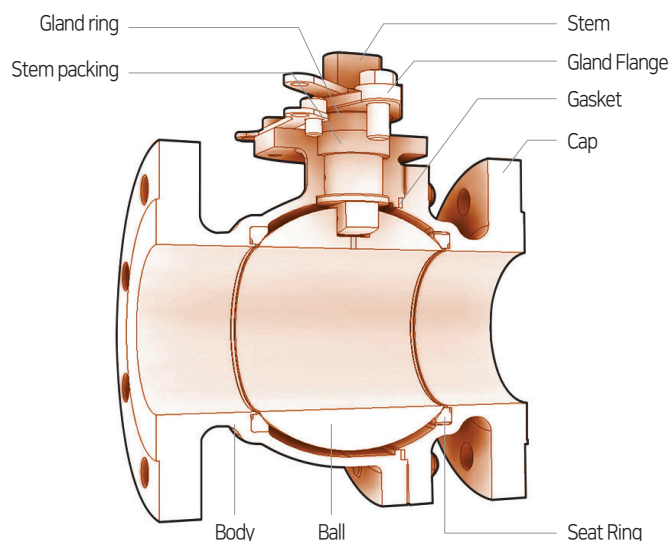


BFS Series

"Split-Body, Free Floating Ball, Soft Seated & Casting Valves"

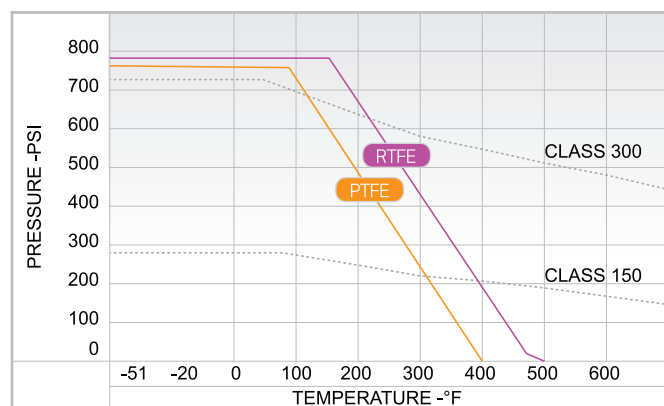


FEATURES

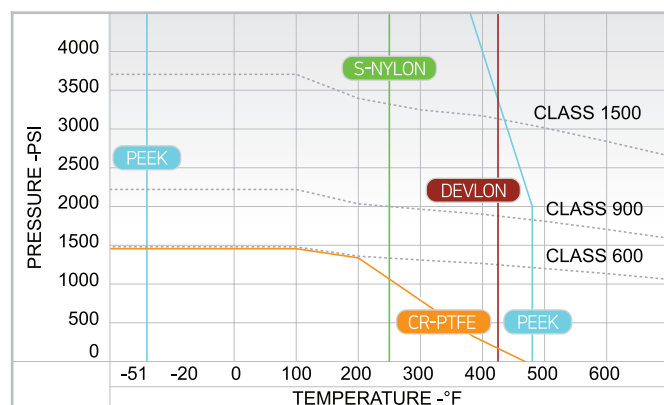
- Basic design : API 6D, API 608 and ISO 17292
- Two-piece body & side entry design
- Blow out-proof stem construction
- Anti-static design
- Locking device
- Micro-finished ball for long service life
- Ball includes pressure equalization hole to prevent trapped pressure in body cavity
- Full & Reduced port
- Size range : NPS 1/2(DN 15) to NPS 12(DN 300)
- Pressure rating : ASME Class 150 to Class 1500
- Graphite gasket and Stem packing prevent post-fire external leakage.
- Post-fire metal-to-metal seal prevents internal leakage after fire.
- Fire-safe design : API 607/ ISO 10497, or API 6FA

SEAT RATING CHART

Class 150 & 300



Class 600 & Above



Extended pressures and temperatures may be achieved by altering design for specific applications. Consult factory with service conditions. The valve rating is the lesser of the body rating and the seat rating.

FORCE manufactures an extensive line of high pressure valves capable of the full seat ratings shown. Consult factory for details.

STANDARD MATERIALS

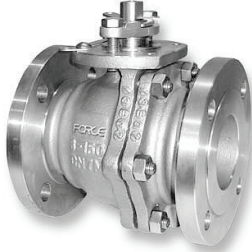
No.	Parts	Stainless Steel	Carbon Steel
001	Body	ASTM A351-CF8/ CF8M	ASTM A216-WCB
002	Closer(Cap)	ASTM A351-CF8/ CF8M	ASTM A216-WCB
004	Ball	ASTM A351-CF8M	
005	Stem	ASTM A276-316	
011	Gland Ring	ASTM A276-316	
012	Gland Flange	ASTM A351-CF8	
015	Seat Ring	PTFE or Reinforced PTFE	
S01	Packing	Graphite	
S02	Gasket(Cap)	SPW316-Graphite	
S21	Thrust Washer	Reinforced PTFE	
P01	Top Washer	ASTM A240-304	
P02	Stopper	ASTM A240-304	
P03	Locking Plate	ASTM A240-304	AISI 1020 with Zn Plated
P04	Lever	ASTM A283-D with Vinyl Coated or A536	
B01	Joint Bolt	ASTM A193-B8/ B8M	AST A193-B7/B7M
N01	Jount Nut	ASTM A194-8/ 8M	ASTM A194-2H/2HM
B11	Stopper Bolt	ASTM A193-B8	ASTM A307-B
B21	Gland Bolt	ASTM A193-B8	

DESIGN SPECIFICATIONS AVAILABLE

API 6D 24Edition	Piping Valve(Design)
API 608	Metal Ball Valves(Design)
ASME B16.34	Steel Valves(Design)
ISO 17292/ BS 5351	Steel Ball Valves(Petrochemical Industry)
ASME B16.5	Pipe Flanges and Flanged Fitting
ASME B16.10	Face-to-face and End-to-end Dimensions
MSS SP-72	Ball Valves
API 607/ ISO 10497	Fire Test for Soft Seated Valves
NACE MR 0175	Sour Gas Service Application

STANDARD MATERIALS

- Body : Carbon Steel (WCB, LCC), Stainless Steel (CF8, CF8M)
- Ball : Stainless Steel (CF8, CF8M)
- Stem : SS304, SS316
- Seat : PTFE, RTFE, Modified TFE



SPECIFICATIONS

Construction

Split-body, Side entry, Full/Reduced port, Free floating ball, "Fire-safe" designed to **API 607 / ISO 10497 or API 6FA** Blow out proof stem, Anti-static device, Cavity relieving seats.

Valves are designed to **API 6D, ASME B16.34, API 608** and **ISO 17292 / BS 5351** specifications.

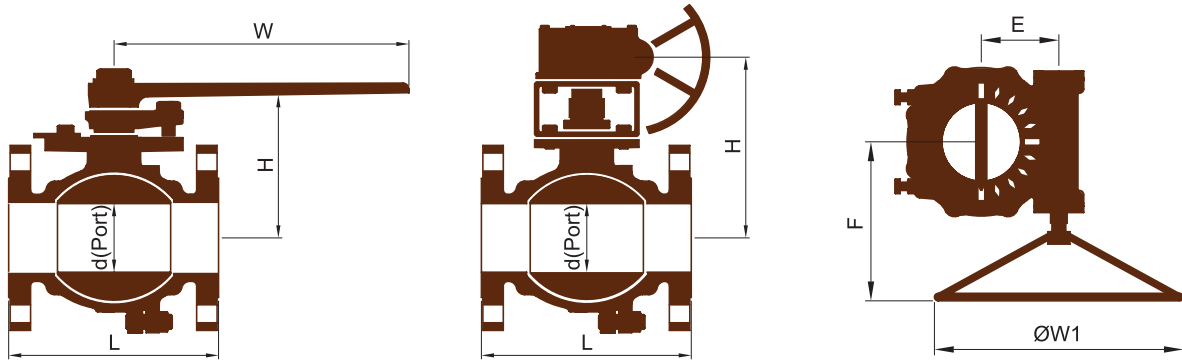
Manufactured and conforms to **NACE** standard **MR 0175**.

Test pressure (psig / CS material)

ASME Class	Max. Working pressure	Shell (Hydro.)	Seat (Hydro. / Air)
Class 150	285	450	325 / 80
Class 300	740	1125	825 / 80

DIMENSIONS

CLASS 150 & 300

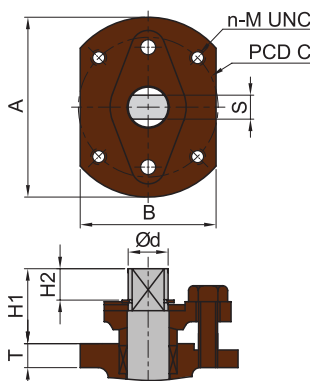


Valve Size		1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6'	8"	10"	12"	
Ød (port)		inch	0.5	0.7	1.0	1.5	2.0	2.5	3.0	4.0	6.0	8.0	10.0	12.0
		mm	13	19	25	38	51	64	76	102	152	203	254	305
L	150	inch	4.25	4.61	5.00	6.50	7.01	7.50	8.00	9.02	15.51	17.99	21.00	24.02
		mm	108	117	127	165	178	190.5	203.2	229	394	457	533.4	610
	300	inch	5.51	5.91	6.50	7.50	8.50	9.49	11.14	12.01	15.87	19.76	22.37	-
		mm	140	150	165	190.5	216	241	283	305	403	502	568.3	-
H		inch	3.70	3.90	4.57	5.31	6.10	6.10	6.57	7.80	12.99	14.80	19.49	20.47
		mm	94	99	116	135	155	155	167	198	330	376	495	520
W		inch	5.12	5.12	6.10	9.06	9.06	14.96	14.96	17.72	23.62	31.50	39.37	-
		mm	130	130	155	230	230	380	380	450	600	800	1000	-
ØW1		inch	-	-	-	-	-	-	-	-	19.69	19.69	27.95	27.95
		mm	-	-	-	-	-	-	-	-	500	500	710	710
E		inch	-	-	-	-	-	-	-	-	11.34	11.69	12.44	12.44
		mm	-	-	-	-	-	-	-	-	288	297	316	316
F		inch	-	-	-	-	-	-	-	-	2.74	3.25	3.82	3.82
		mm	-	-	-	-	-	-	-	-	69.5	82.5	97	97
Approx. Weight	150	lb	4.0	5.1	7.1	14.6	21.6	34.8	47.0	76.5	163.1	288.8	454.2	1005.3
		kg	1.8	2.3	3.2	6.6	9.8	15.8	21.3	34.7	74	131	206	456
	300	lb	5.3	7.9	11.2	23.8	31.3	46.7	62.8	110.5	227.1	385.8	617.3	-
		kg	2.4	3.6	5.1	10.8	14.2	21.2	28.5	50.1	103	175	280	-

Gear operators are available for most sizes.

TOP WORKS DIMENSIONS

CLASS 150 & 300



Size	Ød	S	A	B	PCD C	n-M	H1	H2	T	ISO 5211
1/2"	10	6	55	39	42	4-1/4"	20	9.5	8	F04
3/4"	10	6	55	39	42	4-1/4"	20	9.5	8	F04
1"	14	8	65	48	50	4-1/4"	22.7	9.7	9	F05
1 1/2"	20	12	90	68	70	4-5/16"	32	9.8	9	F07
2"	20	12	90	68	70	4-5/16"	32	9.8	11	F07
2 1/2"	27	17	125	95	102	4-3/8"	44.5	18.3	14	F10
3"	27	17	125	95	102	4-3/8"	43.5	17	12	F10
4"	34	22	125	95	102	4-3/8"	49	24	12	F10
6"	44	26	153	116	125	4-1/2"	59	26.5	16	F12
8"	51	32	175	134	140	4-5/8"	73	34.3	19	F14
10"	50	38	210	165	165	4-3/4"	99.5	44.5	24	F16

Unit : mm

BFS Series

"Split-Body, Free Floating Ball, Soft Seated & Casting Valves"

STANDARD MATERIALS

- Body : Carbon Steel (WCB, LCC), Stainless Steel (CF8, CF8M)
- Ball : Stainless Steel (CF8, CF8M)
- Stem : SS304, SS316
- Seat : Modified TFE, NYLON/DEVLON, PEEK



SPECIFICATIONS

Construction

Split-body, Side entry, Full/Reduced port, Free floating ball, "Fire-safe" designed to **API 607/ ISO 10497** or **API 6FA**, Blow out proof stem, Anti-static device, Cavity relieving seats.

Valves are designed to **API 6D**, **ASME B16.34**, **API 608** and **ISO 17292 / BS 5351** specifications.

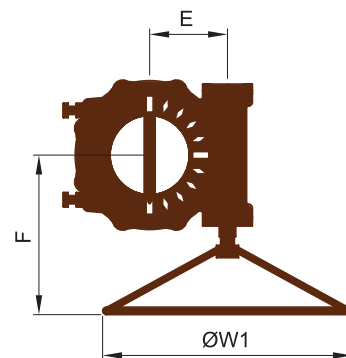
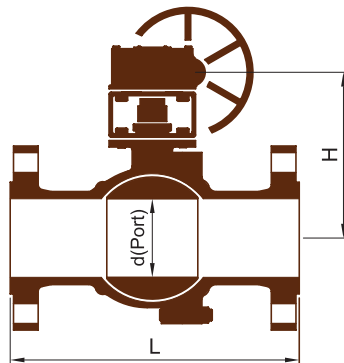
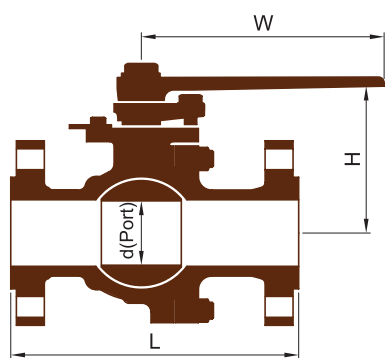
Manufactured and conforms to **NACE** standard **MR 0175**.

Test pressure (psig / CS material)

ASME Class	Max. Working pressure	Shell (Hydro.)	Seat (Hydro. / Air)
Class 600	1480	2225	1650 / 80

DIMENSIONS

CLASS 600

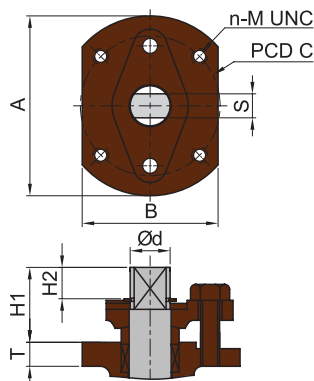


Valve Size		1/2"	3/4"	1"	1 1/2"	2"	3"x2"	3"	4"x3"	4"	6"x4"	6"	8"x6"
Ød (port)	inch	0.5	0.7	1.0	1.5	2.0	2.0	3.0	3.0	4.0	4.0	6.0	6.0
	mm	13	19	25	38	51	51	76	76	102	102	152	152
L	inch	6.50	7.50	8.50	9.50	11.50	14.02	14.00	17.01	17.01	22.01	22.01	26.00
	mm	165.1	190.5	215.9	241.3	292	356	355.6	432	432	559	559	660.4
H	inch	3.86	4.17	4.57	5.55	6.26	6.26	7.76	7.76	9.45	9.45	13.31	11.65
	mm	98	106	116	141	159	159	197	197	240	240	338	338
W	inch	9.65	9.65	9.65	14.57	14.57	14.57	17.72	17.72	23.62	23.62	31.50	31.50
	mm	245	245	245	370	370	370	450	450	600	600	800	800
ØW1	inch	-	-	-	-	-	-	-	-	-	19.69	19.69	19.69
	mm	-	-	-	-	-	-	-	-	-	500	500	500
E	inch	-	-	-	-	-	-	-	-	-	11.34	11.69	11.69
	mm	-	-	-	-	-	-	-	-	-	288	297	297
F	inch	-	-	-	-	-	-	-	-	-	2.74	3.25	3.25
	mm	-	-	-	-	-	-	-	-	-	69.5	82.5	82.5
Approx. Weight	lb	8.6	14.6	18.3	34.6	75.0	37.5	132.3	121.3	242.5	255.7	443.1	440.9
	kg	3.9	6.6	8.3	15.7	34	29	60	55	110	116	201	200

Gear operators are available for most sizes.

TOP WORKS DIMENSIONS

CLASS 600

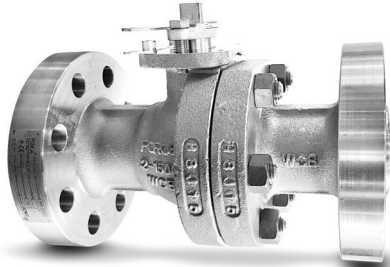


Size	Ød	S	A	B	PCD C	n-M	H1	H2	T	ISO 5211
1/2"	15	10	65	47	50	4-1/4"	23	9.5	9	F05
3/4"	15	10	65	48	50	4-1/4"	26	9.5	9	F05
1"	15	10	65	48	50	4-1/4"	28.5	10	9	F05
1 1/2"	21	14	90	68	70	4-5/16"	35.5	16	11	F07
2"	21	14	90	68	70	4-5/16"	37.5	16	12	F07
2 1/2"	34	22	125	95	102	4-3/8"	49.5	25.2	15	F10
3"	34	22	125	95	102	4-3/8"	49.5	24.5	15	F10
4"	44	26	153	116	125	4-1/2"	57	24.8	18	F12
6"	51	32	175	134	140	4-5/8"	71	34.5	19	F14

Unit : mm

STANDARD MATERIALS

- Body : Carbon Steel (WCB, LCC), Stainless Steel (CF8, CF8M)
- Ball : Stainless Steel (CF8, CF8M)
- Stem : SS304, SS316
- Seat : Modified TFE, NYLON/DEVLON, PEEK



SPECIFICATIONS

Construction

Split-body, Side entry, Full/Reduced port, Free floating ball, "Fire-safe" designed to **API 607/ISO 10497** or **API 6FA**, Blow out proof stem, Anti-static device, Cavity relieving seats.

Valves are designed to **API 6D**, **ASME B16.34**, **API 608** and **ISO 17292 / BS 5351** specifications.

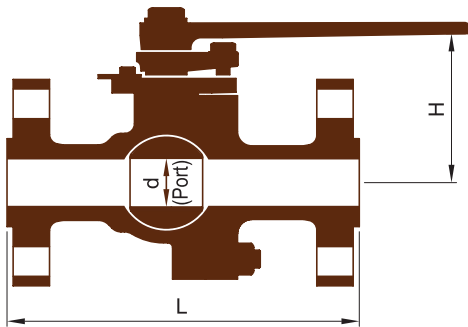
Manufactured and conforms to **NACE** standard **MR 0175**.

Test pressure (psig / CS material)

ASME Class	Max. Working pressure	Shell (Hydro.)	Seat (Hydro. / Air)
Class 900	2220	3350	2450 / 80
Class 1500	3705	1175	4100 / 80

DIMENSIONS

CLASS 900 & 1500

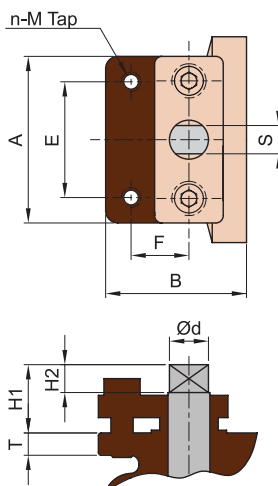


Valve Size		1/2"	3/4"	1"	1 1/2"	2"
Ød (port)	inch	0.5	0.7	1.0	1.5	2.0
	mm	13	19	25	38	51
L	inch	8.50	9.02	10.00	12.01	14.49
	mm	216	229	254	305	368
H	inch	3.90	4.02	4.53	5.67	6.93
	mm	99	102	115	144	176
W	inch	9.65	9.65	9.65	14.57	14.96
	mm	245	245	245	370	380
Approx. Weight	lb	41.3	51.0	72.9	128.8	233.3
	kg	8.5	10.5	15	26.5	48

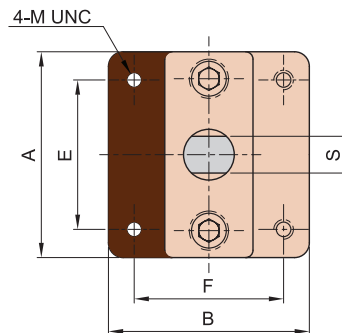
TOP WORKS DIMENSIONS

CLASS 900 & 1500

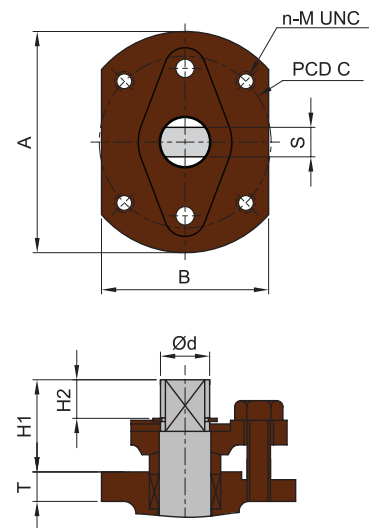
SIZE 1/2" to 1"



SIZE 1 1/2"



SIZE 2"



Size	Ød	S	A	B	E	F	PCD C	n-M	H1	H2	T	ISO 5211
1/2"	12	8	68	58	44.5	24.7	-	2-M8	20	9.5	8.5	-
3/4"	12	8	68	60.5	44.5	24.7	-	2-M8	22	9.5	9	-
1"	12	8	68	63	44.5	25	-	2-M8	22.5	11	9	-
1 1/2"	18.5	12	84	82	44.5	60	-	4-3/8"	32	16	13	-
2"	27	17	125	95	-	-	102	4-3/8"	45.5	20	15	F10

Unit : mm

BFS Series

"Split-Body, Free Floating Ball, Soft Seated & Casting Valves"

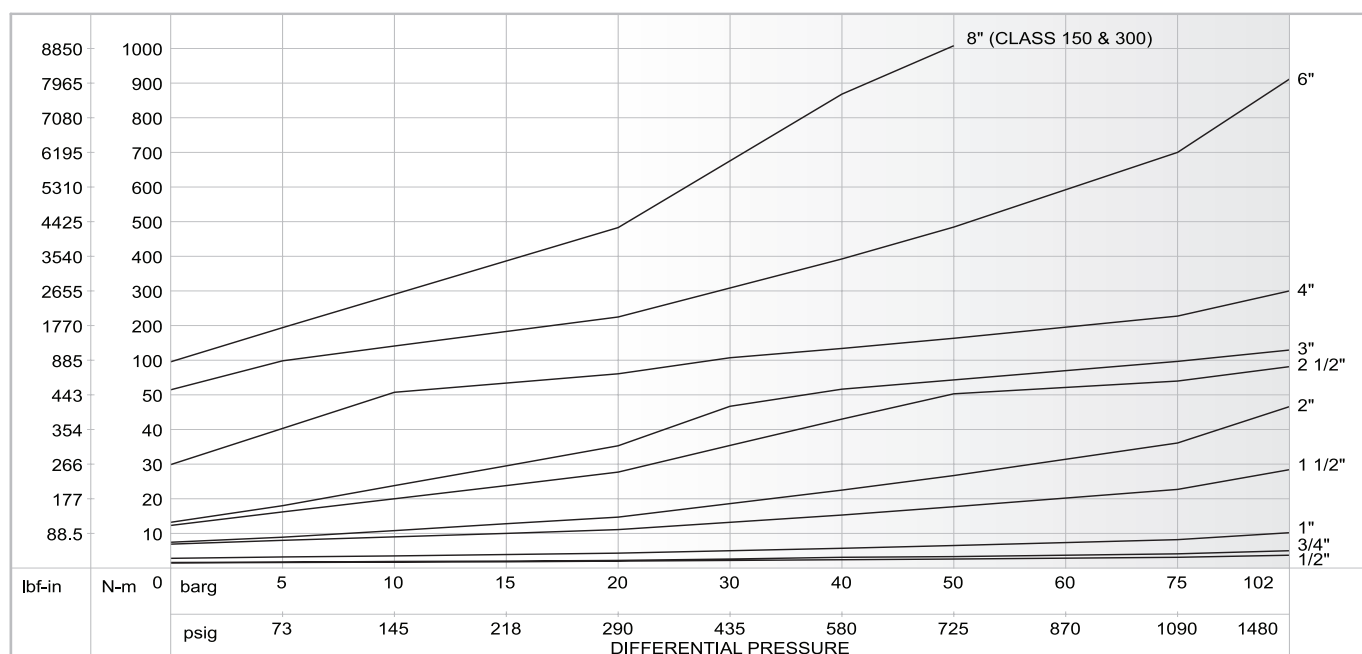
FLOW COEFFICIENT (CV)

Valve Size	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"
Cv.Value	Class 150	26	61	113	270	470	740	1,250	2,250	5,200	9,550	23,050
	Class 300	26	61	113	270	470	-	1,100	2,150	5,150	9,450	-
Valve Size	1/2"	3/4"	1"	1 1/2"	2"	3"x2"	3"	4"x3"	4"	6"x4"	6"	8"x6"
Cv.Value	Class 600	21	44	75	239	450	250	1,050	650	1,900	840	4,650
	Class 900/1500	14	34	60	180	380	-	-	-	-	-	-

Cv is defined as the volume of water flowing through the valve, in U.S.Gallons per minute at 60°F(15°C), which will result in a pressure drop of 1 psi. The table gives Flow Coefficient(Cv) values for Series 'BF' ball valves in the Full open position.

TORQUE DATA

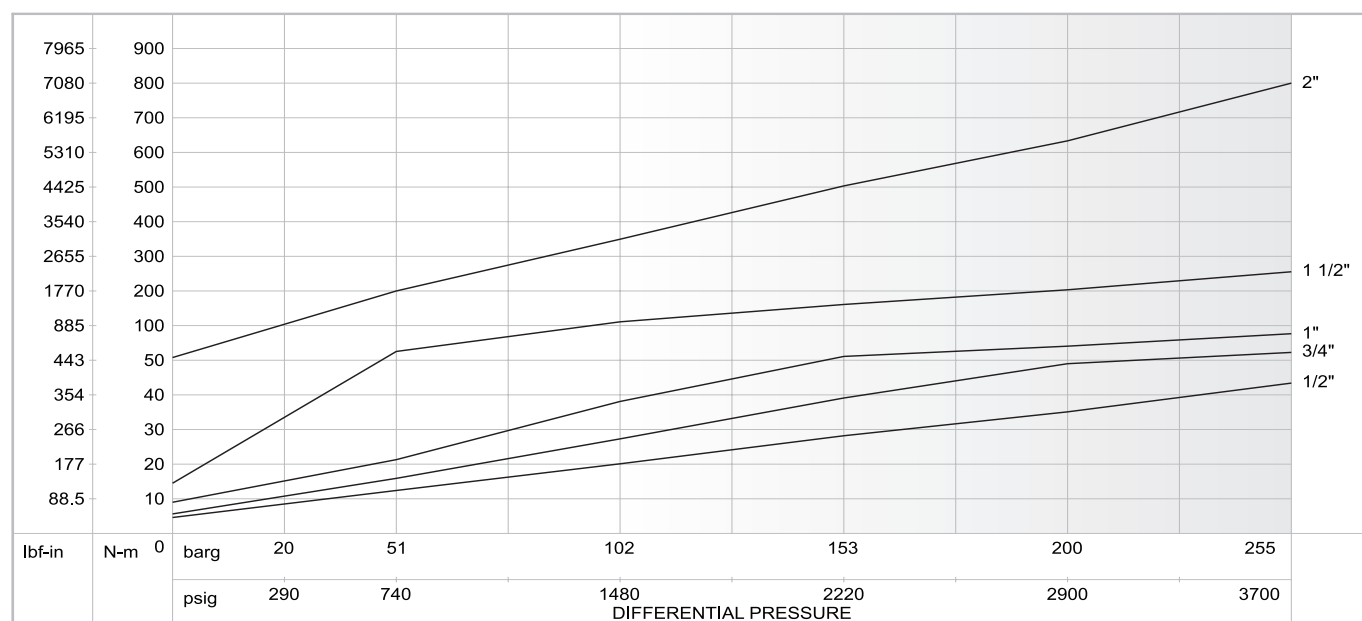
Class 150 to 600



* Seat material : PTFE & Reinforced PTFE.

* To select the actuator, adding 25% safety factor to the required torque should be considered.

Class 900 & 1500



* Seat material : NYLON & DEVLON V.

* To select the actuator, adding 25% safety factor to the required torque should be considered.

BFS Series

"Split-Body, Free Floating Ball, Soft Seated & Casting Valves"

Part No.	Part Name
001	Body
002	Cap
004	Ball
005	Stem
011	Gland Ring
012	Gland Flange
015	Seat
S01	Packing
S02	SPW Gasket
S21	Thrust Washer(Bearing)
S29	Snap Ring
P01	Top Washer
P02	Stopper
P03	Locking Plate
P04	Lever
B01	Joint Bolt
N01	Joint Nut
B11	Locking Bolt
B21	Gland Bolt
B22	Lever bolt

