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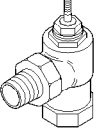
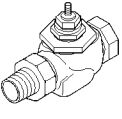
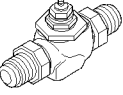
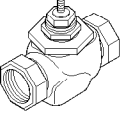
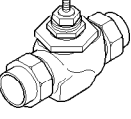
VF-7XXX Series

Valve Selection Guide for MF-22XX3 Actuators General Instructions

Table-1 Select Valve Body Including P Code (Valve Size, Cv Rating, Port Code).

Two-Way Valves

- 1/2" – 1-1/4" Union Angle, Union Straightway, Union Sweat
- 5/8" O.D. Flared
- 1/2" – 1-1/4" NPT Screwed
- 15 mm to 32 mm R_p Screwed

		Application				
		Chilled or Hot Water — 281°F Maximum — 35 psig Steam				
		Union Angle	Union Straightway	Flared	Screwed	Union Sweat
						
Size		1/2" – 1-1/4"	1/2" – 1-1/4"	5/8" O.D., SAE 45°	1/2" – 1-1/4"	1/2" – 1-1/4"
Valve Body Stem up Open (Normally Open)		VB-7211-0-3-P	VB-7211-0-4-P	VB-7212-0-4-P	VB-7213-0-4-P VB-7215-0-4-P ^a	VB-7214-0-4-P
Flow Type		Equal%	Equal%	Equal%	Equal%	Equal%
Material	Body	Bronze	Bronze	Bronze	Bronze	Bronze
	Seat	Bronze	Bronze	Bronze	Bronze	Bronze
	Stem	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
	Plug	Brass	Brass	Brass	Brass	Brass
	Packing	Spring Loaded TFE	Spring Loaded TFE	Spring Loaded TFE	Spring Loaded TFE	Spring Loaded TFE
Disc	Composition	Composition	Composition	Composition	Composition	
ANSI Pressure Class		250 (up to 400 psig below 150°F)		250	250 ^b (up to 400 psig below 150°F)	
Maximum Inlet Pressure psig (kPa)		35 (241)	35 (241)	35 (241)	35 (241)	35 (241)
Allowable Control Media Temp ^c		20 to 281°F (-7 to 138°C)	20 to 281°F (-7 to 138°C)	20 to 281°F (-7 to 138°C)	20 to 281°F (-7 to 138°C)	20 to 281°F (-7 to 138°C)
Allowable Differential Pressure for Water Psig (kPa) ^c		35 psi (241) Max. for normal life, refer to Siebe Environmental Controls Catalog, F-25683 for cavitation limitations.				
Allowable Differential Pressure for Steam		20 psi (138 kPa)	20 psi (138 kPa)	20 psi (138 kPa)	20 psi (138 kPa)	20 psi (138 kPa)
To Select a Port Code (P)						
P Code	Valve Size	Cv ^d				
-1	1/2" or 5/8"	0.4	0.4	0.4	0.4	0.4
-2		1.3	1.3	1.3	1.3	1.3
-3		2.2	2.2	2.2	2.2	2.2
-4		5.0	4.4	4.4	4.4	4.4
-5	3/4"	5.5	5.5	—	5.5	5.5
-6		8.5	7.5	—	7.5	7.5
-7	1"	14	10	—	10	10
-8		16	14	—	14	14
-9	1-1/4"	22	20	—	20	20

^a Metric thread 15 to 32 mm (Rp1/2 to Rp 1-1/4).

^b Pressure Class PN16 per ISO 7268.

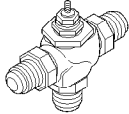
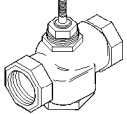
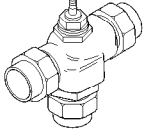
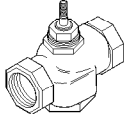
^c Maximum recommended differential in full open position. Do not exceed recommended differential pressure (pressure drop) or integrity of parts may be affected. Do not exceed close-off rating. Refer to Table-4 for maximum allowable temperature.

^d $kvs = m^3/h$ ($\Delta p = 100$ kPa)
 $kvs = Cv/1.156$

Table-2 Select Valve Body Including P Code (Valve Size, Cv Rating, Port Code).

Three-Way Valves

- 5/8" O.D. Flared
- 1/2" – 1-1/4" NPT Screwed
- 1/2" – 1-1/4" Union Sweat
- 15 mm to 32 mm Rp Screwed

		Application			
		Chilled or Hot Water — 281°F Maximum			
		Flared	Screwed	Union Sweat	Screwed
					
Size		5/8" OD., SAE 45°	1/2" – 1-1/4"	1/2" – 1-1/4"	1/2" – 1-1/4"
Valve Body		VB-7312-0-4-P	VB-7313-0-4-P VB-7315-0-4-P ^a	VB-7314-0-4-P	VB-7323-0-4-P
Flow Type		Mixing	Mixing	Mixing	Diverting
Material	Body	Bronze	Bronze	Bronze	Bronze
	Seat	Bronze	Bronze	Bronze	Bronze
	Stem	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
	Plug	Brass	Brass	Brass	Stainless Steel
	Packing	Spring Loaded TFE	Spring Loaded TFE	Spring Loaded TFE	Spring Loaded TFE
	Disc	None	None	None	None
ANSI Pressure Class (psig)		250	250 ^b (up to 400 psig below 150°F)		
Allowable Control Media Temp^c		20 to 281°F (-7 to 138°C)	20 to 281°F (-7 to 138°C)	20 to 281°F (-7 to 138°C)	20 to 281°F (-7 to 138°C)
Allowable Differential Pressure for Water psig (kPa)^c		35 psi (241) maximum for normal life, refer to Siebe Environmental Controls Catalog, F-25683 for cavitation limitations.			
To Select a Port Code (P)					
P Code	Valve Size	Cv^d			
-2	1/2" or 5/8"	2.2	2.2	2.2	—
-4		4.4	4.4	4.4	4.4
-6	3/4"	—	7.5	7.5	7.5
-8	1"	—	14	14	15
-9	1-1/4"	—	20	20	20

^a Metric thread 15 to 32 mm (Rp 1/2 to Rp 1-1/4).

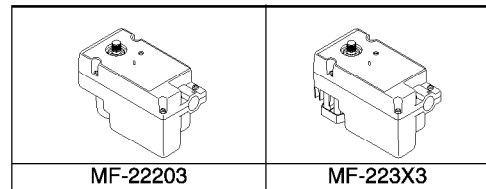
^b Pressure Class PN16 per ISO 7268.

^c Maximum recommended differential in full open position. Do not exceed recommended differential pressure (pressure drop) or integrity of parts may be affected. Do not exceed close-off rating. Refer to Table-4 for maximum allowable temperature.

^d kvs = m³/h (Δp = 100 kPa)
kvs = Cv/1.156.

Table-3 Close-off Pressure Ratings.

Linkage for 1/2" to 1-1/4" Valves is provided with actuator (AV-641 available for MF-22203 field service requirements), (AV-643 available for MF-223X3 field service requirements).



Two-Way Valves						MF-22203	MF-223X3
Application	Actuator	Valve Linkage	Valve Body	P Code	Size	Close-off Pressure Ratings (psi) ^a	
Hot Water Steam ^b	MF-22203	Supplied with actuator	VB-7211-0-3-P	-1,-2,-3,-4	1/2" or 5/8"	170	
			VB-7211-0-4-P				
Hot Water Chilled Water Steam ^b	MF-22303		VB-7212-0-4-P	-5,-6	3/4"	41	
	MF-22323		VB-7213-0-4-P	-7,-8	1"	26	
			VB-7214-0-4-P	-9	1-1/4"		
			VB-7215-0-4-P				
Three-Way Valves						Stem Down	Stem Up
Hot Water Steam ^b	MF-22203	Supplied with actuator	VB-7312-0-4-P	-2, -4	1/2" or 5/8"	101	118
			VB-7313-0-4-P	-6	3/4"	55	59
			VB-7314-0-4-P	-8	1"	35	37
			VB-7315-0-4-P	-9	1-1/4"	22	23
Hot Water Chilled Water Steam ^b	MF-22303	Supplied with actuator	VB-7323-0-4-P	-4	1/2"	250	250
				-6	3/4"		
				-8	1"		
				-9	1-1/4"		

^a kPa = (psi) x (6.85)

^b Maximum recommended differential in full open position. Do not exceed recommended differential pressure (pressure drop) or integrity of parts may be affected. Do not exceed close-off rating. Refer to Table-4 for maximum allowable temperature.

Two-Way

Note: Close-off pressure ratings apply when valves are installed with pressure under the seat.

Install to close against flow. Arrow on body indicates flow direction.

Three-Way

Note: Close-off ratings for Mixing Valves (Two inlets, one outlet):

- Stem Up = "A" Port, Stem Down = "B" Port.
- Stem Up rating equals pressure at "A" minus pressure at "B."
- Stem Down rating equals pressure at "B" minus pressure at "A."

Table-4 Actuator Model Chart

Part Number	Power Input				Feedback 15K pot	Temperature of Media in the Valve Body (Check Rating of the Valve)		Maximum Actuator Ambient Temperature	Dew Point Temperature
	Voltage (+10/-15%)	Hz	VA	Minimum		Maximum			
MF-22203 ^a	24	50	60	1.5	No	70°F (21°C)	281°F (138°C) 220°F (104°C)	115°F (46°C) 140°F (60°C)	Non-condensing ^b
MF-22303 ^a MF-22323 ^a					Yes	40°F (4°C) ^c	281°F (138°C) 220°F (104°C)	115°F (46°C) 140°F (60°C)	

^a The minimum actuator ambient temperature is 40°F (4°C).

^b Do not use the MF-22203 model in chilled water applications.

^c The dew point temperature cannot be more than 48°F (26.7°C) above the fluid temperature.

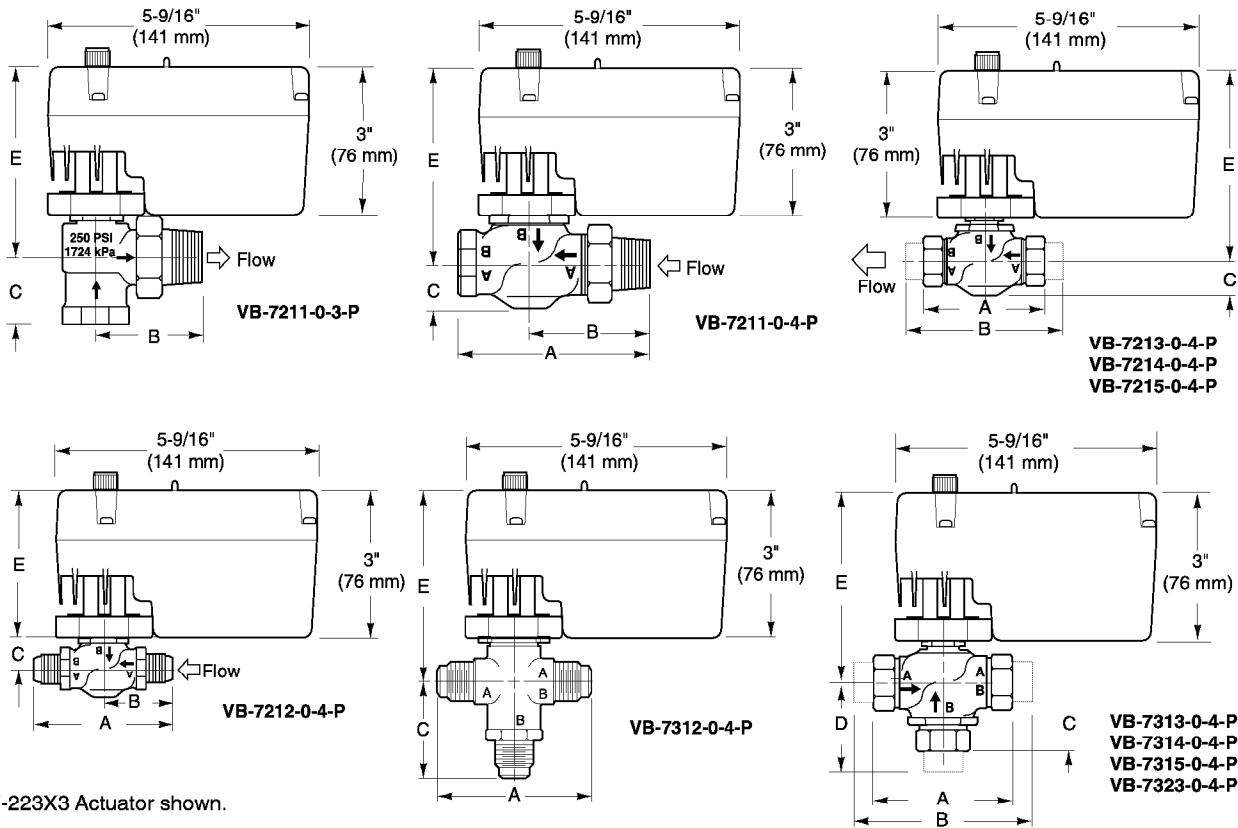
Table-5 Floating Valve Actuator Factory Available Valve Assemblies.

Actuator Part Number ^a	MF-22203	MF-22303	MF-22323	
Actuator Code for Factory Available Assembly	252	255	256	
Application	Hot Water Only	Hot Water, Chilled Water, and Steam		
P Code	Valve Body Part Number	Factory Available Valve Assembly Part Number		
-1, -2, -3, -4, -5, -6, -7, -8, -9	VB-7211-0-3-P	VF-7211-252-3-P	VF-7211-255-3-P	VF-7211-256-3-P
	VB-7211-0-4-P	VF-7211-252-4-P	VF-7211-255-4-P	VF-7211-256-4-P
	VB-7213-0-4-P	VF-7213-252-4-P	VF-7213-255-4-P	VF-7213-256-4-P
	VB-7215-0-4-P	VF-7215-252-4-P	VF-7215-255-4-P	VF-7215-256-4-P
-1, -2, -3, -4	VB-7212-0-4-P	VF-7212-252-4-P	VF-7212-255-4-P	VF-7212-256-4-P
-2, -4	VB-7312-0-4-P	VF-7312-252-4-P	VF-7312-255-4-P	VF-7312-256-4-P
-2, -4, -6, -8, -9	VB-7313-0-4-P	VF-7313-252-4-P	VF-7313-255-4-P	VF-7313-256-4-P
	VB-7315-0-4-P	VF-7315-252-4-P	VF-7315-255-4-P	VF-7315-256-4-P

^a Actuator includes integral linkage.

Table-6 Valve Flow Patterns.

Body Part Number	Flow Type	Stem Up		Stem Down	
VB-7312-0-4-P VB-7313-0-4-P VB-7314-0-4-P VB-7315-0-4-P	3-Way Mixing	3-Way Mixing	Flow B to AB	Port A Closed	Flow A to AB
VB-7323-0-4-P	3-Way Diverting	3-Way Diverting	Flow B to AB	Port A Closed	Flow B to A
VB-7211-0-3-P VB-7211-0-4-P VB-7212-0-4-P VB-7213-0-4-P VB-7214-0-4-P VB-7215-0-4-P	2-Way	Flow A to AB		No Flow Valve Closed	



MF-223X3 Actuator shown.

Table-7 Dimensions.

Part Number	Size in Inches (Millimeters)	Dimensions in Inches (Millimetres)				
		Valve Body				MF-22XX3
		A	B	C	D	
VB-7211-0-3-P	1/2 (18)	—	2-5/8 (67)	1-5/8 (41)	—	4-3/8 (111)
	3/4 (19)	—	2-3/4 (70)	1-3/4 (44)	—	4-1/2 (114)
	1 (25)	—	3-1/8 (79)	2 (51)	—	4-3/4 (120)
	1-1/4 (32)	—	3-3/8 (86)	2-1/8 (54)	—	4-7/8 (123)
VB-7211-0-4-P	1/2 (18)	4-1/4 (108)	2-3/4 (70)	1-7/16 (36)	—	4-7/16 (112)
	3/4 (19)	4-3/4 (121)	2-15/16 (75)	1-7/16 (36)	—	4-7/16 (112)
	1 (25)	6-1/8 (156)	3-13/16 (97)	2-1/8 (53)	—	4-15/16 (125)
	1-1/4 (32)	6-3/8 (162)	4-1/16 (103)	1-7/16 (37)	—	5-1/4 (133)
VB-7212-0-4-P	5/8 (16)	4 (102)	—	1 (25)	—	4-7/16 (112)
VB-7214-0-4-P	1/2 (18)	—	4-1/4 (108)	1-7/16 (36)	—	4-7/16 (112)
	3/4 (19)	—	5-1/2 (140)	1-7/16 (36)	—	4-15/16 (125)
	1 (25)	—	6-3/4 (171)	2-1/8 (53)	—	5-1/4 (133)
	1-1/4 (32)	—	6-7/8 (175)	1-7/8 (48)	—	5-1/2 (139)
VB-7213-0-4-P VB-7215-0-4-P	1/2 (18)	3 (76)	—	1-7/16 (36)	—	4-7/16 (112)
	3/4 (19)	3-5/8 (92)	—	1-7/16 (36)	—	4-15/16 (125)
	1 (25)	4-5/8 (117)	—	2-1/8 (53)	—	5-1/4 (133)
	1-1/4 (32)	4-5/8 (117)	—	1-7/8 (48)	—	5-1/4 (133)
VB-7312-0-4-P	5/8 (16)	4 (102)	—	1-7/16 (36)	—	4-7/16 (112)
VB-7313-0-4-P VB-7315-0-4-P VB-7323-0-4-P	1/2 (18)	3 (76)	—	1-7/16 (37)	—	4-3/16 (106)
	3/4 (19)	3-5/8 (92)	—	1-7/16 (37)	—	4-1/2 (114)
	1 (25)	4-5/8 (117)	—	2-1/8 (53)	—	4-3/4 (120)
	1-1/4 (32)	4-5/8 (117)	—	1-5/8 (42)	—	4-3/4 (120)

^a The actuator dimension includes 1/4" (6.3 mm) additional height to allow for the manual reset button.