

VIRAR VALVOLE®



Side Entry



Fully Welded



Top Entry



The Company



ViarValvole is a 100% Italian Family Owned Company, leader in the design and manufacturing of Ball Valves, mainly for Oil & Gas application.

Based in Italy, 50 km north of Milan, ViarValvole started its business as a reliable partner of the main Italian Valve Manufacturers, earning experience in managing National and International projects.



Thanks to the confidence of some International EPC companies, ViarValvole entered the worldwide market getting End users approval and estimation.

ViarValvole extends on a production surface of 10.000 sqm distributed in three locations (main offices and two warehouses in Sumirago and one in Solbiate Arno) and has lifting capability up to 50 tons.



- 1000 sqm for raw materials stock, identification and acceptance of the incoming material
- 4000 sqm for machining, assembly and testing of small and medium range valves
- 4000 sqm for machining, assembly and testing of large size valves + 1000 sqm. dedicated to special testing (cryogenic, slurry service, hyperbaric, PR2, etc.).





Trunnion Mounted

Products

Ball Valves



Side Entry



Fully Welded



Top Entry



Subsea



Double Block & Bleed



High-Integrity Pressure Protection System



Index	Page
Introduction	5
Material Specification	6
Design Calculation	7
Design Features	8
Operators	11
Special Features	12
Double Block & Bleed	13
Subsea	14
HIPPS	16
Side Entry, Cross Section	18
Side Entry, Assembly	20
Welded Body, Cross Section	22
Welded Body, Assembly	24
Side Entry, Dimension Tables	26
Top Entry, Cross Section	34
Top Entry, Assembly	36
Top Entry, Dimension Tables	38
Non-Destructive Testing	44
Testing	46
Quality	50
Certification	51



Introduction



Viar Valvole delivers proven quality trunnion mounted ball valves to leading layers of the industry.

Valves are internally designed, manufactured and tested in accordance with industry regulation and most stringent client specification.

A full support is provided to both EPC and end users by Viar Valvole specialists during the bid and post order stage. Worldwide Site assistance is guaranteed by Viar Valvole Engineers.

Applications

- Oil and Gas Pipelines
- Power Plants
- Gas Storage
- Compressor Stations
- Gas Metering and Control Stations
- Offshore Platforms and FPSO Blowdown
- Emergency Shutdown (ESD)
- Fluid and Gas Well Injection
- Double Isolation (Twin ball design)
- Subsea Applications
- Abrasive Service
- High Temperature Service
- High Pressure Service
- Cryogenic Service
- Sour Service
- Corrosive Service.

Product Range

API 6D

Dimension (in)	2 through 60	2 through 58	2 through 48	2 through 36
Class (psi)				
150/300/600				
900				
1500				
2500				

Class 4500 and special classes available on request.

API 6A

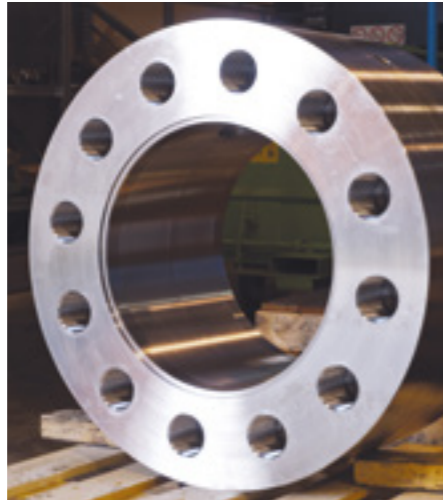
Dimension (in)	2 1/16 through 7 1/16	2 1/16 through 7 1/16	2 1/16 through 7 1/16	1 13/16 through 13 5/8
Class (psi)				
2000				
3000				
5000				
10000				



Material Specification

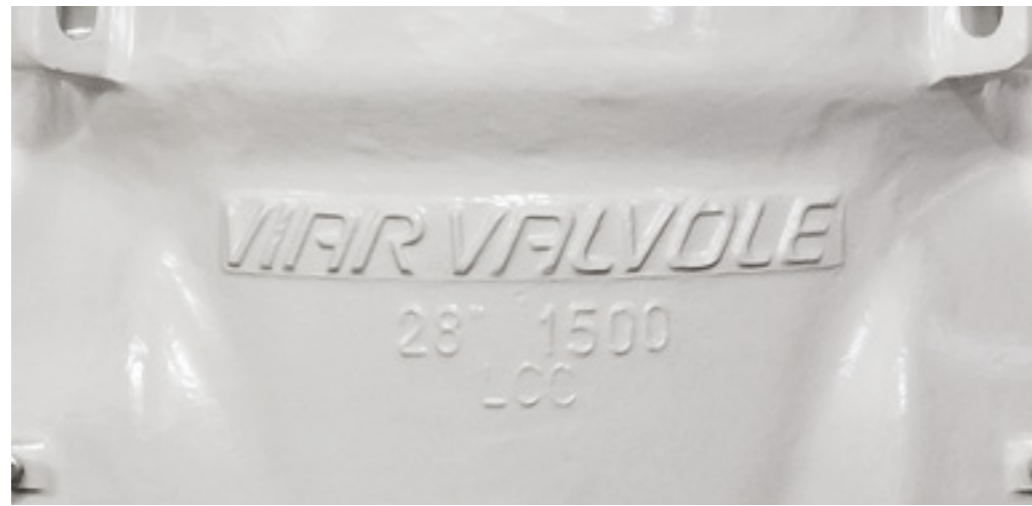
The valve design and the material selection depend on valve service and application.

After examination of service conditions, the selection criteria are based on the verification of the physical and chemical characteristics of the materials or products. Soft seal (O-rings, inserts, and lip seal gaskets) are verified and selected to comply with design and operating service.



Carbon steel, low temperature carbon steel, low alloy steel, martensitic stainless steels, austenitic stainless steels, precipitation hardening stainless steels, duplex stainless steels, nickel alloys, titanium are used depending on the service and customer requirements.

Chemical composition and mechanical properties are certified and verified as per relevant ASTM standard, per NACE requirements and per customer requirements.



Design Calculations

FEA

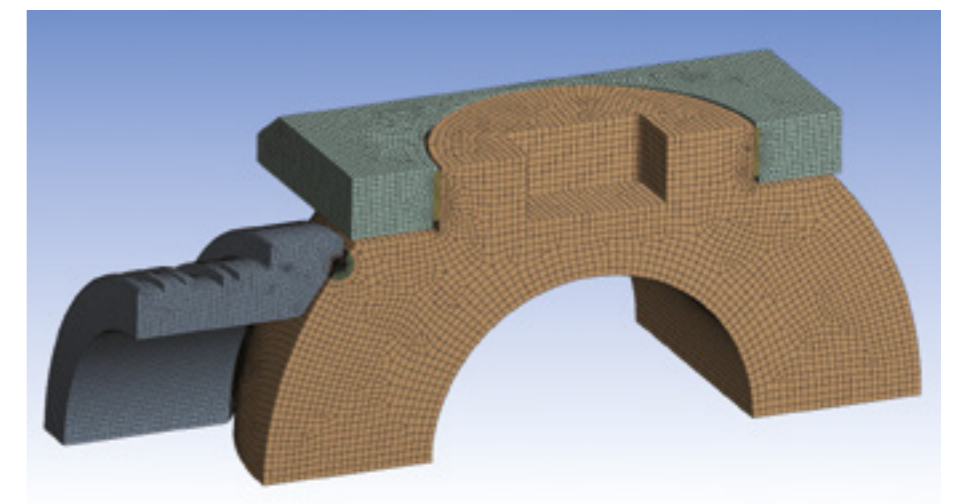
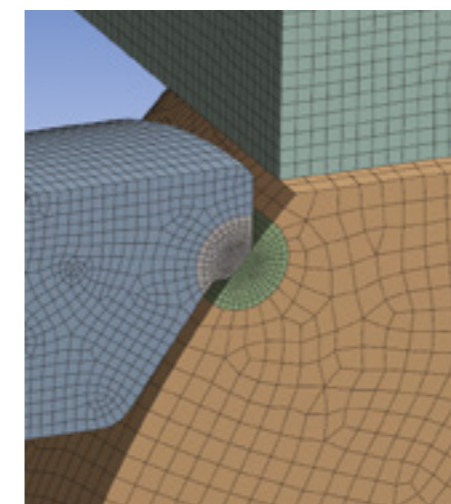
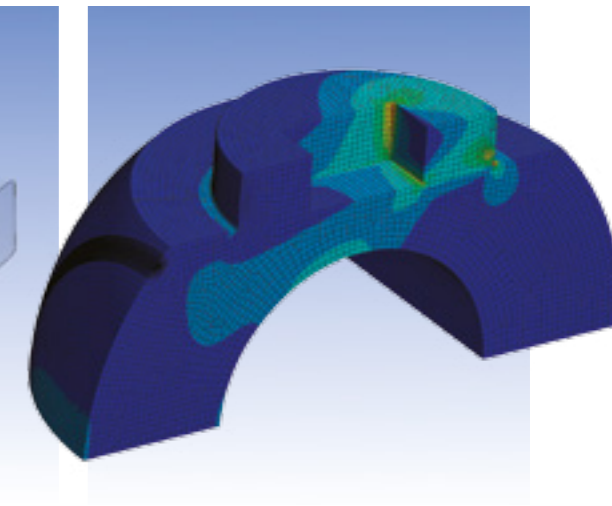
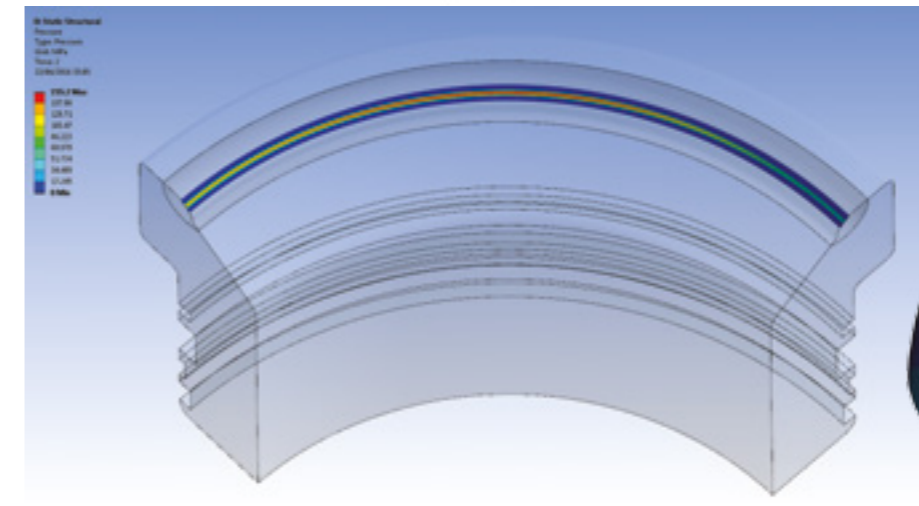
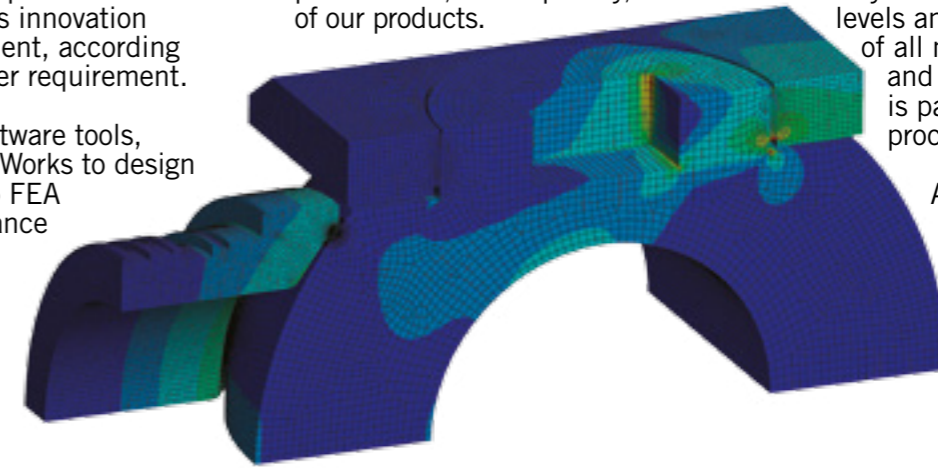
The target of Viar Valvole engineering department is the products innovation and improvement, according to the customer requirement.

The use of software tools, such as Solid Works to design and ANSYS to FEA Analysis, enhance the flexibility

and the reliability of our design process and, consequently, of our products.

The use of Finite Element analysis to verify the stress levels and deflections of all main components and valve assembly, is part of our standard procedures.

All components of Viar Valvole are designed in accordance with the applicable International Standards.





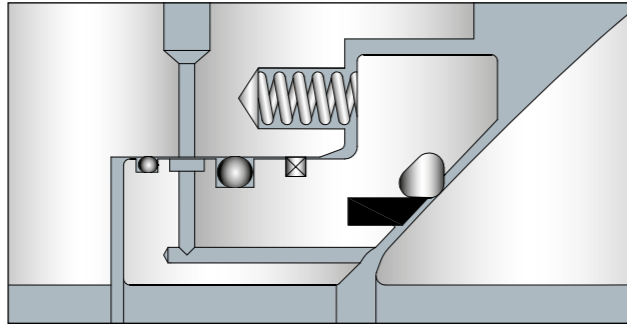
Seat

Design Features

Design

Self Cleaning Double Contact (Metal+Soft) Seat

The double action of the metal seat and the soft elastomeric ring provides a reliable design solution.



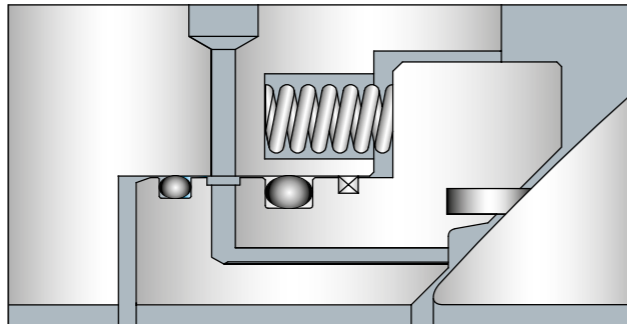
The seat design allows to clean the ball surface during the open/closure operations and consequently preserve the seating surfaces integrity.

4" and larger class 150/600.

Soft Seat Detail

The resilient ring (the soft material seat material) is inserted in the metal seat holder.

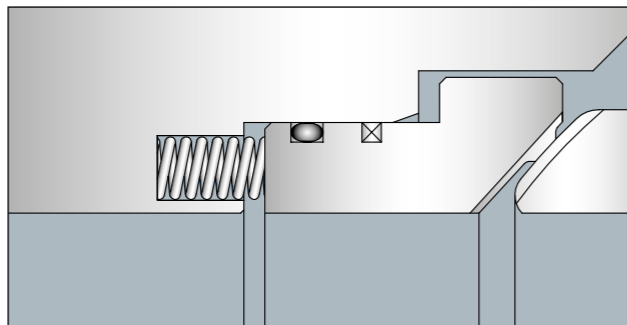
Both the soft material and the seat holder provide the seating action between the body and the ball.



All sizes and pressure classes.

Metal to Metal Seat Detail

When a high temperature or abrasive service is foreseen, Metal to Metal seat design is suggested to avoid the rapid deterioration of the seat and ball seating faces. Seat and ball seating surfaces are hardfaced.



All sizes and pressure classes.



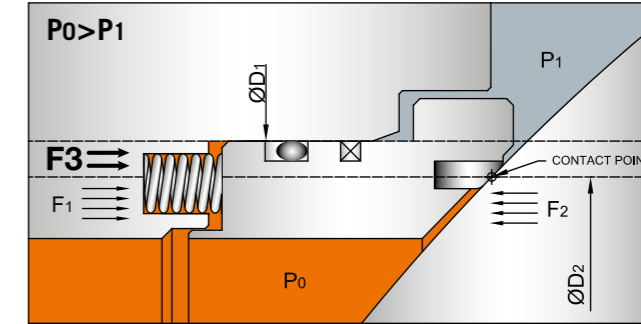
Seat

Design Features

Configuration

Self Relieving

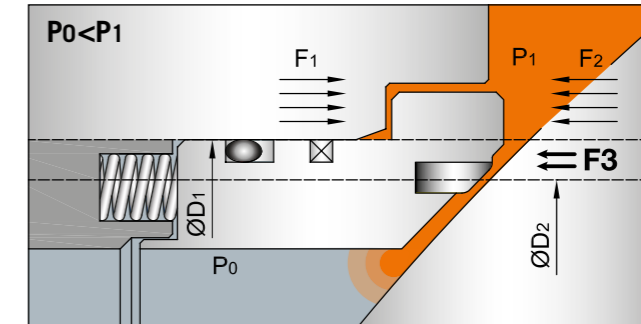
Details on the shape and on the design of the seats will affect the operation of the valve. In a Self Relieving (or Single Piston Effect) seat design, the upstream pressure (Po) press the seat against the ball; in case an overpressure in the body cavity (P1) occurs, it may push the seat away from the ball.



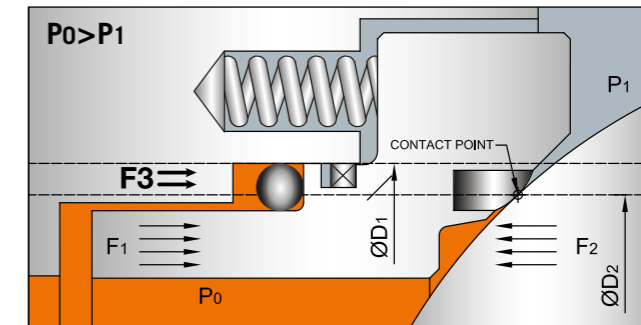
The force acting on the seat is $F_3 = P_0 \times (\text{ØD1}^2 - \text{ØD2}^2) \times \pi/4$.

Double Piston Effect Seat Design

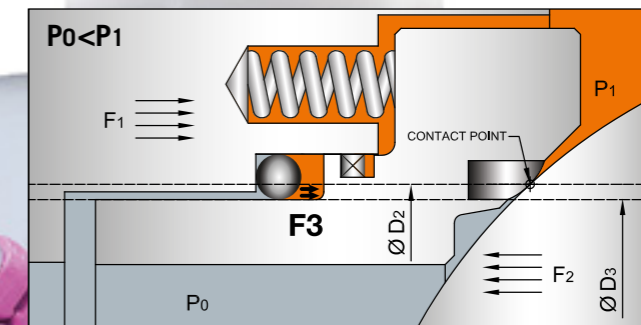
In a DPE (Double Piston Effect) seat design, both the upstream pressure (Po) and the pressure in the body cavity (P1) press the seat against the ball.



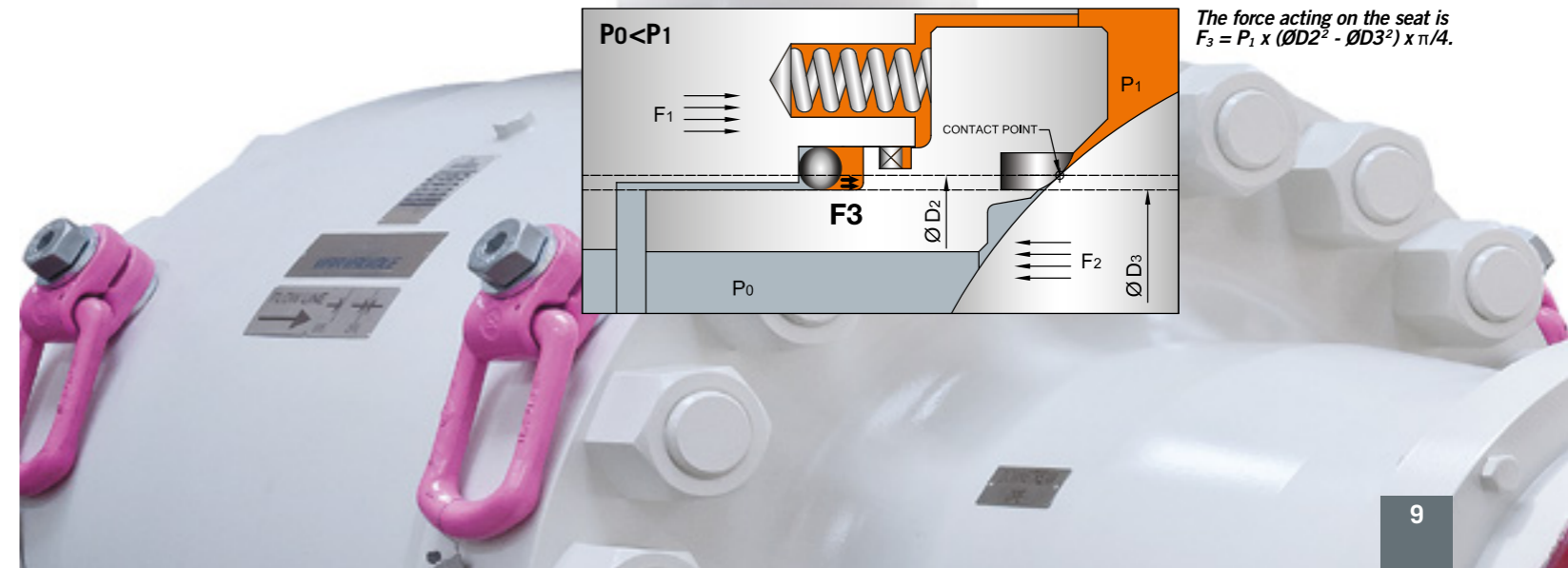
The force acting on the seat is $F_3 = P_1 \times (\text{ØD1}^2 - \text{ØD2}^2) \times \pi/4$.



The force acting on the seat is $F_3 = P_0 \times (\text{ØD1}^2 - \text{ØD2}^2) \times \pi/4$.



The force acting on the seat is $F_3 = P_1 \times (\text{ØD2}^2 - \text{ØD3}^2) \times \pi/4$.





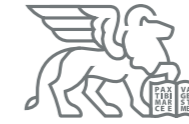
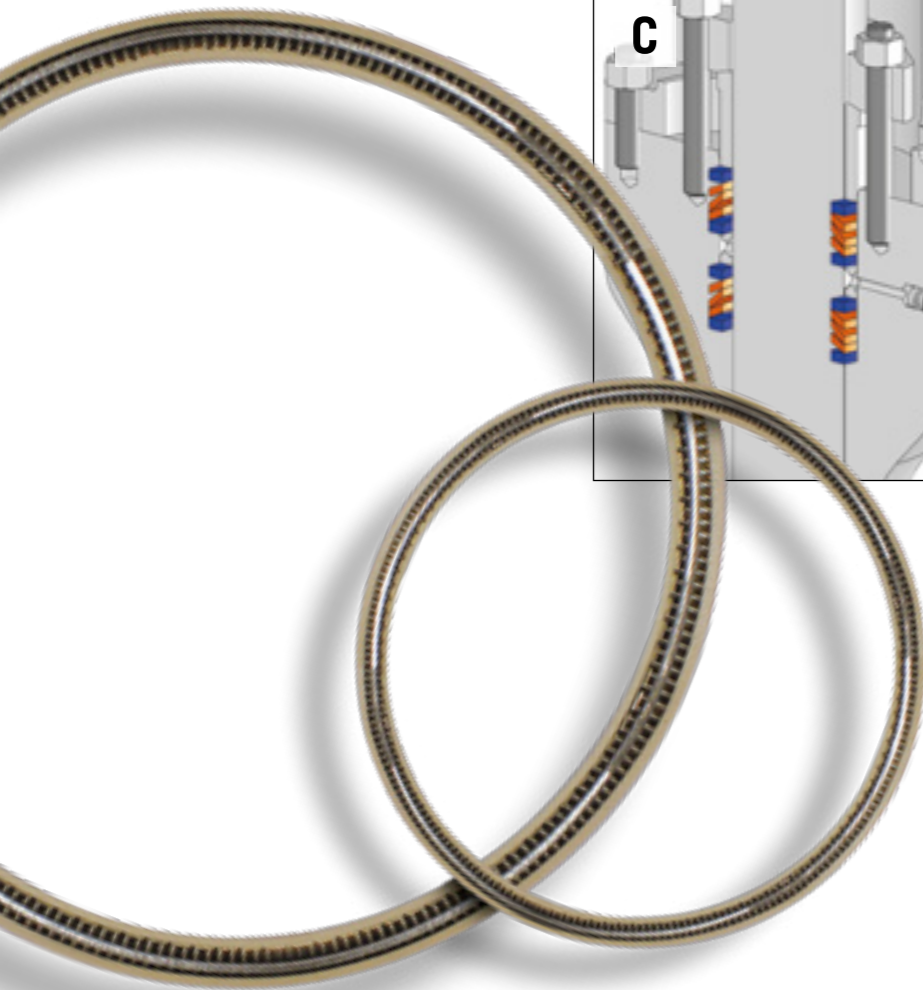
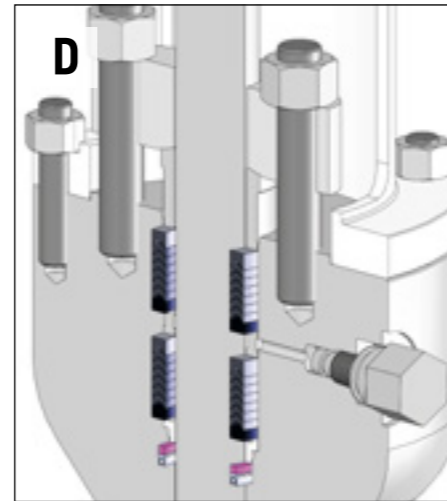
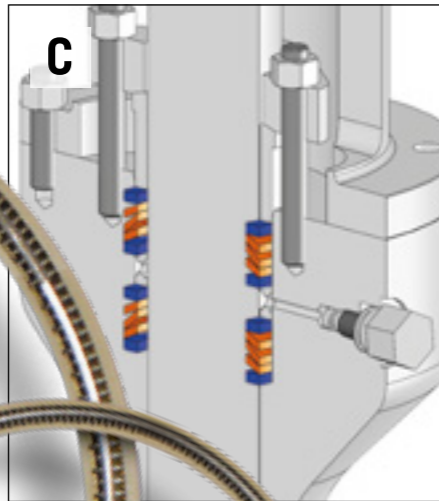
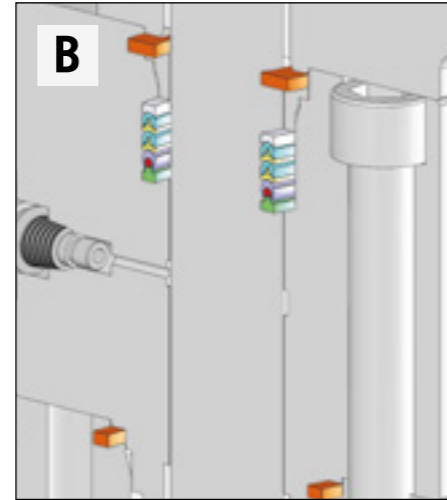
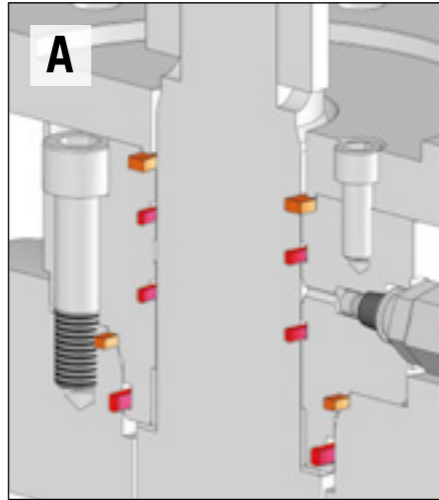
Stem

Design Features

Sealing Construction

Standard stem sealing design is made of a double O-ring seal with stem sealant injection feature in between and a fire safe graphite gasket. (fig A)

Other stem sealing design are available: with lip seal + chevron RPTFE seal in case the use of the o-ring is not chemically suitable; (fig B) with chevron RPTFE energized packing with stem extension in case of cryogenic temperature; (fig C) with graphite energized packing with stem extension in case of high temperature service. (fig D)



Seat

Operators

Manual & Actuated

Manual valves are supplied either with lever, gearbox, ROV operator depending on valve size and class.

Locking device is available on request.



Valves required with power operation are mounted and tested with specific actuators as per customer requirements (i.e. Electric, Electro-Hydraulic, Direct Gas, Pneumatic, Hydraulic, Gas Over Oil Actuators, Subsea) for ESDV, SDV, BDV, MOV, GOV, and HIPPS services.



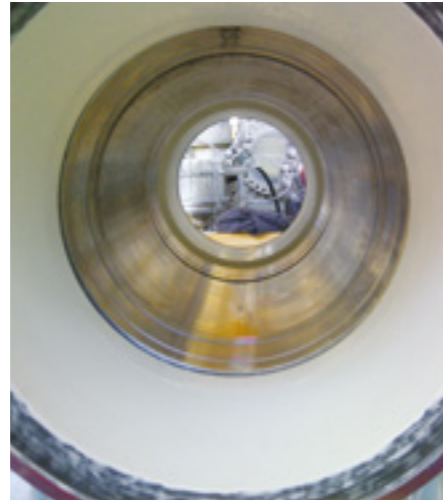


Stem

Special Features

Upon Request

- Extended Bonnet for: Cryogenic/High Temperature Service & Underground Installation
- Extended Stem for Insulation
- Extended Fittings for Drain, Vent and Emergency Injection
- Special Lining/Coatings
- Internal CRA Cladding
- Bellow Seat Design for High Temperature
- Control Ball Valve
- Other Special Features at Customer Request.



Weld Overlays

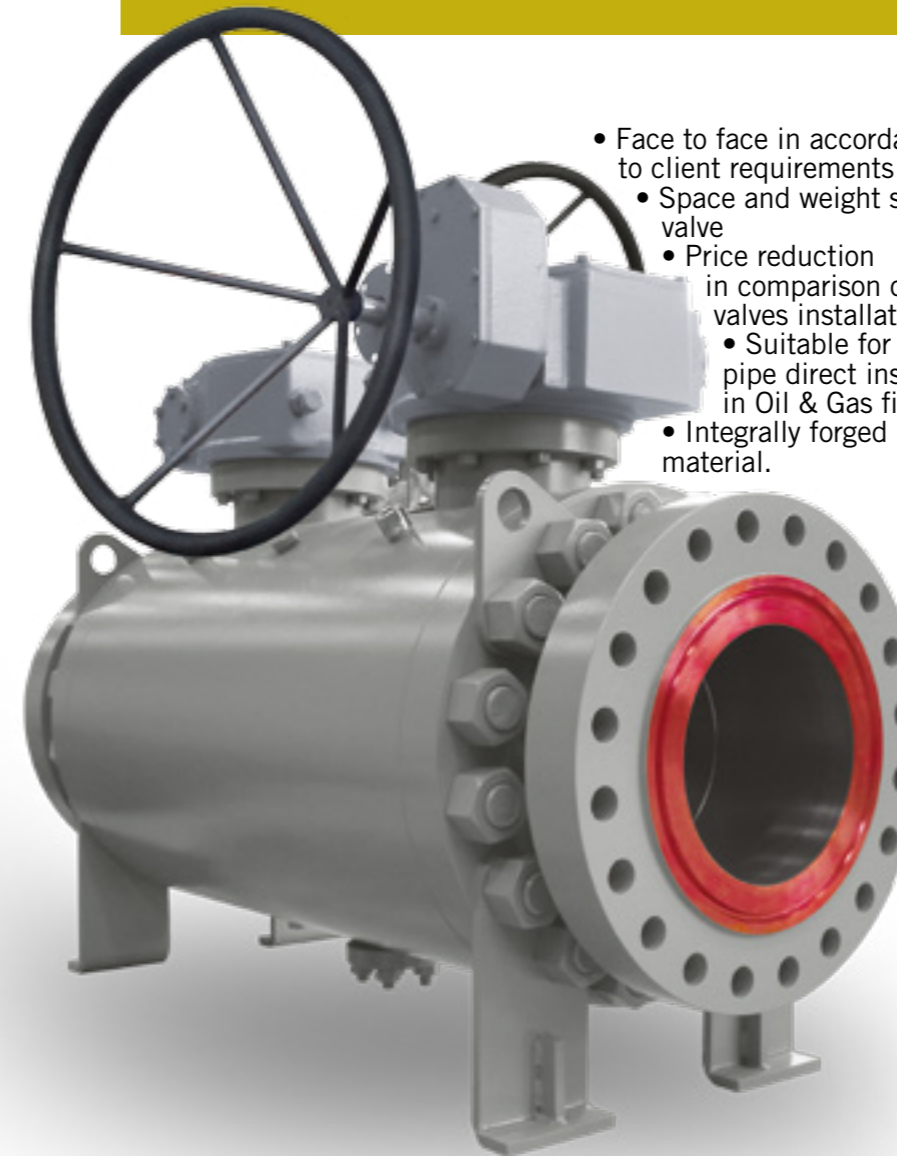
In case of corrosive service, sealing areas and other critical parts of the valve can be weld overlaid. In some case, weld overlay in all wetted parts is needed. More frequently used materials are AISI 316L and Alloy 625.

The long experience in weld overlay of the Viar Valvole engineering and manufacturing team is corroborated by the quality of final product.

Double Block & Bleed



- Face to face in accordance to client requirements
 - Space and weight saving valve
 - Price reduction in comparison of two valves installation
 - Suitable for skid, tank, pipe direct installation in Oil & Gas field
 - Integrally forged material.
- Available as single block, double block, double block with vent
 - As per standard side entry valve type, these valves may be supplied with a large number of materials
 - Bolted or welded bonnet
 - Suitable also for subsea service.





Subsea



- Valves are in accordance with API 6DSS
- Generally fully welded valves, to prevent possible water passing through valve body
- Suitable for 3.000 m water depth installation (10.000 feet)
- Offered with materials suitable for subsea environment
- C/w subsea gear inclusive of ROV device
- ROV for vertical or horizontal operation
- Available also with Fully Welded & Double Block and Bleed, modular type design.



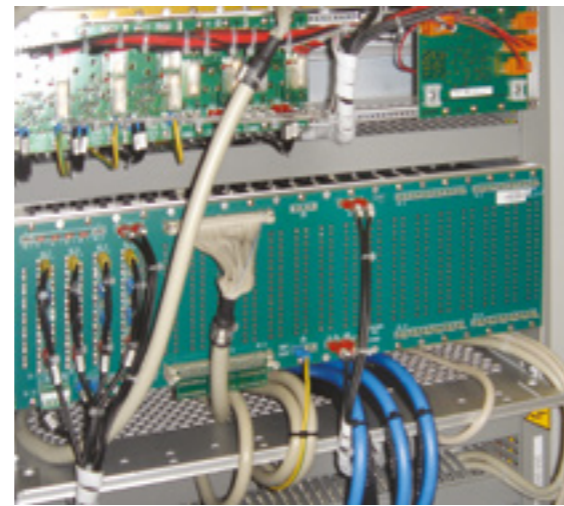


HIPPS

HIPPS

High Integrity Pressure Protection Systems are used to reduce risks to pipelines or industrial installations.

The HIPPS design system performs shut-off of gas and oil pipelines, ensuring operator and environmental safety.



We are able to supply and test the whole HIPPS system including both software and hardware.

The design of these systems meets the European IEC 61508 and IEC 61511 standards.



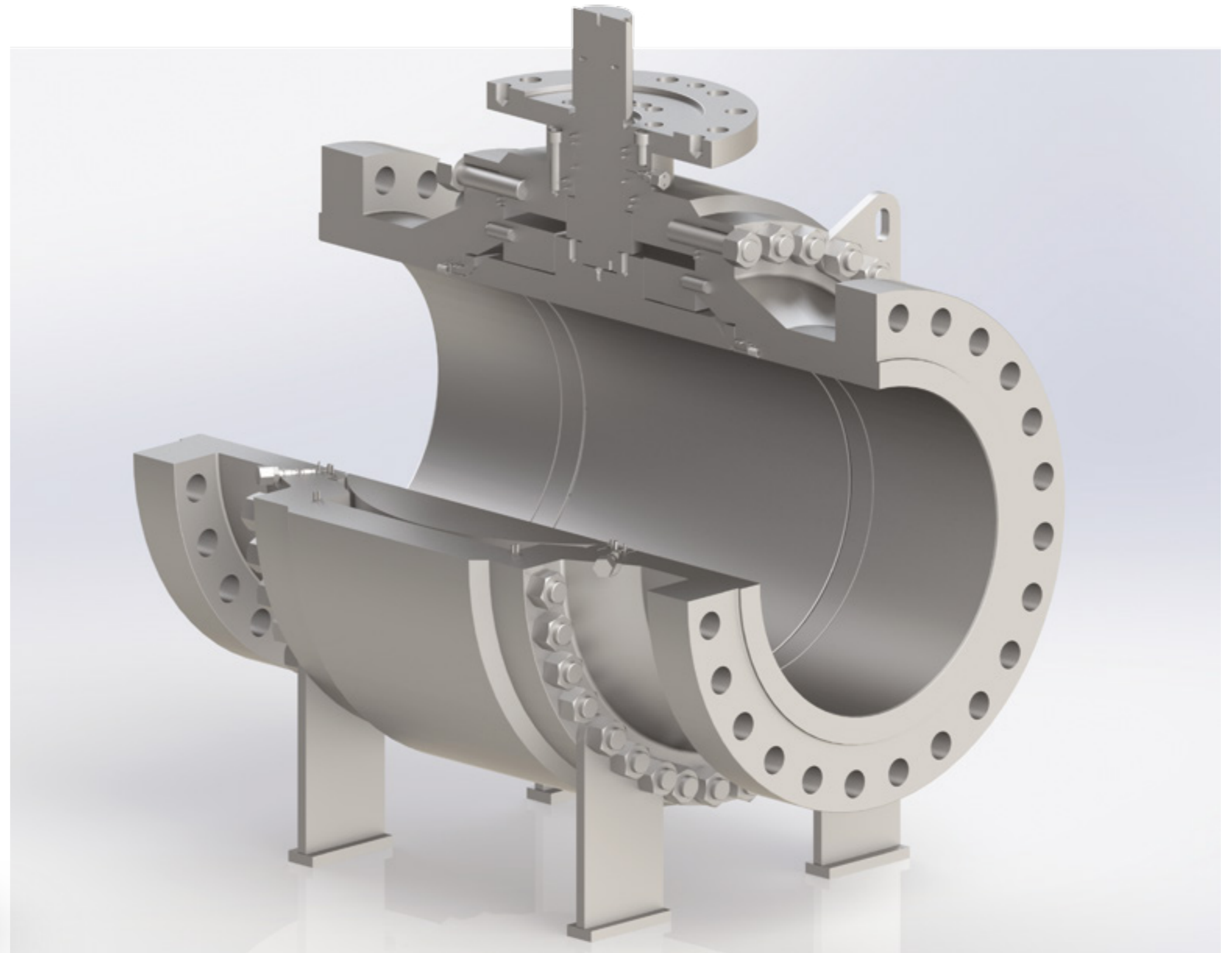


Side Entry



Cross Section

- Design: 2 or 3 Pieces
- Special bore diameters and/or design pressures available upon request
- Ball/Seat Sealing: Spring Energized Seats, Soft seal with Thermoplastic Seat Inserts or Metal to Metal seal with Hardfaced Ball and Seats, Single or Double Block & Bleed configuration in closed or open/closed position
- Over-Pressure Relief: Self-Relieving or Double Piston Effect Seats with Relief Valve
- End connections: RF, RTJ, BW, HUB or Norsok L-005 compact Flanges
- Seals: Elastomer O-Rings, PTFE V-Pack or PTFE/Elgiloy Spring Energized Lip Seals
- Fire Safe Gaskets: Graphite
- Operation: Lever or Gearbox, Hydraulic or Pneumatic Actuator, Electric Motor
- Application Services: Upstream/Downstream, High Pressure, High Temperature, Cryogenic, Subsea, Emergency Shutdown, HIPPS.



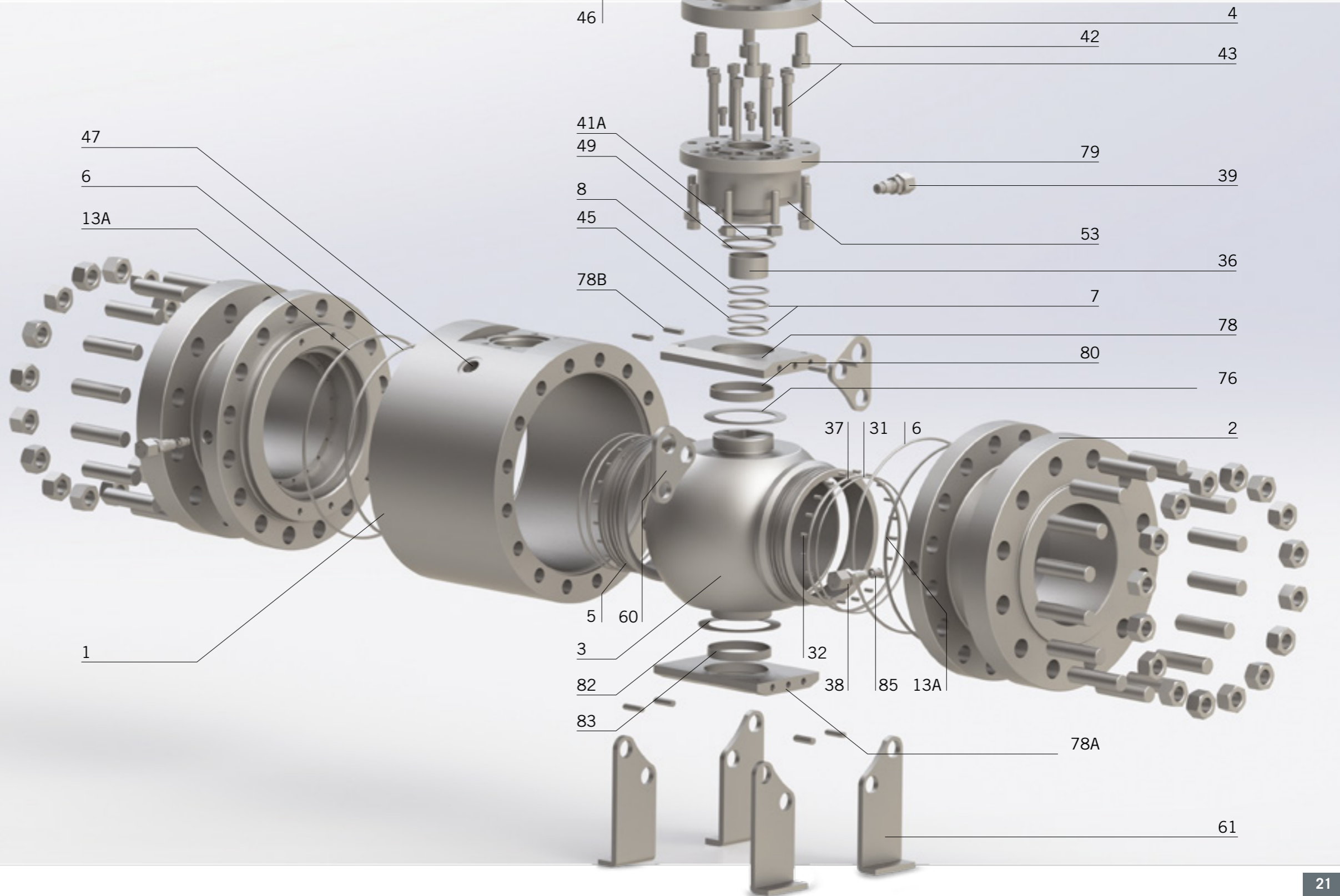


Side Entry



Assembly

Pos.	Description
1	Body
2	Body End
3	Ball
4	Stem
5	Seat
6	Body Seal
7	Stem Seal
8	Stem Gasket
13A	Body Gasket
30	Drain Plug
31	Seat Seal
32	Spring
36	Stem Bearing
37	Seat Gasket
38	Seat Sealant Injector
39	Stem Sealant Injector
41A	Bonnet Gasket
42	Adapter Flange
43	Socket Cap Screw
45	Thrust Bearing
46	Stem Key
47	Vent Bleeder
49	Bonnet Seal
53	Bonnet
60	Lifting Lug
61	Support Feet
76	Upper Thrust Bearing
78	Bearing Retainer
78A	Bearing Retainer
78B	Pin
79	Iso Flange
80	Upper Bearing
82	Lower Thrust Bearing
83	Lower Bearing
85	Check Valve
157	Grease Seal



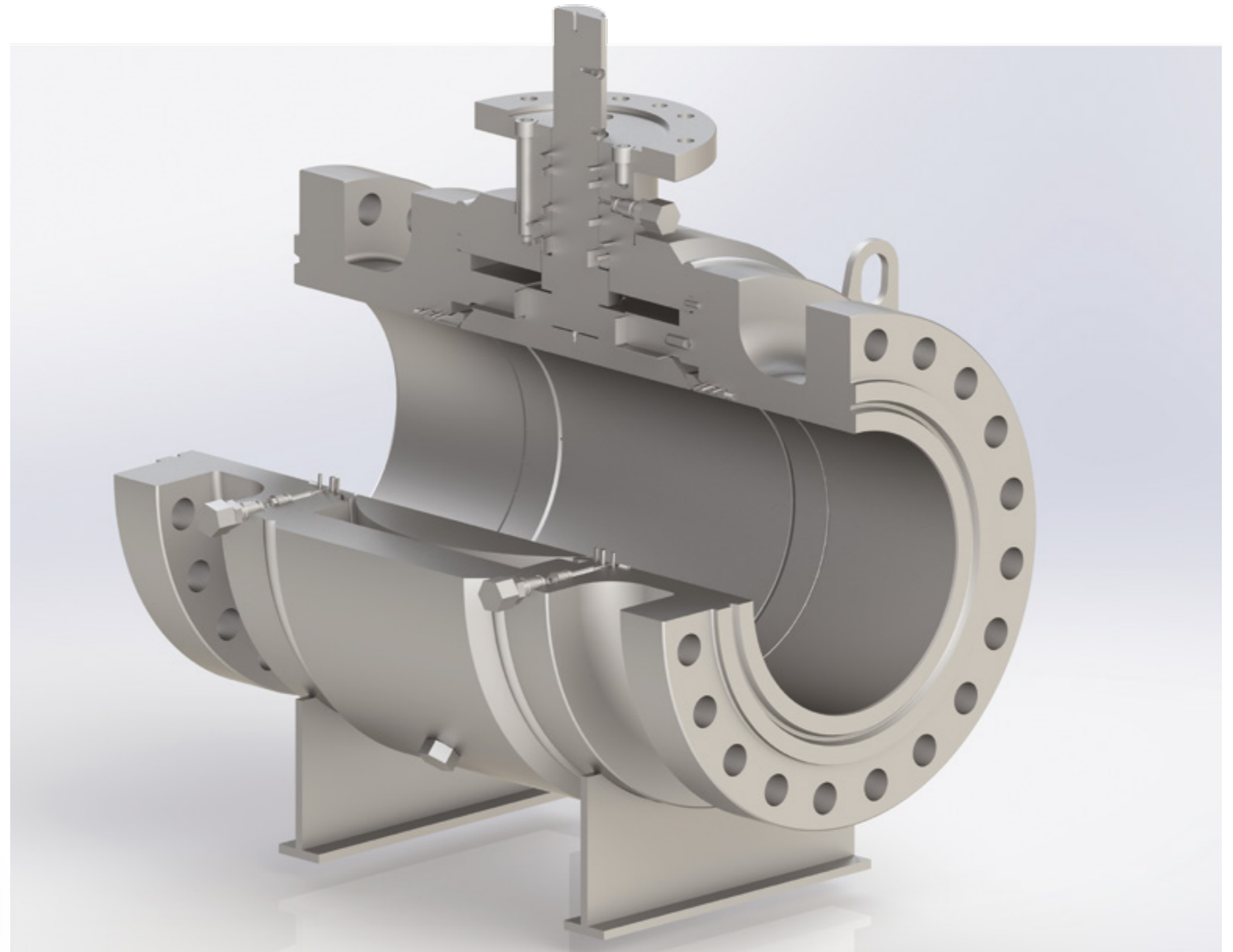


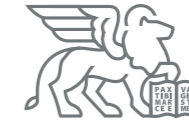
Welded Body



Cross Section

- Design: 2 or 3 Pieces
- Special bore diameters and/or design pressures available upon request
- Ball/Seat Sealing: Spring Energized Seats, Soft seal with Thermoplastic Seat Inserts or Metal to Metal seal with Hardfaced Ball and Seats, Single or Double Block & Bleed configuration in closed or open/closed position
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- End connections: RF, RTJ, BW, HUB or Norsok L-005 compact Flanges
- Seals: Elastomer O-Rings, PTFE V-Pack or PTFE/Elgiloy Spring Energized Lip Seals
- Fire Safe Gaskets: Graphite/SPWD/Steel Joint
- Operation: Lever or Gearbox, Hydraulic or Pneumatic Actuator, Electric Motor
- Application Services: Upstream/Downstream, Underground High Pressure, High Temperature, Cryogenic, Subsea, Emergency Shutdown, HIPPS.
- Extended Fittings.



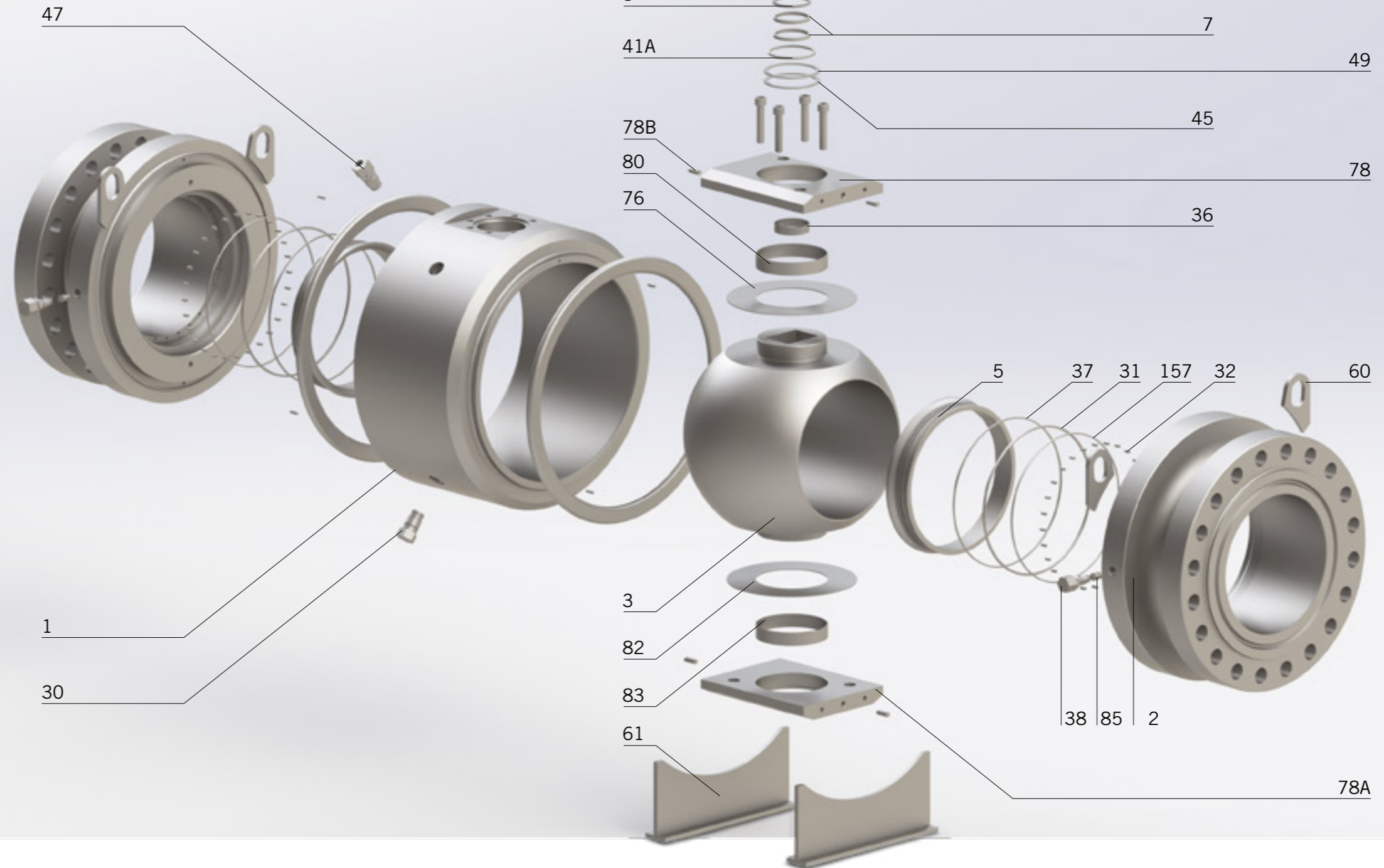


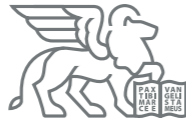
Welded Body



Assembly

Pos.	Description
1	Body
2	Body End
3	Ball
4	Stem
5	Seat
7	Stem Seal
8	Stem Gasket
30	Drain Plug
31	Seat Seal
32	Spring
36	Stem Bearing
37	Seat Gasket
38	Seat Sealant Injector
39	Stem Sealant Injector
41A	Bonnet Gasket
43	Socket Cap Screw
45	Thrust Bearing
46	Stem Key
47	Vent Bleeder
49	Bonnet Seal
53	Bonnet
60	Lifting Lug
61	Support Feet
76	Upper Thrust Bearing
78	Bearing Retainer
78A	Bearing Retainer
78B	Pin
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83	Lower Bearing
85	Check Valve
157	Grease Seal





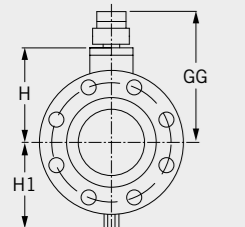
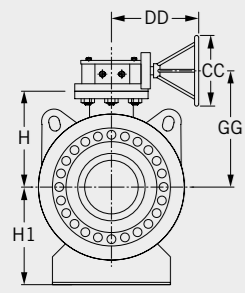
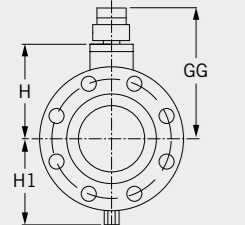
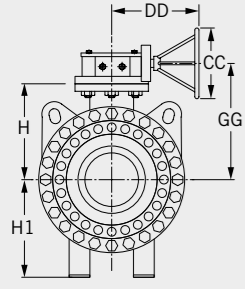
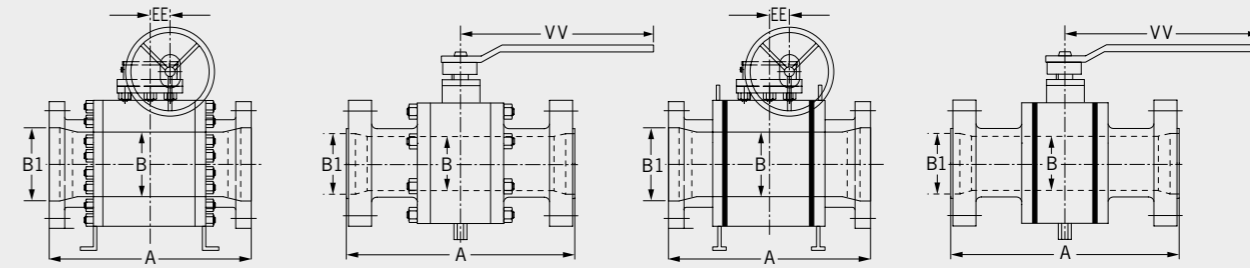
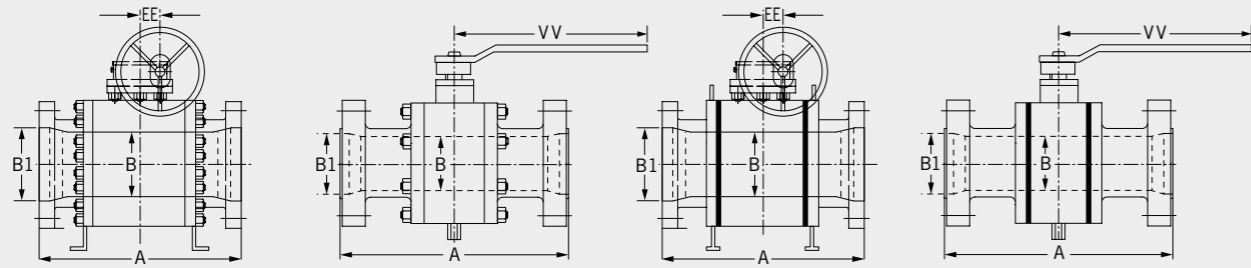
ASME 150

Side Entry



ASME 300

Side Entry



NPS (in)	API 6D Face to Face A (mm)			Man Std F to F A (mm)	Overall Dimensions (mm)										Weight (Kg)					
	RF	RTJ	BW		BW	B1	B	H	H1	GG	DD/VV	CC	EE	Bolted Body		Welded Body		Gear		
	Fig.	BW	Fig.		BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW			
1/2	140*	-	140*	140	13	13	88	105	152 L	280 L	-	-	10	9,5	-	-	-	-	-	
3/4 x 1/2	165*	-	191*	191	19	13	88	105	152 L	280 L	-	-	11	10,5	-	-	-	-	-	
3/4	165*	-	191*	191	19	19	92	115	163 L	280 L	-	-	12	11,5	-	-	-	-	-	
1 x 3/4	165*	-	191*	191	25	19	92	115	163 L	280 L	-	-	13	12,5	-	-	-	-	-	
1	165*	178*	191*	191	25	25	101	80	172 L	280 L	-	-	13	12,5	-	-	-	-	-	
1 1/2 x 1	165*	178*	191*	191	38	25	101	80	172 L	280 L	-	-	15	14	-	-	-	-	-	
1 1/2	165*	178*	191*	191	38	38	123	95	192 L	280 L	-	-	22	21	19	18	-	-	-	
2 x 1 1/2	178	191	216	216	49	38	123	95	192 L	280 L	-	-	23	22	21	19	-	-	-	
2	178	191	216	216	49	49	114	130	173 L	350 L	-	-	20	19	21	19	-	-	-	
3 x 2	203	216	283	283	74	49	114	130	173 L	350 L	-	-	22	19	24	21	-	-	-	
3	203	216	283	283	74	74	136	150	196 L	350 L	-	-	35	33	36	33	-	-	-	
4 x 3	229	241	305	305	100	74	136	150	196 L	350 L	-	-	39	35	41	36	-	-	-	
4	229	241	305	305	100	100	164	170	240 L	445 L	-	-	52	48	52	47	-	-	-	
6 x 4	394	407	457	457	150	100	164	170	240 L	445 L	-	-	56	50	55	48	-	-	-	
6	394	407	457	457	150	150	194	210	234	250	400	70	210	205	205	200	12	-	-	
8 x 6	457	470	521	457	201	150	194	210	234	250	400	70	230	220	230	215	12	-	-	
8	457	470	521	546	201	201	269	261	324	305	500	90	300	290	230	220	18	-	-	
10 x 8	533	546	559	546	252	201	269	261	324	305	500	90	310	295	260	245	18	-	-	
10	533	546	559	559	252	252	323	347	388	360	600	100	480	465	305	290	27	-	-	
12 x 10	610	622	635	635	303	252	323	347	388	360	600	100	525	505	330	310	27	-	-	
14 x 10	686	699	762	724	334	252	323	347	388	360	600	100	605	575	400	370	27	-	-	
12	610	622	635	635	303	303	352	370	417	360	600	100	610	590	490	465	27	-	-	
14 x 12	686	699	762	724	334	303	352	370	417	360	600	100	670	640	555	525	27	-	-	
16 x 12	762	775	838	775	385	303	352	370	417	360	600	100	720	690	635	600	27	-	-	
14	686	699	762	724	334	334	400	405	480	420	700	125	785	755	705	675	45	-	-	
16 x 14	762	775	838	775	385	334	400	405	480	420	700	125	890	860	795	765	45	-	-	
18 x 14	864	876	914	851	436	334	400	405	480	420	700	125	915	875	835	790	45	-	-	
16	762	775	838	775	385	385	434	436	514	420	700	125	1420	1390	1090	1050	68	-	-	
18 x 16	864	876	914	851	436	385	434	436	514	420	700	125	1445	1410	1170	1130	68	-	-	
20 x 16	914	927	991	902	487	385	434	436	514	420	700	125	1530	1480	1300	1240	68	-	-	
18	864	876	914	851	436	436	470	465	615	555	700	135	1800	1760	1410	1370	68	-	-	
20 x 18	914	927	991	902	487	436	470	465	615	555	700	135	1830	1780	1470	1420	68	-	-	
20"	914	927	991	902	487	487	532	615	677	555	700	135	2540	2490	1840	1790	68	-	-	
24 x 20	1067	1080	1143	1067	589	487	532	615	677	555	700	135	2690	2620	2050	1970	68	-	-	
24	1067	1080	1143	1067	589	589	605	615	690	600	700	165	2960	2890	3100	3030	210	-	-	
30 x 24	1295	1346	1397	1245	735	589	605	615	690	600	700	165	3100	2970	3510	3370	210	-	-	
28	1245	1346	1397	1245	735	684	684	737	750	822	600	165	4170	4060	4650	4530	210	-	-	
30	1295	1346	1397	1245	735	735	730	760	855	655	700	225	6510	6380	5250	5110	210	-	-	
36 x 30	1524	1575	1626	1435	874	735	730	760	855	655	700	225	7060	6850	6260	6040	210	-	-	
32	1372	1423	1474	1245	808	779	779	765	890	655	700	225	6750	6580	5530	5360	210	-	-	
34	1473	1524	1575	1346	830	830	840	819	965	655	700	225	8160	7980	7310	7130	210	-	-	
36	1524	1575	1626	1435	874	874	833	875	958	655	700	225	8710	8500	8390	8180	210	-	-	
40					1651	976	976	915	970	1040	655	700	240	12720	12500	11100	10850	210	-	-
42					1689	1020	1020	980	1160	1105	655	700	240	14670	14400	12750	12450	210	-	-
48					1930	1166	1166	1140	1180					18750	18400	18100	17700		-	-
56					2210	1360	1360	1235	1250					32500	31950	26550	26000		-	-
60					2350	1458	1458	1350	1390					36000	35350	31400	30700		-	-

* = to be confirmed after P/o placement.
 L = lever operated.
 Weights are subject to change without notice.
 Overall dimensions and face to face dimensions not listed in applicable standards are subject to change without notice.
 Flange dimensions acc. to ASME B16.5; ASME B16.47; MSS SP-44; Norsok L-005; Customer Std.
 Bore sizes acc. to API 6D; piggable bore available on request.
 Butt welding end in acc. to ASME B16.25.

NPS (in)	API 6D Face to Face A (mm)			Man Std F to F A (mm)	Overall Dimensions (mm)										Weight (Kg)				
	RF	RTJ	BW		BW	B1	B	H	H1	GG	DD/VV	CC	EE	Bolted Body		Welded Body		Gear	
	Fig.	BW	Fig.		BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW		
1/2	140*	-	140*	140	13	13	88	105	152 L	280 L	-	-	10	10	-	-	-	-	-
3/4 x 1/2	165*	-	191*	191	19	13	88	105	152 L	280 L	-	-	11	10	-	-	-	-	-
3/4	165*	-	191*	191	19	19	95	75	165 L	280 L	-	-	13	12	-	-	-	-	-
1 x 3/4	165*	-	191*	191	25	19	95	75	165 L	280 L	-	-	13	12,5	-	-	-	-	-
1	165*	178*	191*	191	25	25	100	80	172 L	280 L	-	-	14	13	-	-	-	-	-
1 1/2 x 1	165*	178*	191*	191	38	25	100	80	172 L	280 L	-	-	15	13	-	-	-	-	-
1 1/2	165*	178*	191*	191	38	38	120	95	193 L	350 L	-	-	22	20	17	15	-	-	-
2 x 1 1/2	216	232	216	216	49	38	120	95	193 L	350 L	-	-	23	21	20	18	-	-	-
2	216	232	216	216	49	49	115	90	175 L	350 L	-	-	23	21	26	24	-	-	-
3 x 2	283	298	283	283	74	49	115	105	175 L	350 L	-	-	29	25	32	28	-	-	-
3	283	298	283	283	74	74	136	110	195 L	350 L	-	-	45	41	41	37	-	-	-
4 x 3	305	321	305	282	100	74	136	130	195 L	350 L	-	-	52	44	60	52	-	-	-
4	305	321	305	305	100	100	165	135	240 L	445 L	-	-	67	59	85	77	-	-	-
6 x 4	403	419	457	457	150	100	165	160	240 L	445 L	-	-	79	66	110	96	-	-	-
6	403	419	457	457	150	150	195	210	235	250	400	70	178	165	215	205	12	-	-
8 x 6	502	518	521	457	201	150	195	210	235	250	400	70	200	180	240	220	12	-	-
8	502	518	521	521	201	201	300	280	355	305	500	90	352	335	230	210	18	-	-
10 x 8	568	584	559	546	252	201	300	280	355	305	500	90	374	345	270	245	18	-	-
10	568	584	559	559	252	252	325	335	390	360	600	100	540	515	345	320	27	-	-
12 x 10	648	664	635	635	303	252	325	335	390	360	600	100	650	610	380	340	27	-	-
14 x 10	762	778	762	724	334	252	325	335	390	360	600	100	715	660	410	355	27	-	-
12	648	664	635	635	303	303	400	380	480	420	700	125	765	725	510	470	45	-	-
14 x 12	762	778	762	724	334	303	400	380	480	420	700	125	820	765	550	495	45	-	-
16 x 12	838	854	8																



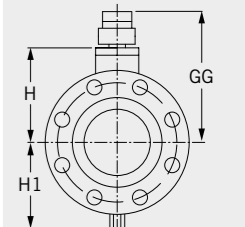
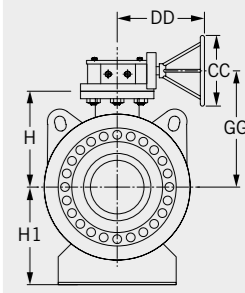
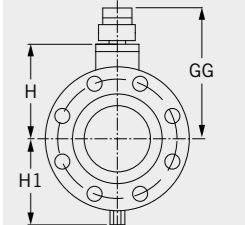
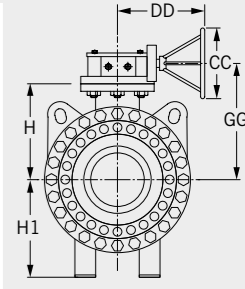
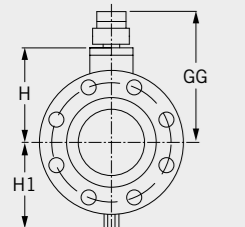
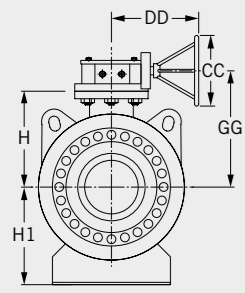
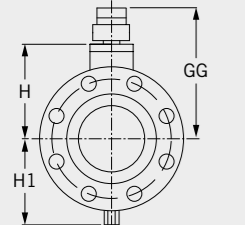
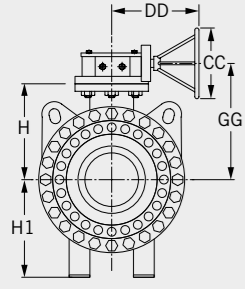
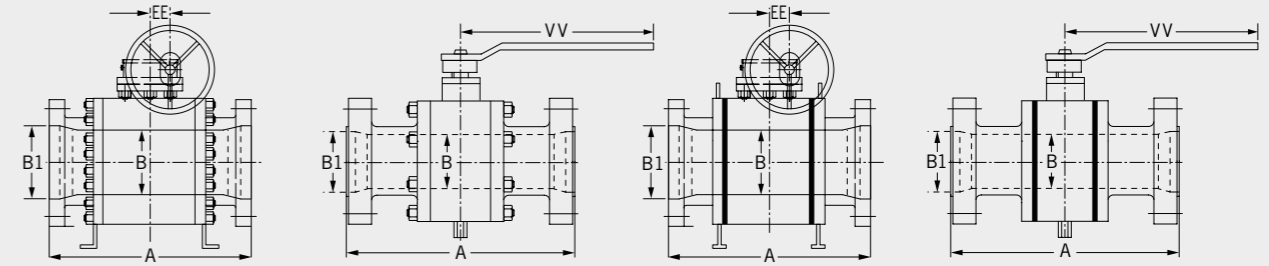
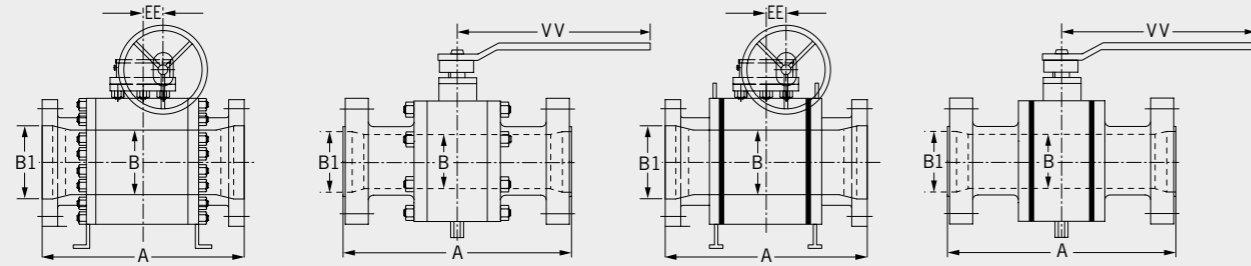
ASME 600

Side Entry



ASME 900

Side Entry



NPS (in)	API 6D Face to Face A (mm)			Man Std F to F A (mm)		Overall Dimensions (mm)										Weight (Kg)		
	RF	RTJ	BW	BW	B1	B	H	H1	GG	DD/VV	CC	EE	Bolted Body		Welded Body		Gear	
	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	
1/2	216*	216*	216*	216	13	13	88	105	152 L	280 L	-	-	15	14,5	-	-	-	-
3/4 x 1/2	216*	216*	216*	216	19	13	88	105	152 L	280 L	-	-	15	14,5	-	-	-	-
3/4	216*	216*	216*	216	19	19	92	75	165 L	280 L	-	-	15	14,5	-	-	-	-
1 x 3/4	216*	216*	216*	216	25	19	92	75	165 L	280 L	-	-	15	14,5	-	-	-	-
1	216*	216*	216*	216	25	25	100	80	172 L	280 L	-	-	15,5	15	-	-	-	-
1 1/2 x 1	241*	241*	241*	241	38	25	100	80	172 L	280 L	-	-	17	15	-	-	-	-
1 1/2	241*	241*	241*	241	38	38	121	100	193 L	350 L	-	-	25	23	20	18	-	-
2 x 1 1/2	292	295	292	292	49	38	121	100	193 L	350 L	-	-	26	23	24	21	-	-
2	292	295	292	292	49	49	115	90	173 L	350 L	-	-	28	25	27	24	-	-
3 x 2	356	359	356	292	74	49	115	90	173 L	350 L	-	-	36	31	36	31	-	-
3	356	359	356	356	74	74	135	110	195 L	350 L	-	-	53	48	62	57	-	-
4 x 3	432	435	432	356	100	74	135	138	195 L	350 L	-	-	66	53	84	71	-	-
4	432	435	432	432	100	100	165	138	240 L	445 L	-	-	92	79	90	78	-	-
6 x 4	559	562	559	432	150	100	165	178	240 L	445 L	-	-	140	115	135	110	-	-
6	559	562	559	457	150	150	280	260	335	305	500	90	275	250	280	255	18	-
8 x 6	660	664	660	457	201	150	280	260	335	305	500	90	325	285	310	270	18	-
8	660	664	660	546	201	201	320	300	385	360	600	100	445	405	435	395	27	-
10 x 8	787	791	787	546	252	201	320	300	385	360	600	100	550	490	500	440	27	-
10	787	791	787	597	252	252	325	350	405	420	700	125	710	650	435	375	45	-
12 x 10	838	841	838	597	303	252	325	350	405	420	700	125	750	675	550	475	45	-
14 x 10	889	892	889	724	334	252	325	350	405	420	700	125	815	725	595	505	45	-
12	838	841	838	673	303	303	375	410	520	555	700	135	1100	1030	625	550	56	-
14 x 12	889	892	889	724	334	303	375	410	520	555	700	135	1155	1070	660	570	56	-
16 x 12	991	994	991	775	385	303	375	410	520	555	700	135	1370	1240	740	610	56	-
14	889	892	889	724	334	334	405	425	550	555	700	135	1350	1260	945	855	68	-
16 x 14	991	994	991	775	385	334	405	425	550	555	700	135	1515	1390	1070	940	68	-
18 x 14	1092	1095	1092	851	436	334	405	425	550	555	700	135	1750	1580	1250	1080	68	-
16	991	994	991	775	385	385	455	475	602	555	700	135	1790	1660	1440	1310	68	-
18 x 16	1092	1095	1092	851	436	385	455	475	602	555	700	135	1915	1750	1550	1380	68	-
20 x 16	1194	1200	1194	902	487	385	455	475	602	555	700	135	2240	2020	1610	1390	68	-
18	1092	1095	1092	851	436	436	470	550	555	600	700	165	2260	2090	1860	1690	115	-
20 x 18	1194	1200	1194	902	487	436	470	550	555	600	700	165	2555	2340	2140	1920	115	-
20	1194	1200	1194	902	487	487	535	595	620	600	700	165	3270	3050	2560	2340	115	-
24 x 20	1397	1407	1397	1067	589	487	535	595	620	600	700	165	3815	3500	2850	2540	115	-
24	1397	1407	1397	1067	589	589	605	695	730	655	700	240	5135	4820	4360	4050	220	-
30 x 24	1651	1664	1651	1245	735	589	605	695	730	655	700	240	5425	5040	4650	4270	220	-
28	1549	1562	1549	1194	684	684	737	750	862	655	700	240	8135	7800	6250	5920	250	-
30	1651	1664	1651	1245	735	735	730	785	990	760	600	160	8785	8400	7180	6800	400	-
36 x 30	2083	2099	2083	1435	874	735	730	785	990	760	600	160	9729	9200	7910	7380	400	-
32	1778	1794	1778	1308	779	779	785	905	983	760	600	160	10917	10500	8560	8130	400	-
34	1930	1946	1930	1384	830	830	840	819	1040	760	600	160	11570	11100	10400	9930	400	-
36	2083	2099	2083	1435	874	874	945	965	1050	760	600	160	15950	15450	11750	11250	400	-
40	■	■	■	1651	976	976	1012	1020	■	■	■	■	19000	18550	15650	15200	■	-
42	■	■	■	1689	1020	1020	1020	1160	■	■	■	■	21590	21000	17350	16750	■	-
48	■	■	■	1930	1166	1166	1225	1195	■	■	■	■	28500	27700	23000	22200	■	-
56	■	■	■	2210	1360	1360	1320	1265	■	■	■	■	42000	40750	36350	35100	■	-
60	■	■	■	2350	1458	1458	1540	1500	■	■	■	■	54000	52400	42900	41300	■	-

- = to be confirmed after P/o placement
- L = lever operated

- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in applicable standards are subject to change without notice.

- Flange dimensions acc. to ASME B16.5; ASME B16.47; MSS SP-44; Norsok L-005; Customer Std.
- Bore sizes acc. to API 6D; piggable bore available on request.
- Buttwelding end in acc. to ASME B16.25.

- = to be confirmed after P/o placement
- L = lever operated
- Weights are subject to change without notice.

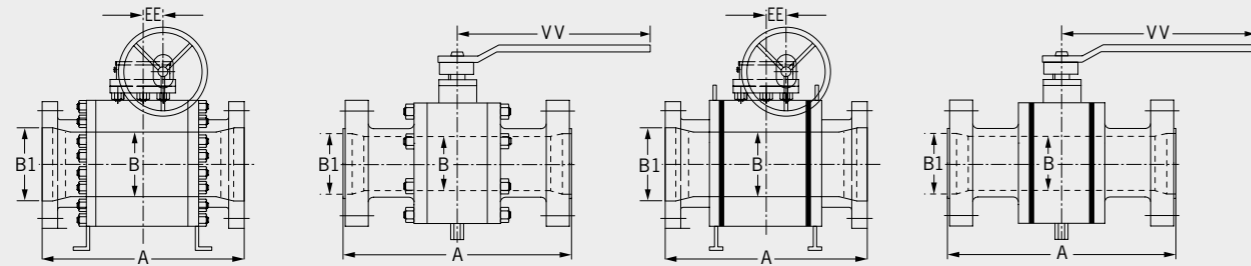
- Overall dimensions and face to face dimensions not listed in applicable standards are subject to change without notice.
- Flange dimensions acc. to ASME B16.5; ASME B16.47; MSS SP-44; Norsok L-005; Customer Std.

- Bore sizes acc. to API 6D; piggable bore available on request.
- Buttwelding end in acc. to ASME B16.25.



ASME 1500

Side Entry



NPS (in)	API 6D Face to Face A (mm)		Man Std F to F A (mm)		Overall Dimensions (mm)										Weight (Kg)				
	RF	RTJ	BW	BW	B1	B	H	H1	GG	DD/VV	CC	EE	Bolted Body			Welded Body		Gear	
	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	
1/2	216*	216*	216*	216	13	13	100	85	150 L	315 L	-	-	16	14,5	-	-	-	-	-
3/4 x 1/2	229*	229*	229*	229	19	13	100	85	150 L	315 L	-	-	17	15	-	-	-	-	-
3/4	229*	229*	229*	229	19	19	105	95	165 L	315 L	-	-	22	20	-	-	-	-	-
1 x 3/4	254*	254*	254*	254	25	19	105	95	165 L	315 L	-	-	25	22	-	-	-	-	-
1	254*	254*	254*	254	25	25	115	100	175 L	315 L	-	-	32	29	-	-	-	-	-
1 1/2 x 1	305*	305*	305*	305	38	25	115	100	175 L	315 L	-	-	36	31	-	-	-	-	-
1 1/2	305*	305*	305*	305	38	38	130	115	190 L	465 L	-	-	54	49	42	37	-	-	-
2 x 1 1/2	368	371	368	368	49	38	130	115	190 L	465 L	-	-	64	55	48	39	-	-	-
2	368	371	368	368	49	49	160	140	230 L	700 L	-	-	84	75	72	63	-	-	-
3 x 2	470	473	470	368	74	49	160	140	230 L	700 L	-	-	105	88	90	73	-	-	-
3	470	473	470	381	74	74	215	155	255	250	400	70	159	145	120	105	12	-	-
4 x 3	546	549	546	381	100	74	215	155	255	250	400	70	180	155	140	115	12	-	-
4	546	549	546	460	100	100	245	190	310	360	600	100	282	260	210	185	27	-	-
6 x 4	705	711	705	460	144	100	245	190	310	360	600	100	370	315	300	245	27	-	-
6	705	711	705	508	144	144	300	300	445	555	700	135	546	490	455	400	68	-	-
8 x 6	832	841	832	508	192	144	300	300	445	555	700	135	625	535	530	440	68	-	-
8	832	841	832	597	192	192	370	365	515	555	700	135	990	900	575	485	68	-	-
10 x 8	991	1000	991	597	239	192	370	365	515	555	700	135	1205	1050	795	640	68	-	-
10	991	1000	991	648	239	239	425	400	510	600	700	165	1699	1550	715	560	105	-	-
12 x 10	1130	1146	1130	648	287	239	425	400	510	600	700	165	1850	1640	950	740	105	-	-
14 x 10	1257	1276	1257	800	315	239	425	400	510	600	700	165	2027	1750	1050	770	105	-	-
12	1130	1146	1130	749	287	287	475	450	600	655	700	225	2475	2270	1140	930	210	-	-
14 x 12	1257	1276	1257	800	315	287	475	450	600	655	700	225	2720	2440	1340	1060	210	-	-
16 x 12	1384	1407	1384	851	360	287	475	450	600	655	700	225	2990	2610	1670	1290	210	-	-
14	1257	1276	1257	800	315	315	500	475	625	655	700	225	3295	3020	1560	1280	210	-	-
16 x 14	1384	1407	1384	851	360	315	500	475	625	655	700	225	3650	3270	1740	1360	210	-	-
18 x 14	1537	1559	1537	927	406	315	500	475	625	655	700	225	3918	3430	1930	1440	210	-	-
16	1384	1407	1384	851	360	360	580	550	705	655	700	225	4720	4340	2260	1880	210	-	-
18 x 16	1537	1559	1537	927	406	360	580	550	705	655	700	225	5350	4860	2600	2110	210	-	-
20 x 16	1664	1686	1664	978	454	360	580	550	705	655	700	225	5890	5260	2910	2280	210	-	-
18	1537	1559	1537	927	406	406	715	665	840	655	700	240	6854	6360	3090	2600	400	-	-
20 x 18	1664	1686	1664	978	454	406	715	665	840	655	700	240	7134	6510	3210	2580	400	-	-
20	1664	1686	1664	978	454	454	840	740	1040	760	600	160	9900	9270	4160	3530	600	-	-
24 x 20	1972	1972	1972	1143	546	454	840	740	1040	760	600	160	11150	10150	5070	4050	600	-	-
24	1972	1972	1972	1143	546	546	860	815	980	765	700	381	14500	13500	7140	6120	600	-	-
30 x 24	2270	2270	2270	1321	641	686	860	815	980	765	700	381	17400	16400	8100	7200	600	-	-
28	2130	2130	2130	1270	641	641	1025	1125	1250	765	700	381	16400	15400	7800	6800	600	-	-
30	2270	2270	2270	1321	686	686	1125	1140	1265	765	700	381	17400	16400	8100	7200	600	-	-
36 x 30	2540	2540	2540	1511	819	819	1125	1140	1265	765	700	381	20300	19300	9500	8500	600	-	-
32	2380	2380	2380	1384	730	730	1180	1280	1400	815	700	381	18800	17800	8800	7800	600	-	-
34	2540	2540	2540	1448	775	775	1230	1340	1480	815	700	381	20300	19300	9500	8500	600	-	-
36	2700	2700	2700	1511	819	819	1310	1480	1640	815	700	381	22200	21200	10200	9200	600	-	-

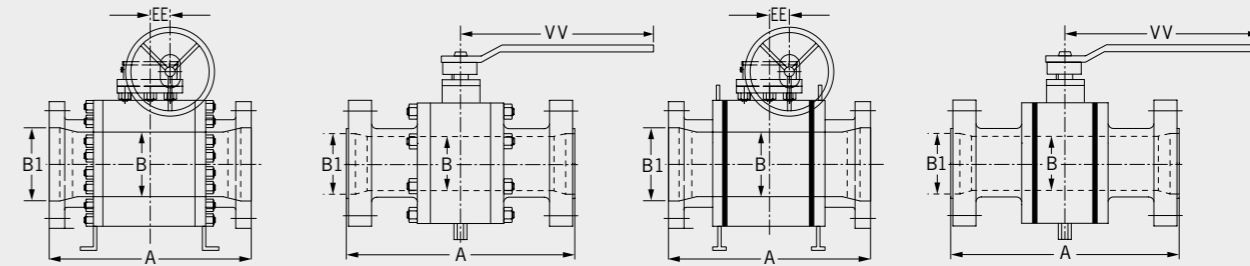
- = to be confirmed after P/o placement
- L = lever operated

- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in applicable standards are subject to change without notice.

- Flange dimensions acc. to ASME B16.5; ASME B16.47; MSS SP-44; Norsok L-005; Customer Std.
- Bore sizes acc. to API 6D; piggable bore available on request.
- Butt-welding end in acc. to ASME B16.25.

ASME 2500

Side Entry

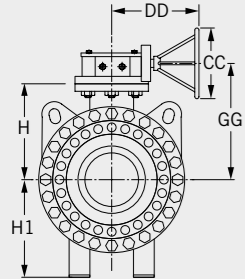
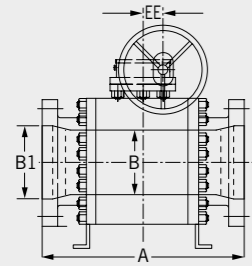


NPS (in)	API 6D Face to Face A (mm)		Man Std F to F A (mm)		Overall Dimensions (mm)										Weight (Kg)				
	RF	RTJ	BW	BW	B1	B	H	H1	GG	DD/VV	CC	EE	Bolted Body			Welded Body		Gear	
	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	Fig.	BW	
1/2	273	273	273	273	13	13	105	95	170	315	-	-	26	24	-	-	-	-	-
3/4 x 1/2	308	308	308	308	19	13	105	95	170	315	-	-	27	24	-	-	-	-	-
3/4	308	308	308	308	19	19	145	85	2115	375	-	-	31	29	-	-	-	-	-
1 x 3/4	451	451	451	451	25	19	145	85	215	375	-	-	35	32	-	-	-	-	-
1	451	451	451	451	25	25	155	135	235	800	-	-	84	81	-	-	-	-	-
1 1/2 x 1	451	454	451	451	38	25	155	135	235	800	-	-	90	85	-	-	-	-	-
1 1/2	451	454	451	451	38	38	210	140	250	250	400	70	120	115	72	67	12	-	-
2 x 1 1/2	451	451	451	451	42	38	210	140	250	250	400	70	130	125	95	86	12	-	-
2	451	454	451	451	42	42	225	150	265	250	400	70	152	145	130	125	12	-	-
3 x 2	578	584	578	451	62	42	225	155	265	250	400	70	200	185	170	155	12	-	-
3	578	584	578	457	62	62	280	180	335	305	500	90	313	300	240	225	18	-	-
4 x 3	673	683	673	457	87	62	280	180	335	305	500	90	350	325	315	290	18	-	-
4	673	683	673	508	87	87	285	300	350	360	600	100	440	415	400	375	27	-	-
6 x 4	914	927	914	610	131	87	285	300	350	360	600	100	675	620	630	575	27	-	-
6	914	927	914	610	131	131	370	340	515	555	700	135	1103	1050	825	770	68	-	-
8 x 6	1022	1038	1022	711	179	131	370	340	515	555	700	135	1240	1150	1090	1000	68	-	-
8	1022	1038	1022	711	179	179	365	360	450	600	700	165	1420	1330	1050	960	115	-	-
10 x 8	1270	1292	1270	838	223	179	365	360	450	600	700	165	1895	1740	1260	1110	115	-	-
10	1270	1292	1270	838	223	223	480	480	605	655	700	225	3283	3130	1460	1310	210	-	-
12 x 10	1422	1445	1422	914	265	223	480	480	605	655	700	225	3715	3510	1800	1590	210	-	-
14 x 10	■	■	■	■	292	223	480	480	605	655	700	225	■	■	■	■	210	-	-
12	1422	1445	1422	914	265	265	620	595	820	760	600	160	5366	4140	2870	2660	400	-	-
14 x 12	■	■	■	■	292	265	620	595	820	760	600	160	■	■	■	■	400	-	-
16 x 12	■	■	■	■	333	265	620	595	820	760	600	160	■	■	■	■	400	-	-
14	■	■	■	■	292	292	735	690	935	760	600	160	■	■	■	■	400	-	-
16 x 14	■	■	■	■	333	292	735	690	935	760	600	160	■	■	■	■	400	-	-
18 x 14	■	■	■	■	374	292	735	690	935	760	600	160	■						



API 6A 2000

Side Entry



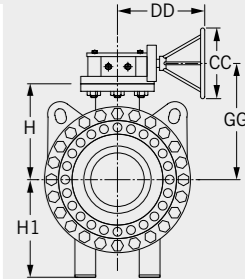
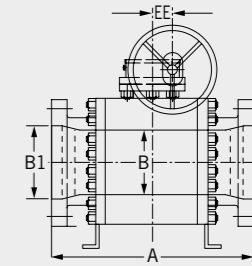
NPS (in)	API 6A Face to Face A (mm)		Overall Dimension (mm)								Weight Flanged
	RTJ	B1	B	H	H1	GG	DD / VV	CC	EE		
2 1/16	295	52,4	52,4	160	135	225 L	700 L	-	-	67	
2 9/16	333	65,1	65,1	205	145	245	250	400	70	96	
3 1/8	359	79,4	79,4	205	145	245	250	400	70	108	
4 1/16	435	103,2	103,2	235	165	290	305	500	90	160	
5 1/8	562	130,2	130,2	290	260	355	360	600	100	336	
7 1/16	740	179,4	179,4	355	320	500	555	700	135	592	

- Flange dimensions acc. to API 6A; Customer Std.
- Bore sizes acc. to API 6A; reduced bore available on request.
- Butt welding end in acc. to ASME B16.25.
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in industry standards are subject to change without notice.



API 6A 3000

Side Entry

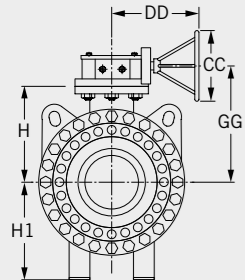
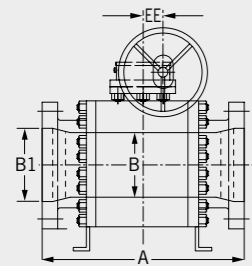


NPS (in)	API 6A Face to Face A (mm)		Overall Dimension (mm)								Weight Flanged
	RTJ	B1	B	H	H1	GG	DD / VV	CC	EE		
2 1/16	371	52,4	52,4	160	135	225 L	700 L	-	-	84	
2 9/16	422	65,1	65,1	205	145	245	250	400	70	120	
3 1/8	384	79,4	79,4	205	145	245	250	400	70	135	
4 1/16	460	103,2	103,2	235	165	290	305	500	90	200	
5 1/8	613	130,2	130,2	290	260	355	360	600	100	420	
7 1/16	803	179,4	179,4	355	320	500	555	700	135	740	

- Flange dimensions acc. to API 6A; Customer Std.
- Bore sizes acc. to API 6A; reduced bore available on request.
- Butt welding end in acc. to ASME B16.25.
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in industry standards are subject to change without notice.

API 6A 5000

Side Entry

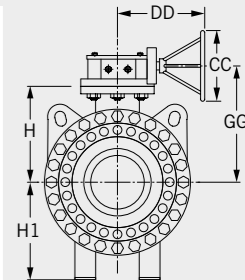
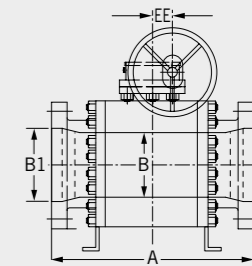


NPS (in)	API 6A Face to Face A (mm)		Overall Dimension (mm)								Weight Flanged
	RTJ	B1	B	H	H1	GG	DD / VV	CC	EE		
2 1/16	371	52,4	52,4	160	140	265	250	400	70	105	
2 9/16	473	65,1	65,1	215	155	255	250	400	70	180	
3 1/8	473	79,4	79,4	215	155	255	250	400	70	205	
4 1/16	549	103,2	103,2	245	190	310	360	600	100	380	
5 1/8	727	130,2	130,2	300	300	445	555	700	135	780	
7 1/16	813	179,4	179,4	385	395	470	600	700	165	1225	

- Flange dimensions acc. to API 6A; Customer Std.
- Bore sizes acc. to API 6A; reduced bore available on request.
- Butt welding end in acc. to ASME B16.25.
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in industry standards are subject to change without notice.

API 6A 10000

Side Entry



NPS (in)	API 6A Face to Face A (mm)		Overall Dimension (mm)								Weight Flanged
	RTJ	B1	B	H	H1	GG	DD / VV	CC	EE		
1 3/16	464	46	46	200	140	240	250	400	70	135	
2 1/16	521	52,4	52,4	225	150	265	250	400	70	190	
2 9/16	565	65,1	65,1	280	180	335	305	500	90	280	
3 1/16	619	77,8	77,8	295	190	350	305	500	90	410	
4 1/16	670	103,2	103,2	300	310	365	360	600	100	675	
5 1/8	737	130,2	130,2	470	410	555	600	700	165	1450	
7 1/16	889	179,4	179,4	455	485	580	655	700	225	2200	
13 3/8	1516	278,2	278,2	810	810	930	764	750	381	10600	

- Flange dimensions acc. to API 6A; Customer Std.
- Bore sizes acc. to API 6A; reduced bore available on request.
- Butt welding end in acc. to ASME B16.25.
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in industry standards are subject to change without notice.

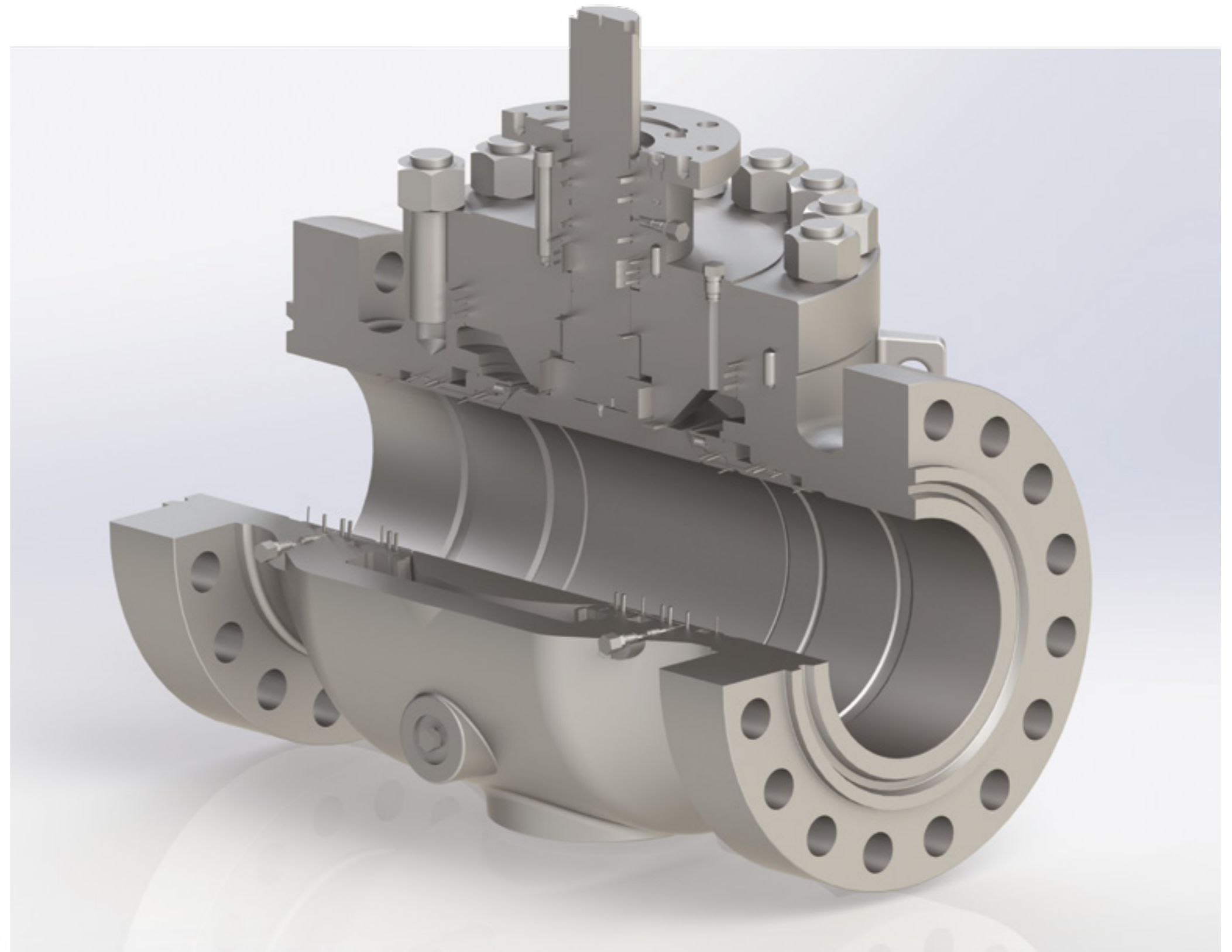


Top Entry



Cross Section

- Design: 1 Piece Body with Bolted Bonnet
- Special bore diameters and/or design pressures available upon request
- Ball/Seat Sealing: Spring Energized Seats, Soft seal with Thermoplastic Seat Inserts or Metal to Metal seal with Hardfaced Ball and Seats, Single or Double Block & Bleed configuration in closed or open/closed position
- Over-Pressure Relief: Self-Relieving or Double Piston Effect Seats with Relief Valve
- End connections: RF, RTJ, BW, HUB or Norsok L-005 compact Flanges
- Body/Bonnet Gasket: Soft with O-Ring or Lip Seal Design, Metal with Ring Joint
- Seals: Elastomer O-Rings, PTFE V-Pack or PTFE/Elgiloy Spring Energized Lip Seals
- Fire Safe Gaskets: Graphite
- Operation: Lever or Gearbox, Hydraulic or Pneumatic Actuator, Electric Motor.
- Application Services: Upstream/Downstream, High Pressure, High Temperature, Cryogenic, Subsea, Emergency Shutdown, HIPPS.



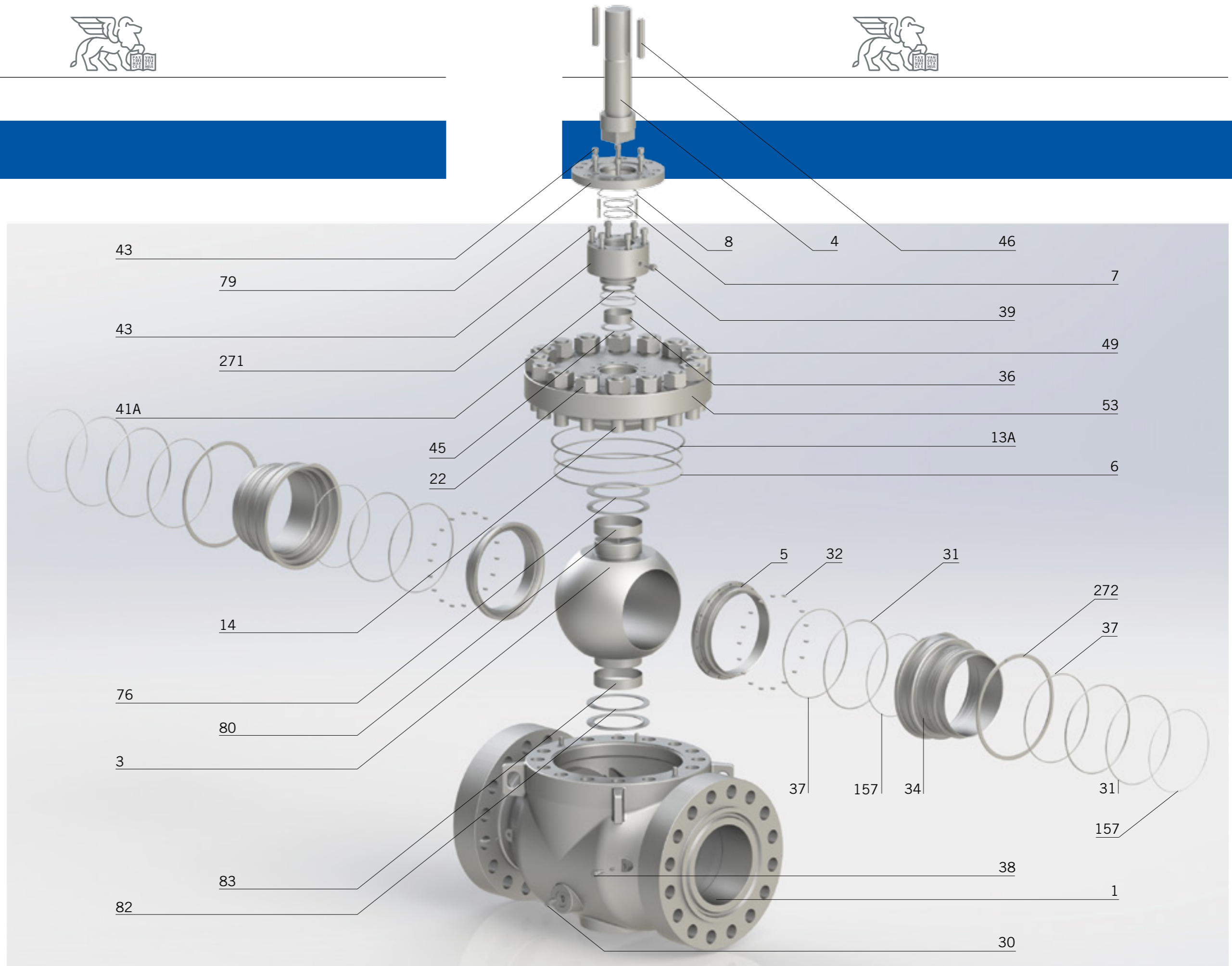


Top Entry



Assembly

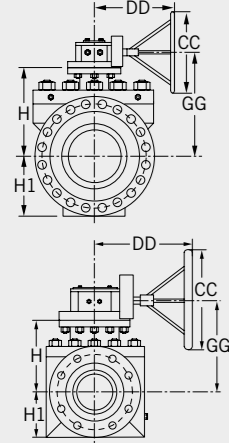
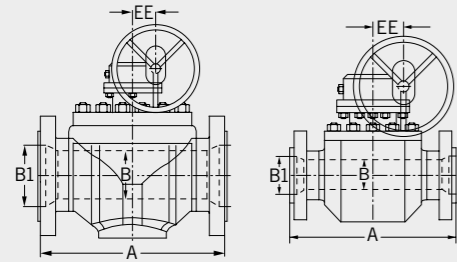
Pos.	Description
1	Body
3	Ball
4	Stem
5	Seat
6	Body Seal
7	Stem Seal
8	Stem Gasket
13A	Body Gasket
14	Stud Bolt
22	Nut
30	Drain Plug
31	Seat Seal
32	Spring
34	Seat Carrier Ring
36	Stem Bearing
37	Seat Gasket
38	Seat Sealant Injector
39	Stem Sealant Injector
41A	Gasket
43	Socket Cap Screw
45	Thrust Bearing
46	Stem Key
47	Vent Bleeder
49	Stem Housing Seal
53	Bonnet
76	Upper Thrust Bearing
79	Iso Flange
80	Upper Bearing
82	Lower Thrust Bearing
83	Lower Bearing
157	Grease Seal
271	Stem Housing
272	Seat Spacer Ring





ASME 150-600

Top Entry



NPS (in)	API 6D Face to Face A (mm)			Overall Dimensions (mm)										Weight (Kg)		
	RF	RTJ	BW	B1	B	H	H1	GG	DD/VV	CC	EE	150	300	600	Gear	
2	292	295	292	49	49	190	98	250	L	355	L	-	45	47	50	-
3 x 2	356	359	356	74	49	190	98	250	L	355	L	-	51	56	60	-
3	356	359	356	74	74	210	135	290	L	350	L	-	64	69	74	-
4 x 3	432	435	432	100	74	210	135	290	L	350	L	-	68	78	98	-
4	432	435	432	100	100	243	140	322	L	445	L	-	126	141	171	-
6 x 4	559	562	559	150	100	243	140	322	L	445	L	-	168	201	284	-
6	559	562	559	150	150	285	215	340	305	500	90	264	297	380	18	
8 x 6	660	664	660	201	150	285	215	340	305	500	90	276	322	442	18	
8	660	664	660	201	201	300	225	375	420	700	125	300	346	466	45	
10 x 8	787	791	787	252	201	300	225	375	420	700	125	336	398	597	45	
10	787	791	787	252	252	362	297	442	420	700	125	570	632	831	45	
12 x 10	838	841	838	303	252	362	297	442	420	700	125	612	694	901	45	
14 x 10	889	892	889	334	252	362	297	442	420	700	125	828	955	1149	45	
12	838	841	838	303	303	390	373	535	555	700	135	732	814	1021	56	
14 x 12	889	892	889	334	303	390	373	535	555	700	135	984	1111	1305	56	
16 x 12	991	994	991	385	303	390	373	535	555	700	135	1164	1372	1669	56	
14	889	892	889	334	334	420	362	505	600	700	165	954	1081	1275	105	
16 x 14	991	994	991	385	334	420	362	505	600	700	165	1146	1354	1651	105	
18 x 14	1092	1095	1092	436	334	420	362	505	600	700	165	1392	1653	2054	105	
16	991	994	991	385	385	480	453	627	600	700	165	1554	1762	2059	105	
18 x 16	1092	1095	1092	436	385	480	453	627	600	700	165	1554	1815	2216	105	
20 x 16	1194	1200	1194	487	385	480	453	627	600	700	165	1908	2189	2774	105	
18	1092	1095	1092	436	436	612	462	697	600	700	165	1884	2145	2546	105	
20 x 18	1194	1200	1194	487	436	612	462	697	600	700	165	2160	2441	3026	105	
20	1194	1200	1194	487	487	583	523	668	600	700	165	2400	2681	3266	105	
24 x 20	1397	1407	1397	589	487	583	523	668	600	700	165	2928	3385	4173	105	
24	1397	1407	1397	589	589	765	540	730	655	700	240	3960	4417	5205	220	
30 x 24	1651	1664	1651	735	589	765	540	890	655	700	240	4920	5517	6175	220	
28	1549	1562	1549	684	684	870	670	995	655	700	240	6188	6714	7311	220	
30	1651	1664	1651	735	735	940	770	1200	760	600	160	7566	8163	8821	220	
36 x 30	2083	2099	2083	874	735	940	770	1200	760	600	160	9360	10131	10976	400	
32	1778	1794	1778	779	779	1030	812	1228	760	600	160	9412	10039	10720	400	
34	1930	1946	1930	830	830	1100	852	1300	760	600	160	10348	11095	11798	400	
36	2083	2099	2083	874	874	1180	902	1285	760	600	160	12090	12861	13706	400	
40	■	■	■	976	976	1290	1018	■	■	■	■	16835	17735	19146	■	
42	■	■	■	1020	1020	1340	1222	■	■	■	■	19760	20696	22478	■	
48	■	■	■	1166	1166	1590	1292	■	■	■	■	29575	30835	33317	■	

- = to be confirmed after P/o placement
- L = lever operated.

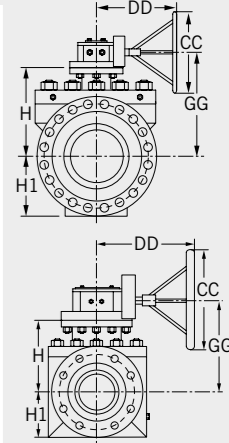
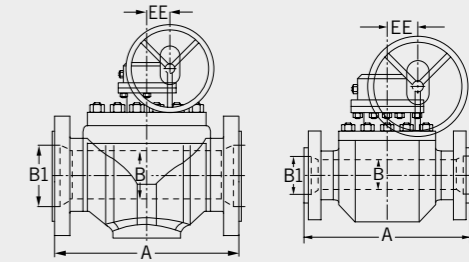
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in applicable standards are subject to change without notice.

- Flange dimensions acc. to ASME B16.5; ASME B16.47; MSS SP-44; Norsok L-005; Customer Std.
- Bore sizes acc. to API 6D; piggable bore available on request.
- Buttwelding end in acc. to ASME B16.25.



ASME 900

Top Entry



NPS (in)	API 6D Face to Face A (mm)			Overall Dimensions (mm)										Weight (Kg)	
	RF	RTJ	BW	B1	B	H	H1	GG	DD/VV	CC	EE	Cast Body	Gear		
2	368	371	368	49	49	235	116	290	L	450	L	-	105	-	
3 x 2	381	384	381	74	49	235	116	290	L	450	L	-	115	-	
3	381	384	381	74	74	266	131	306	250	400	70	140	12		
4 x 3	457	460	457	100	74	266	131	306	250	400	70	180	12		
4	457	460	457	100	100	270	150	325	305	500	90	210	20		
6 x 4	610	613	610	150	100	270	200	325	305	500	90	290	20		
6	610	613	610	150	150	345	215	490	555	700	135	490	56		
8 x 6	737	740	737	201	150	345	250	490	555	700	135	750	56		
8	737	740	737	201	201	410	295	555	555	700	135	790	56		
10 x 8	838	841	838	252	201	410	295	555	555	700	135	850	56		
10	838	841	838	252	252	435	307	580	555	700	135	1290	68		
12 x 10	965	968	965	303	252	435	307	580	555	700	135	1495	68		
14 x 10	1029	1038	1029	322	252	435	307	580	555	700	135	1710	68		
12	965	968	965	303	303	517	373	662	555	700	135	1780	68		
14 x 12	1029	1038	1029	322	303	517	373	662	555	700	135	2250	68		
16 x 12	1130	1140	1130	373	303	517	373	662	555	700	135	2450	68		
14	1029	1038	1029	322	322	542	427	627	600	700	165	2180	115		
16 x 14	1130	1140	1130	373	322	542	427	627	600	700	165	2520	115		
18 x 14	1219	1232	1219	423	322	542	427	627	600	700	165	2680	115		
16	1130	1140	1130	373	373	566	452	651	600	700	165	3200	115		
18 x 16	1219	1232	1219	423	373	566	452	651	600	700	165	3540	115		
20 x 16	1321	1334	1321	471	373	566	452	651	600	700	165	4350	115		
18	1219	1232	1219	423	423	701	478	826	655	700	225	4380	210		
20 x 18	1321	1334	1321	471	423	701	478	826	655	700	225	5100	210		
20	1321	1334	1321	471	471	729	543	854	655	700	240	5880	220		
24 x 20	1549	1568	1549	570	471	729	543	854	655	700	240	6600	220		
24	1549	1568	1549	570	570	906	628	996	760	600	160	9680	400		
30 x 24	1880	1902	■	712	570	906	628	996	760	600	160	11150	400		
28	■	■	■	665	665	1078	716	1218	765	700	381	12920	450		
30	1880	1902	■	712	712	1163	761	1288	765	700	381	15845	600		
36 x 30	2286	2315	■	855	712	1163	761	1288	765	700	381	18900	600		
32	■	■	■	760	760	1256	813	■	■	■	■	19600	■		
34	■	■	■	808	808	1320	870	■	■	■	■	21500	■		
36	2286	2315	■	855	855	1445	922	■	■	■	■	26250	■		
40	■	■	■	956	956	1622	1005	■	■	■	■	37200	■		

- = to be confirmed after P/o placement.
- L = lever operated.
- Weights are subject to change without notice.

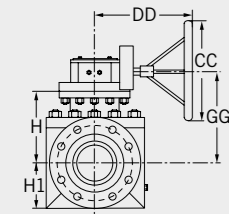
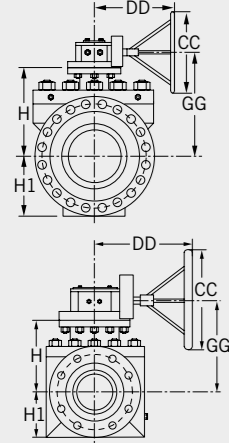
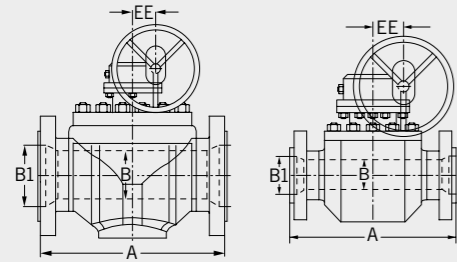
- Overall dimensions and face to face dimensions not listed in applicable standards are subject to change without notice.
- Flange dimensions acc. to ASME B16.5; ASME B16.47; MSS SP-44; Norsok L-005; Customer Std.

- Bore sizes acc. to API 6D; piggable bore available on request.
- Buttwelding end in acc. to ASME B16.25.



ASME 1500

Top Entry



NPS (in)	API 6D Face to Face A (mm)			Overall Dimensions (mm)								Weight (Kg)	
	RF	RTJ	BW	B1	B	H	H1	GG	DD/VV	CC	EE	Cast Body	Gear
2	368	371	368	49	49	235	116	290 L	450 L	-	-	105	-
3 x 2	470	473	470	74	49	235	116	290 L	450 L	-	-	121	-
3	470	473	470	74	74	266	142	306	250	400	70	182	12
4 x 3	546	549	546	100	74	266	142	306	250	400	70	234	12
4	546	549	546	100	100	270	157	335	360	600	100	273	20
6 x 4	705	711	705	144	100	270	157	335	360	600	100	377	20
6	705	711	705	144	144	400	245	545	555	700	135	637	56
8 x 6	832	841	832	192	144	400	280	545	555	700	135	975	56
8	832	841	832	192	192	475	330	620	555	700	135	1070	56
10 x 8	991	1000	991	239	192	475	330	620	555	700	135	1150	56
10	991	1000	991	239	239	515	347	600	600	700	165	1750	68
12 x 10	1130	1146	1130	287	239	515	347	600	600	700	165	2020	68
14 x 10	1257	1276	1257	315	239	515	347	600	600	700	165	2310	68
12	1130	1146	1130	287	287	610	423	695	600	700	165	2410	68
14 x 12	1257	1276	1257	315	287	610	423	695	600	700	165	3040	68
16 x 12	1384	1407	1384	360	287	610	423	695	600	700	165	3310	68
14	1257	1276	1257	315	315	645	482	770	655	700	225	2950	115
16 x 14	1384	1407	1384	360	315	645	482	770	655	700	225	3410	115
18 x 14	1537	1559	■	406	315	645	482	770	655	700	225	3620	115
16	1384	1407	1384	360	360	680	512	805	655	700	225	4320	115
18 x 16	1537	1559	■	406	360	680	512	805	655	700	225	4960	115
20 x 16	1664	1686	■	454	360	680	512	805	655	700	225	6090	115
18	1537	1559	■	406	406	830	543	955	655	700	240	6140	210
20 x 18	1664	1686	■	454	406	830	543	955	655	700	240	7140	210
20	1664	1686	■	454	454	870	618	1070	760	600	160	8820	220
24 x 20	■	1972	■	546	454	870	618	1070	760	600	160	9900	220
24	■	1972	■	546	546	1075	713	1195	765	700	381	15490	400
30 x 24	■	■	■	686	546	1075	713	1195	765	700	381	17840	400
28	■	■	■	641	641	1275	816	1500	765	700	381	20680	450
30	■	■	■	686	686	1375	866	1515	765	700	381	25360	600
36 x 30	■	■	■	819	686	1375	866	1515	765	700	381	30240	600
32	■	■	■	730	730	1480	923	■	■	■	■	31360	■
34	■	■	■	775	775	1555	990	■	■	■	■	34400	■
36	■	■	■	819	819	1695	1047	■	■	■	■	42000	■

- = to be confirmed after P/O placement
- L = lever operated

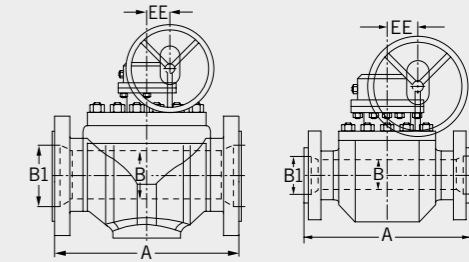
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in applicable standards are subject to change without notice.

- Flange dimensions acc. to ASME B16.5; ASME B16.47; MSS SP-44; Norsok L-005; Customer Std.
- Bore sizes acc. to API 6D; piggable bore available on request.
- Buttwelding end in acc. to ASME B16.25.

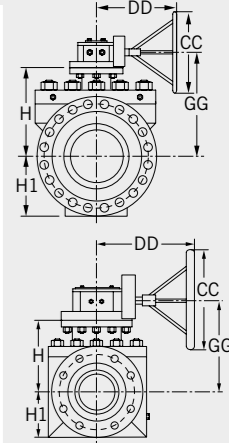


ASME 2500

Top Entry



NPS (in)	API 6D Face to Face A (mm)			Overall Dimensions (mm)								Weight (Kg)	
	RF	RTJ	BW	B1	B	H	H1	GG	DD/VV	CC	EE	Cast Body	Gear
2	451	454	451	42	42	265	145	305	250	400	70	190	12
3 x 2	578	584	578	62	42	275	155	315	250	400	70	210	12
3	578	584	578	62	62	305	180	360	305	500	90	320	18
4 x 3	673	683	673	87	62	315	195	370	305	500	90	410	18
4	673	683	673	87	87	320	210	385	360	600	100	490	27
6 x 4	914	927	914	131	87	340	225	405	360	600	100	670	27
6	914	927	914	131	131	470	315	615	555	700	135	1140	68
8 x 6	1022	1038	1022	179	131	490	370	635	555	700	135	1390	68
8	1022	1038	1022	179	179	565	420	650	600	700	165	1930	115
10 x 8	1270	1292	1270	223	179	585	440	670	600	700	165	3090	115
10	1270	1292	1270	223	223	625	460	750	655	700	225	4730	210
12 x 10	1422	1445	1422	265	223	645	475	770	655	700	225	5500	210
14 x 10	■	■	■	292	223	655	490	780	655	700	225	6330	210
12	1422	1445	1422	265	265	740	555	940	760	600	160	7480	400
14 x 12	■	■	■	292	265	750	565	950	760	600	160	9580	400
16 x 12	■	■	■	333	265	770	585	970	760	600	160	10600	400
14	■	■	■	292	292	785	625	985	760	600	160	9590	400
16 x 14	■	■	■	333	292	805	640	1005	760	600	160	11260	400
18 x 14	■	■	■	374	292	825	660	1025	760	600	160	12130	400
16	■	■	■	333	333	840	670	960	765	600	381	14690	600
18 x 16	■	■	■	374	333	860	690	980	765	600	381	17120	600
20 x 16	■	■	■	419	333	880	710	1000	765	600	381	21320	600
18	■	■	■	374	374	1010	720	1130	765	700	381	21800	600
20 x 18	■	■	■	419	374	1030	740	1150	765	700	381	25710	600
20	■	■	■	419	419	1070	815	1290	765	700	381	32200	600



- = to be confirmed after P/O placement
- L = lever operated
- Weights are subject to change without notice.

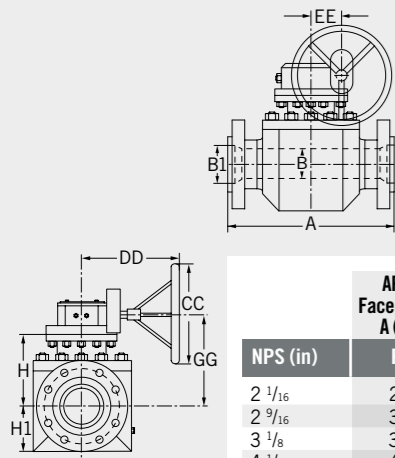
- Overall dimensions and face to face dimensions not listed in applicable standards are subject to change without notice.
- Flange dimensions acc. to ASME B16.5; ASME B16.47; MSS SP-44; Norsok L-005; Customer Std.

- Bore sizes acc. to API 6D; piggable bore available on request.
- Buttwelding end in acc. to ASME B16.25.



API 6A 2000

Top Entry

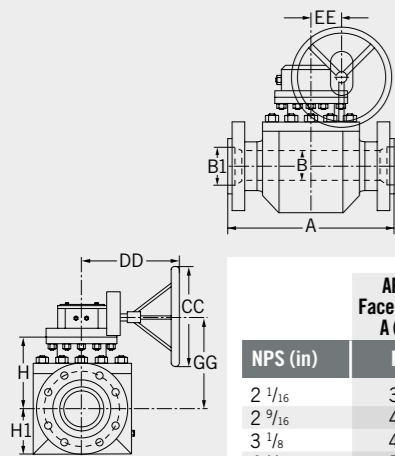


NPS (in)	API 6A Face to Face A (mm)		Overall Dimension (mm)								Weight
	RTJ	B1	B	H	H1	GG	DD / VV	CC	EE	Flanged	
2 1/16	295	52,4	52,4	235	116	290 L	450 L	-	-	100	
2 9/16	333	65,1	65,1	266	131	306	250	440	70	132	
3 1/8	359	79,4	79,4	266	131	306	250	440	70	140	
4 1/16	435	103,2	103,2	270	150	325	305	500	90	168	
5 1/8	562	130,2	130,2	345	215	490	555	700	135	456	
7 1/16	740	179,4	179,4	410	295	555	555	700	135	688	

- Flange dimensions acc. to API 6A; Customer Std.
- Bore sizes acc. to API 6A; reduced bore available on request.
- Butt welding end in acc. to ASME B16.25.
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in industry standards are subject to change without notice.

API 6A 5000

Top Entry



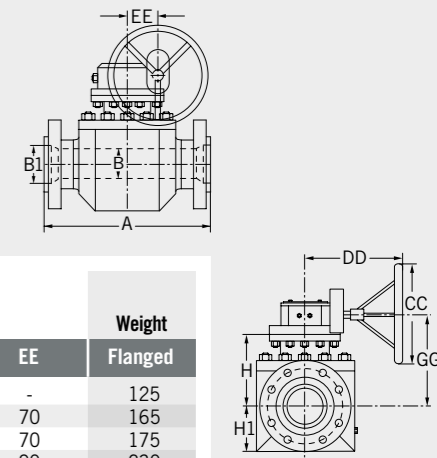
NPS (in)	API 6A Face to Face A (mm)		Overall Dimension (mm)								Weight
	RTJ	B1	B	H	H1	GG	DD / VV	CC	EE	Flanged	
2 1/16	371	52,4	52,4	235	116	305	250	400	70	125	
2 9/16	473	65,1	65,1	266	142	306	250	400	70	194	
3 1/8	473	79,4	79,4	266	142	306	250	400	70	240	
4 1/16	549	103,2	103,2	270	157	335	360	600	100	410	
5 1/8	727	130,2	130,2	400	245	545	555	700	135	970	
7 1/16	813	179,4	179,4	475	330	620	555	700	135	1236	

- Flange dimensions acc. to API 6A; Customer Std.
- Bore sizes acc. to API 6A; reduced bore available on request.
- Butt welding end in acc. to ASME B16.25.
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in industry standards are subject to change without notice.



API 6A 3000

Top Entry

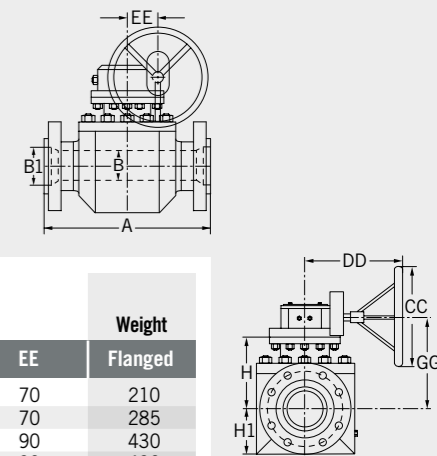


NPS (in)	API 6A Face to Face A (mm)		Overall Dimension (mm)								Weight
	RTJ	B1	B	H	H1	GG	DD / VV	CC	EE	Flanged	
2 1/16	371	52,4	52,4	235	116	290 L	450 L	-	-	125	
2 9/16	422	65,1	65,1	266	131	306	250	440	70	165	
3 1/8	384	79,4	79,4	266	131	306	250	440	70	175	
4 1/16	460	103,2	103,2	270	150	325	305	500	90	230	
5 1/8	613	130,2	130,2	345	215	490	555	700	135	570	
7 1/16	803	179,4	179,4	410	295	555	555	700	135	860	

- Flange dimensions acc. to API 6A; Customer Std.
- Bore sizes acc. to API 6A; reduced bore available on request.
- Butt welding end in acc. to ASME B16.25.
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in industry standards are subject to change without notice.

API 6A 10000

Top Entry



NPS (in)	API 6A Face to Face A (mm)		Overall Dimension (mm)								Weight
	RTJ	B1	B	H	H1	GG	DD / VV	CC	EE	Flanged	
1 13/16	464	46	46	265	145	305	250	400	70	210	
2 1/16	521	52,4	52,4	315	155	355	250	400	70	285	
2 9/16	565	65,1	65,1	380	190	435	305	500	90	430	
3 1/16	619	77,8	77,8	385	195	440	305	500	90	490	
4 1/16	670	103,2	103,2	410	225	405	360	600	100	670	
5 1/8	737	130,2	130,2	535	300	620	600	700	85	1315	
7 1/16	889	179,4	179,4	585	440	670	600	700	165	3090	

- Flange dimensions acc. to API 6A; Customer Std.
- Bore sizes acc. to API 6A; reduced bore available on request.
- Butt welding end in acc. to ASME B16.25.
- Weights are subject to change without notice.
- Overall dimensions and face to face dimensions not listed in industry standards are subject to change without notice.



Non-Destructive Testing

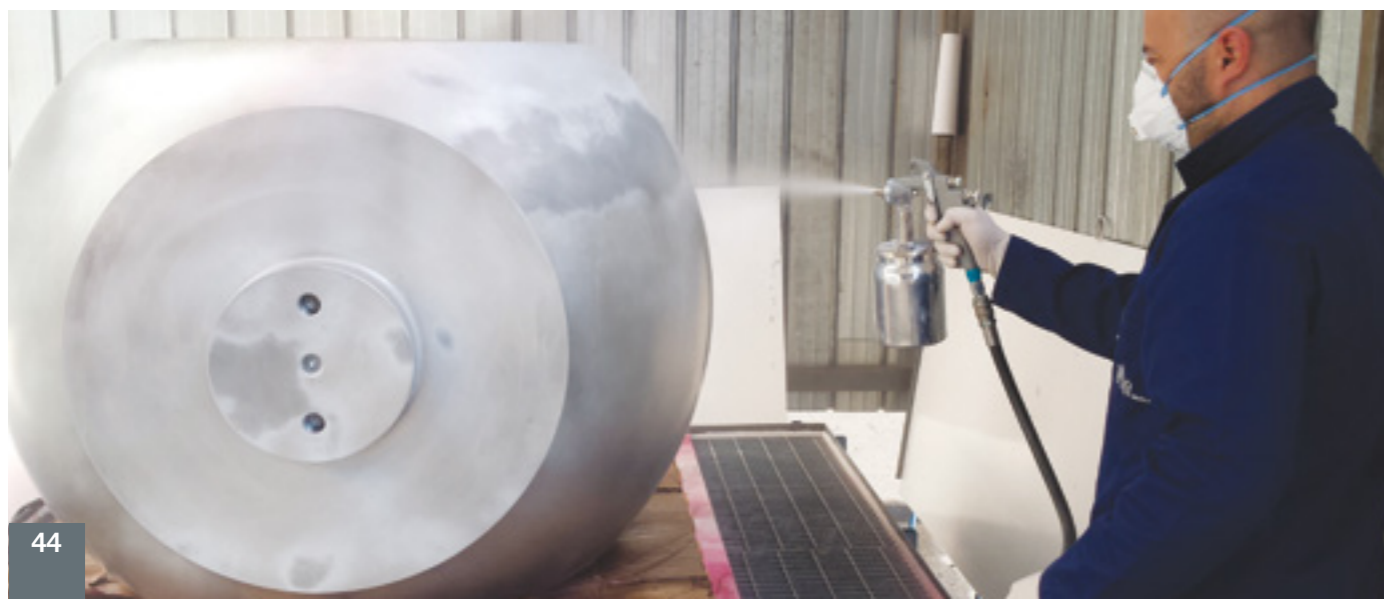
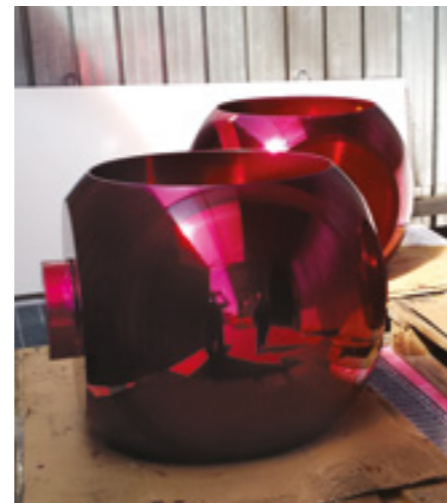
By Non-destructive testing (NDT) we can analyze welds, piping, valves and other materials for the presence of invisible defects without causing damage to the material.

All NDT methods are developed to create visual evidence of defects in materials, which wouldn't be normally visible without these methods.

Our in house NDT methods are:

- Ultrasonic Testing (UT)
- Dye Penetrant Inspection (DPI)
- Magnetic Particle Inspection (MPI)
- Visual Inspection (VI)
- Positive Material Identification (PMI)

Radiographic Testing X-Ray (RT) can be carried out in specialized shops. Non-destructive tests (NDT) will be executed by specialists according to international and national standards. These specialists are certified in accordance with EN473, ASNT-TC-1A and/or ISO9712.

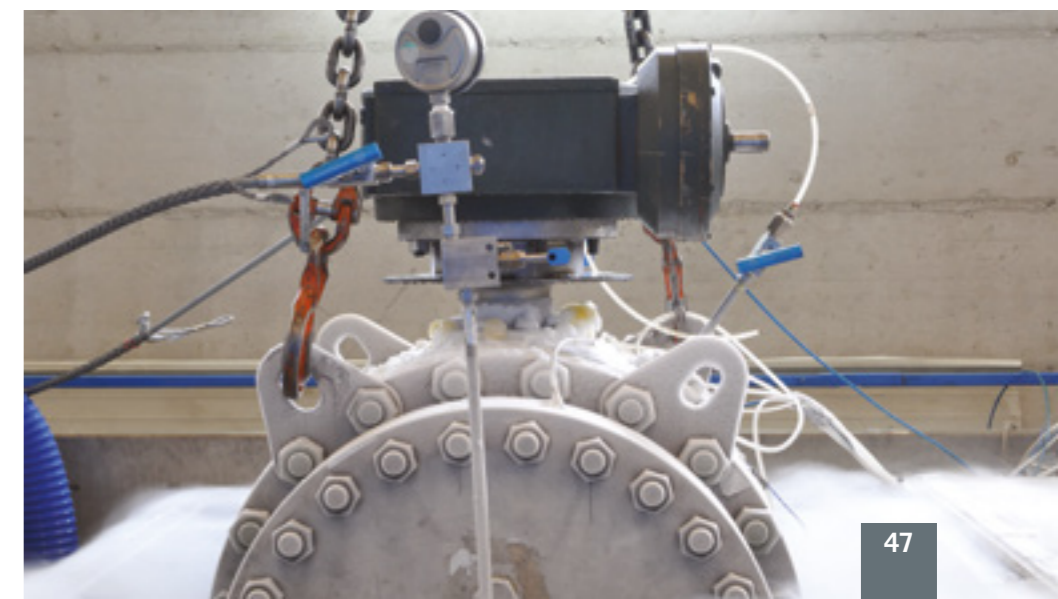




Testing

ViarValvole, in addition to API6D standard tests, is capable to perform all special testing requested by the applicable project specification. Already in house **ViarValvole** is able to carry out the following tests:

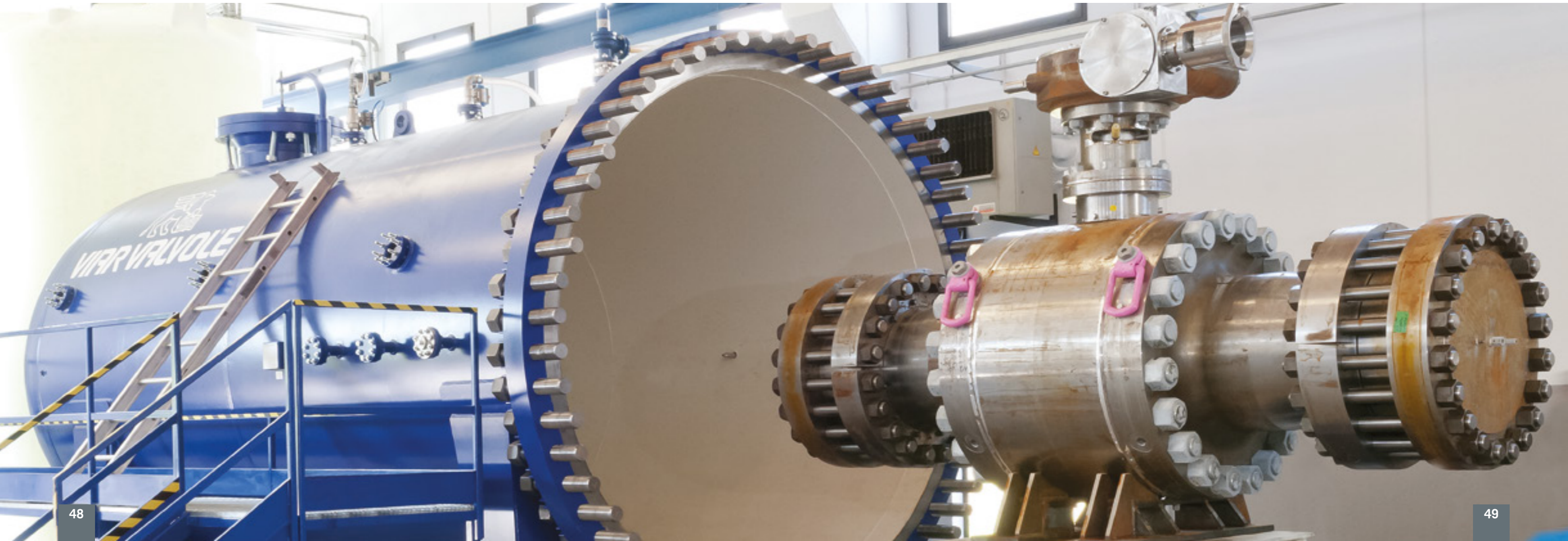
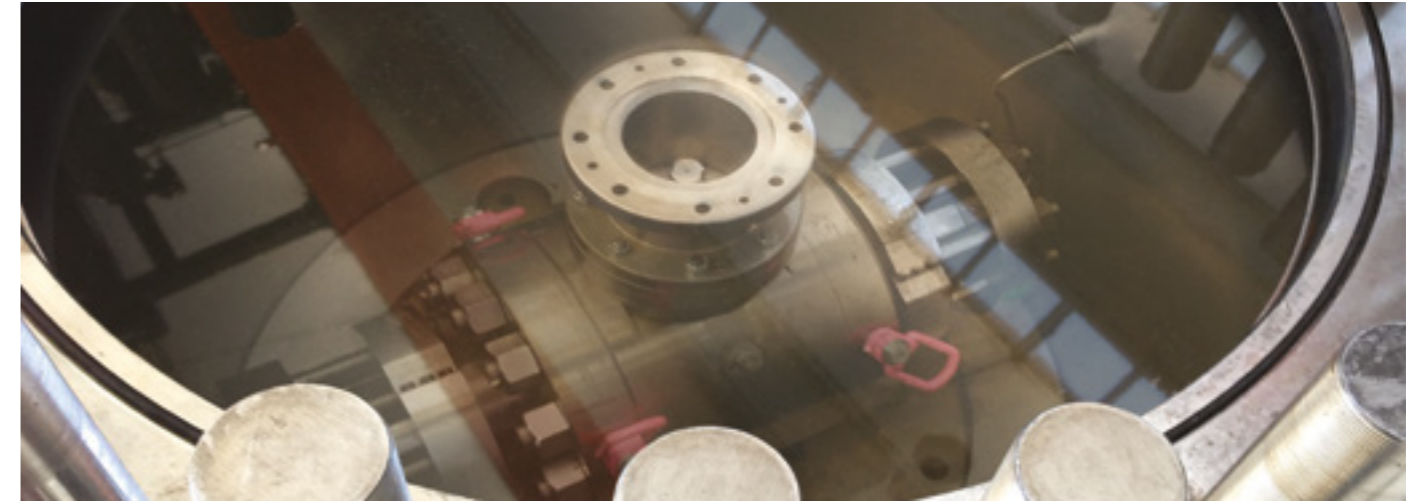
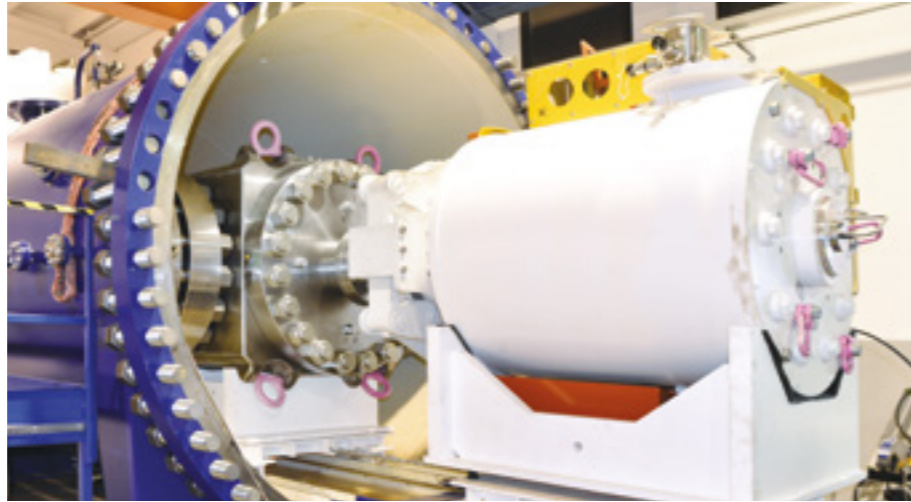
- High Pressure gas tests (3 bunkers, up to 60")
- Cryogenic tests up to -196°C
- High temperature tests
- Sand slurry test (Test loop for high sand percentage)
- PR2 Test.





Testing

Set of Hyperbaric Chambers
up to 350 Bar, sizes up to 30",
classes up to 2500#.





Quality

Quality System is according to ISO 9001:2008. Quality control and quality assurance are regulated by strict internal procedures.

ViarValvole is proud to have achieved the OHSAS ISO 18001 certification for Occupational Health and Safety Management System (OHSMS) as a part of its risk management strategy, not only to address changing legislations, but principally



to protect its workforce, reducing the risk of delays in production due to unexpected injuries.

- ViarValvole OHSMS encourages a safe and healthy working environment providing a framework that allows:
- To consistently identify and control their own health and safety risks
 - To aid legislative compliance
 - To reduce the potential for accidents
 - To improve overall performance.



Certification

ViarValvole is under process to improve its Environmental Management System (EMS) by meeting the requirements of ISO 14001:2004 to reach the following goals:

- To identify and control the environmental impact of activities, products or services
- To improve the environmental performance continually

- To implement a systematic approach to setting environmental objectives and targets
 - To achieve these objectives and targets and to demonstrate that they have been achieved
- ViarValvole is also provided with the API monograms API 6D, API 6A & API 6DSS

and is also in compliance with the regulations of the European Pressure Equipment Directive (PED).

ATEX and Fire Safe Certifications (according to API 607 and/or API 6FA), ISO 10497 are available for all our valve types.



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