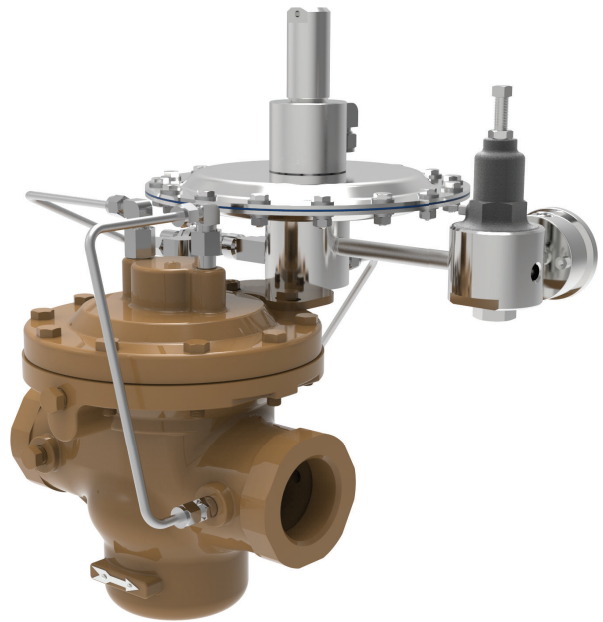


MODEL BGR-1

PILOT OPERATED BACK PRESSURE REGULATOR

OVERVIEW

The BGR-1 is high performance pilot operated back pressure regulator intended for applications where upstream pressure control is critical for a broad range of flow requirements. The BGR-1 was designed for use with low back pressures up to 15 psi (1 Bar) and requires an auxiliary pressure supply to operate. See BGR-2 for back pressures above 15 psi.



MODEL BGR-1

FEATURES

- Versatile:** Specially designed for use on most industrial gasses with a broad temperature range. Multiple trim options are available for a wide variety of applications.
- Tight Shutoff:** Meets ANSI/FCI 70-3 Class VI.
- Capacity:** See Table 1 for maximum capacities.
- Trim Design:** A flow-to-open trim design allows for superior control at minimal flow conditions. The pressure balanced design also eliminates deviation due to supply pressure effects.
- Heavy-Duty Guiding:** Two points of guiding allows for consistent sealing, reduced wear, and increased trim longevity.
- Failure Position:** Loss of loading pressure to the cover dome will cause the valve to close.
- Remote Venting:** This option allows the auxiliary supply pressure to be vented to atmosphere or to a remote location.

APPLICATIONS

The BGR-1 is intended for applications where upstream pressure control is critical for a broad range of gaseous flow requirements.



LINE SIZES AVAILABLE

1" (DN25), 1-1/2" (DN40), 2" (DN50),
3" (DN80), 4" (DN100)



END CONNECTIONS

NPT, FLANGED



COMMON APPLICATIONS

INDUSTRIAL GASSES



DESIGN PRESSURE

MAX. SETPOINT: 15 psi (1 Bar)

STANDARD / GENERAL SPECIFICATIONS

Line Sizes

1", 1-1/2", 2", 3", 4"
(DN25, 40, 50, 80, 100)

Body/Cover Dome Materials of Construction

DI - Ductile Iron - ASTM A395 60-40-18
CS - Carbon Steel - ASTM A352 LCC
SST - Stainless Steel - ASTM A351 CF3M

NOTE: Remaining materials are stainless steel unless noted otherwise in Table 4.

Maximum Capacities

Table 1 - Maximum Capacities			
Line Size		Max Capacity	
NPS	(DIN)	Cv	Kv
1"	(25)	15	13
1-1/2"	(40)	30	26
2"	(50)	60	52
3"	(80)	120	104
4"	(100)	220	190

Painting

Ductile iron and steel materials are epoxy coated per Cashco specification S-1606.

End Connections

Table 2 - End Connections			
Line Size		Material	End Connection
NPS	(DIN)		
1" - 2"	(25 - 50)	All	NPT
3" - 4"	(80 - 100)	DI	ASME 125 FF
			ASME 250 RF
1" - 4"	(25 - 100)	LCC, SST	ASME 150 RF
			ASME 300 RF
			ASME 600 RF

Internal Sensing

The pilot senses pressure at the main main body inlet port.

Captured Vent

The auxiliary supply gas is tubed into the main body outlet. See the remote vent option for applications where the auxiliary supply gas cannot be mixed with main line gasses.

ATEX 2014/34/EU

For IIC gases. Standard for EU shipping destinations or must be declared at order.

PED 2014/68/EU

Standard for SEP and Category I with EU shipping destinations or must be declared with order.

TSG D7002

BGR-1 is approved for pressure piping components.

OPTION SPECIFICATIONS

OPT-40:

NACE CONSTRUCTION:

Internal wetted portions meet NACE standard MR0175 for application in sour gas/crude service. Exterior of unit to not be directly buried, insulated, or otherwise denied direct atmospheric exposure. For use with carbon steel and stainless steel main body materials with L1 trim only.

OPT-55:

GASEOUS OXYGEN CLEANING:

Cleaned per Cashco specification S-1134 for gaseous oxygen service. Includes sealed enclosure bag and notification tag. For use with stainless steel main body materials and L5 trim only.

OPT-56:

NON-OXYGEN CLEANING:

Cleaning per Cashco specification S-1542 for non-oxygen service. Includes sealed enclosure bag and notification tag. This cleaning is suitable for all main body and trim materials, but is not suitable for oxygen service.

REMOTE SENSE OPTION:

The remote sense option allows the pilot to sense pressure at a remote location rather than sensing at the main valve inlet. This option is recommended to prevent upstream piping factors from influencing critical pressure control locations. End users are required to supply 3/8" sense tubing connected to the pilot via 1/4" NPT. Both standard and remote sense options are field changeable.

REMOTE VENT OPTION:

This option allows the auxiliary loading pressure to be vented to atmosphere or to a remote location. This option is recommended when the auxiliary loading media should not be mixed with main line gasses. End users may remove the supplied vented plug and tube the vapors to a remote location via 1/4" NPT and 3/8" stainless tubing. Both captured and remote vent options are field changeable.

TECHNICAL SPECIFICATIONS

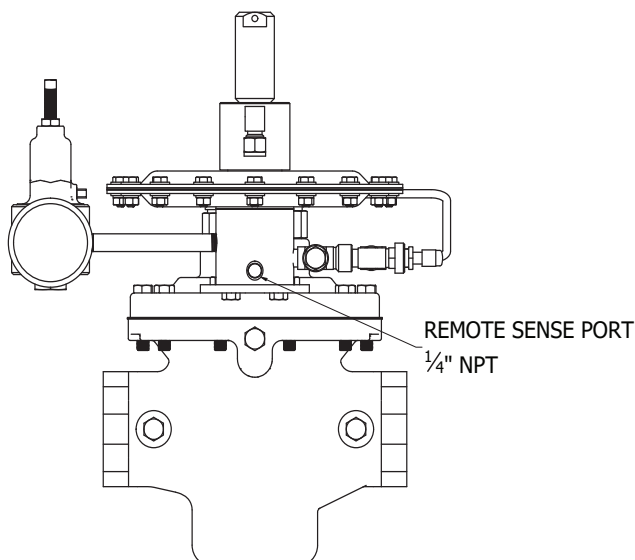
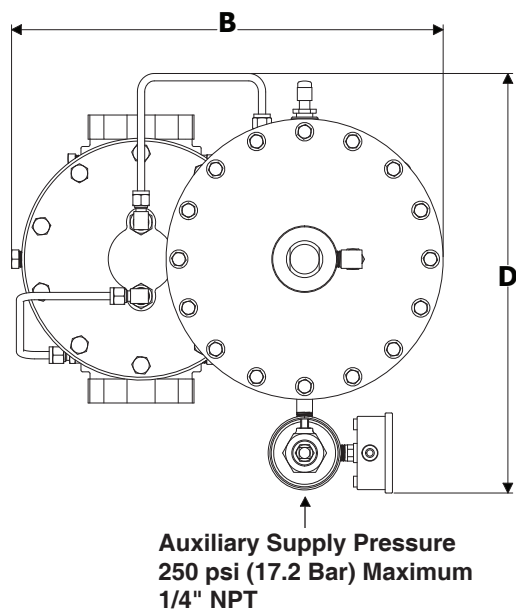
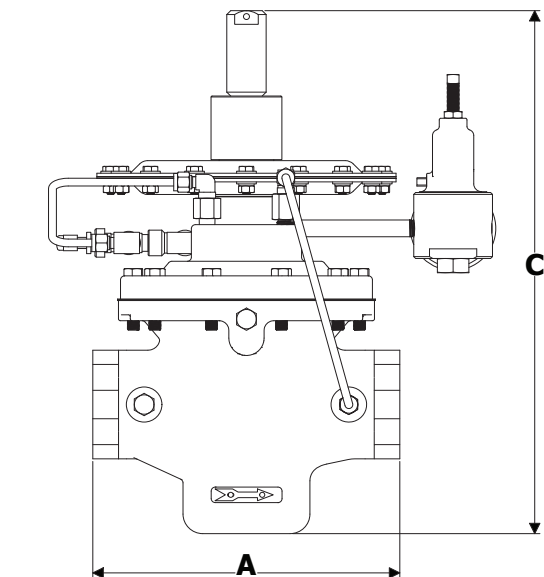
Table 3 - Pressure Containment Ratings

End Connection	Material	Inlet & Outlet			
		psi ¹	(Bar)	°F	(°C)
ALL	ALL	25	(1.7)	-20 to +400	(-29 to +204)
¹ Maximum external supply pressure = 250 psi (17.2 Bar).					

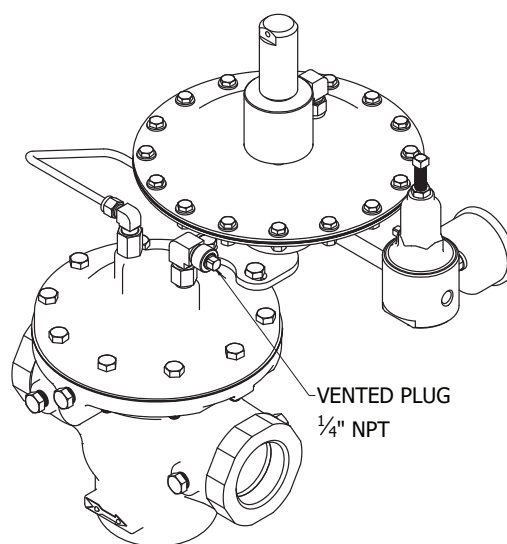
Table 4 - Trim Materials¹

Component	Part Description	L1 (NACE)	L2	L5 (Oxygen)
Stabilizer	Diaphragm	Neoprene	BUNA-N	FKM
	Seat Disc	PTFE	BUNA-N	PTFE
	Pusher Plate Seal	PTFE	PTFE	PTFE
	Stabilizer	PTFE ²	PTFE	PTFE
	Return Spring	Inconel X-750	SST	SST
Pilot	Diaphragm	FEP	FEP	FEP
	Seal Diaphragm	FEP	FEP	FEP
	Ring Gasket ²	BUNA-N	BUNA-N	BUNA-N
	Bolt Gasket	Gylon 3504	Gylon 3504	Gylon 3504
	Spring Bonnet Gasket	Gylon 3504	Gylon 3504	Gylon 3504
	Body Gasket	Gylon 3504	Gylon 3504	Gylon 3504
	Seat	Neoprene	BUNA-N	FKM
Main Valve	Body Bushing	Monel 400	Monel 400	Monel 400
	Diaphragm	Neoprene	BUNA-N	FKM
	Dynamic Seal	Neoprene	BUNA-N	FKM
	Stem Seals	PTFE	BUNA-N	FKM
	Cage Seal	PTFE	BUNA-N	FKM
	Seat	Neoprene	BUNA-N	FKM
	Return Spring	Inconel X-750	SST	SST
Working Temperature Range		-10 to +170°F	-20 to +200°F	-5 to +400°F
		-23 to +76°C	-28 to +93°C	-20 to +204°C
Maximum Working Pressure		15 psi		
		1 Bar		
¹ Remaining trim materials are stainless steel.				
² This is a non-wetted part.				

WEIGHTS and DIMENSIONS
Shown with standard internal sensing, captured vent, and NPT end connections.



REMOTE SENSE OPTION



REMOTE VENT OPTION

Table 5a - Weights and Dimensions (USC)						
Dimension	End Connection	Line Size (in.)				
		1"	1-1/2"	2"	3"	4"
A	NPT - DI	6	9-7/8	9-7/8	N/A	N/A
	NPT - CS/SST	8-1/4	9-7/8	9-3/4	N/A	N/A
	ASME 125 FF	N/A	N/A	N/A	11-3/4	13-7/8
	ASME 250 RF	N/A	N/A	N/A	12-1/2	14-1/2
	ASME 150 RF	10-3/4	12-3/8	10	11-3/4	13-7/8
	ASME 300 RF	10-3/4	12-3/8	10-1/2	12-1/2	14-1/2
B	ALL	13-3/4	14-1/4	14-13/16	16-5/16	16-5/16
C	ALL	14-7/16	16	16-13/16	20-7/8	22-3/16
D	ALL	14-3/16	14-3/16	14-3/16	14-3/16	14-3/16
Weight (lb)	NPT	42	51	67	N/A	N/A
	FLANGED	46	60	80	174	183

Table 5b - Weights and Dimensions (Metric)						
Dimension	End Connection	Line Size (mm)				
		DN25	DN40	DN50	DN80	DN100
A	NPT - DI	153	251	251	N/A	N/A
	NPT - CS/SST	210	251	248	N/A	N/A
	ASME 125 FF	N/A	N/A	N/A	298	352
	ASME 250 RF	N/A	N/A	N/A	318	368
	ASME 150 RF	273	314	254	298	352
	ASME 300 RF	273	314	267	318	368
B	ALL	349	362	376	414	414
C	ALL	367	406	427	530	564
D	ALL	360	360	360	360	360
Weight (kg)	NPT	19	23	30	N/A	N/A
	FLANGED	21	27	36	79	83

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MODEL BGR-1 PRODUCT CODER 03/07/24

B**G** POS 3 — POS 5 POS 6 & 7 **7** — POS 10 POS 11 POS 12 POS 13 **0****0** POS 16 **0****A**

POSITION 3 - LINE SIZE		
NPS	(DIN)	CODE
1"	(25)	6
1-1/2"	(40)	8
2"	(50)	9
3"	(80)	B
4"	(100)	C

POSITION 5 - BODY MATERIALS	
Materials	CODE
Ductile Iron	1
LCC Carbon Steel	6
Stainless Steel	A

POSITION 6 & 7 - TRIM	
Trim	CODE
L1	L1
L2	L2
L5	L5

POSITION 10 - END CONNECTIONS				
Line Size		Body Material	End Connection	CODE
NPS	(DIN)			
1" - 2"	(25 - 50)	All	NPT	1
3" - 4"	(80 - 100)	DI	ASME 125 FF	2
		DI	ASME 250 RF	3
1" - 4"	(25 - 100)	LCC, SST	ASME 150 RF	4
			ASME 300 RF	5
			ASME 600 RF	6

POSITION 11 - SPRING RANGE		
USC	(Metric)	CODE
4 - 12" wc	(10 - 30 mBar)	L
12.1 - 18" wc	(30.1 - 45 mBar)	M
18.1 - 36" wc	(45.1 - 90 mBar)	N
36.1 - 42" wc	(90.1 - 105 mBar)	R
42.1 - 86" wc	(105.1 - 214 mBar)	S
3.1 - 14 psi	(214.1 - 965 mBar)	1

POSITION 12 - SENSE MODE	
Mode	CODE
Remote Sense	B
Internal Sense	C

POSITION 13 - VENT MODE	
Mode	CODE
Captured Vent	0
Remote Vent	R

POSITION 16 - OPTIONS		
Description	Option	CODE
No Option	—	0
NACE Construction Per MR0175	OPT-40	J
Cleaned For Oxygen Service	OPT-55	M
Cleaned For Non-Oxygen Service	OPT-56	N

Cashco
P.O. Box 6
Ellsworth, KS 67439-0006
PH (785) 472-4461
FAX (785) 472-3539
www.cashco.com
e-mail: sales@cashco.com
Printed in U.S.A. BGR-1-TB

Cashco GmbH
Handwerkerstrasse 15
15366 Hoppegarten, Germany
PH +49 3342 30968 0
Fax. No. +49 3342 30968 29
www.cashco.com
email: germany@cashco.com

Cashco do Brasil, Ltda.
Al.Venus, 340
Indaiatuba - Sao Paulo, Brazil
PH +55 11 99677 7177
Fax. No.
www.cashco.com
email: brazil@cashco.com