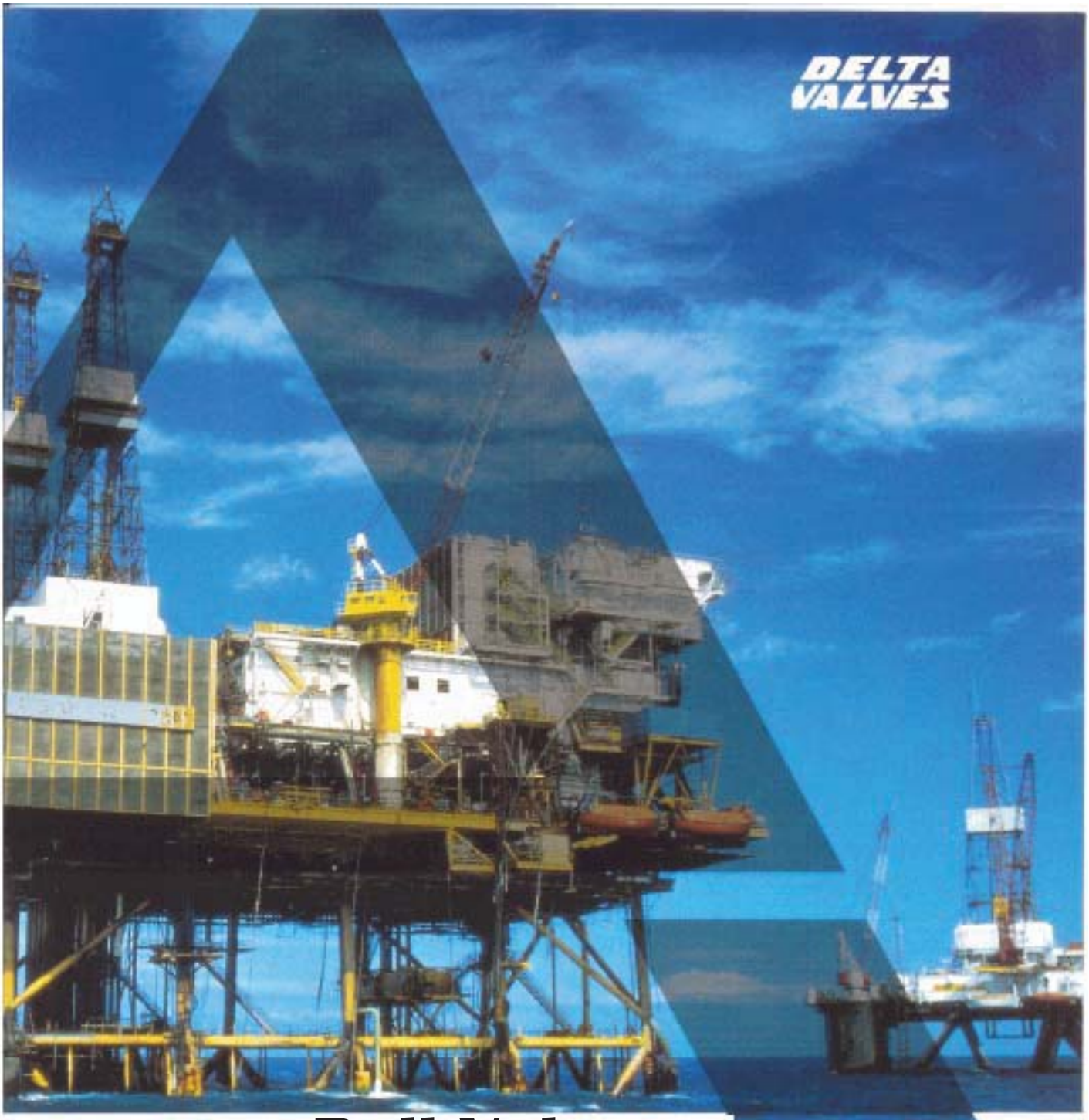


Ball Valves
Trunnion
Side Entry
Top Entry

DELTA VALVES

Production Range.

Products:

Trunnion Mounted Ball Valves

- Side-Entry and Top-Entry, Bolted Body and Welded Body (see our type "D").
- **Sub sea** Ball Valves Top-and Side-Entry
- **Metal seated** Ball Valves Top- and Side-Entry
- **Cryogenic** Ball Valves Top- and Side-Entry

Size & Pressure Rating:

- Nominal dimensions from 1 1/2" to 40"
- Classes 150 lbs to 4500 lbs according to API 6D.
- Classes API 2000 to API 20000 according to API 6A.

Temperature:

- From - 196°C to +560°C.
- From - 320°F to +1040°F.

Quality Assurance System:

- ISO 9001/2 and API QL1 API 6D

Materials:

- Carbon Steel, Alloy Steel, Stainless Steel.
- Duplex Steel, Super Duplex Steel, Monel.
- Nickel Alloy, Titanium.
- Others on Request.

API

Spec. 6A	Specification for wellhead and christmas tree equipment.
Spec. 6D	Specification for pipeline valves
Spec. RP6F	Recommended practice for fire testing of valves.
Spec. 6FA	Specification for fire testing of valves.
Std. 598	Valve inspection and test
Std. steel 605	Large diameter carbon flanges.
Std. 607	Fire test for soft seated quarter-turn valves.

MSS - Manufactures Standardization Society

SP tact 6	Standard finishes for con-faces of pipe flanges and connecting-end flanges of valves and fittings.
SP for 25	Standard marking system valves, fittings, flanges and unions.
SP44	Steel pipeline flanges.
SP45	By-pass and drain connection standard.
SP55	Quality standard for steel castings - visual method.
SP61	Hydrostatic testing of steel valves.
SP72	Ball valves with flanged or butt-welding ends for general service.

NACE - National Association of Corrosion Engineers

MR 01-75	Sulfide stress-cracking resistant metallic materials for oil field equipment.

ANSI

B 16.5	Steel pipe flanges and flanged fittings.
B 16.10	Face-to-face and end-to-end dimensions of ferrous valves.
B 16.25	Butt welding ends.
B 16.34	Steel valves - Flanged and butt welding ends.
B 31.3	Chemical plant and petroleum refinery piping.
B 31.4	Liquid petroleum transportation piping systems.
B 31.8	Gas transmission and distribution piping systems.
B 46.1	Surface texture.

ASME - American Society of Mechanical Engineers

ASTM - American Society for Testing Materials

ISO 9001

Quality systems Model for quality assurance in design/development, production, installation and servicing.

BRITISH STANDARD

BS 1503	Specification forgings steel for pressure purposes.
BS 1504	Specification for steel castings for pressure purposes.
BS 1560	Steel pipe flanges and flanged fittings.
BS 2080	Face-to-face, centre-to-face,end-to-end and centre-to end-dimensions of flanged and butt-welding end steel valves for the petroleum, petrochemical and allied industries.
BS 4504	Flanges and boltings for pipe valves and fittings.
BS 5146	Inspection and test of steel valves for the petroleum, petrochemical and allied industries.
BS 5351	Steel ball valves for the petroleum, petrochemical and allied industries.
BS 5750	Quality system.
BS 6755	Testing of valves.

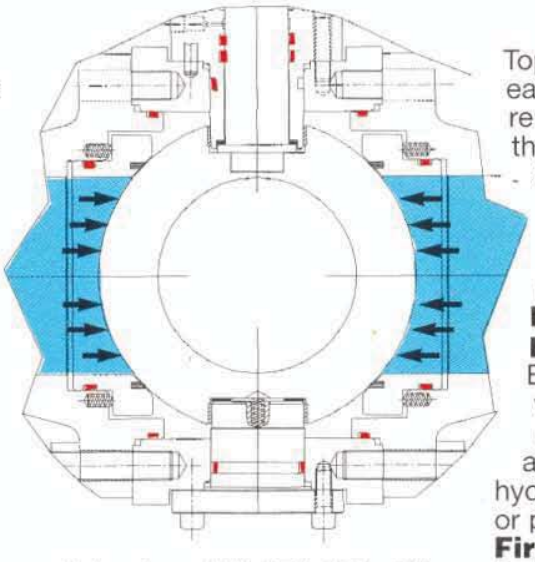
Trunnion Mounted Ball Valve Feature.

Seat Feature.

The spring loaded independant seat assemblies on "Deltavalve" trunnion mounted ball valve. Each valve has two assemblies, one in upstream and one in downstream.
The spring ensures that the seat surface is always in proper contact with the ball. This provides a tight seal even at low differential pressure. This is the block and bleed function.

Design Features.

Delta Valve Ball Valves feature a trunnion mounted, fixed ball design, employing floating seats which achieve independant sealing.
The Ball rotates about its vertical axis between the stem and bottom trunnion.



- Valve type "A", "B", "C", "E" and "F": bolted body
- Valve type "D": welded body

It is possible to build ball valves according to customer specifications.

Top-Entry ball valves can be easily serviced without removing the valve from the line. All components of Side-Entry and the internal Top-Entry ball valves are made of forging.
Only the body of top-entry is in the cast form.

Ball valve can be full bore or reduce bore.

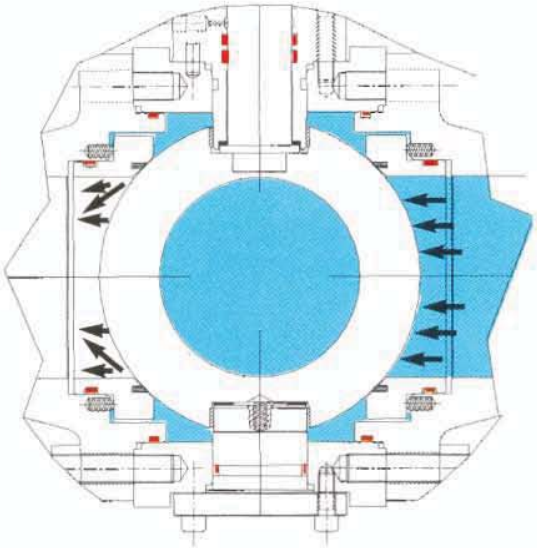
Ball Valve can be operated with lever (see overall dimensions), gear or power actuators (gas hydraulic, hydraulic, electric or pneumatic).

Fire safe certification.

Delta valves ball valves have been designed to meet all requirements. Fire safe tests have been witnessed and certified by customer's and independent authorities.

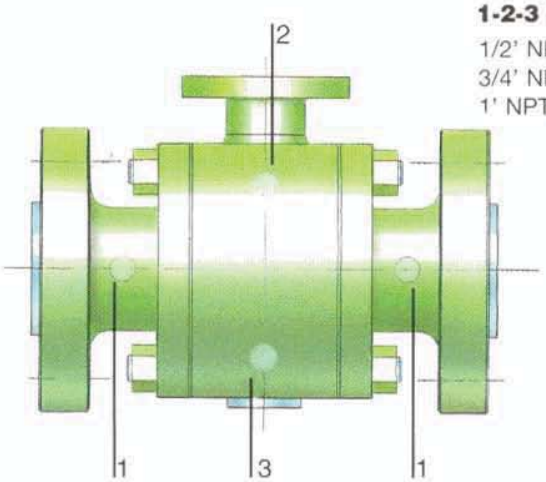
Automatic Body Cavity Pressure Relief.

Due to rise of the operating temperature, the pressure of the medium trapped within the body cavity may increase and cause safety concerns.
When the pressure in the cavity exceeds the line pressure (typically downstream), it will force the spring loaded seat assembly to open slightly and relieve this excessive pressure.



Vent, Drain and By-Pass.

- By-pass are always on request. These parts are requested when the valve is fitted out with gas idraulic actuator. Dimensions: 1/2" NPT.
- Vent, this hole is necessary for two condition, one for the test and when you have to clean the body cavity. Dimensions: 1/2" NPT from 6" and larger for DN 1 1/2" to 4" only on request.
- Drain, according to API 6D



1-2-3 Vent and train dimensions

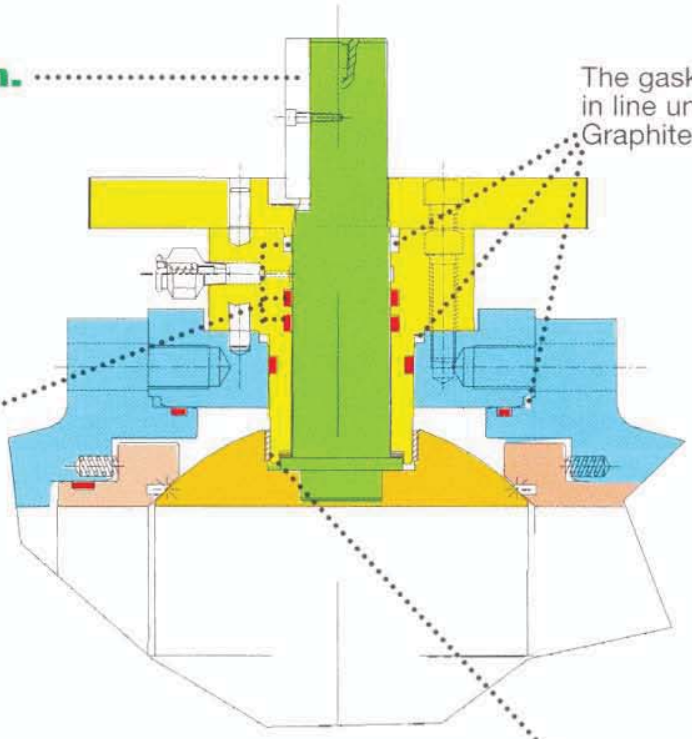
1/2' NPT DN 2' Thru 4'
3/4' NPT DN 2' Thru 4'
1' NPT DN 10' and larger

Operating Stem.

Antiblowout stems permit the replacement of the stem seals with the valve in the fully closed position. The stem and ball are separate components which lessens torque. Provision for the injection of emergency sealant is S.T.D.

A sealing of three gasket (two o-rings and one graphite).

The gaskets can be replaced in line under pressure. Graphite gasket to meet the requirements of fire safe specification (B.S.6755, API 607 or API 6FA). Fire safe have been witnessed and certified by Customeris inspectors and independent authorities.

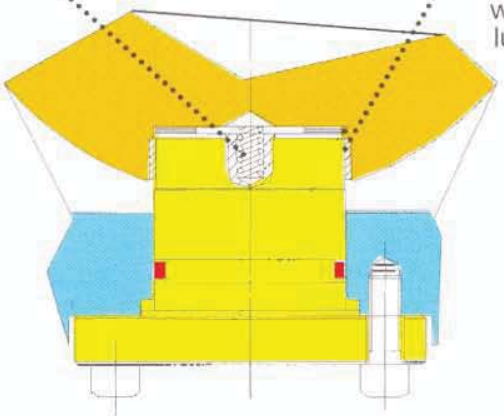


Antistatic Device According to B.S. 5146.

Electrical continuity between all valves components is granted by a stainless steel spring loaded between trunnion and ball. Both the valve design and bill of material show, may be subject to variations and/or revision in order to meet the current and future world market needs of the pipe industry.

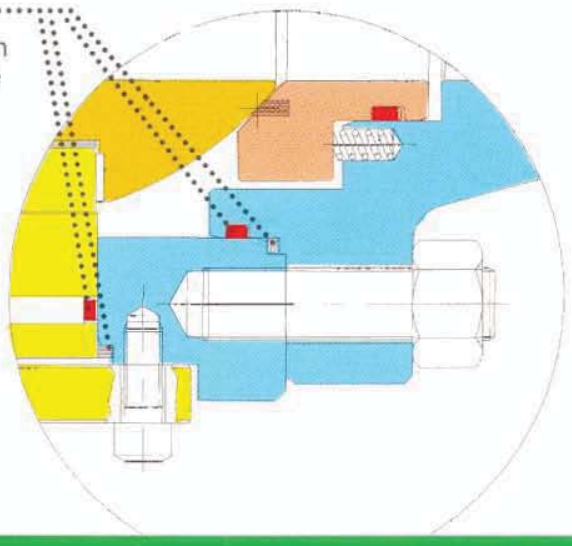
Low Operation Torque.

Stem and trunnion are supported by special bearing which does not require lubrification, of this bearing is to reduce friction factor with increased loads.

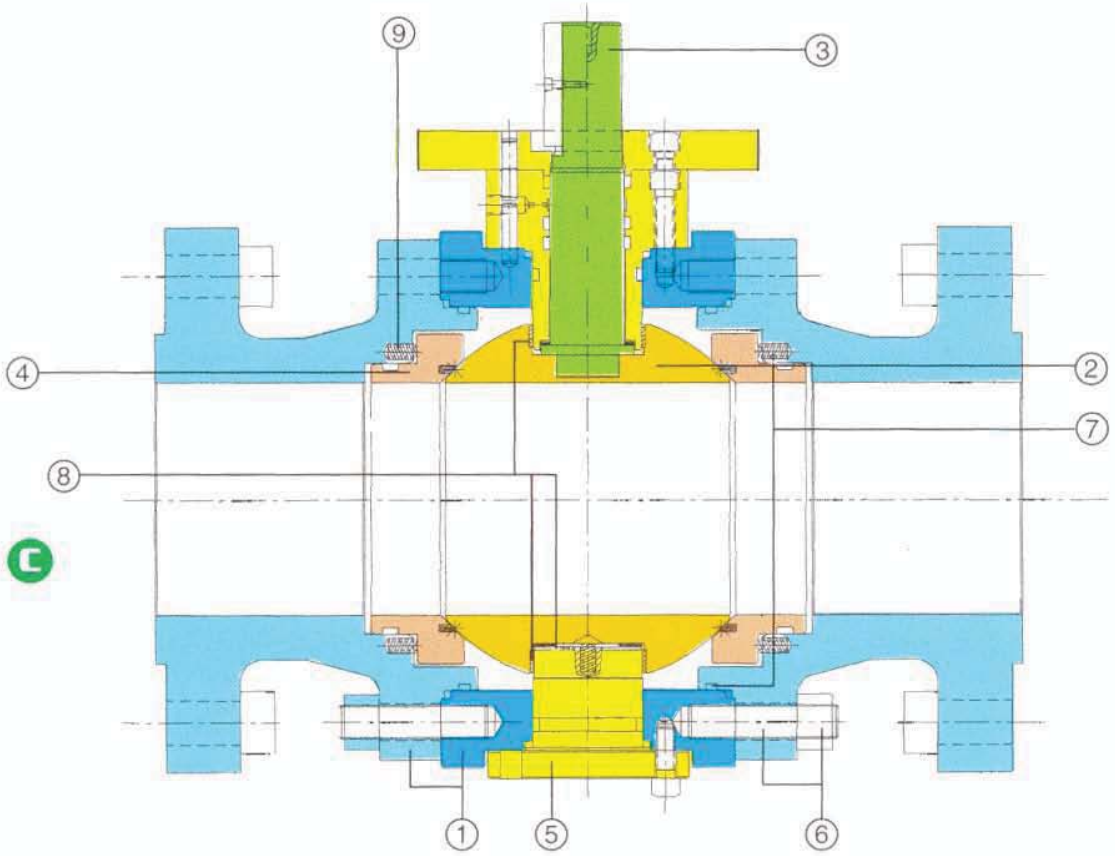


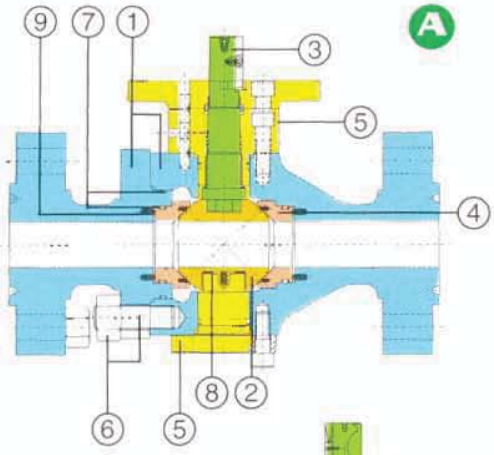
Body Jont.

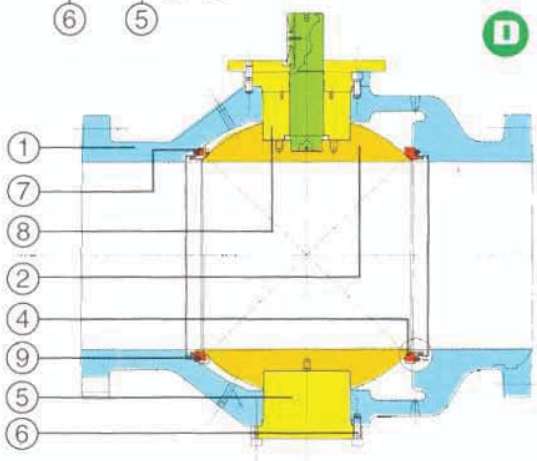
Double sealing combination with the O-Ring and graphite thus DeltaValves ball valves are suitable for both above ground and buried installation.



Side Entry.

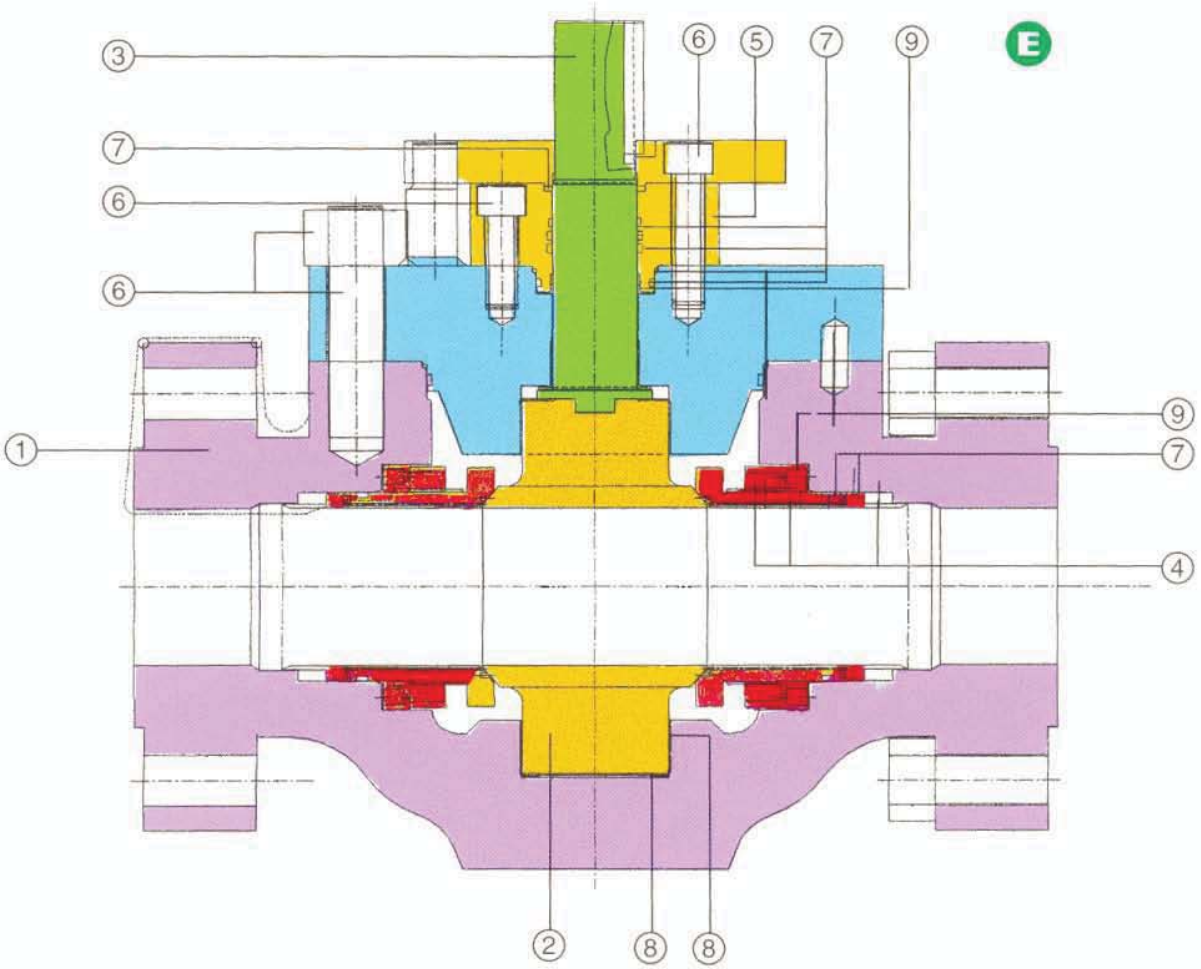




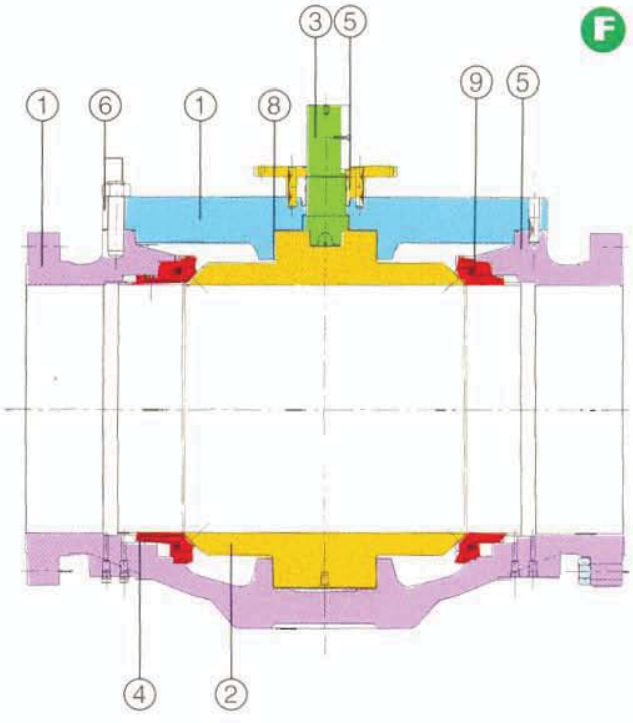


DN	150	300	400	600	900	1500	2500
1 1/2	A-D	A-D	A-D	A-D	A-D	A-D	A
2	A-D	A-D	A-D	A-D	A-D	A-D	A
3	A-D	A-D	A-D	A-D	A-D	A-D	A
4	A-D	A-D	A-D	A-D	A-D	A-D	A
6	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C
8	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C
10	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C
12	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C
14	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C
16	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C
18	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C
20	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C
22	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C	
24	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C	
26	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C	
28	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C	
30	B-C-D	B-C-D	B-C-D	B-C-D	B-C-D	B-C	
32	B-C-D	B-C-D	B-C-D	B-C-D	B-C	B-C	
34	B-C-D	B-C-D	B-C-D	B-C-D	B-C	B-C	
36	B-C-D	B-C-D	B-C-D	B-C-D	B-C	B-C	
40	B-C-D	B-C-D	B-C-D	B-C-D	B-C	B-C	

Top Entry.



DN	150	300	400	600	900	1500	2500
1 1/2	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E
6	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E
12	E	E	E	E	E	E	E
14	F	F	F	F	F	F	
16	F	F	F	F	F	F	
18	F	F	F	F	F	F	
20	F	F	F	F	F	F	
22	F	F	F	F	F		
24	F	F	F	F	F		
26	F	F	F	F	F		
28	F	F	F	F	F		
30	F	F	F	F	F		
32	F	F	F	F	F		
34	F	F	F	F	F		
36	F	F	F	F	F		
40	F	F	F	F	F		



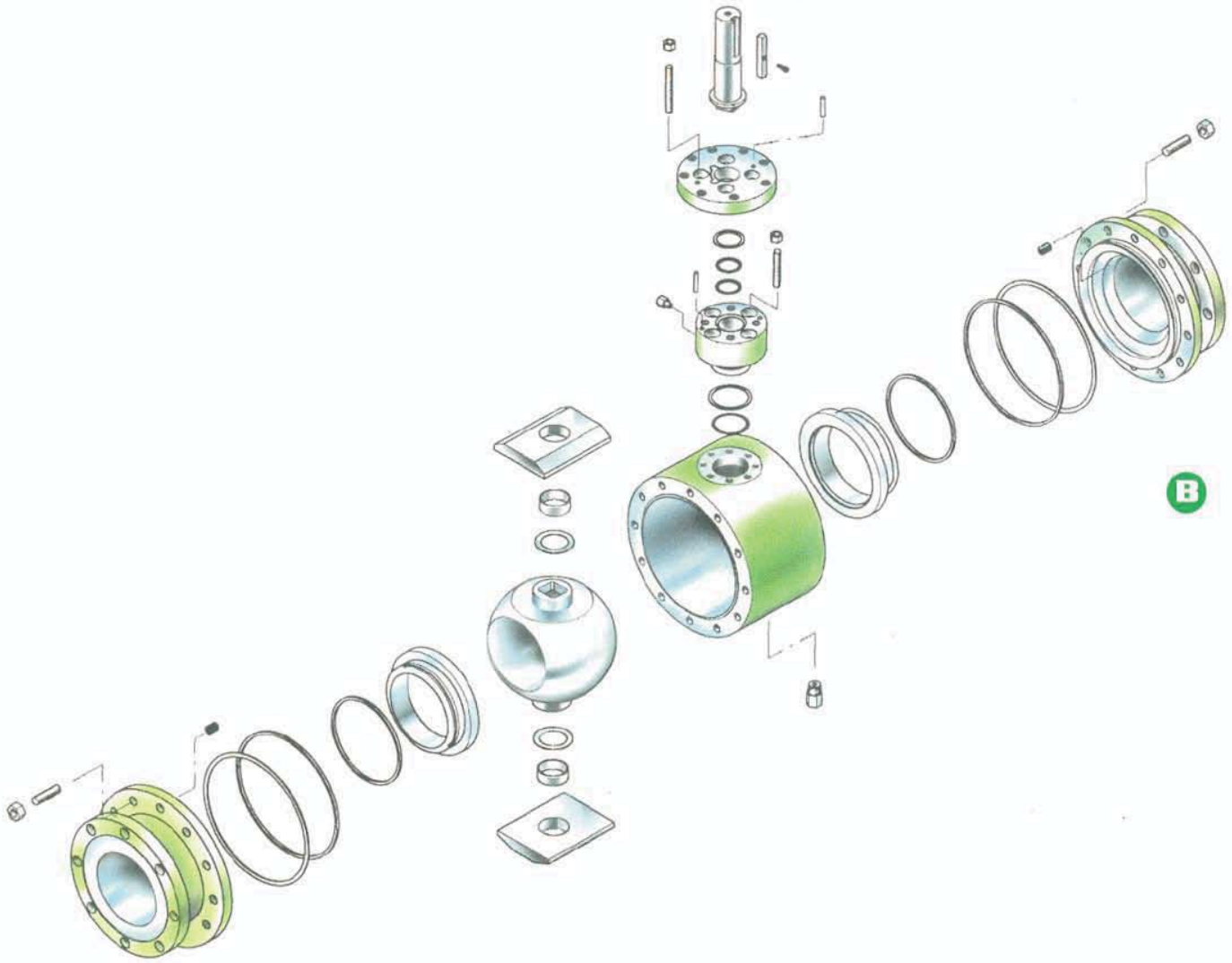
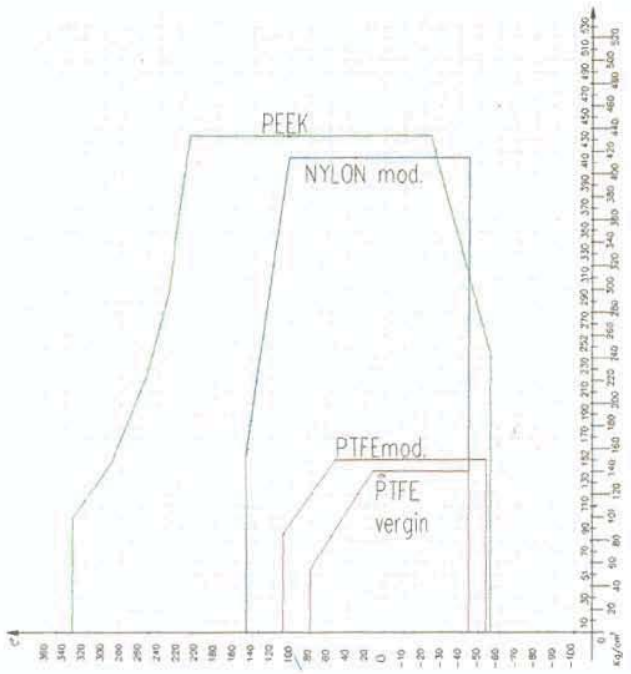
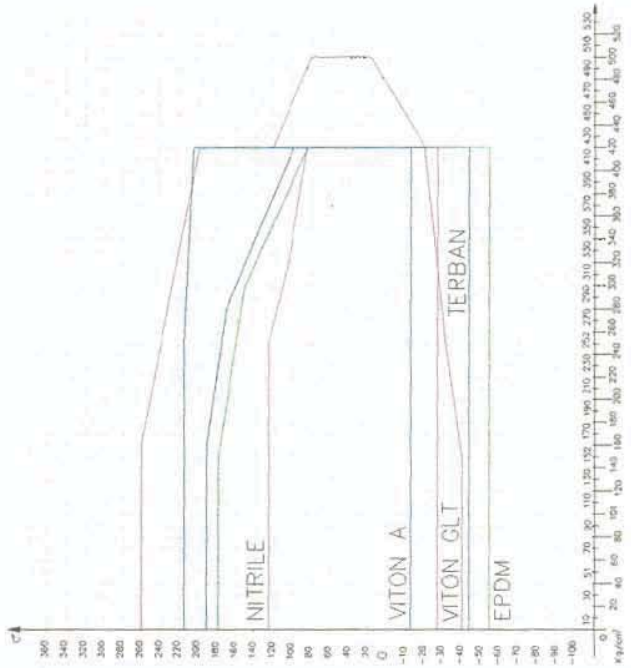


Diagram Pressure/Temperature of the Plastic Gasilet.



Diag. com. doc.

Diagram Pressure/Temperature of the Rubber Gasilet.



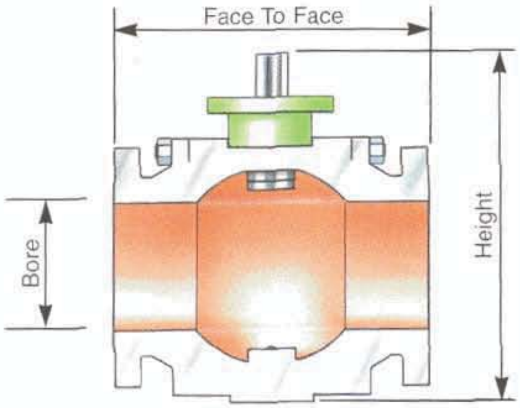
Diag. com. doc.

S.T.D. Material Selection Guide.

Base Mater. N	Ball Valve Type	Class	Temper. °C	Service	1- Body Closure Bonnet	2 Ball	3 Stem
01a		150-600	-20-+120	SWEET	A-105/WCB	A-105+ENP	A-105+ENP
01b		900-2500	-20-+120	SWEET	A-105/WCB	42CRMO4+ENP	42CRMO4+ENP
02a		150-600	-45-+180	SWEET	LF2/LCB	LF2+ENP	LF2+ENP
02b		900-2500	-45-+180	SWEET	LF2/LCB	42CRMO4+ENP	42CRMO4+ENP
03a		150-600	-20-+208	SOUR	A-105/WCB	A-105+ENP	A-105+ENP
03b		900-2500	-20-+180	SOUR	A-105/WCB	42CRMO4+ENP	42CRMO4+ENP
04a		150-600	-45-+260	SOUR	LF2/LCC	LF2+ENP	LF2+ENP
04b		900-2500	-45-+260	SOUR	LF2/LCC	LF2+ENP	42CRMO4+ENP
05a		150-600	-20-+208	SOUR	A-105/WCB	A-182-F6 +ENP	A-182-F6 +ENP
05b		900-2500	-20-+180	SOUR	A-105/WCB	A-182-F6 +ENP	A-182-F6 +ENP
06a		150-600	-20-+208	SOUR	A-105/WCB	A-182-F316 +ENP	A-182-F316 +ENP
06b		900-2500	-20-+180	SOUR	A-105/WCB	A-705-GR630 +ENP	A-564-GR630 +ENP
07a		150-600	-45-+260	SOUR	LF2/LCC	A-182-F316 +ENP	A-182-F316 +ENP
07b		900-2500	-45-+210	SOUR	LF2/LCC	A-705-GR630 +ENP	A-564-GR630 +ENP
08a		150-600	-45-+260	SOUR	LF2/LCC	A-182-F316 +ENP	A-182-F316 +ENP
08b		900-2500	-45-+210	SOUR	F316MOD LCCMOD	A-705-GR630 +ENP	A-564-GR630 +ENP

Base Mater. N	Ball Valve Type	4 Seat Ring	5-Gland Plate and Trunnion	6 Bolting	7 Gasket	8 Bearing	9 Springs
01a		A-105+ENP	A-105+ENP	A-193 B7/2H	NITRILE +GRAPHITE	DU-DRY	AISI 302
01b		A-105+ENP	42CRMO4 +ENP	A-193 B7/2H	NITRILE +GRAPHITE	DU-DRY	AISI 302
02a		LF2+ENP	LF2+ENP	A-320-L7/GR4	TERBAN +GRAPHITE	DU-DRY	AISI 302
02b		LF2+ENP	42CRMO4 +ENP	A-320 L7/GR4	TERBAN +GRAPHITE	DU-DRY	AISI 302
03a		A-105+ENP	A-105+ENP	A-193-B7M/2HM	VITON A +GRAPHITE	DU-DRY	INCONEL X750
03b		A-105+ENP	42CRMO4 +ENP	A-193 B7M/2HM	VITON A +GRAPHITE	DU-DRY	INCONEL X750
04a		LF2+ENP	LF2+ENP	A-320-L7M/GR4M	VITON GLT +GRAPHITE	DU-DRY	INCONEL X750
04b		LF2+ENP	42CRMO4 +ENP	A-320 L7M/GR4M	VITON GLT +GRAPHITE	DU-DRY	INCONEL X750
05a		A-182-F6 +ENP	A-182-F6 +ENP	A-193-B7M /2HM	VITON A +GRAPHITE	DU-DRY	INCONEL X750
05b		A-182-F6 +ENP	A-182-F6 +ENP	A-193-B7M 2HM	VITON A +GRAPHITE	DU-DRY	INCONEL X750
06a		A-182-F316 +ENP	A-182-F316 +ENP	A-193-B7M 2HM	VITON A +GRAPHITE	DU-DRY	INCONEL X750
06b		A-705-GR630 +ENP	A-564-GR630 +ENP	A-193-B7M 2HM	VITON A +GRAPHITE	DU-DRY	INCONEL X750
07a		A-182-F316 +ENP	A-182-F316 +ENP	A-320-L7M GR4M	VITON GLT +GRAPHITE	FIBERGLIDE +S.S	INCONEL X750
07b		A-705-GR630 +ENP	A-564-GR630 +ENP	A-320-L7M GR4M	VITON GLT +GRAPHITE	FIBERGLIDE +S.S	INCONEL X750
08a		A-182-F316 +ENP	A-182-F316 +ENP	A-320-L7M GR4M	VITON GLT +GRAPHITE	FIBERGLIDE +S.S	INCONEL X750
08b		A-705-GR630 +ENP	A-564-GR630 +ENP	A-705-GR630 +ENP	VITON GLT +GRAPHITE	FIBERGLIDE +S.S	INCONEL X750

Side Entry.



General Notes.

- Dimensions are in mm. weight in Kg.
- Bore According to API 6D.
- End to end dimensions according to API 6D.
- End Flanges in accordance with ANSI B.16.5 and MSS.SP-44 for DN 26" and larger.
- L) = Lever Operated
  G) = Gear Operated

Class 150

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
1 1/2			38				L
2	178	216	190	51	560	29	L
3	203	283	216	76	765	51	L
4	229	305	241	102	780	93	L
6	394	457	406	152	565	188	G
8	457	521	470	203	595	268	G
10	534	559	546	254	710	403	G
12	610	635	622	308	760	598	G
14	686	762	698	337	820	818	G
16	762	838	775	388	900	1013	G
18	864	914	876	439	980	1236	G

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
20	914	991	927	489	1070	1868	G
22	991	1092	1004	540	1220	2483	G
24	1067	1143	1079	590	1355	3205	G
26	1143	1245	1156	635	1460	3825	G
28	1244	1347	/	685	1570	4624	G
30	1295	1397	1308	735	1700	5418	G
32	1371	1524	/	780	1840	7008	G
34	1473	1626	1490	830	1930	8035	G
36	1524	1728	1540	875	2015	8953	G
38	t.b.a.	t.b.a.	t.b.a.	925	t.b.a.		
40	1760	1960	/	975	2350	12088	G

Class 300

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
1 1/2				38			L
2	216	216	232	51	560	32	L
3	283	283	298	74	765	57	L
4	305	305	321	102	780	100	L
6	403	457	419	152	565	203	G
8	502	521	517	203	595	319	G
10	568	559	584	254	710	548	G
12	648	635	664	308	775	784	G
14	762	762	778	337	828	1109	G
16	838	838	854	388	921	1513	G
18	914	914	930	439	998	1718	G

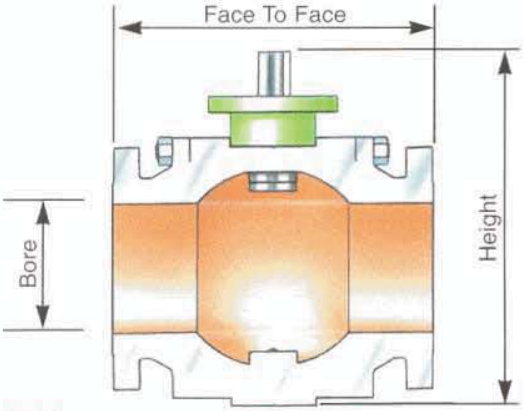
DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
20	991	991	1010	489	1096	2309	G
22	1092	1092	1114	540	1280	2913	G
24	1143	1143	1165	590	1379	3649	G
26	1245	1245	1270	635	1500	4863	G
28	1347	1347	1372	685	1615	5986	G
30	1397	1397	1422	735	1722	6833	G
32	1524	1524	1553	780	1880	8142	G
34	1626	1626	1654	830	1970	9298	G
36	1728	1728	1756	875	2139	10258	G
38	t.b.a.	t.b.a.	t.b.a.	925	t.b.a.	t.b.a.	
40	t.b.a.	t.b.a.	t.b.a.	975	t.b.a.	t.b.a.	

Class 600

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
1 1/2	242	242	242	38	540	26	L
2	292	292	295	51	560	34	L
3	356	356	359	76	765	69	L
4	432	432	435	102	780	121	G
6	560	560	562	152	565	264	G
8	660	660	665	203	615	503	G
10	787	787	791	254	731	798	G
12	838	838	842	308	799	1118	G
14	889	889	893	337	848	1166	G
16	991	991	995	388	934	1513	G
18	1092	1092	1096	439	1040	2117	G

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
20	1194	1194	1201	489	1150	2798	G
22	1295	1295	1305	540	1309	3923	G
24	1397	1397	1409	590	1379	4941	G
26	1448	1448	1461	635	1500	5859	G
28	1550	1550	1565	685	1626	6992	G
30	1778	1778	1795	780	1880	9934	G
32	1930	1930	1947	830	1970	11648	G
34	2083	2083	2099	875	2190	13486	G
36	t.b.a.	t.b.a.	t.b.a.	925	t.b.a.	t.b.a.	
38	2335	2335	t.b.a.	975	2270	17308	G
40							

Side Entry.



Class 900

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
1 1/2	305	305	305	38	540	41	L
2	368	368	371	51	560	48	L
3	381	381	384	76	765	81	L
4	457	457	460	102	780	161	G
6	610	610	613	152	615	366	G
8	737	737	740	203	655	603	G
10	838	838	841	254	793	958	G
12	965	965	968	308	853	1518	G
14	1029	1029	1038	324	951	1609	G
16	1130	1130	1140	375	1029	2004	G
18	1219	1219	1232	425	1151	2718	G

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
20	1321	1321	1333	457	1301	4002	G
22	1423	1423	1435	524	1424	5598	G
24	1549	1549	1568	570	1510	6983	G
26	1651	1651	1674	619	1634	8185	G
28	1753	1753	1775	667	1801	9835	G
30	1880	1880	1902	714	1868	12225	G
32	2032	2032	2054	762	2039	13238	G
34	2159	2159	2188	810	2180	15739	G
36	2286	2286	2315	857	2421	19955	G
38	t.b.a.	t.b.a.	t.b.a.	t.b.a.	t.b.a.	t.b.a.	
40	t.b.a.	t.b.a.	t.b.a.	t.b.a.	t.b.a.	t.b.a.	

Class 1500

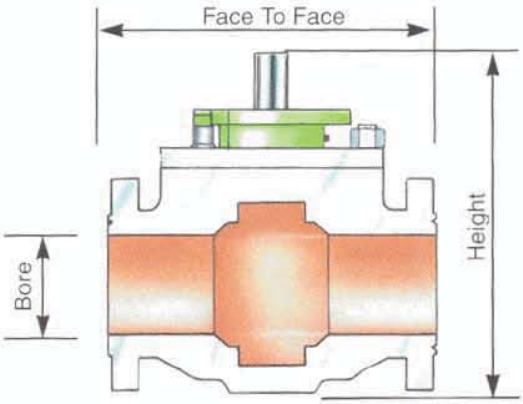
DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
1 1/2	305	305	305	38	540	41	L
2	368	368	371	51	560	48	L
3	470	470	473	76	765	101	G
4	546	546	549	102	780	183	G
6	705	705	711	145	645	490	G
8	832	832	841	193	720	838	G
10	991	991	1000	240	840	1518	G

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
12	1130	1130	1146	287	1004	2218	G
14	1257	1257	1276	315	1043	2795	G
16	1384	1384	1406	360	1192	3614	G
18	1537	1537	1559	420	1489	4713	G
20	1664	1664	1686	450	1700	7610	G
22							
24	2043	2043	2071	530	1886	14020	G

Class 2500

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
1 1/2	387	387	387	38	570	52	L
2	451	451	454	51	606	94	G
3	578	578	584	76	876	198	G
4	673	673	683	102	945	370	G
6	914	914	927	130	1029	799	G
8	1022	1022	1038	180	1166	1385	G
10	1270	1270	1292	225	1386	2118	G
12	1422	1422	1446	265	1596	3155	G

Top Entry.



General Notes.

- Dimensions are in mm. weight in Kg.
- Bore according to API 6D.
- End to end dimensions class 150 & 300 according to API 6D. class 600 lbs.
- End to end dimensions class 600,900,1500 and 2500 lbs according to API 6D.
- End Flanges in accordance with ANSI B.16.5 and MSS.SP-44 for DN 26" and larger.
- L) = Lever Operated
  G) = Gear Operated

Class 150

DN	Face to Face RF	Face to Face BW	Face to Face RJ	Bore	Height	Weight	Op.
1 1/2	242	242	242	38	397	27	L
2	292	292	295	51	447	30	L
3	356	356	359	76	478	57	L
4	432	432	435	102	502	107	L
6	560	560	562	152	541	242	G
8	660	660	665	203	605	437	G
10	787	787	791	254	708	495	G
12	838	838	842	308	767	640	G
14	889	889	893	337	823	795	G
16	991	991	995	388	901	1113	G
18	1092	1092	1096	439	1018	1510	G

DN	Face to Face RF	Face to Face BW	Face to Face RJ	Bore	Height	Weight	Op.
20	1194	1194	1201	489	1116	1980	G
22	1295	1295	1305	540	1237	2855	G
24	1397	1397	1409	590	1310	3375	G
26	1448	1448	1461	635	1426	4005	G
28	1550	1550	1565	685	1592	4735	G
30	1650	1650	1665	735	1661	5838	G
32	1778	1778	1795	780	1836	7185	G
34	1930	1930	1947	830	1938	7948	G
36	2083	2083	2099	875	2133	9385	G
38	t.b.a.	t.b.a.	t.b.a.	925	t.b.a.	t.b.a.	
40	2335	2335	t.b.a.	975	2152	12980	G

Class 300

DN	Face to Face RF	Face to Face BW	Face to Face RJ	Bore	Height	Weight	Op.
1 1/2	242	242	242	38	397	31	L
2	292	292	295	51	447	35	L
3	356	356	359	76	478	66	L
4	432	432	435	102	502	126	L
6	560	560	562	152	541	270	G
8	660	660	665	203	605	505	G
10	787	787	791	254	708	558	G
12	838	838	842	308	767	715	G
14	889	889	893	337	823	895	G
16	991	991	995	388	901	1295	G
18	1092	1092	1096	439	1018	1795	G

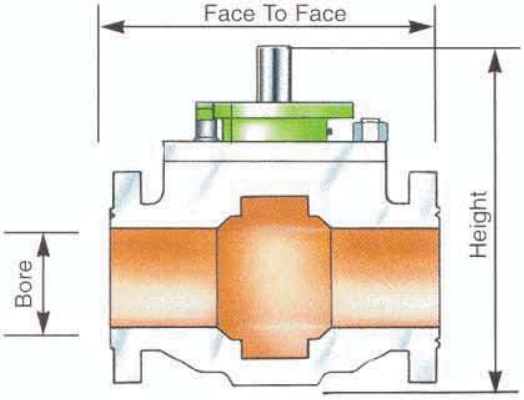
DN	Face to Face RF	Face to Face BW	Face to Face RJ	Bore	Height	Weight	Op.
20	1194	1194	1201	489	1116	2260	G
22	1295	1295	1305	540	1237	3300	G
24	1397	1397	1409	590	1310	3835	G
26	1448	1448	1461	635	1426	4625	G
28	1550	1550	1565	685	1592	5468	G
30	1650	1650	1665	735	1661	6735	G
32	1778	1778	1795	780	1836	8338	G
34	1930	1930	1947	830	1938	9335	G
36	2083	2083	2099	875	2133	10845	G
38	t.b.a.	t.b.a.	t.b.a.	925	t.b.a.	t.b.a.	
40	2335	2335	t.b.a.	975	2152	15095	G

Class 600

DN	Face to Face RF	Face to Face BW	Face to Face RJ	Bore	Height	Weight	Op.
1 1/2	242	242	242	38	397	34	L
2	292	292	295	51	447	41	L
3	356	356	359	76	478	73	L
4	432	432	435	102	502	134	L
6	560	560	562	152	541	303	G
8	660	660	665	203	605	550	G
10	787	787	791	254	708	718	G
12	838	838	842	308	767	907	G
14	889	889	893	337	823	1085	G
16	991	991	995	388	901	1695	G
18	1092	1092	1096	439	1018	2295	G

DN	Face to Face RF	Face to Face BW	Face to Face RJ	Bore	Height	Weight	Op.
20	1194	1194	1201	489	1116	2960	G
22	1295	1295	1305	540	1237	4130	G
24	1397	1397	1409	590	1310	4905	G
26	1448	1448	1461	635	1426	5875	G
28	1550	1550	1565	685	1592	7120	G
30	1650	1650	1665	735	1661	8845	G
32	1778	1778	1795	780	1836	10838	G
34	1930	1930	1947	830	1938	12025	G
36	2083	2083	2099	875	2133	13840	G
38	t.b.a.	t.b.a.	t.b.a.	925	t.b.a.	t.b.a.	
40	2335	2335	t.b.a.	975	2152	19475	G

Top Entry.



Class 900

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
11/2	305	305	305	38	540	49	L
2	368	368	371	51	560	54	L
3	381	381	384	76	765	104	L
4	457	457	460	102	780	190	G
6	610	610	613	152	615	440	G
8	737	7367	740	203	655	803	G
10	838	838	841	254	793	1016	G
12	965	965	968	308	853	1295	G
14	1029	1029	1038	324	951	1785	G
16	1130	1130	1140	375	1029	2530	G
18	1219	1219	1232	425	1151	3515	G

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
20	1321	1321	1333	457	1301	4510	G
22	1423	1423	1435	524	1424	6718	G
24	1549	1549	1568	570	1510	7525	G
26	1651	1651	1674	619	1634	8938	G
28	1753	1753	1775	667	1801	10638	G
30	1880	1880	1902	714	1868	12338	G
32	2032	2032	2054	762	2039	16125	G
34	2159	2159	2188	810	2180	18035	G
36	2286	2286	2315	857	2421	21115	G
38	t.b.a.	t.b.a.	t.b.a.	t.b.a.	t.b.a.	t.b.a.	
40	t.b.a.	t.b.a.	t.b.a.	t.b.a.	t.b.a.	t.b.a.	G

Class 1500

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
11/2	305	305	305	38	540	49	L
2	368	368	371	51	560	54	L
3	470	470	473	76	765	150	G
4	546	546	549	102	780	290	G
6	705	705	711	145	645	630	G
8	832	832	841	193	720	1103	G
10	991	991	1000	240	840	1475	G

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
12	1130	1130	1146	287	1004	1922	G
14	1257	1257	1276	315	1043	2655	G
16	1384	1384	1406	360	1192	3910	G
18	1537	1537	1559	420	1489	5395	G
20	1664	1664	1686	450	1700	6760	G
22							
24	2043	2043	2071	530	1886	12005	G

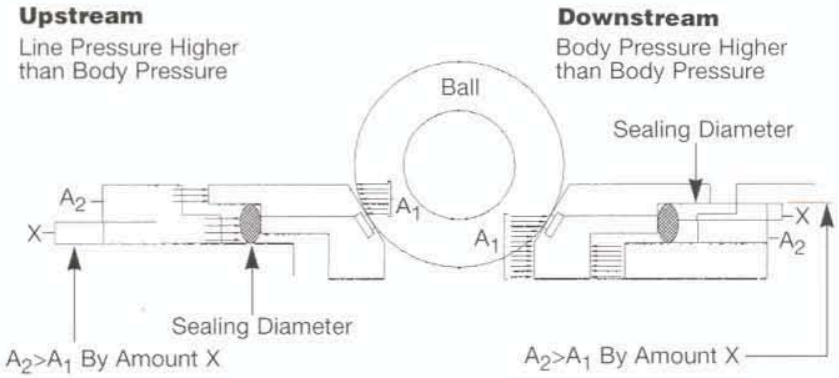
Class 2500

DN	Face to Face RF	BW	RJ	Bore	Height	Weight	Op.
11/2	387	387	387	38	570	67	L
2	451	451	454	51	606	94	G
3	578	578	584	76	876	238	G
4	673	673	683	102	945	419	G
6	914	914	927	130	1029	899	G
8	1022	1022	1038	180	1166	1423	G
10	1270	1270	1292	225	1386	2405	G
12	1422	1422	1446	265	1596	3818	G

Optional Trunnion Mounted Ball Valve.

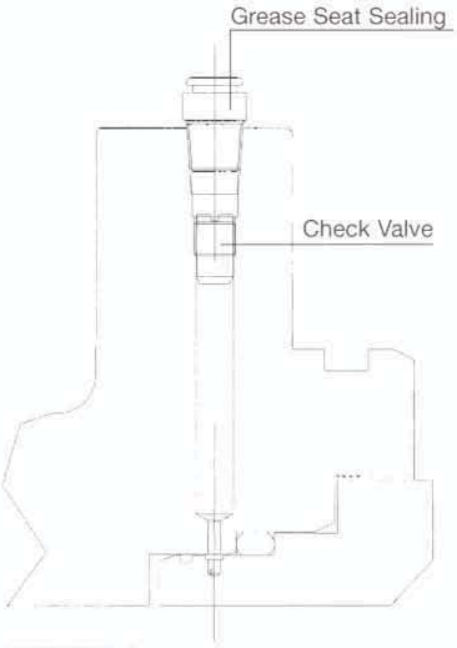
Double Piston Effect.

Double Sealing Feature, mantains the sealing capacity of the valve even in the case of failure of the upstream seat. Body cavity in this case can be released through a relieve valve to atmosfere.



Emergency Seat Seal Detail.

An emergency sealant injection system is available on request which can restore the sealing integrity if damage is caused to the sealing surface.

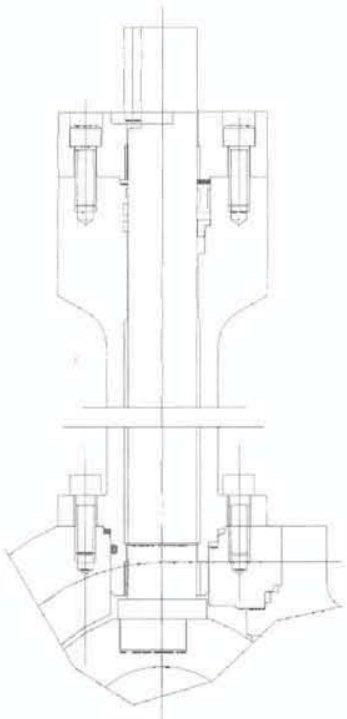


Dimensions:

- n°2 point grease seal from 6" to 14"
- n°4 point grease seal from 16" and larger.

Extended Bonnet.

Delta Valves Ball Valves to be use in low temperature/ cryogenic service are equipped with extended bonnet to allow vapour space between body cavity and gland seal.
This feature preserves stem seals from damages that may occur during operation at low temperature (-80°C) or cryogenic temperature,

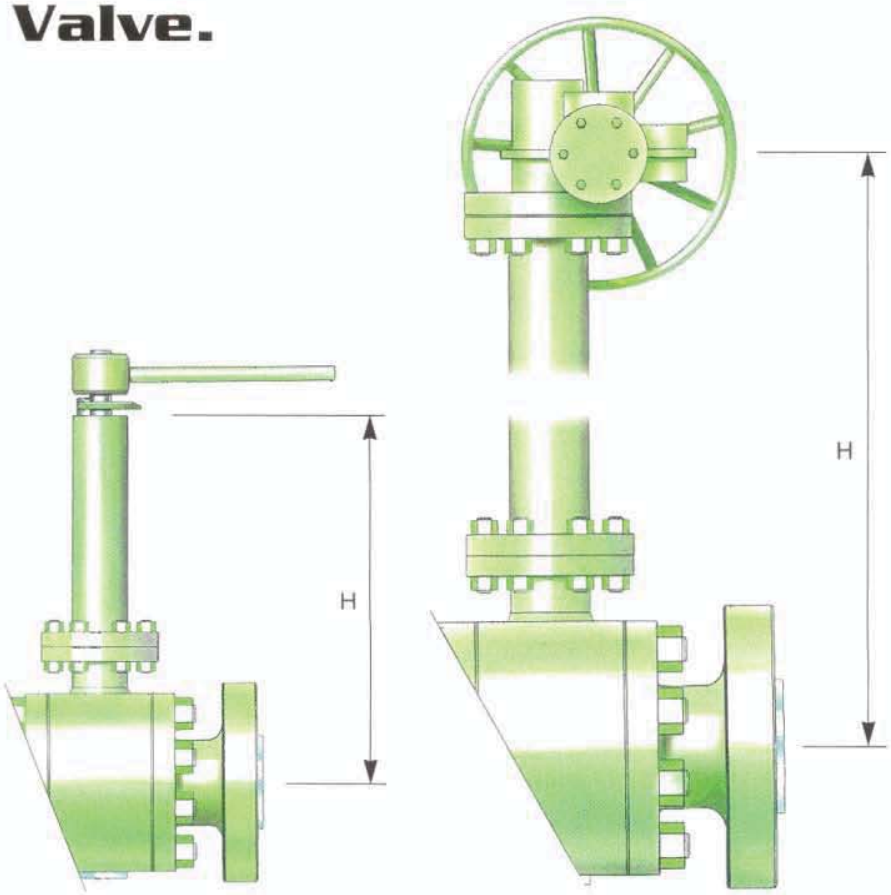


and allows stem seals servicing even on valve installed on insulated lines. Vapour space length or insulating thickness shall be specified.

Optional Trunnion Mounted Ball Valve.

Exteded Stem.

Delta Valves Ball Valves are available with operating extension to permit buried or underground installation in remote or inaccessible piping.
Both Type "A" & "B" Extension are exstended yoke and drive tube design, and are furnished "Water-Tight" for buried valve service.
Either Type "A" & "B" Extension can be supplied with power operator mounting flange.



pls. note.
Customer must specify "H" dimension.
Dimension "H" si measured from center line of the valve to bottom of the handwheel.

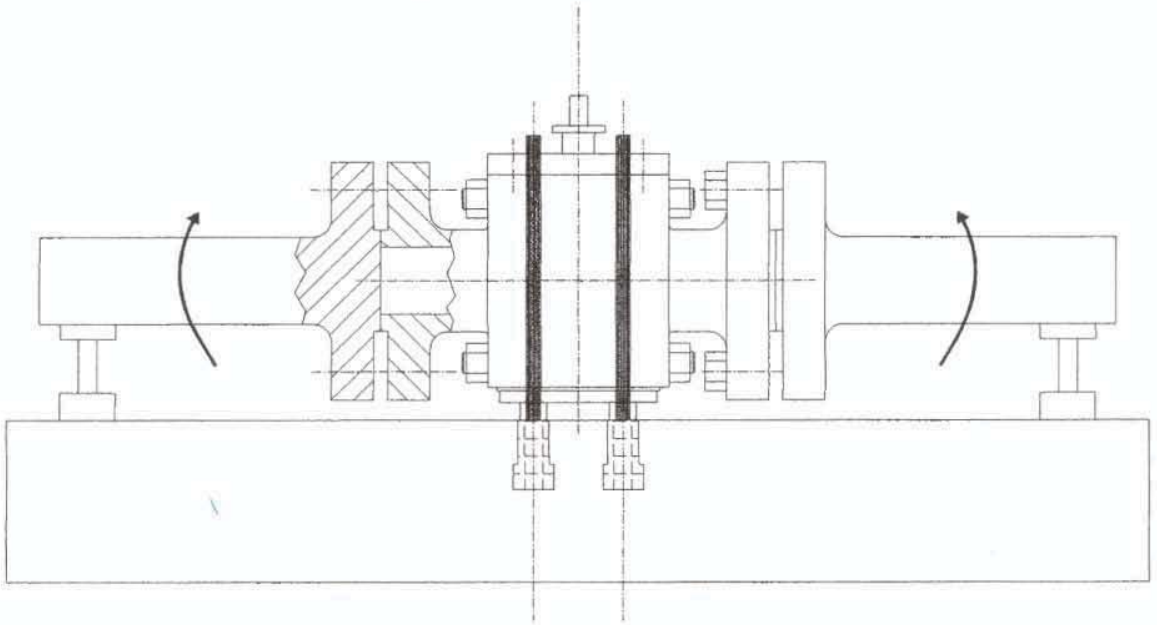
Bending Test.

Bending Test to to verify the performance of the valve, when subject to the bending loads transmitted by piping, have been performed both on Side-Entry or Top-Entry Ball Valves.

Test included checks of possible body distortions, torque and leakage rates.
The Bending Test have been performed with internal pressure on ball valve.
Bending Test have been performed in both operational and maintenance modes.
Certificate are Available.

Optionals for Top-entry

- Double piston effect
- Double bock and bleed
- Back seat flushing
- Valves installed in vertical line.



Uffici e Stabilimento: Via per Mesero, 6 - 20010 Ossona (MI) Italia
Tel.: +39 02 90 38 06 42 / 90 38 46 49 - Fax: +39 02 90 38 07 52
e-mail: info@deltavalves.it - sales@deltavalves.it
V.A.T.: IT09310730966 - CCIAMI 2082522