Bray COMMERCIAL

04/24/26

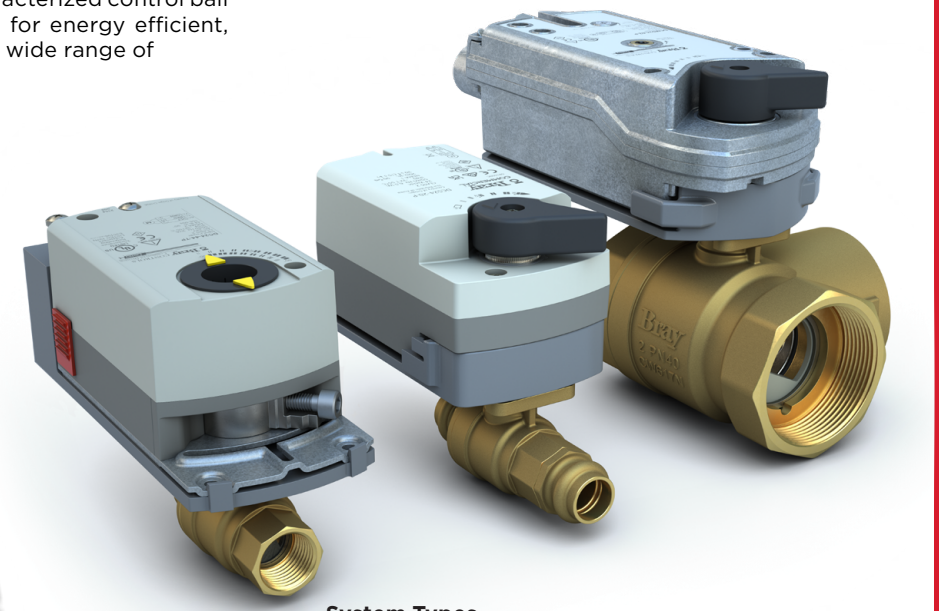
EBV Series-DC Actuators

Characterized Ball Valves

2-Way & 3-Way • 1/2"- 2"

Application

The Bray Commercial EBV Series characterized control ball valves are industry leading solutions for energy efficient, economical and effective control of a wide range of equipment in HVAC applications.



System Types
Air Handlers, Fan Coil Units, VAV Reheat Coils, Chilled Beams and Computer Room Air Conditioners

Features and Benefits

- **Energy Efficient**

ANSI/FCI 70-2 Class VI leakage to eliminate unnecessary pump head loss.
Low torque for smaller, energy efficient actuators.

- **Economical**

Lower torque design allows smaller, more cost effective actuators.
Bray's world class engineering and manufacturing with over 30 years of experience ensures efficient processes and resulting lower costs.

- **Effective**

High 200 psi Close-Off rating.
High flow capacity to meet most any application.
High 500:1 Rangeability
Stainless Steel trim standard for water temperatures up to 284°F and steam up to 15 psig.
Multiple Cv's for an equal percentage flow characteristic on the control port.

- **Warranty**

5 Years - High Reliability tested to over 200K cycles.

EBV Series - Valve Body Specifications

Technical Specifications - EBV Valve Body			
Service	Hot Water, Chilled Water, Condenser Water up to 60% Glycol 15 psig (103 kPa) Saturated Steam @ 250˚F for HVAC Systems		
Size Range	**2-Way & 3-Way -** 1/2" through 2" (DN 15 to 50)		
Valve Body Pressure/ Temperature Rating	Cold Working Pressure	580 psi (PN 40)	
	Water (with Standard Mounting)	-20˚F to 203˚F @ 580 psi (-29˚C to 95˚C)	
	Water (with "High Temp" Mounting)	-20˚F to 284˚F @ 464 psi (-29˚C to 140˚C)	
	Saturated Steam (with "High Temp" Mounting)	15 psig (103 kPa) at 250˚F (121˚C)	
Maximum Recommended Operating Pressure Drop	50 psid Maximum Differential Pressure for Valves with Characterized Flow Control Disk and 30 psid Maximum for Quiet Service Ball Valves		
Flow Characteristics	**2-Way**	Equal Percentage	
	3-Way	Equal Percentage Port A, Linear Port B (Bypass)	
Rangeability	Greater than 500:1 (No disc)		
Ambient Conditions	See Actuator Specifications		
Close-Off	200 psi		
Leakage	Control Port - ANSI/FCI 70-2 Class VI Bypass Port < 1% of Maximum Flow		
End Connections	NPT Threaded, Sweat & Press, BSPP		
Materials	**Body**	Forged Brass	
	Ball	300 Series Stainless Steel	
	Stem		
	Seats	RPTFE - 15% Graphite Reinforced with EPDM O-Ring Backup	
	Stem Seals	EPDM Double O-Rings	
	Characterizing Disk	AMODEL® AS-1145HS Polyphthalamide Resin	
Weights (NPT) (Valve Body Only)	**Size**	**2-Way**	**3-Way**
	1/2"	0.71 lb. (0.32 kg)	0.79 lb. (0.36 kg)
	3/4"	0.75 lb. (0.34 kg)	0.93 lb. (0.42 kg)
	1"	1.30 lb. (0.59 kg)	1.59 lb. (0.72 kg)
	1-1/4"	2.05 lb. (0.93 kg)	2.56 lb. (1.16 kg)
	1-1/2"	2.73 lb. (1.24 kg)	3.37 lb. (1.53 kg)
	2"	4.61 lb. (2.09 kg)	5.80 lb. (2.63 kg)
Compliance CRN	0C25972		
Warranty	5 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.

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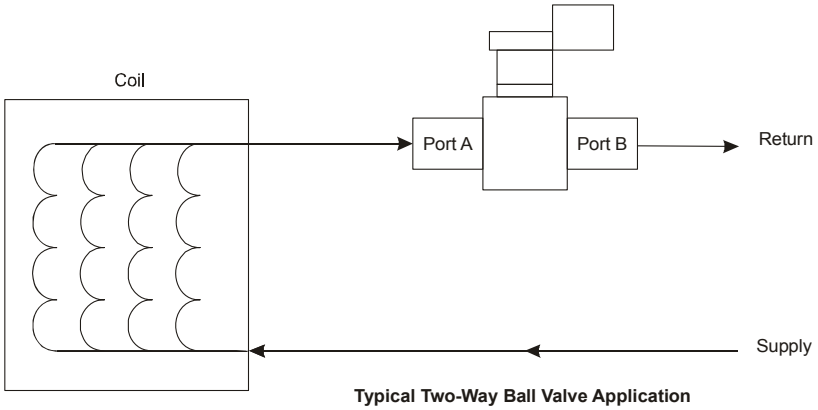
EBV Series - 2-Way Piping Schematics



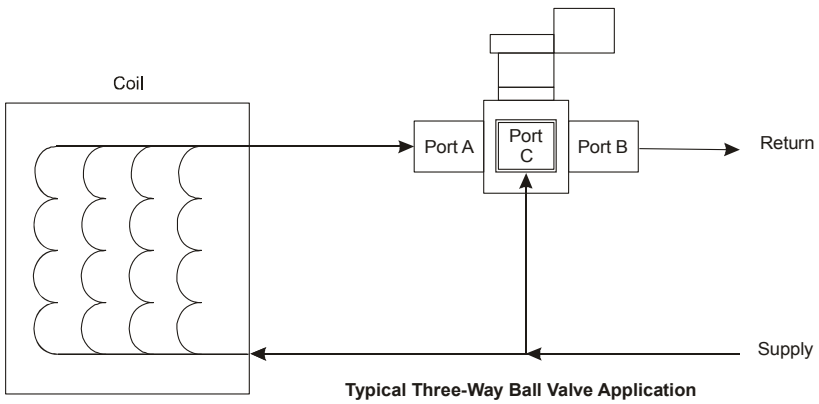
Typical Two-Way Ball Valve Application

Note: Mount the valve downstream from the coil to minimize heat transfer to the actuator.

2-Way - Default Configuration for EBV Series Ball Valves			
Valve Position at Actuator Position	2-Way Non-Spring Return	2-Way Spring Return N.O. (Normally Open)	2-Way Spring Return N.C. (Normally Closed)
Valve Position w/ Act CCW	Open	Open	Open
Valve position w/Act CW	Closed	Closed	Closed
Valve Position w power removed	Last Position	Open	Closed
Modulating actuator control signal Action (Direct Acting)*	CCW at 0; CW at Max	CCW at 0, CW at Max	CW at 0, CCW at Max

*Proportional MODULATING actuators include a switch to field convert from Direct Acting to Reverse Action

EBV Series - 3-Way Piping Schematics



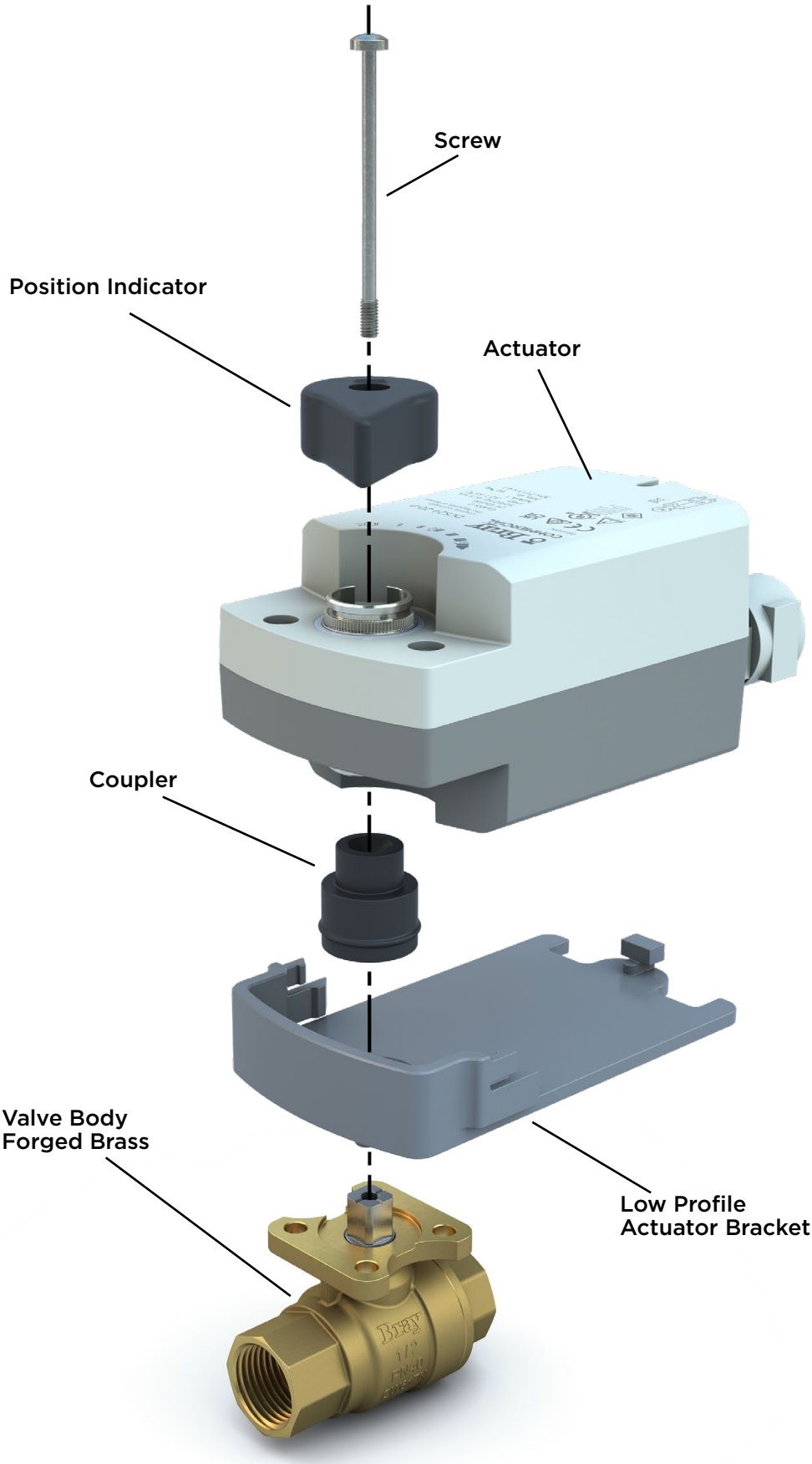
Typical Three-Way Ball Valve Application

Note: Mount the valve downstream from the coil to minimize heat transfer to the actuator. For pure diverting applications (one inlet/two outlets), only the standard port (no characterization disc) versions will work.

3-Way - Default Configuration for EBV Series Ball Valves			
Valve Position at Actuator Position	3-Way Non-Spring Return	3-Way Spring Return N.O. (Normally Open)	3-Way Spring Return N.C. (Normally Closed)
Valve Position w/ Act CCW	A open to B	A open to B	A open to B
Valve position w/Act CW	C open to B	C open to B	C open to B
Valve Position w power removed	Last Position	A open to B	C open to B
Modulating actuator control signal Action (Direct Acting)*	CCW at 0; CW at Max	CCW at 0, CW at Max	CW at 0, CCW at Max

*Proportional MODULATING actuators include a switch to field convert from Direct Acting to Reverse Action

EBV Series - 2-Way Exploded View - Direct Mount Actuators



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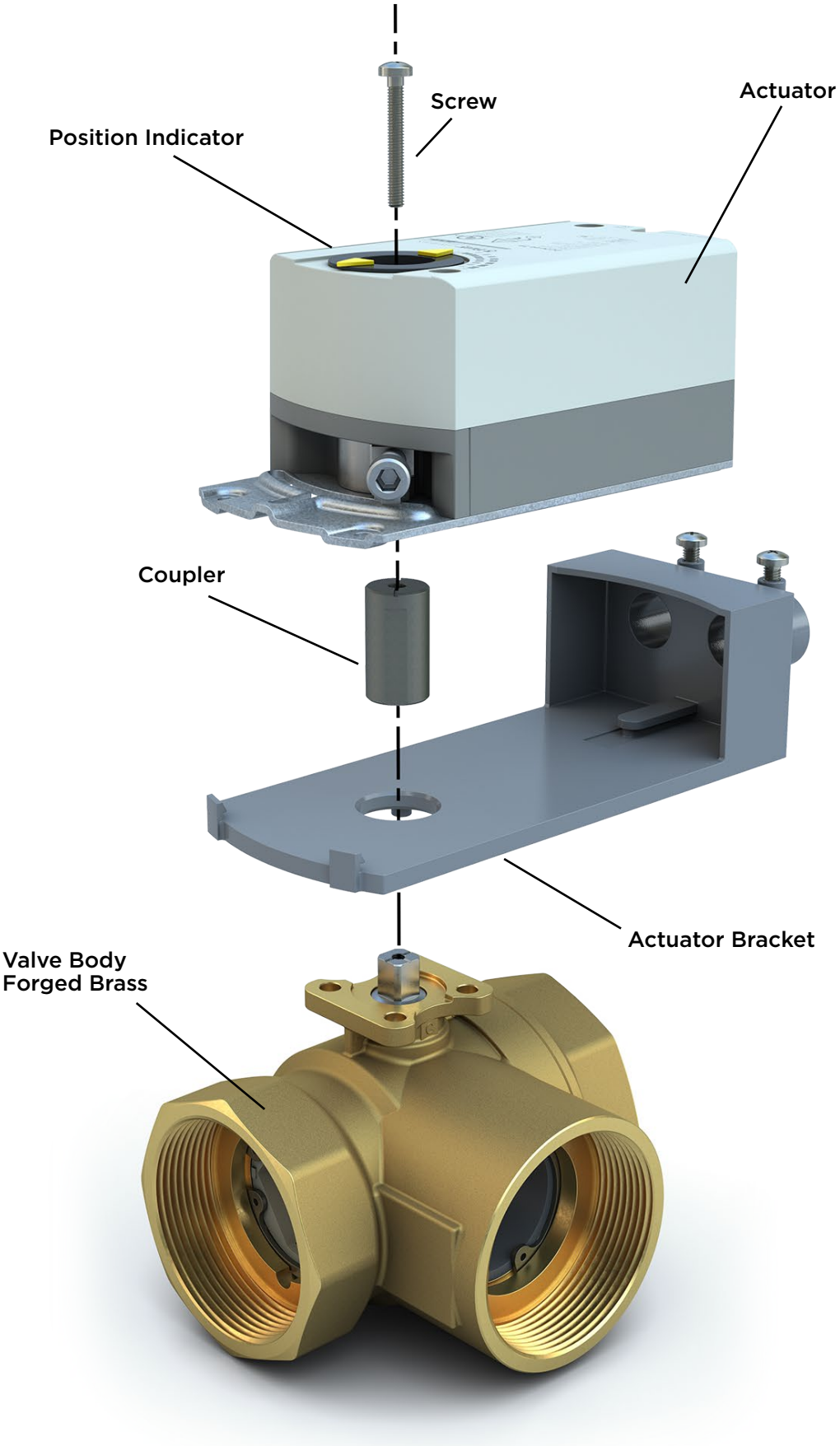
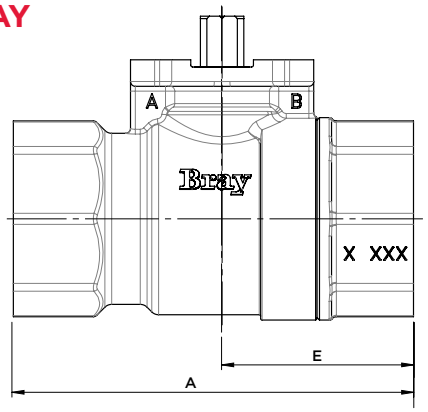
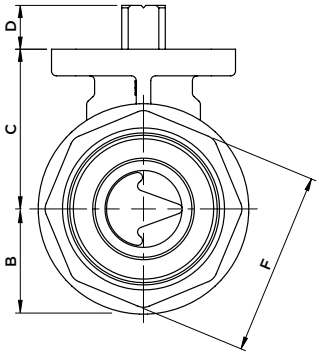
EBV Series - 3-Way Exploded View - Universal Mount Actuators



EBV Series - Valve Body Dimensions

2-WAY



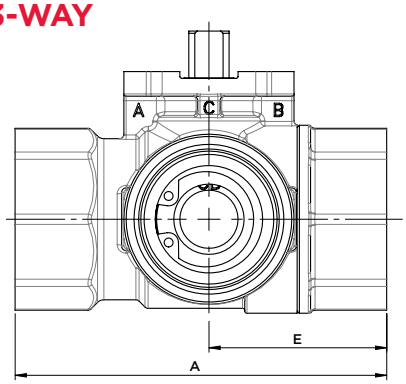


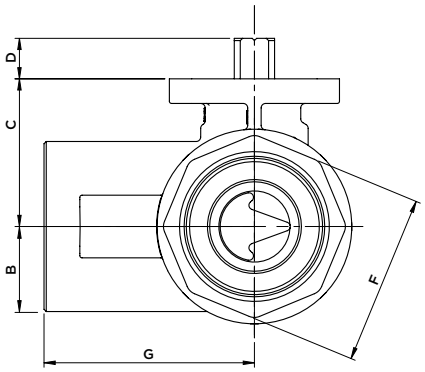
2-WAY - VALVE BODY DIMENSIONS in. (mm)

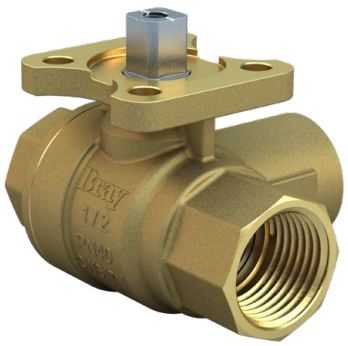
EBV Valve Model # Prefix	Size		Flow Coefficient		A (NPT)	A (SWEAT/ PRESS)	B	C	D	E	F	Weights - lbs. (kg)	
	in.	mm	Cv	Kv								NPT	SWEAT/ PRESS
EBV-05-2-x	1/2	15	0.3-17.2	0.3-14.9	2.60 (66)	4.60 (117)	0.59 (15)	1.14 (29)	0.35 (9)	1.22 (31)	1.00 (25)	0.71 (0.32)	0.93 (0.42)
EBV-75-2-x	3/4	20	4.9-15.3	4.2-13.2	2.28 (68)	4.74 (120.5)	0.59 (15)	1.14 (29)	0.35 (9)	1.30 (33)	1.22 (31)	0.75 (0.34)	1.15 (0.52)
EBV-1-2-x	1	25	7.8-29.9	6.7-25.9	3.27 (83)	5.45 (138.5)	0.79 (20)	1.30 (33)	0.36 (9.1)	1.56 (39.7)	1.50 (38)	1.30 (0.59)	1.76 (0.80)
EBV-125-2-x	1-1/4	32	11.7-44.8	10.1-38.8	3.66 (93)	-	0.98 (25)	1.59 (40.5)	0.36 (9.15)	1.79 (45.5)	1.89 (48)	2.05 (0.93)	-
EBV-150-2-x	1-1/2	40	19.6-48.3	17.0-41.8	3.94 (100)	-	1.06 (27)	1.67 (42.5)	0.36 (9.15)	1.93 (49)	2.13 (54)	2.73 (1.24)	-
EBV-2-2-x	2	50	29.2-95.5	25.3-82.6	4.61 (117)	-	1.46 (37)	1.93 (49)	0.35 (9)	2.24 (57)	2.68 (68)	4.61 (2.09)	-

x = Cv

3-WAY







3-WAY - VALVE BODY DIMENSIONS in. (mm)

EBV Valve Model # Prefix	Size		Flow Coefficient		A (NPT)	A (SWEAT/ PRESS)	B	C	D	E	F	G (NPT)	G (SWEAT/ PRESS)	Weights - lbs. (kg)	
	in.	mm	Cv	Kv										NPT	SWEAT/ PRESS
EBV-05-3-x	1/2	15	0.3-17.2	0.3-14.9	2.60 (66)	4.60 (117)	0.59 (15)	1.14 (29)	0.35 (9)	1.22 (31)	1.00 (25)	1.46 (37)	1.93 (49)	0.79 (0.36)	1.12 (0.51)
EBV-75-3-x	3/4	20	4.9-15.3	4.2-13.2	2.28 (68)	4.74 (120.5)	0.59 (15)	1.14 (29)	0.35 (9)	1.30 (33)	1.22 (31)	1.50 (38)	1.93 (49)	0.93 (0.42)	1.59 (0.72)
EBV-1-3-x	1	25	7.8-29.9	6.7-25.9	3.27 (83)	5.45 (138.5)	0.79 (20)	1.30 (33)	0.36 (9.1)	1.56 (39.7)	1.50 (38)	1.85 (47)	2.15 (54.7)	1.59 (0.72)	2.47 (1.12)
EBV-125-3-x	1-1/4	32	11.7-44.8	10.1-38.8	3.66 (93)	-	0.98 (25)	1.59 (40.5)	0.36 (9.15)	1.79 (45.5)	1.89 (48)	2.07 (52.5)	-	2.56 (1.16)	-
EBV-150-3-x	1-1/2	40	19.6-48.3	17.0-41.8	3.94 (100)	-	1.06 (27)	1.67 (42.5)	0.36 (9.15)	1.93 (49)	2.13 (54)	2.19 (55.5)	-	3.37 (1.53)	-
EBV-2-3-x	2	50	29.2-95.5	25.3-82.6	4.61 (117)	-	1.46 (37)	1.93 (49)	0.35 (9)	2.24 (57)	2.68 (68)	2.56 (65)	-	5.80 (2.63)	-

x = Cv

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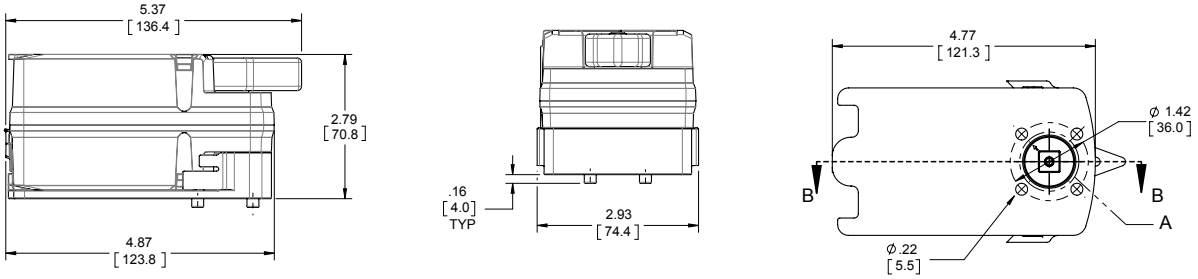
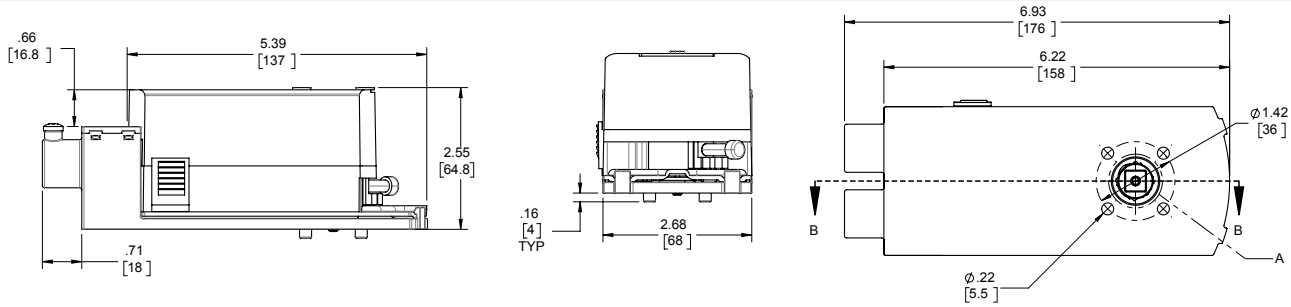
EBV Series - Actuator Dimensions

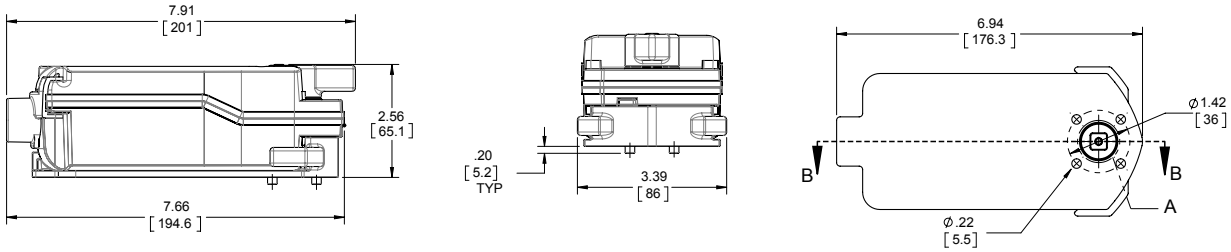
DCS(M)-20 Series



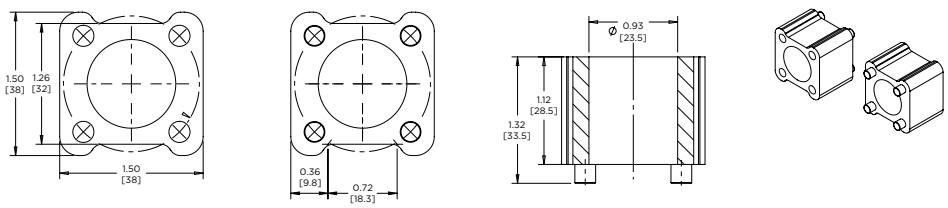
DC(M)-44 Series



DCS(M)-62 Series



Optional High Temperature Barrier



EBV - Valve Sizing Tips

Step One

Determine the designed Cv by using the following equation.

$$Cv = \frac{Q\sqrt{G}}{\sqrt{\Delta P}}$$

Where
Q = Flow in gallons per minute (GPM) required to pass through the valve
G = Specific gravity of fluid *
ΔP = Designed pressure drop across the valve in psi
Cv = Flow coefficient

Notes

* Specific gravity is negligible (equal to 1) for water below 200˚F. Use actual specific gravity of pure fluids other than water. In most cases, the valve selected for a H_2O mixture will not be affected by the specific gravity.

Example

The Specific Gravity of 50% Water (Compound 1) and 50% Ethylene Glycol Solution (Compound 2):

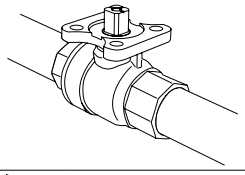
FORMULA	$\frac{1}{G\ soln} = \frac{wt\%\ of\ Compound\ 1}{Specific\ Gravity\ (G)} + \frac{wt\%\ of\ Compound\ 2}{Specific\ Gravity\ (G)}$
EXAMPLE	$G\ soln = \frac{0.5}{1.0} + \frac{0.5}{1.113} = 1.05$

Step Two

Determine whether the valve should be line size or sized to match the designed pressure drop (typical for modulating applications where precise control is required.)

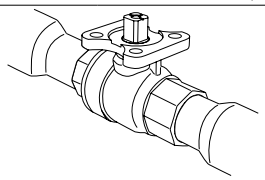
Option 1

LINE SIZE
Go to page EBV-9, EBV Series Quick Reference Charts. Using the line size, find a valve of the same size with a Cv that best matches the one calculated in Step 1.



Option 2

SIZE FOR PRECISE CONTROL
Go to page EBV-10 (2-Way or 3-Way), EBV Series Piping Geometry Charts. Find the line size at the top of the chart. Scan down the page to the Cv that best matches the one calculated in Step 1.



Step Three

Determine the actual pressure drop using the below equation.

$$\Delta P = \left(\frac{Q\sqrt{G}}{Cv} \right)^2$$

If the pressure drop is acceptable†, go to Step 4.
If not, repeat Steps 2 and 3, selecting an alternate valve.

Step Four

Check to be sure that the close-off requirements are met. Refer to Page EBV-11 - EBV-14.

† Recommended to be no higher than 35 psi or match the designed pressure drop, 3, 4, 5, and 6 psi are commonly accepted for modulating applications.

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2-Way/3-Way GPM - Quick Reference Chart												
Valve Size	Model Number	Differential Pressure (psi)										
		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	7.0	10.0
		GPM										
1/2"	EBV-05-x-003	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.9
	EBV-05-x-005	0.5	0.6	0.7	0.8	0.9	0.9	1.0	1.1	1.1	1.3	1.6
	EBV-05-x-009	0.9	1.1	1.3	1.4	1.6	1.7	1.8	1.9	2.0	2.4	2.8
	EBV-05-x-01	1.4	1.7	2.0	2.2	2.4	2.6	2.8	3.0	3.1	3.7	4.4
	EBV-05-x-02	2	2.4	2.8	3.2	3.5	3.7	4.0	4.2	4.5	5.3	6.3
	EBV-05-x-03	3	3.7	4.2	4.7	5.2	5.6	6.0	6.4	6.7	7.9	9.5
	EBV-05-x-05	4.9	6.0	6.9	7.7	8.5	9.2	9.8	10.4	11.0	13.0	15.5
	EBV-05-x-08	8	9.8	11.3	12.6	13.9	15.0	16.0	17.0	17.9	21.2	25.3
	EBV-05-x-13	12.5	15.3	17.7	19.8	21.7	23.4	25.0	26.5	28.0	33.1	39.5
	EBV-05-x-17	17.2*	21.1	24.3	27.2	29.8	32.2	34.4	36.5	38.5	45.5	54.4
3/4"	EBV-75-x-05	4.9	6.0	6.9	7.7	8.5	9.2	9.8	10.4	11.0	13.0	15.5
	EBV-75-x-08	7.8	9.6	11.0	12.3	13.5	14.6	15.6	16.5	17.4	20.6	24.7
	EBV-75-x-12	12.3	15.1	17.4	19.4	21.3	23.0	24.6	26.1	27.5	32.5	38.9
	EBV-75-x-15	15.3*	18.7	21.6	24.2	26.5	28.6	30.6	32.5	34.2	40.5	48.4
1"	EBV-1-x-08	7.8	9.6	11.0	12.3	13.5	14.6	15.6	16.5	17.4	20.6	24.7
	EBV-1-x-12	12.1	14.8	17.1	19.1	21.0	22.6	24.2	25.7	27.1	32.0	38.3
	EBV-1-x-20	19.5	23.9	27.6	30.8	33.8	36.5	39.0	41.4	43.6	51.6	61.7
	EBV-1-x-30	29.9*	36.6	42.3	47.3	51.8	55.9	59.8	63.4	66.9	79.1	94.6
1-1/4"	EBV-125-x-12	11.7	14.3	16.5	18.5	20.3	21.9	23.4	24.8	26.2	31.0	37.0
	EBV-125-x-20	19.8	24.2	28.0	31.3	34.3	37.0	39.6	42.0	44.3	52.4	62.6
	EBV-125-x-30	30.4	37.2	43.0	48.1	52.7	56.9	60.8	64.5	68.0	80.4	96.1
	EBV-125-x-45	44.8*	54.9	63.4	70.8	77.6	83.8	89.6	95.0	100.2	118.5	141.7
1-1/2"	EBV-150-x-20	19.6	24.0	27.7	31.0	33.9	36.7	39.2	41.6	43.8	51.9	62.0
	EBV-150-x-30	30.4	37.2	43.0	48.1	52.7	56.9	60.8	64.5	68.0	80.4	96.1
	EBV-150-x-48	48.3*	59.2	68.3	76.4	83.7	90.4	96.6	102.5	108.0	127.8	152.7
2"	EBV-2-x-29	29.2	35.8	41.3	46.2	50.6	54.6	58.4	61.9	65.3	77.3	92.3
	EBV-2-x-49	48.8	59.8	69.0	77.2	84.5	91.3	97.6	103.5	109.1	129.1	154.3
	EBV-2-x-75	75.2	92.1	106.3	118.9	130.3	140.7	150.4	159.5	168.2	199.0	237.8
	EBV-2-x-96	95.5*	117.0	135.1	151.0	165.4	178.7	191.0	202.6	213.5	252.7	302.0

x = 2-Way or 3-Way Assemblies

* No characterizing disc

EBV Series - Adjusted Cv Chart for Piping Geometry Factor (Fp)

2-Way/3-Way PIPING GEOMETRY CHART - At Full Open (Adjusted Cv) - (200 psi Close-Off)										
Valve Size	Model Number	Nominal Cv	Pipe Size							
			1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
1/2"	EBV-05-x-003	0.3	0.30	0.30	0.30	-	-	-	-	-
1/2"	EBV-05-x-005	0.5	0.50	0.50	0.50	-	-	-	-	-
1/2"	EBV-05-x-009	0.9	0.90	0.90	0.89	-	-	-	-	-
1/2"	EBV-05-x-01	1.4	1.40	1.39	1.38	-	-	-	-	-
1/2"	EBV-05-x-02	2	2.00	1.97	1.94	-	-	-	-	-
1/2"	EBV-05-x-03	3	3.00	2.89	2.81	-	-	-	-	-
1/2"	EBV-05-x-05	4.9	4.90	4.47	4.20	-	-	-	-	-
1/2"	EBV-05-x-08	8	8.00	6.46	5.70	-	-	-	-	-
1/2"	EBV-05-x-13	12.5	12.50	8.24	6.81	-	-	-	-	-
1/2"	EBV-05-x-17	17.2*	17.20	9.24	7.34	-	-	-	-	-
3/4"	EBV-75-x-05	4.9	-	4.90	4.84	4.78	-	-	-	-
3/4"	EBV-75-x-08	7.8	-	7.80	7.57	7.33	-	-	-	-
3/4"	EBV-75-x-12	12.3	-	12.30	11.45	10.67	-	-	-	-
3/4"	EBV-75-x-15	15.3*	-	15.30	13.75	12.45	-	-	-	-
1"	EBV-1-x-08	7.8	-	-	7.80	7.75	7.68	-	-	-
1"	EBV-1-x-12	12.1	-	-	12.10	11.91	11.66	-	-	-
1"	EBV-1-x-20	19.5	-	-	19.50	18.74	17.82	-	-	-
1"	EBV-1-x-30	29.9*	-	-	29.90	27.35	24.70	-	-	-
1-1/4"	EBV-125-x-12	11.7	-	-	-	11.70	11.65	11.50	-	-
1-1/4"	EBV-125-x-20	19.8	-	-	-	19.80	19.55	18.87	-	-
1-1/4"	EBV-125-x-30	30.4	-	-	-	30.40	29.53	27.33	-	-
1-1/4"	EBV-125-x-45	44.8*	-	-	-	44.80	42.16	36.40	-	-
1-1/2"	EBV-150-x-20	19.6	-	-	-	-	19.60	19.36	19.11	-
1-1/2"	EBV-150-x-30	30.4	-	-	-	-	30.40	29.54	28.65	-
1-1/2"	EBV-150-x-48	48.3*	-	-	-	-	48.30	45.07	42.07	-
2"	EBV-2-x-29	29.2	-	-	-	-	-	29.20	29.03	28.80
2"	EBV-2-x-49	48.8	-	-	-	-	-	48.80	48.03	47.01
2"	EBV-2-x-75	75.2	-	-	-	-	-	75.20	72.46	69.11
2"	EBV-2-x-96	95.5*	-	-	-	-	-	95.50	90.06	83.87

x = 2-Way or 3-Way Assemblies

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2-Way, On/Off & Floating - Non-Spring Return Actuators - (200 psi - Close Off)							
Actuator Model Details							
Floating with Time Out/Overload Protection						■	
Auxiliary Switches							■
Conduit Size - Flex(F)/NPT(N)					3/8 F	3/8 F	3/8 F
Cable - Standard(S)/Plenum(P)					P	P	P
Manual Override					Push Button	Push Button	Push Button
Model Number	Valve Size		Flow Coefficient		24 VAC Floating	24 VAC/DC On/ Off & Floating	24 VAC Floating
	In.	mm	Cv	Kv	DC24-44-TP	DC24-44-TPTO	DC24-44-TAP
EBV-05-2-003	0.5	15	0.3	0.3	✓	✓	✓
EBV-05-2-005			0.5	0.4			
EBV-05-2-009			0.9	0.8			
EBV-05-2-01			1.4	1.2			
EBV-05-2-02			2	1.7			
EBV-05-2-03			3	2.6			
EBV-05-2-05			4.9	4.2			
EBV-05-2-08			8	6.9			
EBV-05-2-13			12.5	10.8			
EBV-05-2-17*			17.2	14.9			
EBV-75-2-05	.75	20	4.9	4.2	✓	✓	✓
EBV-75-2-08			7.8	6.7			
EBV-75-2-12			12.3	10.6			
EBV-75-2-15*			15.3	13.2			
EBV-1-2-08	1	25	7.8	6.7	✓	✓	✓
EBV-1-2-12			12.1	10.5			
EBV-1-2-20			19.5	16.9			
EBV-1-2-30*			29.9	25.9			
EBV-125-2-12	1.25	32	11.7	10.1	✓	✓	✓
EBV-125-2-20			19.8	17.1			
EBV-125-2-30			30.4	26.3			
EBV-125-2-45*			44.8	38.8			
EBV-150-2-20	1.5	40	19.6	17.0	✓	✓	✓
EBV-150-2-30			30.4	26.3			
EBV-150-2-48*			48.3	41.8			
EBV-2-2-29	2	50	29.2	25.3	✓	✓	✓
EBV-2-2-49			48.8	42.2			
EBV-2-2-75			75.2	65.0			
EBV-2-2-96*			95.5	82.6			

* No characterizing disc

EBV Series - 2-Way - Non-Spring Return Close-Off Chart (psi)

2-Way, Modulating - Non-Spring Return Actuators - (200 psi - Close Off)						
Actuator Model Details						
Modulating with Time Out/Overload Protection					■	■
Auxiliary Switches						■
Conduit Size - Flex(F)/NPT(N)					3/8 F	3/8 F
Cable - Standard(S)/Plenum(P)					P	P
Manual Override					Push Button	Push Button
Model Number	Valve Size		Flow Coefficient		24 VAC/DC Modulating 0/2-10V in 0/2-10V out	24 VAC/DC Modulating 0/2-10V in 0/2-10V out
	In.	mm	Cv	Kv	DCM24-44-P	DCM24-44-AP
EBV-05-2-003	0.5	15	0.3	0.3	✅	✅
EBV-05-2-005			0.5	0.4		
EBV-05-2-009			0.9	0.8		
EBV-05-2-01			1.4	1.2		
EBV-05-2-02			2	1.7		
EBV-05-2-03			3	2.6		
EBV-05-2-05			4.9	4.2		
EBV-05-2-08			8	6.9		
EBV-05-2-13			12.5	10.8		
EBV-05-2-17*			17.2	14.9		
EBV-75-2-05	.75	20	4.9	4.2	✅	✅
EBV-75-2-08			7.8	6.7		
EBV-75-2-12			12.3	10.6		
EBV-75-2-15*			15.3	13.2		
EBV-1-2-08	1	25	7.8	6.7	✅	✅
EBV-1-2-12			12.1	10.5		
EBV-1-2-20			19.5	16.9		
EBV-1-2-30*			29.9	25.9		
EBV-125-2-12	1.25	32	11.7	10.1	✅	✅
EBV-125-2-20			19.8	17.1		
EBV-125-2-30			30.4	26.3		
EBV-125-2-45*			44.8	38.8		
EBV-150-2-20	1.5	40	19.6	17.0	✅	✅
EBV-150-2-30			30.4	26.3		
EBV-150-2-48*			48.3	41.8		
EBV-2-2-29	2	50	29.2	25.3	✅	✅
EBV-2-2-49			48.8	42.2		
EBV-2-2-75			75.2	65.0		
EBV-2-2-96*			95.5	82.6		

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2-Way, On/Off - Spring Return Actuators - (200 psi - Close Off)												
Actuator Model Details												
Auxiliary Switches						■		■		■		
Conduit Size - Flex(F)/NPT(N)					1/2 N		1/2 N	1/2 N	1/2 N	1/2 N	1/2 N	1/2 N
Cable - Standard(S)/Plenum(P)					P	P	P	S	S	S		
Manual Override					N/A	N/A	Hex Wrench Included	Hex Wrench Included	Hex Wrench Included	Hex Wrench Included		
Model Number	Valve Size		Flow Coefficient		24 VAC/DC On/Off	24 VAC/DC On/Off	24 VAC/DC On/Off	24 VAC/DC On/Off	120 VAC On/Off	120 VAC On/Off		
	In.	mm	Cv	Kv	DCS24-20-P	DCS24-20-AP	DCS24-62-P	DCS24-62-A	DCS120-62	DCS120-62-A		
EBV-05-2-003	0.5	15	0.3	0.3	✓	✓	-	-	✓	✓		
EBV-05-2-005			0.5	0.4								
EBV-05-2-009			0.9	0.8								
EBV-05-2-01			1.4	1.2								
EBV-05-2-02			2	1.7								
EBV-05-2-03			3	2.6								
EBV-05-2-05			4.9	4.2								
EBV-05-2-08			8	6.9								
EBV-05-2-13			12.5	10.8								
EBV-05-2-17*			17.2	14.9								
EBV-75-2-05	.75	20	4.9	4.2	✓	✓	-	-	✓	✓		
EBV-75-2-08			7.8	6.7								
EBV-75-2-12			12.3	10.6								
EBV-75-2-15*			15.3	13.2								
EBV-1-2-08	1	25	7.8	6.7	✓	✓	-	-	✓	✓		
EBV-1-2-12			12.1	10.5								
EBV-1-2-20			19.5	16.9								
EBV-1-2-30*			29.9	25.9								
EBV-125-2-12	1.25	32	11.7	10.1	-	-	✓	✓	✓	✓		
EBV-125-2-20			19.8	17.1								
EBV-125-2-30			30.4	26.3								
EBV-125-2-45*			44.8	38.8								
EBV-150-2-20	1.5	40	19.6	17.0	-	-	✓	✓	✓	✓		
EBV-150-2-30			30.4	26.3								
EBV-150-2-48*			48.3	41.8								
EBV-2-2-29	2	50	29.2	25.3	-	-	✓	✓	✓	✓		
EBV-2-2-49			48.8	42.2								
EBV-2-2-75			75.2	65.0								
EBV-2-2-96*			95.5	82.6								

* No characterizing disc

EBV Series - 2-Way - Spring Return Close-Off Chart (psi)

2-Way, Modulating - Spring Return Actuators - (200 psi - Close Off)							
Actuator Model Details							
Auxiliary Switches							■
Conduit Size - Flex(F)/NPT(N)					1/2 N	1/2 N	1/2 N
Cable - Standard(S)/Plenum(P)					P	P	S
Manual Override					N/A	Hex Wrench Included	Hex Wrench Included
Model Number	Valve Size		Flow Coefficient		24 VAC Modulating 2-10 in/out	24 VAC Modulating 0-10 in/out	24 VAC Modulating 0-10 in/out
	In.	mm	Cv	Kv	DCMS24-20-P	DCMS24-62-P	DCMS24-62-A
EBV-05-2-003	0.5	15	0.3	0.3	✓	-	✓
EBV-05-2-005			0.5	0.4			
EBV-05-2-009			0.9	0.8			
EBV-05-2-01			1.4	1.2			
EBV-05-2-02			2	1.7			
EBV-05-2-03			3	2.6			
EBV-05-2-05			4.9	4.2			
EBV-05-2-08			8	6.9			
EBV-05-2-13			12.5	10.8			
EBV-05-2-17*			17.2	14.9			
EBV-75-2-05	.75	20	4.9	4.2	✓	-	✓
EBV-75-2-08			7.8	6.7			
EBV-75-2-12			12.3	10.6			
EBV-75-2-15*			15.3	13.2			
EBV-1-2-08	1	25	7.8	6.7	✓	-	✓
EBV-1-2-12			12.1	10.5			
EBV-1-2-20			19.5	16.9			
EBV-1-2-30*			29.9	25.9			
EBV-125-2-12	1.25	32	11.7	10.1	-	✓	✓
EBV-125-2-20			19.8	17.1			
EBV-125-2-30			30.4	26.3			
EBV-125-2-45*			44.8	38.8			
EBV-150-2-20	1.5	40	19.6	17.0	-	✓	✓
EBV-150-2-30			30.4	26.3			
EBV-150-2-48*			48.3	41.8			
EBV-2-2-29	2	50	29.2	25.3	-	✓	✓
EBV-2-2-49			48.8	42.2			
EBV-2-2-75			75.2	65.0			
EBV-2-2-96*			95.5	82.6			

* No characterizing disc

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3-Way, On/Off & Floating - Non-Spring Return Actuators - (200 psi - Close Off)							
Actuator Model Details							
Floating with Time Out/Overload Protection						■	
Auxiliary Switches							■
Conduit Size - Flex(F)/NPT(N)					3/8 F	3/8 F	3/8 F
Cable - Standard(S)/Plenum(P)					P	P	P
Manual Override					Push Button	Push Button	Push Button
Model Number	Valve Size		Flow Coefficient		24 VAC Floating	24 VAC/DC On/ Off & Floating	24 VAC Floating
	In.	mm	Cv	Kv	DC24-44-TP	DC24-44-TPTO	DC24-44-TAP
EBV-05-3-003	0.5	15	0.3	0.3	✓	✓	✓
EBV-05-3-005			0.5	0.4			
EBV-05-3-009			0.9	0.8			
EBV-05-3-01			1.4	1.2			
EBV-05-3-02			2	1.7			
EBV-05-3-03			3	2.6			
EBV-05-3-05			4.9	4.2			
EBV-05-3-08			8	6.9			
EBV-05-3-13			12.5	10.8			
EBV-05-3-17*			17.2	14.9			
EBV-75-3-05	.75	20	4.9	4.2	✓	✓	✓
EBV-75-3-08			7.8	6.7			
EBV-75-3-12			12.3	10.6			
EBV-75-3-15*			15.3	13.2			
EBV-1-3-08	1	25	7.8	6.7	✓	✓	✓
EBV-1-3-12			12.1	10.5			
EBV-1-3-20			19.5	16.9			
EBV-1-3-30*			29.9	25.9			
EBV-125-3-12	1.25	32	11.7	10.1	✓	✓	✓
EBV-125-3-20			19.8	17.1			
EBV-125-3-30			30.4	26.3			
EBV-125-3-45*			44.8	38.8			
EBV-150-3-20	1.5	40	19.6	17.0	✓	✓	✓
EBV-150-3-30			30.4	26.3			
EBV-150-3-48*			48.3	41.8			
EBV-2-3-29	2	50	29.2	25.3	✓	✓	✓
EBV-2-3-49			48.8	42.2			
EBV-2-3-75			75.2	65.0			
EBV-2-3-96*			95.5	82.6			

* No characterizing disc

EBV Series - 3-Way - Non-Spring Return Close-Off Chart (psi)

3-Way, Modulating - Non-Spring Return Actuators - (200 psi - Close Off)						
Actuator Model Details						
Modulating with Time Out/Overload Protection					■	■
Auxiliary Switches						■
Conduit Size - Flex(F)/NPT(N)					3/8 F	3/8 F
Cable - Standard(S)/Plenum(P)					P	P
Manual Override					Push Button	Push Button
Model Number	Valve Size		Flow Coefficient		24 VAC/DC Modulating 0/2-10V in 0/2-10V out	24 VAC/DC Modulating 0/2-10V in 0/2-10V out
	In.	mm	Cv	Kv	DCM24-44-P	DCM24-44-AP
EBV-05-3-003	0.5	15	0.3	0.3	✓	✓
EBV-05-3-005			0.5	0.4		
EBV-05-3-009			0.9	0.8		
EBV-05-3-01			1.4	1.2		
EBV-05-3-02			2	1.7		
EBV-05-3-03			3	2.6		
EBV-05-3-05			4.9	4.2		
EBV-05-3-08			8	6.9		
EBV-05-3-13			12.5	10.8		
EBV-05-3-17*			17.2	14.9		
EBV-75-3-05	.75	20	4.9	4.2	✓	✓
EBV-75-3-08			7.8	6.7		
EBV-75-3-12			12.3	10.6		
EBV-75-3-15*			15.3	13.2		
EBV-1-3-08	1	25	7.8	6.7	✓	✓
EBV-1-3-12			12.1	10.5		
EBV-1-3-20			19.5	16.9		
EBV-1-3-30*			29.9	25.9		
EBV-125-3-12	1.25	32	11.7	10.1	✓	✓
EBV-125-3-20			19.8	17.1		
EBV-125-3-30			30.4	26.3		
EBV-125-3-45*			44.8	38.8		
EBV-150-3-20	1.5	40	19.6	17.0	✓	✓
EBV-150-3-30			30.4	26.3		
EBV-150-3-48*			48.3	41.8		
EBV-2-3-29	2	50	29.2	25.3	✓	✓
EBV-2-3-49			48.8	42.2		
EBV-2-3-75			75.2	65.0		
EBV-2-3-96*			95.5	82.6		

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3-Way, On/Off - Spring Return Actuators - (200 psi - Close Off)										
Actuator Model Details										
Auxiliary Switches					■		■		■	
Conduit Size - Flex(F)/NPT(N)					1/2 N		1/2 N	1/2 N	1/2 N	1/2 N
Cable - Standard(S)/Plenum(P)					P	P	P	S	S	S
Manual Override					N/A	N/A	Hex Wrench Included	Hex Wrench Included	Hex Wrench Included	Hex Wrench Included
Model Number	Valve Size		Flow Coefficient		24 VAC/DC On/Off	24 VAC/DC On/Off	24 VAC/DC On/Off	24 VAC/DC On/Off	120 VAC On/Off	120 VAC On/Off
	In.	mm	Cv	Kv	DCS24-20-P	DCS24-20-AP	DCS24-62-P	DCS24-62-A	DCS120-62	DCS120-62-A
EBV-05-3-003	0.5	15	0.3	0.3	✓	✓	-	-	✓	✓
EBV-05-3-005			0.5	0.4						
EBV-05-3-009			0.9	0.8						
EBV-05-3-01			1.4	1.2						
EBV-05-3-02			2	1.7						
EBV-05-3-03			3	2.6						
EBV-05-3-05			4.9	4.2						
EBV-05-3-08			8	6.9						
EBV-05-3-13			12.5	10.8						
EBV-05-3-17*			17.2	14.9						
EBV-75-3-05	.75	20	4.9	4.2	✓	✓	-	-	✓	✓
EBV-75-3-08			7.8	6.7						
EBV-75-3-12			12.3	10.6						
EBV-75-3-15*			15.3	13.2						
EBV-1-3-08	1	25	7.8	6.7	✓	✓	-	-	✓	✓
EBV-1-3-12			12.1	10.5						
EBV-1-3-20			19.5	16.9						
EBV-1-3-30*			29.9	25.9						
EBV-125-3-12	1.25	32	11.7	10.1	-	-	✓	✓	✓	✓
EBV-125-3-20			19.8	17.1						
EBV-125-3-30			30.4	26.3						
EBV-125-3-45*			44.8	38.8						
EBV-150-3-20	1.5	40	19.6	17.0	-	-	✓	✓	✓	✓
EBV-150-3-30			30.4	26.3						
EBV-150-3-48*			48.3	41.8						
EBV-2-3-29	2	50	29.2	25.3	-	-	✓	✓	✓	✓
EBV-2-3-49			48.8	42.2						
EBV-2-3-75			75.2	65.0						
EBV-2-3-96*			95.5	82.6						

* No characterizing disc

EBV Series - 3-Way - Spring Return Close-Off Chart (psi)

3-Way, Modulating - Spring Return Actuators - (200 psi - Close Off)							
Actuator Model Details							
Auxiliary Switches							■
Conduit Size - Flex(F)/NPT(N)					1/2 N	1/2 N	1/2 N
Cable - Standard(S)/Plenum(P)					P	P	S
Manual Override					N/A	Hex Wrench Included	Hex Wrench Included
Model Number	Valve Size		Flow Coefficient		24 VAC Modulating 2-10 in/out	24 VAC Modulating 0-10 in/out	24 VAC Modulating 0-10 in/out
	In.	mm	Cv	Kv	DCMS24-20-P	DCMS24-62-P	DCMS24-62-A
EBV-05-3-003	0.5	15	0.3	0.3	✓	-	✓
EBV-05-3-005			0.5	0.4			
EBV-05-3-009			0.9	0.8			
EBV-05-3-01			1.4	1.2			
EBV-05-3-02			2	1.7			
EBV-05-3-03			3	2.6			
EBV-05-3-05			4.9	4.2			
EBV-05-3-08			8	6.9			
EBV-05-3-13			12.5	10.8			
EBV-05-3-17*			17.2	14.9			
EBV-75-3-05	.75	20	4.9	4.2	✓	-	✓
EBV-75-3-08			7.8	6.7			
EBV-75-3-12			12.3	10.6			
EBV-75-3-15*			15.3	13.2			
EBV-1-3-08	1	25	7.8	6.7	✓	-	✓
EBV-1-3-12			12.1	10.5			
EBV-1-3-20			19.5	16.9			
EBV-1-3-30*			29.9	25.9			
EBV-125-3-12	1.25	32	11.7	10.1	-	✓	✓
EBV-125-3-20			19.8	17.1			
EBV-125-3-30			30.4	26.3			
EBV-125-3-45*			44.8	38.8			
EBV-150-3-20	1.5	40	19.6	17.0	-	✓	✓
EBV-150-3-30			30.4	26.3			
EBV-150-3-48*			48.3	41.8			
EBV-2-3-29	2	50	29.2	25.3	-	✓	✓
EBV-2-3-49			48.8	42.2			
EBV-2-3-75			75.2	65.0			
EBV-2-3-96*			95.5	82.6			

* No characterizing disc

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The Benefits of Ball Valves in Commercial Applications

Ball valves are generally a superior alternative to globe valves where precise control is required. Ball valves tend to offer higher close-off's and rangeability ratios while providing smaller size, weights and costs. Ball valves also offer more Cv options in order to more closely match your specifications.

Bray offers two distinct lines. These characterized ball valves provide superior control characteristics, low torque requirements for years of trouble free service and multiple actuator options.

NPT Threaded Comparative Valve Specifications		
	EBV Series	BV Series
Valve Body Pressure Rating	580 psi	1000 psi
Max Water Temperature	284˚F @ 36 psi	225˚F @ 1000 psi
Steam	15 psig @ 250°F	150 psig
Max Recommended Operating Pressure Drop	50 psi	80 psi
Leakage	Class VI	Bubble Tight

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.

EBV Series - Model Number Matrix

EBV	Prefix: EBV Series											Valve Series
	-											-
		1	Valve Size 05 (1/2"), 75 (3/4"), 1 (1"), 125 (1-1/4"), 150 (1-1/2"), 2 (2")									Valve Size
			-									-
				2	Configuration (2 = 2-Way & 3 = 3-Way)							Configuration
					-							-
						08	Cv					Cv
							C	C = Normally Closed				Normally Closed
								/				/
									DC24-44	Actuator Series - Refer to Close-Off Charts		Actuator Series
EBV	-	1	-	2	-	08		/	DC24-44	1" EBV Body, 2-Way Configuration, 8 Cv, / DC24-44 Actuator		Example

Note: Valve assemblies ship normally Open from Factory unless you denote normally closed with a "C" after valve CV.

Bray COMMERCIAL

Bray Commercial provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world Whereever 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

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT **BRAYCOMMERCIALDIVISION.COM** TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

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