

# MODEL 3500

## PRESSURE VENT WITH PIPE-AWAY

### OVERVIEW

The Model 3500 inline conservation pressure relief vent is designed for use on atmospheric and low-pressure storage tanks where pressure relief is required.



MODEL 3500

### SPECIAL FEATURES

#### Maintains Accurate Settings:

Minimum setting available is approximately 0.25 OZ/IN<sup>2</sup> for pressure relief. Maximum setting upwards to 2.5 psig for pressure, see Set Point Limits Table 4. If higher settings are required, see Valve Concepts Series 4000 Spring Loaded Vents or Valve Concepts Series 5000 Pilot Operated Vents. All vents are tested to Valve Concepts, Inc. high standards for both leakage and set point prior to shipment. A certified test certificate is included with each vent verifying the accuracy of the pressure setting and leakage. The leakage rate meets or exceeds API Std 2000.

#### Condensate Drainage:

Self-draining body and specially designed seat ring keeps condensate away from seating surfaces, preventing freezing, binding and clogging.

#### Air-Cushioned Seating:

Air-cushion seating provides tight sealing to reduce evaporation losses and the release of toxic vapors. The pallets have outer guiding and center stabilizing stem to provide self alignment and tight seating.

#### Sizes-Connections:

Available in sizes 2" (DN50) through 12" (DN300). Carbon steel and stainless steel vents have raised face tank connection flanges. All other vent materials come standard with flat face flanges. Standard flanged bolt patterns are available to mate with ASME 150, PN16, or PN10 flanged connections.

\* Derakane 470 and Hetrion 800 are registered trademarks of Ashland, Inc.

### TECHNIQUE

Weight loaded pallets in the vent housing allow the escape of vapors as the tank outbreathes due to thermal changes and product movement into the tank.



### LINE SIZES AVAILABLE

2" (DN50), 3" (DN80), 4" (DN100), 6" (DN150), 8" (DN200), 10" (DN250), 12" (DN300)



### END CONNECTIONS

FLANGED



### COMMON APPLICATIONS

ATMOSPHERIC AND LOW PRESSURE STORAGE TANKS WHERE PRESSURE RELIEF IS REQUIRED



### DESIGN PRESSURE

MULTIPLE SET PRESSURE RANGES AVAILABLE

Алматы (7273)495-231  
Ангарск (3955)60-70-56  
Архангельск (8182)63-90-72  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
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## CONSTRUCTION

<b>Housing Material:</b>	Available in aluminum, carbon steel, 316 stainless steel or corrosion resistant fiberglass reinforced plastic (FRP) with Derakane 470* or Hetron 800* resins	<b>Pallet Assemblies:</b>	Replaceable 316 stainless steel pallet assemblies are standard for metal vents. Pallet assemblies lower than 0.5 OZ/IN <sup>2</sup> may contain a polycarbonate pallet material. Replaceable FRP pallet assemblies match the body resin material.
<b>Seat Rings:</b>	Replaceable metal seat rings available in aluminum or 316 stainless steel. FRP vents have integral seats that match the body resin material.	<b>Pallet Diaphragms:</b>	Standard diaphragm material is FEP film. Also available in FKM, EPDM, and Buna-N.

## STANDARD/GENERAL SPECIFICATIONS

<b>Gaskets:</b>	Expanded PTFE for FEP diaphragm materials. Gasket materials match the diaphragm materials for BUNA-N, EPDM, and FKM.	<b>Calibration Certificate:</b>	Calibration certificates are issued standard with every line item demonstrating acceptable set point accuracy and seat leakage rates.
<b>Set Point Accuracy:</b>	Pressure setpoints are calibrated to be within +/-2% of customer requested setting across the range of available settings.	<b>Painting:</b>	All carbon steel surfaces are epoxy coated VCI blue per Cashco specification S-1777. Flange mating surfaces, threaded holes, and corrosion resistant parts are excluded. Non-coated surfaces have lubricant applied for corrosion prevention.
<b>Seat Leakage:</b>	Meets or exceeds current edition of API Standard 2000. Tighter seat leakage requirements available upon request.		

## OPTION SPECIFICATIONS

<b>Flame Screen:</b>	Replaceable 30x30 stainless steel mesh screen with integral gasket that inserts between the outlet flange and goose neck. The outlet flame screen is not a suitable replacement for applications requiring deflagration or detonation arrestors.	<b>Oxygen Cleaning:</b>	All components oxygen cleaned, bagged, and tagged in accordance to Cashco specification S-1134. Must select 316 stainless steel body material and stainless steel loading weights.
<b>Sizing Report:</b>	Formal report documenting tank outbreathing requirements and vent performance per customer application. Displacement flow requirements and vent performance are in accordance with the current edition of API 2000 Std.	<b>ATEX 2014/34/EU:</b>	Available for IIB gases only. See Model 3500 IOM for more details.
<b>NACE Certification:</b>	Internal wetted portions meet NACE standard MR0175 when exterior of the vent is not directly exposed to a sour gas environment, buried, insulated, or otherwise denied direct atmospheric exposure. Available for carbon steel or 316 stainless steel body materials only. Must be requested at time of order.	<b>PED 2014/34/EU Certificate:</b>	Sound Engineering Practice (SEP) certificate available for pressures up to 0.5 barg.

TABLE 1 - MATERIALS OF CONSTRUCTION					
COMPONENT MATERIALS	BODY MATERIALS				
	ALUM	CS	316 SST	DERAKANE 470	HETRON 800
COVER	ALUM	CS	316 SST	DERAKANE 470	HETRON 800
SEAT RINGS	ALUM, 316 SST	316 SST	316 SST	DERAKANE 470	HETRON 800
PALLET ASSEMBLY	PC <sup>2</sup> , 316 SST	PC <sup>2</sup> , 316 SST	PC <sup>2</sup> , 316 SST	DERAKANE 470	HETRON 800
PALLET GUIDES	316 SST	316 SST	316 SST	DERAKANE 470	HETRON 800
FASTENERS	316 SST	316 SST	316 SST	316 SST, ALLOY C276	316 SST, ALLOY C276
PALLET WEIGHTS	CS <sup>3</sup> , SST	CS <sup>3</sup> , SST	CS <sup>3</sup> , SST	DERAKANE 470 <sup>4</sup>	HETRON 800 <sup>4</sup>

2 - Polycarbonate pallet material may be used for settings less than 0.5 OZ/IN<sup>2</sup>. All other parts are 316 SST.  
3 - Carbon steel pallet weights are epoxy coated per Cashco specification S-1777.  
4 - FRP encapsulated carbon steel utilizes same resin as body.

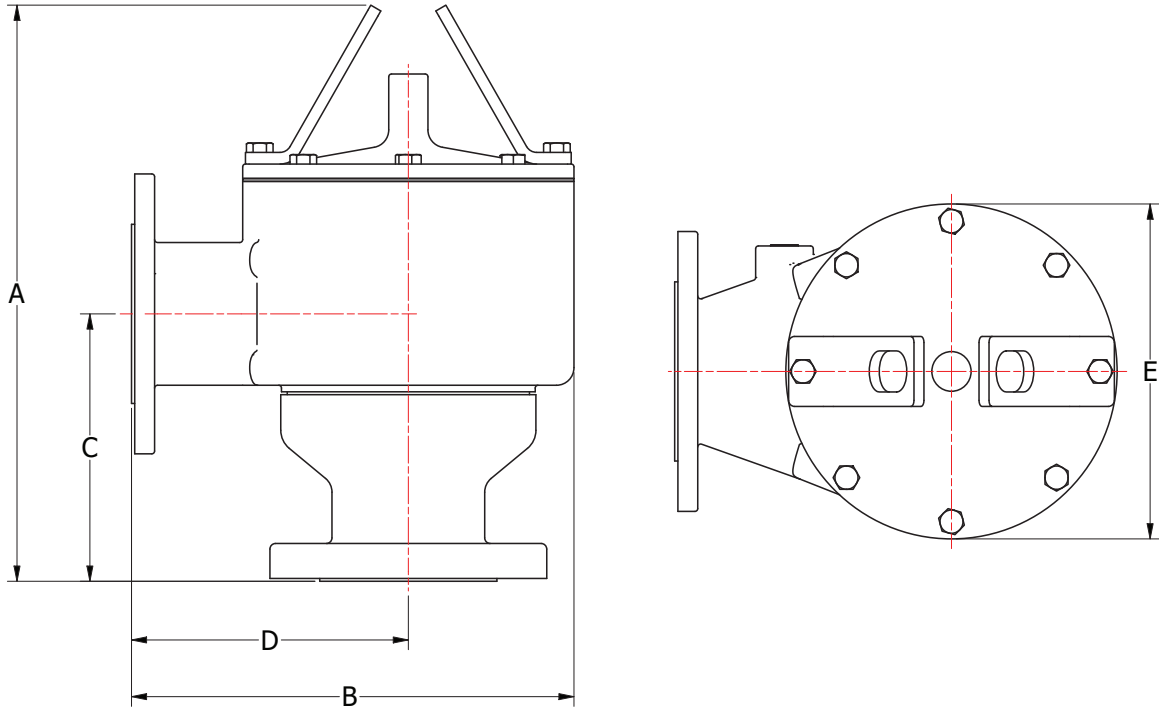
TABLE 2 - PRESSURE/TEMPERATURE RATINGS				
BODY MATERIAL	MAWP		Temperature	
	PSI	(BAR)	°F	(°C)
Aluminum	15	(1)	-325/+250	(-198/+121)
Carbon Steel	15	(1)	-20/+400	(-28/+204)
316 Stainless Steel	15	(1)	-325/+400	(-198/+204)
Derakane 470*	2	(0.14)	N/A	
Hetron 800*	2	(0.14)	N/A	

\* Temperature limits vary based on resin material, media, concentration, and storage temperature. Consult factory for more information.

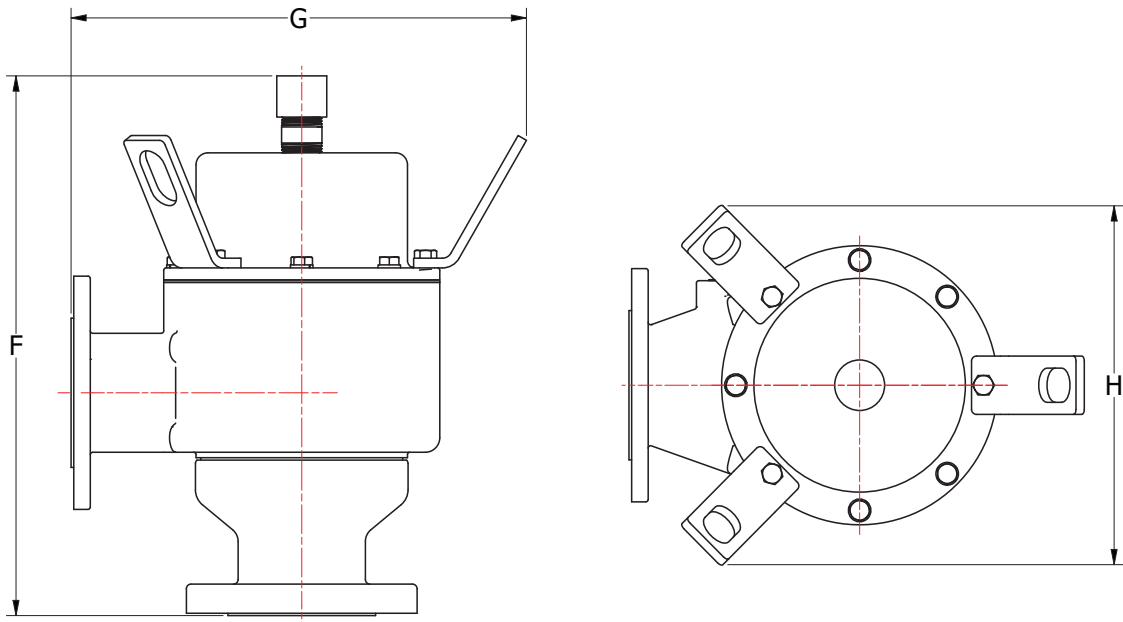
TABLE 3 - DIAPHRAGM TEMPERATURE LIMITS		
Material	°F	(°C)
FEP	-400/+400	(-240/+204)
Buna-N	-40/+250	(-40/+121)
EPDM	-40/+225	(-40/+107)
FKM	-20/+400	(-28/+204)

TABLE 4 - SET POINT LIMITS					
Metallic Vents (OZ/IN <sup>2</sup> )			FRP Vents (OZ/IN <sup>2</sup> )		
Size	Pressure		Size	Pressure	
	MIN	MAX		MIN	MAX
2"	0.30	34.10	2"	0.50	32.00
3"	0.27	36.90	3"	0.50	32.00
4"	0.19	43.10	4"	0.50	32.00
6"	0.19	39.80	6"	0.50	32.00
8"	0.19	39.70	8"	0.50	32.00
10"	0.20	42.10	10"	0.50	32.00
12"	0.20	35.70	12"	0.50	32.00

**DIMENSIONS**



STANDARD CONFIGURATION



WITH EXTENDED COVER

ENGLISH UNITS - in												
Aluminum, Carbon Steel & Stainless Steel Body												
SIZE (in)	A	B	C	D	E	F	G	H	WEIGHT* (lbs)			
									STANDARD COVER		EXTENDED COVER	
									ALUM	CS/SST	ALUM	CS/SST
2" x 2"	12 3/8	9 9/16	5 3/4	6	7 3/16	13 7/8	9 9/16	9 1/4	14	41	16	46
2" x 3"	12 5/16	9 3/4	6 1/4	6 3/16	7 3/16	14 7/16	9 3/4	9 1/4	14	42	16	48
3" x 3"	14 1/8	10 1/2	6 15/16	6 1/2	8	16 7/8	10 1/2	9 7/8	20	58	22	64
3" x 4"	14 1/8	10 1/2	7 7/16	6 1/2	8	16 7/8	12 3/4	9 7/8	21	60	23	66
4" x 4"	19 5/16	13 3/8	8 3/4	8	10 3/4	19 5/16	13 3/8	10 3/4	32	94	34	98
4" x 6"	19 3/16	13 3/8	9 3/4	7 15/16	10 3/4	19 3/16	13 3/8	10 3/4	36	105	37	109
6" x 6"	22 1/4	15 3/4	10 5/16	9	13 7/16	22 3/16	15 3/4	13 7/16	49	144	52	153
6" x 8"	22 5/16	15 3/4	11 1/2	9	13 7/16	22 3/16	15 3/4	13 7/16	52	152	54	159
8" x 10"	27 7/16	18 1/2	13 3/4 <sup>1</sup>	11	15	27 3/8	18 1/2	15	70	203	73	212
10" x 12"	29 5/16	20 13/16	15 5/8	12 1/4	17 1/8	30 3/4	20 13/16	17 1/8	91	265	98	287
12" x 14"	38 7/8	23 1/16	21 3/16	14	19	38 7/8	23 1/16	19	126	368	130	379

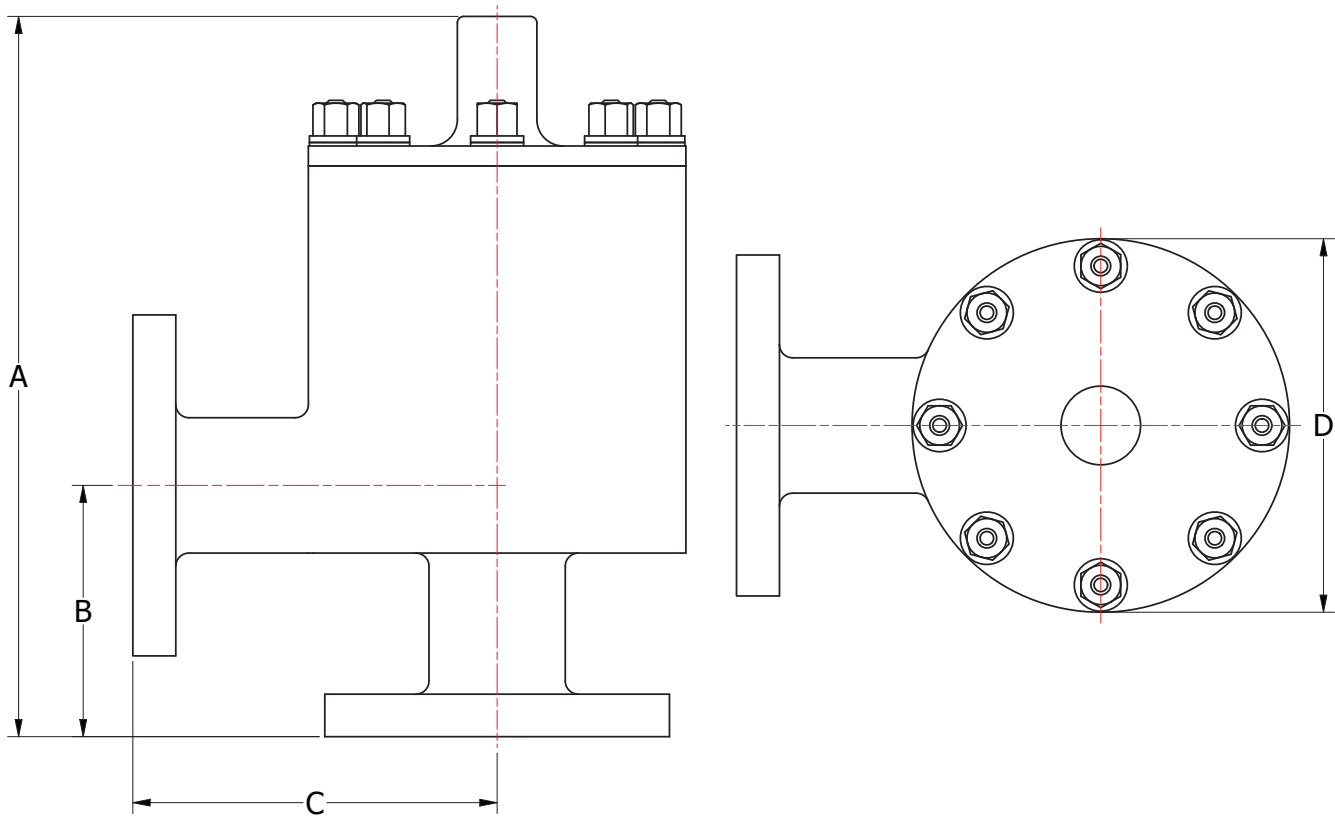
\* Estimated weight based on minimum setpoints. Weight will increase with higher set points and packaging.  
<sup>1</sup> Aluminum only. Carbon steel and stainless steel are 14in (355 mm).

METRIC UNITS - mm												
Aluminum, Carbon Steel & Stainless Steel Body												
SIZE (DN)	A	B	C	D	E	F	G	H	WEIGHT* (kg)			
									STANDARD COVER		EXTENDED COVER	
									ALUM	CS/SST	ALUM	CS/SST
50 x 50	314	243	146	152	183	352	243	235	6	19	7	21
50 x 80	313	248	159	157	183	367	248	235	7	19	7	22
80 x 80	359	267	176	165	203	429	267	251	9	26	10	29
80 x 100	359	267	189	165	203	429	324	251	9	27	10	30
100 x 100	491	340	222	203	273	491	340	273	15	43	15	44
100 x 150	487	340	248	202	273	487	340	273	16	48	17	49
150 x 150	565	400	262	229	341	564	400	341	22	65	24	69
150 x 200	567	400	292	229	341	564	400	341	24	69	25	72
200 x 250	697	470	348 <sup>1</sup>	279	381	695	470	381	32	92	33	96
250 x 300	745	529	397	311	435	781	529	435	41	120	45	130
300 x 350	987	586	538	356	483	987	586	483	57	167	59	172

\* Estimated weight based on minimum setpoints. Weight will increase with higher set points and packaging.  
<sup>1</sup> Aluminum only. Carbon steel and stainless steel are 14in (355 mm).

# DIMENSIONS

## FRP CONSTRUCTION



ENGLISH Units - in Corrosion Resistant Fiberglass (FRP) Body				
SIZE In	A	B	C	D (diam.)
2" x 2"	13.73"	4.79"	7.50"	8.38"
2" x 3"	13.73"	5.29"	7.50"	8.38"
3" x 3"	13.79"	5.29"	7.50"	8.38"
3" x 4"	13.79"	5.78"	7.50"	8.38"
4" x 4"	16.61"	5.78"	9.00"	12.75"
4" x 6"	16.61"	6.79"	9.00"	12.75"
6" x 6"	17.27"	6.79"	9.50"	12.75"
6" x 8"	17.27"	7.75"	9.50"	12.75"
8" x 10"	21.75"	9.51"	12.00"	16.75"
10" x 12"	23.13"	10.25"	12.00"	16.38"
12" x 14"	25.81"	11.13"	13.00"	18.50"

METRIC Units - (mm) Corrosion Resistant Fiberglass (FRP) Body				
SIZE (DN)	A	B	C	D (diam.)
(50) x (50)	349	122	190	213
(50) x (80)	349	134	190	213
(80) x (80)	350	134	190	213
(80) x (100)	350	147	190	213
(100) x (100)	422	147	229	324
(100) x (150)	422	172	229	324
(150) x (150)	439	172	241	324
(150) x (200)	439	197	241	324
(200) x (250)	552	241	305	425
(250) x (300)	588	260	305	416
(300) x (350)	656	283	330	470

# 3500 Series PRODUCT CODE 09/05/23



POSITION 3 - FLANGE CONNECTION	
ASME 150	A
PN16	B
PN10	C

POSITION 4 - FLANGE SIZE	
NPS (DIN)	CODE
2" x 2" - (50) x (50)	2
2" x 3" - (50) x (80)	H
3" x 3" - (80) x (80)	3
3" x 4" - (80) x (100)	J
4" x 4" - (100) x (100)	4
4" x 6" - (100) x (150)	K
6" x 6" - (150) x (150)	6
6" x 8" - (150) x (200)	L
8" x 10" - (200) x (250)	8
10" x 12" - (250) x (300)	A
12" x 14" - (300) x (350)	B

POSITION 5 - BODY/SEAT RING MATERIAL		
BODY MATERIAL	SEAT MATERIAL	CODE
Aluminum	Aluminum	1
Aluminum	316 Stainless Steel	4
Carbon Steel	316 Stainless Steel	5
316 Stainless Steel	316 Stainless Steel	6
Derakane 470 w/ SST Studs	Derakane 470	D
Derakane 470 w/ Hast C Studs	Derakane 470	E
Hetron 800 w/ SST Studs	Hetron 800	F
Hetron 800 w/ Hast C Studs	Hetron 800	G

POSITION 7 - DIAPHRAGM MATERIAL	
FEP (Std)	A
Buna-N	B
EPDM	D
FKM	F

POSITION 8 - PRESSURE PALLET CONFIGURATION	
Set Point Range - OZ/IN <sup>2</sup>	CODE
MIN - 0.49	1
0.50 - 0.74	2
0.75 - 7.99	3
8.00 - MAX	4

See Table 4 for MIN and MAX pressure set points.

POSITION 10 - WEIGHT MATERIAL	
Epoxy Coated Carbon Steel	0
Stainless Steel	S
FRP Encapsulated Steel	E

POSITION 11 - VACUUM SCREEN	
Standard Screen	0
Flame Screen	F

POSITION 12 - CLEANING METHOD	
Standard Cleaning	0
Oxygen Cleaning	M

**\* For information on ATEX see pages 12 & 13 on the IOM.**

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