



Conservation Vent with Cryogenic Hood Option



Open Vent Conservation Vent



94020 with Optional Limit Switches for Vacuum & Pressure



6", 8", 10" & 12" Conservation Vent with Flame Snuffer Option

- Suitable materials available for corrosive and extreme temperature service
- Pallet reaction lip for smooth lift and reseating
- Vertical lift pallets assure reliable operation and maximum flow
- Floating diaphragm results in a positive seal and minimal blow-down
- Capacity certified to API Standards

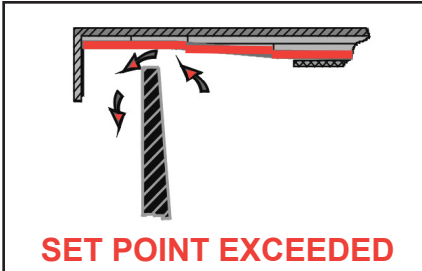
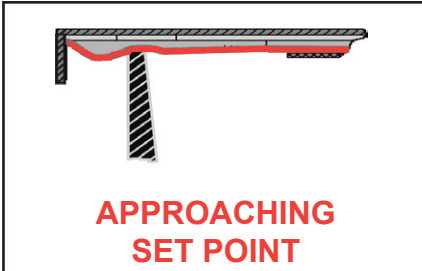
The Shand & Jurs Model 94020 Conservation Vent (Pressure/Vacuum)

The Shand & Jurs Model 94020 Conservation Vent is designed utilizing over 80 years of experience in producing high quality and dependable conservation fittings. Continued design improvements provide these vents with high efficiency, maximum flow capacity and minimum leakage. The easily serviceable configuration and lightweight construction reduces maintenance and installation costs.

Standard materials of construction are low copper aluminum, cast iron, ductile iron, cast steel and 316 stainless steel for body materials. Aluminum, stainless steel and steel body vents come standard with integral seats and have optional replaceable seats. Cast iron and ductile iron bodies come with replaceable seats as standard design. Replaceable seats are made of corrosion resistant molded thermosetting phenolic, teflon, aluminum, 316 stainless steel or stainless steel teflon coated and are easily replaced.

Diaphragms are air cushion seated and are constructed of FEP Teflon for reliability and extended service life. Teflon diaphragms contribute to high resistance to adhesion of ice and gum formations, thus assuring protection against pallet sticking to the seating surface. The body is self-draining and drip rings keep condensates from the seating surfaces. The carefully engineered body, seat, and pallet assembly results in a superior combination of tight sealing and high capacity at low over-pressure with minimal blowdown.

Conservation Vents are available in a full range of sizes and configurations, such as closed vent hoods (pipe-away), cryogenic hoods and flame snuffers. Standard pressure and vacuum settings are 1/2 oz./sq. in. The S&J Model 94020 Conservation Vent is available with optional pressure and vacuum limit switches and visual indicators.



Shand & Jurs "Expand-Seal" option is available on all pressure pallet assemblies. This feature, shown in red, significantly reduces leakage. The ballooning effect of the teflon diaphragm effectively seals the valve. The "Expand-Seal" feature ensures less than .5 SCFH of leakage at 95% of the set point.

SPECIFICATIONS:

Sizes: 2", 3", 4", 6", 8", 10" & 12"

Standard Settings*:

Pressure & Vacuum: 1/2 oz./sq. in. (.865 in.W.C.)
(See note* for 2")

Maximum Setting w/o Modification:

	(Pressure)	(Vacuum)**
2":	18 oz./sq. in.	8 oz./sq. in.
3":	18 oz./sq. in.	9 oz./sq. in.
4":	18 oz./sq. in.	11 oz./sq. in.
6":	12 oz./sq. in.	12 oz./sq. in.
8":	10 oz./sq. in.	14 oz./sq. in.
10":	8 oz./sq. in.	17 oz./sq. in.
12":	6 oz./sq. in.	21 oz./sq. in.

Service and Body Material:

Normal: Cast Low Copper Aluminum
 Low Temperature: Cast Low Copper Aluminum
 Severe: Cast Iron, Ductile Iron, Cast Steel, Cast 316 Stainless Steel

Integral Seats: Same as body; AL, 316 SS, CS with 316 SS seat overlay

Replaceable Seats:

Ryton for: 2" size
 Phenolic for: 3" Thru 12" sizes
 Aluminum for: 2", 3", 4", 6", 8", 10" & 12" sizes
 316 Stainless Steel for: 2", 3", 4", 6", 8", 10" & 12" sizes
 Teflon for: 2", 3", 4", 6", 8" sizes
 SS Teflon Coated for: 2", 3", 4", 6", 8", 10" & 12" sizes

Type of Flange Connection:

Screwed or flanged for: 2" & 3" sizes
 Flanged for: 4", 6", 8", 10" & 12" sizes

Raised face flange available, except for aluminum body material.

Temperature Range: Body and Seal -40°F to 220°F

Options for Process Temperature Ranges of -300°F to 500°F

Options available:

Flame Snuffer for all sizes (open vent) and material, except low temperature service. Closed vent for all sizes and materials. Material substitutions as required. Cleaning for LOX/LIN service.

Notes:

Expanda-Seal Vent only:

Expanda-Seal Pressure Setting: 1.5 oz./sq. in. Minimum (Consult Factory for lower settings)

** Modifications may be required to vacuum port for installations where product contamination may occur. See figure 4 for Principle of Operation. Caution—any obstruction to vacuum port may alter the set point.

Standard Materials of Construction

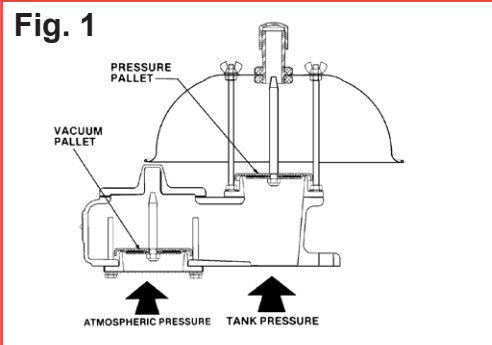
Component	Normal Aluminum	Low Temperature	Severe		
			CI/DI	CS	316SS
Body	CA	CA	CI/DI	CS	316SS
Cover	CA	CA	CS	CS	316SS
Hood	18-8SS, PA ¹	AL ²	18-8SS, PA ¹	18-8SS, PA ¹	316SS
Seats ³	AL	AL	316SS	316SS	316SS
Stem Guide	SS	316SS	GI	GI	316SS
Pallets	AL	AL	316SS	316SS	316SS
Pressure Stem	316SS	316SS	316SS	316SS	316SS
Vacuum Stem	AL ⁴	AL ⁴	316SS	316SS	316SS
Screens	GS	304SS	304SS	304SS	316SS
Retainer	AL	AL	316SS	316SS	316SS
Hardware	ZS	316SS	316SS	ZS	316SS
Diaphragms	FEP	FEP	FEP	FEP	FEP

- NOTES:**
- 18-8SS for 2", 3", 4", 6" & 8" sizes; spun alum. for 10" & 12" sizes.
 - 2", 3", 4", 6", 8", 10" & 12" sizes; alum. enclosure w/flapper.
 - Material same as body except CI and DI.
 - 316SS for elevated settings.

Material Legend:	AL Aluminum	CS Cast Steel	PA Spun Aluminum
	CA Cast Aluminum	DI Ductile Iron	FEP FEP Teflon
	CI Cast Iron	GI Galvanized Iron	ZS Zinc Plated Steel
		GS Galvanized Steel	

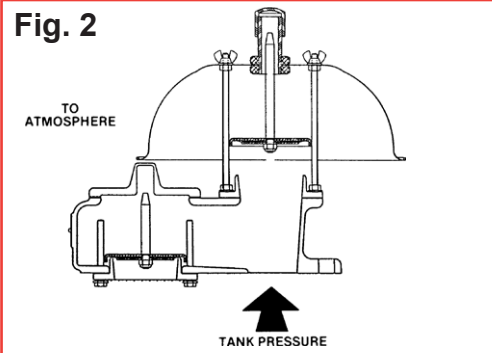
Principle of Operation

Fig. 1



Figures 1 and 3 show the relation of the pressure or vacuum pallet assembly to the seat when atmospheric and tank pressures are equal. The “wrap around” effect of the resilient diaphragm on the edge of the seat and the resulting high ratio of seating force to seating area affords a tight seal.

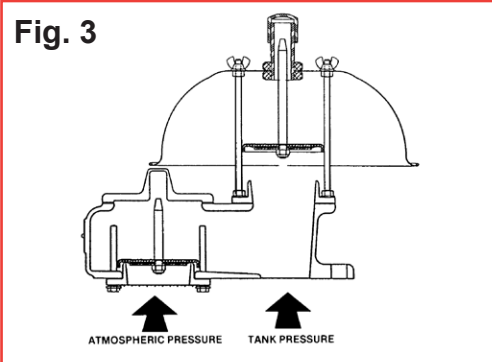
Fig. 2



As the pressure or vacuum increases, the pallet begins to rise. Because there is still a wrap-around effect on the edge of the seat, good sealing is maintained. Teflon diaphragm memory and lapped seating surface further enhance sealing characteristics.

As increasing pressure or vacuum continues to lift the pallet, the diaphragm is held in close proximity to the seat by the flat plane memory of the diaphragm material.

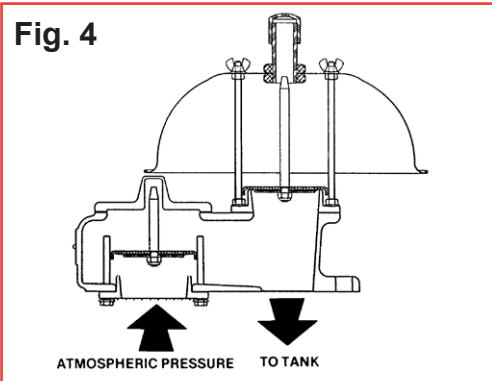
Fig. 3



As set pressure or vacuum is reached the diaphragm leaves the seat (see Figures 2 and 4) and the escaping vapor lifts the pallet even further.

The vacuum pallet is guided in the same manner as the pressure pallet. Both are pallet stem and pallet side guided for smooth movement.

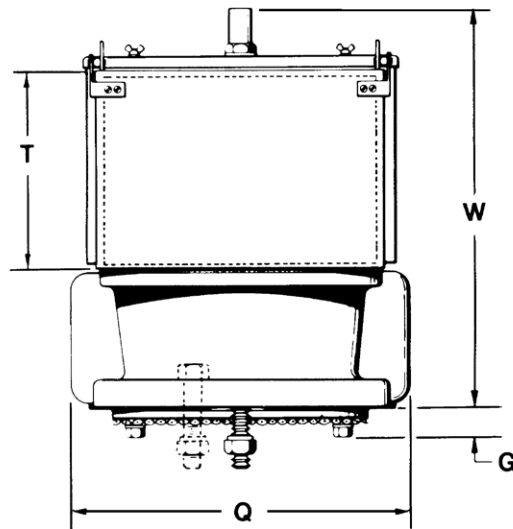
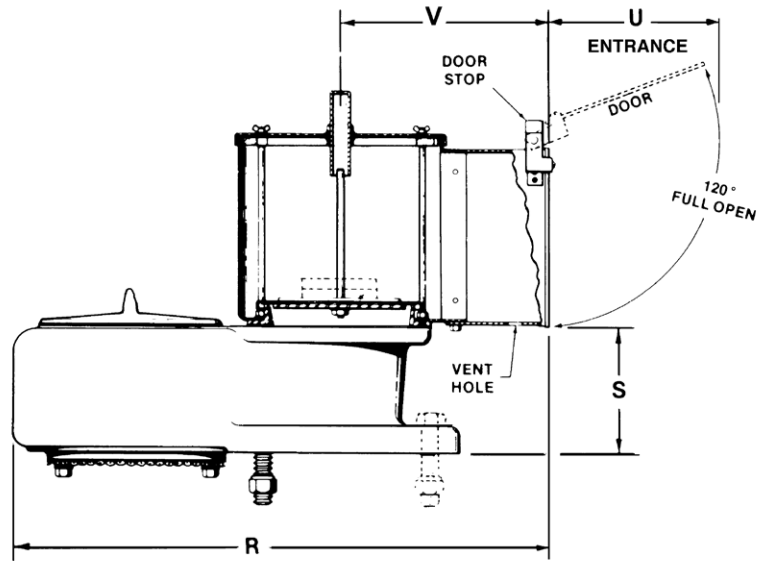
Fig. 4



STEAM JACKETED OPTION:

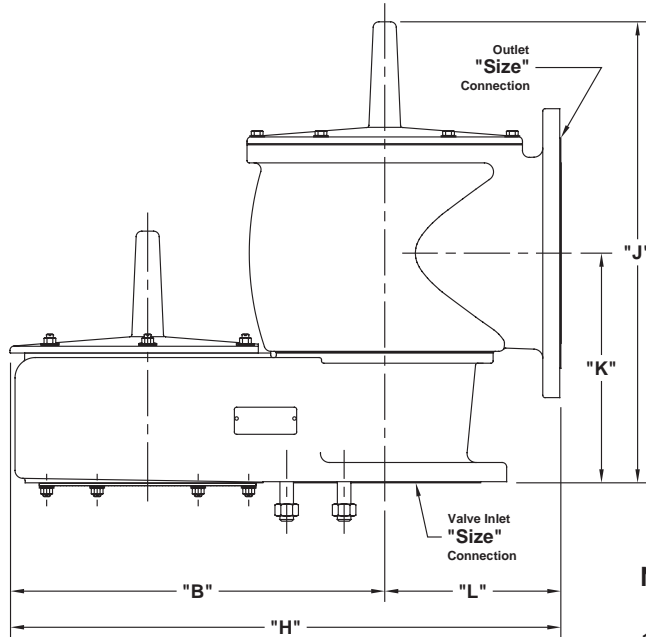
Designed for use on tanks containing liquids whose vapors crystallize at ambient temperatures. Stainless steel pressure and vacuum pallets are cased in a steam heated jacket ensuring the valves will be free from plugging. The jacket is steel or stainless steel construction. The standard jacket can withstand steam pressures up to 100 psig. Higher pressure ratings are available.

6", 8", 10" & 12"
Cryogenic
Hood Model



Vent Size* (In.)	Dimensions in Inches						
	R	Q	S	T	U	V	W
6	30	12 1/8	5 5/8	8 1/8	8 1/2	11 1/2	17 1/16
8	34 1/2	14 11/16	7 3/8	9 5/8	10	12 1/2	21 1/4
10	41	17 1/2	8 3/8	11 3/8	11 5/8	14 3/16	25 1/2
12	44 1/2	19 3/4	10	12 5/8	13	15 3/8	29 7/8

94020 Closed Vent



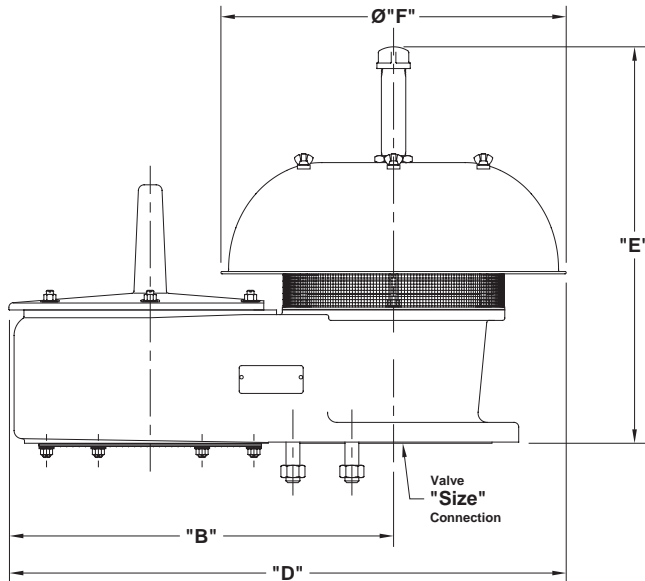
Valve Size	Outlet Size	"H"	"J"	"K"	"L"
2"	2"	13	11 1/8	5 1/32	4 1/4
2"	3"	13	11 1/8	5 1/32	4 1/4
* 3"	3"	16 3/8	13 1/4	5 9/16	5 1/4
* 3"	4"	16 3/16	13 3/4	5 31/32	5 1/4
* 4"	4"	20	20 3/8	7	6 1/2
* 4"	6"	19 1/4	15 3/4	7 1/32	5 15/16
* 6"	6"	26 1/4	21 1/4	9 3/8	8 3/8
* 6"	8"	26 3/16	21 1/4	10 11/32	8 1/4
* 8"	8"	31 5/8	25 1/2	11 11/16	9 3/4
* 8"	10"	31 5/8	26 3/16	12 23/32	9 3/4
* 10"	10"	37 7/8	30	13 7/8	11 19/32
* 10"	12"	37 7/8	30 1/4	14 29/32	11 19/32
* 12"	12"	43 3/8	33 7/8	16 1/4	12 13/16
* 12"	14"	43 3/8	33 7/8	16 29/32	12 13/16

NOTES:

1. Connection size matches ANSI, DIN & JIS.
2. Mounting Holes straddle centerline except: 2" & 3" sizes; holes are on centerline.
3. Optional NPT Adapter available for 2" & 3".

*Table D option 5 for same size inlet and outlet connections has been obsoleted and replaced by Table D option 6. Dimensions do not match. Consult Factory for replacement valve.

94020 Open Vent



Valve Size	"B"	"D"	"E"	Diameter "F"
2"	9	15 1/4	11 1/8	12 7/8
3"	11 1/8	17 15/16	13 3/4	13 9/16
4"	13 1/2	21 1/2	15 3/4	15 15/16
6"	17 15/16	28 1/2	18 3/4	18 5/8
8"	21 7/8	31 3/16	21 1/4	18 5/8
10"	26 1/4	40 5/8	28 1/8	25 9/16
12"	30 9/16	44 5/8	32 1/4	29 7/8

NOTES:

1. Connection size matches ANSI, DIN & JIS.
2. Mounting Holes straddle centerline except: 2" & 3" sizes; holes are on centerline.
3. Optional NPT Adapter available for 2" & 3".

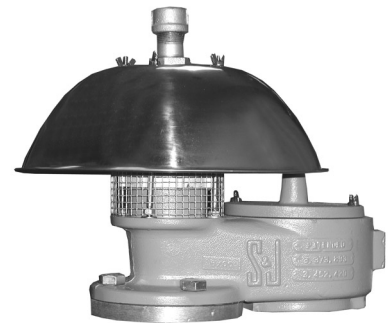
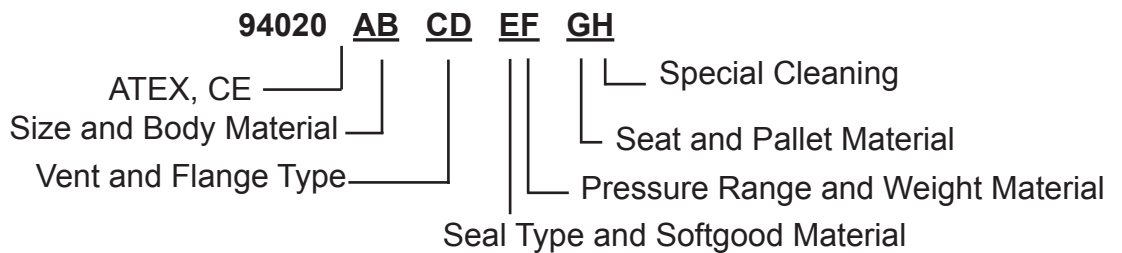
All designs subject to change. Certified dimensions and specifications available upon request

The **CONSERVATION VENTS** provide tank venting and breathing with high efficiency, maximum flow capacity and minimum leakage. Standard materials of construction include low copper aluminum, cast iron, ductile iron, cast steel, and 316 Stainless Steel. The 94020 comes in open or closed vent versions, and in sizes 2” through 12”. Cryogenic hoods, flame snuffers, limit switches and steam jacketing and steam tracing are available.

- *Low copper aluminum alloy construction reduces need for special materials in corrosive and extreme temperature service
- *Peripheral and stem guided pressure pallet assures smooth lift and closure.
- *Unique floating diaphragm construction assures positive seal and minimal blowdown, thus conserving valuable tank content
- *Capacity certified in accordance with API standards
- *Expand-Seal diaphragm for reduced leakage

MODEL NUMBER SELECTION:

The model number will consist of a base number 94020 followed by a dash and 8 numbers.



ORDERING INFORMATION

Specify:

1. Model 94020 Conservation Vent
2. Size and Body Material
3. Screwed or Flanged Connection on 2” and 3” Size
4. Closed Vent or Vent to Atmosphere (With or without flame snuffer)
5. Pressure and Vacuum Settings (if other than normal setting)
6. Type of Cleaning (if for oxygen service)
7. Optional Materials of Construction, as Required
8. To Specify CE for Ordinary EU Locations use
94020C AB CD EF GH
9. To Specify ATEX Certification for Group IIB, IIA EU Locations
use 94020A AB CD EF GH. ATEX Certification includes CE Mark.

