

Crosby® Series BP OMNI-TRIM®

**Balanced Screwed Pressure Relief Valves
for Variable Back Pressure Applications**



CROSBY
tyco flow control

Crosby's Series BP OMNI-TRIM Balanced Piston Pressure Relief Valve

The balanced piston design offsets the effects of *variable* back pressure on valve set pressure. Series BP valves can also handle applications involving *high* built-up back pressure.

COST REDUCTION

- Reduced replacement parts inventories required with unique and versatile design approved for both liquid and vapor applications.
- Maximum corrosion resistance with stainless steel trim. All 316 stainless steel, Monel, Hastelloy and NACE optional construction are available.
- Maintenance intervals extended - O-ring seal prevents service fluid from entering spring chamber.
- Reduced time and administrative functions focused on environmental concerns due to superior valve seat tightness with TFE or elastomer O-rings.
- Reduced piping requirements.
- No bellows to maintain or replace.

INCREASED UP-TIME & PRODUCT RETENTION

- Minimized product loss with superior seat tightness gives you more product to sell.
- Helps prevent unscheduled shut-downs as planned maintenance intervals are now possible.

INCREASED RELIABILITY

- Fewer parts in streamlined design.
- Reliable blowdown without the need for adjustment.

CERTIFICATIONS

- Relieving capacities certified by National Board of Boiler and Pressure Vessel Inspectors. Certification includes liquid and gases other than steam.
- Valves manufactured in accordance with the requirements of ASME Boiler and Pressure Vessel Code, Section VIII and Section III.

FMC/Crosby's Series BP OMNI-TRIM® pressure relief valves have a simplified, single trim design with superior application versatility. They provide overpressure protection for low and medium flow applications in refineries, chemical and petrochemical plants, power plant auxiliary systems, and pulp and paper mills.

FMC/Crosby's Series BP OMNI-TRIM pressure relief valves provide overpressure protection on air, gas, vapor, liquid and thermal relief service. Maximum fixed blowdown is 25% or less. Standardization of components in the BP design provides easy assembly, durability, and less repair, maintenance and inventory costs.

Temperature Range: -20F to +400F
(-28 to +204C)
Pressure Range: 50 to 1500 psig (3.45 to 103.44 barg)
Sizes: 3/4" x 1", 1" x 1"

TABLE OF CONTENTS

Description	Page	Description	Page
Features and Benefits	2	Specifications — Series BP	
Introduction, Description and Applications	3	Threaded and Flanged Connections (USCS Units)	8 & 10
Style Designation — How to Order Series BP	4	Threaded and Flanged Connections (Metric Units)	9 & 11
Materials of Construction — Series BP	5	Capacity Tables — Air and Water	
Caps and Lifting Levers	6	(USCS Units)	12 & 13
Back Pressure Flow Correction Factor Curves	7	(Metric Units)	14 & 15
O-Ring Seat Materials with Pressure and		Warranty and Warnings	16
Temperature Limits	7	Crosby Products and Services	16

Series BP OMNI-TRIM Pressure Relief Valves

Introduction

FMC/Crosby Series BP is a reliable pressure relief valve for industrial applications involving variable back pressure. The design and options provide maximum versatility and premium performance.

Effective orifice areas are 0.074 and 0.110 sq. in. (47.74 and 70.96 sq. mm). Standard materials of construction are carbon steel cylinder; 316 stainless steel base, disc insert, disc holder and guide; and 17-7PH stainless steel spring.

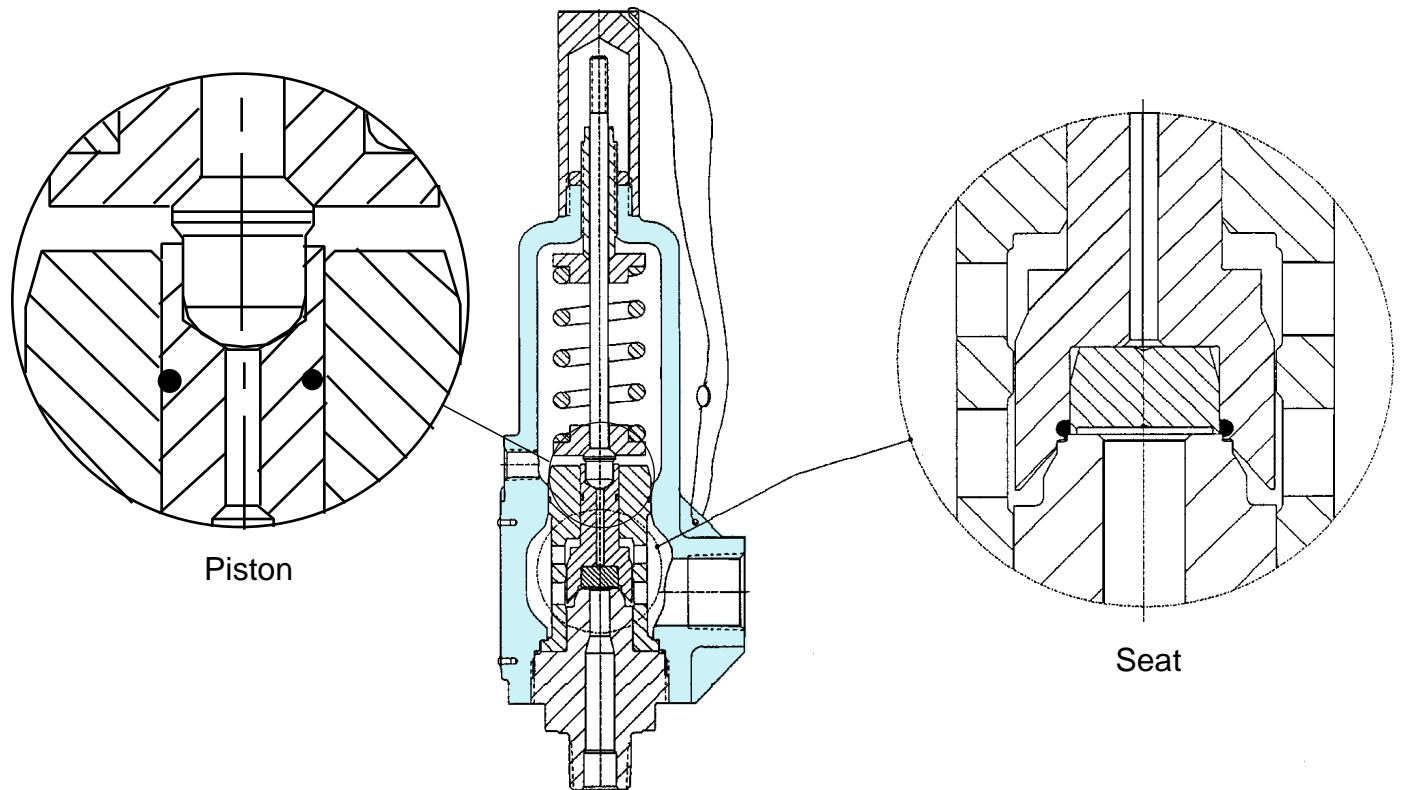
Optional materials of construction are available for special applications or conditions involving corrosive fluids. In addition, materials are available conforming to NACE MR0175. Special cleanings, coatings and lubricants are also available on application.

For applications at pressures and temperatures not listed in this catalog, consult Crosby or your local authorized representative or stocking service center.

ASME Code Requirements

Series BP pressure relief valves are manufactured in accordance with requirements of ASME Boiler and Pressure Vessel Code, Section VIII and Section III.

Balanced Piston Design



**Series BP
Fixed Blowdown OMNI-TRIM
Pressure Relief Valve**

Back Pressure

Maximum back pressure in liquid applications is 70% of set pressure. The maximum back pressure in vapor and gas applications is 50% of set pressure. For liquid thermal relief applications, maximum back pressure is 90% of set pressure. Note: Maximum back pressure is 400 psig. For pressures greater than 400 psig, consult the factory.

Certified Capacities

Capacity certification includes air, liquids and gases other than steam. Relieving capacities are certified by National Board of Boiler and Pressure Vessel Inspectors.

Seat Design

Series BP pressure relief valves are available with elastomer or TFE O-ring soft seats for optimum seat tightness and minimal maintenance. Details on O-ring materials and pressure/temperature limitations are on page 7. All O-rings are standard commercial sizes.

Blowdown

Blowdown is the difference between the opening and reseating pressure of a pressure relief valve expressed as a percentage of set pressure. Series BP blowdown is fixed and non-adjustable (typically 25% or less) on liquid, gas and vapor applications.

Optional Connections

Series BP valves may be furnished with optional flanged connections up to ANSI cl 1500. Standard flanged connections are lap joint stub end construction.

Style Designation

Crosby Series BP Balanced Screwed Valves

1st and 2nd Digits	3rd Digit	4th Digit	5th Digit	6th Digit	7th Digit	8th Digit	9th Digit
Series	Effective Orifice Area	Maximum Pressure (Note 4)	Seat Material (Note 6)	Materials of Construction (Note 1)	Connection Size - NPS (Note 5)	Connection Type (Notes 2, 3)	Caps and Lifting Levers
BP: Back-pressure Balanced Screwed Valve	(5) 0.074 sq. in. (47.74 sq.mm) (6) 0.110 sq. in. (70.96 sq.mm)	(1) 1500 psig (103.44 barg)	(2) Buna-N (3) Viton ⁽⁷⁾ (4) Ethylene Propylene Rubber (EPR) (5) Kalrez ⁽⁹⁾ (6) TFE ⁽⁸⁾ (7) Other (Specify)	(0) Standard materials, carbon steel cylinder, 316 stainless steel base, disc insert, disc holder and guide 17-7PH stainless steel spring (1) All 316 stainless steel materials (3) Carbon steel cylinder, Monel ⁽¹⁰⁾ base, disc insert, disc holder, and guide, Inconel X750 ⁽¹⁰⁾ spring (4) All Monel materials, Inconel X750 spring (5) Carbon steel cylinder, Hastelloy C ⁽¹¹⁾ base, disc insert, disc holder and guide, Inconel X750 spring (6) All Hastelloy C materials (7) NACE MR0175, carbon steel cylinder, 316 stainless steel base, disc insert, disc holder and guide, Inconel X750 spring with 316 stainless steel washers (8) Other (specify)	(1) 3/4 x 1 (2) 1 x 1	(M) MNPT x FNPT (F) FNPT x FNPT (1) 150#RF x 150# RF (2) 300# RF x 150# RF (3) 600# RF x 150# RF (4) 1500# RF x 300# RF (7) Other (Specify)	(A) Standard Screwed Cap (B) Screwed Cap with Test Rod (D) Packed Lifting Lever (E) Packed Lifting Lever with Test Rod

Notes:

- (1) See page 5 for complete listing of materials of construction.
- (2) Optional flange facings (such as ring type joint, 125-200RA), if required, must always be specified.
- (3) Optional flange materials (such as Monel and Hastelloy), if required, must always be specified.
- (4) See pages 8 and 10 for appropriate maximum set pressures.
- (5) See pages 8 and 10 for appropriate inlet and outlet sizes for each effective orifice area.
- (6) Seat and seal materials are identical except for valves with TFE seats. Seal material for valves with TFE seats is Viton unless otherwise specified.
- (7) Reg. U.S. Pat. Office for DuPont's fluoroelastomer.
- (8) TFE=Tetrafluorethylene.
- (9) Reg. U.S. Pat. Office for DuPont's perfluoroelastomer parts.
- (10) Reg. trademark of International Nickel Company Inc.
- (11) Reg. trademark of Haynes International, Inc.

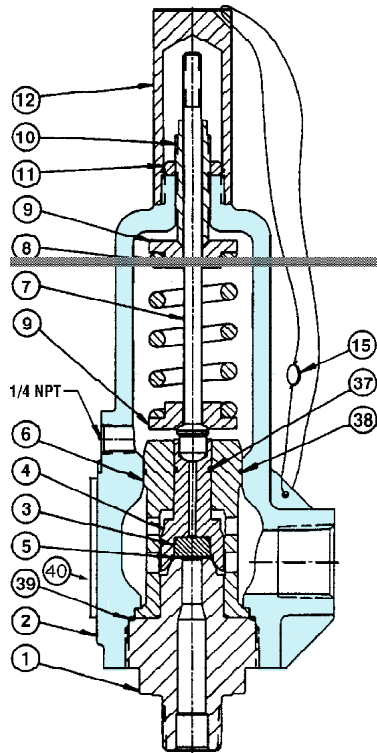
How to Order

Example:

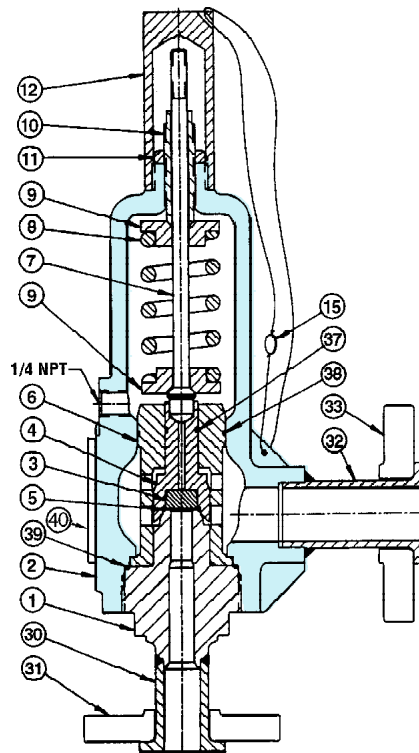
To specify a 3/4 x 1 MNPT x FNPT Series BP valve with a 0.074 sq.in. (47.74 sq.mm) effective area, Buna-N seats, all 316 stainless steel materials, standard screwed cap, process fluid operating temperature at 150F (66C), and set at 175 psig (12.07 barg), use the following style designation:

BP51211MA

Materials of Construction



THREADED CONNECTIONS

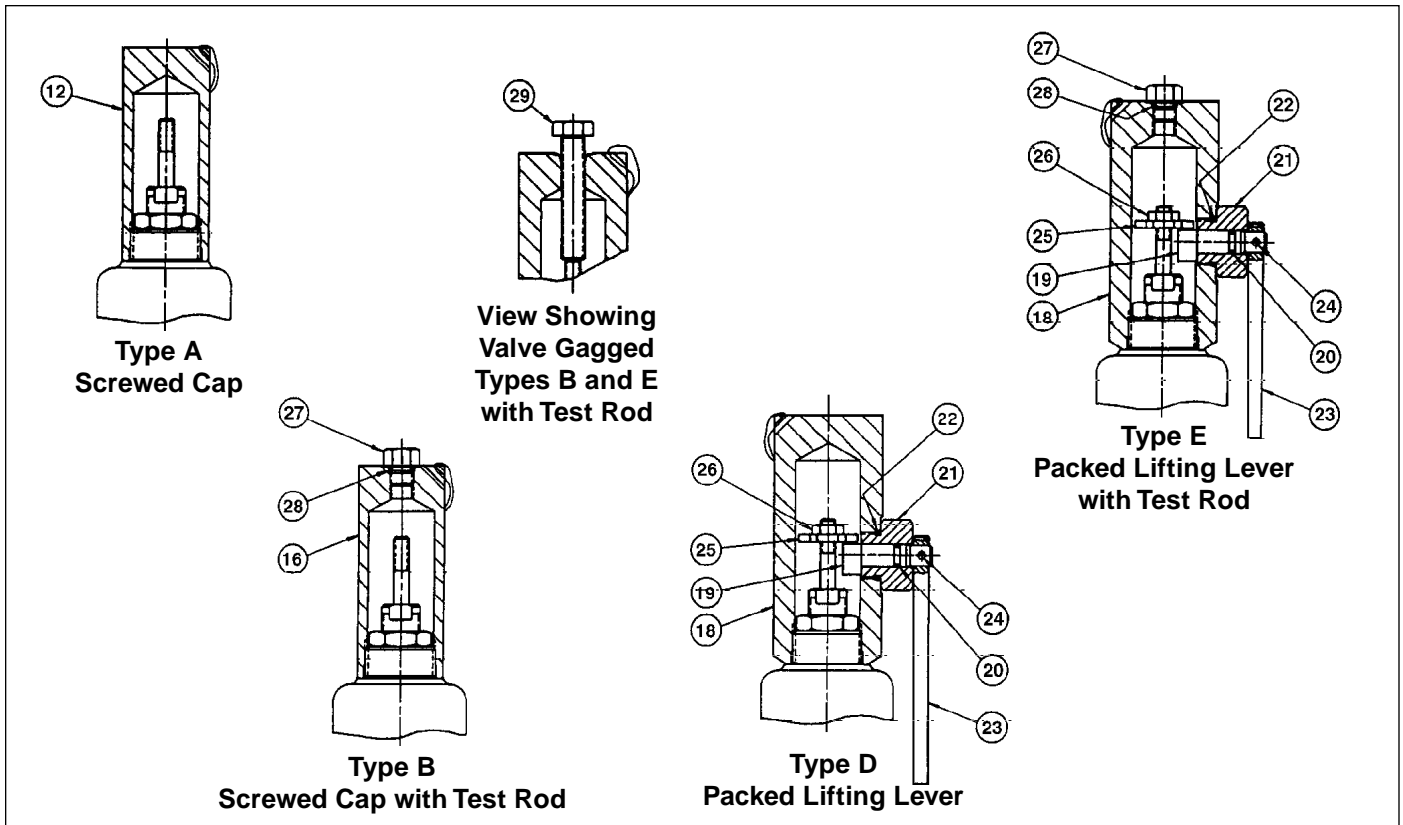


FLANGED CONNECTIONS

PART NO.	MATERIAL DESIGNATION → PART NAME	STANDARD MATERIALS		VARIATIONS FROM STANDARD MATERIALS				
		(0)	(1)	(3)	(4)	(5)	(6)	(7)
		-20F to +400F (-28C to +204C)	-20F to +400F (-28C to +204C)	-20F to +400F (-28C to +204C)	-20F to +400F (-28C to +204C)	-20F to +400F (-28C to +204C)	-20F to +400F (-28C to +204C)	-20F to +400F (-28C to +204C)
1	Base	316 St. St.	316 St. St.	Monel	Monel	Hastelloy C	Hastelloy C	316 St. St.
2	Cylinder	Carbon Steel SA-216 Gr. WCB	316 St. St. SA-351 Gr. CF8M	Carbon Steel SA-216 Gr. WCB	Monel SA-494 Gr. M35-1	Carbon Steel SA-216 Gr. WCB	Hastelloy C SA-494 Gr. CW-12MW	Carbon Steel SA-216 Gr. WCB
3	Disc Insert (3)	316 St. St.	316 St. St.	Monel	Monel	Hastelloy C	Hastelloy C	316 St. St.
4	Disc Holder	316 St. St.	316 St. St.	Monel	Monel	Hastelloy C	Hastelloy C	316 St. St.
5	Seat O-Ring (2) (3)	Specify	Specify	Specify	Specify	Specify	Specify	Specify
6	Guide	316 St. St.	316 St. St.	Monel	Monel	Hastelloy C	Hastelloy C	316 St. St.
7	Spindle	416 St. St.	316 St. St.	416 St. St.	Monel	416 St. St.	Hastelloy C	316 St. St.
8	Spring	17-7PH St. St.	316 St. St.	Inconel X750	Inconel X750	Inconel X750	Hastelloy C	Inconel X750
9	Spring Washers	416 St. St.	316 St. St.	316 St. St.	Monel	316 St. St.	Hastelloy C	316 St. St.
10	Adjusting Bolt	416 St. St.	316 St. St.	416 St. St.	Monel	416 St. St.	Hastelloy C	316 St. St.
11	Adjusting Bolt Nut	Carbon Steel	316 St. St.	Carbon Steel	Monel	Carbon Steel	Hastelloy C	316 St. St.
12	Type A Cap (4)	Carbon Steel	316 St. St.	Carbon Steel	Monel	Carbon Steel	Hastelloy C	Carbon Steel
13	Nameplate (5)	300 Series St. St.	300 Series St. St.	300 Series St. St.	300 Series St. St.	300 Series St. St.	300 Series St. St.	300 Series St. St.
14	Drive Screws (5)	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
15	Seal & Wire	Lead & St. St.	Lead & St. St.	Lead & St. St.	Lead & St. St.	Lead & St. St.	Lead & St. St.	Lead & St. St.
30	Lap Joint Stub End (Inlet)	316 St. St.	316 St. St.	Monel	Monel	Hastelloy C	Hastelloy C	316 St. St.
31	Inlet Flange	Carbon Steel	316 St. St.	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
32	Lap Joint Stub End (Outlet)	Carbon Steel	316 St. St.	Carbon Steel	Monel	Carbon Steel	Hastelloy C	Carbon Steel
33	Outlet Flange	Carbon Steel	316 St. St.	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
37	O-Ring Piston (3)	Specify	Specify	Specify	Specify	Specify	Specify	Specify
38	O-Ring Guide (3)	Specify	Specify	Specify	Specify	Specify	Specify	Specify
39	O-Ring Cylinder (3)	Specify	Specify	Specify	Specify	Specify	Specify	Specify
40	Caution Plate	300 Series St. St.	300 Series St. St.	300 Series St. St.	300 Series St. St.	300 Series St. St.	300 Series St. St.	300 Series St. St.

Note: (2) Refer to page 7 for pressure/temperature limits and available O-Ring materials.
 (3) Recommended spare part.
 (4) Refer to page 6 for other available cap styles and materials.
 (5) Not shown.

Caps and Lifting Levers



Crosby Series BP pressure relief valves are furnished with a screwed cap over the adjusting bolt as standard. Optional cap types and lifting levers are described below.

1) Standard Screwed Cap (Type A)

Where no lifting lever is required.

2) Screwed Cap with Test Rod (Type B)

Normally used to hold the pressure relief valve closed when the system is being hydrostatically tested.

3) Packed Lifting Lever (Type D)

For applications where periodic testing is desirable. This is a sealed design for pressure integrity.

NOTE: ASME Boiler and Pressure Vessel Code rules require that pressure relief valves used on air and water over 140F (60C) shall have a lifting device. (Ref. Para. UG-136).

4) Packed Lifting Lever with Test Rod (Type E)

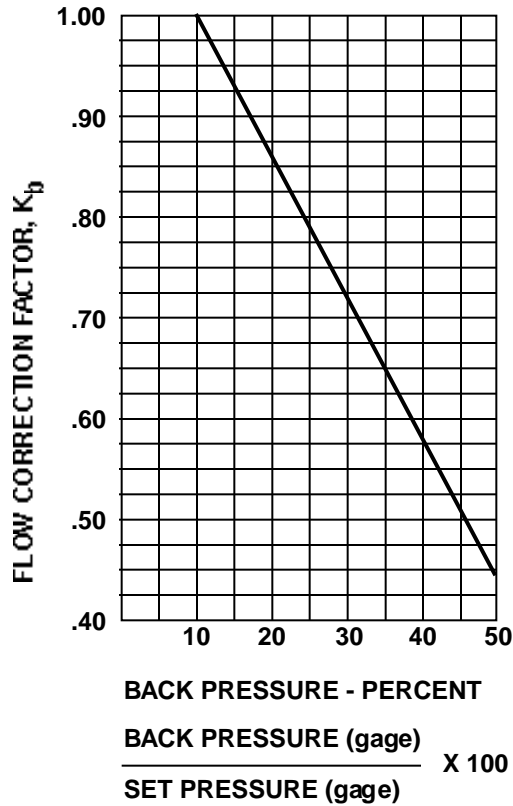
Same as Type D except furnished with a test rod.

Caution: Test Rods should never be tightened more than fingertight. Overtightening may damage internal parts. Moreover, a test rod should never be kept on the valve during operation of the equipment. During normal operation the test rod is replaced with cap plug and O-ring to maintain tightness on the discharge side.

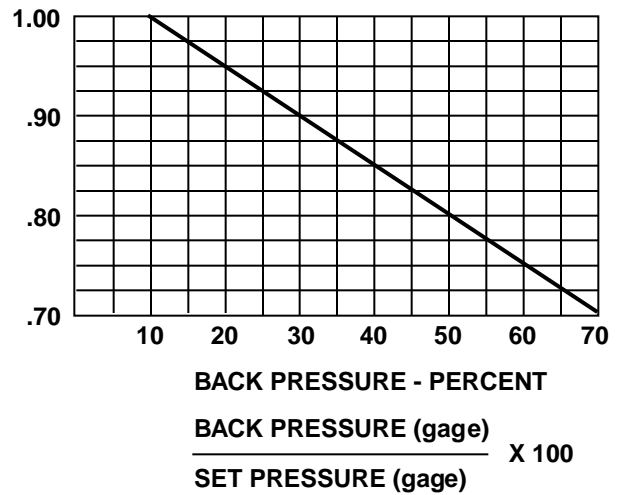
CAP TYPE	PART NO.	MATERIAL DESIGNATION → PART NAME	MATERIALS OF CONSTRUCTION			
			0,3,5,7	1,2	4	6
A	12	Cap	Steel	316 St. St.	Monel	Hastelloy C
	16	Cap	Steel	316 St. St.	Monel	Hastelloy C
B	27	Cap Plug	Steel	316 St. St.	Monel	Hastelloy C
	28	Cap Plug O-Ring	Viton	Viton	Viton	Viton
	29	Test Rod	Steel (Plated)	Steel (Plated)	Steel (Plated)	Steel (Plated)
D	18	Cap	Steel	316 St. St.	Monel	Hastelloy C
	19	Cam	416 St. St.	316 St. St.	Monel	Hastelloy C
	20	Cam O-Ring	Viton	Viton	Viton	Viton
	21	Cam Sleeve	416 St. St.	316 St. St.	Monel	Hastelloy C
	22	Cam Sleeve O-Ring	Viton	Viton	Viton	Viton
	23	Lever	Steel	Steel	Steel	Steel
	24	Lever Pin	302 St. St.	302 St. St.	302 St. St.	302 St. St.
	25	Spindle Nut	Steel	316 St. St.	Monel	Hastelloy C
	26	Locknut	Steel (Plated)	300 Series St. St.	Monel	Hastelloy C
E	18	Cap	Steel	316 St. St.	Monel	Hastelloy C
	19	Cam	416 St. St.	316 St. St.	Monel	Hastelloy C
	20	Cam O-Ring	Viton	Viton	Viton	Viton
	21	Cam Sleeve	416 St. St.	316 St. St.	Monel	Hastelloy C
	22	Cam Sleeve O-Ring	Viton	Viton	Viton	Viton
	23	Lever	Steel	Steel	Steel	Steel
	24	Lever Pin	302 St. St.	302 St. St.	302 St. St.	302 St. St.
	25	Spindle Nut	Steel	316 St. St.	Monel	Hastelloy C
	26	Locknut	Steel (Plated)	300 Series St. St.	Monel	Hastelloy C
27	Cap Plug	Steel	316 St. St.	Monel	Hastelloy C	
28	Cap Plug O-Ring	Viton	Viton	Viton	Viton	
29	Test Rod	Steel (Plated)	Steel (Plated)	Steel (Plated)	Steel (Plated)	

NOTE: Shaded materials are variation from standard.

**CORRECTION FACTOR FOR VAPORS AND GASES, K_b
FOR SERIES BP VALVES AT 10% OVERPRESSURE**



**CORRECTION FACTOR FOR LIQUIDS, K_w
FOR SERIES BP VALVES AT 10% OVERPRESSURE**



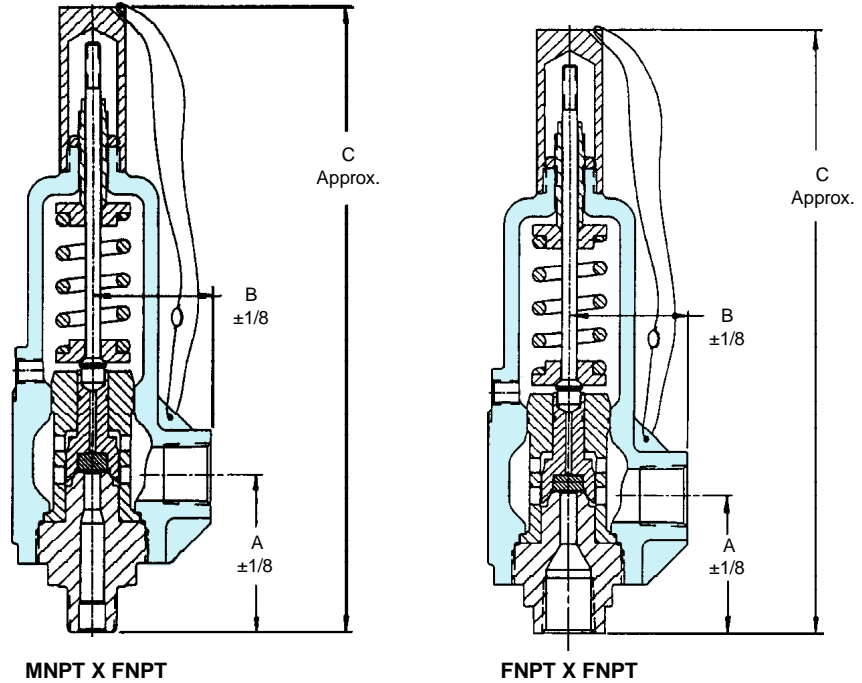
O-Ring Soft Seat Pressure Temperature Limits

MATERIAL	SET PRESSURE psig (barg)		INLET TEMPERATURE DEG F (DEG C)	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
BUNA-N	50 (3.45)	1500 (103.44)	-20 (-28)	+250 (+121.1)
VITON	50 (3.45)	1500 (103.44)	0 (-17.8)	+400 (+204.4)
EPR	50 (3.45)	1500 (103.44)	-20 (-28)	+250 (+121.1)
TFE	100 (6.89)	1500 (103.44)	-20 (-28)	+400 (+204.4)
SILICONE	50 (3.45)	1500 (103.44)	-20 (-28)	+400 (+204.4)
KALREZ	100 (6.89)	1500 (103.44)	0 (-17.8)	+400 (+204.4)

EPR = Ethylene Propylene Rubber
 TFE = Tetrafluorethylene

Specifications: Series BP

Threaded Connections (NPT) USCS (U.S. Customary System) Units Dimensions and Weights Pressure/Temperature Ratings



Valve Style Number	Connection Size (NPS)		Minimum Set Press. (psig)	Maximum Set Press. (psig)	Maximum Outlet Pressure (psig)	(Note 1) Temperature Range (°F)	Dimensions (in.)			(Note 3) Approx. Weight (lbs.)
	Inlet	Outlet					A	B	(Note 2) C	

Style BP5 — Series BP with No. 5 orifice (0.074 sq. in.) and 1500 psig maximum set pressure.

BP51()()1M	3/4	1	50	1500	400	-20/+400	3-3/8	2-1/2	13-3/8	14
BP51()()2M	1	1	50	1500	400	-20/+400	3-5/8	2-1/2	13-5/8	14
BP51()()1F	3/4	1	50	1500	400	-20/+400	2-3/4	2-1/2	12-3/4	14
BP51()()2F	1	1	50	1500	400	-20/+400	3	2-1/2	13	14

Style BP6 — Series BP with No. 6 orifice (0.110 sq. in.) and 1500 psig maximum set pressure.

BP61()()1M	3/4	1	50	1500	400	-20/+400	3-3/8	2-1/2	13-3/8	14
BP61()()2M	1	1	50	1500	400	-20/+400	3-5/8	2-1/2	13-5/8	14
BP61()()1F	3/4	1	50	1500	400	-20/+400	2-3/4	2-1/2	12-3/4	14
BP61()()2F	1	1	50	1500	400	-20/+400	3	2-1/2	13	14

- NOTES:**
- 1) Refer to page 7 for soft seat temperature limits.
 - 2) Dimension "C" shown is for Type A cap.
For Type B cap, add 1/4 in. to "C" dimension (an additional 2 in. is required for test rod head clearance).
For Type D cap, add 5/8 in. to "C" dimension.
For Type E cap, add 7/8 in. to "C" dimension (an additional 2 in. is required for test rod head clearance).
 - 3) Add 1.6 lbs. for Type D & E caps.

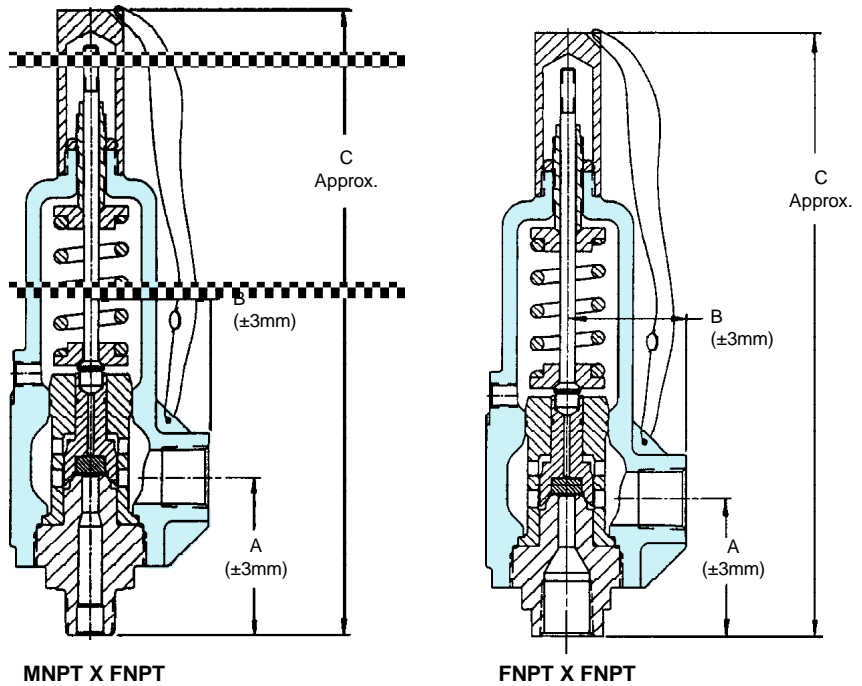
Specifications: Series BP

Threaded Connections (NPT)

Metric Units

Dimensions and Weights

Pressure/Temperature Ratings



Valve Style Number	Connection Size (NPS)		Minimum Set Press. (barg*)	Maximum Set Press. (barg*)	Maximum Outlet Pressure (barg*)	(Note 1) Temperature Range (°C)	Dimensions (mm)			(Note 3) Approx. Weight (kg)
	Inlet	Outlet					A	B	(Note 2) C	

Style BP5 — Series BP with No. 5 orifice (47.74 sq. mm) and 103.44 barg maximum set pressure.

BP51()()1M	3/4	1	3.45	103.44	27.58	-28/+204	86	64	340	6
BP51()()2M	1	1	3.45	103.44	27.58	-28/+204	92	64	346	6
BP51()()1F	3/4	1	3.45	103.44	27.58	-28/+204	70	64	324	6
BP51()()2F	1	1	3.45	103.44	27.58	-28/+204	76	64	330	6

Style BP6 — Series BP with No. 6 orifice (70.96 sq. mm) and 103.44 barg maximum set pressure.

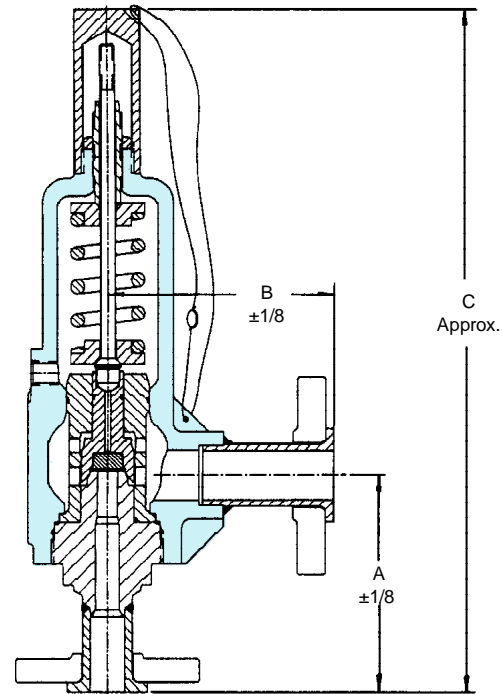
BP61()()1M	3/4	1	3.45	103.44	27.58	-28/+204	86	64	340	6
BP61()()2M	1	1	3.45	103.44	27.58	-28/+204	92	64	346	6
BP61()()1F	3/4	1	3.45	103.44	27.58	-28/+204	70	64	324	6
BP61()()2F	1	1	3.45	103.44	27.58	-28/+204	76	64	330	6

*To obtain units in kPa, multiply barg units by 100.

- NOTES:**
- 1) Refer to page 7 for soft seat temperature limits.
 - 2) Dimension "C" shown is for Type A cap.
For Type B cap, add 6 mm to "C" dimension (an additional 51 mm is required for test rod head clearance).
For Type D cap, add 16 mm to "C" dimension.
For Type E cap, add 22 mm to "C" dimension (an additional 51 mm is required for test rod head clearance).
 - 3) Add 0.7 kg for Type D & E caps.

Specifications: Series BP

Flanged Connections
USCS (U.S. Customary System) Units
 Dimensions and Weights
 Pressure/Temperature Ratings



FLANGE X FLANGE

Valve Style Number	Connection Size (NPS)		(Note 2) Std. ANSI Lap Joint Stub End Flanges		(Note 1) Maximum Set Pressure @ 100F (psig)	Max. Outlet Pressure (psig)	Dimensions (in.)			Approx. Weight (Note 4) (lbs.)
	Inlet	Outlet	Inlet	Outlet			A	B	(Note 3) C	

Style BP5 — Series BP with No. 5 orifice (0.074 sq. in.)

BP51()()11	3/4	1	150	150	285	285	4-5/8	4-3/4	14-5/8	18
BP51()()12	3/4	1	300	150	740	285	4-5/8	4-3/4	14-5/8	20
BP51()()13	3/4	1	600	150	1480	285	4-5/8	4-3/4	14-5/8	20
BP51()()14	3/4	1	1500	300	1500	400 (5)	5-5/8	5	15-5/8	24
BP51()()21	1	1	150	150	285	285	4-7/8	4-3/4	14-7/8	19
BP51()()22	1	1	300	150	740	285	4-7/8	4-3/4	14-7/8	20
BP51()()23	1	1	600	150	1480	285	4-7/8	4-3/4	14-7/8	20
BP51()()24	1	1	1500	300	1500	400 (5)	5-5/8	5	15-7/8	26

Style BP6 — Series BP with No. 6 orifice (0.110 sq. in.)

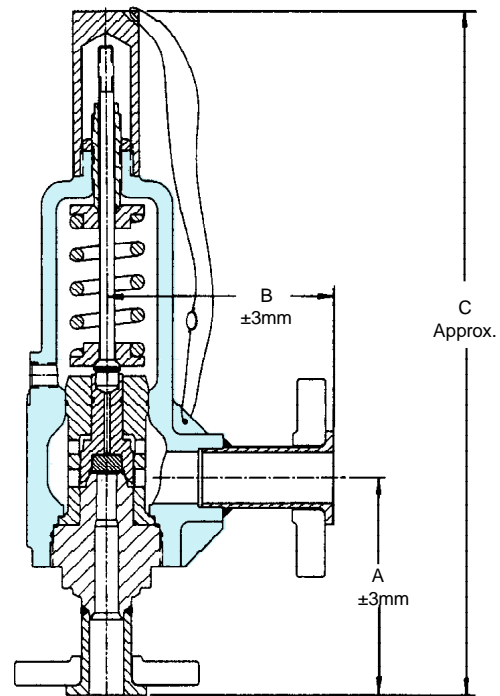
BP61()()11	3/4	1	150	150	285	285	4-5/8	4-3/4	14-5/8	18
BP61()()12	3/4	1	300	150	740	285	4-5/8	4-3/4	14-5/8	20
BP61()()13	3/4	1	600	150	1480	285	4-5/8	4-3/4	14-5/8	20
BP61()()14	3/4	1	1500	300	1500	400 (5)	5-5/8	5	15-5/8	24
BP61()()21	1	1	150	150	285	285	4-7/8	4-3/4	14-7/8	19
BP61()()22	1	1	300	150	740	285	4-7/8	4-3/4	14-7/8	20
BP61()()23	1	1	600	150	1480	285	4-7/8	4-3/4	14-7/8	20
BP61()()24	1	1	1500	300	1500	400 (5)	5-5/8	5	15-7/8	26

- NOTES:**
- 1) Maximum set pressures shown are based on carbon steel flanges. Pressure limits for 316 St. St. flanges may be lower. Consult Crosby.
 - 2) Flanges are supplied with a serrated face per ANSI B16.5. Other facings/standards (i.e., DIN) are also available.
 - 3) Dimension "C" shown is for Type A cap.
 For Type B cap, add 1/4 in. to "C" dimension (an additional 2 in. is required for test rod head clearance).
 For Type D cap, add 5/8 in. to "C" dimension.
 For Type E cap, add 7/8 in. to "C" dimension (an additional 2 in. is required for test rod head clearance).
 - 4) Add 1.6 lbs. for Type D & E caps.
 - 5) ANSI CL 300 supplied; however the maximum back pressure is 400 psig.

Specifications: Series BP

Flanged Connections Metric Units

Dimensions and Weights
Pressure/Temperature Ratings



FLANGE X FLANGE

Valve Style Number	Connection Size (NPS)		(Note 2) Std. ANSI Lap Joint Stub End Flanges		(Note 1) Maximum Set Pressure @ 37.8C (barg)	Max. Outlet Pressure (barg)	Dimensions (mm)			Approx. Weight (Note 4) (kg)
	Inlet	Outlet	Inlet	Outlet			A	B	(Note 3) C	

Style BP5 — Series BP with No. 5 orifice (47.74 sq. mm).

BP51()()11	3/4	1	150	150	19.65	19.65	117	121	371	8
BP51()()12	3/4	1	300	150	51.02	19.65	117	121	371	9
BP51()()13	3/4	1	600	150	102.04	19.65	117	121	371	9
BP51()()14	3/4	1	1500	300	103.44	27.58 (5)	143	127	397	11
BP51()()21	1	1	150	150	19.65	19.65	124	121	378	9
BP51()()22	1	1	300	150	51.02	19.65	124	121	378	9
BP51()()23	1	1	600	150	102.04	19.65	124	121	378	9
BP51()()24	1	1	1500	300	103.44	27.58 (5)	143	127	403	12

Style BP6 — Series BP with No. 6 orifice (70.96 sq. mm).

BP61()()11	3/4	1	150	150	19.65	19.65	117	121	371	8
BP61()()12	3/4	1	300	150	51.02	19.65	117	121	371	9
BP61()()13	3/4	1	600	150	102.04	19.65	117	121	371	9
BP61()()14	3/4	1	1500	300	103.44	27.58 (5)	143	127	397	11
BP61()()21	1	1	150	150	19.65	19.65	124	121	378	9
BP61()()22	1	1	300	150	51.02	19.65	124	121	378	9
BP61()()23	1	1	600	150	102.04	19.65	124	121	378	9
BP61()()24	1	1	1500	300	103.44	27.58 (5)	143	127	403	12

- NOTES:**
- 1) Maximum set pressures shown are based on carbon steel flanges. Pressure limits for 316 St. St. flanges may be lower. Consult Crosby.
 - 2) Flanges are supplied with a serrated face per ANSI B16.5. Other facings/standards (i.e., DIN) are also available.
 - 3) Dimension "C" shown is for Type A cap.
For Type B cap, add 6 mm to "C" dimension (an additional 51 mm is required for test rod head clearance).
For Type D cap, add 16 mm to "C" dimension.
For Type E cap, add 22 mm to "C" dimension (an additional 51 mm is required for test rod head clearance).
 - 4) Add 0.7 kg for Type D & E caps.
 - 5) ANSI CL 300 supplied; however the maximum back pressure is 27.58 barg.

Air Capacities

Series BP OMNI-TRIM Valves

Capacity in standard cubic feet per minute of air at 60F and 10% overpressure. Valve discharging to atmospheric pressure.

Set Pressures
50-1500 psig

USCS UNITS
(United States Customary System)

Note: For air capacities, USCS Units are exact equivalents of Imperial Units.

Capacities certified by the National Board of Boiler and Pressure Vessel Inspectors and in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII.

The capacities listed in the following tables are based on discharging to atmospheric pressure. For applications involving back pressure these capacities must be multiplied by the Back Pressure Correction Factor determined from the applicable curve shown on page 7.

Set Pressure (psig)	EFFECTIVE AREA (sq. in.)	
	0.074	0.110
1 psi incr.	1.4	2.1
5 psi incr.	7.2	10.8
50	92	137
60	106	158
70	121	180
80	135	202
90	150	223
100	165	245
120	194	288
140	223	331
160	252	375
180	281	418
200	310	461
220	339	505
240	368	548
260	398	591
280	427	634
300	456	678
320	485	721
340	514	764
360	543	808
380	572	851
400	601	894
420	631	937
440	660	981
460	689	1024
480	718	1067
500	747	1111
520	776	1154
540	805	1197
560	834	1241
580	863	1284

Set Pressure (psig)	EFFECTIVE AREA (sq. in.)	
	0.074	0.110
1 psi incr.	1.4	2.1
5 psi incr.	7.2	10.8
600	893	1327
620	922	1370
640	951	1414
660	980	1457
680	1009	1500
700	1038	1544
720	1067	1587
740	1096	1630
760	1126	1673
780	1155	1717
800	1184	1760
820	1213	1803
840	1242	1847
860	1271	1890
880	1300	1933
900	1329	1976
920	1359	2020
940	1388	2063
960	1417	2106
980	1446	2150
1000	1475	2193
1100	1621	2409
1200	1766	2626
1300	1912	2842
1400	2057	3059
1500	2203	3275

Note 1: To determine capacities on gases other than air, or for fluid temperatures other than 60F, use the gas and vapor sizing formula in the Crosby Engineering Handbook or the CROSBY-SIZE computer sizing program.

Water Capacities

Series BP OMNI-TRIM Valves

Capacity in U.S. gallons per minute of water at 70F and 10% overpressure.

Differential Pressures P*
20-1600 psi†

USCS UNITS
(United States Customary System)

Capacities certified by the National Board of Boiler and Pressure Vessel Inspectors and in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII.

Note: USCS Units for water and liquids are U.S. gallons per minute (1 U.S. gallon equals .833 Imperial gallon).

The capacities listed in the following tables are based on discharging to atmospheric pressure. For applications involving back pressure these capacities must be multiplied by the Back Pressure Correction Factor determined from the applicable curve shown on page 7.

Diff. Pressure P* (psi)	EFFECTIVE AREA (sq. in.)	
	0.074	0.110
20	9.3	13.8
40	13.1	19.5
60	16.1	23.9
80	18.6	27.6
100	20.8	30.9
120	22.8	33.9
140	24.6	36.6
160	26.3	39.1
180	27.9	41.5
200	29.4	43.7
220	30.8	45.9
240	32.2	47.9
260	33.5	49.9
280	34.8	51.7
300	36.0	53.6
320	37.2	55.3
340	38.3	57.0
360	39.5	58.7
380	40.5	60.3
400	41.6	61.9
420	42.6	63.4
440	43.6	64.9
460	44.6	66.3
480	45.6	67.8
500	46.5	69.2
520	47.4	70.5
540	48.3	71.9
560	49.2	73.2
580	50.1	74.5

Diff. Pressure P* (psi)	EFFECTIVE AREA (sq. in.)	
	0.074	0.110
600	51.0	75.8
620	51.8	77.0
640	52.6	78.3
660	53.4	79.5
680	54.3	80.7
700	55.0	81.8
720	55.8	83.0
740	56.6	84.2
760	57.4	85.3
780	58.1	86.4
800	58.8	87.5
820	59.6	88.6
840	60.3	89.7
860	61.0	90.7
880	61.7	91.8
900	62.4	92.8
920	63.1	93.8
940	63.8	94.9
960	64.5	95.9
980	65.1	96.9
1000	65.8	97.8
1100	69.0	102
1200	72.1	107
1300	75.0	111
1400	77.9	115
1500	80.6	119
1600	83.2	123

*Differential Pressure (P) equals inlet pressure (set pressure plus overpressure) at flowing conditions minus back pressure.

†See pages 8 and 10 for Minimum and Maximum Set Pressure Limits.

Note 1: To determine capacities on liquids other than water or for fluid temperatures other than 70F, use the gas and vapor sizing formula in the Crosby Engineering Handbook or the CROSBY-SIZE computer sizing program.

Air Capacities

Series BP OMNI-TRIM Valves

Set Pressures
3.45-103 barg

METRIC UNITS

Capacity in standard cubic meters of air per minute at 16C and 10% overpressure. Valve discharging to atmospheric pressure.

Capacities certified by the National Board of Boiler and Pressure Vessel Inspectors and in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII.

The capacities listed in the following tables are based on discharging to atmospheric pressure. For applications involving back pressure these capacities must be multiplied by the Back Pressure Correction Factor determined from the applicable curve shown on page 7.

Set Pressure (barg)	EFFECTIVE AREA (sq. mm)		Set Pressure (kPag)
	47.74	70.96	
*1 bar incr.	0.5	0.8	100 kPa incr.
5 bar incr.	2.9	4.4	500 kPa incr.
3.45	2.6	3.8	345
4	2.9	4.3	400
6	4.1	6.1	600
8	5.3	7.9	800
10	6.5	9.7	1000
12	7.7	11.4	1200
14	8.9	13.2	1400
16	10.1	15.0	1600
18	11.3	16.8	1800
20	12.5	18.5	2000
22	13.6	20.3	2200
24	14.8	22.1	2400
26	16.0	23.9	2600
28	17.2	25.6	2800
30	18.4	27.4	3000
32	19.6	29.2	3200
34	20.8	31.0	3400
36	22.0	32.7	3600
38	23.2	34.5	3800
40	24.4	36.3	4000
42	25.6	38.1	4200
44	26.8	39.9	4400
46	28.0	41.6	4600
48	29.2	43.4	4800

Set Pressure (barg)	EFFECTIVE AREA (sq. mm)		Set Pressure (kPag)
	47.74	70.96	
*1 bar incr.	0.5	0.8	100 kPa incr.
5 bar incr.	2.9	4.4	500 kPa incr.
50	30.4	45.2	5000
52	31.6	47.0	5200
54	32.8	48.7	5400
56	34.0	50.5	5600
58	35.2	52.3	5800
60	36.4	54.1	6000
62	37.6	55.8	6200
64	38.7	57.6	6400
66	39.9	59.4	6600
68	41.1	61.2	6800
70	42.3	63.0	7000
76	45.9	68.3	7600
82	49.5	73.6	8200
88	53.1	78.9	8800
94	56.7	84.3	9400
100	60.3	89.6	10000
103	62.0	92.3	10300

Note 1: To determine capacities on gases other than air, for fluid temperatures other than 16C, or if back pressure is specified, use the gas and vapor sizing formula in the Crosby Engineering Handbook or the CROSBY-SIZE computer sizing program.

Water Capacities

Series BP OMNI-TRIM Valves

Capacity in liters per minute of water at 21C and 10% over-pressure.

Differential Pressures P*
1.4-112 bar†

METRIC UNITS

Capacities certified by the National Board of Boiler and Pressure Vessel Inspectors and in accordance with the ASME Boiler and Pressure Vessel Code, Section VIII.

The capacities listed in the following tables are based on discharging to atmospheric pressure. For applications involving back pressure these capacities must be multiplied by the Back Pressure Correction Factor determined from the applicable curve shown on page 7.

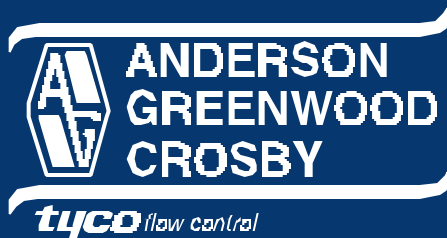
Diff. Pressure P* (bar)	EFFECTIVE AREA (sq. mm)		Diff. Pressure P* (kPa)
	47.74	70.96	
1.4	35.5	52.1	140
2	42.4	63.1	200
4	60.0	89.2	400
6	73.5	109	600
8	84.9	126	800
10	94.9	141	1000
12	103.9	154	1200
14	112.3	166	1400
16	120.0	178	1600
18	127.3	189	1800
20	134.2	199	2000
22	140	209	2200
24	147	218	2400
26	153	227	2600
28	158	236	2800
30	164	244	3000
32	169	252	3200
34	175	260	3400
36	180	267	3600
38	185	275	3800
40	189	282	4000
42	194	289	4200
44	199	295	4400
46	203	302	4600
48	207	309	4800

Diff. Pressure P* (bar)	EFFECTIVE AREA (sq. mm)		Diff. Pressure P* (kPa)
	47.74	70.96	
50	212	315	5000
52	216	321	5200
54	220	327	5400
56	224	333	5600
58	228	339	5800
60	232	345	6000
62	236	351	6200
64	240	356	6400
66	243	362	6600
68	247	367	6800
70	251	373	7000
76	261	389	7600
82	271	404	8200
88	281	418	8800
94	291	432	9400
100	300	446	10000
106	309	459	10600
112	317	472	11200

*Differential Pressure (P) equals inlet pressure (set pressure plus overpressure) at flowing conditions minus back pressure.

†See pages 8 and 10 for Minimum and Maximum Set Pressure Limits.

Note 1: To determine capacities on liquids other than water or for fluid temperatures other than 21C, use the gas and vapor sizing formula in the Crosby Engineering Handbook or the CROSBY-SIZE computer sizing program.



Crosby® Series BP OMNI-TRIM®

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