94110

Shand & Jurs Co.

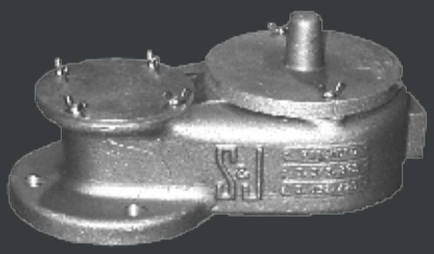
A COGNESENSE BRAND

Vacuum Vent

The Shand & Jurs® Model 94110 provides vacuum relief for atmospheric storage tanks designed for low internal pressure, where liquid withdrawal or thermal contraction can create vacuum conditions that exceed allowable limits. For tank designers and specifying engineers working within low-pressure storage envelopes, the 94110 admits air when vacuum exceeds the specified setpoint, protecting tank roofs and shells during routine breathing cycles.

A weight-loaded vacuum pallet delivers controlled lift and repeatable reseating under cyclic operating conditions. An air-cushioned FEP diaphragm enhances sealing integrity, limiting nuisance air infiltration during non-vacuum operation. Standard vacuum settings are 0.5 oz/in², with higher settings available depending on size and pallet configuration. Operating temperature range is dependent on body material (−65°F/−54°C to +350°F/+177°C). See Key Performance Data for material-specific ranges.

Sizing and selection are supported using Shand & Jurs WinSize (EZ-Flow) software based on anticipated flow rates and allowable pressure drops. Available in 2″, 3″, 4″, 6″, 8″, 10″, 12″ sizes with ANSI Class 150 RF or EN1092-1 PN10/PN16 flanged connections. For combined pressure and vacuum protection from a single nozzle, the 94110 can be paired with a 94640 Pressure Pilot-Operated Valve.



Key Features

Weight-Loaded Vacuum Pallet

Provides stable lift and reseating during routine tank breathing cycles.

Standard 0.5 oz/in² Setting

Supports low-pressure atmospheric tank protection requirements.

Adjustable Vacuum Range

Standard vacuum settings are 0.5 oz/in², with higher settings available depending on size and pallet configuration

Air-Cushion Seated FEP Diaphragm

Resists adhesion from ice and gum formation at the seat interface; air-cushion seating limits nuisance air infiltration.

2”-12” Nominal Sizes

Covers common dimensions of atmospheric storage tank nozzles.

ANSI Class 150 / EN PN10/ PN16 Interface

Aligns with refinery and chemical facility piping standards.

Benefits

PREVENTS VACUUM-INDUCED ROOF DAMAGE

Protects tank structure during rapid liquid withdrawal events.

CONTROLLED AIR ADMISSION

Maintains predictable tank breathing without excessive airflow spikes.

REDUCED NUISANCE AIR INGRESS

Improved sealing limits unnecessary vapor dilution.

FLEXIBLE VACUUM SETPOINTS

Supports site-specific vacuum design requirements.

LOW-PRESSURE DESIGN SIMPLICITY

Pressure-only, vacuum-only, or combined P/V versions match system requirements.

DEFENSIBLE SPECIFICATION

WinSize sizing supports documented capacity selection.

Available Options

Steam Jacket

Maintains process temperature around the vent body to prevent product coagulation on internal surfaces.

HEPA Inlet Filter

Protects tank contents from atmospheric particulates on vacuum cycle.

Alternate Diaphragm Materials

Improves compatibility with specific vapor compositions.

Limit Switches

Indicates vent opening for monitoring applications.

Raised Face Flange

Available for Carbon Steel and 316 Stainless Steel bodies; not available in Aluminum.

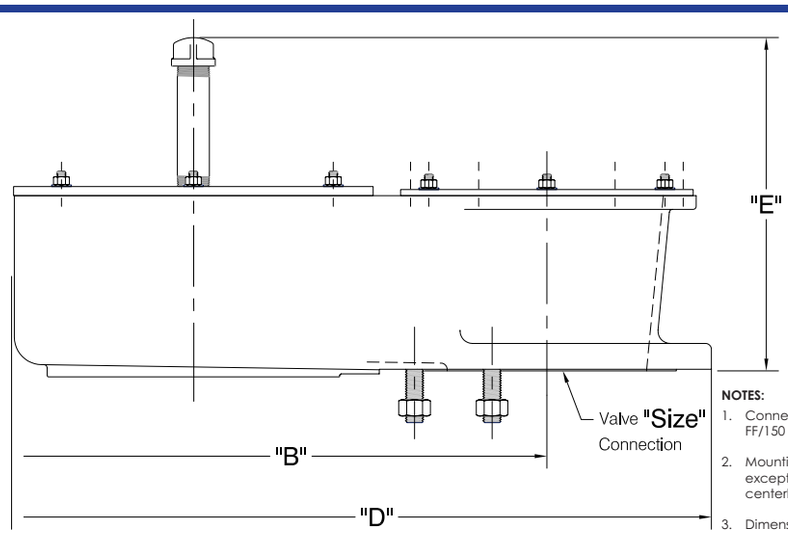
Threaded Connection(2″ & 3″)

Screwed-end body available for 2″ and 3″ sizes where flanged installation is not required.

Key Performance Data

Parameter	Value
Standard Set Pressure	0.5 oz/in²
Adjustable Range	Maximum setting is size-dependent. Consult factory for specific setpoints.
Sealing Method	Air-cushion seated diaphragm
Loading Method	Weight loaded
Nominal Sizes	2″, 3″, 4″, 6″, 8″, 10″, 12″
Flanged Connections	ANSI 125 FF / 150 RF. EN1092-1 PN16 FF/RF. RF not available in Aluminum. 2″ & 3″ screwed or flanged.
Temperature – Aluminum	−65°F (−54°C) to +250°F (+121°C)
Temperature – 316 Stainless Steel	−65°F (−54°C) to +350°F (+177°C)
Temperature – Carbon Steel	−20°F (−29°C) to +350°F (+177°C)
Materials	• Body and Seat: Aluminum, Carbon Steel, 316 Stainless Steel • Pallets: Aluminum or 316 Stainless Steel • Diaphragm: FEP, FKM, NBR, PFA • Screen: Galvanized Steel (normal). Stainless Steel (severe service). • Weights: Lead (standard); Stainless Steel available • Hardware: 316 Stainless Steel

Dimensions



NOTES:
1. Connection size matches 125 lb. FF/150 lb. RF ANSI FLANGE.
2. Mounting holes straddle centerline except: 2" & 3" sizes, holes are on centerline.
3. Dimensions expressed in inches.

Vent Size	"B"	"D"	"E"
2″	8 ¾	11 25/32	5 ¼
3″	11	14 15/16	6 ¼
4″	13 ⅜	17 ⅞	7 ¼
6″	17 ⅞	23 7/16	10 ½
8″	22 ⅛	28 19/32	12 ¾
10″	26 ½	34 ¼	16
12″	31 ⅛	40 1/16	17

Model Number Selection

The model number will consist of a base number 94110 followed by 8 digit numbers. These digits will represent 7 option tables.

94110 - AB - CD - EF - GH

Ordering Information

Specify:

1. Model 94110 Vacuum Vent
2. Size and Body Material
3. Screwed or Flanged Connection on 2” and 3” Size
4. Vacuum Setting, if Other Than Normal
5. Optional Materials of Construction, as Required
6. Maximum Static Pressure
7. To Specify CE for Ordinary EU Locations use Table H2
8. To Specify ATEX Certification for II 1 G Ex h II B T1...T6 Ga EU Locations use 94110A AB CD EF GH. ATEX Certification includes CE Mark.

NOTE: For Standard Closed Vent Models, outlet size is one size larger than inlet size (2” X 3”, etc.). Same size inlet and outlet models available. Pressure flow capacity is less than standard closed vent mod

Table A - Size (Body & Flange)

Option A	Description
2	2”
3	3”
4	4”
6	6”
8	8”
0	10”
1	12”

Table B - Body (Casting) Material & Flange Type

Option B	Description	Material
A	Aluminum I-ST	ANSI-FF 150#
B	Cast Steel I-ST	ANSI-FF 150#
C	Cast Steel I-ST	ANSI-RF 150#
D	316SS I-ST	ANSI-FF 150#
E	316SS I-ST	ANSI-RF 150#
F	Aluminum I-ST	EN1092-1 PN16 FF
G	Cast Steel I-ST	EN1092-1 PN16 FF
H	Cast Steel I-ST	EN1092-1 PN16 RF
I	316SS I-ST	EN1092-1 PN16 FF
J	316SS I-ST	EN1092-1 PN16 RF
K	Aluminum R-ST / 316 Seat	ANSI-FF 150#
L	Aluminum R-ST / 316 Seat	EN1092-1 PN16 FF

Table C - Size (Setting, Pallet Type, & Weight)

Option C	Description
02	2”
03	3”
04	4”
06	6”
08	8”
00	10”
01	12”

* RF not available in Aluminum

Table D - Setting, Pallet Type & Weight

Option F	Description
A	LOW / Standard / Lead
B	MID / Standard / Lead
C	HIGH / Standard / Lead
D	LOW / Standard / 316
E	MID / Standard / 316"
F	HIGH / Standard / 316

Selected seal type material may alter minimum setting.

STD Vacuum Setting:
Low (Standard) = 0.5 oz.in2 to 3 oz/in2
Medium = 3.01 oz/in2 to 8 oz/in2
High = 8.01 oz/in2 to 16 oz/in2

Table E - Integral Seat & Pallet Material

Option E	Description
02	Standard
03	ATEX

*See Materials of Construction

Table F - Options

Option F	Description
00	None
02	Limit Switch
03	Steam Jacket
04	LOX Cleaning
05	Incremental Weights

Summary

The Shand & Jurs® 94110 delivers atmospheric vacuum protection through a weight-loaded design suited for standard storage tank service. Defined vacuum settings, guided pallet operation, and global flange compatibility support predictable tank breathing and specification-ready integration into petroleum and chemical storage systems.

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This document is for information purposes only. All designs subject to change. Certified dimensions, specifications, and performance data available upon request