

# Butterfly Valve Assemblies



## Product Summary

Schneider Electric's butterfly valve line offers a wide range of two- and three-way sizes, along with low pressure pneumatic spring return, electric non-spring return, and spring return actuator models that operate with on/off, floating, or proportional control signals.

All assemblies include industry leading butterfly valve features, stainless steel double "D" shafts, nylon 11 coated ductile iron disc machined to provide bubble tight shut off, minimum torque, and longer seat life. The tongue and groove resilient seat design with molded in O-ring eliminates the use of flange gaskets and allows for ease of maintenance or replacement of the resilient seat. These features provide years of optimum performance and reliability.

For more technical information, refer to Butterfly Valve Assemblies Selection Guide, F-27440

## Applications

Typical applications include data centers, cooling towers, central system shutoff and bypass piping control, thermal storage, and chiller and boiler control.

## Valve Body Specifications

|                          |  |
|--------------------------|--|
| Service                  | Hot and chilled water, up to 60% glycol<br>See EN-205 Water System Guidelines, F-26080 |
| Fluid Temperature Limits | -40...250 °F (-40...120 °C)  |
| Sizes                    | 2...18" two-way models<br>2...16" three-way models                                     |
| Neck                     | 2" extended neck   |
| Flow                     | Bi-directional   |
| Leakage                  | Bubble tight shutoff   |

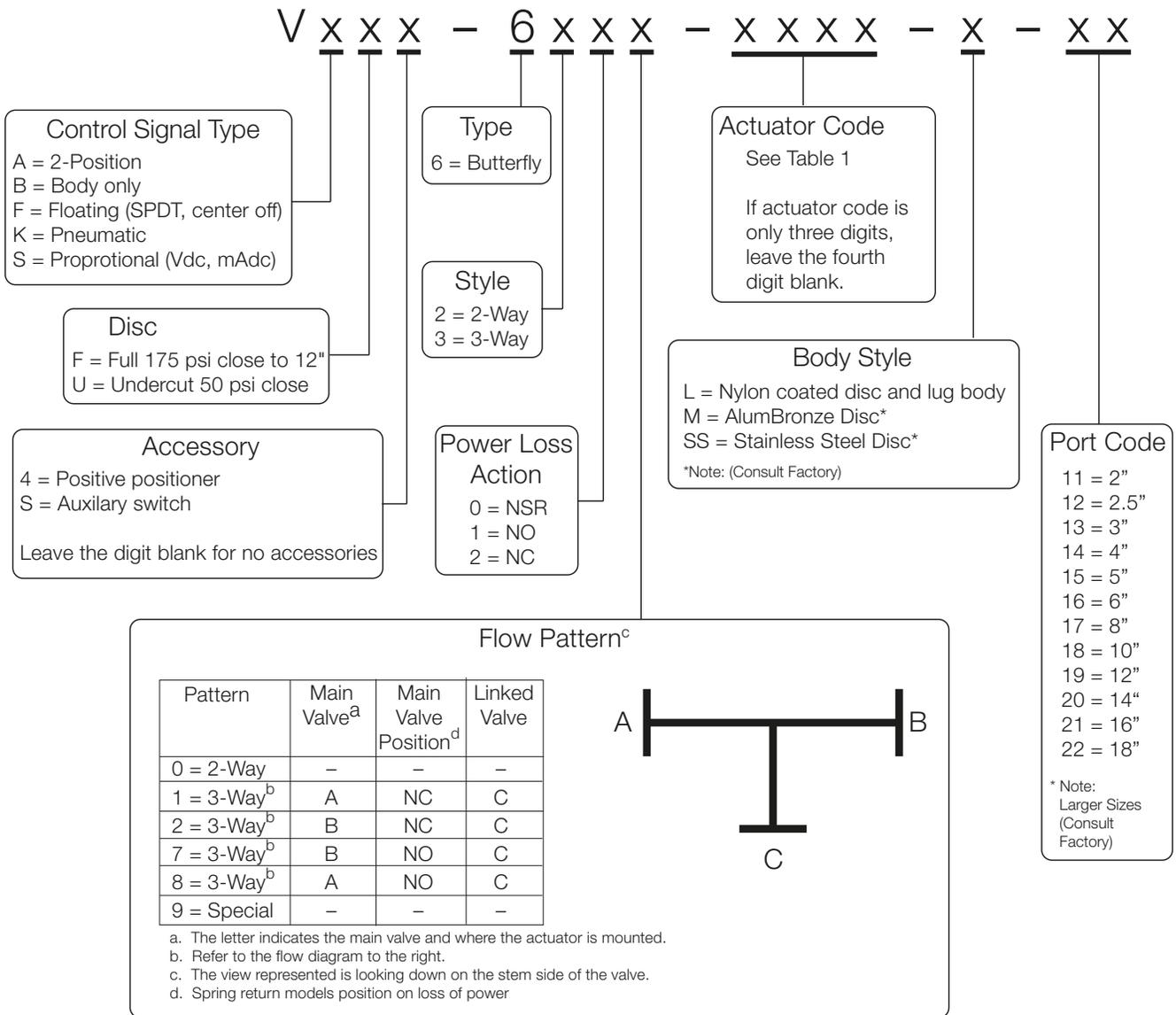
## Features

- 2...18" two-way assemblies and 2...16" three-way assemblies
- Chilled/hot water/glycol applications
- EPDM resilient seats with tongue and groove design and build in O-ring seal
- Stainless steel double D stem, requires no pins or screws to connect the disc and stem
- Extended neck design for temperature isolation and ease of insulation installation
- Nylon 11 coated ductile iron disc
- Wide choice of pneumatic and electric actuators and control signals
- Cast iron lug bodies mate with ANSI class 125/150 flanges
- Bubble tight shut off
- Bidirectional flow
- Series S70 NEMA4 actuators available in 24 or 120 Vac

## Materials

|      |   |
|------|---|
| Body | Polyester coated cast Iron<br>ASTM A126 Class B lug.<br>Mates with ANSI Class 125/150 flanges.  |
| Stem | 2...8" 416 stainless steel double D stem<br>10" and 12" 316 stainless steel double D stem<br>14" and up 316 Stainless Steel round shaft woodruff key slot |
| Disc | Ductile iron nylon 11 coated disc   |
| Seat | EPDM tongue and groove seat and molded O-ring flange seal   |

# Part Numbering System – Rubber Lined



## Actuator Codes

Table 1: Actuator Codes and Part Numbers<sup>a</sup>. Refer to the part numbering system.

| Actuator Code <sup>b</sup> | On/Off or Floating SR                                   | Actuator Code <sup>b</sup> | Modulating (2...10 Vdc Vdc, 4...20 mA) SR with the addition of a 500 ohm resistor                             |
|----------------------------|---|----------------------------|---|
| 556                        | MA41-7153 (VAx) (On/Off)                                | 556                        | MS41-7153 (VSx)   |
| 556D                       | 2 MA41-7153 (VAx) (On/Off)                              | 556D                       | 2 MS41-7153 (VSx) (Modulating)  |
| 556                        | MF41-7153 (VFx) (Floating)                              | –                          | –   |
| 556D                       | 2 MF41-7153 (VFx) (Floating)                            |                            |   |
| Actuator Code <sup>b</sup> | On/Off or Floating SR with Two SPDT Auxiliary Switches  | Actuator Code <sup>b</sup> | Modulating (2...10 Vdc Vdc, 4...20 mA) SR with the addition of a 500 ohm resistor with Two Auxiliary Switches |
| 556                        | 1 MA41-7153-502 (VAxS) (On/Off)                         | 556                        | MS41-7153-502 (VSxS) (Modulated)  |
| 556D                       | 1 MA41-7153 & 1 MA41-7153-502 (VAxS) (On/Off)           | 556D                       | 1 MS41-7153 & 1 MS41-7153-502 (VSxS) (Modulated)  |
| 556                        | 1 MF41-7153-502 (VFxS) (Floating)                       | –                          | –   |
| 556D                       | 1 MF41-7153 & 1 MF41-7153-502 (VFxS) (Floating)         |                            |   |
| Actuator Code <sup>b</sup> | On/Off or Floating NSR                                  | Actuator Code <sup>b</sup> | Modulating (0...10 Vdc, 4...20 mA) NSR  |
| E24                        | NR-2216-521 (VFx)                                       | E24                        | NR-2216-541 (VSx)   |
| E25                        | NR-2224-521 (VFx)                                       | E25                        | NR-2224-541 (VSx)   |
| E25D                       | 2 NR-2224-521 (VFx)                                     | E25D                       | 2 NR-2224-541 (VSx)   |
| Actuator Code <sup>b</sup> | On/Off or Floating NSR with Two SPDT Auxiliary Switches | Actuator Code <sup>b</sup> | Modulating (0...10 Vdc, 4...20 mA) NSR with Two SPDT Auxiliary Switches                                       |
| E24                        | NR-2216-522 (VFxS)                                      | E24                        | NR-2216-542 (VSxS)  |
| E25                        | NR-2224-522 (VFxS)                                      | E25                        | NR-2224-542 (VSxS)  |
| E25D                       | 1 NR-2224-521 & 1 NR-2224-522 (VFxS)                    | E25D                       | 1 NR-2224-541 & 1 NR-2224-542 (VSxS)  |
| Actuator Code <sup>c</sup> | On/Off NSR with Two SPDT Auxiliary Switches and Heater  | Actuator Code <sup>c</sup> | Modulating (0...10 Vdc, 4...20 mA) NSR with Two SPDT Auxiliary Switches and Heater                            |
| E10                        | S70-120-0061-H (VAxS)                                   | E12                        | S70-120-0061-SV (VAxS)  |
| E20                        | S70-120-0121-H (VAxS)                                   | E22                        | S70-120-0121-SV (VSxS)  |
| E30                        | S70-120-0201-H (VAxS)                                   | E32                        | S70-120-0201-SV (VSxS)  |
| E40                        | S70-120-0301-H (VAxS)                                   | E42                        | S70-120-0301-SV (VSxS)  |
| E50                        | S70-120-0501-H (VAxS)                                   | E52                        | S70-120-0501-SV (VSxS)  |
| E60<br>(120 Vac only)      | S70-120-0651-H (VAxS)                                   | E62<br>(120 Vac only)      | S70-120-0651-SV (VSxS)  |
| Actuator Code <sup>b</sup> | Pneumatic Base Model SR                                 | Actuator Code <sup>b</sup> | Pneumatic Modulating (Positive Positioner) SR   |
| 221                        | MK-7121 (VKx)   | 221                        | MK4-7121 (VKx4)   |
| 251                        | M556-51 (VKx)   | 251                        | M556-14 (VKx4)  |
| 251D                       | 2 - M556-51(VKx)  | 251D                       | 1 - M556-51 & 1- M556-14 (VKx4)   |

a. See Table 2 to verify the correct actuator application for the valve selected.

b. D = Dual actuators

c. For 24 Vac powered change actuator code E to F (F10 = S70-24-0061-H example)

Table 2: Two-Way and Three-Way Valve Assemblies

| Size | Close Off | Two-Way Butterfly Valve Assemblies <sup>a</sup> |                                 |                              |   |                              | Three-Way Butterfly Valve Assemblies <sup>a</sup> |                                 |                              |   |                              |
|------|-----------|---|---------------------------------|------------------------------|---|------------------------------|---|---------------------------------|------------------------------|---|------------------------------|
|      |           | SmartX SR <sup>b</sup>                          | Direct Coupled NSR <sup>c</sup> | High Torque NSR <sup>c</sup> | NEMA 4 with Hand Wheel NSR <sup>c</sup> | 20 PSI Pneu. SR <sup>b</sup> | SmartX SR <sup>b</sup>                            | Direct Coupled NSR <sup>c</sup> | High Torque NSR <sup>c</sup> | NEMA 4 with Hand Wheel NSR <sup>c</sup> | 20 PSI Pneu. SR <sup>b</sup> |
| 2"   | 175       | S   | S                               | –                            | S                                       | S                            | S   | S                               | –                            | S                                       | S                            |
| 2.5" | 175       | S   | S                               | –                            | S                                       | S                            | S   | S                               | –                            | S                                       | S                            |
| 3"   | 175       | D   | S                               | –                            | S                                       | S                            | D   | S                               | –                            | S                                       | S                            |
| 4"   | 50        | D   | S                               | –                            | –                                       | S                            | D   | S                               | –                            | S                                       | –                            |
|      | 175       | –   | D                               | –                            | S                                       | S                            | –   | D                               | –                            | S                                       | S                            |
| 5"   | 50        | –   | S                               | –                            | S                                       | S                            | –   | D                               | –                            | S                                       | S                            |
|      | 175       | –   | –                               | –                            | S                                       | S                            | –   | –                               | –                            | S                                       | S                            |
| 6"   | 50        | –   | D                               | –                            | –                                       | –                            | –   | D                               | –                            | S                                       | S                            |
|      | 175       | –   | –                               | S                            | S                                       | S                            | –   | –                               | S                            | S                                       | D                            |
| 8"   | 50        | –   | –                               | S                            | S                                       | S                            | –   | –                               | S                            | S                                       | D                            |
|      | 175       | –   | –                               | S                            | S                                       | D                            | –   | –                               | S                            | S                                       | –                            |
| 10"  | 50        | –   | –                               | S                            | S                                       | D                            | –   | –                               | S                            | S                                       | –                            |
|      | 175       | –   | –                               | S                            | S                                       | –                            | –   | –                               | S                            | S                                       | –                            |
| 12"  | 50        | –   | –                               | S                            | S                                       | –                            | –   | –                               | S                            | S                                       | –                            |
|      | 175       | –   | –                               | S                            | S                                       | –                            | –   | –                               | S                            | S                                       | –                            |
| 14"  | 50        | –   | –                               | –                            | S                                       | –                            | –   | –                               | –                            | S                                       | –                            |
|      | 150       | –   | –                               | –                            | S                                       | –                            | –   | –                               | –                            | –                                       | –                            |
| 16"  | 50        | –   | –                               | –                            | S                                       | –                            | –   | –                               | –                            | S                                       | –                            |
| 18"  | 50        | –   | –                               | –                            | S                                       | –                            | –   | –                               | –                            | –                                       | –                            |

- a. S = Single actuator, D = Dual actuators, – = Assembly combination not available.
- b. SR = Spring return actuator available as configured for normally open and normally closed two-way butterfly valves.
- c. NSR = Non spring return actuator.

Table 3: Actuators

| Actuator Family         | MX41-7153 SmartX SR  | NR-22xx Direct Coupled NSR  | MP-9810-129 High Torque NSR   | S70-xxx-NEMA 4 with Manual Operator with Disconnect NSR                                    | MK-7121/M566 20 PSI Pneumatic               |
|-------------------------|--|---|---|--|---|
| Spring Return           | Yes  | No  | No  | No   | Yes   |
| Available Input Signals | 24 Vac. Two Position, Floating, 2...10 Vdc Proportional, 4...20 mA with the addition of a 500 ohm resistor | 24 Vac. Three Wire Two Position, Floating, 0...10 Vdc Proportional, 4...20 mA | 120 Vac. Three Wire Two Position, Floating, 0...10 Vdc Proportional | 120 Vac. or 24 Vac. Three Wire Two Position, Floating, 0...10 Vdc, 4...20 mA. Proportional | 8...13 psi Nominal Operating Pressure Range |
| Available Options       | Auxiliary Switch   | Auxiliary Switch  | Auxiliary Switch (standard)   | Auxiliary Switch (standard) and Heater (standard)  | Positive Positioner                         |







