

# Ball Valves KL Design





# Pekos

Making excellence something personal

## Certificates of the company

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

## Official approvals

PED 2014/68/EU	ISO 15848-1
API 6D	BS 6364
ATEX 2014/34/EU	EN 161 / EN 23553 / EN 16678
Fire Safe Certificate	TS & TSG
SIL 3 Capable	TR CU 10/12/32
TA-Luft VDI 2440	



ISO 9001  
ISO 14001  
ISO 45001



EN 161  
EN ISO 23553-1



LOW FUGITIVE EMISSION  
TA Luft  
VDI 2440  
ISO 15848-1



TÜV AR 352  
TANK OF DANGEROUS  
PRODUCTS



CE PED 2014/68/EU  
CATEGORY III, MODULE H



REGISTER 204863



ATEX DIRECTIVE  
2014/34/EU



IEC 61508



NSF ANSI 372



VALVES, PIPING SYSTEMS  
LIQUEFIED GAS TANKERS



API 6D - 0063



DVGW EN 13774



AUSTRALIAN GAS  
ASSOCIATION  
CERTIFIED PRODUCT.



CRN Canada  
Certificate of Authorization issued by ABSA



TSG Type Approval  
Shanghai Inspection and Testing Institute of  
Instruments and Automation Systems Co., Ltd



MODULE H



BS6364  
CRYOGENIC SERVICE



PIPE SAFE



kiwa EN 16678  
EN 161



AD MERKBLATT W0/TRD



## General Features

Trunnion design

Three-piece construction

Full bore and reduced bore options

Soft-seated and metal-seated versions

Bidirectional sealing

Spring-loaded seat system

Anti-blowout stem

Antistatic device

Self-cavity pressure relief

Double Block and Bleed (DBB)

Double Isolation and Bleed (DIB-1 and DIB-2)

Temperature range from -196 °C to +650 °C

## High-performance design – Advantages

Low operating torque

Higher MAST values

Robust stem design

Reinforced bearings

Reinforced stem-to-ball connection

Protected seats

Improved material strength through one-piece seat design

## Standards

- Top flange ISO 5211
- Face-to-face ANSI B16.10
- Design API 6D, ASME B16.34
- Testing API 598, API 6D, BS 6755-1
- Materials according to NACE MR0175
- End connections
  - Flanged RF/RTJ ANSI B16.5
  - Butt weld ANSI B16.25 / EN 12627
  - Socket weld ANSI B16.11 / EN 12760
  - NPT ANSI B1.20.1
  - BSPP / BSPT BS 21 / ISO 7

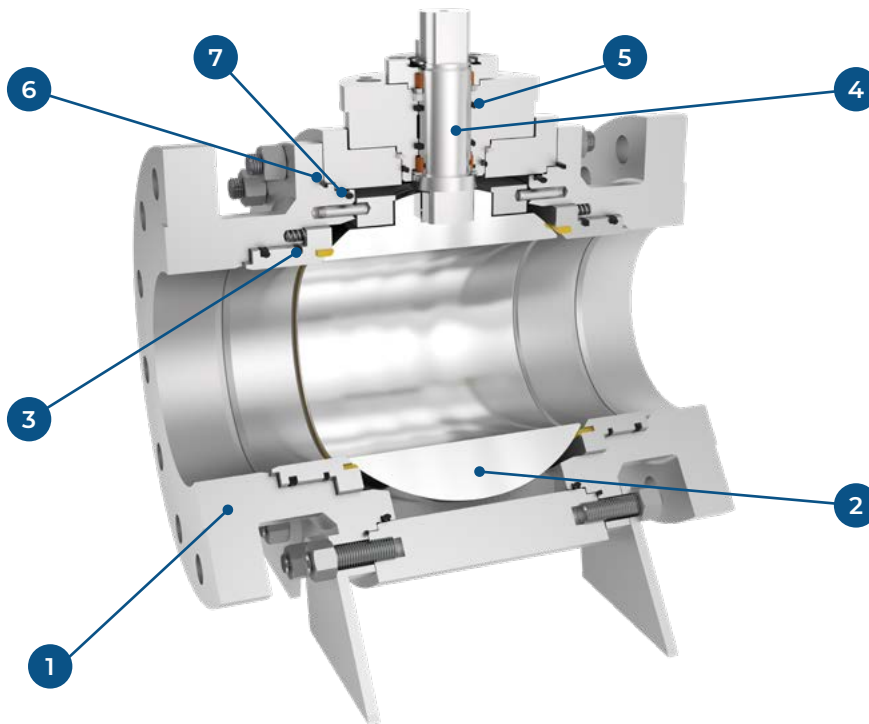


**Standard materials**

ITEM	DESCRIPTION	MATERIAL	
		CS	SS
1	BODY	A105 / A350 LF2	A182 F316
2	BALL	A182 F316+ENP / A182 F51+ENP	
3	SEATS*	PTFE (T) / PTFE+CG (S) / PRFE+FG (R) / Devlon (N)	
4	STEM	A182 F51	
5	STEM PACKING	Graphite	
6	BODY SEAL 1	Graphite	
7	BODY SEAL 2	FKM AED	

**Range**

1/2" - 18" / Class 2500  
 1/2" - 24" / Class 1500  
 1/2" - 32" / Class 900  
 1/2" - 42" / Class 150 - 600



**Weight (kg)**

Full Bore

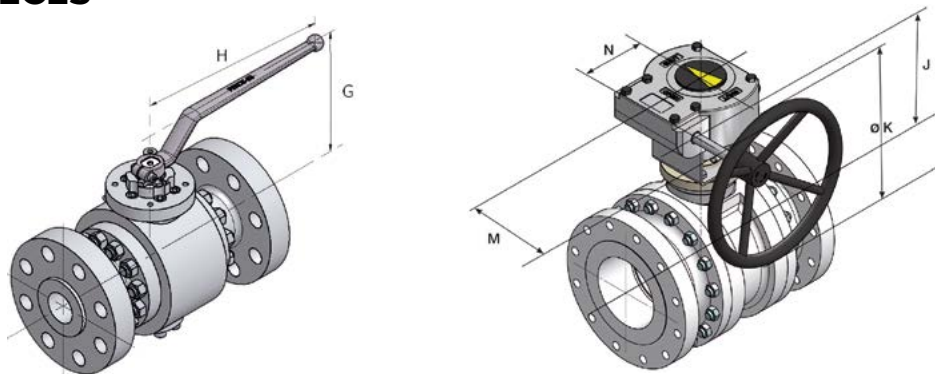
NPS	Class 150	Class 300	Class 600	Class 900	Class 1500	Class 2500
2"	12	25	30	45	49	65
3"	25	37	63	105	110	208
4"	37	77	108	165	182	340
6"	116	138	232	380	390	712
8"	198	239	415	640	650	1859
10"	387	437	659	952	960	2817
12"	516	729	880	1312	1320	3892
14"	688	928	1400	1595	1320	-
16"	1220	1200	1696	1682	2350	-
18"	1700	1550	2934	2765	-	-
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	35	47	82	96	128
4" x 3"	32	62	68	110	145	235
6" x 4"	71	96	120	207	295	387
8" x 6"	133	178	268	625	620	811
10" x 8"	229	330	461	702	805	2129
12" x 10"	445	672	732	1180	1140	3232
14" x 10"	583	612	977	1590	1660	-
16" x 12"	791	1140	1554	2380	2038	-
18" x 14"	1023	1376	1883	3200	-	-
20" x 16"	1955	1872	3323	4270	-	-
24" x 20"	2415	3170	4160	-	-	-



# TRUNNION - 3 PIECES



## 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	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	778	854	994	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							
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

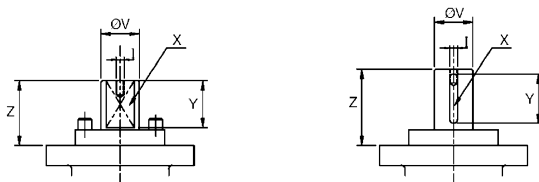
NPS		D						L (RF)			L1 (RTJ)			L2 (BW) (SW)			E		
FB	RB	900 FB	900 RB	1500 FB	1500 RB	2500 FB	2500 RB	900	1500	2500	900	1500	2500	900	1500	2500	900	1500	2500
2"	-	50	-	50	-	42	-	368	368	451	371	371	454	368	368	451	215	215	235
3"	3" x 2"	75	50	75	50	62	42	381	470	578	384	473	584	381	470	578	240	265	305
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	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	-	-	659	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 ISO5211



ISO 5211	FO5s	FO5	FO7	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

## MAST (Nm)

ISO 5211	M.A.S.T.	M.A.S.T.							
	ISO 5211	Eje	F51-450	XM-19-380	17-4PH-725	F53-550	F55-550	NCONEL 718-1034	MONEL K500-690
F05	125	Ø18x14	172	146	278	211	211	396	264
F07	250	Ø22x17	312	263	502	381	381	716	478
F10	500	Ø28x22	659	556	1061	805	805	1514	1010
F12	1000	Ø36x27	1304	1101	2101	1594	1594	2996	1999
F14	2000	Ø48x36	3091	2610	4979	3777	3777	7101	4739
F16	4000	Ø60x46	6245	5273	10061	7632	7632	14349	9575
F25	8000	Ø72x55	10731	9062	17289	13116	13116	24657	16454
F30	16000	Ø98x75	27137	22915	43720	33167	33167	62354	41610
F35	32000	Ø120x200(32x32x2)	51840	43776	83520	63360	63360	119117	79488
F35/2	32001	Ø132x190(36x36x2)	67716	57182	109098	82764	82764	155596	103831
F40	63000	Ø180x190(45x45x2)	115425	97470	185963	141075	141075	265221	176985
F48	125000	Ø202x235(50x50x2)	178812	150322	288086	218548	218548	410870	274178
F60	250000	Ø232x310(56x56x2)	302064	255076	486659	369189	369189	694076	463165
F10-1	500	Ø22x17	312	263	502	381	381	716	478
F14-1	2000	Ø36x27	1304	1101	2101	1594	1594	2996	1999
F16-1	4000	Ø48x36	3091	2610	4979	3777	3777	7101	4739
F25-1	8000	Ø60x46	6245	5273	10061	7632	7632	14349	9575
F30-1	16000	Ø72x55	10731	9062	17289	13116	13116	24657	16454
F60/2	250000	Ø260x310(63x63x2)	380835	321594	613568	465465	465465	875074	583947

## TORQUE VALUES (Nm)

	PN10	PN16	CLASS150	PN25	PN40	CLASS300	PN63	CLASS600-PN100	CLASS900	PN160	CLASS1500-PN250	PN320	PN400	CLASS2500
	10 bar	16 bar	20 bar	25 bar	40 bar	50 bar	63 bar	100 bar	150 bar	160 bar	250 bar	320 bar	400 bar	420 bar
1/2"-DN15	5	5	6	6	8	8	9	12	16	17	24	30	37	38
3/4"-DN20	7	8	9	9	11	12	14	18	24	26	37	45	55	58
1"-DN25	12	13	13	14	17	18	21	26	35	36	51	62	75	79
1 1/4"-DN32	18	20	21	22	26	29	32	42	55	58	81	100	121	126
1 1/2"-DN40	24	26	28	30	35	39	44	57	76	79	113	138	167	174
2"-DN50	33	35	37	39	45	51	55	67	90	94	130	159	192	200
2 1/2"-DN65	56	60	64	68	71	89	100	122	169	176	252	307	372	389
3"-DN80	78	85	90	97	113	127	145	176	252	261	370	457	554	579
4"-DN100	134	144	152	161	188	206	231	300	386	408	573	702	848	885
5"-DN125	176	197	210	227	260	312	357	483	650	676	992	1210	1464	1570
6"-DN150	218	248	269	293	368	416	483	664	914	964	1411	1758	2155	2255
8"-DN200	341	387	416	457	573	651	752	1050	1428	1501	2197	2739	3357	3512
10"-DN250	466	524	563	610	753	848	974	1328	1806	1901	2764	3432	4197	4389
12"-DN300	585	652	697	752	919	1029	1174	1583	2142	2252	3251	4030	4919	5141
14"-DN350	993	1106	1182	1277	1558	1749	1995	2696	3644	3832	5536	6861	8375	8754
16"-DN400	1342	1492	1592	1718	2093	2344	2669	3612	4847	5097	7350	9103	11106	11607
18"-DN450	1738	1989	2142	2367	2995	3415	3960	5510	7602	8027	11802	14736	18090	18929
20"-DN500	2094	2460	2688	3010	3926	4536	5330	7476	10643	11253	16758	21023	25908	27129
22"-DN550	2963	3431	3743	4133	5302	6082	7095	9979	13877	14657	21672	27129	33366	34925
24"-DN600	3364	3919	4303	4751	6138	7055	8251	11664	16251	17190	25649	31912	39273	41107





# KL Design Ball Valves

