

Ball Valve Assemblies Using SmartX 8xx Actuators

V x - 2 x x 3 - 8 x x - 9 - x x

Port Code
Refer to separate
Port Code table

Control Signal Type
A = Two Position
F = Floating
S = Proportional
B = Valve Body & Linkage^c (less actuator)

Configuration
2 = 2 Way
3 = 3 Way Mixing

Material
1 = Nickel/Chromium Plated Brass
5 = Stainless Steel ³

Connection
3 = Threaded NPT

| Actuator Code ¹ | | | | | Valves Used On ³ | | | |
|--|------------------|-----------------|---------|----------|---|-------|--------------|--------------|
| Model ^a | Code | Normal Position | Voltage | Type | 1/2" to 1" | | 1-1/4" to 3" | 1-1/4" to 2" |
| | | | | | 2-way | 3-way | 2-way | 3-way |
| Two-Position | | | | | | | | |
| MA4D 7030 000 | 815 | SR Open | 120 Vac | | X | X | | |
| MA4D 8030 000 | 817 | SR Closed | 120 Vac | | X | X | | |
| MA4D 7033 100 | 821 | SR Open | 24 Vac | | X | X | | |
| MA4D 8033 100 | 831 | SR Closed | 24 Vac | | X | X | | |
| Floating | | | | | | | | |
| MF4D 7033 100 | 821 | SR Open | 24 Vac | | X | X | | |
| MF4D 8033 100 | 831 | SR Closed | 24 Vac | | X | X | | |
| MF4D 6083 100 | N/A ^b | NSR | 24 Vac | | X | X | X | X |
| Proportional | | | | | | | | |
| MS4D 7033 100 | 821 | SR Open | 24 Vac | 2 10 Vdc | X | X | | |
| MS4D 7033 120 | N/A ^b | SR Open | 24 Vac | 0 3 Vdc | X | X | | |
| MS4D 7033 130 | N/A ^b | SR Open | 24 Vac | 6 9 Vdc | X | X | | |
| MS4D 7033 150 | N/A ^b | SR Open | 24 Vac | 0 10 Vdc | X | X | | |
| MS4D 7033 160 | N/A ^b | SR Open | 24 Vac | 4 20 mA | X | X | | |
| MS4D 8033 100 | 831 | SR Closed | 24 Vac | 2 10 Vdc | X | X | | |
| MS4D 8033 120 | N/A ^b | SR Closed | 24 Vac | 0 3 Vdc | X | X | | |
| MS4D 8033 130 | N/A ^b | SR Closed | 24 Vac | 6 9 Vdc | X | X | | |
| MS4D 8033 150 | N/A ^b | SR Closed | 24 Vac | 0 10 Vdc | X | X | | |
| MS4D 8033 160 | N/A ^b | SR Closed | 24 Vac | 4 20 mA | X | X | | |
| Valve Body/Linkage Assembly^c | | | | | VB-22x3-500-9-xx, VB-2313-500-9-xx | | | |

SR = Spring Return NSR = Non Spring Return

a " 000" models have appliance cables. " 1X0" models have plenum cables.

b Factory assemblies not available. Purchase actuator and valve body separately and field assemble.

c Includes valve body, linkage, and anti rotation clips for spring return and non spring return SmartX actuators, listed above. Ordered separately.

¹ Normal position for 3 way spring return ball valve assemblies refers to A to AB ports.

³ Stainless steel ball is available only on 2 way versions.

Port Codes

2-Way Ball Valve Assemblies with SmartX Actuators

Table-1. 2-Way Ball Valve Assemblies - Sizes, Port Codes, and Cvs.

| Size in. | 2-Way | | |
|----------|-----------|--------------------|------------------|
| | Port Code | Cv ^a | Kvs ^a |
| 1/2 | 01 | 0.38 | 0.33 |
| | 02 | 0.68 | 0.59 |
| | 03 | 1.3 | 1.1 |
| | 04 | 2.6 | 2.2 |
| | 05 | 4.7 | 4.1 |
| | 06 | 8.0 | 6.9 |
| | 07 | 11.7 ^b | 10.1 |
| | 3/4 | 11 | 0.31 |
| 12 | | 0.63 | 0.54 |
| 13 | | 1.2 | 1.0 |
| 14 | | 2.5 | 2.2 |
| 15 | | 4.3 | 3.7 |
| 16 | | 10.1 | 8.7 |
| 17 | | 14.7 ^b | 12.7 |
| 18 | | 28.6 ^b | 24.7 |
| 1 | 21 | 4.4 | 3.8 |
| | 22 | 9.0 | 7.8 |
| | 23 | 15.3 | 13.2 |
| | 24 | 26.1 | 22.6 |
| | 25 | 28.4 ^b | 24.6 |
| | 26 | 43.9 ^b | 38.0 |
| | 27 | 54.2 ^b | 46.9 |
| 1 1/4 | 41 | 4.4 | 3.8 |
| | 42 | 8.3 | 7.2 |
| | 43 | 14.9 | 12.9 |
| | 44 | 36.5 | 31.6 |
| | 45 | 41.1 ^b | 35.6 |
| | 46 | 102.3 ^b | 88.5 |
| 1 1/2 | 51 | 22.8 | 19.7 |
| | 52 | 41.3 | 35.7 |
| | 53 | 73.9 ^b | 63.9 |
| | 54 | 171.7 ^b | 148.5 |
| 2 | 61 | 41.7 | 36.1 |
| | 63 | 71.1 | 61.5 |
| | 65 | 108 ^b | 93.4 |
| | 66 | 210 | 181.7 |
| | 67 | 266 ^b | 230.1 |

| Size in. | 2-Way | | |
|----------|-----------|------------------|------------------|
| | Port Code | Cv ^a | Kvs ^a |
| 2 1/2 | 71 | 45 | 38.9 |
| | 72 | 55 | 47.6 |
| | 73 | 72.3 | 62.5 |
| | 74 | 101 | 87.4 |
| | 75 | 162 | 140.1 |
| | 76 | 202 ^b | 174.7 |
| 3 | 82 | 63 | 54.5 |
| | 85 | 145 ^b | 125.4 |

a - $Cv = \frac{gpm}{\sqrt{\Delta P}}$ (where DP is measured in psi) $kvs = \frac{Cv}{1.156}$

$kvs = \frac{m^3/h}{\sqrt{\Delta P}}$ (where DP is measured in bar; 1 bar = 100 kPa)

b - Denotes a full port valve, without the characterized insert.

3-Way Ball Valve Assemblies with SmartX Actuators

Table-2. 3-Way Ball Valve Assemblies - Sizes, Port Codes, and Cvs

| Size in. | 3-Way | | |
|----------|-----------|--------------------------|------------------|
| | Port Code | A Port Cv ^{a b} | Kvs ^a |
| 1/2 | 01 | 0.33 | 0.28 |
| | 02 | 0.59 | 0.51 |
| | 03 | 1 | 0.86 |
| | 04 | 2.4 | 2.1 |
| | 05 | 4.3 | 3.7 |
| | 06 | 8.0 ^c | 6.9 |
| 3/4 | 11 | 0.40 | 0.35 |
| | 12 | 0.66 | 0.57 |
| | 13 | 1.3 | 1.1 |
| | 14 | 2.4 | 2.1 |
| | 15 | 3.8 | 3.3 |
| | 16 | 11 ^c | 9.5 |
| 1 | 21 | 0.40 | 0.35 |
| | 22 | 0.65 | 0.56 |
| | 23 | 1.3 | 1.1 |
| | 24 | 2.3 | 2.0 |
| | 25 | 3.5 | 3.0 |
| | 26 | 4.5 | 3.9 |
| | 27 | 8.6 | 7.4 |
| | 28 | 10 | 8.6 |
| | 29 | 14.9 | 12.9 |
| | 30 | 22.3 ^c | 19.3 |
| 1 1/4 | 41 | 4.1 | 3.5 |
| | 43 | 8.7 | 7.5 |
| | 44 | 12.7 | 11.0 |
| | 45 | 19.4 ^c | 16.8 |
| | 46 | 34.1 ^c | 29.5 |
| 1 1/2 | 51 | 4 | 3.5 |
| | 52 | 8.3 | 7.2 |
| | 53 | 13.4 | 11.6 |
| | 54 | 23.5 | 20.3 |
| | 55 | 32 ^c | 27.7 |
| | 56 | 61.1 ^c | 52.8 |
| 2 | 61 | 23.9 | 20.7 |
| | 62 | 38.2 | 33.0 |
| | 63 | 56.7 ^c | 49.0 |
| | 64 | 108.5 ^c | 93.8 |

a - $Cv = \frac{gpm}{\sqrt{\Delta P}}$ (where DP is measured in psi)

$kvs = \frac{Cv}{1.156}$

$kvs = \frac{m^3/h}{\sqrt{\Delta P}}$ (where DP is measured in bar; 1 bar = 100 kPa)

b - B port Cv is 80% of A port Cv.

c - Denotes a full port valve, without the characterized insert.