



# MODEL PBE-L

## PRESSURE BUILD ECONOMIZER REGULATOR



MODEL PBE-L

### OVERVIEW

The Model PBE-L has a compact body and functions in a dual role as a pressure building regulator and as an economizer relief regulator in one model. The pressure build feature controls the outlet pressure while the economizer feature operates to relieve any excess pressure in the system above set point from atmospheric to 600 psig (41.4 Barg).

### FEATURES

- The Economizing feature begins to open when outlet pressure exceeds the set point pressure 10 - 25 psig (.69 - 1.7 barg), depending on selection of range spring.

### APPLICATIONS

Widely used for pressure control on liquified gas storage tanks.



### LINE SIZES AVAILABLE

1/2" (DN15)



### END CONNECTIONS

FNPT



### COMMON APPLICATIONS

LIQUIFIED GAS IN STORAGE TANKS



### DESIGN PRESSURE

MAXIMUM PRESSURE DROP:  
600 psig (41.4 Barg)

Алматы (7273)495-231  
Ангарск (3955)60-70-56  
Архангельск (8182)63-90-72  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Благовещенск (4162)22-76-07  
Брянск (4832)59-03-52  
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Владимир (4922)49-43-18  
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Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
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Набережные Челны (8552)20-53-41  
Новокузнецк (3843)20-46-81  
Новосибирск (3496)41-32-12  
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Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Петрозаводск (8142)55-98-37  
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Пермь (342)205-81-47

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Ставрополь (8652)20-65-13  
Сургут (3462)77-98-35  
Сыктывкар (8212)25-95-17  
Тамбов (4752)50-40-97  
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## STANDARD/GENERAL SPECIFICATIONS

<p><b>Body Size:</b> 1/2" (DN15) with FNPT connections. Inlet connection size is equal to outlet connection size.</p> <p><b>Body Orientation:</b> <u>Globe:</u> Side inlet, side outlet.</p> <p><b>Body &amp; Spring Chamber Mat'l:</b> ASTM B62 C83600.</p> <p><b>Body Cap:</b> ASTM B16 C36000.</p> <p><b>Diaphragm:</b> Metal – 302 SST. Composition – Gylon 3522. See Table 2.</p> <p><b>Seat:</b> PTFE. See Table 2.</p> <p><b>Gasket:</b> PTFE used with Metal Diaphragm.</p> <p><b>Temperature Range:</b> -325 to +150°F (-198 to +66°C).</p>	<p><b>Maximum Design Pressure:</b> See Table 1.</p> <p><b>Range Spring:</b> SST. See Table 3.</p> <p><b>Cryogenic Construction:</b> Cleaned for oxygen service per Cashco Spec. #S-1134. Mount in horizontal piping with adjusting screw oriented downwards.</p> <p><b>Flow Capacities:</b> Max. Cv Comp. Diaph.: 1.5 Metal Diaph.: 1.0 For Capacities see Table 4.</p> <p><b>Option-21:</b> <u>STRAINER:</u> Inlet filter to capture debris. When installed reduces capacity by approximately 40 %.</p> <p><b>Option -31:</b> <u>BSPT END CONNECTIONS.</u> British Standard Tapered Pipe threads per ISO 7/1; used as an alternate to NPT ends.</p>
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## TECHNICAL SPECIFICATIONS

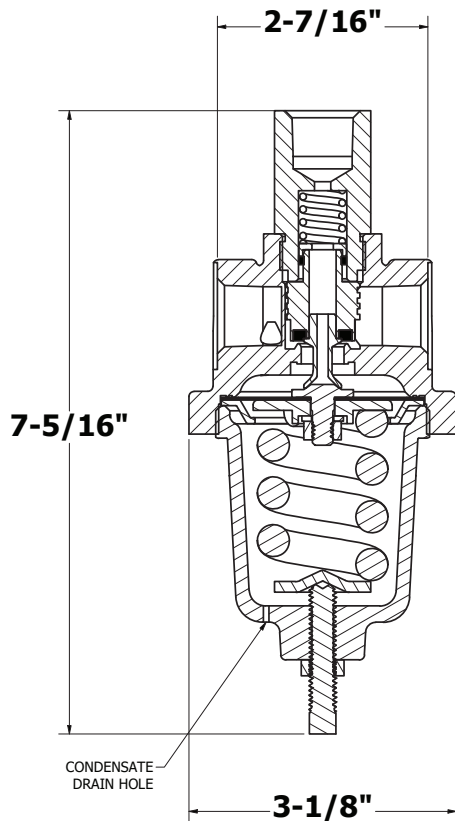
TABLE 1 CONTAINMENT PRESSURE VS. TEMPERATURE RATINGS PER ASME B31.3 See Table 2 for trim pressure/temperature limitations				
Materials Body/Spring Chamber	Inlet & Outlet Pressure		Temperature	
	psi	(BAR)	°F	°C
BRZ/BRZ	600	41.4	-325 to 150	-198 to 66
	570	39.3	200	93
	555	38.2	250	121
	525	36.2	300	149
	335	23.1	400	204

TABLE 2 TRIM MATERIAL COMBINATIONS		
Part	Trim Designation Number	
	B9S	B9G
Diaphragm	302 SST	Gylon 3522
Diaphragm Gasket	PTFE	N/A
Diaphragm Stop	Brass	
Piston	Brass	
Seat Disc	PTFE	
Piston Spring	17-7PH SST	
Piston Post	316 SST	
Pusher Plate	303 SST	
Pusher Plate Gasket	PTFE	N/A
Pressure Plate	Brass	
Range Spring	SST	
Spring Button	Brass	
Adjusting Screw & Lock Nut	SST	
Temperature Range	-325 to 150°F -198 to 66°C	
Maximum Working Pressure	600 psi 41.4 BAR	

TABLE 3 RANGE SPRINGS / MAX. PRESSURE DROP			
Range Spring		Max Pressure Drop	
psig	barg	psid	bard
3-30	(.21-2.07)	125	(8.62)
30-50	(2.07-3.45)	175	(12.1)
50-80	(3.45-5.52)	375	(25.8)
80-150	(5.52-10.3)	600	(41.4)
150-250	(10.3-17.2)	600	(41.4)
250-360	(17.2-24.8)	600	(41.4)
350-600	(24.1-41.4)	600	(41.4)

TABLE 4 CAPACITY - Cv (F <sub>1</sub> = 0.95)							
Setpoint (P <sub>1</sub> ) Pressure		Metal Diaphragm			Composition Diaphragm		
		% Droop			% Droop		
psig	(Barg)	10%	20%	30%	10%	20%	30%
5	(0.3)	0.03	0.03	0.04	0.03	0.03	0.03
10	(0.7)	0.05	0.11	0.16	0.03	0.05	0.06
15	(1.0)	0.04	0.08	0.14	0.03	0.05	0.14
25	(1.7)	0.07	0.14	0.21	0.04	0.08	0.26
35	(2.4)	0.08	0.15	0.25	0.05	0.13	0.38
50	(3.4)	0.05	0.18	0.36	0.13	0.38	0.52
75	(5.2)	0.06	0.17	0.27	0.21	0.53	0.79
100	(6.9)	0.07	0.17	0.30	0.33	0.56	0.77
125	(8.6)	0.09	0.23	0.40	0.19	0.55	0.76
150	(10.3)	0.11	0.28	0.46	0.33	0.76	0.96
175	(12.1)	0.18	0.38	0.58	0.19	0.50	0.76
200	(13.8)	0.22	0.43	0.66	0.23	0.53	0.82
225	(15.5)	0.19	0.47	0.68	0.29	0.66	0.96
250	(17.2)	0.25	0.56	0.80	0.41	0.47	1.01
275	(19.0)	0.19	0.42	0.55	0.42	0.78	0.97
300	(20.7)	0.11	0.32	0.66	0.34	0.80	1.03
350	(24.1)	0.17	0.58	0.71	0.51	0.82	0.98
400	(27.6)	0.25	0.41	0.65	0.49	0.75	1.00
450	(31.0)	0.30	0.44	0.65	0.57	0.84	1.12
500	(34.5)	0.25	0.54	0.74	0.71	0.96	1.17
550	(37.9)	0.44	0.68	0.89	0.66	1.03	1.21

# DIMENSIONS & WEIGHT



<b>ASSEMBLED WEIGHT</b>
<b>4 lbs / 1.81 kgs</b>

## MODEL PBE-L PRODUCT CODER 04/20/22

A5
4
-
3
POS 6 & 7
7
-
POS 10
POS 11
POS 12
0
0
0
0
0
A

POSITION 6 & 7 - TRIM DESIGNATION NO.	
Desig.	CODE
B9S	BS
B9G	BG

POSITION 10 - END CONNECTION	
Description	CODE
FNPT	1
-31 Opt. BSPT	B
BSPT - Screwed Tapered Pipe Thread	

POSITION 11 - RANGE SPRING		
psig	(Barg)	CODE
3 - 30	(.21 - 2.07)	K
30 - 50	(2.07 - 3.45)	L
50 - 80	(3.45 - 5.52)	M
80 - 150	(5.52 - 10.3)	N
150 - 250	(10.3 - 17.2)	P
250 - 360	(17.2 - 24.8)	S
350 - 600	(24.1 - 41.4)	T

\* For information on ATEX see pages 8 & 9 on the IOM.

POSITION 12 - OPTION		
Description	Option	CODE
None	---	0
Strainer	-21	F

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