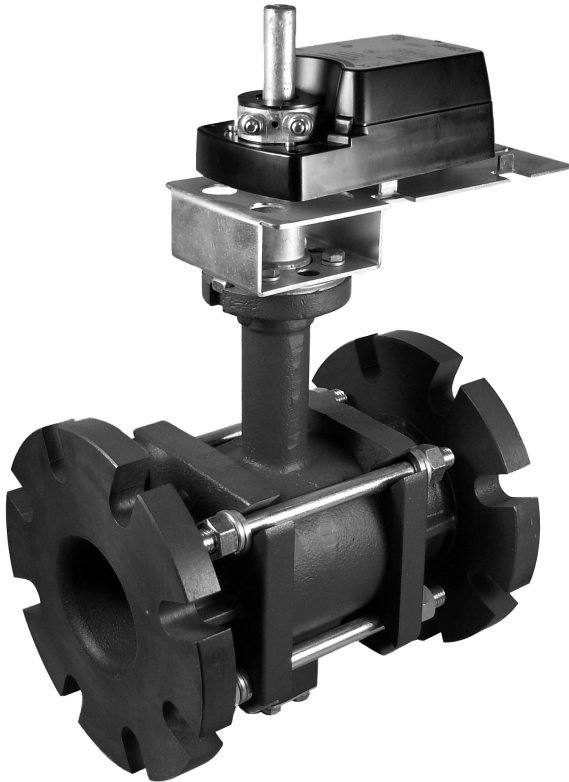


**VCB/F Series
 Characterized Ball Valves
 2-Way & 3-Way, Flanged**



Bray Controls is proud to offer the VCB Flanged Series of electrically automated characterized ball valves designed specifically for the HVAC market.

Bray's high quality automated ball valves combine the performance of globe valves with the economy of ball valves – providing the best of both worlds. The VCB Series flanged ball valves are equipped with a laser-cut stainless steel ball. This characterized ball design provides very high rangeability and excellent equal percentage flow characteristics.

The Series VCB valves are ideal for all automatic temperature control applications using hot water, or chilled water.

Bray's VCB valves can be equipped with a variety of economical electric actuators. Choices include on/off, 3-wire floating and proportional control models in both spring return and non-spring return styles.

The CA Series electric actuators feature simplified mounting of the actuator to a direct coupled bracket. The result is a very low profile unit with flexibility of use as well as fast and easy maintenance. All non spring-return actuators include a manual override lever for manually positioning the valve when the actuator is not powered.

For additional information on Bray electric actuators, see the Actuators section of the Bray Commercial Product Manual.

FEATURES & BENEFITS

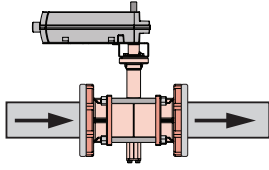
Characterized Insert	<ul style="list-style-type: none"> • Provides superior rangeability and equal percentage flow characteristic.
Low Torque	<ul style="list-style-type: none"> • Facilitates the use of smaller, less expensive actuators. • Extends valve and actuator service life.
3-Way Body	<ul style="list-style-type: none"> • Same valve used for mixing or diverting.
Universal Mounting	<ul style="list-style-type: none"> • Accommodates virtually any direct-mount, rotary-motion actuator.



Patented ball characterizes flow for an equal percentage flow characteristic.

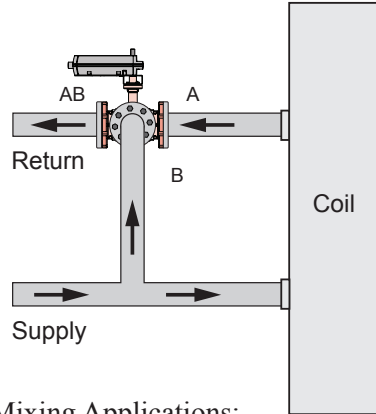
PIPING DIAGRAMS

2-WAY



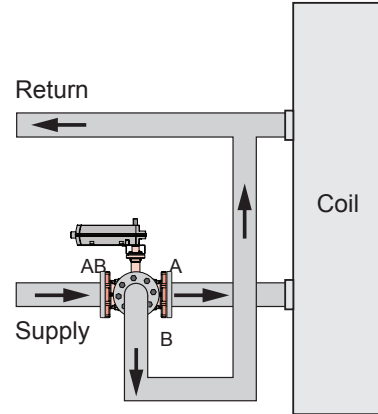
3-Way Valve Assemblies are shipped as standard with ball ports labeled as A, B, and AB. All 3-Way ball valves are shipped A open to AB at 0 VDC. For applications requiring a different flow pattern, please consult your Bray representative.

3-WAY MIXING



Mixing Applications:
 Fluid enters through two inlets (A, B) and exits through one outlet (AB).
 A is service port.
 B is bypass port.

3-WAY DIVERTING



Diverting Applications:
 Fluid enters through one inlet (AB) and exits through two outlets (A, B).
 A is service port.
 B is bypass port.

SPECIFICATIONS

Service	Hot Water and Chilled Water, up to 50% Glycol	
Flow Characteristic	Equal Percentage (Linear on bypass port of 3-way valves)	
Seat Leakage	ANSI Class IV (<0.01% of C _v)	
Stroke	90°	
Closeoff Pressure	Refer to chart on page 3	

	2-1/2" and 3" valves	4-6" valves
Body Pressure	360 psi (25 bar)	240 psi (16 bar)
End Connections	ANSI Class 125 Flanged Adapters	ANSI Class 125 Flanges
Temperature Range	-20°F to 240°F (-29°C to 116°C)	20°F to 250°F (-7°C to 121°C)

Materials of Construction		
	2-1/2" and 3" valves	4-6" valves
Body	Forged Brass	Cast Iron
Ball	Chrome Plated Brass (SS Optional)	Stainless Steel
Stem	Brass (SS Optional)	Stainless Steel
Characterized Insert	Glass Filled Polymer	No Insert, Laser Cut Stainless Steel
Stem Seals (2)	EPDM O-rings	EPDM O-rings
Seats	RTFE	RTFE

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.

2-Way Characterized Ball Valve Selection Table

Connection		Model # ¹	Flow Coefficient		Closeoff ΔP^2	
in.	mm		C_v	K_v	PSI	kPa
2-1/2	63	VCB2723A_	55	47	100	689
		VCB2724A_	72	62		
		VCB2725A_	202	174		
3	75	VCB2826A_	82	71		
		VCB2827A_	124	107		
		VCB2828A_	145	125		
4	100	VCB4091F2	91	78	70	482
		VCB4152F2	152	131		
		VCB4254F2	254	218		
5	125	VCB5185F2	185	159		
		VCB5240F2	240	206		
		VCB5400F2	400	344		
6	150	VCB6348F2	348	299		
		VCB6441F2	441	379		
		VCB6650F2	650	559		

¹ For 2-1/2 and 3" valves, add "1" to the part number for Brass trim, "2" for Stainless

² Closeoff ΔP is based on the following minimum torque values:

2-1/2 and 3" valves: 45 lb.-in.

4" valves: 88 lb.-in.

5 and 6" valves: 140 lb.-in.

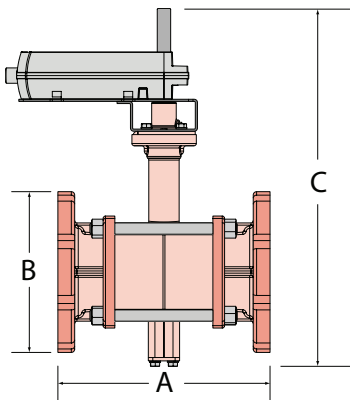
3-Way Characterized Ball Valve Selection Table

Connection		Model #	Flow Coefficient ³		Closeoff ΔP^2	
in.	mm		C_v	K_v	PSI	kPa
4	100	VCB34091F2	91	78	70	482
		VCB34152F2	152	131		
		VCB34254F2	254	218		
5	125	VCB35185F2	185	159		
		VCB35240F2	240	206		
		VCB35400F2	400	344		
6	150	VCB36348F2	348	299		
		VCB36441F2	441	379		
		VCB36650F2	650	559		

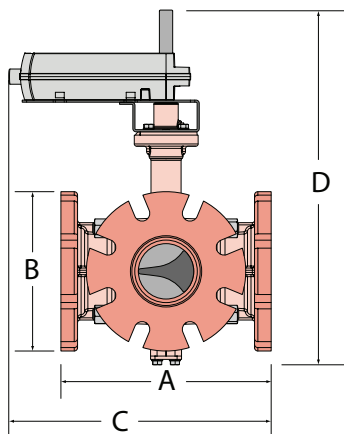
³ Flow Coefficient shown is for service flow. Bypass flow is 80% of service flow.

2-Way Ball Valve Dimensions

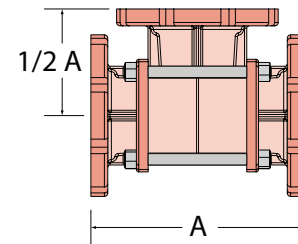
Connection		Bolt Holes	Bolt Hole	A		B		C*		Weight	
in.	mm			in.	mm	in.	mm	in.	mm	lb	kg
2-1/2	65	4	3/4 in.	7	178	7	178	12	305	22	10
3	80			9	227	7-3/8	188	12-3/8	315	26	12
4	100	8		11	279	9	229	18-13/16	478	65	29
5	125			12-3/8	315	10	254	19	483	75	34
6	150			13-7/8	353	11	279	19-7/8	505	90	41



2-Way Dimensions



3-Way Dimensions
(Side View)



3-Way Dimensions
(Top View)

3-Way Ball Valve Dimensions

Connection		Bolt Holes	Bolt Hole	A		B		C		D*		Weight	
in.	mm			in.	mm	in.	mm	in.	mm	in.	mm	lb	kg
4	100	8	3/4 in.	12	305	9	229	14	356	18-1/2	470	75	34
5	125			14	356	10	254	15	381	20	508	90	41
6	150			16	406	11	279	16	406	20-1/2	521	105	48

*Dimensions may vary, depending on the actuator. Dimensions shown are for the largest non spring return actuator available. Weights shown are for valve bodies only.

All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved.

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