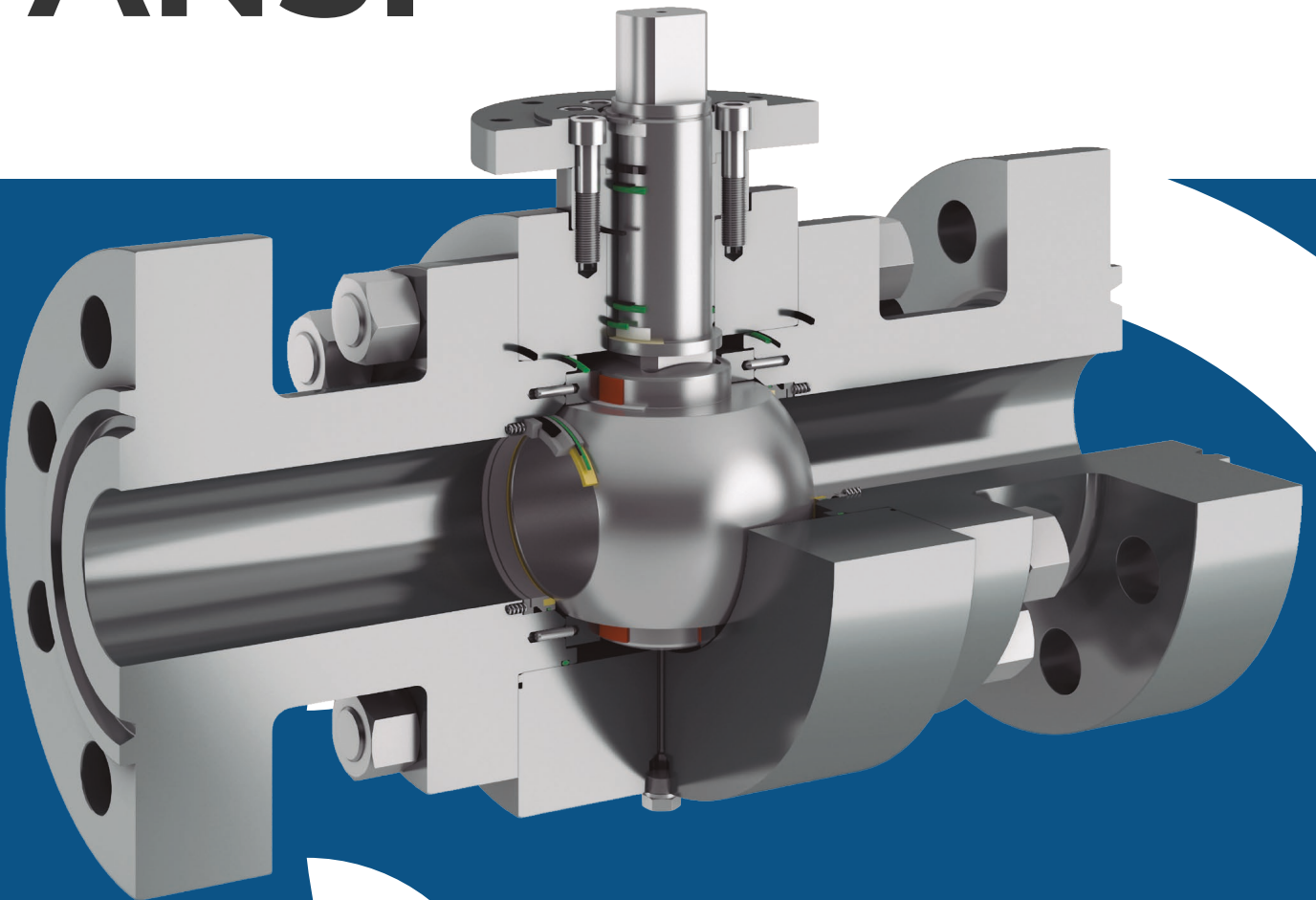


# Ball Valves ANSI





## Certificates of the company

ISO 14001	Environmental Management System
ISO 9001	Quality Management system
API Monogram	API Q1 & API-6D
ISO 45001:2018	Health & Safety

## Certificates of the product

DNV	Type approval
Lloyd's Register	Fire Safe & Type Approval
TÜV A352.09 AD Merkblatt A4	Design of the valves
ISO 15848-1 / TA-Luft + VDI2440	Stem Tightness for gas emissions
Helium -40 °C	Leeds University test
Directive 2014/68/EU	Pressure equipment directive (CE marking)
Directive 2014/34/EU	ATEX - directive (II2GD c T-)
BS 6364	Valves for Cryogenic Service -196°C
EN 161 / EN 23553 / EN 16678	Automatic quick shut-off valves for Gas/Oil burners and equipment
EAC	TR CU 010 - TR CU 012 - TR CU 032
Sanitary approval (Russian)	Food processing and Pharmaceutical industry
IEC 61508	SIL3 CAPABLE
UKR SEPRO	Ukraine Certificate
DVGW-EN 13774	Valves for gas distribution with MOP 16 bar
API 6D Monogram	Certificate N° 6D-0363
NSF International	ANSI 372

## Certifications and tests

- Fire Safe
- Cryogenic Test
- Dimensional Control. 3D Arm

## Main End Users

- BSA
- ADNOC
- ADGAS
- ADVARIO
- AIR LIQUIDE
- AKZO NOBEL
- ARCELORMITTAL
- ARCHROMA
- BAKER HUGHES
- BAPCO
- BOREALIS
- BOROUGE
- BORSODCHEM
- BUNGE
- CNPC
- CLARIANT
- DOLPHIN
- ENAGAS
- ENI
- ENPPI
- EXPRO
- FORMOSA
- GROUPEMENT - BERKINE SONATRACH -ANADARKO
- GROUPE METAL
- INA
- KOC
- KUWAIT PETROLEUM CORP.
- LINDE
- LOTOS
- MESSER
- MOL GROUP
- MOTOR OIL HELLASNESTE
- NESTLE
- OMV
- ORLEN
- PERENCO
- PETROLEUM DEVELOPEMENT OMAN L.L.C
- PETROM
- PETRONAS
- QATAR ENERGY
- RELIANCE INDUSTRIES LIMITED
- REPSOL
- ROMGAZ
- SASOL
- SIEMENS ENERGY
- SLOVNAFT
- SOLVAY
- SONATRACH
- SYENSQO
- SYNTHOS
- TAKREER
- TATA STEEL
- TVO
- VOPAK
- WÄRTSILÄ
- YARA
- YPF
- ZEECO



## General Features

- Full / Reduced bore
- Soft / Metal seat
- Bidirectional / Unidirectional
- Firesafe design
- Low emission design
- Anti static device
- Anti Blow out proof stem
- Side Entry / Top Entry
- Autoadjustable packing / Maintenance free
- Self-cavity pressure relief
- Double block and bleed (Trunnion valves)
- Spring loaded seat system
- Heating Jacket
- Degreased
- EC1935 / FDA Food Application
- Cavity Filler

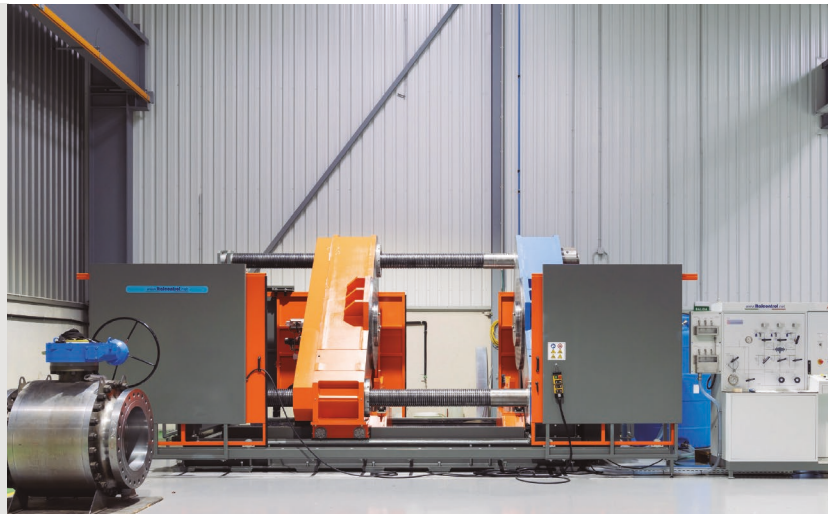
## Body constructions and design advantages

Floating ball	Integral seat, loaded seat, spring loaded seat, metal-metal seat option, cryogenic
Guided ball	Integral seat, metal O-ring seat
Full trunnion	Loaded seat, metal loaded seat, cryogenic, metal o-ring seat
Wafer	Integral seat, metal O-ring seat
3-4 Way Floating	Integral seat, 4 seats.
3-4 Way Trunnion	Loaded seat, metal loaded seat, cryogenic
Tank bottom	Integral seat, loaded seat, metal loaded seat, metal O-Ring seat, cryogenic

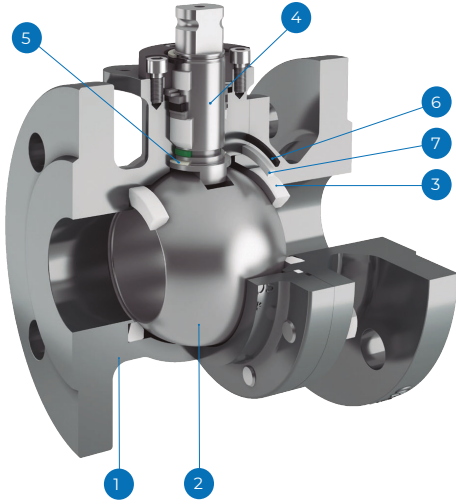
*Further options and designs upon request*

## Standards

- Design as per BS5351, ANSI B16.34, ISO 17292, API 6D
- 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, and API 6D
- Face to face as per ANSI B16.10, API 6D, UNE-EN 558
- End connections



## FULL BORE - FLOATING & GUIDED



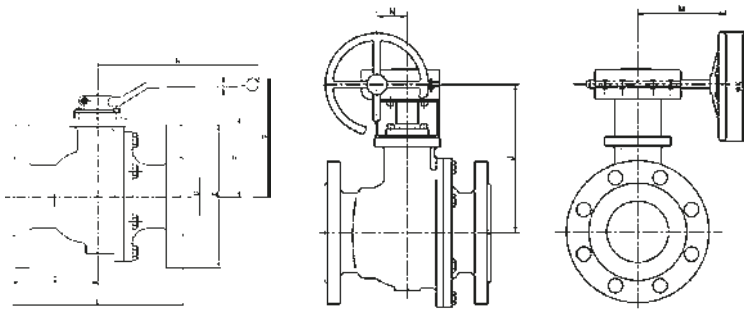
SSSGV

### Standard materials

Item	Description	Figure			
		Z14/19 Z34/39 Z64/69 ZG14/19 ZG34/39	TTTGV SSSGV SSSGV TTTGV SSSGV	Z16/1F Z36/3F Z66 ZG16 ZG36	TTTGV SSSGV SSSGV TTTGV SSSGV
1	Body	A216 WCC / A352 LCC		A351 CF8M / CF3	
2	Ball	A351 CF8M			
3	Seats*	PTFE (T) PTFE + FG (R) PTFE + CG (S)			
4	Stem	AISI 316			
5	Stem seal	PTFE + CG (S)			
6	Body Seal 1	PTFE			
7	Body Seal 2	Graphite			

\* Other seats/seals configuration or materials available upon request

### Dimensions

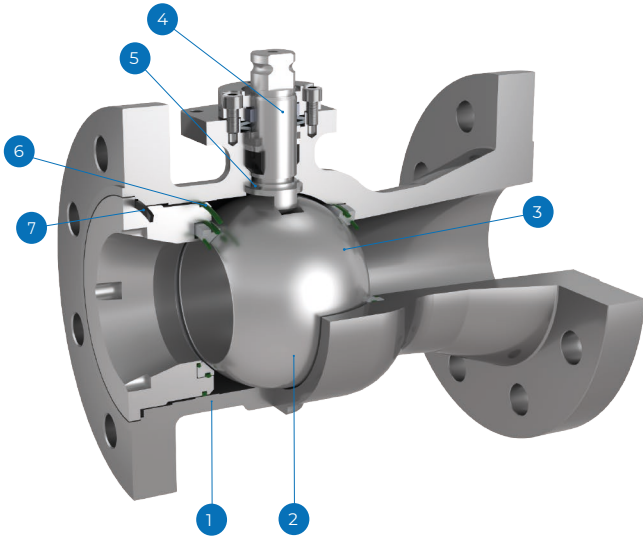


### Weight (kg)

NPS	Class 150	Class 300	Class 600	G.Box
1/2"	3	3	8	-
3/4"	3	5	9	-
1"	4	6	9	-
1 1/2"	8	10	14	-
2"	11	13	19	-
2 1/2"	17	19	22	-
3"	22	27	-	-
4"	32	44	-	-
6"	81	105	-	9
8"	143	179	-	20
10"	245	287	-	20
12"	367	480	-	20/25

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	45	108	185	68	F05	-	-	-	-
3/4"	20	117	152	99	118	54	107	185	52	76	F05s	190	120	47	110	185	84	F05	-	-	-	-
1"	25	127	165	108	124	60	113	185	56	70	F05	216	125	53	116	185	96	F05	-	-	-	-
1 1/2"	40	165	191	127	156	75	145	293	77	78	F07	241	155	76	148	293	115	F07	-	-	-	-
2"	50	178	210	152	165	84	153	293	92	90	F07	292	165	83	156	293	129	F07	-	-	-	-
2 1/2"	65	190	241	178	190	96	166	293	95	120	F07	330	190	96	150	300	152	F07	-	-	-	-
3"	80	203	283	191	210	114	199	350	101	142	F10	-	-	-	-	-	-	-	-	-	-	-
4"	100	229	305	229	254	128	221	350	114	152	F10	-	-	-	-	-	-	-	-	-	-	-
6"	150	394	403	279	318	175	269	740	165	211	F12	-	-	-	-	-	-	-	295	287	71	400
8"	200	457	502	343	381	245	354	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

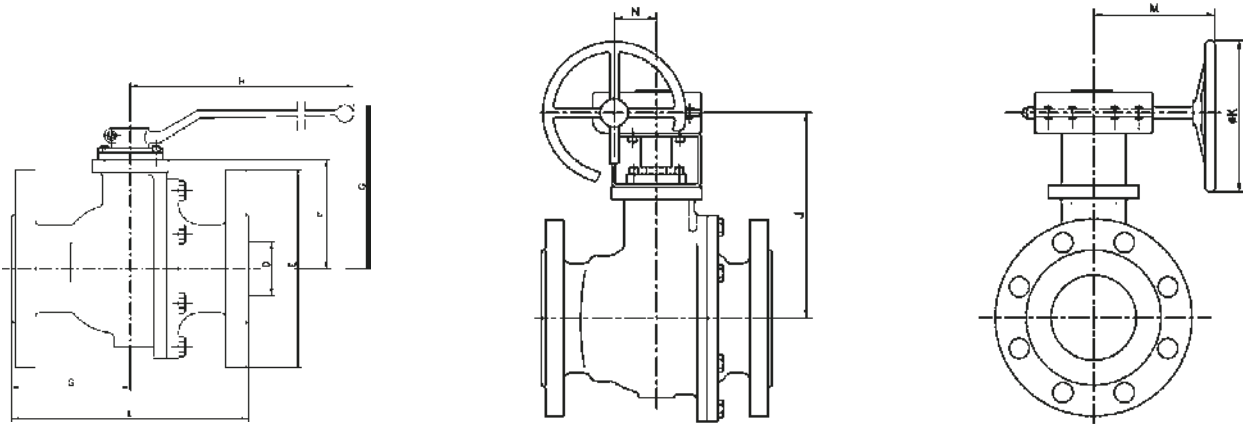
## REDUCED BORE - SIDE ENTRY - FLOATING



### Standard materials

Item	Description	Figure			
		ZRB14/19	TTGVV	ZRB16	TTGVV
		ZRB34/39	SSGVV	ZRB36	SSGVV
		ZGRB34/39	SSGVV	ZGRB16	TTGVV
		ZGRB14/19	TTGVV	ZGRB36	SSGVV
1	Body	A216 WCC / A352 LCC		A351 CF8M / CF3	
2	Ball	A351 CF8M			
3	Seats*	PTFE (T) PTFE + CG (S)			
4	Stem	AISI 316			
5	Stem seal	PTFE(T) / PTFE + CG (S)			
6	Body Seal 1	Viton®			
7	Body Seal 2	Graphite			

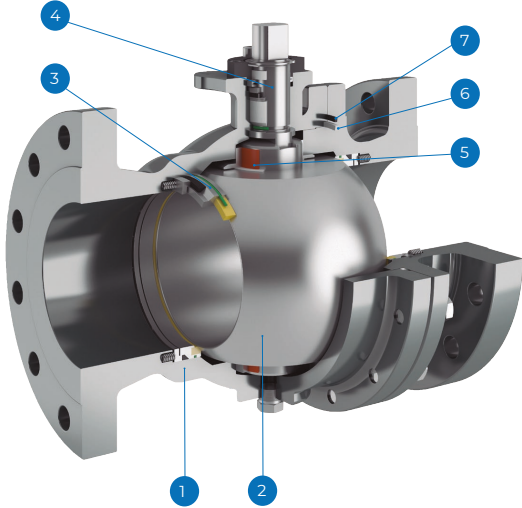
\* Other seats/seals in other configuration or materials available upon request



### Dimensions

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

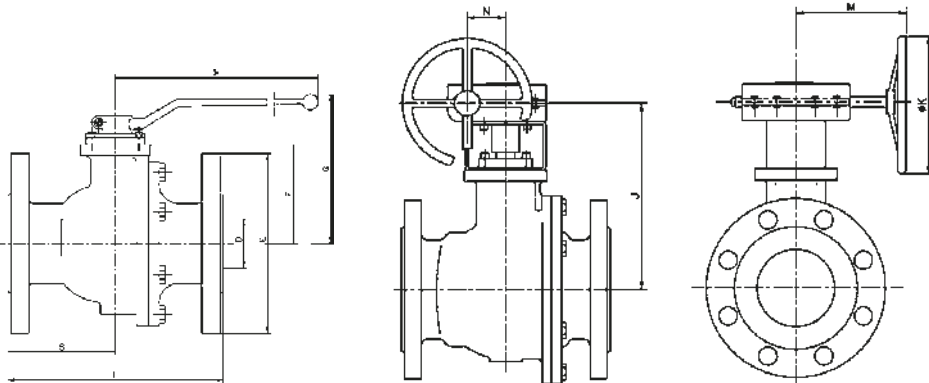
## FULL TRUNNION - 2 PCS



### Standard materials

Item	Description	Figure	
		ZGS34/39 SSSGV	ZGS36 SSSGV
1	Body	A216 WCC / A352 LCC	A351 CF8M / CF3
2	Ball	A351 CF8M	
3	Seats*	PTFE + CG (S)	
4	Stem	A182 F51	
5	Stem seal	PTFE + CG (S)	
6	Body Seal 1	PTFE + CG (S)	
7	Body Seal 2	Graphite	

\* Other seats/seals in other configuration or materials available upon request



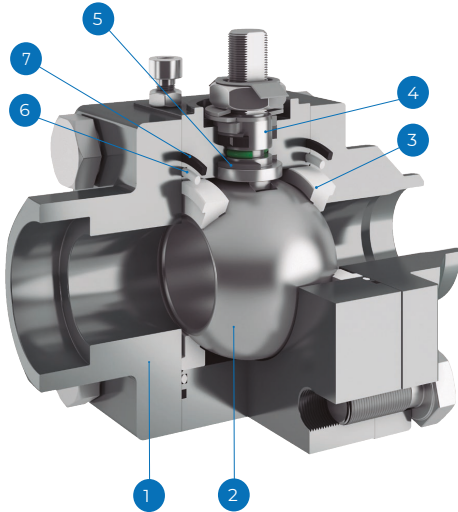
### Weight (Kg)

NPS	Class 150	Class 300	Class 600
2"	12	20	-
2 1/2"	17	27	-
3"	25	43	-
4"	37	68	-
6"	100	117	9
8"	148	197	20
10"	241	284	20
12"	374	400	20/25

### Dimensions

NPS	D	L		E		F	G	H	S		ISO 5211		Gearbox			
		150	300	150	300				150	300	J	M	N	Ñ		
2"	50	178	216	152	165	84	153	293	92	90	F07	F10-1	-	-	-	-
2 1/2"	65	190	241	178	190	96	166	293	95	120	F07	F10-1	-	-	-	-
3"	80	203	283	191	210	114	199	350	101	142	F10	F12-1	-	-	-	-
4"	100	229	305	229	254	128	221	350	114	152	F10	F12-1	-	-	-	-
6"	150	394	403	279	318	175	268	740	165	211	F14-1	F14-1	295	287	71	400
8"	200	457	-	343	-	245	338	740	228	251	F14-1	F16-1	377	305	86	500
10"	250	533	-	406	-	285	-	-	270	283	F16-1	F16-1	417	305	86	500
12"	300	610	-	483	-	336	-	-	305	324	F16-1	F16-1	474	346	104	500

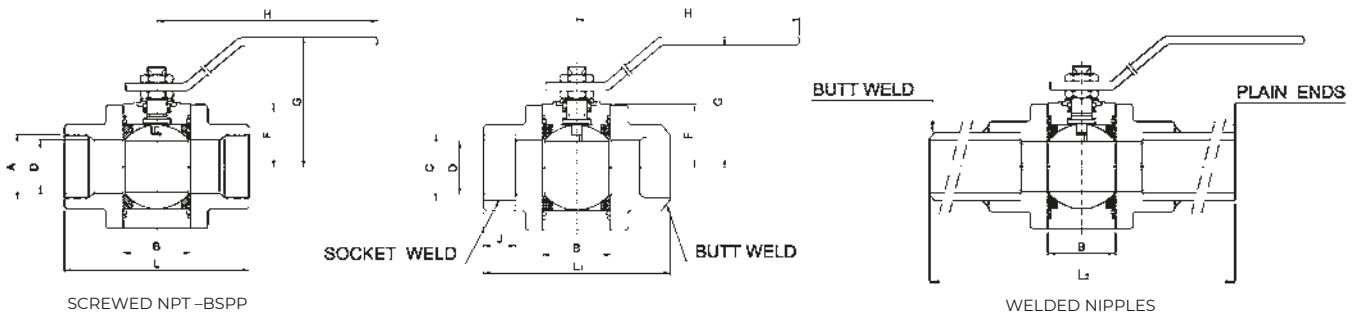
## FLOATING 3 PCS FORGED



### Standard materials

Item	Description	Figure	
		K809 KRB809 SGSGV	K806 KRB806 SGSGV
1	Body	A350 LF2 / A105	A182 F316L / F316
2	Ball	AISI 316 / 316 L	
3	Seats*	PTFE + CG (S)	
4	Stem	AISI 316 / 316 L	
5	Stem seal	PTFE (Mod.) + CG	
6	Body Seal 1	PTFE + CG (S)	
7	Body Seal 2	Graphite (C)	

\* Other seats/seals in other configuration or materials available upon request



### Full Bore

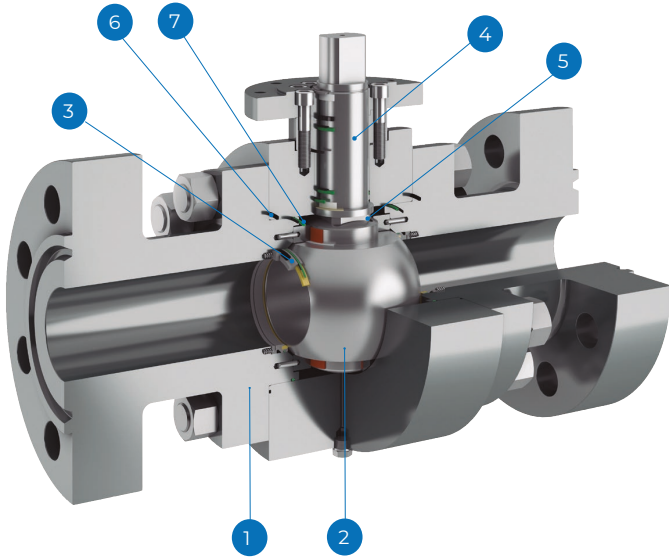
NPS	Class	A	B	D	F	G	H	L	L <sub>1</sub>	L <sub>2</sub>	C	J (min.)	Weight Kg
1/4"	800	1/4"	19	11	31	82	145	75	75	275	14.5	9.5	1
3/8"		3/8"	19	11	31	82	145	75	75	275	18	9.5	1
1/2"		1/2"	21	15	34	85	145	80	80	280	22	9.5	1
3/4"		3/4"	28	21	39	101	180	100	100	300	27.5	12.5	2
1"		1"	37	25	38	105	180	110	110	310	34	12.5	3
1 1/4"		1 1/4"	44	32	41	108	220	120	120	320	43	12.5	4
1 1/2"	600	1 1/2"	51	38	47	110	220	140	140	340	49	12.5	6
2"		2"	60	49	58	119	233	142	191	-	61.5	16	10
2 1/2"		2 1/2"	72	62	70	143	425	170	210	-	74	16	14
3"	400	3"	72	76	88	170	425	305	305	-	90	16	18

### Reduced Bore

NPS	Class	A	B	D	F	G	H	L	L <sub>1</sub>	L <sub>2</sub>	C	J (min.)	Weight Kg
1/2"	800	1/2"	19	11	31	82	145	75	75	275	22	9.5	1
3/4"		3/4"	21	15	34	85	145	80	80	280	27.5	12.5	1
1"		1"	28	21	39	101	180	100	100	300	34	12.5	2
1 1/4"		1 1/4"	37	25	38	105	180	110	110	310	43	12.5	3
1 1/2"		1 1/2"	44	32	41	108	180	120	120	320	49	12.5	4
2"		2"	51	38	47	110	220	140	140	340	61.5	16	6
2 1/2"	600	2 1/2"	60	49	58	119	233	142	191	-	74	16	10
3"		3"	72	62	70	143	425	170	210	-	90	16	14
4"		400	4"	72	76	88	170	425	305	305	-	115.5	17



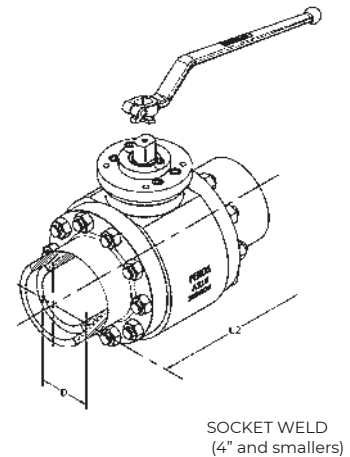
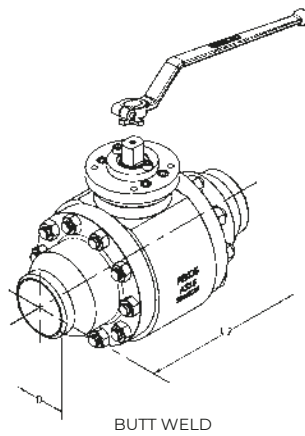
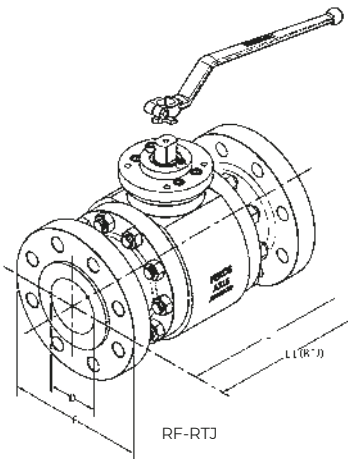
## FULL TRUNNION - 3 PCS



### Standard materials

Item	Description	Figure			
		GKS14/19 GKS34/39 GKS64/69 GKS904/909 GKS154/159 GKS254/259	SGSGV SGSGV SGSGV NGGVV NGGVV NGGVV	GKS16 GKS36 GKS66 GKS906 GKS156 GKS256	SGSGV SGSGV SGSGV NGGVV NGGVV NGGVV
1	Body	A105N / A352 LCC	A182 F316		
2	Ball	A182 F316 / LF2+ ENP			
3	Seats*	PTFE (T) PTFE + FG (R) PTFE + CG(S) DEVLON (N)			
4	Stem	A182 F51			
5	Stem seal	Graphite			
6	Body Seal 1	Viton® - Graphite			
7	Body Seal 2	Viton®			

\* Other seats/seals in other configuration or materials available upon request



### Weight (kg)

#### Full Bore

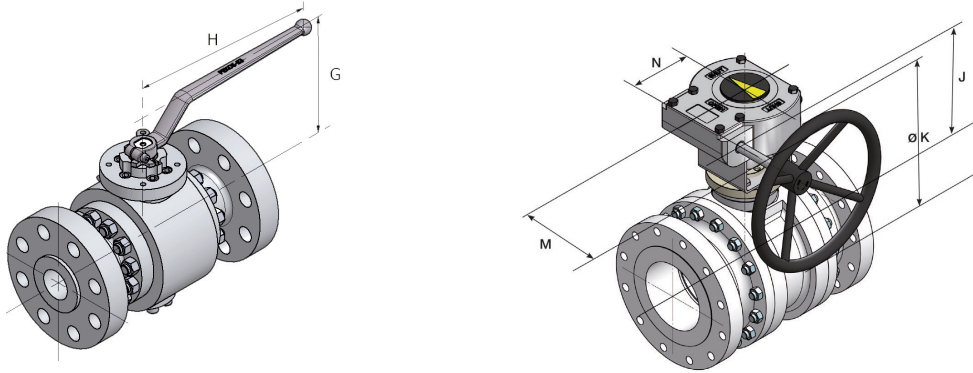
NPS	Class 150	Class 300	Class 600	Class 900	Class 1500	Class 2500
2"	12	25	30	45	49	65
3"	25	37	63	105	110	208
4"	37	77	108	165	182	340
6"	116	138	232	380	390	712
8"	199	239	415	640	650	1859
10"	387	437	659	952	960	2817
12"	516	729	880	1312	1320	3892
14"	688	928	1400	1595	1320	-
16"	1220	1200	1696	1692	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"x2"	22	35	47	82	96	128
4"x3"	32	62	69	110	146	236
6"x4"	71	96	120	207	286	387
8"x6"	133	178	258	525	520	811
10"x8"	229	330	461	702	805	2129
12"x10"	445	572	732	1190	1140	3232
14"x10"	593	612	977	1580	1660	-
16"x12"	791	1140	1554	2330	2068	-
18"x14"	1023	1375	1883	3200	-	-
20"x16"	1955	1872	3323	4270	-	-
24"x20"	2415	3170	4160	-	-	-



## TRUNNION - 3 PCS



## 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	65	203	283	356	215	300	359	283	356	216	283	356	191	210	210
4"	4" x 3"	100	75	229	305	432	241	321	435	305	432	305	305	432	229	254	273
6"	6" x 4"	150	100	394	403	559	406	419	562	457	559	457	457	559	279	318	356
8"	8" x 6"	201	150	457	502	660	470	518	663	521	660	521	521	660	343	381	419
10"	10" x 8"	252	201	533	568	787	545	584	790	559	787	559	559	787	406	445	508
12"	12" x 10"	303	252	610	648	838	622	664	841	635	838	635	635	838	483	521	559
14"	14" x 10"	334	252	686	762	889	698	778	891	762	889	762	762	889	535	585	605
16"	16" x 12"	385	303	762	838	991	778	854	994	838	991	838	838	991	595	650	685
18"	18" x 14"	438	334	864	914	1092	877	930	1095	914	1092	914	914	1092	635	710	745
20"	20" x 16"	487	385	914	991	1194	927	1007	1200	991	1194	991	991	1194	700	775	815
24"	24" x 20"	589	487	1067	1143	1397	1080	1165	1407	1143	1397	1143	1143	1397	815	915	940

NPS		Class 150								Class 300								Class 600							
FB	RB	G	H	J	K	M	N	ISO 5211	G	H	J	K	M	N	ISO 5211	G	H	J	K	M	N	ISO 5211			
2"	3" x 2"	154	293	-	-	-	-	F07	163	293	-	-	-	-	F07	154	293	-	-	-	-	F07			
3"	4" x 3"	207	350	-	-	-	-	F10	167	350	-	-	-	-	F10	181	350	-	-	-	-	F10			
4"	6" x 4"	221	350	-	-	-	-	F10	220	350	-	-	-	-	F10	-	-	397	500	189	86	F12			
6"	8" x 6"	268	680	-	-	-	-	F12	-	-	372	500	189	86	F12	-	-	401	500	189	86	F14			
8"	10" x 8"	-	-	347	500	189	86	F14	-	-	427	500	189	86	F14	-	-	397	500	230	105	F16-1			
10"	12" x 10"	-	-	392	500	230	105	F14	-	-	472	500	230	105	F14	-	-	456	500	275	130	F16-1			
12"	16" x 12"	-	-	454	500	230	105	F16	-	-	545	500	230	105	F16	-	-	526	500	335	211	F25			
14"	18" x 14"	-	-	504	500	275	130	F16	-	-	517	500	275	130	F16	-	-	619	600	300	182	F25			
16"	20" x 16"	-	-	554	600	300	182	F16	-	-	561	600	300	182	F16	-	-	600	669	388	263	F25			
18"	-	-	-	621	600	388	263	F25	-	-	621	600	388	263	F25	-	-	600	689	429	278	F30			
20"	24" x 20"	-	-	655	600	429	278	F25	-	-	671	600	429	278	F25	-	-	700	736	499	431	F30			
24"	-	-	-	791	700	499	431	F30	-	-	791	700	499	431	F35	-	-	700	816	499	431	F35			

### Class 900/1500/2500

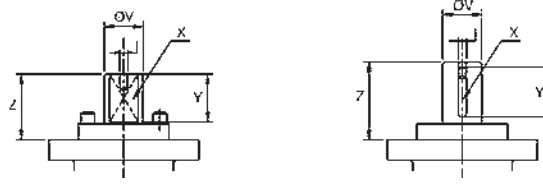
NPS		D					L (RF)			L1 (RTJ)			L2 (BW) (SW)			E			
FB	RB	900FB	900RB	1500FB	1500RB	2500FB	2500RB	900	1500	2500	900	1500	2500	900	1500	2500	900	1500	2500
2"	-	50	-	50	-	42	-	368	368	451	371	371	454	368	368	451	215	215	235
3"	3" x 2"	75	50	75	50	62	42	381	470	578	384	473	584	381	470	578	240	265	305
4"	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	1220	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"	322	252	315	239	-	-	1029	1257	-	1039	1271	-	1029	1257	-	640	750	-
16"	16" x 12"	373	303	360	287	-	-	1130	1384	-	1140	1407	-	1130	1384	-	705	825	-
18"	18" x 14"	423	322	-	-	-	-	1219	-	-	1232	-	-	1219	-	-	785	-	-
20"	20" x 16"	471	373	-	-	-	-	1321	-	-	1334	-	-	1321	-	-	855	-	-

NPS		Class 900							Class 1500							Class 2500						
FB	RB	G	H	J	K	M	N	ISO 5211	G	H	J	K	M	N	ISO 5211	G	H	J	K	M	N	ISO 5211
2"	3" x 2"	197	350	-	-	-	-	F10	197	350	-	-	-	-	F10	-	-	319	500	201	71	F12
3"	4" x 3"	-	-	343	500	201	71	F12	-	-	347	500	189	86	F12	-	-	392	500	189	86	F14-1
4"	6" x 4"	-	-	371	500	189	86	F12	-	-	372	500	230	105	F14-1	-	-	366	500	230	105	F16-1
6"	8" x 6"	-	-	429	500	230	105	F14	-	-	381	500	275	130	F16-1	-	-	414	500	335	211	F25
8"	10" x 8"	-	-	361	500	346	185	F16-1	-	-	459	500	335	211	F25	-	-	487	600	388	263	F25
10"	12" x 10"	-	-	474	500	275	130	F16-1	-	-	527	600	388	263	F25	-	-	527	600	388	263	F30
12"	16" x 12"	-	-	556	500	335	211	F25	-	-	559	600	388	263	F25	-	-	567	600	429	278	F35
14"	18" x 14"	-	-	649	600	388	263	F25	-	-	559	600	429	278	F30-1	-	-	-	-	-	-	-
16"	20" x 16"	-	-	699	600	388	263	F30-1	-	-	651	700	499	431	F35	-	-	-	-	-	-	-
18"	-	-	-	746	700	499	431	F30	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20"	-	-	-	771	700	499	431	F35	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Valves up to ISO 5211 F14: Gear box assembled to the valve with mounting bracket.  
 • Valves with ISO 5211 F16 and higher: Gear box assembled directly without mounting bracket.



## TOP FLANGE ISO 5211

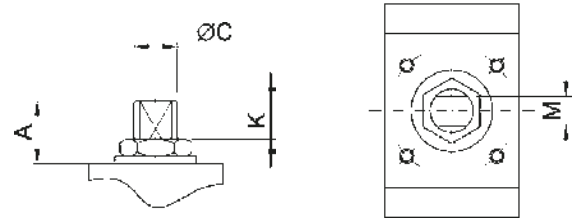


Only F35 and F40

ISO 5211	F05s	F05	F07	F10	F10-1	F12	F12-1	F14	F14-1	F16	F16-1	F25	F30	F30-1	F35	F40
X	11	14	17	22	17	27	22	36	27	46	36	55	75	55	Key 32X18	Key 45x25
V	14	18	22	28	22	36	28	48	36	60	48	72	98	72	120	180
Z	13,5	19,5	30	40	25	50	36	63	44	73	63	83	106	83	200	220
Y	11	17	20	22	20	35	22	40	35	60	40	70	100	70	180	200
I	M4	M4	M6	M8	M6	M8	M8	M10	M8	M10	M10	M10	M12	M10	M16	M16

### Top Flange ISO 5211 for 3 pieces forged steel valves

NPSF.B.	NPSR.B.	ISO5211	M	ØC	A	K	MAST
1/4"	-	F03	5.5	M10X1	9	7	17
3/8"	1/2"	F03	5.5	M10X1	9	7	17
1/2"	3/4"	F03	5.5	M10X1	10	8	17
3/4"	1"	F04	7.5	M12X1,25	14	11	34
1"	1 1/4"	F04	7.5	M12X1,25	20	14	34
1 1/4"	1 1/2"	F05	9	M15X1,5	26	18	65
1 1/2"	2"	F05	9	M15X1,5	28	18	65
2"	2 1/2"	F05	9	M15X1,5	24	16	65
2 1/2"	3"	F07	16	M22X1,5	31	22	234
3"	4"	F07	18	M24X2	37	20	234



MAST (Maximum allowable stem torque in Nm).

### Mast (Maximum allowable stem torque Nm)

Stem Material	F05s	F05	F7 / F10-1	F10 / F12-1	F12 / F14-1	F14 / F16-1	F16	F25 / F30-1	F30	F35
316	42	92	244	510	1047	2482	4926	8490	21438	14440
F51	95	207	549	1146	2356	5585	11084	19102	48235	32400
17-4 PH	153	334	885	1847	3795	8997	17856	30774	77705	52200

## TORQUE VALUES (Nm)

### Floating, guided ball

NPS FB	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	SEAT TYPE
NPS RB	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	--	(T)
Class 150	9	11	16	32	48	62	103	145	400	720	1160	1650	(S)
Class 300	17	20	23	51	84	108	180	260	828	1470	1950	2172	(S)
Class 600	20	22	50	108	188	204	--	--	--	--	--	--	(S)

### Floating, guided ball and 3 pieces forged steel valves

NPS FB	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
NPS RB	--	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
SEAT TYPE (S)	9	9	12	18	25	30	35	78	91	120

### Trunnion

NPS FB	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	SEAT TYPE
NPS RB	3"	4"	6"	8"	10"	12"-14"	16"	18"	20"	--	24"	--	(S)
Class 150	88	215	362	640	990	1340	1660	2815	3790	5100	6400	8200	(S)
Class 300	122	302	490	990	1550	2020	2450	4165	5500	8100	10800	17760	(S)
Class 600	160	420	715	1580	2500	3169	3170	6420	8600	13120	17800	27561	(S)
Class 900	215	600	920	2175	3400	4300	5100	8675	11540	18100	25340	--	(N)
Class 1500	310	880	1365	3360	5230	6580	7740	13180	17500	--	--	--	(N)
Class 2500	476	1378	2107	5369	8362	10449	12241	--	--	--	--	--	(N)

\* Torque values obtained during test with water at maximum working pressure for each class on valves fitted with Pekos' standard seats material for each type of valve.

\* If different material seats are used then torque values will change.

\* The breakaway torques could rise by approximately 50% during first few cycles after long periods of inactivity.



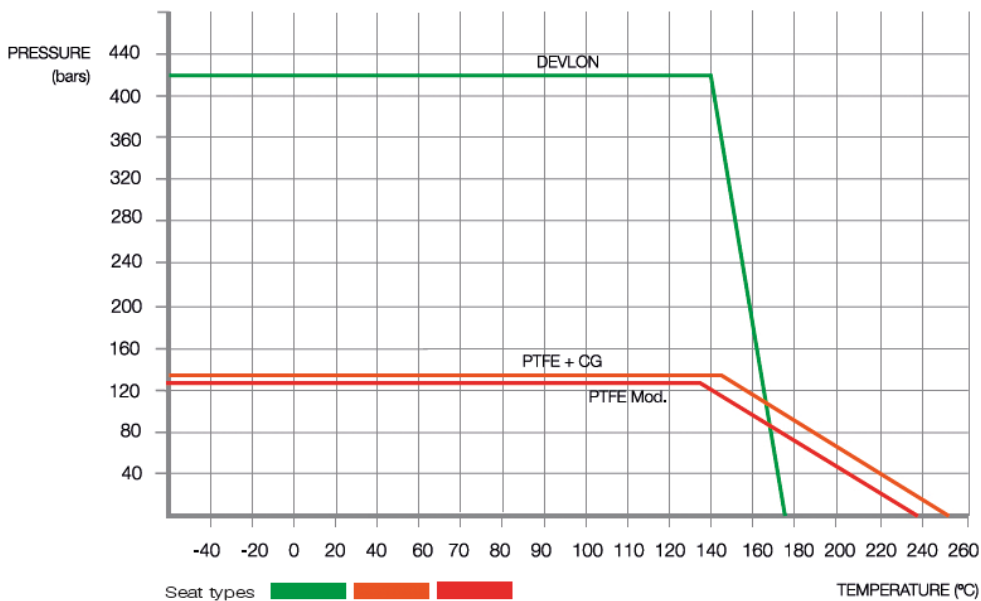
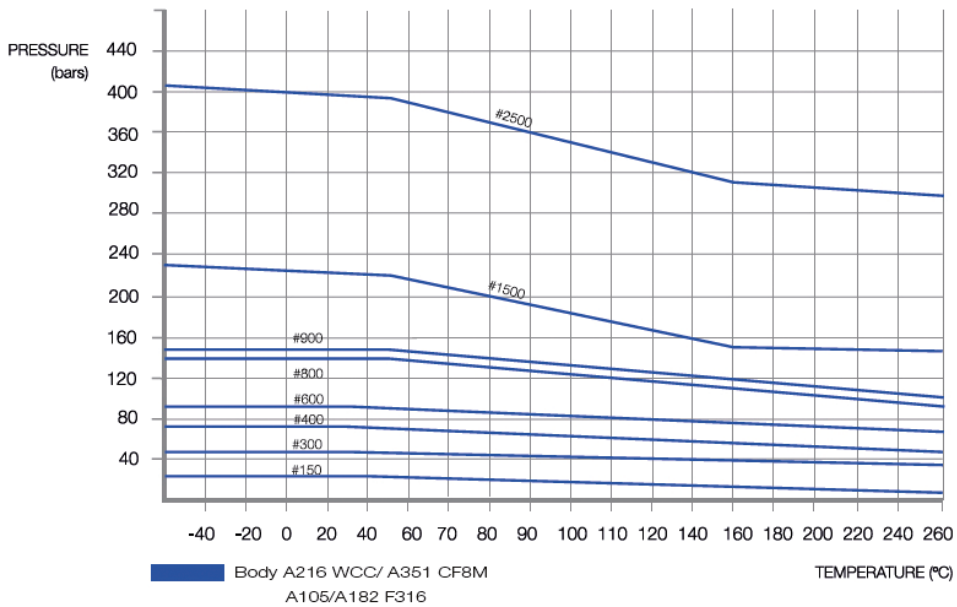
**K<sub>v</sub> VALUES (m<sup>3</sup>/h)**

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 42"  
ANSI 150-300-600-900-1500-2500  
From -196 °C up to +650 °C



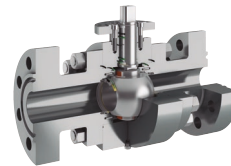
FLOATING & GUIDED



FLOATING 3 PCS  
FORGED



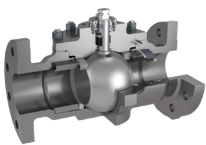
TRUNNION 2PC



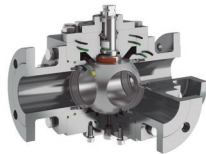
TRUNNION 3 PCS



FLOATING  
TOP ENTRY



TRUNNION  
TOP ENTRY



3&4 WAY



WAFER



TANK BOTTOM



METAL SEATED



CRYOGENIC