

BVM Series (ANSI 150) Flanged Industrial Control Ball Valves 2-Way • 2-1/2" - 12"

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Application

The BVM Series of Flanged Industrial Ball Valves are ideally suited to a wide range of steam and water applications that require a high degree of rangeability. These valves provide exceptional characterized control, flow capacity and pressure drops; all with bi-directional ANSI class VI shut off.

Our exclusive Thrust Washer and Thrust Washer Protector design combine to provide a primary seal, reduce torque and prevent galling. The BVM Series ball valves also feature a floating ball design for low torque and increased cycle life. Characterized V-Balls and full port versions provide multiple Cv values in each size.

Features and Benefits

- **High Cycle Packing Design**

Years of trouble free service

- **Bubble Tight Shut-Off with Zero Leakage**

Energy efficient

- **Independent Packing Gland**

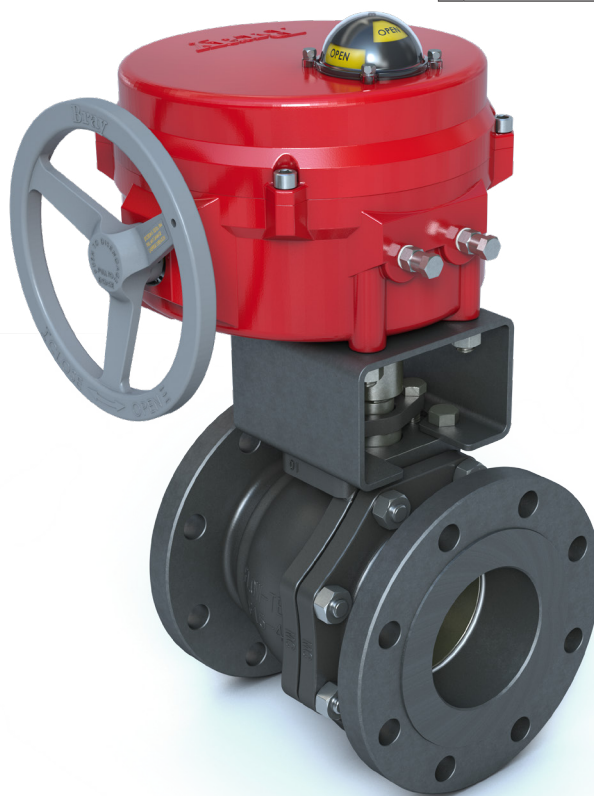
Allows in-line servicing

- **Phosphate Coated Carbon Steel Bodies**

For cost effective applications up to 225°F at 285 PSI

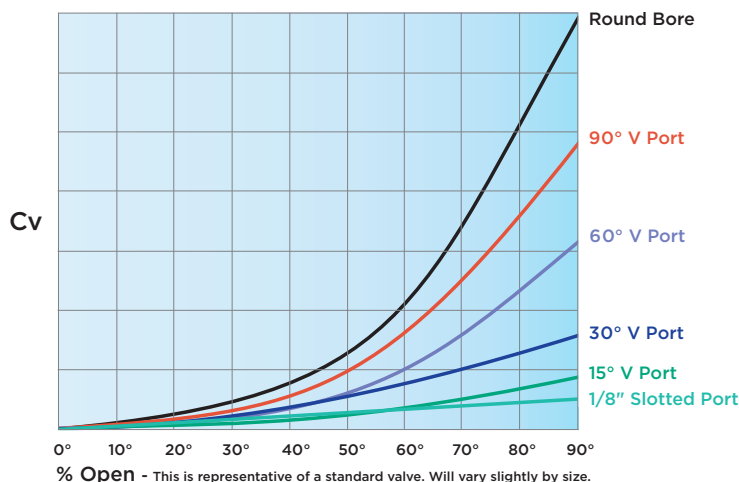
- **Available NEMA 4 Actuators**

Reliable, cost effective control



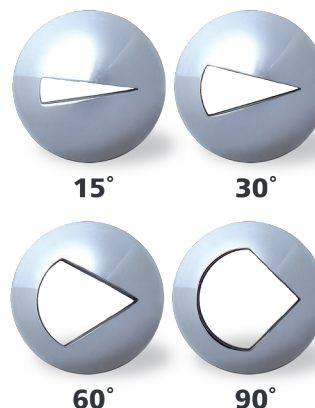
Flow Curve Chart

These curves of standard ports are general guidelines and are not specific to any particular valve size.



Increased Linear Response

Due to the in-line design inherent with characterized control ball valves, line media flows linearly through the piping system. The direct pattern provides increased media control and rapid response times to controller commands.



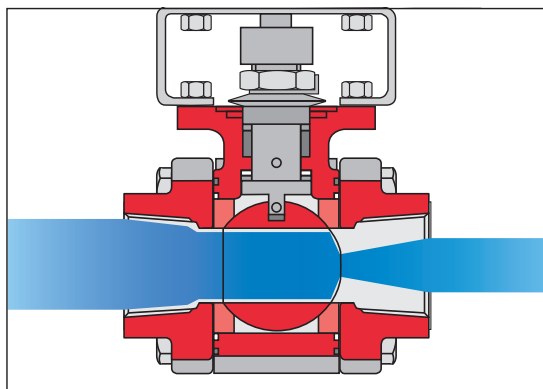
BVM Series - Specifications

Technical Specifications - BVM Flanged Industrial Ball Valve Body			
		V-Port	Full- Port
Service		Chilled/Hot Water, 50/50 Glycol Solutions & Saturated Steam	
Size Range	2-Way	2-1/2" to 12" Flanged Valves	
Valve Fluid Temperature Limits	Water	Meets ASME Class 150 temperatures	
	Saturated Steam	100 PSI (689 kPa)	
Valve Body Pressure Rating		ANSI Class 150	
Maximum Close-Off Pressure		285 PSI (1,965 kPa)	
Maximum Recommended Operating Pressure Drop	Water	80 PSI (551 kPa)	
	Steam	50 PSI (344 kPa)	
Flow Characteristic	V15 Port	Linear	N/A
	V30 Port	Modified Equal Percentage	N/A
	V60 & 90 Port	Equal Percentage	N/A
Rangeability		200:1	
Leakage		Bubble Tight per API 598	
End Connections		ANSI Class 150	
Ambient Operating Temperature Range		See Actuator Rating (Optional high temperature mounting kit may be required)	
Materials	Body	WCB Carbon Steel	
	Ball & Stem	316 Stainless Steel	
	Seat	Tek-Fil	TFM
	Stem Seal/Packing	PTFE	
	Body Seal	316/Graphite	
	Body Bolts	ASTM A 193 B7	
Warranty		3 Years limited from time of shipment.	

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

BVM - Piping Diagram

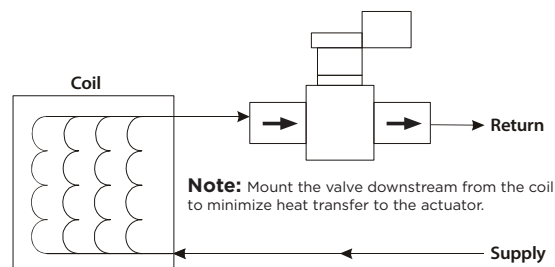
- V-Port Valves - Note the arrow engraved on the ends which shows the flow going from the bolt head to the nut so that the V-ball is downstream.
- Full Port Valves are bi-directional.



Media Flow entering valve from left.
Installing the V downstream is preferred.

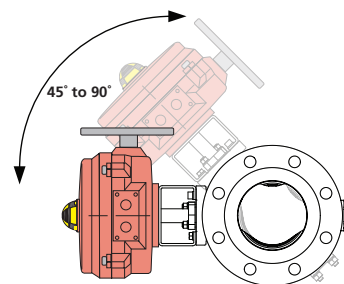
BVM - Mode of Actuation

Typical Two-Way Ball Valve Application



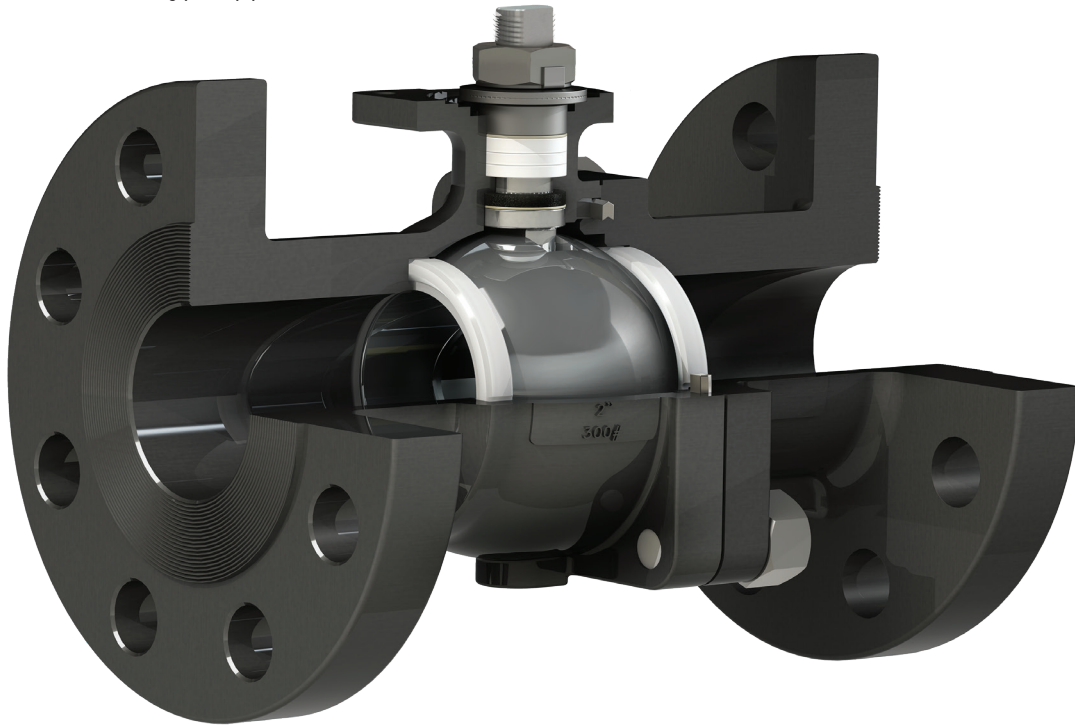
BVM - For Steam Applications

Install valve with stem at 45° to 90° from vertical.



BVM Series - Cut Away View

The **BVM Flanged Series Ball Valves** feature a floating ball design for low torque and increased cycle life. Most standard large size valves feature trunnion-type ball support. These rugged ball valves are ideal for heavy commercial and industrial-type applications.



Stem Seals

BVM Flanged Series Valves 2½" - 12" valves utilize an independent packing gland which can be easily adjusted without removing mounting hardware or operator. The packing gland is contoured to more uniformly distribute the load across the packing. The primary stem seal is a combination of a thrust washer and a thrust washer protector. An adjustable stem packing creates a secondary seal between the stem and body. The stem packing is composed of RPTFE V-rings as standard - graphite stem packing is standard on all Fire Safe valves.

Ball

BVM Flanged Series Valves balls are precision machined and mirror finished for bubble-tight shut off and less operating torque. As an added safety feature, a hole in the stem slot of each ball equalizes pressure between the body cavity and the line media flow.

Seat

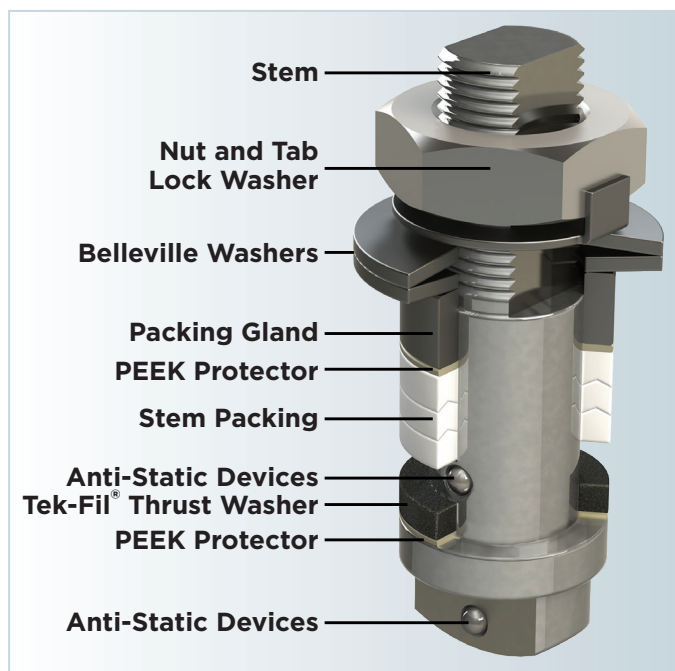
The seat design ensures bi-directional, bubble-tight sealing with low operating torque. All resilient seats feature relief slots or seat O.D. clearance to relieve pressure past the upstream seat, and positive preloading to ensure low pressure/vacuum sealing.

Stem Assemblies

BVM Flanged Series Valves are heavy duty, high quality stems with double "D" connection to ball and operator mounting. Stems are mated with the ball to ensure positive contact. All stems are internal entry and blowout proof for maximum safety.

Stem Packing

An adjustable V-ring design creates a multiple seal between the stem and body. Each stem assembly is composed of three or four (dependent on valve size) rings providing a very high cycle life by resisting creep and cold flow. The Thrust Washer and the Thrust Washer Protector combine to provide a primary seal, reduce torque and prevent galling.



BVM Series - 2-Way with On/Off Series 70 Actuators Close-Off Charts

2-Way, 24 VAC and 120 VAC, On/Off Actuators (100 PSI Steam and 285 PSI Water)

Actuator Model Details							
Model Number	Valve Size		V-Cut	Flow Coefficient		Series 70/AU Actuators On/Off, 120VAC	Series 70 Actuators On/Off, 24VAC
	In.	mm		Cv	Kv	Model	Model
BVM250-CF15-27	2.5	15	15°	27.2	23.5	70-0081H	70-24-0081H
BVM250-CF15-56			30°	56.3	48.5	70-0081H	70-24-0081H
BVM250-CF15-114			60°	113.7	98.0	70-0081H	70-24-0081H
BVM250-CF15-177			90°	177.3	152.8	70-0081H	70-24-0081H
BVM250-CF15-780			Full Port	780.0	672.4	70-0081H	70-24-0081H
BVM3-CF15-32	3	80	15°	31.8	27.4	70-0121H	70-24-0201H
BVM3-CF15-70			30°	69.8	60.1	70-0121H	70-24-0201H
BVM3-CF15-150			60°	149.9	129.2	70-0121H	70-24-0201H
BVM3-CF15-237			90°	237.3	204.6	70-0121H	70-24-0201H
BVM3-CF15-1150			Full Port	1150.0	991.3	70-0121H	70-24-0201H
BVM4-CF15-76	4	100	15°	75.5	65.1	70-E301H	70-24-E301H
BVM4-CF15-159			30°	158.5	136.7	70-E301H	70-24-E301H
BVM4-CF15-330			60°	329.5	284.0	70-E301H	70-24-E301H
BVM4-CF15-547			90°	546.6	471.2	70-E301H	70-24-E301H
BVM4-CF15-2100			Full Port	2100.0	1810.2	70-E301H	70-24-E301H
BVM6-CF15-134	6	150	15°	134.4	115.9	70-0651H	70-24-0501H*
BVM6-CF15-282			30°	282.3	243.3	70-0651H	70-24-0501H*
BVM6-CF15-587			60°	586.8	505.8	70-0651H	70-24-0501H*
BVM6-CF15-974			90°	973.5	839.2	70-0651H	70-24-0501H*
BVM6-CF15-5000			Full Port	5000.0	4310.0	70-0651H	70-24-0501H*
BVM8-CF15-346	8	200	15°	345.5	297.8	70-1300H	-
BVM8-CF15-481			30°	480.5	414.2	70-1300H	-
BVM8-CF15-999			60°	998.7	860.9	70-1300H	-
BVM8-CF15-1657			90°	1656.8	1428.2	70-1300H	-
BVM8-CF15-9600			Full Port	9600.0	8275.2	70-1300H	-
BVM10-CF15-545	10	250	15°	545.0	469.8	AU-2130	-
BVM10-CF15-751			30°	750.7	647.1	AU-2130	-
BVM10-CF15-1561			60°	1560.5	1345.2	AU-2130	-
BVM10-CF15-2589			90°	2588.7	2231.5	AU-2130	-
BVM10-CF15-15000			Full Port	15000.0	12930.0	AU-2130	-
BVM12-CF15-1101	12	300	15°	1101.1	949.1	AU-4068	-
BVM12-CF15-1051			30°	1051.0	906.0	AU-4068	-
BVM12-CF15-2185			60°	2184.6	1883.2	AU-4068	-
BVM12-CF15-3624			90°	3624.2	3124.0	AU-4068	-
BVM12-CF15-21000			Full Port	21000.0	18102.0	AU-4068	-

Options/Adders

- For Battery Back-Up Failsafe Option (BBU) option on 24VAC actuators, add "-BBU".
 - ** Add "SF15" in place of CF15 for Stainless Steel body option.
 - * Steam Only
 - **For normally Closed, add a "C" to the end of the valve part number, i.e. BVM250-CF15-27C, otherwise normally open. Fail safe models only.
- V-port ball valves have a 20 to 85% max angle of controllability.

BVM Series - 2-Way with Modulating Series 70 Actuators Close-Off Charts

2-Way, 24 VAC and 120 VAC, Modulating Actuators (100 PSI Steam and 285 PSI Water)

Actuator Model Details							
Model Number	Valve Size		V-Cut	Flow Coefficient		Series 70/AU Actuators Modulating, 120VAC	Series 70 Actuators Modulating, 24VAC
	In.	mm		Cv	Kv	Model	Model
BVM250-CF15-27	2.5	15	15°	27.2	23.5	70-0081SVH	70-24-0081SVH
BVM250-CF15-56			30°	56.3	48.5	70-0081SVH	70-24-0081SVH
BVM250-CF15-114			60°	113.7	98.0	70-0081SVH	70-24-0081SVH
BVM250-CF15-177			90°	177.3	152.8	70-0081SVH	70-24-0081SVH
BVM250-CF15-780			Full Port	780.0	672.4	70-0081SVH	70-24-0081SVH
BVM3-CF15-32	3	80	15°	31.8	27.4	70-0121SVH	70-24-0201SVH
BVM3-CF15-70			30°	69.8	60.1	70-0121SVH	70-24-0201SVH
BVM3-CF15-150			60°	149.9	129.2	70-0121SVH	70-24-0201SVH
BVM3-CF15-237			90°	237.3	204.6	70-0121SVH	70-24-0201SVH
BVM3-CF15-1150			Full Port	1150.0	991.3	70-0121SVH	70-24-0201SVH
BVM4-CF15-76	4	100	15°	75.5	65.1	70-E301SVH	70-24-E301SVH
BVM4-CF15-159			30°	158.5	136.7	70-E301SVH	70-24-E301SVH
BVM4-CF15-330			60°	329.5	284.0	70-E301SVH	70-24-E301SVH
BVM4-CF15-547			90°	546.6	471.2	70-E301SVH	70-24-E301SVH
BVM4-CF15-2100			Full Port	2100.0	1810.2	70-E301SVH	70-24-E301SVH
BVM6-CF15-134	6	150	15°	134.4	115.9	70-0651SVH	70-24-0501SVH*
BVM6-CF15-282			30°	282.3	243.3	70-0651SVH	70-24-0501SVH*
BVM6-CF15-587			60°	586.8	505.8	70-0651SVH	70-24-0501SVH*
BVM6-CF15-974			90°	973.5	839.2	70-0651SVH	70-24-0501SVH*
BVM6-CF15-5000			Full Port	5000.0	4310.0	70-0651SVH	70-24-0501SVH*
BVM8-CF15-346	8	200	15°	345.5	297.8	70-1300SVH	-
BVM8-CF15-481			30°	480.5	414.2	70-1300SVH	-
BVM8-CF15-999			60°	998.7	860.9	70-1300SVH	-
BVM8-CF15-1657			90°	1656.8	1428.2	70-1300SVH	-
BVM8-CF15-9600			Full Port	9600.0	8275.2	70-1300SVH	-
BVM10-CF15-545	10	250	15°	545.0	469.8	AU-2130SV	-
BVM10-CF15-751			30°	750.7	647.1	AU-2130SV	-
BVM10-CF15-1561			60°	1560.5	1345.2	AU-2130SV	-
BVM10-CF15-2589			90°	2588.7	2231.5	AU-2130SV	-
BVM10-CF15-15000			Full Port	15000.0	12930.0	AU-2130SV	-
BVM12-CF15-1101	12	300	15°	1101.1	949.1	AU-4068SV	-
BVM12-CF15-1051			30°	1051.0	906.0	AU-4068SV	-
BVM12-CF15-2185			60°	2184.6	1883.2	AU-4068SV	-
BVM12-CF15-3624			90°	3624.2	3124.0	AU-4068SV	-
BVM12-CF15-21000			Full Port	21000.0	18102.0	AU-4068SV	-

Options/Adders

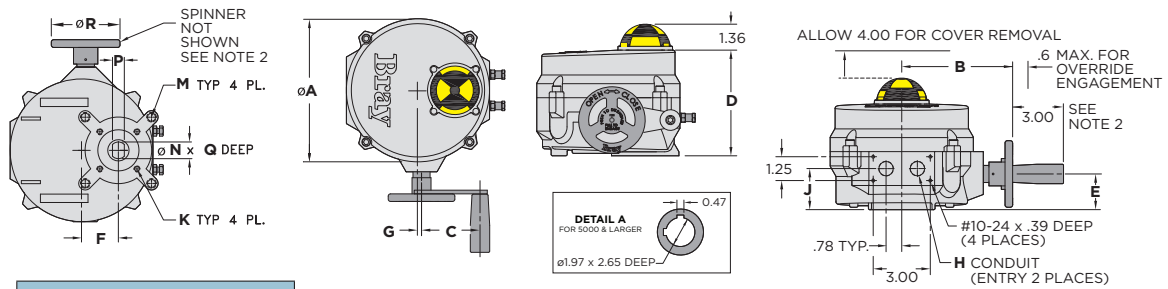
1. For Battery Back-Up Failsafe Option (BBU) option on 24VAC actuators, add "-BBU".
 - ** Add "SF15" in place of CF15 for Stainless Steel body option.
 - * Steam Only
 2. **For normally Closed, add a "C" to the end of the valve part number, i.e. BVM250-CF15-27C, otherwise normally open. Fail safe models only.
- V-port ball valves have a 20 to 85% max angle of controllability.

BVM Series - 2-Way - Flanged Ball Valve/70 Series Actuator Dimensions

70-0081 TO 70-0651

Series 70 Actuator - DIMENSIONS in./(mm)

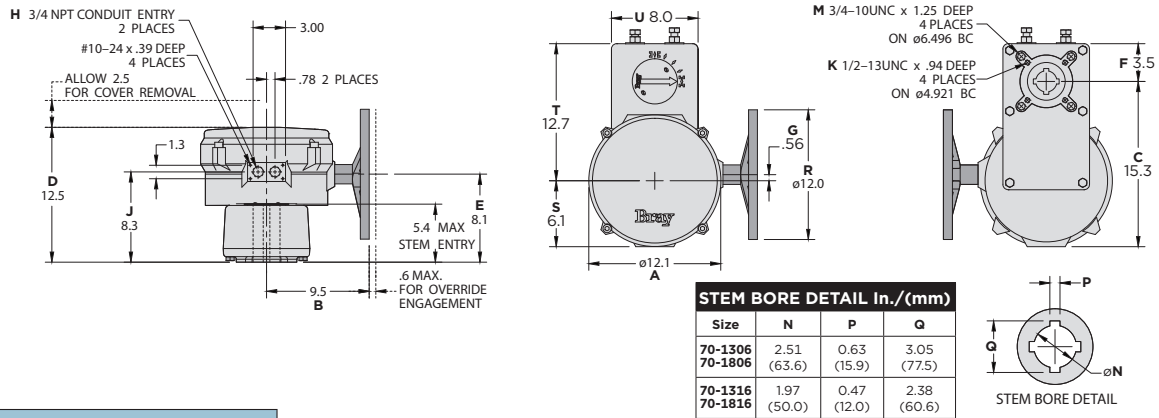
Actuator Model Number	øA	B	C	D	E	F	G	H	J	K UNC x B.C. (MM x B.C.)	M UNC x B.C. (MM x B.C.)	N	P	Q	øR	Weight lbs. (kg)
S70-0081	7.5 (191)	5.8 (147)	3.0 (76)	5.6 (141)	1.9 (48)	1.94 (49.2)	.19 (4.7)	1/2 (M20 x 1.5)	2.2 (55)	5/16-18 x ø2.76 [M8 x 1.25 x ø70]	—	.75 (19.0)	.51 (13.0)	1.75 (44.5)	3.5 (89)	13 (6)
S70-0121 S70-0201 S70-E301	10.1 (256)	7.8 (198)	3.7 (93)	6.6 (168)	2.4 (62)	2.69 (68.3)	.56 (14.3)	3/4 (M25 x 1.5)	2.6 (66)	5/16-18 x ø2.76 [M8 x 1.25 x ø70]	1/2-13 x ø4.92 [M12 x 1.75 x ø125]	1.18 (30.0)	.87 (22.0)	2.22 (56.3)	8.0 (203)	28 (13)
S70-0501 S70-0651	12.1 (308)	9.5 (241)	5.5 (139)	7.2 (183)	2.9 (73)	3.19 (80.9)	.56 (14.3)	3/4 (M25 x 1.5)	3.1 (78)	1/2-13 x ø4.92 [M12 x 1.75 x ø125]	3/4-10 x ø6.50 [M20 x 2.5 x ø165]	See Detail A			12.0 (305)	48 (22)



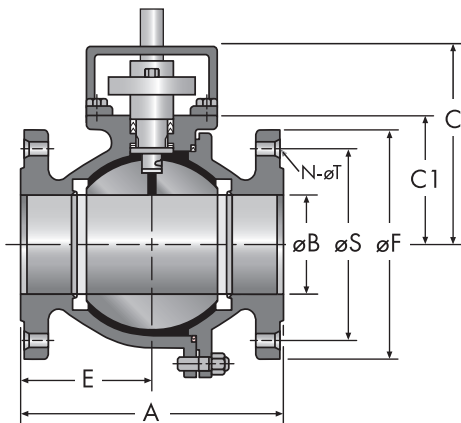
70-1300 TO 70-1800

Series 70 Actuator - DIMENSIONS in./(mm)

Actuator Model Number	øA	B	C	D	E	F	G	H	J	K UNC x B.C. (MM x B.C.)	M UNC x B.C. (MM x B.C.)	N	P	Q	øR	S	T	U	Weight lbs. (kg)
S70-1300 S70-1800	12.1 (308)	9.5 (241)	15.3 (389)	12.5 (316)	8.1 (206)	3.5 (89)	.56 (14.3)	3/4 (M25 x 1.5)	8.3 (211)	1/2-13 x ø4.921 F12 (12 x 125 BC x 23.9)	3/4-10 x ø6.496 F16 (20 x 165 BC x 31.8)	See Stem Bore Detail			12.0 (305)	6.1 (155)	12.7 (322)	8.0 (203)	118 (54)



VALVE BODY



ANSI Class 150 in. (mm)

SIZE	A	øB	C	C1	E	øF	øS	N / øT	Cv (Kv)	Weight LBS (KG)
2-1/2" (65)	7.5 (191)	2.6 (65)	7.4 (188)	3.4 (86)	3.1 (78)	7.0 (178)	5.5 (140)	4 x 0.75 (4 x 19.0)	780 (675)	36 (16)
3" (80)	8.0 (203)	3.0 (76)	7.7 (196)	3.7 (93)	3.7 (95)	7.5 (191)	6.0 (152)	4 x 0.75 (4 x 19.0)	1150 (995)	45 (20)
4" (100)	9.0 (229)	4.0 (101)	8.4 (224)	4.4 (112)	4.5 (114)	9.0 (229)	7.5 (191)	8 x 0.75 (8 x 19.0)	2100 (1817)	65 (30)
6" (150)	15.5 (394)	6.0 (152)	11.2 (284)	7.2 (182)	7.6 (194)	11.0 (279)	9.5 (241)	8 x 0.88 (8 x 22.0)	5000 (4325)	157 (71)
8" (200)	18.0 (457)	7.9 (200)	11.6 (295)	7.6 (193)	8.4 (212)	13.5 (343)	11.8 (299)	8 x 0.88 (8 x 22.0)	9600 (8304)	290 (132)
10" (250)	21.0 (533)	9.8 (250)	15.9 (404)	9.9 (251)	10.5 (266)	16.0 (406)	14.3 (362)	12 x 1.00 (12 x 25.0)	15000 (12975)	500 (227)
12" (300)	24.0 (610)	11.8 (300)	17.5 (445)	11.5 (291)	12.0 (305)	19.0 (483)	17.0 (432)	12 x 1.00 (12 x 25.0)	21000 (18165)	700 (318)

Bray COMMERCIAL

Bray Commercial provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Where ever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

Building Types

- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/
Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

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