

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" thru 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 Buna-N, EPDM or FEP-TFE.

Pilot Body Material: 316SST.

Pilot Seat (o-ring): FKM - Standard; also available Buna-N, 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:

| PRESSURE RANGE | | | | |
|--------------------|-----------------------|--|--|--|
| 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 | | | |

Pressure range 1.2" to 4.0" WC require external air assist to the pilot.

| VACUUM RANGE | | | | | |
|---|-----------|--|--|--|--|
| Weight | | | | | |
| Loa | ded | | | | |
| oz/in²-psig | mbar-barg | | | | |
| 0.5 - 0.5 | 2.1503 | | | | |
| Spring | Ranges | | | | |
| psig | Barg | | | | |
| > 0.5 - 4 | .0327 | | | | |
| > 4 - 6 | .2741 | | | | |
| > 6 - 8 | .4155 | | | | |
| > 8 - 10 | .5568 | | | | |
| > 10 - 12 | .6883 | | | | |
| > 12 - 13 .8389 | | | | | |
| > 13 - 15 .89 - 1.03 | | | | | |
| * Steel or Steel / SST com- bination | | | | | |

Diaphragm **Temperature** Limits:

FEP-TFE:

-400° to 400° F (-240° to 204°C) FKM (Fluorocarbon Elastomer): 0° to 400° F (0° to 204°C)

Buna-N (Nitrile-NBR):

-30° to 200° F (-34° to 93°C) EPDM (Ethylenepropylene): -40° to 225° F (-40° to 107°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.

Alternate Paint: See Opt-95OS.

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/in2.

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.

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.

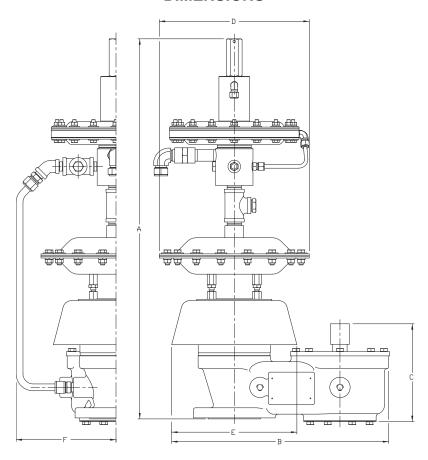
Option -40:

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 -950S: OFFSHORE installations. Coating of all exterior surfaces will be per Cashco Paint Specs #S-1777 epoxy. Tubing, fasteners, seat surfaces - corrosion resistant parts excluded. Painting of tubing and fasteners optional upon special request.

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DIMENSIONS



| ENGLISH Units - in Aluminum, Carbon Steel & Stainless Steel | | | | | | Weigh | t - Ibs. | |
|---|-------|-------|-------|-------|-------|-------|----------|-----|
| SIZE In | | | | | | 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 |

| А | METRIC Units - mm Aluminum, Carbon Steel & Stainless Steel | | | | | | Weigh | nt - kg. |
|-----------|--|------|-----|-----|-----|-----|-------|----------|
| SIZE (DN) | | | | | | | 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 02/15/16

Last 6 Characters reserved for SPQ drawing numbers assigned by Cashco Inc.









POS

POS 10





| | POSITION 4 - SIZE | | | | |
|------|-------------------|---------------------------|---|--|--|
| INCH | CODE | DIN FLANGE DN (rating) | | | |
| 2" | 2 | 50 (PN16) | Н | | |
| 3" | 3 | 80 (PN16) | J | | |
| 4" | 4 | 100 (PN16) | K | | |
| 6" | 6 | 150 (PN16) | L | | |
| 8" | 8 | 200 (PN10) | М | | |
| 0 | | 200 (PN16) | Т | | |
| 10" | Α | 250 (PN10) | N | | |
| 10 | А | 250 (PN16) | V | | |
| 12" | В | 300 (PN10) | Р | | |
| 12 | В | 300 (PN16) | W | | |

| 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 | С |
| 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) | Н | K |

| 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 | С | D | P | | | |
| SST/SST/SST S T R | | | | | | |
| * Alum vents have Flat Face flange, CS & SST vents have Raised Face flange | | | | | | |

| POSITION 9 - PILOT SEAT / PALLET DIAPH. / ACT. DIAPH. | | | | |
|--|------|--|--|--|
| Materials | CODE | | | |
| Buna-N / Buna-N / Buna-N | В | | | |
| FFKM 1 / FEP / FEP | С | | | |
| EPDM / EPDM / EPDM * | E | | | |
| Buna-N / FEP / FEP ** | J | | | |
| FFKM 2 / FEP / FEP | К | | | |
| FKM / FKM / FKM | V | | | |
| | | | | |

Not recommended for NACE Service ** Recommended for Air Assist Construction

| POSITION 10 - VACUUM RANGES | | | | |
|--------------------------------|------------------------------------|--------|----------|--|
| Weight | Loaded | WEIGHT | MATERIAL | |
| | | STD * | SST | |
| oz/in²-psig | mbar-barg | CODE | CODE | |
| 0.5 - 0.5 | 2.1503 | 1 | Α | |
| Spring | Ranges | CODE | | |
| psig | Barg | CODE | | |
| > 0.5 - 4 | .0327 | 2 | | |
| > 4 - 6 | .2741 | 3 | | |
| > 6 - 8 | .4155 | 4 | | |
| > 8 - 10 | .5568 | 5 | | |
| > 10 - 12 | .6883 | 6 | | |
| > 12 - 13 | .8389 | 7 | | |
| > 13 - 15 | .89 - 1.03 | 8 | | |
| * Steel or Stee | * Steel or Steel / SST combination | | | |

| POSITION 11 - SENSING / PAINT OPTIONS | | | | | |
|---------------------------------------|---|------------------------------|---|--|--|
| | Std Paint | Offshore Paint Opt95OS | | | |
| | CODE | CODE | | | |
| Standard | Internal Sensing | 0 | W | | |
| Option 2: | Remote Sensing | 2 | Т | | |
| 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 | Р | | |
| | · | | | | |

| POSITION 12 - ACCESSORY / CERTS | | | | | | |
|------------------------------------|-------|--------|-------|------|--|--|
| Certification | | | | | | |
| OPTION | Std | ATEX * | PED * | NACE | | |
| | CODE | CODE | CODE | CODE | | |
| None | 0 | Α | Е | 1 | | |
| Electric Trace | H B F | | | | | |
| Steam Trace | S | D | K | | | |

^{*} Forward Completed "EU" Application Recorder prior to quotation. Without Recorder- Processing of Purchase Order will be delayed).

PED includes both ("SEP" & "CE") Compliance Ref to Directive 97/23/EC. Contact Cashco for Assistance.

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