

Cash Valve Model FRM-2 Medium Flow with Maximum Set Pressure of 250 psi (17.58 kg/sq. cm)

Cryogenic Economizer for Cryogenic Service

Construction

Threaded ends; 2-way, side inlet-side outlet; 2-way, side inlet-bottom outlet; 3-way, 2 side inlets-bottom outlet; forged bronze body; cast bronze spring chamber; stainless steel seat disc, seat ring and pressure spring; bronze diaphragms; PTFE diaphragm gasket. All parts commercially cleaned for cryogenic service.

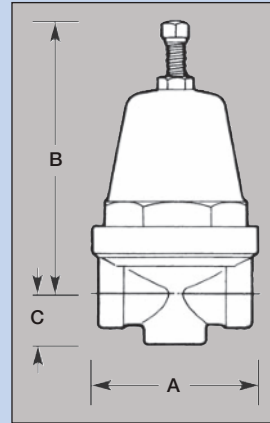
Temperature Rating

+150°F to -320°F (339°K to 78°K)

Maximum Set Pressure

250 psi (17.58 kg/sq cm)

Cash Valve
Model FRM-2
Call
844-341-3433
for Info



Reduced Pressure Ranges

RATERMANN Part Number	Style	Size	Set PSI	PSI Range	Dimensions			Shipping Weight	
					A (inches / mm)	B (inches / mm)	C (inches / mm)	lbs	(kgs)
CE2-SISO-14-017	Side In, Side Out	1/4"	17	0-30	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-14-040			40	20-50	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-14-075			75	40-80	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-14-100			100	75-150	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-14-175			175	100-275	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-38-017		3/8"	17	0-30	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-38-040			40	20-50	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-38-075			75	40-80	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-38-100			100	75-150	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-38-175			175	100-275	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-SISO-12-017		1/2"	17	0-30	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-SISO-12-040			40	20-50	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-SISO-12-075			75	40-80	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-SISO-12-100			100	75-150	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-SISO-12-175			175	100-275	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-14-017	Side In, Bottom Out	1/4"	17	0-30	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-14-040			40	20-50	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-14-075			75	40-80	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-14-100			100	75-150	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-14-175			175	100-275	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-38-017		3/8"	17	0-30	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-38-040			40	20-50	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-38-075			75	40-80	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-38-100			100	75-150	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-38-175			175	100-275	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-12-017		1/2"	17	0-30	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-12-040			40	20-50	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-12-075			75	40-80	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-12-100			100	75-150	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-12-175			175	100-275	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-2SI-14-017	2 Side In, Bottom Out	1/4"	17	0-30	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-14-040			40	20-50	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-14-075			75	40-80	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-14-100			100	75-150	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-14-175			175	100-275	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-38-017		3/8"	17	0-30	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-38-040			40	20-50	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-38-075			75	40-80	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-38-100			100	75-150	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-38-175			175	100-275	2 11/16 [68.26]	4 1/2 [114.3]	3/4 [19.05]	2 1/2	[1.13]
CE2-2SI-12-017		1/2"	17	0-30	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-2SI-12-040			40	20-50	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-2SI-12-075			75	40-80	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-2SI-12-100			100	75-150	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]
CE2-2SI-12-175			175	100-275	2 7/8 [73.03]	4 1/2 [114.3]	1 1/8 [28.58]	3 1/2	[1.58]

Cash Valve Model B Series for Cryogenic Service

Pressure Reducing or Pressure Build-Up Service

Construction

Bronze body, spring chamber, trim and diaphragms; PTFE seat at diaphragm gasket; stainless steel pressure spring; stainless steel bolts and nuts; PTFE bottom-plug gasket; Monel® stainer screen. All parts are commercially cleaned for cryogenic service.

Temperature Rating

+150°F to -320°F (339°K to 78°K)

Maximum Initial Pressure

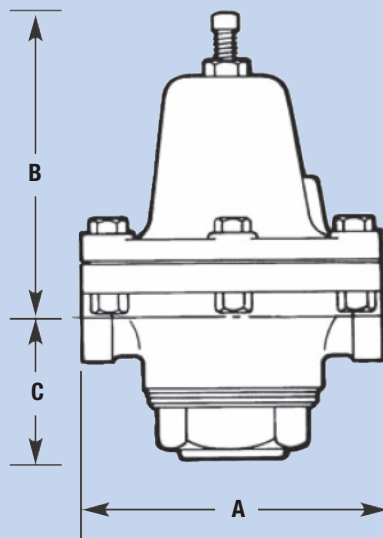
400 psi (28.12 kg/sq cm)

Cash Valve
Model B Series
 Call
844-341-3433
 for Info



Reduced Pressure Ranges

Size	RATERMANN Part Number	Set PSI	Maximum Working Ranges psi (kg/sq cm)	
1/4" NPT	CR-B14-15	15	10-30	[0.70-2.11]
	CR-B14-75	75	25-100	[1.76-7.03]
	CR-B14-125	125	50-200	[3.52-14.06]
	CR-B14-200	200	100-250	[7.03-17.58]
3/8" NPT	CR-B38-25	25	10-50	[0.70-3.52]
	CR-B38-100	100	40-150	[2.81-10.55]
	CR-B38-200	200	100-250	[7.03-17.58]
1/2" NPT	CR-B12-15	15	10-30	[0.70-2.11]
	CR-B12-50	50	20-75	[1.41-5.27]
	CR-B12-100	100	25-125	[1.76-8.79]
	CR-B12-150	150	100-200	[7.03-14.06]
	CR-B12-200	200	150-250	[10.55-17.58]
3/4" NPT	CR-B34-15	15	10-30	[0.70-2.11]
	CR-B34-50	50	20-70	[1.41-4.92]
	CR-B34-75	75	30-100	[2.11-7.03]
	CR-B34-100	100	50-150	[3.52-10.55]
	CR-B34-150	150	100-225	[7.03-15.82]
	CR-B34-200	200	150-250	[10.55-17.58]
1" NPT	CR-B1-25	25	10-35	[0.70-2.46]
	CR-B1-50	50	20-60	[1.41-4.22]
	CR-B1-75	75	50-100	[3.52-7.03]
	CR-B1-175	175	100-250	[7.03-17.58]
1 1/4" NPT	CR-B114-15	15	10-30	[0.70-2.11]
	CR-B114-30	30	20-40	[1.41-2.81]
	CR-B114-50	50	35-80	[2.46-5.62]
	CR-B114-125	125	75-150	[3.52-10.55]
1 1/2" NPT	CR-B112-15	15	10-30	[0.70-2.11]
	CR-B112-30	30	20-40	[1.41-2.81]
	CR-B112-50	50	35-80	[2.46-5.62]
2" NPT	CR-B2-17	17	5-20	[0.35-1.41]
	CR-B2-25	25	10-50	[0.70-3.52]
	CR-B2-75	75	20-11	[1.41-7.03]



Dimensions

Size	A	Dimensions B	C	Shipping Weight
inches (mm)	inches (mm)	inches (mm)	inches (mm)	lbs (kgs)
1/4 [8]	3 [76.2]	2 7/8 [73.03]	1 3/4 [44.45]	3 [1.35]
3/8 [10]	3 7/8 [98.43]	4 1/8 [104.78]	1 3/4 [44.45]	5 1/2 [2.47]
1/2 [15]	4 1/2 [114.3]	4 1/2 [114.3]	2 1/8 [53.98]	8 [3.6]
3/4 [20]	5 1/8 [130.18]	4 5/8 [117.48]	2 1/8 [53.98]	10 [4.5]
1 [25]	5 7/8 [149.23]	5 3/8 [136.53]	2 5/8 [66.68]	16 [7.2]
1 1/4 [32]	6 3/4 [171.45]	6 1/8 [155.58]	2 5/8 [66.68]	20 [9.0]
1 1/2 [40]	6 3/4 [171.45]	6 1/8 [155.58]	3 1/4 [82.55]	20 [9.0]
2 [50]	9 1/4 [234.95]	8 1/2 [215.9]	3 1/2 [88.90]	37 [16.65]

Cash Valve Type G-60 Pressure Reducing or Pressure Build-up Service Cryogenic Valves and Controls

Construction

Threaded ends; bronze body, spring chamber, diaphragms and trim; stainless steel pressure spring and body seat; PTFE seat and gaskets; stainless steel bolts. Closing cap over screw provided.

Also available with all system exposed internal parts in stainless steel. All parts are commercially cleaned for cryogenic service. Also available with BSP threads.

Note: also available in stainless steel and special construction for hi-purity service.

Contact Ratermann Cryogenics sales representative.

Temperature Rating

+150°F to -320°F (339K to 78K)

Maximum Initial Pressure

600 psi (42.18 kg/sq cm²)

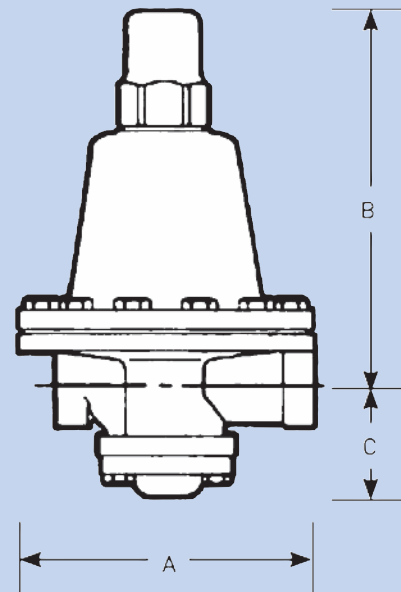
REDUCED PRESSURE RANGES

RATERMANN Part Number	Valve Size		Maximum Working Ranges	
	Inches	[mm]	PSI	[kg / sq cm]
CR-G60-14-015	1/4"	[8]	5-30	[0.35-2.11]
CR-G60-14-050	1/4"	[8]	15-65	[1.05-4.57]
CR-G60-14-075	1/4"	[8]	30-110	[2.11-7.73]
CR-G60-14-125	1/4"	[8]	75-200	[5.27-14.06]
CR-G60-14-275	1/4"	[8]	100-400*	[7.03-28.12*]
CR-G60-14-425	1/4"	[8]	100-600*	[7.03-42.18*]
CR-G60-38-015	3/8"	[10]	5-30	[0.35-2.11]
CR-G60-38-050	3/8"	[10]	15-65	[1.05-4.57]
CR-G60-38-075	3/8"	[10]	30-110	[2.11-7.73]
CR-G60-38-125	3/8"	[10]	75-200	[5.27-14.06]
CR-G60-38-275	3/8"	[10]	100-400*	[7.03-28.12*]
CR-G60-38-425	3/8"	[10]	100-600*	[7.03-42.18*]
CR-G60-12-005	1/2"	[15]	0-7	[0-0.49]
CR-G60-12-050	1/2"	[15]	5-70	[0.35-4.92]
CR-G60-12-125	1/2"	[15]	50-150	[3.52-10.55]
CR-G60-12-175	1/2"	[15]	50-250	[3.52-17.58]
CR-G60-12-325	1/2"	[15]	200-500	[14.06-35.16]
CR-G60-34-005	3/4"	[20]	0-10	[0-0.70]
CR-G60-34-050	3/4"	[20]	5-75	[0.35-5.27]
CR-G60-34-125	3/4"	[20]	50-200	[3.52-14.06]
CR-G60-34-325	3/4"	[20]	100-600*	[7.03-42.18]
CR-G60-1-025	1"	[25]	10-50	[0.70-3.52]
CR-G60-1-125	1"	[25]	50-200	[3.52-14.06]
CR-G60-1-325	1"	[25]	100-600*	[7.03-42.18]
CR-G60-114-010	1 1/4"	[32]	5-15	[0.35-1.05]
CR-G60-114-025	1 1/4"	[32]	10-50	[0.70-3.52]
CR-G60-114-050	1 1/4"	[32]	30-75	[2.11-5.27]
CR-G60-114-075	1 1/4"	[32]	50-120	[3.52-8.44]
CR-G60-114-110	1 1/4"	[32]	75-150	[5.27-10.55]
CR-G60-114-275	1 1/4"	[32]	100-400*	[7.03-28.12]
CR-G60-112-010	1 1/2"	[40]	5-15	[0.35-1.05]
CR-G60-112-025	1 1/2"	[40]	10-50	[0.70-3.52]
CR-G60-112-050	1 1/2"	[40]	30-75	[2.11-5.27]
CR-G60-112-075	1 1/2"	[40]	50-120	[3.52-8.44]
CR-G60-112-110	1 1/2"	[40]	75-150	[5.27-10.55]
CR-G60-112-275	1 1/2"	[40]	100-400*	[7.03-28.12]

Note: higher ranges are attained by modifying standard valve and/or using a different pressure spring. Contact your Ratermann Cryogenics sales representative.

DIMENSIONS

Size Inches [mm]	Dimensions						Shipping Weight	
	A		B		C		lbs	[kgs]
1/4" [8]	4"	[101.60]	6 5/8"	[168.28]	2 3/16"	[55.55]	9	[4.05]
3/8" [10]	4"	[101.60]	6 5/8"	[168.28]	2 3/16"	[55.55]	9	[4.05]
1/2" [15]	4 3/4"	[120.65]	7 5/8"	[193.68]	2 5/16"	[58.72]	16	[7.20]
3/4" [20]	5 5/8"	[142.88]	10"	[254.00]	2 5/8"	[66.68]	24	[10.80]
1" [25]	6 1/2"	[165.10]	10 3/4"	[273.05]	2 7/8"	[73.03]	35	[15.75]
1 1/4" [32]	8"	[203.20]	12 5/16"	[312.74]	3 9/16"	[90.49]	63	[28.35]
1 1/2" [40]	8"	[203.20]	12 5/16"	[312.74]	3 9/16"	[90.49]	63	[28.35]



Cash Valve E-55 Pressure Reducing, Pressure Build-Up or Final-Line Service Cryogenic Valves and Controls

Construction – for pressure reducing or pressure build-up service

Bronze body, spring chamber, trim; stainless steel body seat and pressure spring; PTFE seat, O-rings and bottom plug gasket; Monel® diaphragms and strainer screen; stainless steel bolts. All parts are commercially cleaned for cryogenic service. Also available with BSP threads.

Size range: 1 1/4", 1 1/2", 2" [32, 40, 50 mm]
 Temperature rating: +150°F to -320°F [339K to 78K]
 Maximum initial pressure: 400 psi [28.12 kg/cm²]

Construction – for final-line gas service

Bronze body, spring chamber and trim; stainless steel body seat and pressure spring; FKM seat disc and PTFE bottom plug gasket; FKM O-ring and neoprene diaphragm with FKM liner; Monel® strainer screen. All parts are commercially cleaned for oxygen service. Also available with BSP threads.

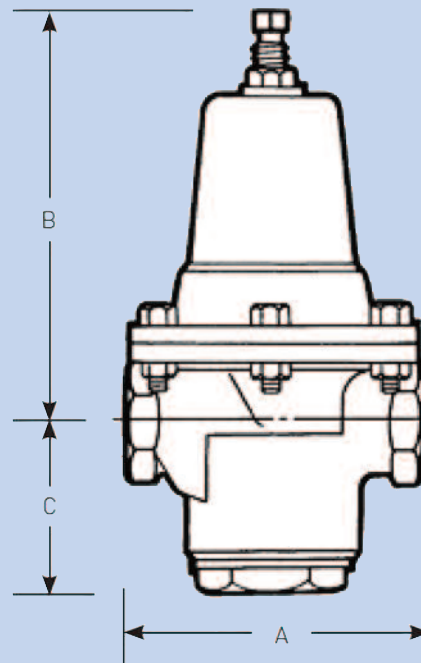
Size range: 1/2", 3/4", 1", 1 1/4", 1 1/2", 2" [15, 20, 25, 32, 40, 50 mm]
 Temperature rating: +150°F to 0°F [339K to 255K]
 Maximum initial pressure: 400 psi [28.12 kg/cm²]

Note: Specification for final-line gas service is not for use on cold gas or liquid (less than 0°F). Contact your Ratermann Cryogenics sales representative.



REDUCED PRESSURE RANGES

RATERMANN Part Number	Valve Size Inches	[mm]	Maximum Working Ranges PSI	[kg / sq cm]
CR-FL12-015	1/2"	[15]	10-35	[0.70-2.46]
CR-FL12-050	1/2"	[15]	20-75	[1.41-5.27]
CR-FL12-100	1/2"	[15]	75-125	[5.27-8.79]
CR-FL12-150	1/2"	[15]	125-175	[8.79-12.30]
CR-FL12-160	1/2"	[15]	75-250	[5.27-17.58]
CR-FL34-015	3/4"	[20]	10-35	[0.70-2.46]
CR-FL34-050	3/4"	[20]	20-75	[1.41-5.27]
CR-FL34-095	3/4"	[20]	75-125	[5.27-8.79]
CR-FL34-150	3/4"	[20]	125-175	[8.79-12.30]
CR-FL34-160	3/4"	[20]	75-250	[5.27-17.58]
CR-FL1-025	1"	[25]	10-35	[0.70-2.46]
CR-FL1-050	1"	[25]	20-75	[1.41-5.27]
CR-FL1-075	1"	[25]	75-125	[5.27-8.79]
CR-FL1-100	1"	[25]	125-175	[8.79-12.30]
CR-FL1-175	1"	[25]	75-250	[5.27-17.58]
CR-FL114-035	1 1/4"	[32]	20-70	[1.41-4.92]
CR-FL114-075	1 1/4"	[32]	50-70	[3.52-10.55]
CR-FL114-150	1 1/4"	[32]	75-300	[5.27-21.09]
CR-FL112-035	1 1/2"	[40]	20-70	[1.41-4.92]
CR-FL112-075	1 1/2"	[40]	50-70	[3.52-10.55]
CR-FL112-150	1 1/2"	[40]	75-300	[5.27-21.09]
CR-FL2-035	2"	[50]	20-70	[1.41-4.92]
CR-FL2-075	2"	[50]	50-70	[3.52-10.55]
CR-FL2-150	2"	[50]	75-300	[5.27-21.09]



DIMENSIONS

Size Inches	[mm]	Dimensions						Shipping Weight	
		A		B		C		lbs	[kgs]
inches	[mm]	inches	[mm]	inches	[mm]	inches	[mm]		
1/2"	[15]	4"	[101.6]	7 1/4"	[184.15]	2 1/4"	[57.15]	6	[2.7]
3/4"	[20]	4"	[101.6]	7 1/4"	[184.15]	2 1/4"	[57.15]	6	[2.7]
1"	[25]	4"	[101.6]	7 1/4"	[184.15]	2 1/4"	[57.15]	6	[2.7]
1 1/4"	[32]	5 5/8"	[142.88]	11 1/8"	[282.58]	3 1/4"	[82.55]	17	[7.7]
1 1/2"	[40]	5 5/8"	[142.88]	11 1/8"	[282.58]	3 1/4"	[82.55]	17	[7.7]
2"	[50]	5 3/4"	[146.05]	11 3/8"	[288.93]	2 7/8"	[73.03]	17	[7.7]

FR, FR-6 Back Pressure or Economizer Service Cryogenic Valves and Controls

Construction

Threaded ends; 3-way, 2 side in inlets-bottom outlet; bronze body, spring chamber and diaphragms; brass body seat; stainless steel seat disc, seat ring and pressure spring; PTFE O-ring and diaphragm gasket; stainless steel bolts; pressure-tight closing cap. All parts are commercially cleaned for cryogenic service. Also available with BSP threads.

Note: also available in stainless steel and special construction for hi-purity systems. Contact Ratermann Cryogenics sales representative.

Temperature Rating

+150°F to -320°F (339K to 78K)



MAXIMUM INITIAL PRESSURE

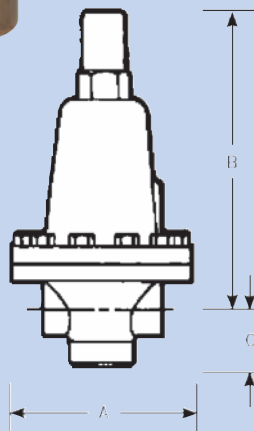
Type	PSI	[kg / cm ²]
FR	250	17.58
FR-1/2"	400	28.12
FR-3/4"	265	18.64
FR-1"-2"	250	17.58
FR-6	400	28.12
	600	42.18 on 1/2"

Maximum set pressure: see below.

For higher pressures, contact Ratermann Cryogenics sales representative.

DIMENSIONS

Size Inches [mm]	Dimensions						Shipping Weight		
	A		B		C		lbs	[kgs]	
1/2"	[15]	4 3/4"	[120.65]	6 3/4"	[171.45]	1 5/8"	[41.28]	9 1/2	[4.27]
3/4"	[20]	5 5/8"	[142.88]	8"	[203.20]	2"	[50.80]	14 3/4	[6.64]
1"	[25]	6 1/2"	[165.1]	10 5/16"	[261.94]	2 1/4"	[57.15]	23 1/2	[10.58]
1 1/4"	[32]	6 1/2"	[165.1]	10 7/8"	[276.23]	2 3/8"	[60.33]	24 1/2	[11.03]
1 1/2"	[40]	7 1/2"	[190.5]	10 3/4"	[273.05]	2 5/8"	[66.68]	33	[14.85]
2"	[50]	7 1/2"	[190.5]	11"	[279.40]	2 5/8"	[66.68]	35 1/2	[15.98]



PRESSURE RANGES – FR Back Pressure or Economizer Service

RATERMANN Part Number	Valve Size Inches	[mm]	Maximum Working Ranges	
			PSI	[kg / sq cm]
CEFR-2SI-12-010	1/2"	[15]	0-20	[0-1.41]
CEFR-2SI-12-025	1/2"	[15]	10-50	[0.70-3.52]
CEFR-2SI-12-050	1/2"	[15]	40-90	[2.81-6.33]
CEFR-2SI-12-125	1/2"	[15]	75-200	[5.27-14.06]
CEFR-2SI-12-275	1/2"	[15]	100-400	[7.03-28.12]
CEFR-2SI-12-425	1/2"	[15]	300-600	[21.09-42.18]
CEFR-2SI-34-005	3/4"	[20]	0-10	[0-.70]
CEFR-2SI-34-065	3/4"	[20]	10-70	[0.70-4.92]
CEFR-2SI-34-100	3/4"	[20]	50-175	[3.52-12.30]
CEFR-2SI-34-195	3/4"	[20]	100-265	[7.03-18.63]
CEFR-2SI-34-275	3/4"	[20]	200-400*	[14.06-28.12]*
CEFR-2SI-1-010	1"	[25]	0-15	[0-1.06]
CEFR-2SI-1-050	1"	[25]	20-75	[1.41-5.27]
CEFR-2SI-1-125	1"	[25]	40-200	[2.81-14.06]
CEFR-2SI-1-175	1"	[25]	50-250	[3.51-17.58]
CEFR-2SI-1-275	1"	[25]	200-400*	[14.06-28.12]*
CEFR-2SI-114-010	1 1/4"	[15]	0-15	[0-1.06]
CEFR-2SI-114-065	1 1/4"	[15]	20-85	[1.41-5.98]
CEFR-2SI-114-075	1 1/4"	[15]	40-125	[2.81-8.79]
CEFR-2SI-114-175	1 1/4"	[15]	50-250	[3.52-17.58]
CEFR-2SI-114-275	1 1/4"	[15]	200-400*	[14.06-28.12]*
CEFR-2SI-112-010	1 1/2"	[40]	0-15	[0-1.06]
CEFR-2SI-112-025	1 1/2"	[40]	10-55	[0.70-3.87]
CEFR-2SI-112-085	1 1/2"	[40]	30-100	[2.11-7.03]
CEFR-2SI-112-100	1 1/2"	[40]	40-160	[2.81-11.25]
CEFR-2SI-112-185	1 1/2"	[40]	100-250	[7.03-17.58]
CEFR-2SI-112-275	1 1/2"	[40]	200-400*	[14.06-28.12]*
CEFR-2SI-2-010	2"	[50]	0-15	[0-1.06]
CEFR-2SI-2-035	2"	[50]	10-55	[0.70-3.87]
CEFR-2SI-2-085	2"	[50]	30-100	[2.11-7.03]
CEFR-2SI-2-100	2"	[50]	40-160	[2.81-11.25]
CEFR-2SI-2-185	2"	[50]	100-250	[7.03-17.58]
CEFR-2SI-2-275	2"	[50]	200-400*	[14.06-28.12]*

PRESSURE RANGES – FR-6 Back Pressure or Economizer Service

RATERMANN Part Number	Valve Size Inches	[mm]	Maximum Working Ranges	
			PSI	[kg / sq cm]
CEFR6-2SI-12-010	1/2"	[15]	0-20	[0-1.41]
CEFR6-2SI-12-025	1/2"	[15]	10-50	[0.70-3.52]
CEFR6-2SI-12-050	1/2"	[15]	40-90	[2.81-6.33]
CEFR6-2SI-12-125	1/2"	[15]	75-200	[5.27-14.06]
CEFR6-2SI-12-275	1/2"	[15]	100-400	[7.03-28.12]
CEFR6-2SI-12-425	1/2"	[15]	300-600	[21.09-42.18]
CEFR6-2SI-34-005	3/4"	[20]	0-10	[0-.70]
CEFR6-2SI-34-065	3/4"	[20]	10-70	[0.70-4.92]
CEFR6-2SI-34-100	3/4"	[20]	50-175	[3.52-12.30]
CEFR6-2SI-34-195	3/4"	[20]	100-265	[7.03-18.63]
CEFR6-2SI-34-275	3/4"	[20]	200-400*	[14.06-28.12]*
CEFR6-2SI-1-010	1"	[25]	0-15	[0-1.06]
CEFR6-2SI-1-050	1"	[25]	20-75	[1.41-5.27]
CEFR6-2SI-1-125	1"	[25]	40-200	[2.81-14.06]
CEFR6-2SI-1-175	1"	[25]	50-250	[3.51-17.58]
CEFR6-2SI-1-275	1"	[25]	200-400*	[14.06-28.12]*
CEFR6-2SI-114-010	1 1/4"	[15]	0-15	[0-1.06]
CEFR6-2SI-114-065	1 1/4"	[15]	20-85	[1.41-5.98]
CEFR6-2SI-114-075	1 1/4"	[15]	40-125	[2.81-8.79]
CEFR6-2SI-114-175	1 1/4"	[15]	50-250	[3.52-17.58]
CEFR6-2SI-114-275	1 1/4"	[15]	200-400*	[14.06-28.12]*
CEFR6-2SI-112-010	1 1/2"	[40]	0-15	[0-1.06]
CEFR6-2SI-112-025	1 1/2"	[40]	10-55	[0.70-3.87]
CEFR6-2SI-112-085	1 1/2"	[40]	30-100	[2.11-7.03]
CEFR6-2SI-112-100	1 1/2"	[40]	40-160	[2.81-11.25]
CEFR6-2SI-112-185	1 1/2"	[40]	100-250	[7.03-17.58]
CEFR6-2SI-112-275	1 1/2"	[40]	200-400*	[14.06-28.12]*
CEFR6-2SI-2-010	2"	[50]	0-15	[0-1.06]
CEFR6-2SI-2-035	2"	[50]	10-55	[0.70-3.87]
CEFR6-2SI-2-085	2"	[50]	30-100	[2.11-7.03]
CEFR6-2SI-2-100	2"	[50]	40-160	[2.81-11.25]
CEFR6-2SI-2-185	2"	[50]	100-250	[7.03-17.58]
CEFR6-2SI-2-275	2"	[50]	200-400*	[14.06-28.12]*

Dual Economizers | Cryogenic Regulators | Rebuild Kits

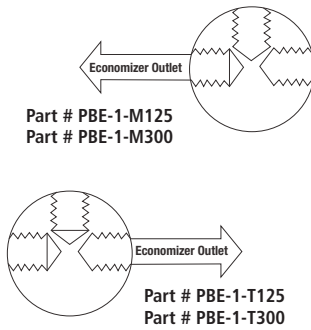
Dual Economizer / Regulator

PBE-1 Combination Pressure Builder-Economizer

Cleaned for Oxygen Service

Forged brass body and spring chamber; brass and stainless steel trim. PTFE seat disc with PTFE / Armalon or bronze diaphragm. Stainless steel pressure spring.

Temperature Rating
+150° (339°K) to -320° (78°K)



Combination Pressure Builder-Economizer

Brand	Part #	Operating Range	Size		Dimensions						Shipping Weight	
					A		B		C			
			Inches	mm	Inches	mm	Inches	mm	Inches	mm	lbs	kgs
Taylor Wharton	PBE-1-T125	LP 50-175 psig	1/4	8	2 1/4	57.15	3 3/16	80.96	5/8	15.88	1 1/8	51
MVE	PBE-1-M125	LP 50-175 psig	1/4	8	2 1/4	57.15	3 3/16	80.96	5/8	15.88	1 1/8	51
Taylor Wharton	PBE-1-T300	HP 150-350 psig	1/4	8	2 1/4	57.15	3 3/16	80.96	5/8	15.88	1 1/8	51
MVE	PBE-1-M300	HP 150-350 psig	1/4	8	2 1/4	57.15	3 3/16	80.96	5/8	15.88	1 1/8	51

Dewar Regulator Lockout

Dewar Regulator Adjustment Lockout

with Tamper Evident Design Works on most brands & models



Patent Pending

Keep customers from adjusting regulators. A large percentage of problems with DOT4L liquid cylinders (Dewars) are directly related to end user tampering with the set screws on economizers and pressure building regulators.

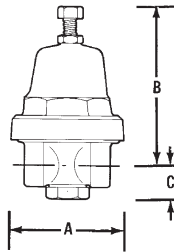
Package of 25 Regulator Lockouts
Part # RPE-WTPK25

- Economizer
- Pressure Builder Regulator and
- Pressure Builder/Economizer Combo Regulators

Part #	Color/Description
RPE-WT	Generic white for general purpose use

Cryogenic Regulators

Cleaned for Oxygen Service

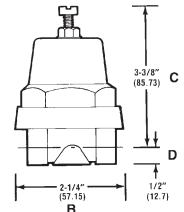


Cryogenic Regulators

Part #	Operating Range	Size		Dimensions						Shipping Weight	
				A		B		C			
		Inches	mm	Inches	mm	Inches	mm	Inches	mm	lbs	kgs
CR-125	75-175	1/4	8	2 1/4	57.15	3 3/16	80.96	5/8	15.88	1 1/8	51
CR-300	125-350	1/4	8	2 1/4	57.15	3 3/16	80.96	5/8	15.88	1 1/8	51
CR-400	300-600	1/4	8	2 1/4	57.15	3 3/16	80.96	5/8	15.88	1 1/8	51

Cryogenic Economizers

Cleaned for Oxygen Service



Cryogenic Economizers

Part #	Inlet/Outlet Connection (F.NPT) A	Width B	C	D	Pressure Setting (PSI)	Operating Range (PSI)
CE-19	1/4"	2 1/4"	3 3/4"	1/2"	19	10-75
CE-22					22	15-65
CE-100					100	50-150
CE-140					140	
CE-325					325	
CE-475					475	300-600

Standard Rebuild Kits for Dewar Regulator

Cleaned for Oxygen Service

Rebuild Kits for Dewar Regulator



Part #	Description
PB-RBK1	Pressure Builder Regulator
CE-RBK1	Economizer Regulator
PBE-RBK1	Combination Pressure/Economizer Regulator

Rebuild Kits for Dewar Regulator

Cleaned for Oxygen Service

Rebuild Kits for Regulator



Part #	Description
PB-RBK1-R	Repair Kit for 75-125 PSI Regulator
PB-RBK1-R300	Repair Kit for 300 PSI Regulator
CE-RBK1-R	Repair Kit for 22-140 PSI Economizers
CE-RBK1-R325	Repair Kit for 325 PSI Economizers

Cash Valve PBE-5 Combination Pressure Builder-Economizer

Cryogenic Valves and Controls

Construction

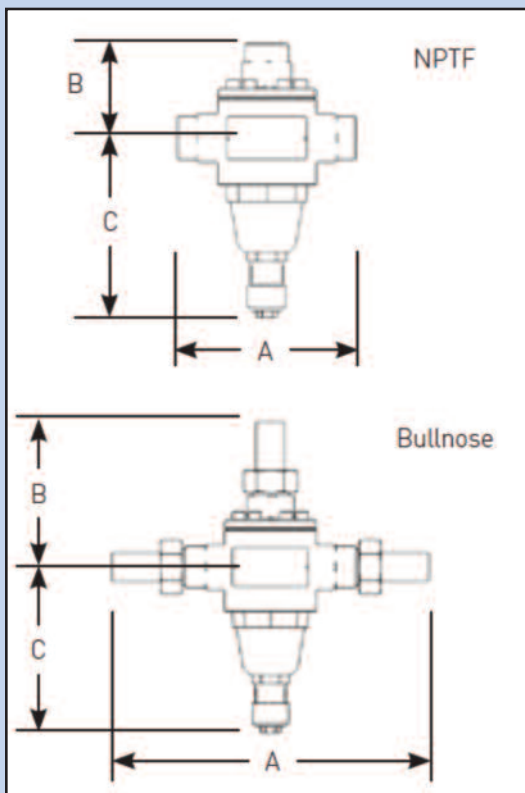
Forged brass body, bronze spring chamber; brass and stainless steel trim; bronze diaphragms; stainless steel pressure spring; graduated adjustment screw. All parts are commercially cleaned for oxygen service.

Temperature Rating

+150°F to -320°F (339K to 78K)

Maximum Initial Pressure

650 psi (45.7 kg/sq cm²)



PRESSURE BUILDER-ECONOMIZER – 1/4" F NPT Connections
PRESSURE RANGES

RATERMANN Part Number	Maximum Working Ranges	
	PSI	[kg / sq cm]
PBE-5-017	0 - 30	[0.00 - 2.11]
PBE-5-040	20 - 50	[1.41 - 3.52]
PBE-5-075	40 - 80	[2.81 - 5.62]
PBE-5-100	75 - 150	[5.27 - 10.55]
PBE-5-175	100 - 275	[7.03 - 19.33]
PBE-5-275	200 - 350	[14.06 - 24.61]
PBE-5-425	300 - 600	[21.09 - 42.18]

PRESSURE BUILDER-ECONOMIZER with Bullnose Connection
PRESSURE RANGES

RATERMANN Part Number	Maximum Working Ranges	
	PSI	[kg / sq cm]
PBE-5BN-017	0 - 30	[0.00 - 2.11]
PBE-5BN-040	20 - 50	[1.41 - 3.52]
PBE-5BN-075	40 - 80	[2.81 - 5.62]
PBE-5BN-100	75 - 150	[5.27 - 10.55]
PBE-5BN-175	100 - 275	[7.03 - 19.33]
PBE-5BN-275	200 - 350	[14.06 - 24.61]
PBE-5BN-425	300 - 600	[21.09 - 42.18]

DIMENSIONS for 1/2" F NPT Connections

Size	Dimensions								Shipping Weight	
	Inches	[mm]	A		B		C		lbs	[kgs]
NPTF										
1/2"	[15]	5.19"	[131.8]	5.23"	[132.9]	2.76"	[70.2]	7	[3.2]	
1/2"	[15]	5.19"	[131.8]	5.23"	[132.9]	2.76"	[70.2]	7	[3.2]	
Note: 300 to 600 psi range, high pressure Ranges to 350 psi, low pressure										
Bullnose										
0.839	[21.3]	9.81"	[149.2]	5.13"	[130.3]	4.48"	[113.8]	8	[3.6]	
0.839	[21.3]	9.81"	[149.2]	5.13"	[130.3]	4.48"	[113.8]	8	[3.6]	
Note: 300 to 600 psi range, high pressure Ranges to 350 psi, low pressure										

Cash Valve Low Temperature Cut-off Valves Cryogenic Valves and Controls

The temperature control valve between the vaporizer and service line regulator is designed to shut off the gas flow if the gas temperature drops below a pre-determined point, usually -20°F [144.4K], often caused by a rapid or quick gas draw. If the temperature drops below the temperature control valve's setting, the valve closes to prevent excessively cold gas from reaching the service end of the system. In particular, the cold gas is prevented from contacting the final-line regulator, which is not constructed or intended for such low-temperature conditions. The valve opens automatically when gas temperature rises above the set point.

The Type LTC temperature control valve is a double-port valve with a range of 0°F to -40°F [255K to 233K] for low temperature cut-off. As it is subject to ambient temperature under normal conditions, it will normally be in a wide-open position. A copper well is recommended for each installation, which allows the removal of the capillary bulb without depressurizing the system.

Note: valve seat closure may take several seconds under normal operating conditions. In addition, Type LTC fails in the closed position.

LTC Reverse-Acting Temperature Regulator for Cryogenic Service

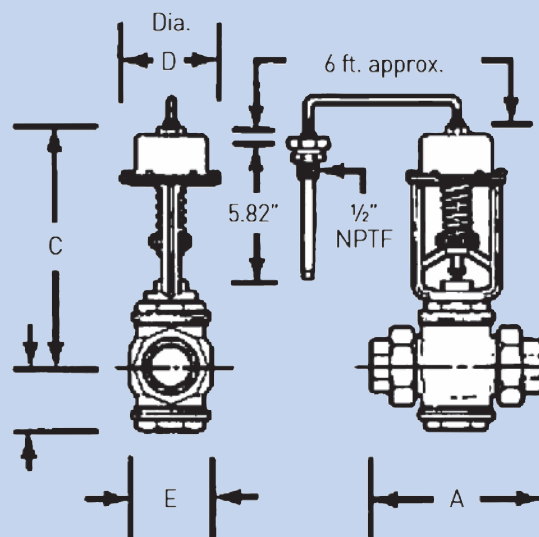
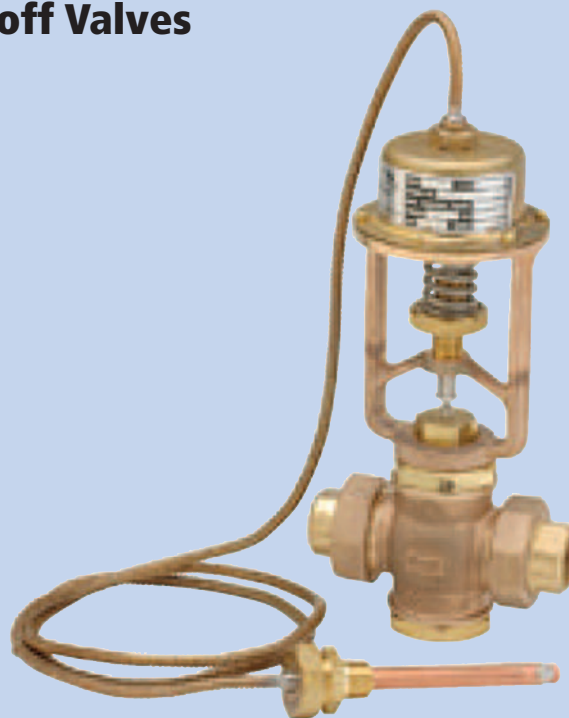
Construction

Brass union ends; bronze body and trim; copper capillary armor and bellows; PTFE gasket and packing; stainless steel spring; copper bulb and capillary

Copper bulb is $1/2'' \times 5.82''$ [$15\text{ mm} \times 147.83\text{ mm}$]. All parts are commercially cleaned for oxygen service. A copper well is available as an option and is recommended for each cryogenic application.

Maximum operating limits

Operating temperature range is 0°F to -40°F [255K to 233K]; standard setting is -20°F [244K]. Maximum temperature limit is 300°F [408K]; minimum temperature limit is -320°F [78K]. Maximum body pressure on all sizes is 400 psi [28.12 kg/cm^2]; however, for proper operation, maximum pressure differentials as shown on this page must be observed.



DIMENSIONS

RATERMANN Part Number	Size		Dimensions									
	Inches	[mm]	A		B		C		D		E	
			inches	[mm]	inches	[mm]	inches	[mm]	inches	[mm]	inches	[mm]
LTC-12	1/2"	[15]	6.04"	[153.42]	2.08"	[52.84]	9.80"	[248.92]	4.31"	[109.48]	2.50"	[63.50]
LTC-34	3/4"	[20]	6.04"	[153.42]	2.08"	[52.84]	9.80"	[248.92]	4.31"	[109.48]	2.50"	[63.50]
LTC-1	1"	[25]	6.04"	[153.42]	2.08"	[52.84]	9.80"	[248.92]	4.31"	[109.48]	2.50"	[63.50]
LTC-114	1 1/4"	[32]	7.61"	[193.30]	2.75"	[69.85]	10.47"	[265.94]	4.31"	[109.48]	3.56"	[90.43]
LTC-112	1 1/2"	[40]	7.61"	[193.30]	2.75"	[69.85]	10.47"	[265.94]	4.31"	[109.48]	3.56"	[90.43]
LTC-2	2"	[50]	8.58"	[217.43]	3.12"	[79.25]	10.84"	[275.34]	4.31"	[109.48]	4.31"	[109.48]