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FLOW CONTROL CO., LTD.

Low Temperature &
Cryogenic Valves

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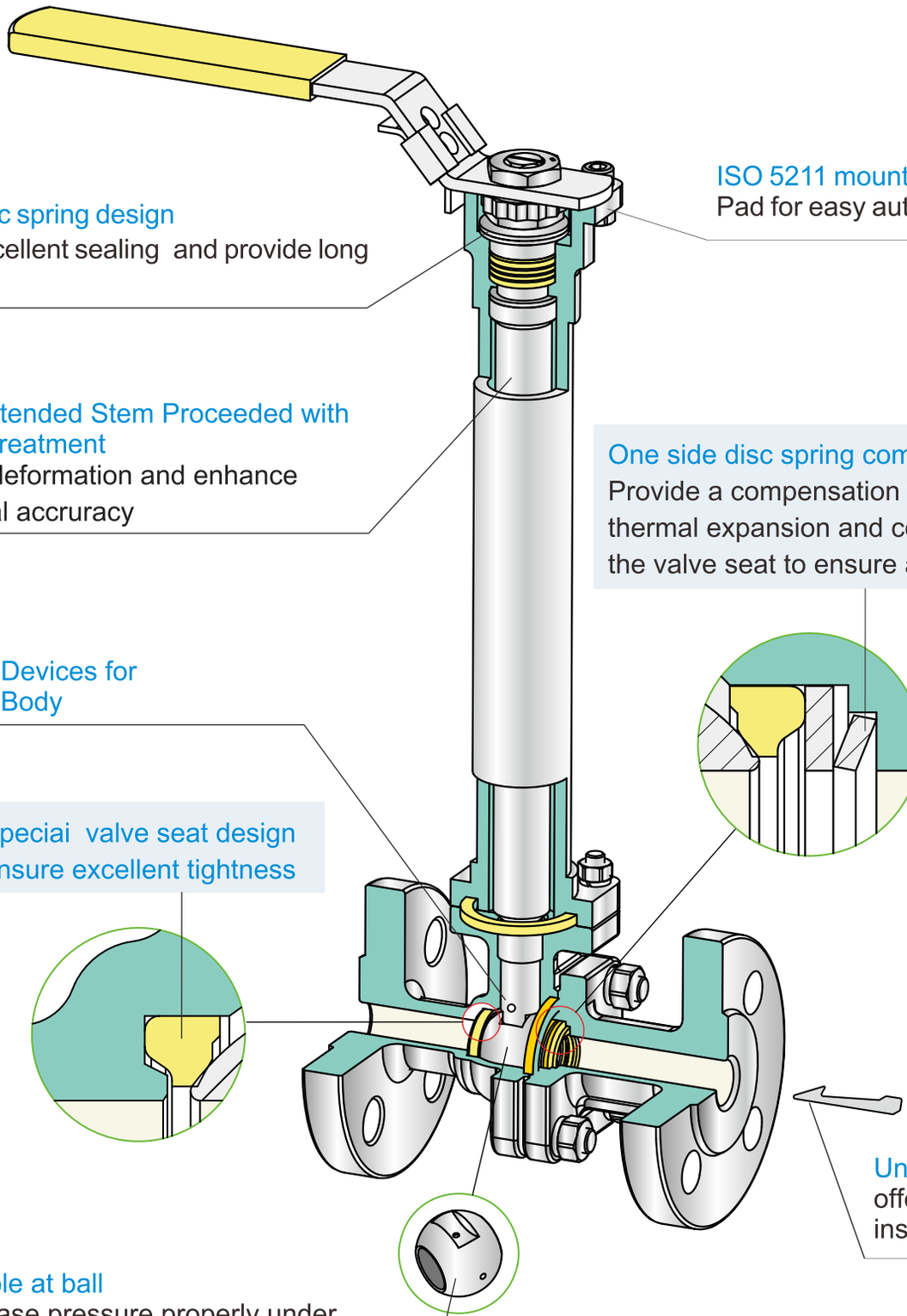
Cryogenic Ball Valve Design Features



Double disc spring design
Ensure excellent sealing and provide long life-cycle

ISO 5211 mounting
Pad for easy automation

Build-In extended Stem Proceeded with Sub-zero treatment
Reduces deformation and enhance operational accruracy

One side disc spring compression preload
Provide a compensation function for the thermal expansion and contraction of the valve seat to ensure a reliable seal

Anti-static Devices for Ball-Stem-Body

Speciai valve seat design ensure excellent tightness

Uni-direction design
offers one-way installation

Venting hole at ball
Helps release pressure properly under abnormal pressure increase in the cavity caused by temperature variation

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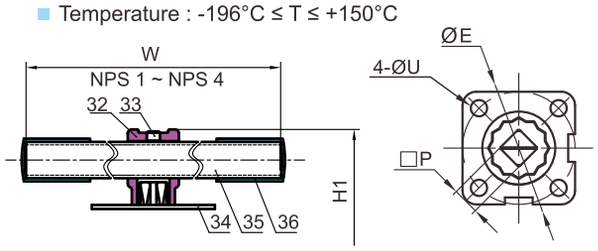
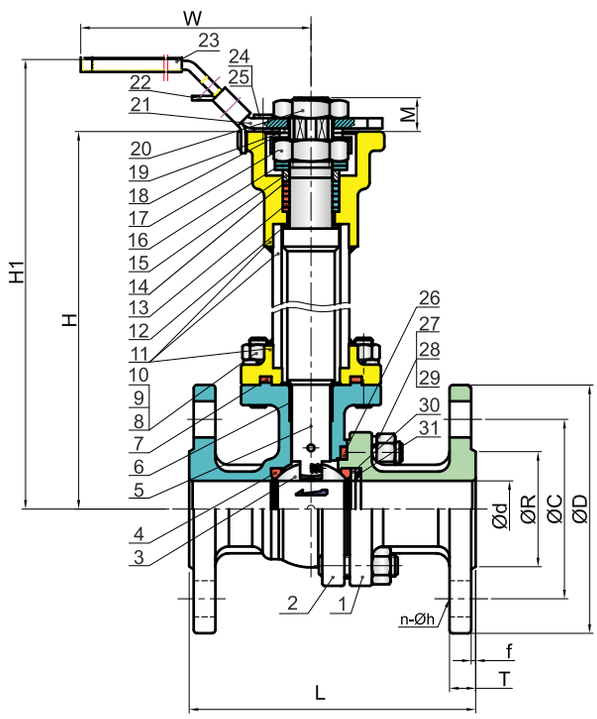
Cryogenic Ball Valve, ASME
2-PC Body, Flanged Ends, Full Port

KV-C41-D Class 150 / KV-C42-D Class 300

Applicable Standards:

- Design : ASME B16.34, BS 6364
- Face to Face : ASME B16.10
- Flange Ends : ASME B16.5
- Wall Thickness : ASME B16.34
- Inspection & Testing : API 598, BS 6364
- Temperature : -196°C ≤ T ≤ +150°C





NPS1/2~NPS3/4

No.	PARTS NAME	MATERIALS	
1	End Cap	CF8M	CF8
2	Body	CF8M	CF8
3	Ball	316+ENP	304+ENP
4	Ball Seat	PCTFE	
5	Stem(Anti-Static Device)	XM-19(Nitronic 50)	
6	Stem Sleeve	50%SS+50%PTFE	
7	Extended Bonnet Gasket	316 Spiral Wound+Graphite	
8	Bolting	A2-70	
9	Bolt Nut	A2-70	
10	Washer	304	
11	Extended Bonnet	CF8M	CF8
12	L-Stem Sleeve	50%SS+50%PTFE	
13	Packing	Graphite	
14	Bushing	304	
15	Gland	316	
16	Belleville Washer	301	
17	Stem Nut	A194-8	
18	Stop-lock-cap	304	
19	Handle Washer	304	
20	Handle Nut (NPS: ½~¾)	A194-8	
21	Handle (NPS: ½~¾)	304	
22	Lock Device (NPS: ½~¾)	304	
23	Handle Sleeve (NPS: ½~¾)	Vinyl Plastic	
24	Stop Bolt	A2-70	
25	Stop Nut	A2-70	
26	Body Gasket	316 Spiral Wound+Graphite	
27	Bolting	A320-B8	
28	Bolt Nut	A194-8	
29	Washer	304	
30	Disc Spring	Inconel X-750	
31	Seat Pressure Ring	316	304
32	Handle Adapter (NPS: 1~4)	CF8	
33	Set Screwed (NPS: 1~4)	A2-70	
34	Triangle Stopper (NPS: 1~4)	304	
35	Pipe Handle (NPS: 1~4)	A53+PLATED Zn	
36	Handle Sleeve (NPS: 1~4)	VINYL PLASTIC	

ASME Class 150 DIMENSION TABLE — KV-C41-D

Unit:mm

NPS	d	L	R	D	C	T	f	N	h	W	H	H1	P	M	E	U	ISO5211
½	15	108	35.0	90	60.3	8.0	2	4	16.0	175	290	322	11	11	50	7	F05
¾	20	117	43.0	100	69.9	8.9	2	4	16.0	175	293	325	11	11	50	7	F05
1	25	127	51.0	110	79.4	9.6	2	4	16.0	300	320	378	14	14	50 | 70	7 | 9	F05~F07
1¼	32	140	63.5	115	88.9	11.2	2	4	16.0	300	323	383	14	14	50 | 70	7 | 9	F05~F07
1½	38	165	73.2	125	98.4	12.7	2	4	16.0	400	365	429	17	17	102	11	F10
2	50	178	92.0	150	120.7	14.3	2	4	19.0	400	372	436	17	17	102	11	F10
2½	63	190	104.7	180	139.7	15.9	2	4	19.0	600	457	528	22	22	102	11	F10
3	76	203	127.0	190	152.4	17.5	2	4	19.0	600	465	536	22	22	102	11	F10
4	100	229	157.0	230	190.5	22.3	2	8	19.0	800	580	660	27	27	125	14	F12

ASME Class 300 DIMENSION TABLE — KV-C42-D

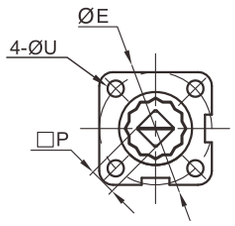
Unit:mm

NPS	d	L	R	D	C	T	f	N	h	H	H1	W	P	M	E	U	ISO5211
½	15	140	35	95	66.7	12.7	2	4	16.0	290	322	175	11	11	50	7	F05
¾	20	152	43	115	82.6	14.3	2	4	16.0	293	325	175	11	11	50	7	F05
1	25	165	51	125	88.9	15.9	2	4	22.3	318	378	300	14	14	50 | 70	7 | 9	F05~F07
1¼	32	178	63.5	135	98.4	17.5	2	4	22.3	323	383	300	14	14	50 | 70	7 | 9	F05~F07
1½	38	190	73.2	155	114.3	19.1	2	4	22.3	365	429	400	17	17	102	11	F10
2	50	216	92	165	127.0	20.7	2	8	19.0	372	436	400	17	17	102	11	F10
2½	63	241	105	190	149.2	23.9	2	8	22.3	457	528	600	22	22	102	11	F10
3	76	283	127	210	168.3	27.0	2	8	22.3	465	536	600	22	22	102	11	F10
4	100	305	157	255	200.0	30.2	2	8	22.3	580	660	800	27	27	125	14	F12

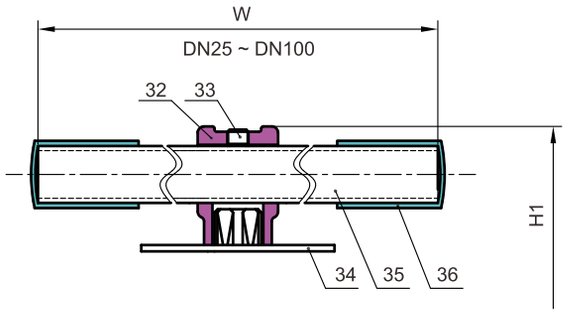
Cryogenic Ball Valve, EN
2-PC Body, Flanged Ends, Full Port
KV-C4K-D PN16 / KV-C4N-D PN40

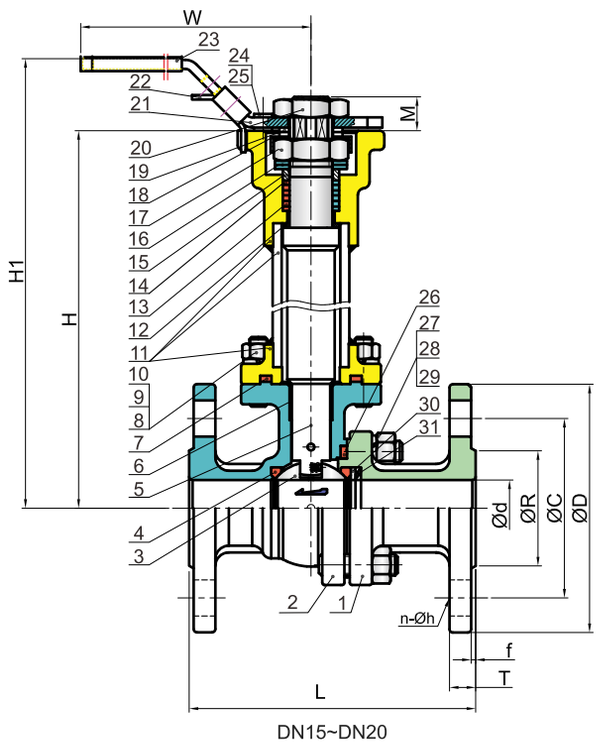
Applicable Standards:

- Design : EN 12516, BS 6364
- Face to Face : EN 558
- Flange Ends : EN 1092-1
- Wall Thickness : EN 12516
- Inspection & Testing : EN 12266-1, BS 6364
- Temperature : -196°C ≤ T ≤ +150°C



No.	PARTS NAME	MATERIALS	
1	End Cap	1.4408	1.4308
2	Body	1.4408	1.4308
3	Ball	316+ENP	304+ENP
4	Ball Seat	PCTFE	
5	Stem(Anti-Static Device)	XM-19(Nitronic 50)	
6	Stem Sleeve	50%SS+50%PTFE	
7	Extended Bonnet Gasket	316 Spiral Wound+Graphite	
8	Bolting	A2-70	
9	Bolt Nut	A2-70	
10	Washer	304	
11	Extended Bonnet	1.4408	1.4308
12	L-Stem Sleeve	50%SS+50%PTFE	
13	Packing	Graphite	
14	Bushing	304	
15	Gland	316	
16	Belleville Washer	301	
17	Stem Nut	A194-8	
18	Stop-lock-cap	304	
19	Handle Washer	304	
20	Handle Nut (DN15~DN20)	A194-8	
21	Handle (DN15~DN20)	304	
22	Lock Device (DN15~DN20)	304	
23	Handle Sleeve (DN15~DN20)	Vinyl Plastic	
24	Stop Bolt	A2-70	
25	Stop Nut	A2-70	
26	Body Gasket	316 Spiral Wound+Graphite	
27	Bolting	A320-B8	
28	Bolt Nut	A194-8	
29	Washer	304	
30	Disc Spring	Inconel X-750	
31	Seat Pressure Ring	316	304
32	Handle Adapter (DN25~DN100)	CF8	
33	Set Screwed (DN25~DN100)	A2-70	
34	Triangle Stopper (DN25~DN100)	304	
35	Pipe Handle (DN25~DN100)	A53+PLATED Zn	
36	Handle Sleeve (DN25~DN100)	VINYL PLASTIC	





EN PN 16 / 40 DIMENSION TABLE — KV-C4K-D / KV-C4N-D

Unit:mm

DN	PN	d	L	R	C	D	f	T	N	h	H	H1	W	P	M	E	U	ISO5211
15	16	15	130	45	65	95	2	16	4	14	290	322	175	11	11	50	7	F05
20	16	20	130	58	75	105	2	18	4	14	293	323	175	11	11	50	7	F05
25	16	25	140	68	85	115	2	18	4	14	318	378	300	14	14	50 / 70	7 / 9	F05~F07
32	40	32	165	78	100	140	2	18	4	18	323	383	300	14	14	50 / 70	7 / 9	F05~F07
40	40	38	165	88	110	150	3	18	4	18	365	429	400	17	17	102	11	F10
50	40	50	203	102	125	165	3	20	4	18	372	436	400	17	17	102	11	F10
65	16	63.5	222	122	145	185	3	20	4 (a)	18	457	528	600	22	22	102	11	F10
	40							22	8									
80	16	76	241	138	160	200	3	20	8	18	465	536	600	22	22	102	11	F10
	40							24										
100	16	100	305	158	180	220	3	20	8	18	580	660	800	27	27	125	14	F12
	40				190	235		24		22								

(a):4 holes is factory standard for DN65 PN16 valve and 8 holes is optional.

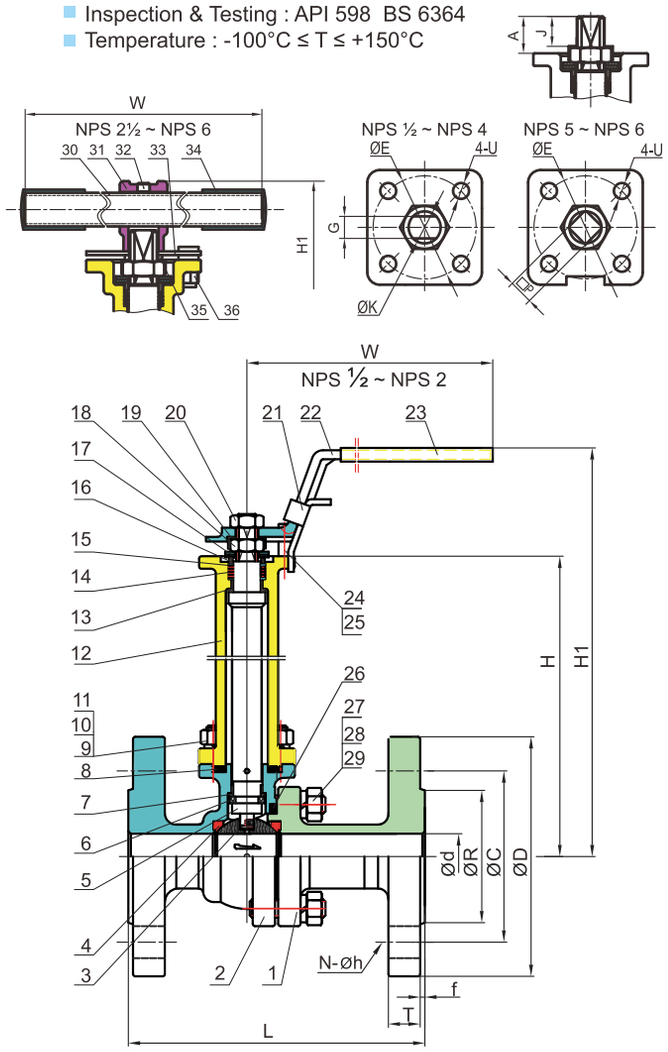
Kingdom
FLOW CONTROL CO., LTD.

Low Temperature Ball Valve, ASME
2-PC Body, Full Port, Flanged Ends Ball Valve

KV-D41 Class 150 / KV-D42 Class 300 Standard Type
KV-D61 Class 150 / KV-D62 Class 300 Fire Safe Type

Applicable Standards:

- Design : ASME B16.34
- Face to Face : ASME B16.10
- Flange Ends : ASME B16.5
- Wall Thickness : ASME B16.34
- Inspection & Testing : API 598 BS 6364
- Temperature : -100°C ≤ T ≤ +150°C



No.	PARTS NAME		MATERIASL	
1	End Cap		CF8M	CF8
2	Body		CF8M	CF8
3	Ball		316	304
4	Ball Seat		TFM1600	
5	Stem(Anti-Static Device)		316	304
6	Split Ring		316	304
7	L-stem Sleeve		TFM1600+25%GF	
8	Extended Bonnet Gasket		TFM1600/316 Spiral Wound+Graphite*	
9	Bolting		A2-70	
10	Bolt Nut		A2-70	
11	Washer		304	
12	Extended Bonnet		CF8M	CF8
13	L-Stem Sleeve		TFM1600+25%GF	
14	Packing		TFM1600/Graphite*	
15	Bushing		304	
16	Gland		316	
17	Belleville Washer		301	
18	Stem Nut		A194-8	
19	Stop-lock-cap		304	
20	Handle Nut	(NPS: ½~2)	A194-8	
21	Lock Device	(NPS: ½~2)	304	
22	Handle	(NPS: ½~2)	304	
23	Handle Sleeve	(NPS: ½~2)	Vinyl Plastic	
24	Stop Bolt	(NPS: ½~6)	A2-70	
25	Stop Washer	(NPS: ½~2)	304	
26	Body Gasket		TFM1600/316 Spiral Wound+Graphite*	
27	Bolting		A320-B8	
28	Bolt Nut		A194-8	
29	Washer		304	
30	Pipe Handle	(NPS: 2½~6)	A53+PLATED Zn	
31	Handle Adapter	(NPS: 2½~6)	CF8	
32	Set Screwed	(NPS: 2½~6)	A2-70	
33	Triangle Stopper	(NPS: 2½~6)	304	
34	Handle Sleeve	(NPS: 2½~6)	VINYL PLASTIC	
35	Handle Washer	(NPS: 2½~6)	304	
36	Stop Nut	(NPS: 2½~6)	A2-70	

*Materials for KV-D61/D62 Series (Fire Safe Models)

ASME Class 150 KV-D41/KV-D61

Unit:mm

NPS	d	L	R	C	D	f	T	N	h	W	H	H1	A	J	K	G(P)	E	U	ISO5211
½	15.0	108	35	60.3	90	2	8.0	4	16.0	137	180	228	22	10	12	6.3	42	M5	F04
¾	20.0	117	43	69.9	100	2	8.9	4	16.0	137	183	231	22	10	12	6.3	42	M5	F04
1	25.0	127	51	79.4	110	2	9.6	4	16.0	172	192	241	26	12	15	9	50	M6	F05
1¼	32.0	140	64	88.9	115	2	11.2	4	16.0	172	196	245	26	12	15	9	50	M6	F05
1½	38.0	165	73	98.4	125	2	12.7	4	16.0	202	233	276	30	15	16	9.6	70	M8	F07
2	50.0	178	92	120.7	150	2	14.3	4	19.0	202	243	286	30	15	16	9.6	70	M8	F07
2½	63.5	190	105	139.7	180	2	15.9	4	19.0	400	300	371	35	35	29	18	100	Ø11	F10
3	76.0	203	127	152.4	190	2	17.5	4	19.0	400	310	381	35	35	29	18	100	Ø11	F10
4	100.0	229	157	190.5	230	2	22.3	8	19.0	400	332	403	35	35	29	18	100	Ø11	F10
5	125.0	356	186	215.9	255	2	22.3	8	22.3	800	388	468	30	30	—	27	125	Ø17	F12
6	150.0	394	216	241.3	280	2	23.9	8	22.3	800	408	488	30	30	—	27	125	Ø17	F12

ASME Class 300 KV-D42/KV-D62

Unit:mm

NPS	d	L	R	C	D	f	T	N	h	W	H	H1	A	J	K	G(P)	E	U	ISO5211
½	15.0	140	35	66.7	95	2	12.7	4	16.0	137	180	228	22	10	12	6.3	42	M5	F04
¾	20.0	152	43	82.6	115	2	14.3	4	19.0	137	183	231	22	10	12	6.3	42	M5	F04
1	25.0	165	51	88.9	125	2	15.9	4	19.0	172	192	241	26	12	15	9	50	M6	F05
1¼	32.0	178	64	98.4	135	2	17.5	4	19.0	172	196	245	26	12	15	9	50	M6	F05
1½	38.0	190	73	114.3	155	2	19.1	4	22.3	202	233	276	30	15	16	9.6	70	M8	F07
2	50.0	216	92	127.0	165	2	20.7	4	19.0	202	243	286	30	15	16	9.6	70	M8	F07
2½	63.5	241	105	149.2	190	2	23.9	4	22.3	400	300	371	35	35	29	18	100	Ø11	F10
3	76.0	282	127	168.3	210	2	27.0	4	22.3	400	310	381	35	35	29	18	100	Ø11	F10
4	100.0	305	157	200.0	255	2	30.2	8	22.3	400	332	403	35	35	29	18	100	Ø11	F10
5	125.0	381	186	235.0	280	2	33.4	8	22.3	800	388	468	30	30	—	27	125	Ø17	F12
6	150.0	403	216	269.9	320	2	35.0	8	22.3	800	408	488	30	30	—	27	125	Ø17	F12

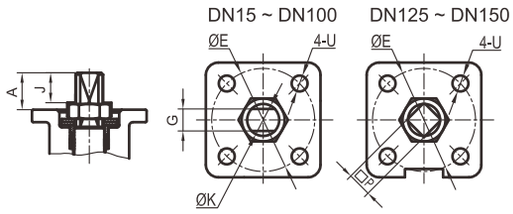
Kingdom
FLOW CONTROL CO., LTD.

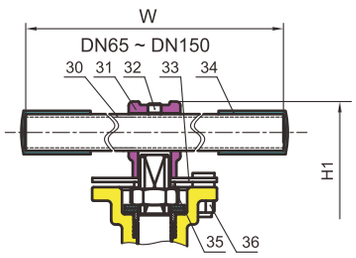
Low Temperature Ball Valve, EN
2-PC Body, Flanged Ends, Full Port

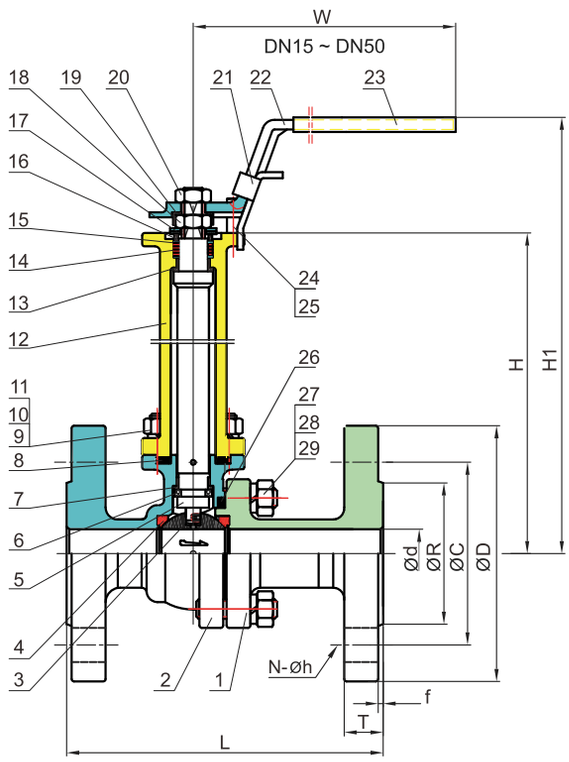
KV-D4K PN16 / KV-D4N PN40 Standard Type
KV-D6K PN16 / KV-D6N PN40 Fire Safe Type

Applicable Standards:

- Design : EN 12516
- Face to Face : EN 558
- Flange Ends : EN 1092-1
- Wall Thickness : EN 12516
- Inspection & Testing : EN 12266-1 BS 6364
- Temperature : -100°C ≤ T ≤ +150°C







No.	PARTS NAME	MATERIALS	
1	End Cap	1.4408	1.4308
2	Body	1.4408	1.4308
3	Ball	316	304
4	Ball Seat	TFM1600	
5	Stem(Anti-Static Device)	316	304
6	Split Ring	316	304
7	L-stem Sleeve	TFM1600+25%GF	
8	Extended Bonnet Gasket	TFM1600/316 Spiral Wound+Graphite*	
9	Bolting	A2-70	
10	Bolt Nut	A2-70	
11	Washer	304	
12	Extended Bonnet	1.4408	1.4308
13	L-Stem Sleeve	TFM1600+25%GF	
14	Packing	TFM1600/ Graphite*	
15	Bushing	304	
16	Gland	316	
17	Belleville Washer	301	
18	Stem Nut	A194-8	
19	Stop-lock-cap	304	
20	Handle Nut (DN15~DN50)	A194-8	
21	Lock Device (DN15~DN50)	304	
22	Handle (DN15~DN50)	304	
23	Handle Sleeve (DN15~DN50)	Vinyl Plastic	
24	Stop Bolt (DN15~DN150)	A2-70	
25	Stop Washer (DN15~DN50)	304	
26	Body Gasket	TFM1600/316 Spiral Wound+Graphite*	
27	Bolting	A2-70	
28	Bolt Nut	A2-70	
29	Washer	304	
30	Pipe Handle (DN65~DN150)	A53+PLATED Zn	
31	Handle Adapter (DN65~DN150)	CF8	
32	Set Screwed (DN65~DN150)	A2-70	
33	Triangle Stopper (DN65~DN150)	304	
34	Handle Sleeve (DN65~DN150)	VINYL PLASTIC	
35	Handle Washer (DN65~DN150)	304	
36	Stop Nut (DN65~DN150)	A2-70	

*Materials for KV-D6K/D6N Series(Fire Safe Models)

EN PN16 / 40

Unit:mm

DN	PN	d	L	R	C	D	f	T	N	h	W	H	H1	A	J	K	G(P)	E	U	ISO5211
15	16	15.0	130	45	65	95	2	16	4	14	135	180	228	22	10	12	6.3	42	M5	F04
20	16	20.0	130	58	75	105	2	18	4	14	135	183	231	22	10	12	6.3	42	M5	F04
25	16	25.0	140	68	85	115	3	18	4	14	170	192	241	26	12	15	9	50	M6	F05
32	40	32.0	165	78	100	140	3	18	4	18	170	196	245	26	12	15	9	50	M6	F05
40	40	38.0	165	88	110	150	3	18	4	18	200	233	276	30	15	16	9.6	70	M8	F07
50	40	50.0	203	102	125	165	3	20	4	18	200	243	286	30	15	16	9.6	70	M8	F07
65	16	63.5	222	122	145	185	3	18	4(a)	18	400	300	371	35	35	29	18	100	Ø11	F10
	40							22	8											
80	16	76.0	241	138	160	200	3	20	8	18	400	310	381	35	35	29	18	100	Ø11	F10
	40							24												
100	16	100.0	305	158	180	220	3	20	8	18	400	332	403	35	35	29	18	100	Ø11	F10
	40			162	190	235		24		22										
125	16	125.0	356	188	210	250	3	22	8	18	800	388	468	30	30	—	27	125	Ø17	F12
	40		381		220	270		26		26										
150	16	150.0	394	212	240	285	3	22	8	22	800	408	488	30	30	—	27	125	Ø17	F12
	40		403	218	250	300		28		26										

(a):4 holes is factory standard for DN65 PN16 valve and 8 holes is optional.

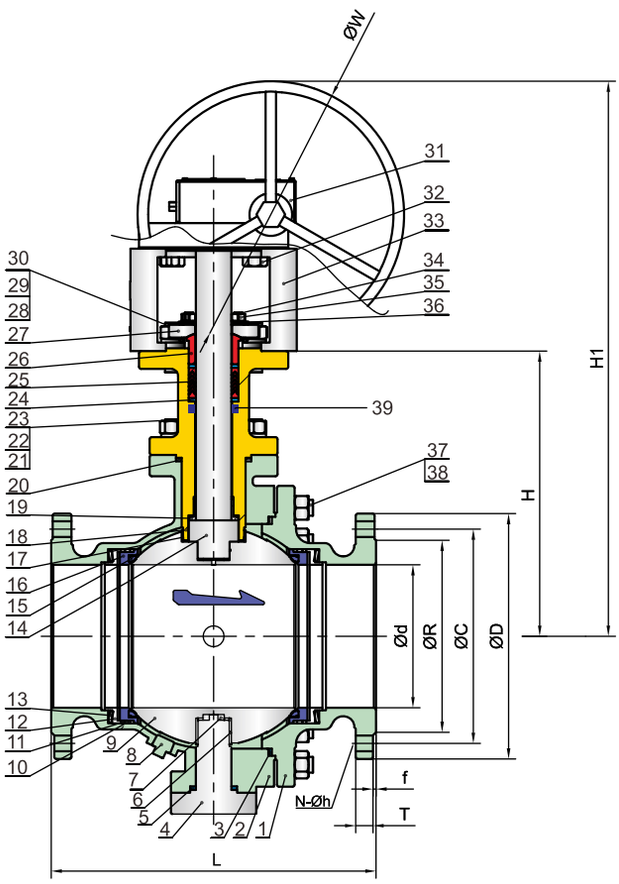
KI Kingdom
FLOW CONTROL CO., LTD.

Low Temperature Ball Valve, ASME
2-PC Body, Full Port, Flanged Ends Ball Valve

KV-D441 Class 150 / KV-D442 Class 300 Standard Type
KV-D641 Class 150 / KV-D642 Class 300 Fire Safe Type

Applicable Standards:

- Design : ASME B16.34
- Face to Face : ASME B16.10
- Flange Ends : ASME B16.5
- Wall Thickness : ASME B16.34
- Inspection & Testing : API 598, BS 6364
- Temperature : -100°C ≤ T ≤ +150°C



No.	PARTS NAME	MATERIALS	
1	End Cap	CF8M	CF8
2	Body	CF8M	CF8
3	Body Gasket	TFM1600 / 316 Spiral Wound+Graphite*	
4	Bottom Stem	316	304
5	Bottom Stem Gasket	TFM1600 / 316 Spiral Wound+Graphite*	
6	Stem Sleeve	316+PTFE	
7	Bushing	50%SS+50%PTFE	
8	Drain Plug	316	304
9	Ball	316	304
10	Seal Ring	Graphite	
11	Seat Backing Ring	316	304
12	Pressure Ring	316	304
13	Disc spring / Column spring(b)	17-7PH	
14	Stem	316	304
15	Sealing Pair	TFM1600	
16	Seat	316	304
17	Wear Sleeve	316+PTFE	
18	Extended Bonnet	CF8M	CF8
19	L-Stem Sleeve	50%SS+50%PTFE	
20	Extended Bonnet Gasket	TFM1600 / 316 Spiral Wound+Graphite*	
21	Bolting	A2-70	
22	Bolt Nut	A2-70	
23	Washer	304	
24	Bushing	316	304
25	Packing	TFM1600/Graphite*	
26	Gland	316	304
27	Packing Gland	316	304
28	Bolting	A2-70	
29	Bolt Nut	A2-70	
30	Washer	304	
31	Worm Gear	Assembly	
32	Hexagon Bolt	A2-70	
33	Yoke	WCB	
34	Bolting	A2-70	
35	Bolt Nut	A2-70	
36	Belleville Spring	301	
37	Bolting	A320-B8	
38	Bolt Nut	A194-8	
39	O-ring	FKM	

(b) Disc spring(NPS5~NPS8),Column spring (NPS10~NPS24)
*Materials for KV-D641/D642 Series (Fire Safe Models)

ASME Class 150 DIMENSION TABLE — KV-D441 / KV-D641

Unit:mm

NPS	d	L	R	D	C	T	f	N	h	W	H	H1	ISO5211
5	125	356	185.7	255	215.9	22.3	2	8	22.3	360	344	701	F16
6	150	394	215.9	280	241.3	23.9	2	8	22.3	360	405	762	F16
8	201	457	269.9	345	298.5	27.0	2	8	22.3	460	405	833	F16
10	252	533	323.8	405	362.0	28.6	2	12	25.4	600	478	966	F16
12	303	610	381.0	485	431.8	30.2	2	12	25.4	600	510	984	F25
14	337	686	412.8	535	476.3	33.4	2	12	25.4	600	597	1166	F25
16	388	762	469.9	595	539.8	35.0	2	16	28.6	600	628	1227	F25
18	438	864	533.4	635	577.9	38.1	2	16	31.8	600	679	1278	F25
20	489	914	584.2	700	635.0	41.3	2	20	31.8	600	680	1445	F30
24	590	1067	692.2	815	749.3	46.1	2	20	35.0	600	803	1618	F30

ASME Class 300 DIMENSION TABLE — KV-D442 / KV-D642

Unit:mm

NPS	d	L	R	D	C	T	f	N	h	W	H	H1	ISO5211
5	125	381	185.7	280	235.0	33.4	2	8	22.3	360	344	701	F16
6	150	403	215.9	320	269.9	35.0	2	12	22.3	360	405	762	F16
8	201	502	269.9	380	330.2	39.7	2	12	25.4	460	405	833	F16
10	252	568	323.8	445	387.4	46.1	2	16	28.6	600	478	966	F16
12	303	648	381.0	520	450.8	49.3	2	16	31.8	600	510	984	F25
14	337	762	412.8	585	514.4	52.4	2	20	31.8	600	597	1166	F25
16	388	838	469.9	650	571.5	55.6	2	20	35	600	628	1227	F25
18	438	914	533.4	710	628.6	58.8	2	24	35	600	679	1278	F25
20	489	991	584.2	775	685.8	62.0	2	24	35	600	680	1445	F30
24	590	1143	692.2	915	812.8	68.3	2	24	41.3	600	803	1618	F30

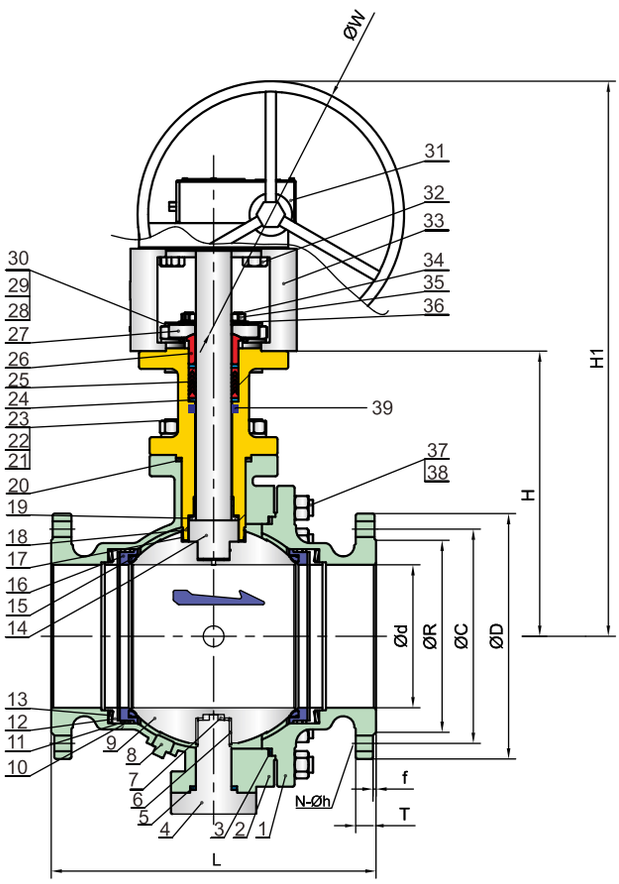
Kingdom
FLOW CONTROL CO., LTD.

Low Temperature Ball Valve, EN
2-PC Body, Full Port, Flanged Ends Ball Valve

KV-D44K PN16 / KV-D44N PN40 Standard Type
KV-D64K PN16 / KV-D64N PN40 FireSafe Type

Applicable Standards:

- Design : EN 12516
- Face to Face : EN 558
- Flange Ends : EN 1092-1
- Wall Thickness : EN 12516
- Inspection & Testing : EN 12266-1, BS 6364
- Temperature : -100°C ≤ T ≤ +150°C



No.	PARTS NAME	MATERIALS	
1	End Cap	1.4408	1.4308
2	Body	1.4408	1.4308
3	Body Gasket	TFM1600 / 316 Spiral Wound+Graphite*	
4	Bottom Stem	316	304
5	Bottom Stem Gasket	TFM1600 / 316 Spiral Wound+Graphite*	
6	Stem Sleeve	316+PTFE	
7	Bushing	50%SS+50%PTFE	
8	Drain Plug	316	304
9	Ball	316	304
10	Seal Ring	Graphite	
11	Seat Backing Ring	316	304
12	Pressure Ring	316	304
13	Disc spring / Column spring(b)	17-7PH	
14	Stem	316	304
15	Sealing Pair	TFM1600	
16	Seat	316	304
17	Wear Sleeve	316+PTFE	
18	Extended Bonnet	1.4408	1.4308
19	L-Stem Sleeve	50%SS+50%PTFE	
20	Extended Bonnet Gasket	TFM1600 / 316 Spiral Wound+Graphite*	
21	Bolting	A2-70	
22	Bolt Nut	A2-70	
23	Washer	304	
24	Bushing	316	304
25	Packing	TFM1600/Graphite*	
26	Gland	316	304
27	Packing Gland	316	304
28	Bolting	A2-70	
29	Bolt Nut	A2-70	
30	Washer	304	
31	Worm Gear	Assembly	
32	Hexagon Bolt	A2-70	
33	Yoke	WCB	
34	Bolting	A2-70	
35	Bolt Nut	A2-70	
36	Belleville Spring	301	
37	Bolting	A320-B8	
38	Bolt Nut	A194-8	
39	O-ring	FKM	

(b) Disc spring (DN125~DN200), Column spring (DN250~DN600)
*Materials for KV-D64K/D64N Series (Fire Safe Models)

EN PN 16 DIMENSION TABLE — KV-D44K / KV-D64K

Unit:mm

DN	d	L	R	D	C	T	f	N	h	W	H	H1	ISO5211
125	125	356	188	250	210	22	3	8	18	360	344	701	F16
150	150	394	212	285	240	22	3	8	22	360	405	762	F16
200	201	457	268	340	295	24	3	12	22	460	405	833	F16
250	252	533	320	405	355	26	3	12	26	600	478	966	F16
300	303	610	378	460	410	28	4	12	26	600	510	984	F25
350	337	686	438	520	470	30	4	16	26	600	597	1166	F25
400	388	762	490	580	525	32	4	16	30	600	628	1227	F25
450	438	864	550	640	585	40	4	20	30	600	679	1278	F25
500	489	914	610	715	650	44	4	20	33	600	680	1445	F30
600	590	1067	725	840	770	54	5	20	36	600	803	1618	F30

EN PN 40 DIMENSION TABLE — KV-D44N / KV-D64N

Unit:mm

DN	d	L	R	D	C	T	f	N	h	W	H	H1	ISO5211
125	125	381	188	270	220	26	3	8	26	360	344	701	F16
150	150	403	218	300	250	28	3	8	26	360	405	762	F16
200	201	502	285	375	320	34	3	12	30	460	405	833	F16
250	252	568	345	450	385	38	3	12	33	600	478	966	F16
300	303	648	410	515	450	42	4	16	33	600	510	984	F25
350	337	762	465	580	510	46	4	16	36	600	597	1166	F25
400	388	838	535	660	585	50	4	16	39	600	628	1227	F25
450	438	914	560	685	610	57	4	20	39	600	679	1278	F25
500	489	991	615	755	670	57	4	20	42	600	680	1445	F30
600	590	1143	735	890	795	72	5	20	48	600	803	1618	F30

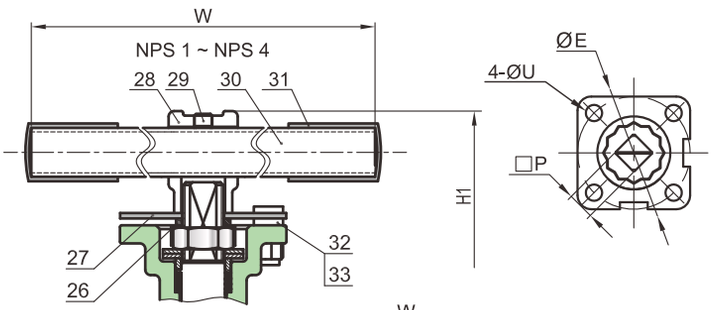
Kingdom
FLOW CONTROL CO., LTD.

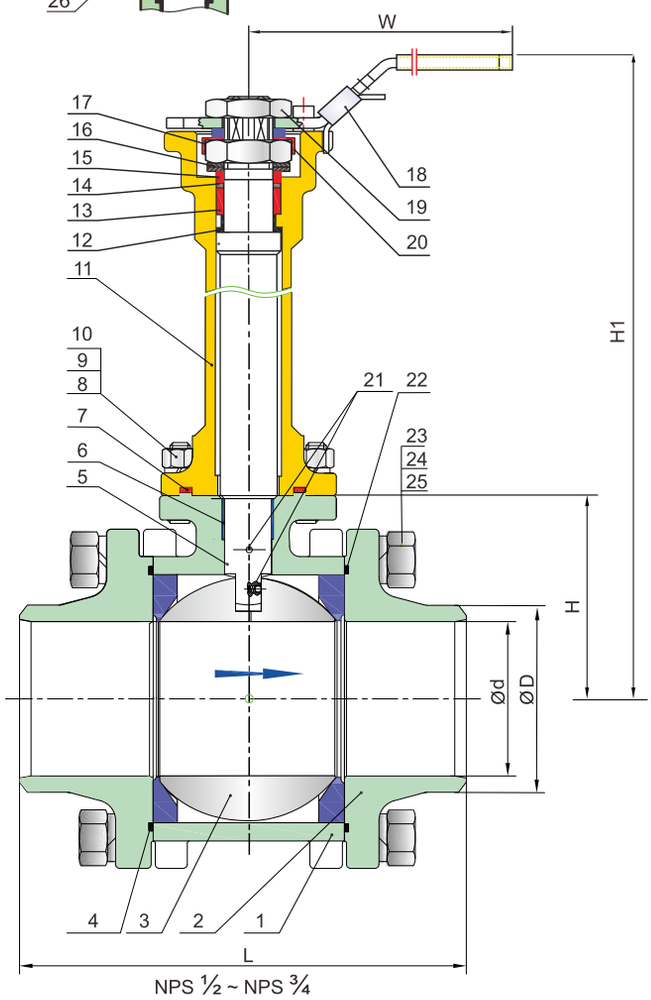
3-PC Body, 1000PSI, Welding Ends, Full Port

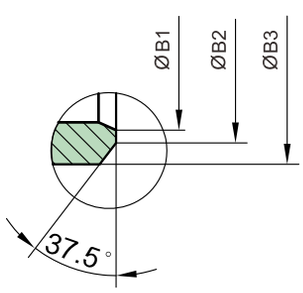
KV-C31 Cryogentic ball valve

Applicable Standards:

- Design : ASME B16.34, BS 6364
- Face to Face : ASME B 16.10 (NPS1/2～NPS2)
  DIN 3202 S13 (NPS2-1/2～NPS4)
- Welding Ends : ASME B16.25
- Wall Thickness : ASME B16.34
- Inspection & Testing : API 598, BS 6364
- Temperature : -196°C ≤ T ≤ +150°C







No.	Parts Name	Material	
1	Body	CF8M	CF8
2	Cap	CF3M	CF8
3	Ball	316+ENP	304+ENP
4	Ball Seats	PCTFE	
5	Stem	XM-19(Nitronic 50)	
6	Stem Sleeve	50%SS+50%PTFE	
7	Extended Bonnet Gasket	316 Spiral Wound+Graphite	
8	Bolt	A320-B8	
9	Nut	A194-8	
10	Bushing	304	
11	Extention Bonnet	CF8M	CF8
12	Sleeve	50%SS+50%PTFE	
13	Packing	Graphite	
14	Bushing	304	
15	Gland	316	304
16	Belleville Washer	301	
17	Stem Nut	A194-8	
18	Handle(NPS: ½ ~ ¾)	304	
19	Handle Nut (NPS: ½ ~ ¾)	A194-8	
20	Handle Washer	304	
21	Anti-Static Device	304	
22	Body Gasket	316 Spiral Wound+Graphite	
23	Bolt	A320-B8	
24	Nut	A194-8	
25	Washer	304	
26	Stop-lock Cap	304	
27	Triangle Stopper (NPS: 1 ~ 4)	304	
28	Handle Adaptor (NPS: 1 ~ 4)	CF8	
29	Set Screwed (NPS: 1 ~ 4)	A2-70	
30	Pipe Handle (NPS: 1 ~ 4)	A53+Zn Plated	
31	Handle Sleeve (NPS: 1 ~ 4)	VINYL PLASTIC	
32	Stop Nut	A2-70	
33	Stop Bolt	A2-70	

ANSI 1000WOG DIMENSION TABLE KV-C31

Unit: mm

NPS	d	L	B1	B2	B3	H	H1	W	M	P	E	U	ISO5211
½	15	140	15	18	23	45	320	175	11	11	50	7	F05
¾	20	152	20	23	28	48	323	175	11	11	50	7	F05
1	25	165	26.7	29	34	56	378	300	14	14	50 / 70	7 / 9	F05~F07
1¼	32	178	35.1	37.3	43	60	383	300	14	14	50 / 70	7 / 9	F05~F07
1½	38	190	40.9	43	50	65	428	400	17	17	102	11	F10
2	50	216	52.5	54.5	63	72	435	400	17	17	102	11	F10
2½	63.5	190	62.7	66.7	78	92	526	600	22	22	102	11	F10
3	76	220	78.0	82.0	92	100	534	600	22	22	102	11	F10
4	100	270	102.4	106.4	115	130	660	800	27	27	125	14	F12

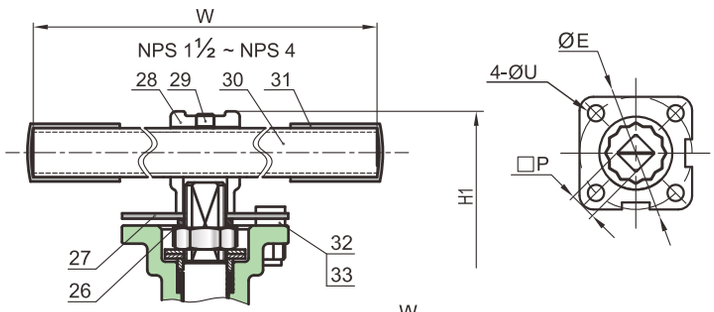
Kingdom
FLOW CONTROL CO., LTD.

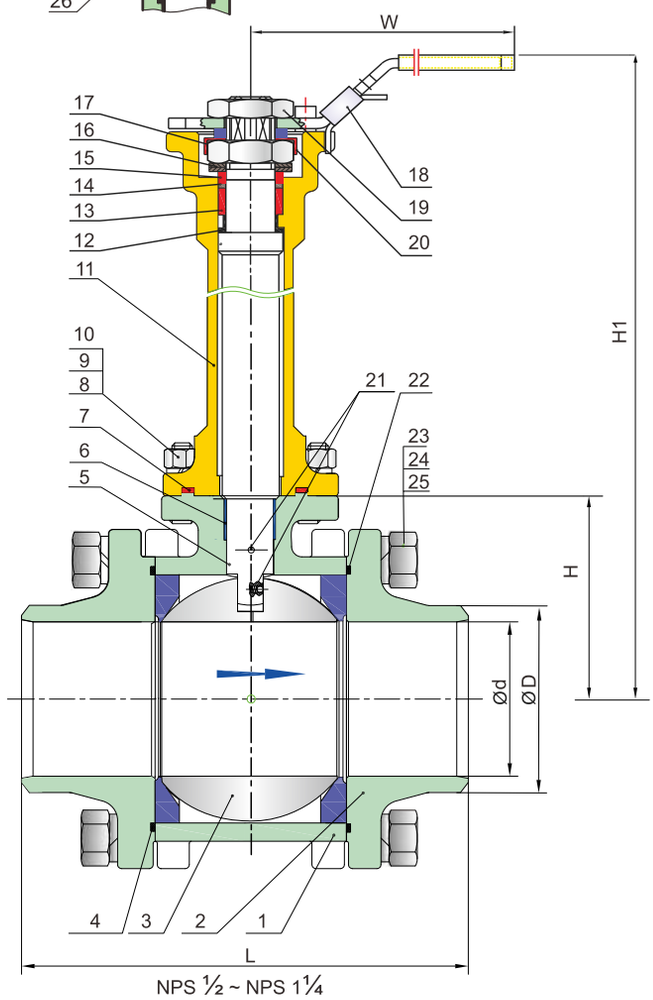
3-PC Body, 1000PSI, Welding Ends, Full Port

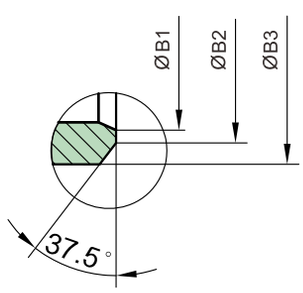
KV-D31 Low Temperature ball valve

Applicable Standards:

- Design : ASME B16.34, BS 6364
- Face to Face : ASME B 16.10 (NPS1/2～NPS2)
  DIN 3202 S13 (NPS2-1/2～NPS4)
- Welding Ends : ASME B16.25
- Wall Thickness : ASME B16.34
- Inspection & Testing : API 598, BS 6364
- Temperature : -100°C ≤ T ≤ +150°C







No.	Parts Name	Material	
1	Body	CF8M	CF8
2	Cap	CF3M	CF8
3	Ball	316	304
4	Ball Seats	TFM1600	
5	Stem	F316	F304
6	Stem Sleeve	50%SS+50%PTFE	
7	Extended Bonnet Gasket	316 Spiral Wound+Graphite	
8	Bolt	A320-B8	
9	Nut	A194-8	
10	Bushing	304	
11	Extention Bonnet	CF8M	CF8
12	Sleeve	50%SS+50%PTFE	
13	Packing	Graphite	
14	Bushing	304	
15	Gland	316	304
16	Belleville Washer	301	
17	Stem Nut	A194-8	
18	Handle(NPS: ½ ~ 1¼)	304	
19	Handle Nut (NPS: ½ ~ 1¼)	A194-8	
20	Handle Washer	304	
21	Anti-Static Device	304	
22	Body Gasket	316 Spiral Wound+Graphite	
23	Bolt	A320-B8	
24	Nut	A194-8	
25	Washer	304	
26	Stop-lock Cap	304	
27	Triangle Stopper (NPS: 1½ ~ 4)	304	
28	Handle Adaptor (NPS: 1½ ~ 4)	CF8	
29	Set Screwed (NPS: 1½ ~ 4)	A2-70	
30	Pipe Handle (NPS: 1½ ~ 4)	A53+Zn Plated	
31	Handle Sleeve (NPS: 1½ ~ 4)	VINYL PLASTIC	
32	Stop Nut	A2-70	
33	Stop Bolt	A2-70	

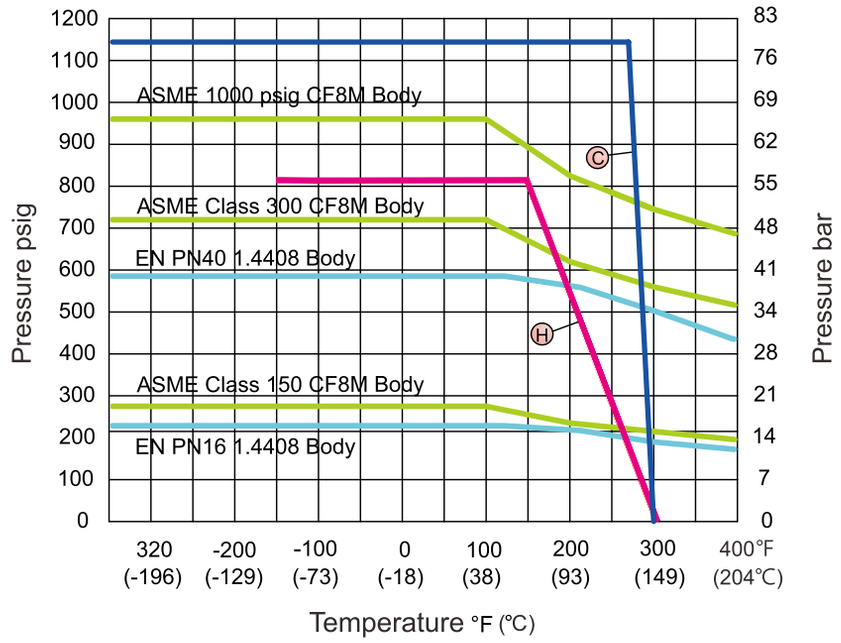
ANSI 1000WOG DIMENSION TABLE KV-D31

Unit: mm

NPS	d	L	B1	B2	B3	H	H1	W	M	P	E	U	ISO5211
½	15	140	15	18	23	45	320	175	11	11	50	7	F05
¾	20	152	20	23	28	48	323	175	11	11	50	7	F05
1	25	165	26.7	29	34	56	350	190	14	14	50 / 70	7 / 9	F05~F07
1¼	32	178	35.1	37.3	43	60	355	190	14	14	50 / 70	7 / 9	F05~F07
1½	38	190	40.9	43	50	65	428	300	17	17	102	11	F10
2	50	216	52.5	54.5	63	72	435	300	17	17	102	11	F10
2½	63.5	190	62.7	66.7	78	92	526	400	22	22	102	11	F10
3	76	220	78.0	82.0	92	100	534	400	22	22	102	11	F10
4	100	270	102.4	106.4	115	130	660	600	27	27	125	14	F12

Pressure-Temperature Data

The pressure-temperature data of ball valves is determined not only by valve shell materials but also by sealing materials used for ball seats, gland packings and flange gaskets.



Seat Materials: Ⓗ TFM1600: Low Temperature Ball Valve Ⓒ PCTFE: Cryogenic Ball Valve

Torque Figure

KV-C41-D / KV-C42-D / KV-C4K-D / KV-C4N-D / KV-C31 (PCTFE)

Unit: N·m

SIZE	DN	15	20	25	32	40	50	65	80	100
	NPS	½	¾	1	1¼	1½	2	2½	3	4
Torque Figure	CL150	26	34	54	62	100	120	240	300	380
	CL300	32	38	60	70	130	150	300	380	460
	PN16	25	32	52	60	90	110	220	280	350
	PN40	30	36	58	68	120	140	280	350	430

KV-D41 / KV-D61 / KV-D42 / KV-D62 / KV-D4K/KV-D6K/KV-D4N/KV-D6N/KV-D31 (TFM1600)

Unit: N·m

SIZE	DN	15	20	25	32	40	50	65	80	100	125	150
	NPS	½	¾	1	1¼	1½	2	2½	3	4	5	6
Torque Figure	CL150	6	8	13	18	24	35	62	100	140	300	430
	CL300	8	10	15	22	30	45	70	115	170	360	650
	PN16	6	8	13	16	22	32	60	95	130	280	400
	PN40	8	10	15	20	28	40	66	110	160	340	600

KV-D441 / KV-D641 / KV-D442 / KV-D642 / KV-D44K/KV-D64K/KV-D44N/KV-D64N (TFM1600)

Unit: N·m

SIZE	DN	125	150	200	250	300	350	400	450	500	600
	NPS	5	6	8	10	12	14	16	18	20	24
Torque Figure	CL150	270	500	720	1200	1800	2500	3600	4500	6000	9000
	CL300	350	550	880	2200	2700	3800	5500	6500	8800	14000
	PN16	250	480	700	1100	1600	2300	3300	4200	5600	10000
	PN40	310	530	840	1650	2400	3300	5000	6000	8000	12000

Remarks:
Please consult with KI for any further information.

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