

## 94640 Pilot Operated Relief Valve (Diaphragm Pilot)

The Shand & Jurs 94640 Pilot Operated Relief Valve is designed to meet very specific pressure needs. The high accuracy of the valve allows the pressure to be set between .11 psig to 15.0 psig using sensitive springs for discrete ranges. The valve operates as follows.

As the internal tank pressure reaches the valves set point, the upward force on the sensing and boost diaphragms overcome the downward spring force causing the pilot to fully open. 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 pressure 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 with blowdown adjustment range from 5-20%. The valve operates in a snap action mode only, and provides full opening at set point.

### 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 pressure

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



### Features

- Set pressure between .11 psig to 15.0 psig
- Valve sizes: 2" x 3", 3" x 4", 4" x 6", 6" x 8", 8" x 10", 10" x 12", and 12" x 16"
- Adjustment of the valve can be made externally
- Bubble tight seat to set pressure
- Snap action
- Fully open at set pressure
- Minimize VOC's and odor emissions
- Accessories: Backflow/Vacuum Preventer, Field Test Connection, Sense Line Filter (Single or Dual), Pilot Vent Pipped to Flange Outlet, Remote Sense Line

# 94640

## Pilot Operated Relief Valve (Diaphragm Pilot)



### Specifications:

#### Pressure Setting:

.11 psig to 15 psig available in discrete ranges

#### Standard Blowdown:

5% - 20% (adjustable)

#### Body Construction:

Aluminum, Steel, or Stainless Steel

#### Diaphragm

FEP (Fluorinated Ethylene Propylene), FKM (Fluoroelastomer), NBR (Nitrile-Butadiene)

#### Flange Connection:

150 lb ANSI

Other Flange Types Available

#### Vacuum:

See Model 94645

#### Accessories:

Backflow/Vacuum Preventer, Field Test Connection, Sense Line Filter (Single or Dual), Pilot Vent Pipped to Flange Outlet, Remote Sense Line

### Flow Capacities (SCFM @ 10% Over Pressure)

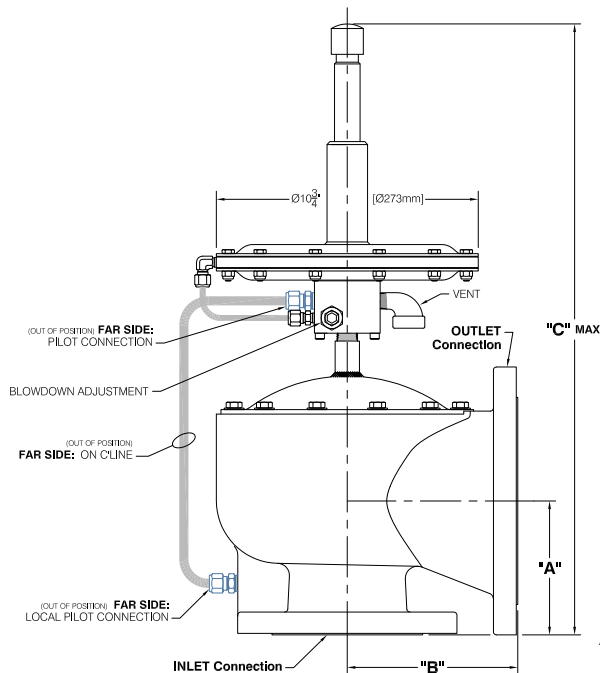
Inlet Size	2"	3"	4"	6"	8"	10"	12"
Set Pressure							
.11 psig	81	183	309	692	1289	1805	2974
.18 psig	104	234	396	887	1650	2312	3808
.36 psig	147	332	562	1258	2341	3280	5402
.54 psig	181	408	691	1545	2876	4029	6636
1 psig	248	559	947	2118	3942	5523	9097
5 psig	586	1320	2235	5002	9308	13042	21482
10 psig	872	1964	3327	7446	13856	19432	31975
15 psig	1111	2503	4239	9488	17656	24738	40745

### Valve Size

Valve Size	Approximate Dimensions in Inches			Weight	
	A	B	C	Al.	SS/STL
2" x 3"	3.75	5.0	21.0	24 lbs.	81 lbs.
3" x 4"	4.5	5.8	22.5	28 lbs.	105 lbs.
4" x 6"	5.5	7.0	25.0	38 lbs.	147 lbs.
6" x 8"	6.75	9.3	28.0	63 lbs.	228 lbs.
8" x 10"	8.0	11.0	30.0	90 lbs.	315 lbs.
10" x 12"	9.5	12.5	33.0	123 lbs.	426 lbs.
12" x 16"	11.75	14.25	40.0	200 lbs.	600 lbs.

\*Vacuum Operation: This relief valve may operate under vacuum conditions, unless the backflow/vacuum preventer option is selected. The 94640 may be mounted on top of a specially configured 94110 vacuum relief valve where precise vacuum control is desired. Consult Factory for specific vacuum setting requirements.

### Dimensions



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



5911 Butterfield Road Hillside, IL 60162 • tel: (708) 236-6000 • fax: (708) 236-6006  
sales@ljtechnologies.com • www.ljtechnologies.com • ISO 9001: 2015 Certified

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## 94640 Ordering Guide

### Model Number Selection

The model number will consist of a base number **94640** followed by 7 digit numbers. These digits will represent 6 option tables.

**94640 - AB - CD - EF - G**

### Ordering Information

Specify:

1. Model 94640 Pilot Operated Pressure Relief Valve
2. Body Material
3. Valve and Inlet Size
4. Seal Material and Set Point
5. Max Design Temperature, Process Temperature and Product
6. Accessories
7. CE for Ordinary EU Locations use Table F1
8. ATEX Certification for II 1 G Ex h II B T1...T6 Ga EU Locations, use Table F2



### Table A - Material

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

\*Cast Steel: -40°F (-40°C) Min. Temperature Limit

### 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
8	12 x 16

### Table CD - Pressure Setting Ranges (PSIG)

Option (CD)	01	02	03	04	05	06	07	08	09	10	11	12
Range From	0.11	.25	.35	.5	.75	1.0	2.0	2.5	4.0	6.0	9.0	12.0
Range To	.25	.35	.5	.75	1.0	2.0	2.5	4.0	6.0	9.0	12.0	15.0

ATEX Models Limited to Table CD Options 01-09

### Table E - Body Diaphragm

Option E	Material
4	FEP
5	FKM
6	NBR

Consult Factory for proper selection of soft goods.

Seal material choice may not be suitable for all pressure and temperature ranges, simultaneously.

### Table F - CE or ATEX

Option F	Description
0	Standard
1	CE
2*	ATEX Certified

\*ATEX Category 1, Gas Group IIB,

## 94640 Ordering Guide

**Table G - Accessories**

Option (G)	Accessories	Description
0	No Accessories	-
1	Backflow Preventer (BFP)	When vacuum exist on inlet.
2	Vacuum Preventer (VP)	When back pressure exist on outlet.
3*	Field Test Connection (FTC)	Pilot set pressure check and adjustment in a field, used with valves set above 5" W.C.
4**	Sense Line Filter	Protects pilot from contamination.
5**	Sense Line Dual Filter	When installed in close system or inside. Protects pilot from contamination. One filter is working at a time. Permits replacement/cleaning of one filter while in service.
6	Pilot Vent Pipped to Flange Outlet	When installed in close system or inside.
7	Remote Sense Line	Permits the pilot to sense system pressure at remote location to reflect actual operating condition.
8	Backflow Preventer (BFP) and Vacuum Preventer (VP)	Combine Option 1 and 2.
X	Multiple Combination	Add Above

\*FTC includes option 1.

\*\*Use either option 4 or 5.