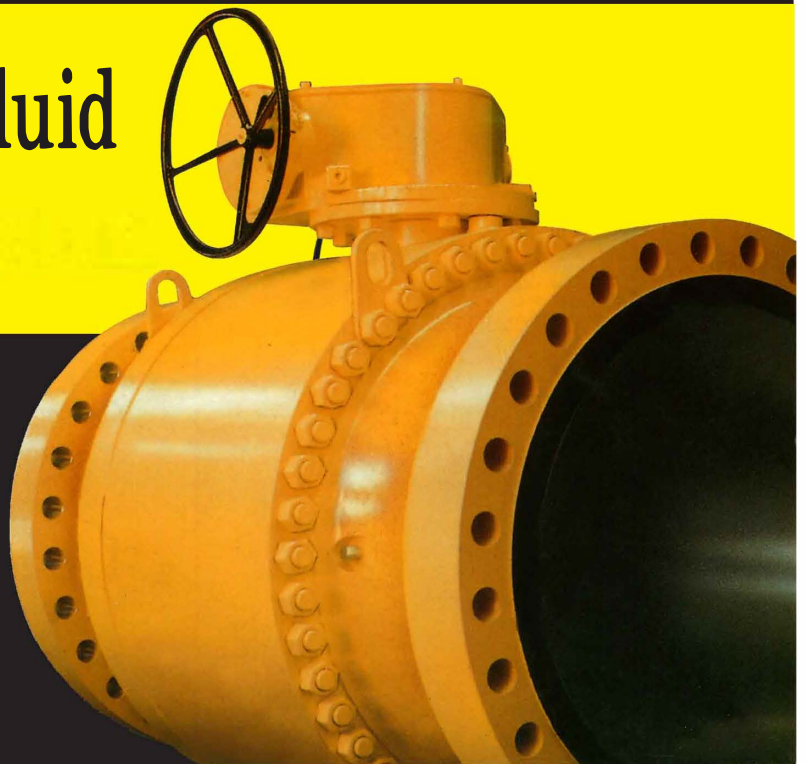


mesys®



**Mechanical and Fluid
Control Systems**



Feature

MFB Series

MFB Series (Flange Type)

Technical Data

Body

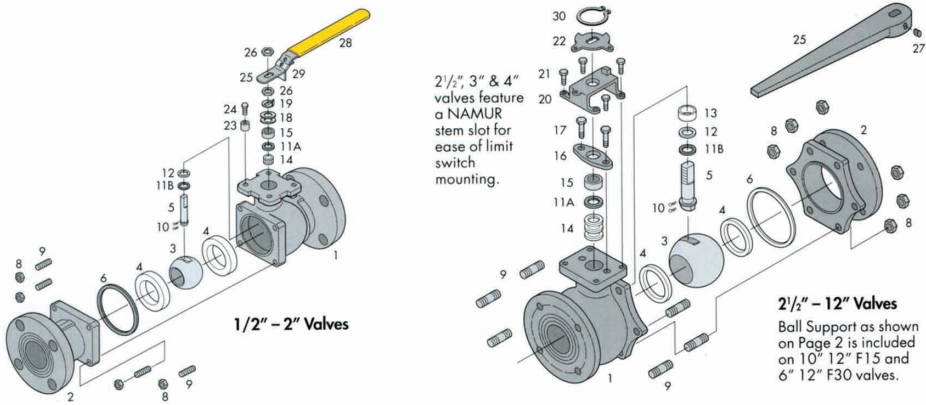
The body is made up of three parts and connected by bolts after machined with forging steel materials, Disassembly and repair can be carried out at the job site. The bolts are as per metric or imperial standard, or manufactured according to customer requirements. The bolts shall be tightened by hydraulic tools with a predetermined torque. The “NPT” standard drain valve is installed at the lowest part of the body to discharge the liquid in the body cavity.

Stem construction

The stem is separate from the ball and the upper part of the stem is in the upper sleeve. The lower part is connected by fixing pin and ball, The metal backed self-lubricating bearing and thrust washers reduce the torque and prolong the service life of the valve. The upper and lower trunnions of the ball absorb all the pressure load. The stem is a free member and carries no side load. Due to the absence of the side load and the reduction of friction on the stem, low torque and long trouble-free service life can be ensured. The stem seal is made up of two sealed O rings. When the ball is at the closed position, if there is leakage at the stem, the O ring for the primary sealing will block the pressure of pipeline. With the valve in the line, the gland plate can be removed replaced the O Ring of stem and the stem can also be removed and replaced if neces-sary.

Torque

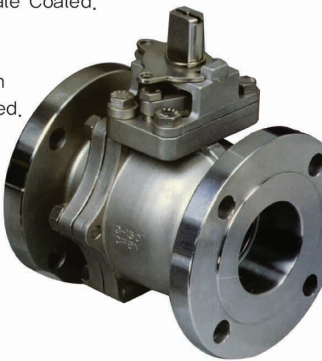
The factors of lower operating torque which is about MCSYS products as follows:
The design that the ball and stem are separated
The two large diameter short trunnions (upper and lower) of the ball directly carry the load of rigid supporting board, the unit load on upper sleeve bearing is reduced. The upper and lower trunnions of the ball absorb all the pressure loads.



Components & Materials

Carbon Steel bodies on Valve sizes 1/2" –4" are Black Phosphate Coated.

All Stainless Steel bodies are solution annealed/normalized.

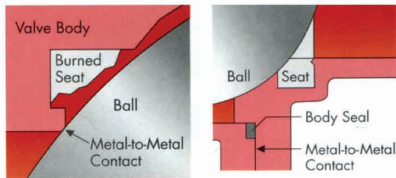


Specifications

Flanged End Connections meet ASME/ANSI Class 150/300
Flanges meet ASME/ANSI B16.5, Face to Face Dimensions meet ASME/ANSI B16.10.
All valves meet ASME/ANSI B16.34, MSS-SP 72.
Fire Safe Valves are certified to API 607 4th Edition(with Graphite Stem Packing).
NACE MRO175-Consult Factory.
All Valves Hydrostatically Pressure Tested and Seat Tested, Class 150:Shell 425 psi, Seat(Air)80psi
Class 300:Shell 1100psi,Seat(Air)80psi

Item	Name	Stainless Steel	Carbon Steel	Qty
1	Body	ASTM A351 Gr CF8M	ASTM A216 Gr WCB	1
2	End Cap	ASTM A351 Gr CF8M	ASTM A216 Gr WCB	1
3	Ball	ASTM A351 Gr CF8M	ASTM A351 Gr CF8M	1
4	Seat	15% RPTFE	15% RPTFE	2
5	Stem	ASTM A479 Type316	ASTM A479 Type316	1
6	Body Seal	Spiral Wound (316/Graphite)	Spiral Wound (316/Graphite)	1
8	Body Nut	ASTM A194 Gr8	ASTM A194 2H	*
9	Body Stud	ASTM A193 B8	ASTM A193 B7	*
10	Anti-Static Device	SS304	SS304	2
11-A/B	Thrust Bearing	PEEK	PEEK	2
12	Thrust Washer	50%SS316+50%PTFE	50%SS316+50%PTFE	1
13	Stem Bearing	15%RPTFE	15%RPTFE	1
14	Stem Packing	RPTFE/Graphite	RPTFE/Graphite	3
15	Packing Gland	ASTM A167 Type304	ASTM A167 Type304	1
16	Packing Follower	ASTM A564 Gr630(17-4p)	ASTM A216 Gr WCB	1
17	Gland Bolt	SS304	SS304	2
18	Belleville Washer	SS301	SS301	2
19	Tab lock Washer	SS300	SS300	1
20	Travel Stop Housing	CF8	WCB	1
21	Housing Bolt	SS300	SS300	4
22	Travel Stop	SS304	Zinc plated Carbon Steel	1
23	Travel Stop Sleeve	ASTM A167 Type 304	ASTM A167 Type 304	1
24	Travel Stop Bolt	SS300	SS300	1
25	Handle	SS304/Ductile Iron	SS304/Ductile Iron	1
26	Lock Nut	ASTM A167 Type 304	ASTM A167 Type 304	2
27	Handle Bolt	Carbon Steel	Carbon Steel	1
28	Handle Sleeve	Vinyl through 2"	Vinyl through 2"	1
29	Locking Device	SS304	SS304	1
30	Snap Ring	Nickel Plated Carbon Steel	Nickel Plated Carbon Steel	2

*Quantity depends on valve size.



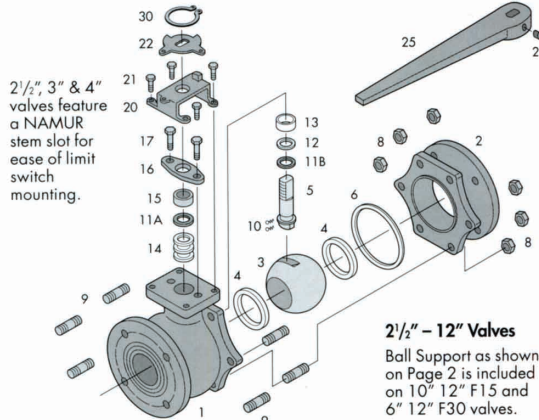
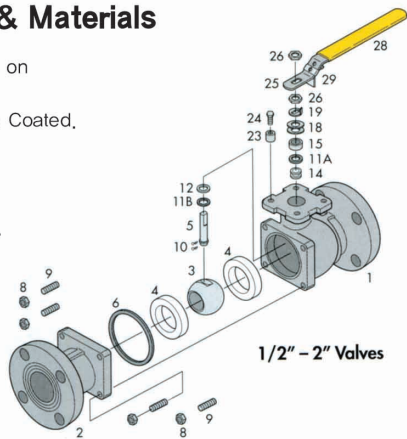
Fire Safe: API 607-4 Certified

MCSYS Flanged Series valves with graphite stem packing meet the highest fire safety standards under extreme conditions. In the event of a fire, after heat destroys the primary resilient seat , the ball makes contact with the secondary metal seat, forming a secure seal. The body seal, composed of stainless steel and graphite wound into a spiral, prevents external leak-age. The graph-ite stem rings prevent stem leakage. All valves have anti-static devices as standard-ball and stem are positively grounded.

Components & Materials

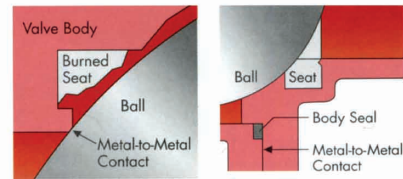
Carbon Steel bodies on Valve sizes 1/2" –4" are Black Phosphate Coated,

All Stainless Steel bodies are solution annealed/normalized,



Stem Seals Flanged Series1/2" –2" valves feature live-loaded, self-ad-justing primary and secondary seal-ing.Utilizing bel-leville washers,the stem seal automatically adjusts to compen-sate for changes in tem-perature and normal wear.2 1/2" – 12" valves utilize an independent packing gland which can be eas-ily adjusted without removing mounting hardware or oper-ator. The packing gland is contoured to more uniformly distrib-ute the load across the packing. The primary seal is a combination of a thrust bearing and a thrust washer.An adjustable stem pack-ing creates a secondary seal between the stem and body.The stem packing is composed of RPTFE V-rings as standard graphite stem pack-ing is standard on all Fire Safe valves.

Ball MCSYS balls are precision machined and mirror finished for bubble-tight shut off and less operating torque.As an added safety feature,a hole in the stem slot of each ball equalizes pressure between the body cavity and the line media flow when the valve is in the open position. Body 1/2" – 4" valve bodies are investment cast and solution annealed/normalized for the highest quality and added strength.All body castings are marked with a foundry heat number for full traceability. Seat Flow-Tek' s seat design ensures bi-directional, bubble-tight sealing with low operating torque.All resilient seats feature relief slots to relieve pressure past the upstream seat, and positive preloading to ensure low pressure/vacuum sealing.



Fire Safe: API 607-4 Certified

MCSYS Flanged Series valves with graphite stem packing meet the highest fire safety standards under extreme conditions. In the event of a fire, after heat destroys the primary resilient seat , the ball makes contact with the secondary metal seat, forming a secure seal. The body seal, composed of stainless steel and graphite wound into a spiral, prevents external leak-age. The graph-ite stem rings prevent stem leakage. All valves have anti-static devices as standard-ball and stem are positively grounded,



Specifications

Flanged End Connections meet ASME/ANSI Class 150/300
Flanges meet ASME/ANSI B16.5.
Face to Face Dimensions meet ASME/ANSI B16.10.
All valves meet ASME/ANSI B16.34, MSS-SP 72.
Fire Safe Valves are certified to API 607 4th Edition(with Graphite Stem Packing), NACE MRO175-Consult Factory.
All Valves Hydrostatically Pressure Tested and Seat Tested.
Class 150:Shell 425 psi, Seat(Air)80psi
Class 300:Shell 1100psi,Seat(Air)80psi

Item	Name	Stainless Steel	Carbon Steel	Qty
1	Body	ASTM A351 Gr CF8M	ASTM A216 Gr WCB	1
2	End Cap	ASTM A351 Gr CF8M	ASTM A216 Gr WCB	1
3	Ball	ASTM A351 Gr CF8M	ASTM A351 Gr CF8M	1
4	Seat	15% RPTFE	15% RPTFE	2
5	Stem	ASTM A479 Type316	ASTM A479 Type316	1
6	Body Seal	Spiral Wound (316/Graphite)	(316/Graphite)	1
8	Body Nut	ASTM A194 Gr8	ASTM A194 2H	*
9	Body Stud	ASTM A193 B8	ASTM A193 B7	*
10	Anti-Static Device	SS304	SS304	2
11-A/B	Thrust Bearing	PEEK	PEEK	2
12	Thrust Washer	50%SS316+50%PTFE	50%SS316+50%PTFE	1
13	Stem Bearing	15%RPTFE	15%RPTFE	1
14	Stem Packing	RPTFE/Graphite	RPTFE/Graphite	3
15	Packing Gland	ASTM A167 Type304	ASTM A167 Type304	1
16	Packing Follower	ASTM A564 Gr630(17-4p)	ASTM A216 Gr WCB	1
17	Gland Bolt	SS304	SS304	2
18	Belleville Washer	SS301	SS301	2
19	Tab lock Washer	SS300	SS300	1
20	Travel Stop Housing	CF8	WCB	1
21	Housing Bolt	SS300	SS300	4
22	Travel Stop	SS304	Zinc plated Carbon Steel	1
23	Travel Stop Sleeve	ASTM A167 Type 304	ASTM A167 Type 304	1
24	Travel Stop Bolt	SS300	SS300	1
25	Handle	SS304/Ductile Iron	SS304/Ductile Iron	1
26	Lock Nut	ASTM A167 Type 304	ASTM A167 Type 304	2
27	Handle Bolt	Carbon Steel	Carbon Steel	1
28	Handle Sleeve	Vinyl through 2"	Vinyl through 2"	1
29	Locking Device	SS304	SS304	1
30	Snap Ring	Nickel Plated Carbon Steel	Nickel Plated Carbon Steel	2

*Quantity depends on valve size.



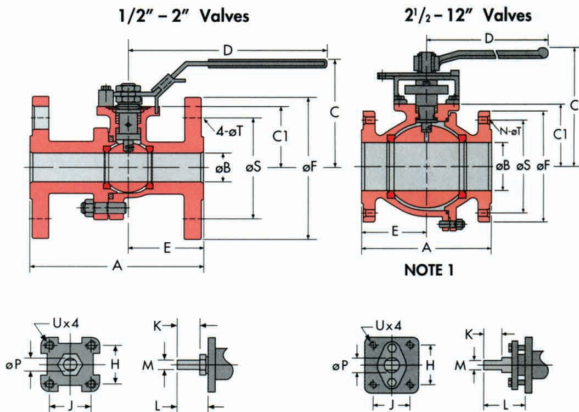
SECURE MOUNT

SIZE ins	H	J	K	L	M	ØP	U UNC
1/2	1,654	1,169	0,315	0,551	0. 250	0,366	#10 – 24
3/4	1,654	1,169	0,315	0,551	0. 250	0,366	#10 – 24
1	1,394	1,394	0,433	0,748	0,315	0,429	1/4 – 20
1 1/2	1,949	1,949	0,551	0,906	0,374	0,168	5/16 – 18
2	1,949	1,949	0,551	0,906	0,374	0,168	5/16 – 18
2 1/2 – 4	3,543	1,874	1,725	3,071	0,669	1,102	1/2 – 13
6	3,375	3,375	1,614	3,425	1,024	1,713	1/2 – 13
8 ¹	3,375	3,375	2,126 ¹	3,858 ¹	1,024	1,713	5/8 – 11
10–12 ²	4,528	4,528	2,146	3,740 ²	1,378	1,969 ²	5/8 – 11

1 For 8" F30: K=1,614,L=3,858

2 For 10" F30:L=3,740,P=2,165

NOTE1:Ball Support as shown on Page 2 is included on 10" –12" F15 and 6" –12" F30 valves.



MODEL F15-Class 150

SIZE ins	A	ØB	C	C1	D	E	ØF	N	ØS	ØT	Cv	TORQUE lbs-in	WEIGHT lbs
1/2	4,25	0,519	2,60	1,54	6,50	1,79	3,50	4	2,38	0,62	15	51	4
3/4	4,62	0,787	2,91	1,67	6,50	2,01	3,88	4	2,75	0,62	40	80	6
1	5,00	0,984	3,43	2,05	7,87	2,13	4,25	4	3,12	0,62	70	110	8
1 1/2	6,50	1,496	4,13	2,60	9,84	2,76	5,00	4	3,88	0,62	240	260	15
2	7,00	1,969	4,53	2,95	10,43	3,07	6,00	4	4,75	0,75	400	400	20
2 1/2	7,50	2,559	6,22	3,39	15,35	3,08	7,00	4	5,50	0,75	700	490	36
3	8,00	2,992	6,54	3,66	15,35	3,74	7,50	4	6,00	0,75	980	650	45
4	9,00	3,996	7,2	4,39	15,35	4,74	9,00	8	7,50	0,75	1, 700	1,750	75
6	15,50	5,984	11,22	7,17	38,98	7,62	11,00	8	9,50	0,88	5, 000	3,600	135
8	18,00	7,874	11,58	7,6	38,98	8,35	13,50	8	11,75	0,88	10, 000	5,800	290
10	21,00	9,843		9,88		10,47	16,00	12	14,25	1,00	15, 000	13,500	500
12	24,00	11,81		11,46		12,01	9,00	12	17,00	1,00	21,000	20,000	700

*Torque at maximum rated pressure,clean water,RPTFE seating material



MODEL F30-Class 300

SIZE ins	A	ØB	C	C1	D	E	ØF	N	ØS	ØT	Cv	TORQUE lbs-in	WEIGHT lbs
1/2	5,50	0,591	2,60	1,57	6,50	2,44	3,75	4	2,62	0,62	15	52	5
3/4	6,00	0,787	2,91	1,67	6,50	2,72	4,62	4	3,25	0,75	40	90	7
1	6,50	0,984	3,43	2,05	7,87	2,91	4,88	4	3,50	0,75	70	130	10
1 1/2	7,50	1,496	4,23	2,60	9,84	3,27	6,12	4	4,50	0,88	230	295	19
2	8,50	1,969	4,53	2,95	10,43	3,94	6,50	8	5,00	0,75	390	465	33
2 1/2	9,50	2,559	6,22	3,39	15,35	4,18	7,50	8	5,88	0,88	690	625	50
3	11,12	2,992	6,54	3,72	15,35	5,57	8,25	8	6,62	0,88	970	900	68
4	12,00	3,996	7,20	4,35	15,35	5,96	10,00	8	7,88	0,88	1,680	2,900	96
6	15,88	5,984	11,22	7,19	38,98	7,60	12,50	12	10,62	0,88	4,950	5,500	230
8	19,75	7,874	12,72	8,64	38,98	9,33	15,00	12	13,00	1,00	9,950	7,600	430
10	22,38	9,843		9,69		11,18	17,50	16	15,25	1,12	13,500	19,000	610
12	25,50	11,81		11,26		12,80	20,50	16	17,75	1,25	19,000	28,000	950



Feature

MFB Series

Body

The body is made up of three parts and connected by bolts after machined with forging steel materials, Disassembly and repair can be carried out at the job site. The bolts are as per metric or imperial standard, or manufactured according to customer requirements. The bolts shall be tightened by hydraulic tools with a predetermined torque. The “NPT” standard drain valve is installed at the lowest part of the body to discharge the liquid in the body cavity.

Stem construction

The stem is separate from the ball and the upper part of the stem is in the upper sleeve. The lower part is connected by fixing pin and ball. The metal backed self-lubricating bearing and thrust washers reduce the torque and prolong the service life of the valve. The upper and lower trunnions of the ball absorb all the pressure load. The stem is a free member and carries no side load. Due to the absence of the side load and the reduction of friction on the stem, low torque and long trouble-free service life can be ensured. The stem seal is made up of two sealed O rings. When the ball is at the closed position, if there is leakage at the stem, the O ring for the primary sealing will block the pressure of pipeline. With the valve in the line, the gland plate can be removed replaced the O Ring of stem and the stem can also be removed and replaced if neces-sary.

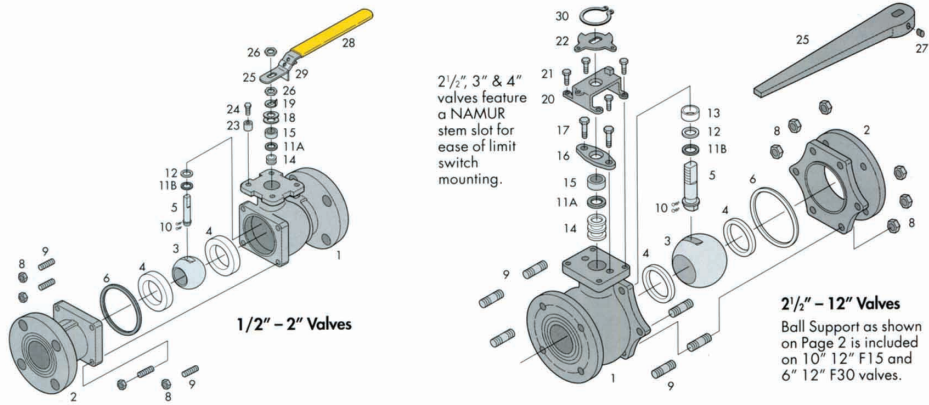
Torque

The factors of lower operating torque which is about **MCSYS** products as follows:
The design that the ball and stem are separated
The two large diameter short trunnions (upper and lower) of the ball directly carry the load of rigid supporting board, the unit load on upper sleeve bearing is reduced. The upper and lower trunnions of the ball absorb all the pressure loads.



Technical Data

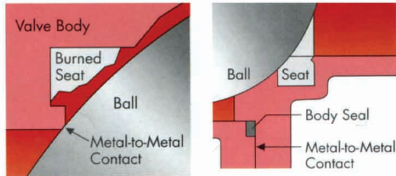
MFB Series (Flange Type)



Stem Seals Flanged Series1/2" –2" valves feature live-loaded, self-ad-justing primary and secondary seal-ing.Utilizing belleville washers,the stem seal automatically adjusts to compensate for changes in tem-perature and normal wear,2 1/2" –12" valves utilize an independent packing gland which can be eas-ily adjusted without removing mounting hardware or operator. The packing gland is contoured to more uniformly distribute the load across the packing. The primary seal is a combination of a thrust bearing and a thrust washer.An adjustable stem pack-ing creates a secondary seal between the stem and body.The stem packing is composed of RPTFE V-rings as standard graphite stem pack-ing is standard on all Fire Safe valves.

Ball MCSYS balls are precision machined and mirror finished for bubble-tight shut off and less operating torque.As an added safety feature,a hole in the stem slot of each ball equalizes pressure between the body cavity and the line media flow when the valve is in the open position. Body 1/2" –4" valve bodies are investment cast and solution annealed/normalized for the highest quality and added strength.All body castings are marked with a foundry heat number for full traceability.

Seat seat design bubble-tight sealing with low operating torque. All resilient seats feature relief slots to relieve pressure past the upstream seat, and positive preloading to ensure low pressure.



Fire Safe: API 607-4 Certified

MCSYS Flanged Series valves with graphite stem packing meet the highest fire safety standards under extreme conditions. In the event of a fire, after heat destroys the primary resilient seat , the ball makes contact with the secondary metal seat, forming a secure seal. The body seal, composed of stainless steel and graphite wound into a spiral, prevents external leak-age. The graph-ite stem rings prevent stem leakage. All valves have anti-static devices as standard-ball and stem are positively grounded.

Components & Materials

Carbon Steel bodies on Valve sizes 1/2" –4" are Black Phosphate Coated.

All Stainless Steel bodies are solution annealed/normalized.



Specifications

Flanged End Connections meet ASME/ANSI Class 150/300
Flanges meet ASME/ANSI B16.5,
Face to Face Dimensions meet ASME/ANSI B16.10.
All valves meet ASME/ANSI B16.34, MSS-SP 72.
Fire Safe Valves are certified to API 607 4th Edition(with Graphite Stem Packing).
NACE MRO175-Consult Factory.
All Valves Hydrostatically Pressure Tested and Seat Tested.
Class 150:Shell 425 psi, Seat(Air)80psi
Class 300:Shell 1100psi,Seat(Air)80psi

Item	Name	Stainless Steel	Carbon Steel	Qty
1	Body	ASTM A351 Gr CF8M	ASTM A216 Gr WCB	1
2	End Cap	ASTM A351 Gr CF8M	ASTM A216 Gr WCB	1
3	Ball	ASTM A351 Gr CF8M	ASTM A351 Gr CF8M	1
4	Seat	15% RPTFE	15% RPTFE	2
5	Stem	ASTM A479 Type316	ASTM A479 Type316	1
6	Body Seal	Spiral Wound (316/Graphite)	Spiral Wound (316/Graphite)	1
8	Body Nut	ASTM A194 Gr8	ASTM A194 2H	*
9	Body Stud	ASTM A193 B8	ASTM A193 B7	*
10	Anti-Static Device	SS304	SS304	2
11-A/B	Thrust Bearing	PEEK	PEEK	2
12	Thrust Washer	50%SS316+50%PTFE	50%SS316+50%PTFE	1
13	Stem Bearing	15%RPTFE	15%RPTFE	1
14	Stem Packing	RPTFE/Graphite	RPTFE/Graphite	3
15	Packing Gland	ASTM A167 Type304	ASTM A167 Type304	1
16	Packing Follower	ASTM A564 Gr630(17-4p)	ASTM A216 Gr WCB	1
17	Gland Bolt	SS304	SS304	2
18	Belleville Washer	SS301	SS301	2
19	Tab lock Washer	SS300	SS300	1
20	Travel Stop Housing	CF8	WCB	1
21	Housing Bolt	SS300	SS300	4
22	Travel Stop	SS304	Zinc plated Carbon Steel	1
23	Travel Stop Sleeve	ASTM A167 Type 304	ASTM A167 Type 304	1
24	Travel Stop Bolt	SS300	SS300	1
25	Handle	SS304/Ductile Iron	SS304/Ductile Iron	1
26	Lock Nut	ASTM A167 Type 304	ASTM A167 Type 304	2
27	Handle Bolt	Carbon Steel	Carbon Steel	1
28	Handle Sleeve	Vinyl through 2"	Vinyl through 2"	1
29	Locking Device	SS304	SS304	1
30	Snap Ring	Nickel Plated Carbon Steel	Nickel Plated Carbon Steel	2

*Quantity depends on valve size.

Dimensions

MFB Series (Flange Type)

Trunnion Mounted Ball Valve

Technical Data

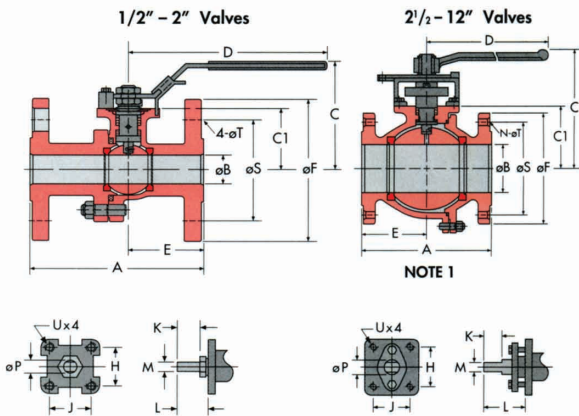
SECURE MOUNT

SIZE ins	H	J	K	L	M	ØP	U UNC
1/2	1,654	1,169	0,315	0,551	0, 250	0,366	#10 – 24
3/4	1,654	1,169	0,315	0,551	0, 250	0,366	#10 – 24
1	1,394	1,394	0,433	0,748	0,315	0,429	1/4 – 20
1 1/2	1,949	1,949	0,551	0,906	0,374	0,168	5/16 – 18
2	1,949	1,949	0,551	0,906	0,374	0,168	5/16 – 18
2 1/2 – 4	3,543	1,874	1,725	3,071	0,669	1,102	1/2 – 13
6	3,375	3,375	1,614	3,425	1,024	1,713	1/2 – 13
8 ¹	3,375	3,375	2,126 ¹	3,858 ¹	1,024	1,713	5/8 – 11
10–12 ²	4,528	4,528	2,146	3,740 ²	1,378	1,969 ²	5/8 – 11

1 For 8” F30: K=1,614,L=3,858

2 For 10” F30:L=3,740,P=2,165

NOTE1:Ball Support as shown on Page 2 is included on 10” –12” F15 and 6” –12” F30 valves.



MODEL MFB-F150

Class 150

SIZE ins	A	ØB	C	C1	D	E	ØF	N	ØS	ØT	Cv	TORQUE lbs-in	WEIGHT lbs
1/2	4,25	0,519	2,60	1,54	6,50	1,79	3,50	4	2,38	0,62	15	51	4
3/4	4,62	0,787	2,91	1,67	6,50	2,01	3,88	4	2,75	0,62	40	80	6
1	5,00	0,984	3,43	2,05	7,87	2,13	4,25	4	3,12	0,62	70	110	8
1 1/2	6,50	1,496	4,13	2,60	9,84	2,76	5,00	4	3,88	0,62	240	260	15
2	7,00	1,969	4,53	2,95	10,43	3,07	6,00	4	4,75	0,75	400	400	20
2 1/2	7,50	2,559	6,22	3,39	15,35	3,08	7,00	4	5,50	0,75	700	490	36
3	8,00	2,992	6,54	3,66	15,35	3,74	7,50	4	6,00	0,75	980	650	45
4	9,00	3,996	7,2	4,39	15,35	4,74	9,00	8	7,50	0,75	1, 700	1,750	75
6	15,50	5,984	11,22	7,17	38,98	7,62	11,00	8	9,50	0,88	5, 000	3,600	135
8	18,00	7,874	11,58	7,6	38,98	8,35	13,50	8	11,75	0,88	10, 000	5,800	290
10	21,00	9,843		9,88		10,47	16,00	12	14,25	1,00	15, 000	13,500	500
12	24,00	11,81		11,46		12,01	9,00	12	17,00	1,00	21,000	20,000	700

*Torque at maximum rated pressure,clean water,RPTFE seating material

MODEL MFB-F300

Class 300

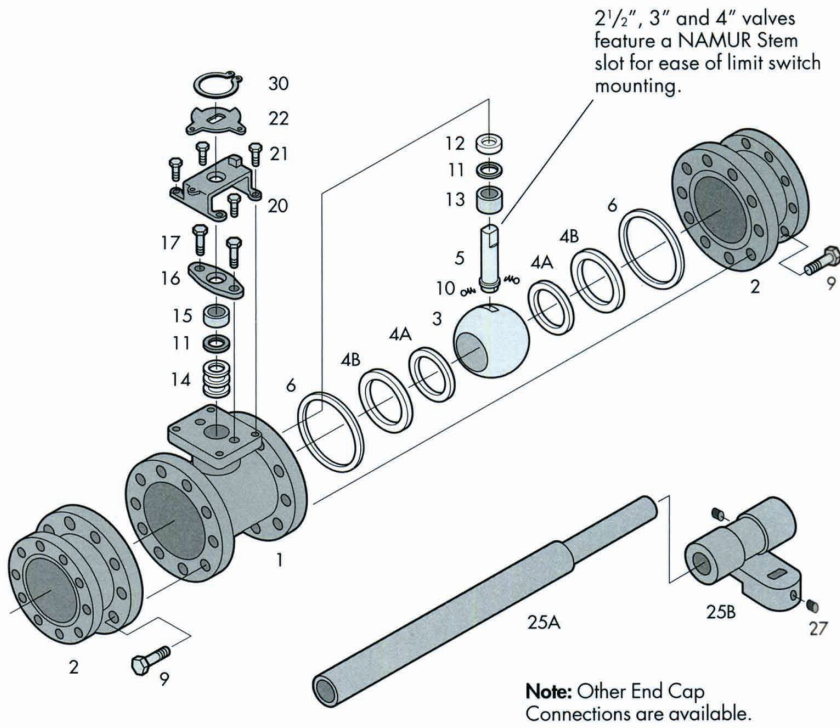
SIZE ins	A	ØB	C	C1	D	E	ØF	N	ØS	ØT	Cv	TORQUE lbs-in	WEIGHT lbs
1/2	5,50	0,591	2,60	1,57	6,50	2,44	3,75	4	2,62	0,62	15	52	5
3/4	6,00	0,787	2,91	1,67	6,50	2,72	4,62	4	3,25	0,75	40	90	7
1	6,50	0,984	3,43	2,05	7,87	2,91	4,88	4	3,50	0,75	70	130	10
1 1/2	7,50	1,496	4,23	2,60	9,84	3,27	6,12	4	4,50	0,88	230	295	19
2	8,50	1,969	4,53	2,95	10,43	3,94	6,50	8	5,00	0,75	390	465	33
2 1/2	9,50	2,559	6,22	3,39	15,35	4,18	7,50	8	5,88	0,88	690	625	50
3	11,12	2,992	6,54	3,72	15,35	5,57	8,25	8	6,62	0,88	970	900	68
4	12,00	3,996	7,20	4,35	15,35	5,96	10,00	8	7,88	0,88	1,680	2,900	96
6	15,88	5,984	11,22	7,19	38,98	7,60	12,50	12	10,62	0,88	4,950	5,500	230
8	19,75	7,874	12,72	8,64	38,98	9,33	15,00	12	13,00	1,00	9,950	7,600	430
10	22,38	9,843		9,69		11,18	17,50	16	15,25	1,12	13,500	19,000	610
12	25,50	11,81		11,26		12,80	20,50	16	17,75	1,25	19,000	28,000	950

*Torque at maximum rated pressure,clean water,RPTFE seating material



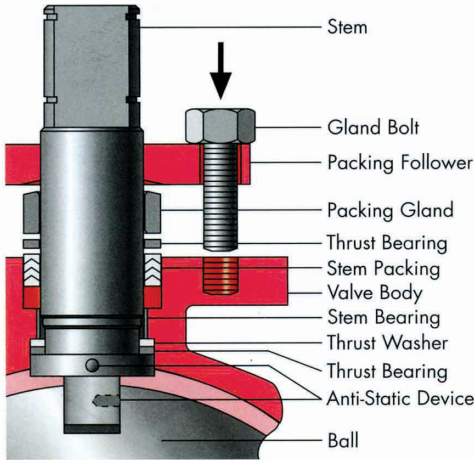
Components & Materials

For Valve Sizes 3” through 12”



Valve Sizes 6” -12” Features

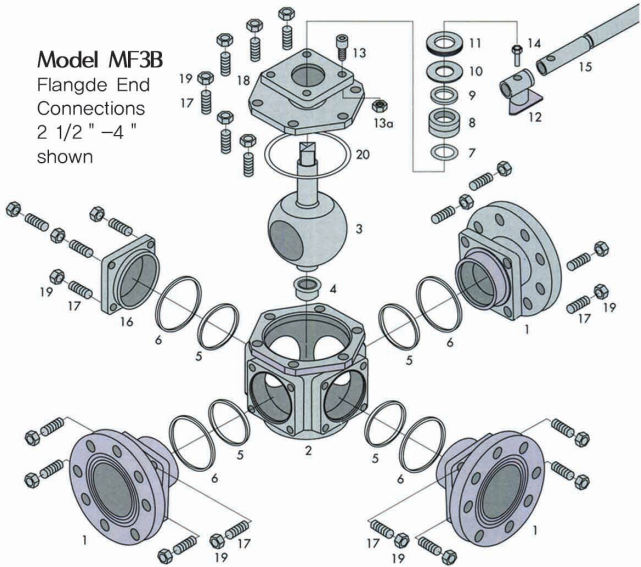
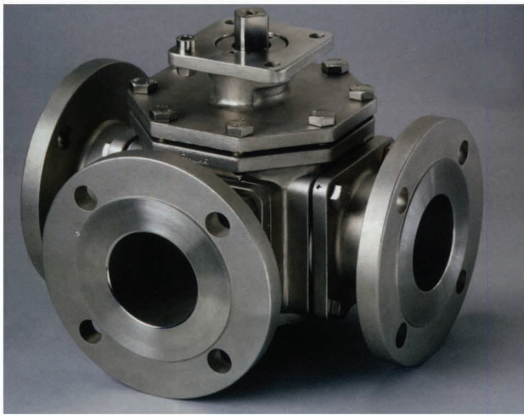
MCSYS Extended Range ball valves fea-ture a compact, lightweight three part body. This design simplifies maintenance proce-dures, allowing easier handling during dis-assembly and reas-sembly. Hex type cap screws ensure precise and secure alignment of valve center body to end connections. All valve parts are interchangeable with Flow-Tek full and reduced port flanged end series F15/RF15 and F30 valves. ASME/ANSI Class 150 face-to-face take out dimensions are stan-dard on 6” –12” flanged valves. Butt weld end connections meet ANSI B16,10. Additionally, Flow-Tek’ s Extended Range is one of the markets only large sized valve ranges to offer body cavity fillers



Stem Design for 3” -12” Valves

The stem is guided by the valve body and the gland, ensuring smooth operation even in hegh torque service. The packing gland is adjustable and all stems are pol-ished to reduce torque. Optional Belleville washers can be added for a self-adjusting, live load.

Item	Name	Stainless Steel	Carbon Steel	Qty
1	Body	ASTM A351 Gr CF8,8M	ASTM A216 Gr WCB	1
2	End Capt	ASTM A351 Gr CF8,8M	ASTM A217 Gr WCB	2
3	Ball	ASTM A351 Gr CF8,8M	ASTM A315 Gr CF8M	1
4A	Seat	15% RPTEE	15% RPTFE	2
4B	Seat Support	ASTM A351 GR CF8,8M	ASTM A216 Gr WCB	2++
5	Stem	ASTM A479 Type316	ASTM A479 Type316	1
6	Body Seal	PTFE	PTFE	2
9	Body Bolt	SS 304	SS 304	*
10	Anti-Static Device	SS 316	SS 316	2
11	Thrust Bearing	50%SS316+50% PTFE	50%SS316+50%PTFE	2
12	Thrust Washer	15% RPTEE	15%RPTFE	1
13	Stem Bearing	15% RPTEE	15%RPTFE	1
14	Stem Packing	15% RPTEE	15%RPTFE	**
15	Packing Gland	SS 304	Carbon Steel	1
16	Packing Follower	ASTM A351 GR CF8,8M	ASTM A216 Gr WCB	1
17	Gland Bolt	SS 304	Carbon Steel	2
20	Stop Housing	ASTM A351 GR CF8,8M	ASTM A216 Gr WCB	1
21	Housing Bolt	SS 304	Carbon Steel	4
22	Traver Stop	SS 304	Carbon Steel,Zinc Plated	1
25A	Handle	DUCTILE Iron/Cabon Steel	Ductile Iron/Carbon Steel	1
25B	Handle junction	DUCTILE Iron	Ductile Iron	1
27	Handle Bolt	Carbon Steel	Carbon Steel	2
30	Snap Ring	SS 304	SS 304	1



Specifications

Model MF3B 150 ASME Class 150
Model MF3B 300 ASME Class 300

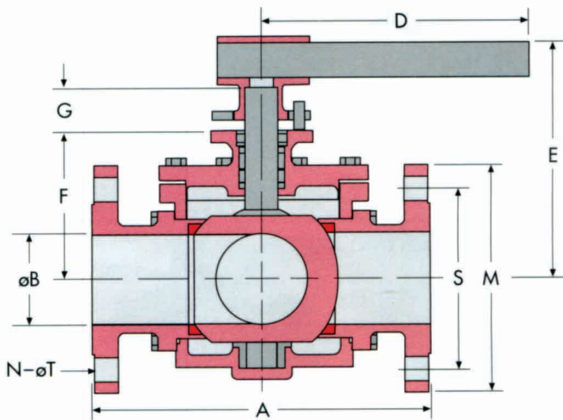
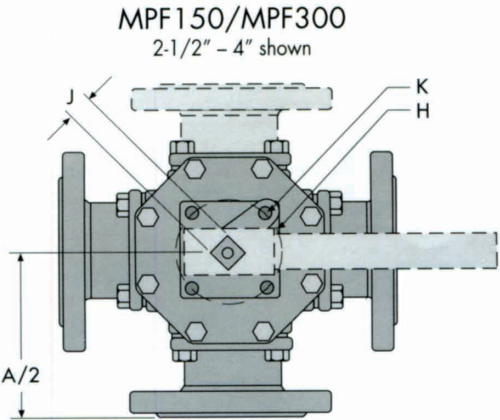
Models MFB 150/MFB 300 Flanged Ends
3 Way and 4 Way with L,T & LL Ports
Ports:Full
Size Ranges:MPF150:1/2" –8"
MPF300:1/2" –6"
Body Materials:Stainless Steel
Carbon Steel

Pressure Ratings
ASME Class 150:SS 275/WCB 285 psi
ASME Class 300:SS 720/WCB 740 psi

Flanged end connections meet
ASME B16.5.

All valve stems and seats are tested to 100 psi
gas closure test for bubble tight integrity before
shipping.

Item	Name	Stainless Steel	Carbon Steel	Qty
1	End Capt	ASTM A351 Gr. CF8M	ASTM A216 Gr WCB	3
2	Body	ASTM A351 Gr. CF8M	ASTM A217 Gr WCB	1
3	Ball & Stem**	ASTM A351 Gr. CF8M	ASTM A351 Gr. CF8M	1
4	Stem Bushing**	50%PTFE/50%316SS	50%PTFE/50%316SS	1
5	Seat*	PTFE	PTFE	4
6	Gasket**	PTFE	PTFE	4
7	O-ring*	Viton	Viton	1
8	Stem Packing*	PTFE	PTFE	1
9	Gland	Carbon Steel	Carbon Steel	1
10	Belleville Washer	301 SS	301 SS	2
11	Packing Nut	304 SS	304 SS	1
12	Handle T-Bar	ASTM A351 Gr. CF8M	ASTM A351 Gr. CF8M	1
13	Stop pin Bolt	304 SS	304 SS	1
13a	Stop pin Nut	304 SS	304 SS	1
14	Handle Bolt	304 SS	304 SS	1
15	Handle	Carbon Steel	Carbon Steel	1
16	Bonnet	ASTM A351 Gr. CF8M	ASTM A216 Gr WCB	1
17	Hex Nut	ASTMA193 Gr. B8	ASTM A193 Gr.B8	22/24
18	Bonnet	ASTM A351 Gr.CF8M	ASTM A216 Gr.WCB	1
19	Hex Nut	ASTM A194 Gr.8	ASTM A194 Gr.8	22/24
20	Bonnet Gasket	PTFE	PTFE	1



Models MPF 150/MPF300

SIZE ins mm	A 150	A1 300	øB	D	E	F	G	øH	øI*	J	K	L*	M	N	S	T	M1	N1	S1	T1
1/2 15	5.98 152	6.30 160	0.59 15	5.12 130	2.44 62	1.61 41	0.43 11	1.42 36	1.65 42	0.35 9	0.24 6	0.24 6	3.50 89	4	2.38 60.5	0.63 16	3.75 95	4	2.62 66.5	0.63 16
3/4 20	6.57 167	6.79 177	0.79 20	6.5 165	3.23 82	1.93 49	0.55 14	1.65 42	1.97 50	0.43 11	0.24 6	0.28 7.1	3.88 98.5	4	2.75 69.8	0.63 16	4.62 117	4	3.25 82.5	0.75 19
1 25	7.48 190	7.87 200	0.98 25	6.5 165	3.50 89	2.17 55	0.55 14	1.65 42	1.97 50	0.43 11	0.24 6	0.28 7.1	4.25 108	4	3.12 79.2	0.63 16	4.88 124	4	3.50 89	0.75 19
1 1/4 32	8.19 208	8.54 218	1.26 32	8.07 205	3.86 98	2.48 63	0.17 18	1.97 50	2.76 70	0.55 14	0.28 7.1	0.36 9.2	4.62 117	4	3.5 89	0.63 16	5.25 133	4	3.88 98.5	0.75 19
1 1/2 40	8.66 220	9.21 234	1.5 38	8.07 205	4.25 108	2.91 74	0.17 18	1.97 50	2.76 70	0.55 14	0.28 7.1	0.36 9.2	5.00 127	4	3.88 98.5	0.63 16	6.12 155	4	4.50 114	0.87 22
2 50	9.96 253	10.75 273	1.97 50	12.80 325	5.51 140	3.66 93	0.91 23	2.76 70	4.02 102	0.67 17	0.36 9.2	0.45 11.4	6.00 152	4	4.75 120.6	0.75 19	6.50 165	8	5.00 127	0.75 19
2 1/2 65	11.81 300	11.81 300	2.44 62	15.75 400	7.78 200	4.69 119	0.98 25	4.02 102	—	0.87 22	0.43 11	—	7.00 177.8	4	5.50 139.7	0.75 19	7.50 190.5	8	5.88 149.4	0.88 22.4
3 80	12.01 305	13.01 330.4	2.99 76	19.69 500	8.27 210	5.39 137	0.98 25	4.02 102	—	0.87 22	0.43 11	—	7.50 190.5	4	6.00 152.4	0.75 19	8.25 209.6	8	6.62 168.2	0.88 22.4
4 100	14.51 368.5	15.49 393.5	3.78 96	25.59 650	9.06 230	6.18 157	0.98 25	4.02 102	—	0.87 22	0.43 11	—	9.00 228.6	8	7.50 190.5	0.75 19	10.00 254	8	7.88 200.2	0.88 22.4
6 150	16.81 427	18.43 468.1	5.91 150	47.24 1200	8.66 220	6.28 159.5	2.40 61	4.92 125	—	1.42 36	M12	—	11.00 279.4	8	9.50 241.3	0.88 22.4	12.50 317.5	12	10.62 269.8	0.88 22.4
8 200	20.94 532	—	7.87 200	59.06 1500	10.31 262	7.91 201	2.40 61	4.92 125	—	1.42 36	M12	—	13.50 342.9	8	11.75 298.5	0.88 22.4	15.00 381	12	13.00 330.2	1.00 25.4

Torque Models Mpf 150/MPF300

SIZE ins mm	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	2 1/2 65	3 80	4 100	6 150	8 200
lbs-in	124	159	301	381	513	885	1239	2213	2830	6000	8000
Nm	14	18	34	43	58	100	140	250	320	687	904

Torque Models Mpf 150/MPF300

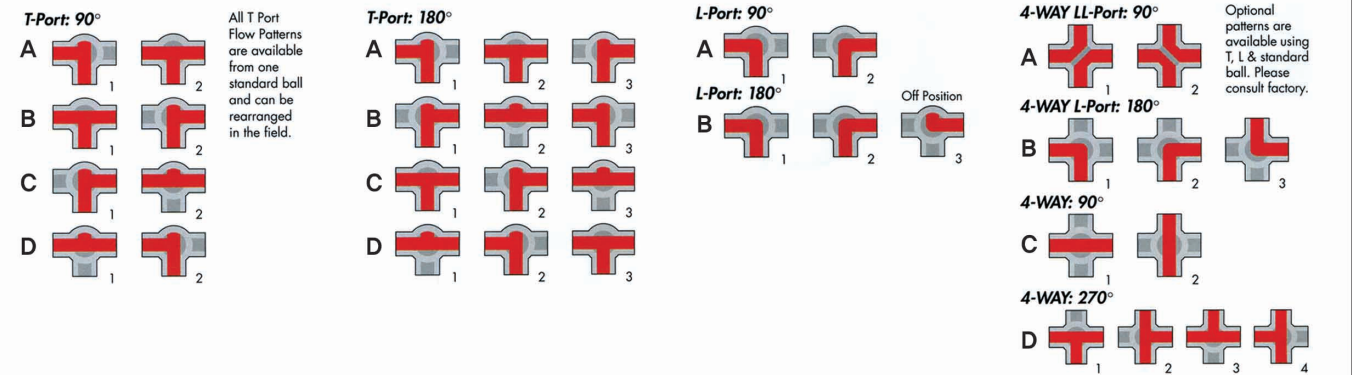
SIZE ins mm	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	2 1/2 65	3 80	4 100	6 150	8 200
lbs	8,7	10,3	14,9	20,8	30,3	51,3	70,1	88,4	160,5	290,4	543,0
Kg	3,9	4,7	6,7	9,4	13,7	23,3	31,8	40,1	72,8	131,7	246,3

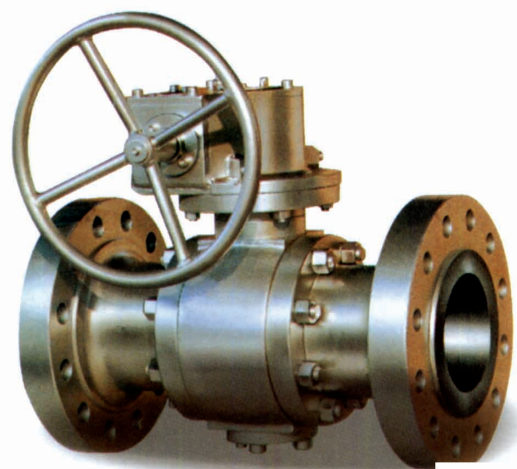
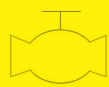
Cy Models Mpf 150/MPF300

SIZE ins mm	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	2 1/2 65	3 80	4 100	6 150	8 200
90°	8,1	15	24	40	65	106	171	255	409	1083	2007
180°	11	21	33	54	92	147	240	356	561	1509	2817

Weight Models MPF300/(4-way,T Port)

SIZE ins mm	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	2 1/2 65	3 80	4 100	6 150
lbs	11,2	16	21,8	29,1	42,9	61, 0	86,4	108,3	184,2	456,2
Kg	5,1	7,34	9,9	13,2	19,5	27,7	39,2	49,1	83,6	206,9



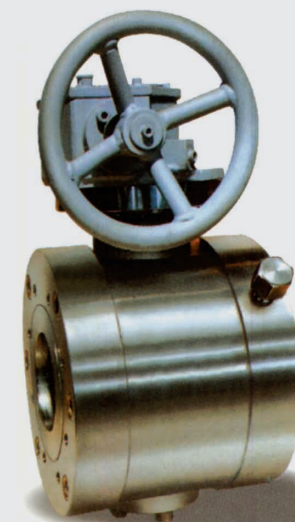
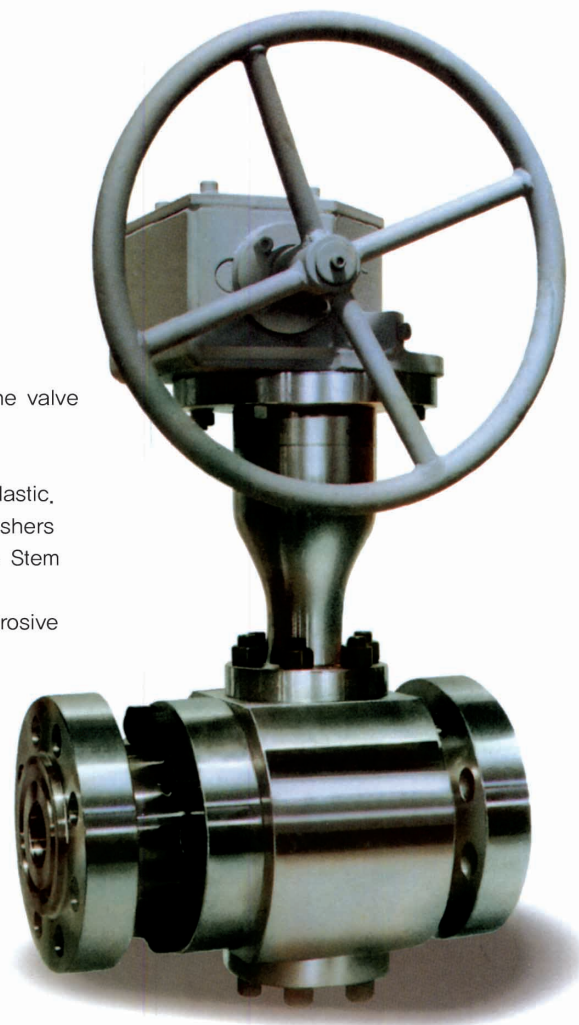


Structural features of standard ball valves of MCSYS

Classes 150LB,300LB all adopt two-piece trunnion mounted casting structure
Class 600LB below 12" (including 12") ,classes 900LB, 1500LB,2500LB below 4" (including 4") adopt three-piece trunnion mounted forging structure
Class 600LB above 14" (including 14") ,classes 900LB, 1500LB,2500LB above 6" (including 6") adopt three-piece supporting board type forging structure

Design features of standard ball valves

- Double block and bleed design(DBB)
- Double stem sealing. The ball can maintain pressure sealing of pipeline when it is closed or fully opened.
- Shorter upper sleeve reduces bearing load and operating torque
- Limit device ensures the accurate opening and closing position of the valve
- The ball and stem are separated so as to reduce stem load, The stem adopts anti-blow-out design.
- The sealing surface is inserted into the metal seat by polymer or plastic.
- The metal backed self-lubricating PTFE bearing and PTFE thrust washers
- Reduce the opening torque and prolong the service life of the valve Stem leakage can be prevented through the emergency grease fitting.
- Nickel and phosphor treatment to the parts can enhance the anticorrosive performance
- The fireproof design of metal wound gasket composed of stainless steel and graphite can prevent external leakage.
- Anti-static design



Design features of products

• Body construction

Three-section type body construction is made of three forged parts and the bolt connection allows disassembly and repair on the job site. The bottom part of the body is installed with "NPT" standard discharge valve as the safe device to discharge the pressure and dirty things from the middle cavity. The use of graphite + stainless steel gasket guarantees the product is in accordance with the fireproof standards in AP16FA and Bs6755.

• Stem construction

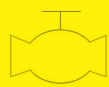
The stem adopts anti-blow-out design, uses sliding bearing and thrust washer of abrasion reduction materials. The stem function is to transmit torque and bear the pressure and thrust from the pipeline with the upper sleeve. The stem design incorporates a double sealing system.

• Seat seal

The soft sealing is achieved by plastic insert in the seat and ball. The seat adopts double block and bleed design (DBB) composed by O ring to form double sealing on upstream and downstream seats.

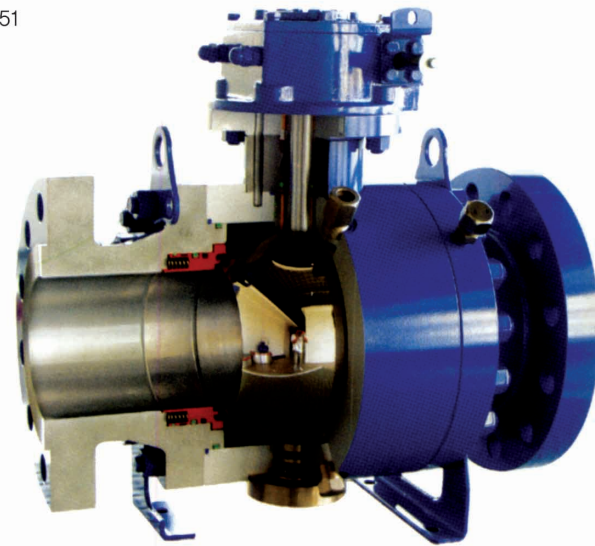
• Ball position

The lever position parallel to the pipeline means the valve is open. For valves driven by worm gear, an "open/close" indicator is provided on the worm gear transmission box.

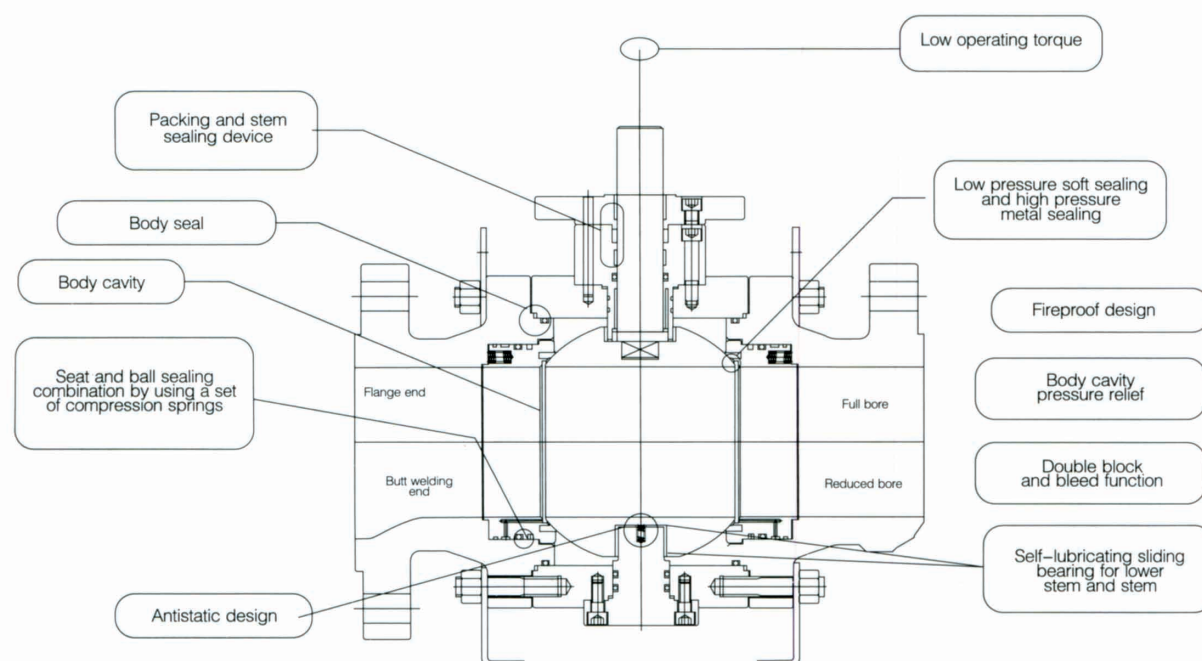


Design and manufacturing standards

Valve design and manufacturing	:ASME 16,34 /API 6D & BS53551
Pressure-temperature ratings	:ASME 16,34
Drive unit connecting flange	:ISO 5211
Minimum wall thickness of valve	:ASME 16,34
Valve body and trim are in accordance with	:NACE MRO 1-75
Valve bore	:API 6D
Face-to-face dimension	:ASME 16,10 / API 6D
Flange connection dimension	:ASME 16,5 / ASME 16,47
Butt welding end dimension of valve	:ASME 16,25
Pressure test	:API 6D / API 598
Fireproof test	:API 607 / API 6FA
Vent / drain / bypass	:API 6D / MSS SP 45

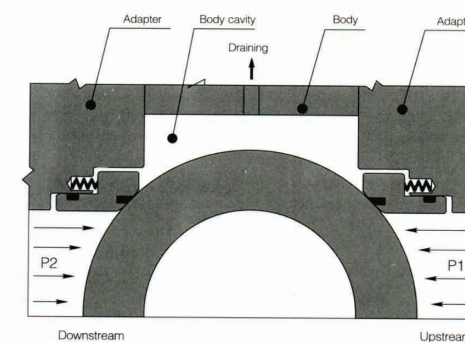


Trunnion mounted ball valve



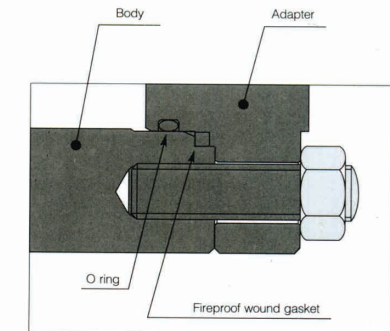
Valve design feature

Double block and bleed design(DBB)



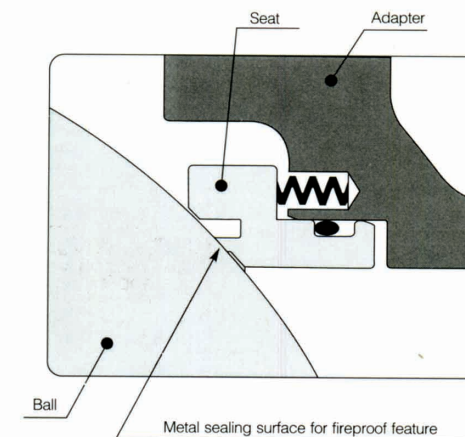
The seat adopts floating structure, through the action by the spring behind the seat, the seat can keep close contact with the ball, providing independent sealing of upstream and downstream media at low pressure differential. If the pressure in middle cavity is too high, either of them can conquer the pre-tightening force of spring and discharge, so as to realize the double block and bleed function.

Double sealing between valve body



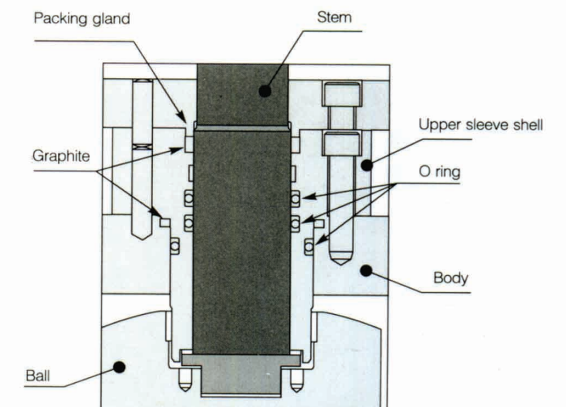
Double seal combination of O-ring and stainless steel graphite metal wound gasket is adopted between body and adapter, so that our valves can meet and exceed the fugitive emission requirements across wide range of pressure and temperature applications. Valves are also suitable for above and underground installations.

Fireproof design on sealing surface



In case of fire, the soft seal of valve gets burnt and the built-in spring will function. The metal seal replaces the soft seal, so as to meet the fireproof requirements.

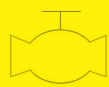
Steam anti-leakage design



The stem anti-leakage design is composed of a triple sealing arrangement, which includes double sealing with O rings, graphite packing and graphite gasket at the bottom of stem. The strict anti-leakage design ensures the sealing performance of stem.

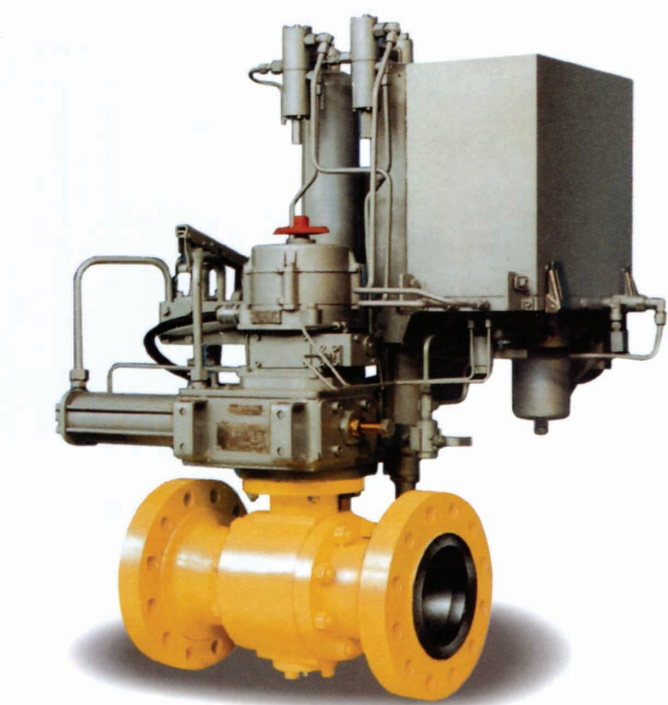
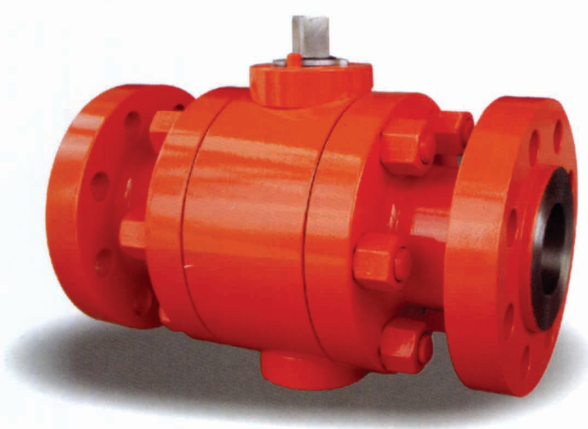
1. The unmachined surfaces of all castings are subjected to metal shot blasting treatment. The surface and interior of parts are thoroughly cleaned before assembly. Ultrasonic cleaning is carried out before the valve surface is painted. Epoxy zinc phosphate primer is carried out, followed by drying and polishing. Final epoxy coat is applied according to customer requirements on color.

2. The valve after being painted will be packed by plastic bags with desiccant to prevent corrosion of machining surfaces. External packing is made according to customer requirements.

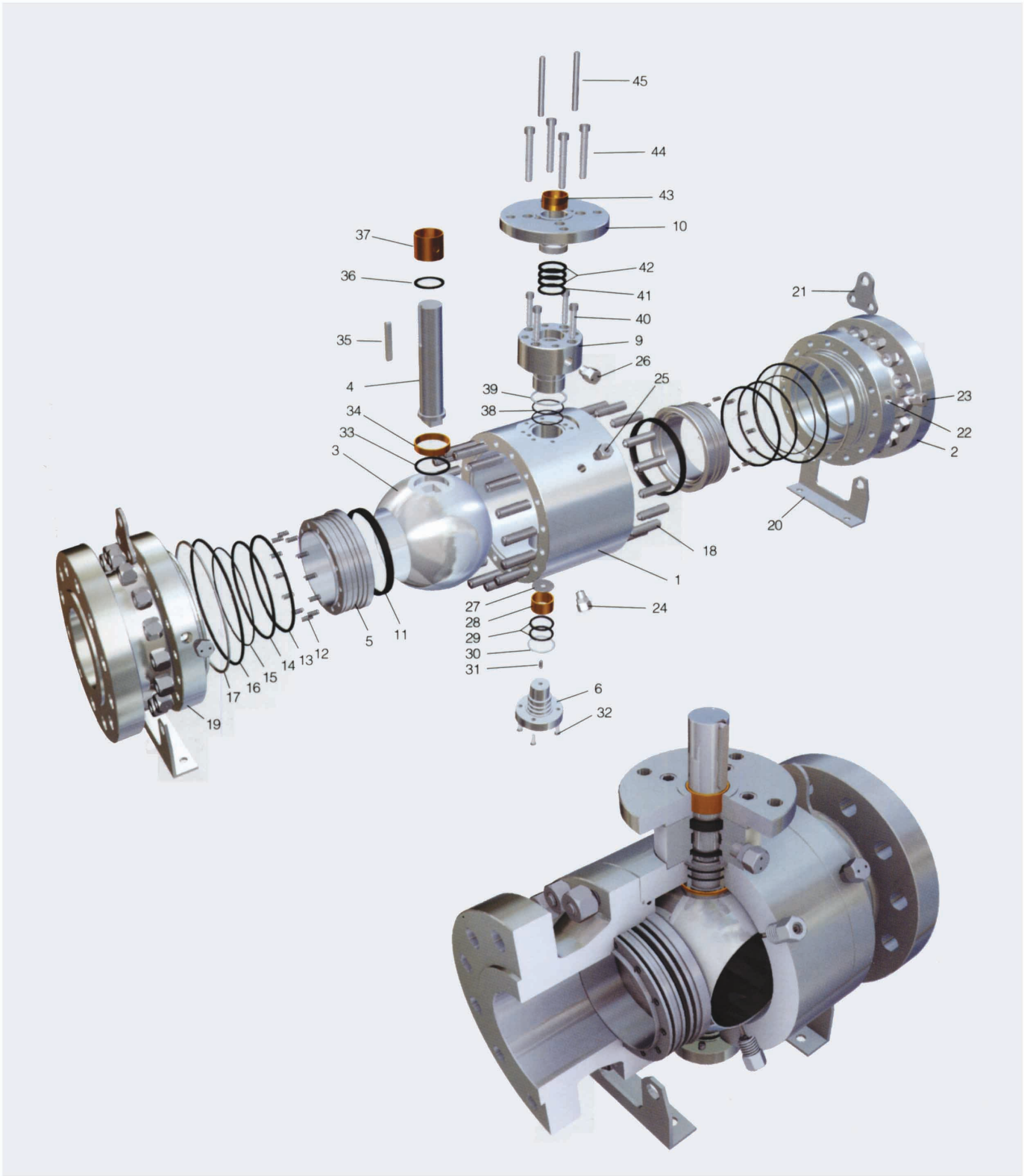


Ball position

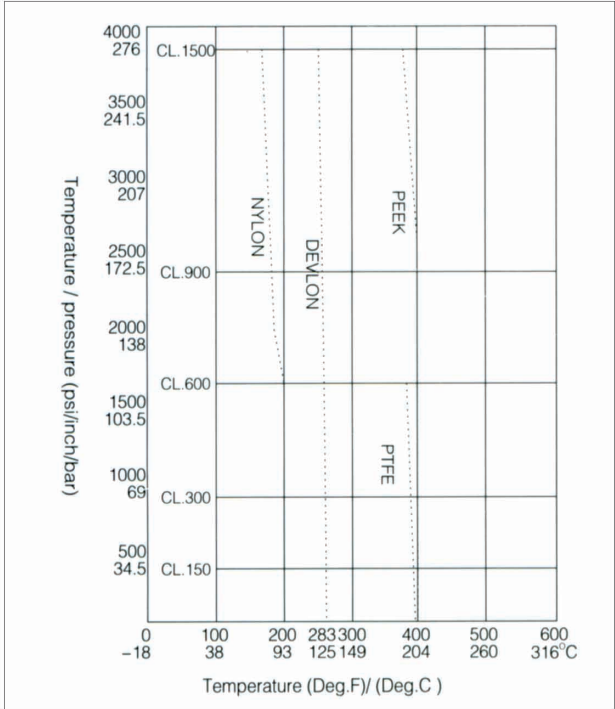
The ball valve open and closed positions are assured by corresponding stops on the adapter plate. The valve is normally mounted with the actuator stops or gear stops set at the factory as primary stops. An "open/closed" indicator is also provided.



Number	Name
1	Distance piece
2	Adapter
3	Ball
4	Stem
5	Seat retainer
6	Lower stem
9	Sealing cover
10	Coupling plate
11	Seal ring
12	Cylinder helix spring
13	O ring
14	Packing
15	O ring
16	O ring
17	Wound gasket
18	Stud bolt
19	Nut
20	Stand
21	Lifting lug
22	Check valve
23	Grease injection valve
24	Drain plug
25	Pressure relief plug
26	Grease injection valve
27	Thrust bearing
28	Self-lubricating bearing
29	O ring
30	Graphite gasket
31	Anti-static spring
32	Inner hexagonal bolt
33	Thrust bearing
34	Self-lubricating bearing
35	Flat key
36	Thrust bearing
37	Self-lubricating bearing
38	O ring
39	Graphite gasket
40	Inner hexagonal bolt
41	O ring
42	Packing
43	Self-lubricating bearing
44	Inner hexagonal bolt
45	Inner thread drive pin

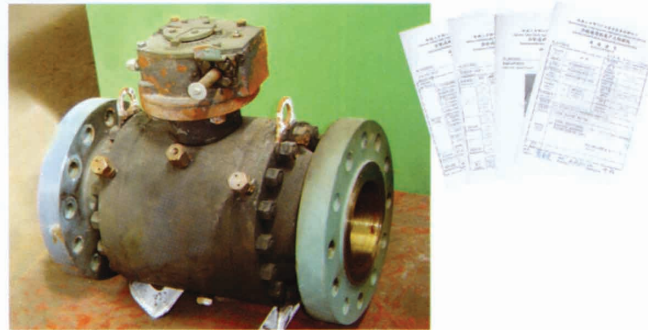


Pressure – temperature ratings



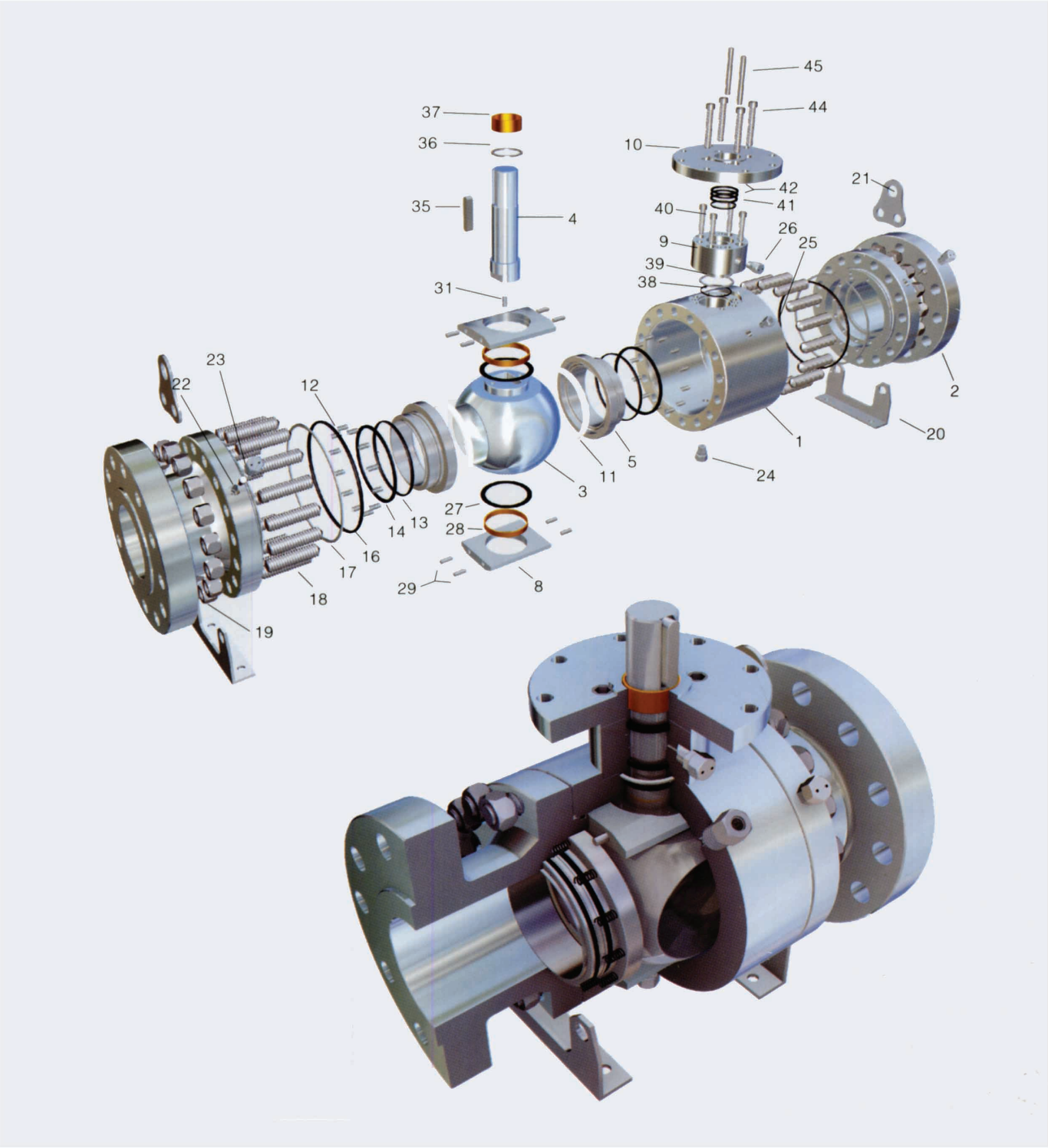
The pressure temperature ratings of valves are given in the figure for body material ASTM A216 WCB. With the exception of seat rings and soft seals, all valve components are able to withstand the pressure temperature ratings as specified in ASME B16.34, BS1560; Part II, BS4504; Part I or 5351 or BS5351 as applicable.

The ball valves of MCSYS Company have passed fire-proof test and met the requirements in API607/API6FA. The fireproof test is carried out by China Inspection Center for Machinery Industrial valve Products and the products are qualified. Refer to "Test Report" for details.



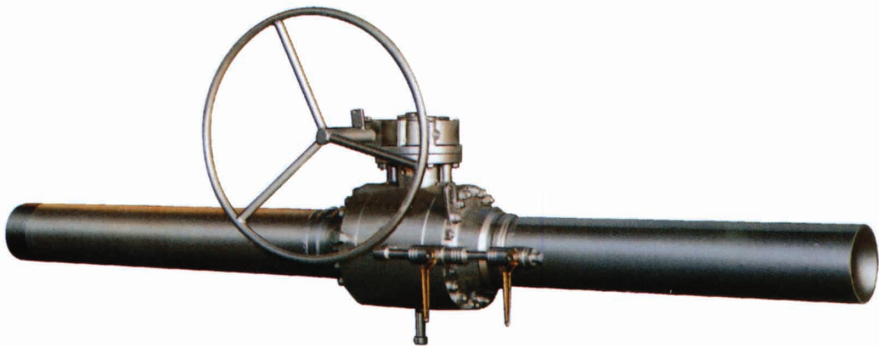
Number	Name
1	Distance piece
2	Adapter
3	Ball
4	Stem
5	Seat retainer
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10	Coupling plate
11	Seal ring
12	Cylinder helix spring
13	O ring
14	Packing
15	
16	O ring
17	Wound gasket
18	Stud bolt
19	Nut
20	Stand
21	Lifting lug
22	Check valve
23	Grease injection valve
24	Drain plug
25	Pressure relief plug
26	Grease injection valve
27	Thrust bearing
28	Self-lubricating bearing
29	Thread drive pin
30	
31	Anti-static spring
32	
33	
34	
35	Flat key
36	Thrust bearing
37	Self-lubricating bearing
38	O ring
39	Graphite gasket
40	Inner hexagonal bolt
41	O ring
42	Packing
43	
44	Inner hexagonal bolt
45	Inner thread drive pin

Solid Figure Trunnion Mounted Ball Valve (Supporting Boad Type)



Metal to metal seat

The contact area between the seats and the ball can be completely metallic. This feature is required when the normal soft sealing is no longer suitable due to the unfavorable combination of pressure, temperature and chemical composition of the medium, when solid particles are present, when operating conditions pre-vails on the need of the fully tight sealing. In case of metal to metal seats the ball and seats coating can be obtained by means of various materials and processes such as,



Electroless Nickel Plating

Coating of tungsten carbide powder
The material selection is carried out according to the required service. When utilizing the metallic seats, it is necessary to verify very carefully the structure of the stem and ball coupling and the actuator choice as there is no increase in the valve torque.

Stem extensions

Our ball alves can be provided with optional stem extensions to permit buried or underground installations in remote or inaccessible areas. The valve with extended stem also includes extended discharging system and sealant injection system. When ordeing valves with stem extensions, please specify the distance required from the valve centerline to the hand-wheel centerline.

Transition pieces

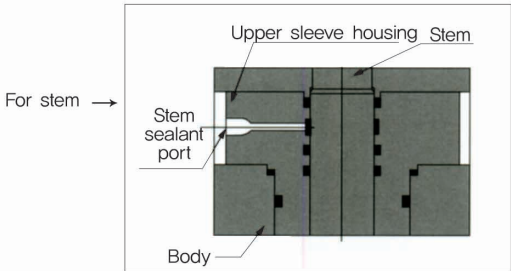
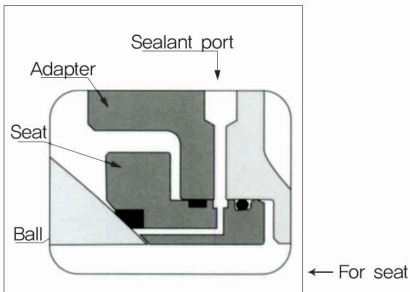
GUODA can weld transition pieces to the ball valves. And the transition can be manufactured to GUODA by the clients to meet the specifications and requirements of the clients. More-over, our company provide various welding procedures in accordance with international standaeds.

Others

Upon request of customers, the ball valves can be furnished with specific adjustments for the installation with horizontal stem. Upon the custome' s requirements, the wrenches, the gear-boxes, the actuators can be supplied with locking devices or manufactured to meet the customer' s requirements.

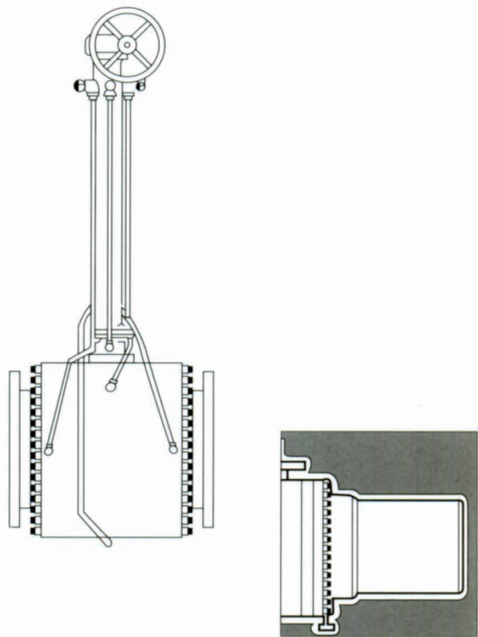


Valve design feature



Sealant injection system (figure instruction)

Additional stem sealant injection system is used to ensure reliable sealing of stem. Similarly in the event of seat damage, a seat seal can be formed by using a emergency seat sealant injection system to ensure the valve use.



Stem extension / extended driving device etc.

The valve can be offered with extended stem, discharge vent and sealant injection system when used for under-ground installations. Valves with butt welding seam extended pipe can also be supplied to avoid possible damage to sealing surface during the installation.

Remark

1. The descriptions of all the products contained in this catalogue are general in nature and the products are subject to GUODA Standard Warr-anty and other terms and conditions as contained in the applicable con tract for such products.
2. We reserve the right to change or modify Product Design or construct without prior notice and without any obligation to make such modification / change on products previously or subsequently sold.
3. All GUODA Valves are designed and manufactured using good workmanship and materials and they meet all applicable industry standards. GUODA is very anxious to avoid injuries and property damage that might result from wrong application of the product. Proper valve selection for a given application is imperative. Examples of misapplication or misuse of a Valve include but are not limited to any service or application in which the pressure temperature rating is exceeded or in a chemical service that is incompatible with valve materials, use of undersized valve and actuator. Use of extremely fast valve application and / or continuous valve cycling on standard valves, making modification to the product in any kind, failure to use caution in operating at high temperature, high pressure or highly hazardous services and failure to maintain valves as recommended.

The three-section type ball valves are specifically designed to suit subsea service conditions. The valve design takes into consideration the restrictive criteria of working conditions and the safety coefficients relative to valve components, connection between the stem and actuator, making the valve suitable for ESD service. The internal sealing surfaces are protected from corrosion by using welding. The corrosion resistance of the welding is generally dictated by customer specifications and checked by chemical analysis of test specimens and parts. The stem and external sealing areas are protected with sea water sealing gaskets. The valve is designed to provide optimum service with no maintenance.

