HABONIM
Industrial Valves & Actuators

Inspired By Challenge

Multiport valves

Introduction

Multiport valves are used primarily to simplify pipe and valve systems by replacing multiple two-way valves and automation devices with one multiport valve. Multiport valves minimize dead legs, optimize drainability, simplify system validation and provide a reduced envelope profile for easier installation and safer operation in constrained spaces.
Customized configurations for complex challenges minimize system welds and their associated quality problems. They reduce the risk of leak paths and solve space constraint problems.
Multiport valves are available in a variety of flow patterns and directions and in both automatic and manual configurations the possibilities are endless.

Technical summary

Size range	¾" (½" FB) - 4" (DN20 - DN100)
Pressure range	Vacuum 10^{-6} Tor to 103 bar (1490 psi)
Temperature range	-60 °C to +260 °C (-76 °F to +500 °F)
Materials	Stainless steel A351 CF8M, carbon steel A216 WCB, alloy C22, alloy C276, duplex, super duplex, 254SMO, inconel 625, monel 400, titanium and more
End connections	Threaded, welded, flanged
Operation	Lever or gear operated, pneumatic or electric actuated
Service	Chemical, petrochemical, oil and gas, energy, and more

Standards of compliance

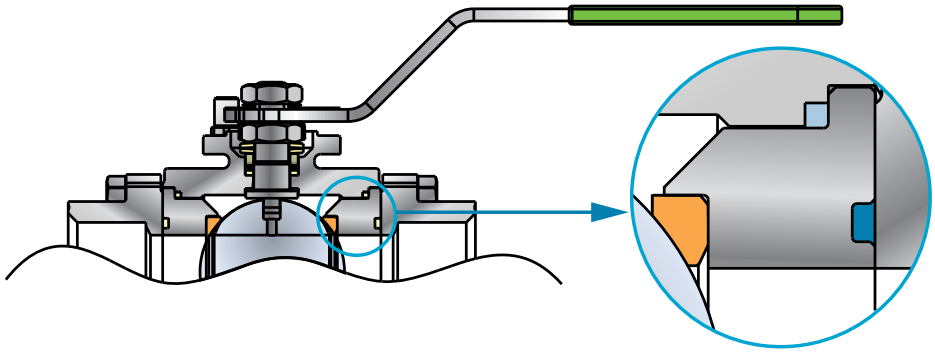
Factory certification	ISO 9001:2015	Quality management system
Valve design & tests	ASME B16.34 :2013 API 6D / ISO14313 :2007 ISO17292 :2004	Valve design
	ANSI B1.20.1:2013	NPT - National Pipe Taper thread
	EN 10226-1:2004, ISO 7-1:2007, JIS B0203:1999	BSPT - British Standard Pipe Taper thread
	DIN3852:2014	BSPP
	ANSI B16.11:2016, EN 12760:2016	Socket weld end connection
	ASME B16.25-2017, EN12627:1999	Buttweld end connection (schedule 5, 10, 40, 80)
	ASME B16.5:2017, EN 1092 -1:1997	Flange dimensions
	ANSI B16.10, EN 558	Face-to-Face dimensions
	NACE MR-0175:2015/ISO 15156 -1:2015	Materials for use in H_2S-containing environments in oil and gas production
	NACE MR0103/ISO 17945:2015	Metallic materials resistant to sulfide stress cracking in corrosive petroleum refining environments
	EN 12266-1:2012, API 598:2016	Testing of metallic valves - pressure tests, test procedures and acceptance criteria
	ISO 15848-1:2015	Industrial valves - measurement, test and qualification procedures for fugitive emissions
Certifications	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 61508-2/3:2010 SIL2/3	Safety integrity level - functional safety of electrical/electronic/ programmable electronic safety-related systems (optional for actuated unit only)
Documentation	EN 10204:2004 2.2/3.1/3.2	Metallic materials - types of inspection documents

Ball types

 L - Horizontal	 L - Vertical	 LL	 X (LL)
 T - Horizontal	 T - Vertical	 TT	 I

Seats & body seals

The 61/62 series valves have 4 seats that provide enhanced sealing characteristics. The seats are inserted into a support ring which is sealed with 2 separate body seals -- 1 seal between the support ring and the body and the other between the support ring and the end connector.
Both body seals are encapsulated and thus provide tighter compression of the seal for higher pressure & temperature fluctuations.



How to use the valve selection

1. Select the valve type

3 Way Valve - Side Entry

2. Select the ball type

T - Horizontal

3. Select the rotation angle

90° | 180° | 360°

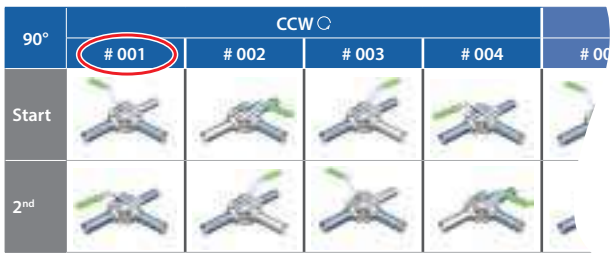
4. Select the rotation direction (ccw/cw)

CCW ↺ | CW ↻

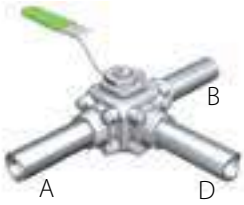
5. Select the starting position and flow pattern

Flow is indicated by a blue pipeline.

6. Use the flow pattern code number to order the appropriate valve



3 Way Valve - side entry



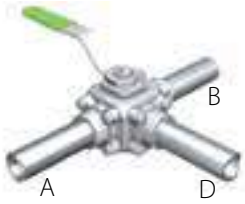
T - Horizontal

90°	CCW ↺				CW ↻			
	# 001	# 002	# 003	# 004	# 005	# 006	# 007	# 008
Start								
2nd								

180°	CCW ↺				CW ↻			
	# 009	# 010	# 011	# 012	# 013	# 014	# 015	# 016
Start								
2nd								
3nd								

360°	CCW ↺	CW ↻
	# 017	# 018
Start		
2nd		
3nd		
4nd		

3 Way valve - side entry

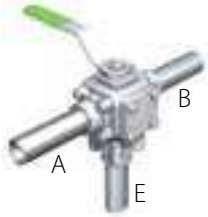


L - Horizontal

90°	CCW ↺			CW ↻		
	# 019	# 020	# 021	# 022	# 023	# 024
Start						
2nd						

180°	CCW ↺		CW ↻	
	# 025	# 026	# 027	# 028
Start				
2nd				
3nd				

3 Way valve - bottom entry



LL

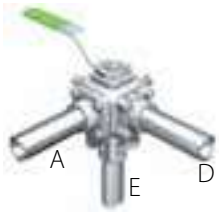
90°	CCW ↺
	# 029
Start	
2nd	

3 Way valve - bottom entry

L - Vertical

180°	CCW ↺
	# 030
Start	
2nd	
3nd	

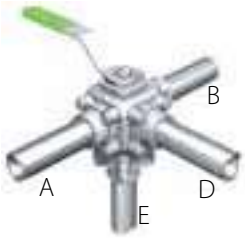
3 Way valve - bottom entry



L - Vertical

90°	CCW ↺
	# 031
Start	
2nd	

4 Way valve - bottom entry D61



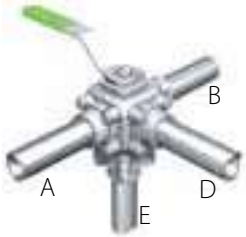
TT

90°	CCW ↺				CW ↻			
	# 032	# 033	# 034	# 035	# 036	# 037	# 038	# 039
Start								
2nd								

180°	CCW ↺				CW ↻			
	# 040	# 041	# 042	# 043	# 044	# 045	# 046	# 047
Start								
2nd								
3nd								

360°	CCW ↺	CW ↻
	# 048	# 049
Start		
2nd		
3nd		
4nd		

4 Way valve - bottom entry D61



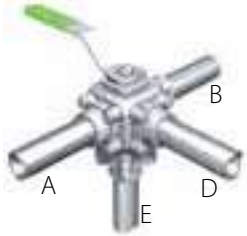
LL

90°	CW ○
	# 050
Start	
2nd	

180°	CCW ○				CW ○			
	# 051	# 052	# 053	# 054	# 055	# 056	# 057	# 058
Start								
2nd								
3nd								

360°	CCW ○	CW ○
	# 059	# 060
Start		
2nd		
3nd		
4nd		

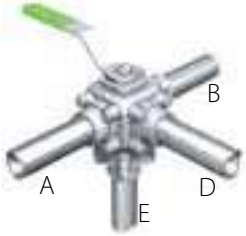
4 Way valve - bottom entry D61



T - Vertical

90°	CCW ↺ # 061
Start	
2nd	

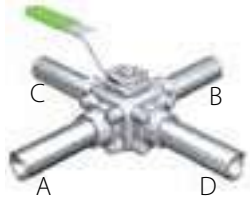
4 Way valve - bottom entry D61



L - Vertical

360°	CCW ↺ # 062	CW ↻ # 063
Start		
2nd		
3rd		
4nd		

4 Way valve- side entry



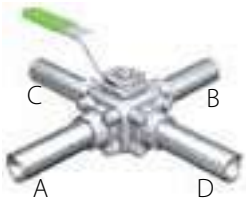
T - Horizontal

90°	CCW ↺ # 064	CW ↻ # 065
Start		
2nd		

180° 2 positions	CW ↻ # 066
Start	
2nd	

180° 3 positions	CCW ↺ # 067	CW ↻ # 068
Start		
2nd		
3rd		

4 Way valve- side entry

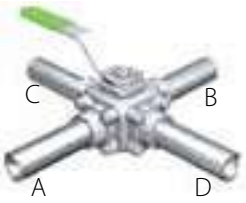


L - Horizontal

180°	CCW ↺
	# 069
Start	
2nd	

360°	CCW ↺	CW ↻
	# 070	# 071
Start		
2nd		
3rd		
4th		

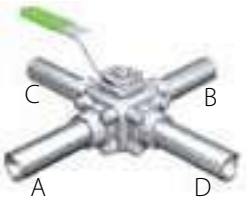
4 Way valve- side entry



X (LL)

90°	CCW ↺
	# 072
Start	
2nd	

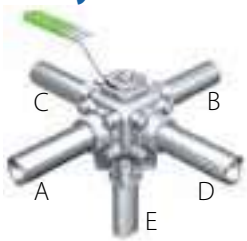
4 Way valve- side entry



I

90°	CCW ↺
	# 073
Start	
2nd	

5 Way Valve - bottom Entry D62



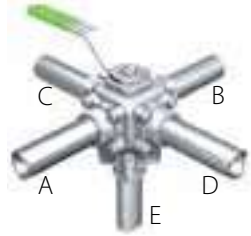
TT

90°	CCW ↺ # 074	CW ↻ # 075
Start		
2nd		

180°	CCW ↺ # 076	CW ↻ # 077
Start		
2nd		
3nd		

360°	CCW ↺ # 078	CW ↻ # 079
Start		
2nd		
3nd		
4nd		

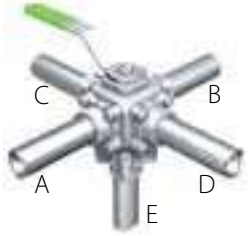
5 Way Valve - bottom Entry D62



T - Vertical

90°	CCW ↺ # 080
Start	
2nd	

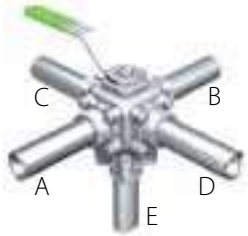
5 Way Valve - bottom Entry D62



L - Vertical

360°	CCW ↺ # 081	CW ↻ # 082
Start		
2nd		
3nd		
4nd		

5 Way Valve - bottom Entry D62



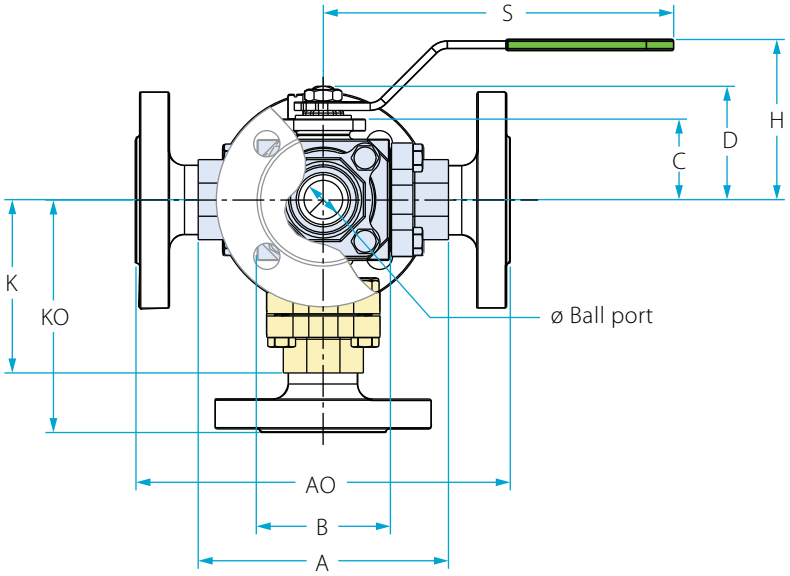
LL

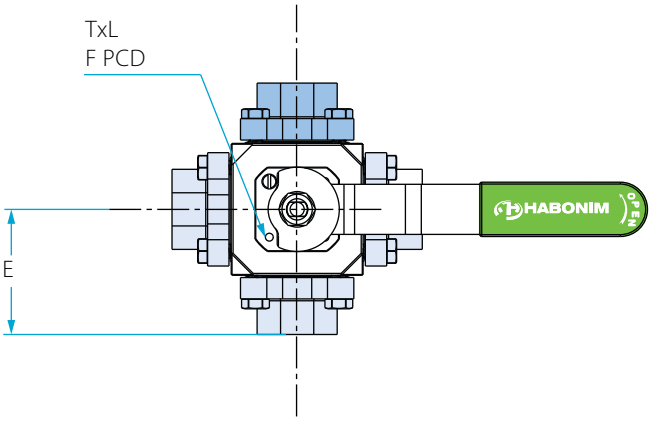
180° 2 positions	CCW ↺ # 083
Start	
2nd	

360°	CCW ↺ # 084	CW ↻ # 085
Start		
2nd		
3nd		
4nd		

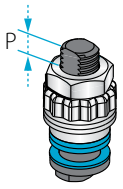
Size ½"- 1½" | DN15-DN40 | Class 600 | 61X/62X, 61P(1)/62P(1)

Valve dimensions

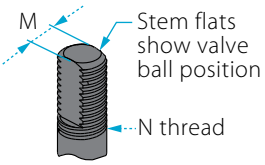




Preparation for actuation



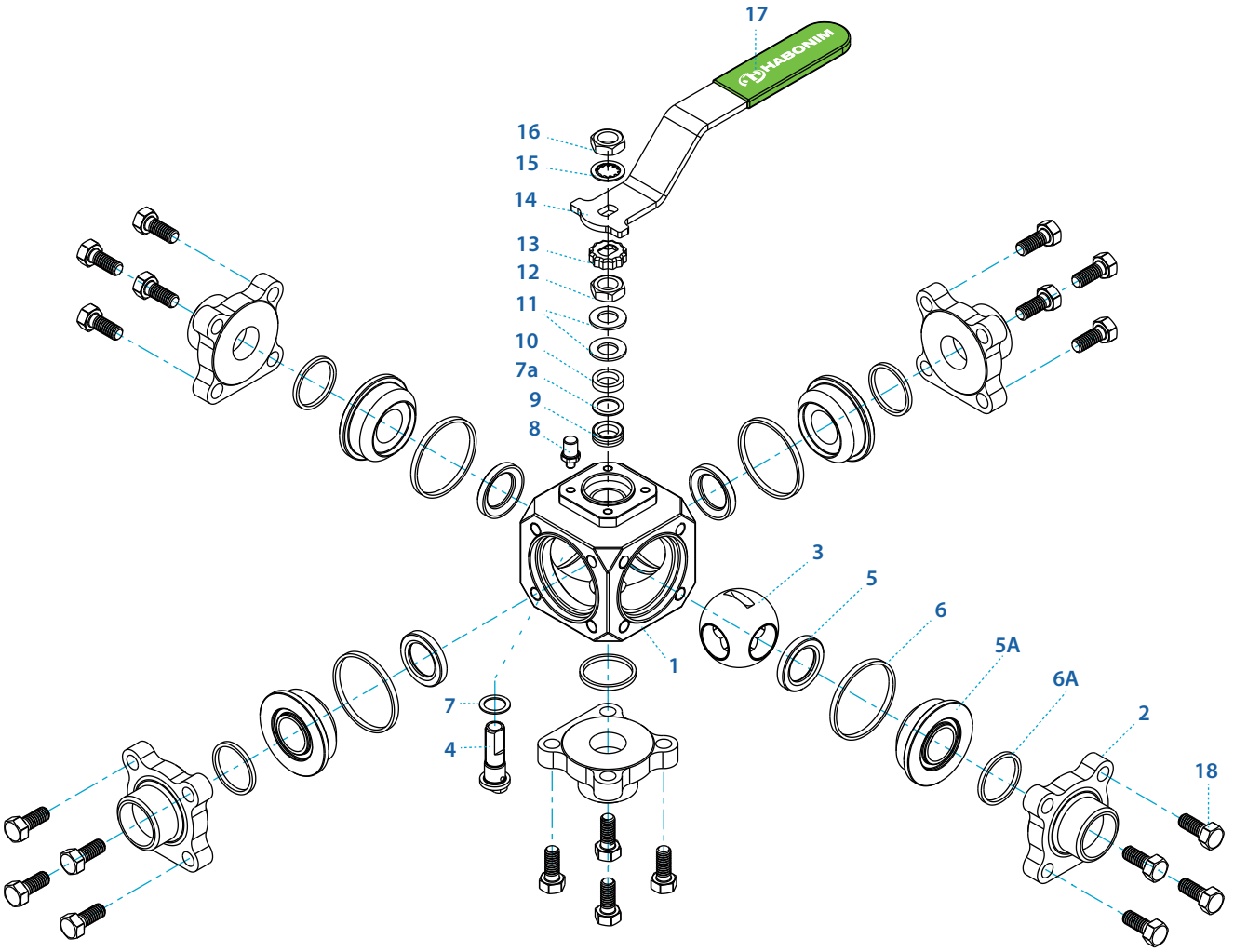
½" - 1½"
with nut



Std. port	Unit	Ball port	A	AO			B	C	D	E (E0)	K	KO			H	M	N	P	TxL	F	S	Weight kg/lb
				ANSI 150	ANSI 300	PN16 PN40						ANSI 150	ANSI 300	DIN								
DN15	mm	14.30	108.00	154.50	190.00	187.50	62.00	37.50	50.00	A/2 (A0/2)	110.50	133.70	151.50	150.20	80.00	7.54	7/16" UNF	7.40	M5X10	(F04)	187.00	2.75
½"	inch	0.56	4.25	6.08	7.48	7.38	2.44	1.47	2.16		4.35	5.26	5.96	5.91	3.14	0.30		0.29			7.36	6.06
DN20	mm	14.30	108.00	154.50	190.00	187.50	62.00	37.50	50.00		110.50	133.70	151.50	150.20	80.00	7.54	7/16" UNF	7.40	M5X10	(F04)	187.00	2.75
¾"	inch	0.56	4.25	6.08	7.48	7.38	2.44	1.47	2.16		4.35	5.26	5.96	5.91	3.14	0.30		0.29			7.36	6.06
DN25	mm	20.70	135.00	167.00	205.00	200.00	71.60	43.00	60.50		93.20	109.20	128.20	125.70	85.50	7.54	7/16" UNF	7.40	M5X10	(F04)	187.00	4.00
1"	inch	0.81	5.31	6.57	8.07	7.87	2.81	1.69	2.38		3.66	4.29	5.04	4.94	3.36	0.30		0.29			7.36	8.82
DN32	mm	25.50	144.00	174.50	205.50	207.50	76.00	48.00	65.50		102.00	117.20	132.70	133.70	90.00	7.54	7/16" UNF	7.40	M5X10	(F04)	187.00	5.80
1¼"	inch	1.00	5.66	6.87	8.09	8.16	2.99	1.88	2.57		4.01	4.61	5.22	5.26	3.54	0.30		0.29			7.36	12.78
DN40	mm	31.65	158.00	208.00	233.50	243.00	91.00	49.50	79.00		106.00	131.00	143.70	148.50	103.00	8.71	9/16" UNF	8.50	M6X12	(F05)	237.00	7.50
1½"	inch	1.24	6.22	8.18	9.19	9.56	3.58	1.94	3.11		4.17	5.15	5.65	5.84	4.05	0.34		0.33			9.33	16.53

Size ½"- 1½" | DN15-DN40 | Class 600 | 61X/62X, 61P[1]/62P[1]

Components & materials



Item	Description	Material specification	Qty.
1	Body	A351 CF8M, A216WCB, 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,A494CW-12MW, A494CX-2MW,A351 CK3MCuN A995 CD3MN 4A A995 CE3MN 5A	4
3	Ball	A351 CF8M, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
4	Stem	A479316L, A564Gr.630 H1150D17-4PH, 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)	4
5A	Support seat	A479 316L B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803 A479S32750	4
6	Body seal	PTFE, RPTFE, UHMWPE, Graphite[2]	5

[1] 61P/62P Series is Habonim's standard valve design without the HermetiX™ stem seal.

[2] This material can only be used as part of the 61P design.

Item	Description	Material specification	Qty.
6A	Seal seat	PTFE, RPTFE, UHMWPE, Graphite[2]	4
7*	Stem thrust seal	PEEK, CF PEEK, PCTFE (KEL-F),TFM[2], CF PTFE[2]	1
7a**	Anti-abrasion ring	PEEK, CF PEEK, PCTFE (KEL-F),TFM[2], CF PTFE[2]	1
8	Stop pin	A582 303	1
9*	Stem seal	CF PTFE,TFM, Graphite[2]	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	A194Gr8M, EN3506-2A4-80	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	20
23	Tag (not shown)	A167304	1

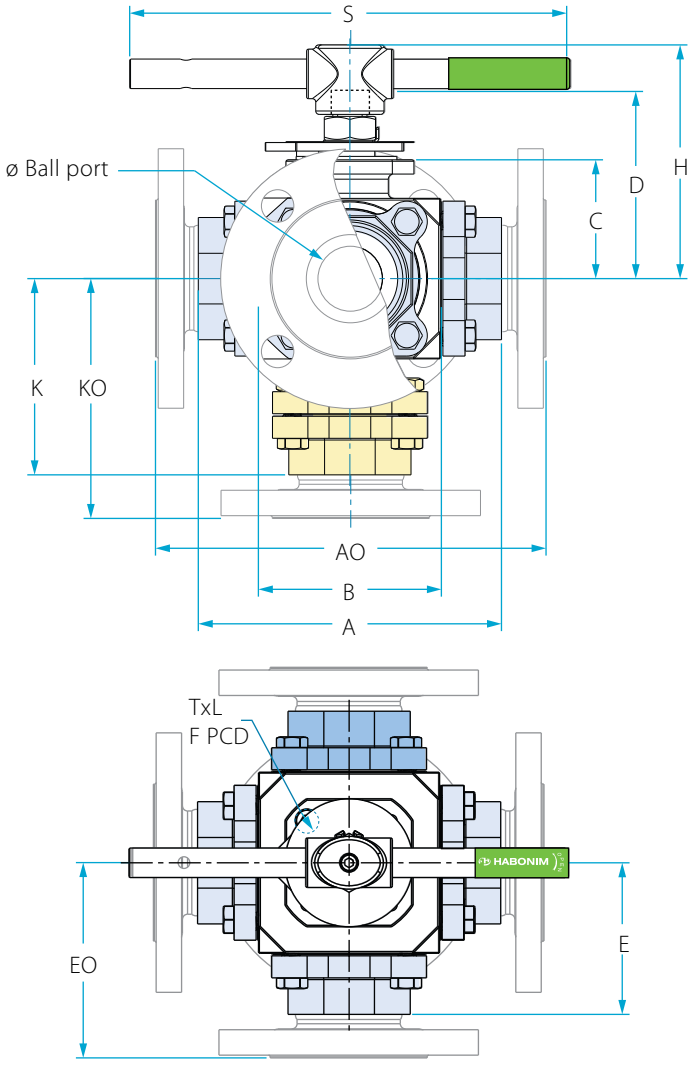
* Repair kit components

** Only with HermetiX™ stem seal

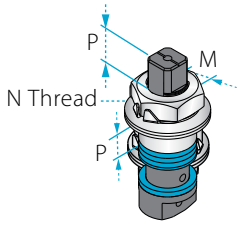
*** Only with graphite body seal

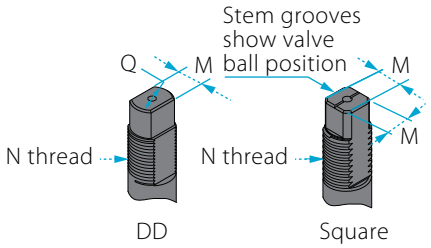
Size 2"- 4" | DN50-DN100 | Class 300 | 61X/62X, 61P(1)/62P(1)

Valve dimensions



Preparation for actuation

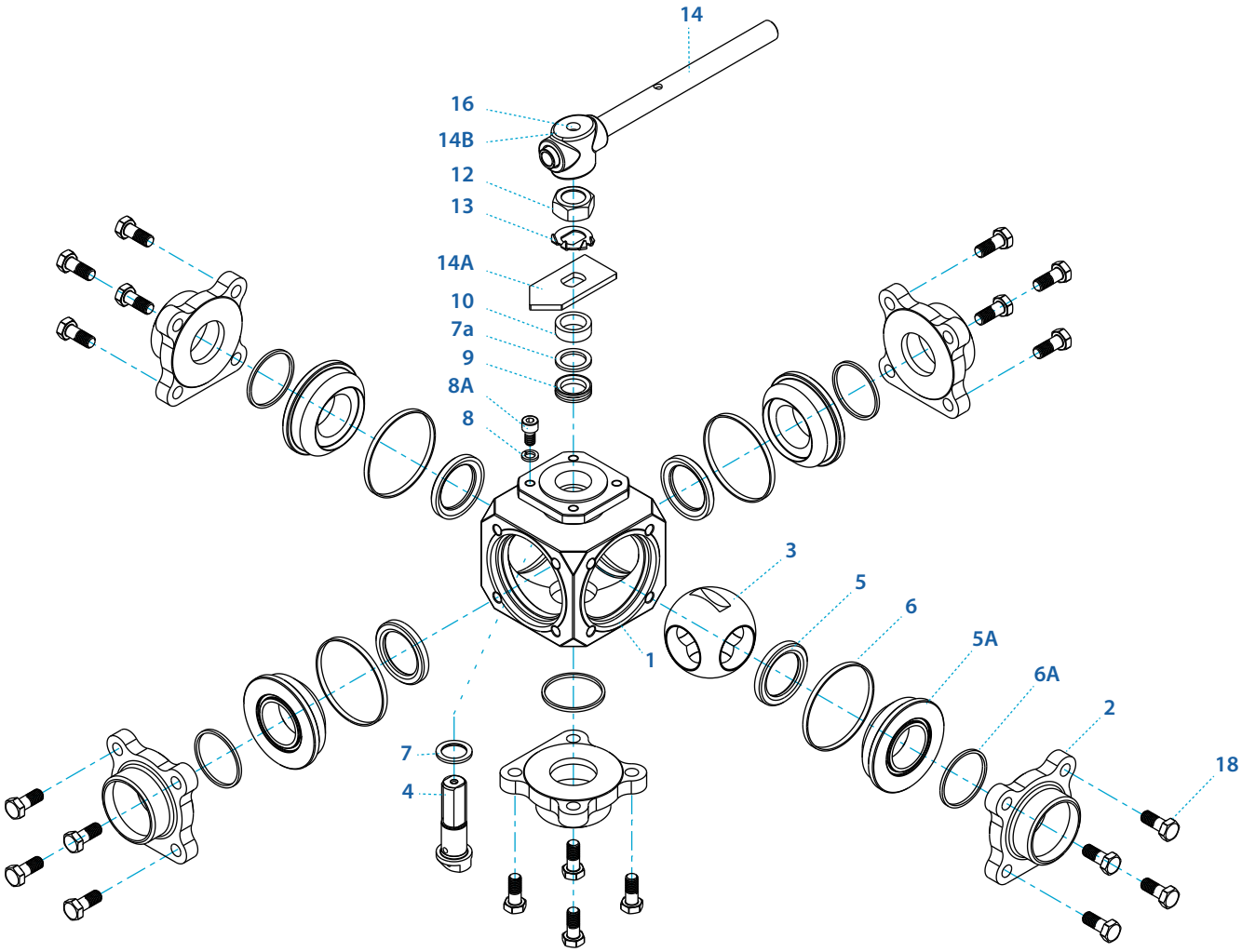




Std. port	Unit	Ball port	A	A0			B	C	D	E (E0)	K	K0			H	M	M-DD	N	P	Q	TxL	F	S	Weight kg/lb
				ANSI 150	ANSI 300	PN16 PN40						ANSI 150	ANSI 300	PN16 PN40										
DN50	mm	38.10	178.00	228.70	266.80	280.90	107.20	69.60	111.20	A/2 (A0/2)	115.00	140.50	159.50	166.30	139.40	13.90	-	M20x2.5	14.60	20.00	M8X12	(F07)	400.00	90
2"	inch	1.50	7.00	9.00	10.50	11.05	4.22	2.74	4.37		4.52	5.53	6.27	6.54	5.48	0.55	-		0.57	0.79			15.75	104
DN65	mm	50.80	210.40	242.90	293.70	342.40	125.00	78.50	120.10		143.20	159.50	184.80	209.20	150.90	13.90	-	M20x2.5	14.60	20.00	M8X12	(F07)	400.00	183
2½"	inch	2.00	8.28	9.56	11.56	13.48	4.92	3.09	4.72		5.63	6.27	7.27	8.23	5.94	0.55	-		0.57	0.79			15.75	212
DN80	mm	60.00	250.00	283.90	363.20	390.60	164.00	102.00	149.00		149.00	158.00	158.00	158.00	139.40	18.90	15.90	1"-14 UNS-2A	16.70	22.70	M10x20	(F10)	610.00	264
3"	inch	2.36	9.84	11.17	14.29	15.37	6.45	4.01	5.86		5.87	6.22	6.22	6.22	5.48	0.74	0.63		0.66	0.89			24.00	306
DN100	mm	76.00	309.80	324.80	401.00	446.20	205.00	116.70	168.00		190.00	200.00	200.00	200.00	150.90	28.45	23.75	1"-14 UNS-2A	26.20	32.10	M10x20	(F10)	920.00	541
4"	inch	2.99	12.19	12.19	15.78	17.56	8.07	4.59	6.61		7.48	7.87	7.87	7.87	5.94	0.74	0.63		0.66	0.89			36.20	628

Size 2”- 4” | DN50-DN100 | Class 300 | 61X/62X, 61P[1]/62P[1]

Components & materials



Item	Description	Material specification	Qty.
1	Body	A351 CF8M, A216WCB, 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,A494CW-12MW, A494CX-2MW,A351 CK3MCuN A995 CD3MN 4A A995 CE3MN 5A	4
3	Ball	A351 CF8M, B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803, A479 S32750	1
4	Stem	A479316L, A564Gr.630 H1150D17-4PH, 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)	4
5A	Support seat	A479 316U B473 N08020, B164 N04400, B574 N06022, B574 N10276, A479 S31254, A479 S31803 A479S32750	4
6	Body seal	PTFE, RPTFE, UHMWPE, Graphite[2]	5

[1] 61P/62P Series is Habonim's standard valve design without the HermetiX™ stem seal.

[2] This material can only be used as part of the 61P design.

Item	Description	Material specification	Qty.
6A	Seal seat	PTFE, RPTFE, UHMWPE, Graphite[2]	4
7*	Stem thrust seal	PEEK, CF PEEK, PCTFE (KEL-F),TFM[2], CF PTFE[2]	1
7a**	Anti-abrasion ring	PEEK, CF PEEK, PCTFE (KEL-F),TFM[2], CF PTFE[2]	1
8	Spring Washer	DIN 127 A2	1
8A	Stop Bolts	A193 B8, DIN 912 A2-70	1
9*	Stem seal	CF PTFE,TFM, Graphite[2]	1
10	Follower	B783 316U B164 N04400	1
12	Stem nut	EN3506-2 A4-80, A194 Gr 8M	1
13	Tab Lock Washer	DIN 127 A2-70	1
14	Wrench Handle	C.St. Zinc Plate	1
14A	Stop Plate	C.St. 1.0402 Zinc Plate	1
14B	Wrench Head	Ductile Iron A536 Gr 65-45-12	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 / A4-80, A193 Gr B7 zinc plated, A193 Gr B8M zinc plated	20
23	Tag (not shown)	A167304	1

* Repair kit components

** Only with HermetiX™ stem seal

*** Only with graphite body seal

Multiport valves ordering code system

The HABONIM Multiport valves identification code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	.	.	31
1	0				6	1	X	-	6	6	6	6	A	T	/	B	S	P	T	-	#	0	3	4	-					
Size		Features			Series		Design		Body / Ends		Ball / Stem		Seat	Seal		End connections					Flow pattern code					Special Application				

Size		
Code	inch	mm
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

Features	
A	Anti-Static
B	Full port
D	Bottom Entry
O	Clean assembly for O_2 service
M	Ammonia service
K	Chlorine service
V	Vacuum service

Series	
61	Multiport with three horizontal ports
62	Multiport with four horizontal ports

Design	
P	ISO pad basic design
X	HermetiX™ stem seal

Seat	
A	TFM
C	PCTFE (KEL-F)
K	CF PEEK
L	Virgin PEEK
P	CF PTFE
R	15% Glass filled RPTFE
T	PTFE
U	UHMWPE
Y	Derlin
W	PVDF

Seal	
G	Expanded graphite
I	Impregnated Graphite
R	15% Glass filled RPTFE
T	PTFE
U	UHMWPE

Body / Ends	
4	C. Steel A216 WCB
6	S. Steel A351 CF8M
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

Ball / Stem	
6	S. Steel A479 316\316L
M	17-4PH A564 Gr 630 H1150D
Z	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

End Connection	
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
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	Grayloc
Flanged	
150	ANSI B16.5 #150 RF
300	ANSI B16.5 #300 RF
600	ANSI B16.5 #600 RF
PN16	EN1092 PN16 RF
PN40	EN1092 PN40 RF
PN64	EN1092 PN64 RF
PN100	EN1092 PN100 RF

Flow pattern code
See index pages 5-153

Special features	
B	Body made from rolled bar
EP	Electropolished
PN	Ball with LTPN surface treatment
WR	DD stem
G..	Internal surface finish (G24, G32)
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 HermetiX™
PPX	CF PTFE thrust and X shape gasket

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

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