

VB-3766, VB-3966, VB-4332 Series

# Brass Flare Valve Bodies, 1/2-Inch 2-Way and 3-Way

## Description

The 1/2 in. 2-Way and 3-Way Flare Valves accurately regulate the flow of hot or cold water in small Heating, Ventilating, and Air Conditioning (HVAC) terminal units, including fan coils, perimeter radiation, and reheat coils.

## Features

- available with or without a factory coupled V-3000-1 pneumatic or VA-805x Series electric actuator. These actuators can also be field mounted.
- contains a modulating plug which provides an equal percentage relationship (Two-Way) and linear relationship (Three-Way) between valve travel and flow at a constant pressure drop
- uses standard Johnson Controls® non-adjustable ring pack packing for proven reliability and long life
- a molded composition disk that ensures tight shutoff is bonded to the valve plug assembly and can be removed for servicing



**VB-3766 Series  
Push-Down-To-Close**



**VB-3966 Series  
Push-Down-To-Open**



**VB-4332 Series**

## Selection Chart

VB-3766, VB-3966, VB-4332 Series Brass Flare Valve Bodies, 1/2 in. Two-Way and Three-Way

Code Number	Size (in.)	Maximum Cv (Kv)	Stroke (in.)	Style	End Connection
VB-3766-1	1/2	1.0 (.85)	1/2	PDTC	Flare
VB-3766-2		1.7 (1.5)			
VB-3766-3		3.2 (2.7)			
VB-3966-1	1/2	1.7 (1.5)	1/2	PDTO	
VB-3966-2		3.2 (2.7)			
VB-4332-4	5/16	1.2 (1.0)	5/16	Mixing	
VB-4332-5		2.0 (1.7)			

## Repair Information

If the VB-3766, VB-3966, or VB-4332 Series Valve Body fails to operate within its specifications, replace the unit. For a replacement valve, contact the nearest Johnson Controls® representative.

## Technical Specifications

VB-3766, VB-3966, VB-4332 Series Bronze Flare Valve Bodies, 1/2 in. Two-Way and Three-Way (Part 1 of 2)	
Service	Hot and Cold Water
Valve Stem Diameter	1/4 in.
Maximum Seat Leakage	PDTC and PDTO <sup>1</sup> : 0.01% of Maximum Rated Valve Capacity (Cv); Three-Way Mixing: 0.25% of Maximum Rated Valve Capacity (Cv)
Maximum Recommended Operating Differential Pressure for Valve Sizing	35 psi (245 kPa)
Valve Stroke Length (Travel)	Two-Way (VB-3766, VB-3966): 1/2 in. Three-Way (VB-4332): 5/16 in.
Maximum Allowable Pressure/Temperature	(Two-Way) VB-3766, VB-3966: 400 psi (2,800 kPa) up to 150°F (66°C) Decreasing to 345 psi (2,415 kPa) at 281°F (140°C); (Three-Way Mixing) and VB-4332: 240 psi (1,750 kPa) Maximum to 281°F (140°C)

VB-3766, VB-3966, VB-4332 Series Bronze Flare Valve Bodies, 1/2 in. Two-Way and Three-Way (Part 2 of 2)		
Fluid Operating Temperature Limits	For VA-805x Electric Actuators: 35-195°F (2-90°C); For All Pneumatic Actuators: 35-281°F (2-38°C)	
Maximum Closeoff Pressures	Refer to V-3766, V-3966, and V-4332 Brass Pneumatic Flare Valves 1/2-Inch 2-Way and 3-Way Catalog Page (LIT-1924115).	
Flow Characteristics	VB-3766	PDTC: Equal Percentage
	VB-3966	PDTO: Cv 1.7: Equal Percentage; Cv 3.2: Modified Equal Percentage
	VB-4332	Both Ports: Cv 1.0 / 1.5 Linear; PDTC/PDTO: Cv 1.7 / 2.3 Quick Opening / Linear
Materials	Stem	Stainless Steel
	Plug	PDTC (N.O.) <sup>1</sup> and PDTO (N.C.) <sup>1</sup> : Brass with Molded and Bonded Composition Disk; Three-Way Mixing: Brass (Metal-to-Metal)
	Body	Cast Bronze with Natural Finish
	Packing	Non-Adjustable EPR (Ethylene Propylene Rubber) Ring Packs
Body Style and End Connection	Offset Globe for 1/2 in. S.A.E. Flared Connections	
Rangeability and Flow Coefficient	Max. Cv (Kv) — Rangeability	
	VB-3766 PDTC	1.0 (.85) — 7:1 1.7 (1.5) — 12:1 3.2 (2.7) — 23:1
	VB-3966 PDTO	1.8 (1.5) — 12:1 2.7 (2.3) — 23:1
	VB-4332 Mix	1.0 (.85) PDTC Port / 1.5 (1.28) PDTO Port — 10:1 for PDTC Port, 4:1 for PDTO Port 1.7 (1.5) PDTC Port / 2.3 (1.9) PDTO Port — 6:1 for both Ports
Dimensions (End-to-End)	VB-3766, VB-4332	3-3/8 in.
	VB-3966	3-3/4 in.
Recommended Actuators	Pneumatic	V-3000-1, V-3000-8003
	Electric	VA-805x

1. Push-Down-to-Close (PDTC); Push-Down-to-Open (PDTO)