

# Cryogenic valves



# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

High pressure

Multiport

Ordering code system

## Introduction

Under extremely low temperatures and in the harshest of environments, Habonim's cryogenic ball valves consistently exhibit high flow capacity, tight shutoff, energy efficiency and long service-free life.

Unmatched in reliability, stability and, most importantly, safety, Habonim's cryogenic valves are used in air separation plants, LNG storage, distribution and transportation, and in the aerospace, petrochemical and medical industries.

## Technical summary

<b>Size range</b>	¼"-8" (DN8-DN200)
<b>Pressure range</b>	Vacuum 10 <sup>-6</sup> Tor to 414 bar (6000 psi)
<b>Temperature range</b>	-269 °C to +200 °C (-452 °F to +392 °F)
<b>Materials</b>	Stainless steel A351 CF8M/CF3M, A479-316/316L, monel 400 and more
<b>End connections</b>	Threaded, welded, flanged
<b>Operation</b>	Lever or gear operated, pneumatic or electric actuated
<b>Service</b>	LNG terminals, air separation plants, LNG transportation, steel production, food & beverage, research labs

## Standards of compliance

<b>Factory certification</b>	ISO 9001-2008	Quality management system
<b>Valve design &amp; tests</b>	ANSI B16.34, ISO 17292, API 608, API 6D/ISO 14313	Valve design
	BS 6364	Specification for valves for cryogenic service
	EN 12567	Industrial valves - Isolating valves for LNG (optional)
	BS ISO 21011 & BS EN 1626	Cryogenic vessels - Valves for cryogenic service
	ANSI B1.20.1	NPT - National Pipe Taper thread
	EN 10226-1, ISO 7-1, JIS B0203	BSPT - British Standard Pipe Taper thread
	DIN3852	BSPP - British Standard Paralell Pipe
	ANSI B16.11, EN 12760	Socket weld end connection
	ANSI B16.25, EN12627-4	Buttweld end connection (schedule 5, 10, 40, 80)
	ANSI B16.5, EN 1092 Pt 1&2	Flange dimensions
	ANSI B16.10, EN 558	Face-to-Face dimensions
	NACE MR-0175, ISO 15156-1/2/3	Materials for use in H <sub>2</sub> S-containing environments in oil and gas production
	EN 12266-1, API 598	Testing of metallic valves - pressure tests, test procedures and acceptance criteria
	API 607, ISO 10497	Testing of valves - Fire type-testing requirements
	ISO 15848-1	Industrial valves - measurement, test and qualification procedures for fugitive emissions
<b>Certifications</b>	PED 2014/68/EU Module H	Pressure equipment directive
	ATEX 2014/34/EU	equipment and protective systems intended for use in potentially explosive atmospheres (optional for actuated unit only)
	IEC 61508-2 SIL 2/3	Safety integrity level - functional safety of electrical/electronic/programmable electronic safety-related systems (optional for actuated unit only)
<b>Documentation</b>	EN 10204 2.2/3.1/3.2	Metallic materials - types of inspection documents

## Series in range

<b>Three piece</b>	<b>C47C/C47W series</b>	<b>Three piece, standard and full port</b>
	Size range	¼" - 2" (DN8 - DN50)
	Pressure range	ANSI Class 600   Vacuum 10 <sup>-6</sup> Tor to 103 bar (1490 psi)
	Size range	2½" - 6" (DN65 - DN150)
	Pressure range	ANSI Class 300   Vacuum 10 <sup>-6</sup> Tor to 50 bar (725 psi)
	End connections	Threaded, welded, flanged
	<b>C26C/C26W series</b>	<b>Three piece, full port</b>
	Size range	2" - 8" (DN50 - DN200)
	Pressure range	ANSI Class 600   Vacuum 10 <sup>-6</sup> Tor to 103 bar (1490 psi)
	End connections	Threaded, welded, flanged
<b>Flanged</b>	<b>C31C/C31W series</b>	<b>Standard port</b>
	Size range	½" - 8" (DN15 - DN200)
	Pressure range	ANSI Class 150   Vacuum 10 <sup>-6</sup> Tor to 20 bar (290 psi)
	End connections	Flanged
	<b>C32C/C32W series</b>	<b>Standard port</b>
	Size range	½" - 8" (DN15 - DN200)
	Pressure range	ANSI Class 300   Vacuum 10 <sup>-6</sup> Tor to 50 bar (725 psi)
	End connections	Flanged
	<b>C73C/C73W series</b>	<b>Full port</b>
	Size range	½" - 8" (DN15 - DN200)
	Pressure range	ANSI Class 150   Vacuum 10 <sup>-6</sup> Tor to 20 bar (290 psi)
	End connections	Flanged
	<b>C74C/C74W series</b>	<b>Full port</b>
	Size range	½" - 8" (DN15 - DN200)
Pressure range	ANSI Class 300   Vacuum 10 <sup>-6</sup> Tor to 50 bar (725 psi)	
End connections	Flanged	
<b>C78C/C78W series</b>	<b>Full port</b>	
Size range	½" - 2" (DN15 - DN50)	
Pressure range	DIN PN40   Vacuum 10 <sup>-6</sup> Tor to 40 bar (580 psi)	
End connections	Flanged	
<b>C77C/C77W series</b>	<b>Full port</b>	
Size range	3" - 8" (DN80 - DN200)	
Pressure range	DIN PN16   Vacuum 10 <sup>-6</sup> Tor to 16 bar (230 psi)	
End connections	Flanged	
<b>High Pressure</b>	<b>C28C/C28W series</b>	<b>Three piece, standard and full port</b>
	Size range	¼" - 8" (DN8 - DN200)
	Pressure range	ANSI Class 2500 (Wall Thickness)   Vacuum 10 <sup>-6</sup> Tor to 414 bar (6000 psi)
	End connections	Threaded, welded, flanged
<b>Multiport</b>	<b>C61C/C62C/C61W/C62W</b>	<b>Standard and full port</b>
	Size range	¼" - 2" (DN8 - DN50)
	Pressure range	ANSI Class 600   Vacuum 10 <sup>-6</sup> Tor to 103 bar (1490 psi)
	Size range	2½" - 4" (DN65 - DN100)
	Pressure range	ANSI Class 300   Vacuum 10 <sup>-6</sup> Tor to 50 bar (725 psi)
	End connections	Threaded, welded, flanged
	<b>DC47C/DC47W series</b>	<b>Three piece, standard and full port</b>
	Size range	¼" - 2" (DN8 - DN50)
Pressure range	ANSI Class 600   Vacuum 10 <sup>-6</sup> Tor to 103 bar (1490 psi)	
End connections	Threaded, welded, flanged	

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## Design features

### Efficient heat transfer

- Narrow space between extension ID and stem OD keeps the stem seal at ambient temperature

### Bonnet angle

- Up to 45° from vertical allowed for the 12" bonnet (fully BS6364 compliant)

### HermetiX™ Stem seal

- ISO 15848-1 certified
- Graphite free, Fire safe design
- High endurance up to 500 thousand cycles
- Anti-abrasion mechanism
- Live loaded

### No trapped cavity

- Relief hole on the upstream sphere of the ball to prevent pressure buildup in the cavity

### Minimum thermal expansion

- One size up and shorter body bolts
- Additional spring washers

### Stem

- 'Blow-out' proof
- Solid one-piece stem
- Tight stem-to-ball engagement
- High torque durability

### One-way assembly

- Integral rib and asymmetric groove ensures correct assembly

### Tongue & groove labyrinth design

- Zero leakage to the atmosphere
- Full compression of encapsulated body seal
- Accurate alignment of all parts

### Flow direction indicators

- Highly visible arrows on body and bonnet top
- "T" mark on the stem, showing relief hole direction



Graphite free fire safe stem seal

HermetiX™ stem seal

Stem, bonnet robust design

Efficient heat transfer

Tongue and groove Zero leak

No trapped cavity

One-way assembly

Minimum thermal expansion

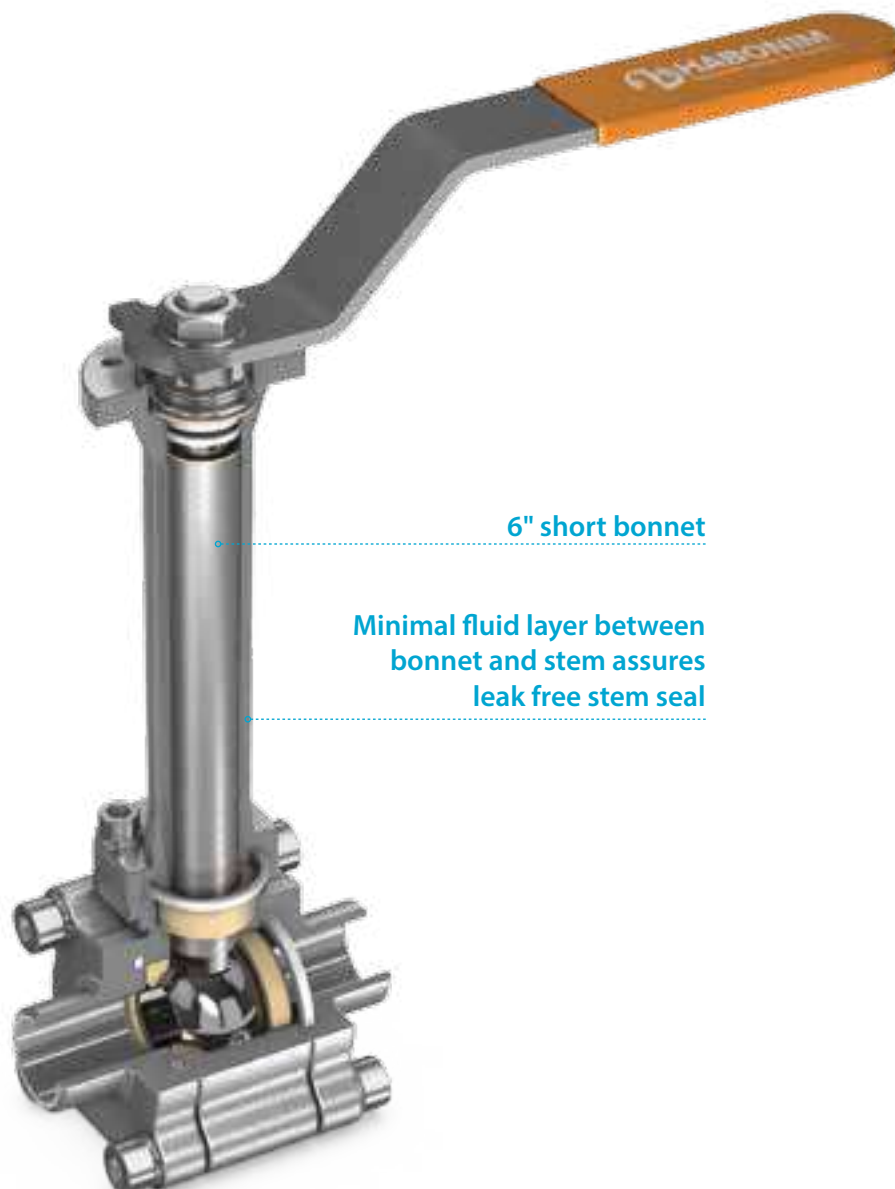
## 6" Bonnet unique design features

Habonim has designed the 6" bonnet for cryogenic valves for: confined spaces, equipment installed on transportable pressure vessels, and systems exposed to high vibrations.

This solid one-piece stainless steel CF8M /316 bonnet is accurately machined for perfect alignment of all trim parts. The 6" bonnet is fully exchangeable with with a long bonnet that meets the BS6364 standard for 250 mm (10") of straight bonnet neck.

### Bonnet angle

- Up to 15° from vertical

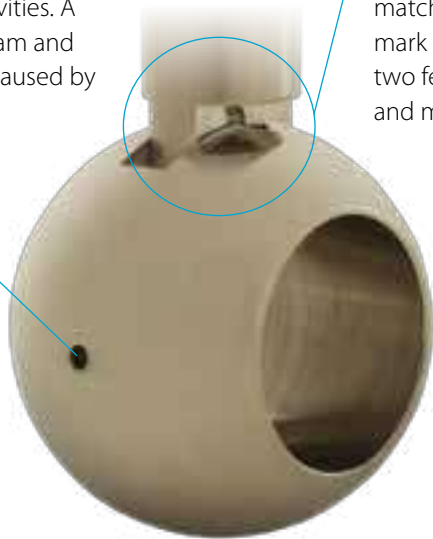


# Floating Ball Valves

<b>Cryogenic valves</b>	General	3 Piece	Flanged	High pressure	Multiport	Ordering code system
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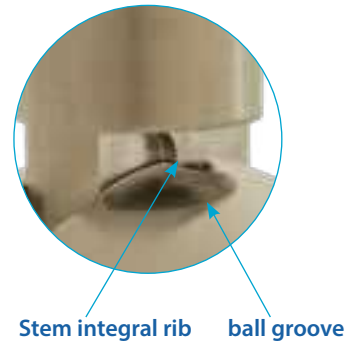
## Pressure buildup prevention

The Habonim cryogenic ball valve is designed with no trapped cavities. A cavity relief hole faces upstream and eliminates pressure buildup caused by thermal expansion.



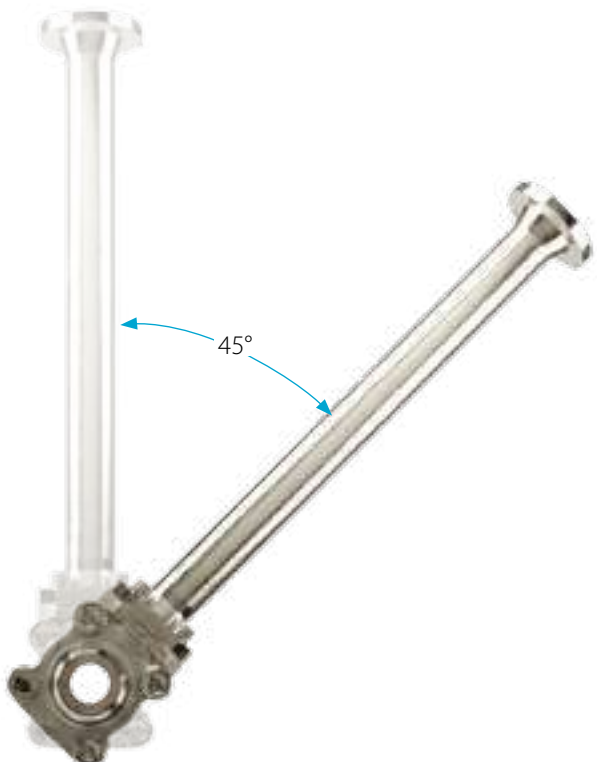
## One-way assembly

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.



## Inclination limitation

The Habonim bonnet design comes in two standard 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. The 6" bonnet can be installed up to 15° from the vertical axis.



## Cryogenic valve body and interlocked end connector

The cryogenic valve series implements the tongue & groove design that is used in all fire safe valves. This unique labyrinth design eliminates leakage to the atmosphere. Furthermore, this design allows full compression of the encapsulated body seal and accurate alignment of all valve pressure-containing parts.



Hybrid seat for high pressure cryogenic applications

**Flow direction indicators**



"T" mark on stem showing the relief hole direction



Indicator on the extended bonnet top



Indicator on valve body

**Minimum 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. In addition, spring washers compensate for thermal contraction of valve parts that occur during the thermal cycles.

**Seats and seals**

For temperatures down to -200 °C/-328 °F, Habonim recommends the use of either TFM 1600™ or Habonim CF PTFE seats - for a lower operating torque, smaller actuator and a cost effective product.

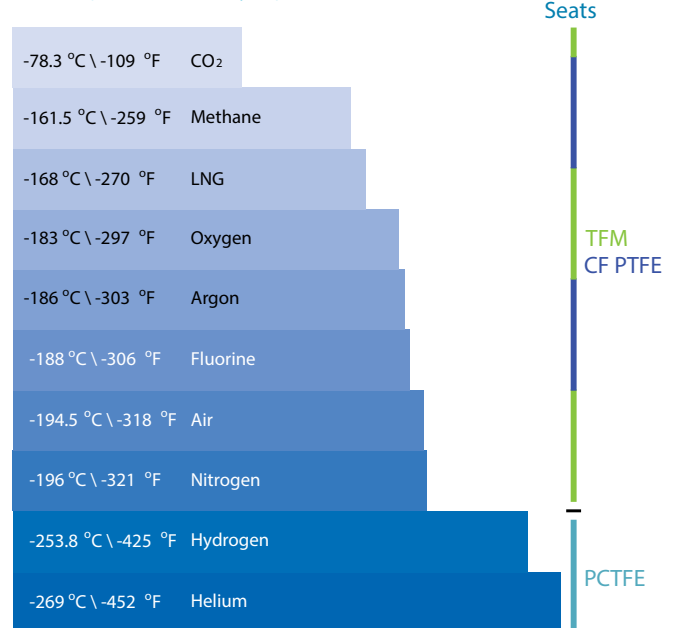
For temperatures down to -269 °C/-452 °F, Habonim recommends the use of PCTFE (KEL-F).

A hybrid seat comprised of a stainless steel housing and a PCTFE (KEL-F) insert is Habonim's recommendation for high pressure cryogenic applications.

When PCTFE seats are sized for the application, a high tensile 17-4PH stem (code M) must be used to overcome the high operating torque.

Both graphite and PTFE body seals are used in the cryogenic series, with PTFE for non-fire safe applications and graphite for fire safe applications. Both seal types are designed to accommodate the same body/end encapsulation.

**Boiling point of cryogenics**



**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 thin layer of liquid cryogenic media between the bonnet ID and the stem OD, enables safe evaporation of cryogenic fluid at the ambient environment temperature.

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## Cleaning standards

Habonim's meticulous valve assembly procedure eliminates hydrocarbon oil, grease, metal chips and other ignition hazards that can be introduced by a poor deburring process or shop dirt.

Habonim procedures for cleaning and inspecting valve parts that are used in Oxygen service are also applicable for Cryogenic service and comply with all relevant international standards and corporate specifications:

### CGA G-4.1

ASTM A380/A380M

EIGA 33.06

Linde standard LS 141-47 part 1 and 2

Linde standard LS 031-6X7

Praxair standard GS-38

Habonim uses a state of the art, environmentally friendly, alkaline-based automatic degreasing system with multiple stages of ultrasonic cleaning, rinsings and drying chambers. Complete control over process parameters like the cleaning agent PH and temperature, the rinsing temperature chambers, and the temperature and humidity inside the drying chamber provides optimal results and full repeatability of the cleanliness level of the cleaned parts. The cleaning procedure is followed by 100% cleaning inspection as per leading industry standards.

## Valve assembly

Upon completion of the cleaning process the valves are assembled in an oil free restricted area, by trained personnel who are qualified for this particular task. The employees wear clean working clothes and latex gloves throughout the assembly procedure. The equipment and tools are cleaned before use and the work surfaces are covered with a clean polyethylene sheet before performing the valve assembly.



## Strength test

Shell test of the complete assembled product at 1.5 times the valve pressure rating is performed with a computer controlled high-pressure testing chamber, using 99.999% clean compressed nitrogen. This safe and reliable pressure testing meets EN 12266-1 and API 598 standards.

## Functional test

Gas Service Leak Rates are EN 12266-1 Rate A \ Bubble Tight Shutoff \ API 598 \ API 6D \ ISO 5208.

Cryogenic Service Leak Rates comply with standards such as BS 6364, ISO 1626 and EN 12567.

Test method EN 1779 vacuum technique - A.3 Leakage  $\leq 1E-6$  Pa\*m3/sec.



## NDT

Radiographic tests per ASME B31.3 for severe cyclic service are standard for welded parts. Habonim uses only 100% butt-welded joints to ensure full welding penetration. 100% X-ray test coverage ensures the highest levels of safety and quality.

Radiographic tests per ASME B16.34 RT for castings and other pressure-containing parts can be conducted upon request, along with die penetrant test per ASME B16.34 RT, and visual inspection of castings per MSS-SP-55.

## Quality Assurance

Habonim cryogenic valves are supplied with a detailed EN-10204 test certificate type 3.1 as standard. 3.2 type certifications, witnessed pressure and cryogenic tests and other services are available upon request.

## Standard Habonim tests

Test	Standard	Success criteria
Valve Shell test at 1.5 the pressure rating	EN 12266-1 (P10-P11) API 598 ASME B16.34	No visible gas leakage
Radiographic For Fabricated (Welded) Parts	ASME B31.3 Severe Cyclic Conditions	BPV code, Section V, Article 2
Body Leakage test	EN 12266-1 Method EN 1779 vacuum technique - A.3	Leakage $\leq 1E^{-6}$ Pa*m <sup>3</sup> /s
Seat tightness test	EN 12266-1 Method EN 1779 vacuum technique - A.3	Leakage $\leq 1E^{-6}$ Pa*m <sup>3</sup> /s
Cleaning	CGA G4.1, Praxair GS-38 or GS40, Linde 141-74 part 1 and 2	Per standard

## Additional NDTs offered upon special request

Test	Standard	Success criteria
IMPACT™ Test @ -196 °C	EN12567 ASTM A370 testing Methods	EN 10045-1 Kv > 60J Lateral expansion > 0.381 mm
Visual test for casting	MSS-SP55	Per standard
Liquid penetrant Fabricated parts	ASME B31.3 Severe cyclic conditions	
Liquid penetrant cast parts	ASTM E165	B16.34 Mandatory Appendix III
Cryogenic tests	BS6364, EN12567	
Witnessing by 3rd party	Per society standards & rules	

## Packaging

Packaging is done in the same cleanroom where the assembly process took place. Valves and components are not removed from the cleanroom until they are properly packed and sealed. Each finished (dry, completed, inspected and approved) product is capped with non-shedding end caps and bagged in resilient clear polyethylene bags together with silica gel desiccant bags to maintain the product cleanliness. In order to preserve product cleanliness, it is crucial to store the valves in their protective elements as they were received from the factory until they are ready to be installed.



### Multiport and Diverter valves

Habonim's C61 Multiport and DC47 diverter cryogenic lines are extremely flexible and space saving valves.

They enable the piping and machine designer to save valves, space, flow elements, while enhancing safety and simplicity.

With a variety of flow patterns and directions, in both automatic and manual configurations, the multiport valve can save 2-3 valves, and facilitate safe and easy changeover and shutoff of cryogenic fluids.

A variety of ball configurations for different flow patterns are available. For the complete range of configurations, please refer to the Diverter or Multiport valve chapters.



## Double Block and Bleed (DBB)

Cryogenic Double Block and Bleed valves are extremely compact and safe devices that allow the user to provide total leak-proof safety by directing the main valve cavity to a safe location, thus securely isolating gas furnaces, marine motors, LNG tanks, and LNG fueled trucks, from explosive and cold cryogenic fluids such as LNG, LOX etc.

The principle of operation is to have two main valves in the flow direction, where the secondary valve ensures no leakage under all circumstances, and a bleed valve perpendicular to the main piping forces any excess gas/fluid in the main cavity to vent to a secure location.

Habonim meets the challenge by providing safe, compact, built-to-spec double block and bleed cryogenic valves in a full range of configurations including: full and semi-automatic, manual, and hand lock. Other customer-specified configurations are available ranging from ½" up to 6" main valves and bleed valves to match.

Double block and bleed valves operate safely when the valve is installed correctly, with the bonnets remaining upright as shown.

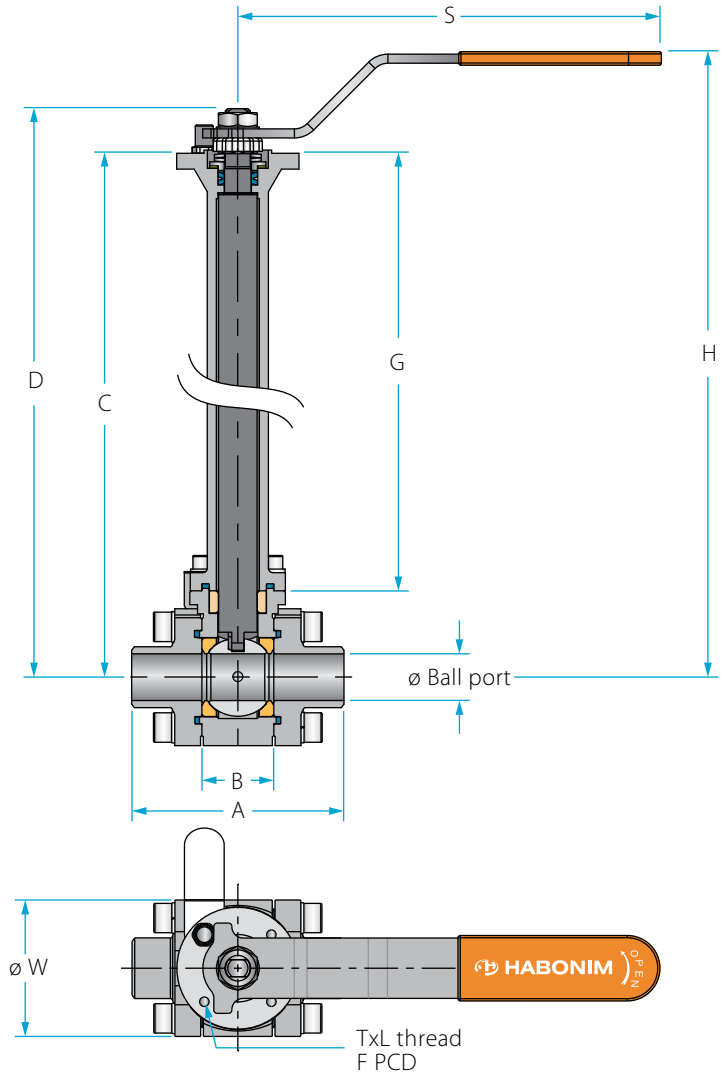


# Floating Ball Valves

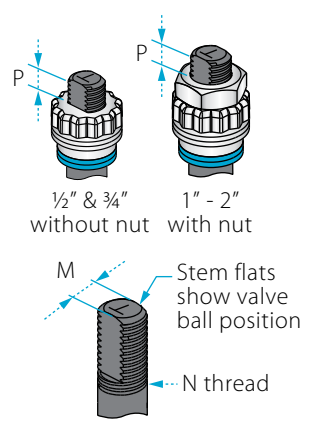
**Cryogenic valves** | General | **3 Piece** | Flanged | High pressure | Multiport | Ordering code system

Size 1/4" - 2" | DN8-DN50 | Class 600 | C47W/C47C<sup>(1)</sup> Series

## Valve dimensions

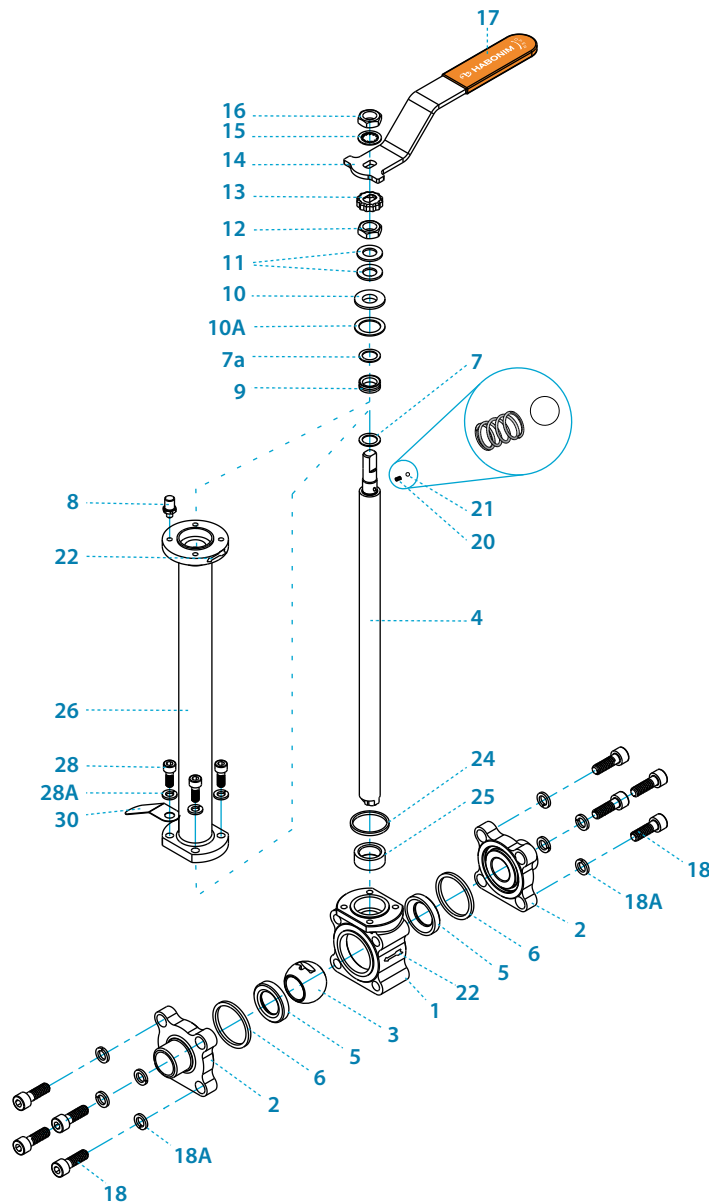


### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Weight kg/lb			Kv
						C	D	G	H	C	D	G	H								Std.	6.0"	Cv	
DN15	DN10	mm	11.15	65.80	20.60	333.00	341.90	304.00	366.00	181.40	190.30	152.40	214.40	150.00	46.00	5.50	3/8"	7.20 (F03)	36.00	M5x7	1.60	1.28	7	
1/2"	3/8"	inch	0.44	2.59	0.81	13.11	13.46	11.97	14.41	7.14	7.49	6.00	8.44	5.91	1.81	0.22	UNF	0.28	1.42	M5x7	3.53	2.82	8	
DN20	DN15	mm	14.30	70.55	24.55	335.40	344.30	304.00	368.00	183.80	192.70	152.40	216.40	150.00	52.00	5.50	3/8"	7.20 (F03)	36.00	M5x7	1.80	1.48	10	
3/4"	1/2"	inch	0.56	2.78	0.97	13.20	13.56	11.97	14.49	7.24	7.59	6.00	8.52	5.91	2.05	0.22	UNF	0.28	1.42	M5x7	3.97	3.26	12	
DN25	DN20	mm	20.60	93.65	31.75	342.15	359.65	304.00	383.00	190.55	208.05	152.40	231.40	187.00	60.50	7.54	7/16"	7.20 (F04)	42.00	M5x7	3.00	2.65	28	
1"	3/4"	inch	0.81	3.69	1.25	13.47	14.16	11.97	15.08	7.50	8.19	6.00	9.11	7.32	2.38	0.30	UNF	0.28	1.65	M5x7	6.61	5.84	32	
DN32	DN25	mm	25.40	108.25	41.25	346.65	364.15	304.00	388.00	195.05	212.55	152.40	236.40	187.00	69.00	7.54	7/16"	7.20 (F04)	42.00	M5x10	3.70	3.35	37	
1 1/4"	1"	inch	1.00	4.25	1.62	13.65	14.34	11.97	15.28	7.68	8.37	6.00	9.31	7.32	2.72	0.30	UNF	0.28	1.65	M5x10	8.16	7.39	43	
DN40	DN32	mm	31.80	115.45	48.25	347.55	377.05	304.00	400.00	195.95	225.45	152.40	248.40	237.00	79.20	8.71	9/16"	8.00 (F05)	50.00	M6x8	5.20	4.65	70	
1 1/2"	1 1/4"	inch	1.25	4.55	1.90	13.68	14.84	11.97	15.75	7.71	8.88	6.00	9.78	9.29	3.12	0.34	UNF	0.31	1.97	M6x8	11.46	10.25	81	
DN50	DN40	mm	38.10	127.10	56.30	352.25	381.75	304.00	405.00	200.65	230.15	152.40	253.40	237.00	90.70	8.71	9/16"	8.50 (F05)	50.00	M6x8	6.10	5.53	103	
2"	1 1/2"	inch	1.50	5.00	2.22	13.87	15.03	11.97	15.94	7.90	9.06	6.00	9.98	9.29	3.57	0.34	UNF	0.33	1.97	M6x8	13.45	12.19	119	

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A351 CF8M, A494 M35-1, Bronze RG5	2
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	2
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Locking clip	A167 304	1

Item	Description	Material specifications	Qty.
14	Handle	A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	8
18A	Spring washer	DIN 127 A2	8
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	A193 B8, DIN 912 A2-70	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C47C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C47C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

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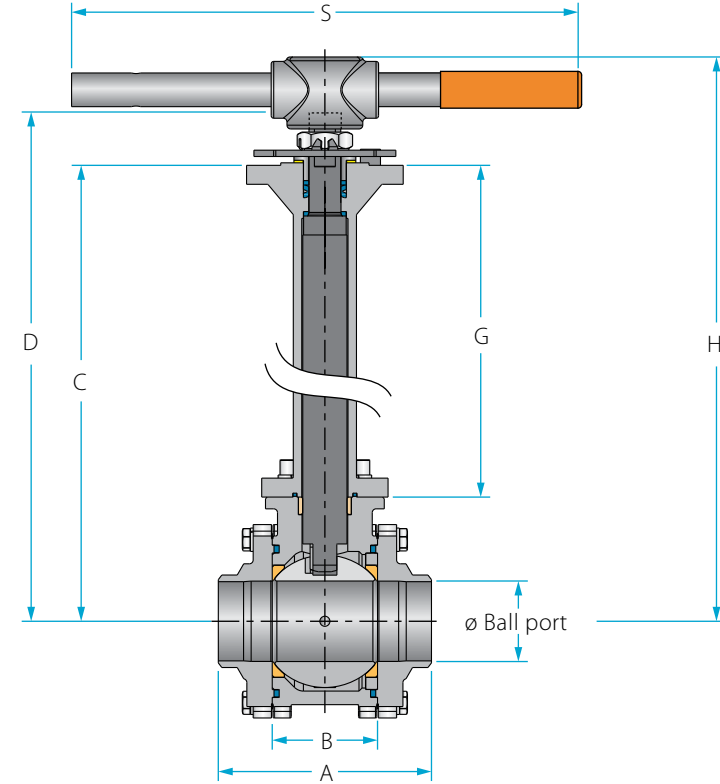
High pressure

Multiport

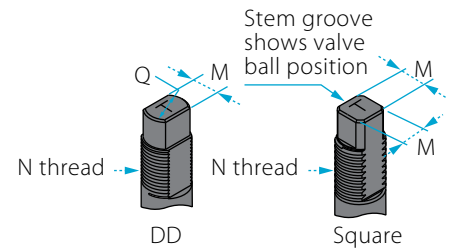
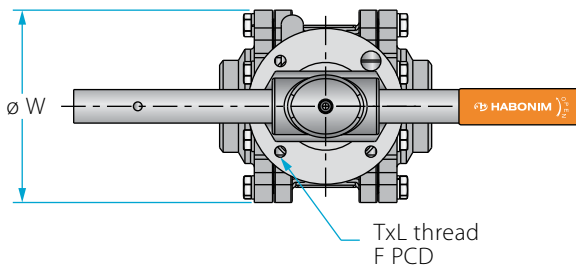
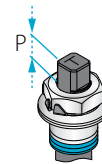
Ordering code system

Size 2½" - 6" | DN65-DN150 | Class 300 | C47W/C47C<sup>(1)</sup> Series

## Valve dimensions



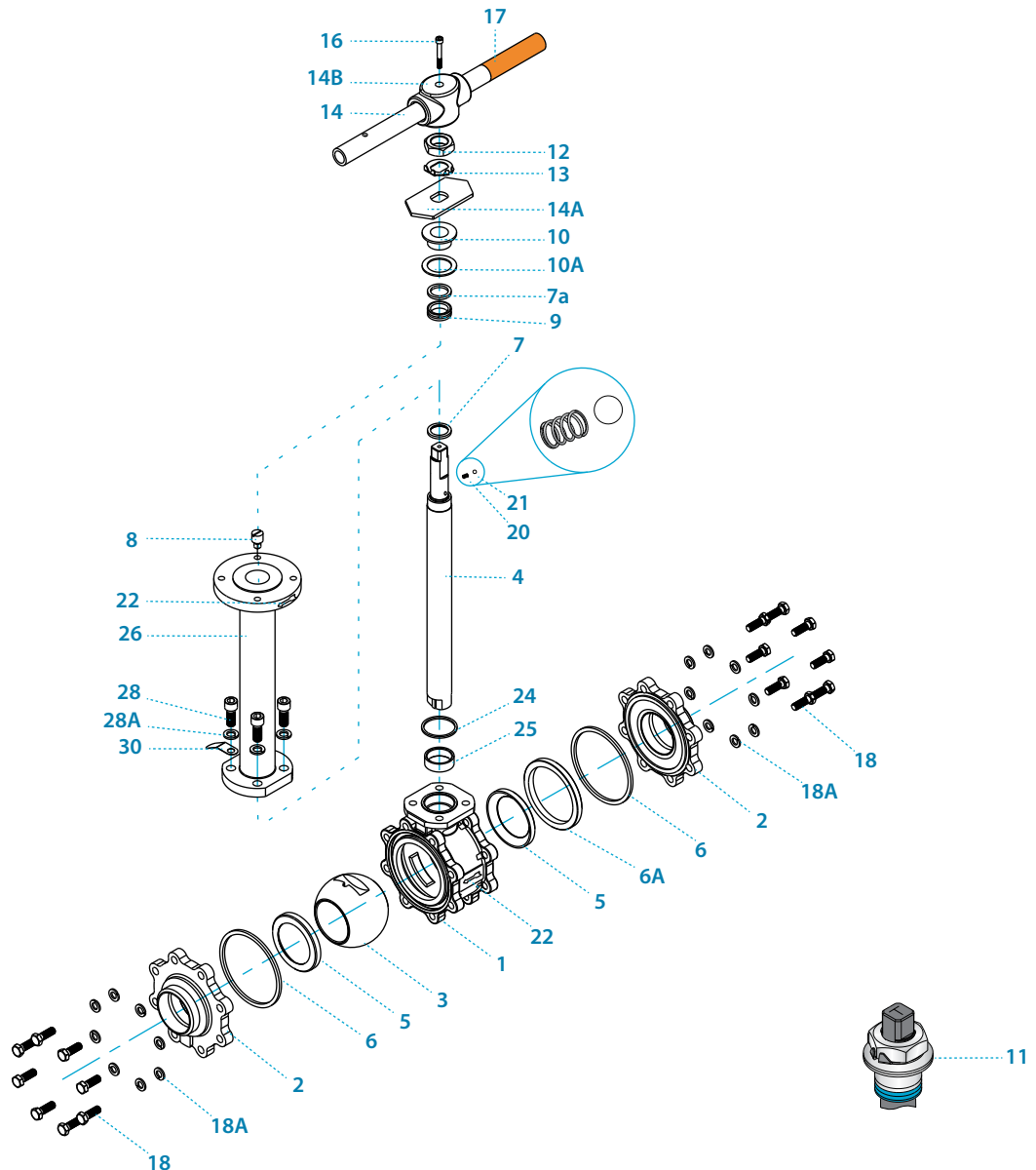
### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	MDD	N	P	Q	F	TxL	Weight kg/lb			Kv
						C	D	G	H	C	D	G	H										Std.	6.0"	Cv	
DN65	DN50	mm	50.80	157.95	72.55	397.50	439.10	327.50	464.00	222.40	264.00	152.40	288.90	401.00	108.00	13.90	13.90	M20x2.5	13.15	20.00 (F07)	70.00	M8x8	12.00	10.60	205	
2½"	2"	inch	2.00	6.22	2.86	15.65	17.29	12.89	18.27	8.76	10.39	6.00	11.37	15.79	4.25	0.55	0.55		0.52	0.79	2.76		26.46	23.37	240	
DN80	DN65	mm	63.50	169.35	83.25	441.80	488.40	343.50	528.00	250.70	297.30	152.40	336.90	401.00	153.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x15	20.00	18.80	385	
3"	2½"	inch	2.50	6.67	3.28	17.39	19.23	13.52	20.79	9.87	11.70	6.00	13.26	15.79	6.02	0.74	0.63	UNS-2A	0.66	0.89	4.02		44.09	41.45	450	
DN100	DN80	mm	82.60	213.60	108.80	457.60	504.20	343.50	544.00	266.50	313.10	152.40	352.90	610.00	191.50	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x15	30.50	29.30	615	
4"	3"	inch	3.25	8.41	4.28	18.02	19.85	13.52	21.42	10.49	12.33	6.00	13.89	24.02	7.54	0.74	0.63	UNS-2A	0.66	0.89	4.02		67.24	64.60	720	
	DN100	mm	100.00	239.00	123.00	466.80	513.40	343.50	555.00	275.70	322.30	152.40	363.90	610.00	217.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x15	37.30	36.10	744	
	4"	inch	3.94	9.41	4.84	18.38	20.21	13.52	21.85	10.85	12.69	6.00	14.33	24.02	8.54	0.74	0.63	UNS-2A	0.66	0.89	4.02		82.23	79.59	870	
DN150		mm	111.10	346.10	146.10	542.40	611.90	385.00	665.00	309.80	379.30	152.40	432.40	916.00	266.00	28.45	23.75	1½"-12	26.20	35.20 (F12)	125.00	M12x15	75.00	71.00	872	
6"		inch	4.37	13.63	5.75	21.35	24.09	15.16	26.18	12.20	14.93	6.00	17.02	36.06	10.47	1.12	0.94	UNS-1A	1.03	1.39	4.92		165.35	156.53	1020	

<sup>(1)</sup> C47C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A351 CF8M, A494 M35-1, Bronze RG5	2
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	2
6A	Support ring	A351 CF8M	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Tab lock washer	A240 304	1

Item	Description	Material specifications	Qty.
14	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	8
18A	Spring washer	DIN 127 A2	8
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	A193 B8, DIN 912 A2-70	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C47C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C47C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

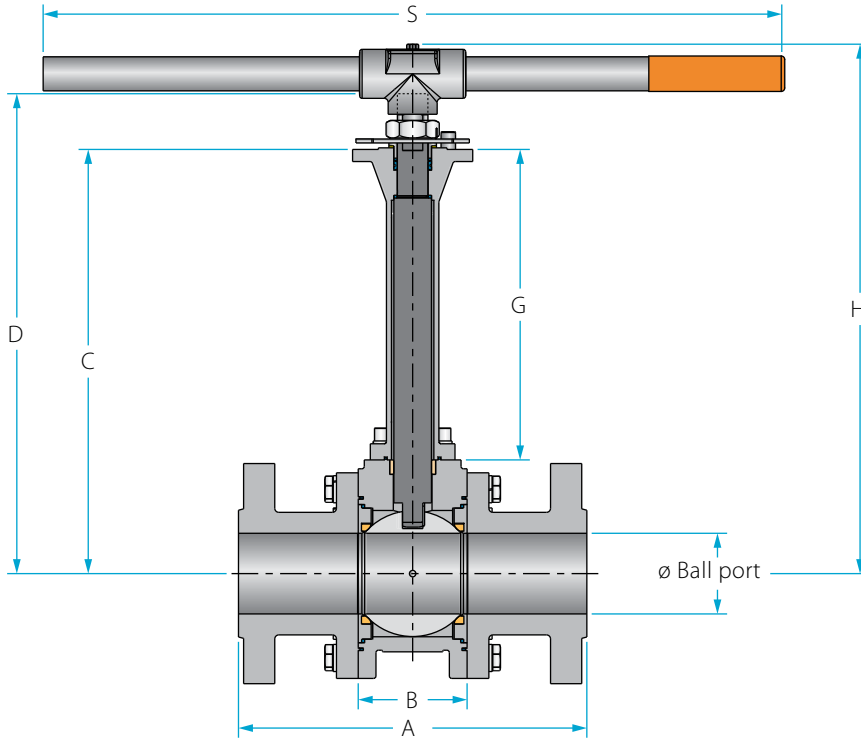
High pressure

Multiport

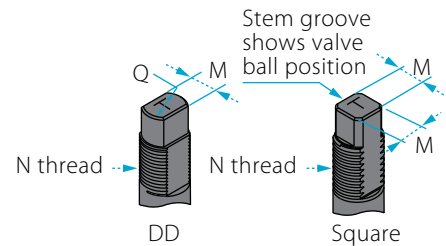
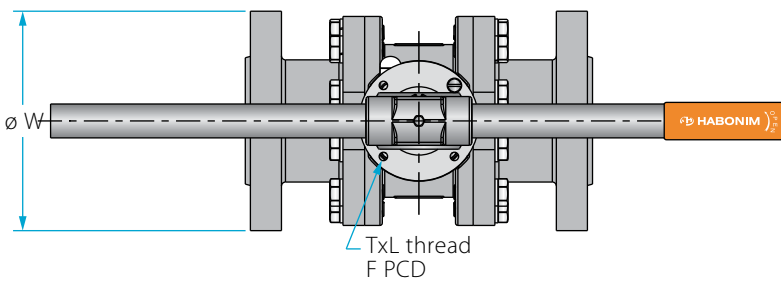
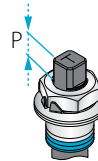
Ordering code system

Size 2"- 8" | DN50-DN200 | Class 600 | C26W/C26C<sup>(1)</sup> Series

## Valve dimensions



Preparation for actuation

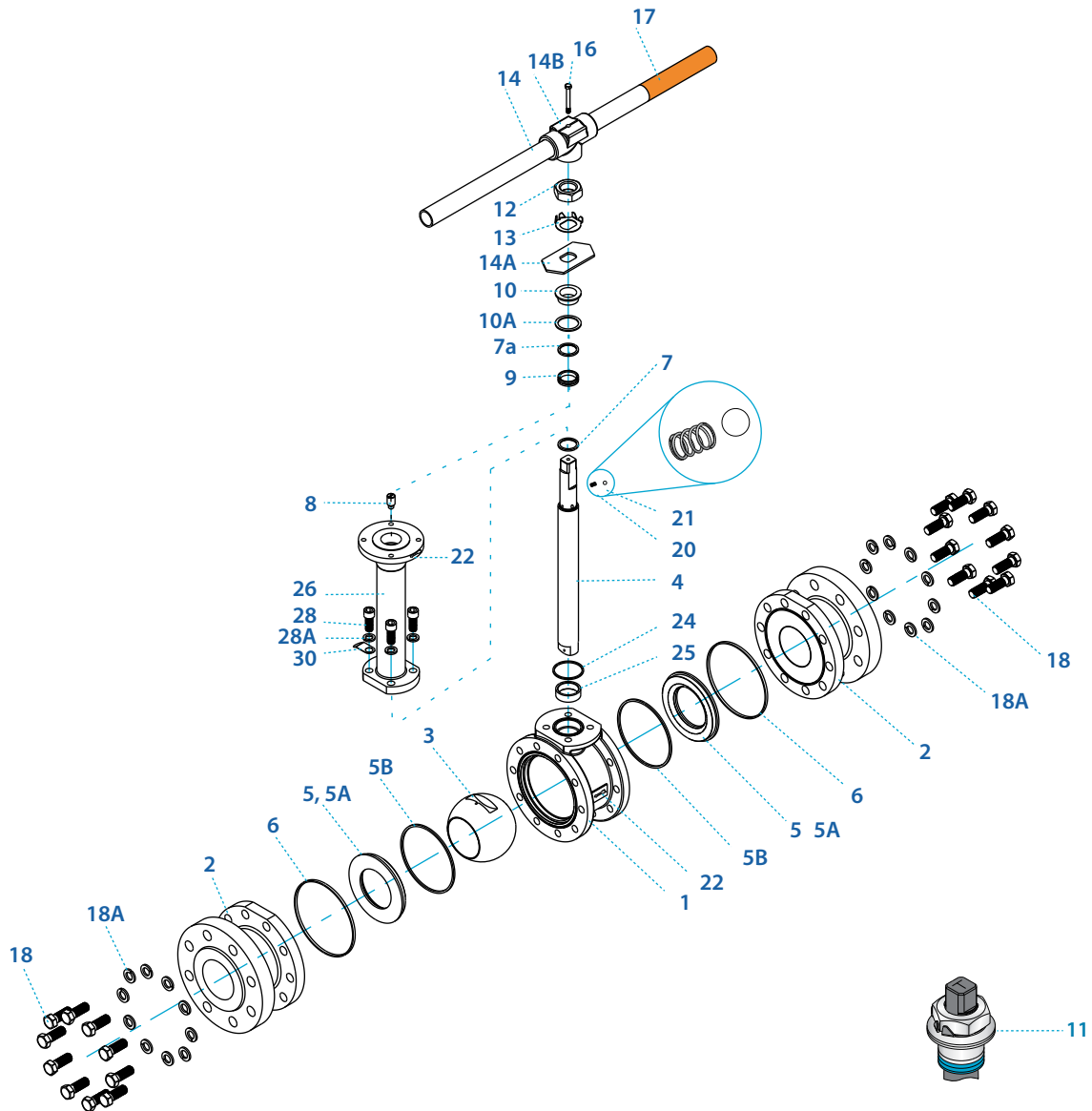


Full Port	Unit	Ball port	A		B	Standard design				6.0" bonnet				S	W	M	MDD	N	P	Q	F	TxL	Weight Kg/lb (Welded)		Kv
			Welded	#600		C	D	G	H	C	D	G	H										Std.	6.0"	
DN50	mm	51.05	200.00	292.00	75.00	432.50	479.10	345.00	431.00	239.90	286.50	152.40	238.40	401.00	165.00	18.90	15.90	1" - 14	16.70	22.70 (F10)	102.00	M10X15	25.00	22.00	421
2"	inch	2.01	7.87	11.50	2.95	17.03	18.86	13.58	16.97	9.44	11.28	6.00	9.39	15.79	6.50	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10X15	55.00	48.00	492
DN80	mm	80.00	356.00	356.00	110.00	511.50	580.60	385.00	632.00	278.90	348.00	152.40	399.40	916.00	210.00	28.45	23.75	1-1/2"	26.20	35.20 (F12)	125.00	M12X15	50.00	45.00	983
3"	inch	3.15	14.02	14.02	4.33	20.14	22.86	15.16	24.88	10.98	13.70	6.00	15.72	36.06	8.27	1.12	0.94	UNF-2A	1.03	1.39	4.92	M12X15	110.00	99.00	1150
DN100	mm	100.00	400.00	432.00	135.00	527.30	596.40	385.00	646.50	294.70	363.80	152.40	413.90	916.00	275.00	28.45	23.75	1-1/2"	26.20	35.20 (F12)	125.00	M12X15	75.00	70.00	1807
4"	inch	3.94	15.75	17.01	5.31	20.76	23.48	15.16	25.45	11.60	14.32	6.00	16.30	36.06	10.83	1.12	0.94	UNF-2A	1.03	1.39	4.92	M12X15	165.00	154.00	2114
DN150	mm	150.00	490.00	559.00	190.00	579.00	691.65	385.00	-	346.40	459.05	152.40	-	-	355.00	35.92	35.92	2"	40.00	46.50 (F14)	140.00	M16X20	155.00	140.00	4310
6"	inch	5.91	19.29	22.01	7.48	22.80	27.23	15.16	-	13.64	18.07	6.00	-	-	13.98	1.41	1.41	UN-2A	1.57	1.83	5.51	M16X20	341.00	308.00	5043
DN200	mm	200.00	500.00	660.00	275.00	630.00	742.65	385.00	-	397.40	510.05	152.40	-	-	420.00	45.90	45.90	2-3/4"	50.00	59.00 (F16)	165.00	M20X30	400.00	380.00	7970
8"	inch	7.87	19.69	25.98	10.83	24.80	29.24	15.16	-	15.65	20.08	6.00	-	-	16.54	1.81	1.81	UN-2A	1.97	2.32	6.50	M20X30	880.00	836.00	9325

<sup>(1)</sup> Due to high valve torque, pipe handle cannot be used. A manual gear or automation means should be used to operate the valve.



Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A479 316/316L, A351 CF8M, A494 M35-1, Bronze RG5	2
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE,TFM, PCTFE (KEL-F)	2
5A*	Seat housing	A351 CF8M, A494 M35-1, Bronze RG5	2
5B*	Seat seal	PTFE, Graphite	2
6*	Body seal	PTFE, Graphite	2
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1

<sup>(1)</sup> C26C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C26C design.

Item	Description	Material specifications	Qty.
13	Tab lock washer	A240 304	1
14***	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	20-32
18A	Spring washer	DIN 127 A2	20-32
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, CF8M	1
28	Bolt	A193 B8, DIN 912 A2-70	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

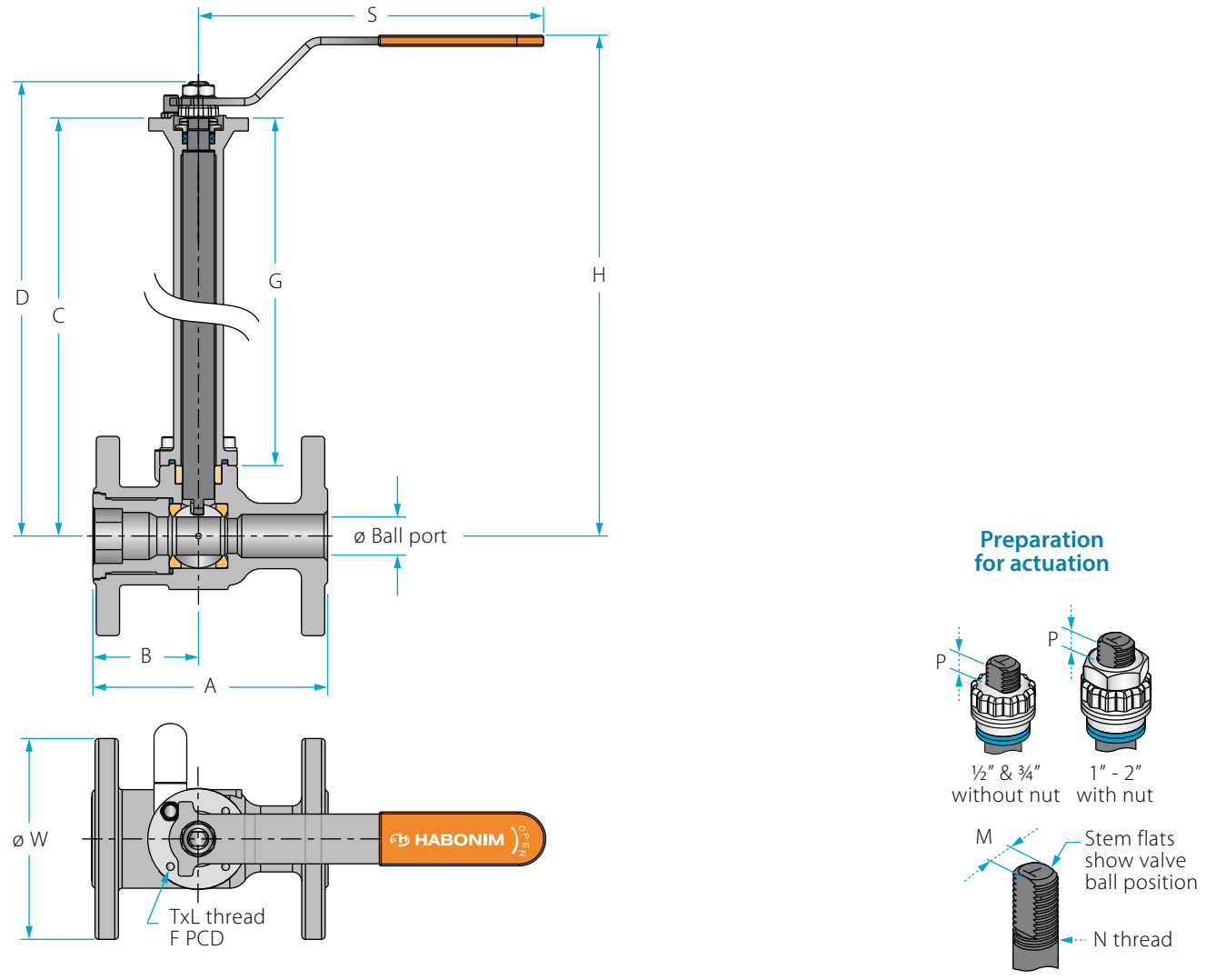
\*\*\* Gear operator should be used for size 6" DN150 and above (handle components are not included)

# Floating Ball Valves

<b>Cryogenic valves</b>	General	3 Piece	<b>Flanged</b>	High pressure	Multiport	Ordering code system
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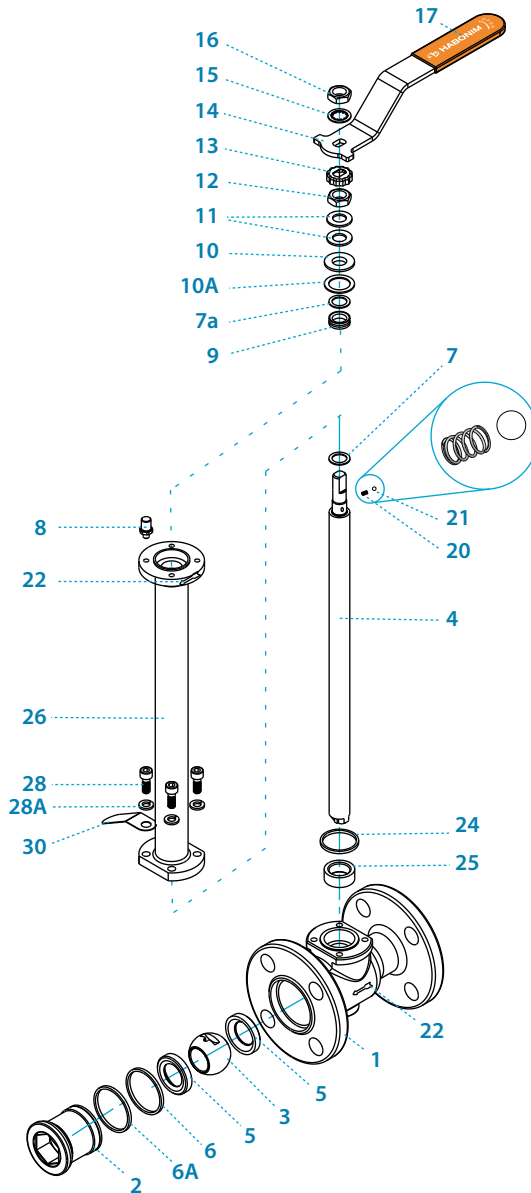
Size 1/2" - 2" | DN15-DN50 | ANSI Class 150 | C31W/C31C<sup>(1)</sup> Series

## Valve dimensions



Std. port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Weight kg/lb		Kv
					C	D	G	H	C	D	G	H								Std.	6.0"	
DN15	mm	11.15	108.00	46.00	333.00	341.90	304.00	367.00	181.40	190.30	152.40	215.40	150.00	89.00	5.50	3/8" UNF	7.20 (F03)	36.00	M5X7	2.40	2.10	7
1/2"	inch	0.44	4.25	1.81	13.11	13.46	11.97	14.45	7.14	7.49	6.00	8.48	5.91	3.50	0.22	3/8" UNF	0.28	1.42	M5X7	5.30	4.60	8
DN20	mm	14.30	117.00	49.35	335.40	344.30	304.00	369.40	183.80	192.70	152.40	217.80	150.00	98.00	5.50	3/8" UNF	7.20 (F03)	36.00	M5X7	3.00	2.70	10
3/4"	inch	0.56	4.61	1.94	13.20	13.56	11.97	14.54	7.24	7.59	6.00	8.57	5.91	3.86	0.22	3/8" UNF	0.28	1.42	M5X7	6.60	5.90	12
DN25	mm	20.60	127.00	57.00	342.15	359.65	304.00	387.00	190.55	208.05	152.40	235.40	187.00	108.00	7.54	7/16" UNF	7.20 (F04)	42.00	M5X7	4.20	3.85	27
1"	inch	0.81	5.00	2.24	13.47	14.16	11.97	15.24	7.50	8.19	6.00	9.27	7.36	4.25	0.30	7/16" UNF	0.28	1.65	M5X7	9.30	8.50	32
DN40	mm	31.80	165.00	62.40	347.55	377.05	304.00	404.00	195.95	225.45	152.40	252.40	237.00	127.00	8.71	9/16" UNF	8.00 (F05)	50.00	M6X8	7.00	6.43	70
1 1/2"	inch	1.25	6.50	2.46	13.68	14.84	11.97	15.91	7.71	8.88	6.00	9.94	9.33	5.00	0.34	9/16" UNF	0.31	1.97	M6X8	15.40	14.20	82
DN50	mm	38.10	178.00	68.00	352.25	381.75	304.00	406.00	200.65	230.15	152.40	254.40	237.00	152.00	8.71	9/16" UNF	8.50 (F05)	50.00	M6X8	9.10	8.53	103
2"	inch	1.50	7.01	2.68	13.87	15.03	11.97	15.98	7.90	9.06	6.00	10.02	9.33	5.98	0.34	9/16" UNF	0.33	1.97	M6X8	20.10	18.80	120

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Plug	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
6A	Support ring	A479 316L, B574 N06022	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2

Item	Description	Material specifications	Qty.
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Locking clip	A167 304	1
14	Handle	A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	A193 B8, EN3506-1 A2-70	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C31C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C31C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

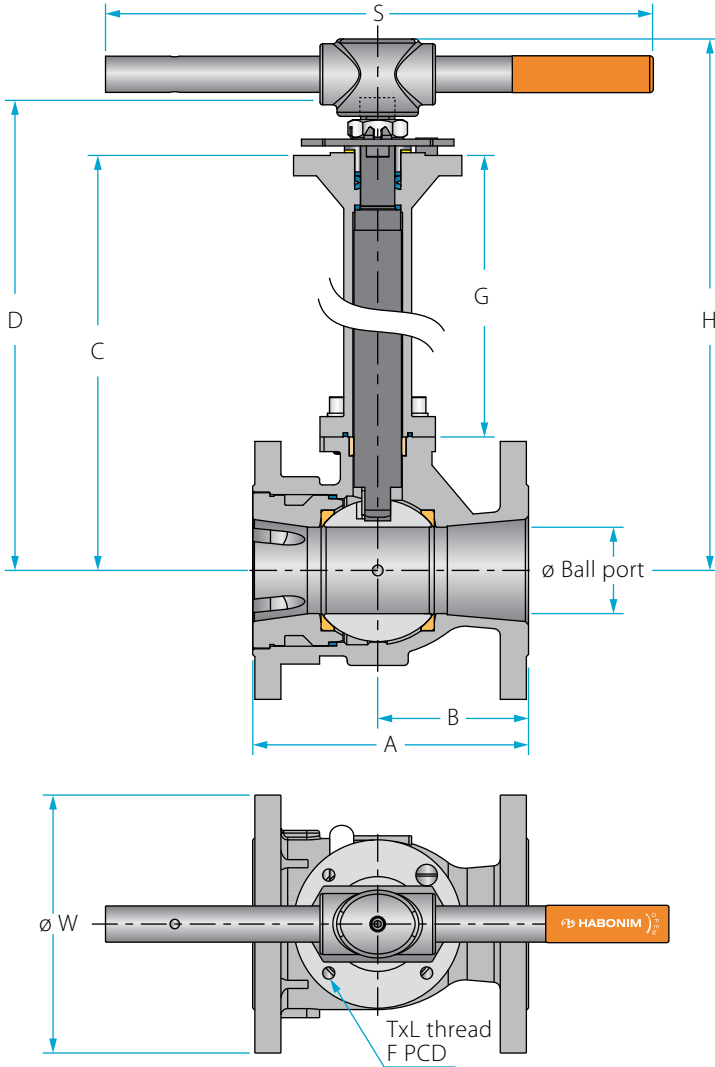
High pressure

Multiport

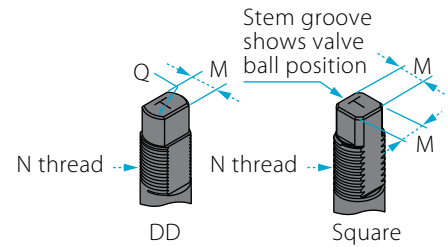
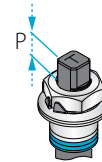
Ordering code system

Size 3"- 8" | DN80-DN200 | ANSI Class 150 | C31W/C31C<sup>(1)</sup> Series

## Valve dimensions



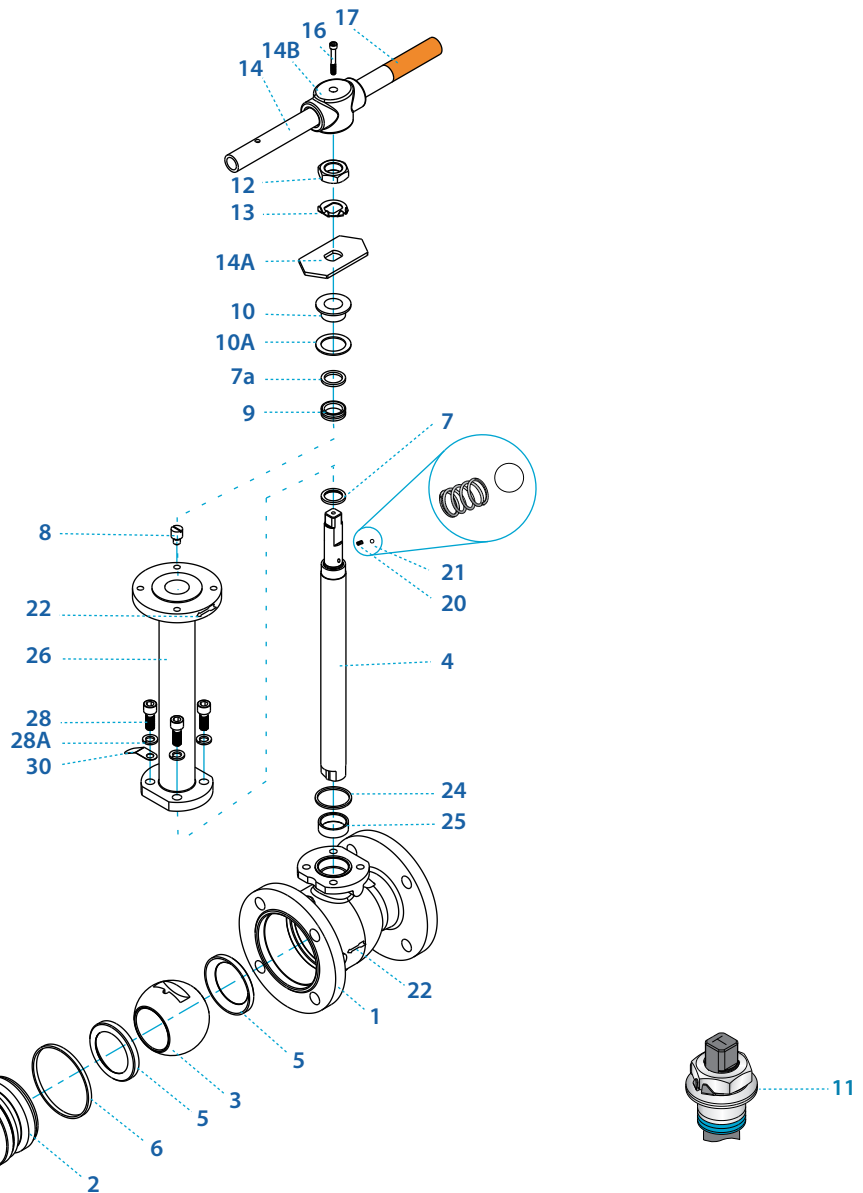
### Preparation for actuation



Std. port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	MDD	N	P	Q	F	TxL	Weight kg/lb		Kv	
					C	D	G	H	C	D	G	H										Std.	6.0"		Cv
DN80	mm	63.8	282.00	92.10	463.30	509.90	343.50	550.50	272.20	318.80	152.40	359.40	610.00	210.00	18.92	15.90	1"-14	16.70	22.70	(F10)	102.00	M10X15	29.00	27.80	385
3"	inch	2.51	11.10	3.63	18.24	20.07	13.52	21.67	10.72	12.55	6.00	14.15	24.02	8.27	0.74	0.63	UNS-2A	0.66	0.89		4.02	M10X15	63.90	61.30	450
DN100	mm	82.80	304.80	101.60	457.60	504.20	343.50	543.40	266.50	313.10	152.40	352.30	610.00	254.00	18.92	15.90	1"-14	16.70	22.70	(F10)	102.00	M10X15	44.60	43.40	615
4"	inch	3.26	12.00	4.00	18.02	19.85	13.52	21.39	10.49	12.33	6.00	13.87	24.02	10.00	0.74	0.63	UNS-2A	0.66	0.89		4.02	M10X15	98.30	95.70	720
DN150	mm	111.3	403.20	107.80	561.00	630.50	385.00	-	328.40	397.90	152.40	-	-	318.00	28.45	23.75	1 1/2"-12	26.20	35.20	(F12)	125.00	M12X15	92.00	89.00	872
6"	inch	4.38	15.87	4.24	22.09	24.82	15.16	-	12.93	15.67	6.00	-	-	12.52	1.12	0.94	UNS-2A	1.03	1.39		4.92	M12X15	202.40	195.80	1020
DN200	mm	144.40	419.10	142.25	570.10	639.60	385.00	-	337.50	407.00	152.40	-	-	381.00	28.45	23.75	1 1/2"-12	26.20	35.20	(F12)	125.00	M12X15	118.60	114.50	1607
8"	inch	5.69	16.50	5.60	22.44	25.18	15.16	-	13.29	16.02	6.00	-	-	15.00	1.12	0.94	UNS-2A	1.03	1.39		4.92	M12X15	261.40	252.40	1880

<sup>(1)</sup> Due to high valve torque, pipe handle cannot be used. A manual gear or automation means should be used to operate the valve.

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Plug	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	C.st B18 ZP	1
13	Tab lock washer	A240 304	1

Item	Description	Material specifications	Qty.
14***	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	A193 B8, EN3506-1 A2-70	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

\*\*\* Gear operator should be used for size 6" DN150 and above (handle components are not included)

<sup>(1)</sup> C31C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C31C design.

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

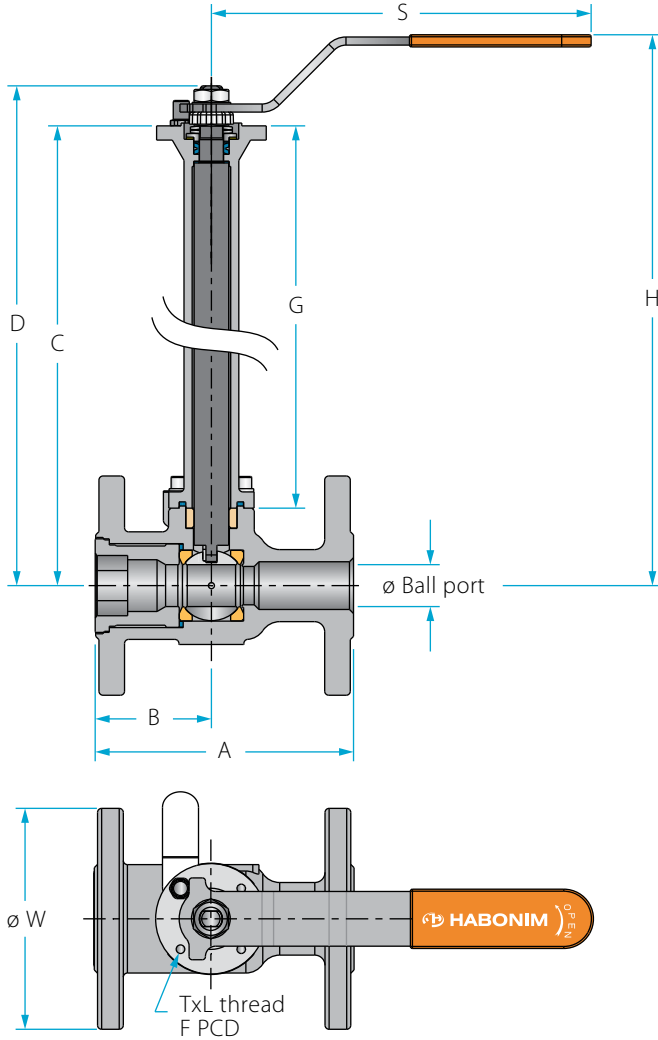
High pressure

Multiport

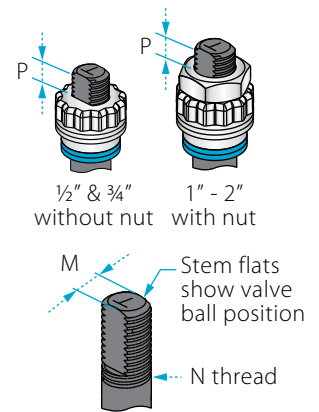
Ordering code system

Size 1/2" - 2" | DN15-DN50 | ANSI Class 300 | C32W/C32C<sup>(1)</sup> Series

## Valve dimensions

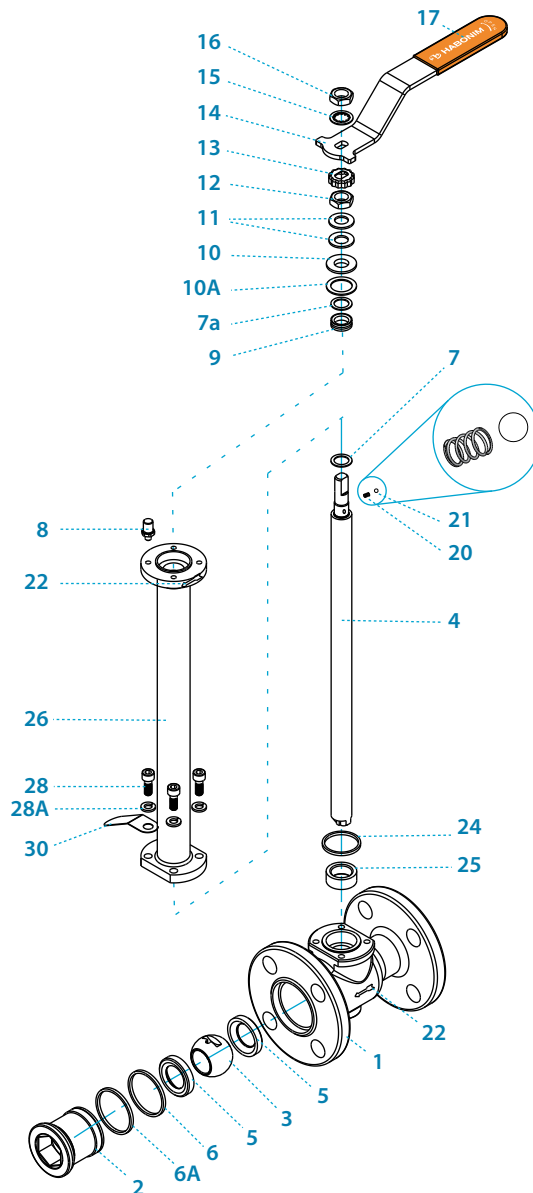


### Preparation for actuation



Std. port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Weight kg/lb		
					C	D	G	H	C	D	G	H								Std.	6.0"	Cv
DN15	mm	11.15	140.00	46.00	333.00	341.90	304.00	367.00	181.40	190.30	152.40	215.40	150.00	95.00	5.50	3/8" UNF	7.20 (F03)	36.00	M5X7	3.10	2.80	7
1/2"	inch	0.44	5.51	1.81	13.11	13.46	11.97	14.45	7.14	7.49	6.00	8.48	5.91	3.74	0.22		0.28	1.42		6.80	6.10	8
DN20	mm	14.30	152.40	49.33	335.40	344.30	304.00	369.40	183.80	192.70	152.40	217.80	150.00	117.00	5.50	3/8" UNF	7.20 (F03)	36.00	M5X7	4.00	3.70	10
3/4"	inch	0.56	6.00	1.94	13.20	13.56	11.97	14.54	7.24	7.59	6.00	8.57	5.91	4.61	0.22		0.28	1.42		8.80	8.10	12
DN25	mm	20.60	165.00	57.00	342.05	359.55	304.00	387.00	190.55	208.05	152.40	235.40	187.00	124.00	7.54	7/16" UNF	7.20 (F04)	42.00	M5X7	5.50	5.20	27
1"	inch	0.81	6.50	2.24	13.47	14.16	11.97	15.24	7.50	8.19	6.00	9.27	7.36	4.88	0.30		0.28	1.65		12.10	11.40	32
DN40	mm	31.80	190.50	62.30	347.45	376.95	304.00	404.00	195.95	225.45	152.40	252.40	237.00	156.00	8.71	1/16" UNF	8.00 (F05)	50.00	M6X8	10.00	9.60	70
1 1/2"	inch	1.25	7.50	2.45	13.68	14.84	11.97	15.91	7.71	8.88	6.00	9.94	9.33	6.14	0.34		0.31	1.97		22.50	21.20	82
DN50	mm	38.10	216.00	67.80	352.25	381.8	304.00	408.00	200.65	230.15	152.40	256.40	237.00	165.00	8.71	1/16" UNF	8.50 (F05)	50.00	M6X8	12.10	11.70	103
2"	inch	1.50	8.50	2.67	13.87	15.0	11.97	16.06	7.90	9.06	6.00	10.09	9.33	6.50	0.34		0.33	1.97		26.00	24.80	120

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Plug	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
6A	Support ring	A479 316L, B574 N06022	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2

Item	Description	Material specifications	Qty.
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Locking clip	A167 304	1
14	Handle	A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	A193 B8, EN3506-1 A2-70	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C32C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C32C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

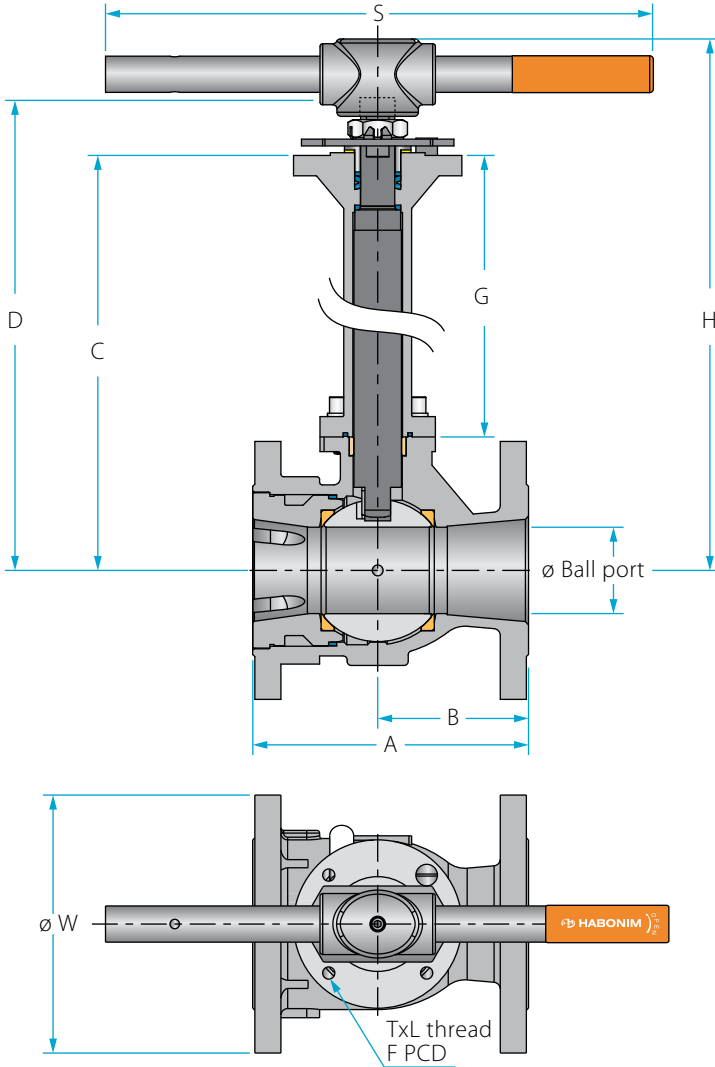
High pressure

Multiport

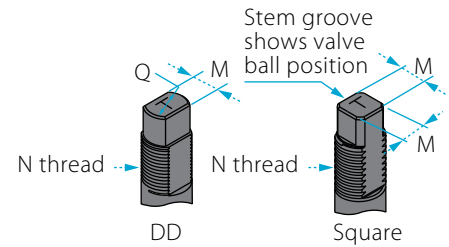
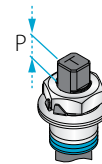
Ordering code system

Size 3"- 8" | DN80-DN200 | ANSI Class 300 | C32W/C32C<sup>(1)</sup> Series

## Valve dimensions



### Preparation for actuation

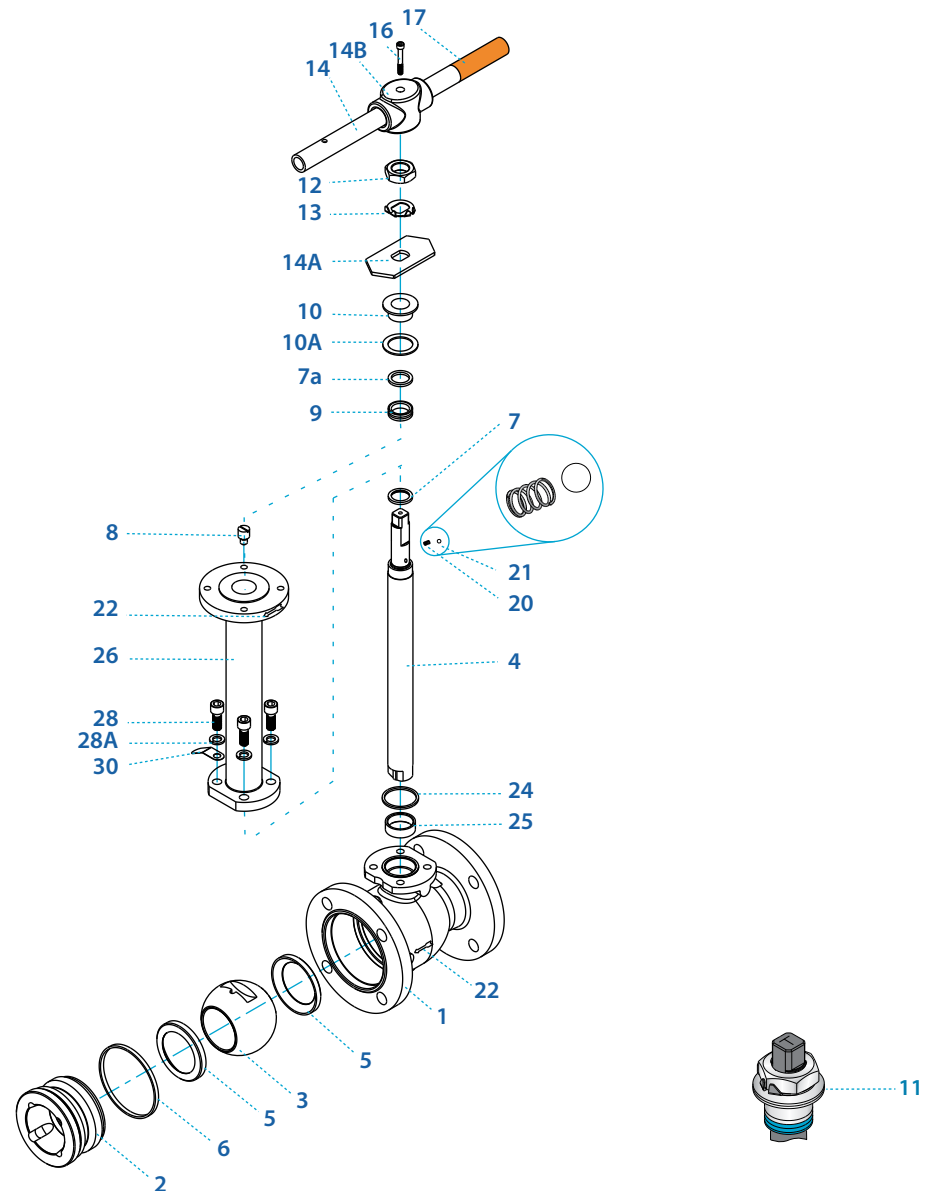


Std. port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	MDD	N	P	Q	F	TxL	Weight kg/lb		Kv	
					C	D	G	H	C	D	G	H										Std.	6.0"		Cv
DN80	mm	63.8	282.00	92.10	463.30	509.90	343.50	550.50	272.20	318.80	152.40	359.40	610.00	210.00	18.92	15.90	1"-14	16.70	22.70	(F10)	102.00	M10X15	29.00	27.80	385
3"	inch	2.51	11.10	3.63	18.24	20.07	13.52	21.67	10.72	12.55	6.00	14.15	24.02	8.27	0.74	0.63	UNS-2A	0.66	0.89		4.02	M10X15	63.90	61.30	450
DN100	mm	82.80	304.80	101.60	457.60	504.20	343.50	543.40	266.50	313.10	152.40	352.30	610.00	254.00	18.92	15.90	1"-14	16.70	22.70	(F10)	102.00	M10X15	44.60	43.40	615
4"	inch	3.26	12.00	4.00	18.02	19.85	13.52	21.39	10.49	12.33	6.00	13.87	24.02	10.00	0.74	0.63	UNS-2A	0.66	0.89		4.02	M10X15	98.30	95.70	720
DN150	mm	111.3	403.20	107.80	561.00	630.50	385.00	-	328.40	397.90	152.40	-	-	318.00	28.45	23.75	1-1/2"	26.20	35.20	(F12)	125.00	M12X15	92.00	89.00	872
6"	inch	4.38	15.87	4.24	22.09	24.82	15.16	-	12.93	15.67	6.00	-	-	12.52	1.12	0.94	UNF-2A	1.03	1.39		4.92	M12X15	202.40	195.80	1020
DN200	mm	144.40	419.10	142.25	570.10	639.60	385.00	-	337.50	407.00	152.40	-	-	381.00	28.45	23.75	1-1/2"	26.20	35.20	(F12)	125.00	M12X15	118.60	114.50	1607
8"	inch	5.69	16.50	5.60	22.44	25.18	15.16	-	13.29	16.02	6.00	-	-	15.00	1.12	0.94	UNF-2A	1.03	1.39		4.92	M12X15	261.40	252.40	1880

<sup>(1)</sup> Due to high valve torque, pipe handle cannot be used. A manual gear or automation means should be used to operate the valve.



Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Plug	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	C.st B18 ZP	1
13	Tab lock washer	A240 304	1

Item	Description	Material specifications	Qty.
14***	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	A193 B8, EN3506-1 A2-70	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

\*\*\* Gear operator should be used for size 6" DN150 and above (handle components are not included)

<sup>(1)</sup> C32C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

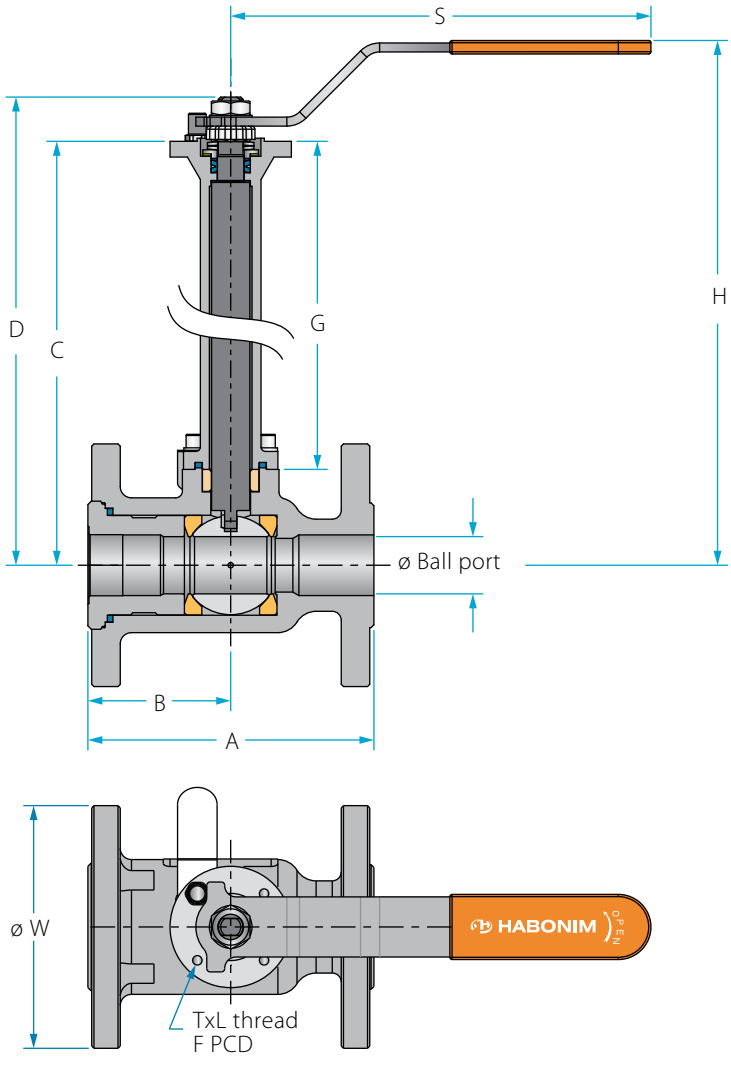
<sup>(2)</sup> This material can only be used as part of the C32C design.

# Floating Ball Valves

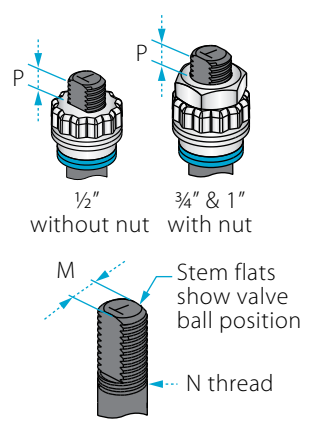
<b>Cryogenic valves</b>	General	3 Piece	<b>Flanged</b>	High pressure	Multiport	Ordering code system
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Size 1/2"-1" | DN15-DN25 | ANSI Class 150 | C73W/C73C<sup>(1)</sup> Series

## Valve dimensions

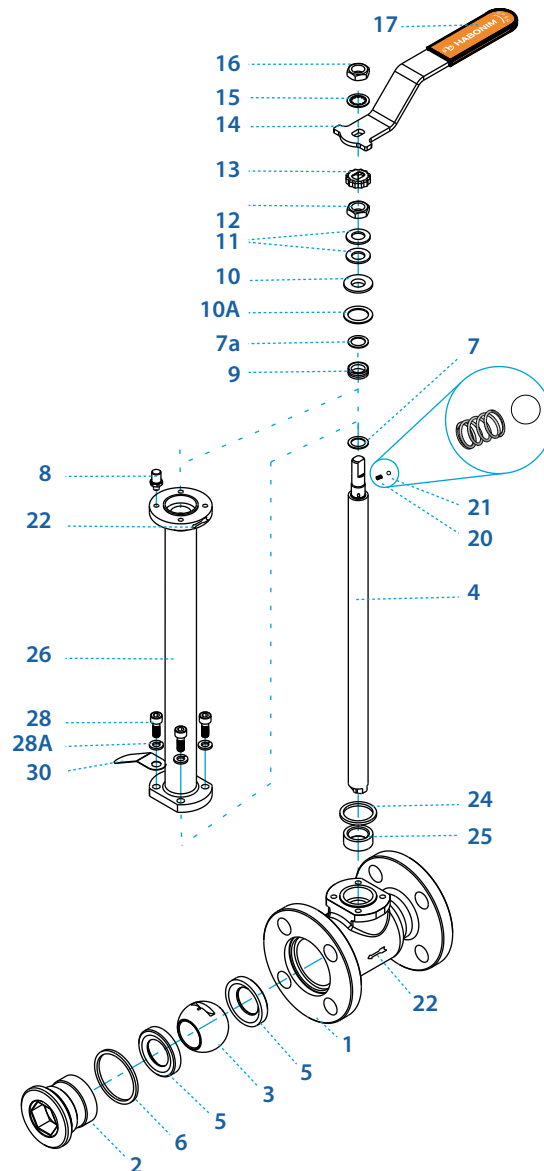


### Preparation for actuation



Full Port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Weight kg/lb		Kv
					C	D	G	H	C	D	G	H								Std.	6.0"	
DN15	mm	14.30	108.20	48.20	335.40	344.30	304.00	400.00	183.80	192.70	152.40	248.40	150.00	89.00	5.50	3/8" UNF	7.20 (F03)	36.00	M5X7	2.60	2.28	26
1/2"	inch	0.56	4.26	1.90	13.20	13.56	11.97	15.75	7.24	7.59	6.00	9.78	5.91	3.50	0.22		0.28	1.42		5.73	5.03	30
DN20	mm	20.60	117.00	59.00	342.15	359.65	304.00	406.80	190.55	208.05	152.40	255.20	187.00	98.00	7.54	7/16" UNF	7.20 (F04)	42.00	M5X7	3.80	3.45	43
3/4"	inch	0.81	4.61	2.32	13.47	14.16	11.97	16.02	7.50	8.19	6.00	10.05	7.36	3.86	0.30		0.28	1.65		8.38	7.60	50
DN25	mm	25.40	127.00	64.00	346.65	364.15	304.00	411.30	195.05	212.55	152.40	259.70	187.00	108.00	7.54	7/16" UNF	7.20 (F04)	42.00	M5X7	4.60	4.25	85
1"	inch	1.00	5.00	2.52	13.65	14.34	11.97	16.19	7.68	8.37	6.00	10.22	7.36	4.25	0.30		0.28	1.65		10.14	9.37	105

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Plug	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	2
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1

Item	Description	Material specifications	Qty.
13	Locking clip	A167 304	1
14	Handle	A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	A193 B8, EN3506-1 A2-70	4
28A	Spring washer	DIN 912 A2-70	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C73C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C73C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

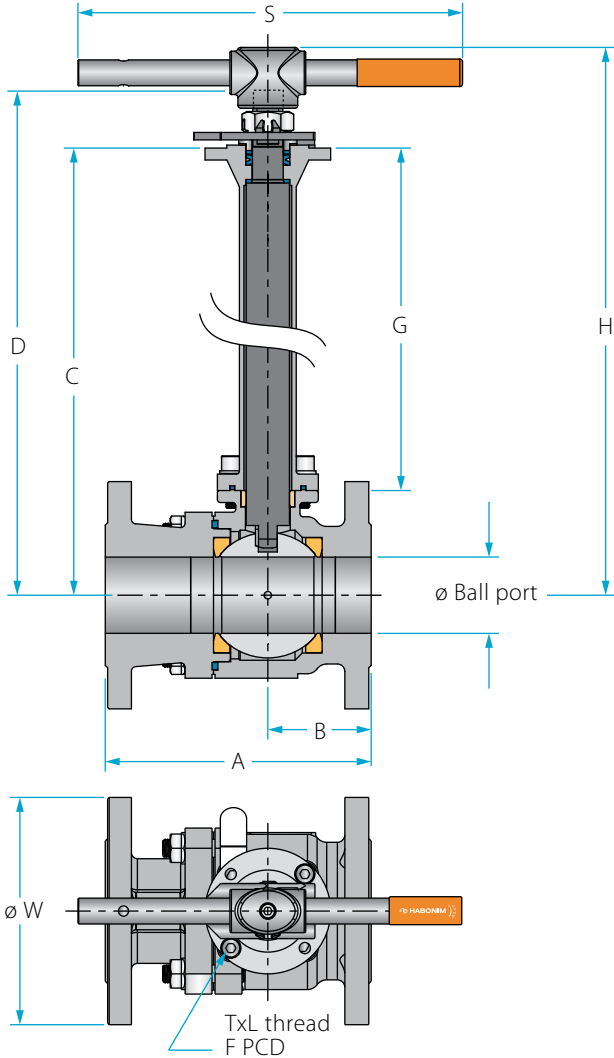
High pressure

Multiport

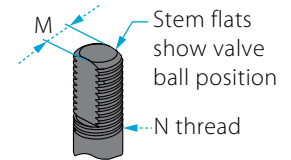
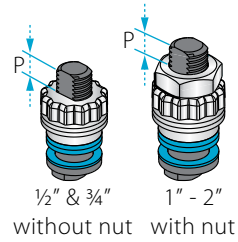
Ordering code system

Size 1½" - 2" | DN40-DN50 | ANSI Class 150 | C73W/C73C<sup>(1)</sup> Series

## Valve dimensions

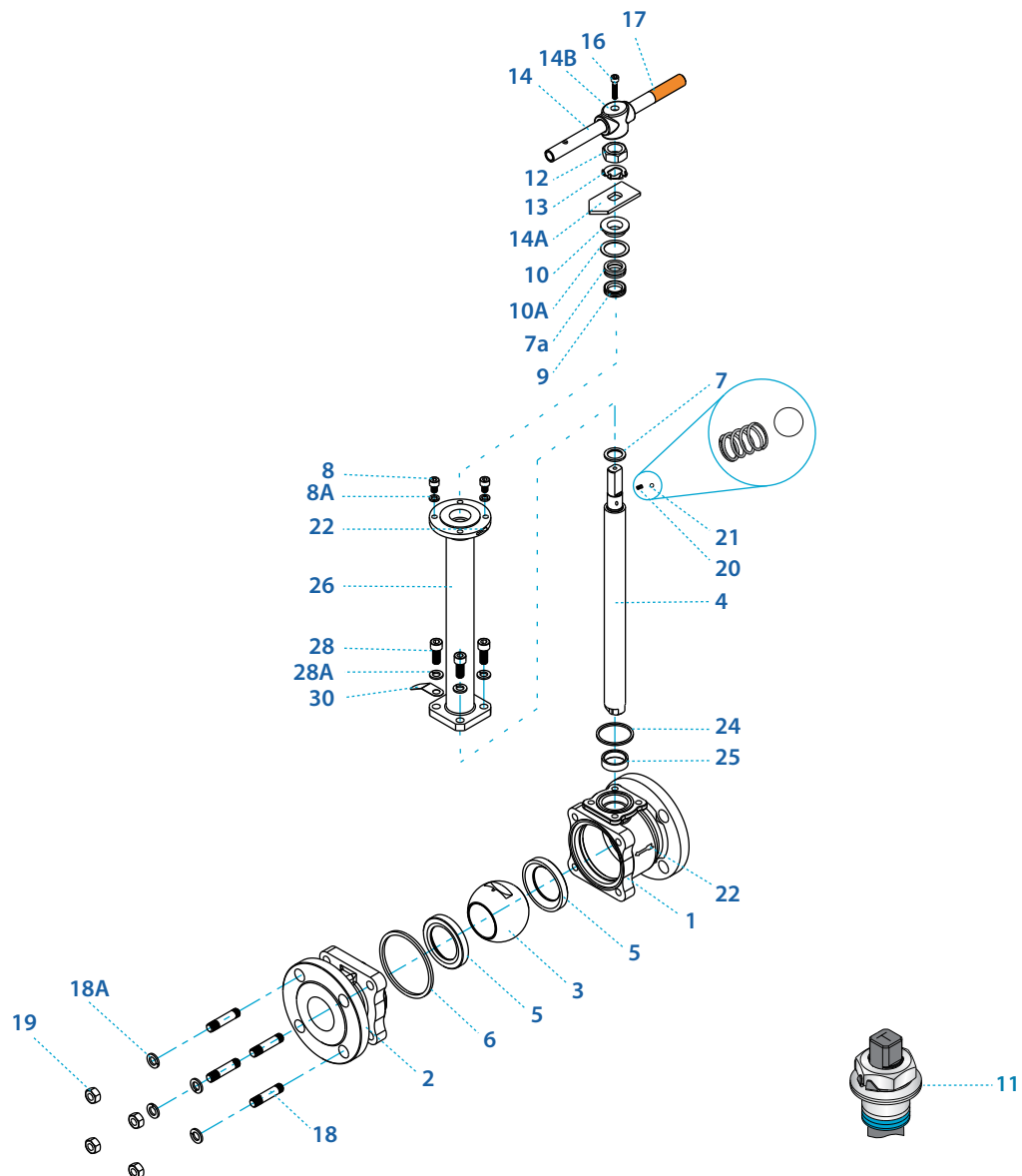


### Preparation for actuation



Full Port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Weight kg/lb			Kv
					C	D	G	H	C	D	G	H								Std.	6.0"	Cv	
DN40	mm	38.10	165.00	68.00	352.3	381.8	304.00	406.60	200.65	230.15	152.40	255.00	237.00	127.00	8.71	9/16" UNF	8.50 (F05)	50.00	M6X8	8.50	7.93	214	
1½"	inch	1.50	6.50	2.68	13.87	15.0	11.97	16.01	7.90	9.06	6.00	10.04	9.33	5.00	0.34		0.33	1.97		18.73	17.48	250	
DN50	mm	51.00	178.00	69.00	397.50	439.10	327.50	430.35	222.40	264.00	152.40	255.25	400.00	152.00	13.90	M20x2.5	13.50 (F07)	70.00	M8X8	16.00	14.50	410	
2"	inch	2.01	7.01	2.72	15.65	17.29	12.89	16.94	8.76	10.39	6.00	10.05	15.75	5.98	0.55		0.53	2.76		35.20	31.90	480	

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop bolt	A582 303	2
8A	Spring washer	DIN 127 A2	2
9*	Stem seal	TFM, Graphite	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 8M	1
13	Tab lock washer	A240 304	1

Item	Description	Material specifications	Qty.
14	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	4
18A	Spring washer	DIN 127 A2	4
19	Body Nut	EN3506-2 A4-80, A194 8M	4
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C73C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C73C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

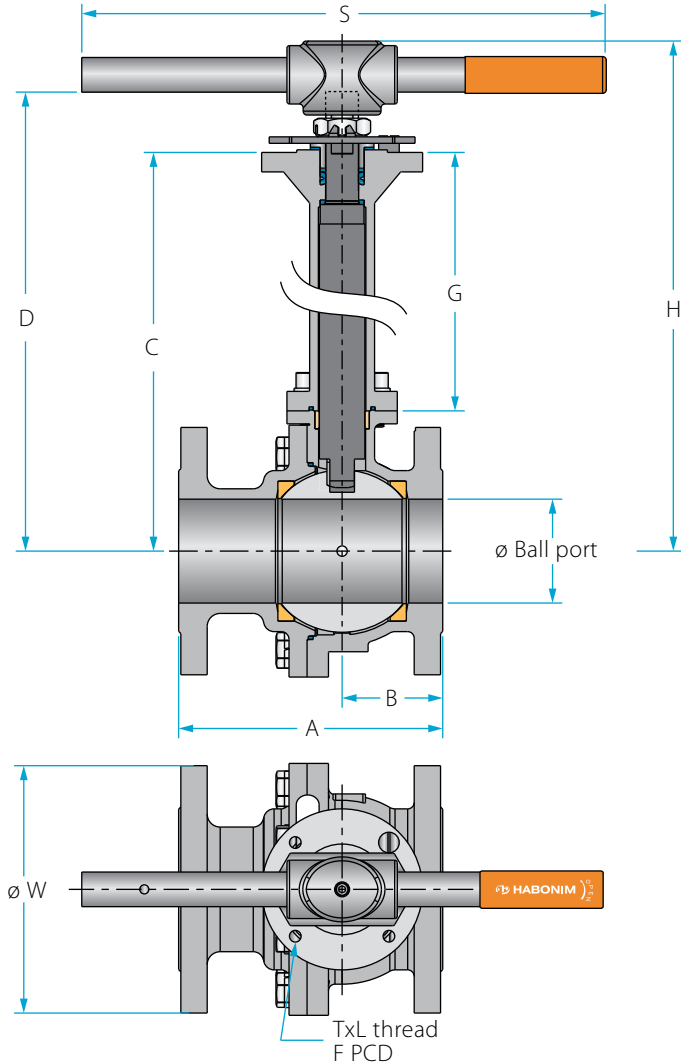
High pressure

Multiport

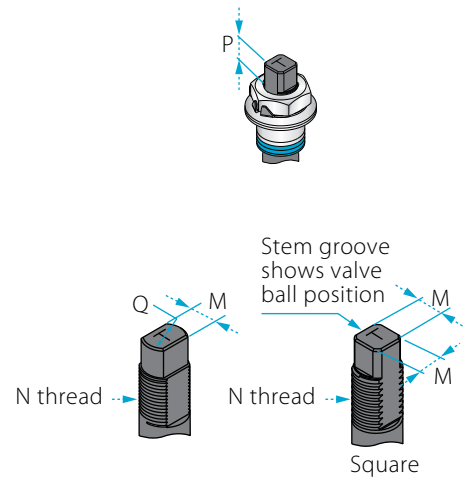
Ordering code system

Size 3"- 8" | DN80-DN200 | ANSI Class 150 | C73W/C73C<sup>(1)</sup> Series

## Valve dimensions



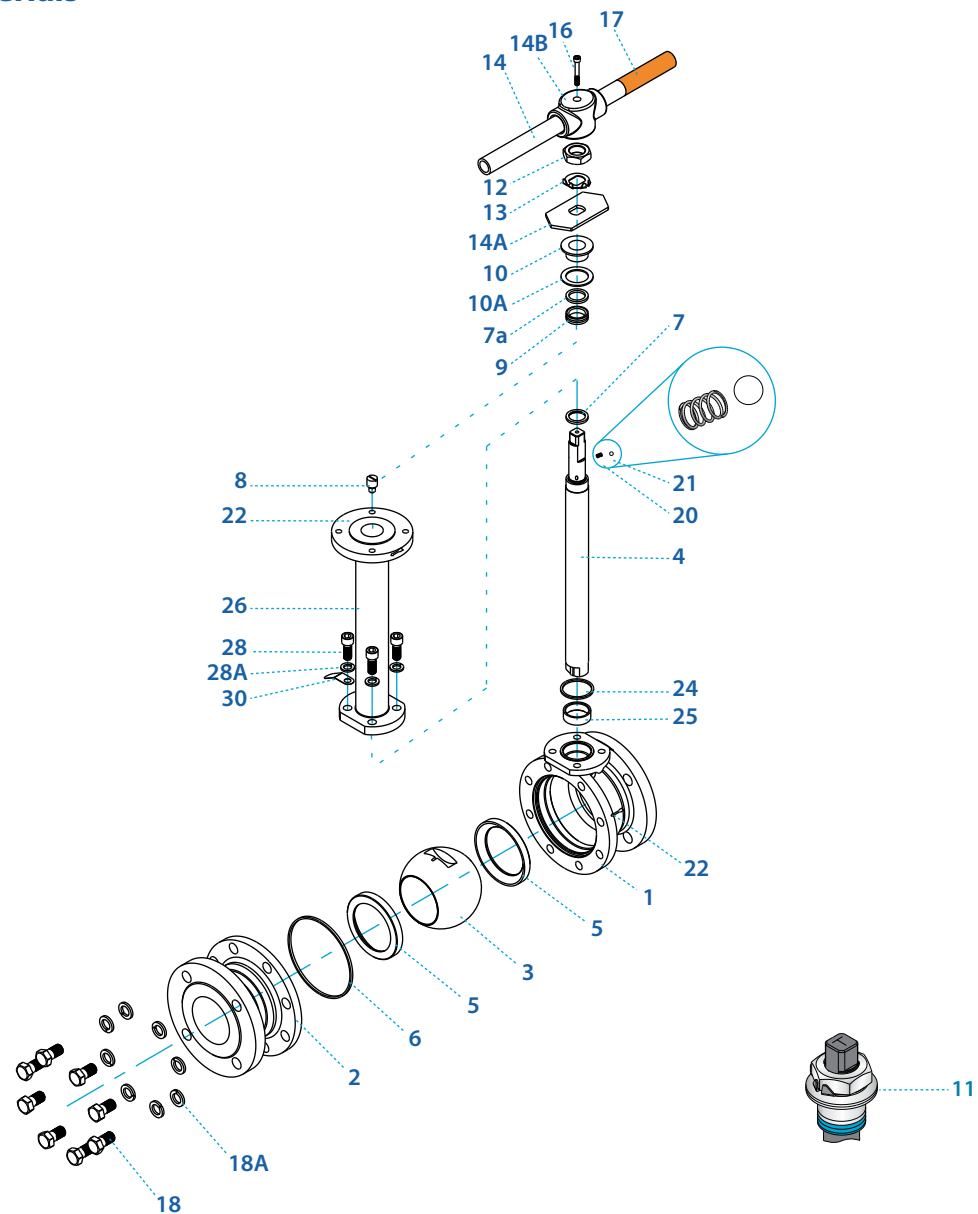
### Preparation for actuation



Full Port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	M DD	N	P	Q	F	TxL	Weight kg/lb		Kv	
					C	D	G	H	C	D	G	H										Std.	6.0"		Cv
DN80	mm	80.00	203.00	77.50	441.50	488.10	343.50	538.60	250.40	297.00	152.40	347.50	610.00	190.50	18.90	15.90	1"-14	16.70	22.70	(F10)	102.00	M10X15	27.00	25.00	1111
3"	inch	3.15	7.99	3.05	17.38	19.22	13.52	21.20	9.86	11.69	6.00	13.68	24.02	7.50	0.74	0.63	UNS-2A	0.66	0.89		4.02	M10X15	59.40	41.44	1300
DN100	mm	100.00	229.00	84.50	467.50	514.10	343.50	566.60	276.40	323.00	152.40	375.50	610.00	230.00	18.90	15.90	1"-14	16.70	22.70	(F10)	102.00	M10X15	44.00	42.00	2051
4"	inch	3.94	9.02	3.33	18.41	20.24	13.52	22.31	10.88	12.72	6.00	14.78	24.02	9.06	0.74	0.63	UNS-2A	0.66	0.89		4.02	M10X15	67.22	64.58	2379
DN150	mm	150.00	394.00	163.50	564.00	633.50	385.00	-	331.40	400.90	152.40	-	-	279.40	28.45	23.75	1-1/2"-12 UNF-2A	26.20	35.20	(F12)	125.00	M12X15	97.00	93.50	4615
6"	inch	5.91	15.51	6.44	22.20	24.94	15.16	-	13.05	15.78	6.00	-	-	11.00	1.12	0.94	2"	1.03	1.39		4.92	M12X15	154.28	145.24	5400
DN200	mm	200.00	457.00	242.60	627.00	627.00	385.00	-	394.40	463.90	152.40	-	-	343.00	35.90	35.90	2" UN-2A	40.00	46.50	(F14)	140.00	M16X20	210.00	203.00	7949
8"	inch	7.87	17.99	9.55	24.69	24.69	15.16	-	15.53	18.26	6.00	-	-	13.50	1.41	1.41		1.57	1.83		5.51	M16X20	231.42	222.38	9300

<sup>(1)</sup> Due to high valve torque, pipe handle cannot be used. A manual gear or automation means should be used to operate the valve.

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	C.st B18 ZP	1
13	Tab lock washer	A240 304	1

<sup>(1)</sup> C73C series is Habonim's standard valve design without the HermetiX™ stem seal construction.  
<sup>(2)</sup> This material can only be used as part of the C73C design.

Item	Description	Material specifications	Qty.
14***	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN3506-1 A2-70, A193 B8	8-10
18A	Spring washer	DIN 127 A2	8-10
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

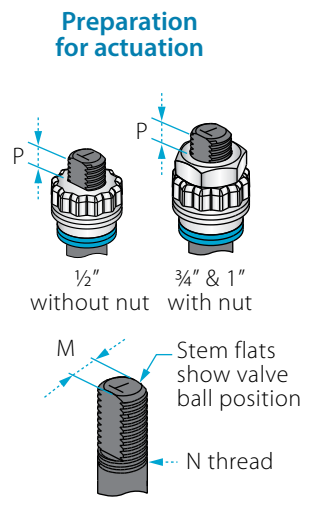
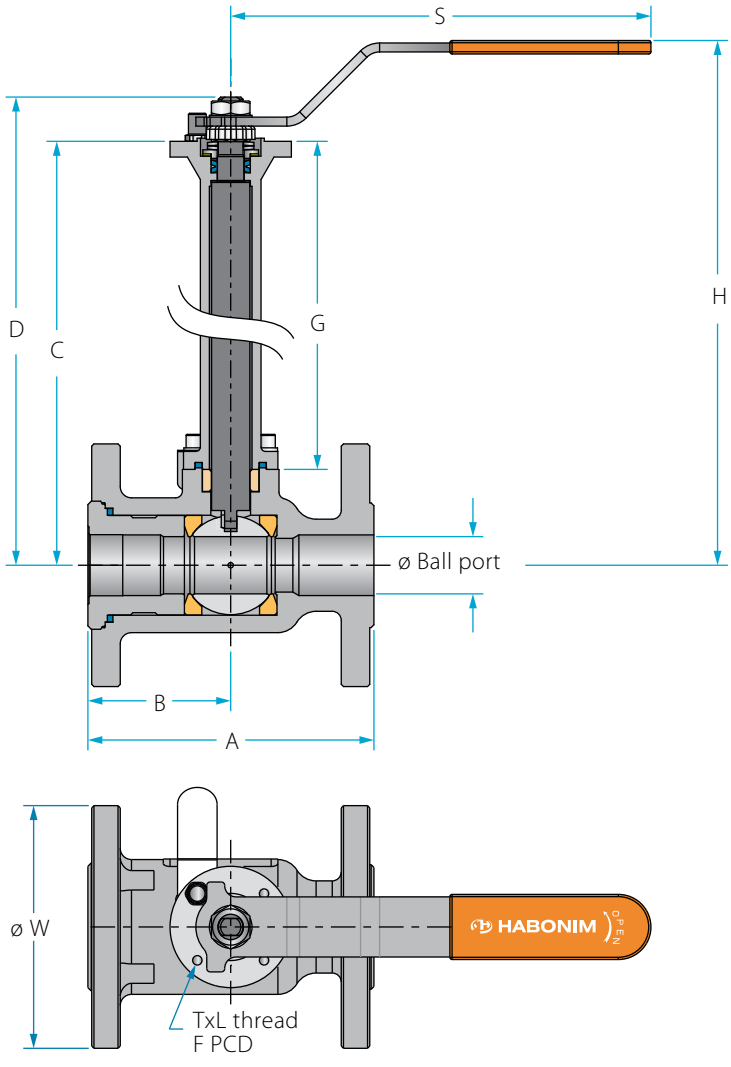
\* Repair kit components  
 \*\* Only with HermetiX™ fire safe design  
 \*\*\* Gear operator should be used for size 6" DN150 and above (handle components are not included)

# Floating Ball Valves

<b>Cryogenic valves</b>	General	3 Piece	<b>Flanged</b>	High pressure	Multiport	Ordering code system
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Size 1/2"-1" | DN15-DN25 | ANSI Class 300 | C74W/C74C<sup>(1)</sup> Series

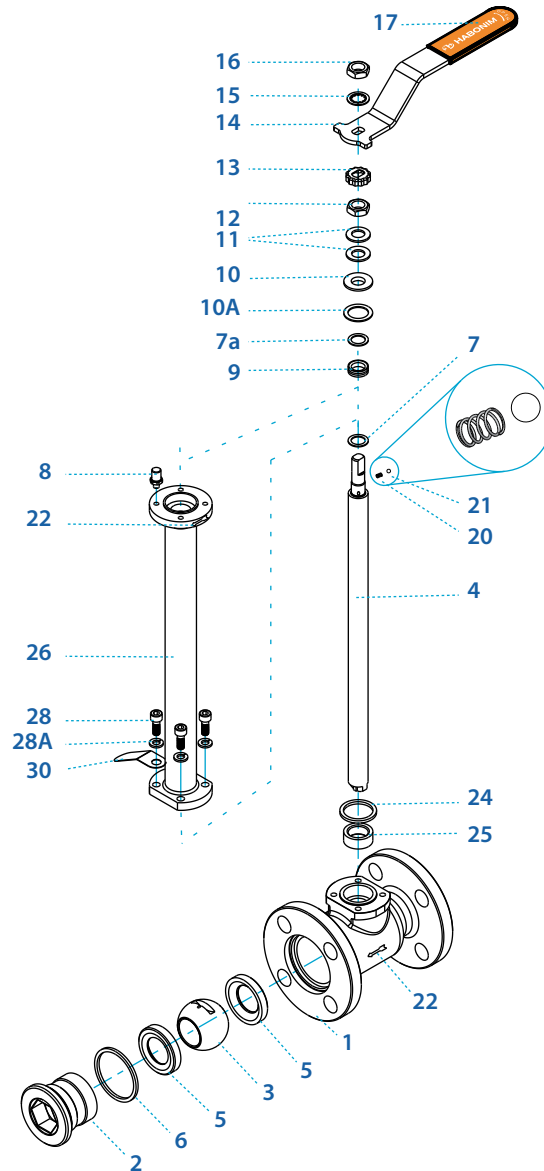
## Valve dimensions



Full Port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Weight kg/lb		Kv
					C	D	G	H	C	D	G	H								Std.	6.0"	
DN15	mm	14.30	140.00	48.00	335.40	344.30	304.00	400.00	183.80	192.70	152.40	248.40	150.00	95.00	5.50	3/8" UNF	7.20 (F03)	36.00	M5X7	3.10	2.78	26
1/2"	inch	0.56	5.51	1.89	13.20	13.56	11.97	15.75	7.24	7.59	6.00	9.78	5.91	3.74	0.22		0.28	1.42		6.83	6.13	30
DN20	mm	20.60	153.00	59.00	342.2	359.7	304.00	406.80	190.55	208.05	152.40	255.20	187.00	117.00	7.54	7/16" UNF	7.20 (F04)	42.00	M5X8	4.90	4.55	43
3/4"	inch	0.81	6.02	2.32	13.47	14.16	11.97	16.02	7.50	8.19	6.00	10.05	7.36	4.61	0.30		0.28	1.65		10.80	10.03	50
DN25	mm	25.40	165.00	64.00	346.7	364.15	304.00	411.30	195.05	212.55	152.40	259.70	187.00	124.00	7.54	7/16" UNF	7.20 (F04)	42.00	M5X8	6.00	5.65	85
1"	inch	1.00	6.50	2.52	13.65	14.34	11.97	16.19	7.68	8.37	6.00	10.22	7.36	4.88	0.30		0.28	1.65		13.22	12.45	105



Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Plug	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	2
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1

Item	Description	Material specifications	Qty.
13	Locking clip	A167 304	1
14	Handle	A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C74C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C74C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

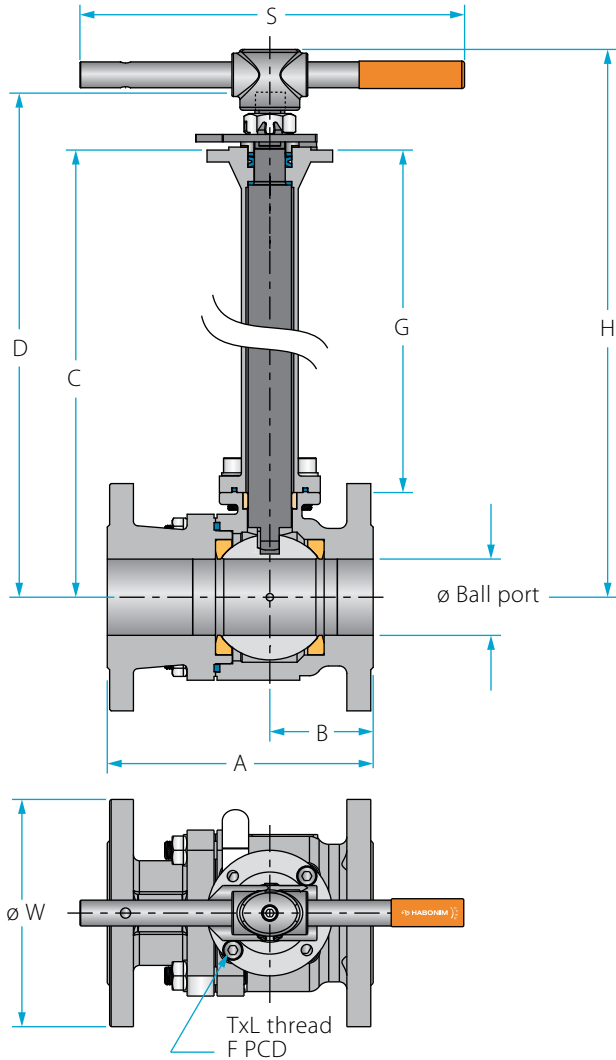
High pressure

Multiport

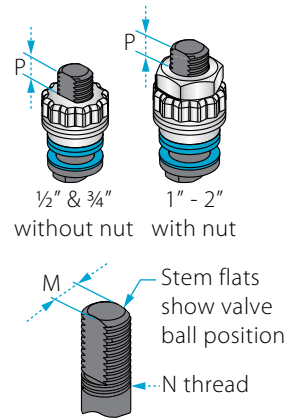
Ordering code system

Size 1½" - 2" | DN40-DN50 | ANSI Class 300 | C74W/C74C<sup>(1)</sup> Series

## Valve dimensions

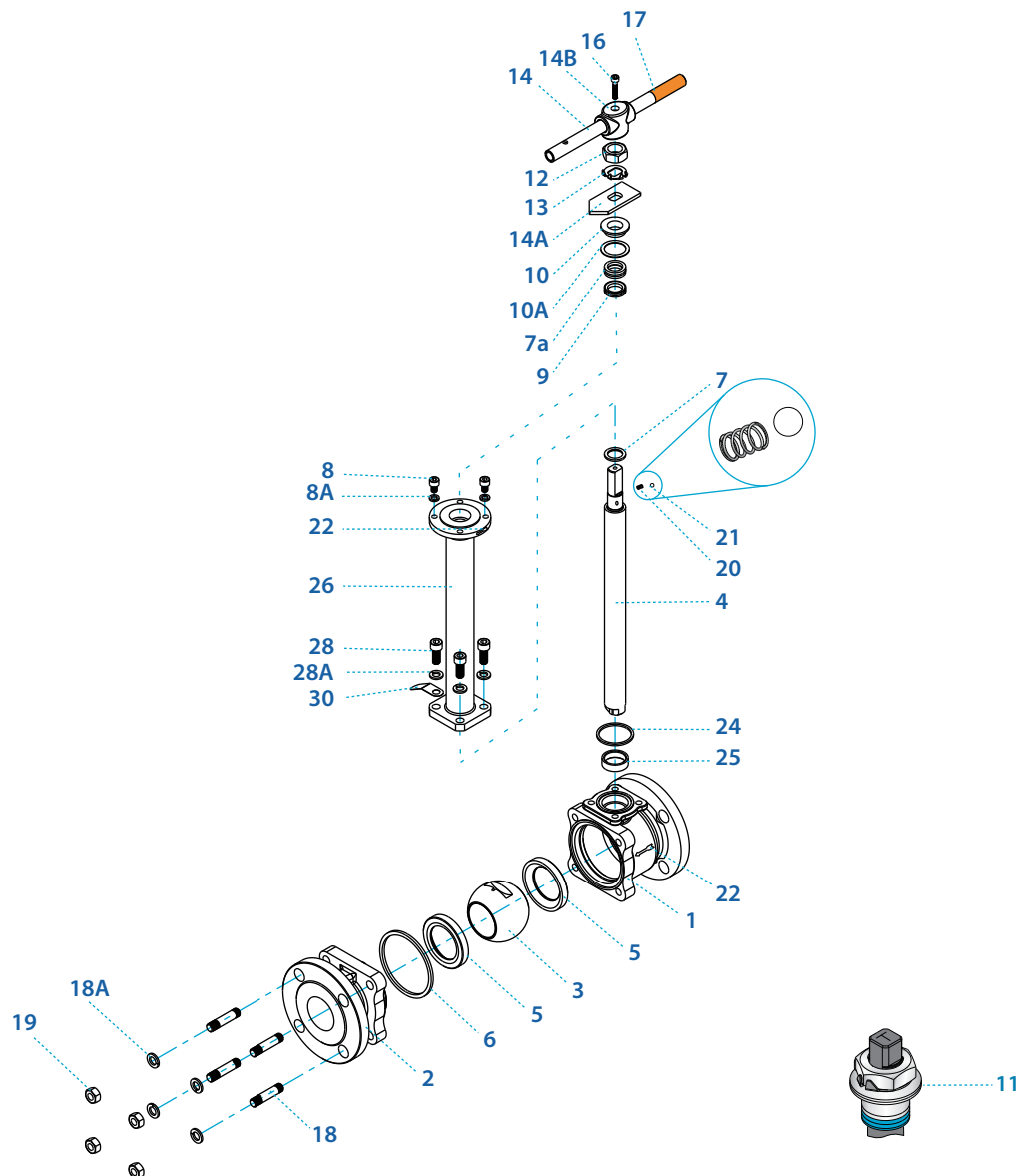


### Preparation for actuation



Full Port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Weight kg/lb		
					C	D	G	H	C	D	G	H								Std.	6.0"	Cv
DN40	mm	38.10	190.50	110.00	352.25	381.75	304.00	408.00	200.65	230.15	152.40	256.40	237.00	156.00	8.71	9/16" UNF	8.50 (F05)	50.00	M6X8	11.70	11.13	214
1½"	inch	1.50	7.50	4.33	13.87	15.03	11.97	16.06	7.90	9.06	6.00	10.09	9.33	6.14	0.34		0.33	1.97		25.79	24.53	250
DN50	mm	51.00	216.00	141.00	374.00	415.60	304.00	442.60	222.40	264.00	152.40	291.00	400.00	165.00	13.90	M20X2.5	13.50 (F07)	70.00	M8X8	18.00	16.50	410
2"	inch	2.01	8.50	5.55	14.72	16.36	11.97	17.43	8.76	10.39	6.00	11.46	15.75	6.50	0.55		0.53	2.76		39.60	36.30	480

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop bolt	A582 303	2
8A	Spring washer	DIN 127 A2	2
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 8M	1
13	Tab lock washer	A240 304	1

Item	Description	Material specifications	Qty.
14	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body stud	EN3506-2 A2-70, A193 B8	4
18A	Spring washer	DIN 127 A2	4
19	Body Nut	EN3506-2 A4-80, A194 8M	4
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C74C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C74C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

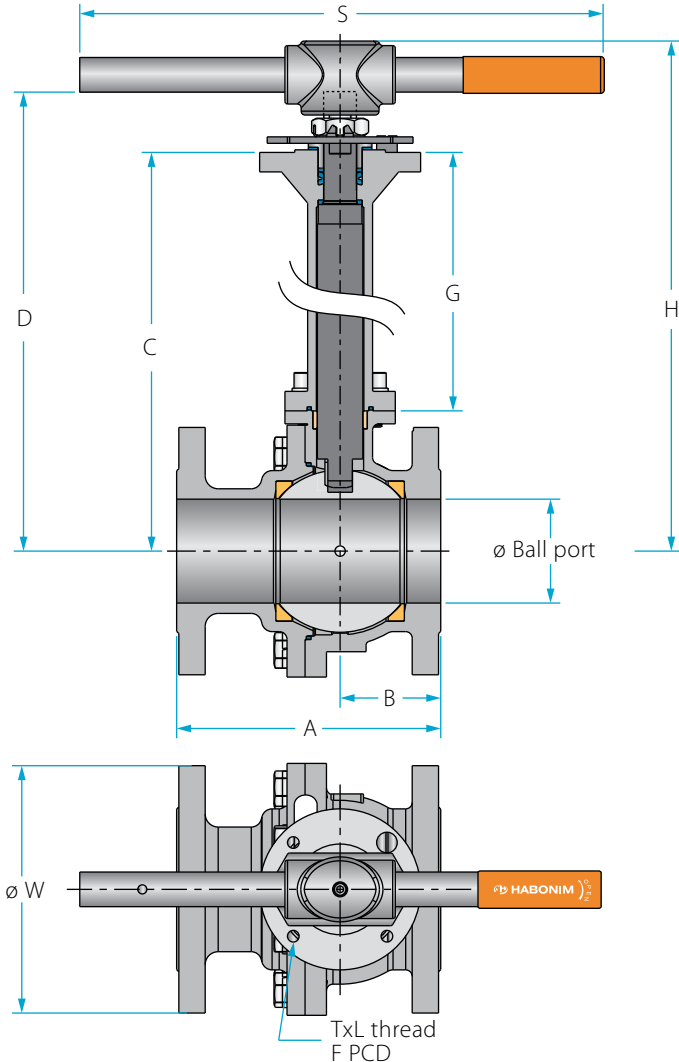
High pressure

Multiport

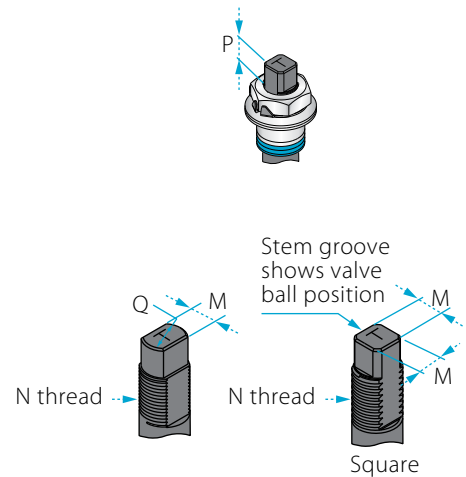
Ordering code system

Size 3"- 8" | DN80-DN200 | ANSI Class 300 | C74W/C74C<sup>(1)</sup> Series

## Valve dimensions



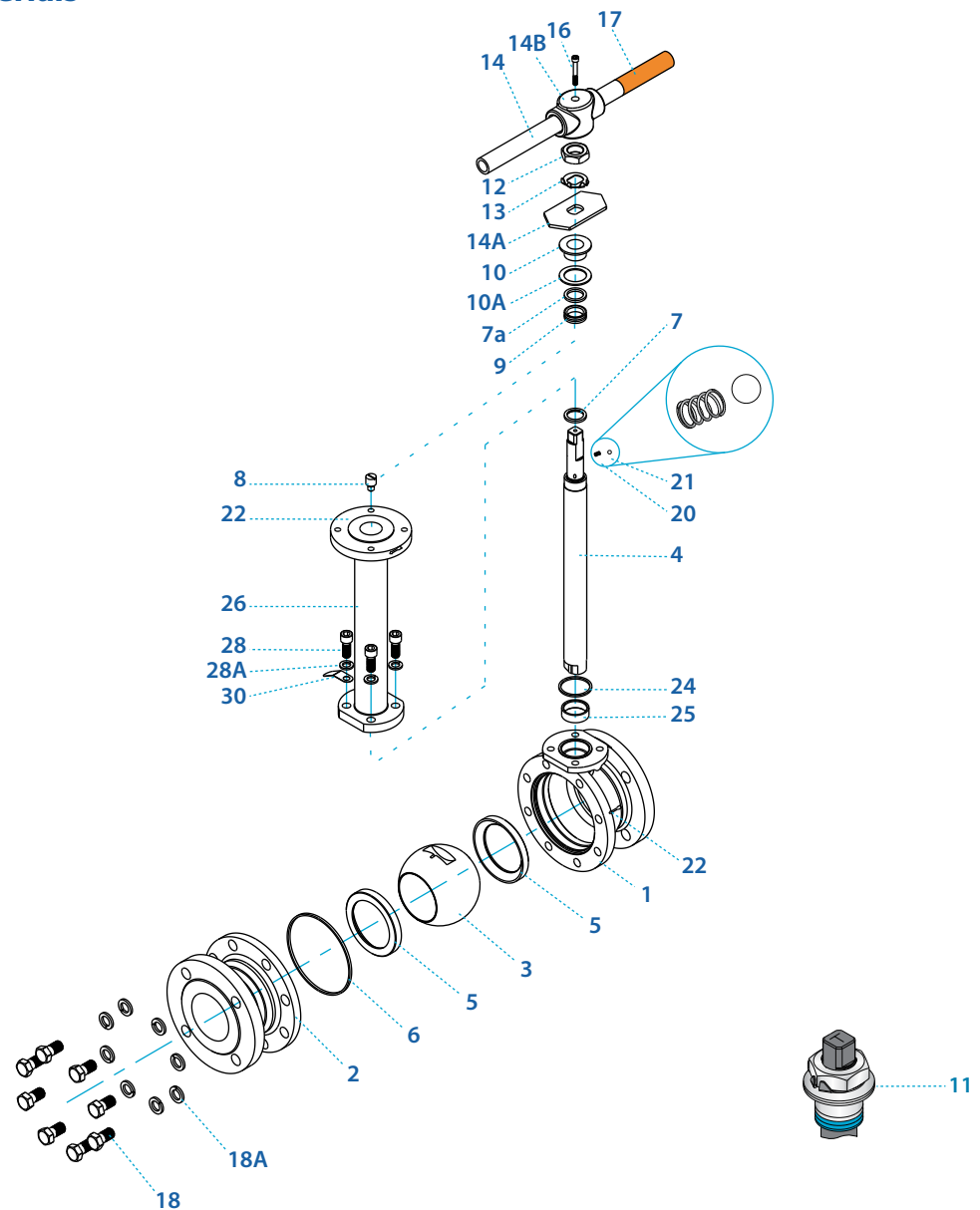
### Preparation for actuation



Full Port	Unit	Ball port	A	B	Standard design				6.0" bonnet				S	W	M	M DD	N	P	Q	F	TxL	Weight kg/lb		Kv
					C	D	G	H	C	D	G	H										Std.	6.0"	
DN80	mm	80.00	282.00	96.50	451.50	498.10	343.50	538.60	260.40	307.00	152.40	347.50	610.00	210.00	18.90	18.90	1 <sup>1</sup> / <sub>4</sub> -14	16.70	22.70 (F10)	102.00	M10X15	31.50	30.30	1111
3"	inch	3.15	11.10	3.80	17.78	19.61	13.52	21.20	10.25	12.09	6.00	13.68	24.02	8.27	0.74	0.74	UNS-2A	0.66	0.89	4.02		69.43	6.78	1300
DN100	mm	100.00	305.00	105.00	467.50	514.10	343.50	554.80	276.40	323.00	152.40	363.70	610.00	254.00	18.90	18.90	1 <sup>1</sup> / <sub>4</sub> -14	16.70	22.70 (F10)	102.00	M10X15	45.50	44.30	2051
4"	inch	3.94	12.01	4.13	18.41	20.24	13.52	21.84	10.88	12.72	6.00	14.32	24.02	10.00	0.74	0.74	UNS-2A	0.66	0.89	4.02		100.28	97.64	2400
DN150	mm	150.00	404.00	174.50	564.00	633.50	385.00	-	331.40	400.90	152.40	-	-	328.00	28.45	23.75	1-1/2 <sup>1</sup> / <sub>2</sub> -12	26.20	35.20 (F12)	125.00	M12X15	110.00	98.40	4615
6"	inch	5.91	15.91	6.87	22.20	24.94	15.16	-	13.05	15.78	6.00	-	-	12.91	1.12	0.94	UNF-2A	1.03	1.39	4.92		225.91	216.87	5400
DN200	mm	200.00	502.00	241.00	626.00	738.65	385.00	-	393.40	506.05	152.40	-	-	381.00	35.90	35.90	2 <sup>1</sup> / <sub>2</sub> UN-2A	40.00	46.50 (F14)	140.00	M16X20	240.00	228.4	7949
8"	inch	7.87	19.76	9.49	24.65	29.08	15.16	-	15.49	19.92	6.00	-	-	15.00	1.41	1.41		1.57	1.83	5.51		528.00	503.39	9300

<sup>(1)</sup> Due to high valve torque, pipe handle cannot be used. A manual gear or automation means should be used to operate the valve.

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	C.st B18 ZP	1
13	Tab lock washer	A240 304	1

Item	Description	Material specifications	Qty.
14***	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN3506-1 A2-70, A193 B8	8-10
18A	Spring washer	DIN 127 A2	8-10
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	A193 B8, DIN 912 A2-70	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C74C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C74C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

\*\*\* Gear operator should be used for size 6" DN150 and above (handle components are not included)

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

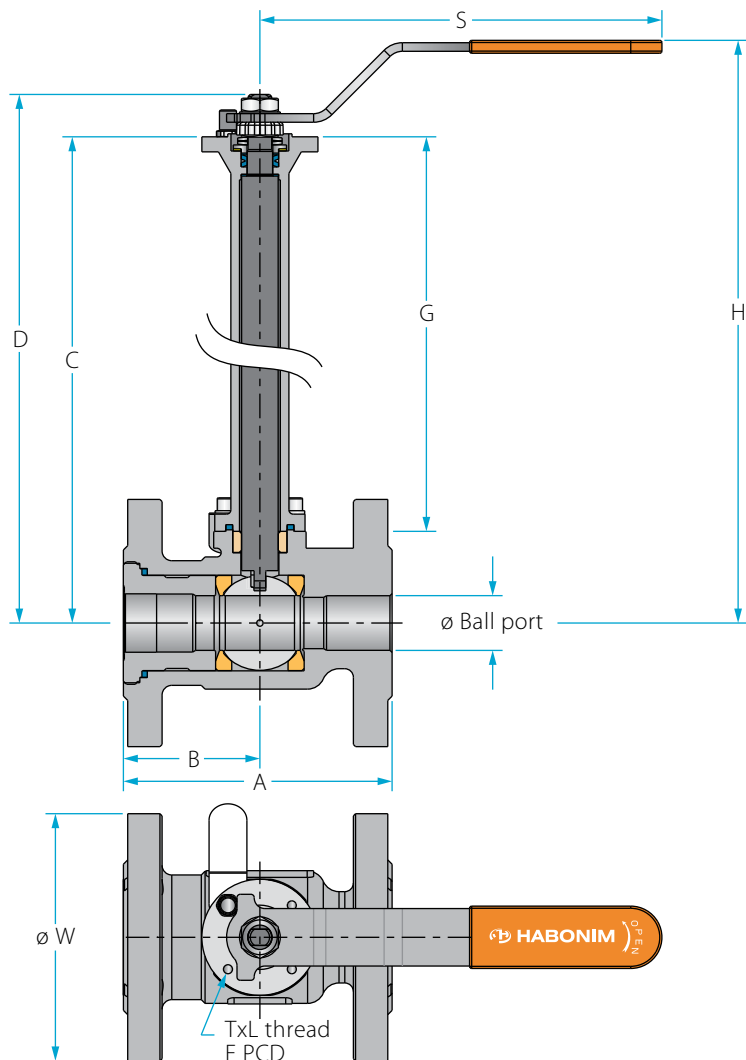
High pressure

Multiport

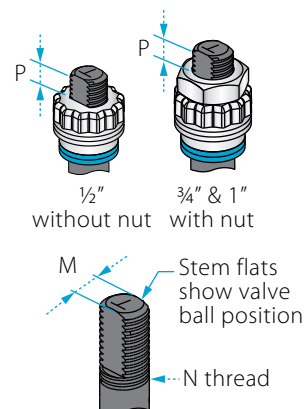
Ordering code system

Size 1/2" - 1" | DN15-DN25 | DIN PN40 | C78W/C78C<sup>(1)</sup> Series

## Valve dimensions

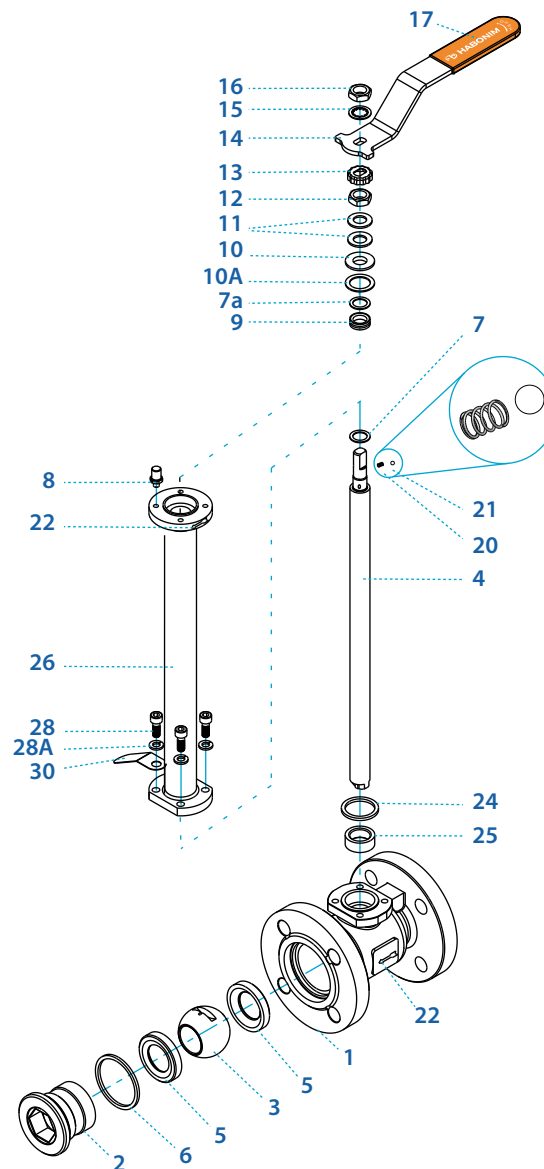


### Preparation for actuation



Full Port	Unit	Ball port	A		B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	weight kg/lb Kv		
			F1	F4		C	D	G	H	C	D	G	H								F1	F4	Cv
DN15	mm	80.00	130.00	115.00	48.00	335.40	344.30	304.00	369.60	183.80	192.70	152.40	218.00	150.00	95.00	5.50	3/8" UNF	7.20 (F03)	36.00	M5X7	3.10	3.00	27
1/2"	inch	3.15	5.12	4.53	1.89	13.20	13.56	11.97	14.55	7.24	7.59	6.00	8.58	15.79	3.74	0.22		0.28	1.42		6.80	6.60	32
DN20	mm	100.00	150.00	120.00	58.60	342.2	359.7	304.00	383.50	190.55	208.05	152.40	231.90	187.00	105.00	7.50	7/16" UNF	7.20 (F04)	42.00	M5X7	4.50	4.30	46
3/4"	inch	3.94	5.91	4.72	2.31	13.47	14.16	11.97	15.10	7.50	8.19	6.00	9.13	7.36	4.13	0.30		0.28	1.65		9.80	9.40	54
DN25	mm	150.00	160.00	125.00	61.50	346.65	364.15	304.00	394.00	195.05	212.55	152.40	242.40	187.00	115.00	7.50	7/16" UNF	7.20 (F04)	42.00	M5X7	5.50	5.30	90
1"	inch	5.91	6.30	4.92	2.42	13.65	14.34	11.97	15.51	7.68	8.37	6.00	9.54	7.36	4.53	0.30		0.28	1.65		12.00	11.60	105

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Plug	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1 150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2

Item	Description	Material specifications	Qty.
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Locking clip	A167 304	1
14	Handle	A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 912 A2-70	4
30	Dog tag	A167 304	1

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

<sup>(1)</sup> C78C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C78C design.

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

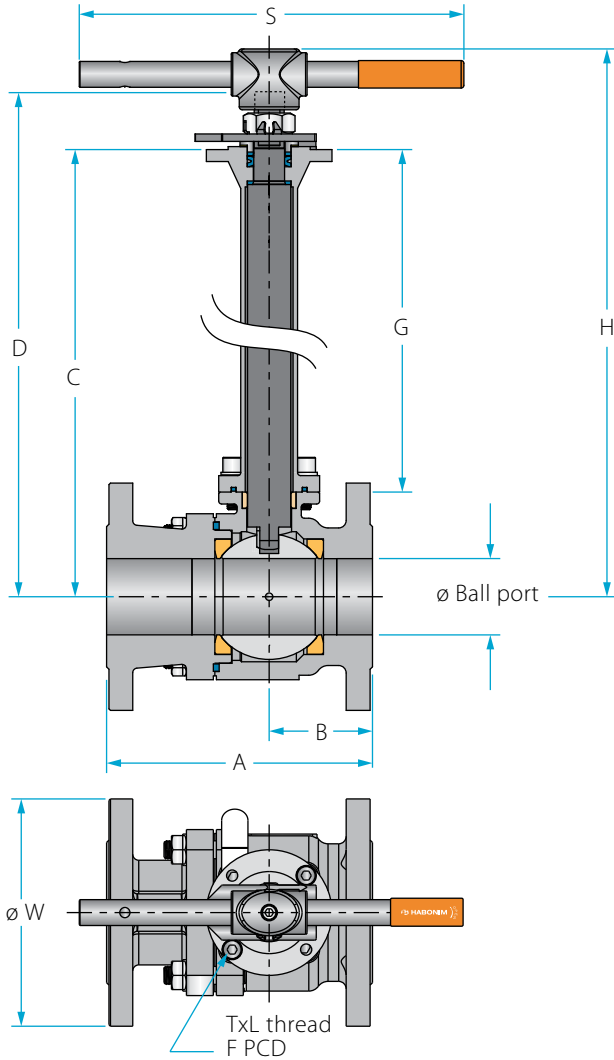
High pressure

Multiport

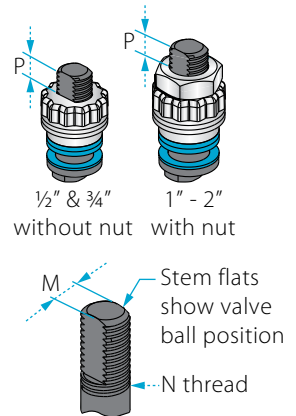
Ordering code system

Size 1½" - 2" | DN40-DN50 | DIN PN40 | C78W/C78C<sup>(1)</sup> Series

## Valve dimensions



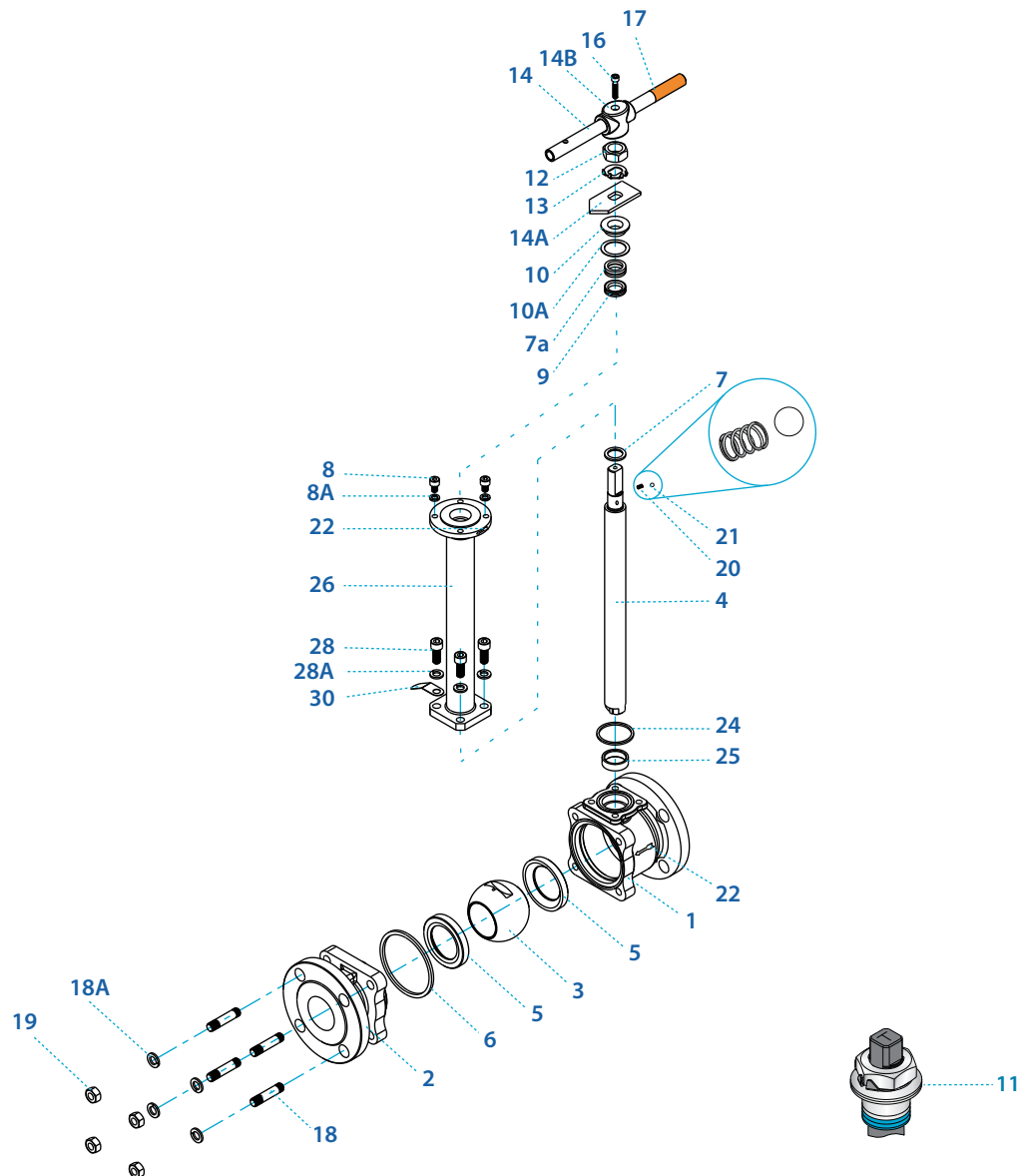
### Preparation for actuation



Full Port	Unit	Ball port	A		B				Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Weight kg/lb				Kc
			F1	F4	C	D	G	H	C	D	G	H	F1	F4	F1	F4								Cv				
DN40	mm	31.80	200.00	-	65.90	352.25	381.75	304.00	406.60	200.65	230.15	152.40	255.00	237.00	150.00	8.71	9/16" UNF	8.50	(F05)	50.00	M6X8	12.8	-	12.23	-	214		
1½"	inch	1.25	7.87	-	2.59	13.87	15.03	11.97	16.01	7.90	9.06	6.00	10.04	9.33	5.91	0.34		0.33		1.97			5.81	-	5.55	-	250	
DN50	mm	51.00	230.00	150.00	60.70	397.50	439.10	327.50	465.10	222.40	264.00	152.40	290.00	400.00	165.00	13.90	M20X2.5	13.50	(F07)	70.00	M8X8	16.15	14.15	14.70	12.70	410		
2"	inch	2.01	9.06	5.91	2.39	15.65	17.29	12.89	18.31	8.76	10.39	6.00	11.42	15.75	6.50	0.55		0.53		2.76			7.33	6.42	6.67	5.76	480	



Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop bolt	A582 303	2
8A	Spring washer	DIN 127 A2	2
9*	Stem seal	TFM, Graphite	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 8M	1
13	Tab lock washer	A240 304	1

Item	Description	Material specifications	Qty.
14	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	4
18A	Spring washer	DIN 127 A2	4
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C78C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C78C design.

\* Repair kit components

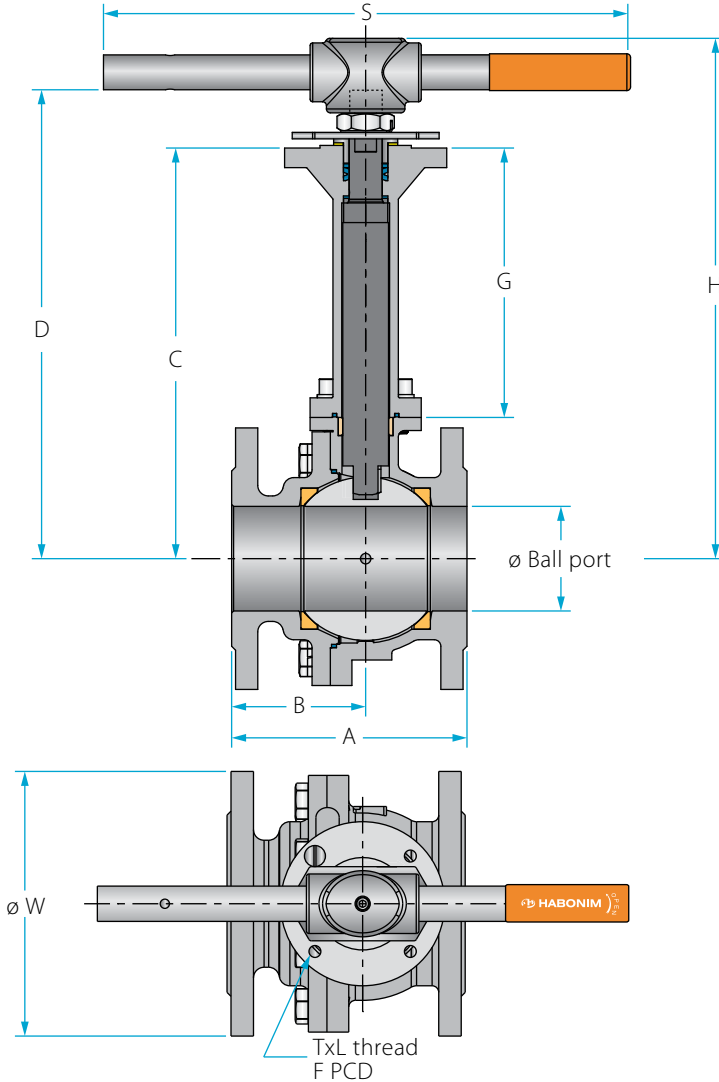
\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

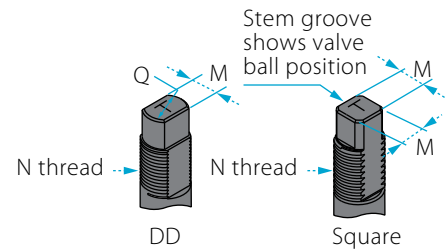
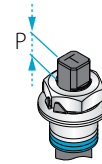
<b>Cryogenic valves</b>	General	3 Piece	<b>Flanged</b>	High pressure	Multiport	Ordering code system
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Size 3" - 6" | DN80-DN150 | DIN PN16 | C77W/C77C<sup>(1)</sup> Series

## Valve dimensions



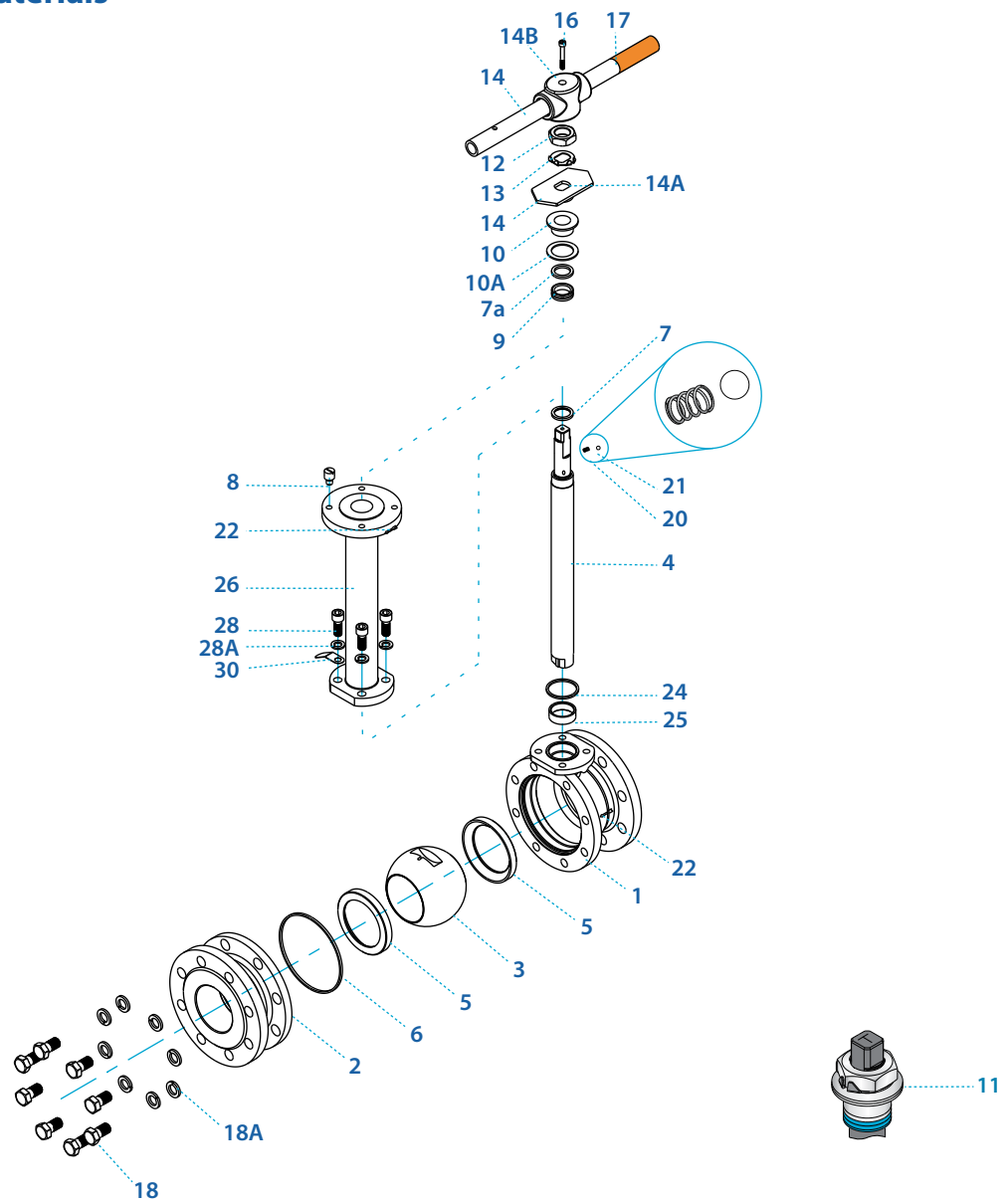
### Preparation for actuation



Full Port	Unit	Ball port	A		B	Standard design				6.0" bonnet				S	W	M	M DD	N	P	F	TxL	weight kg/lb		Kv	
			F1,F5	F4		C	D	G	H	C	D	G	H									F1,F5	F4		Cv
DN80	mm	80.00	310.00	180.00	102.50	451.50	498.10	343.50	539.00	260.40	307.00	152.40	347.90	610.00	200.00	18.90	22.70	1"-14	16.70	(F10)	102.00	M10X15	31.50	30.30	1111
3"	inch	3.15	12.20	7.09	4.04	17.78	19.61	13.52	21.22	10.25	12.09	6.00	13.70	24.02	7.87	0.74	0.89	UNS-2A	0.66		4.02	M10X15	69.43	66.48	1300
DN100	mm	100.00	350.00	190.00	105.50	467.50	514.10	343.50	555.00	276.40	323.00	152.40	363.90	610.00	220.00	18.90	22.70	1"-14	16.70	(F12)	125.00	M12X15	45.50	44.30	2051
4"	inch	3.94	13.78	7.48	4.15	18.41	20.24	13.52	21.85	10.88	12.72	6.00	14.33	24.02	8.66	0.74	0.89	UNS-2A	0.66		4.92	M12X15	100.28	97.64	2400
DN150	mm	150.00	350.00	OPT	196.00	564.00	633.50	385.00	-	331.40	400.90	152.40	-	-	285.00	28.45	23.75	1-1/2"-12	26.20	(F12)	125.00	M12X15	85.00	81.00	4615
6"	inch	5.91	13.78	OPT	7.72	22.20	24.94	15.16	-	13.05	15.78	6.00	-	-	11.22	1.12	0.94	UNF-2A	1.03		4.92	M12X15	187.00	178.20	5400

<sup>(1)</sup> Due to high valve torque, pipe handle cannot be used. A manual gear or automation means should be used to operate the valve.

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	End	A351 CF8M, A494 M35-1, Bronze RG5	1
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	1
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 Gr. 631 17-7PH	2
12	Stem nut	EN3506-1 A2-70, A194 8M	1
13	Tab lock washer	A240 304	1
14***	Handle	C.St. Zinc plate, A240 316L	1

Item	Description	Material specifications	Qty.
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
15	Tab lock washer	A240 304	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN3506-1 A2-70, A193 B8	8-10
18A	Spring washer	DIN 127 A2	8-10
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C77C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C77C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

\*\*\* Gear operator should be used for size 6" DN150 (handle components are not included)

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

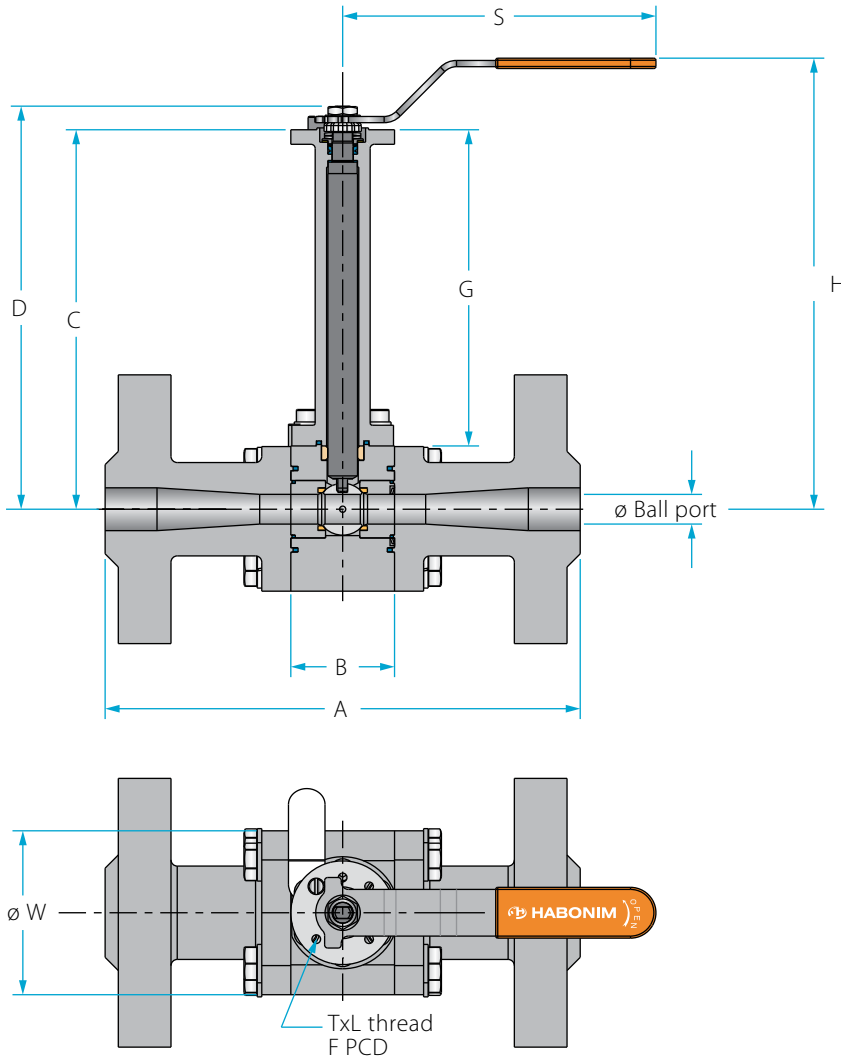
High pressure

Multiport

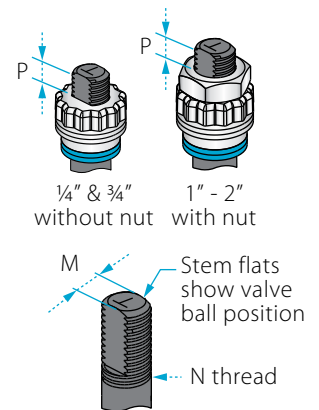
Ordering code system

Size 1/4" - 1 1/4" | DN8-DN32 | ANSI Class 2500 | C28W/C28C<sup>(1)</sup> Series

## Valve dimensions



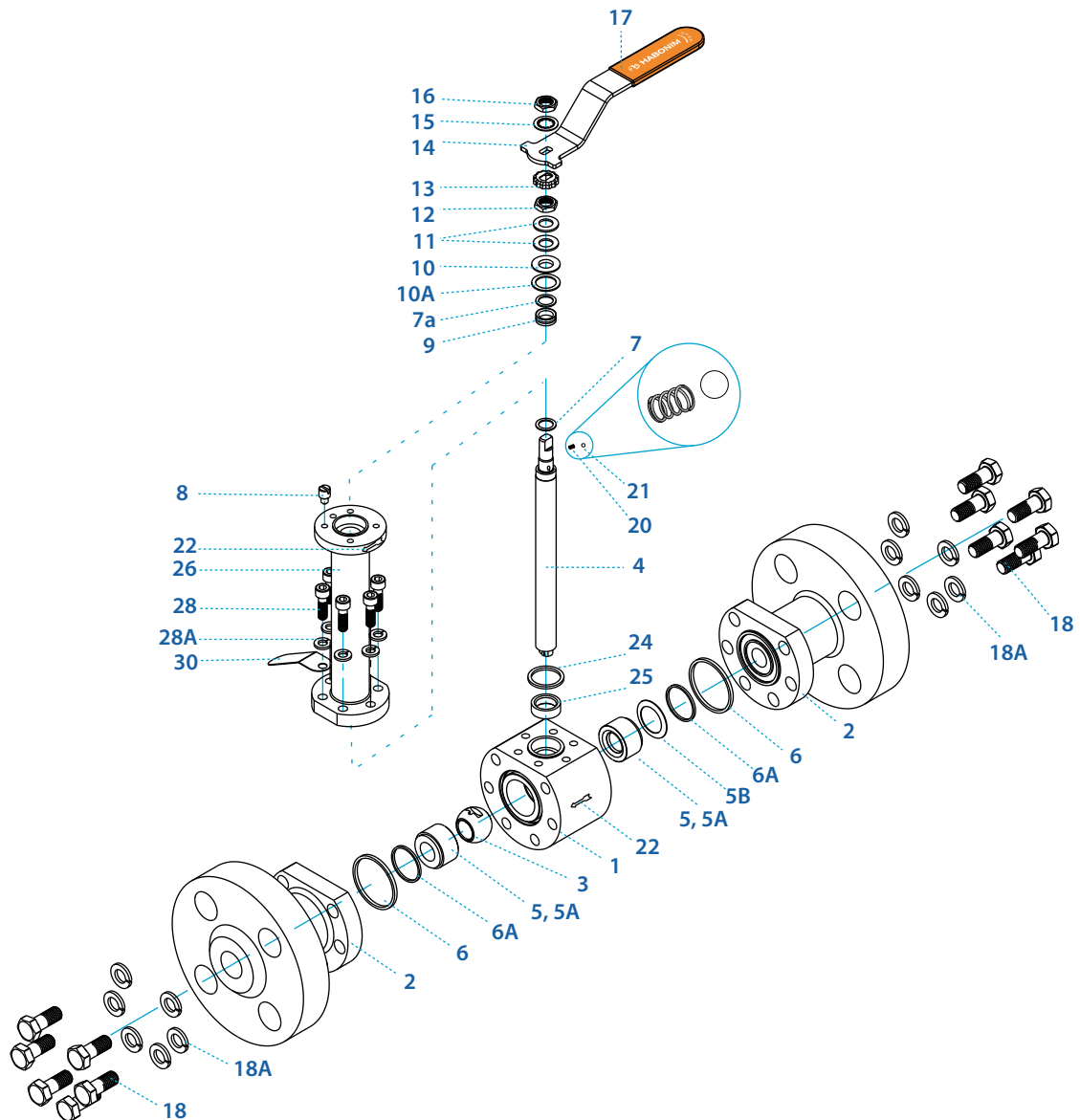
### Preparation for actuation



Std. port	Full port	Unit	Ball port	A				B	Standard design				6.0" bonnet				S	W	M	N	P	F	TxL	Kv	
				Welded	Threaded	#1500	#2500		C	D	G	H	C	D	G	H								Cv	
DN15	DN8, DN10	mm	11.15	173.60	107.20	216.00	264.00	50.00	333.00	341.90	304.00	380.60	181.40	190.30	152.40	229.00	150.00	78.00	5.50	3/8"	7.20	F03	36.00	M5X8	6.9
1/2"	3/8"	inch	0.44	6.83	4.22	8.50	10.39	1.97	13.11	13.46	11.97	14.98	7.14	7.49	6.00	9.02	5.91	3.07	0.22	UNF	0.28	1.42	M5X8	8	
DN20	DN15	mm	13.00	188.60	120.00	229.00	273.00	60.00	338.10	355.60	304.00	386.60	186.50	204.00	152.40	235.00	187.00	98.00	7.50	7/16"	7.20	F04	42.00	M5X7	10
3/4"	1/2"	inch	0.51	7.43	4.72	9.02	10.75	2.36	13.31	14.00	11.97	15.22	7.34	8.03	6.00	9.25	7.36	3.86	0.30	UNF	0.28	1.65	M5X7	12	
DN25	DN20	mm	20.65	208.60	144.20	254.00	308.00	68.00	347.75	377.25	304.00	401.60	196.15	225.65	152.40	250.00	237.00	114.00	8.65	9/16"	7.20	F05	50.00	M6X8	28
1"	3/4"	inch	0.81	8.21	5.68	10.00	12.13	2.68	13.69	14.85	11.97	15.81	7.72	8.88	6.00	9.84	9.33	4.49	0.34	UNF	0.28	1.97	M6X8	32	
DN32	DN25	mm	25.50	211.60	152.00	279.00	349.00	68.00	355.50	385.00	304.00	410.00	203.90	233.40	152.40	258.40	237.00	124.00	8.65	9/16"	8.00	F05	50.00	M6X8	49
1 1/4"	1"	inch	1.00	8.33	5.98	10.98	13.74	2.68	14.00	15.16	11.97	16.14	8.03	9.19	6.00	10.17	9.33	4.88	0.34	UNF	0.31	1.97	M6X8		

\* Data in the chart refers ANSI 2500 Flanges

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A479 316/316L, B574 N06022	1
2	Ends	A479 316/316L, B574 N06022	2
3	Ball	A351 CF8M, B574 N06022	1
4	Stem	A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	PCTFE (KEL-F)	2
5A*	Seat housing	A479 316/316L, B574 N06022	2
5B <sup>(3)</sup>	Upstream seat spring	Inconel 718	1
6*	Body seal	PTFE, Graphite	2
6A*	Seat seal	PTFE, Graphite	2
7*	Stem thrust seal	PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 631 17-7PH	2

<sup>(1)</sup> C28C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C28C design.

<sup>(3)</sup> Spring loaded upstream seat is Habonim default design.

Item	Description	Material specifications	Qty.
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	2
13	Locking clip	A167 304	1
14	Handle	A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	8-16
18A	Spring washer	DIN 912 A2-70	8-16
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316/316L, B574 N06022	1
28	Bolt	EN3506-1 A2-70, A193 B8	4-6
28A	Spring washer	DIN 127 A2	4-6
30	Dog tag	A167 304	1

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

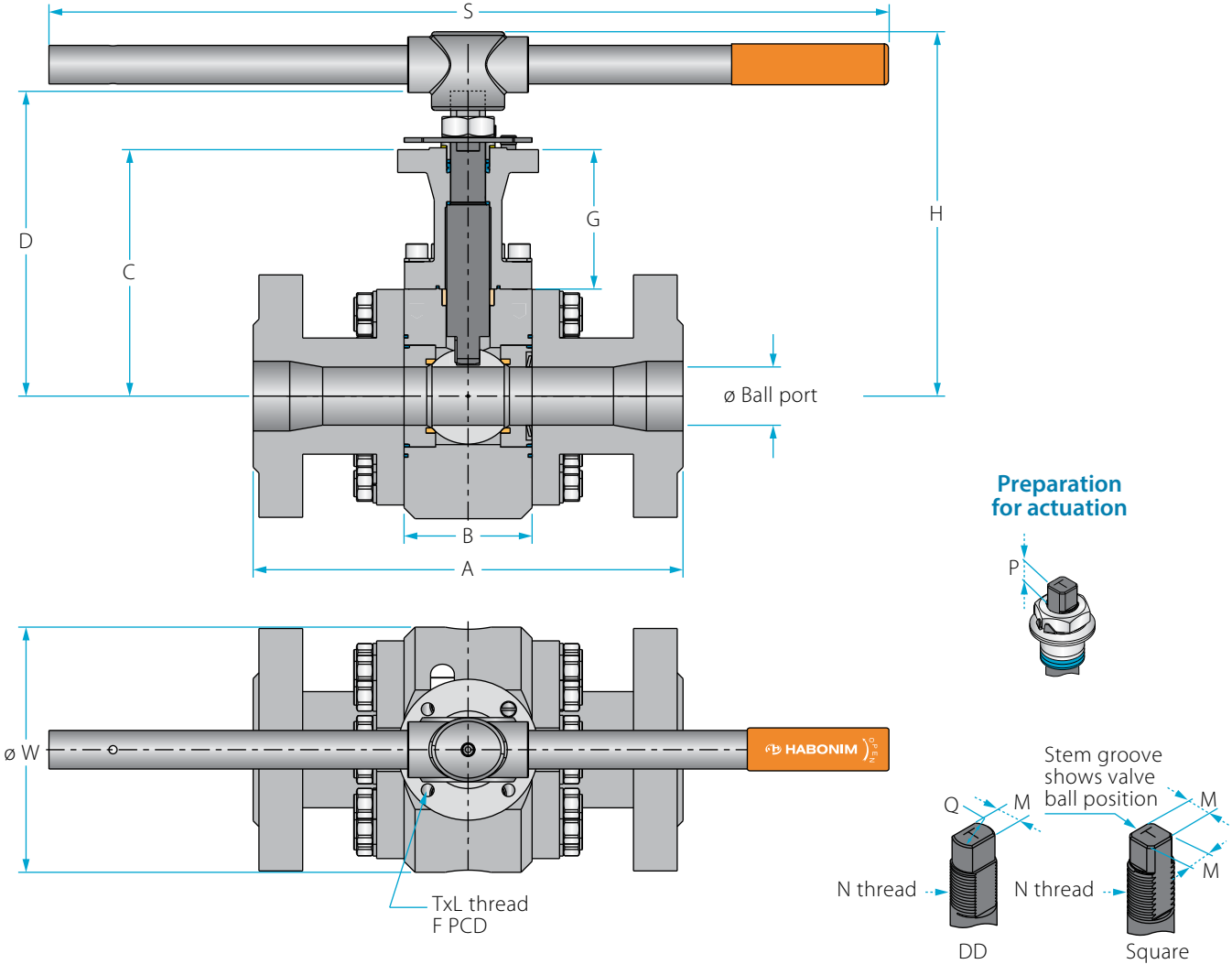
High pressure

Multiport

Ordering code system

Size 1½" - 8" | DN40-DN200 | ANSI Class 2500 | C28W/C28C<sup>(1)</sup> Series

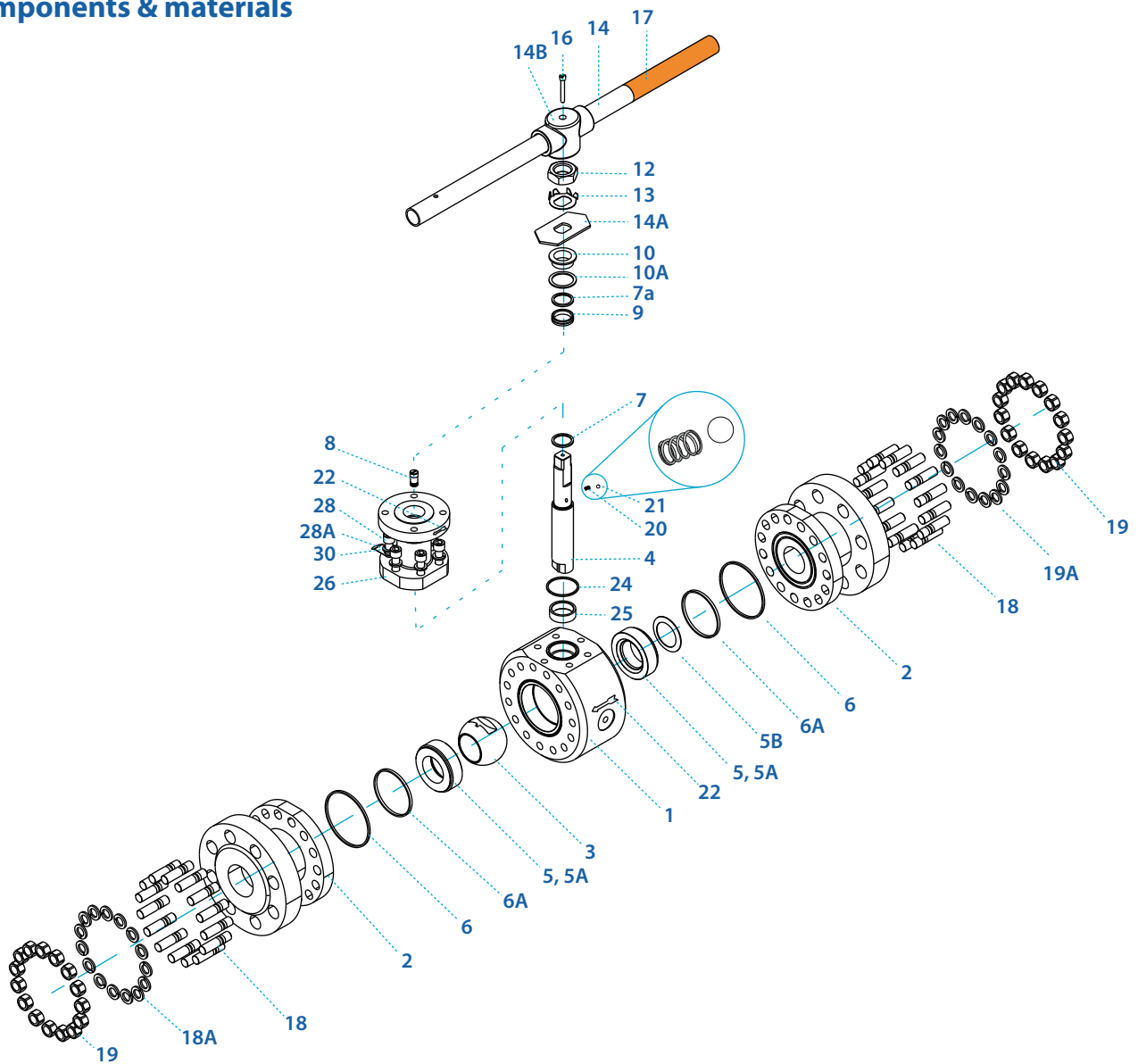
## Valve dimensions



Std. port	Full port	Unit	Ball port	A				B	Standard design				6.0" bonnet				S	W	M	MDD	N	P	Q	F	TxL	Kv Cv	
				Welded	Threaded	#1500	#2500		C	D	G	H	C	D	G	H											
DN40	DN32	mm	31.8	262	179	305	384	95	357	398.6	304	425	205.4	247	152.4	273.4	400	140	13.9	13.90	M20X2.5	8	20.00	(F07)	70	M8X7	69
1½"	1¼"	inch	1.25	10.31	7.05	12.01	15.12	3.74	14.06	15.69	11.97	16.73	8.09	9.72	6.00	10.76	15.75	5.51	0.55	0.55	M20X2.5	0.31	0.79		2.76	M8X10	80
DN50	DN40	mm	38.15	255.80	195.00	368.00	451.00	95.00	376.50	418.10	304.00	443.75	224.90	266.50	152.40	292.15	400.00	172.00	13.90	13.90	M20X2.5	15.75	20.00	(F07)	70.00	M8X10	102
2"	1½"	inch	1.50	10.07	7.68	14.49	17.76	3.74	14.82	16.46	11.97	17.47	8.85	10.49	6.00	11.50	15.75	6.77	0.55	0.55	M20X2.5	0.62	0.79		2.76	M8X10	118
DN65	DN50	mm	51.00	313.00	205.00	419.00	508.00	105.00	392.40	438.90	304.80	479.40	240.00	286.50	152.40	327.00	610.00	199.00	18.90	15.90	1"-14	16.70	22.70	(F10)	102.00	M10X15	208
2½"	2"	inch	2.01	12.32	8.07	16.50	20.00	4.13	15.45	17.28	12.00	18.87	9.45	11.28	6.00	12.87	24.02	7.83	0.74	0.63	UNS-2A	0.66	0.89		4.02	M10X15	241
DN80	DN65	mm	63.75	343.20	-	470.00	578.00	140.00	421.00	490.10	304.00	-	269.40	338.50	152.40	-	-	268.00	28.45	23.75	1-½"	26.20	35.20	(F12)	125.00	M16X25	300
3"	2½"	inch	2.51	13.51	-	18.50	22.76	5.51	16.57	19.30	11.97	-	10.61	13.33	6.00	-	-	10.55	1.12	0.94	UNF-2A	1.03	1.39		4.92	M16X25	348
DN100	DN80	mm	82.80	419.20	-	546.00	673.00	140.00	438.00	550.65	304.00	-	286.40	399.05	152.40	-	-	298.00	28.45	23.75	1-½"	26.20	35.20	(F12)	125.00	M16X25	615
4"	3"	inch	3.26	16.50	-	21.50	26.50	5.51	17.24	21.68	11.97	-	11.28	15.71	6.00	-	-	11.73	1.12	0.94	UNF-2A	1.03	1.39		4.92	M16X25	713
DN150	DN100	mm	100.00	510.00	-	705.00	914.00	175.00	451.00	563.65	304.00	-	299.40	412.05	152.40	-	-	339.00	35.90	35.90	2"	40.00	46.50	(F16)	165.00	M20X25	872
6"	4"	inch	3.94	20.08	-	27.76	35.98	6.89	17.76	22.19	11.97	-	11.79	16.22	6.00	-	-	13.35	1.41	1.41	UNF-2A	1.57	1.83		6.50	M20X25	1012
DN200	DN150	mm	144.40	680.00	-	832.00	1022.00	210.00	496.00	637.00	304.00	-	344.40	485.40	152.40	-	-	423.00	45.90	45.90	2-¾"	40.00	59.00	(F16)	165.00	M20X25	1552
8"	6"	inch	5.69	26.77	-	32.76	40.24	8.27	19.53	25.08	11.97	-	13.56	19.11	6.00	-	-	16.65	1.81	1.81	UN-2A	1.57	2.32		6.50	M20X25	1800

<sup>(1)</sup> Due to high valve torque, pipe handle cannot be used. A manual gear or automation means should be used to operate the valve.

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A479 316/316L, B574 N06022	1
2	Ends	A479 316/316L, B574 N06022	2
3	Ball	A351 CF8M, B574 N06022	1
4	Stem	A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	PCTFE (KEL-F)	2
5A*	Seat housing	A479 316/316L, B574 N06022	2
5B <sup>(3)</sup>	Upstream seat spring	Inconel 718	1
6*	Body seal	PTFE, Graphite	2
6A*	Seat seal	PTFE, Graphite	2
7*	Stem thrust seal	PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Tab lock washer	A240 304	1
14***	Handle	C.St. Zinc plate, A240 316L	1

Item	Description	Material specifications	Qty.
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	8-16
18A	Spring washer	DIN 127 A2	8-16
19	Body bolt	EN3506-1 A2-70, A193 B8	8-16
19A	Spring washer	DIN 912 A2-70	15
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
22	Arrow flow	A167 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316/316L, B574 N06022	1
28	Bolt	EN3506-1 A2-70, A193 B8	6-8
28A	Spring washer	DIN 127 A2	6-8
30	Dog tag	A167 304	1

\* Repair kit components

\*\* Only with HermetiX™ fire safe design

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

<sup>(1)</sup> C28C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C28C design.

<sup>(3)</sup> Spring loaded upstream seat is Habonim default design.

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

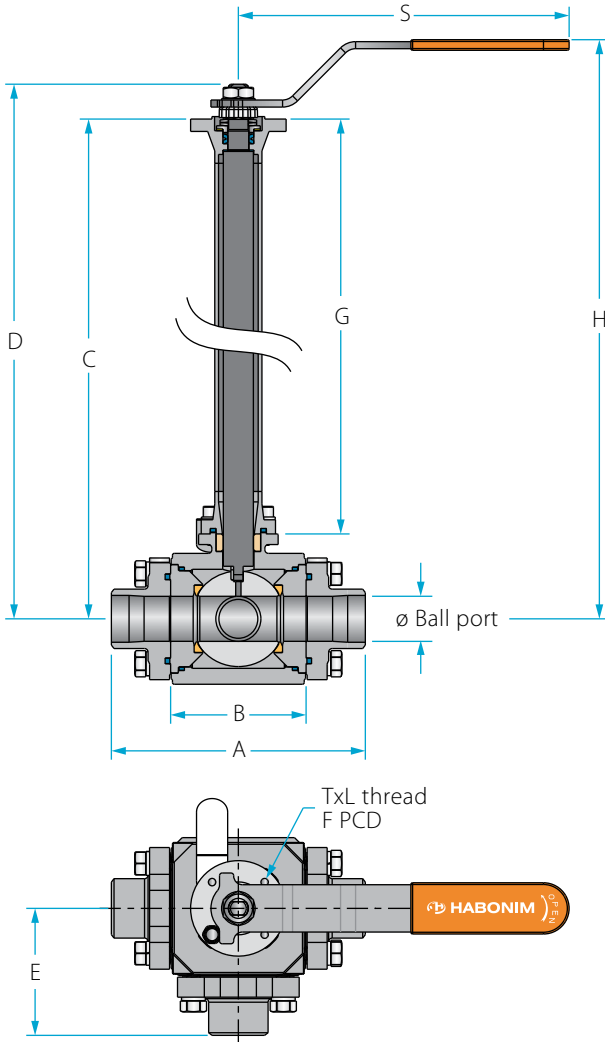
High pressure

**Multiport**

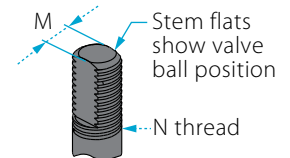
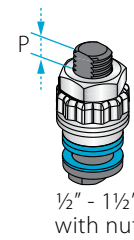
Ordering code system

Size 1/2" - 1 1/2" | DN15-DN40 | ANSI Class 600 | C61W/C61C Series

## Valve dimensions



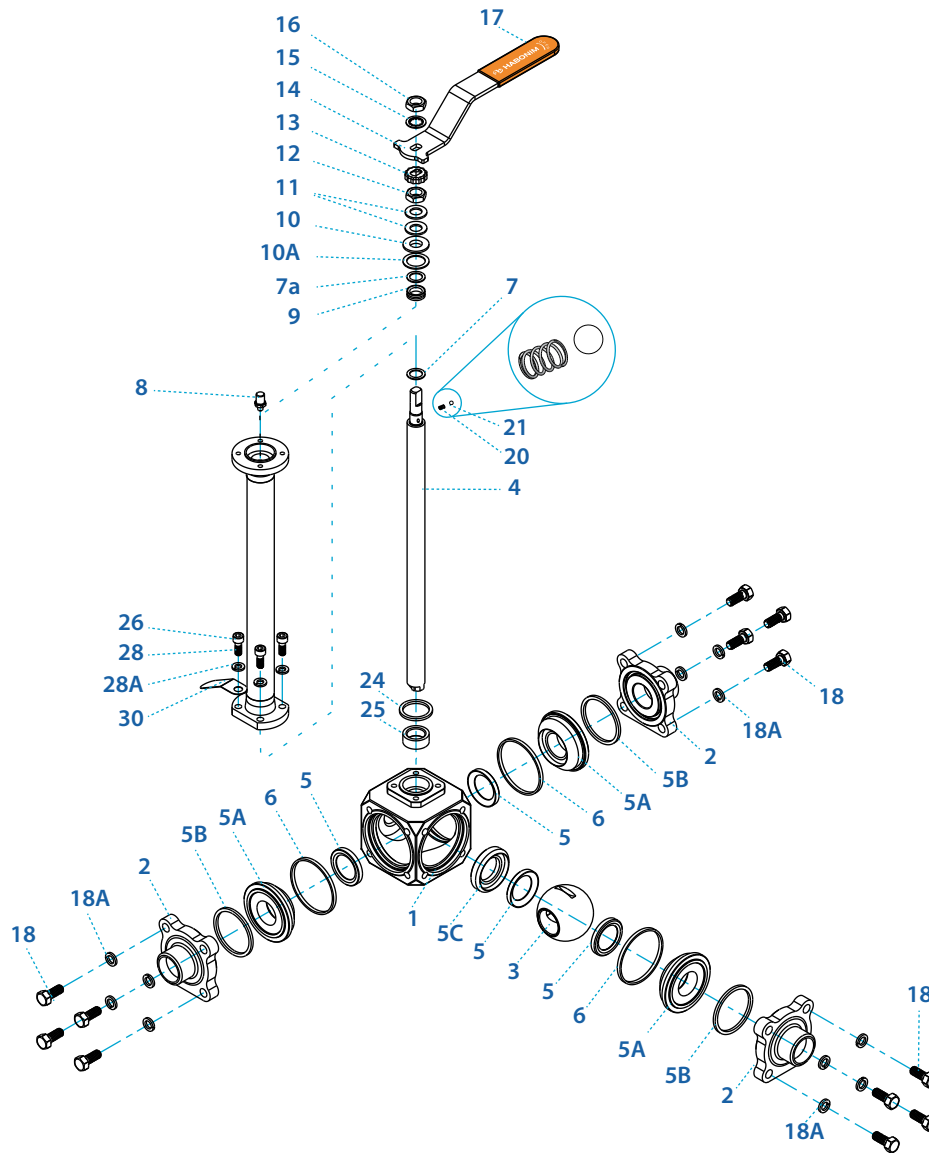
### Preparation for actuation



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	14.30	108.00	62.00	341.00	358.50	304.00	384.90	189.40	206.90	152.40	233.30	224.52	54.30	187.00	7.50	7/16"	7.20	(F04)	42.00	M5X7	3.65	3.33
3/4"	1/2"	inch	0.56	4.25	2.44	13.43	14.11	11.97	15.15	7.46	8.15	6.00	9.19	8.84	2.14	7.36	0.30	UNF	0.28		1.65	M5X7	8.04	7.34
DN25	DN20	mm	20.70	134.60	71.60	347.00	364.50	304.00	389.80	195.40	212.90	152.40	238.20	239.43	66.80	187.00	7.50	7/16"	7.20	(F04)	42.00	M5X7	5.25	4.90
1"	3/4"	inch	0.81	5.30	2.82	13.66	14.35	11.97	15.35	7.69	8.38	6.00	9.38	9.43	2.63	7.36	0.30	UNF	0.28		1.65	M5X7	11.57	10.80
DN32	DN25	mm	25.50	143.00	76.00	352.00	369.50	304.00	396.90	200.40	217.90	152.40	245.30	244.43	71.80	187.00	7.50	7/16"	8.50	(F04)	42.00	M5X7	7.42	6.85
1 1/4"	1"	inch	1.00	5.63	2.99	13.86	14.55	11.97	15.63	7.89	8.58	6.00	9.66	9.62	2.83	7.36	0.30	UNF	0.33		1.65	M5X7	16.35	15.10
DN40	DN32	mm	31.65	158.00	91.00	353.40	382.90	304.00	408.10	201.80	231.30	152.40	256.50	257.13	79.00	237.00	8.71	9/16"	8.50	(F05)	50.00	M6X8	9.12	8.55
1 1/2"	1 1/4"	inch	1.25	6.22	3.58	13.91	15.07	11.97	16.07	7.94	9.11	6.00	10.10	10.12	3.11	9.33	0.34	UNF	0.33		1.97	M6X8	20.10	18.84



Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Ends	A351 CF8M, A494 M35-1, Bronze RG5	3
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE,TFM, PCTFE (KEL-F)	4
5A	Seat housing	A479 316/316L, B574 N06022, Bronze RG5	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	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1

Item	Description	Material specifications	Qty.
11	Disc spring	A693 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Locking clip	A167 304	1
14	Handle	A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	12
18A	Spring washer	DIN 127 A2	12
20	Anti static spring	A313 302	1
21	Anti static plunger	A479 304	1
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C61C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C61C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe stem seal

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

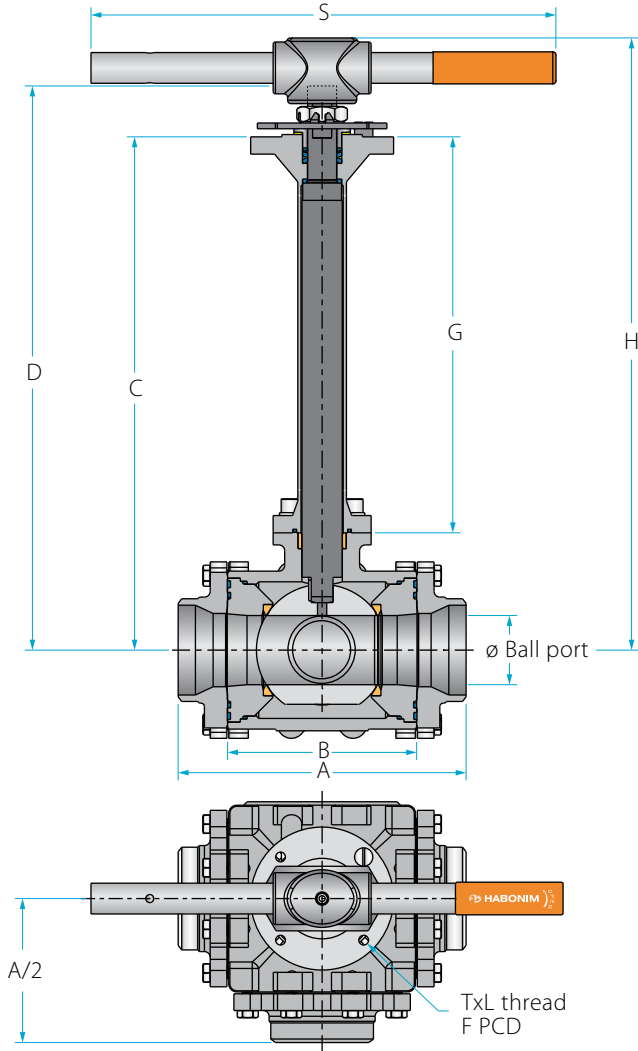
High pressure

Multiport

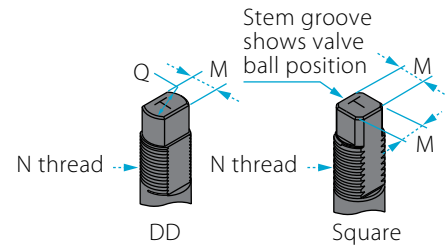
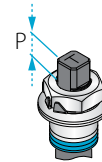
Ordering code system

Size 2" - 4" | DN50-DN100 | ANSI Class 300 | C61W/C61C Series

## Valve dimensions



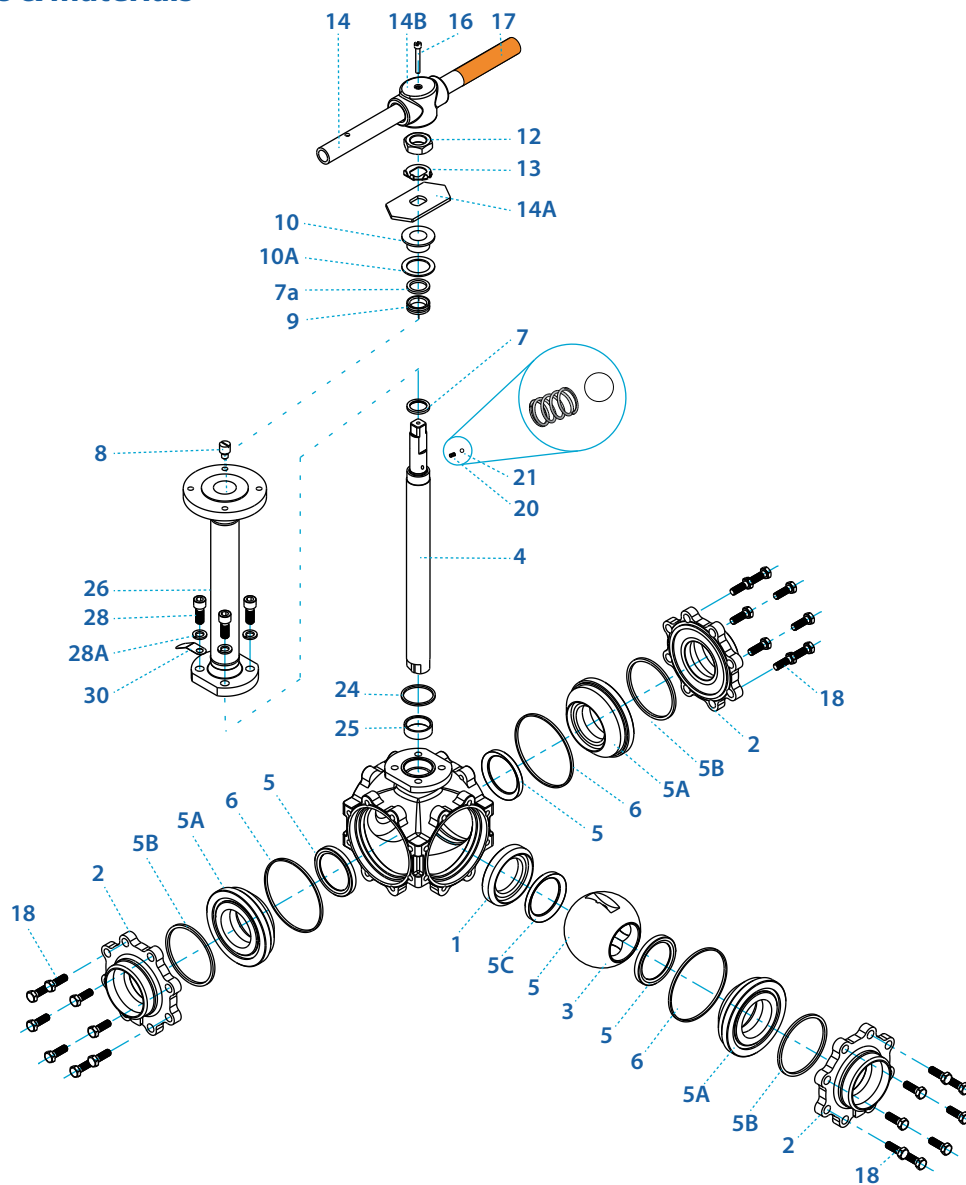
### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	Standard design					6.0" bonnet				S	M	MDD	N	P	Q	F	TxL	Weight kg/lb		
						C	D	E	G	H	C	D	G	H									Std.	6.0 Bonnet	
DN50	DN40	mm	38.10	178.80	107.20	397.10	438.70	327.50	465.90	222.00	263.60	152.40	290.80	224.52	400.00	13.90	13.90	M20X2.5	14.36	20.00	(F07)	70.00	M8X8	24.70	23.25
2"	1½"	inch	1.50	7.04	4.22	15.63	17.27	12.89	18.34	8.74	10.38	6.00	11.45	8.84	15.75	0.55	0.55		0.57	0.79		2.76	M8X8	54.44	51.24
DN65	DN50	mm	48.00	210.00	125.00	406.60	453.10	327.50	480.30	231.50	278.00	152.40	305.20	239.43	400.00	18.90	15.90	1"-14	16.70	22.70	(F10)	102.00	M10X15	24.70	23.25
2½"	2"	inch	1.89	8.27	4.92	16.01	17.84	12.89	18.91	9.11	10.94	6.00	12.02	9.43	15.75	0.74	0.63	UNS-2A	0.66	0.89		4.02	M10X15	54.44	51.24
DN80	DN65	mm	60.00	249.80	164.00	486.75	555.85	385.00	-	254.15	323.25	152.40	-	244.43	-	28.45	23.75	1-½"-12	26.20	35.20	(F12)	125.00	M12X15	42.40	41.20
3"	2½"	inch	2.36	9.83	6.46	19.16	21.88	15.16	-	10.01	12.73	6.00	-	9.62	-	1.12	0.94	UNF-2A	1.03	1.39		4.92	M12X15	93.45	90.80
DN100	DN80	mm	76.00	309.80	205.00	519.50	588.60	385.00	-	286.90	356.00	152.40	-	257.13	-	28.45	23.75	1-½"-12	26.20	35.20	(F12)	125.00	M12X15	66.40	65.20
4"	3"	inch	2.99	12.20	8.07	20.45	23.17	15.16	-	11.30	14.02	6.00	-	10.12	-	1.12	0.94	UNF-2A	1.03	1.39		4.92	M12X15	146.35	143.7

<sup>h)</sup> Due to high valve torque, pipe handle cannot be used. A manual gear or automation means should be used to operate the valve.

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Ends	A351 CF8M, A494 M35-1, Bronze RG5	3
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE, TFM, PCTFE (KEL-F)	4
5A	Seat housing	A479 316/316L, B574 N06022, Bronze RG5	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	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 631 17-7PH	2

Item	Description	Material specifications	Qty.
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Tab lock washer	A240 304	1
14***	Handle	C.St. Zinc plate, A240 316L	1
14A	Stop plate	A240 430	1
14B	Wrench head	A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	12-24
18A	Spring washer	DIN 127 A2	12-24
20	Anti static spring	A313 302	2
21	Anti static plunger	A479 304	2
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> C61C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the C61C design.

\* Repair kit components

\*\* Only with HermetiX™ fire safe stem seal

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

# Floating Ball Valves

Cryogenic valves

General

3 Piece

Flanged

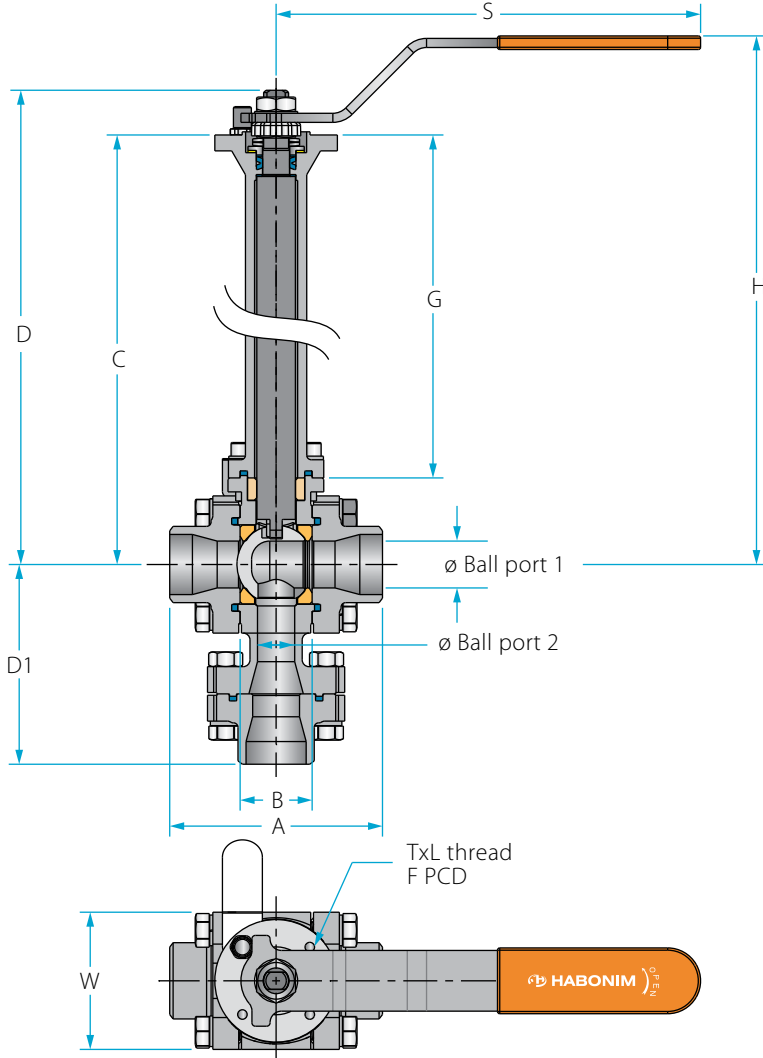
High pressure

Multiport

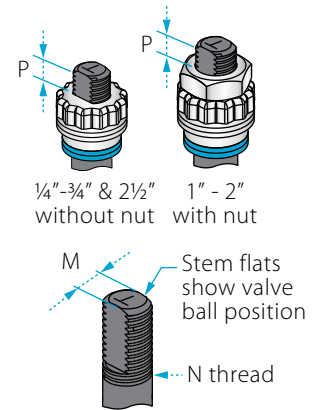
Ordering code system

Size 1/2" - 2" | DN15-DN50 | ANSI Class 600 | DC47W Series

## Valve dimensions

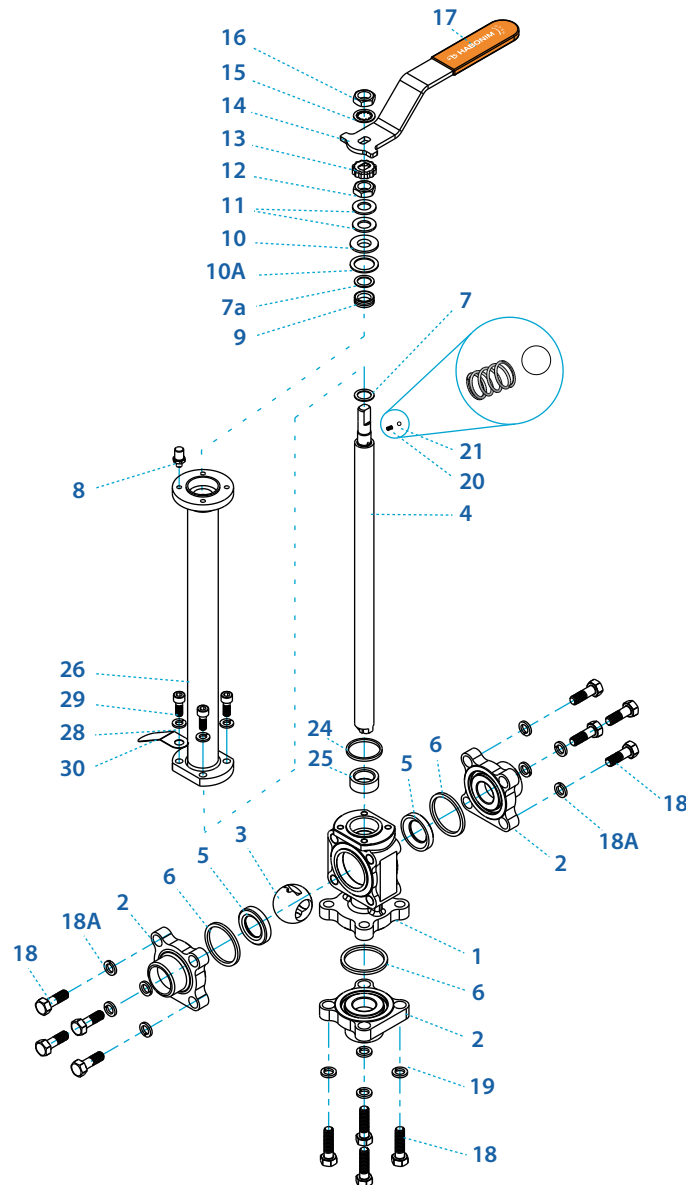


### Preparation for actuation



Std. port	Full Port	Unit	Ball port1	Ball port2	A	B	Standard design						6.0" bonnet						S	W	M	N	P	F	TxL	Weight kg/lb	
							C	D	K	G	H	C	D	K	G	H	Std.	6.0 Bonnet									
DN15	DN10	mm	10.50	9.50	65.80	20.60	333.00	341.90	304.00	367.30	181.40	190.30	152.40	215.70	152.80	214.30	150.00	45.80	5.50	3/8" UNF	7.20 (F03)	36.00	MSX7	1.79	1.47		
1/2"	3/8"	inch	0.41	0.37	2.59	0.81	13.11	13.46	11.97	14.46	7.14	7.49	6.00	8.49	6.02	8.44	5.91	1.80	0.22	0.28	1.42	MSX7	3.93	3.23			
DN20	DN15	mm	14.30	11.90	70.55	24.55	335.40	344.30	304.00	369.60	183.80	192.70	152.40	218.00	152.80	216.70	150.00	52.10	5.50	3/8" UNF	7.20 (F03)	36.00	MSX7	1.52	1.20		
3/4"	1/2"	inch	0.56	0.47	2.78	0.97	13.20	13.56	11.97	14.55	7.24	7.59	6.00	8.58	6.02	8.53	5.91	2.05	0.22	0.28	1.42	MSX7	3.35	2.64			
DN25	DN20	mm	20.65	15.90	93.75	31.75	342.15	359.65	304.00	387.00	190.55	208.05	152.40	235.40	152.80	232.20	187.00	60.45	7.54	7/16" UNF	7.20 (F04)	42.00	MSX7	3.19	2.84		
1"	3/4"	inch	0.81	0.63	3.69	1.25	13.47	14.16	11.97	15.24	7.50	8.19	6.00	9.27	6.02	9.14	7.32	2.38	0.30	0.28	1.65	MSX7	7.02	6.25			
DN40	DN25	mm	26.60	31.80	115.35	48.35	347.55	377.05	304.00	404.00	195.95	225.45	152.40	252.40	152.80	249.80	237.00	79.15	8.71	9/16" UNF	8.00 (F05)	50.00	M6X8	5.22	4.65		
1 1/2"	1"	inch	1.05	1.25	4.54	1.90	13.68	14.84	11.97	15.91	7.71	8.88	6.00	9.94	6.02	9.83	9.29	3.12	0.34	0.31	1.97	M6X8	11.51	10.25			
DN50	DN40	mm	38.15	35.00	127.90	56.30	352.25	381.75	304.00	409.00	200.65	230.15	152.40	257.40	152.80	254.60	237.00	90.70	8.71	9/16" UNF	8.50 (F05)	50.00	M6X8	6.68	6.11		
2"	1 1/2"	inch	1.50	1.38	5.04	2.22	13.87	15.03	11.97	16.10	7.90	9.06	6.00	10.13	6.02	11.96	9.29	3.57	0.34	0.33	1.97	M6X8	14.72	13.47			

Components & materials



Item	Description	Material specifications	Qty.
1	Body	A351 CF8M, A494 M35-1, Bronze RG5	1
2	Ends	A351 CF8M, A494 M35-1, Bronze RG5	3
3	Ball	A351 CF8M, B574 N06022, Bronze RG5	1
4	Stem	A479 316/316L, A564 Gr.630 H1150D 17-4PH, B574 N06022	1
5*	Seat	CF PTFE,TFM, PCTFE (KEL-F)	2
6*	Body seal	PTFE, Graphite	3
7*	Stem thrust seal	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	TFM <sup>(2)</sup> , PCTFE (KEL-F)	1
8	Stop pin	A582 303	1
9*	Stem seal	TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L	1
10A**	Slide bearing	TF316	1
11	Disc spring	A693 631 17-7PH	2
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Locking clip	A167 304	1
14	Handle	A240 430	1

Item	Description	Material specifications	Qty.
15	Serrated washer	A240 410	1
16	Handle nut	EN3506-2 A4-80, A194 Gr 8M	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70, A193 Gr B8	12
18A	Spring washer	DIN 127 A2	12
20	Anti static spring	A313 302	1
21	Anti static plunger	A479 304	1
23	Tag (not shown)	A167 304	1
24	Bonnet seal	PTFE, Graphite	1
25	Stem bearing	PTFE	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	12
28A	Spring washer	DIN 127 A2	12
30	Dog tag	A167 304	1
26	Bonnet	A479 316L, A351 CF8M	1
28	Bolt	EN3506-1 A2-70, A193 B8	4
28A	Spring washer	DIN 127 A2	4
30	Dog tag	A167 304	1

<sup>(1)</sup> DC47C series is Habonim's standard valve design without the HermetiX™ stem seal construction.

<sup>(2)</sup> This material can only be used as part of the DC47C design.

\* Repair kit components

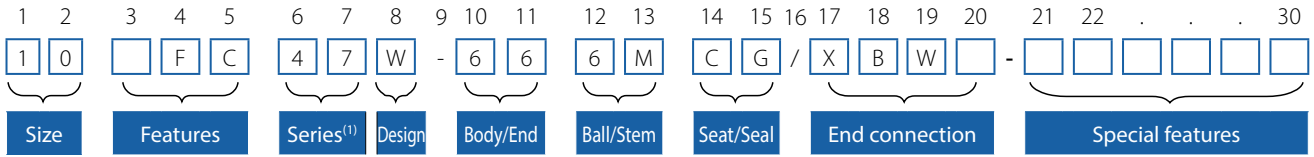
\*\* Only with HermetiX™ fire safe stem seal

# Floating Ball Valves

**Cryogenic valves** | General | 3 Piece | Flanged | High pressure | Multiport | **Ordering code system**

## Ordering code system

The HABONIM Cryogenic ball valve identification code



Size		
Code	inch	mm
02	¼"	8
03	⅜"	10
05	½"	15
07	¾"	20
10	1"	25
12	1¼"	32
15	1½"	40
20	2"	50
25	2½"	65
30	3"	80
40	4"	100
60	6"	150
80	8"	200

Features <sup>(1)</sup>	
F	Fire safe
B	Full port
N	Control service
D <sup>(2)</sup>	Diverter bottom entry
I	High purity Class 10000 assembly room

Series	
C47	3 Piece design
C31	ANSI 150
C32	ANSI 300
C73	ANSI 150 Full bore
C74	ANSI 300 Full bore
C77	PN16 Full bore
C78	PN40 Full bore
C26	Full bore class 600 design
C28	3 Piece high pressure
C61	Multy-port valve

Design	
C	Basic design
X	Cryogenic HermetiX™ stem seal
W	Cryogenic HermetiX™ fire safe stem seal

Body/End	
6	S. St. A351 CF8M / CF3M / S.St. 316/316L
1	Bronze RG5
7	Monel A494 M-35-1

Ball/Stem	
6	S. Steel A351 CF8M
M	17-4PH A564 Gr 630 H1150D
1 <sup>(3)</sup>	Bronze B62 C83600
7	Monel A494 M-35-1

Seat	
A	TFM
C	PCTFE (KEL-F)
P	CF PTFE
T	PTFE

Seal	
G	Expanded graphite
I	Impregnated graphite
T	PTFE

Special features	
RTJ	Ring Type Joint
B	Body made from rolled bar
EP	Electropolished
WR	DD stem
G..	Internal surface finish (G24, G32)
VB30	Characterized control ball
6.0	Short bonnet
FF	Flat face

End connections	
Welded	
BW5	Buttweld schd. 5
BW10	Buttweld schd. 10
BW	Buttweld schd. 40
BW80	Buttweld schd. 80
XBW	Extended buttweld schd. 40
SW	Socket weld
XSW	Extended socket weld
BWO	Buttweld tube OD
ETO	Extended tube OD
SWO	Socket weld tube OD
BWD	Buttweld DIN 11860
ETJ	Extended Tube JIS
FT	Flush Tank adaptive plate
FP	Flush Pipe adaptive plate
KLM	Copper tube (Imperial)
XYZ	Copper tube (Metric)
ETB	Extended copper tube

Threaded	
NPT	ANSI B1.20.1 - National Pipe Taper thread
MNPT	Male NPT
BSPT	EN 10226-1 - British Standard Pipe Taper thread
MBSPT	Male BSPT
DIN2999	EN 10226-1 - British Standard Pipe parallel thread
DIN3852	EN 10226-1 - British Standard Pipe parallel thread
AS5202	SAE internal straight thread

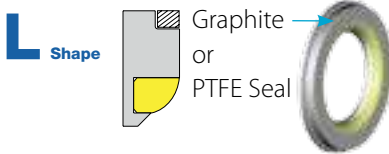
Clamp	
LL	Compression fitting (Imperial)
LM	Compression fitting (metric)
TC	Tri-Clamp
GR	Graylock

Flanged	
150	ANSI B16.5 #150 RF
300	ANSI B16.5 #300 RF
600	ANSI B16.5 #600 RF
900	ANSI B16.5 #900 RF
PN16	EN1092 PN16 RF
PN40	EN1092 PN40 RF
PN64	EN1092 PN64 RF
PN100	EN1092 PN100 RF
PN160	EN1092 PN160 RF

The high pressure cryogenic C28 series Hybrid seats code system

14	23	24	25	26
Hybrid Seat	Insert material	Upstream / Downstream	Insert Shape	Housing Shape + Seal Type
F	C PCTFE	0	0 Scraper	5 L + Graphite
		1		
		5	1 Round	6 L + PTFE

### Hybrid Seat Types



### Insert Shapes

The "L shape" is mainly used for fire-safe or cryogenic applications where an elastomer O-ring cannot be used.

<sup>(1)</sup> The cryogenic series is cleaned for O<sub>2</sub> service as standard, no need for extra prefix.

<sup>(2)</sup> Only applicable for C47 series

<sup>(3)</sup> Not to be used as a stem material

As standard all Habonim cryogenic valves come with an anti-static device.

In some applications the available options above are limited to specific sizes please consult with Habonim for details.





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**Habonim ISRAEL**

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