

Ball valves

class 150, 300, 400, 600, 800, 900, 1500 and 2500

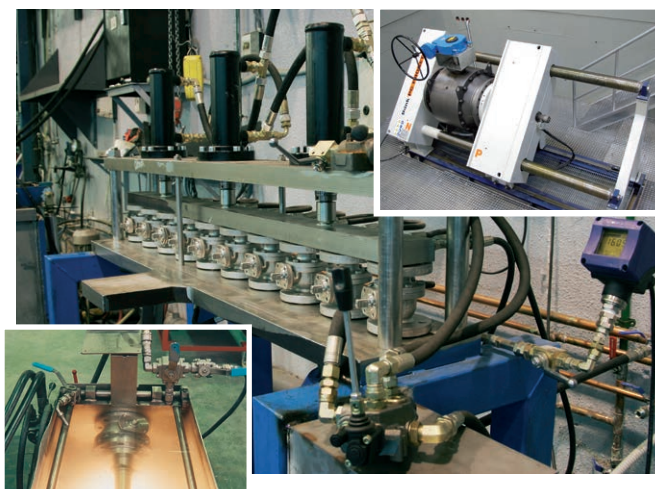


Certifications and tests



Cryogenic test

Firesafe test



Final inspection

Certificates of the company

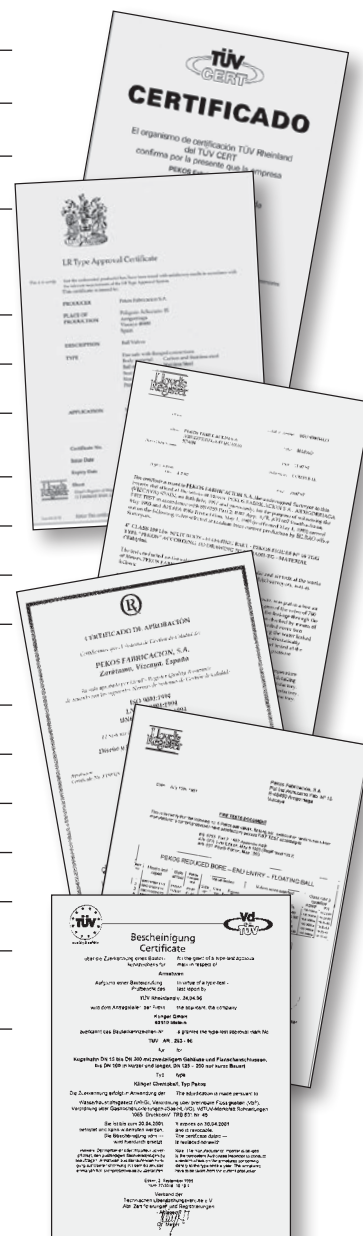
ISO 9001	Quality Assurance System
AD-Merkblatt WO/TRD 100	Manufacturing process and Quality System
API Monogram	Standard API 6D. certificate number: 6D-0363

Certificates of the product

Lloyd's Type Approval	Fire Safe & type approval
TUV A352.09	Design of the valves
TA-Luft ISO 15848	Stem tightness for gas emissions
CE	Pressure equipment CE marking (97/23/EC Directive)
ATEX 	Conformity with Directive 94/9/EC - ( IIIGD)
BS 6364	Valves for cryogenic service
EN 161 / EN 264	Automatic shut-off valves for gas burners and gas equipment
Helium -40 °C	Leeds University test
GOST-R	Russian Federation Certificate
Sanitary approval (Russian)	Food processing and Pharmaceutical industry
IEC 61508	Safety Integral Level (SIL)
UKR SEPRO	Ukraine Certificate
DVGW-EN 13774	Valves for gas distribution with maximum operating pressure for to 16 bar

Some Company Approvals

- Repsol-YPF (Spain)
- Al Furat Petroleum (Syria)
- Sasol Technology (South Africa)
- EGPC (Egypt)
- China Petroleum (China)
- Qatar Petroleum (Qatar)
- Petroleum Development Oman (PDO)
- KUWAIT Oil Co. (KOC)
- Zadco (UAE)



General features

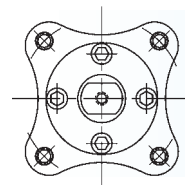
- ▼ Design as per BS5351, ANSI B16.34, EN 12516, ISO 17292, API 6 D upon request
- ▼ ISO 5211 Top flange
- ▼ FIRE SAFE construction certified as per BS 6755 part 2, API 6FA, API 607 and ISO 10497
- ▼ Pressure testing according, API 598, ISO 5208, EN 12266 and API 6D upon request
- ▼ Face to face as per ANSI B16.10, API 6D and EN 558
- ▼ End connections

Flanged RF, RTJ.....	ANSI 16.5
Socket Weld.....	ANSI 16.11
Butt Weld.....	ANSI 16.25
NPT.....	ANSI B1.20.1
BSPP.....	BS 21, ISO 228/1, DIN 259
BSPT.....	BS 21, ISO 7/1

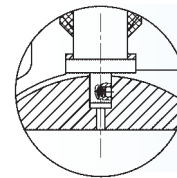
Body constructions

- ▼ Floating ball
- ▼ Guided ball
- ▼ Full Trunnion
- ▼ Split body 2-3 pieces or 1 piece (side-entry)
- ▼ Full and Reduced bore

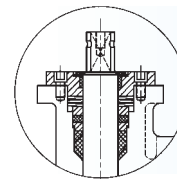
Design advantages



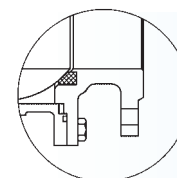
ISO 5211 Top flange



*Anti-blow out stem
Antistatic stem*

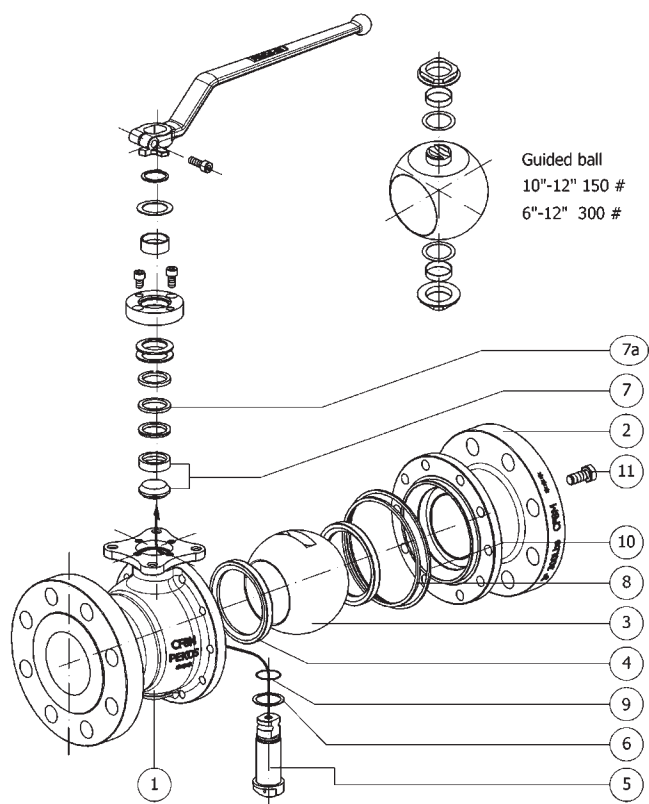


*Guided stem
Fire safe
Stem packing
MAINTENANCE FREE*



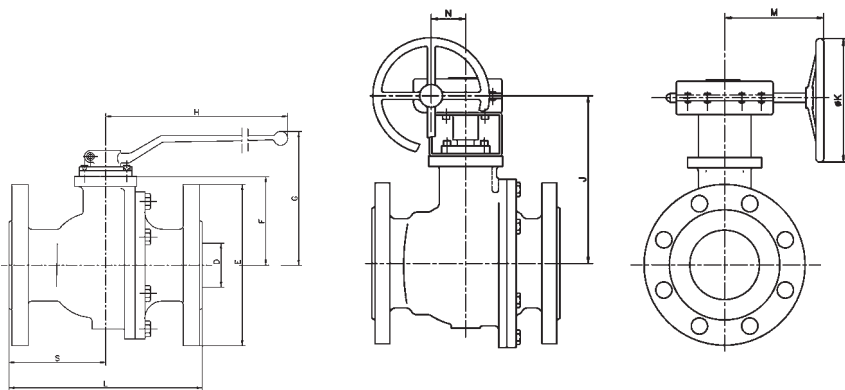
*Standard construction
Fire safe*

FULL BORE - FLOATING & GUIDED



Standard materials

Item	Description	Figure	
		Z14 TTTGV Z34 TTTGV Z64 TTTGV ZG14TTTGV ZG34 TTTGV	Z16 TTTGV Z36 TTTGV Z66 TTTGV ZG16TTTGV ZG36 TTTGV
1-2	Body	A216 WCC	A351CF8M
3	Ball	A351CF8M	
4	Seats	PTFE (T) PTFE+FG (R) PTFE + CG (S)	
5	Stem	AISI 316 A182 F51	
6	Stem seal	PTFE + CG (S)	
7	Packing 1	PTFE (T)	
7a	Packing 2	Graphite	
8	Seal body 1	PTFE (T)	
9	Oring stem	Viton®	
10	Seal body 2	Graphite	
11	Bolts body	A193 B7M	A193/A320 B8M C12



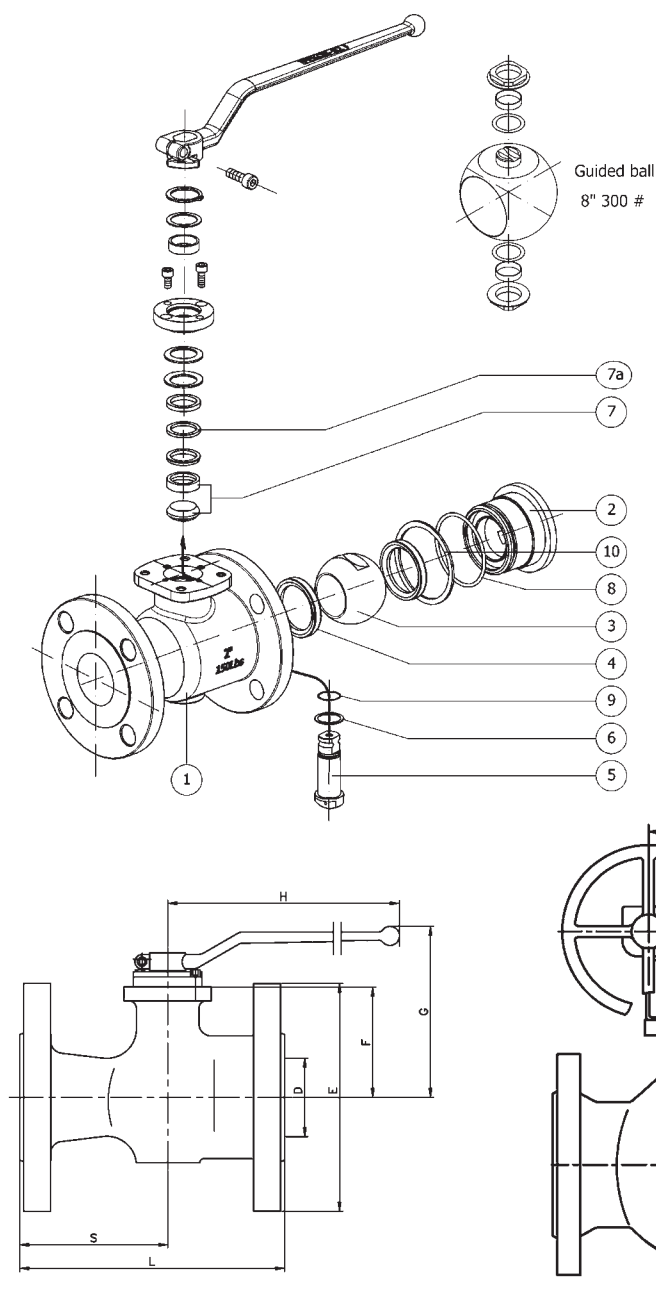
Weight (Kg)

NPS	Class 150	Class 300	Class 600	G.Box
1/2"	2,5	3	4	-
3/4"	3,3	4,5	6	-
1"	4,2	5	8	-
1 1/2"	7,4	10,5	14	-
2"	10,6	12,5	19	3
2 1/2"	17	20	-	3
3"	22	27	-	3
4"	32	44	-	3
6"	81	105	-	9
8"	143	179	-	20
10"	245	287	-	20
12"	367	480	-	20/25

Dimensions

NPS	Class 150 & 300										Class 600										Gearbox			
	D	L		E		F	G	H	S		ISO 5211	L	E	F	G	H	S	ISO 5211	J	M			N	K
		150	300	150	300				150	300														
1/2"	15	108	140	89	95	52	105	185	47	64	F05s	165	95	61	112	185	68	F05	-	-	-	-	-	-
3/4"	20	117	152	99	118	54	107	185	52	76	F05s	190	120	61	112	185	84	F05	-	-	-	-	-	-
1"	25	127	165	108	124	60	113	185	56	70	F05	216	125	61	112	185	96	F05	-	-	-	-	-	-
1 1/2"	40	165	191	127	156	75	145	300	77	78	F07	241	456	76	130	300	115	F07	153	261	50	300	300	300
2"	50	178	216	152	165	84	153	300	92	90	F07	292	165	83	137	300	129	F07	192	261	50	300	300	300
2 1/2"	65	190	241	178	190	96	166	300	95	120	F07	-	-	-	-	-	-	-	204	261	50	300	300	300
3"	80	203	283	191	210	114	205	355	101	142	F10	-	-	-	-	-	-	-	222	261	50	300	300	300
4"	100	229	305	229	254	128	220	355	114	152	F10	-	-	-	-	-	-	-	236	261	50	300	300	300
6"	150	394	403	279	318	175	284	680	165	211	F12	-	-	-	-	-	-	-	295	287	71	400	400	400
8"	200	457	502	343	381	245	362	750	228	251	F14	-	-	-	-	-	-	-	377	305	86	500	500	500
10"	250	533	568	406	445	285	-	-	270	283	F14	-	-	-	-	-	-	-	417	305	86	500	500	500
12"	300	610	648	483	521	336	-	-	305	324	F14	-	-	-	-	-	-	-	474	346	104	500	500	500

REDUCED BORE - SIDE ENTRY - FLOATING



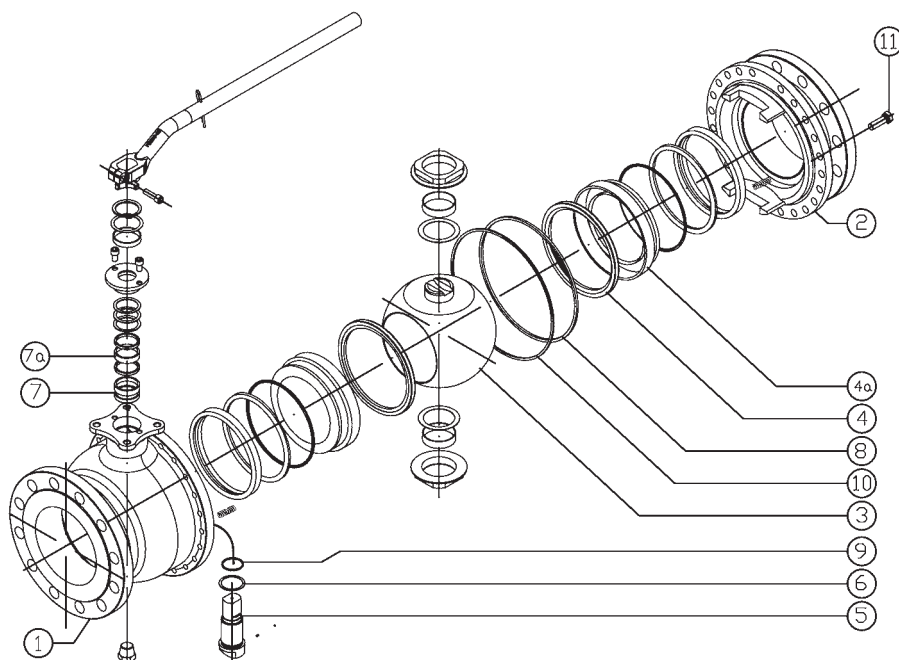
Standard materials

Item	Description	Figure	
		ZRB 14 TTGW ZRB 34 TTGW	ZRB 16 TTGV ZRB 36 TTGV
1-2	Body	A216 WCC	A351CF8M
3	Ball	A351CF8M	
4	Seats	PTFE (T) PTFE+FG (R) PTFE + CG (S)	
5	Stem	AISI 316 A182 F51	
6	Stem seal	PTFE + CG (S)	
7	Packing 1	PTFE (T)	
7a	Packing 2	Graphite	
8	Seal body 1	Viton®	
9	Oring stem	Viton®	
10	Seal body 2	Graphite	

Dimensions

NPS	D	L		E		F	G	H	S		ISO 5211	G. box				Weight (kg)		
		150	300	150	300				150	300		J	M	N	K	150	300	G.box
1/2"	10	108	-	89	-	43	91	185	61	-	F05s	-	-	-	-	2	2,5	-
3/4"	15	117	152	99	118	46	94	185	57	92	F05s	-	-	-	-	2,5	3,6	-
1"	20	127	165	108	124	54	102	185	72	104	F05s	-	-	-	-	3,5	4,8	-
1 1/2"	32	165	191	127	156	65	118	185	93	118	F05	-	-	-	-	5,5	9	-
2"	40	178	216	152	165	75	145	300	108	146	F07	183	261	50	300	9	12	2.5
3"	65	203	283	191	210	96	166	300	123	203	F07	204	261	50	300	17	25	2.5
4"	80	229	305	229	254	114	205	355	137	203	F10	229	261	50	300	25	39	2.5
6"	100	267	403	279	318	148	257	680	147	283	F12	268	287	71	400	46	75	10
8"	144	292	419	343	381	172	281	680	157	284	F12	292	287	71	400	80	118	10
10"	187	330	-	406	-	237	-	-	170	-	F14	369	305	86	500	124	-	20
12"	235	356	-	483	-	266	-	-	178	-	F14	398	305	86	500	196	-	20

FULL TRUNNION - 2 PIECES



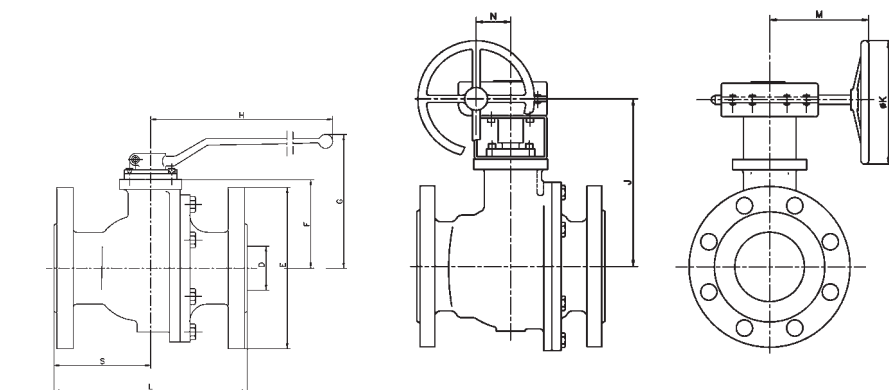
Standard materials

Item	Description	Figure	
		ZGS14TTTGV ZGS34TTTGV	ZGS16TTTGV ZGS36TTTGV
1-2	Body	A216 WCC	A351CF8M
3	Ball	A351CF8M	
4	Seats	PTFE (T) PTFE + FG (R) PTFE + CG (S)	
4a	Ring Seat	AISI 316	
5	Stem	AISI 316 A182 F51	
6	Stem seal	PTFE + CG (S)	
7	Packing 1	PTFE (T)	
7a	Packing 2	Graphite	
8	Seal body 1	PTFE (T)	
9	Oring stem	Viton®	
10	Seal body 2	Graphite	
11	Bolts body	A193 B7M	A320 B8M

Weight (Kg)

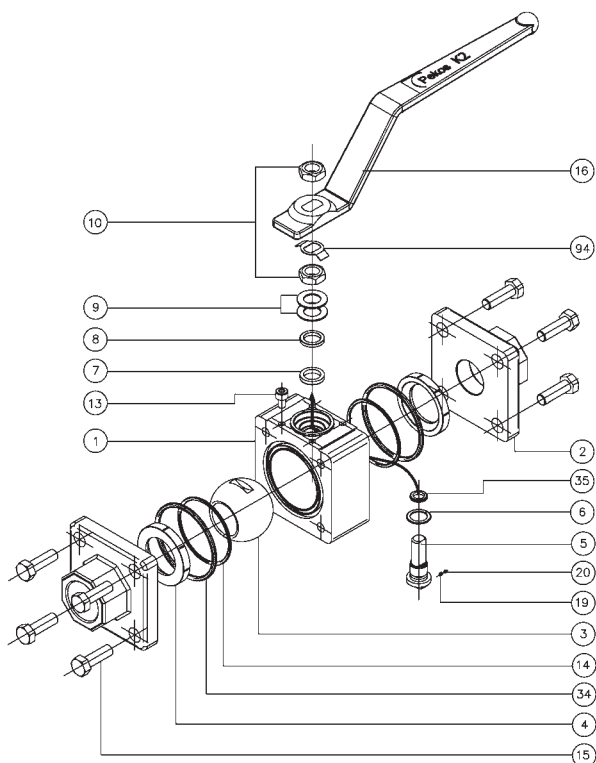
NPS	Class 150	Class 300	G.Box
½"	2,5	3	-
¾"	3,3	4,5	-
1"	4,2	5	-
1 1/2"	7,4	10,5	-
2"	10,6	12,5	3
2 1/2"	17	20	3
3"	22	27	3
4"	32	44	3
6"	6"	81	9
8"	8"	143	20
10"	10"	245	20
12"	12"	367	20/25

Dimensions

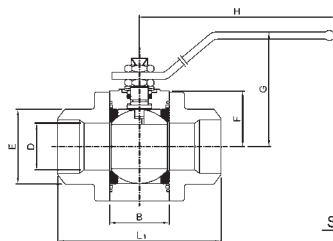


NPS	Class 150 & 300											Gear Box			
	D	L		E		F	G	H	S		ISO	J	M	N	K
		150	300	150	300				150	300	5211				
1/2"	15	108	140	89	95	52	105	185	47	64	F05s	-	-	-	-
3/4"	20	117	152	99	118	54	107	185	52	76	F05s	-	-	-	-
1"	25	127	165	108	124	60	113	185	56	70	F05	-	-	-	-
1 1/2"	40	165	191	127	156	75	145	300	77	78	F07	153	261	50	300
2"	50	178	216	152	165	84	153	300	92	90	F07	192	261	50	300
2 1/2"	65	190	241	178	190	96	166	300	95	120	F07	204	261	50	300
3"	80	203	283	191	210	114	205	355	101	142	F10	222	261	50	300
4"	100	229	305	229	254	128	220	355	114	152	F10	236	261	50	300
6"	150	394	403	279	318	175	284	680	165	211	F12	295	287	71	400
8"	200	457	502	343	381	245	362	750	228	251	F14	377	305	86	500
10"	250	533	568	406	445	285	-	-	270	283	F14	417	305	86	500
12"	300	610	648	483	521	336	-	-	305	324	F14	474	346	104	500

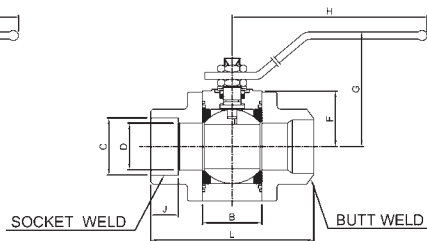
3 PIECES FORGED STEEL VALVES



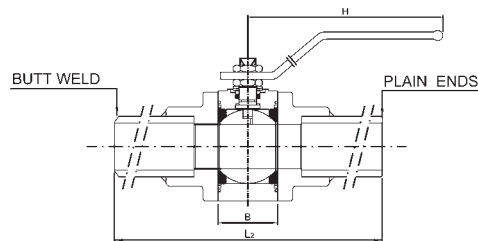
Item	Qty	Description	Materials	
			K809 SGSGV KRB 809 SGSGV	K806 SGSGV KRB 806 SGSGV
1	1	Body 1	A350 LF2/A105	A182 F316 L/F316
2	2	Body 2	A350 LF2/A105	A 182 316L
3	1	Ball	AISI 316	AISI 316
4	2	Seats	PTFE+CG (S)	PTFE+CG (S)
5	1	Stem	AISI 316	AISI 316
6	1	Stem seals	PTFE+CG (S)	PTFE+CG (S)
7	1	Packing ring	Graphite (G)	Graphite (G)
8	1	Gland packing	AISI 316	AISI 316
9	2	Spring washer	AISI 301	AISI 301
10	2	Stem nut	AISI 304	AISI 304
13	2	Stop bolt	A4-70	A4-70
14	2	Body seal 1	PTFE+CG (S)	PTFE+CG (S)
15	8-12-16	Body bolt	A193 B7M	A193 B8M
16	1	Handle	C.Steel+Epoxi	C.Steel+Epoxi
18	1	Thrust washer	PTFE+CG (S)	PTFE+CG (S)
19	1	Spring	AISI 302	AISI 302
20	1	Ball	AISI 316	AISI 316
34	2	Body seal 2	Graphite (G)	Graphite (G)
35	1	Oring stem	Viton® (V)	Viton® (V)
94	1	Stop washer	AISI 301	AISI 301



SCREWED NPT-BSPP



SOCKET WELD BUTT WELD



WELDED NIPPLES

Full Bore

NPS	Class	A	B	D	F	G	H	L	L ₁	L ₂	E	C	J (min.)	Weight Kg
1/4"	800	1/4"	19	11	31	82	145	75	75	275	29	14.5	9.5	1,0
3/8"		3/8"	19	11	31	82	145	75	75	275	29	18	9.5	1,0
1/2"		1/2"	21	15	34	85	145	80	80	280	36	22	9.5	1,2
3/4"		3/4"	28	21	39	101	180	100	100	300	44	27.5	12.5	2,2
1"		1"	37	25	38	105	180	110	110	310	53	34	12.5	3,1
1 1/4"		1 1/4"	44	32	41	108	180	120	120	320	64	43	12.5	4,5
1 1/2"	600	1 1/2"	51	38	47	110	233	140	140	340	76	49	12.5	5,5
2"		2"	60	49	58	119	233	142	191	-	83	61.5	16	10,0
2 1/2"		2 1/2"	72	62	70	143	425	170	210	-	104	74	16	13,5
3"		3"	72	76	88	170	425	229	305	-	115	90	16	17,5

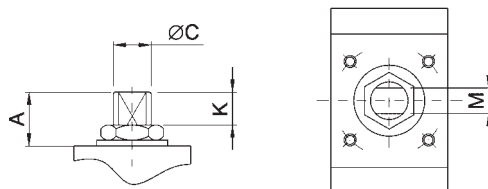
Reduced Bore

NPS	Class	A	B	D	F	G	H	L	L ₁	L ₂	E	C	J (min.)	Weight Kg
1/2"	800	1/2"	19	11	31	82	145	75	75	275	29	22	9.5	1,0
3/4"		3/4"	21	15	34	85	145	80	80	280	36	27.5	12.5	1,2
1"		1"	28	21	39	101	180	100	100	300	44	34	12.5	2,2
1 1/4"		1 1/4"	37	25	38	105	180	110	110	310	53	43	12.5	3,1
1 1/2"		1 1/2"	44	32	41	108	180	120	120	320	64	49	12.5	4,5
2"		2"	51	38	47	110	233	140	140	340	76	61.5	16	5,5
2 1/2"	600	2 1/2"	60	49	58	119	233	142	191	-	83	74	16	10,0
3"		3"	72	62	70	143	425	170	210	-	104	90	16	13,5
4"		4"	72	76	88	170	425	229	305	-	134	115.5	19	17,5

Top flange ISO 5211

NPS F.B.	NPS R.B.	ISO 5211	M	oC	A	K	MAST
1/4"	-	F03	5.5	M10X1	9	5	17
3/8"	1/2"	F03	5.5	M10X1	9	5	17
1/2"	3/4"	F03	5.5	M10X1	10	5	17
3/4"	1"	F04	7.5	M12X1,25	15	12	34
1"	1 1/4"	F04	7.5	M12X1,25	20	12	34
1 1/4"	1 1/2"	F05	9	M15X1,5	20	12	65
1 1/2"	2"	F05	9	M15X1,5	25	12	65
2"	2 1/2"	F05	9	M15X1,5	28	12	65
2 1/2"	3"	F07	16	M22X1,5	29	17	234
3"	4"	F07	18	M24X2	36	17	234

MAST (Maximum allowable stem torque in Nm).

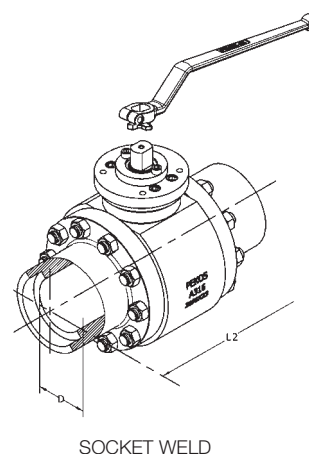
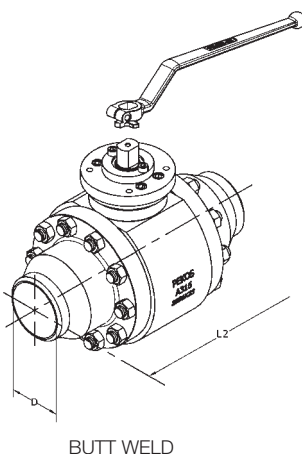
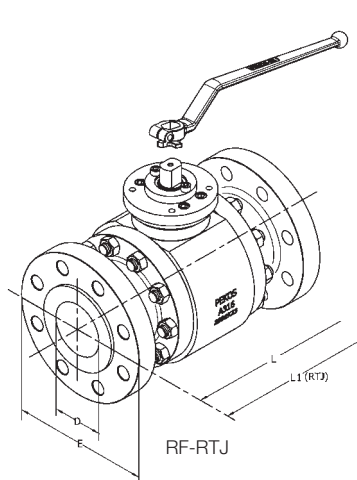
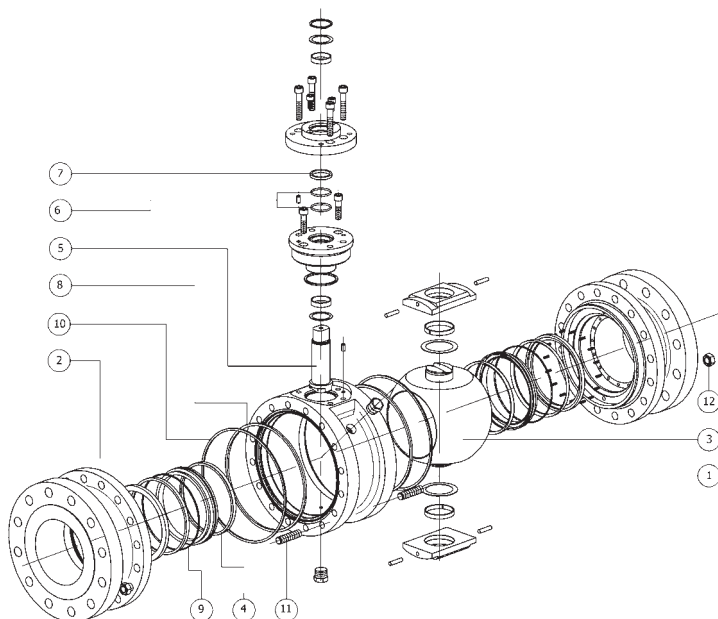


FULL TRUNNION

Standard materials

Item	Description	Figure*	
		GKS 14 SGS GV GKS 34 SGS GV GKS 64 SGS GV GKS 94 SGS GV GKS 154 SGS GV GKS 254 SGS GV	GKS 16 SGS GV GKS 36 SGS GV GKS 66 SGS GV GKS 96 SGS GV GKS 156 NGT GV GKS 256 NGT GV
1-2	Body	A216 WCC A105N/LF2	A351 CF8M A182 F316
3	Ball	A351 CF8M / LF2+ENP	
4	Seats	TEFLON (T) TEFLON +FG (R) TEFLON+CG(S) DEVLON (N)	
5	Stem	AISI 316 A182 F51	
6-7	Packing ring	Graphite Viton®	
9	Seat seal	Viton® Graphite	
8-10	Body seal	Viton® - Graphite	
11	Studs	A320 L7M	A193/A320 B8M C12
12	Nuts	A194 7M	A194 8M

* When is reduced bore to add RB after S



Weight (kg)

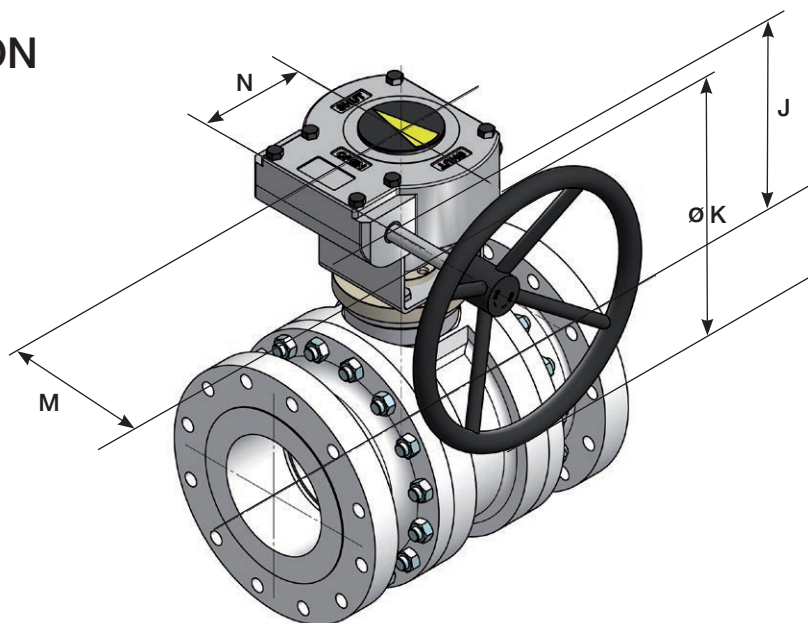
Full Bore

NPS	Class 150	Class 300	Class 600	Class 900	Class 1500	Class 2500
2"	12	25	30	45	49	115
3"	25	37	63	105	110	208
4"	37	77	108	165	182	340
6"	116	138	232	380	390	712
8"	199	239	415	640	650	1859
10"	387	437	659	952	960	2817
12"	516	729	880	1312	1320	3892
14"	688	928	1400	1595	1320	-
16"	890	1200	1696	1692	2360	-
18"	1700	1550	2994	2755	-	-
20"	2100	2200	3475	3752	-	-
24"	3550	3730	5200	-	-	-

Reduced Bore

NPS	Class 150	Class 300	Class 600	Class 900	Class 1500	Class 2500
3 "x 2"	22	31	38	82	96	128
4" x 3"	32	62	69	110	146	236
6" x 4"	71	105	120	207	286	387
8" x 6"	133	239	258	525	520	811
10" x 8"	229	437	461	702	805	2129
12"x 10"	445	729	732	1190	1140	3232
14"x 10"	593	928	977	1580	1660	-
16" x 12"	791	1200	1554	2330	2068	-
18" x 14"	1023	1550	1883	3200	-	-
20" x 16"	1955	2200	3323	4270	-	-
24" x 20"	2415	2800	4160	-	-	-
24"	3550	3730	5200	-	-	-

FULL TRUNNION



Dimensions

Class 150/300/600

NPS		D		L (RF)			L1 (RTJ)			L2 (BW) (SW)			E		
FB	RB	150-600 FB	150-600 RB	150	300	600	150	300	600	150	300	600	150	300	600
2"	-	50	-	178	216	292	191	232	295	216	216	292	152	165	165
3"	3" x 2"	75	50	203	283	356	215	300	359	283	283	356	191	210	210
4"	4" x 3"	100	75	229	305	432	241	321	435	305	305	432	229	254	273
6"	6" x 4"	150	100	394	403	559	406	419	562	457	457	559	279	318	356
8"	8" x 6"	201	150	457	502	660	470	518	663	521	521	660	343	381	419
10"	10" x 8"	252	201	533	568	787	545	584	790	559	559	787	406	445	508
12"	12" x 10"	303	252	610	648	838	622	664	841	635	635	838	483	521	559
14"	14" x 10"	334	252	686	762	889	698	778	891	762	762	889	535	585	605
16"	16" x 12"	385	303	762	838	991	774	854	877	838	838	991	595	650	685
18"	18" x 14"	438	334	864	914	1092	877	930	1095	914	914	1092	635	710	745
20"	20" x 16"	487	385	914	991	1194	927	1007	1200	991	991	1194	700	775	815
24"	24" x 20"	589	487	1067	1143	1397	1080	1165	1407	1143	1143	1397	815	915	940

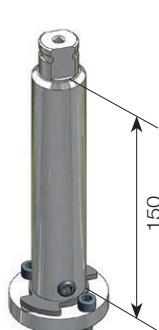
NPS		Class 150					Class 300					Class 600 lbs				
FB	RB	J	K	M	N	ISO 5211	J	K	M	N	ISO 5211	J	K	M	N	ISO 5211
2"	-	226	300	276	50	F07	226	300	276	50	F07	226	300	276	50	F07
3"	3" x 2"	258	300	276	50	F10	258	300	276	50	F10	258	300	276	50	F10
4"	4" x 3"	277	300	276	50	F10	277	300	276	50	F10	295	400	317	71	F12
6"	6" x 4"	330	400	317	71	F12	330	400	317	71	F12	361	500	305	86	F14
8"	8" x 6"	395	500	305	86	F14	395	500	305	86	F14	463	500	305	104	F16
10"	10" x 8"	433	500	305	86	F14	439	500	305	104	F14	505	600	346	130	F16
12"	12" x 10"	506	500	346	104	F14	506	500	305	104	F14	635	600	346	130	F25
14"	14" x 10"	574	500	346	104	F16	574	600	346	130	F16	700	600	412	182	F25
16"	16" x 12"	608	600	346	130	F16	608	600	447	130	F16	749	700	500	203	F25
18"	18" x 14"	695	600	387	130	F25	700	600	412	182	F25	769	700	578	278	F30
20"	20" x 16"	722	600	412	182	F25	700	600	412	182	F25	809	700	578	278	F30
24"	24" x 20"	890	600	412	182	F30	900	600	412	182	F30	860	700	578	278	F30

Class 900/1500/2500

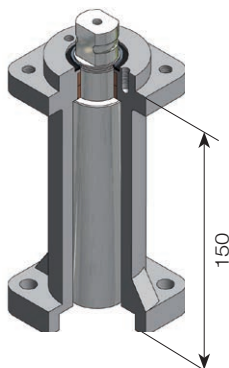
NPS		D						L (RF)			L1 (RTJ)			L2 (BW) (SW)			E		
FB	RB	900 FB	900 RB	1500 FB	1500 RB	2500 FB	2500 RB	900	1500	2500	900	1500	2500	900	1500	2500	900	1500	2500
2"	-	50	-	50	-	42	-	368	368	451	371	371	454	368	368	451	215	215	235
3"	3" x 2"	75	50	75	50	62	42	381	470	578	384	473	584	381	470	578	240	265	305
4"	4" x 3"	100	75	100	75	87	62	457	546	673	460	549	683	457	546	673	290	310	355
6"	6" x 4"	150	100	144	100	131	87	610	705	914	613	711	927	610	705	914	380	395	485
8"	8" x 6"	201	150	192	144	179	131	737	832	1022	740	841	1038	737	832	1022	470	485	550
10"	10" x 8"	252	201	239	192	223	179	838	991	1270	841	1000	1292	838	991	1270	545	585	675
12"	12" x 10"	303	252	287	239	265	223	965	1130	1422	968	1146	1445	965	1130	1422	610	675	760
14"	14" x 10"	334	252	315	239	-	-	1029	1250	-	1039	1276	-	1029	1250	-	640	750	-
16"	16" x 12"	373	303	360	287	-	-	1130	1384	-	1140	1407	-	1130	1384	-	705	825	-
18"	18" x 14"	423	334	-	-	-	-	1219	-	-	1221	-	-	1219	-	-	785	-	-
20"	20" x 16"	471	373	-	-	-	-	1321	-	-	1334	-	-	1321	-	-	855	-	-

NPS		Class 900					Class 1500					Class 2500 lbs				
FB	RB	J	K	M	N	ISO 5211	J	K	M	N	ISO 5211	J	K	M	N	ISO 5211
2"	-	243	300	263	50	F10	243	300	263	50	F10	267	300	263	50	F12
3"	3" x 2"	268	300	263	70	F12	278	400	296	70	F12	313	400	305	70	F14
4"	4" x 3"	345	400	296	70	F12	372	400	305	70	F14	332	500	305	86	F16
6"	6" x 4"	387	500	305	86	F16	475	500	305	86	F16	410	500	305	86	F25
8"	8" x 6"	463	500	305	86	F16	525	600	364	104	F25	633	600	364	104	F25
10"	10" x 8"	532	500	364	104	F16	666	600	364	104	F25	723	600	420	104	F30
12"	12" x 10"	620	600	364	104	F25	729	600	364	104	F30	780	800	420	104	F35
14"	14" x 10"	660	600	364	130	F30	780	800	420	182	F30	-	-	-	-	-
16"	16" x 12"	730	600	364	130	F30	857	800	420	182	F35	-	-	-	-	-
18"	18" x 14"	768	800	420	182	F35	-	-	-	-	-	-	-	-	-	-
20"	20" x 16"	806	800	600	430	F35	-	-	-	-	-	-	-	-	-	-

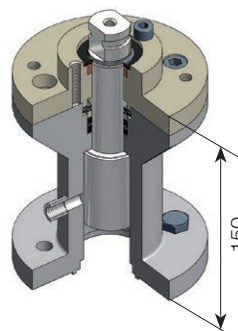
STEM EXTENSION



Simple stem extension

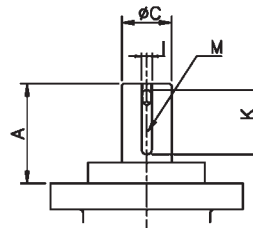
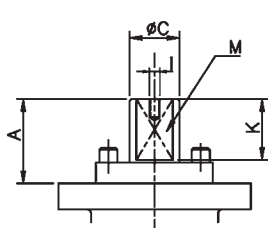


Standard extension



Security and fugitive emission detector

TOP FLANGE ISO 5211



Only F35

ISO 5211	F05s	F05	F07	F10	F12	F14	F16	F25	F30	F35
M (e/c)	11	14	17	22	27	36	46	55	75	Key 40x22
C	14	18	22	28	36	48	60	72	98	160
A	13,5	19,5	30	40	50	63	73	83	115	190
K	11	17	20	22	35	40	60	70	100	150
I	M4	M4	M6	M8	M8	M10	M10	M10	M12	M16

TOP FLANGE FOR 3 PIECES FORGED STEEL VALVES ON PAG. 6

MAST (Maximum allowable stem torque in Nm)

Stem material	F05s	F05	F07	F10	F12	F14	F16	F25	F30	F35
F51	116	207	549	1146	2356	5585	11084	19102	48235	106822
316	42	92	244	510	1047	2482	4926	8490	21438	47477
17-4 PH	183	398	1053	2197	4513	10698	21232	36592	92397	204625

BREAKAWAY TORQUE (Nm)

FLOATING, GUIDED BALL AND 3 PIECES FORGED STEEL VALVES

NPS FB	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1"	1 1/2"	2"	2 21/2"	3"	4"	6"	8"	10"	12"
NPS RB	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	16"	20"	24"
Class 150	-	-	9	11	-	-	16	32	48	62	103	145	400	720	1160	1650
Class 300	-	-	14	16	-	-	19	42	70	90	150	216	590	1220	1620	1820
Class 400	-	-	-	-	-	-	-	-	-	91	120	-	-	-	-	-
Class 600	-	-	20	28	-	-	50	114	195	240	-	-	-	-	-	-
Class 800	11	11	16	19	23	25	-	-	-	-	-	-	-	-	-	-

FULL TRUNNION

NPS FB	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
NPS RB	3"	4"	6"	8"	10"	12" -14"	16"	18"	20"	-	24"	--
Class 150	65	124	174	530	820	1110	1380	2325	3070	4230	5310	6800
Class 300	95	175	285	655	1030	1345	1625	2765	4565	6760	8865	16300
Class 600	160	420	715	1580	2500	3400	4650	6800	8600	13120	17800	26500
Class 900	215	215	920	1740	2712	3440	4070	6900	9200	14500	20100	-
Class 1500	310	880	1365	3360	5230	6580	7740	13180	17500	28100	39900	-
Class 2500	400	1200	2050	5100	8200	10150	12000	-	-	-	-	-

- Test are made with water and standard seats maximum ΔP according to body and seat rating.
- Breakaway torque can be increased approximately 50% after long periods of inactivity during the first cycles.

LEAK TESTS

Test according API 598, BS 6755-1, EN 12266-1 Class A and ISO 5208 Rate A

Leak tests (bars)

Class	Hydraulic test		Pneumatic test	
	shell test	Seat test	Shell test	Seat test
150	30	22	18,5	6
300	78	57		
400	104	76		
600	156	114		
800	208	152		
900	235	171		
1500	390	285		
2500	647	474		

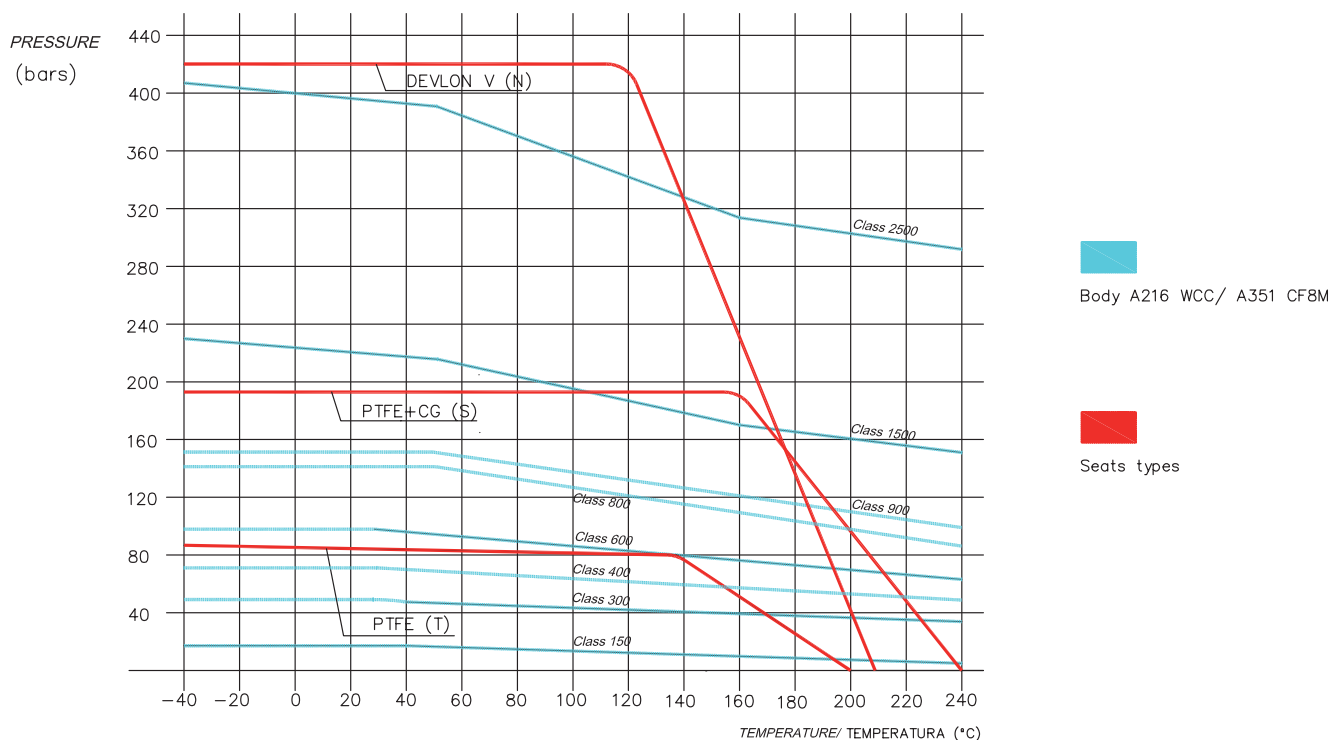
Size	Minimum duration (sec)	
	Hydraulic and pneumatic	
	Shell test	Seat test
½" to 1 ½"	15	15
2"	15	60
2 ½" to 6"	60	60
8"	120	120
10" to 12"	180	120
≥ 14"	300	120

K_v VALUES (m³/h)

NPS FB	1/4"	3/8"	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"
NPS RB	--	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"
Kv	9	10	20	44	88	200	310	480	960	1700

NPS FB	6"	8"	10"	12"	14"	16"	18"	20"	24"
NPS RB	8"	10"	12" - 14"	16"	18"	20"	--	24"	--
Kv	4100	8200	11500	18340	26300	30200	35400	54100	70300

Pressure – Temperature limitations



ANSI
From 1/4" up to 24"
ANSI 150-300-600-900-1500-2500
From - 196 °C up to +700 °C



Split body floating



Full trunnion



Cryogenic



End entry floating



3 & 4 way floating and trunnion



Wafer



Heating jacket



Tank bottom



Metal to metal



Three piece forged



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