



CRYOGENIC VALVES

Trunnion

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Floating Ball

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CRYOGENIC VALVES

General



Habonim's cryogenic product line valves are subject to the general Habonim valves design, materials, practices, methodologies and certifications – for more information, see Valves General chapter.



Habonim cryogenic valves are equipped with the Total HermetiX integrity package for superior sealing, safety and environmental care.

Cleaning, Assembling and Packing

Cryogenic Service

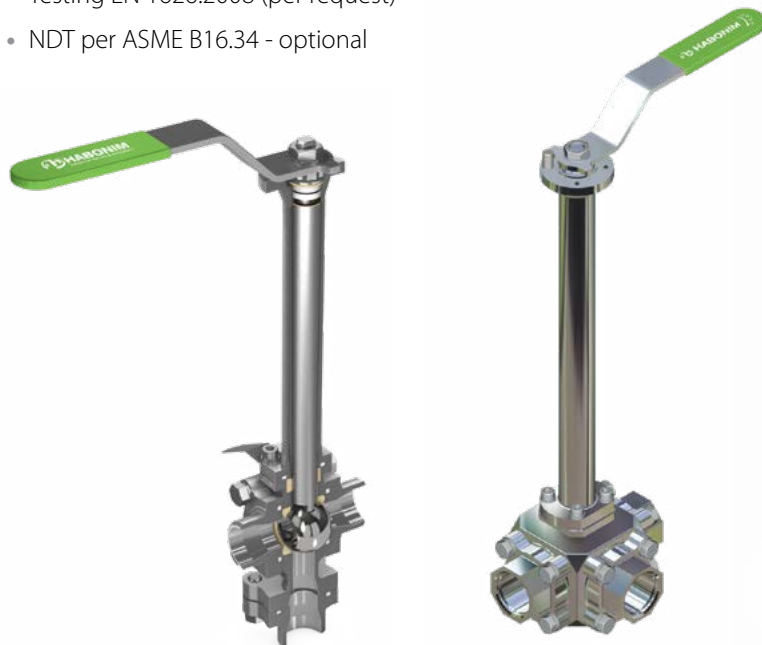
A meticulous cleaning and assembly procedure eliminate the ignition hazards that can be caused by the presence of hydrocarbon oil, grease, and metal chips. Habonim uses an environment friendly, alkaline-based degreasing process with controlled parameters. Valves are assembled in an controlled area by personnel who are specially equipped and trained to perform this task. The assembling area, work surfaces, equipment and tools are specially maintained to ensure cleanliness requirements are met.

- Valves are cleaned and degreased for oxygen service
- Valves ends are capped, valves are plastic bagged
- A sticker on the plastic bag indicating "cryogenic use"

Quality

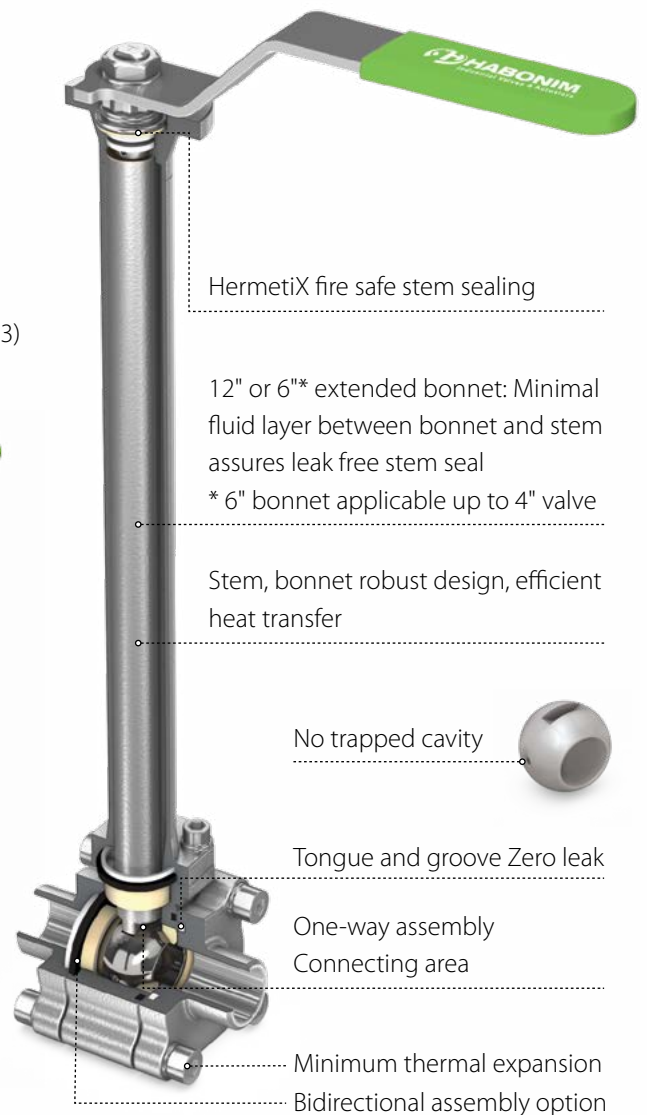
Reference standards

- Design, testing & inspection according to BS 6364:1984 (amendment 3)
- Testing EN 14432:2014
- Testing EN 1626:2008 (per request)
- NDT per ASME B16.34 - optional



Diverter valve

Multiport valve



CRYOGENIC VALVES

One-Way Assembly

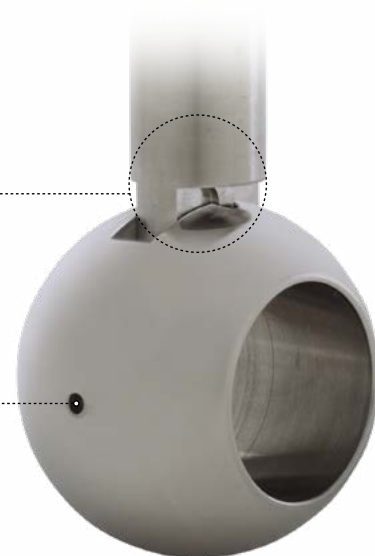
An integral rib is machined at one of the stem flats to match a groove in the ball that faces the relief hole. A "T" mark on the stem tip shows the relief hole direction. These two features ensure a one-way assembly for safe operation and maintenance.

No-Trap Cavity

Each cryogenic valve is equipped with a mechanism that prevents pressure buildup in the valve cavity, eliminating the risk that liquefied-gas evaporation will over - pressure the valve body by releasing over-pressured media from the cavity area back to the line.

Habonim uses a variety of such mechanisms:

- Relief hole on the upstream sphere of the ball to prevent pressure buildup in the cavity
- Spring loaded seat construction with piston effect for cavity pressure relief
- Single seat active seal construction - no closed cavity



"T" mark on stem showing the relief hole direction





Minimal Thermal Expansion

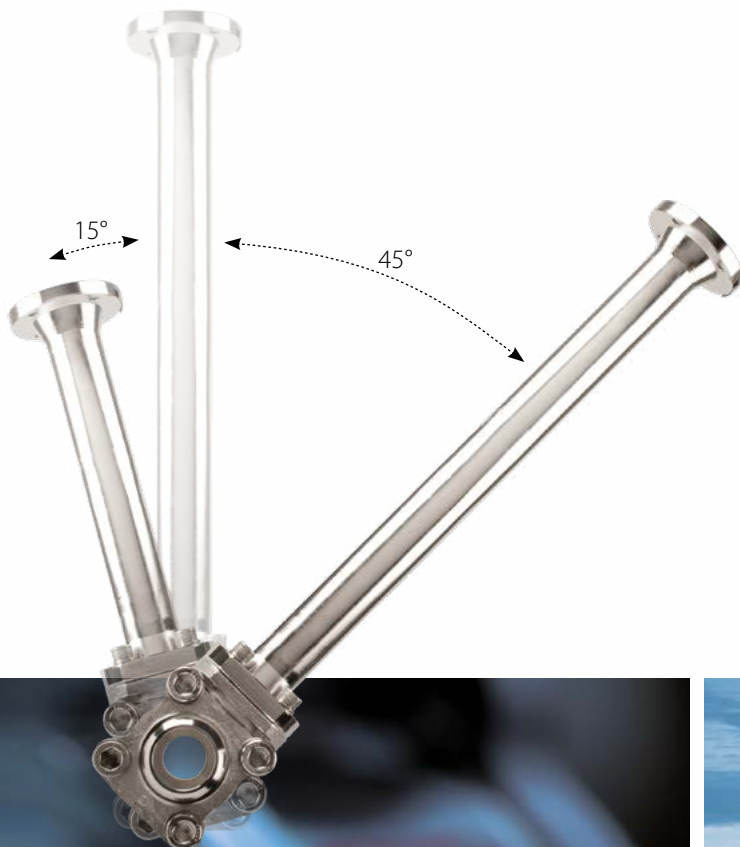
Using one-size-up and double the amount of body bolts reduces linear thermal expansion and dramatically decreases the likelihood of leakage to the atmosphere.

Efficient Heat Transfer

The Habonim standard bonnet length design complies with BS6364 for non-cold-box applications. The long neck bonnet insulates the stem seal from the low temperatures of cryogenic fluids, thus enabling safe and long lasting seal service. A small gap between the bonnet ID and the stem OD, ensures a thick layer between the media and the stem seal.

Inclination Limitation

The Habonim bonnet design comes in two optional versions. Both are designed to prevent cryogenic liquids from reaching the stem seal. Habonim recommends installation in the vertical position, but allows installation at an angle. The 12" bonnet can be installed up to 45° from the vertical axis to maintain fully BS6364 compliant. The 6" bonnet can be installed up to 15° from the vertical axis.



Indicator on the extended bonnet top



Indicator on valve body



DC47

C61

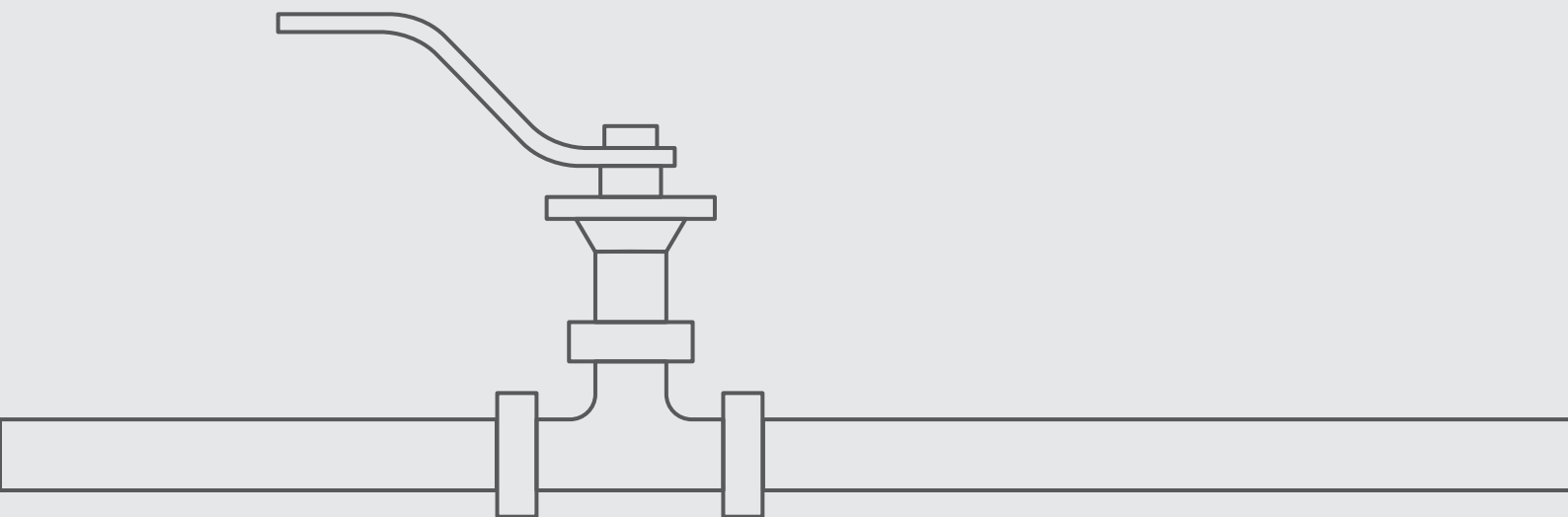
C62



Cryogenic Valves

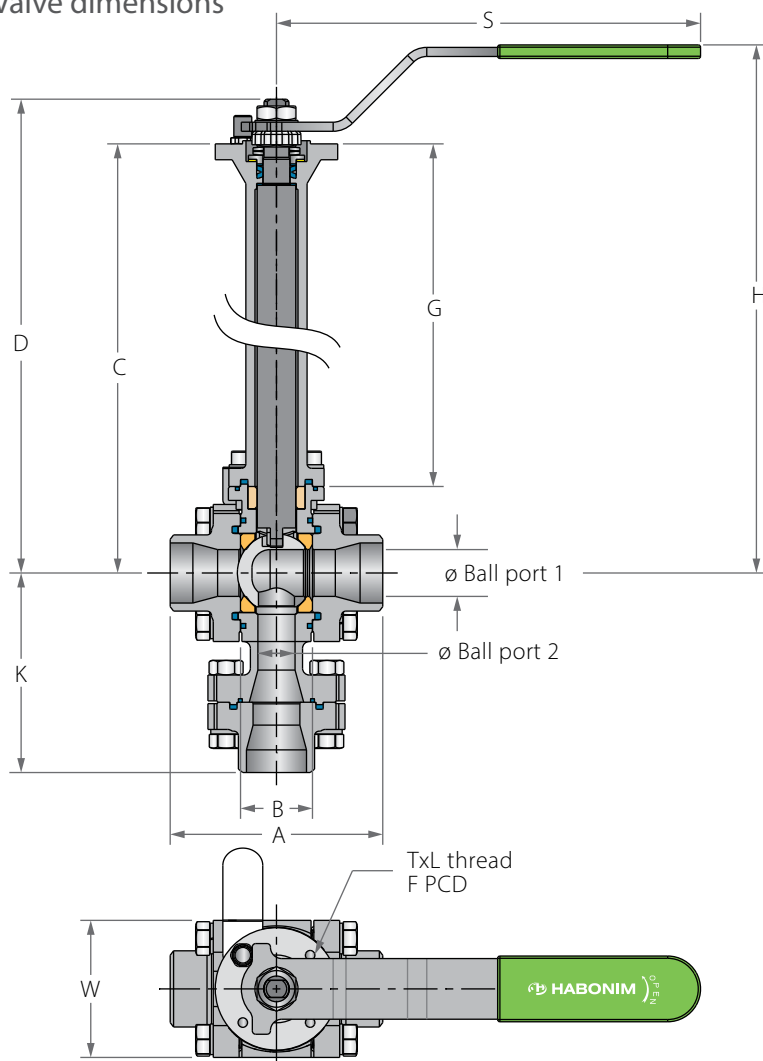
FLOATING BALL

DIVERter
MULTIport

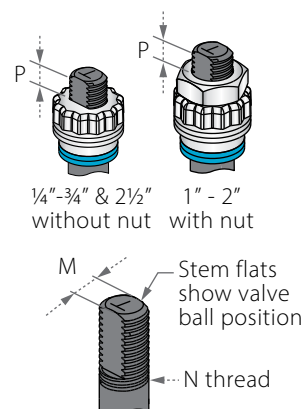


Cryogenic Diverter Bottom Entry Floating Ball

Valve dimensions



Preparation for actuation

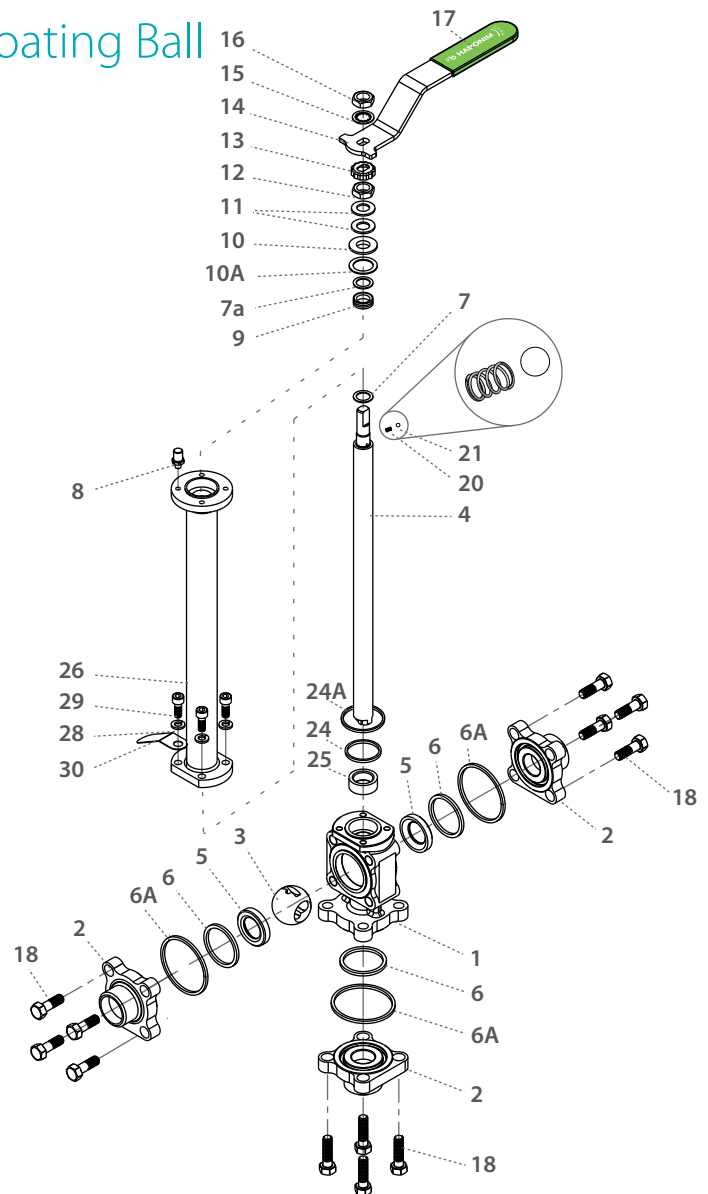


Std. port	Full Port	Unit	Ball port1	Ball port2	A	B	Standard design				6.0" bonnet				K	S	W	M	N	P	F	TxL	Weight kg/lb	
							C	D	G	H	C	D	G	H									Std.	6.0 Bonnet
DN15	DN10	mm	10.5	9.5	65.8	20.6	333	341.9	304	367.3	181.4	190.3	152.4	215.7	88.2	150	45.8	5.5	3/8" UNF	7.2 (F03)	36	MSX7	1.79	1.47
½"	3/8"	inch	0.41	0.37	2.59	0.81	13.11	13.46	11.97	14.46	7.14	7.49	6	8.49	3.47	5.91	1.8	0.22		0.28	1.42		3.93	3.23
DN20	DN15	mm	14.3	11.9	70.55	24.55	335.4	344.3	304	369.6	183.8	192.7	152.4	218	93.7	150	52.1	5.5	3/8" UNF	7.2 (F03)	36	MSX7	1.52	1.20
¾"	½"	inch	0.56	0.47	2.78	0.97	13.2	13.56	11.97	14.55	7.24	7.59	6	8.58	3.69	5.91	2.05	0.22		0.28	1.42		3.35	2.64
DN25	DN20	mm	20.65	15.9	93.75	31.75	342.15	359.65	304	387	190.55	208.05	152.4	235.4	119	187	60.45	7.54	7/16" UNF	7.2 (F04)	42	MSX7	3.19	2.84
1"	¾"	inch	0.81	0.63	3.69	1.25	13.47	14.16	11.97	15.24	7.5	8.19	6	9.27	4.69	7.32	2.38	0.3		0.28	1.65		7.02	6.25
DN32	DN25	mm	25.4	20.5	108	41.25	346.65	364.15	304	388	195.05	212.55	152.4	236.4	130.15	187	68.8	7.54	7/16" UNF	7.2 (F04)	42	MSX7	4.21	3.75
1 ¼"	1"	inch	1	0.81	4.25	1.62	13.65	14.34	11.97	15.28	7.68	8.37	6	9.31	5.12	7.36	2.71	0.3		0.28	1.65		9.25	8.24
DN40	DN32	mm	26.6	31.8	115.35	48.35	347.55	377.05	304	404	195.95	225.45	152.4	252.4	139	237	79.15	8.71	9/16" UNF	8 (F05)	50	M6X8	5.22	4.65
1 ½"	1 ¼"	inch	1.05	1.25	4.54	1.90	13.68	14.84	11.97	15.91	7.71	8.88	6	9.94	5.47	9.29	3.12	0.34		0.31	1.97		11.51	10.25
DN50	DN40	mm	38.15	35	127.9	56.3	352.25	381.75	304	409	200.65	230.15	152.4	257.4	149.45	237	90.7	8.71	9/16" UNF	8.5 (F05)	50	M6X8	6.68	6.11
2"	1 ½"	inch	1.50	1.38	5.04	2.22	13.87	15.03	11.97	16.1	7.90	9.06	6	10.13	5.88	9.29	3.57	0.34		0.33	1.97		14.72	13.47



Cryogenic Diverter Bottom Entry Floating Ball

Components & materials



Item	Description	Material specifications	Qty.
1	Body	Acc. Ordering Code	1
2	End	Acc. Ordering Code	3
3	Ball	Acc. Ordering Code	1
4	Stem	Acc. Ordering Code	1
5*	Seat	Acc. Ordering Code	2
6*	Body seal	TFM	3
6A*	Secondary Seal	Graphite, TFM	2
7*	Stem thrust seal	PCTFE	1
7a*	Anti-abrasion ring	PCTFE	1
8	Stop pin	S. Steel	1
9*	Stem seal	TFM	1
10	Follower	S. Steel	1
10A	Slide bearing	S. Steel	1
11	Disc spring	S. Steel	2
12	Stem nut	S. Steel	1
13	Locking clip	S. Steel	1
14	Handle	S. Steel	1

Item	Description	Material specifications	Qty.
15	Serrated washer	S. Steel	1
16	Handle nut	S. Steel	1
17	Sleeve	PVC	1
18	Body bolt	S. Steel	12
20	Anti-static spring	S. Steel	1
21	Anti-static plunger	S. Steel	1
23	Tag (not shown)	S. Steel	1
24*	Bonnet seal	TFM	1
24A*	Bonnet Secondary Seal	Acc. Ordering Code	1
25*	Stem bearing	PTFE	1
26	Bonnet	S. Steel	1
28	Bolt	S. Steel	12
30	Dog tag	S. Steel	1
26	Bonnet	S. Steel	1
28	Bolt	S. Steel	4
30	Dog tag	S. Steel	1

* Repair kit components

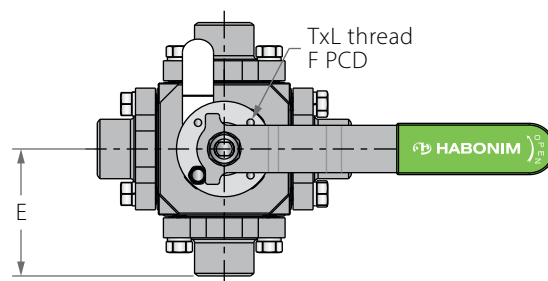
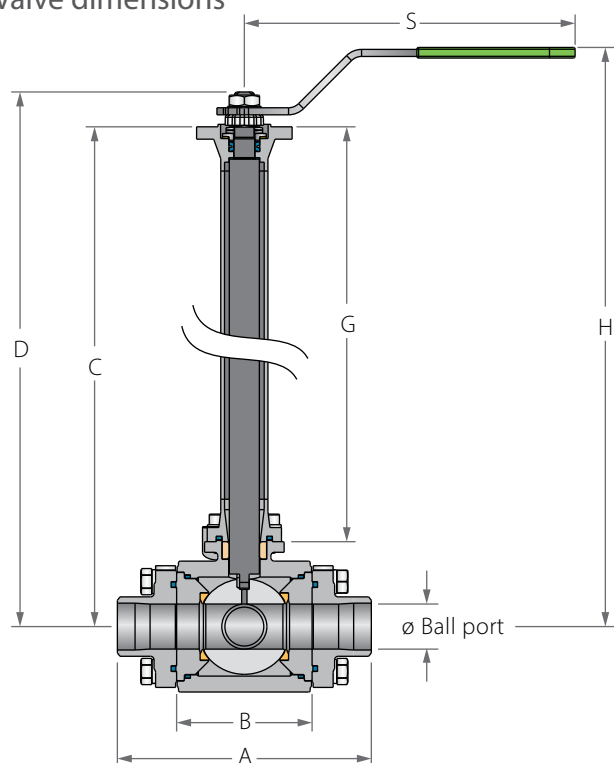
C61

C62

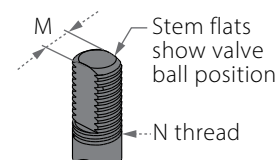
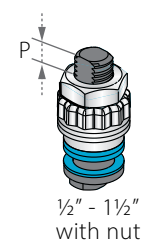
½"-1½" | DN15-DN40 | CLASS 600

Cryogenic Multiport Floating Ball

Valve dimensions



Preparation for actuation

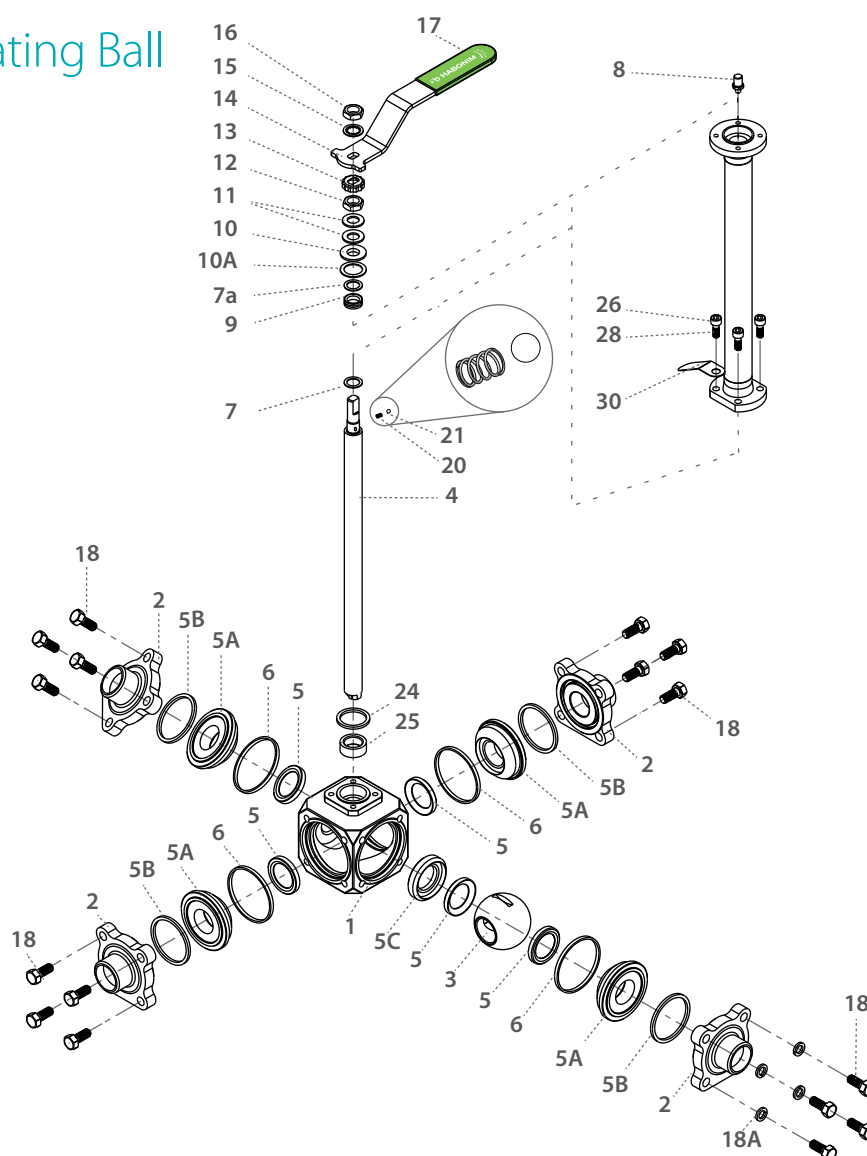


Std. port	Full port	Unit	Ball port	A	B	Standard design					6.0" bonnet				E	S	M	N	P	F	TxL	Weight kg/lb	
						C	D	E	G	H	C	D	G	H								Std.	6.0 Bonnet
DN20	DN15	mm	14.3	108	62	341	358.5	304	384.9	189.4	206.9	152.4	233.3	224.52	54.3	187	7.5	7/16"	7.2 (F04)	42	M5X7	3.65	3.33
¾"	½"	inch	0.56	4.25	2.44	13.43	14.11	11.97	15.15	7.46	8.15	6	9.19	8.84	2.14	7.36	0.3	UNF	0.28	1.65	M5X7	8.04	7.34
DN25	DN20	mm	20.7	134.6	71.6	347	364.5	304	389.8	195.4	212.9	152.4	238.2	239.43	66.8	187	7.5	7/16"	7.2 (F04)	42	M5X7	5.25	4.9
1"	¾"	inch	0.81	5.30	2.82	13.66	14.35	11.97	15.35	7.69	8.38	6	9.38	9.43	2.63	7.36	0.3	UNF	0.28	1.65	M5X7	11.57	10.8
DN32	DN25	mm	25.5	143	76	352	369.5	304	396.9	200.4	217.9	152.4	245.3	244.43	71.8	187	7.5	7/16"	8.5 (F04)	42	M5X7	7.42	6.85
1¼"	1"	inch	1	5.63	2.99	13.86	14.55	11.97	15.63	7.89	8.58	6	9.66	9.62	2.83	7.36	0.3	UNF	0.33	1.65	M5X7	16.35	15.1
DN40	DN32	mm	31.65	158	91	353.4	382.9	304	408.1	201.8	231.3	152.4	256.5	257.13	79	237	8.71	9/16"	8.5 (F05)	50	M6X8	9.12	8.55
1½"	1¼"	inch	1.25	6.22	3.58	13.91	15.07	11.97	16.07	7.94	9.11	6	10.1	10.12	3.11	9.33	0.34	UNF	0.33	1.97	M6X8	20.1	18.84



Cryogenic Multiport Floating Ball

Components & materials



Item	Description	Material specifications	Qty.
1	Body	Acc. Ordering Code	1
2	End	Acc. Ordering Code	3/4**
3	Ball	Acc. Ordering Code	1
4	Stem	Acc. Ordering Code	1
5*	Seat	Acc. Ordering Code	4/5**
5A	Seat housing	S. Steel	3/4**
5B*	Seat seal	PTFE, Graphite	3/4**
5C	Seat support	A479 316/316L, B574 N06022, Bronze RG5	1
6*	Body seal	PTFE, Graphite	3/4**
7*	Stem thrust seal	PCTFE	1
7a*	Anti-abrasion ring	PCTFE	1
8	Stop pin	S. Steel	1
9*	Stem seal	TFM	1
10	Follower	S. Steel	1
10A	Slide bearing	S. Steel	1
11	Disc spring	S. Steel	2
12	Stem nut	S. Steel	1

Item	Description	Material specifications	Qty.
13	Locking clip	S. Steel	1
14	Handle	S. Steel	1
15	Serrated washer	S. Steel	1
16	Handle nut	S. Steel	1
17	Sleeve	PVC	1
18	Body bolt	S. Steel	12/16**
20	Anti-static spring	S. Steel	1
21	Anti-static plunger	S. Steel	1
23	Tag (not shown)	S. Steel	1
24*	Bonnet seal	PTFE, Graphite	1
25*	Stem bearing	PTFE	1
26	Bonnet	S. Steel	1
28	Bolt	S. Steel	4
30	Dog tag	S. Steel	1

* Repair kit components

** 61 is Multiport with three horizontal ports, 62 is Multiport with four horizontal ports

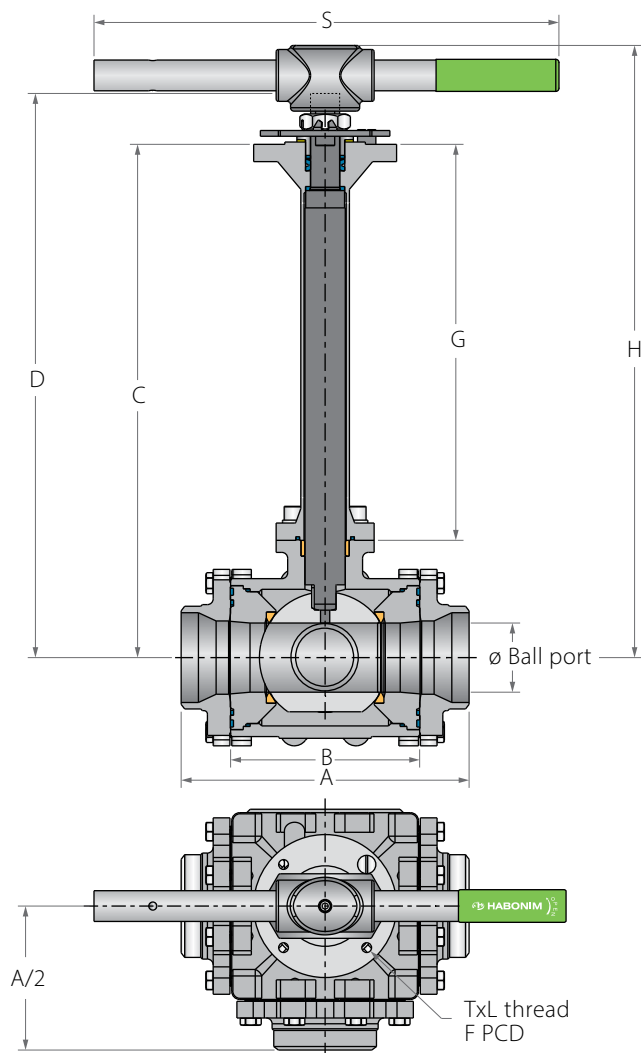
C61

C62

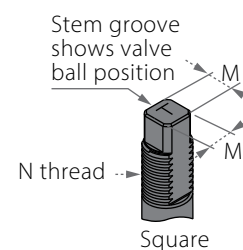
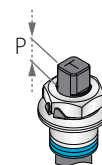
2"-4" | DN50-DN100 | CLASS 300

Cryogenic Floating Ball Multiport

Valve dimensions



Preparation for actuation

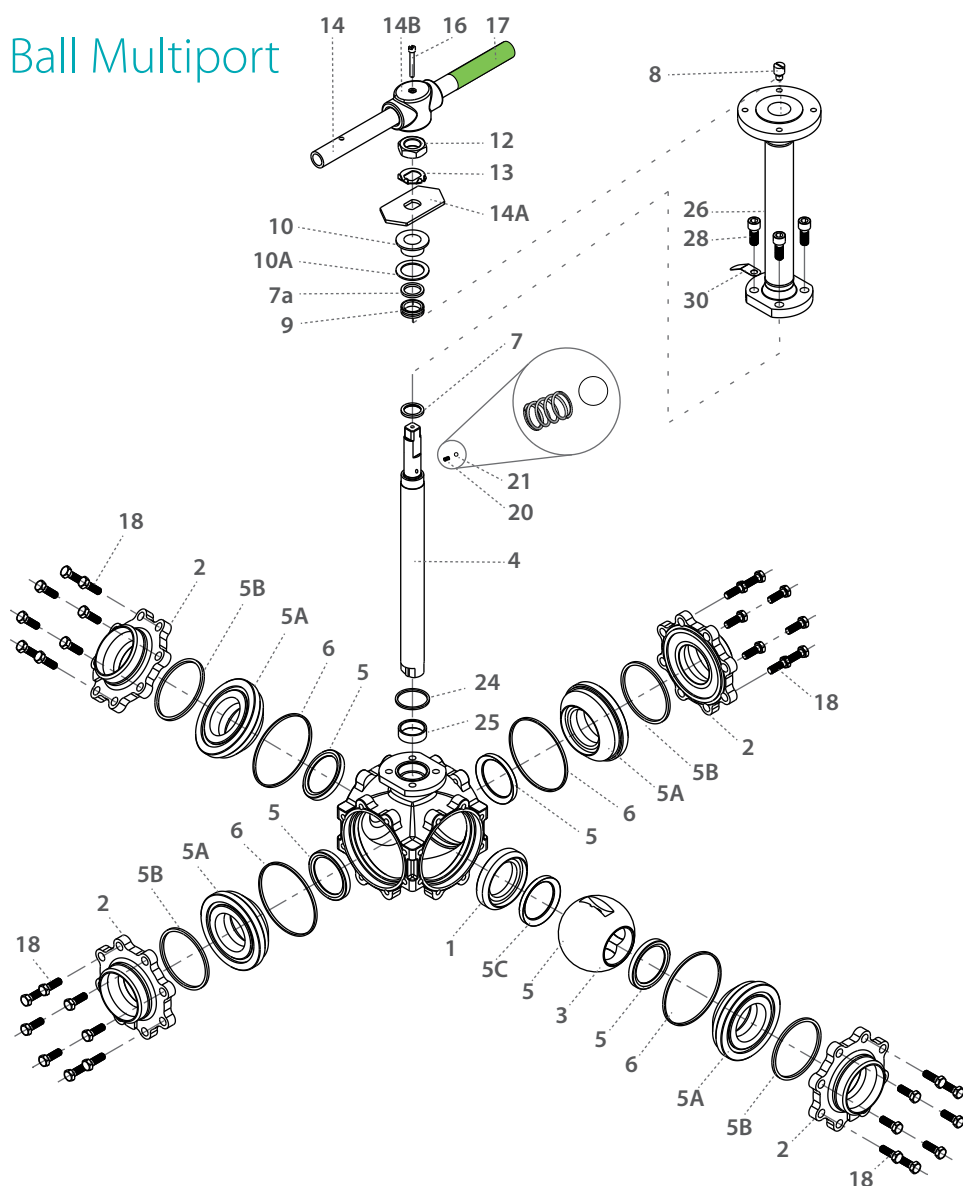


Std. port	Full port	Unit	Ball port	A	B	Standard design					6.0" bonnet				S	M	MDD	N	P	F	TxL	Weight kg/lb		
						C	D	E	G	H	C	D	G	H								Std.	6.0 Bonnet	
DN50	DN40	mm	38.1	178.8	107.2	397.1	438.7	327.5	465.9	222	263.6	152.4	290.8	224.52	400	13.9	13.9	M20X2.5	14.36	(F07)	70	M8X8	24.7	23.25
2"	1½"	inch	1.5	7.04	4.22	15.63	17.27	12.89	18.34	8.74	10.38	6	11.45	8.84	15.75	0.55	0.55		0.57		2.76		54.44	51.24
DN65	DN50	mm	48	210	125	406.6	453.1	327.5	480.3	231.5	278	152.4	305.2	239.43	400	18.9	15.9	1"-14 UNS-2A	16.7	(F10)	102	M10X15	24.7	23.25
2½"	2"	inch	1.89	8.27	4.92	16.01	17.84	12.89	18.91	9.11	10.94	6	12.02	9.43	15.75	0.74	0.63		0.66		4.02		54.44	51.24
DN80	DN65	mm	60	249.8	164	486.75	555.85	385	-	254.15	323.25	152.4	-	244.43	-	28.45	23.75	1-½"-12 UNF-2A	26.2	(F12)	125	M12X15	42.4	41.2
3"	2½"	inch	2.36	9.83	6.46	19.16	21.88	15.16	-	10.01	12.73	6	-	9.62	-	1.12	0.94		1.03		4.92		93.45	90.8
DN100	DN80	mm	76	309.8	205	519.5	588.6	385	-	286.9	356	152.4	-	257.13	-	28.45	23.75	1-½"-12 UNF-2A	26.2	(F12)	125	M12X15	66.4	65.2
4"	3"	inch	2.99	12.2	8.07	20.45	23.17	15.16	-	11.3	14.02	6	-	10.12	-	1.12	0.94		1.03		4.92		146.35	143.7



Cryogenic Floating Ball Multiport

Components & materials



Item	Description	Material specifications	Qty.
1	Body	Acc. Ordering Code	1
2	End	Acc. Ordering Code	3
3	Ball	Acc. Ordering Code	1
4	Stem	Acc. Ordering Code	1
5*	Seat	Acc. Ordering Code	4
5A	Seat housing	S. Steel	3
5B*	Seat seal	PTFE, Graphite	3
5C	Seat support	A479 316/316L, B574 N06022, Bronze RG5	1
6*	Body seal	PTFE, Graphite	3
7*	Stem thrust seal	PCTFE	1
7a*	Anti-abrasion ring	PCTFE	1
8	Stop pin	S. Steel	1
9*	Stem seal	TFM	1
10	Follower	S. Steel	1
10A	Slide bearing	S. Steel	1
11	Disc spring	S. Steel	2

Item	Description	Material specifications	Qty.
12	Stem nut	S. Steel	1
13	Tab lock washer	S. Steel	1
14**	Handle	S. Steel	1
14A	Stop plate	S. Steel	1
14B	Wrench head	S. Steel	1
16	Wrench bolt	S. Steel	1
17	Sleeve	PVC	1
18	Body bolt	S. Steel	12-24
18A	Spring washer	S. Steel	12-24
20	Anti-static spring	S. Steel	2
21	Anti-static plunger	S. Steel	2
23	Tag (not shown)	S. Steel	1
24*	Bonnet seal	PTFE, Graphite	1
25*	Stem bearing	PTFE	1
26	Bonnet	S. Steel	1
28	Bolt	S. Steel	4
30	Dog tag	S. Steel	1

* Repair kit components

** Gear operator should be used for size 3" DN80 and above
(handle components are not included)



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