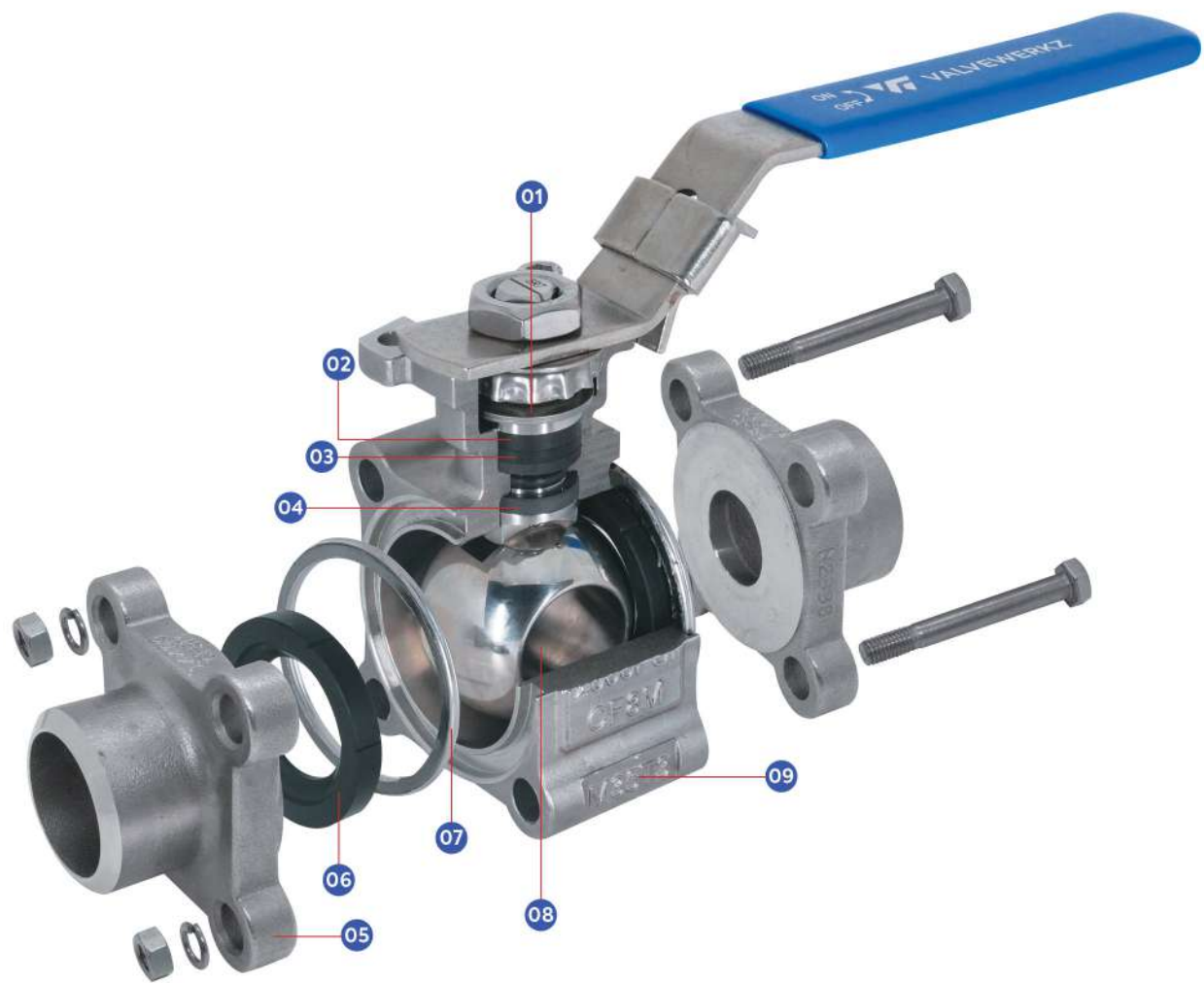


# 81FS SERIES - HIGH PERFORMANCE

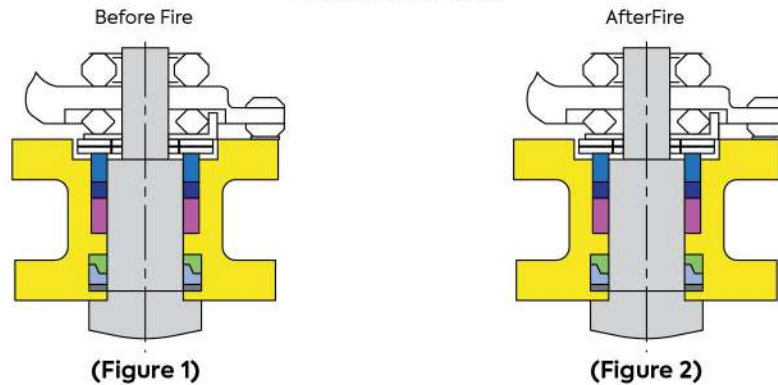
**Fire Tested To API 607 4th Edition On ValveWerkz 81FS Soft-Seated 3pc Ball Valve**

Plant fires are serious concern for soft-seated ball valve especially when the flammable fluids or dangerous gases are in service. The possible flammable fluid leakage during the fire consequently increases the fire magnitude and worsens the situation.



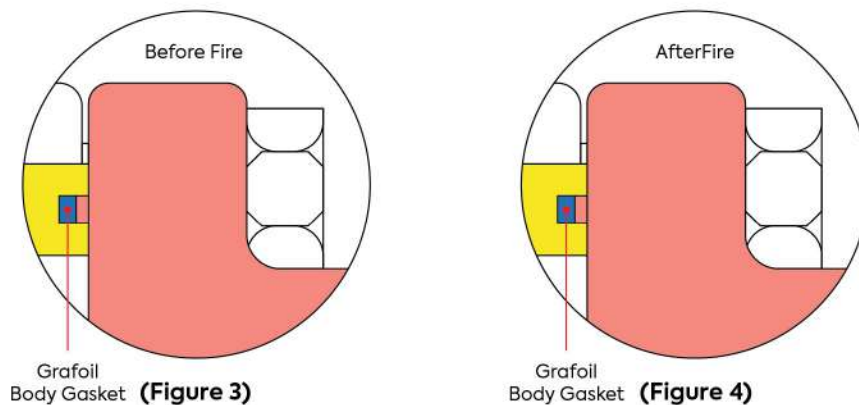
| Part Name                    | Part Name      |
|------------------------------|----------------|
| 1. Belleville Washer         | 6. Seat        |
| 2. Bushing                   | 7. Body Gasket |
| 3. V-Ring Packing            | 8. Ball        |
| 4. Upper and Lower Stem Seal | 9. Body        |
| 5. End Cap                   |                |

### Grafoil Stem Seal



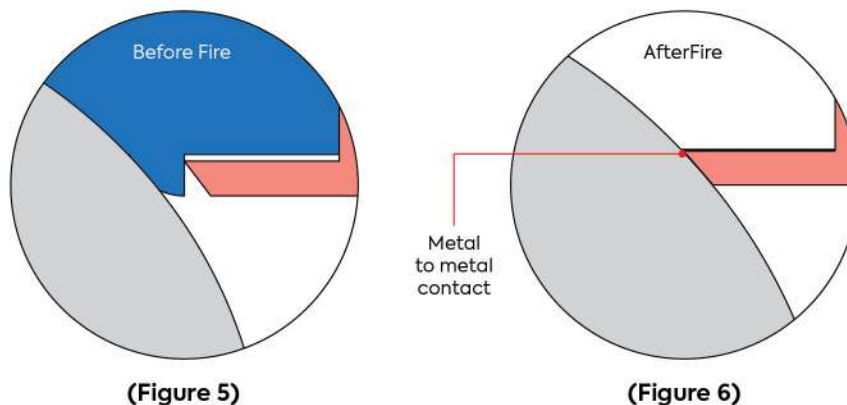
ValveWerkz 81FS series ball valves are designed to be fire safe to minimize both external and internal fluid leakage after plant fires due to:

Contact between ball and end cap fire safe lip for through leakage prevention. During a fire, the soft seats are destroyed and the ball is free to move to downstream to form metal to metal contact between the ball and the end cap fire safe lip. This lip is integral part of the end connection which has very tight clearance with the ball. (See fig. #1 and #2)



To maintain the integrity between end cap and body, our independent end cap bolts are screwed to body instead of using through bolts to attach the end caps and center section of the valve. It eliminates the end cap bolts from thermal expansion and contraction resulted from the fire and make fire resistance grafoil body gasket (encapsulated to body groove) to function as the way it should be and prevent the line fluid permeation and resultant leakage to external. (See fig. #3 and #4)

Stem packing, seal arrangement remain unaffected due to grafoil material for fire resistance. (See fig. #5 and #6)





## 81FS Series

### 3-Piece Body Design

Full Bore / Reduced Bore

Carbon Steel, SS304, SS316

SS316

CPTFE TFM4215

TFM4215 + 50% SS PEEK

Threaded End (¼" - 4")

Socket Weld End (¼" - 4")

Butt Weld End (¼" - 10")

Full Bore DN8 (¼") to DN100 (4")

Reduced Bore DN15(½") to DN100 (4")

Pneumatic Actuator

(Single Acting / Double Acting)

Electric Actuator

Cv = 9.2 to Cv = 1020

**Full Bore**

2000psi ¼" - 1"

1500psi 1 ¼" - 2"

1000psi 2 ½" - 4"

**Reduced Bore**

2000psi ½" - 1"

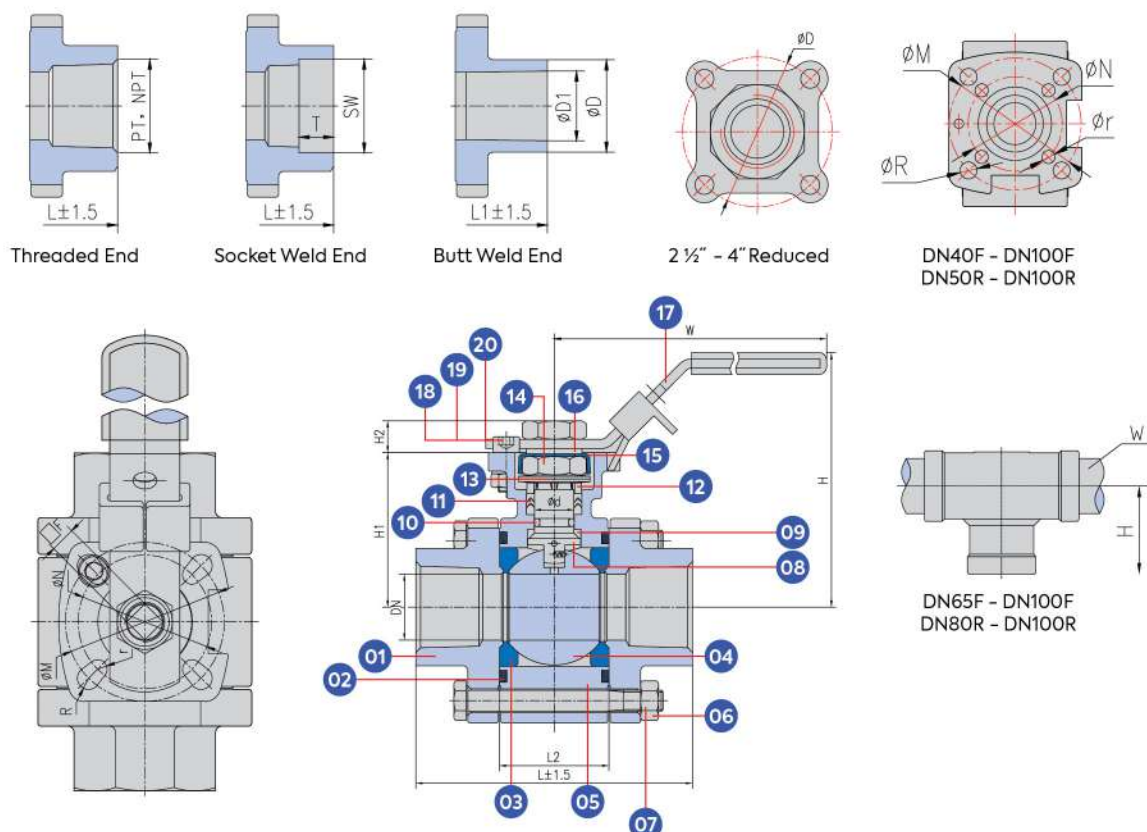
1500psi 1 ¼" - 2"

1000psi 2 ½" - 4"

The 81FS series fire-safe ball valves have passed fire tests in accordance with API 607. These valves are ideal for transporting petroleum products, flammable, or hazardous materials, and are also widely applicable in general and corrosive environments. The materials of the 81FS series valves can meet the requirements of NACE MR0103 and, with special treatment, can be used in oxygen or high-vacuum environments. The valves comply with ANSI, API, BS, and MSS standards. The standard fire-safe valve features a carbon steel body and 316 stainless steel construction and other alloys. Available seat materials include CPTFE, TFM4215, TFM4215+50%SS, and PEEK, suitable for applications involving chemicals, petrochemicals, acids, alkalis, and steam.

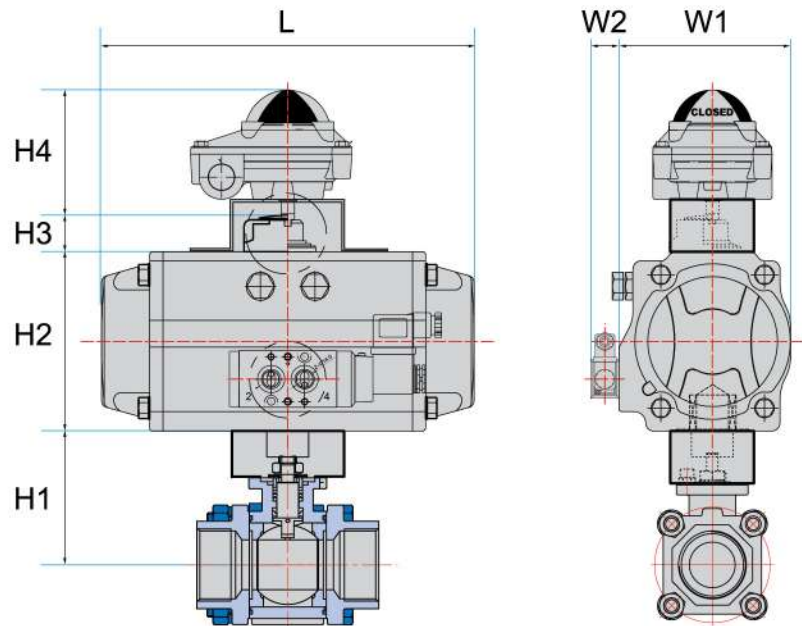
### Dimensions(mm)

| DN(mm) | Size | DN(mm) | Size | SW    |       | T    |      | BW    |       | D1    |       | L   | L2    | H   | H1    | H2 | W   | d  | D     |
|--------|------|--------|------|-------|-------|------|------|-------|-------|-------|-------|-----|-------|-----|-------|----|-----|----|-------|
| FB     |      | RB     |      | FB    | RB    | FB   | RB   | FB    | RB    | FB    | RB    |     |       |     |       |    |     |    |       |
| 8      | ¼"   | -      | -    | 14.6  | -     | 9.5  | -    | 14.0  | -     | 11.5  | -     | 75  | 24.5  | 73  | 42.5  | 8  | 134 | 12 | 54.0  |
| 10     | ⅜"   | 15     | ½"   | 19.0  | 22.2  | 9.5  | 9.5  | 17.2  | 21.7  | 12.6  | 15.0  | 75  | 24.5  | 73  | 42.5  | 8  | 134 | 12 | 54.0  |
| 15     | ½"   | 20     | ¾"   | 22.2  | 27.6  | 9.5  | 12.5 | 21.7  | 27.2  | 15.0  | 20.5  | 75  | 24.5  | 73  | 42.5  | 8  | 134 | 12 | 54.0  |
| 20     | ¾"   | 25     | 1"   | 27.6  | 34.3  | 12.5 | 12.5 | 27.2  | 34.0  | 20.5  | 25.7  | 85  | 31.5  | 78  | 46.5  | 8  | 134 | 12 | 62.5  |
| 25     | 1"   | 32     | 1 ¼" | 34.3  | 43.1  | 12.5 | 12.5 | 34.0  | 42.7  | 25.7  | 34.4  | 105 | 41.5  | 96  | 58.5  | 12 | 165 | 15 | 71.0  |
| 32     | 1 ¼" | 40     | 1 ½" | 43.1  | 49.2  | 12.5 | 12.5 | 42.7  | 48.6  | 34.4  | 40.3  | 111 | 48.5  | 100 | 62.5  | 12 | 165 | 15 | 80.0  |
| 40     | 1 ½" | 50     | 2"   | 49.2  | 61.7  | 12.5 | 16.0 | 48.6  | 60.5  | 40.3  | 51.3  | 127 | 56.3  | 125 | 78.0  | 15 | 215 | 22 | 94.0  |
| 50     | 2"   | 65     | 2 ½" | 61.7  | 74.4  | 16.0 | 16.0 | 60.5  | 76.3  | 51.3  | 67.1  | 143 | 71.5  | 135 | 88.0  | 15 | 215 | 22 | 112.5 |
| 65     | 2 ½" | 80     | 3"   | 74.4  | 90.3  | 16.0 | 16.0 | 76.3  | 88.9  | 67.1  | 80.0  | 185 | 86.5  | 148 | 109.0 | 19 | 300 | 25 | 139.0 |
| 80     | 3"   | 100    | 4"   | 90.3  | 115.7 | 16.0 | 19.0 | 88.9  | 116.0 | 80.0  | 103.1 | 205 | 100.0 | 155 | 117.5 | 19 | 370 | 25 | 162.0 |
| 100    | 4"   | -      | -    | 115.7 | -     | 19.0 | -    | 116.0 | -     | 103.1 | -     | 240 | 127.0 | 171 | 133.5 | 19 | 500 | 25 | 193.0 |



\*Spare Parts available in Repair Kit. Please refer to page 60 for more details.

| Part Name |                   | Material            |                       |                      |
|-----------|-------------------|---------------------|-----------------------|----------------------|
|           |                   | Thread / SW   BW    | Thread / SW   BW      | Thread / SW   BW     |
| 1.        | End Cap           | A351 CF8   A351 CF8 | A351 CF8M   A351 CF3M | A216 WCB   A216 WCB  |
| 2.        | Gasket            | SS304 + Graphite    | SS316 + Graphite      | SS304 + Graphite     |
| 3.        | Seat              | CPTFE               | TFM4215               | TFM4215 + 50%SS PEEK |
| 4.        | Ball              | SS304               | SS316                 | SS304                |
| 5.        | Body              | A351 CF8            | A351 CF8M             | A216 WCB             |
| 6.        | Bolt              | A2-70               | A2-70                 | A2-70                |
| 7.        | Nut               | A2-70               | A2-70                 | A2-70                |
| 8.        | Stem              | SS304               | SS316                 | SS304                |
| 9.        | Stem Washer       | RPTFE               | RPTFE                 | RPTFE                |
| 10.       | O-Rings           | Viton               | Viton                 | Viton                |
| 11.       | Packing           | Graphite            | Graphite              | Graphite             |
| 12.       | Gland             | SS304               | SS304                 | SS304                |
| 13.       | Belleville Washer | SS301               | SS301                 | SS301                |
| 14.       | Nut               | A2-70               | A2-70                 | A2-70                |
| 15.       | Stop Lock Cap     | SS304               | SS304                 | SS304                |
| 16.       | Washer            | SS304               | SS304                 | SS304                |
| 17.       | Handle            | SS304               | SS304                 | SS304                |
| 18.       | Stop Bolt         | A2-70               | A2-70                 | A2-70                |
| 19.       | Washer            | SS304               | SS304                 | SS304                |
| 20.       | Nut               | A2-70               | A2-70                 | A2-70                |



### Pneumatic Actuator (Double Acting)

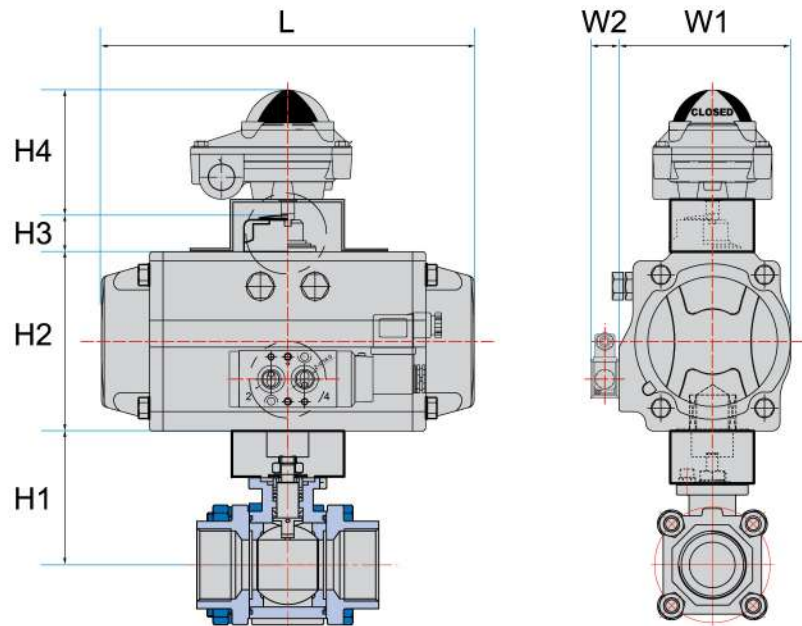
| DN(mm) | Size | DN(mm) | Size | Torques | Actuator | H1    | H2  | H3 | H4 | W1  | W2   | L   |
|--------|------|--------|------|---------|----------|-------|-----|----|----|-----|------|-----|
| FB     |      | RB     |      |         |          |       |     |    |    |     |      |     |
| 8      | ¼"   | -      | -    | 7.8     | HP-050   | 42.5  | 73  | 20 | 90 | 72  | 29.5 | 144 |
| 10     | ⅜"   | 15     | ½"   | 7.8     | HP-050   | 42.5  | 73  | 20 | 90 | 72  | 29.5 | 144 |
| 15     | ½"   | 20     | ¾"   | 13.0    | HP-050   | 42.5  | 73  | 20 | 90 | 72  | 29.5 | 144 |
| 20     | ¾"   | 25     | 1"   | 16.9    | HP-063   | 42.5  | 87  | 20 | 90 | 85  | 29.5 | 163 |
| 25     | 1"   | 32     | 1 ¼" | 23.4    | HP-066   | 58.5  | 87  | 20 | 90 | 85  | 29.5 | 202 |
| 32     | 1 ¼" | 40     | 1 ½" | 39.0    | HP-066   | 62.5  | 87  | 20 | 90 | 85  | 29.5 | 202 |
| 40     | 1 ½" | 50     | 2"   | 45.5    | HP-075   | 78.0  | 104 | 20 | 90 | 96  | 29.5 | 210 |
| 50     | 2"   | 65     | 2 ½" | 52.0    | HP-088   | 88.0  | 116 | 20 | 90 | 108 | 29.5 | 247 |
| 65     | 2 ½" | 80     | 3"   | 91.0    | HP-100   | 109.0 | 128 | 20 | 90 | 123 | 29.5 | 268 |
| 80     | 3"   | 100    | 4"   | 123.5   | HP-115   | 117.5 | 146 | 20 | 90 | 172 | 29.5 | 316 |
| 100    | 4"   | -      | -    | 182.0   | HP-115   | 133.5 | 146 | 20 | 90 | 172 | 29.5 | 316 |

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Seat : RPTFE

\*Compatible with various actuator types.

Note: For fire safe ball valves, explosion proof limit switch and solenoid valve may be required.



### Pneumatic Actuator (Single Acting)

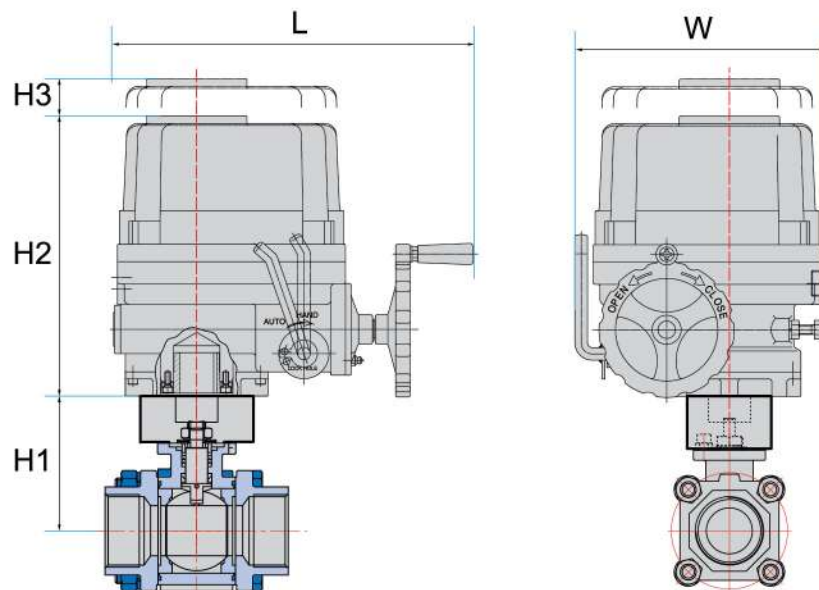
| DN(mm) | Size | DN(mm) | Size | Torques | Actuator | H1    | H2  | H3 | H4 | W1  | W2   | L   |
|--------|------|--------|------|---------|----------|-------|-----|----|----|-----|------|-----|
| FB     |      | RB     |      |         |          |       |     |    |    |     |      |     |
| 8      | ¼"   | -      | -    | 7.8     | HP-63S   | 42.5  | 87  | 20 | 90 | 85  | 29.5 | 163 |
| 10     | ⅜"   | 15     | ½"   | 7.8     | HP-63S   | 42.5  | 87  | 20 | 90 | 85  | 29.5 | 163 |
| 15     | ½"   | 20     | ¾"   | 13.0    | HP-63S   | 42.5  | 87  | 20 | 90 | 85  | 29.5 | 163 |
| 20     | ¾"   | 25     | 1"   | 16.9    | HP-75S   | 42.5  | 104 | 20 | 90 | 96  | 29.5 | 210 |
| 25     | 1"   | 32     | 1 ¼" | 23.4    | HP-100S  | 58.5  | 128 | 20 | 90 | 123 | 29.5 | 268 |
| 32     | 1 ¼" | 40     | 1 ½" | 39.0    | HP-100S  | 62.5  | 128 | 20 | 90 | 123 | 29.5 | 268 |
| 40     | 1 ½" | 50     | 2"   | 45.5    | HP-100S  | 78.0  | 128 | 20 | 90 | 123 | 29.5 | 268 |
| 50     | 2"   | 65     | 2 ½" | 52.0    | HP-115S  | 88.0  | 146 | 20 | 90 | 141 | 29.5 | 316 |
| 65     | 2 ½" | 80     | 3"   | 91.0    | HP-125S  | 109.0 | 159 | 20 | 90 | 151 | 29.5 | 347 |
| 80     | 3"   | 100    | 4"   | 123.5   | HP-145S  | 117.5 | 179 | 30 | 90 | 172 | 29.5 | 414 |
| 100    | 4"   | -      | -    | 182.0   | HP-145S  | 133.5 | 179 | 30 | 90 | 172 | 29.5 | 414 |

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Seat : RPTFE
- Air to Open, Spring to Close
- Safety Factor : 30%

\*Compatible with various actuator types.

Note: For fire safe ball valves, explosion proof limit switch and solenoid valve may be required.



### Electric Actuator

| DN(mm) | Size | DN(mm) | Size | Torques | Actuator | H1    | H2  | H3  | W   | L   |
|--------|------|--------|------|---------|----------|-------|-----|-----|-----|-----|
| FB     |      | RB     |      |         |          |       |     |     |     |     |
| 8      | ¼"   | -      | -    | 5.3     | HQ-004   | 42.5  | 124 | -   | 89  | 117 |
| 10     | ⅜"   | 15     | ½"   | 5.3     | HQ-004   | 42.5  | 124 | -   | 89  | 117 |
| 15     | ½"   | 20     | ¾"   | 5.3     | HQ-004   | 42.5  | 124 | -   | 89  | 117 |
| 20     | ¾"   | 25     | 1"   | 7.8     | HQ-004   | 42.5  | 124 | -   | 89  | 117 |
| 25     | 1"   | 32     | 1 ¼" | 10.1    | HQ-004   | 58.5  | 124 | -   | 89  | 117 |
| 32     | 1 ¼" | 40     | 1 ½" | 13.1    | HQ-006   | 62.5  | 139 | -   | 105 | 126 |
| 40     | 1 ½" | 50     | 2"   | 20.9    | HQ-006   | 78.0  | 139 | -   | 105 | 126 |
| 50     | 2"   | 65     | 2 ½" | 29.7    | HQ-006   | 88.0  | 139 | -   | 105 | 126 |
| 65     | 2 ½" | 80     | 3"   | 64.4    | HQ-010   | 109.0 | 235 | 120 | 170 | 258 |
| 80     | 3"   | 100    | 4"   | 84.5    | HQ-015   | 117.5 | 268 | 160 | 229 | 338 |
| 100    | 4"   | -      | -    | 110.0   | HQ-020   | 133.5 | 268 | 160 | 229 | 338 |

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Seat : RPTFE

\*Compatible with various actuator types.

Note: For fire safe ball valves, explosion proof limit switch and solenoid valve may be required.

# REQUEST FOR QUOTE

**STEP 1**

Find the model series

**STEP 2**

Define the specification/  
valve code

**STEP 3**

Fill up ordering sheet (back of the brochure) or Scan the QR code below

**STEP 4**

Submit your order via our website or contact your local partner

**STEP 5**

Prepare for confirmation and delivery

\*For further assistance with placing your order, please contact your local partner.  
A sales engineer will be assigned to assist you.

## Valve Coding Sheet 81FS Series

| 01                                                                                                                                                                                                         | 02                       | 03       | 04 | 05  |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------|----|-----|----|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|---|------|---|------------------------|---|--------------------|---|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|------|---|-------|----|---|-------|----|---|-------|----|---|-------|------|---|------|------|---|------|----|---|------|------|---|------|----|---|------|----|---|------|----|---|------|----|---|------|----|---|------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|---|-----|---|-----|---|-------------|---|-----------|---|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|---|-------|---|---------------|---|--------------------|--|---------------|---|--------------------|--|-------------------|
| <b>Body Material</b><br><table border="1"> <thead> <tr> <th>Code</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>C1</td> <td>WCB</td> </tr> <tr> <td>S2</td> <td>SS316</td> </tr> </tbody> </table> | Code                     | Material | C1 | WCB | S2 | SS316 | <b>Seat Material</b><br><table border="1"> <thead> <tr> <th>Code</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>T</td> <td>PTFE</td> </tr> <tr> <td>M</td> <td>25% Carbon Filled PTFE</td> </tr> <tr> <td>G</td> <td>50% SS Filled PTFE</td> </tr> <tr> <td>P</td> <td>Peek</td> </tr> </tbody> </table> | Code | Material | T | PTFE | M | 25% Carbon Filled PTFE | G | 50% SS Filled PTFE | P | Peek | <b>Pressure Rating/Size</b><br><table border="1"> <thead> <tr> <th>Code</th> <th>Pressure</th> <th>Size</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>PN100</td> <td>½"</td> </tr> <tr> <td>B</td> <td>PN100</td> <td>¾"</td> </tr> <tr> <td>C</td> <td>PN100</td> <td>1"</td> </tr> <tr> <td>D</td> <td>PN100</td> <td>1 ¼"</td> </tr> <tr> <td>E</td> <td>PN64</td> <td>1 ½"</td> </tr> <tr> <td>F</td> <td>PN64</td> <td>2"</td> </tr> <tr> <td>G</td> <td>PN64</td> <td>2 ½"</td> </tr> <tr> <td>H</td> <td>PN50</td> <td>3"</td> </tr> <tr> <td>I</td> <td>PN50</td> <td>4"</td> </tr> <tr> <td>J</td> <td>PN16</td> <td>5"</td> </tr> <tr> <td>K</td> <td>PN16</td> <td>6"</td> </tr> <tr> <td>L</td> <td>PN16</td> <td>8"</td> </tr> <tr> <td>M</td> <td>PN16</td> <td>10"</td> </tr> </tbody> </table> | Code | Pressure | Size | A | PN100 | ½" | B | PN100 | ¾" | C | PN100 | 1" | D | PN100 | 1 ¼" | E | PN64 | 1 ½" | F | PN64 | 2" | G | PN64 | 2 ½" | H | PN50 | 3" | I | PN50 | 4" | J | PN16 | 5" | K | PN16 | 6" | L | PN16 | 8" | M | PN16 | 10" | <b>Connection</b><br><table border="1"> <thead> <tr> <th>Code</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>BSP</td> </tr> <tr> <td>N</td> <td>NPT</td> </tr> <tr> <td>S</td> <td>Socket Weld</td> </tr> <tr> <td>W</td> <td>Butt Weld</td> </tr> <tr> <td>X</td> <td>Others (To be specified)</td> </tr> </tbody> </table> | Code | Material | B | BSP | N | NPT | S | Socket Weld | W | Butt Weld | X | Others (To be specified) | <b>Operation</b><br><table border="1"> <thead> <tr> <th>Code</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>Lever</td> </tr> <tr> <td>D</td> <td>Double Acting</td> </tr> <tr> <td>S</td> <td>Pneumatic Actuated</td> </tr> <tr> <td></td> <td>Single Acting</td> </tr> <tr> <td>E</td> <td>Pneumatic Actuated</td> </tr> <tr> <td></td> <td>Electric Actuated</td> </tr> </tbody> </table> | Code | Type | L | Lever | D | Double Acting | S | Pneumatic Actuated |  | Single Acting | E | Pneumatic Actuated |  | Electric Actuated |
| Code                                                                                                                                                                                                       | Material                 |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| C1                                                                                                                                                                                                         | WCB                      |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| S2                                                                                                                                                                                                         | SS316                    |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| Code                                                                                                                                                                                                       | Material                 |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| T                                                                                                                                                                                                          | PTFE                     |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| M                                                                                                                                                                                                          | 25% Carbon Filled PTFE   |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| G                                                                                                                                                                                                          | 50% SS Filled PTFE       |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| P                                                                                                                                                                                                          | Peek                     |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| Code                                                                                                                                                                                                       | Pressure                 | Size     |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| A                                                                                                                                                                                                          | PN100                    | ½"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| B                                                                                                                                                                                                          | PN100                    | ¾"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| C                                                                                                                                                                                                          | PN100                    | 1"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| D                                                                                                                                                                                                          | PN100                    | 1 ¼"     |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| E                                                                                                                                                                                                          | PN64                     | 1 ½"     |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| F                                                                                                                                                                                                          | PN64                     | 2"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| G                                                                                                                                                                                                          | PN64                     | 2 ½"     |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| H                                                                                                                                                                                                          | PN50                     | 3"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| I                                                                                                                                                                                                          | PN50                     | 4"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| J                                                                                                                                                                                                          | PN16                     | 5"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| K                                                                                                                                                                                                          | PN16                     | 6"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| L                                                                                                                                                                                                          | PN16                     | 8"       |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| M                                                                                                                                                                                                          | PN16                     | 10"      |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| Code                                                                                                                                                                                                       | Material                 |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| B                                                                                                                                                                                                          | BSP                      |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| N                                                                                                                                                                                                          | NPT                      |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| S                                                                                                                                                                                                          | Socket Weld              |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| W                                                                                                                                                                                                          | Butt Weld                |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| X                                                                                                                                                                                                          | Others (To be specified) |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| Code                                                                                                                                                                                                       | Type                     |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| L                                                                                                                                                                                                          | Lever                    |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| D                                                                                                                                                                                                          | Double Acting            |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| S                                                                                                                                                                                                          | Pneumatic Actuated       |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
|                                                                                                                                                                                                            | Single Acting            |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
| E                                                                                                                                                                                                          | Pneumatic Actuated       |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |
|                                                                                                                                                                                                            | Electric Actuated        |          |    |     |    |       |                                                                                                                                                                                                                                                                                                                  |      |          |   |      |   |                        |   |                    |   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |   |       |    |   |       |    |   |       |    |   |       |      |   |      |      |   |      |    |   |      |      |   |      |    |   |      |    |   |      |    |   |      |    |   |      |    |   |      |     |                                                                                                                                                                                                                                                                                                                                                 |      |          |   |     |   |     |   |             |   |           |   |                          |                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |   |       |   |               |   |                    |  |               |   |                    |  |                   |

Your Valve Ordering Code:

|      |    |    |    |    |    |
|------|----|----|----|----|----|
| 81FS | 01 | 02 | 03 | 04 | 05 |
|------|----|----|----|----|----|

Example:

81FS Series – S2TABL reduced bore.  
SS316 Material. PTFE Seat. Pressure Rating of PN100, ½ inch size. Connection Type of BSPT – Tapered. Lever Operating type.

\*For special material or customisation, please refer to our sales engineer.



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