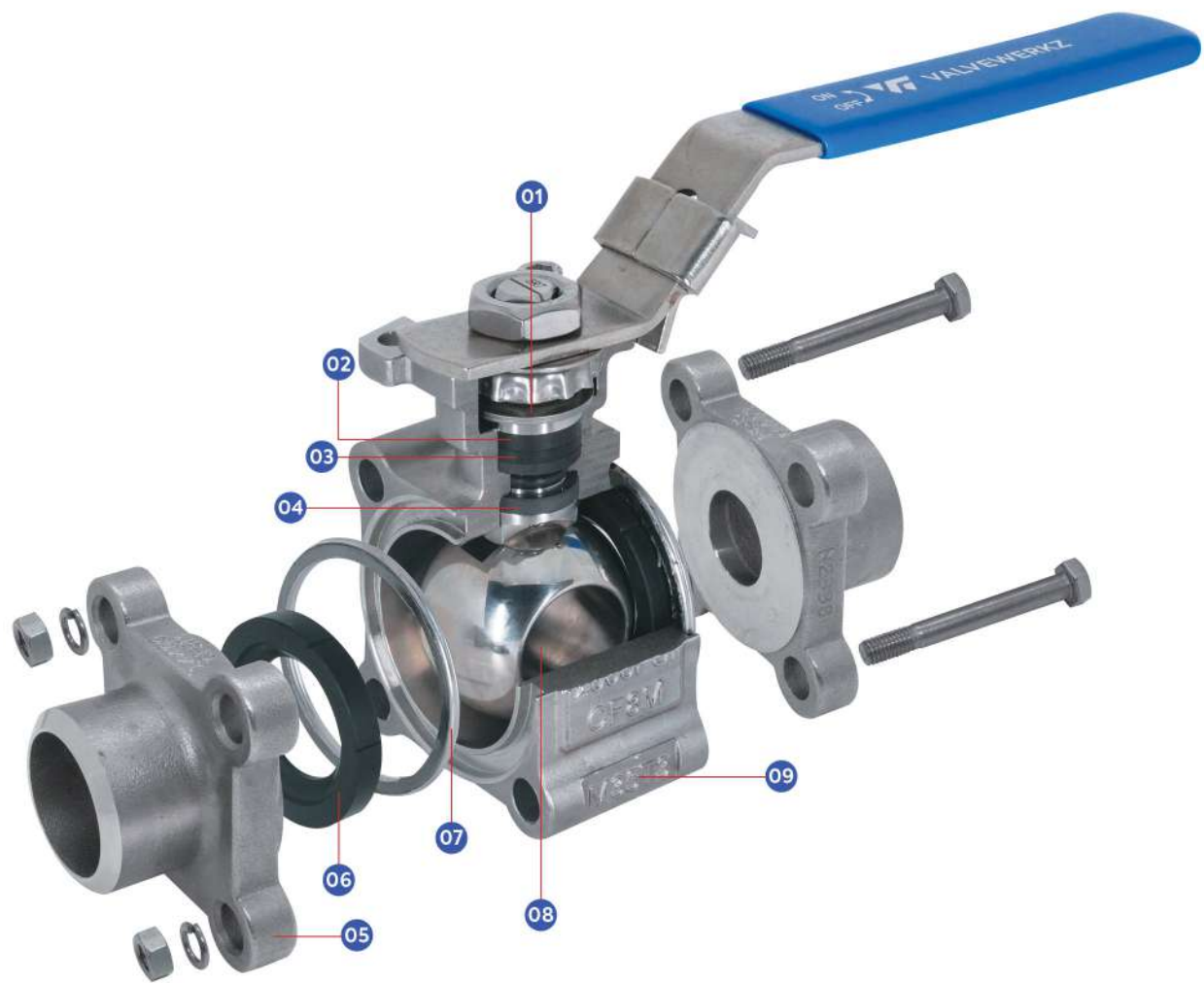


81FS SERIES - HIGH PERFORMANCE

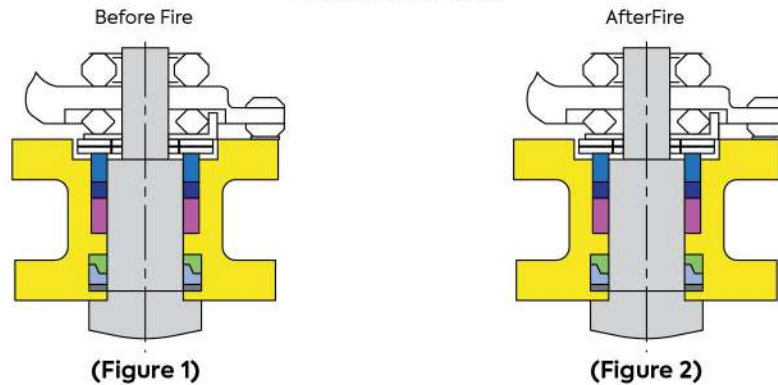
Fire Tested To API 607 4th Edition On ValveWerkz 81FS Soft-Seated 3pc Ball Valve

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.



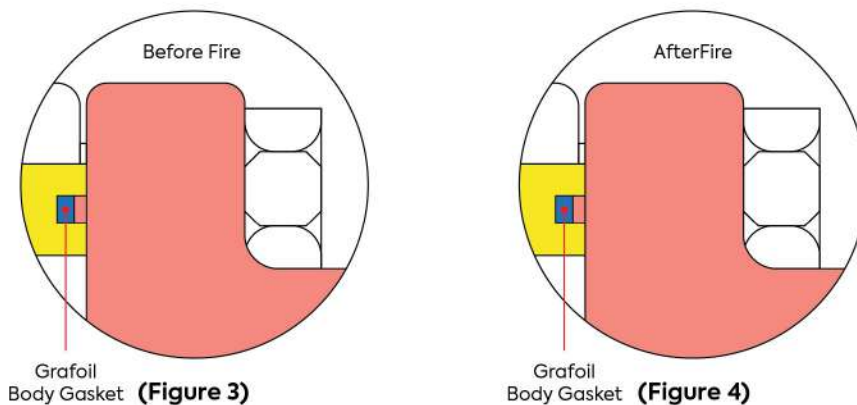
Part Name	Part Name
1. Belleville Washer	6. Seat
2. Bushing	7. Body Gasket
3. V-Ring Packing	8. Ball
4. Upper and Lower Stem Seal	9. Body
5. End Cap	

Grafoil Stem Seal



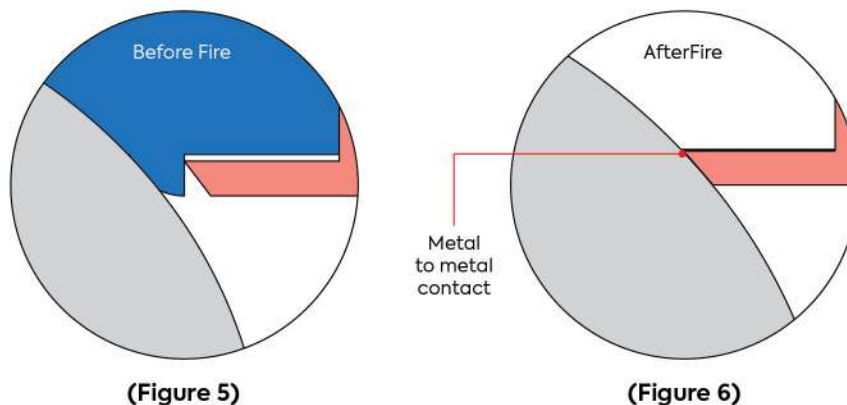
ValveWerkz 81FS series ball valves are designed to be fire safe to minimize both external and internal fluid leakage after plant fires due to:

Contact between ball & 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 & #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& #4)

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

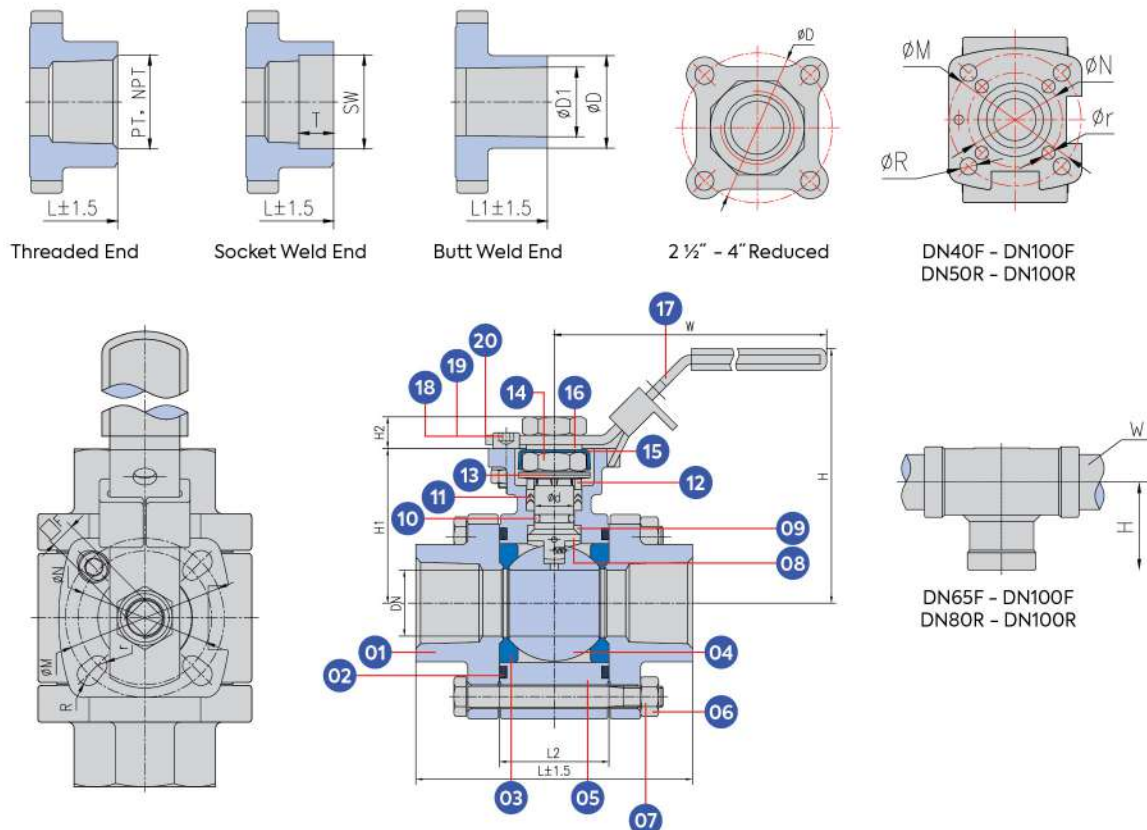
1500psi 1 ¼" - 2"

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.

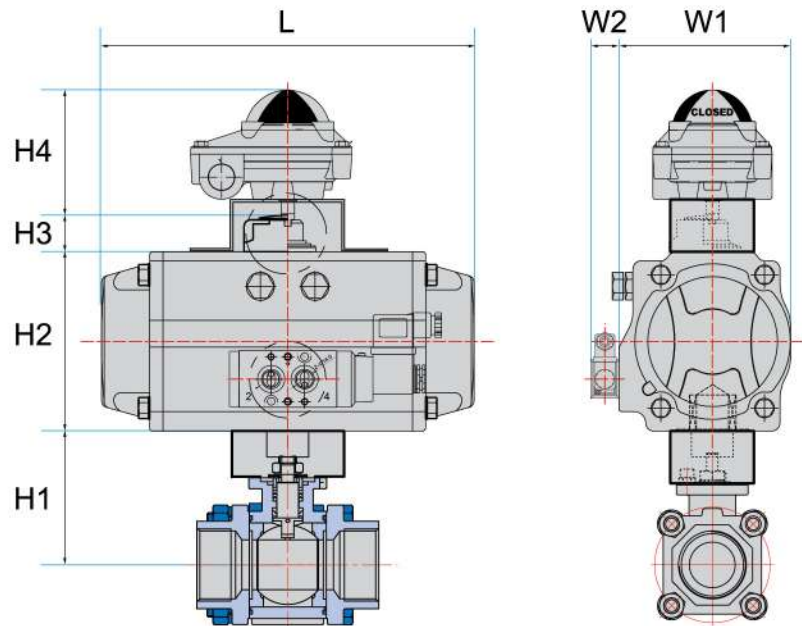
Dimensions(mm)

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)

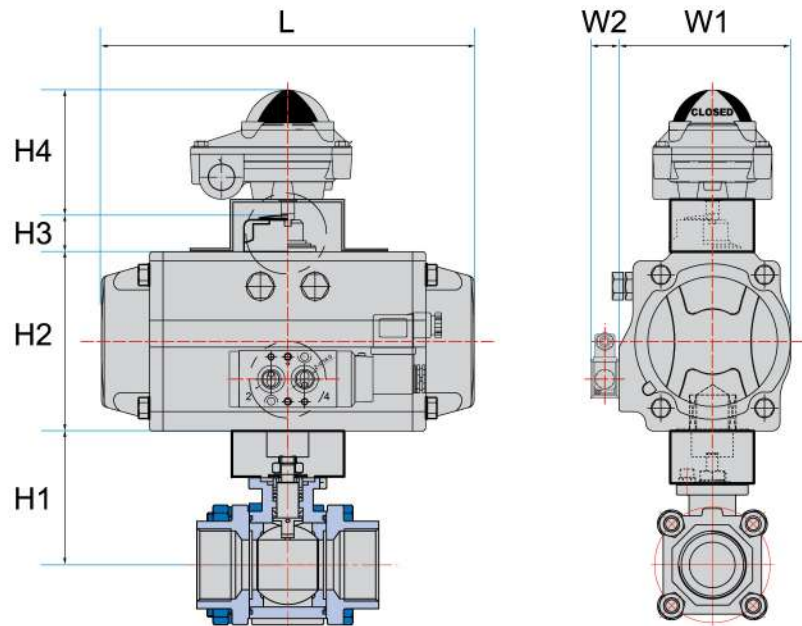
DN(mm)	Size	DN(mm)	Size	Torques	Actuator	H1	H2	H3	H4	W1	W2	L
FB		RB										
8	¼"	-	-	7.8	HP-050	42.5	73	20	90	72	29.5	144
10	⅜"	15	½"	7.8	HP-050	42.5	73	20	90	72	29.5	144
15	½"	20	¾"	13.0	HP-050	42.5	73	20	90	72	29.5	144
20	¾"	25	1"	16.9	HP-063	42.5	87	20	90	85	29.5	163
25	1"	32	1 ¼"	23.4	HP-066	58.5	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 & solenoid valve may be required.



Pneumatic Actuator (Single Acting)

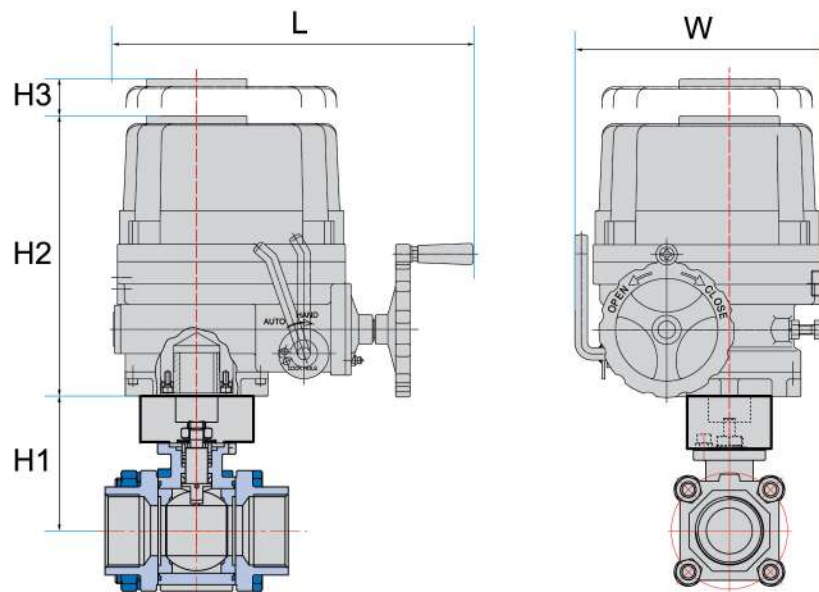
DN(mm)	Size	DN(mm)	Size	Torques	Actuator	H1	H2	H3	H4	W1	W2	L
FB		RB										
8	¼"	-	-	7.8	HP-63S	42.5	87	20	90	85	29.5	163
10	⅜"	15	½"	7.8	HP-63S	42.5	87	20	90	85	29.5	163
15	½"	20	¾"	13.0	HP-63S	42.5	87	20	90	85	29.5	163
20	¾"	25	1"	16.9	HP-75S	42.5	104	20	90	96	29.5	210
25	1"	32	1 ¼"	23.4	HP-100S	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 & 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 & 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																																																																																				
Body Material <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	Seat Material <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	Pressure Rating/Size <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"	Connection <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)	Operation <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
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Your Valve Ordering Code:

81FS	01	02	03	04	05
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Example:

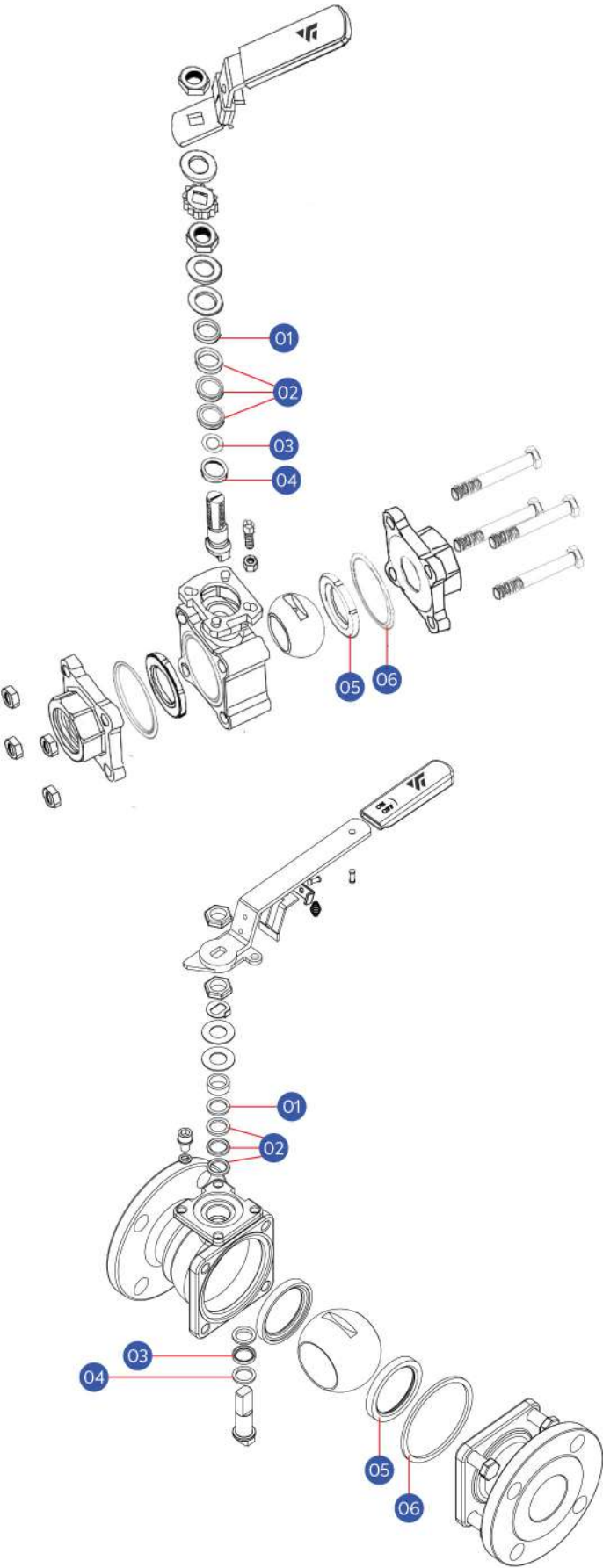
81FS Series – S2TABL reduced bore.
SS316 Material. PTFE Seat. Pressure Rating of PN100, ½ inch size. Connection Type of BSPT – Tapered. Lever Operating type.

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



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ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com



81FS Series

Part Name	Qty
1. Compress Ring	1
2. V-Ring Packing	1 Set (3 pcs)
3. O-Ring	1
4. Stem Washer	1
5. Seat	2
6. Body Gasket	2

203 Series

Part Name	Qty
1. Bushing	1
2. V-Ring Packing	1 Set (3 pcs)
3. Compress Ring	1
4. Stem Seal	1
5. Seat	2
6. Body Gasket	1