



- 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

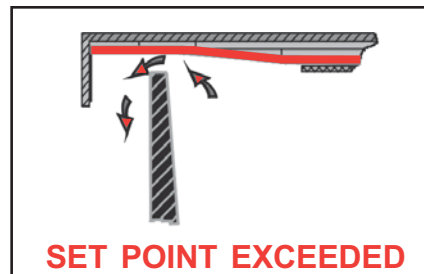
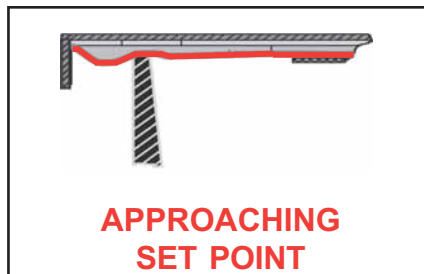
The Shand & Jurs Model 94020 Conservation Vent (Pressure/Vacuum)

The Shand & Jurs Model 94020 Conservation Vent is designed utilizing over 75 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 "Expanda-Seal" option is available on all pressure pallet assemblies. This feature, shown in blue, significantly reduces leakage. The ballooning effect of the teflon diaphragm effectively seals the valve. The "Expanda-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 Open Vent Setting w/o Modification:

	(Pressure)	(Vacuum)**
2":	23 oz./sq. in.	8 oz./sq. in.
3":	24 oz./sq. in.	9 oz./sq. in.
4":	24 oz./sq. in.	11 oz./sq. in.
6":	16 oz./sq. in.	12 oz./sq. in.
8":	12 oz./sq. in.	14 oz./sq. in.
10":	10 oz./sq. in.	17 oz./sq. in.
12":	8 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
 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		
Body	CA	CA	CI/DI	CS	316SS
Cover	CA	CA	CI/DI ³	CS	316SS
Hood	18-8SS, PA ¹	AL ²	18-8SS, PA ¹	18-8SS, PA ¹	316SS
Seats⁴	AL	AL	316SS	316SS	316SS
Stem Guide	GI	316SS	GI	GI	316SS
Pallets	AL	AL	316SS	316SS	316SS
Pressure Stem	316SS	316SS	316SS	316SS	316SS
Vacuum Stem	AL ⁵	AL ⁵	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

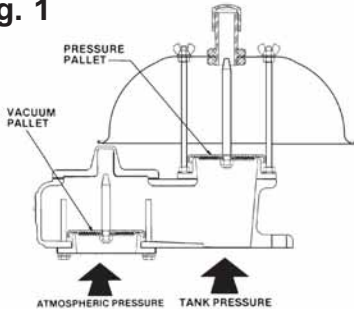
- NOTES:**
- 18-8SS for 2", 3", 4", 6" & 8" sizes; spun alum. for 10" & 12" sizes.
 - 2", 3", 4", 6", 8", 10" & 12" sizes ; alum. enclosure w/flapper.
 - CS for 6" & 8", 10" & 12" sizes only.
 - Material same as body except CI and DI.
 - 316SS for elevated settings.

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.

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.

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.

Fig. 2

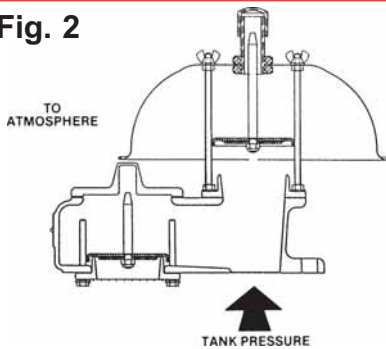
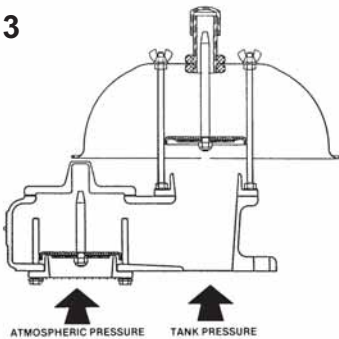


Fig. 3

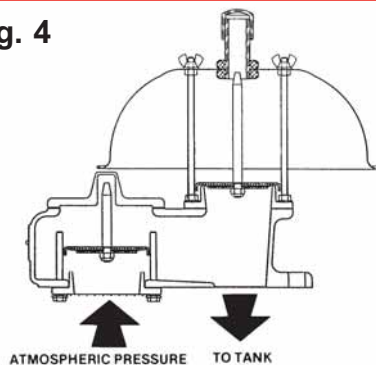


The vacuum pallet is guided in the same manner as the pressure pallet. Both are pallet stem and pallet side guided for smooth movement.

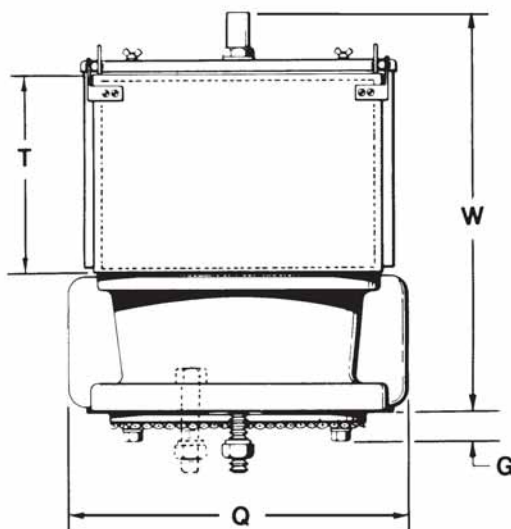
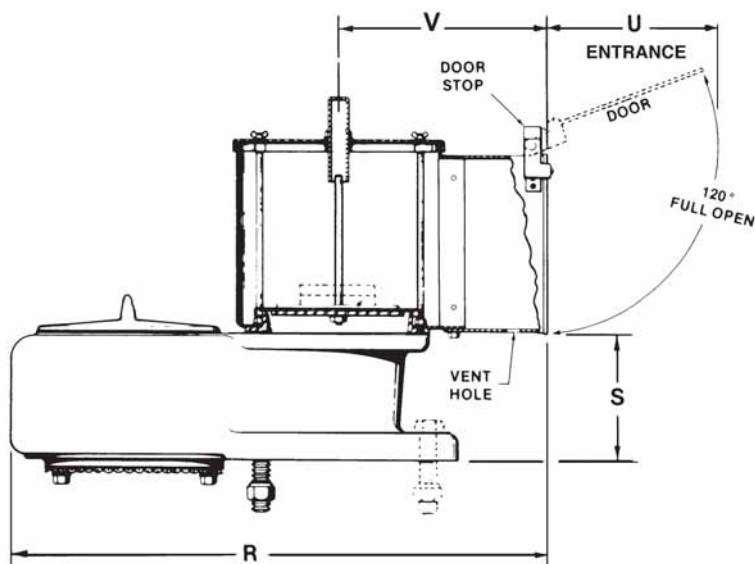
STEAM JACKETED OPTION:

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.

Fig. 4

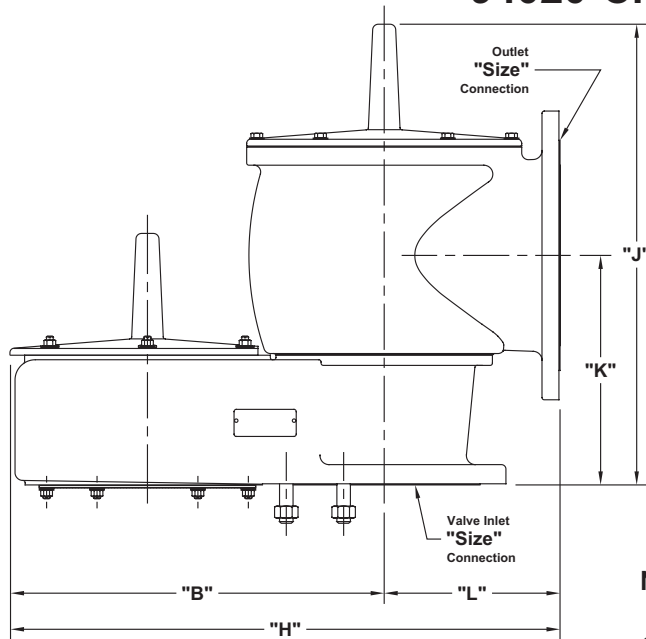


6", 8", 10" & 12"
Cryogenic
Hood Model



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



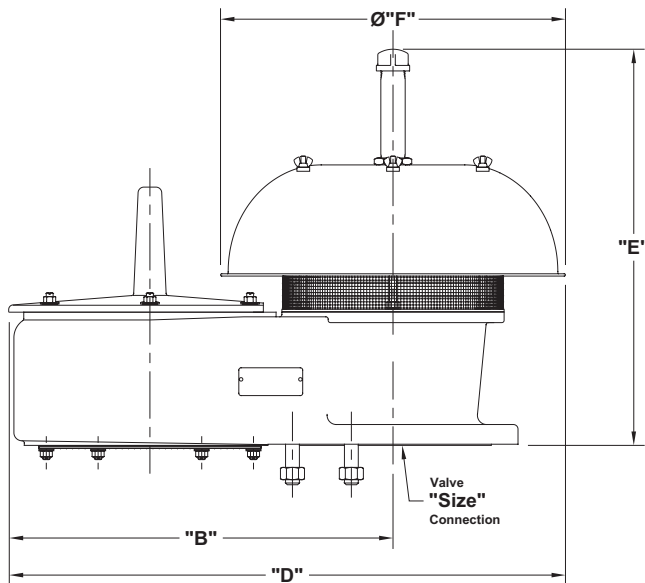
Valve Size	Outlet Size	"H"	"J"	"K"	"L"
2"	2"	13	11 1/8	5 1/32	4 1/4
2"	3"	13	11 1/8	5 1/32	4 1/4
* 3"	3"	16 3/8	13 1/4	5 9/16	5 1/4
* 3"	4"	16 3/16	13 3/4	5 31/32	5 1/4
* 4"	4"	20	20 3/8	7	6 1/2
* 4"	6"	19 1/4	15 3/4	7 1/32	5 15/16
* 6"	6"	26 1/4	21 1/4	9 3/8	8 3/8
* 6"	8"	26 3/16	21 1/4	10 11/32	8 1/4
* 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

TABLE (AB) - SIZE AND BODY MATERIAL

Option AB	Size	TYPE OF CONNECTION	BODY MATERIAL
11	2"	NPT	ALUM
12	2"	Flanged	ALUM
21	2"	NPT	ALUM CRYO HOOD
22	2"	Flanged	ALUM CRYO HOOD
*31/41	2"	NPT	CI/DI
*32/42	2"	Flanged	CI/DI
51	2"	NPT	CS
52	2"	Flanged	CS
71	2"	NPT	SS 316
72	2"	Flanged	SS 316
13	3"	NPT	ALUM
14	3"	Flanged	ALUM
23	3"	NPT	ALUM CRYO HOOD
24	3"	Flanged	ALUM CRYO HOOD
*33/43	3"	NPT	CI/DI
*34/44	3"	Flanged	CI/DI
53	3"	NPT	CS
54	3"	Flanged	CS
73	3"	NPT	SS 316
74	3"	Flanged	SS 316
15	4"	Flanged	ALUM
25	4"	Flanged	ALUM CRYO HOOD

Option AB	SIZE	TYPE OF CONNECTION	BODY MATERIAL
*35/45	4"	Flanged	CI/DI
55	4"	Flanged	CS
75	4"	Flanged	SS 316
16	6"	Flanged	ALUM
26	6"	Flanged	ALUM CRYO HOOD
*36/46	6"	Flanged	CI/DI
56	6"	Flanged	CS
76	6"	Flanged	SS 316
17	8"	Flanged	ALUM
27	8"	Flanged	ALUM CRYO HOOD
*37/47	8"	Flanged	CI/DI
57	8"	Flanged	CS
77	8"	Flanged	SS 316
18	10"	Flanged	ALUM
28	10"	Flanged	ALUM CRYO HOOD
*38/48	10"	Flanged	CI/DI
58	10"	Flanged	CS
78	10"	Flanged	SS 316
19	12"	Flanged	ALUM
29	12"	Flanged	ALUM CRYO HOOD
*39/49	12"	Flanged	CI/DI
59	12"	Flanged	CS
79	12"	Flanged	SS 316

* 3X = Cast Iron
4X = Ductile Iron

TABLE (C) - FLANGE TYPE

OPTION #	DESCRIPTION
0	FF
1	RF (not available in ALUM)
2	DIN 2633 PN 16 FF
3	DIN 2633 PN 16 RF
4	JIS 10K FF
5	JIS 10K RF

TABLE (D) - VENT TYPE

OPTION #	DESCRIPTION
1	Open Vent
2	Open Vent w/ Flame Snuffer-Not Available with ATEX (H5, H6, or H7)
3	Closed, Standard Outlet>Inlet*
4	Closed, P&V C.F.
6	Closed, Same Size Inlet, Outlet, Seat**

* Standard closed vent (outlet is one size larger than the inlet)
Ex. - 2" Inlet X 3" Outlet, 6" Inlet X 8" Outlet

**Note: Replaced Option 5. Dimensions are not identical.
Consult Factory if replacement valve is required.

TABLE (E) - SEAL TYPE AND MATERIAL

OPTION E	DESCRIPTION
0	Normal FEP / N8090
1	Expanda Seal FEP / N8090
2	Normal FEP (all)
3	Expanda FEP (all)
4	Normal Viton
5	Expanda Viton
6	Normal PTFE
8	Normal Buna
9	Expanda Buna

TABLE (F) - PRESSURE RANGE

OPTION F	DESCRIPTION	MATERIAL
1	Standard Setting*	Lead
2	Over 2.9 oz/sq. in.	Lead
3	Standard to 2.9 oz/sq.in.	Lead
4	Standard Setting	316 SS
5	Over 2.9 oz/sq. in.	316 SS
6	Standard to 2.9 oz/sq.in.	316 SS

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

TABLE (G) - SEAT MATERIAL & PALLET MATERIAL

Option G	Seat	Pallet
0	STD*	STD*
+ 1	Teflon	STD*
2	AL	STD*
+ 3	Phenolic	STD*
4	SS	STD*
5	Teflon Coated SS	STD*
A	STD*	316SS
+ B	Teflon	316SS
C	AL	316SS
+ D	Phenolic	316SS
E	SS	316SS
F	Teflon Coated SS	316SS

* See Materials of Construction
+ These Options not Available with ATEX Models



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TABLE (H) - LOX (Liquid Oxygen) & LIN (Liquid Nitrogen) Cleaning, Trim

Option H	Cleaning	Trim
0	Normal	STD
1	LOX	STD
2	LIN	STD
5	Normal	316SS
6	LOX	316SS
7	LIN	316SS
8	Normal	Monel
9	LOX	Monel
A	LIN	Monel

For an ATEX Certified Valve choose Option 5, 6, 7.
Trim includes Stem, Stem Guides, Side Guides, Nuts, Bolts, Screen, and Distribution Plate.

NOTE: LOX/LIN cleaning for Cryogenic Breathers of aluminum construction includes degreasing before assembly only!