



ISO Registered Company

TECHNICAL BULLETIN

MODEL 8900

MANWAY EMERGENCY RELIEF VENTS

OVERVIEW

The 8900 Series manway pressure and pressure /vacuum relief vents provide emergency pressure relief beyond that furnished by the normal pressure vent for atmospheric and low pressure tanks, as well as a convenient access for tank cleaning, inspection and repair. Emergency relief vents provide relief from excessive internal pressure which may be caused by an abnormal condition; such as ruptured internal heating coils, an external fire, a failure of the tank blanketing system, a sudden cooling of the tank or a break in the tank wall.

SPECIAL FEATURES

Easy Inspection & Maintenance:

The 8900 Series vents are rugged in design, yet light weight for easy handling, inspection and maintenance. The pressure pallet assembly can be removed to allow unobstructed access to the tank for tank entry, inspection, and repairs.

Modular:

As part of the Valve Concepts modular vent product line, the 8900 Series can be converted from pressure/vacuum to pressure only relief design. Available as either a top guided (spring loaded) or hinged (weight loaded) vent.

Maintains Accurate Pressure Settings:

For all sizes with Hinged design, pressure range is < 1/2 psig. The top-guided design pressure range is 1/2 psig to 15 psig. For Models 8920 and 8940 vacuum setting ranges from 0.2 to 4 oz/in². Vacuum set point pressure can be easily changed without dis-assembly of the vent. Seat leakage meets or exceeds API Standard 2000.

Air-Cushion Pallet Design:

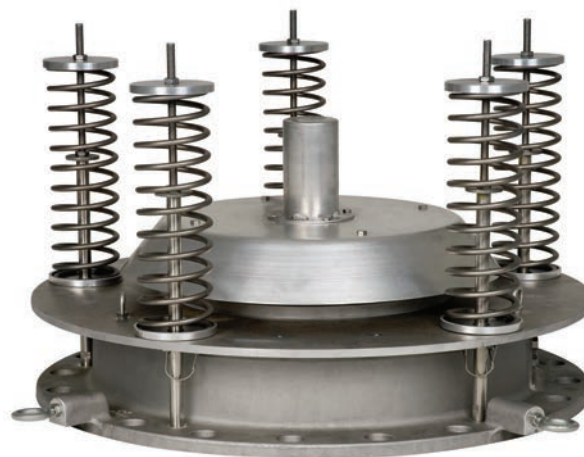
Utilizes a flat diaphragm in place of an O-ring for sealing. The thickness of the diaphragm is based on the vent size and the customer specified set point. It forms around the seat to provide a tight seal due to the air cushion pallet design.

Dual Action Swivel Hinge:

Models 8930 and 8940 utilize a dual swivel hinge design with two directional rotation. Allows pressure pallet to rest evenly on the seat. Optional locking feature is available to secure the pallet sub-assembly in the open position for tank inspection and maintenance.

TECHNIQUE

The pressure pallet assembly provides an effective vapor-tight seal when the tank is not under emergency conditions. If the tank out breathing requirements exceeds the capability of the normal pressure relief vent, under emergency conditions, the pallet assembly lifts off the seat to allow escape of vapors, preventing damage to the tank due to excess pressure. When the excess pressure is relieved the pallet assembly will reseat to again provide a vapor-tight seal.


MODEL 8900


LINE SIZES AVAILABLE

16" (DN400), 18" (DN450), 20" (DN500), 24" (DN600)



END CONNECTIONS

FLANGED



COMMON APPLICATIONS

ATMOSPHERIC & LOW PRESSURE TANKS



DESIGN PRESSURE

MULTIPLE SET PRESSURE & VACUUM RANGES AVAILABLE

CONSTRUCTION

Standard flange base is a one piece casting that includes lifting lugs and a pad to accommodate the bolted on "Hinged" design.

Product Selection Guide		
Vent Function	Guiding	Model
Pressure Relief	Top Guided & (Spring Loaded)	8910
Pressure/Vacuum Relief		8920
Pressure Relief	Hinged (Weight Loaded) Hinged (Weight / Spring Loaded)	8930
Pressure/Vacuum Relief		8940

STANDARD/GENERAL SPECIFICATIONS

Sizes: 16", 18", 20" and 24" Flanged to mate with standard 150# ASME. 20" and 24" to API 650 bolting specifications. Other drilling patterns available on special request.

Top Guided: SST Springs

Pressure Spring Ranges for Models 8910 & 8920: from 0.5 to 15 psig.

Vacuum Spring Ranges for Models 8920 & 8940: from 0.2 to 4 oz/in².
(All sizes and body materials.)

MATERIALS OF CONSTRUCTION		
Flange Base	Pressure Pallet / Seat	Hood
Aluminum	Aluminum	Aluminum
304 SST	316 SST	SST
316 SST	316 SST	SST

Weight Loaded:

For Set Points below 8 oz/in².

Three Designs are available:

1. Stack weighted design uses CS/SST weights.
2. Counter weight design uses CS/SST weights. Use when Set Point pressure is below Nominal Pressure. See Table 1.
3. Weighted arm design uses CS/SST weights. Model 8930 only.

Diaphragm Temperature Limits:
FEP-TFE: -400° to 400° F (-240° to 204°C)
Fluorocarbon Elastomer – (FKM): 0° to 400° F (0° to 204°C)
Buna-N (Nitrile-NBR): -30° to 200° F (-34° to 93°C)
EPDM (Ethylene propylene): -40° to 225° F (-40° to 107°C)

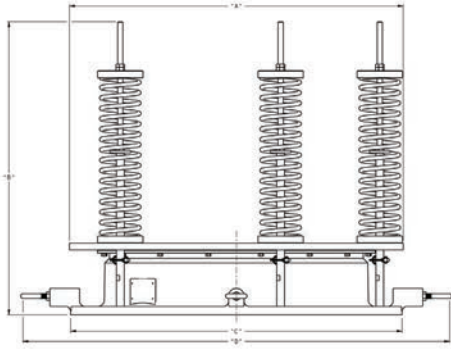
Painting: Standard: All non-corrosion resistant parts to be painted with corrosion resistant epoxy paint per Cashco Spec #S-1777.

TABLE 1
PRESSURE SET RANGES
 (All Values in oz/in² unless noted otherwise.)

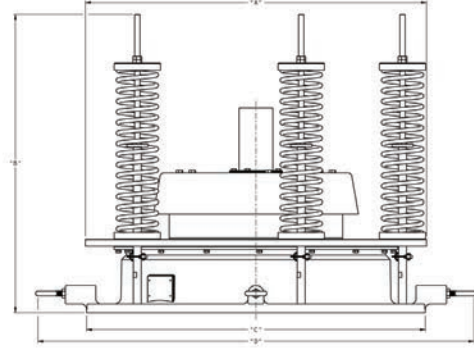
Size	Material	8910		8920		8930			8940		
		Min	Max(psig)	Min	Max(psig)	Min	Nom	Max	Min	Nom	Max
16"	Alum	8.0	15	8.0	15	0.4	1.3	<8.0	0.2	2.2	<8.0
	CS/SST	8.0	15	8.0	15	0.2	3.1	<8.0	2.1	5.3	<8.0
18"	Alum	8.0	15	8.0	15	0.2	1.3	<8.0	0.2	2.0	<8.0
	CS/SST	8.0	15	8.0	15	0.6	2.9	<8.0	2.3	4.6	<8.0
20"	Alum	8.0	15	8.0	15	0.2	1.1	<8.0	0.2	1.7	<8.0
	CS/SST	8.0	15	8.0	15	0.7	2.6	<8.0	1.8	3.6	<8.0
24"	Alum	8.0	15	8.0	15	0.1	0.9	<8.0	0.2	1.4	<8.0
	CS/SST	8.0	15	8.0	15	1.2	2.4	<8.0	1.9	3.1	<8.0

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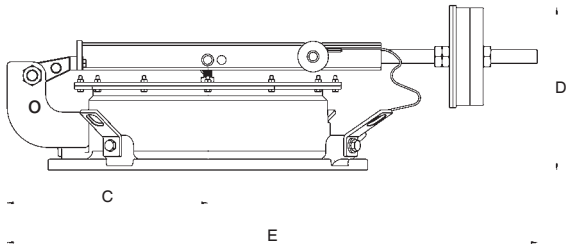
DIMENSIONS



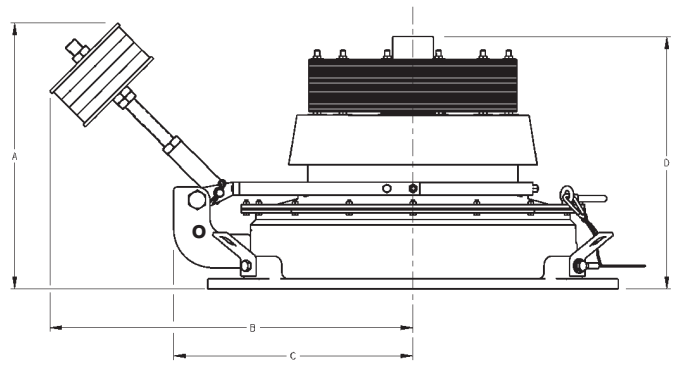
Model 8910



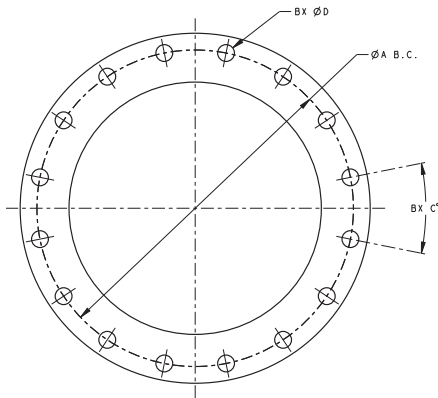
Model 8920



**Model 8930
with Weighted Arm**



Model 8940



FLANGE DIMENSIONS - in

150# FF Flange & Bolting Specification - per ()

SIZE	ØA B.C.	B (Qty)	C°	ØD	Stud Diameter	Flange OD
(ASME) 16"	21.25	16	22°30'	1.13	1.00	23.50
(ASME) 18"	22.75	16	22°30'	1.25	1.125	25.00
(ASME) 20"	25.00	20	18°	1.250	1.125	27.50
(ASME) 24"	29.50	20	18°	1.375	1.250	32.00
(API) 20"	23.50	16	22°30'	0.750	.625	26.00
(API) 24"	27.50	20	18°	0.750	.625	30.00

VENT DIMENSIONS - in

Size	Models 8910 & 8920				Models 8930 & 8940						
	A (diam.)	B	C (diam.)	D (diam.)	A	B	C (8930)	C (8940)	D (8930)	D (8940)	E (8930)
16"	25.88	25.73	23.50	30.19	18.13	17.79	14.76	15.30	11.94	18.72	39.01
18"	27.88	25.73	25.00	31.69	18.13	19.79	CF	16.31	11.94	18.72	CF
20"	28.07	25.73	27.50	36.19	18.13	21.79	17.89	17.11	12.09	19.73	44.27
24"	32.22	25.73	32.00	41.19	18.13	23.79	CF	19.09	12.09	19.73	CF

8900 Series Emergency Relief Vent PRODUCT CODE

10/09/20

Last 6 Characters reserved for SPQ drawing numbers assigned by Cashco
(Format as - # # # # # #)



POSITION 3 - FLANGE - BOLTING PATTERN	
To Specification	CODE
ASME 150# FF	0
API 650# FF *	P
DIN PN16 FF	D

* Not Available Sizes 16" or 18"

POSITION 4 - SIZE		
Inch	(DN)	CODE
16"	(400)	F
18"	(450)	C
20"	(500)	D
24"	(600)	E

POSITION 5 - MATERIALS of CONSTRUCTION		
Base / Topworks Material	Standard	W/ Vacuum Flame Screen *
	CODE	CODE
Aluminum/Aluminum	B	A
304 SST/CS-SST	C	D
316 SST/SST	S	T

* Only available for 8920 and 8940

POSITION 7 - DIAPHRAGM MATERIAL	
Material	CODE
FEP	G
Buna-N	C
EPDM	E
FKM (Std)	H

POSITION 8 - VENT CONFIGURATION		
MODEL	Relief Mode	CODE
8910 - Spring Loaded	Pressure Only	P
8920 - Spring Loaded	Pressure / Vacuum	V
8930 - Hinged Non-Locking (Weight Loaded)	Pressure Only	W
8940 - Hinged Non-Locking *	Pressure / Vacuum	Y
8930 - Hinged Locking (Weight Loaded) Without Weighted Arm **	Pressure Only	1
8930 - Hinged Locking (Weight Loaded) With Weighted Arm	Pressure Only	2
8940 - Hinged Locking *	Pressure / Vacuum	3

* Pressure side weight loaded / Vacuum side spring loaded.

** Contact the factory for minimum set point.

POSITION 9 - PRESSURE RANGE SPRING For Model 8910 & 8920 only		
Range psig	Barg	CODE
None *		0
0.5 - 1	.034 - .068	1
> 1 - 2	>.068 - .137	2
> 2 - 4	>.137 - .275	3
> 4 - 6	>.275 - .413	A
> 6 - 8	>.413 - .551	B
> 8 - 10	> .551 - .687	C
> 10 - 12	> .687 - .827	D
> 12 - 15	> .827 - 1.034	E

* For Model 8930 No spring - Pressure loading weights are specific to set point. Select "0" from Position 10.

* For Model 8940 No spring - Pressure loading weights are specific to set point. Select Vacuum Spring from Position 10.

POSITION 10 - VACUUM RANGE SPRING For Model 8920 & 8940 only		
Range oz/in ²	Millibar	CODE
None *		0
0.2 - 1	0.86 - 4.31	1
> 1 - 2	4.31 - 8.61	2
> 2 - 3	8.61 - 12.93	3
> 3 - 4	12.93 - 17.24	4

* For Model 8910 & 8930 select "0" only

POSITION 11 - WEIGHT MATERIAL FOR 8930 and 8940 Pressure Side	
Material	CODE
NONE *	0
STD	L
ALL SST	S

* No weights on 8910 or 8920

* For information on ATEX see
pages 16 & 17 on the IOM.



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& Automation**
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