Li'L LENA REGULATOR

Versatile Design: The Li'L Lena is a spring loaded, direct operated regulator suitable for both low and high pressure applications in the oil and gas industries.

Durability: Ensured by a powder coated epoxy exterior finish, providing resilience in challenging environments.

Installation Flexibility: Offers versatility through multi position body and spring case configurations, allowing adaptability to different setups.

Pressure-Reducing Functionality: This self contained regulator is designed for use with natural gas, air, or other gases in both low and high-pressure systems.

Primary Usage: Primarily employed for regulating pressure and volume to fuel gas valves or production instrumentation on oil and gas process equipment.

Configurational Options: The Li'L Lena can be positioned in four different configurations, optimizing space during installation.

Easy Maintenance: Designed for convenient maintenance, providing access to the body without the need for removal from the line.

Application

This self-contained pressure-reducing regulator is designed for flexibility and is for low and high pressure systems. It can be used with natural gas, air, or other gases. It is primarily used to regulate pressure and volume to fuel gas valves or production instrumentation on oil and gas process equipment.

Features

- Multiple Orifice Sizes, 316 SS Std, NACE
- Easy Maintenance: Trim can be replaced with the body in-line
- Protective Cap: Tamper Resistant Pressure Setting
- Steel body and die cast aluminum diaphragm housing
- Body can be rotated to four positions with diaphragm housing for user convenience.

Specifications

Connection	1" FNPT
Seat Ring Orifices	3/32", 1/8", 3/16",1/4", 3/8", 1/2"
Operating Temperature	-20°F to 180°F
Materials	See Parts
Maximum Inlet Pressure, Differential Pressure, and Outlet Pressure Ranges	See Table 1
Maximum Spring and Diaphragm Housing Pressure	See Table 2
Flow Capacities	See Table 3

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Overpressure Protection

As is true with most regulators, the Li'L Lena Regulator has an outlet pressure rating that is lower than the inlet pressure rating. Overpressure protection is needed to avoid overpressure if the actual inlet pressure can exceed the outlet pressure rating.

Table 1. Max. Pressure, Differential Press. & Outlet Pressure Ranges

Outlet Pressure Range	Port Diameter (Inches)	Maximum Inlet Pressure (psig)	Maximum Differential Pressure (psig)
5 to 20 psig	3/32	2000	2000
	1/8	1000	1000
	3/16	750	750
	1/4	500	500
	3/8	300	300
	1/2	250	250
15 to 40 psig	3/32	2000	2000
	1/8	1500	1500
	3/16	1000	1000
	1/4	750	750
	3/8	500	500
	1/2	300	300
35 to 80 psig	3/32	2000	2000
	1/8	2000	2000
	3/16	1750	1750
	1/4	1500	1500
	3/8	1000	1000
	1/2	750	750
70 to 150 psig	3/32	2000	2000
	1/8	2000	2000
	3/16	2000	2000
	1/4	1750	1750
	3/8	1250	1250
	1/2	750	750

For pressure settings under 10 psig, inlet pressure should be limited to approximately 100 psig so the set point adjustment can be reached.

Dimensional Data

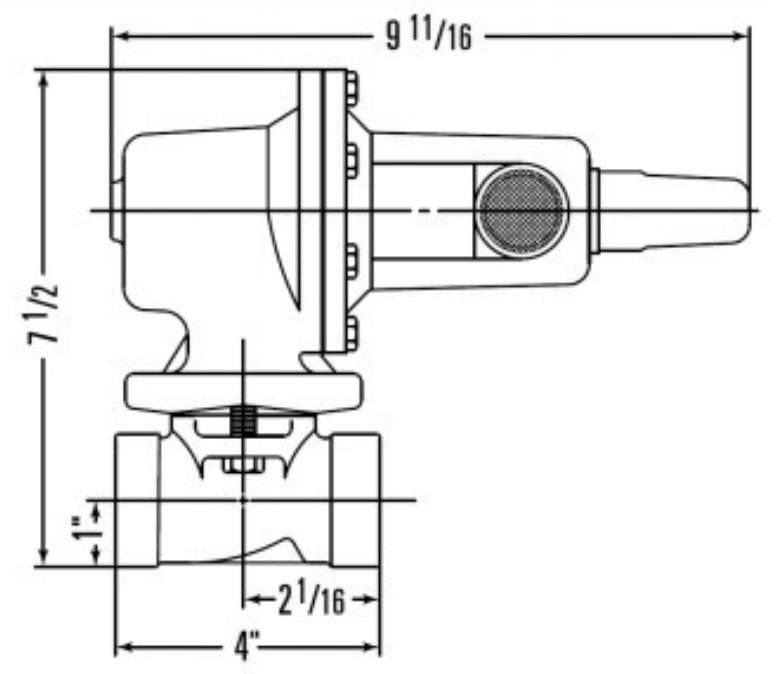


Table 2. Max. Spring and Diaphragm Housing Pressure

Maximum pressure to avoid leakage to atmosphere or possible damage to internal parts.	250 psi
Maximum pressure to prevent burst of housing or possible damage to internal parts.	375 psi
Maximum diaphragm housing over-pressure (above set point) to avoid damage to internal parts.	60 psi

Table 3. Flow Capacities in scfh of 0.6 Specific Gravity Natural Gas(1)

1. Capacity is based on 20% drop unless otherwise noted. See "Capacity Data" for equivalent capacities of other gases.
2. For pressure settings under 10 psig, inlet pressure should be limited to approximately 100 psig so the set point adjustment can be reached.
3. For pressure set point of 5 psig, the drop is 2 psig.

Outlet Pressure Range	Outlet Pressure		Inlet Pressure		1"Body Orifice Diameter (Inches)					
	psig	bar	psig	bar	3/32	1/8	3/16	1/4	3/8	1/2
5 to 20 psig (0.34 to 1.4 bar) Yellow Spring	5	0.34	10	0.69	170	330	710	1100	1900	2500
			15	1	240	390	890	1600	2500	3350
			20	1.4	290	500	1160	2060	3400	4450
			30	2.1	380	670	1560	2800	4750	6900
			60	4.1	640	1170	2600	4710	8140	13700
			75	5.2	770	1410	3150	5710	9790	14500
			100	6.9	990	1800	4070	7310	12500	16000
	10	0.69	15	1.03	210	375	880	1590	2480	3300
			20	1.4	280	490	1150	2050	3380	4410
			30	2.1	380	670	1560	2800	4720	6840
			60	4.1	640	1170	2600	4710	8140	13700
			75	5.2	770	1410	3150	5710	9790	14500
			100	6.9	990	1790	4070	7310	12500	16000
			150	10.3	1420	2580	5850	10500	17000	18000
			200	13.8	1850	3370	7630	13700	18000	18500
			300	20.7	2700	4910	11200	19800	20000	
			500	34.5	4400	8090	15700	21000		
			750	51.7	5400	12000	18000			
			1000	69.0	5800	14000				
			1250	86.2	6300					
			1500	103	6600					
			1750	121	6800					
			2000	138	7600					
	20	1.4	30	2.1	350	620	1450	2580	4360	6290
			50	3.4	550	1000	2280	4090	7670	14100
			60	4.1	640	1170	2640	4750	9690	14500
			100	6.9	990	1800	4070	7310	13900	23300
			150	10.3	1420	2580	5850	10500	17700	34200
			200	13.8	1850	3370	7630	13700	26600	39100
			300	20.7	2700	4910	11200	20100	37000	
			500	34.5	4400	8090	18300	32900		
			750	51.7	6600	12000	23600			
			1000	69.0	8900	16000				
			1250	86.2	10000					
			1500	103	10400					
			1750	121	12000					
			2000	138	14000					

Outlet Pressure Range	Outlet Pressure		Inlet Pressure		1"Body					
					Orifice Diameter (Inches)					
	psig	bar	psig	bar	3/32	1/8	3/16	1/4	3/8	1/2
15 to 40 psig (1.0 to 2.8 bar) Green Spring	40	2.8	60	4.1	610	1090	2530	4510	9290	9420
			75	5.2	760	1370	3080	5640	10800	16500
			100	6.9	990	1790	4070	7310	14700	21900
			150	10.3	1420	2580	5850	10500	20500	34500
			200	13.8	1850	3370	7630	13700	27100	46400
			300	20.7	2700	4710	11200	20100	40100	67100
			500	34.5	4400	8090	18300	32900	63900	
			750	51.7	6600	12000	27200	39400		
			1000	69.0	8700	16000	36100			
			1250	86.2	11000	19000				
			1500	103	13000	22000				
			1750	121	15000					
			2000	138	17000					
35 to 80 psig (1.0 to 2.8 bar) Blue Spring	60	4.1	75	5.2	700	1230	2760	4880	8630	16100
			100	6.9	970	1740	4010	7000	13000	19300
			150	10.3	1420	2580	5850	10500	18900	32800
			200	13.8	1850	3370	7630	13700	24000	42200
			300	20.7	2700	4910	11200	20100	32500	69100
			500	34.5	4400	8090	18300	32900	64000	94300
			750	51.8	6600	12000	27200	43800	66900	130000
			1000	69.0	8700	16000	36100	50300	67700	
			1250	86.2	11000	19000	45000	57000		
			1500	103	13000	22000	54000	63000		
			1750	121	15000	25000	63000			
			2000	138	17000	28000				
	80	5.5	100	5.2	900	1600	3750	6650	12200	18600
			150	10.3	1410	2580	5850	10500	21100	33600
			200	13.8	1850	3370	7630	13700	28400	44100
			300	20.7	2700	4910	11200	20100	43300	75400
			500	34.5	4400	8090	18300	32900	71600	110000
			750	51.8	6600	12000	27200	48900	105500	135000
			1000	69.0	8700	16000	36100	64900	118000	
			1250	86.2	11000	19000	45000	80000		
			1500	103	13000	22000	54000	96000		
			1750	121	15000	25000	63000			
			2000	138	17000	28000				

Outlet Pressure Range	Outlet Pressure		Inlet Pressure		1"Body					
					Orifice Diameter (Inches)					
	psig	bar	psig	bar	3/32	1/8	3/16	1/4	3/8	1/2
70 to 150 psig (4.8 to 10.3 bar) Red Spring	100	6.9	150	10.3	1170	2510	5540	8710	16000	24000
			200	13.8	1850	3370	7630	12000	21300	34100
			300	20.7	2700	4910	11200	19400	30100	53200
			500	34.5	4400	8090	18300	31800	66500	83900
			750	51.8	6600	12000	27200	47300	95300	117000
			1000	69.0	8700	16000	36100	59700	100000	120000
			1250	86.2	11000	19000	45000	72000	114000	
			1500	103	13000	22000	54000	86000		
			1750	121	15000	25000	63000	95000		
			2000	138	17000	28000	71000			
	125	8.6	150	10.3	1250	2340	5540	9470	15700	20800
			200	13.8	1830	3320	7630	13400	28100	32800
			300	20.7	2700	4910	11200	20100	36300	52600
			500	34.5	4400	8090	18300	32900	70800	109000
			750	51.8	6600	12000	27200	48900	104000	158000
			1000	69.0	8700	16000	36100	64800	138000	160000
			1250	86.2	11000	19000	45000	80000	150000	
			1500	103	13000	22000	54000	96000		
			1750	121	15000	25000	63000	112000		
			2000	138	17000	28000	71000			
	150	10.3	200	13.8	1760	3200	7290	12900	21400	33600
			300	20.7	2700	4910	11200	17200	40100	55900
			500	34.5	4400	8090	18300	32900	70300	110000
			750	51.8	6600	12000	27200	48900	104000	160000
			1000	69.0	8700	16000	36100	64800	138000	162000
			1250	86.2	11000	19000	45000	80000	150000	
			1500	103	13000	22000	54000	96000		
			1750	121	15000	25000	63000	112000		
			2000	138	17000	28000	71000			

Capacity Data

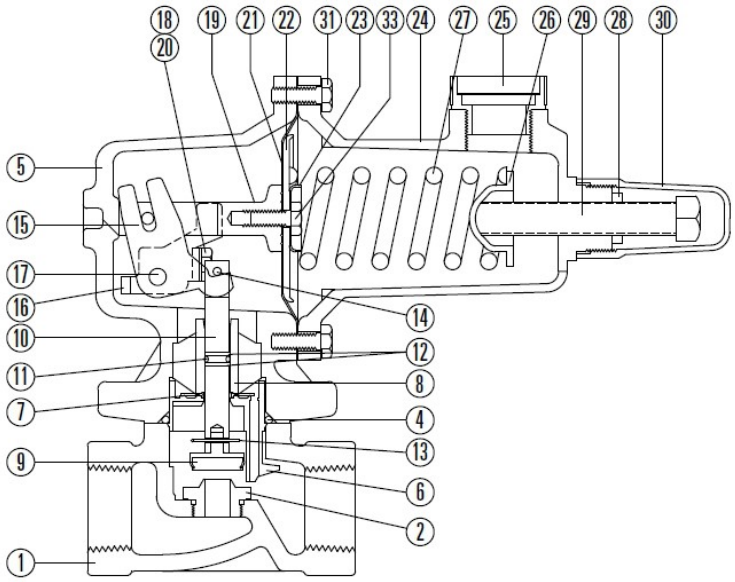
Natural gas regulating capacities for selected inlet pressures and outlet pressure settings are shown in Table 3. Flows are in scfh (60°F and 14.7 psia) of 0.6 specific gravity, natural gas at 60°F.

To determine the equivalent capacities for other gases, multiply the table capacity by the following factors: for air use 0.775, for nitrogen use0.789, for propane use 0.628, or for butane use 0.548.

For gases of other specific gravities, multiply the given capacity by 0.775, and divide by the square root of the particular specific gravity.

Parts List

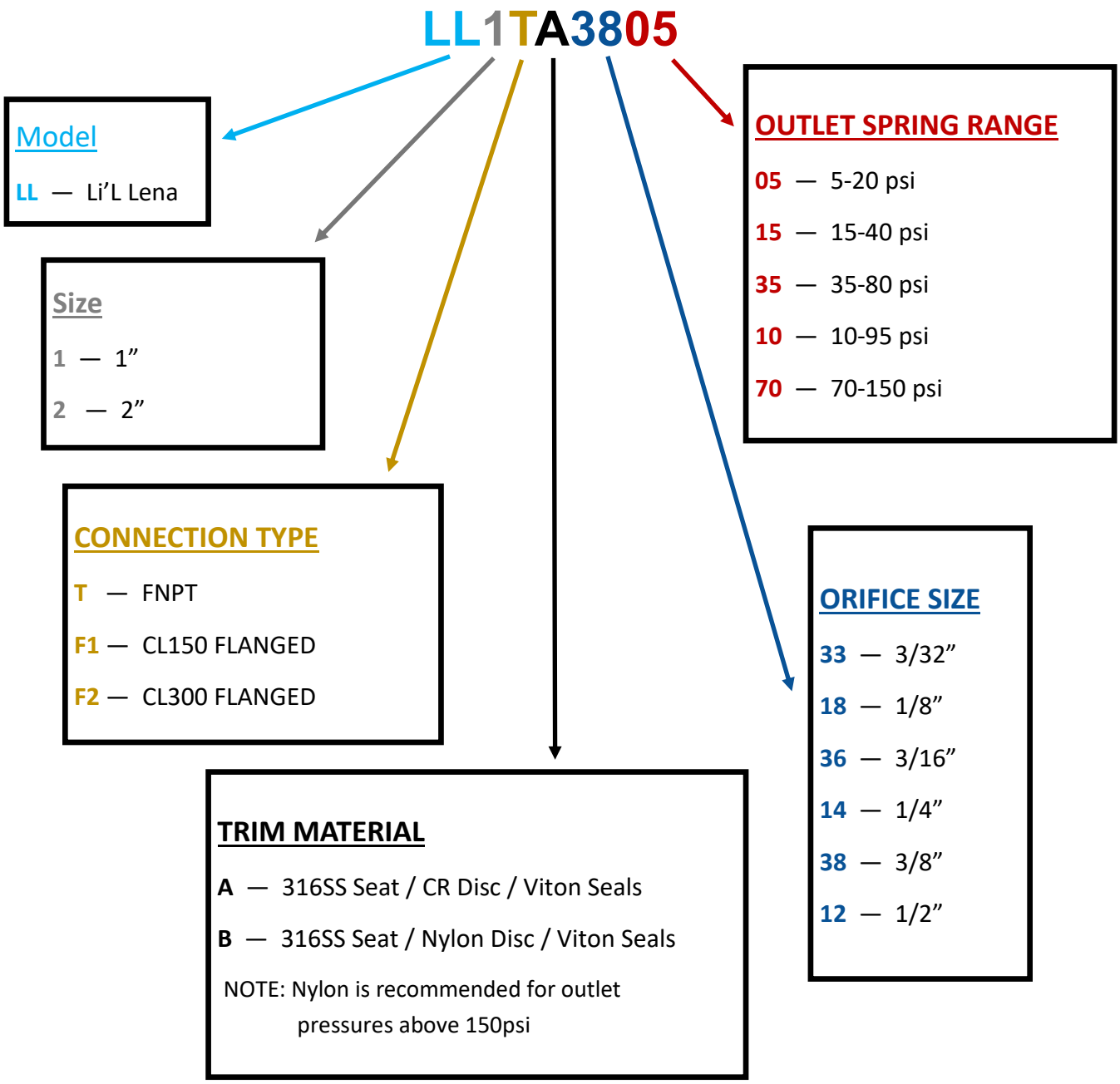
Item	Description	Qty.
1	BODY, 1"NPT ,STEEL WCB	1
2*	SEAT, 316SS, 3/32"	1
	SEAT, 316SS, 1/8"	1
	SEAT, 316SS, 3/16"	1
	SEAT, 316SS, 1/4"	1
	SEAT, 316SS, 3/8"	1
	SEAT, 316SS, 1/2"	1
3	CAP SCREW, STEEL PLATED (NOT SHOWN)	2
4*	O-RING, VITON	1
5	DIAPHRAGM CASE, ALUMINUM	1
6	BOOST BODY, NYLON	1
7	STABILIZER, NITRILE	1
8	STEM GUIDE	1
9*	DISK ASSEMBLY/NEOPRENE	1
	DISK ASSEMBLY/NYLON	1
10	STEM, STAINLESS STEEL	1
11*	O-RING, VITON	1
12	BACK UP RING, TFE	2
13	HAIR PIN CLIP, STAINLESS STEEL	1
14	PIN, STAINLESS STEEL	1
15	LEVER, STEEL PLATED	1
16	LEVER RETAINER, STEEL PLATED	1
17	LEVER PIN, STAINLESS STEEL	1
18	LEVER CAP SCREW	2
19	POST, & PIN ASSY.	1
20*	LOCK WASHER	2
21	DIAPHRAGM, NITRILE	1
22	DIAPH. HEAD, STEEL PLATED	1
23	SPRING SEAT, STEEL PLATED	1
24	UPPER HOUSING, ALUMINUM	1
25	VENT ASSEMBLY, PLASTIC	1
26	UPPER SPRING SEAT, STEEL	1
27	SPRING, 5-20 psig (yellow)	1
	SPRING, 15-40 psig (green)	1
	SPRING, 35-80 psig (blue)	1
	SPRING, 10-95 psig (large blue 1-7/8OD) *Special oversized spring seat #26L required	1
	SPRING, 70-150 psig (red)	1
28	JAM NUT, STEEL	1
29	ADJUSTING SCREW, STEEL	1
30	CAP, PLASTIC	1
31	CAP SCREW, STEEL PLATED	8
32	NAME PLATE, ALUMINUM (NOT SHOWN)	1



***Recommended Spare Part**

Part Number Matrix

Example Model # LL1TA3805
Li'L Lena Regulator, 1" Body, Threaded Female NPT Connection, 316SS Seat, CR Disc, Viton Seals, 3/8" Orifice, 5 to 20 psi Outlet Spring Range.



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