



Valve Concepts, Inc.  
ISO Registered Company

## TECHNICAL BULLETIN

4200 - TB

04-16



### Model 4200 Spring Loaded Pressure / Vacuum Vent with Pipe-Away

#### **OBJECTIVE**

The Model 4200 Spring Loaded Vent provides pressure and vacuum relief in applications where higher pressure settings are required and that require vapors to be piped away.

#### **TECHNIQUE**

A spring loaded pallet on the pressure side of the vent allows the discharge of vapors to the outlet piping when the tank pressure exceeds the set point and a weight loaded/spring pallet on the vacuum side of the vent allows the intake of air when the tank vacuum exceeds the set point. The pallets open and close to regulate the tank pressure within permissible limits to avoid damage to the tank as the tank normally breathes due to the thermal changes or product movement. Virtually eliminates the intake of air and the escape of vapors, except during normal tank breathing, thus reducing product loss.

#### **CONSTRUCTION**

**Housing Material:** The Model 4200 is a rugged design made to last. Available in Aluminum, Carbon Steel, or 316 SST.

**Sizes and Connections:** Available in Sizes 2" thru 6". CS and SST vents have Raised Face Flange, Aluminum vents have Flat Face Flange to mate with standard ASME 150# flange connections. On sizes 2" thru 6" the Model 4200 is available with the same size inlet and outlet to reduce outlet piping cost.

**Pallet Diaphragm Material:** FEP TFE is Standard. Also available Buna-N, EPDM or Fluorocarbon Elastomer (FKM).

#### **SPECIAL FEATURES**

**Modular:** The Model 4200 pipe-away conservation vent is part of the Valve Concepts, Inc. modular vent product line. The Model 4200 can easily be converted to a vacuum only vent or end-of-line pressure / vacuum vent and can either be direct acting or pilot operated. Only Valve Concepts, Inc. offers complete modularity throughout its complete vent product line.

**Maintains Accurate Settings.** The minimum pressure setting is .5 oz./ in<sup>2</sup> and the minimum vacuum setting is .5 oz/in<sup>2</sup>. Maximum pressure setting is 15 psig and maximum vacuum setting is 15 psig. Lower settings may require weight loading instead of springs on vacuum side. 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 both the pressure and vacuum setting and leakage. A leakage rate of less than 1 SCFH at 90% of set point is verified for both pressure and vacuum.

**Condensate Drainage.** Self-draining housing body and drip rings keep 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 into the outlet piping, except under normal breathing conditions. The pallets have outer guiding and center stabilizing stem to provide self alignment and tight seating.

MATERIALS OF CONSTRUCTION		
Series	Housing	Pallet
4200CS	CS	316 SST
4200SST	316 SST	316 SST
4200A	Aluminum	316 SST

## STANDARD/GENERAL SPECIFICATIONS

<b>Gaskets:</b>	<u>Standard:</u> TFE/TFE Rope	<b>Painting:</b>	<u>Standard:</u> Exterior coating will be a combination of Cashco Paint Specs #S-1777 epoxy and #S-1743 powder coated. fasteners, seat surfaces and corrosion resistant parts excluded.
<b>Diaphragm Temperature Limits:</b>	<u>FEP-TFE:</u> -400° to 400° F (-240° to 204°C) <u>Fluorocarbon Elastomer – (FKM):</u> 0° to 400° F (0° to 204°C) <u>Buna-N (Nitrile-NBR):</u> -30° to 200° F (-34° to 93°C) <u>EPDM (Ethylene propylene):</u> -40° to 225° F (-40° to 107°C)	<u>Alternate Paint:</u> See Opt-95OS.	
		<b>Pressure &amp; Vacuum Ranges:</b>	See Table 5 and Table 7 on the coder. Differential Pressures greater than 2 psid will limit the minimum vacuum set point to 2 oz/in <sup>2</sup> .

## OPTION SPECIFICATIONS

**BUG SCREEN** - 304 stainless steel, 4x4 welded mesh.

**FLAME SCREEN** - 304 stainless steel, 30x30 woven mesh

**ELECTRIC TRACE** - Electric heat tape is wrapped around external surface of the vent body. A thermal insulation jacket is secured over the tape and vent body to minimize heat loss. Commonly used to prevent the formation of ice during freezing conditions. See STEAM JACKETING if elevated process temperatures are desired.

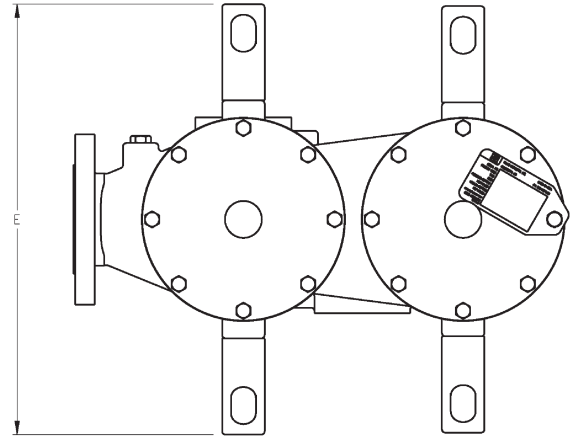
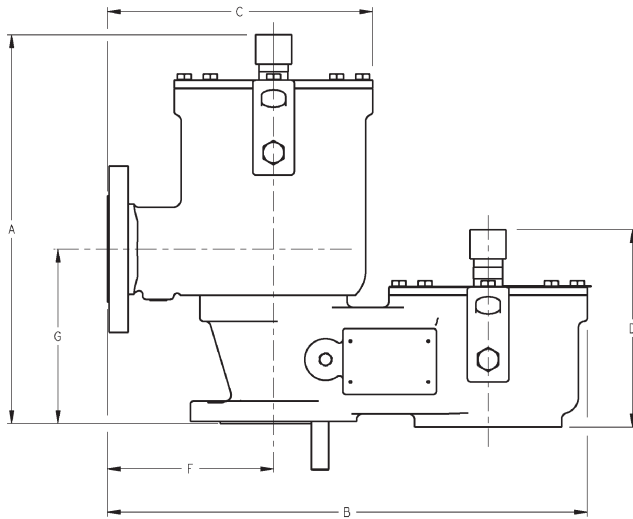
**STEAM TRACE** - Copper tubing is wrapped around the external surface of the vent body. A thermal insulation jacket is secured over the tubing and vent body to minimize heat loss. Commonly used to prevent the formation of ice during freezing conditions. See STEAM JACKETING if elevated process temperatures are desired.

**STEAM JACKETING** - Cast aluminum jacket with integrated carbon steel steam chambers are bolted around the vent body. Vent valve and jacket are shipped unassembled as vent valve must first be installed. Commonly used to prevent stored media vapors from crystallizing at ambient temperatures.

**Option -40:** **NACE CONSTRUCTION** - 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.

**Option -95OS:** **OFFSHORE** installations. Coating of all exterior surfaces will be per Cashco Paint Specs #S-1777 epoxy. Fasteners, seat surfaces and corrosion resistant parts excluded. Painting of fasteners optional upon special request.

## DIMENSIONS



ENGLISH Units - in Aluminum, Carbon Steel & Stainless Steel Body									
SIZE In	A	B	C	D	E	F	G	Weight lbs.	
								Alum	CS / SST
2" x 2"	14.40"	17.33"	9.76"	7.12"	14.79	6.00"	6.29"	38	83
2" x 3"	14.00"	17.33"	9.76"	7.12"	14.78	6.19"	6.85"	40	86
3" x 3"	17.19"	18.80"	10.50"	8.16"	15.77	6.50"	8.03"	50	106
3" x 4"	17.19"	18.81"	10.50"	8.16"	15.80	6.50"	8.53"	49	110
4" x 4"	19.80"	24.38"	13.36"	9.59"	18.23	8.00"	9.52"	75	168
4" x 6"	19.80"	24.38"	13.36"	9.59"	18.23	8.00"	10.52"	77	172
6" x 6"	21.94"	28.00"	15.18"	10.70"	22.67	9.00"	10.98"	103	243
6" x 8"	21.94"	28.00"	15.18"	10.70"	22.67	9.00"	12.17"	107	254

METRIC Units - mm Aluminum, Carbon Steel & Stainless Steel Body									
SIZE (DN)	A	B	C	D	E	F	G	Weight kg.	
								Alum	CS / SST
(50) x (50)	356	440	248	181	378	152	160	17	38
(50) x (80)	356	440	248	181	376	157	174	18	39
(80) x (80)	437	478	267	207	401	165	204	22	48
(80) x (100)	437	478	267	207	401	165	217	22	50
(100) x (100)	503	619	339	244	463	203	242	34	76
(100) x (150)	503	619	339	244	463	203	267	35	78
(150) x (150)	557	711	386	272	576	229	279	47	110
(150) x (200)	557	711	386	272	576	229	309	49	115

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# 4200 Series PRODUCT CODE

04/06/16

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



POSITION 3 - FLANGE - INLET SIZE			
ASME INCH	CODE	DIN FLANGE DN (rating)	CODE
2"	2	50 (PN16)	H
3"	3	80 (PN16)	J
4"	4	100 (PN16)	K
6"	6	150 (PN16)	L

POSITION 4 - FLANGE - OUTLET SIZE			
INCH	CODE	DIN FLANGE DN(rating)	CODE
2"	2	50 (PN16)	H
3"	3	80 (PN16)	J
4"	4	100 (PN16)	K
6"	6	150 (PN16)	L
8"	8	200 (PN10)	M
		200 (PN16)	T

POSITION 5 - BODY / TRIM MATERIALS			
MATERIAL	Std. W/O Flamescreen	W/ Flame Screen	W/ Bug Screen
	CODE	CODE	CODE
ALUM/SST	A	B	N
CS/SST *	C	D	P
SST/SST *	S	T	R

\* Select for NACE Construction.

POSITION 7 - DIAPHRAGM MATERIALS	
Diaphragm	CODE
FEP TFE (Std.) *	A
Buna-N	B
EPDM	D
FKM *	F

\* Select for NACE Construction.

POSITION 8 - PRESSURE SET POINT			
Weight Loaded Range		WEIGHT MATERIAL	
		STD *	SST
psig	barg	CODE	CODE
< 1.25	< .08	1	A
Spring Loaded Range		CODE	
psig	barg		
1.25 - 4	.08 - .27	2	
> 4 - 6	> .27 - .41	3	
> 6 - 8	> .41 - .55	4	
> 8 - 10	> .55 - .68	5	
> 10 - 12	> .68 - .83	6	
> 12 - 13	> .83 - .89	7	
> 13 - 15	> .89 - 1.03	8	

\* Lead or Lead / SST combination.  
For NACE application must select SST weight material code.

POSITION 9 - SIGHT GLASS		
None (Std)	CODE	
	0	
Location	Vacuum Side Only	Pressure Side Only
	1	2
Weight loaded range only.		

POSITION 10 - VACUUM SET POINT			
Weight Loaded Range		WEIGHT MATERIAL	
		STD *	SST
psig	barg	CODE	CODE
< 1.0	< .06	1	A
Spring Loaded Range		CODE	
psig	barg		
1.0 - 4	.06 - .27	2	
> 4 - 6	> .27 - .41	3	
> 6 - 8	> .41 - .55	4	
> 8 - 10	> .55 - .68	5	
> 10 - 12	> .68 - .83	6	
> 12 - 13	> .83 - .89	7	
> 13 - 15	> .89 - 1.03	8	

\* Lead or Lead / SST combination.  
For NACE application must select SST weight material code.

POSITION 11 - OPTION		
DESCRIPTION	OPTION	CODE
No Option	-	0
NACE Constr.	-40	N
Offshore Paint	-95OS	Y

POSITION 12 - ACCESSORY / CERTS			
OPTION	Certification		
	Std	ATEX *	PED *
	CODE	CODE	CODE
None	0	A	E
Electric Trace	H	B	F
Steam Jacket	J	C	G
Steam Trace	S	D	K

\* Forward Completed "EU" Application Recorder prior to quotation. (Without Recorder- Processing of Purchase Order will be delayed).  
"PED" Compliance - Ref to Directive 97/23/EC.  
Contact Cashco for Assistance

Cashco, Inc.  
P.O. Box 6  
Ellsworth, KS 67439-0006  
PH (785) 472-4461  
Fax. # (785) 472-3539  
www.cashco.com  
email: sales@cashco.com  
Printed in U.S.A. 4200-TB

Cashco GmbH  
Handwerkerstrasse 15  
15366 Hoppegarten, Germany  
PH +49 3342 30968 0  
Fax. No. +49 3342 30968 29  
www.cashco.com  
email: germany@cashco.com

Cashco do Brasil, Ltda.  
Al.Venus, 340  
Indaiatuba - Sao Paulo, Brazil  
PH +55 11 99677 7177  
Fax. No.  
www.cashco.com  
email: brazil@cashco.com