



Kingdom

FLOW CONTROL CO., LTD.



Trunnion Mounted & High Pressure Ball Valves



Description

- **Product Description:**
Trunnion Mounted Ball Valves
- **Product Type:**
KV-F40 Series, KV-F60 Series
- **Size Range:**
NPS 3 ~ NPS 24 DN150 ~ DN600
- **Pressure Rating:**
Class 150 / 300 / 600 / 900 / 1500
PN16 / PN25 / PN40
- **Body Materials:**
CF8M / CF8 / WCB / LCC / LCB / Other Alloy Steels
- **Ball Materials:**
A182-F304 / F316 / Other Alloy Steels
- **Stem Materials:**
A182-F304 / F316 / Other Alloy Steels
- **Seat Materials:**
TFM1600 / PTFE / PEEK / Others
- **Optional Item:**
Actuators, Solenoid Valve, Limit Switch, Indicator,
Pressure Relief Valve
- **Connection:**
Flange Ends, Welding Ends
- **Optional Driven Mode:**
Manual, Pneumatic, Electric, Gear

Product Standard

- **Design Standard:**
ASME / DIN / JIS
- **Flange Connection:**
ASME B16.5, DIN EN1092-1, JIS B2220,
B2214 20K
- **Inspection & Testing:**
DIN3203, EN12266, API 598
- **Quality Assurance:**
ISO 9001, QS 9000, AD2000-Merkblatt WO,
PED 2014/68/EU, API 6D, API 607, ISO 10497,
ISO 15848, ATEX

Antistatic

Fire Safe Design Approved

Blow-out proof stem

Automatic pressure relief function



TUV AD 2000-Merkblatt W0 Casting Approval

Bi-directional sealing and drain design

Temperature Range : -29°C ~ 220°C

Design Features

ISO 5211 Mounting Pad for easy automation

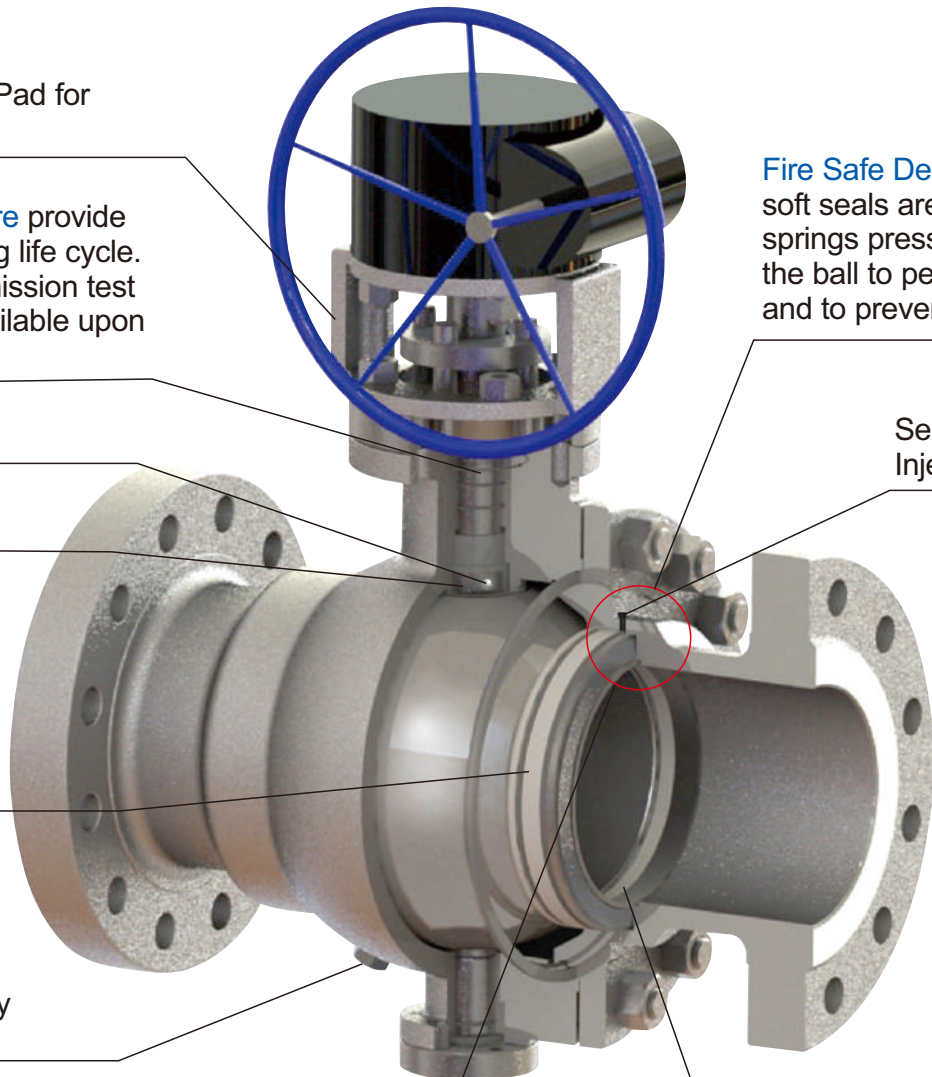
Multi-sealing structure provide tight sealing and long life cycle. ISO 15848-1 low emission test certified packing available upon request.

Anti-Static Devices

Blow-out proof stem

Spring Loaded Seat & Body Gaskets structure secure reliable sealing at low line pressure

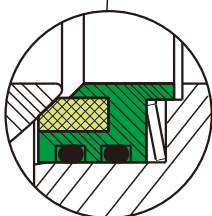
Drain design for easy cleaning on pipeline



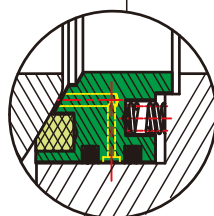
Fire Safe Design. When soft seals are burned, springs press the seats to the ball to perform a tight seal and to prevent fire expansion.

Seat Sealant System Injection

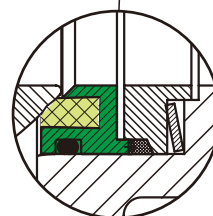
Grafoil Spiral Wound with SS 316 gaskets and stainless steel filled PTFE Seal Ring can apply to higher temperature range



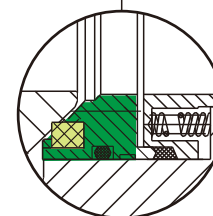
NPS 6 ~ NPS 8
(Standard)



NPS 10 ~ NPS 24
(Standard)



NPS 6 ~ NPS 8
(Optional, Firesafe type)



NPS 10 ~ NPS 24
(Optional, Firesafe type)

Technical Summary

Standard	ANSI / ASME	EN / DIN	JIS
Rating	ASME B16.34 Class150 / 300 / 600 / 900 / 1500	DIN 3357 / EN 12516-1 PN10 - PN40	JIS B 2001 10K / 20K
Face to Face	ASME B16.10	EN558 PN10 / PN16 Series 12 PN25 / PN40 Series 4	JIS B 2002 10K Form 6
			JIS B 2002 20K Form 10
Connection Facing	ASME B16.5RF serrated Finish	DIN EN 1092-1 PN10-PN40	JIS B 2220 10K.20K
Inspection & Testing	API 598	EN12266, DIN 3023/3	JIS B 2003
Casting Appearance	MSS SP 55		
Quality Assurance	ISO 9001, QS 9000, AD2000-Merkblatt WO, PED 2014/68/EU, API 6D, API 607, ISO 10497, ISO 15848, ATEX		

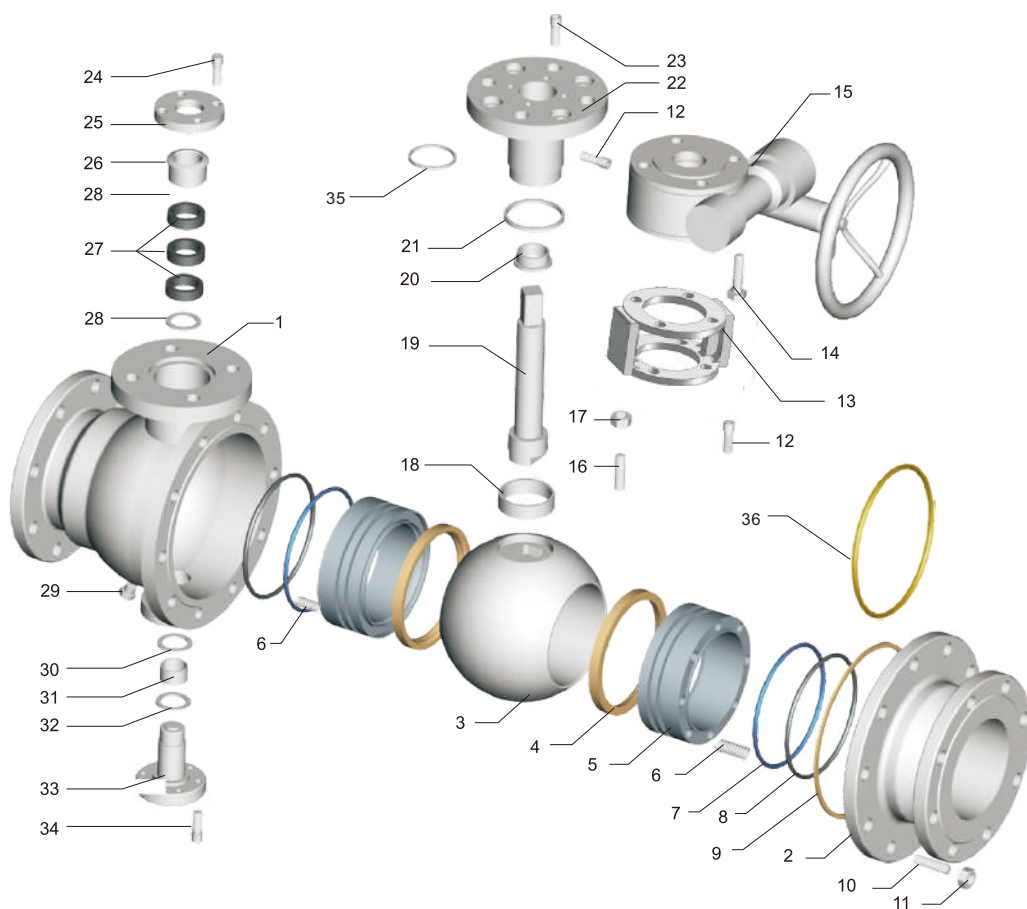
AVAILABLE OPTIONS:

- Castings per NACE / MR-01-75 for Sour Gas Service
- Inspection Certificate according to EN 10204 3.2 Form
- Inspection Testing per API 6D

INDEX

Model No.	Pressure Rating	Size Range		Firesafe Type
		2-PC Body	3-PC Body	
KV-F41	ASME Class 150	NPS 3 ~ NPS 12	NPS 14 ~ NPS 24	N/A
KV-F61	ASME Class 150	NPS 3 ~ NPS 12	NPS 14 ~ NPS 24	○
KV-F42	ASME Class 300	NPS 6 ~ NPS 12	NPS 14 ~ NPS 24	N/A
KV-F62	ASME Class 300	NPS 6 ~ NPS 12	NPS 14 ~ NPS 24	○
KV-F43	ASME Class 600	NPS 6 ~ NPS 12	NPS 14	N/A
KV-F63	ASME Class 600	NPS 6 ~ NPS 12	NPS 14	○
KV-F4J	DIN PN 10	DN 150 ~ DN 300	DN 350 ~ DN 600	N/A
KV-F6J	DIN PN 10	DN 150 ~ DN 300	DN 350 ~ DN 600	○
KV-F4K	DIN PN 16	DN 150 ~ DN 300	DN 350 ~ DN 600	N/A
KV-F6K	DIN PN 16	DN 150 ~ DN 300	DN 350 ~ DN 600	○
KV-F4M	DIN PN 25	DN 150 ~ DN 300	DN 350 ~ DN 600	N/A
KV-F6M	DIN PN 25	DN 150 ~ DN 300	DN 350 ~ DN 600	○
KV-F4N	DIN PN 40	DN 150 ~ DN 300	DN 350 ~ DN 600	N/A
KV-F6N	DIN PN 40	DN 150 ~ DN 300	DN 350 ~ DN 600	○
KV-F4A	JIS 10K	150A ~ 300A	350A ~ 600A	N/A
KV-F6A	JIS 10K	150A ~ 300A	350A ~ 600A	○
KV-F4C	JIS 20K	150A ~ 300A	350A ~ 600A	N/A
KV-F6C	JIS 20K	150A ~ 300A	350A ~ 600A	○
KV-L45	ASME Class 900	—	NPS 1/2 ~ NPS 8	N/A
KV-L65	ASME Class 900	—	NPS 1/2 ~ NPS 8	○
KV-L46	ASME Class 1500	—	NPS 1/2 ~ NPS 8	N/A
KV-L66	ASME Class 1500	—	NPS 1/2 ~ NPS 8	○

Split-Body Trunnion Mounted Ball Valves

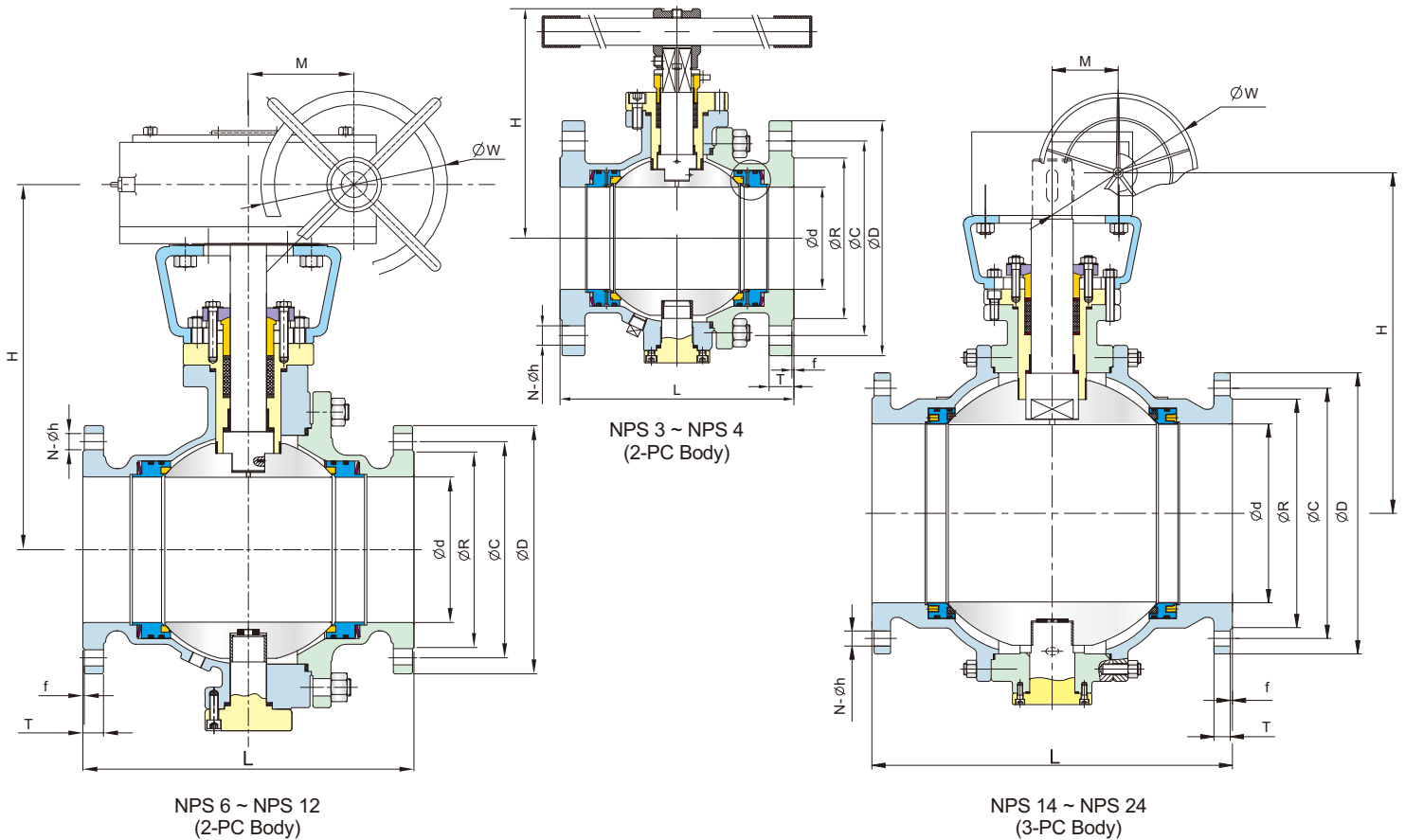


NO	PART NAME	MATERIALS			
1	Body	A351-CF8M	A351-CF8	A216-WCB	Other Alloy Steel
2	Body Cap	A351-CF8M	A351-CF8	A216-WCB	Other Alloy Steel
3	Ball	A182-F316		A182-F304	
4	Seat Seal		TFM1600 / PTFE / PEEK		
5	Seat	A182-F316		A182-F304	
6	Spring	SUS631 / INCONEL X-750	SUS631 / INCONEL X-750		SUS631
7	O-Ring		FKM / SILICON		
8	Sealing Ring		GRAPHITE* / FKM		
9	Body Gasket	316 SPIRAL WOUND + GRAPHITE* / PTFE		304 SPIRAL WOUND + GRAPHITE* / PTFE	
10	Stud	A193-B8			A193-B7
11	Hexagon Nut	A194-8			A194-2H
12	Injection Sealing		SUS316		
13	Yoke		A216-WCB		
14	Hexagon Bolt	A193-B8			A193-B7
15	Worm Gear		Assembly		
16	Stud Bolt	A193-B8			A193-B7
17	Hexagon Nut	A194-8			A194-2H
18	Wear Sleeve		316+PTFE		
19	Stem	A182-F316		A182-F304	
20	Stem Sleeve		50%SS+50%PTFE		
21	Mid. Flange Gasket	316 SPIRAL WOUND + GRAPHITE* / PTFE		304 SPIRAL WOUND + GRAPHITE* / PTFE	
22	Mid. Flange	A351-CF8M	A351-CF8		A216-WCB
23	Hexagon Socket Cap Head Screw		A193-B8		A193-B7
24	Hexagon Socket Cap Head Screw		A193-B8		A193-B7
25	Packing Plate	A351-CF8M			A216-WCB
26	Gland	A351-CF8M		A351-CF8	
27	Stem Packing		GRAPHITE* / PTFE		
28	Packing Gasket		316		
29	Drain Plug	A351-CF8M	A351-CF8	A105	Other Alloy Steel
30	Bottom End Cap Wear Bushing		50%SS+50%PTFE		
31	Bottom End Cap Sleeve		316+PTFE		
32	Bottom End Cap Seal Ring	316 SPIRAL WOUND + GRAPHITE* / PTFE		304 SPIRAL WOUND + GRAPHITE* / PTFE	
33	Bottom End Cap	A182-F316		A182-F304	
34	Hexagon Socket Cap Head Screw	A193-B8			A193-B7
35	O-Ring (NPS5~NPS24)		FKM		
36	O-Ring (NPS14~NPS24)		FKM		

★ Materials for higher temperature & firesafe applications.

ASME Class 150/300
Split-Body, Full Port, Flanged Ends

KV-F41, KV-F42
KV-F61, KV-F62 (Fire Safe Type)



ASME Class 150

KV-F41, KV-F61

Unit: mm

NPS	d	L	R	C	D	f	T	N	h	H	W	M	ISO 5211 on Valve
3	76	203	127.0	152.4	190	2	17.5	4	19.0	199	400	—	F10
4	100	229	157.2	190.5	230	2	22.3	8	19.0	225	400	—	F10
5	125	356	185.7	215.9	255	2	22.3	8	22.3	400	360	81	F16
6	150	394	215.9	241.3	280	2	23.9	8	22.3	414	360	81	F16
8	201	457	269.9	298.5	345	2	27.0	8	22.3	480	460	90	F16
10	252	533	323.8	362.0	405	2	28.6	12	25.4	500	600	126	F16
12	303	610	381.0	431.8	485	2	30.2	12	25.4	540	600	126	F25
14	334	686	412.8	476.3	535	2	33.4	12	28.6	630	600	126	F25
16	385	762	469.9	539.8	595	2	35.0	16	28.6	680	600	138	F25
18	436	864	533.4	577.9	635	2	38.1	16	31.8	720	600	138	F25
20	487	914	584.2	635.0	700	2	41.3	20	31.8	760	600	138	F30
24	589	1067	692.2	749.3	815	2	46.1	20	35.1	890	600	170	F30

ASME Class 300

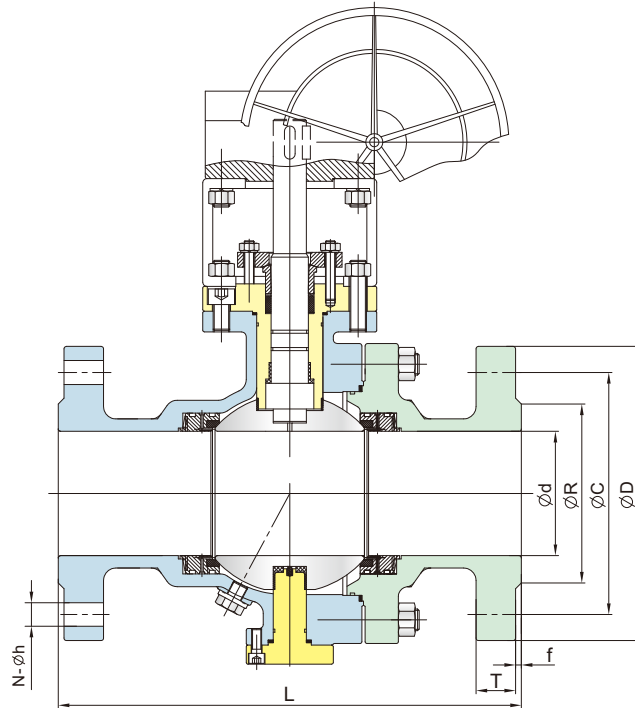
KV-F42, KV-F62

Unit: mm

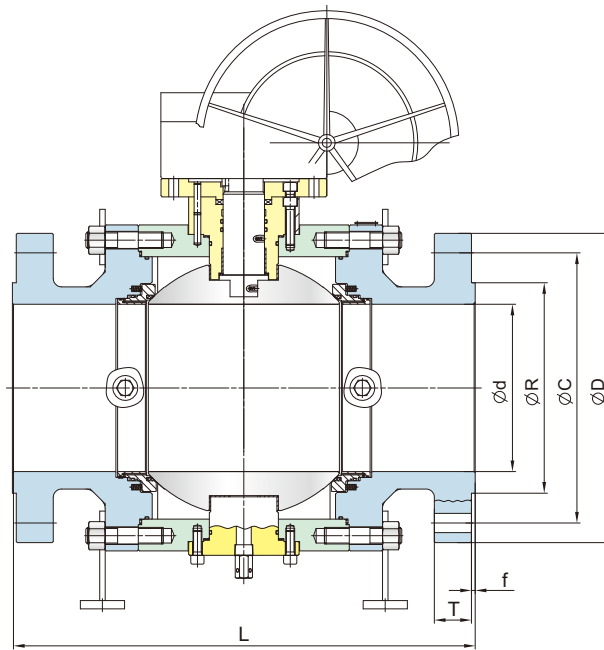
NPS	d	L	R	C	D	f	T	N	h	H	W	M	ISO 5211 on Valve
3	76	282	127.0	168.3	210	2	27.0	8	22.3	199	400	—	F10
4	100	305	157.2	200.0	255	2	30.2	8	22.3	225	400	—	F10
5	125	381	185.7	235.0	280	2	33.4	8	22.3	400	360	81	F16
6	150	403	215.9	269.9	320	2	35.0	12	22.3	414	360	81	F16
8	201	502	269.9	330.2	380	2	39.7	12	25.4	480	460	90	F16
10	252	568	323.8	387.4	445	2	46.1	16	28.6	500	600	126	F16
12	303	648	381.0	450.8	520	2	49.3	16	31.8	540	600	126	F25
14	334	762	412.8	514.4	585	2	52.4	20	31.8	630	600	126	F25
16	385	838	469.9	571.5	650	2	55.6	20	35.1	680	600	138	F25
18	436	914	533.4	628.6	710	2	58.8	24	35.1	720	600	138	F25
20	487	991	584.2	685.8	775	2	62.0	24	35.1	760	600	138	F30
24	589	1143	692.2	812.8	915	2	68.3	24	41.4	890	600	170	F30

ASME Class 600
Split-Body, Full Port, Flanged Ends

KV-F43
KV-F63 (Fire Safe Type)



NPS 3 ~ NPS 12 (2-PC Body)



NPS 14 (3-PC Body)

ASME Class 600

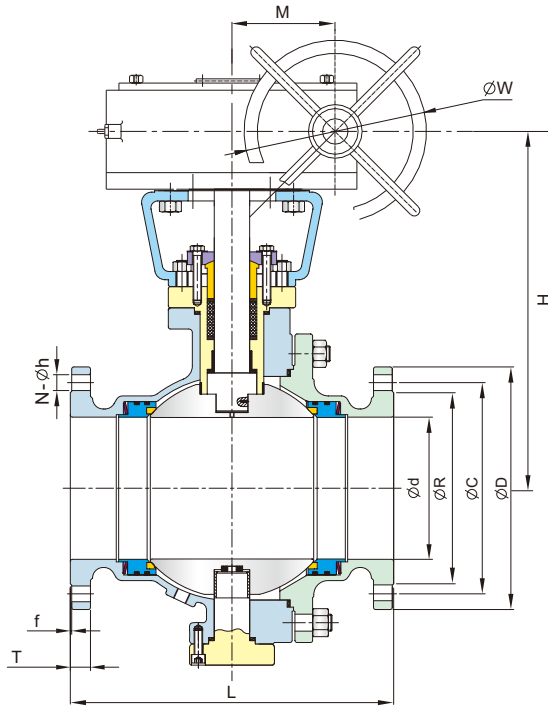
KV-F43, KV-F63

Unit: mm

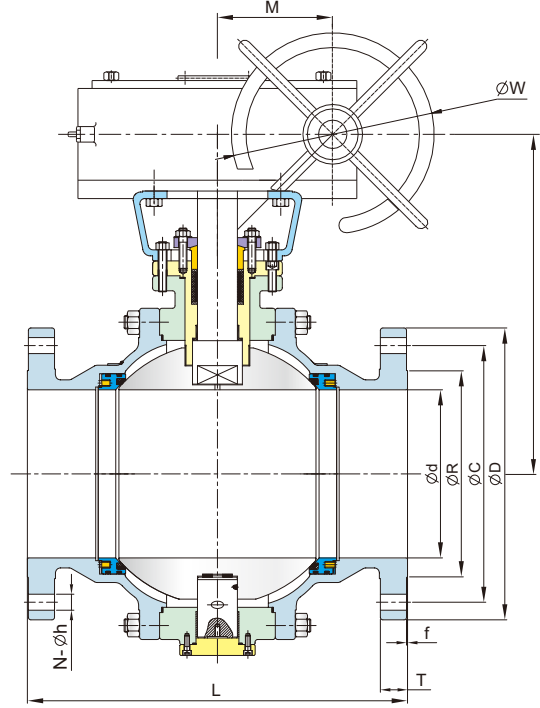
NPS	d	L	R	C	D	f	T	N	h	ISO 5211 on Valve
3	76	356	127	168.3	210	7	31.8	8	22.3	F10
4	100	432	157	215.9	275	7	38.1	8	25.4	F12
5	125	508	216	266.7	330	7	44.5	8	28.5	F16
6	150	559	215.9	292.1	355	7	47.7	12	28.5	F16
8	201	660	269.9	349.2	420	7	55.6	12	31.8	F16
10	252	787	323.8	431.8	510	7	63.5	16	35.1	F25
12	303	838	381.0	489.0	560	7	66.7	20	35.1	F25
14	334	889	412.8	527.0	605	7	69.9	20	38.5	F30

EN PN10/16/25/40
Split-Body, Full Port, Flanged Ends

KV-F4J, KV-F4K, KV-F4M, KV-F4N
KV-F6J, KV-F6K, KV-F6M, KV-F6N (Fire Safe Type)



DN 150 ~ DN 300
(2-PC Body)



DN 350 ~ DN 600
(3-PC Body)

EN PN10/16/25/40

Unit: mm

DN	PN	d	L	R	C	D	f	T	N	h	H	W	M	ISO 5211 on Valve
150	10/16	150	394	212	240	285	2	22	8	22	414	360	81	F16
	25/40	150	403	218	250	300	2	28	8	26	414	360	81	
200	10	200	457	268	295	340	2	24	8	22	480	460	90	F16
	16	200	457	268	295	340	2	24	12	22	480	460	90	
	25	200	502	278	310	360	2	30	12	26	480	460	90	
	40	200	502	285	320	375	2	34	12	30	480	460	90	
250	10	250	533	320	350	395	2	26	12	22	500	600	126	F16
	16	250	533	320	355	405	2	26	12	26	500	600	126	
	25	250	568	335	370	425	2	32	12	30	500	600	126	
300	10	300	610	370	400	445	2	26	12	22	540	600	126	F25
	16	300	610	378	410	460	2	28	12	26	540	600	126	
	25	300	648	395	430	485	2	34	16	30	540	600	138	
350	10	336	686	430	460	505	2	26	16	22	630	600	138	F25
	16	336	686	438	470	520	2	30	16	26	630	600	138	
	25	336	762	450	490	555	2	38	16	33	630	600	138	
	40	336	762	465	510	580	2	46	16	36	630	600	138	
400	10	387	762	482	515	565	2	26	16	26	680	600	138	F25
	16	387	762	490	525	580	2	32	16	30	680	600	138	
	25	387	838	505	550	620	2	40	16	36	680	600	138	
450	10	438	864	532	565	615	2	28	20	26	720	600	138	F25
	16	438	864	550	585	640	2	40	20	30	720	600	138	
	25	438	914	555	600	670	2	46	20	36	720	600	138	
	40	432	914	560	610	685	2	57	20	39	720	600	138	
500	10	489	914	585	620	670	2	28	20	26	760	600	138	F30
	16	489	914	610	650	715	2	44	20	33	760	600	138	
	25	489	991	615	660	730	2	48	20	36	760	600	138	
600	10	590	1067	685	725	780	2	28	20	30	890	600	150	F30
	16	590	1067	725	770	840	2	54	20	36	890	600	150	
	25	590	1143	720	770	845	2	58	20	39	890	600	150	
	40	590	1143	735	795	890	2	72	20	48	890	600	150	

KV-F4J, KV-F6J — PN10

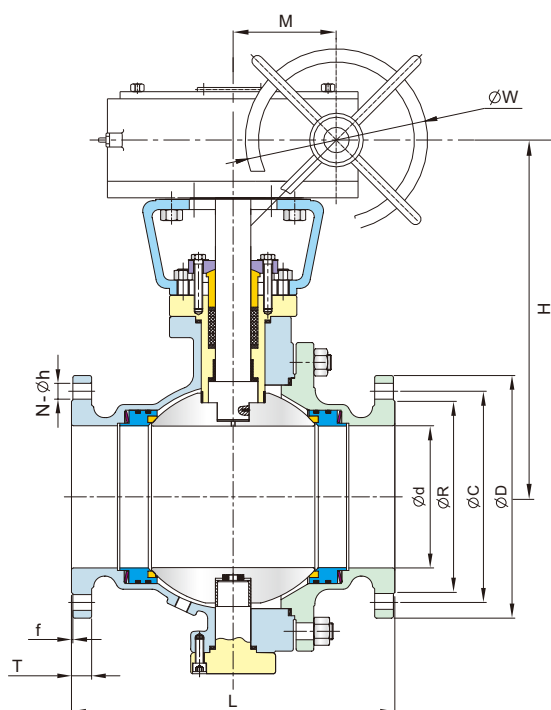
KV-F4K, KV-F6K — PN16

KV-F4M, KV-F6M — PN25

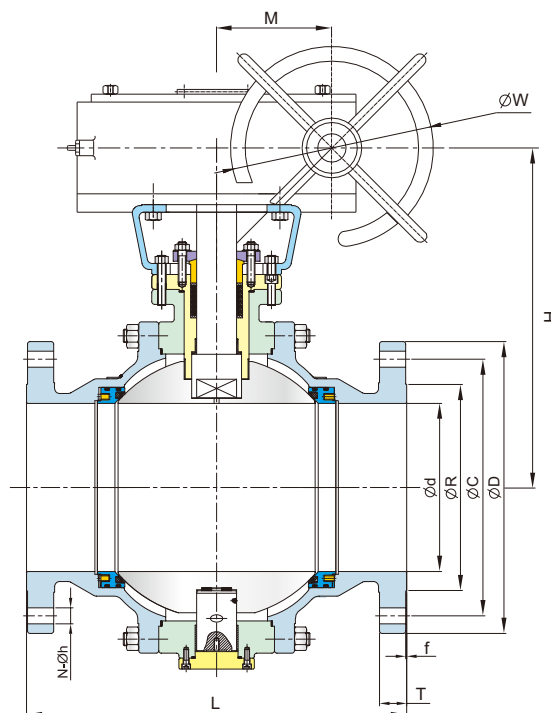
KV-F4N, KV-F6N — PN40

JIS 10K/20K
Split-Body, Full Port, Flanged Ends

KV-F4A, KV-F4C
KV-F6A, KV-F6C (Fire Safe Type)



150A ~ 300A
(2-PC Body)



350A ~ 600A
(3-PC Body)

JIS 10K

KV-F4A, KV-F6A

Unit: mm

Size	d	L	R	C	D	f	T	N	h	H	W	M	ISO 5211 on Valve
150A	150	394	212	240	280	2	22	8	23	414	360	81	F16
200A	200	457	362	290	330	2	22	12	23	480	460	90	F16
250A	250	533	324	355	400	2	24	12	25	500	600	120	F16
300A	300	610	368	400	445	3	24	16	25	540	600	126	F25
350A	340	686	413	445	490	3	26	16	25	630	600	126	F25
400A	400	762	475	510	560	3	28	16	27	680	600	126	F25
450A	450	864	530	565	620	3	30	20	27	720	600	138	F25
500A	500	914	585	620	675	3	30	20	27	760	600	138	F30
600A	600	1067	690	730	795	3	32	24	33	890	600	138	F30

JIS 20K

KV-F4C, KV-F6C

Unit: mm

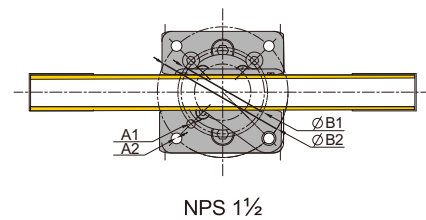
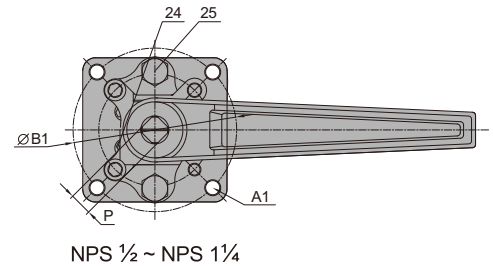
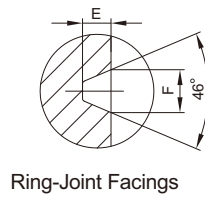
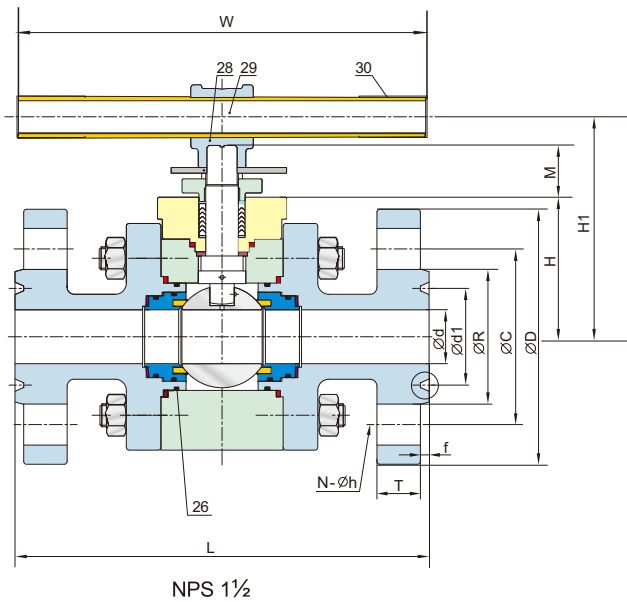
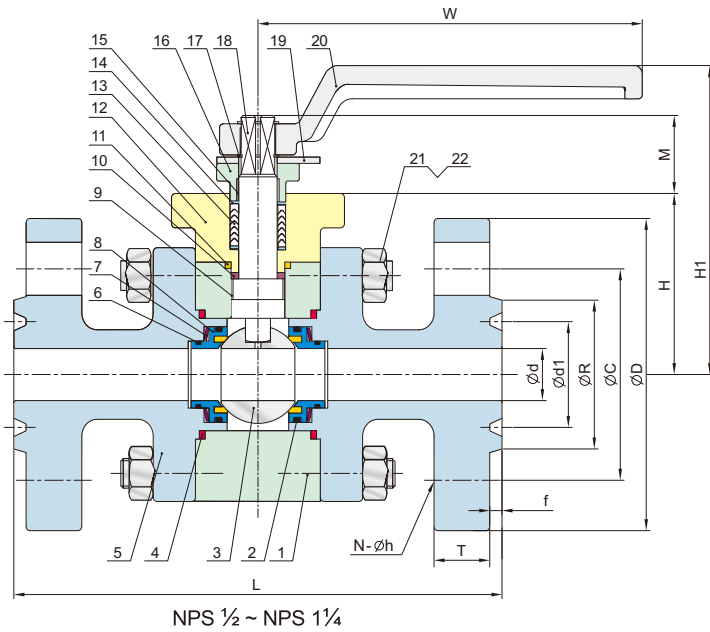
Size	d	L	R	C	D	f	T	N	h	H	W	M	ISO 5211 on Valve
150A	150	403	230	260	305	2	28	12	25	414	360	81	F16
200A	200	502	275	305	350	2	30	12	25	480	460	90	F16
250A	250	568	345	380	430	2	34	12	27	500	600	120	F16
300A	300	648	395	430	480	3	36	16	27	540	600	126	F25
350A	335	762	440	480	540	3	40	16	33	630	600	126	F25
400A	380	838	495	540	605	3	46	16	33	680	600	126	F25
450A	430	914	560	605	675	3	48	20	33	720	600	138	F25
500A	480	991	615	660	730	3	50	20	33	760	600	138	F30
600A	580	1143	720	770	845	3	54	24	39	890	600	138	F30

Applicable Standards:

- Design : ASME B16.34
- Wall Thickness : ASME B16.34
- End Flange : ASME B16.5
- Face to Face : ASME B16.10
- Inspection & Testing : API 598

NO.	PART NAME	MATERIALS		
		F316	F304	A105
1	Body	F316	F304	A105
2	O-ring 1	FKM		
3	Ball	F316+ENP	F304+ENP	F304/A105+ENP
4	Body Gasket	PTFE/ 316+Graphite*		
5	Cap	F316	F304	A105
6	Seal ring	FKM/ Graphite*		
7	Belleville Spring	17-7PH/Inconel X-750		
8	Seat	F316+DEVLON	F304+DEVLON	A105+DEVLON
9	Stem Sleeve 1	50%SS+50%PTFE		
10	Stem Bushing	50%SS+50%PTFE		
11	Flange Gasket	316+Graphite*		
12	Top Bonnet	F316	F304	A105
13	Stem Packing	PTFE/ Graphite*		
14	Packing Gasket	304		
15	Stem Sleeve 2	50%SS+50%PTFE		
16	Packing Gland	CF8M	CF8	WCB
17	Snap Ring	304		
18	Stem	F316	F304	A182-F6a
19	Tringle Stopper	304		
20	Handle	WCB		
21	Bonnet Blot	A193-B8	A193-B7	
22	Bonnet Nut	A194-8	A194-2H	
24	Set Screwed	A2-70		
25	Bolt	A2-70		
26	O-ring 3	FKM		
27	Handle Adapter	CF8		
28	Pipe Handle	A53+Zn Plated		
29	Lever Sleeve	VINYL PLASTI		

* Materials for KV-L65, KV-L66 (Fire-Safe Models)



ASME Class 900/1500

Unit: mm

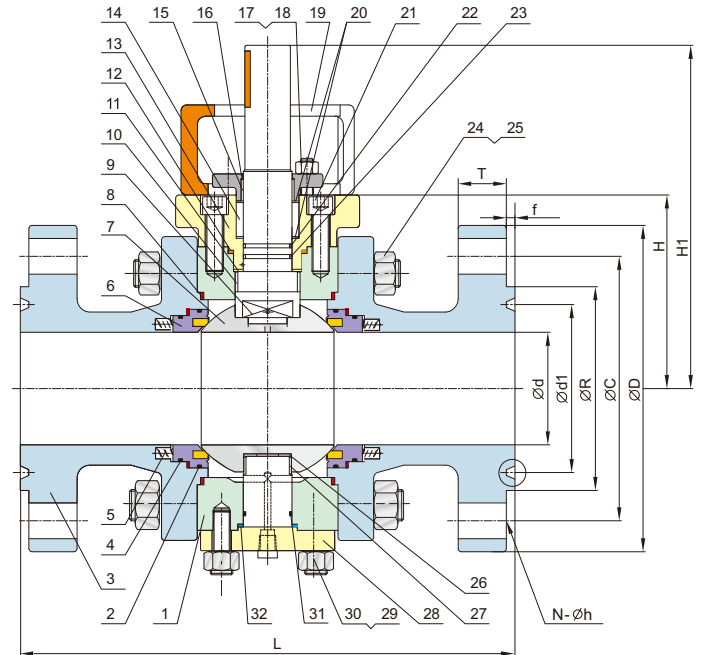
NPS	Class	d	d1	R	C	D	H	M	H1	W	L	P	B1	B2	A1	A2	f	T	N	h	E	F
1/2	900#	15	39.67	60.3	82.6	120	78.0	28.3	131.0	160	216	11	—	70	—	M8	6.35	22.3	4	22.3	6.35	8.74
3/4		20	44.45	66.5	88.9	130	78.0	28.3	131.0	160	229	11	—	70	—	M8	6.35	25.4	4	22.3	6.35	8.74
1	1500#	25	50.80	71.5	101.6	150	87.0	37.5	148.5	265	254	14	—	102	—	M10	6.35	28.6	4	25.4	6.35	8.74
1 1/4		32	60.33	81.0	111.1	160	92.0	38.5	154.5	265	279	14	—	102	—	M10	6.35	28.6	4	25.4	6.35	8.74
1 1/2		38	68.27	92.0	123.8	180	98.5	36.5	155.0	302	305	17	70	102	M8	M10	6.35	31.8	4	28.5	6.35	8.74

Applicable Standards:

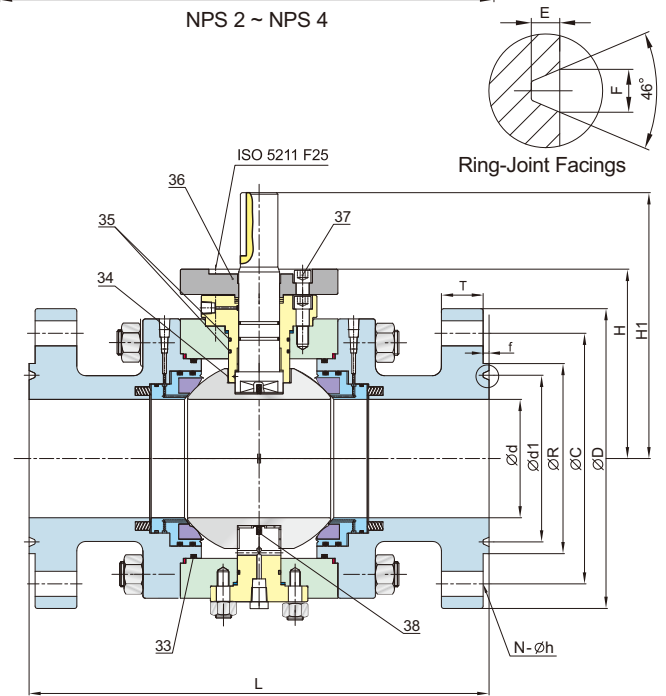
- Design : ASME B16.34
- Wall Thickness : ASME B16.34
- End Flange : ASME B16.5
- Face to Face : ASME B16.10
- Inspection & Testing : API 598

NO.	PART NAME	MATERIALS		
1	Body	F316	F304	A105
2	O-ring	FKM		
3	Cap	F316	F304	A105
4	Seal ring	FKM / Graphite*		
5	Spring	17-7PH/ Inconel X-750		
6	Seat	F316+DEVLON	F304+DEVLON	A105+DEVLON
7	Ball	F316+ENP	F304+ENP	F304/A105+ENP
8	Body Gasket	PTFE / 316+Graphite*		
9	Stem	F316	F304	A182-F6a
10	Stem Sleeve	50%SS+50%PTFE		
11	Stem Bushing	50%SS+50%PTFE		
12	Flange Gasket	PTFE / 316+Graphite*		
13	Top Bonnet	F316	F304	A105
14	Stem Packing	PTFE / Graphite*		
15	Stem Sleeve	50%SS+50%PTFE		
16	Packing Gland	CF8M	CF8	
17	Bolt	A2-70		8.8
18	Bolt Nut	A2-70		8
19	Yoke	WCB		
20	Packing Bushing	316	304	
21	Bolt	A2-70		8.8
22	O-ring	FKM		
23	O-ring	FKM		
24	Bolt	A193-B8		A193-B7
25	Bolt Nut	A194-8		A194-2H
26	Lower Stem Bushing	50%SS+50%PTFE		
27	Lower Stem Sleeve	50%SS+50%PTFE		
28	Lower Stem	F316	F304	A182-F6a
29	Bolt	A2-70		8.8
30	Bolt Nut	A2-70		8
31	O-ring	FKM		
32	Gasket	PTFE / 316+Graphite*		
33	O-ring	FKM		
34	Top Bonnet Sleeve	50%SS+50%PTFE		
35	O-ring	FKM		
36	Joint Flange	F316	F304	A105
37	Bolt	A2-70		8.8
38	Spring	17-7PH		

* Materials for KV-L65, KV-L66 (Fire-Safe Models)



NPS 2 ~ NPS 4

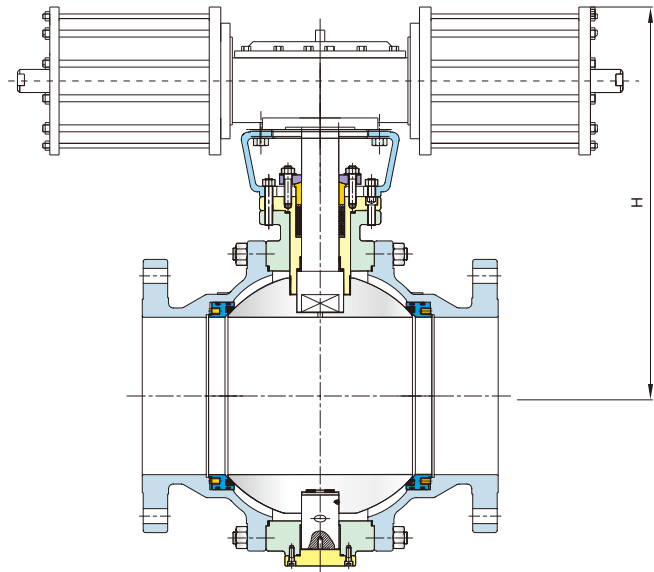
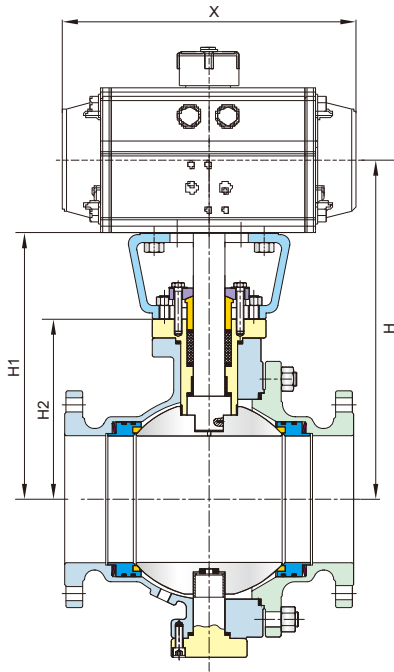
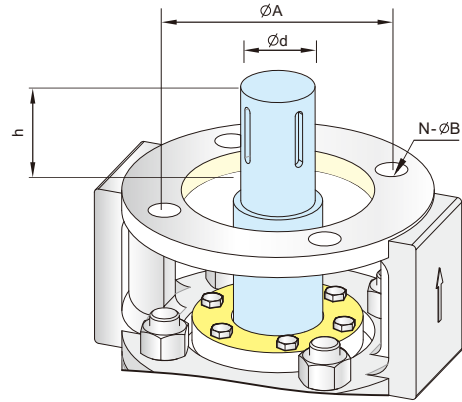
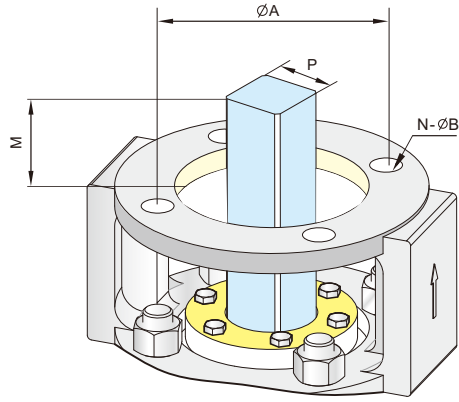


NPS 6 ~ NPS 8

ASME Class 900/1500

Unit: mm

NPS	Class	d	d1	R	C	D	H	H1	L	f	T	N	h	E	F	ISO 5211
2	900#	49	95.25	124	165.1	215	216	228.0	371	7.92	38.1	8	25.4	7.92	11.91	F10
2½	900# & 1500#	65	107.95	137	190.5	245	150	213.0	422	7.92	41.3	8	28.5	7.92	11.91	F12
	1500#	75	123.83	156	190.5	240	150	259.5	384	7.92	38.1	8	25.4	7.92	11.91	F12
3	900#	75	136.53	168	203.2	265	150	259.5	473	7.92	47.7	8	31.8	7.92	11.91	F12
	1500#	100	149.23	181	235.0	290	164	305.0	460	7.92	44.5	8	31.8	7.92	11.91	F14
4	900#	100	161.93	194	241.5	310	164	305.0	549	7.92	54.0	8	35.1	7.92	11.91	F14
	1500#	150	211.12	241	317.5	380	240	337.0	613	7.92	55.6	12	31.8	7.92	11.91	F16
6	900#	144	211.14	248	317.5	395	252	339.0	711	9.53	82.6	12	38.1	9.53	13.49	F25
	1500#	201	269.88	308	393.7	470	315	423.0	740	7.92	63.5	12	38.1	7.92	11.91	F25
8	900#	192	269.88	318	393.7	485	320	428.0	841	11.13	92.1	12	44.5	11.13	16.66	F25



Connection Dimensions for Class 150/300, PN10-PN40, JIS10K/20K

Unit: mm

NPS	d	h	P	M	A	H1	H2	H	X	N	B	ISO 5211 on bracket	Spring-return Actuator	Double-spring Actuator
6	40	55	27	27	165	366	237	666	602	4	22	F16	KP240SR10	KP200
8	50	65	36	36	165	424	288	724	602	4	22	F16	KP240SR10	KP200
10	60	80	46	46	165	438	309	818	742	4	22	F16	KP300SR10	KP240
12	72	80	55	55	254	482	342	914	860	8	18	F25	KP350SR10	KP270
14	80	80	55	55	254	567	427	1031	924	8	18	F25	KP400SR10	KP300
16	90	110	55	55	254	598	458	1218	1100	8	18	F25	KP450SR8	KP350
18	90	110	55	55	254	652	514	1272	1100	8	18	F25	KP450SR8	KP400
20	100	130	75	75	298	685	520	1325	1550	8	22	F30	KP500SR8	KP400
24	110	180	75	75	298	806	640	1446	1550	8	22	F30	KP500SR8	KP450

Note: Actuator of Pusher Type are available for NPS 14~ NPS 24 Valves.

● Operation Torque of Trunnion Ball Valve

Class 150 / EN PN 10 / PN 16 / JIS 10K Ball Valve, KV-F41 / F61 / F4J / F6J / F4K / F6K / F4A / F6A

SIZE		150 psig		240 psig		300 psig	
		1.0 MPa (10 bar)		1.6 MPa (16 bar)		2.0 MPa (20 bar)	
NPS	DN	N·m	In·lb	N·m	In·lb	N·m	In·lb
3	80	80	708	92	814	110	974
4	100	100	885	145	1283	180	1592
5	125	210	1859	270	2390	340	3009
6	150	350	3097	400	3540	435	3850
8	200	550	4867	620	5487	650	5753
10	250	800	7080	1000	8850	1150	10178
12	300	1200	10620	1500	13274	1650	14603
14	350	1700	15044	2100	18584	2250	19913
16	400	2600	23009	2800	24779	3300	29205
18	450	3200	28319	4000	35398	4300	38055
20	500	4000	35398	5000	44248	5500	48675
24	600	6500	57522	8000	70797	8400	74340

Class 300 / EN PN 25 / PN 40 / JIS 20K Ball Valve, KV-F42 / F62 / F4M / F6M / F4N / F6N / F4C / F6C

SIZE		150 psig		350 psig		600 psig		700 psig	
		1.0 MPa (10 bar)		2.5 MPa (25 bar)		4.0 MPa (40 bar)		5.0 MPa (50 bar)	
NPS	DN	N·m	In·lb	N·m	In·lb	N·m	In·lb	N·m	In·lb
6	150	350	3097	460	4071	480	4248	500	4425
8	200	550	4867	720	6372	760	6726	800	7080
10	250	800	7080	1300	11505	1500	13274	2000	17699
12	300	1200	10620	1800	15930	2200	19469	2500	22124
14	350	1700	15044	2500	22125	3000	26549	3500	30974
16	400	2600	23009	3800	33630	4600	40708	5000	44248
18	450	3200	28319	4800	42480	5600	49558	6000	53098
20	500	4000	35398	6100	53985	7200	63717	8000	70797
24	600	6500	57522	9500	84075	11000	97346	13000	115045

Class 900 Ball Valve KV-L45

SIZE		300 psig		700 psig		1500 psig		2200 psig		3000 psig	
		2.0 MPa (20 bar)		5.0 MPa (50 bar)		10.0 MPa (100 bar)		15.0 MPa (150 bar)		20.0 MPa (200 bar)	
NPS	DN	N·m	In·lb	N·m	In·lb	N·m	In·lb	N·m	In·lb	N·m	In·lb
1/2	15	20	177	23	204	25	221	28	248	30	265
3/4	20	25	221	30	265	35	310	40	354	45	398
1	25	40	354	45	398	50	442	60	531	70	619
1¼	32	80	708	85	752	90	796	100	885	110	973
1½	40	100	885	110	973	120	1062	135	1195	150	1327
2	50	110	973	120	1062	130	1150	160	1416	200	1770
2½	65	125	1106	150	1327	170	1504	220	1947	300	2655
3	80	150	1327	180	1593	230	2035	300	2655	500	4425
4	100	200	1770	250	2212	350	3097	500	4425	700	6195
5	125	300	2655	400	3540	500	4425	700	6195	1000	8850
6	150	600	5310	750	6637	900	7965	1200	10620	1500	13274
8	200	900	7965	1100	9735	1400	12389	1700	15044	2000	17699

- Note: The operation torque data of soft sealed trunnion ball valve in the above table is calculated at room temperature and clean line medium. When selecting actuator, a safety factor of minimum 30% is recommended for line media of clean, particle free, non-lubricating (water, alcohol, etc). However, higher safety factor must be taken into consideration if line media are slurries or heavy corroded and contaminated systems.

● Operation Torque of Trunnion Ball Valve

Class 1500 Ball Valve KV-L46

SIZE		300 psig		700 psig		1500 psig		2200 psig		3000 psig		3750 psig	
		2.0 MPa (20 bar)		5.0 MPa (50 bar)		10.0 MPa (100 bar)		15.0 MPa (150 bar)		20.0 MPa (200 bar)		25.0 MPa (250 bar)	
NPS	DN	N.m	In.lb	N.m	In.lb	N.m	In.lb	N.m	In.lb	N.m	In.lb	N.m	In.lb
1/2	15	20	177	23	204	25	221	28	248	30	265	35	310
3/4	20	25	221	30	265	35	310	40	354	45	398	50	442
1	25	40	354	45	398	50	442	60	531	70	619	90	796
1¼	32	80	708	85	752	90	796	100	885	110	973	120	1062
1½	40	100	885	110	973	120	1062	135	1195	150	1327	170	1504
2	50	110	973	120	1062	130	1150	160	1416	200	1770	250	2212
2½	65	125	1106	150	1327	170	1504	220	1947	300	2655	400	3540
3	80	150	1327	180	1593	230	2035	300	2655	500	4426	700	6195
4	100	200	1770	250	2212	350	3097	500	4425	700	6195	900	7965
5	125	300	2655	400	3540	500	4425	700	6195	1000	8850	1500	13274
6	150	600	5310	750	6637	900	7965	1200	10620	1500	13274	2000	17699
8	200	900	7965	1100	9735	1400	12389	1700	15044	2000	17699	2500	22124

- Note: The operation torque data of soft sealed trunnion ball valve in the above table is calculated at room temperature and clean line medium. When selecting actuator, a safety factor of minimum 30% is recommended for line media of clean, particle free, non-lubricating (water, alcohol, etc). However, higher safety factor must be taken into consideration if line media are slurries or heavy corroded and contaminated systems.

● Temperature Range on Seats / Seals' Materials

Material	Temperature	
	Min.	Max.
CF8M	-254°C (-425°F)	815°C (1500°F)
316+Graphite / 316+PTFE	-250°C (-420°F)	815°C (1500°F)
WCB	-29°C (-20°F)	426°C (800°F)
LCB	-46°C (-50°F)	343°C (650°F)
TFM4215	-54°C (-65°F)	270°C (518°F)
PEEK	-100°C (-148°F)	240°C (464°F)
316+Graphite / 316+PTFE	-129°C (-200°F)	232°C (450°F)
TMF1600	-70°C (-94°F)	230°C (446°F)
FKM	-40°C (-40°F)	204°C (400°F)
PTFE / RPTFE	-50°C (-58°F)	203°C (397°F)
DVELON	-40°C (-40°F)	200°C (392°F)
HNBR	-40°C (-40°F)	149°C (300°F)
Nylon 6+MoS ²	-54°C (-65°F)	121°C (250°F)
NBR	-37°C (-35°F)	100°C (212°F)

ISO 9001

ISO 14001

OHSAS 18001

PED 2014/68/EU

AD2000-W0

AD2000-HP0

AD2000- A4

DNV

SIL 3

TA-Luft

ISO 15848-1

ATEX 94/9/EC

EN 14432

API 6D

API607 / ISO10497

CRN

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