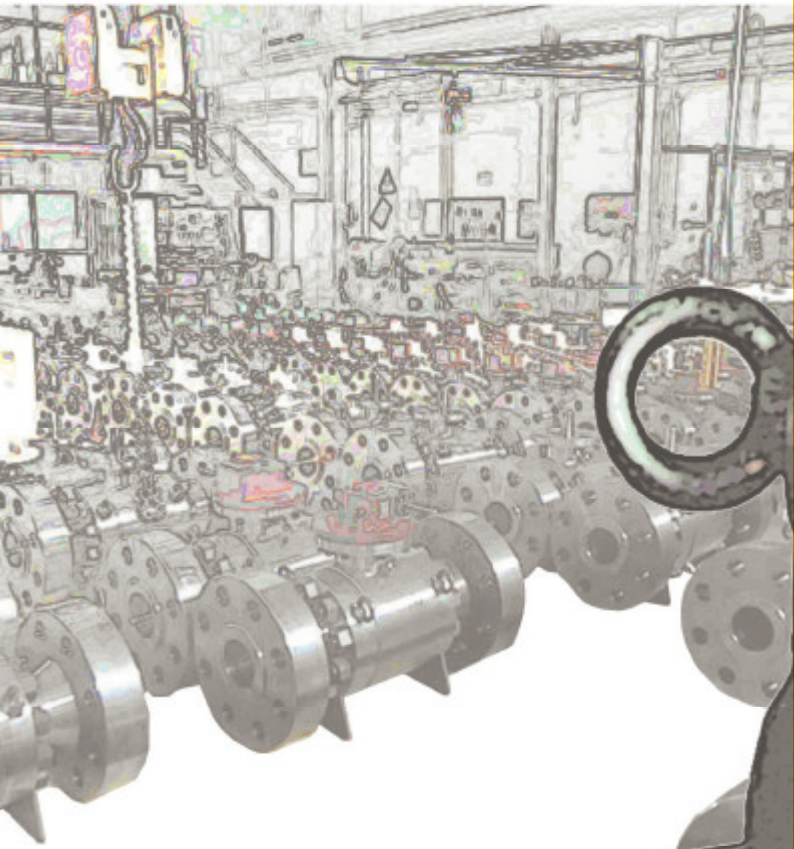




Ball valves



Ball valves catalogue
Ref. BV-20034
September 2004 edition

Contents

Engineering & Service division	3
Features and benefits	4
Product range	5
Trunnion mounted	6
Features and benefits	6
Side entry, cast steel	10
Parts detail	10
Standard materials	12
Full bore	13
Reduced bore	16
Side entry, forged steel	19
Full bore	19
Reduced bore	24
Top entry, cast steel	29
Full bore	29
Reduced bore	32
Floating	35
Side entry, cast steel	35
Reduced bore	35
Side entry, forged steel	36
Full bore	36
Reduced bore	38
Top entry, cast steel	40
Full bore	40
Reduced bore	41
Top entry, forged steel	42
Reduced bore	42
Bar stock	43
Ball valve actuators	44
Fire safe testing	45
Machining division	46
Quality	47

Vector & Wellheads Engineering Division offer you the best solutions in the following fields:

Engineering

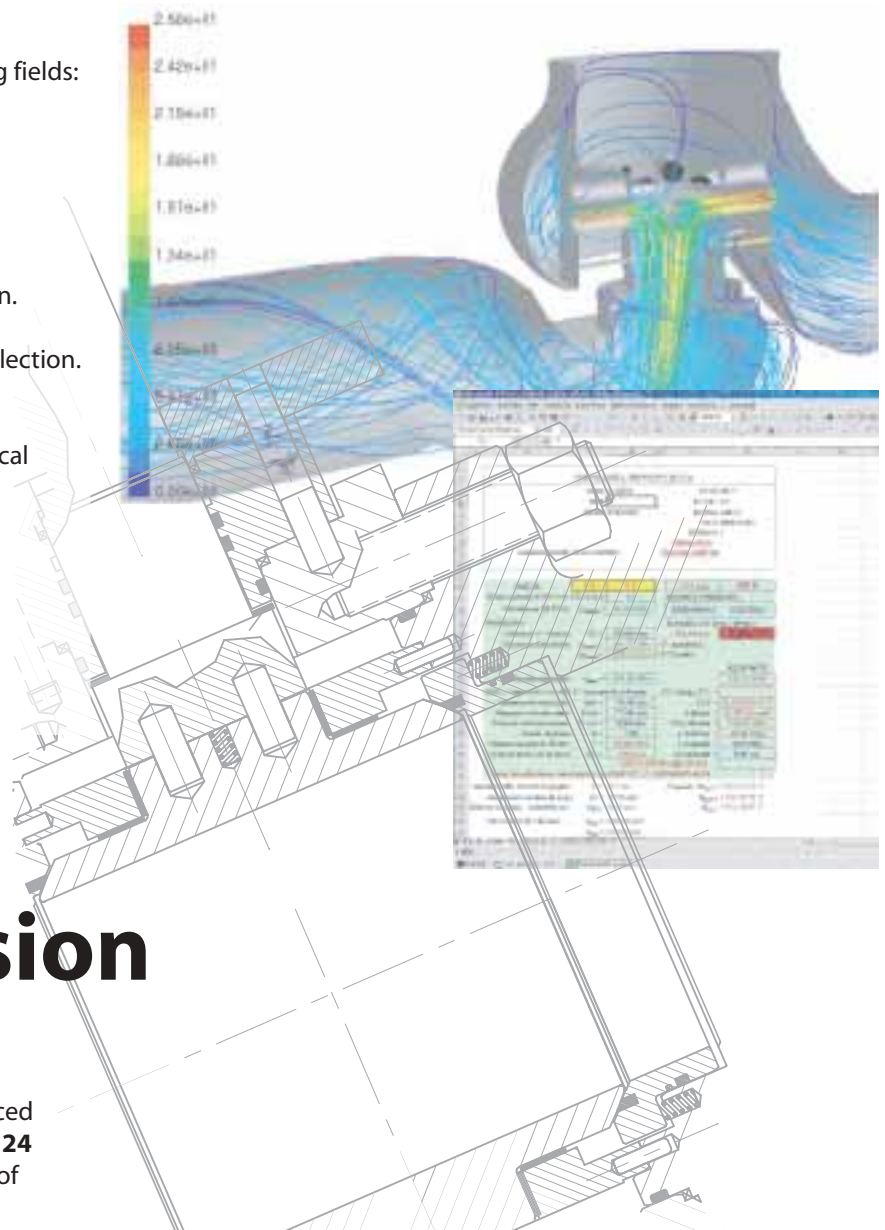
- Design of all kind of valves.
- Detail drawings.
- Assembly drawings.
- Calculations.
- NDT procedures, welding, tests, fabrication.
- Technical consulting.
- Process oriented valve and procedures selection.

Structural analysis

- Design, optimization and test of mechanical components (FEA).
- Analysis of installed valves .

Fluid mechanics

- Fluid system analysis.
- Distributions of flow, velocity, pressure, turbulence, pressure drop.
- Steady state and transitional analysis.



www.vweng.com

Service division

Formed by a highly qualified and experienced team, our service division is **available on a 24 hour basis** to meet urgent needs, capable of performing jobs at site during:

- Outage and start-up periods
- Installation
- Commissioning
- Supervision



Activities

- Preparing and planning prior to the job: detailed studies for scheduling the supply of spare parts necessary for the intervention. Identification of failures.
- Maintenance, repairs, replacement and test of ball, safety, butterfly, gate, check, globe, control and pressure-seal valves.
- Maintenance, repairs, replacement and test of manual, pneumatic, hydraulic, and electric actuators.
- Installation of valve instrumentation.
- Diagnosis of control valves.
- Leakage and functional tests.
- Training courses for maintenance: valves, instrumentation and actuators.

Features and benefits

One of the most trusted ball valves in the petroleum and chemical process industries, combines the strength of its components with a dependable and compact design.

V&W ball valves satisfy a wide range of ASME, ANSI and API standards. Available in cast steel and forged steel, with various trims, they may be specified in sizes from 1/4" to 60", and pressure classes of 150 through 2500.

Engineered for heavy duty, maintenance-free performance, the V&W ball valve is commonly selected for a number of demanding applications.

Standards and specifications

V&W ball valves are in accordance with API, ASME, ANSI and BS requirements. The following list contains the most important applicable standards for ball valves.

V&W valves may be designed, manufactured and tested in accordance with other international standards upon request.

ASME B16.5, Steel pipe flanges and flange fittings.

ASME B16.10, Face-to-face and end-to-end dimensions of valves.

ASME B16.25, Buttwelding ends.

ASME B16.34, Valves - Flanged, threaded and welding end.

API 6A, Wellhead and christmas tree equipment.

API 6D, Specification for pipeline valves.

API 6FA, Fire test for valves.

API 607, Fire test for soft-seated quarter-turn valves.

MSS-SP-6, Standard finish for contact faces of pipe flanges and connecting-end flanges of valves and fittings.

MSS-SP-25, Standard marking system for valves, flanges, fittings and unions.

MSS-SP-55, Quality standard for steel castings for valves, flanges and fittings and other piping components.

MSS-SP-84, Steel valves - Socket welding and threaded ends.

NACE MR0175, Sulfide stress cracking resistant metallic materials for oilfield equipment.



Ball valves

Product range

Trunnion mounted			Floating		
Side entry			Side entry		
Cast steel			Cast steel		
Full bore	ASME Class	Range inches	Reduced bore	ASME Class	Range inches
	150	2" - 24"		150	1/2" - 8"
	300	2" - 24"			
	600	2" - 12"			
Reduced bore			Forged steel		
	150	3"×2" - 26"×22"	Full bore	150	1/2" - 8"
	300	3"×2" - 26"×22"		300	1/2" - 8"
	600	3"×2" - 12"×10"		600	1/2" - 4"
				900	1/2" - 2"
				1500	1/2" - 2"
Forged steel			Reduced bore		
Full bore				150	3/4" × 1/2" - 8"×6"
	150	2" - 60"		300	3/4" × 1/2" - 8"×6"
	300	2" - 60"		600	3/4" × 1/2" - 6"×4"
	600	2" - 56"		900	3/4" × 1/2" - 2"×1/2"
	900	2" - 56"		1500	3/4" × 1/2" - 2"×1/2"
	1500	2" - 30"			
	2500	2" - 16"			
Reduced bore			Top entry		
	150	3"×2" - 60"×56"	Cast steel		
	300	3"×2" - 60"×56"	Full bore		
	600	3"×2" - 56"×52"		150	1/2" - 6"
	900	3"×2" - 56"×52"		300	1/2" - 6"
	1500	3"×2" - 30"×26"		600	1/2" - 6"
	2500	3"×2" - 16"×14"	Reduced bore		
				150	1/2" × 3/8" - 6"×4"
				300	1/2" × 3/8" - 6"×4"
				600	1/2" × 3/8" - 6"×4"
Top entry			Forged steel		
Cast steel			Reduced bore		
Full bore				150	1/2" - 2"
	150	2" - 48"		300	1/2" - 2"
	300	2" - 48"		600	1/2" - 2"
	600	2" - 48"		900	1/2" - 2"
	900	2" - 30"		1500	1/2" - 2"
	1500	2" - 24"		2500	1/2" - 2"
	2500	2" - 12"	Bar stock		
Reduced bore				800	1/4" - 2"
	150	3"×2" - 48"×44"		1500	1/4" - 2"
	300	3"×2" - 48"×44"		2500	1/4" - 2"
	600	3"×2" - 48"×44"			
	900	3"×2" - 30"×26"			
	1500	3"×2" - 24"×20"			
	2500	3"×2" - 12"×8"			

Features and benefits

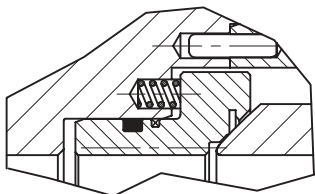
Actuators

V&W valves are suitable for operation by any type of pneumatic, electric, or hydraulic actuators. We offer factory-mounted valve-actuator packages with single source efficiency, responsibility and warranty.

Wide selection seat/seal trims

A wide variety of trims are available to match each valve to its application, including metal to metal trims.

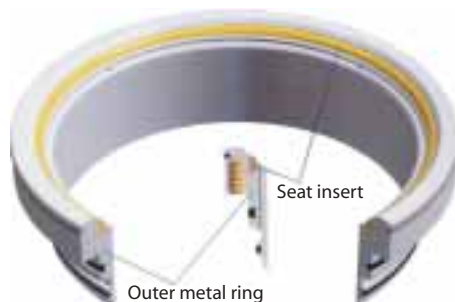
Metal to metal seated available



Protected seats for long life

The protected seat design features a deep pocket with a protective lip. This design prevents cold flow of the seat into the line. This results in extended seat life over conventional designs.

The seat assembly consists of an outer metal seat ring with a TFM insert. The TFM insert locates into a groove in the metal ring. A spring assembly behind the seat loads the seat against the ball and prevents leakage from behind the seat. This efficient seat design provides positive shutoff.



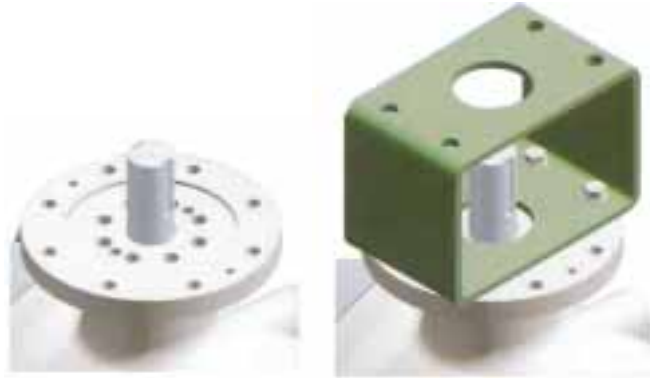
Trunnion design for dependable low torque operation

The large diameter trunnion provides smooth, easy operation and extended bearing life. The trunnion bearings are stainless steel with heavy duty PTFE coated.

Features and benefits

Actuator mounting brackets

Actuator mounting brackets are available as options for users who prefer to install their own actuators. We recommend that buyers specify factory-installed actuators to assure reliable, long life performance and to gain the benefits of V&W *single source responsibility, single source warranty* policy.



Bidirectional sealing

V&W trunnion valves are equipped with pressure-actuated seats offering true bidirectional sealing performance.



Automatic body pressure relief

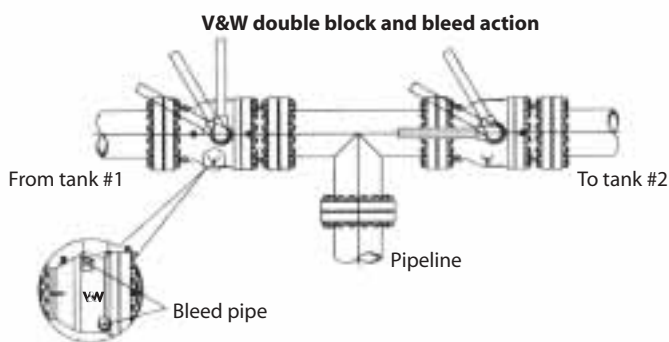
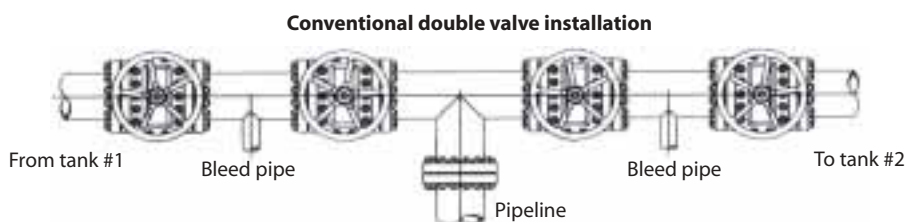
The pressure actuated seat construction assures positive relief of excess pressure. If the body pressure exceeds the line pressure and seat pre-load pressure, the seat(s) will automatically back off to relieve the excess pressure.



Features and benefits

Double block and bleed

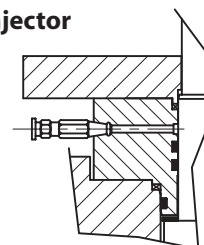
The pressure actuated seats of V&W trunnion valves provide a positive up and downstream seal under all conditions. When used for block and bleed, this feature lets the valve to take the place of two valves, allowing the operator to check the up and downstream sealing by installing a pressure releasing tool to bleed body pressure.



Grease fittings

Two grease fittings are supplied, providing the ability to inject lubricant into both the upstream and downstream seat pockets.

Shaft injector



Easy to maintain

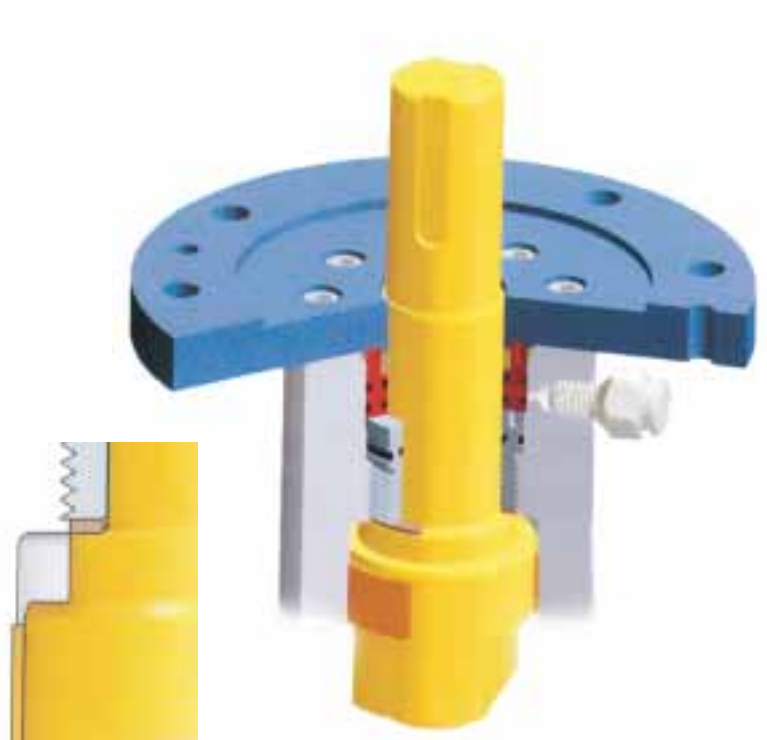
V&W valves can be completely disassembled in the field for replacements of seats or a complete overhaul. Seats can be replaced quickly without the need for special tools.



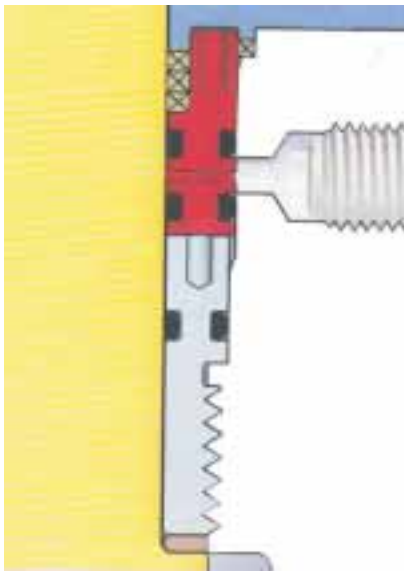
Features and benefits

Positive stem retention

V&W trunnion mounted ball valves are manufactured with true anti blow out stem. The stem is inserted from within the valve body and is positively retained within the body cavity. This method of stem retention eliminates the need for external locking pins or devices, which may be subjected to inadvertent removal and the subsequent risks. V&W anti blow out stem ensures total safety and integrity.



www.vweng.com



Adjustable packing

The stem packing material is graphite. The unique design of the V&W stem packing assembly allow full maintainability of the packing material and replacement of FPM o-rings while the valve is in line and in service. This is achieved by the security of a secondary stem seal located below the packing and upper lantern ring.

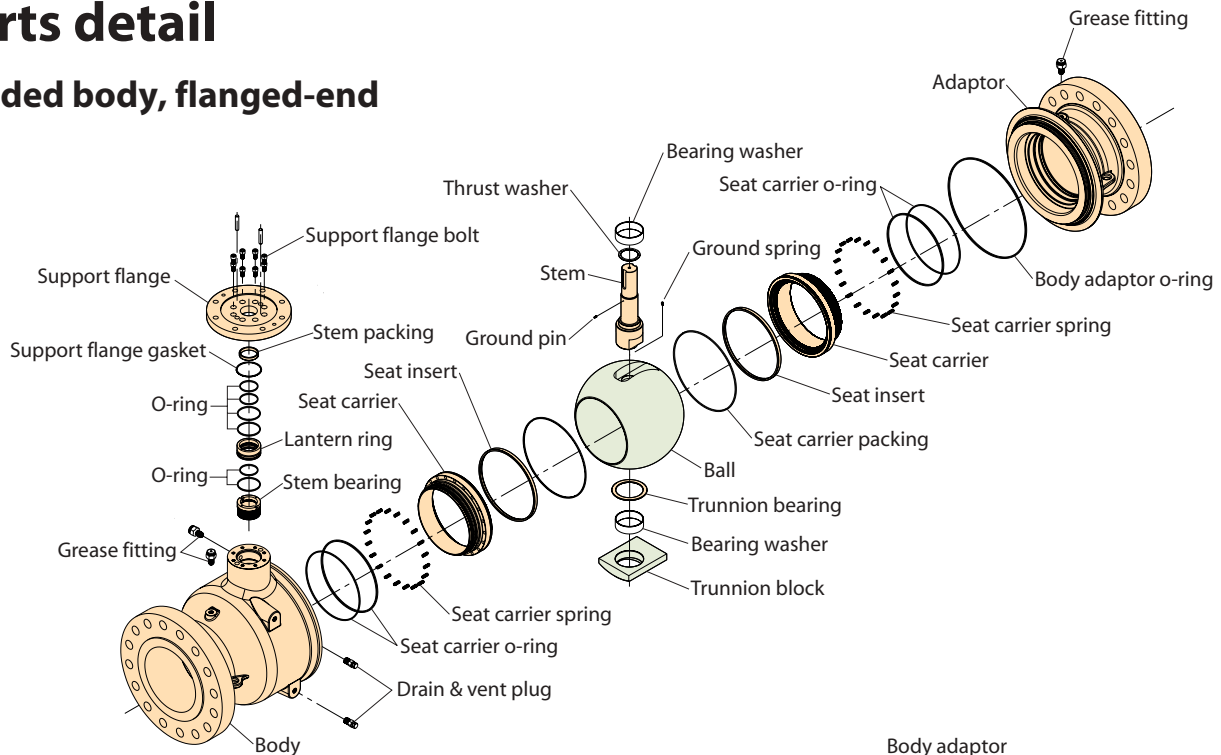


Trunnion mounted

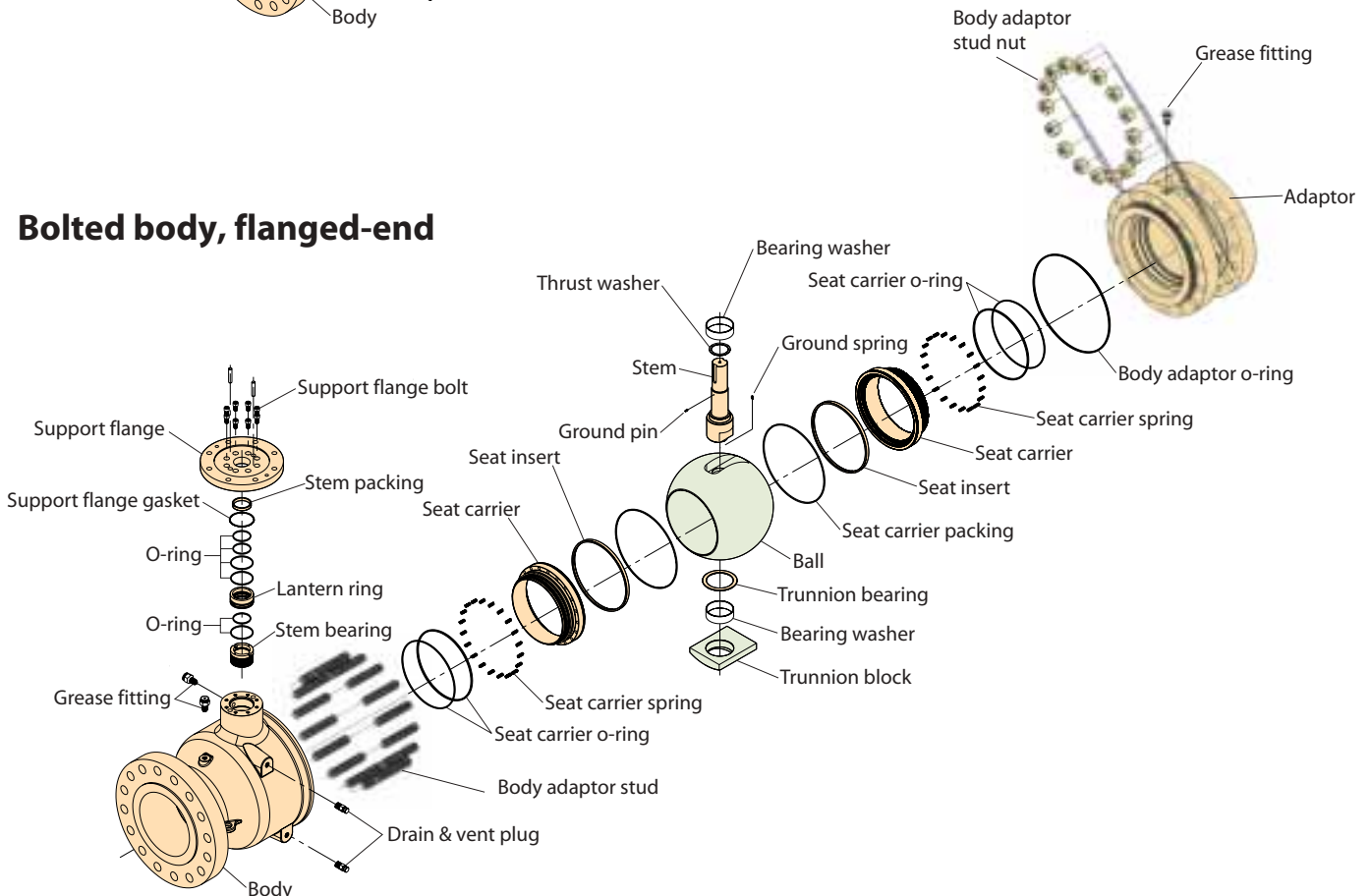
Side entry, cast steel

Parts detail

Welded body, flanged-end



Bolted body, flanged-end

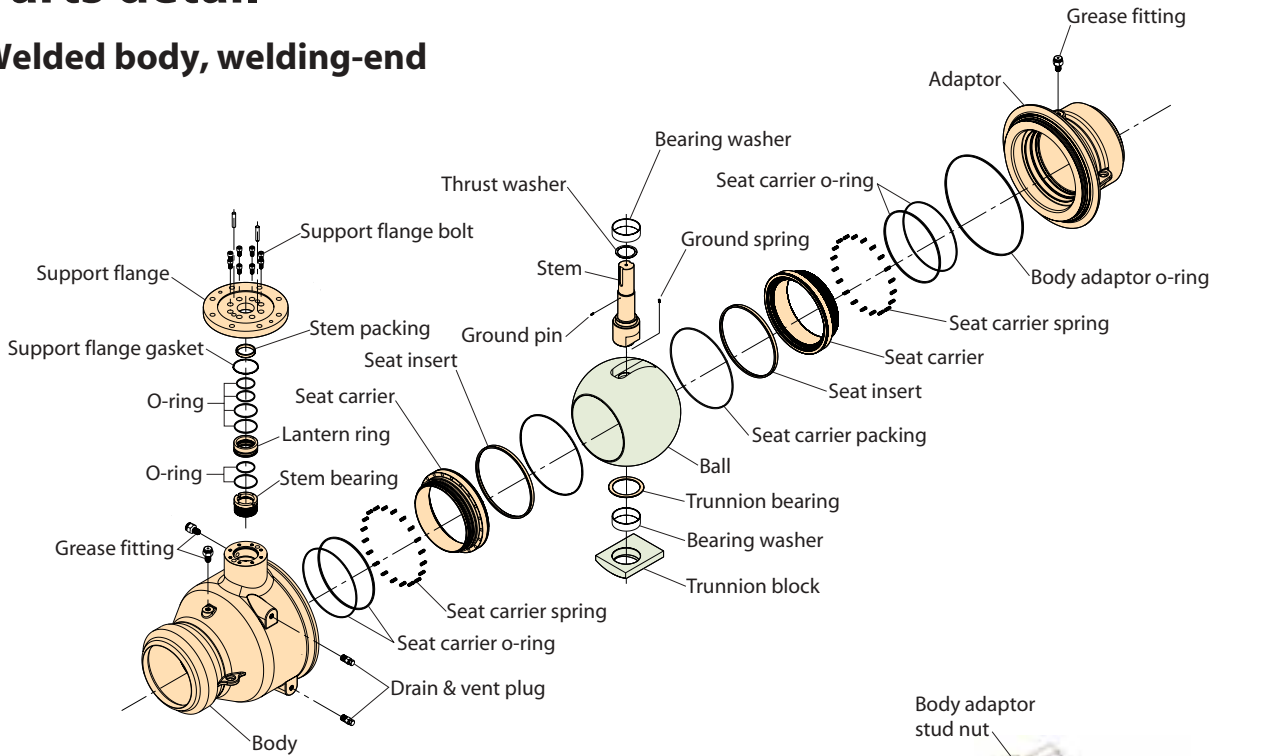


Trunnion mounted

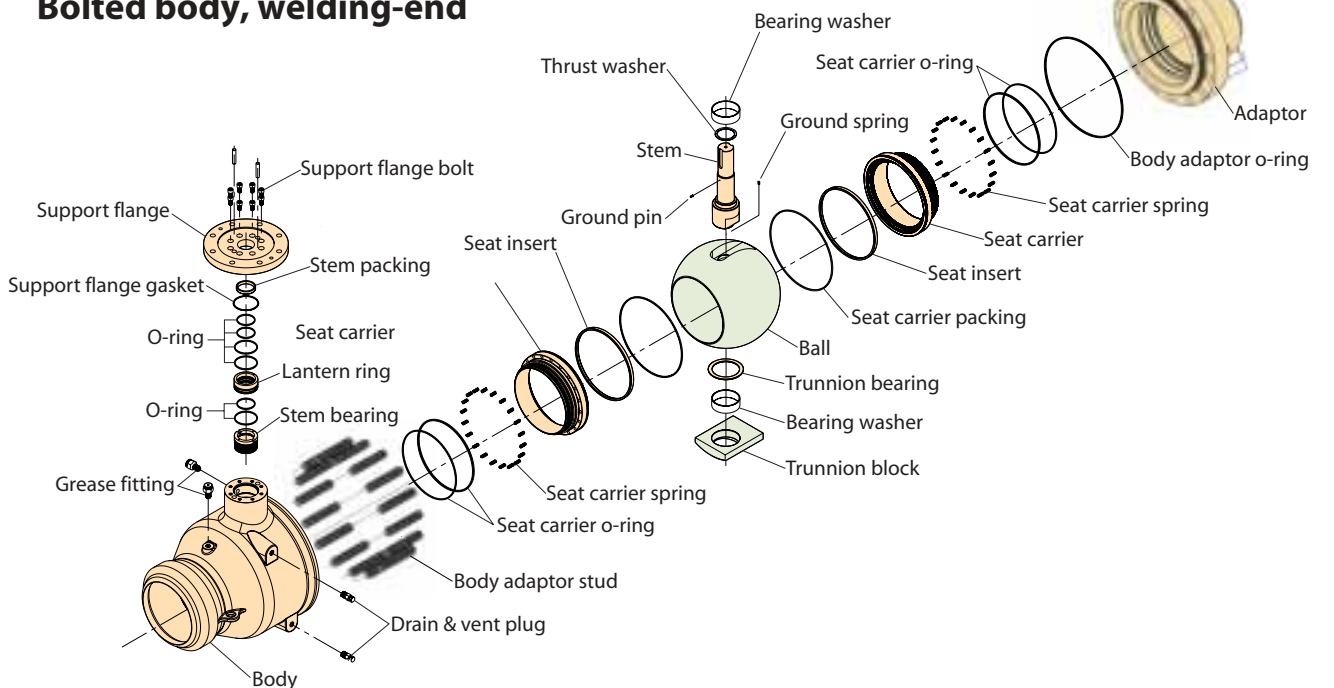
Side entry, cast steel

Parts detail

Welded body, welding-end



Bolted body, welding-end



Trunnion mounted

Side entry, cast steel

Standard materials

Body group materials

Part	Standard		NACE MR0175	
	Carbon steel	Stainless steel	Carbon steel	Stainless steel
Body	A 216 Gr. WCB	A 351 Gr. CF8M	A 216 Gr. WCB	A 351 Gr. CF8M
Adaptor	A 216 Gr. WCB	A 351 Gr. CF8M	A 216 Gr. WCB	A 351 Gr. CF8M
Trunnion blocks	Carbon st. + Zn Plt.	316 SS	Carbon st. + Zn Plt.	316 SS
Body-adaptor studs	A 193 Gr. B7	A 193 Gr. B7	A 193 Gr. B7M	A 193 Gr. B7M
Body-adaptor nuts	A 194 Gr. 2H	A 194 Gr. 2H	A 194 Gr. 2HM	A 194 Gr. 2HM
Grease fitting	Carbon st. + Zn Plt.	316 SS	Carbon st. + Zn Plt.	316 SS
Drain / vent plug	Carbon st. + Zn Plt.	316 SS	Carbon st. + Zn Plt.	316 SS
Ground spring	Inconel X750	Inconel X750	Inconel X750	Inconel X750
Support flange	Carbon st.	Carbon st.	Carbon st.	Carbon st.
Support flange bolts	Carbon st.	Carbon st.	Carbon st.	Carbon st.

Internal group materials

Part	Standard		NACE MR0175	
	Carbon steel	Stainless steel	Carbon steel	Stainless steel
Ball	A 105 + ENP	316 SS + ENP	A 105 + ENP	316 SS + ENP
Stem	A 479 Tp. 410 Cl. 2	A 564 Gr. 630	A 479 Tp. 410 Cl. 2	A 564 Gr. 630
Seat carrier	Carbon st. + ENP	316 SS	Carbon st. + ENP	316 SS
Trunnion bearing	SS PTFE coated	SS PTFE coated	SS PTFE coated	SS PTFE coated
Seat spring	Inconel X750	Inconel X750	Inconel X750	Inconel X750
Stem bearings	A 536 Gr. 80/55/06	316 SS + ENP	A 536 Gr. 80/55/06	316 SS + ENP
Bearing & thrust washer	A 536 Gr. 80/55/06	316 SS	A 536 Gr. 80/55/06	316 SS
Lantern ring	316 SS + ENP	316 SS	316 SS + ENP	316 SS

Seal group materials

Part	
Seat insert	PTFE TFM 4215/NYLON
O-ring	FPM
Packing	Graphite

Contact V&W for alternative materials configurations



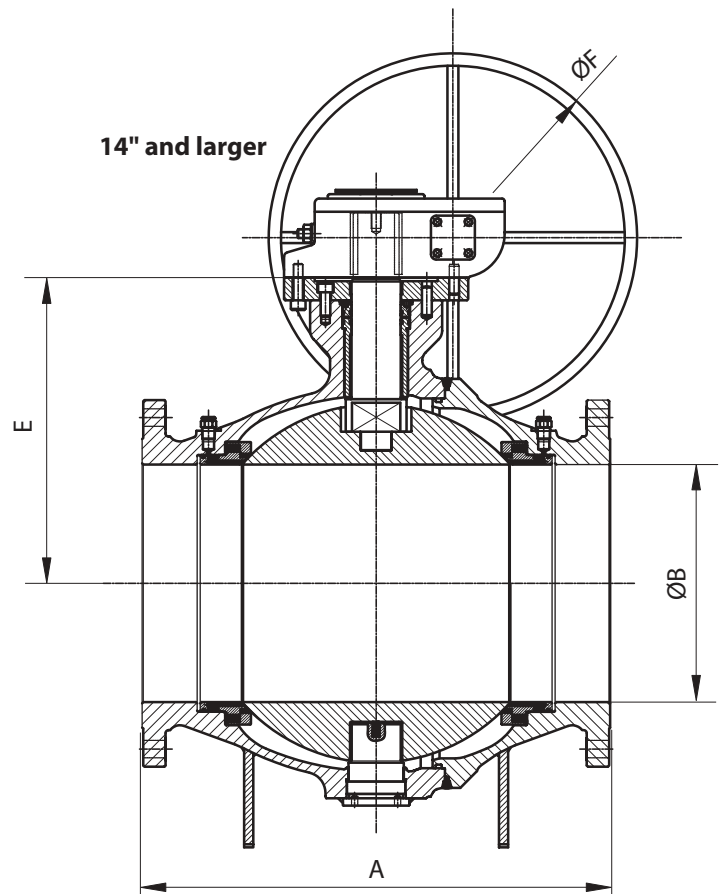
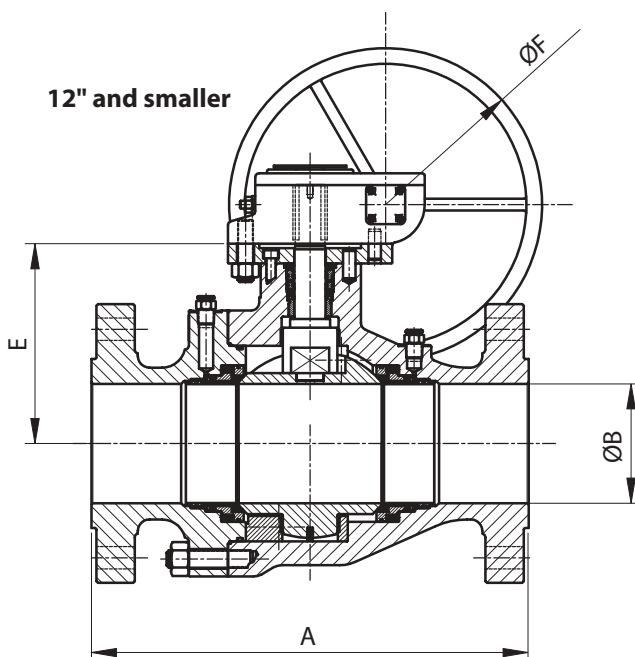
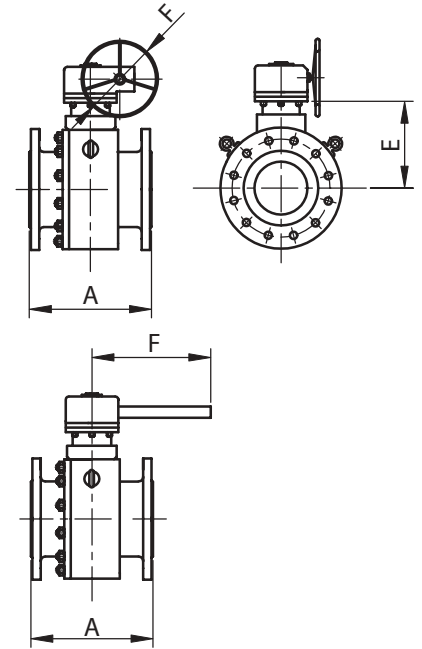
Trunnion mounted

Side entry, cast steel, full bore ASME Class 150

Dimensional data, mm

Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
2	178	216	191	51	188	410	11
3	203	283	216	76	229	510	18
4	229	305	241	102	260	700	38
6	394	457	406	152	340	700	131
8	457	521	470	203	375	600	189
10	533	559	546	254	450	600	343
12	610	635	622	305	480	600	529
14	686	762	699	337	490	600	715
16	762	838	775	387	498	600	865
18	864	914	876	438	548	600	1060
20	914	991	927	489	567	800	1415
24	1067	1143	1080	591	677	900	2251

6 inches and smaller lever operated
Weights of welded body welding-end valve style



Trunnion mounted

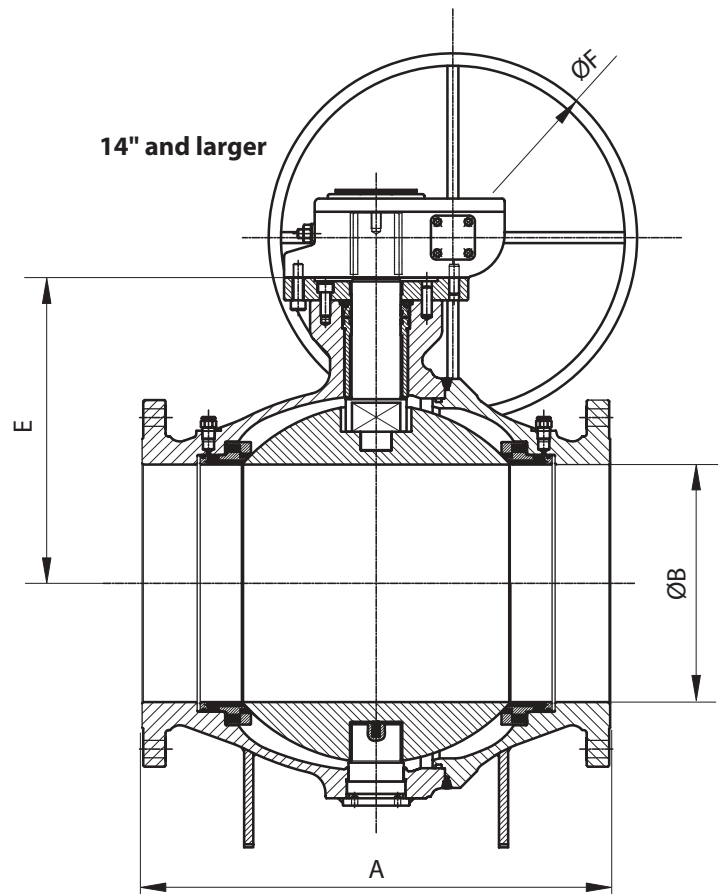
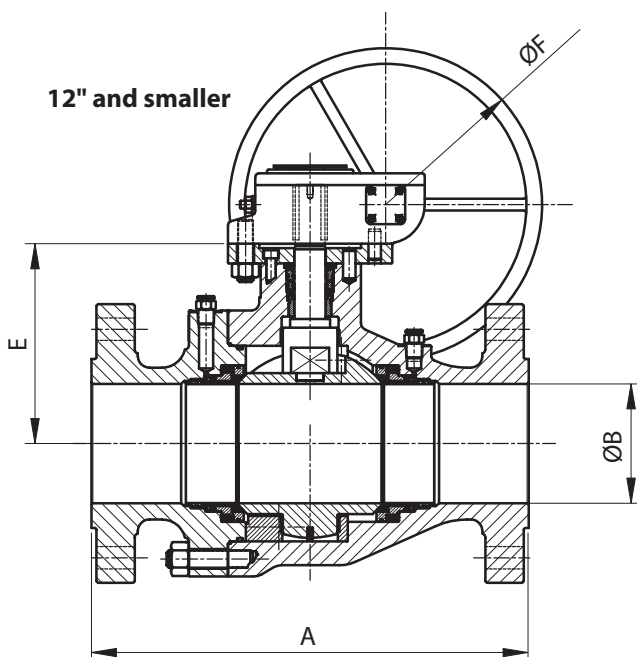
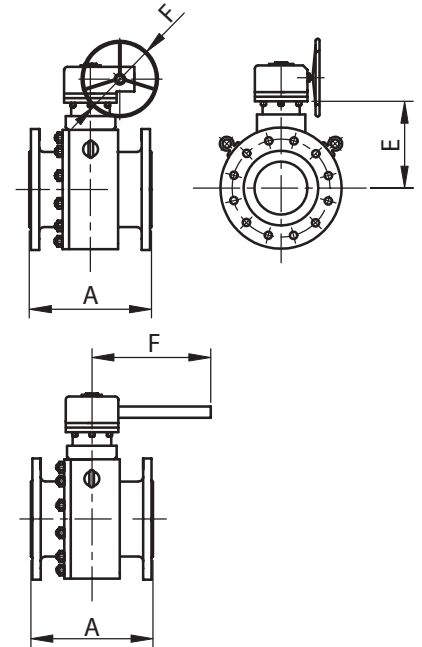
Side entry, cast steel, full bore ASME Class 300

Dimensional data, mm

Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
2	216	216	232	51	188	410	17
3	283	283	298	76	229	510	25
4	305	305	321	102	260	700	48
6	403	457	419	152	340	700	142
8	502	521	518	203	375	600	225
10	568	559	584	254	450	600	325
12	648	635	664	305	480	600	545
14	762	762	778	337	490	600	758
16	838	838	854	387	498	600	917
18	914	914	930	438	548	600	1124
20	991	991	1010	489	567	800	1500
22	1092	1092	1114	540	622	900	1920
24	1143	1143	1165	591	677	900	2386

6 inches and smaller lever operated

Weights of welded body welding-end valve style



Trunnion mounted

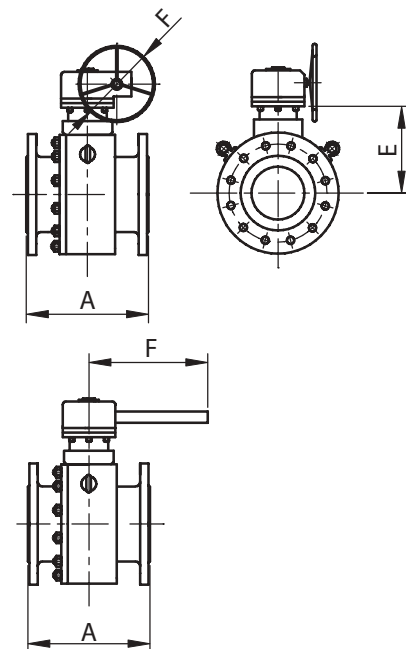
Side entry, cast steel, full bore ASME Class 600

Dimensional data, mm

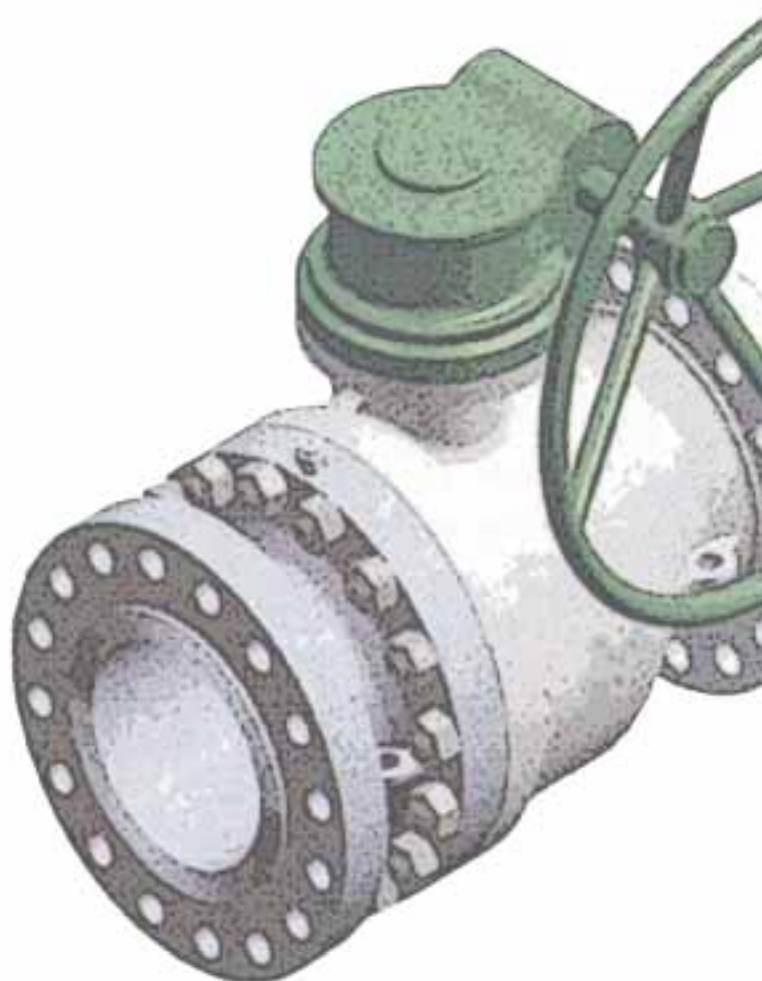
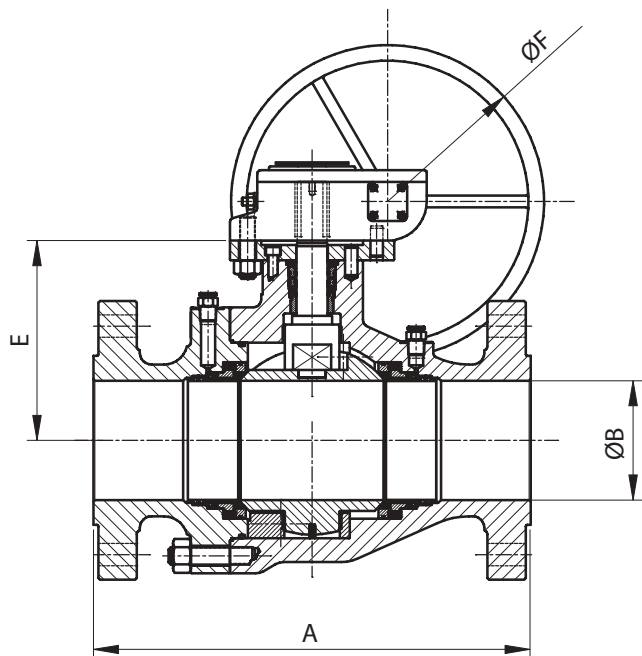
Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
2	292	292	295	51	188	410	25
3	356	356	359	76	229	510	36
4	432	432	435	102	260	700	61
6	559	559	562	152	305	500	145
8	660	660	664	203	375	600	295
10	787	787	791	254	450	600	405
12	838	838	841	305	495	600	637

4 inches and smaller lever operated

Weights of welded body welding-end valve style



www.vweng.com



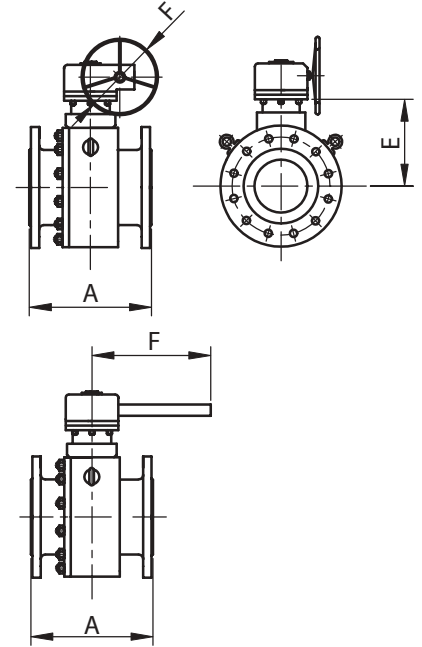
Trunnion mounted

Side entry, cast steel, reduced bore ASME Class 150

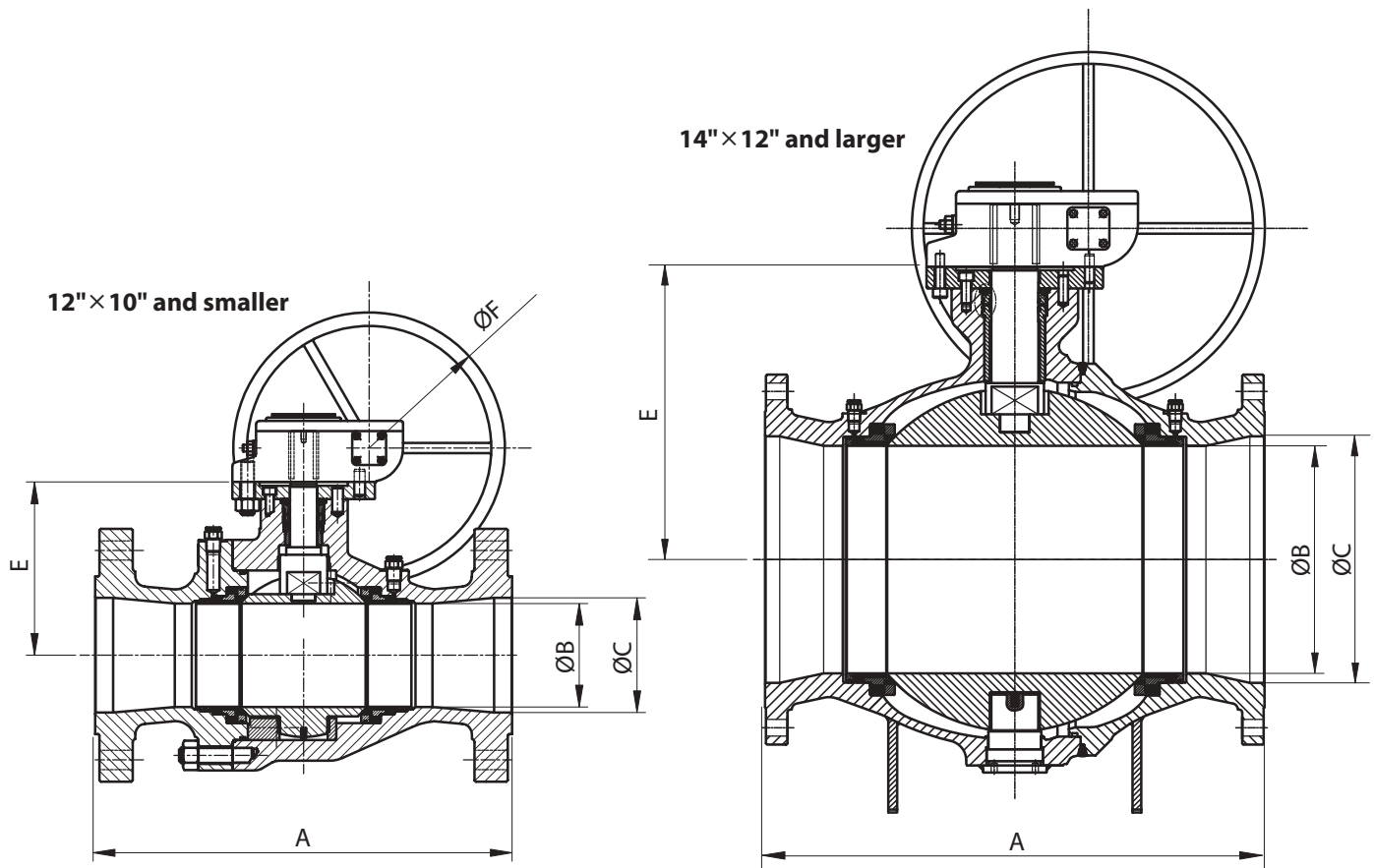
Dimensional data, mm

Size inches	A			ØB	ØC	E	F	Weight kg
	RF	BW	RTJ					
3×2	203	283	216	51	76	188	410	13
4×3	229	305	241	76	102	229	510	21
6×4	394	457	406	102	152	260	700	48
8×6	457	521	470	152	203	340	700	142
10×8	533	559	546	203	254	375	600	214
12×10	610	635	622	254	305	450	600	380
14×12	686	762	699	305	337	480	600	622
16×14	762	838	775	337	387	490	600	790
18×16	864	914	876	387	438	498	600	963
20×18	914	991	927	438	489	548	600	1238
24×20	1067	1143	1080	489	591	567	800	1830

8×6 inches and smaller lever operated
Weights of welded body welding-end valve style



www.vweng.com



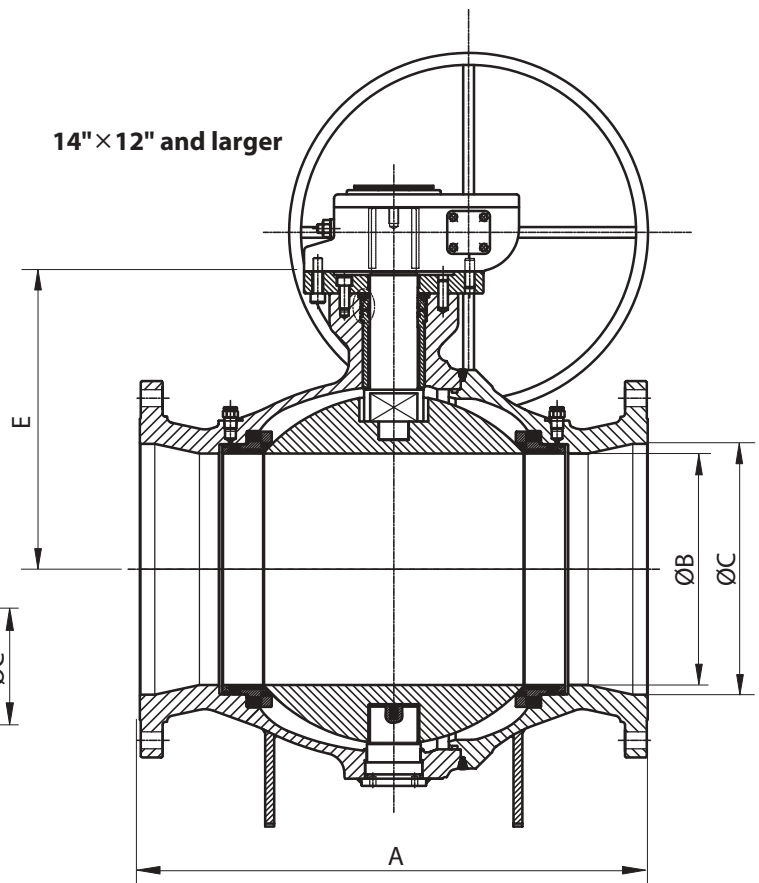
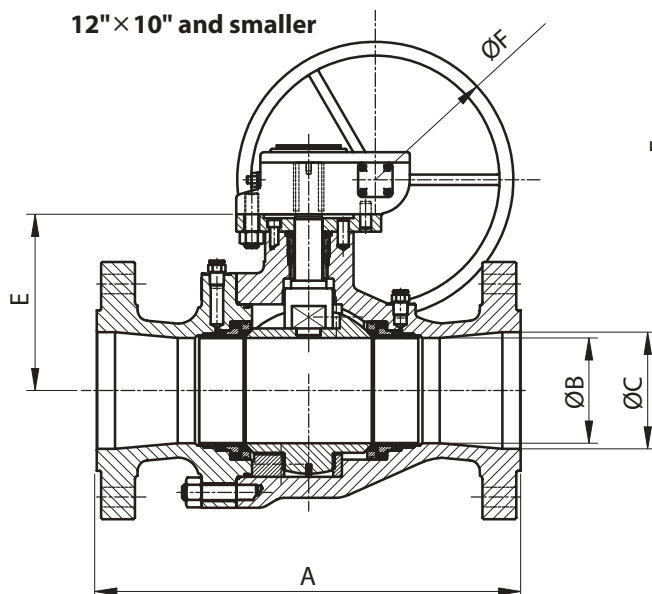
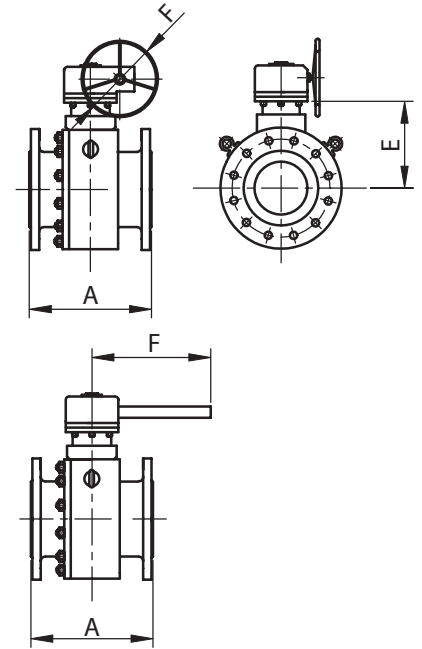
Trunnion mounted

Side entry, cast steel, reduced bore ASME Class 300

Dimensional data, mm

Size inches	A			ØB	ØC	E	F	Weight kg
	RF	BW	RTJ					
3×2	283	283	298	51	76	188	410	18
4×3	305	305	321	76	102	229	510	40
6×4	403	457	419	102	152	260	700	57
8×6	502	521	518	152	203	340	700	157
10×8	568	559	584	203	254	375	600	250
12×10	648	635	664	254	305	450	600	400
14×12	762	762	778	305	337	480	600	652
16×14	838	838	854	337	387	490	600	838
18×16	914	914	930	387	438	498	600	1021
20×18	991	991	1010	438	489	548	600	1312
22×20	1092	1092	1114	489	540	567	800	1710
24×20	1143	1143	1165	489	591	567	800	1943

8×6 inches and smaller lever operated
Weights of welded body welding-end valve style



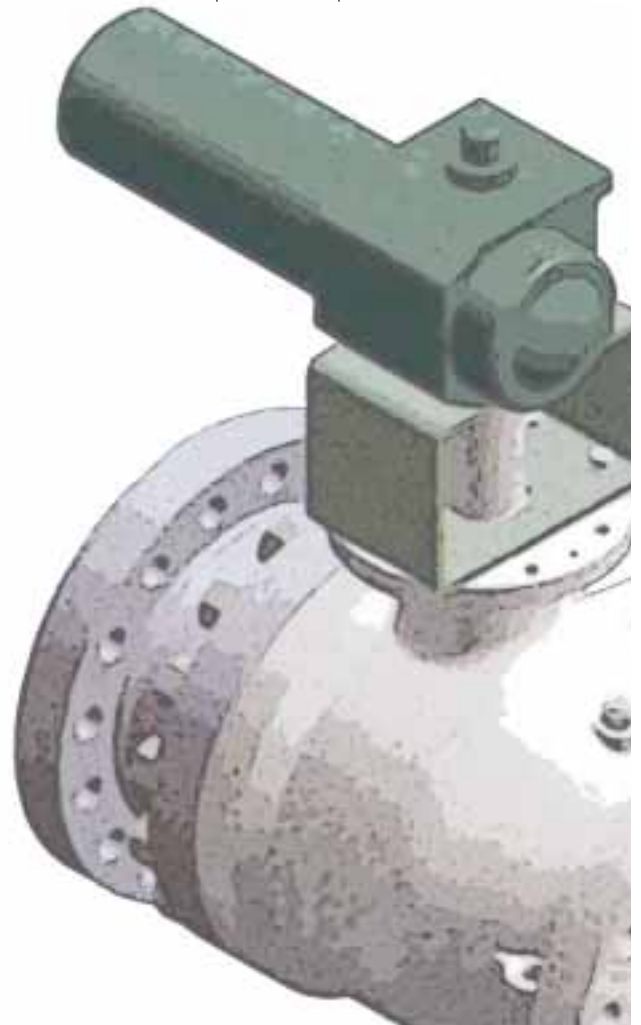
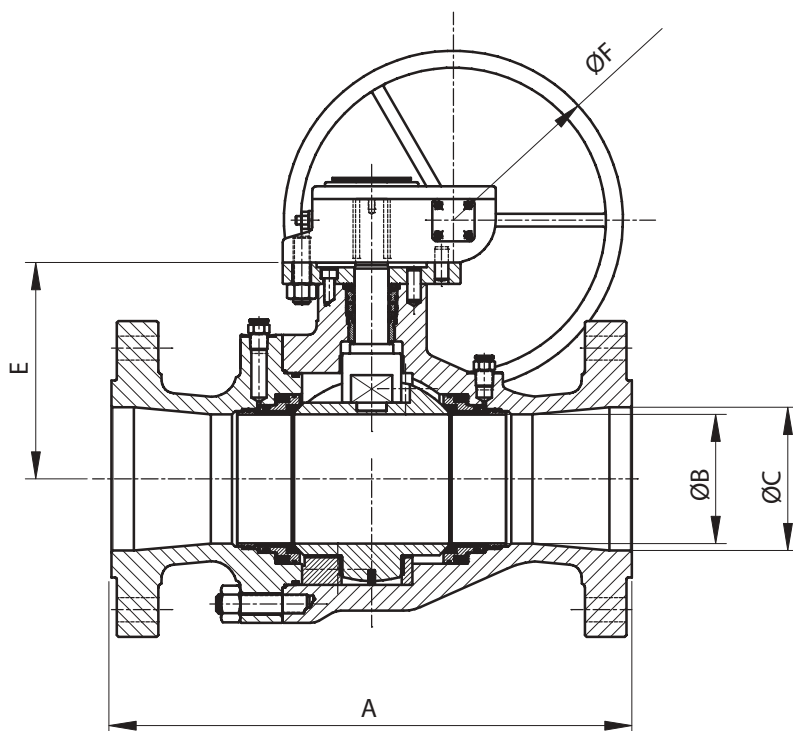
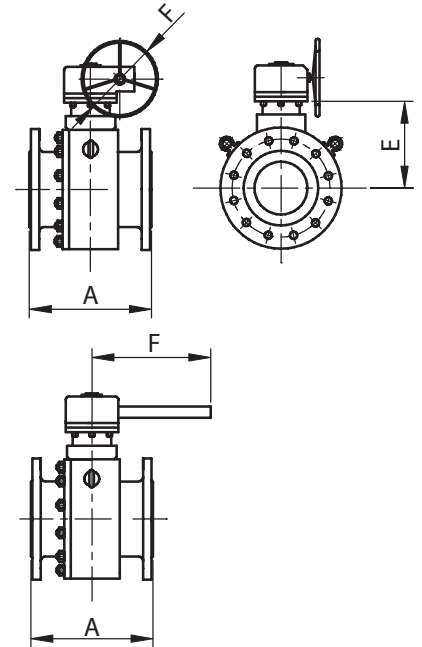
Trunnion mounted

Side entry, cast steel, reduced bore ASME Class 600

Dimensional data, mm

Size inches	A			ØB	ØC	E	F	Weight kg
	RF	BW	RTJ					
3×2	356	356	359	51	76	188	410	26
4×3	432	432	435	76	102	229	510	43
6×4	559	559	562	102	152	260	700	107
8×6	660	660	664	152	203	305	500	160
10×8	787	787	791	203	254	375	600	330
12×10	838	838	841	254	305	450	600	480

4×3 inches and smaller lever operated
Weights of welded body welding-end valve style



Trunnion mounted

Side entry, forged steel, full bore ASME Class 150

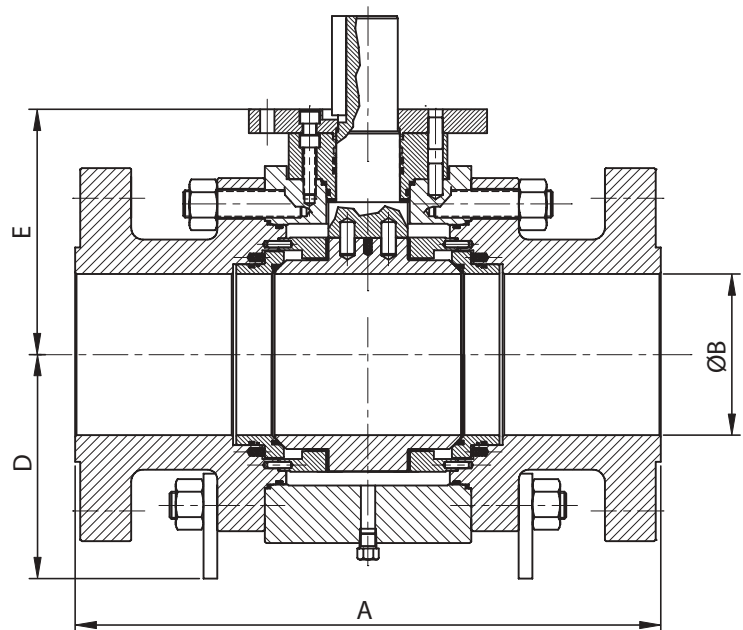
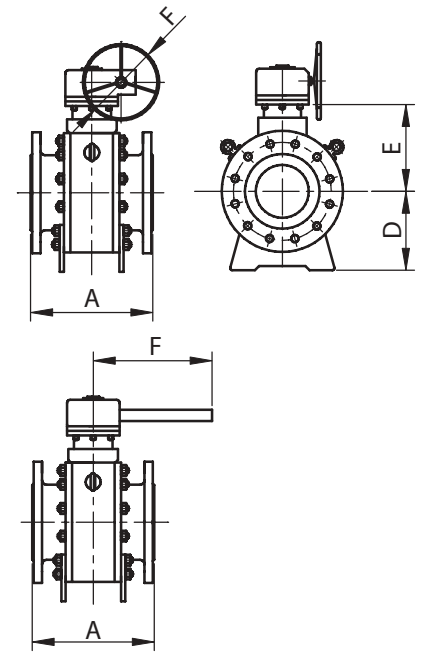
Dimensional data, mm

Size inches	A			ØB	D	E	F	Weight kg
	RF	BW	RTJ					
2	178	216	191	51	95	160	410	28
3	203	283	216	76	120	185	510	49
4	229	305	241	102	186	235	700	88
6	394	457	406	152	250	325	700	160
8	457	521	470	203	280	282	600	248
10	533	559	546	254	345	321	600	379
12	610	635	622	305	365	357	600	571
14	686	762	699	337	418	394	600	759
16	762	838	775	387	430	443	600	1150
18	864	914	876	438	500	490	600	1325
20	914	991	927	489	573	506	800	1769
24	1067	1143	1080	591	607	604	900	2814
26	1143	1245	—	635	640	637	900	3705
28	1245	1346	—	686	685	680	900	4550
30	1295	1397	—	737	722	720	900	6250
32	1372	1524	—	781	780	766	Motor	7745
34	1473	1626	—	832	812	827	Motor	8950
36	1524	1727	—	876	850	892	Motor	10170

6 inches and smaller lever operated.

Dimensional data of greater sizes available upon request.

Product range up to 60".



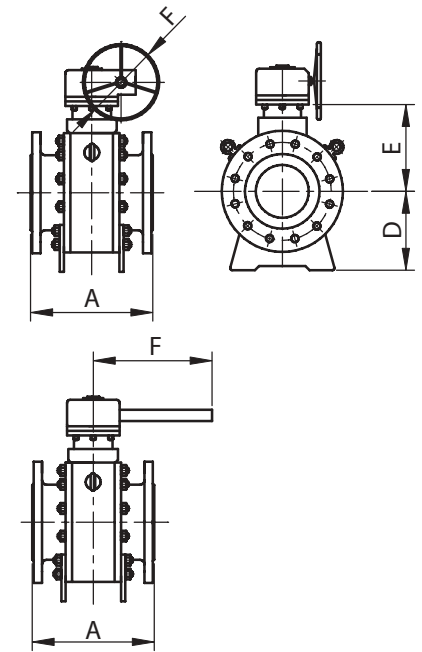
**Bolted body and
Fully welded body design available**

Trunnion mounted

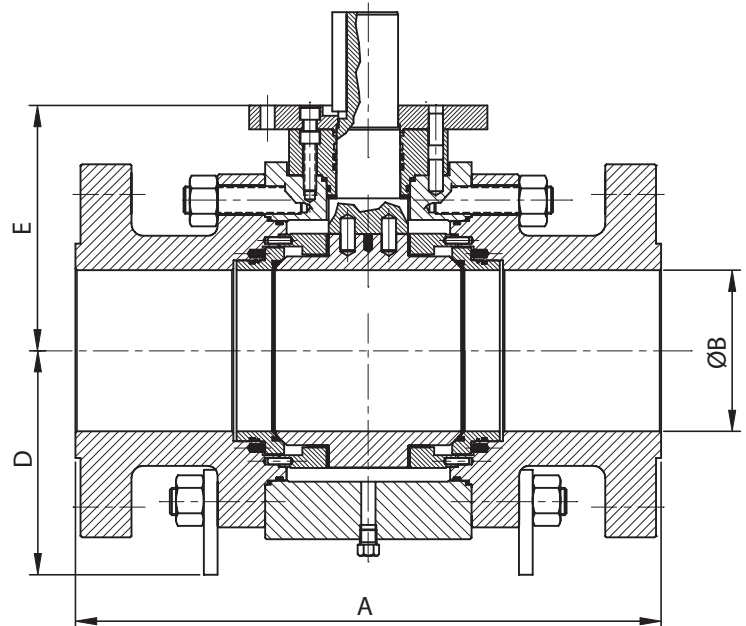
Side entry, forged steel, full bore ASME Class 300

Dimensional data, mm

Size inches	A			ØB	D	E	F	Weight kg
	RF	BW	RTJ					
2	216	216	232	51	95	160	410	29
3	283	283	298	76	120	185	510	55
4	305	305	321	102	186	235	700	97
6	403	457	419	152	250	325	700	185
8	502	521	518	203	300	287	600	287
10	568	559	584	254	345	321	600	507
12	648	635	664	305	405	365	600	740
14	762	762	778	337	438	405	600	1038
16	838	838	854	387	475	443	600	1452
18	914	914	930	438	520	510	600	1648
20	991	991	1010	489	573	560	800	2190
22	1092	1092	1114	540	592	581	900	2535
24	1143	1143	1165	591	607	604	900	2970
26	1245	1245	1270	635	640	637	900	3790
28	1346	1346	1372	686	685	680	900	4585
30	1397	1397	1422	737	722	720	900	6350
32	1524	1524	1553	781	780	766	Motor	7745
34	1626	1626	1654	832	812	827	Motor	9100
36	1727	1727	1756	876	850	892	Motor	10300



6 inches and smaller lever operated.
Dimensional data of greater sizes available upon request.
Product range up to 60".



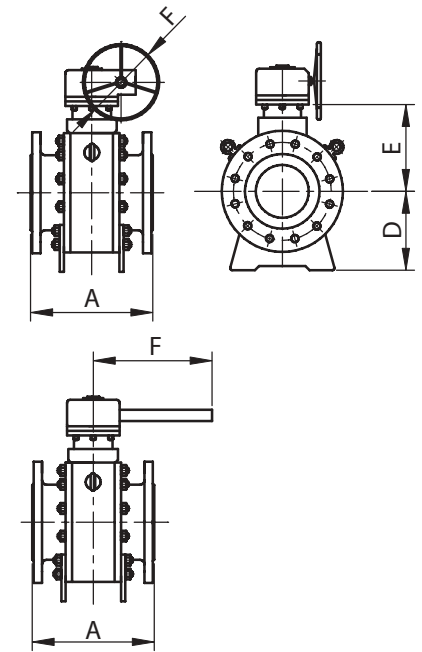
Bolted body and Fully welded body design available

Trunnion mounted

Side entry, forged steel, full bore ASME Class 600

Dimensional data, mm

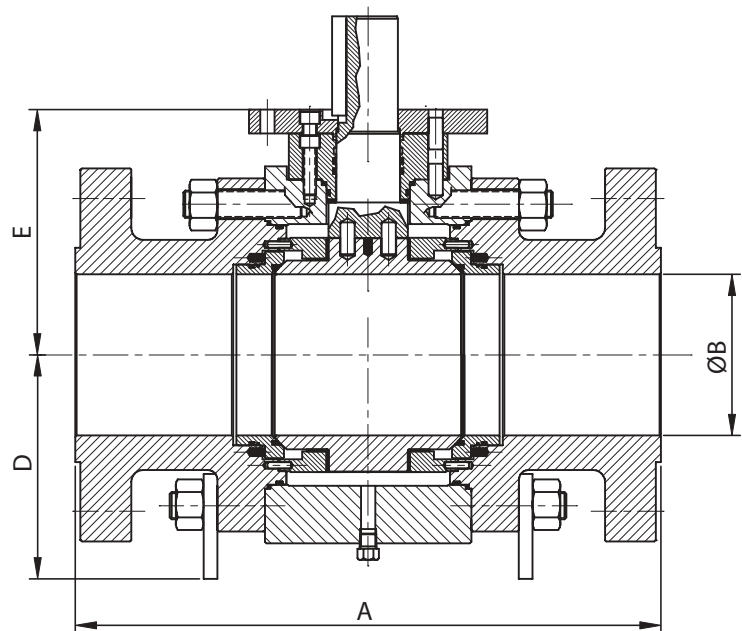
Size inches	A			ØB	D	E	F	Weight kg
	RF	BW	RTJ					
2	292	292	295	51	110	185	410	32
3	356	356	359	76	120	220	510	60
4	432	432	435	102	186	280	700	124
6	559	559	562	152	250	360	500	255
8	660	660	664	203	300	390	600	483
10	787	787	791	254	345	450	600	760
12	838	838	841	305	405	500	600	984
14	889	889	892	337	438	500	600	1085
16	991	991	994	387	475	550	600	1532
18	1092	1092	1095	438	520	590	600	2097
20	1194	1194	1200	489	540	610	800	2635
22	1295	1295	1305	540	581	613	900	3050
24	1397	1397	1407	591	622	616	900	3510
26	1448	1448	1461	635	662	654	900	4515
28	1549	1549	1562	686	701	691	900	5480
30	1651	1651	1664	737	750	740	900	7195
32	1778	1778	1794	781	815	781	Motor	9200
34	1930	1930	1946	832	854	846	Motor	10150
36	2083	2083	2099	876	892	910	Motor	10700



4 inches and smaller lever operated.

Dimensional data of greater sizes available upon request.

Product range up to 56".



**Bolted body and
Fully welded body design available**

Trunnion mounted

Side entry, forged steel, full bore ASME Class 900

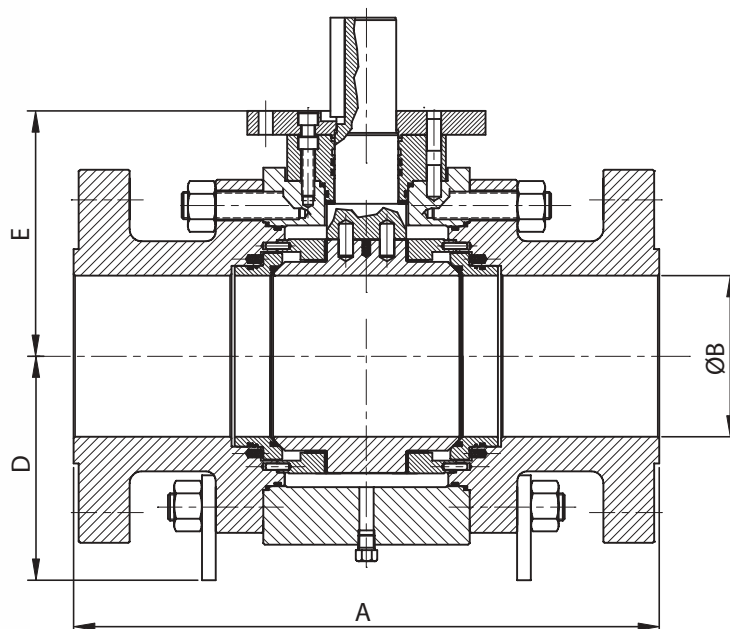
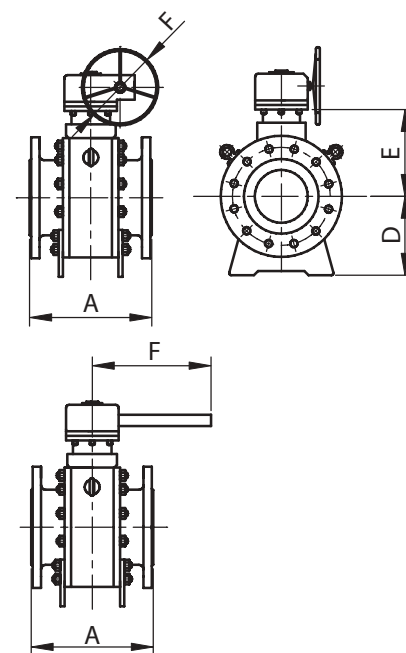
Dimensional data, mm

Size inches	A			ØB	D	E	F	Weight kg
	RF	BW	RTJ					
2	368	368	371	51	120	185	410	50
3	381	381	384	76	120	255	510	76
4	457	457	460	102	150	285	600	150
6	610	610	613	152	251	370	600	367
8	737	737	740	203	280	400	600	600
10	838	838	841	254	340	450	800	1027
12	965	965	968	305	390	500	800	1558
14	1029	1029	1038	324	442	520	800	1477
16	1130	1130	1140	375	490	550	800	2157
18	1219	1219	1232	425	500	600	800	2860
20	1321	1321	1334	473	500	630	800	4220
24	1549	1549	1568	572	630	720	800	6850

3 inches and smaller lever operated.

Dimensional data of greater sizes available upon request.

Product range up to 56".



**Bolted body and
Fully welded body** design available

Trunnion mounted

Side entry, forged steel, full bore ASME Class 1500/2500

ASME Class 1500 dimensional data, mm

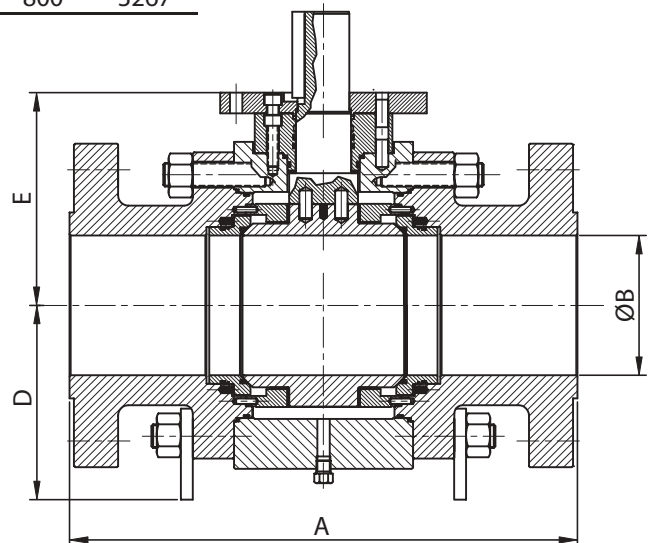
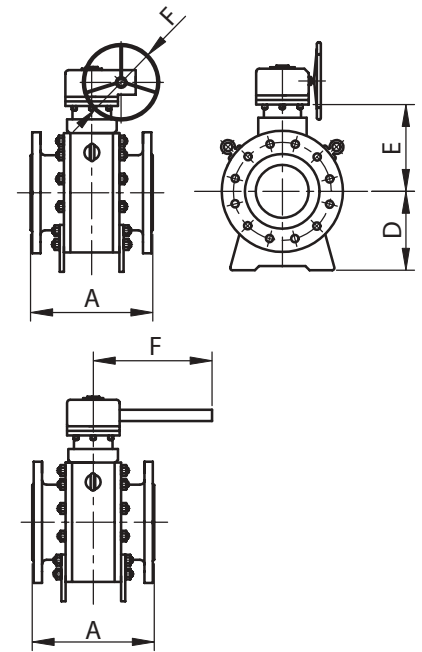
Size inches	A			ØB	D	E	F	Weight kg
	RF	BW	RTJ					
2	368	368	371	51	120	185	410	53
3	470	470	473	76	120	255	510	98
4	546	546	549	102	150	285	600	200
6	705	705	711	146	270	460	600	485
8	832	832	841	194	300	520	600	827
10	991	991	1000	241	360	640	800	1507
12	1130	1130	1146	289	410	720	800	2272
14	1257	1257	1276	318	460	760	800	2880
16	1384	1384	1407	362	510	820	800	4120

3 inches and smaller lever operated.
Dimensional data of greater sizes available upon request.
Product range up to 30".

ASME Class 2500 dimensional data, mm

Size inches	A			ØB	D	E	F	Weight kg
	RF	BW	RTJ					
2	451	451	454	44	125	170	350	90
3	578	578	584	64	200	250	450	200
4	673	673	683	89	230	290	500	385
6	914	914	927	133	250	340	600	778
8	1022	1022	1038	181	340	470	600	1352
10	1270	1270	1292	225	425	490	800	2137
12	1422	1422	1445	267	480	615	800	3267

2 inches lever operated.
Dimensional data of greater sizes available upon request.
Product range up to 16".



Bolted body and Fully welded body design available

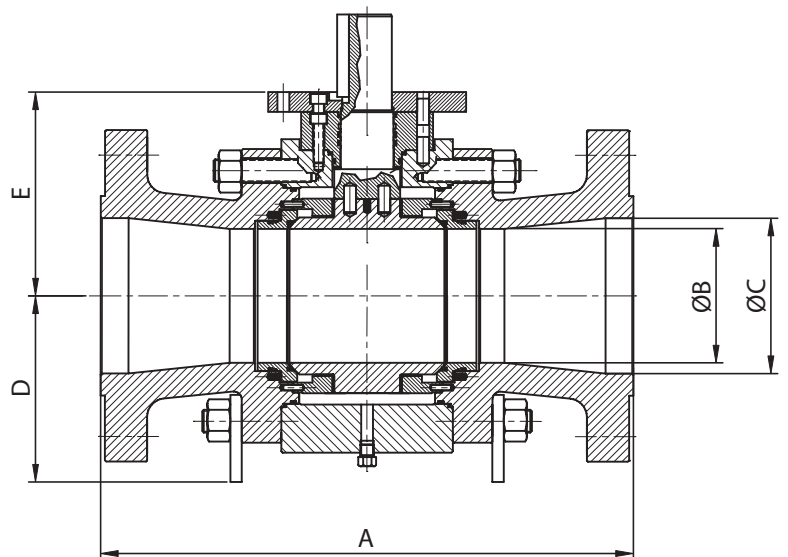
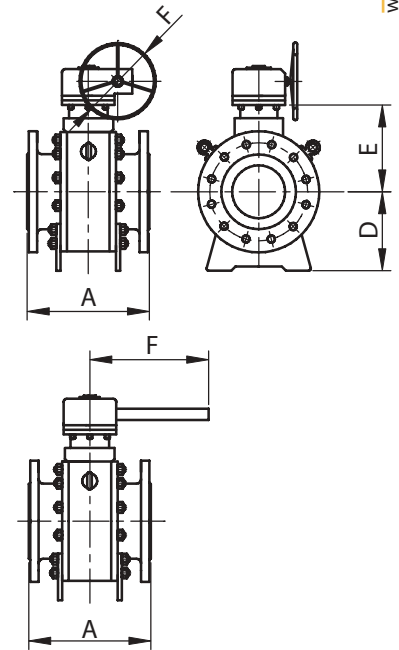
Trunnion mounted

Side entry, forged steel, reduced bore ASME Class 150

Dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	BW	RTJ						
3×2	203	283	216	51	76	120	160	410	32
4×3	229	305	241	76	102	186	185	510	62
6×4	394	457	406	102	152	250	235	700	105
8×6	457	521	470	152	203	280	325	700	190
10×8	533	559	546	203	254	345	282	600	286
12×10	610	635	622	254	305	365	321	600	487
14×12	686	762	699	305	337	418	357	600	644
16×14	762	838	775	337	387	430	394	600	940
18×16	864	914	876	387	438	500	443	600	1160
20×18	914	991	927	438	489	573	490	600	1542
24×20	1067	1143	1080	489	591	607	506	800	2292
26×22	1143	1245	—	540	635	640	550	800	3260
28×24	1245	1346	—	591	686	685	604	900	3682
30×26	1295	1397	—	635	737	722	637	900	4977
32×28	1372	1524	—	686	781	780	680	900	6150
34×30	1473	1626	—	737	832	812	720	Motor	7600
36×32	1524	1727	—	781	876	850	766	Motor	8960

8×6 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 60"×56".



Bolted body and Fully welded body design available

Trunnion mounted

Side entry, forged steel, reduced bore ASME Class 300

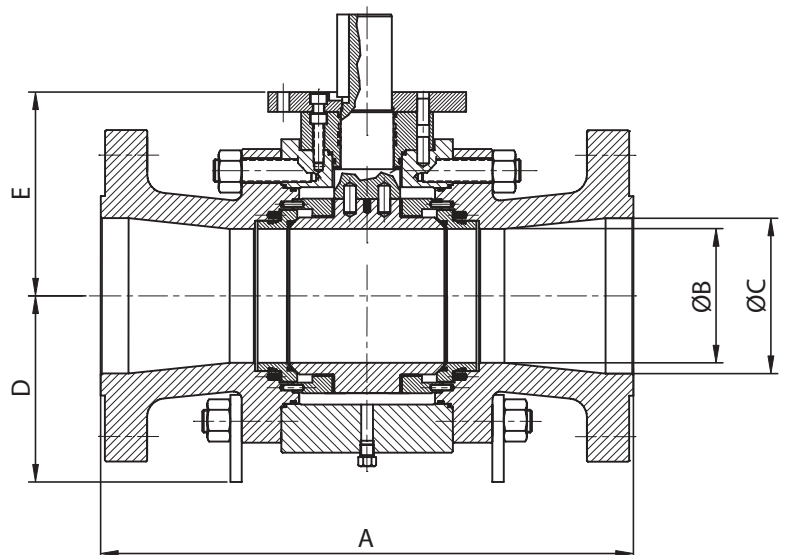
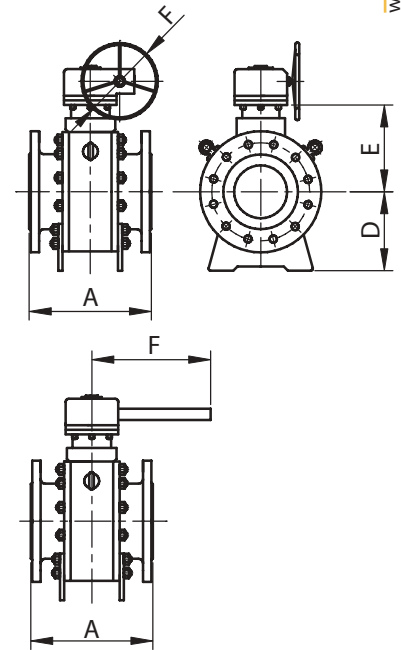
Dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	BW	RTJ						
3×2	283	283	298	51	76	120	160	410	34
4×3	305	305	321	76	102	186	185	510	65
6×4	403	457	419	102	152	250	235	700	118
8×6	502	521	518	152	203	300	325	700	222
10×8	568	559	584	203	254	345	287	600	297
12×10	648	635	664	254	305	405	321	600	585
14×12	762	762	778	305	337	438	365	600	843
16×14	838	838	854	337	387	475	405	600	1211
18×16	914	914	930	387	438	520	443	600	1534
20×18	991	991	1010	438	489	573	510	600	1929
22×20	1092	1092	1114	489	540	592	560	800	2410
24×20	1143	1143	1165	489	591	607	560	800	2580
26×22	1245	1245	1270	540	635	640	581	900	3162
28×24	1346	1346	1372	591	686	685	604	900	3777
30×26	1397	1397	1422	635	737	722	637	900	5070
32×28	1524	1524	1553	686	781	780	680	900	6165
34×30	1626	1626	1654	737	832	812	720	Motor	7725
36×32	1727	1727	1756	781	876	850	766	Motor	9025

8×6 inches and smaller lever operated.

Dimensional data of greater sizes upon request.

Product range up to 60"×56".



**Bolted body and
Fully welded body design available**

Trunnion mounted

Side entry, forged steel, reduced bore ASME Class 600

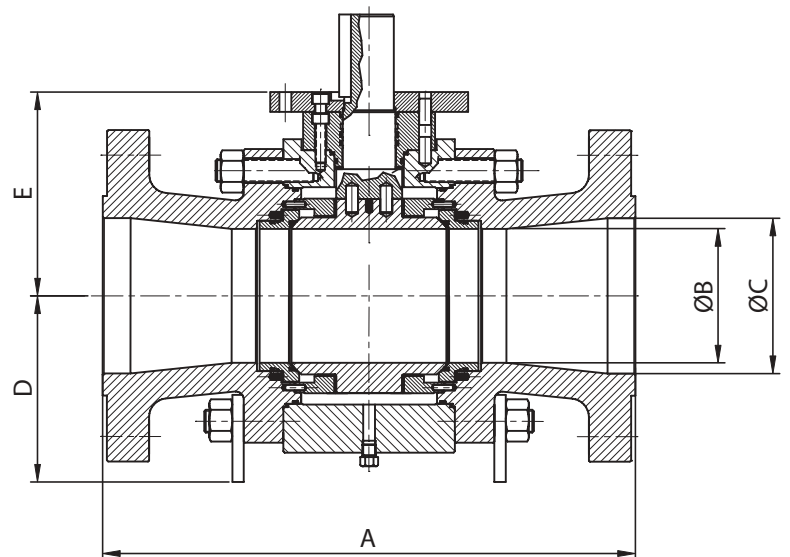
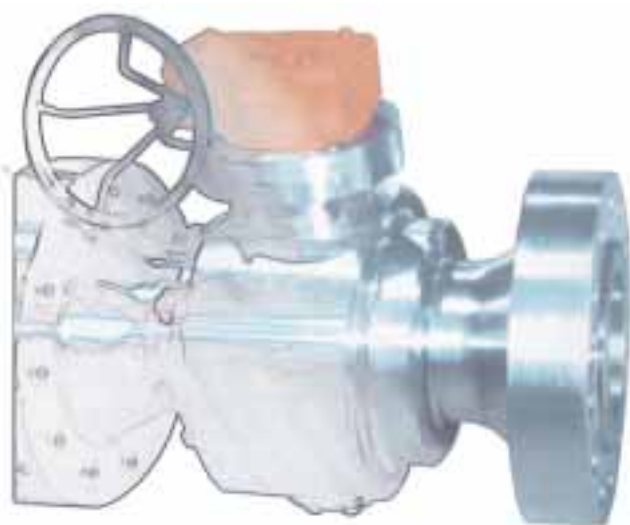
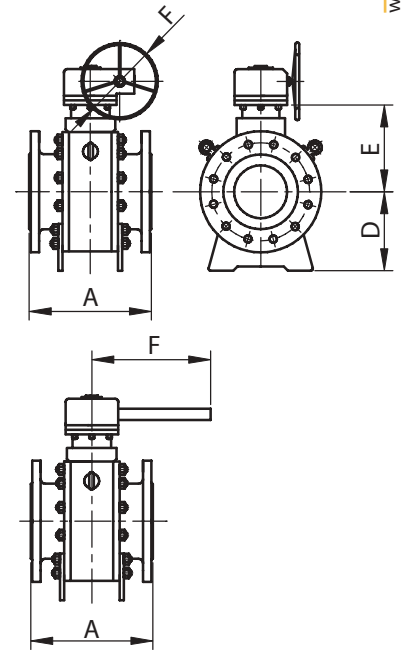
Dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	BW	RTJ						
3×2	356	356	359	51	76	120	185	410	40
4×3	432	432	435	76	102	186	220	510	80
6×4	559	559	562	102	152	250	280	700	153
8×6	660	660	664	152	203	300	360	500	290
10×8	787	787	791	203	254	345	390	600	547
12×10	838	838	841	254	305	405	450	600	817
14×12	889	889	892	305	337	438	500	600	1000
16×14	991	991	994	337	387	475	500	600	1441
18×16	1092	1092	1095	387	438	520	550	600	1774
20×18	1194	1194	1200	438	489	540	590	600	2361
22×20	1295	1295	1305	489	540	581	610	800	2928
24×20	1397	1397	1407	489	591	622	610	800	3072
26×22	1448	1448	1461	540	635	662	613	900	3782
28×24	1549	1549	1562	591	686	701	616	900	4495
30×26	1651	1651	1664	635	737	750	654	900	5855
32×28	1778	1778	1794	686	781	815	691	900	7340
34×30	1930	1930	1946	737	832	854	740	Motor	8675
36×32	2083	2083	2099	781	876	892	781	Motor	9950

6×4 inches and smaller lever operated.

Dimensional data of greater sizes upon request.

Product range up to 56"×52".



**Bolted body and
Fully welded body design available**

Trunnion mounted

Side entry, forged steel, reduced bore ASME Class 900

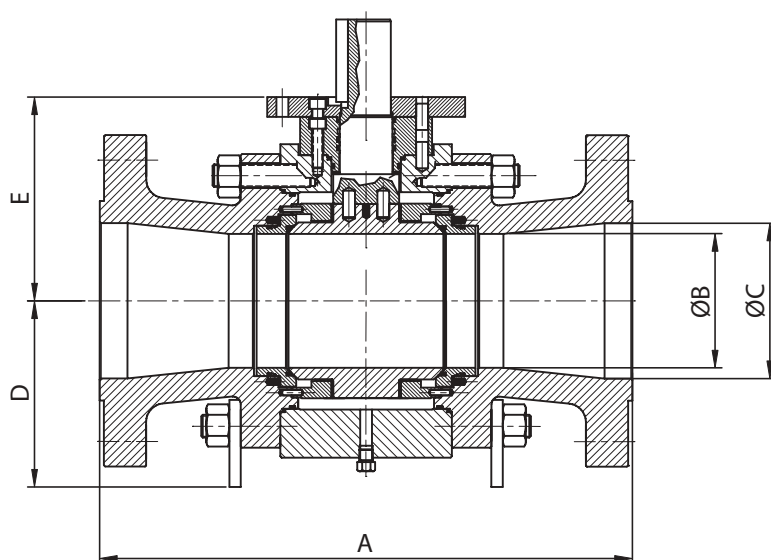
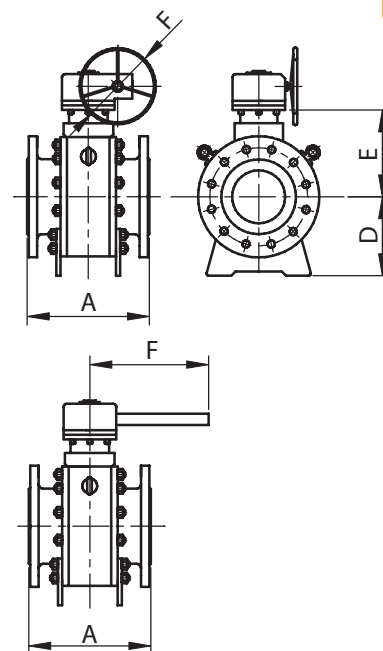
Dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	BW	RTJ						
3×2	381	381	384	51	76	120	185	410	59
4×3	457	457	460	76	102	150	255	510	97
6×4	610	610	613	102	152	251	285	600	249
8×6	737	737	740	152	203	280	370	600	447
10×8	838	838	841	203	254	340	400	600	700
12×10	965	965	968	254	305	390	450	800	1179
14×12	1029	1029	1038	305	324	442	500	800	1356
16×14	1130	1130	1140	324	375	490	520	800	1948
18×16	1219	1219	1232	375	425	500	550	800	2390
20×18	1321	1321	1334	425	473	500	600	800	3550
24×20	1549	1549	1568	473	572	630	630	800	5535

4×3 inches and smaller lever operated.

Dimensional data of greater sizes upon request.

Product range up to 56"×52".



**Bolted body and
Fully welded body design available**

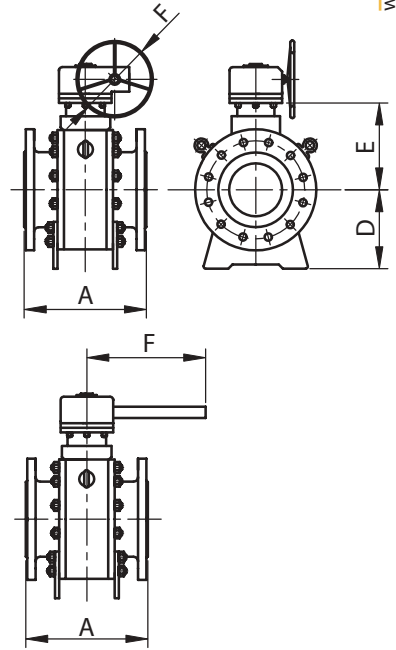
Trunnion mounted

Side entry, forged steel, reduced bore ASME Class 1500/2500

ASME Class 1500 dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	BW	RTJ						
3×2	470	470	473	51	76	120	185	410	66
4×3	546	546	549	76	102	150	255	510	126
6×4	705	705	711	102	146	270	285	600	290
8×6	832	832	841	146	194	300	460	600	575
10×8	991	991	1000	194	241	360	520	600	1032
12×10	1130	1130	1146	241	289	410	640	800	1571
14×12	1257	1257	1276	289	318	460	720	800	2516
16×14	1384	1384	1407	318	362	510	760	800	3465

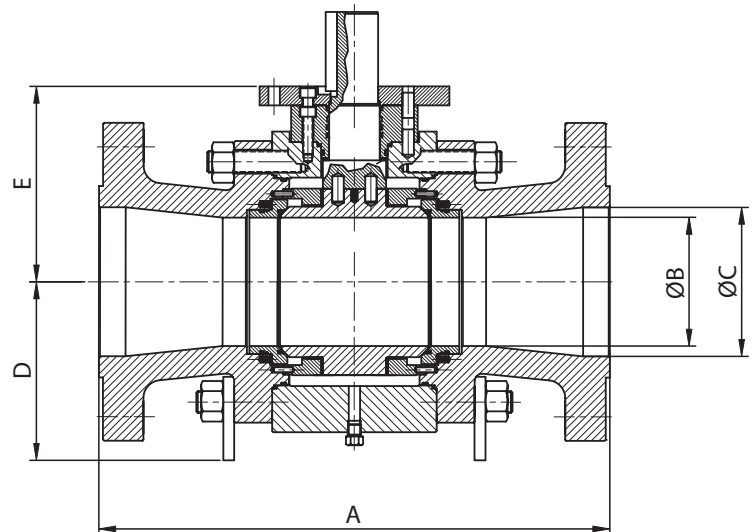
4×3 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 30"×26".



ASME Class 2500 dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	BW	RTJ						
3×2	578	578	584	44	64	200	170	350	158
4×3	673	673	683	64	89	230	250	450	270
6×4	914	914	927	89	133	250	290	500	517
8×6	1022	1022	1038	133	181	340	340	600	1098
10×8	1270	1270	1292	181	225	425	470	600	1667
12×10	1422	1422	1445	225	267	480	490	800	2917

3×2 inches lever operated.
Dimensional data of greater sizes upon request.
Product range up to 16"×14".



**Bolted body and
Fully welded body design available**

Trunnion mounted

Top entry, cast steel, full bore ASME Class 150/300

ASME Class 150 dimensional data, mm

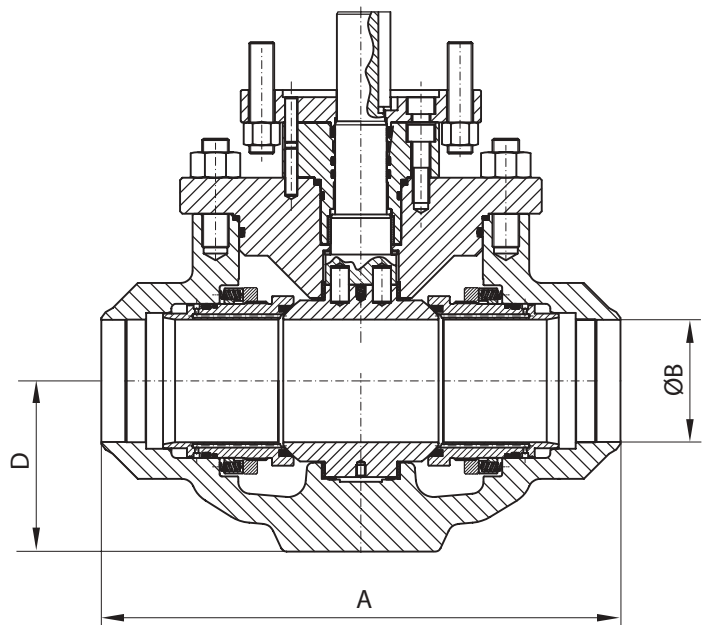
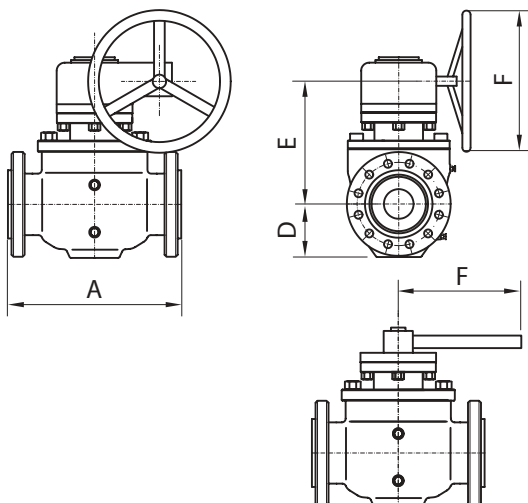
Size inches	A			ØB	D	E	F	Weight kg
	RF	RTJ	BW					
2	292	295	292	51	110	185	410	28
3	356	359	356	76	110	220	500	56
4	432	435	432	102	140	254	500	98
6	559	562	559	152	240	360	500	203
8	660	663	660	203	270	390	600	390
10	787	790	787	254	330	450	600	420
12	838	841	838	305	380	500	600	562
14	889	892	889	337	432	500	600	745
16	991	994	991	387	475	550	600	1090

6 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 48".

ASME Class 300 dimensional data, mm

Size inches	A			ØB	D	E	F	Weight kg
	RF	RTJ	BW					
2	292	295	292	51	110	185	410	30
3	356	359	356	76	110	220	500	61
4	432	435	432	102	140	254	500	122
6	559	562	559	152	240	360	500	240
8	660	663	660	203	270	390	600	462
10	787	790	787	254	330	450	600	505
12	838	841	838	305	380	500	600	650
14	889	892	889	337	432	500	600	862
16	991	994	991	387	475	550	600	1280

6 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 48".



Trunnion mounted

Top entry, cast steel, full bore ASME Class 600/900

ASME Class 600 dimensional data, mm

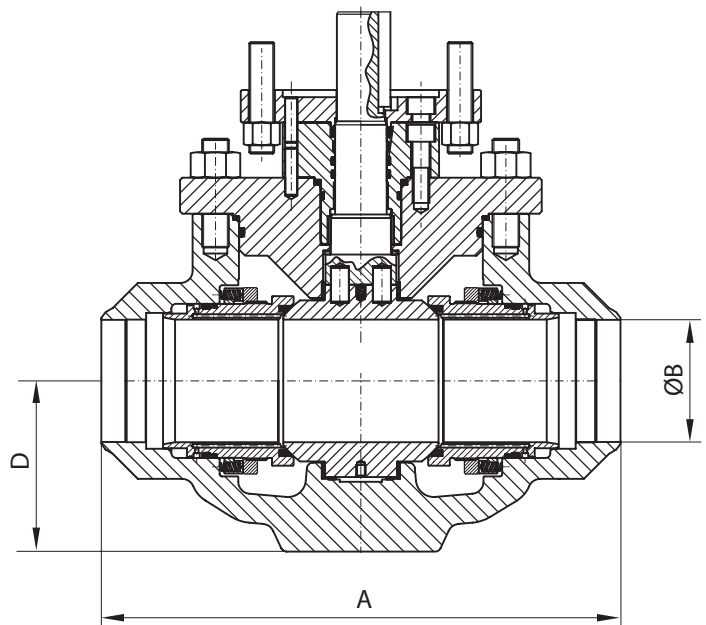
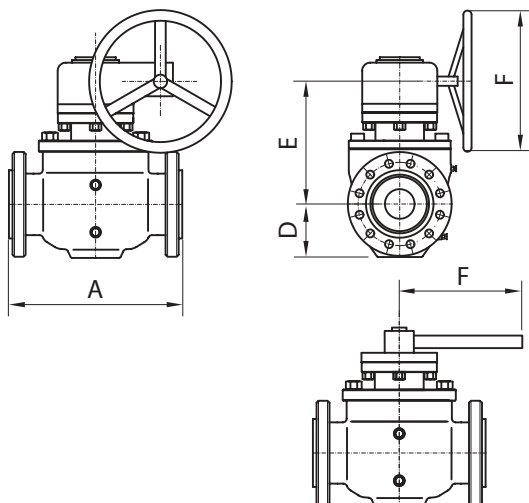
Size inches	A			ØB	D	E	F	Weight kg
	RF	RTJ	BW					
2	292	295	292	51	110	185	410	36
3	356	359	356	76	110	220	500	64
4	432	435	432	102	140	254	500	124
6	559	562	559	152	240	360	500	255
8	660	663	660	203	270	390	600	487
10	787	790	787	254	330	450	600	760
12	838	841	838	305	380	500	600	900
14	889	892	889	337	432	500	600	1085
16	991	994	991	387	475	550	600	1535

4 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 48".

ASME Class 900 dimensional data, mm

Size inches	A			ØB	D	E	F	Weight kg
	RF	RTJ	BW					
2	368	372	368	51	120	185	410	50
3	381	384	381	76	120	255	510	76
4	457	461	457	102	150	285	600	150
6	610	613	610	152	251	370	600	367
8	737	740	737	203	280	400	600	600
10	838	842	838	254	340	450	800	1027
12	965	969	965	305	390	500	800	1558

3 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 30".



Trunnion mounted

Top entry, cast steel, full bore ASME Class 1500/2500

ASME Class 1500 dimensional data, mm

Size inches	A			ØB	D	E	F	Weight kg
	RF	RTJ	BW					
2	368	371	368	51	120	185	410	53
3	470	473	470	76	120	255	510	98
4	546	549	546	102	150	285	600	200
6	705	711	705	146	270	460	600	485
8	832	841	832	194	300	520	600	827
10	991	1000	991	241	360	640	800	1507

3 inches and smaller lever operated.

Dimensional data of greater sizes upon request.

Product range up to 24".

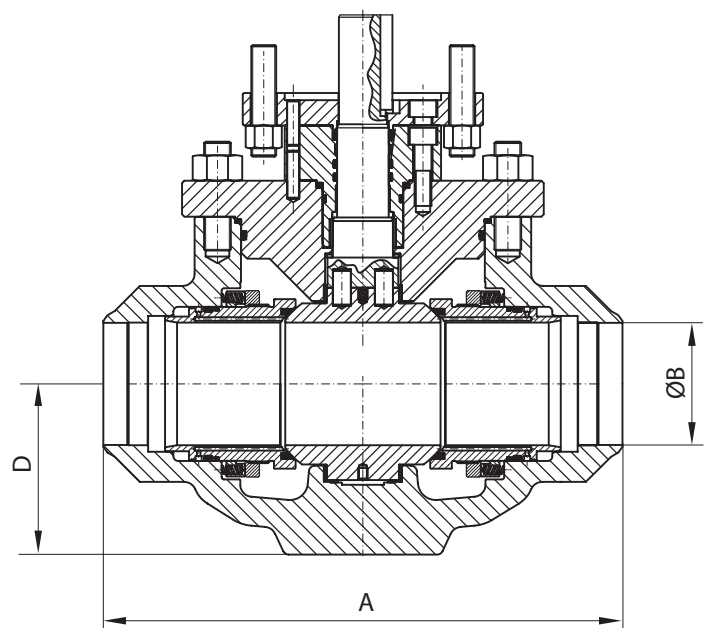
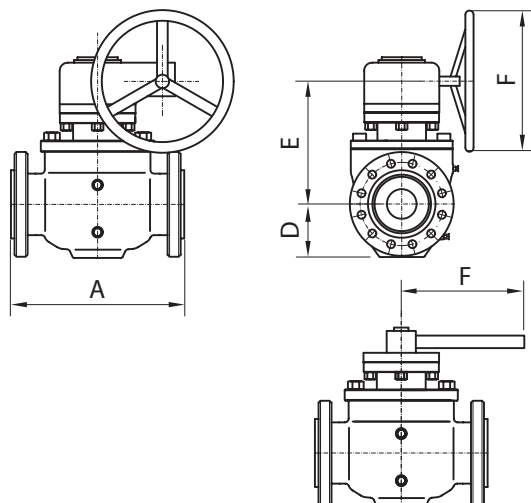
ASME Class 2500 dimensional data, mm

Size inches	A			ØB	D	E	F	Weight kg
	RF	RTJ	BW					
2	451	454	451	44	125	170	350	90
3	578	584	578	64	200	250	450	200
4	673	683	673	89	230	290	500	385
6	915	927	915	133	250	340	600	778
8	1023	1038	1023	181	340	470	600	1352

2 inches lever operated.

Dimensional data of greater sizes upon request.

Product range up to 12".



Trunnion mounted

Top entry, cast steel, reduced bore ASME Class 150/300

ASME Class 150 dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	RTJ	BW						
3×2	356	359	356	51	76	110	185	410	34
4×3	432	435	432	76	102	110	220	510	65
6×4	559	562	559	102	152	140	254	700	118
8×6	660	663	660	152	203	240	400	700	195
10×8	787	790	787	203	254	270	460	800	297
12×8	838	841	838	203	305	270	460	800	390
14×10	889	892	889	254	337	330	580	800	538
16×12	991	994	991	305	387	380	650	800	770
18×14	1092	1095	1092	337	438	432	700	800	995

8×6 inches and smaller lever operated.

Dimensional data of greater sizes upon request.

Product range up to 48"×44".

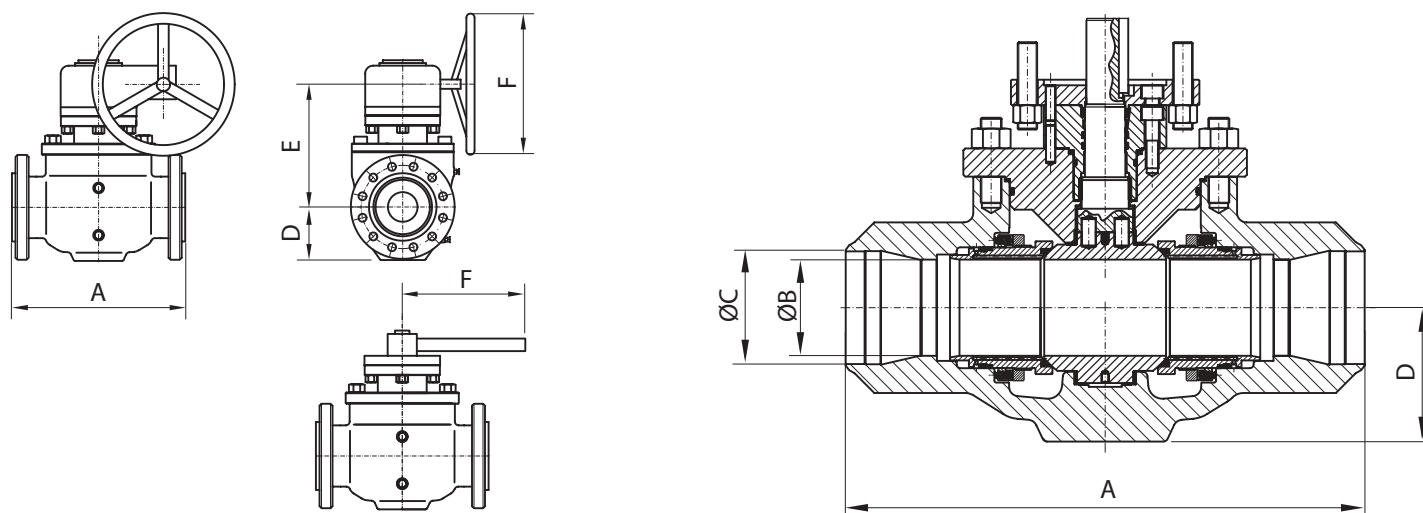
ASME Class 300 dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	RTJ	BW						
3×2	356	359	356	51	76	110	185	410	34
4×3	432	435	432	76	102	110	220	510	75
6×4	559	562	559	102	152	140	254	700	122
8×6	660	663	660	152	203	240	400	700	225
10×8	787	790	787	203	254	270	460	800	297
12×8	838	841	838	203	305	270	460	800	450
14×10	889	892	889	254	337	330	580	800	648
16×12	991	994	991	305	387	380	650	800	970
18×14	1092	1095	1092	337	438	432	700	800	1450

8×6 inches and smaller lever operated.

Dimensional data of greater sizes upon request.

Product range up to 48"×44".



Trunnion mounted

Top entry, cast steel, reduced bore ASME Class 600/900

ASME Class 600 dimensional data, mm

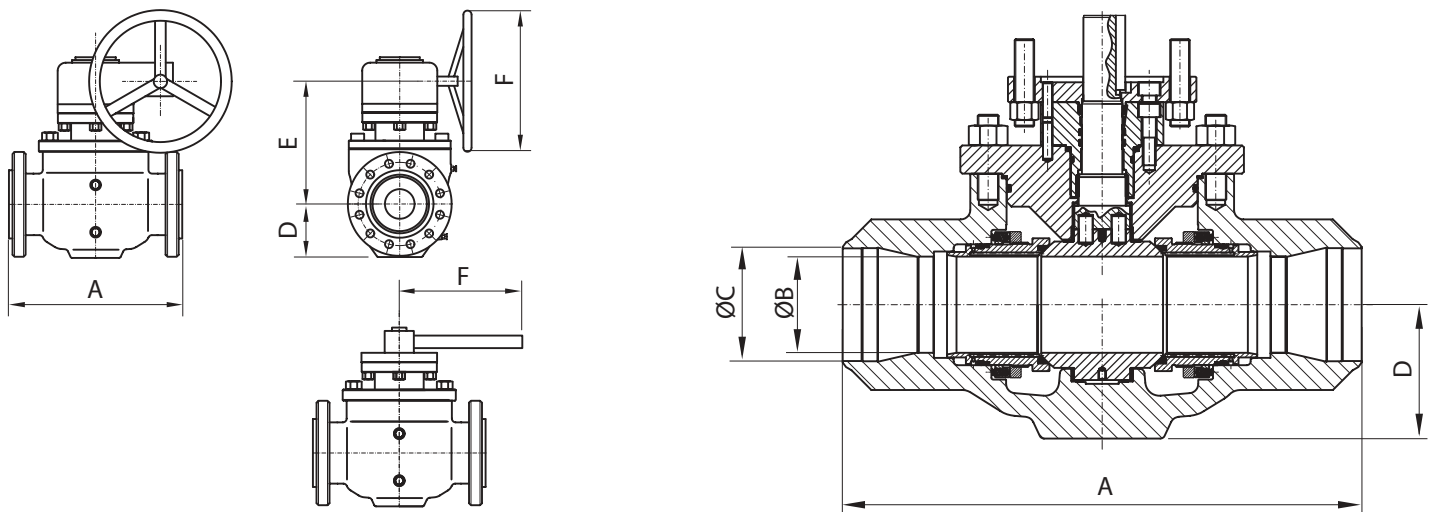
Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	RTJ	BW						
3×2	356	359	356	51	76	110	185	410	40
4×3	432	435	432	76	102	110	220	510	90
6×4	559	562	559	102	152	140	254	700	163
8×6	660	663	660	152	203	240	400	700	290
10×8	787	790	787	203	254	270	460	800	547
12×8	838	841	838	203	305	270	460	800	610
14×10	889	892	889	254	337	330	580	800	915
16×12	991	994	991	305	387	380	650	800	1350
18×14	1092	1095	1092	337	438	432	700	800	1450

6×4 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 48"×44".

ASME Class 900 dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	RTJ	BW						
3×2	381	384	381	51	76	120	185	410	59
4×3	457	461	457	76	102	120	255	510	97
6×4	610	613	610	102	152	150	285	600	249
8×6	737	740	737	152	203	251	430	600	447
10×8	838	842	838	203	254	280	490	600	760
12×8	965	969	965	203	305	280	490	600	930
14×10	1029	1038	1029	254	324	340	610	800	1235
16×12	1131	1140	1131	305	375	390	680	800	1738

4×3 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 30"×26".



Trunnion mounted

Top entry, cast steel, reduced bore ASME Class 1500/2500

ASME Class 1500 dimensional data, mm

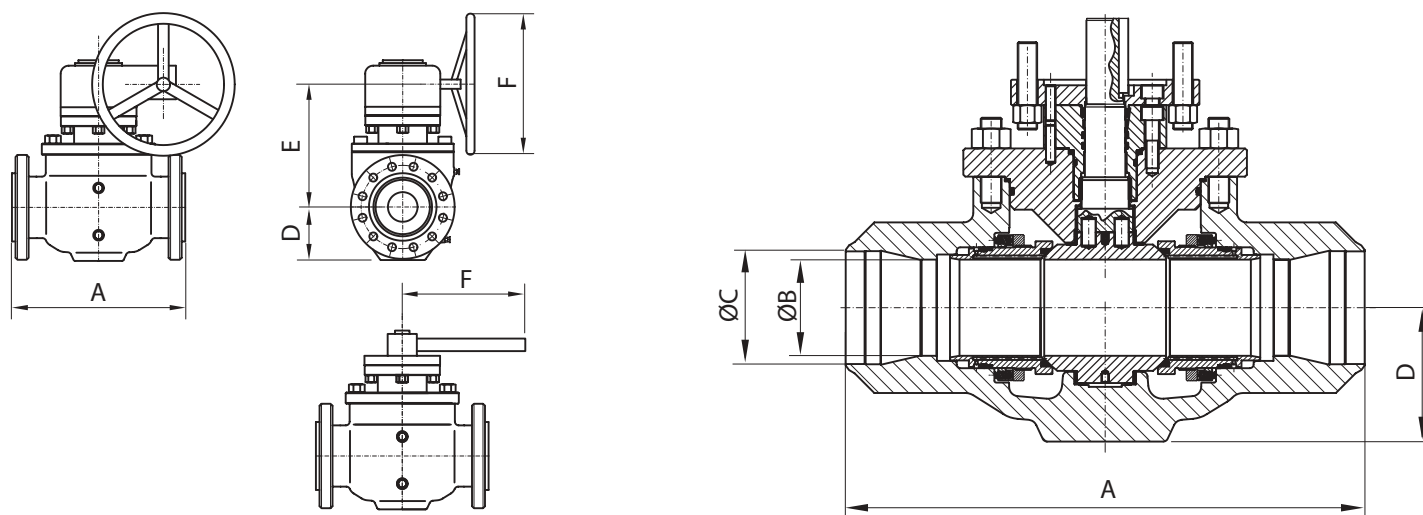
Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	RTJ	BW						
3×2	470	473	470	51	76	120	185	410	66
4×3	546	549	546	76	102	120	255	510	126
6×4	705	711	705	102	146	150	285	600	290
8×6	832	841	832	146	194	270	460	600	575
10×8	991	1000	991	194	241	300	520	600	1032
12×8	1130	1146	1130	194	289	300	520	600	1230
14×10	1257	1276	1257	241	318	360	640	800	2152

6×4 inches and smaller lever operated.
Dimensional data of greater sizes upon request.
Product range up to 24"×20".

ASME Class 2500 dimensional data, mm

Size inches	A			ØB	ØC	D	E	F	Weight kg
	RF	RTJ	BW						
3×2	578	584	578	44	64	127	170	350	158
4×3	673	683	673	64	89	200	250	450	270
6×4	915	927	915	89	133	230	290	500	517
8×6	1023	1038	1023	133	181	250	340	600	1098
10×8	1270	1292	1270	181	225	340	470	600	1667
12×8	1423	1445	1423	181	267	340	470	600	2567

3×2 inches lever operated.

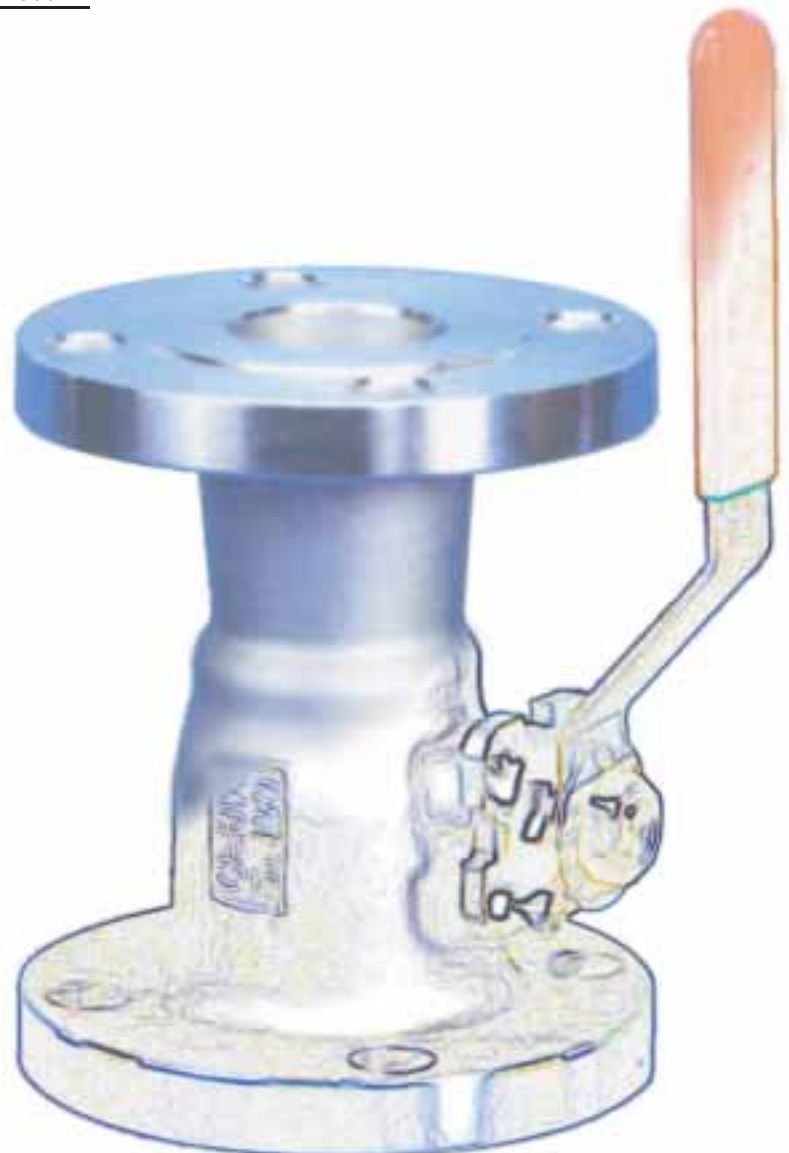
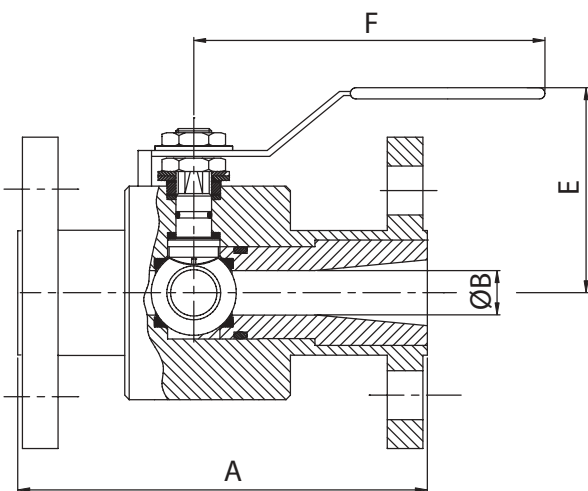


Floating

Side entry, cast steel, reduced bore ASME Class 150

ASME Class 1500 dimensional data, mm

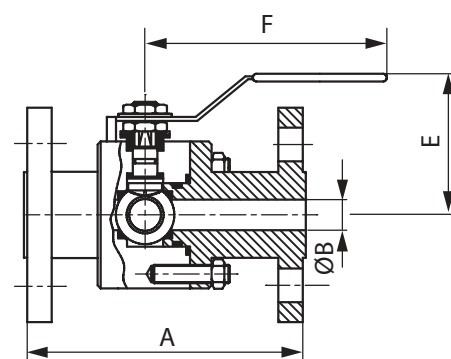
Size inches	A		E	F	Weight kg	Torque N·m
	RF	ØB				
1/2	108	13	80	150	3	7
3/4	117	16	84	160	4	8
1	127	20	87	160	6	18
1 1/2	165	32	102	190	12	51
2	178	39	102	190	15	67
3	203	64	156	500	22	93
4	229	80	168	500	46	150
6	394	100	191	390	110	380
8	457	152	256	650	175	800



Side entry, forged steel, full bore ASME Class 150/300

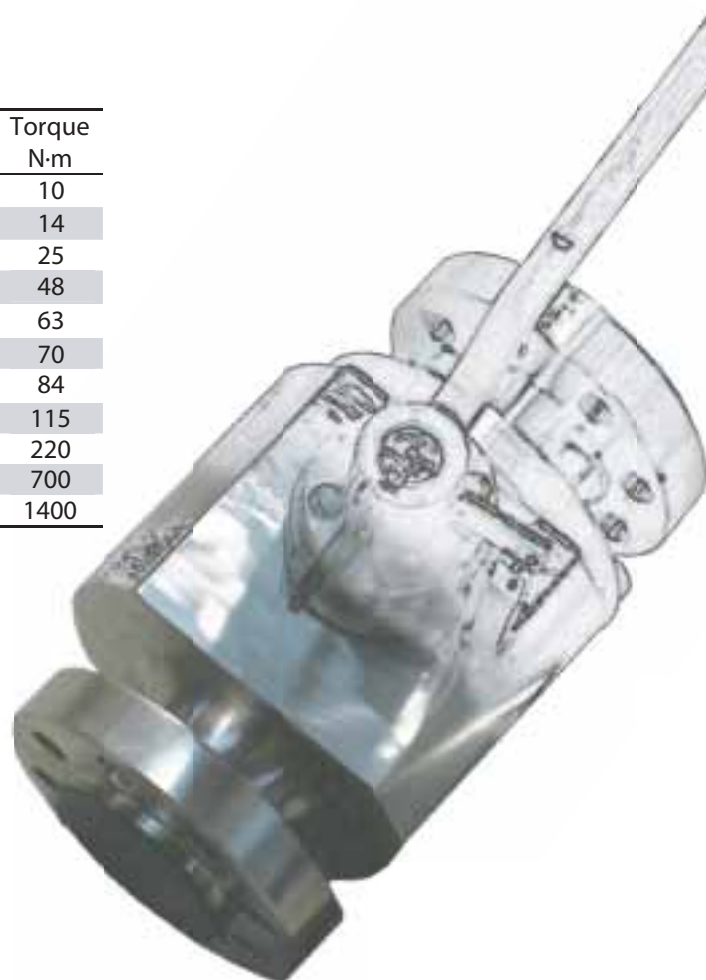
ASME Class 150 dimensional data, mm

Size inches	A		ØB	E	F	Weight kg	Torque N·m
	RF	BW					
1/2	108	140	15	82	145	3	7
3/4	117	153	19	87	170	4	8
1	127	165	25	92	170	6	18
1 1/4	140	178	32	105	270	10	35
1 1/2	165	191	38	108	270	12	51
2	178	216	50	119	270	15	67
2 1/2	191	242	65	150	380	19	78
3	203	283	76	163	380	22	93
4	229	305	102	187	470	46	150
6	394	457	152	210	700	110	550
8	457	521	203	280	700	175	1250



ASME Class 300 dimensional data, mm

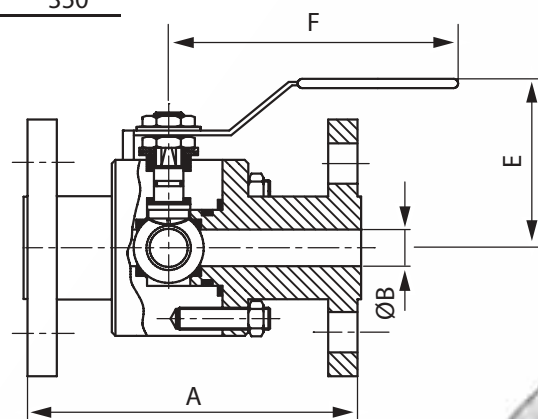
Size inches	A		ØB	E	F	Weight kg	Torque N·m
	RF	BW					
1/2	140	140	15	82	145	4	10
3/4	153	153	19	87	170	6	14
1	165	165	25	92	170	10	25
1 1/4	178	178	32	105	270	15	48
1 1/2	191	191	38	108	270	18	63
2	216	216	50	119	270	22	70
2 1/2	241	241	65	150	380	28	84
3	283	283	76	163	380	38	115
4	305	305	102	187	470	78	220
6	403	457	152	210	700	148	700
8	502	521	203	280	700	196	1400



Side entry, forged steel, full bore ASME Class 600/900/1500

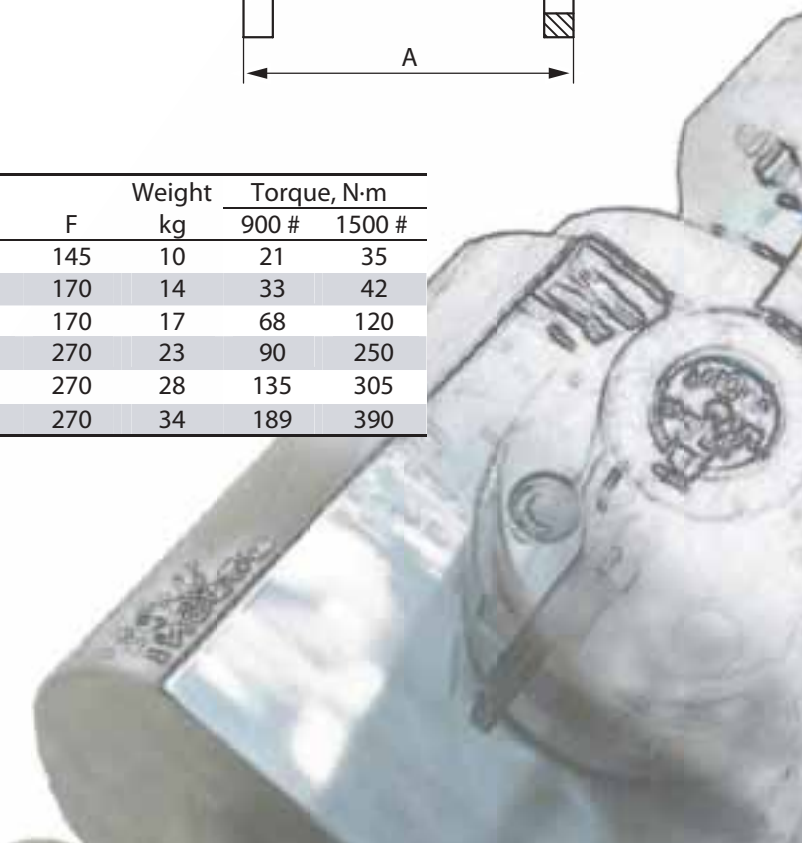
ASME Class 600 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg	Torque N·m
	RF	BW	RTJ					
1/2	165	165	164	15	82	145	5	18
3/4	191	191	191	19	87	170	7	21
1	216	216	216	25	92	170	10	45
1 1/4	229	229	229	32	105	270	15	80
1 1/2	241	241	241	38	108	270	18	91
2	292	292	295	50	119	270	22	125
2 1/2	330	330	333	65	150	380	28	140
3	356	356	359	76	163	380	38	195
4	432	432	435	102	187	470	78	350



ASME Class 900/1500 dimensional data, mm

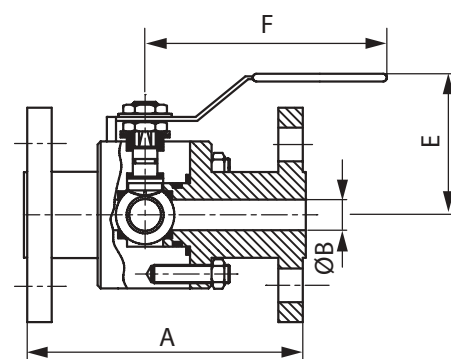
Size inches	A			ØB	E	F	Weight kg	Torque, N·m	
	RF	BW	RTJ					900 #	1500 #
1/2	216	216	216	15	82	145	10	21	35
3/4	229	229	229	19	87	170	14	33	42
1	254	254	254	25	92	170	17	68	120
1 1/4	279	279	279	32	105	270	23	90	250
1 1/2	305	305	305	38	108	270	28	135	305
2	368	368	371	50	119	270	34	189	390



Side entry, forged steel, reduced bore ASME Class 150/300

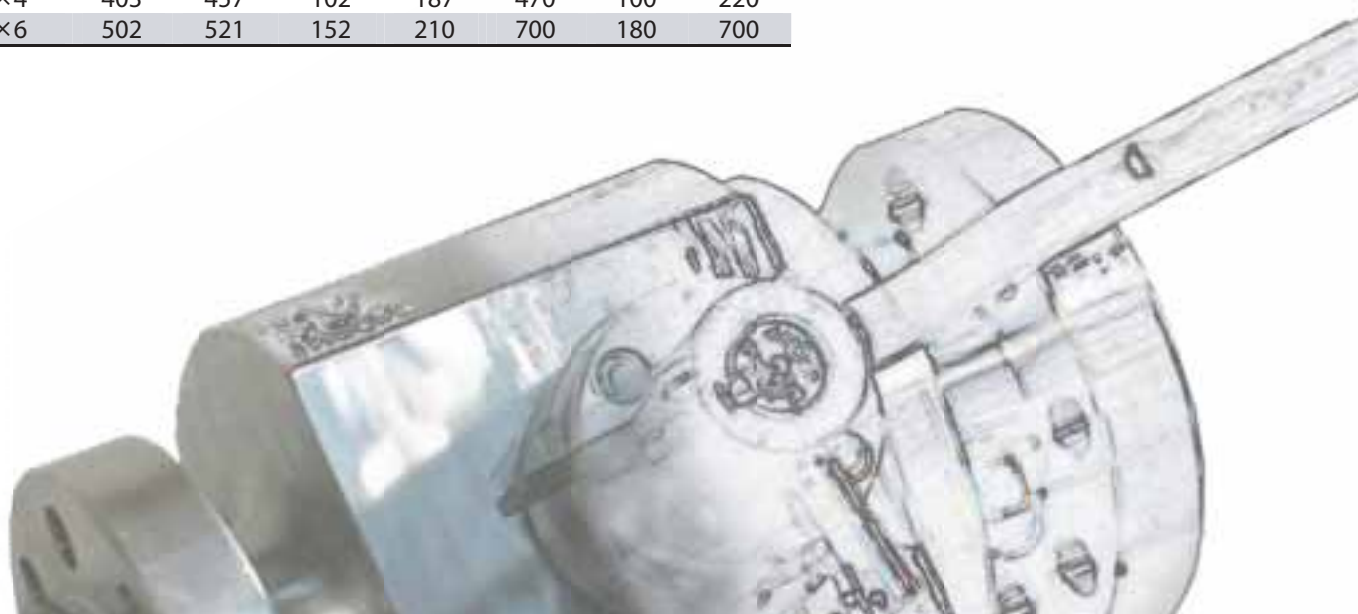
ASME Class 150 dimensional data, mm

Size inches	A		ØB	E	F	Weight kg	Torque N-m
	RF	BW					
3/4×1/2	117	153	15	82	145	3.5	7
1×3/4	127	165	19	87	170	5	8
1 1/4×1	140	178	25	92	170	8	18
1 1/2×1 1/4	165	191	32	105	270	11	35
2×1 1/2	178	216	38	108	270	13	51
2 1/2×2	191	242	50	119	270	17	67
3×2	203	283	50	119	270	20	67
4×3	229	305	76	163	380	42	93
6×4	394	457	102	187	470	80	150
8×6	457	521	152	210	700	120	550



ASME Class 300 dimensional data, mm

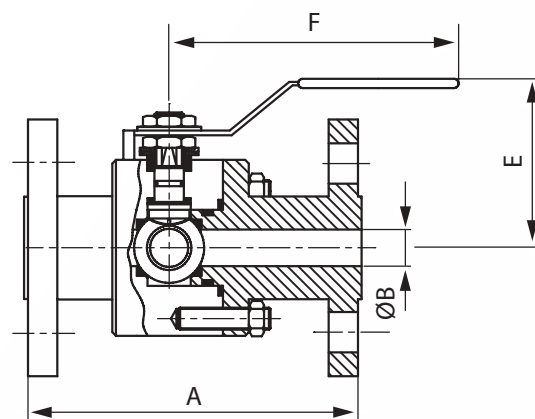
Size inches	A		ØB	E	F	Weight kg	Torque N-m
	RF	BW					
3/4×1/2	153	153	15	82	145	5	10
1×3/4	165	165	19	87	170	7	14
1 1/4×1	178	178	25	92	170	11	25
1 1/2×1 1/4	191	191	32	105	270	16	48
2×1 1/2	216	216	38	108	270	19	63
2 1/2×2	241	241	50	119	270	23	70
3×2	283	283	50	119	270	30	70
4×3	305	305	76	163	380	52	115
6×4	403	457	102	187	470	100	220
8×6	502	521	152	210	700	180	700



Side entry, forged steel, reduced bore ASME Class 600/900/1500

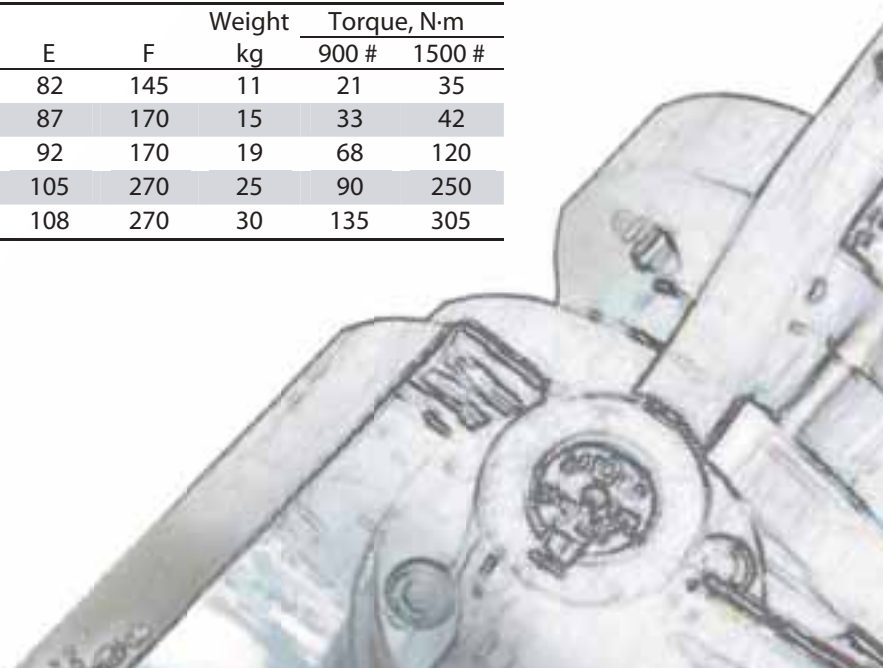
ASME Class 600 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg	Torque N·m
	RF	BW	RTJ					
3/4×1/2	191	191	191	15	82	145	7	18
1×3/4	216	216	216	19	87	170	9	21
1 1/4×1	229	229	229	25	92	170	14	45
1 1/2×1 1/4	241	241	241	32	105	270	17	80
2×1 1/2	292	292	295	38	108	270	20	91
2 1/2×2	330	330	333	50	119	270	27	125
3×2	356	356	359	50	119	270	33	125
4×3	432	432	435	76	163	380	75	195
6×4	559	559	562	102	187	470	150	350



ASME Class 900/1500 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg	Torque, N·m	
	RF	BW	RTJ					900 #	1500 #
3/4×1/2	229	229	229	15	82	145	11	21	35
1×3/4	254	254	254	19	87	170	15	33	42
1 1/4×1	279	279	279	25	92	170	19	68	120
1 1/2×1 1/4	305	305	305	32	105	270	25	90	250
2×1 1/2	368	368	371	38	108	270	30	135	305



Top entry, cast steel, full bore ASME Class 150/300/600

ASME Class 150 dimensional data, mm

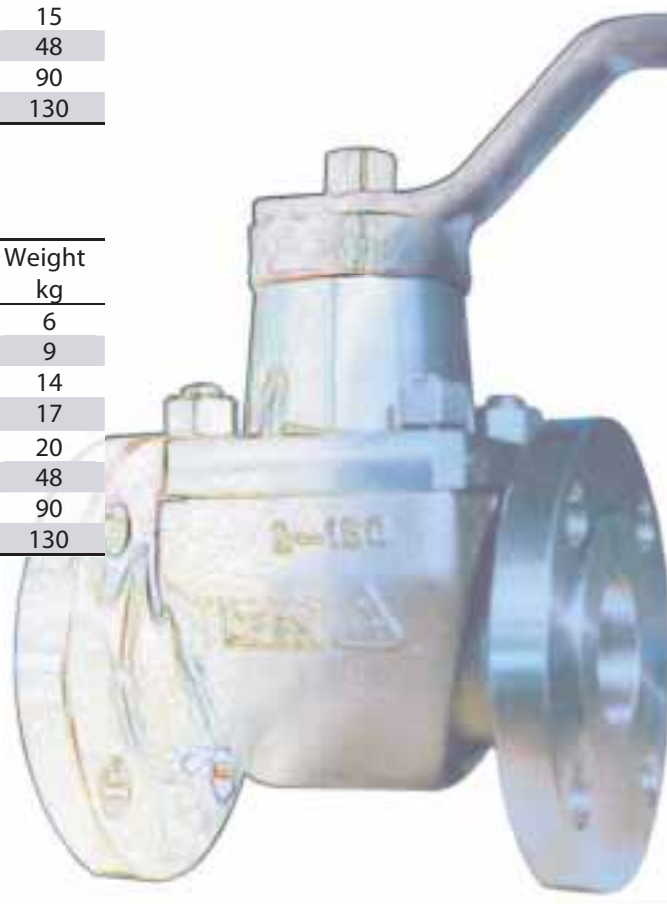
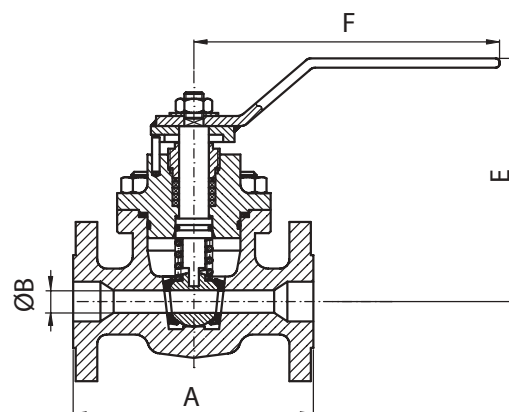
Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2	108	140	—	12.5	135	230	4
3/4	117	152.5	—	19	150	260	5
1	216	216	232	25.4	172	340	14
1 1/2	191	191	203	38	178	350	9
2	216	216	232	50	193	375	15
3	356	356	359	70	210	410	48
4	432	432	435	102	GEAR	GEAR	90
6	559	559	562	152	GEAR	GEAR	130

ASME Class 300 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2	140	140	151.5	12.5	135	230	4
3/4	152.5	152.5	165	19	150	260	5.5
1	216	216	232	25.4	172	340	14
1 1/2	191	191	203	38	178	350	9
2	216	216	232	50	193	375	15
3	356	356	359	70	210	410	48
4	432	432	435	102	GEAR	GEAR	90
6	559	559	562	152	GEAR	GEAR	130

ASME Class 600 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2	165	165	178	12.5	135	230	6
3/4	190.5	190.5	203	19	150	260	9
1	216	216	232	25.4	172	340	14
1 1/2	241	241	241	38	178	350	17
2	292	292	295	50	193	375	20
3	356	356	359	70	210	410	48
4	432	432	435	102	GEAR	GEAR	90
6	559	559	562	152	GEAR	GEAR	130



Floating

Top entry, cast steel, reduced bore ASME Class 150/300/600

ASME Class 150 dimensional data, mm

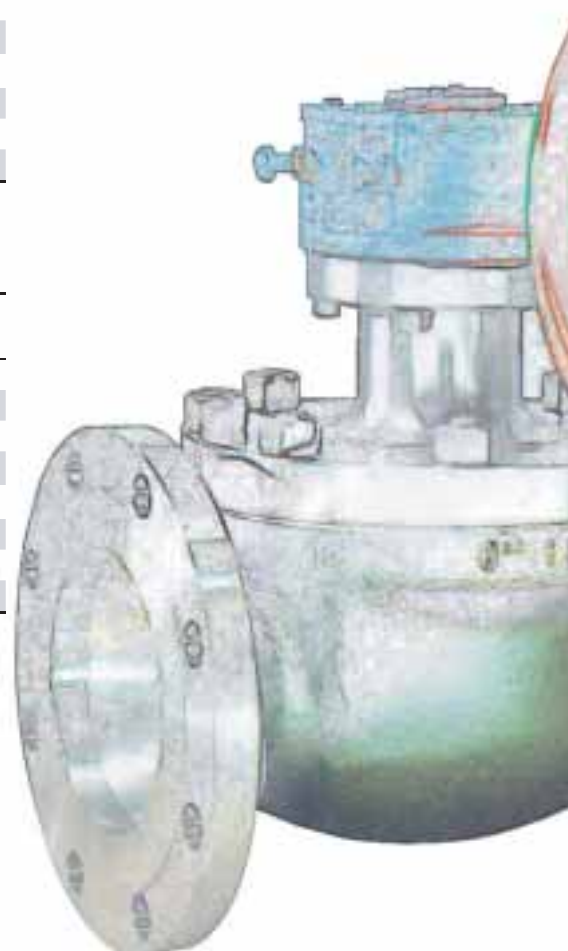
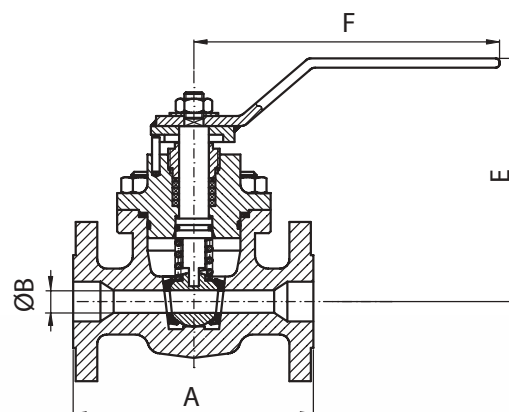
Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2×3/8	108	140	—	12.5	135	230	4
3/4×1/2	117	152.5	—	12.5	135	230	5
1×3/4	127	165	—	19	150	260	6.5
1½×1	165	190.5	—	25.4	172	340	9.5
2×1½	178	216	190.5	38	178	350	13
3×2	203	282.5	216	50	193	375	22
4×3	229	305	241.5	70	210	410	30
6×4	394	457	407	102	GEAR	GEAR	70

ASME Class 300 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2×3/8	140	140	151.5	12.5	135	230	4
3/4×1/2	152.5	152.5	165	12.5	135	230	5.5
1×3/4	165	165	178	19	150	260	7.5
1½×1	190.5	190.5	203	25.4	172	340	13
2×1½	216	216	232	38	178	350	15
3×2	282.5	282.5	298	50	193	375	34
4×3	305	305	321	70	210	410	42
6×4	403	457	419	102	GEAR	GEAR	80

ASME Class 600 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2×3/8	165	165	163.5	12.5	135	230	6
3/4×1/2	190.5	190.5	190.5	12.5	135	230	8
1×3/4	216	216	216	19	150	260	9
1½×1	241	241	241	25.4	172	340	15
2×1½	292	292	295	38	178	350	19
3×2	356	356	359	50	193	375	48
4×3	432	432	435	70	210	410	72
6×4	559	559	562	102	GEAR	GEAR	130



Top entry, forged steel, reduced bore ASME Class 150 through 2500

ASME Class 150/300 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2	152	90	163.5	9	95	157	2.8
3/4	178	110	190.5	12.5	101	157	4.7
1	203	110	216	17	123.5	208	5.7
1 1/2	229	170	241	29	160	293	11.8
2	267	216	282.5	36	194	373	17

ASME Class 600 dimensional data, mm

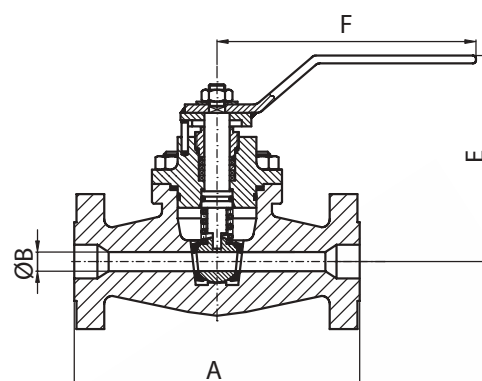
Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2	165	90	163.5	9	95	157	2.9
3/4	190.5	110	190.5	12.5	101	157	4.8
1	216	110	216	17	123.5	208	9.7
1 1/2	241	170	241	29	160	293	12
2	292	216	295	36	194	373	17.3

ASME Class 900/1500 dimensional data, mm

Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2	216	110	216	9	123.5	208	7.6
3/4	229	120	229	11	160	293	10.8
1	254	130	254	14.5	160	293	14.5
1 1/2	305	210	305	26	195	373	31
2	368	216	371	31	205	450	43

ASME Class 2500 dimensional data, mm

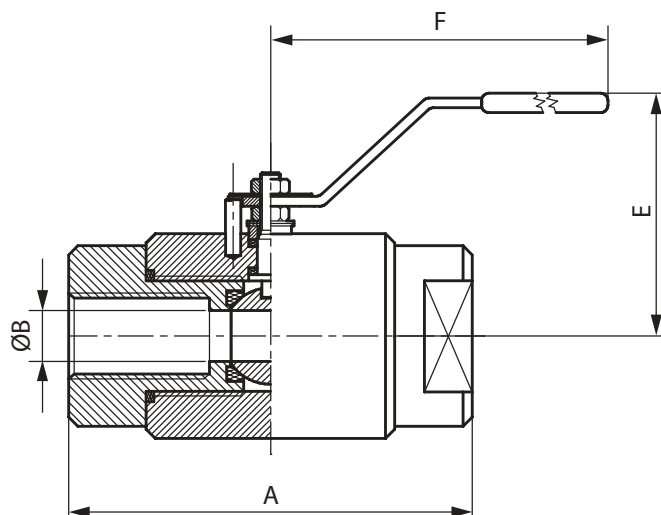
Size inches	A			ØB	E	F	Weight kg
	RF	BW	RTJ				
1/2	263	120	263	9	195	280	9.8
3/4	273	130	273	11	195	280	11.8
1	308	150	308	14.5	195	280	16.5
1 1/2	384	240	387	24	210	373	37
2	451	280	454	28	250	430	58



Bar stock ASME Class 800/1500/2500

ASME Class 800/1500 dimensional data, mm

Size inches	A	ØB	E	F	Weight kg	Torque N·m
1/4	70	11	76	145	0.6	10
3/8	70	11	76	145	0.6	10
1/2×1/4	70	11	76	145	0.5	10
1/2	83	14	80	145	0.9	18
3/4×1/2	83	14	80	145	0.8	18
3/4	90	20	85	170	1.5	21
1×3/4	105	20	85	170	1.4	21
1	110	25	90	170	2.2	45
1 ¹ / ₄ ×1	110	25	90	170	2	45
1 ¹ / ₄	125	32	95	270	3.2	80
1 ¹ / ₂ ×1 ¹ / ₄	125	32	95	270	3.1	80
1 ¹ / ₂	130	38	95	270	4.2	91
2×1 ¹ / ₂	140	38	95	270	3.7	91
2	155	48	100	270	7	125



www.vweng.com

ASME Class 2500 dimensional data, mm

Size inches	A	ØB	E	F	Weight kg	Torque N·m
1/4	95	11	145	78	0.8	12
3/8	95	11	78	145	0.8	12
1/2×1/4	95	11	145	78	0.8	12
1/2	104	14	145	80	1	15
3/4×1/2	104	14	80	145	1	15
3/4	125	20	170	85	2.6	22
1×3/4	125	20	85	170	2.6	22
1	130	25	170	90	5	48
1 ¹ / ₄ ×1	130	25	90	170	5	48
1 ¹ / ₄	155	32	270	95	6	85
1 ¹ / ₂ ×1 ¹ / ₄	155	32	95	270	6	85
1 ¹ / ₂	180	38	380	135	10	95
2×1 ¹ / ₂	180	38	135	380	10	95
2	180	48	380	145	12	130

SW valves will be provided, unless otherwise specified, complete with welded plane ends nipples on both sides of the valve. Nipples length = 100 mm.



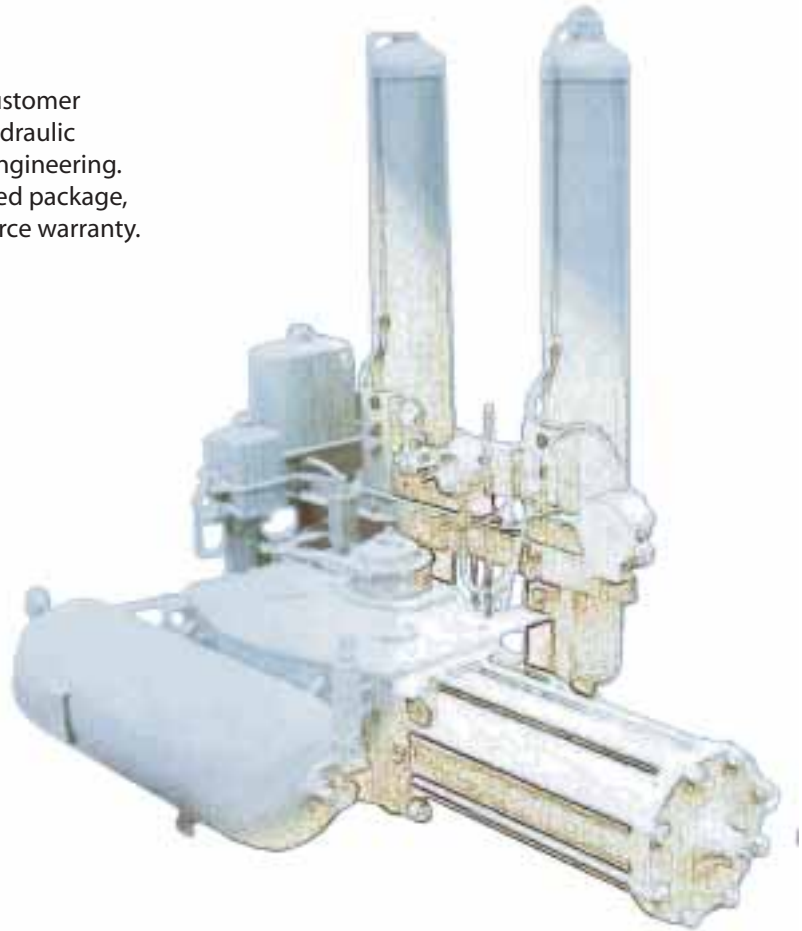
Ball valve actuators

Features

All types of actuator options are available to suit customer specifications, including electric, pneumatic and hydraulic actuators factory installed by Vector & Wellheads Engineering. With these actuators, we supply the total automated package, offering single source responsibility and single source warranty.



Part-turn actuators for ball valves. Actuator/worm gearbox combinations. Actuator controls with integral local controls are available. The controls can be supplied in a variety of versions: parallel control or via fieldbus, simple open/close functionality or integral PID control



Heavy duty quarter-turn hydraulic actuators. Double acting and spring return. Control component packages are a part of any actuator/valve installation. Packages can be mounted on the actuator or at a remote location.

Scotch-yoke actuators. Quarter turn, pneumatic operation. Available with either symmetric or canted scotch yoke mechanism for economy of sizing. Single and double acting versions available. Emergency manual handwheel or hydraulic override available on request.



Fire safe testing

The use of ball valves in the petrochemical industry arose the problem of safeness of these valves in critical conditions, as can be those of fire in the plant.

Tests show that after hours in a fire, plastic parts (seat and o-rings) deteriorate, resulting in metal to metal contact between the seat and the ball, and limiting the possibility of a large leakage.

At the rear side of the seat holders, where the o-rings have also been deteriorated, there is a graphite gasket that prevents a leakage through this way. With the addition of sealant, the valve can be made drop-tight again.



V&W fire safe ball valves have been successfully tested according to BS 6755, API 607, and API 6FA Fire test procedures.

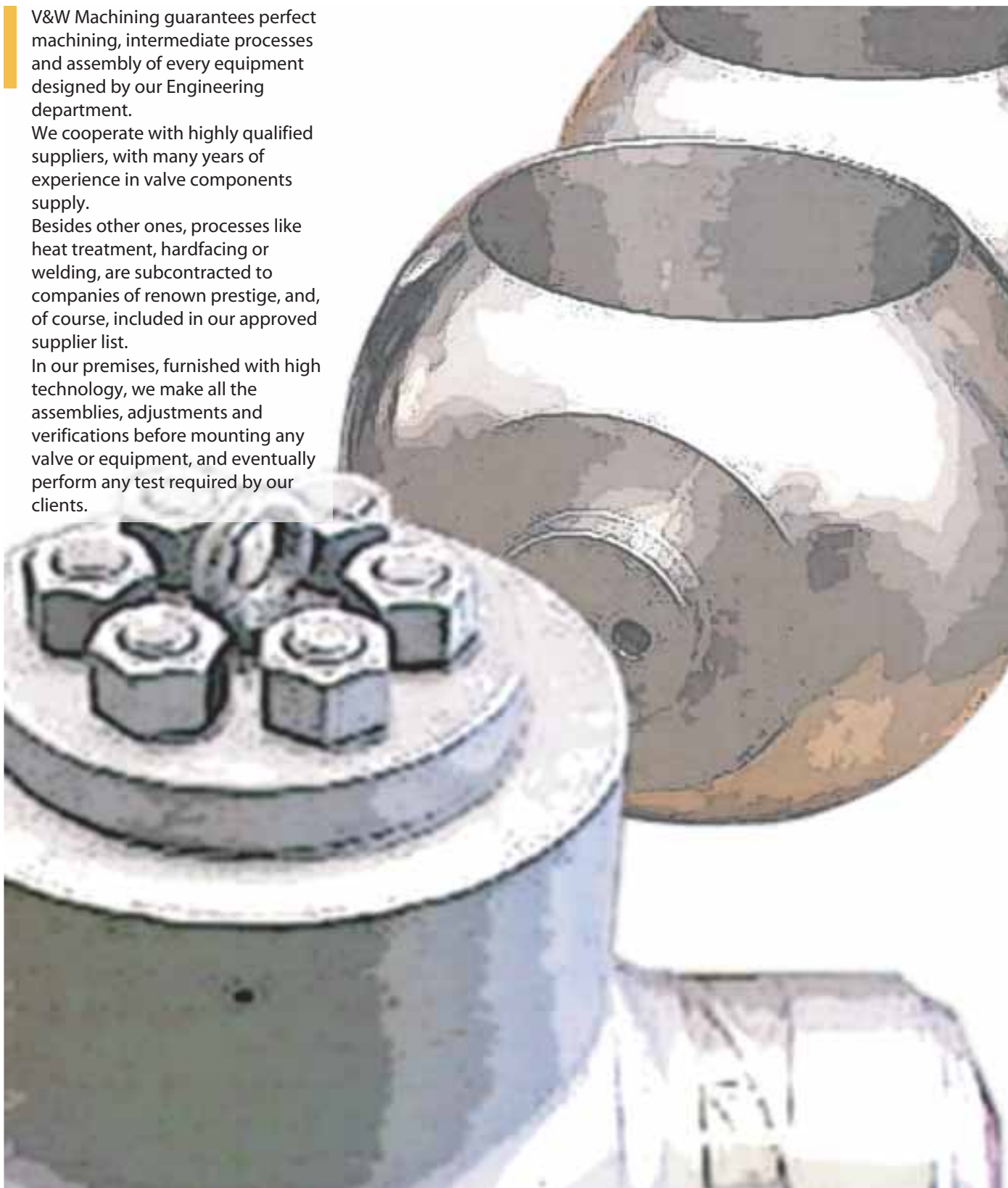
Machining division

V&W Machining guarantees perfect machining, intermediate processes and assembly of every equipment designed by our Engineering department.

We cooperate with highly qualified suppliers, with many years of experience in valve components supply.

Besides other ones, processes like heat treatment, hardfacing or welding, are subcontracted to companies of renown prestige, and, of course, included in our approved supplier list.

In our premises, furnished with high technology, we make all the assemblies, adjustments and verifications before mounting any valve or equipment, and eventually perform any test required by our clients.



Each Vector & Wellheads Engineering product is manufactured in strict accordance to our Quality Assurance Manual requirements, which covers all the production stages, including design, purchasing, manufacturing, welding, testing, etc. Our excellent Quality Assurance Program has enabled us to obtain an **UNE-EN-ISO 9001 Certificate**. Every aspect of our activity is based on operating within strictly defined procedures, including: ultrasonic, x-ray, magnetic particle inspection, welding, photoelasticity, and fire safe test.



Empresa Registrada
43/ER/12/02

ISO 9001:2000



Vector & Wellheads

Engineering, S.L. is a

leading supplier of

valves and related

products, used in the

petrochemical, nuclear,

fossil fired, oil & gas

and process industries.

Headquarters & Office

C/ Fray Luis Amigó, 4
Edificio Rubí, principal A
50006 Zaragoza
Spain
Tel. +34 902 196 092
Fax. +34 976 301 991

Factory

Autovía de Zaragoza-Logroño, km 13
Polígono Industrial "El Águila", nave 98
50180 Utebo (Zaragoza)
Spain
Tel. +34 976 462 789
Fax. +34 976 462 790