97160 Pressure Relief/Flame Trap Assembly

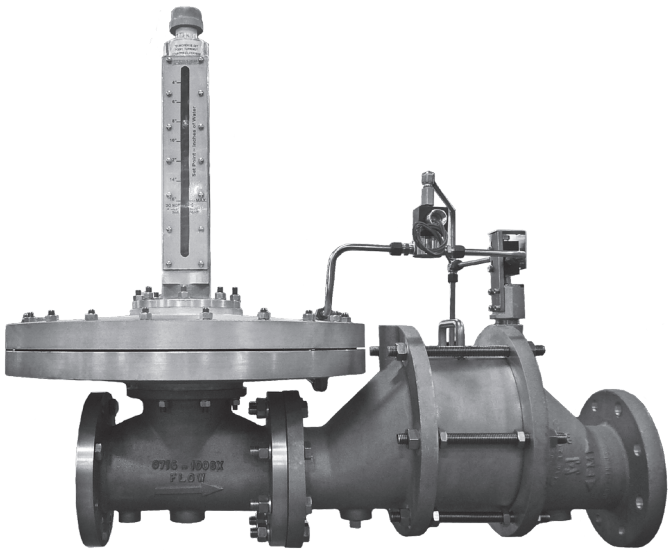
The Shand & Jurs 97160 Pressure Relief and Flame Trap Assembly combines a 97150 Back Pressure Regulator, a Thermally Operated Shut Off Valve, and a 94307 Horizontal Flame Arrester to maintain upstream pressure and effectively inhibit flame propagation in low-pressure gas lines.

The Flame Arrester tube bank assembly absorbs heat faster than the ignited gas can produce it. This lowers the gas temperature to below the ignition point, thus quenching the flame. The back pressure regulator maintains an adjustable preset upstream pressure. When upstream pressure exceeds set point, the diaphragm will open the valve. After relieving gas to flare the pressure in the line will drop below set point closing the valve. The Pilot Valve Assembly contains a fusible material that melts at 255°F and closes the regulator valve effectively shutting off flow during emergency thermal event conditions.

The Flame Trap Assembly should be installed upstream of a waste gas flare or burner. If external sense line is provided, it should be connected at least 10 pipe diameters upstream of the pressure relief section.

Standard materials of construction include an Aluminum Body and Buna-N diaphragm. Its aluminum and stainless steel components withstand the severest of process environments.

The S&J 97160 is especially designed for hydrogen sulfide and hot, wet methane which are the main components of digester gas streams in municipal waste water treatment facilities.



Features

- Internal Sense Tap (1/2" NPT External Sense Tap Optional)
- Positive Emergency Shutoff
- Maintain Upstream Pressure
- 255°F Fusible Link
- Sizes 2" Through 12"
- 3-Way Solenoid Shut-off option for flare system
- Large diaphragm for sensitivity

97160
Pressure Relief/Flame Trap Assembly

Standard Materials of Construction:

Body:
Cast Aluminum

Pallet:
Low Copper Aluminum

Diaphragm:
Buna-N

Flame Arrester Housing:
Cast Aluminum

Tube Bank:
Aluminum, 304 or 316 Stainless Steel

Specifications:

Flanged Connections:
125 lb. ANSI FF Flange

Drain Connection:
1/2" NPT Connection

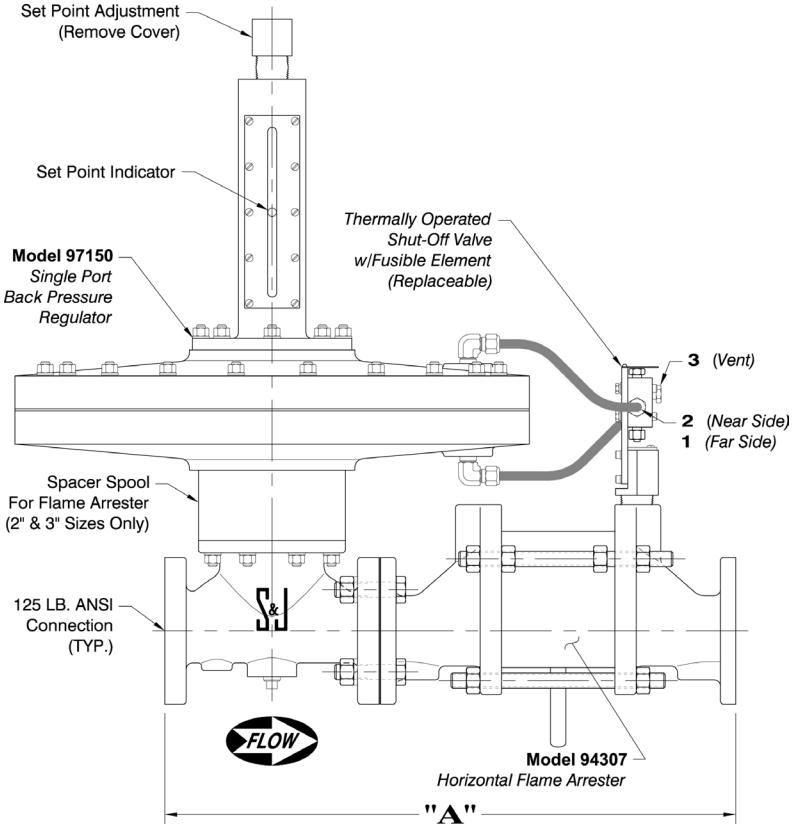
Pressure Rating:
5 psi Standard

Installation:
Locate 97160 within 10 pipe diameters of a potential atmospheric ignition source

3-Way Solenoid Option:
A three-way solenoid valve allows optimal control of digester gas flow to the waste gas burner, adding additional safety to the waste gas system. The three-way solenoid valve provides a regulator that remains closed until a pilot flame is proven, until then the unit stays in a de-energized state and maintains equal pressure on the regulator diaphragm.

Once a pilot flame is proven, an alarm contact or interposing relay in the waste gas burner control panel energizes the three-way solenoid valve, which then releases pressure from above the diaphragm and allows the regulator to open. When the three-way solenoid valve is de-energized, gas is applied to the top of the diaphragm, closing the regulator.

Dimensions



Line Diameter (Inches [mm])	A (Inches [mm])
2 [50]	23 3/8 [594]
3 [75]	26 1/16 [661]
4 [100]	31 7/16 [799]
6 [150]	39 7/16 [1002]
8 [200]	54 7/16 [1383]
10 [250]	63 5/16 [1608]
12 [300]	67 3/8 [1711]

Air Flow Capacity in Standard Cubic Feet per Hour x 1000 @ 60°F

Over Pressure Inches W.C.	Line Diameter						
	2"	3"	4"	6"	8"	10"	12"
1	1.1	2.5	4.9	11.3	20.0	26.3	42.7
2	1.7	4.0	7.5	16.4	29.8	43.5	66.8
3	2.1	4.9	9.4	20.8	38.0	56.7	87.2
4	2.4	5.6	10.9	24.3	44.5	68.3	104
5	2.8	6.4	12.2	27.4	50.6	78.2	120
6	3.1	7.2	13.6	30.4	55.6	87.2	134
7	3.4	7.9	14.7	32.9	60.2	95.5	144
8	3.7	8.5	15.9	35.3	64.8	103	157
9	3.9	9.0	16.8	37.6	69.1	111	167
10	4.1	9.6	18.0	39.6	73.3	118	176
11	4.3	10.2	19.0	41.9	77.0	125	185
12	4.6	10.6	19.8	43.9	80.6	131	194
13	4.8	11.0	20.8	45.5	84.0	137	202
14	5.0	11.4	21.5	47.4	87.4	143	210
15	5.2	11.9	22.3	49.0	91.0	148	217
16	5.4	12.3	23.1	50.8	93.7	153	224
17	5.6	12.7	23.8	52.1	96.7	158	231
18	5.8	13.1	24.5	53.7	100	162	238
19	6.0	13.6	25.1	55.3	102	166	244
20	6.1	14.0	25.8	56.8	105	170	250

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