectively. For normal service applications, the steel manhole base has a weld deposited stainless steel seat facing and is fitted with a neoprene ‘Tite’ seal diaphragm. For chemical/low temperature service applications, the manhole base is of stainless steel construction and a PTFE coated glass cloth ‘Tite’ seal diaphragm completely covers the underside of the hinged cover.

RANGE OF SET PRESSURES

250 mm (10”)

Minimum set pressure with alum. pallet	=	84	mm	(3.3”) W.G.
Minimum set pressure with steel pallet	=	165	mm	(6.5”) W.G.
Maximum set pressure with alum. pallet	=	1435	mm	(56.5”) W.G.
Maximum set pressure with steel pallet	=	1516	mm	(59.7”) W.G.

500 mm (20”)

Minimum set pressure with alum. pallet	=	51	mm	(2.0”) W.G.
Minimum set pressure with steel pallet	=	112	mm	(4.4”) W.G.
Maximum set pressure with alum. pallet	=	640	mm	(25.2”) W.G.
Maximum set pressure with steel pallet	=	701	mm	(27.6”) W.G.

FLOW CAPACITY

When set pressure is reached, the pallet starts to lift and flow efficiency rises rapidly to approximately 60% of a perfect orifice when tank pressure is 40% in excess of the set pressure.

At higher overpressure the flow efficiency can reach 75%. Where 40% overpressure cannot be tolerated. Flow capacity formulae have been estimated for 30%, 20% overpressure.

FLOW CAPACITY FORMULAE	Capacity in cubic meters per hour where "P" is set pressure in mm WG		Capacity in cubic feet per hour where "P" is set pressure in inch WG	
	250 mm (10")	500 mm (20")	250 mm (10")	500 mm (20")
Flow capacity at 1.4 x set pressure	$449\sqrt{P \times 1.4}$	$1696\sqrt{P \times 1.4}$	$7.8 \times 10^4\sqrt{P \times 1.4}$	$3.1 \times 10^5\sqrt{P \times 1.4}$
Flow capacity at 1.3 x set pressure	$365\sqrt{P \times 1.3}$	$1461\sqrt{P \times 1.3}$	$6.5 \times 10^4\sqrt{P \times 1.3}$	$2.6 \times 10^5\sqrt{P \times 1.3}$
Flow capacity at 1.25 x set pressure	$320\sqrt{P \times 1.25}$	$1281\sqrt{P \times 1.25}$	$5.7 \times 10^4\sqrt{P \times 1.25}$	$2.3 \times 10^5\sqrt{P \times 1.25}$
Flow capacity at 1.2 x set pressure	$270\sqrt{P \times 1.2}$	$1079\sqrt{P \times 1.2}$	$4.8 \times 10^4\sqrt{P \times 1.2}$	$1.9 \times 10^5\sqrt{P \times 1.2}$

PARTS LIST

Sr.No.	Description	Material
1	Loading Weight (Arm)	S
2	Screw	CPS
3	Nut	CPS
4	Washer	CPS
5	Screw	CPS
6	Nut	CPS
7	Spacer Tube	SS
8	Nyloc Nut	SS
9	Centre Stud	SS
10	Hinge Arm (Short)	S
11	Name Plate	SS
12	Drive Screw	SS
13	Split Pin	SS
14	Hinge Pin	SS
15	Thread Sealant	--
16	Washer	Fibre
† 16	Washer	PTFE
17	Dome Nut	SS
18	Diaphragm Spacer	CAF

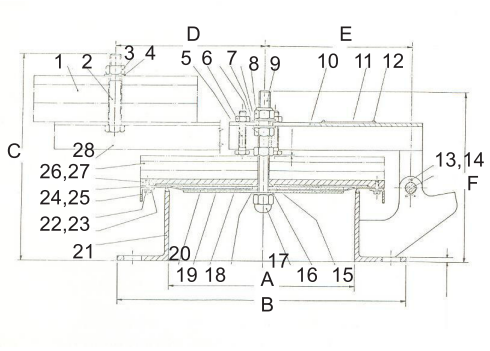
Sr.No.	Description	Material
19	Cushion Disc	NBC
20	Clamp (Normal Service)	CPS
20	Clamp (Chem/Low Temp)	SS
21	Base (Normal Service)	S
21	Base (Chem/Low Temp)	SS
22	Washer	SS
23	Screw	SS
24	Outer Clamp (Standard)	Alu
24	Outer Clamp (Alternative)	S
§ 25	Diaphragm (Normal Service)	Neop
§ 25	Diaphragm (Chem/Low Temp)	PTFE/ Glass
* 26	Pallet (Low Settings)	Alu
26	Pallet	S
27	Loading Weight (Pallet)	S
28	Hinge Arm (Long)	S
29	Washer	N
30	Screw	SS
31	Diaphragm Spacer (Outer)	CAF
32	Pallet Facing	PTFE/ Glass

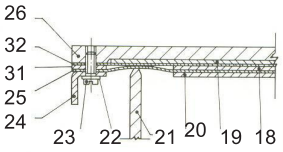
Material Abbreviations :

S	- Steel	PTFE	- Poly Tetra Fluoro Ethylene	Alu.	- Aluminium
CPS	- Cadmium Plates Steel	CAF	- Compressed Asbestos Fibre	Neop.	- Neoprene
SS	- Stainless Steel	NBC	- Neoprene Bonded Cork	Ny	- Nylon

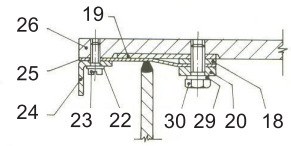
Notes : † An extra washer fitted to 500 mm Chem./Low Temp. Service only.
§ Recommended Spares.
* An Alum. Pallet (Item 26) is fitted for Low Temp. applications.

DIMENSIONS

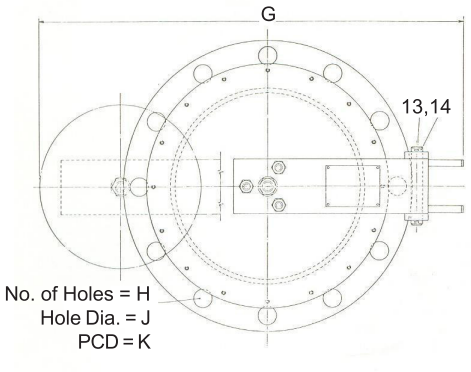


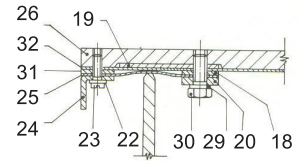


250 mm (10")
CHEM/LOW TEMP.SERVICE



500 mm (20")
NORMAL SERVICE





500 mm (20")
CHEM/LOW TEMP.SERVICE

ABOVE DRAWING ILLUSTRATES
250 mm (10") EMERGENCY VENT

DIMENSIONS										
VENT SIZE	A	B	C	D	E	F	G	H	J	K
250 mm (10")	260	405	290	208	208	238	597	12	26	362
500 mm (20")	508	660	290	335	335	238	870	18	19	597

PRINCIPLE OF OPERATION OF `TITE' SEAL DIAPHRAGM

Figure 1

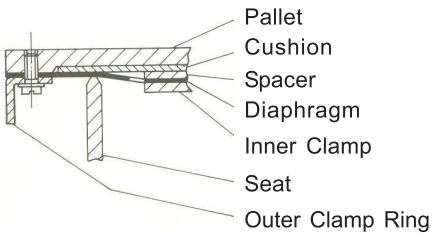


Figure 2

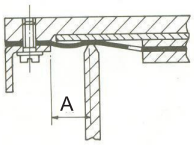


Figure 3

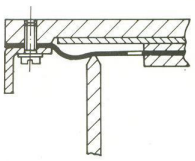
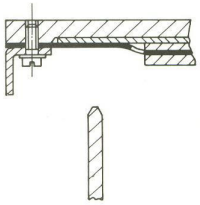


Figure 4



All dead weight loaded venting devices suffer a loss in seating forces as set pressure is approached and in consequence excessive leakage can be a problem. The unique 'Tite' seal diaphragm design significantly reduces this problem because it only allows very small orders of leakage as set pressure is neared.

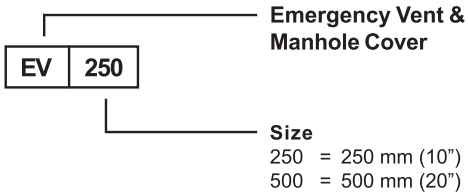
Figure 1 above shows the pallet sitting on its seat with the tank substantially at atmospheric pressure.

Figure 2 shows seating conditions when the tank is below set pressure and tank vapour bleeds through the holes in the diaphragm within the seat area. The effect of this is to bulge the diaphragm around annulus 'A' keeping the diaphragm in contact with the seat.

Figure 3 shows seating conditions even nearer to set pressure where the diaphragm still maintains contact with the seat keeping tank vapour leakages to an absolute minimum.

Figure 4 shows pallet lifted away from the seat when seat pressure is exceeded.

MODEL DESIGNATION



* *Specifications are subject to change without notice.*
* *All dimensions are in mm unless otherwise specified.*

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