

## 94645 Pilot Operated Vacuum Relief Valve (Diaphragm Pilot)

The Shand & Jurs 94645 Pilot Operated Relief Valve is designed to meet very specific vacuum needs. The high accuracy of the valve allows the vacuum to be set between  $-.11$  psig to  $-5$  psig using sensitive springs for discrete ranges. The valve operates as follows.

As the internal vacuum reaches the valve's set point, the upward force on the sensing diaphragm overcomes the downward spring force. This causes the pilot seat to slightly lift, resulting in a small release of flow and marginal vacuum relief. This enables the large diaphragm cavity to create a large, upward force which fully opens the pilot seat. This causes a large pressure reduction on the upper side of the main valve diaphragm which results in a full lift of the main valve seat. When the vacuum reduces to the point its resulting upward force is less than the spring force, the pilot seat begins to close. This, in turn, builds up pressure on the upper side of the main valve diaphragm which closes the main valve seat. The pressures are again returned to their normal operating levels.

The valve's set point and blowdown can both be adjusted externally. The blowdown adjustment allows the valve to be operated in a snap action mode or a modulating mode. The snap action mode provides full opening at set point while the modulating mode provides a proportional opening with respect to over pressure.

### Applications

Meeting emissions standards for process and storage tanks requiring pressure relief

Hot hydrocarbon vapors or liquids, corrosive liquids, gas, cryogenics

Tanker ships, vessels, petroleum, chemical, oil, gas, marine, environmental plants, sanitary and cryogenic industries. Tank applications operating very close to set point

Low vacuum safety-relief valve for vessel applications, from general product tank storage to transportation vessels



### Features

- Set pressure between  $-.11$  psig to  $-5$  psig
- Valve sizes 2" x 3", 3" x 4", 4" x 6", 6" x 8", 8" x 10" and 10" x 12"
- Adjustment of the valve can be made externally
- Seat is Bubble tight to set pressure
- Snap action or modulating mode
- Fully open at set point in snap action mode
- Minimize VOC's and odor emissions
- Main Body Diaphragm FEP Teflon Film
- Backflow Preventer

## Specifications:

### Vacuum Setting:

-.11 psig to -5 psig available in discrete ranges

### Standard Blowdown:

5% - 20% (adjustable)

### Temperature Range:

Body and Seal Options for Process Temperature Ranges of -300°F to 400°F Consult Factory.

### Body Construction:

Aluminum, Steel, or Stainless Steel

\*Other Materials available (specify temperature range & product)

### \*Diaphragm & Seat Seal:

FEP Teflon Film (Standard)

### Flange Connection:

150 lb ANSI

### Pressure:

See Model 94640

### Accessories:

Backflow Preventer

(Valve has to remain closed under positive pressure.)

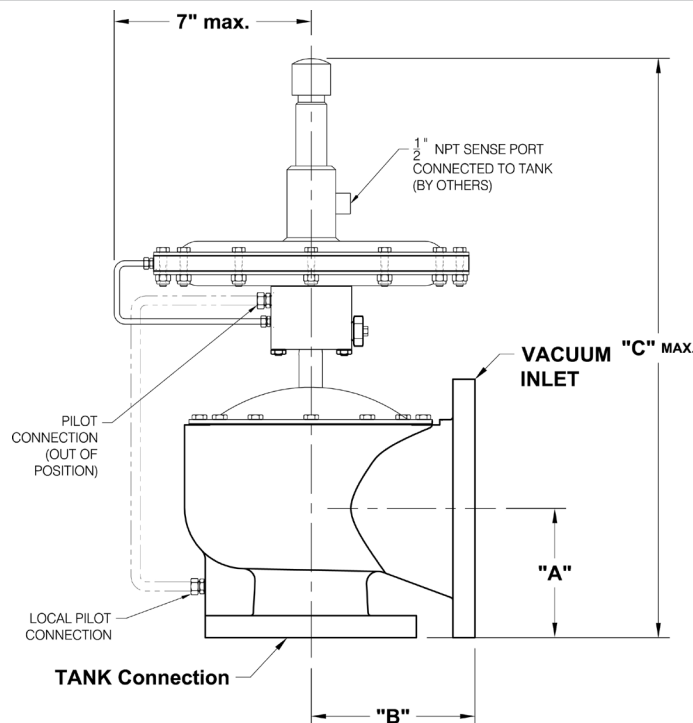
## Flow Capacities (SCFM Vacuum, 60°F)

Inlet Size	2"	3"	4"	6"	8"	10"
Set Vacuum						
.11 psig	93	198	322	692	1288	1790
.18 psig	120	257	416	894	1665	2313
.36 psig	170	364	591	1269	2362	3280
.54 psig	209	448	725	1558	2900	4029
1 psig	286	612	992	2131	3968	5512
5 psig	673	1440	2333	5012	9332	12963

## Valve Size

Valve Size	Approximate Dimensions in Inches			
	A	B	C	Weight (Al.)
2" x 3"	3.75	5.0	21.0	24 lbs.
3" x 4"	4.5	5.8	22.5	28 lbs.
4" x 6"	5.5	7.0	25.0	38 lbs.
6" x 8"	6.75	9.3	28.0	63 lbs.
8" x 10"	8.0	11.0	30.0	90 lbs.
10" x 12"	9.5	12.5	33.0	123 lbs.

## Dimensions



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

# 94645 Ordering Guide

## Model Number Selection

The model number will consist of a base number **94645** followed by 6 digit numbers. These digits will represent 5 option tables.

**94645 - AB - CD - EF - G**

## Ordering Information

Specify:

1. Model 94645 Pilot Operated Vacuum Relief Valve
2. Body Material
3. Valve and Inlet Size
4. Seal Material and Set Point
5. Accessories
6. CE for Ordinary EU Locations use Table F1
7. ATEX Certification for Group IIB, IIA EU Locations, use Table F2



**Table A - Material**

Option A	Material
0	Aluminum 150lb. FF
1	Cast Steel 150lb. FF
2	Cast Steel 150lb. RF
3	Stainless Steel 150lb. FF
4	Stainless Steel 150lb. RF

**Table B - Size & Inlet**

Option B	(Inlet, X Outlet)
2	2 x 3
3	3 x 4
4	4 x 6
5	6 x 8
6	8 x 10
7	10 x 12

**Table C - Vacuum Setting Ranges (PSIG)**

Option (CD)	01*	02	03	04	05	06	07	08	09
Range From	0.11	.25	.35	.5	.75	1.0	2.0	2.5	4.0
Range To	.25	.35	.5	.75	1.0	2.0	2.5	4.0	5.0

ATEX Models Limited to Max. Positive Pressure of 7.5 PSIG

**Table E - Seal Material\*\***

Option E	Material*
4	Teflon
5	Viton
6	Buna-N

\*Consult Factory for Other Materials

\*\*Main Body Diaphragm Always Teflon

**Table F - CE or ATEX**

Option F	Description
0	Standard
1	CE
2	ATEX Certified

**94645**

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**SHAND & JURS**

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**Table G - Accessories**

Option (G)	Accessories	Description
0	No Accessories	-
1	Backflow Preventer	Valve has to remain closed under positive pressure.