

# Three piece ball valves



## Introduction

### Habonim 3-piece ball valves 47 series

Habonim line of 3-piece ball valves is engineered for endurance and meet the most demanding industrial and international standards. The 47 series, is designed and manufactured for applications with high-flow capacity and tight shutoff, to ensure reliability and functionality. The 3-piece body construction allows for in-line maintenance and replacement of internal parts. Its sturdy construction is in compliance with ANSI B16.34 (wall thickness) and API 6D standards.

## Technical summary

<b>47 Series</b>	Standard and full port
<b>Size range</b>	¼"- 2" (DN8 - DN50)
<b>Pressure range</b>	ANSI Class 900   Vacuum 10 <sup>-6</sup> Tor to 155 bar (2250 psi)
<b>Size range</b>	2½"-6" (DN65 - DN150)
<b>Pressure range</b>	ANSI Class 400   Vacuum 10 <sup>-6</sup> Tor to 70 bar (1000 psi)
<b>Temperature range</b>	-60 °C to +260 °C (-76 °F to +500 °F)
<b>Materials</b>	Stainless steel A351 CF8M, carbon steel A216 WCB, bronze, alloy C22, alloy C276, duplex, super duplex, 254SMO, inconel 625, monel 400, titanium and more
<b>End connections</b>	Threaded, welded, flanged
<b>Operation</b>	Lever or gear operated, pneumatic or electric actuated
<b>Service</b>	Chemical, petrochemical, oil and gas, energy, pulp & paper and others

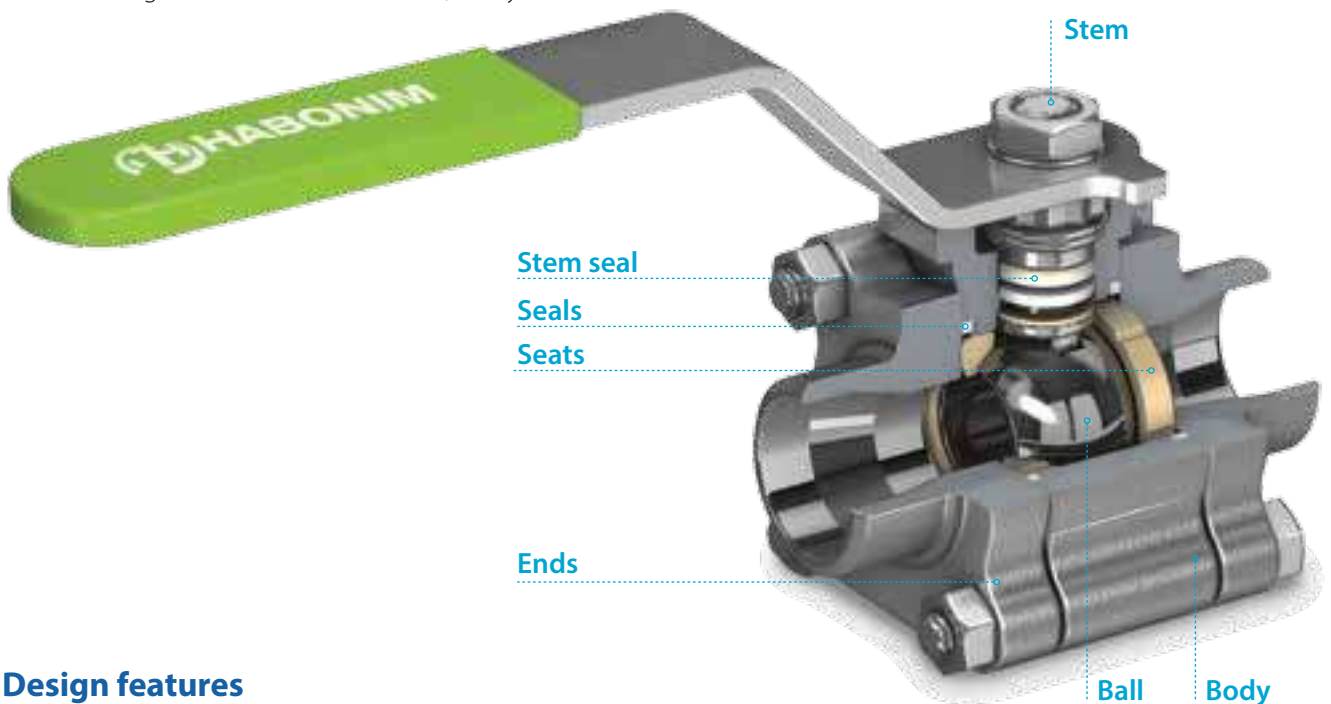
## Standards of compliance

<b>Factory certification</b>	ISO 9001-2008	Quality management system
<b>Valve design &amp; tests</b>	ANSI B16.34, API 608, API 6D / ISO 14313, ISO 17292	Valve design
	ANSI B1.20.1	NPT - National Pipe Taper thread
	EN 10226-1, ISO 7-1, JIS B0203	BSPT - British Standard Pipe Taper thread
	DIN 3852	BSPP
	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

## HermetiX™

Habonim standard valves that include the HermetiX™ stem seal have passed the rigorous test dictated by ISO 15848-1 with great success. Third party certifications for the complete standard product line are published on the Habonim website. The HermetiX™ stem seal is named for its distinctive “X” shaped design. The flexible “X” shape creates a dynamic sealing arrangement that allows the HermetiX™ stem seal to adjust itself as pressure builds. In the event of pressure buildup or side load, the stem seal dynamically adjusts to prevent fugitive emissions, making HermetiX™ a superior design compared with the conventional flat stem seals currently available in the market.

The HermetiX™ stem seal also includes a tough thrust bearing (CF PEEK by default) located between the stem and the valve body, and an anti-abrasion ring (CF PEEK by default) located between the soft HermetiX™ stem seal and the stainless steel follower. Both elements minimize erosion and loss of preload, thus keeping the stem components in their original condition and extending their service life above 500,000 cycles.



## Design features

### Body

- Three piece design
- Forged or cast body
- Full compliance with ASME B16.34 (wall thickness) and API 6D
- Easily serviced in-line with swing-out body
- Large range of end connections for full or standard port valves
- Rugged top mounting ISO 5211 compliant platform for easy mounting of actuator and other accessories
- Carbon steel valves are black oxidized to MIL-DTL-13924 standard or available in epoxy paint finish upon request
- Stainless steel and high alloy valves provided with natural finish
- Steam jacket - upon request

### Ball

- Mirror polished solid ball
- Bidirectional as standard
- High flow capacity with low pressure drop at full opening
- Floating ball concept for positive shutoff
- Pressure equalizing hole in the stem slot

### Stem

- One piece solid stem
- Blowout proof design
- Antistatic device
- Fire lip

### Stem seal

- HermetiX™ ISO 15848-1 certified
- High endurance up to 500 thousand cycles
- Anti-abrasion mechanism
- Live loaded

### Seats and seals

- Flexible seat design
- Reduced wear
- Low torque
- Rate A leakage tightness
- Self-relief seats (SRS) - upon request

### Handle

- Rigid handle indicating flow direction
- Optional locking devices

## Floating Ball Valves

Three piece valves

General

HermetiX™

HermetiX™  
Fire safe

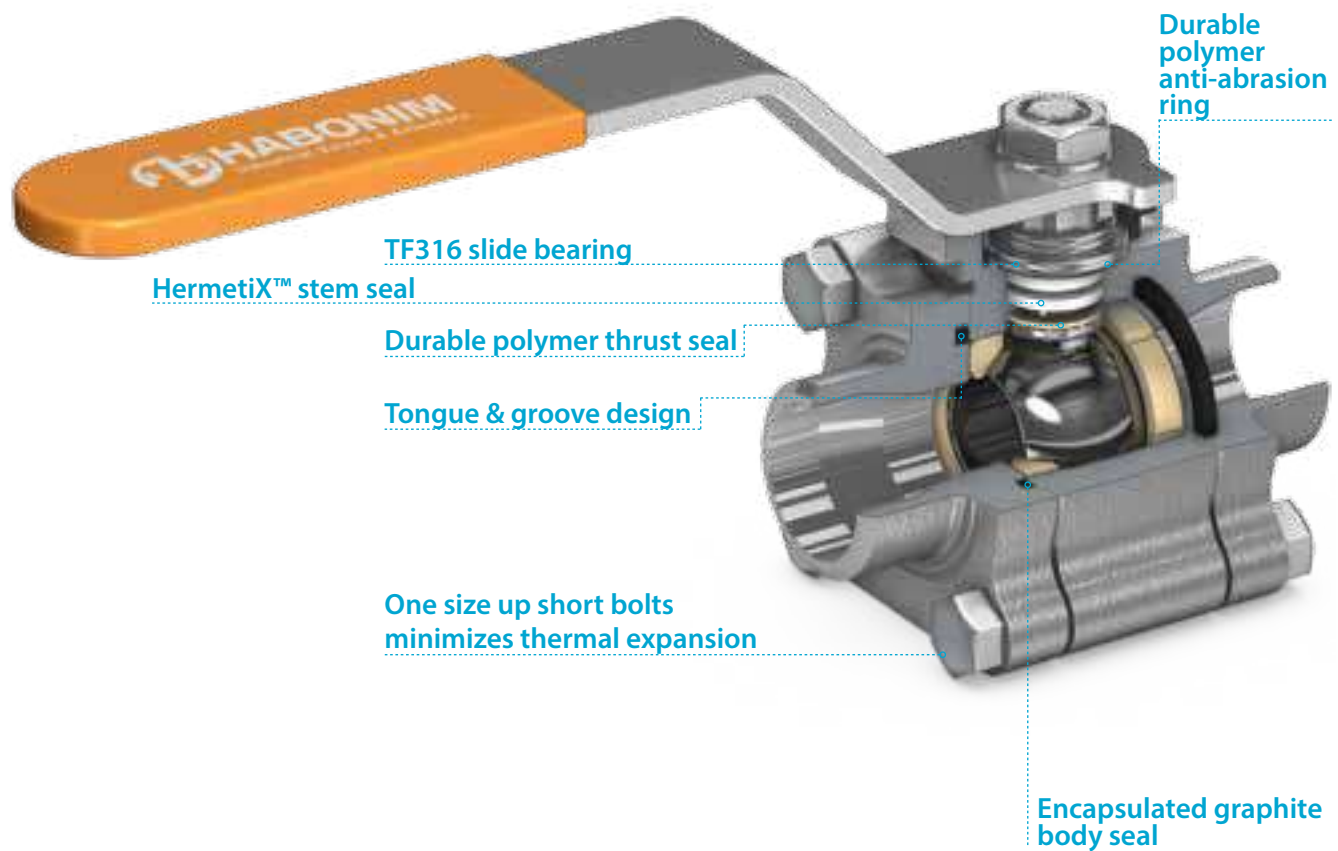
HermetiX™  
Graphite-free fire-safe

Ordering  
code system

### HermetiX™ Graphite-free fire-safe stem seal

Continuous development of the HermetiX™ technology led to Habonim's revolutionary graphite-free fire-safe stem seal design. A polymer stem seal and a unique trim construction hold the stem aligned and preloaded even after a fire. The HermetiX™ stem seal is well-suited for use in hazardous industries such as chemical, petrochemical and oil & gas, where it improves the performance of the valve stem seal up to 500,000 cycles compared to conventional porous graphite fire-safe stem seals.

The HermetiX™ fire-safe valve offers the ultimate solution with its exclusive graphite-free stem seal that eliminates the risk of graphite disintegration even after prolonged stem wear, protecting both line materials and air quality.



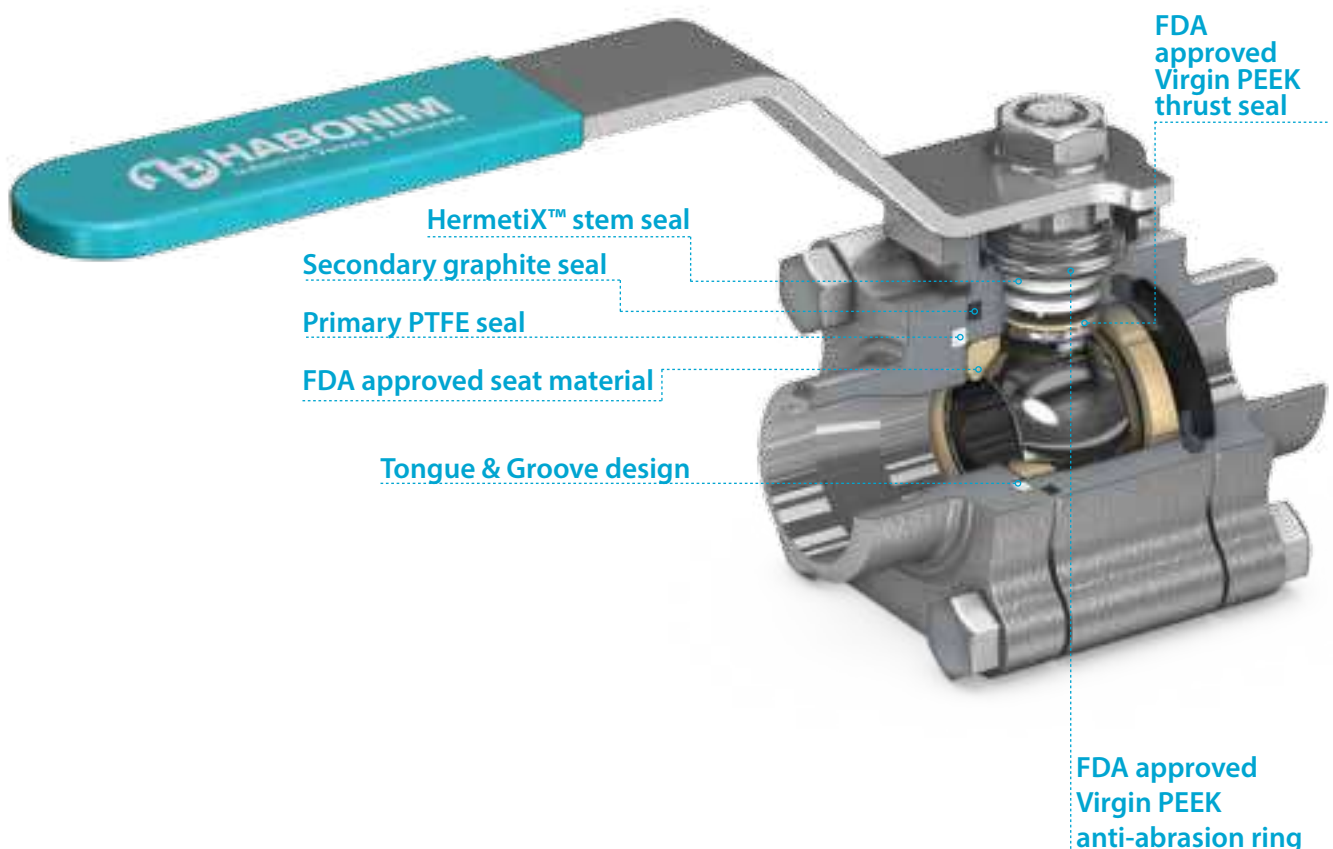
### Unique design features

- Fugitive emission certified to ISO 15848-1
- Fire safe design to API 607 and ISO 10497
- Habonim design Patent No. D598,988
- Designed to operate for 500,000 cycles without refurbishment
- Prevents media contamination from graphite particles
- Ensures uninterrupted production
- Increases site safety

## HermetiX™ Graphite-free fire-safe valve

A premium line of products based on the HermetiX™ fire safe technology.

This unique fire safe valve design includes a graphite-free HermetiX™ stem seal consisting of a virgin PEEK thrust bearing and anti-abrasion ring, and HermetiX™ stem seal made of TFM material. Both virgin PEEK and TFM are FDA approved. A double body seal set is comprised of an internal PTFE HermetiX™ body seal facing the media, and an external graphite seal to withstand the fire. This configuration effectively isolates the graphite secondary seal in a dry cavity, preventing it from coming into contact with the media, ensuring a high level of purity for high-value media.



## Unique design features

- Prevents media contamination from graphite particles
- FDA approved polymer materials
- Animal Derivative Free (ADF) assembly
- Ensures uninterrupted production
- Fugitive emission certified to ISO 15848-1
- Fire safe design to API 607 and ISO 10497
- Cleaned, assembled and packed for Biopharma / API service
- Designed to operate for 500,000 cycles without refurbishment
- Increases site safety
- Self-Relieving Seats (SRS) - upon request
- Habonim design Patent No. D598,988

# Floating Ball Valves

## Three piece valves

General

HermetiX™

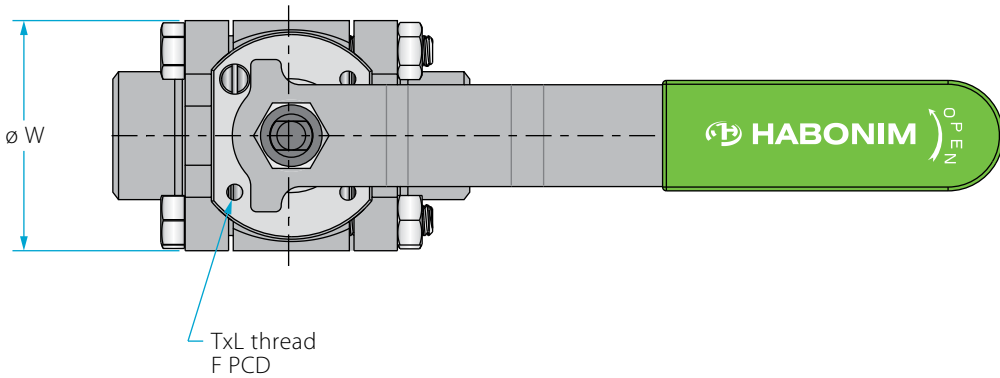
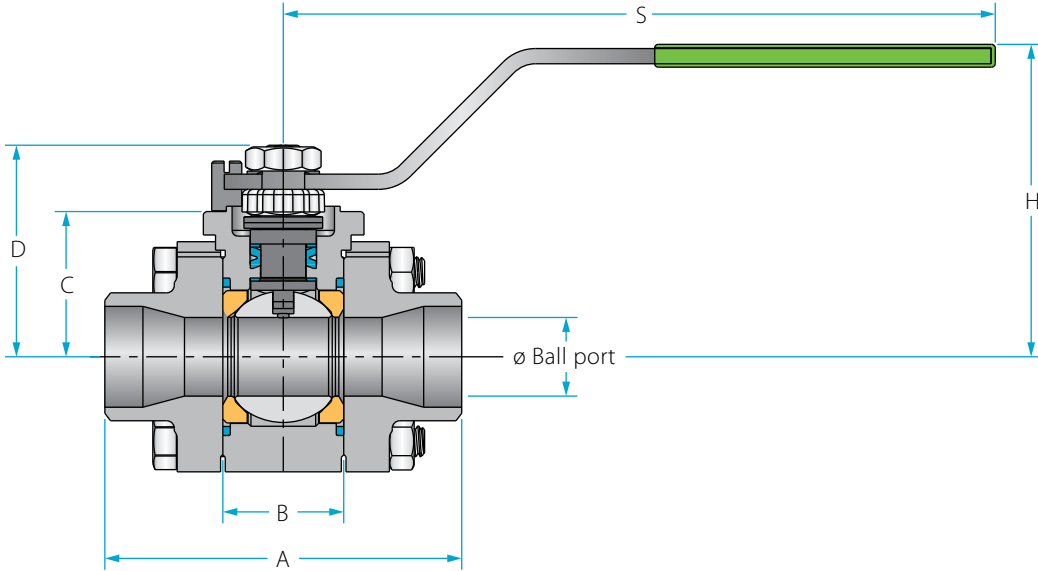
HermetiX™  
Fire safe

HermetiX™  
Graphite free - fire safe

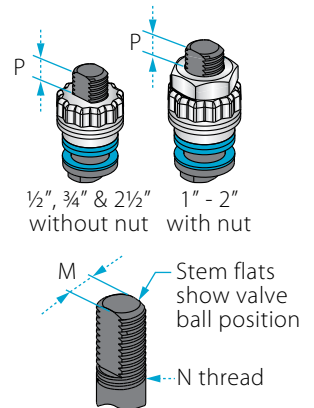
Ordering  
code system

Size 1/4" - 2 1/2" | DN8-DN65 | Class 900<sup>(3)</sup> | 47X/47P<sup>(1)</sup> Series

### Valve dimensions

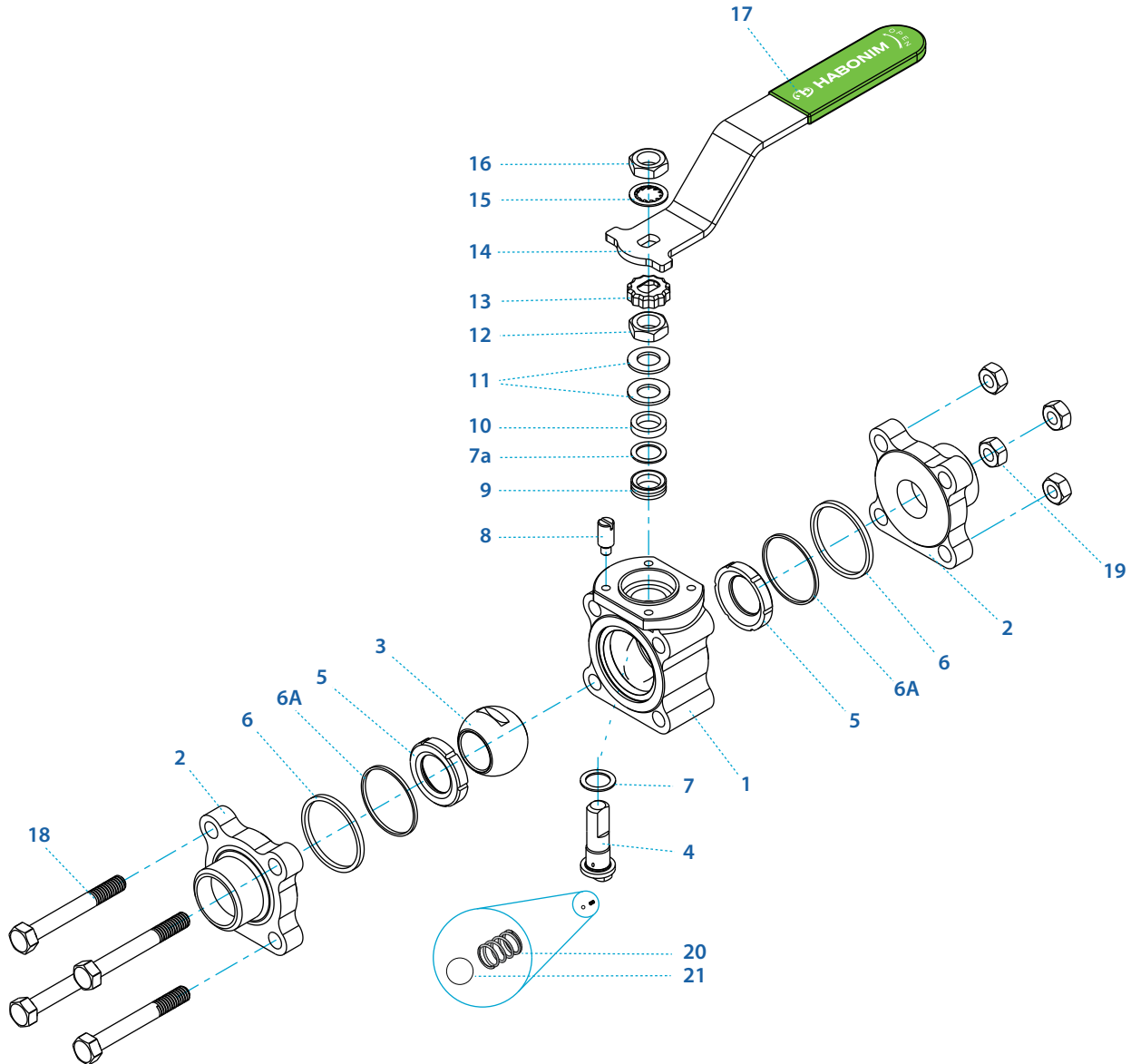


### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	C	D	H	S	W	M	N	P	F	TxL	Weight kg/lb	Kv Cv
	DN8	mm	11.15	66.00	20.60	29.00	37.9	61.50	150.00	47.00	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.60	2.6
	1/4"	inch	0.44	2.60	0.81	1.14	1.49	2.42	5.91	1.85	0.22		0.26	1.42		1.33	3.0
DN15	DN10	mm	11.15	66.00	20.60	29.00	37.9	61.50	150.00	47.00	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.60	6.9
	1/2"	3/8"	inch	0.44	2.60	0.81	1.14	1.49	2.42	5.91	0.22		0.26	1.42		1.33	8.0
DN20	DN15	mm	14.30	70.60	24.50	31.40	40.30	63.90	150.00	53.70	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.80	10
	3/4"	1/2"	inch	0.56	2.78	0.97	1.24	1.59	2.52	5.91	0.22		0.26	1.42		1.77	12
DN25	DN20	mm	20.60	93.70	31.70	38.10	55.60	79.40	187.00	63.70	7.54	7/16 UNF	7.40 (F04)	42.00	M5X10	1.60	28
	1"	3/4"	inch	0.81	3.69	1.25	1.50	2.19	3.13	7.36	0.30		0.29	1.65		3.54	32
DN32	DN25	mm	25.40	108.00	41.30	42.70	60.20	84.10	187.00	71.70	7.54	7/16 UNF	7.40 (F04)	42.00	M5X10	2.50	49
	1 1/4"	1"	inch	1.00	4.25	1.62	1.68	2.37	3.31	7.36	0.30		0.29	1.65		5.53	57
DN40	DN32	mm	31.80	115.50	48.40	43.60	73.00	97.00	237.00	86.70	8.71	9/16 UNF	8.50 (F05)	50.00	M6X12	3.60	69
	1 1/2"	1 1/4"	inch	1.25	4.55	1.91	1.72	2.87	3.82	9.33	0.34		0.33	1.97		7.96	80
DN50	DN40	mm	38.10	128.00	56.30	48.30	77.80	101.80	237.00	96.90	8.71	9/16 UNF	8.50 (F05)	50.00	M6X12	4.50	102
	2"	1 1/2"	inch	1.50	5.04	2.22	1.90	3.06	4.01	9.33	0.34		0.33	1.97		9.95	118
DN65	DN50	mm	50.80	158.00	72.60	70.00	88.10	115.10	237.00	108.00	8.71	9/16 UNF	13.50 (F07)	70.00	M8X12	9.50	208
	2 1/2"	2"	inch	2.00	6.22	2.86	2.76	3.47	4.53	9.33	0.34		0.53	2.76		21.00	241

Components & materials



Item	Description	Material specification	Qty.
1	Body	A351 CF8M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	1
2	Ends	A351 CF3M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	2
3	Ball	A351 CF8M, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
4	Stem	A479 316L, A564 Gr.630 H1150D 17-4PH, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
5*	Seat	PTFE, RPTFE, CF PTFE, PEEK, CF PEEK, TFM, UHMWPE, VESPEL, PVDF, DELRIN, PCTFE (KEL-F)	2
6*	Body seal	PTFE, RPTFE, UHMWPE, Graphite	2
6A***	Support ring	A479 316L, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	2
7*	Stem thrust seal	PEEK, CF PEEK, PCTFE (KEL-F), TFM <sup>(2)</sup> , CF PTFE <sup>(2)</sup>	1
7a**	Anti-abrasion ring	PEEK, CF PEEK, PCTFE (KEL-F), TFM <sup>(2)</sup> , CF PTFE <sup>(2)</sup>	1
8	Stop pin	A582 303	1

Item	Description	Material specification	Qty.
9*	Stem seal	CF PTFE, TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L, B164 N04400	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	C.St. A29 G10200 zinc plated, A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	A194 Gr 8M, EN3506-2 A4-80	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70 / A4-80, A193 Gr B7 zinc plated, A193 Gr B8M zinc plated	4
19	Body nut	EN 3506-2 A4, A194 Gr 2H zinc plated, A194 Gr 8M	4
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
23	Tag (not shown)	A167 304	1

\* Repair kit components  
 \*\* Only with HermetiX™ stem seal  
 \*\*\* Only with graphite body seal

<sup>(1)</sup> 47P 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 47P design.

<sup>(3)</sup> 2 1/2" (DN65) size maximum pressure rating is Class 400.

# Floating Ball Valves

**Three piece valves**

General

**HermetiX™**

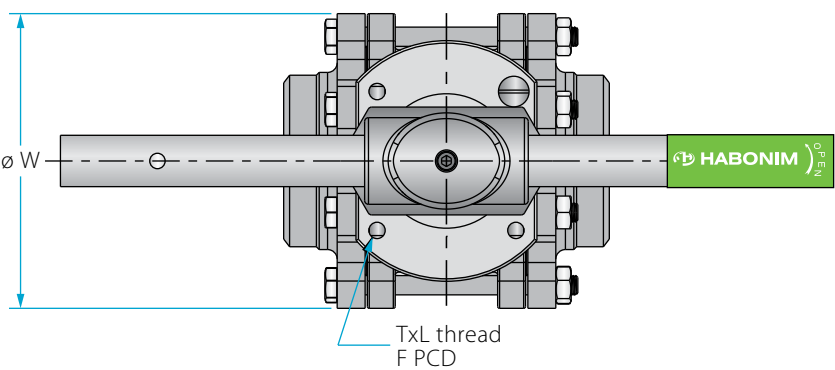
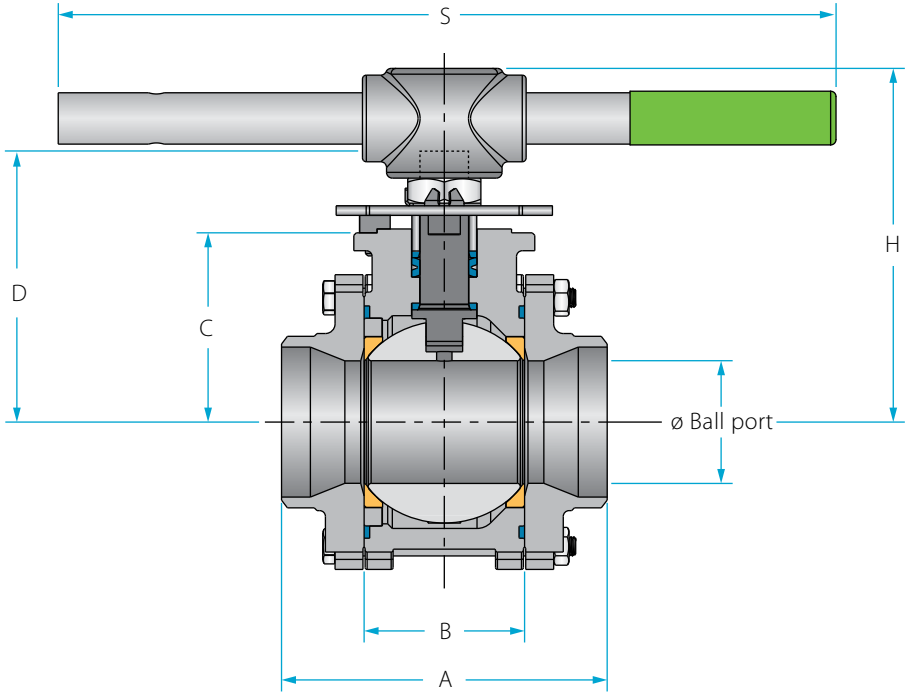
HermetiX™  
Fire safe

HermetiX™  
Graphite free - fire safe

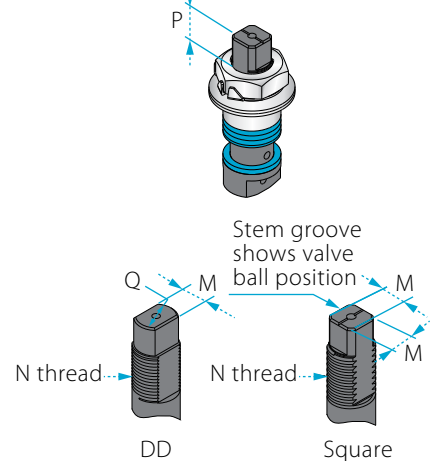
Ordering  
code system

Size 3"- 6" | DN80-DN150 | Class 400 | 47X/47P<sup>(1)</sup> Series

## Valve dimensions



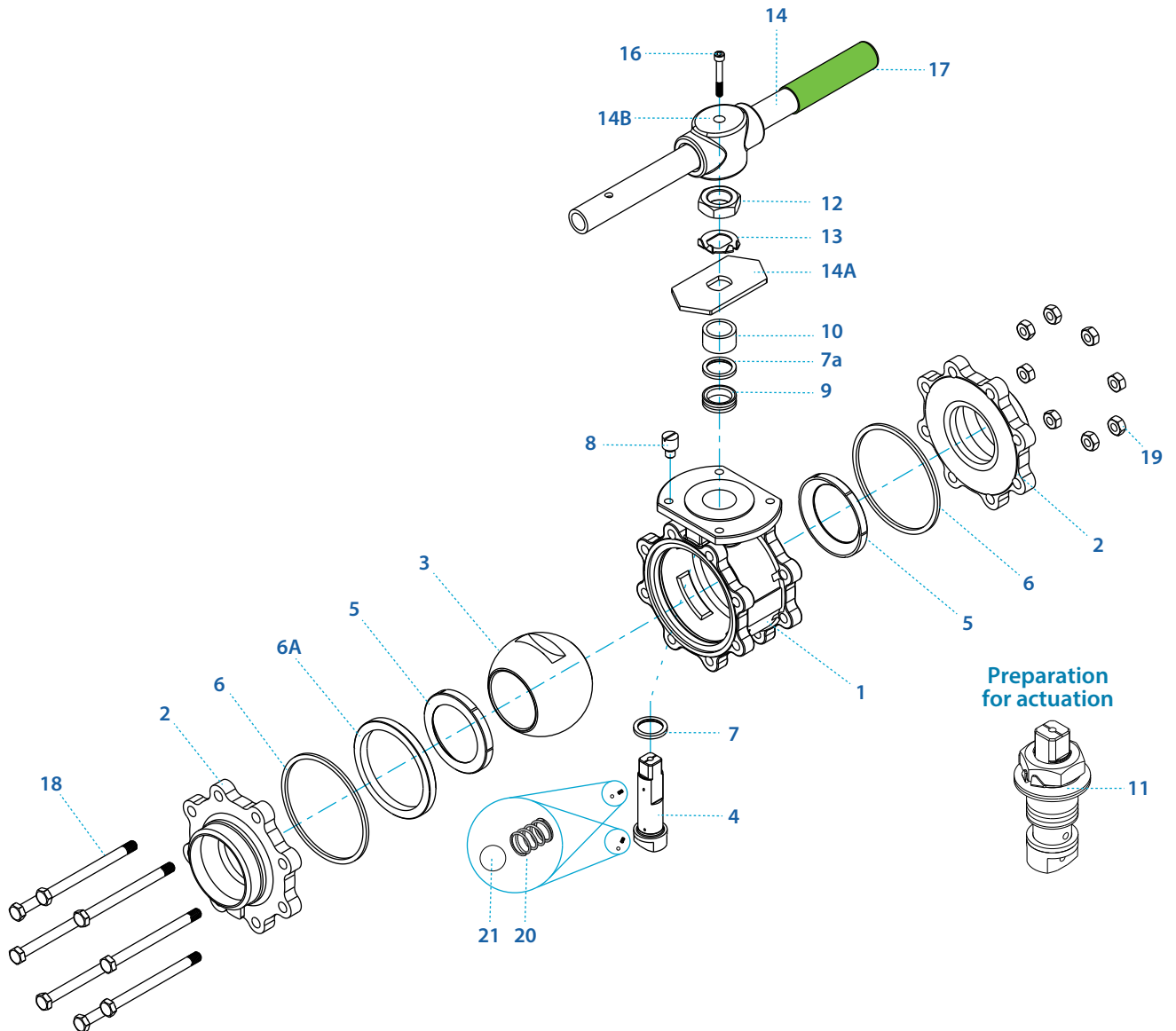
### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	C	D	H	S	W	M	M-DD	N	P	Q	F	TxL	Weight kg/lb	Kv Cv
DN80	DN65	mm	63.50	169.00	83.30	98.30	144.90	185.00	400.00	140.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	13.70	300
3"	2½"	inch	2.50	6.65	3.28	3.87	5.71	7.29	15.75	5.50	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	30.30	348
DN100	DN80	mm	82.60	214.00	108.80	114.10	160.70	200.00	600.00	177.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	23.70	615
4"	3"	inch	3.25	8.43	4.28	4.49	6.33	7.89	23.62	6.97	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	52.40	713
	DN100	mm	100.00	239.00	123.00	124.00	170.50	211.00	600.00	217.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	30.00	744
	4"	inch	3.94	9.41	4.84	4.88	6.71	8.30	23.62	8.54	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	66.30	863
DN150		mm	111.10	346.00	146.00	157.00	226.00	286.00	916.00	266.00	28.45	23.75	1½"-12	26.20	35.20 (F12)	125.00	M12x20	63.00	872
6"		inch	4.37	13.62	5.75	6.18	8.90	11.26	36.06	10.47	1.12	0.94	UNF-2A	1.03	1.39	4.92	M12x20	138.90	1012



Components & materials



Item	Description	Material specification	Qty.
1	Body	A351 CF8M, A216 WCB, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A "	1
2	Ends	A351 CF3M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A "	2
3	Ball	A351 CF8M, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
4	Stem	A479 316L, A564 Gr.630 H1150D 17-4PH, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
5*	Seat	PTFE, RPTFE, CF PTFE, PEEK, CF PEEK, TFM, UHMWPE, VESPEL, PVDF, DELRIN, PCTFE (KEL-F)	2
6*	Body seal	PTFE, RPTFE, UHMWPE, Graphite	2
6A	Support ring	A351 CF3M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A "	1
7*	Stem thrust seal	PEEK, CF PEEK, PCTFE (KEL-F), TFM <sup>(2)</sup> , CF PTFE <sup>(2)</sup>	1
7a**	Anti-abrasion ring	PEEK, CF PEEK, PCTFE (KEL-F), TFM <sup>(2)</sup> , CF PTFE <sup>(2)</sup>	1
8	Stop pin	A582 303	1

Item	Description	Material specification	Qty.
9*	Stem seal	CF PTFE, TFM, Graphite <sup>(2)</sup>	1
10	Follower	B783 316L, B164 N04400	1
11	Disc spring	A693 631 17-7PH	2
12	Stem nut	C.st B18 ZP	1
13	Tab lock washer	A240 304	1
14	Handle	C.St. zinc plate, A240 316L	1
14A	Stop plate	C.St. 1.0402 zinc plate, A240 430	1
14B	Wrench head	Ductile iron A536 Gr. 65-45-12, A216 WCB, A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolts	EN 3506-1 A2-70 / A4-80, A193 Gr B7 zinc plated, A193 Gr B8M zinc plated	8-12
19	Body nut	EN 3506-2 A4, A194 Gr 2H zinc plated, A194 Gr 8M	8-12
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
23	Tag (not shown)	A167 304	1

<sup>(1)</sup> 47P 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 47P design.

\* Repair kit components

\*\* Only with HermetiX™ stem seal

# Floating Ball Valves

## Three piece valves

General

HermetiX™

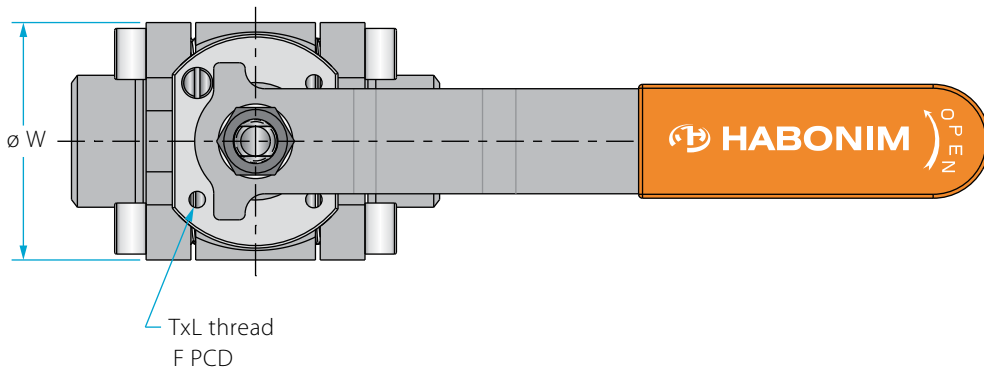
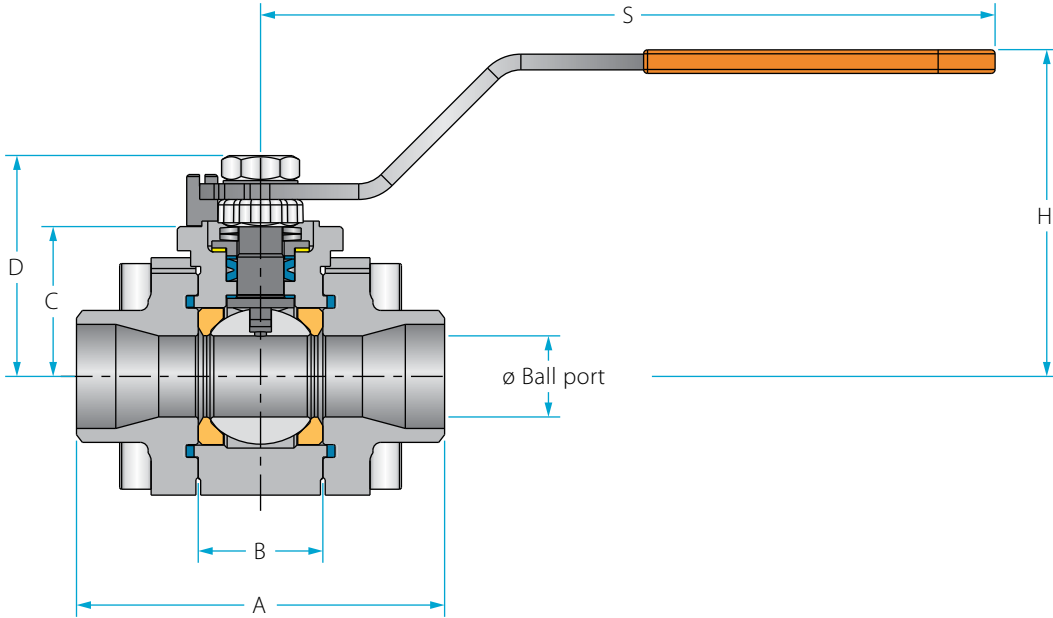
HermetiX™  
Fire safe

HermetiX™  
Graphite free - fire safe

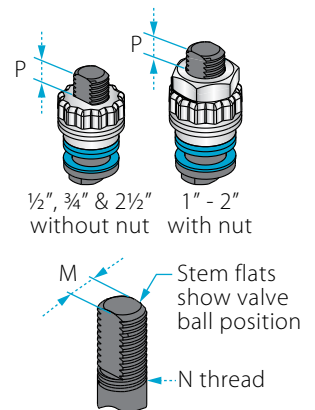
Ordering  
code system

Size 1/4" - 2 1/2" | DN8-DN65 | Class 900<sup>(2)</sup> | F47W/F47P<sup>(1)</sup> Series

### Valve dimensions

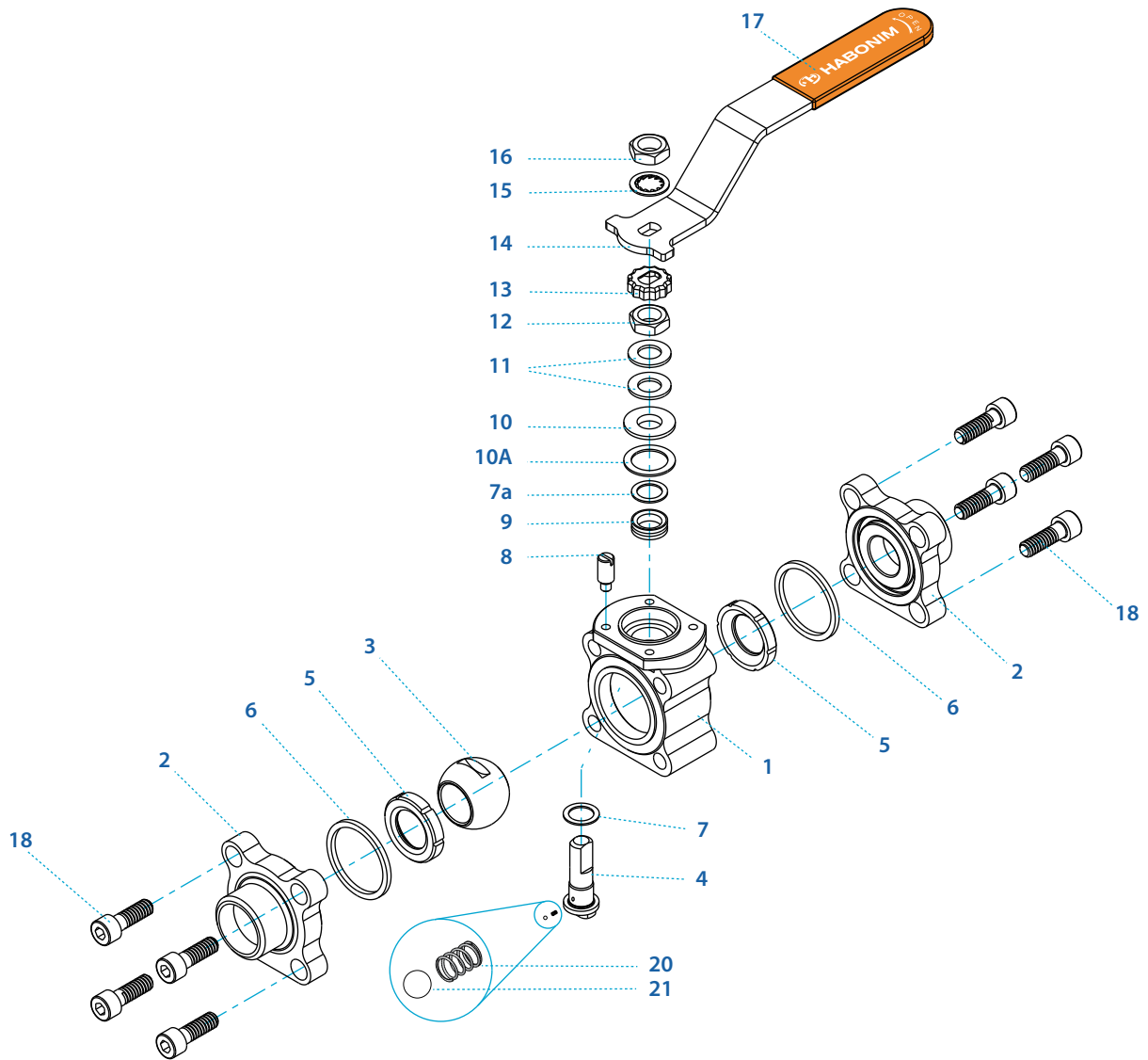


### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	C	D	H	S	W	M	N	P	F	TxL	Weight kg/lb	Kv Cv
	DN8	mm	11.15	66.00	20.60	29.00	37.90	61.50	150.00	47.00	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.60	2.6
	1/4"	inch	0.44	2.60	0.81	1.14	1.49	2.42	5.91	1.85	0.22		0.26	1.42		1.33	3.0
DN15	DN10	mm	11.15	66.00	20.60	29.00	37.90	61.50	150.00	47.00	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.60	6.9
	1/2"	3/8"	inch	0.44	2.60	0.81	1.14	1.49	2.42	5.91	1.85		0.22	0.26		1.42	1.33
DN20	DN15	mm	14.30	70.60	24.50	31.40	40.30	63.90	150.00	53.70	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.80	10
	3/4"	1/2"	inch	0.56	2.78	0.97	1.24	1.59	2.52	5.91	2.11		0.22	0.26		1.42	1.77
DN25	DN20	mm	20.60	93.70	31.70	38.10	55.60	79.40	187.00	63.70	7.54	7/16 UNF	7.40 (F04)	42.00	M5X10	1.60	28
	1"	3/4"	inch	0.81	3.69	1.25	1.50	2.19	3.13	7.36	2.51		0.30	0.29		1.65	3.54
DN32	DN25	mm	25.40	108.00	41.30	42.70	60.20	84.10	187.00	71.70	7.54	7/16 UNF	7.40 (F04)	42.00	M5X10	2.50	49
	1 1/4"	1"	inch	1.00	4.25	1.62	1.68	2.37	3.31	7.36	2.82		0.30	0.29		1.65	5.53
DN40	DN32	mm	31.80	115.50	48.40	43.60	73.00	97.00	237.00	86.70	8.71	9/16 UNF	8.50 (F05)	50.00	M6X12	3.60	69
	1 1/2"	1 1/4"	inch	1.25	4.55	1.91	1.72	2.87	3.82	9.33	3.41		0.34	0.33		1.97	7.96
DN50	DN40	mm	38.10	128.00	56.30	48.30	77.80	101.80	237.00	96.90	8.71	9/16 UNF	8.50 (F05)	50.00	M6X12	4.50	102
	2"	1 1/2"	inch	1.50	5.04	2.22	1.90	3.06	4.01	9.33	3.82		0.34	0.33		1.97	9.95
DN65	DN50	mm	50.80	158.00	72.60	70.00	88.10	115.10	237.00	108.00	8.71	9/16 UNF	13.50 (F07)	70.00	M8X12	9.50	208
	2 1/2"	2"	inch	2.00	6.22	2.86	2.76	3.47	4.53	9.33	4.25		0.34	0.53		2.76	21.00

Components & materials



Item	Description	Material specification	Qty.
1	Body	A351 CF8M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	1
2	Ends	A351 CF3M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	2
3	Ball	A351 CF8M, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
4	Stem	A479 316L, A564 Gr.630 H1150D 17-4PH, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
5*	Seat	PTFE, RPTFE, CF PTFE, PEEK, CF PEEK, TFM, UHMWPE, VESPEL, PVDF, DELRIN, PCTFE (KEL-F)	2
6*	Body seal	Graphite	2
7*	Stem thrust seal	PEEK, CF PEEK, PCTFE (KEL-F), TFM <sup>(1)</sup> , CF PTFE <sup>(1)</sup>	1
7a*	Anti-abrasion ring	PEEK, CF PEEK, PCTFE (KEL-F), TFM <sup>(1)</sup> , CF PTFE <sup>(1)</sup>	1

Item	Description	Material specification	Qty.
8	Stop pin	A582 303	1
9*	Stem seal	CF PTFE, TFM, Graphite <sup>(1)</sup>	1
10	Follower	B783 316L, B164 N04400	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	C.St. A29 G10200 zinc plated, A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	A194 Gr 8M, EN3506-2 A4-80	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70 / A4-80, A193 Gr B7 zinc plated, A193 Gr B8M zinc plated	8
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
23	Tag (not shown)	A167 304	1

<sup>(1)</sup> This material can only be used as part of the 47P design.

<sup>(2)</sup> 2 1/2" (DN65) size maximum pressure rating is Class 400.

<sup>(3)</sup> F47P Series is Habonim's firesafe valve design without the Graphite free HermetiX™ stem seal construction.

\* Repair kit components

# Floating Ball Valves

## Three piece valves

General

HermetiX™

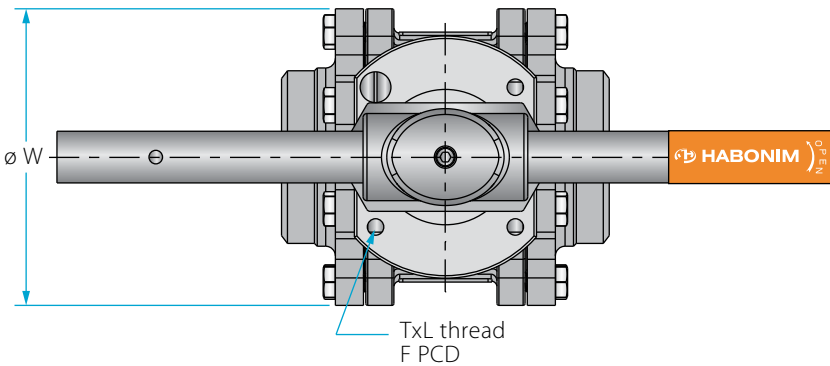
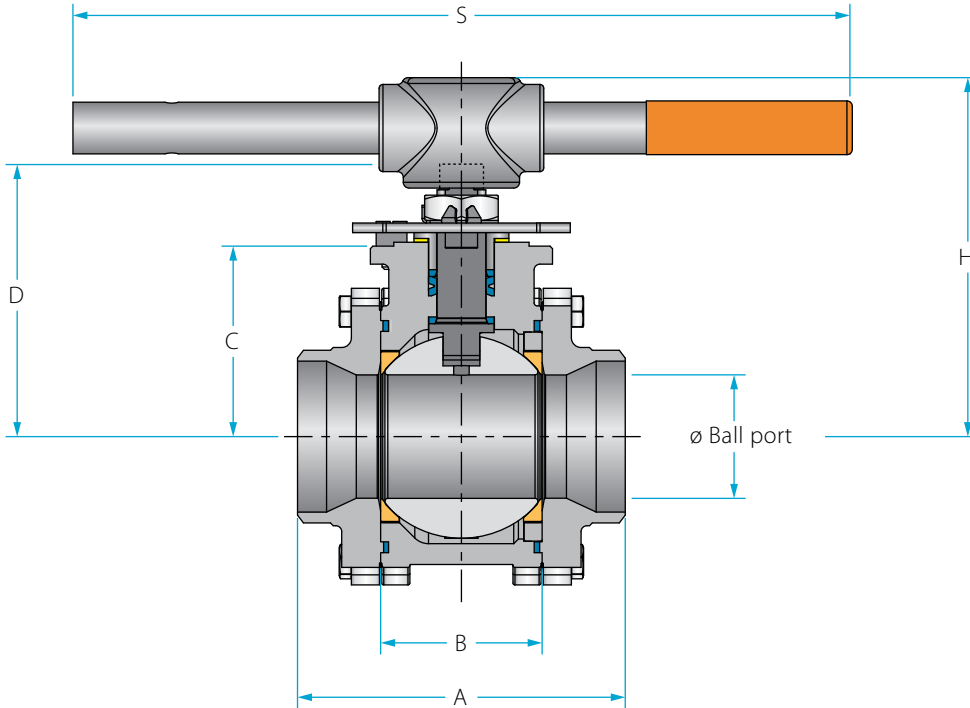
HermetiX™  
Fire safe

HermetiX™  
Graphite free - fire safe

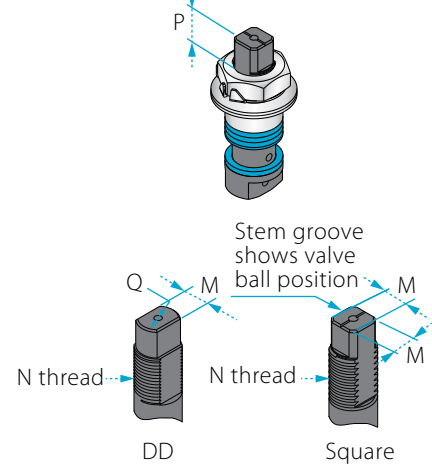
Ordering  
code system

Size 3"- 6" | DN80-DN150 | Class 400 | F47W/F47P<sup>(1)</sup> Series

### Valve dimensions

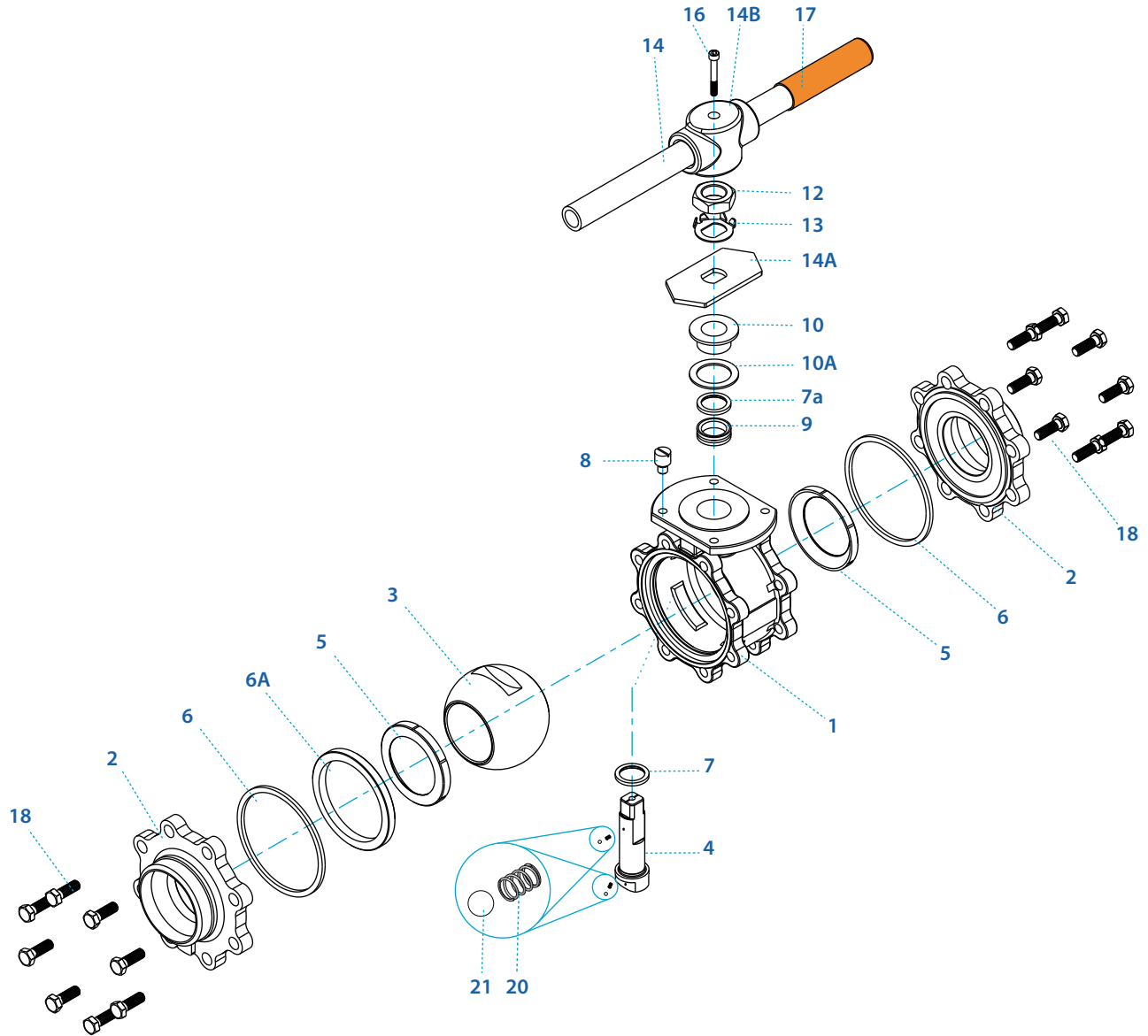


### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	C	D	H	S	W	M	M-DD	N	P	Q	F	TxL	Weight kg/lb	Kv Cv
DN80	DN65	mm	63.50	169.00	83.30	98.30	144.90	185.00	400.00	140.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	13.70	300
3"	2½"	inch	2.50	6.65	3.28	3.87	5.71	7.29	15.75	5.50	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	30.30	348
DN100	DN80	mm	82.60	214.00	108.80	114.10	160.70	200.00	600.00	177.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	23.70	615
4"	3"	inch	3.25	8.43	4.28	4.49	6.33	7.89	23.62	6.97	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	52.40	713
	DN100	mm	100.00	239.00	123.00	124.00	170.50	211.00	600.00	217.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	30.00	744
	4"	inch	3.94	9.41	4.84	4.88	6.71	8.30	23.62	8.54	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	66.30	863
DN150		mm	111.10	346.00	146.00	157.00	226.00	286.00	916.00	266.00	28.45	23.75	1½"-12	26.20	35.20 (F12)	125.00	M12x20	63.00	872
6"		inch	4.37	13.62	5.75	6.18	8.90	11.26	36.06	10.47	1.12	0.94	UNF-2A	1.03	1.39	4.92	M12x20	138.90	1012

Components & materials



Item	Description	Material specification	Qty.
1	Body	A351 CF8M, A216 WCB, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	1
2	Ends	A351 CF3M, A216 WCB, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	2
3	Ball	A351 CF8M, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
4	Stem	A479 316L, A564 Gr.630 H1150D 17-4PH, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
5*	Seat	PTFE, RPTFE, CF PTFE, PEEK, CF PEEK, TFM, UHMWPE, VESPEL, PVDF, DELRIN, PCTFE (KEL-F)	2
6*	Body seal	Graphite	2
6A	Support ring	A351 CF3M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	1
7*	Stem thrust seal	PEEK, CF PEEK, PCTFE (KEL-F), TFM <sup>(1)</sup> , CF PTFE <sup>(1)</sup>	1
7a*	Anti-abrasion ring	PEEK, CF PEEK, PCTFE (KEL-F), TFM <sup>(1)</sup> , CF PTFE <sup>(1)</sup>	1
8	Stop pin	A582 303	1

Item	Description	Material specification	Qty.
9*	Stem seal	CF PTFE, TFM, Graphite <sup>(1)</sup>	1
10	Follower	B783 316L, B164 N04400	1
10A*	Slide bearing	TF316	1
11	Disc spring	A693 631 17-7PH	2
12	Stem nut	C.st B18 ZP	1
13	Tab lock washer	A240 304	1
14	Handle	C.St. zinc plate, A240 316L	1
14A	Stop plate	C.St. 1.0402 zinc plate, A240 430	1
14B	Wrench head	Ductile iron A536 Gr. 65-45-12, A216 WCB, A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolts	EN 3506-1 A2-70 / A4-80, A193 Gr B7 zinc plated, A193 Gr B8M zinc plated	8-12
19	Body nut	EN 3506-2 A4, A194 Gr 2H zinc plated, A194 Gr 8M	8-12
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
23	Tag (not shown)	A167 304	1

<sup>(1)</sup> This material can only be used as part of the 47P design.

<sup>(2)</sup> F47P Series is Habonim's firesafe valve design without the Graphite free HermetiX™ stem seal construction.

\* Repair kit components

# Floating Ball Valves

## Three piece valves

General

HermetiX™

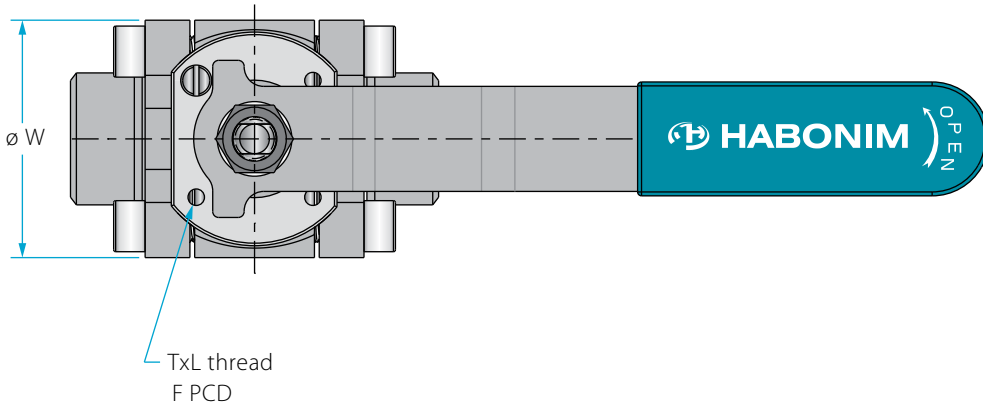
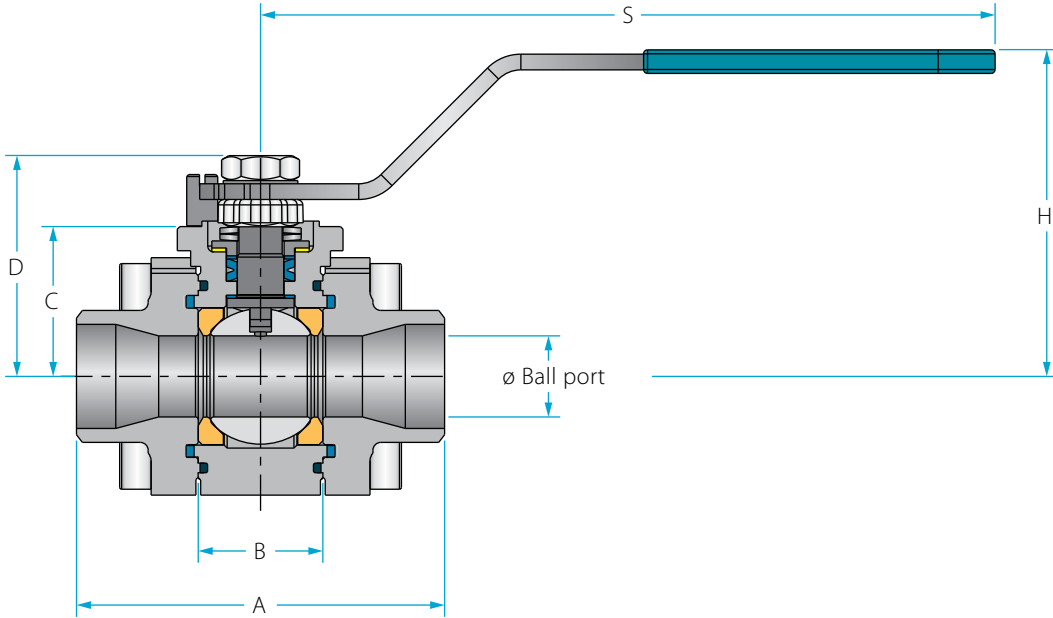
HermetiX™  
Fire safe

HermetiX™ Graphite-  
free fire-safe

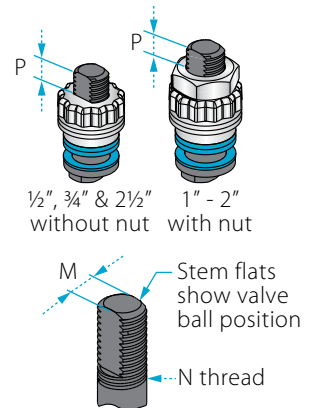
Ordering  
code system

Size 1/4" - 2 1/2" | DN8-DN65 | Class 900<sup>(1)</sup> | 47G Series

### Valve dimensions

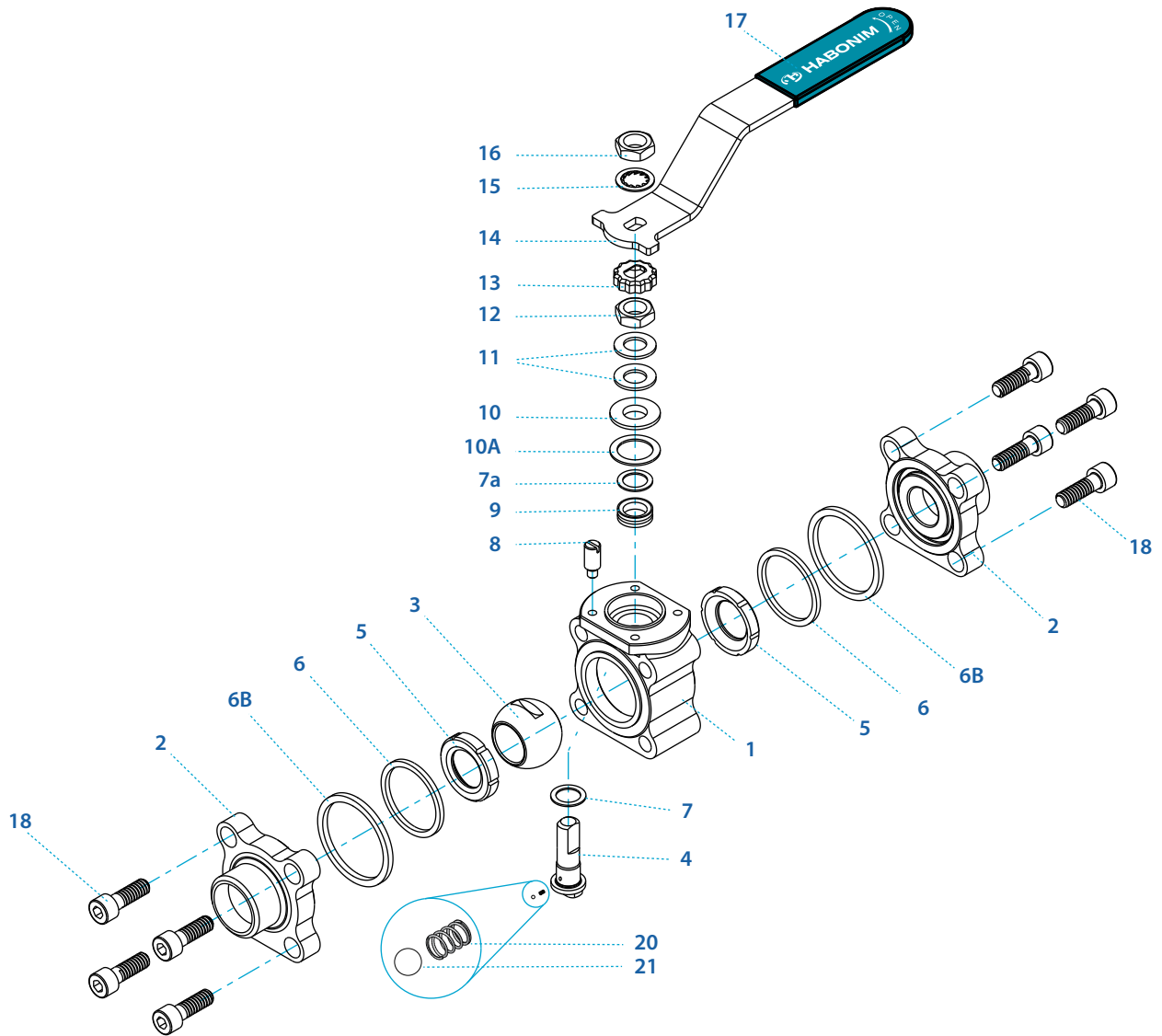


### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	C	D	H	S	W	M	N	P	F	TxL	Weight kg/lb	Kv Cv
	DN8	mm	11.15	66.00	20.60	29.00	37.90	61.50	150.00	47.00	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.60	2.6
	1/4"	inch	0.44	2.60	0.81	1.14	1.49	2.42	5.91	1.85	0.22		0.26	1.42		1.33	3.0
DN15	DN10	mm	11.15	66.00	20.60	29.00	37.90	61.50	150.00	47.00	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.60	6.9
	1/2"	3/8"	inch	0.44	2.60	0.81	1.14	1.49	2.42	5.91	1.85		0.22	0.26		1.42	1.33
DN20	DN15	mm	14.30	70.60	24.50	31.40	40.30	63.90	150.00	53.70	5.54	3/8 UNF	6.65 (F03)	36.00	M5X10	0.80	10
	3/4"	1/2"	inch	0.56	2.78	0.97	1.24	1.59	2.52	5.91	2.11		0.22	0.26		1.42	1.77
DN25	DN20	mm	20.60	93.70	31.70	38.10	55.60	79.40	187.00	63.70	7.54	7/16 UNF	7.40 (F04)	42.00	M5X10	1.60	28
	1"	3/4"	inch	0.81	3.69	1.25	1.50	2.19	3.13	7.36	2.51		0.30	0.29		1.65	3.54
DN32	DN25	mm	25.40	108.00	41.30	42.70	60.20	84.10	187.00	71.70	7.54	7/16 UNF	7.40 (F04)	42.00	M5X10	2.50	49
	1 1/4"	1"	inch	1.00	4.25	1.62	1.68	2.37	3.31	7.36	2.82		0.30	0.29		1.65	5.53
DN40	DN32	mm	31.80	115.50	48.40	43.60	73.00	97.00	237.00	86.70	8.71	9/16 UNF	8.50 (F05)	50.00	M6X12	3.60	69
	1 1/2"	1 1/4"	inch	1.25	4.55	1.91	1.72	2.87	3.82	9.33	3.41		0.34	0.33		1.97	7.96
DN50	DN40	mm	38.10	128.00	56.30	48.30	77.80	101.80	237.00	96.90	8.71	9/16 UNF	8.50 (F05)	50.00	M6X12	4.50	102
	2"	1 1/2"	inch	1.50	5.04	2.22	1.90	3.06	4.01	9.33	3.82		0.34	0.33		1.97	9.95
DN65	DN50	mm	50.80	158.00	72.60	70.00	88.10	115.10	237.00	108.00	8.71	9/16 UNF	13.50 (F07)	70.00	M8X12	9.50	208
	2 1/2"	2"	inch	2.00	6.22	2.86	2.76	3.47	4.53	9.33	4.25		0.34	0.53		2.76	21.00

Components & materials



Item	Description	Material specification	Qty.
1	Body	A351 CF8M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	1
2	Ends	A351 CF3M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	2
3	Ball	A351 CF8M, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
4	Stem	A479 316L, A564 Gr.630 H1150D 17-4PH, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
5*	Seat	TFM, PTFE, Virgin PEEK, PCTFE (KEL-F)	2
6*	Primary body seal	PTFE	2
6B*	Secondary body seal	Graphite	2
7*	Stem thrust seal	VIRGIN PEEK, PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	VIRGIN PEEK, PCTFE (KEL-F)	1

Item	Description	Material specification	Qty.
8	Stop pin	A582 303	1
9*	Stem seal	CF PTFE, TFM	1
10	Follower	B783 316L, B164 N04400	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	C.St. A29 G10200 zinc plated, A240 430	1
15	Serrated washer	A240 410	1
16	Handle nut	A194 Gr 8M, EN3506-2 A4-80	1
17	Sleeve	PVC	1
18	Body bolt	EN 3506-1 A2-70 / A4-80, A193 Gr B7 zinc plated, A193 Gr B8M zinc plated	8
20	Anti-static spring	A313 302	1
21	Anti-static plunger	A479 304	1
23	Tag (not shown)	A167 304	1

<sup>(1)</sup> 2 1/2" (DN65) size maximum pressure rating is Class 400.

\* Repair kit components

# Floating Ball Valves

Three piece valves

General

HermetiX™

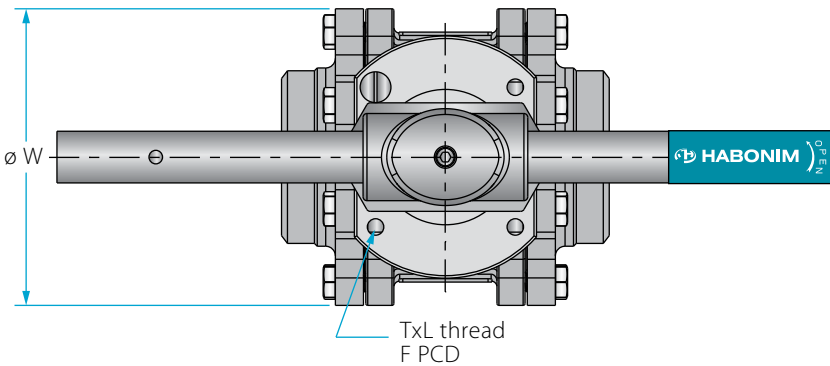
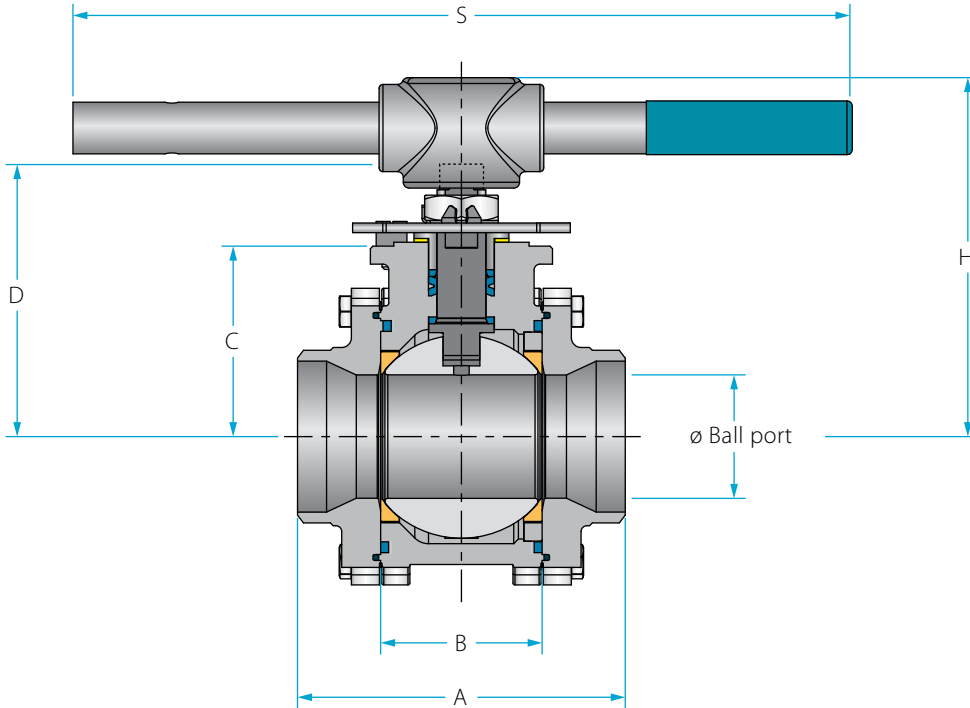
HermetiX™  
Fire safe

HermetiX™  
Graphite-free fire-safe

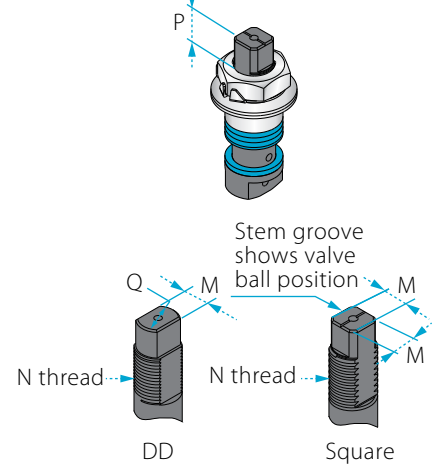
Ordering  
code system

Size 3"- 6" | DN80-DN150 | Class 400 | 47G Series

## Valve dimensions



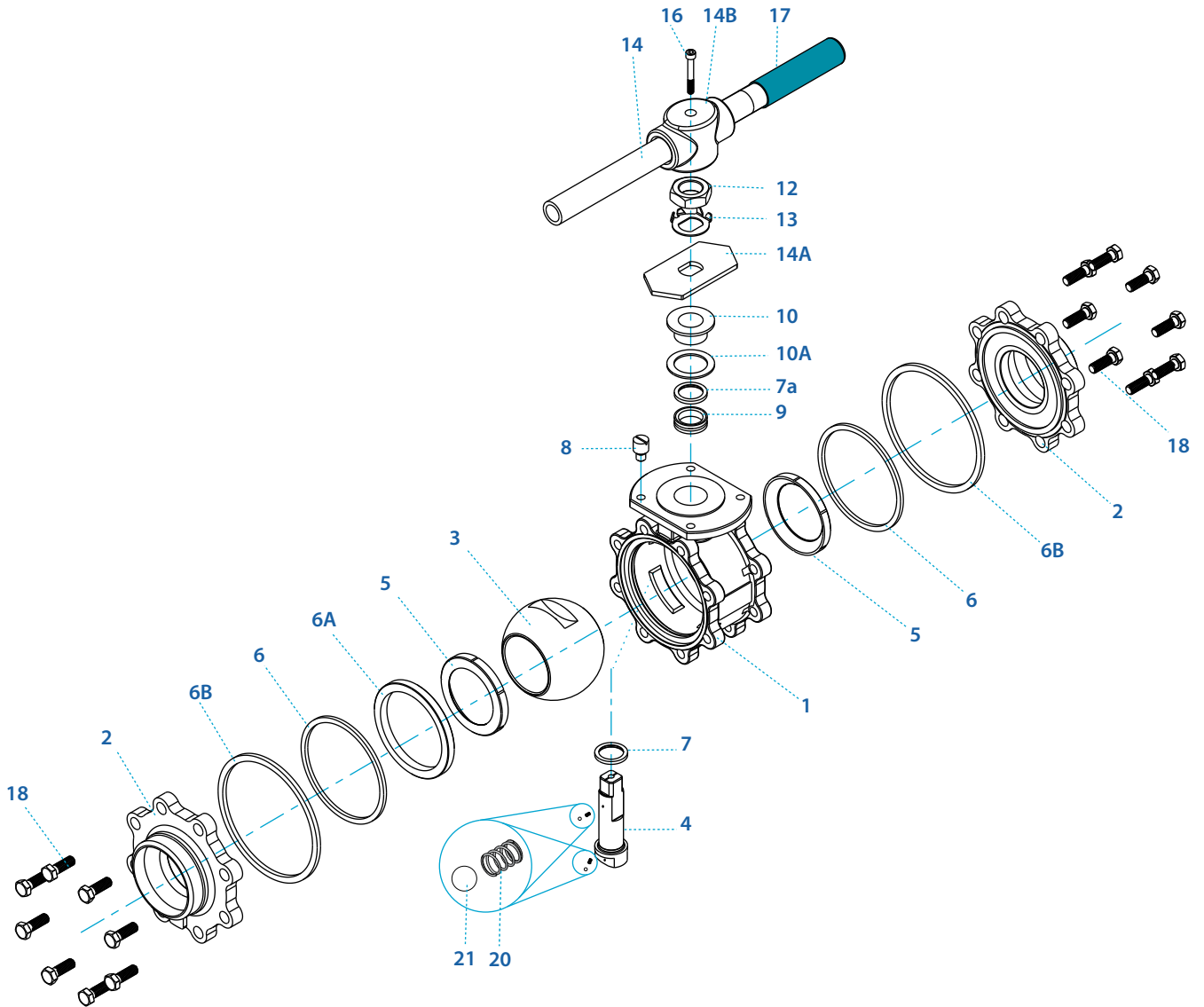
### Preparation for actuation



Std. port	Full port	Unit	Ball port	A	B	C	D	H	S	W	M	M-DD	N	P	Q	F	TxL	Weight kg/lb	Kv Cv
DN80	DN65	mm	63.50	169.00	83.30	98.30	144.90	185.00	400.00	140.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	13.70	300
3"	2½"	inch	2.50	6.65	3.28	3.87	5.71	7.29	15.75	5.50	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	30.30	348
DN100	DN80	mm	82.60	214.00	108.80	114.10	160.70	200.00	600.00	177.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	23.70	615
4"	3"	inch	3.25	8.43	4.28	4.49	6.33	7.89	23.62	6.97	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	52.40	713
	DN100	mm	100.00	239.00	123.00	124.00	170.50	211.00	600.00	217.00	18.90	15.90	1"-14	16.70	22.70 (F10)	102.00	M10x20	30.00	744
	4"	inch	3.94	9.41	4.84	4.88	6.71	8.30	23.62	8.54	0.74	0.63	UNS-2A	0.66	0.89	4.02	M10x20	66.30	863
DN150		mm	111.10	346.00	146.00	157.00	226.00	286.00	916.00	266.00	28.45	23.75	1½"-12	26.20	35.20 (F12)	125.00	M12x20	63.00	872
6"		inch	4.37	13.62	5.75	6.18	8.90	11.26	36.06	10.47	1.12	0.94	UNF-2A	1.03	1.39	4.92	M12x20	138.90	1012



Components & materials



Item	Description	Material specification	Qty.
1	Body	A351 CF8M, A216 WCB, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	1
2	Ends	A351 CF3M, A216 WCB, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	2
3	Ball	A351 CF8M, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
4	Stem	A479 316L, A564 Gr.630 H1 150D 17-4PH, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
5*	Seat	TFM, PTFE, Virgin PEEK, PCTFE (KEL-F)	2
6*	Primary body seal	PTFE	2
6A	Support ring	A351 CF3M, A216 WCB, A105, A351 CN7M, A494 M35-1, A494 CW-12MW, A494 CX-2MW, A351 CK3MCuN, A995 CD3MN 4A, A995 CE3MN 5A	1
6B*	Secondary body seal	Graphite	2
7*	Stem thrust seal	VIRGIN PEEK, PCTFE (KEL-F)	1
7a*	Anti-abrasion ring	VIRGIN PEEK, PCTFE (KEL-F)	1
8	Stop pin	A582 303	1

Item	Description	Material specification	Qty.
9*	Stem seal	CF PTFE, TFM	1
10	Follower	B783 316L, B164 N04400	1
10A*	Slide bearing	TF316	1
11	Disc spring	A693 631 17-7PH	2
12	Stem nut	C.st B18 ZP	1
13	Tab lock washer	A240 304	1
14	Handle	C.St. zinc plate, A240 316L	1
14A	Stop plate	C.St. 1.0402 zinc plate, A240 430	1
14B	Wrench head	Ductile iron A536 Gr. 65-45-12, A216 WCB, A351 CF8M	1
16	Wrench bolt	EN3506-1 A2-70/A4-80, A193 Gr B8/B8M	1
17	Sleeve	PVC	1
18	Body bolts	EN 3506-1 A2-70 / A4-80, A193 Gr B7 zinc plated, A193 Gr B8M zinc plated	8-12
19	Body nut	EN 3506-2 A4, A194 Gr 2H zinc plated, A194 Gr 8M	8-12
20	Anti-static spring	A313 302	2
21	Anti-static plunger	A479 304	2
23	Tag (not shown)	A167 304	1

\* Repair kit components

# Floating Ball Valves

## Three piece valves

General

HermetiX™

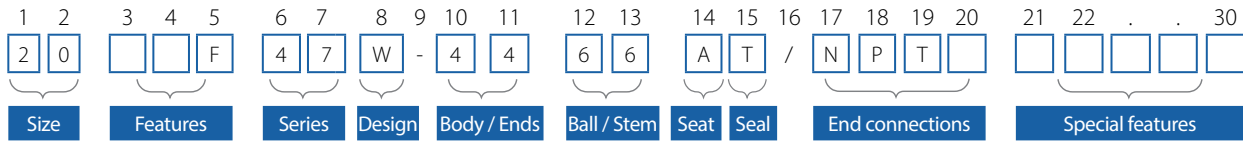
HermetiX™  
Fire safe

HermetiX™  
Graphite-free fire-safe

Ordering  
code system

## Ordering code system

The HABONIM three piece ball valve identification code



Size		
Code	inch	mm
02	1/4"	8
03	3/8"	10
05	1/2"	15
07	3/4"	20
10	1"	25
12	1 1/4"	32
15	1 1/2"	40
20	2"	50
25	2 1/2"	65
30	3"	80
40	4"	100
60	6"	150
80	8"	200

Body / Ends	
1	Bronze B62 C83600
4	C. steel A216 WCB / A105
R	C. steel A352 LC1
9	C. steel A352 LCB
6	S. steel A351 CF8M / CF3M
8	S. steel A351 CF8
7	Monel A494 M-35-1
I	Inconel 625 A494 CW-6MC
A	Alloy-20 A351 CN7M
C	Alloy-C276 A494 CW-12MW
W	Alloy-C22 A494 CX-2MW
D	Duplex A995 CD3MN 4A
K	Super duplex A995 CE3MN 5A
S	254SMO A351 CK3MCuN

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

Special features	
RTJ	Ring Type Joint
B	Body made from rolled bar
EP	Electropolished
J2N05	Jacketed valve - number of ports (2), type (NPT) and size (1/2")
SRS	Self relief seat
P250	Ball with upstream pressure relief hole
PN	Ball with LTPN surface treatment
R	DD stem
G..	Internal surface finish (G24, G32)

Features	
A	Anti-Static
F	Fire safe
B	Full port
I	High purity Class 10000 assembly room
Q	Cavity filler seats
R	Flush tank
O <sup>(1)</sup>	Clean assembly for O <sub>2</sub> service
M	Ammonia service
K	Chlorine service
V	Vacuum service

Ball / Stem	
6	S. steel A479 316\316L
8	S. steel A479 304\304L
M	17-4PH A564 Gr 630 H1150D
I <sup>(2)</sup>	Inconel 625 A494 CW-6MC
Z <sup>(3)</sup>	Inconel 718 B637 N07718
7	Monel B164 N04400
A	Alloy-20 B473 N08020
C	Alloy-C276 B574 N10276
W	Alloy-C22 B574 N06022
D	Duplex A479 S31803
K	Super duplex A479 S32750
S	254SMO A479 S31254

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

47P valve special stem seals	
HC	High cycle service
ORV	Viton O-ring based
ORB	NBR O-ring based
ORE	EPDM O-ring based
LAX	FDA compliant, stem seal, Virgin PEEK thrust and TFM, X shape, gasket
PPX	CF PTFE thrust and X shape gasket

Series	
47	ANSI #900 std. port up to 2" size ANSI #400 for 2 1/2" and above

Seat	
A	TFM
C	PCTFE
K	CF PEEK
L	Virgin PEEK
P	CF PTFE
R	15% Glass filled RPTFE
S	VESPEL
T	PTFE
U	UHMWPE
Y	Delrin
W	PVDF

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

Design	
P	Basic design
X	HermetiX™ stem seal
W	HermetiX™ graphite-free fire safe stem seal
G	HermetiX™ graphite-free fire safe FDA compliant valve

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

<sup>(1)</sup> 47G series is cleaned for O<sub>2</sub> service as standard, no need for extra prefix

<sup>(2)</sup> Ball material only

<sup>(3)</sup> Stem material only

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

Seal	
G	Expanded graphite
I	Impregnated graphite
R	15% glass filled RPTFE
T	PTFE
U	UHMWPE
V	Viton
B	NBR





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Three piece valves Cat.

Three piece valves 04/17 REV2.04

MAXMARK

