



Trunnion mounted ball valves full and reduced bore

- *RF - RJ - HUB - BW ENDS*
- *LEVER, GEAR, PNEUMATIC, HYDRAULIC,
ELECTRIC MOTOR OPERATED*
- *SELF RELIEVING SEATS DOUBLE BLOCK &
BLEED OR DOUBLE PISTON EFFECT (option)*



Art. 85

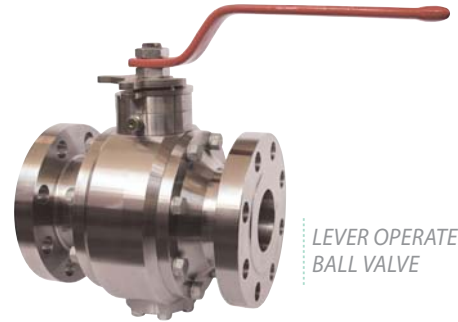
TRUNNION MOUNTED BALL VALVES FULL AND REDUCED BORE

- RF - RJ - HUB - BW ENDS
- LEVER, GEAR, PNEUMATIC, HYDRAULIC, ELECTRIC MOTOR OPERATED
- SELF RELIEVING SEATS DOUBLE BLOCK & BLEED

GEAR OPERATED BALL VALVE



LEVER OPERATED BALL VALVE



ACTUATED BALL VALVE

Za.Ve.Ro. Trunnion mounted API 6A/API 6D ball Valves are 3 pieces, construction type, split body, side entry, in bolted execution, self relieving spring energized seats, suitable for double block and bleed performance. Seats are available in lubricated or not lubricated execution with different solutions of sealing and fire safe back up gaskets (Soft or metal seated). Stem is blowout proof and provided with emergency sealant injectors to avoid leakage in case of sealing interruption. Antistatic device is also provided. Valves can be complete with lifting lugs and ground feet to facilitate transportation and in line installation. Please refer to the tables on pages 51-52 for relevant information on available materials.

Available pressure ratings: • ASME 150-300-600-900-1500-2500 • API 3000-5000-10000 psi

BALL SUPPORTED ON TRUNNION

1 = Only REDUCED BORE

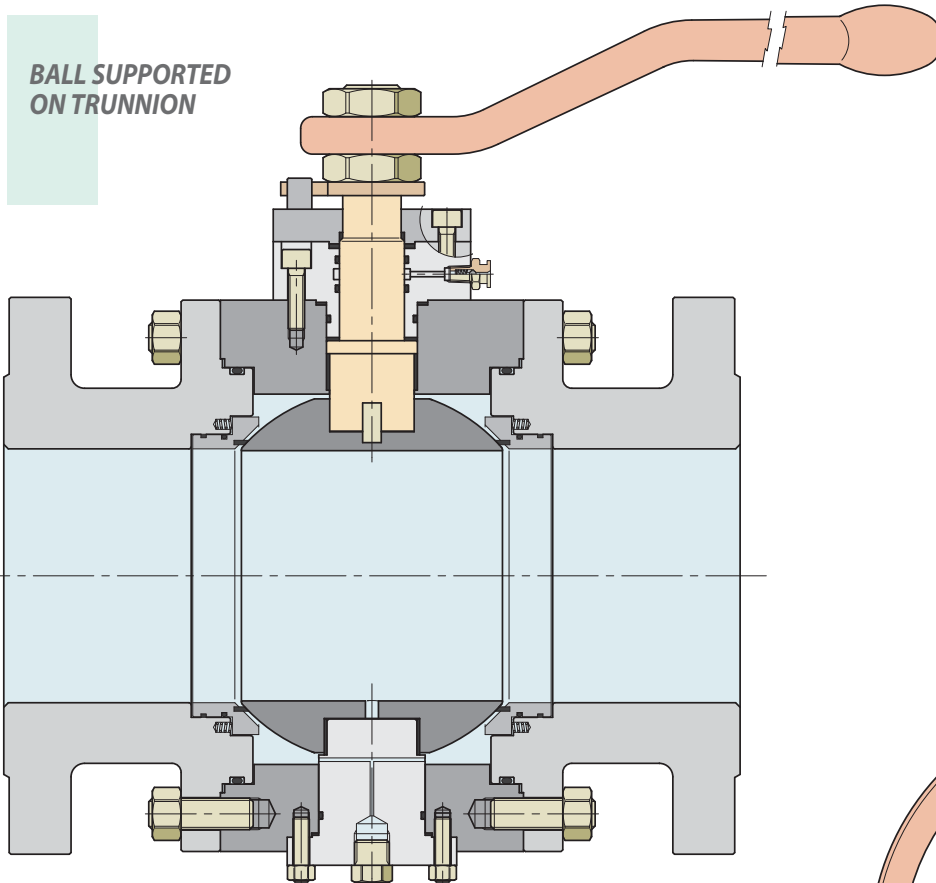
FULL BORE	1/2"	3/4"	1"	1"1/4	1"1/2	2"	2"1/2	3"	4"	6"	8"	-	250
DN	15	20	25	32	40	50	65	80	100	150	200	-	250
REDUCED BORE	-	3/4" x 1/2"	1" x 3/4"	1"1/4 x 1"	1"1/2 x 1"	2" x 1"1/2	2"1/2 x 2"	3" x 2"	4" x 3"	6" x 4"	8" x 6"	10" x 8"	
ANSI 150	●	●	●	●	●	●	●	●	●	●	●	●	● 1
ANSI 300	●	●	●	●	●	●	●	●	●	●	●	●	● 1
ANSI 600	●	●	●	●	●	●	●	●	●	●	●	●	● 1
ANSI 900	●	●	●	●	●	●	●	●	●	●	●	●	● 1
ANSI 1500	●	●	●	●	●	●	●	●	●	●	●	●	● 1
ANSI 2500	●	●	●	●	●	●	●	●	●	●	●	●	● 1

BALL SUPPORTED ON PLATE

2 = Only FULL BORE

FULL BORE	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"
DN	200	250	300	350	400	450	500	600	650	700	750	800	900
REDUCED BORE	-	10" x 8"	12" x 10"	14" x 12"	16" x 14"	18" x 16"	20" x 18"	24" x 20"	26" x 20"	28" x 24"	30" x 24"	32" x 28"	36" x 32"
ANSI 150		● 2	●	●	●	●	●	●	●	●	●	●	●
ANSI 300		● 2	●	●	●	●	●	●	●	●	●	●	●
ANSI 600		● 2	●	●	●	●	●	●	●	●	●	●	●
ANSI 900		● 2	●	●	●	●	●	●	●	●	●	●	●
ANSI 1500		● 2	●	●	●	●	●	●	●	●	●	●	●
ANSI 2500	● 2	●	●	●	●	●	●	●	●	●	●	●	●

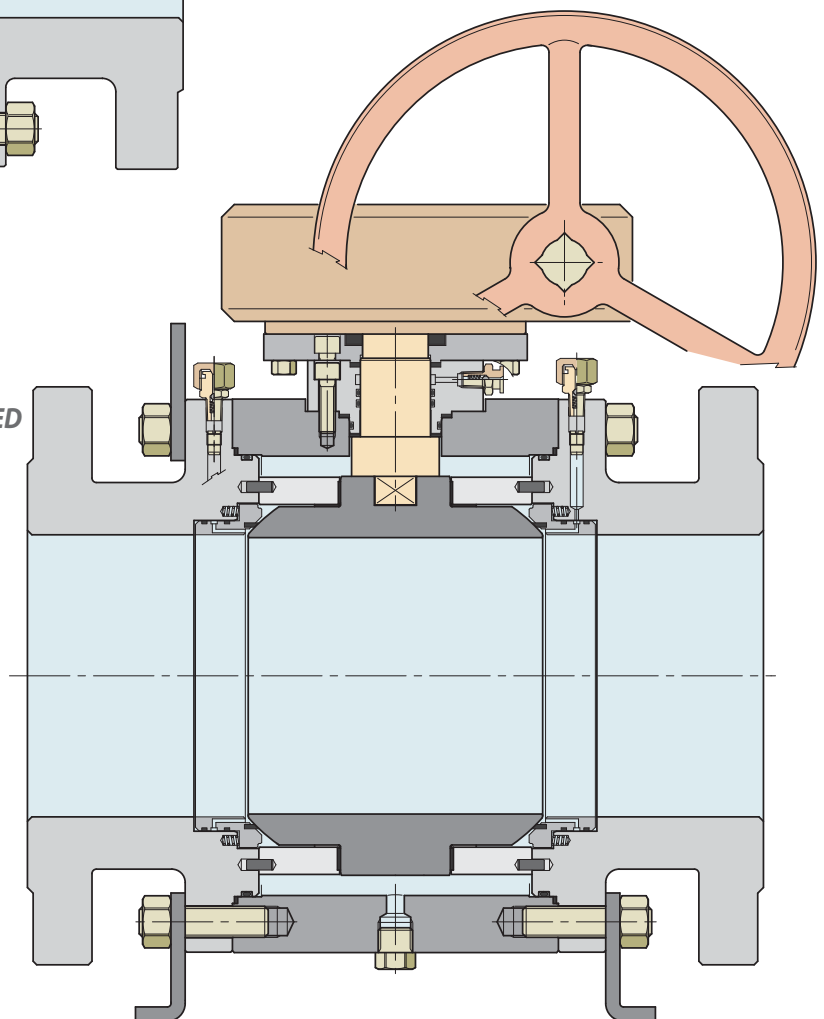
● Size available ◐ Size not available ◑ Size on request ■ GEAR operator is suggested for these diameters

**BALL SUPPORTED
ON TRUNNION**


- F/F dimensions are long-pattern design
- Different bore reductions are available upon request.
- BW ends manufactured as standard with face to face as per API 6D.
- HUB ends manufactured as standard with face to face as per RJ type.
- Large groove, large female, flat face and compact flange are also available upon request.

DESIGN:

- API 6D
- API 6A
- ASME B16.47
- ASME B16.10
- B16.34
- BS 5351
- FIRE SAFE SYSTEM API 607
- ANTISTATIC
- TA-LUFT - 3.1.8.4

**BALL SUPPORTED
ON PLATE**

OPTION:

- LOCKING DEVICE
- EXTENDED STEM
- LIP-SEAL
- GARLOCK PACKING
- DOUBLE PISTON EFFECT
- METAL TO METAL SEAT
- TRANSITION PIECES (PUPS)

For materials and further details see paragraph: **TECHNICAL INFORMATION**

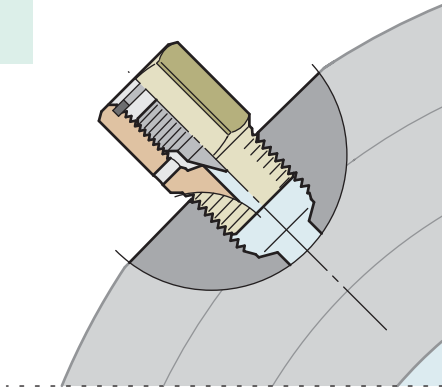


VENT BLEEDER
SEE TABLE

NPT thread

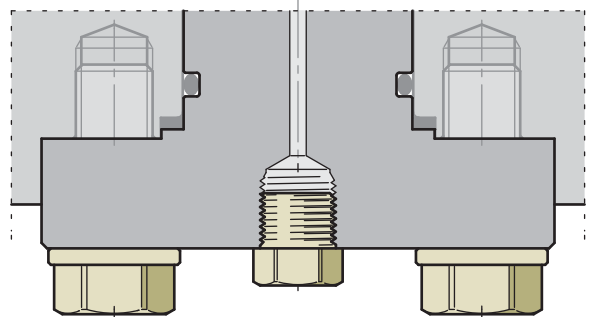
1/2" 3/4" 1"

C



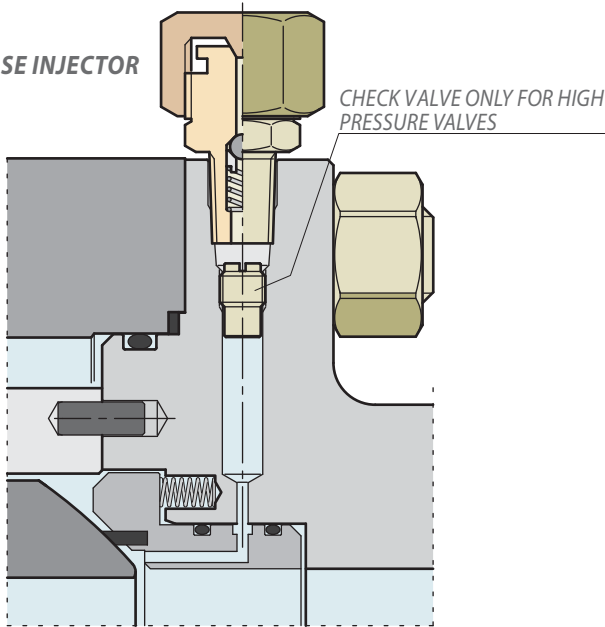
DRAIN PLUG
ON ALL VALVE SIZES

E



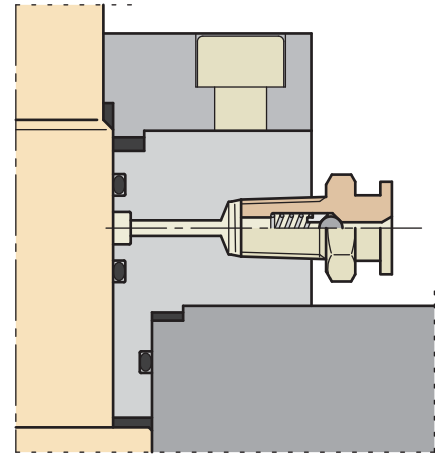
SEAT GREASE INJECTOR
SEE TABLE

D



STEM GREASE/SEALANT INJECTOR
ON ALL VALVE SIZES

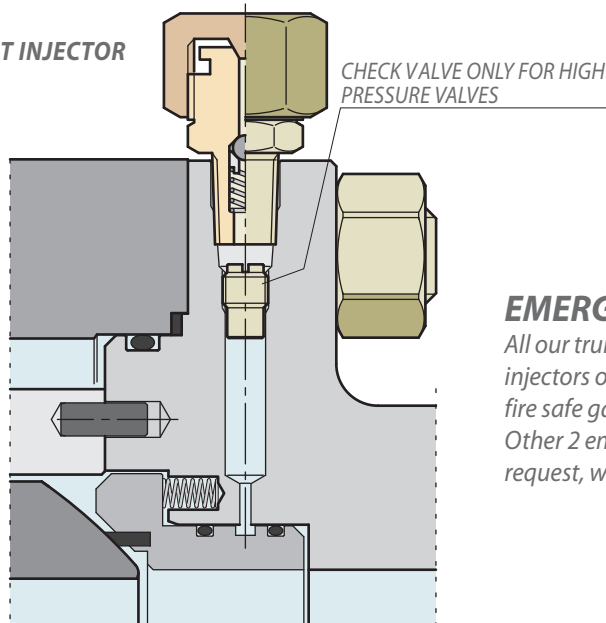
F



ON REQUEST

EMERGENCY SEALANT INJECTOR

G

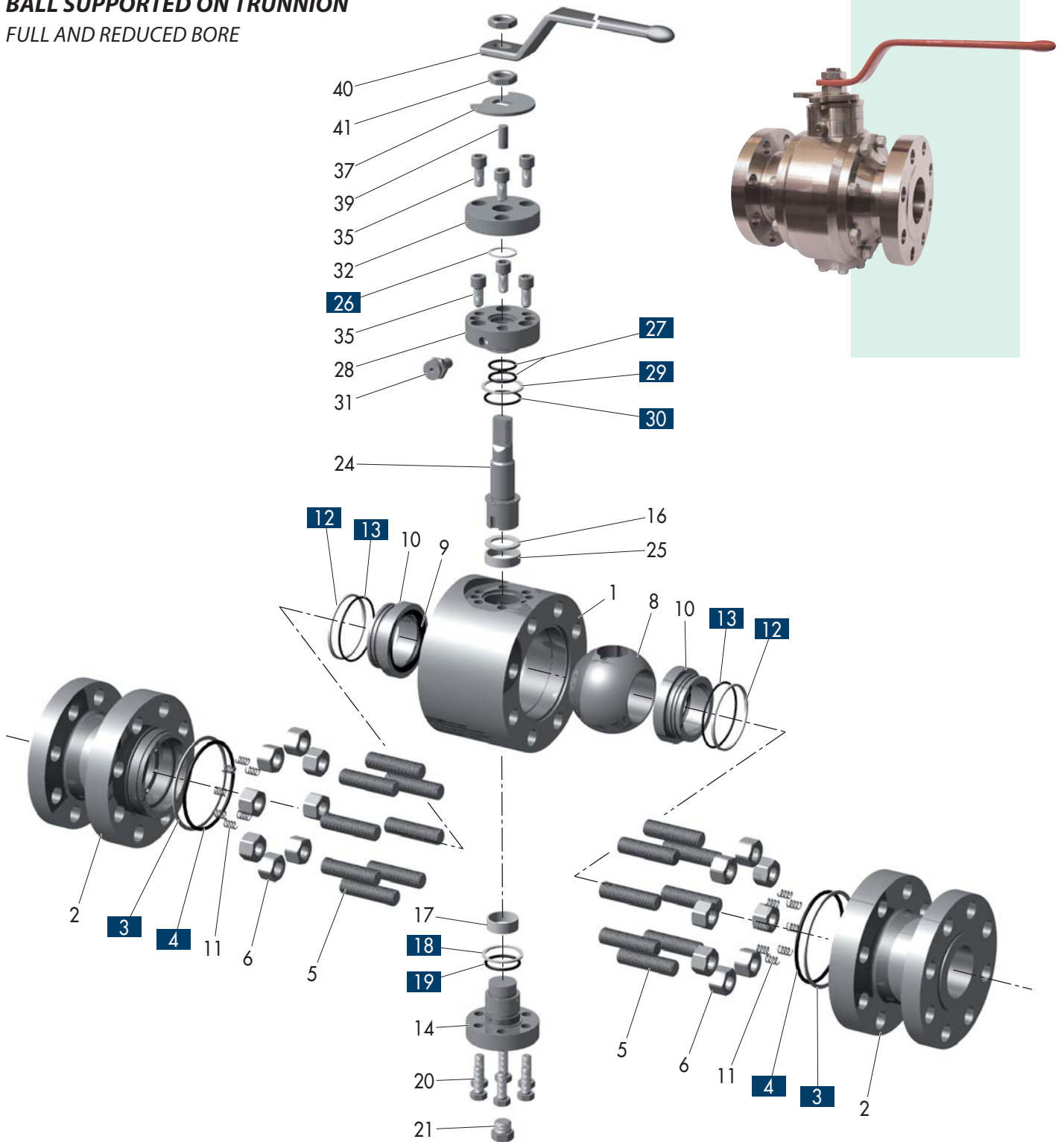


EMERGENCY SEALANT INJECTION

All our trunnion valves are equipped with emergency sealant injectors on the stem, put between the upper O-rings and the fire safe gasket.

Other 2 emergency seat sealant injectors can be installed on request, where applicable.

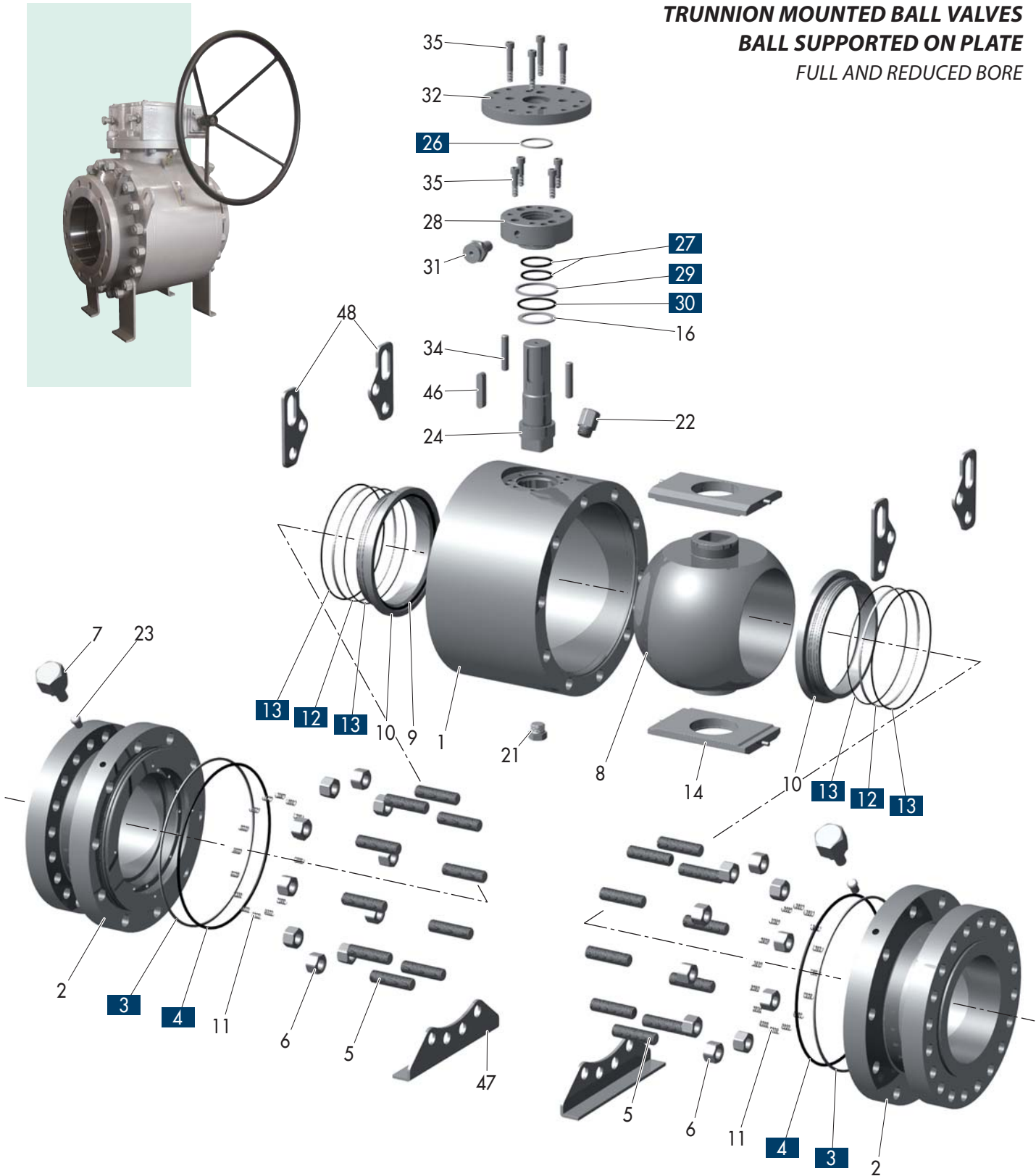
TRUNNION MOUNTED BALL VALVES
BALL SUPPORTED ON TRUNNION
 FULL AND REDUCED BORE



Recommended spare parts

1	Body	11	Seat spring	21	Drain plug	32	Operator flange
2	Closure	12	Seat gasket	24	Stem	35	Flanges screw
3	Closure gasket	13	Seat O-Ring	25	Shell bearing	37	Stop sector
4	Closure O-Ring	14	Trunnion	26	Stem gasket	39	Stop pin
5	Closure stud	16	Thrust washer	27	Stem O-Ring	40	Lever
6	Closure nut	17	Shell bearing	28	Gland flange	41	Lever nut
8	Ball	18	Trunnion gasket	29	Gland flange gasket		
9	Seat insert	19	Trunnion O-Ring	30	Gland flange O-Ring		
10	Seat ring	20	Trunnion bolt	31	Stem grease injector		

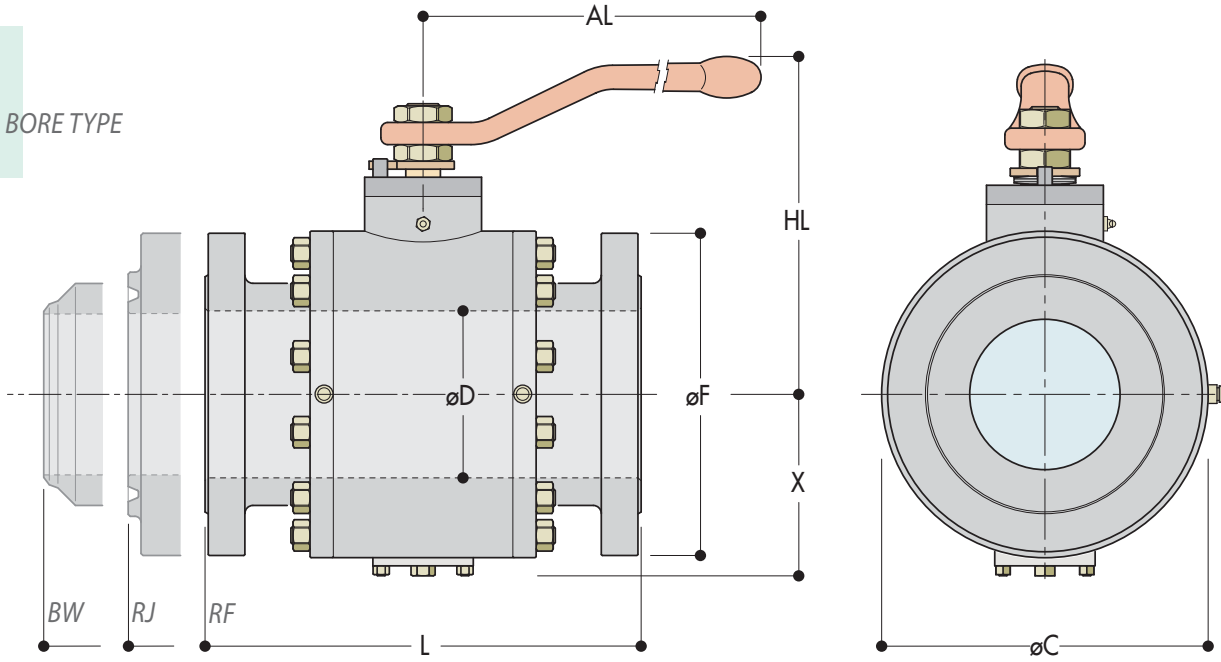
TRUNNION MOUNTED BALL VALVES
BALL SUPPORTED ON PLATE
FULL AND REDUCED BORE



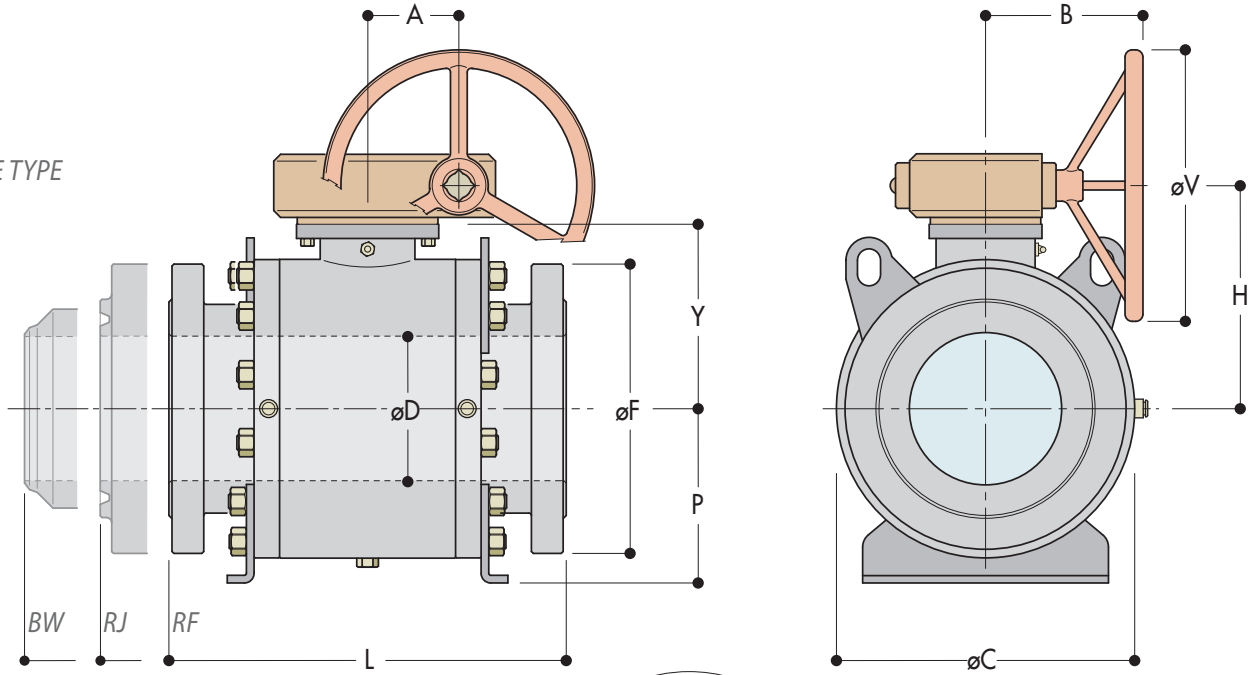
Recommended spare parts

1	Body	9	Seat insert	22	Vent bleeder	31	Stem grease injector
2	Closure	10	Seat ring	23	Check valve	32	Operator flange
3	Closure gasket	11	Seat spring	24	Stem	34	Pin
4	Closure O-Ring	12	Seat gasket	26	Stem gasket	35	Flanges screw
5	Closure stud	13	Seat O-Ring	27	Stem O-Ring	46	Stem key
6	Closure nut	14	Support plate	28	Gland flange	47	Foot
7	Seat grease injector	16	Thrust washer	29	Gland flange gasket	48	Lifting lug
8	Ball	21	Drain plug	30	Gland flange O-Ring		

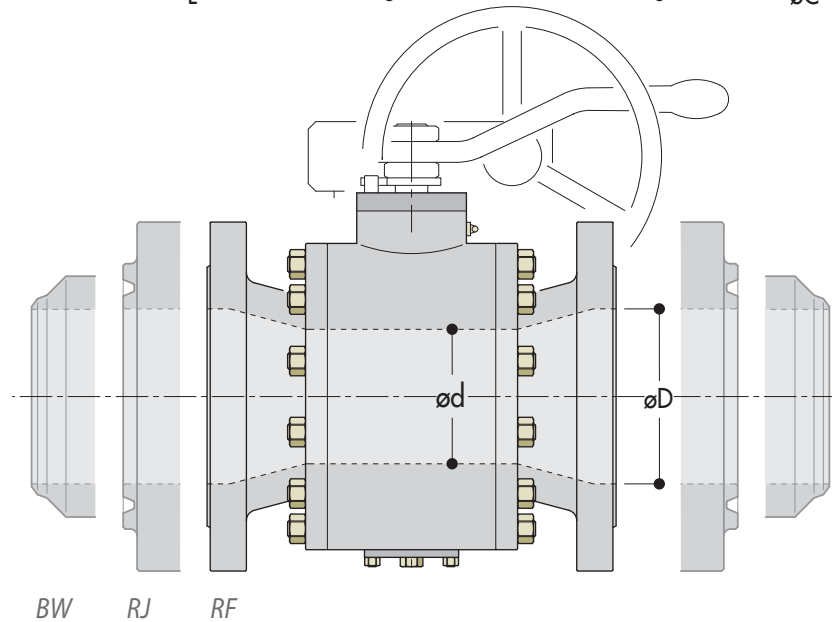
FULL BORE TYPE



FULL BORE TYPE



REDUCED BORE TYPE





ANSI 150	SIZE - Bore		L			ød	øD	øF	øC	P	Y	X	A	B	H	øV	AL	HL~	Weigh		
	Full	Reduced	RF	RJ	BW														Valve	Valve + Gear	
	1/2"																			14	89
	3/4" x 1/2"					14	19	98													
3/4"						19	25	108													
	1" x 3/4"					25	38	127													
1"						38	127	150		108	90	70	250	148	400	274	190			16	28
	1"1/2 x 1"	165	178			49	152	164		115	95	70	250	155	400	274	200			19	31
1"1/2"		178	191	216		49	152	164		115	95	70	250	155	400	274	200			21	33
	2" x 1"1/2	203	216	283		49	152	164		115	95	70	250	155	400	274	200			27	39
2"		203	216	283		49	152	164		115	95	70	250	155	400	274	200			40	52
	3" x 2"	229	241	305		75	101	229		151	135	70	250	191	400	335	250			48	60
3"		229	241	305		75	101	229		151	135	70	250	191	400	335	250			54	66
	4" x 3"	394	406	457		101	150	279		220	195	70	250	212	400	335	300			140	152
4"		394	406	457		101	150	279		220	195	70	250	212	400	335	300			155	167
	6" x 4"	457	470	521		150	201	343		220	195	70	250	260	400	—	—			189	201
6"		457	470	521		150	201	343		220	195	70	250	260	400	—	—			317	335
	8" x 6"	533	546	559		201	254	406		269	289	92	305	343	500	—	—			370	388
8"		533	546	559		201	254	406		269	289	92	305	343	500	—	—			510	537
	10" x 8"	610	622	635		254	303	483		312	331	101	360	396	600	—	—			575	602
10"		610	622	635		254	303	483		312	331	101	360	396	600	—	—			663	708
	12" x 10"	686	699	762		303	334	533		356	376	125	420	440	700	—	—			730	775
12"		686	699	762		303	334	533		356	376	125	420	440	700	—	—			835	891
	14" x 12"	762	775	838		334	385	597		610	356	376	137	555	523	700	—	—		905	961
14"		762	775	838		334	385	597		610	356	376	137	555	523	700	—	—		1124	1180
	16" x 14"	864	876	914		385	436	635		684	404	414	137	555	561	700	—	—		1175	1231
16"		864	876	914		385	436	635		684	404	414	137	555	561	700	—	—		1485	1541
	18" x 16"	914	927	991		436	487	699		765	458	458	137	555	605	700	—	—		1565	1621
18"		914	927	991		436	487	699		765	458	458	137	555	605	700	—	—		2065	2170
	20" x 18"																				
20"																					
	22" x 20"																				
22"																					
	24" x 20"	1067	1080	1143		487	589	813		890	530	522	164	600	607	700	—	—		2315	2420
24"		1067	1080	1143		487	589	813		890	530	522	164	600	607	700	—	—		2950	3065
	26" x 20"	1143	—	1245		633															
26"		1143	—	1245		633															
	28" x 24"	1245	—	1346		684															
28"		1245	—	1346		684															
	30" x 26"	1295	—	1397		735															
30"		1295	—	1397		735															
	32" x 28"	1372	—	1524		779															
32"		1372	—	1524		779															
	36" x 32"	1524	—	1727		874															
36"		1524	—	1727		874															

Standard dimension. It may be different depending on gearbox brand
Dimension to be agree

All dimensions are in mm, weights are in kg.

ANSI 300	SIZE - Bore		L			ød	øD	øF	øC	P	Y	X	A	B	H	øV	AL	HL~	Weigh		
	Full	Reduced	RF	RJ	BW														Valve	Valve + Gear	
	1/2"																			14	95
	3/4" x 1/2"					14	19	118													
3/4"						19	25	124													
	1" x 3/4"					25	38	156													
1"						38	156	150		108	90	70	250	148	400	274	190			21	33
	1"1/2 x 1"	216	232	216		49	165	164		115	95	70	250	155	400	274	200			24	36
1"1/2"		283	298	283		49	165	164		115	95	70	250	155	400	274	200			30	42
	2" x 1"1/2	283	298	283		49	165	164		115	95	70	250	155	400	274	200			54	66
2"		305	321	305		75	101	254		151	135	70	250	191	400	335	250			55	67
	3" x 2"	305	321	305		75	101	254		151	135	70	250	191	400	335	250			55	67
3"		403	419	403		101	150	318		220	195	70	250	212	400	335	300			152	164
	4" x 3"	403	419	403		101	150	318		220	195	70	250	212	400	335	300			176	194
4"		502	518	521		150	201	381		220	195	92	305	274	500	—	—			210	228
	6" x 4"	502	518	521		150	201	381		220	195	92	305	274	500	—	—			352	370
6"		568	584	559		201	254	445		269	289	92	305	343	500	—	—			402	420
	8" x 6"	568	584	559		201	254	445		269	289	92	305	343	500	—	—			575	602
8"		648	664	635		254	303	521		312	331	101	360	396	600	—	—			620	647
	10" x 8"	648	664	635		254	303	521		312	331	101	360	396	600	—	—			780	825
10"		762	778	762		303	334	584		356	376	125	420	440	700	—	—			860	905
	12" x 10"	762	778	762		303	334	584		356	376	125	420	440	700	—	—			1034	1090
12"		838	854	838		334	385	648		610	356	376	137	555	523	700	—	—		1134	1190
	14" x 12"	838	854	838		334	385	648		610	356	376	137	555	523	700	—	—		1167	1235
14"		914	930	914		385	436	711		684	404	415	137	555	562	700	—	—		1172	1240
	16" x 14"	914	930	914		385	436	711		684	404	415	137	555	562	700	—	—		1617	1685
16"		991	1010	991		436	487	775		765	458	458	137	555	605	700	—	—		1780	1848
	18" x 16"	991	1010	991		436	487	775		765	458	458	137	555	605	700	—				



ANSI 600

SIZE - Bore	L	RF	RJ	BW	ød	øD	øF	øC	P	Y	X	A	B	H	øV	AL	HL~	Weigh	
																		Full	Reduced
1/2"					14	95													
3/4"	3/4" x 1/2"				14	19	118												
	1" x 3/4"				19	25	124												
1"					25	124													
1 1/2"	1 1/2" x 1"				25	38	156												
	2" x 1 1/2"	241	241		38	156	150			108	90	70	250	148	400	274	190	22	34
2"	2" x 1 1/2"	292	295	292	38	49	165	150		108	90	70	250	148	400	274	190	26	38
	3" x 2"	292	295	292	49	165	187			128	115	70	250	168	400	274	250	38	50
3"	3" x 2"	356	359	356	49	75	210	187		128	115	70	250	168	400	274	250	56	68
	4" x 3"	356	359	356	75	210	228			152	135	70	250	192	400	335	250	70	82
4"	4" x 3"	432	435	432	75	101	273	228		152	135	70	250	192	400	450	250	95	107
	6" x 4"	432	435	432	101	273	294			191	165	70	250	231	400	—	—	150	162
6"	6" x 4"	559	562	559	101	150	356	294		191	165	70	250	231	400	—	—	200	212
	8" x 6"	559	562	559	150	356	369	275	242			92	305	296	500	—	—	305	323
8"	8" x 6"	660	664	660	150	201	419	369	275	242		92	305	296	500	—	—	445	463
	10" x 8"	660	664	660	201	419	467	282	295			125	420	374	700	—	—	548	593
10"	10" x 8"	787	791	787	201	254	508	467	282	295		125	420	374	700	—	—	652	697
	12" x 10"	787	791	787	254	508	525	323	330			125	420	409	700	—	—	795	840
12"	12" x 10"	838	841	838	254	303	559	525	323	330		125	420	409	700	—	—	875	920
	14" x 12"	838	841	838	303	303	559	605	332	370		137	555	517	700	—	—	1052	1120
14"	14" x 12"	889	892	889	303	334	603	605	332	370		137	555	517	700	—	—	1137	1205
	16" x 14"	889	892	889	334	603	640	370	392			137	555	539	700	—	—	1630	1698
16"	16" x 14"	991	994	991	334	385	686	640	370	392		137	555	539	700	—	—	1650	1718
	18" x 16"	991	994	991	385	686	710	405	424			164	600	509	700	—	—	1650	1755
18"	18" x 16"	1092	1095	1092	385	436	743	710	405	424		164	600	509	700	—	—	1830	1935
	20" x 18"	1092	1095	1092	436	743	790	465	494			164	600	579	700	—	—	2190	2305
20"	20" x 18"	1194	1200	1194	436	487	813	790	465	494		164	600	579	700	—	—	2360	2475
	22" x 20"	1194	1200	1194	487	813	938	570	569			240	655	692	700	—	—	2830	3050
22"	22" x 20"																		
	24" x 20"	1397	1407	1397	487	589	940	938	570	569		240	655	692	700	—	—	3390	3610
24"	24" x 20"	1397	1407	1397	589	940	1050	623	626			160	760	743	700	—	—	4880	5133
	26" x 20"	1448	1461	1448	538	633													
26"	26" x 20"	1448	1461	1448	633														
	28" x 24"	1549	1562	1549	589	684													
28"	28" x 24"	1549	1562	1549	684														
	30" x 24"	1651	1664	1651	633	735													
30"	30" x 24"	1651	1664	1651	735														
	32" x 28"	1778	1794	1778	684	779													
32"	32" x 28"	1778	1794	1778	779														
	36" x 32"	2083	2099	2083	779	874													
36"	36" x 32"	2083	2099	2083	874														

Standard dimension. It may be different depending on gearbox brand

All dimensions are in mm, weights are in kg.

Dimension to be agree

ANSI 900

SIZE - Bore	L	RF	RJ	BW	ød	øD	øF	øC	P	Y	X	A	B	H	øV	AL	HL~	Weigh	
																		Full	Reduced
1/2"					14	121													
3/4"	3/4" x 1/2"				14	19	130												
	1" x 3/4"				19	25	149												
1"					25	149													
1 1/2"	1 1/2" x 1"				25	38	178												
	2" x 1 1/2"	305	305		38	178	176			119	110	70	250	159	400	450	245	38	50
2"	2" x 1 1/2"	368	371	368	38	49	216	176		119	110	70	250	159	400	450	245	57	69
	3" x 2"	368	371	368	49	216	187			128	115	70	250	168	400	450	260	62	74
3"	3" x 2"	381	384	381	49	75	241	187		128	115	70	250	168	400	450	260	70	82
	4" x 3"	381	384	381	75	241	228			152	135	70	250	192	400	450	300	84	96
4"	4" x 3"	457	460	457	75	101	292	228		152	135	70	250	192	400	450	300	110	122
	6" x 4"	457	460	457	101	292	294			191	165	92	305	245	500	—	—	162	180
6"	6" x 4"	610	613	610	101	150	381	294		191	165	92	305	245	500	—	—	238	256
	8" x 6"	610	613	610	150	381	369	275	242			101	360	307	600	—	—	335	362
8"	8" x 6"	737	740	737	150	201	470	369	275	242		101	360	307	600	—	—	405	432
	10" x 8"	737	740	737	201	470	467	255	295			137	555	442	700	—	—	615	671
10"	10" x 8"	838	841	838	201	254	546	467	255	295		137	555	442	700	—	—	760	816
	12" x 10"	838	841	838	254	546	525	323	330			137	555	477	700	—	—	886	954
12"	12" x 10"	965	968	965	254	303	610	525	323	330		137	555	477	700	—	—	1030	1098
	14" x 12"	965	968	965	303	303	610	605	333	371		137	555	518	700	—	—	1610	1678
14"	14" x 12"	1029	1038	1029	303	322	641	605	333	371		137	555	518	700	—	—	1710	1778
	16" x 14"	1029	1038	1029	322	641	700	394	423			164	600	508	700	—	—	1817	1932
16"	16" x 14"	1130	1140	1130	322	373	705	700	394	423		164	600	508	700	—	—	1830	1945
	18" x 16"	1130	1140	1130	373	705	795	443	473			225	655	596	700	—	—	1950	2160
18"	18" x 16"	1219	1232	1219	373	423	787	795	443	473		225	655	596	700	—	—	2400	2610
	20" x 18"	1219	1232	1219	423	423	787	875	503	535		240	655	658	700	—	—	2850	3070
20"	20" x 18"	1321	1334	1321	423	471	857	875	503	535		240	655	658	700	—	—	3250	3470
	22" x 20"	1321	1334	1321	471	857	965	561	576			160	760	693	700	—	—	3350	3603
22"	22" x 20"																		
	24" x 20"	1549	1568	1549	47														

ANSI 1500

Full	Reduced	L			ød	øD	øF	øC	P	Y	X	A	B	H	øV	AL	HL~	Weigh	
		RF	RJ	BW														Valve	Valve + Gear
1/2"					14	121													
	3/4" x 1/2"				14	19	130												
3/4"						19	130												
	1" x 3/4"				19	25	149												
1"						25	149												
	1 1/2 x 1"				25	38	178												
1 1/2"		305	305			38	178	176		119	110	70	250	159	400			38	50
	2" x 1 1/2"	368	371	368	38	49	216	176		119	110	70	250	159	400	450	245	57	69
2"		368	371	368		49	216	187		128	115	70	250	168	400	450	260	62	74
	3" x 2"	470	473	470	49	75	267	187		128	115	70	250	168	400	450	260	85	97
3"		470	473	470		75	267	228		143	125	92	305	197	500	--	--	110	128
	4" x 3"	546	549	546	75	101	311	228		143	125	92	305	197	500	--	--	139	157
4"		546	549	546		101	311	300		205	170	101	360	270	600	--	--	205	232
	6" x 4"	705	711	705	101	144	394	300		205	170	101	360	270	600	--	--	302	329
6"		705	711	705		144	394	420	280	274		137	555	421	700	--	--	514	570
	8" x 6"	832	841	832	144	192	483	420	280	274		137	555	421	700	--	--	670	726
8"		832	841	832		192	483	520	340	328		137	555	475	700	--	--	737	805
	10" x 8"	991	1000	991	192	239	584	520	340	328		137	555	475	700	--	--	955	1023
10"		991	1000	991		239	584	590	377	369		164	600	454	700	--	--	1360	1465
	12" x 10"	1130	1146	1130	239	287	673	590	377	369		164	600	454	700	--	--	1560	1665
12"		1130	1146	1130		287	673	760	440	457		164	600	542	700	--	--	2500	2615
	14" x 12"	1257	1276	1257	287	315	749	760	440	457		164	600	542	700	--	--	2620	2735
14"		1257	1276	1257		315	749	780	485	470		164	600	555	700	--	--	3020	3135
	16" x 14"	1384	1407	1384	315	360	826	780	485	470		164	600	555	700	--	--	3350	3465
16"		1384	1407	1384		360	826	880	539	524		225	655	647	700	--	--	4260	4470
	18" x 16"						914					225	655	700	--	--			
18"							914					240	655	700	--	--			
	20" x 18"						984					240	655	700	--	--			
20"							984					160	760	700	--	--			
	22" x 20"																		
22"																			
	24" x 20"						1168					160	760	700	--	--			
24"							1168												
	26" x 20"																		
26"																			
	28" x 24"																		
28"																			
	30" x 24"																		
30"																			
	32" x 28"																		
32"																			
	36" x 32"																		
36"																			

Standard dimension. It may be different depending on gearbox brand
 Dimension to be agree All dimensions are in mm, weights are in kg.

ANSI 2500

Full	Reduced	L			ød	øD	øF	øC	P	Y	X	A	B	H	øV	AL	HL~	Weigh	
		RF	RJ	BW														Valve	Valve + Gear
1/2"					14	133													
	3/4" x 1/2"	273	273		14	19	140												
3/4"		273	273			19	140												
	1" x 3/4"	308	308		19	25	159												
1"		308	308			25	159	148		108	90				274	185		30	42
	1 1/2 x 1"	384	387		25	38	203	148		108	90				274	185		40	52
1 1/2"		384	387			38	203	187		124	120	70	250	164	400	450	260	60	72
	2" x 1 1/2"	451	454	451	38	44	235	187		124	120	70	250	164	400	450	260	80	92
2"		451	454	451		44	235	208		143	130	92	305	197	500	--	--	97	115
	3" x 2"	578	584	578	44	62	305	208		143	130	92	305	197	500	--	--	165	183
3"		578	584	578		62	305	320		205	180	92	305	259	500	--	--	336	354
	4" x 3"	673	683	673	62	87	356	320		205	180	92	305	259	500	--	--	337	355
4"		673	683	673		87	356	325	185	218		125	420	297	700	--	--	337	382
	6" x 4"	914	927	914	87	131	483	325	185	218		125	420	297	700	--	--	540	585
6"		914	927	914		131	483	480	285	305		137	555	452	700	--	--	863	931
	8" x 6"	1022	1038	1022	131	179	552	480	285	305		137	555	452	700	--	--	1150	1218
8"		1022	1038	1022		179	552	615	368	381		164	600	466	700	--	--	1575	1680
	10" x 8"	1270	1292	1270	179	223	673	615	368	381		164	600	466	700	--	--	1750	1855
10"		1270	1292	1270		223	673	850	485	504		164	600	589	700	--	--	3400	3515
	12" x 10"	1422	1445	1422	223	265	762	850	485	504		164	600	589	700	--	--	3560	3675
12"		1422	1445	1422		265	762	915	495	540		225	655	663	700	--	--	3710	3920
	14" x 12"																		
14"																			
	16" x 14"																		
16"																			
	18" x 16"																		
18"																			
	20" x 18"																		
20"																			
	22" x 20"																		
22"																			
	24" x 20"																		
24"																			

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