



ISO Registered Company

B2-TB
02-20

MODEL B2

BACK PRESSURE REGULATOR



MODEL B2

OVERVIEW

The Model B2 is designed for gases and liquids with control ranges up to 750 psig (51.7 Barg). Flow coefficient of 0.05, 0.10, 0.20, and 0.30 are available. This versatile back pressure regulator can be ordered with a variety of options to meet your system demands.

FEATURES

- Accurate Adjustment
- Low Internal Volume
- Low Operating Torque
- Suitable for corrosive applications

TYPICAL APPLICATIONS

- Economizer Circuit
- Analyzer Back Pressure
- Suitable for Corrosive
- Suitable for High Purity Gas

FUNCTIONAL PERFORMANCE

Temperature Coefficient: 0.16 psig/ °F (0.01Barg°C)

Design Proof Pressure: 2 x working pressure

Internal Volume: 6.9 cc

Design Leakage:
Outboard - 1x10⁻⁹ scc/sec He
Inboard - 1x10⁻⁹ scc/sec He



INLET/OUTLET SIZES

1/4" (DN8), 3/8" (DN10), 1/2" (DN15)



END CONNECTIONS

NPT, TUBE ENDS, TRI-CLAMP



COMMON APPLICATIONS

ECONOMIZER CIRCUIT, ANALYZER BACK PRESSURE, CORROSIVE, HIGH PURITY GAS



DESIGN PRESSURE

INLET: 1-750 psig (0.07-51.7 Barg)

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GENERAL SPECIFICATIONS

Inlet / Outlet Size:	1/4", 3/8" & 1/2" (DN8, DN10 & DN15)	Wetted Material:	See Position 6
Cv Capability:	0.05, 0.1, 0.2 and 0.3	Temp. Limits:	
		TFE -	-45 to 400°F (-42.7 to 204°C)
		Kalrez -	-45 to 575°F (-42.7 to 301°C)
		FKM -	-20 to 300°F (-28.9 to 149 C)
Inlet Pressure: (working pressure)	1-750 psig (.07-51.7 Barg) 1-250 psig (.07-17.2 Barg) for Sanitary Service See Position 11	Range Spring Material:	Std: Steel, Sanitary Service: SST
Body End Connections:	FNPT or Tube Ends, Tri-Clamp -1/2" (DN15) Only	Composite Knob: (Standard)	-50 to 200°F (-45.6 to 93°C) For temperatures outside (Std.) knob range see Options for Colored Knobs.
Body / Spring Chamber Material:	316L SST/316L SST Brass/6061 AL Brass/316L SST <u>Sanitary Construction:</u> Interior of body surface Electro Polished to 16 micro-inch Ra finish with Electro Polished exterior.	Operating Temp. Range:	
		Brass -	-20 to 400°F (-28.9 to 204°C)
		SST -	-20 to 500°F (-28.9 to 260°C)

STANDARD CONSTRUCTION

Captured Vent

The captured vent feature is designed to safely vent process fluid when handling toxic or hazardous media. The user can easily pipe this vent to a safe location. It features a 1/8" FNPT port located on the spring housing. This feature can be incorporated into a self-relieving regulator that provides an additional port to permit the piping away of the expelled media.

OPTIONS

NACE Construction - (R) in Position 6. - Internal wetted portions meet NACE standard MR0175, when the exterior of the regulator is not directly exposed to a sour gas environment, buried, insulated or otherwise denied direct atmospheric exposure. SST/SST body/spring chamber materials only. Inconel w/TFE liner, 316L SST w/PCTFE seal.

Dome Loaded - (0) in Position 11. - The dome loaded option allows for regulators to be loaded from remote location to change pressure settings. **NOTES:** Diaphragm failure will result in loading fluid to mix with the process being controlled. Maximum Loading Pressure is 125 psig (8.6 Barg).

Mounting Bracket - (5) in Position 14. - The mounting bracket is a base, or step type. The material is 303 stainless steel. The bracket mounts to the back of the single stage, and back pressure regulators, via 10/32 screws.

Panel Mount - (C) in Position 14. - The panel mount feature requires a panel minimum of 11 gauge (.12) thick with a 1-3/8" hole cut out, complete with a threaded spring housing, and a panel mount ring to secure the regulator.

Tamper Proof - (1) in Position 15. - In this feature the control knob is removed and replaced with an acorn nut. The user can set the outlet pressure and securely tighten the nut, preventing any unwanted adjustments on the regulator.

Colored Knobs - (2, 8 and W) in Position 15. - In this feature the control knob is anodized aluminum either in black, blue or red, compared to the standard red composite knob. This allows for color coding of processes. Temperature range: -55 to 300°F (-45.6 to 149 °C).

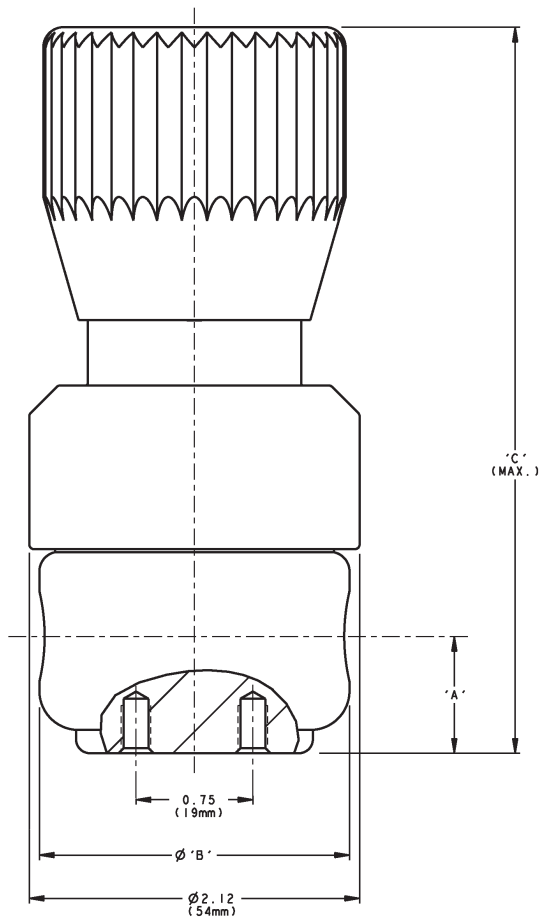
Vacuum Assist Spring - (V) in Position 16. - In this feature a vacuum assist spring is placed under the diaphragm. This spring prevents the diaphragm from collapsing during a vacuum purge.

Cleaned for Oxygen Service #S-1134 - (M) in Position 17. - This is a requirement for gaseous oxygen rich environments. All regulators requiring advanced cleaning shall be processed according to strict guidelines. **NOTE:** Design Pressure Rating shall not exceed 375 psig (25.8 Barg) when body material is SST and process medium is oxygen.

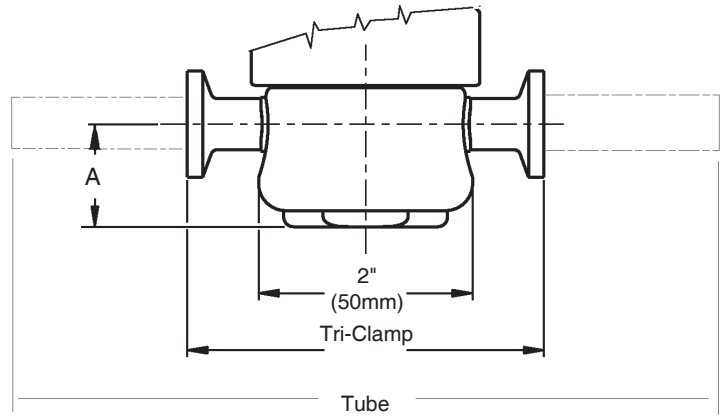
Cleaned per Spec. #S-1542 - (N) in Position 17. - Cleaning identical to that of #S-1134, but not labeled for application in oxygen service. NOT suitable for Oxygen Service.

Sanitary Construction #S-1576 - (P) in Position 17. - SST Construction - Interior of body surface Electro Polished to 16 micro-inch Ra finish with Electro Polished exterior. Tri-Clamp Ends Size 1/2" only. Unit is cleaned to Cashco Spec. #S-1576. Comply with FDA 21 CFR 177 2600 & USP Class VI material classification.

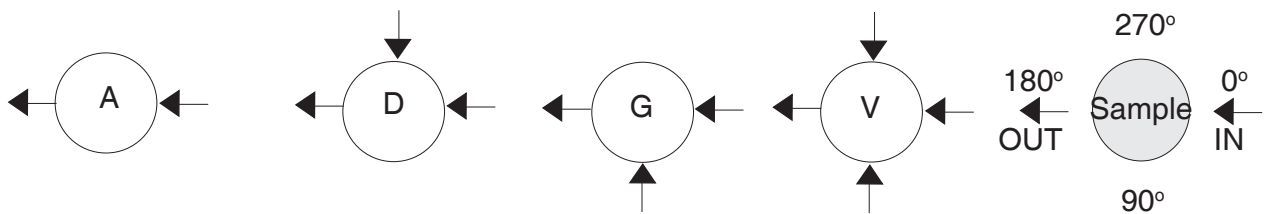
DIMENSIONS



English Units In. & lbs.					
Size	A	B	C	C Dome Load	Wt
1/4", 3/8" NPT	.75	2.00	5.13	3.05	2.2
1/2" NPT	.88	2.48	5.38	3.30	2.2
1/4 - 1/2" Tube	.95	6.94	5.38	-	2.4
1/2" Tri-Clamp	.95	3.31	5.13	-	2.4
Metric Units mm & kg					
DN8, DN10 NPT	19	50	130	78	1.0
DN15 NPT	22	63	137	84	1.0
DN8-15 Tube	24	177	137	-	1.1
DN15 Tri-Clamp	24	84	130	-	1.1



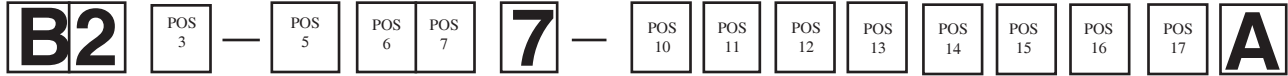
Porting Configuration Guide



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MODEL B2 PRODUCT CODER 02/07/20
(COMPOSITE RED KNOB STANDARD)

An "X" in POS 12 followed by a 5-digit control number overrides remaining selections.



POSITION 3 - SIZE/CV		
Size	Cv	CODE
1/4" (DN8)	0.05	2
	0.10	4
	0.20	5
	0.30	6
3/8" (DN10)	0.05	8
	0.10	A
	0.20	B
	0.30	C
1/2" (DN15)	0.05	D
	0.10	E
	0.20	F
	0.30	G

POSITION 5 - BODY & SPRING CHAMBER MATERIAL	
Body / Spring Chamber	CODE
Brass / 6061 AL	B
316L SST / 316L SST *	S
Brass / 316 SST	T

* Select for NACE or Sanitary Construction

POSITION 6 - TRIM MATERIALS		
Diaphragm and Seal Retainer	Seat Material	CODE
302 SST w/Tefzel ring, 316L SST w / PCTFE seal	TFE	7
	Kalrez	8
	Viton	9
Inconel w/TFE liner, Monel R-405 w / PCTFE seal	TFE	H
	Kalrez	J
	Viton	K
NACE - Inconel w/ TFE liner, 316L SST w / PCTFE seal	TFE	R
	For Sanitary / Pharmaceutical Construction Only *	
302 SST w/TFE liner, 316L SST w / PCTFE seal	TFE	Q **
	TFE	S

* 16 Micro-inch Ra Finish w/Electro-Polish. Range 1 - 250 psig Only available for Port "A".
 ** Comply with FDA 21 CFR 177.2600 & USP Class VI material classification

POSITION 10 - END CONNECTIONS	
End Connection(s)	CODE
FNPT ***	1
Tri-Clamp * **	S
Tube End *	T

* Not available on Brass body material.
 ** (Tri-Clamp Available in 1/2" Size Only)
 *** Not available for Sanitary Construction - Clean per #S-1576

POSITION 7 - PORTING CONFIGURATION	
Description	CODE
See Porting Guide	A****
	D*
	G*
	V*

NOTE: When specifying in Position 13, review asterisks in Table 4:
 * Inlet gauge port only
 **** No gauge ports available

POSITION 11 - RANGE SPRING / INLET PRESSURE	
Psig (Barg)	CODE
Pneumatic Dome Loaded 0 - 125 (0 - 8.6)	0
1 - 10 (.07 - .69)	1
2 - 25 (.14 - 1.7)	2
2 - 50 (.14 - 3.4)	3
2 - 100 (.14 - 6.9)	4
3 - 250 (.21 - 17.2)	5
5 - 500 (.34 - 34.5) *	6
10 - 750 (.69 - 51.7) * ‡	7

* Not Available 1/2 Size - Sanitary Constr.
 ‡ Only Available with SST Spr. Chamber

POSITION 12 - STD OR SPECIAL DRAWING	CODE
Standard Construction	0
For Special Construction Contact Cashco for Special Product Code	X

POSITION 13 - INLET GAUGE (See "NOTE" - POSITION 7)			
Psig (Barg)	CODE	Psig (Barg)	CODE
0 - 15 (0 - 1.0)	A	0 - 600 (0 - 41.4)	G
0 - 30 (0 - 2.1)	B	0 - 1000 (0 - 69.0)	H
0 - 60 (0 - 4.1)	C	0 - 2000 (0 - 137.9)	I
0 - 100 (0 - 6.9)	D	0 - 3000 (0 - 206.9)	J
0 - 160 (0 - 11.0)	E	0 - 5000 (0 - 275.9)	K
0 - 300 (0 - 20.7)	F	No Inlet Gauge	0

POSITION 14 - OPTIONS			
OPTIONS	CODE	OPTIONS	CODE
No Option	0	Panel Mount.	C
Mounting Bracket.	5		

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

POSITION 15 - OPTIONS			
OPTIONS	CODE	OPTIONS	CODE
No Option	0	Blue Knob.	8
Tamper Proof.	1	Red Knob.	W
Black Knob.	2		

POSITION 16 - OPTIONS			
OPTIONS	CODE	OPTIONS	CODE
No Option	0	Vacuum Assist Spring.	V

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