97150 Single Port Regulator

The S&J 97150 Single Port Back Pressure Regulator is a back pressure regulator with solenoid or thermally operated shut-off capabilities. The back pressure regulator function maintains a preset upstream pressure in low pressure (typically 2" - 8" w.c.) biogas lines such as those leading to flares and waste gas burners. Its normal operating position is closed until the set point is exceeded.

A large spring-loaded diameter diaphragm reduces line bounce for smoother gas flow. Field adjustment of set point is easily done by changing position of the spring with visual pointer indicator. The components are easy to access providing for simplified cleaning and maintenance. The 1/2" NPT connection is provided on the lower diaphragm housing for external sense and should be connected a minimum of 10 pipe diameter upstream from the regulator. The diaphragm-direct regulator can be ordered in two setting ranges: standard and high, which are defined for a given line size. The back pressure regulator's second function is to positively shutoff gas flow in emergency flame conditions when combined with a solenoid controlled sense line or fusible element.

This unit can be used alone or combined with a Flame Trap Assembly. If installed indoors, the vent connection should be piped outdoors. A 97200 Flame Check should be installed by the end of the vent line for flashback protection.

Standard materials of construction include an aluminum body with an aluminum pallet and stainless steel internals. The diaphragm is Nylon Reinforce Buna-N.

Its aluminum and stainless steel components withstand the severest of process environments. The S&J 97150 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

- External Sense Connection
- Large Diaphragm Operated/Spring Loaded for Sensitivity
- Maintain Upstream Pressure
- Simplified Cleaning and Maintenance
- Sizes 2" Through 12"
- 3-Way Solenoid Option Available
- 3-Way Solenoid with Manual Bypass Option Available
- Horizontal Configuration Only

97150
Single Port Regulator

SHAND&JURS

Standard Materials of Construction:

Body:
Cast Aluminum

Diaphragm:
Nylon Reinforced Buna-N

Pallet:
Low Copper Aluminum, 316 Stainless Steel

Spring:
Stainless Steel

Specifications:

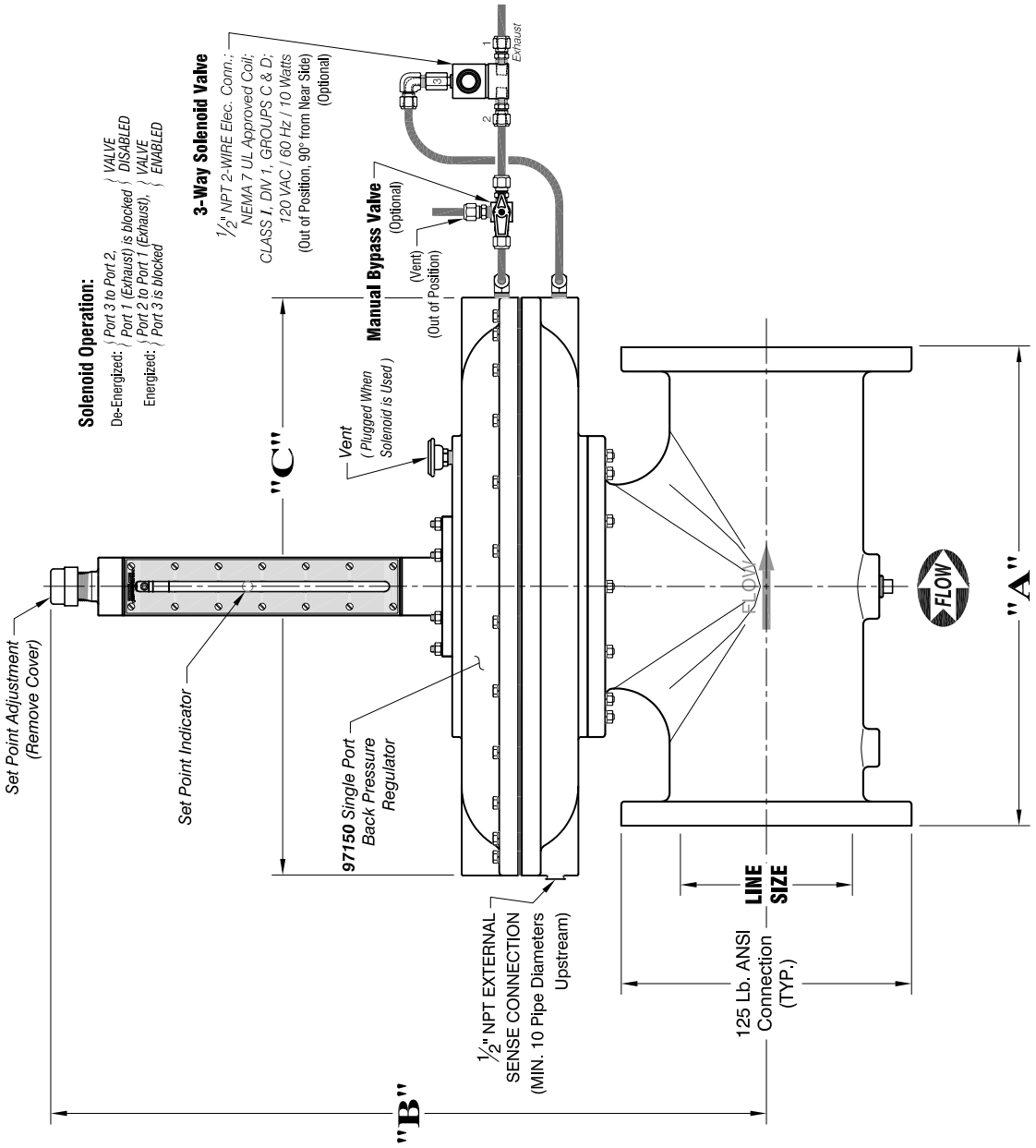
Flanged Connections:
125 lb. ANSI FF Flange

Maximum Operating Pressure:
20" W.C. (Sizes 2"-8")
15" W.C. (Sizes 10" and 12")
Consult Factory for other options.

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	1.3	2.3	5.9	13.5	25.0	35.0	55.0
2	1.9	4.5	8.9	19.5	37.1	54.0	88.0
3	2.3	5.4	10.8	24.2	46.5	73.0	115
4	2.7	6.3	12.6	28.5	54.2	86.0	137
5	3.1	7.2	14.3	32.0	60.3	97.0	153
6	3.4	8.2	15.8	35.0	66.8	110	170
7	3.8	8.8	17.1	38.0	73.0	119	183
8	4.0	9.5	18.6	40.7	78.0	128	193
9	4.3	10.2	19.6	43.3	82.6	137	208
10	4.6	10.7	20.9	45.5	87.0	146	218
11	4.8	11.2	21.8	47.8	90.9	153	227
12	5.1	11.7	22.7	49.8	95.1	160	237
13	5.3	12.2	23.8	51.6	99.0	165	245
14	5.5	12.7	24.7	53.7	103	170	252
15	5.8	13.2	25.4	55.5	106	175	258
16	6.0	13.8	26.1	57.4	109	180	265
17	6.2	14.3	26.8	58.9	112	184	271
18	6.4	14.7	27.4	60.2	115	188	276
19	6.5	15.0	28.0	62.0	118	191	281
20	6.6	15.3	28.6	63.1	120	194	285

Dimensions



Line Diameter (Inches [mm])	A (Inches [mm])	B (Inches [mm])	C (Inches [mm])
2 [50]	8 ¾ [222]	27 ⅞ [708]	21 [533]
3 [75]	10 [250]	28 ½ [724]	21 [533]
4 [100]	11 ⅜ [289]	29 [736]	21 [533]
6 [150]	15 [381]	31 ⅜ [797]	26 ⅞ [683]
8 [200]	22 ¼ [565]	33 ⅜ [847]	26 ⅞ [683]
10 [250]	27 ¹³⁄₁₆ [706]	37 ⅞ [962]	36 ½ [927]
12 [300]	33 [838]	41 ¼ [1047]	36 ½ [927]

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

97150 Ordering Guide

Model Number Selection

The model number will have a base number **97150** followed by 6 digit numbers. These digits will represent 5 sets of option tables.

97150 - AB - CD - EF

Table AB - Line Size

Table C - Setting Range*

Option AB	Line Size	Option C	Setting Range
02	2"	1 - Standard	2" - 8" W.C.
		2 - High	>8" - 20" W.C.
03	3"	1 - Standard	2" - 8" W.C.
		2 - High	>8" - 20" W.C.
04	4"	1 - Standard	2" - 8" W.C.
		2 - High	>8" - 20" W.C.
06	6"	1 - Standard	2" - 8" W.C.
		2 - High	>8" - 20" W.C.
08	8"	1 - Standard	2" - 8" W.C.
		2 - High	>8" - 20" W.C.
10	10"	1 - Standard	2" - 8" W.C.
		2 - High	>8" - 15" W.C.
12	12"	1 - Standard	2" - 8" W.C.
		2 - High	>8" - 15" W.C.

Specify operating set point. Valve range will be +/- 3" W.C. of set point for 2" through 8" size and +/- 2" W.C. for 10" through 12" sizes. Range will not exceed listed setting range (i.e. set point of 3" will have a range of 2"-8", set point of 19" will have a range of 14"-20"). For other ranges, please Consult Factory.

Table D - Sense Configuration/Solenoid*

Option D	Configuration
1	External
3	External with Solenoid
5	External with Solenoid and Manual Bypass

* Solenoid - 120VAC, NEMA 7

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.

Manual bypass overrides solenoid function. Pressure regulator will open when set point is reached.

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.

Table E - Hardware Material

Option E	Hardware
0	Stainless Steel
1	316 Stainless Steel

Table F - Accessories

Option F	Accessories
0	None
1	Insulation Jacket