



Valve Concepts, Inc.  
ISO Registered Company



## Model 5100

### PILOT OPERATED

#### Pressure / Vacuum Vent – End-of-Line

#### OBJECTIVE

The Model 5100 end-of-line conservation breather vent is intended for use on atmospheric and low-pressure storage tanks where pressure and vacuum relief is required.

#### TECHNIQUE

The Model 5100 has a pilot operated pressure side which permits tank operating pressures closer to the maximum allowable operating pressure. This provides a more positive control over vapor generation inherent in fluids with higher vapor pressures. The vacuum side of the vent is weight loaded and allows intake of air when necessary to remain within the vacuum design rating of the tank.

#### CONSTRUCTION

**Body & Weather Hood Material:** Available in Aluminum, Carbon Steel or 316 SST.

**Numerous Sizes.** Available in Sizes 2" through 12". CS & SST vents have Raised Face Flange, Aluminum vents have Flat Face Flange to mate with ASME150# flange connections.

**Diaphragm Case Material:** Available in Carbon Steel or Stainless Steel.

**Pallet Diaphragm Material:** FKM - Standard; also available EPDM or FEP-TFE.

**Pilot Body Material:** 316SST.

**Pilot Seat (o-ring):** FKM - Standard; also available EPDM, FFKM 1 or FFKM 2.

**Pilot (Sensing) Diaphragm:** FEP-TFE.

#### SPECIAL FEATURES

**Modular:** The Pilot Operated Model 5100 end-of-line conservation breather vent is part of the Valve Concepts, Inc. modular vent product line. The Model 5100 can easily be field converted to a vacuum only vent, a pressure/vacuum vent with pipe away and can either be direct acting or pilot operated.

**Maintains Accurate Settings.** The Pilot Operated Model 5100 provides bubble tight (no leakage) up to 95% of set pressure or 0.5" WC, whichever is greater and less than 1 SCFH at 90% of setting on the vacuum side of the vent. A certified test certificate is included with each vent verifying the accuracy of both the pressure and vacuum setting and leakage.

**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. The pallets have outer guiding and center stabilizing stem to provide self alignment and tight seating.

MATERIALS OF CONSTRUCTION				
Series	Housing	Trim	Diaphragm Cases	Tube & Fittings
5100CS	CS	316 SST	CS	CS
5100SST	316 SST	316 SST	SST	SST
5100A	Aluminum	Aluminum	CS	CS

## STANDARD/GENERAL SPECIFICATIONS

**Spring Ranges:**

<b>PRESSURE RANGE</b>	
in WC	(mbar)
1.2" to 2.0" *	(2.9 to 4.9) *
2.1" to 12.0"	(4.9 to 29.9)
12.1" to 18.0"	(30.0 to 44.8)
18.1" to 36.0"	(44.9 to 89.4)
36.1" to 41.7"	(89.5 to 103.5)
41.8" to 86.0"	(103.6 to 214)
PSIG	(Barg)
3.2 to 15.0 psig	(0.22 to 1.03 bar)
* Pressure range 1.2" to 4.0" WC require external air assist to the pilot.	

<b>VACUUM RANGE</b>	
<b>Weight Loaded</b>	
oz/in <sup>2</sup> -psig	mbar-barg
0.5 - 0.5	2.15 - .03
<b>Spring Ranges</b>	
psig	Barg
> 0.5 - 4	.03 - .27
> 4 - 6	.27 - .41
> 6 - 8	.41 - .55
> 8 - 10	.55 - .68
> 10 - 12	.68 - .83
> 12 - 13	.83 - .89
> 13 - 15	.89 - 1.03
* Steel or Steel / SST combination	

**Diaphragm Temperature Limits:**  
FEP-TFE: -400° to 400° F (-240° to 204°C)  
FKM (Fluorocarbon Elastomer): -20° to 400° F (-28° to 204°C)  
EPDM (Ethylenepropylene): -40° to 225° F (-40° to 107°C)

**Seat & Seal Materials Temperature Limits:**  
FKM (Fluorocarbon Elastomer): -15° to 300° F (-26° to 149° C)  
EPDM (Ethylenepropylene): -55° F to 212° F (-48° C to 100° C)  
FFKM 1 (Perfluoroelastomer): -22° F to 400° F (-30° C to 204° C)  
FFKM 2 (Perfluoroelastomer): -40° F to 400° F (-40° C to 204° C)

**Painting:** Standard: Exterior coating will be a combination of Cashco Paint Specs #S-1777 epoxy and #S-1743 powder coated. Tubing, fasteners, seat surfaces - corrosion resistant parts excluded.

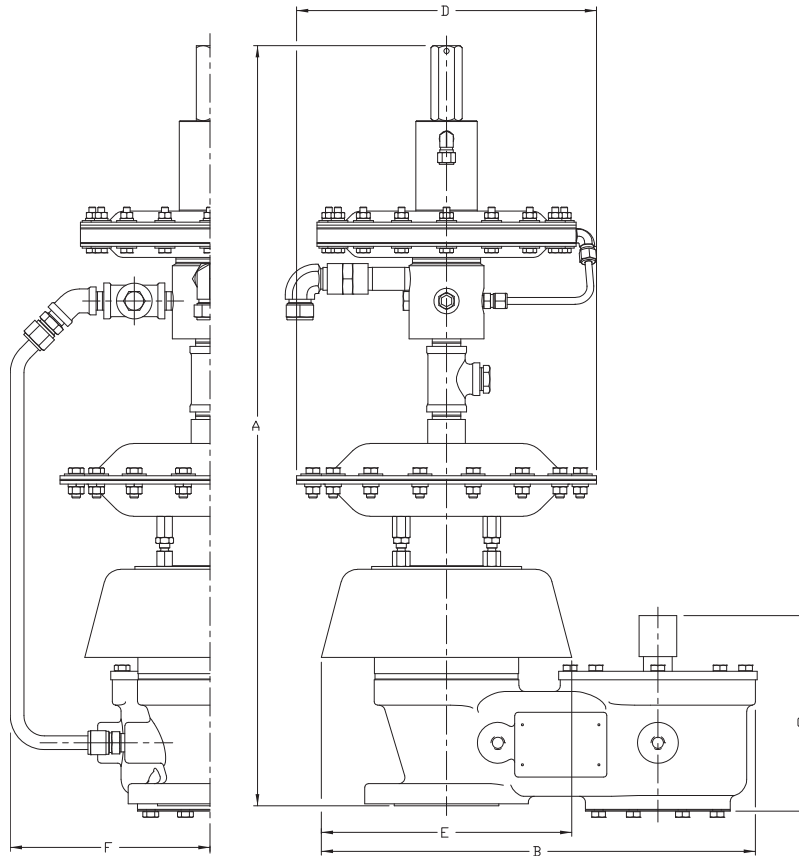
**Pressure & Vacuum Ranges:** See Position 8 and 10 on the coder. Differential Pressures greater than 2 psid will limit the minimum vacuum set point to 2 oz/in<sup>2</sup>.

## OPTION SPECIFICATIONS

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

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

## DIMENSIONS



ENGLISH Units - in Aluminum, Carbon Steel & Stainless Steel							Weight - lbs.	
SIZE In	A	B	C	D (diam)	E	F	Alum	CS / SST
2"	28.00	15.92	7.17	11.00	9.18	7.75	58	97
3"	29.12	17.12	8.60	11.00	9.63	7.75	69	112
4"	35.88	22.88	10.56	16.50	13.00	9.25	119	187
6"	36.50	28.00	11.84	16.50	16.00	9.25	171	263
8"	40.75	32.38	15.59	23.81	19.00	12.94	271	418
10"	42.25	40.12	15.44	23.81	24.00	13.25	368	565
12"	43.50	42.25	17.18	23.81	25.50	13.75	428	652

METRIC Units - mm Aluminum, Carbon Steel & Stainless Steel							Weight - kg.	
SIZE (DN)	A	B	C	D (diam)	E	F	Alum	CS / SST
(50)	711	404	182	279	233	197	27	44
(80)	740	435	218	279	245	197	32	51
(100)	911	581	268	419	330	235	54	85
(150)	927	711	301	419	406	235	78	120
(200)	1035	822	396	605	483	329	123	190
(250)	1073	1019	392	605	610	336	167	257
(300)	1105	1073	436	605	648	349	194	296

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# 5100 Series PRODUCT CODE 02/07/20

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



POSITION 4 - 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
10"	A	250 (PN10)	N
		250 (PN16)	V
12"	B	300 (PN10)	P
		300 (PN16)	W

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

\* Alum vents have Flat Face flange,  
CS & SST vents have Raised Face flange

POSITION 8 - PRESSURE RANGES	Std. Constr.	W/ AIR ASSIST
Spring Range	CODE	CODE
1.2" - 2.0" WC (2.9 - 4.9 mbar)	--	L
2.1" - 12.0" WC (4.9 - 29.9 mbar)	3	C
12.1" - 18.0" WC (30.0 - 44.8 mbar)	6	D
18.1" - 36" WC (44.9 - 89.4 mbar)	7	E
36.1" - 41.7" WC (89.5 - 103.5 mbar)	8	F
41.8" - 86.0" WC (103.6 - 214 mbar)	9	J
3.2 - 15.0 psig (0.22 - 1.03 bar)	H	K

POSITION 9 - PILOT SEAT / PALLET DIAPH. / ACT. DIAPH.	
Materials	CODE
FFKM 1 / FEP / FEP	C
EPDM / EPDM / EPDM	E
FFKM 2 / FEP / FEP	K
FKM / FKM / FKM	V

POSITION 10 - VACUUM RANGES				
Weight Loaded		WEIGHT MATERIAL		
oz/in <sup>2</sup> -psig	mbar-barg	STD *	SST	
		CODE	CODE	
0.5 - 0.5	2.15 - .03	1	A	
Spring Ranges		CODE		
psig	Barg			
> 0.5 - 4	.03 - .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		

\* Steel or Steel / SST combination

POSITION 11 - SENSING / PAINT OPTIONS			
Sensing Configuration & Accessory Options With Backflow Preventer Pilot Exhaust to Atmosphere		Std Paint	Offshore Paint Opt.-95OS
		CODE	CODE
Standard	Internal Sensing	0	W
Option 2:	Remote Sensing	2	T
Option 3:	Internal Sensing with Manual Blowdown Valve	3	S
Option 5:	Internal Sensing with Field Test Connection	5	R
Option 6:	Internal Sensing with Rotometer to Purge Pilot Sense Line	6	P

**\* For information on ATEX see  
pages 18 & 19 on the IOM.**

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