



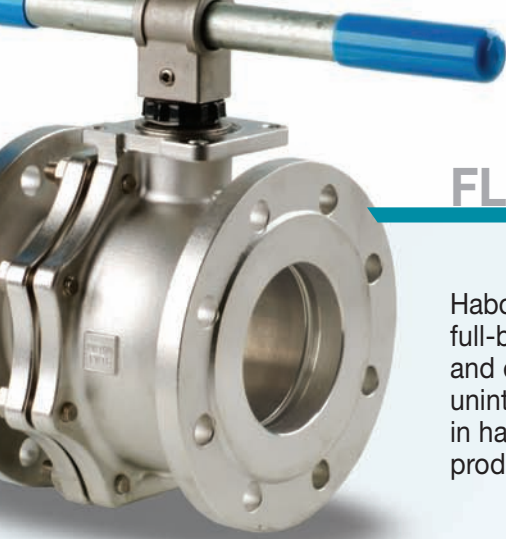
FLANGED FULL BORE BALL VALVES

DIN PN 16 & 40

87P/88P SERIES



 **HABONIM**
Industrial Valves & Actuators



FLANGED FULL BORE BALL VALVES

Habonim's **87P/88P** Series provides a high quality yet economical two-piece flanged full-bore ball valve solution in DIN PN16 and PN40. Designed for safety, long life and easy maintenance, this valve assembly features rugged construction, full-bore uninterrupted flow path, and blowout-proof stem and packing. Ideal for operation in harsh environments such as chemical processing, petrochemical, oil and gas production, pulp and paper and more.

Technical Summary

Size Range:	DN15 - DN200
Flange Connection:	87P series - DIN PN16 88P series - DIN PN40
Application:	General Service, Chemical, Petrochemical, Oil & Gas, Food & Beverage, Refining, Energy, Pulp & Paper and others
Service:	Water, Gas, Steam, Chemicals, Solvents
Materials:	Carbon Steel EN 10213-2 1.0619 Stainless Steel EN 10213-4 1.4408
Certification:	Fire Safe to ISO 10497 & API 607 5th edition, PED 97/23/EC, ATEX Directive 94/9/EC, TA-LUFT
Operation:	Hand or Gear Operated, Pneumatic or Electric Actuated.

Construction

All 87P/88P Series valve bodies feature a sturdy two-piece construction and machined mounting pad conforming to ISO 5211 for easy automation; direct mounting of pneumatic or electric actuators, limit switches, and handle extensions.

Seats

Resilient slotted seats are designed for bubble-tight shutoff at high and low pressures, reduced friction for less wear; minimum seat damage, and lower operating torque. Seats are furnished in TFM, Virgin PTFE, or glass filled PTFE as standard. Additional materials are available in Habonim's 'Ball Valves Seat Variations' Bulletin T-624.

Stem

The high performance valve stem assembly offers blowout-proof safety features plus long service life. The stem is guided by the valve body and an adjustable packing gland fitted with live loaded spring washers that compensate for surges in pressure and temperature. Habonim's stem and packing design assures smooth operation, minimized operating torque and less wear.

Ball

Mirror polished to a corrosion resistant, low torque finish to prevent ball seat wear, the solid ball is precision machined with a pressure relief hole in the stem slot to equalize pressure in the body cavity for bubble-tight shutoff and long service life.

Body & Trim Materials

Standard valve body materials used in the 87P/88P Series are 1.4408 Stainless Steel and 1.0619 Carbon Steel. Standard trim material for ball and stem is 316 Stainless Steel. For Carbon Steel valves DN65 and up, standard trim is 304 Stainless Steel.

Antistatic

An antistatic device is built into the valve stem, to ensure electrical continuity between valve ball, stem and body; eliminating the possibility of static electrical charges creating sparks within the valve, especially when handling volatile media.

Valve Body Finish

Carbon Steel valve bodies are painted for optimum protection. Stainless Steel valves are provided with a natural finish. Valves comply with the highest industry standards in body finishing processes and procedures.

Fire Safe Valves

Habonim's fire-safe valves are designed and tested to the requirements of API 607 5th Edition and to ISO 10497-2004 specifications. Valves for fire-safe application are identified by the prefix "AF". Fire-safe certificates for the 87P/88P Series are available upon request.

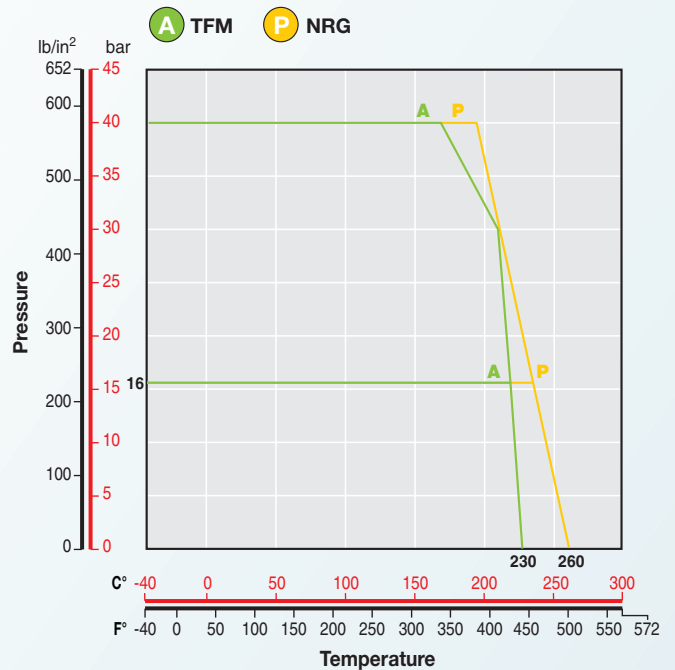
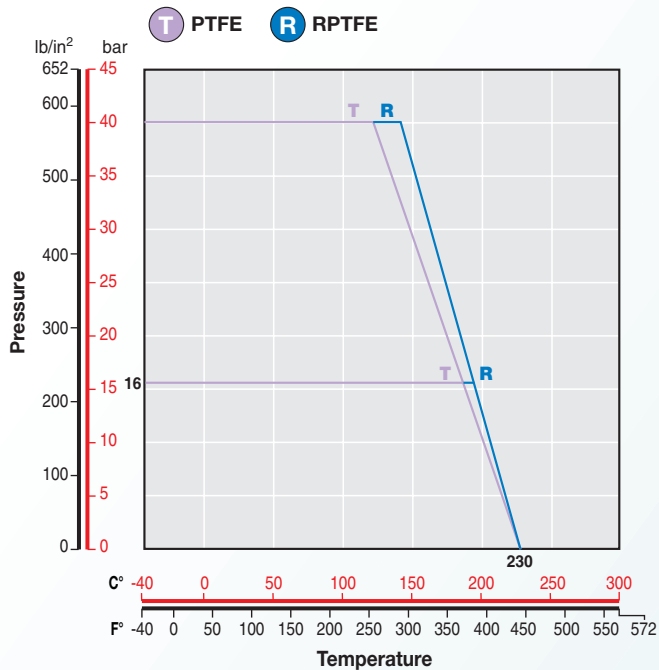
Secondary Sealing

All Habonim fire-safe valves are fitted with flexible graphite body seals and graphite stem seals. Flexible graphite exhibits unsurpassed sealing properties for high temperature, high pressure service. In the event of a fire, a secondary metallic machined ring makes contact with the ball to prevent leakage and provide shutoff in conformance with the latest industry fire-safe requirements.

Valve Accessories

A locking device to secure valve position is standard on the 87P/88P Series. Habonim carries a range of valve control accessories to suit your needs including manual gear operators for large valves, declutchable gear operators for actuated valves, spring return handles for dependable automatic opening and closing, limit switches for on-off indication and other products such as positioners, indicators, overrides and regulators.

Pressure / Temperature Rating (Seat Material)



The pressure / temperature rating is determined by the valve flanges and by the seat rating. Temperature ranges from -40°C to 300°C.

Valve Options

Habonim delivers advanced engineering solutions and problem-solving innovations to meet the most demanding customer requirements. For special applications, a selection of optional valve designs and accessories for use with the 87P/88P Series are shown below. Please contact Habonim for additional options.

Valve Size	Cv Values		Limiting Stem Input Torque*	
	Flow Coefficients		S/S 316 & 304 Stem material	
DN	Cv	Kv	Nm	in-lb
15	30	26	33	292
20	50	43	33	292
25	94	81	78	690
32	140	121	78	690
40	260	225	135	1,195
50	480	415	135	1,195
65	750	645	419	3,708
80	1,300	1,125	419	3,708
100	2,300	1,990	626	5,540
125	3,700	3,201	2,686	23,771
150	5,400	4,671	2,686	23,771
200	10,000	8,651	2,686	23,771

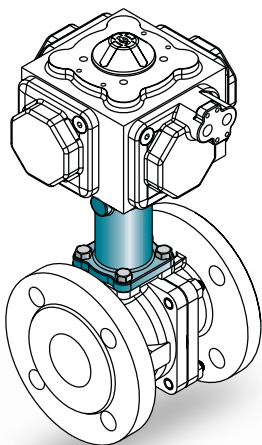
Cv - Flow in US GPM at 1 psi pressure drop.

Kv - Flow in m³/hr at 1 bar pressure drop.

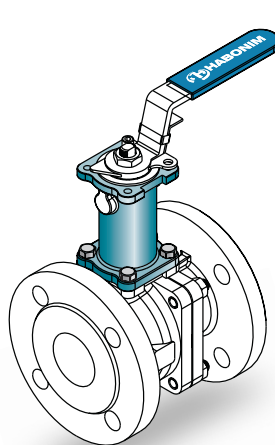
Valve flow rates are determined in full open position with water at 15°C (60°F).

* Limiting Stem torque figures are based on random laboratory tests.

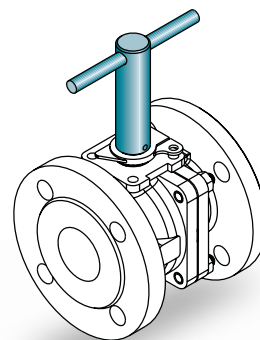
These are not to be confused with valve operating torque.



Fugitive Emission With Actuator



Fugitive Emission



Extended Handle

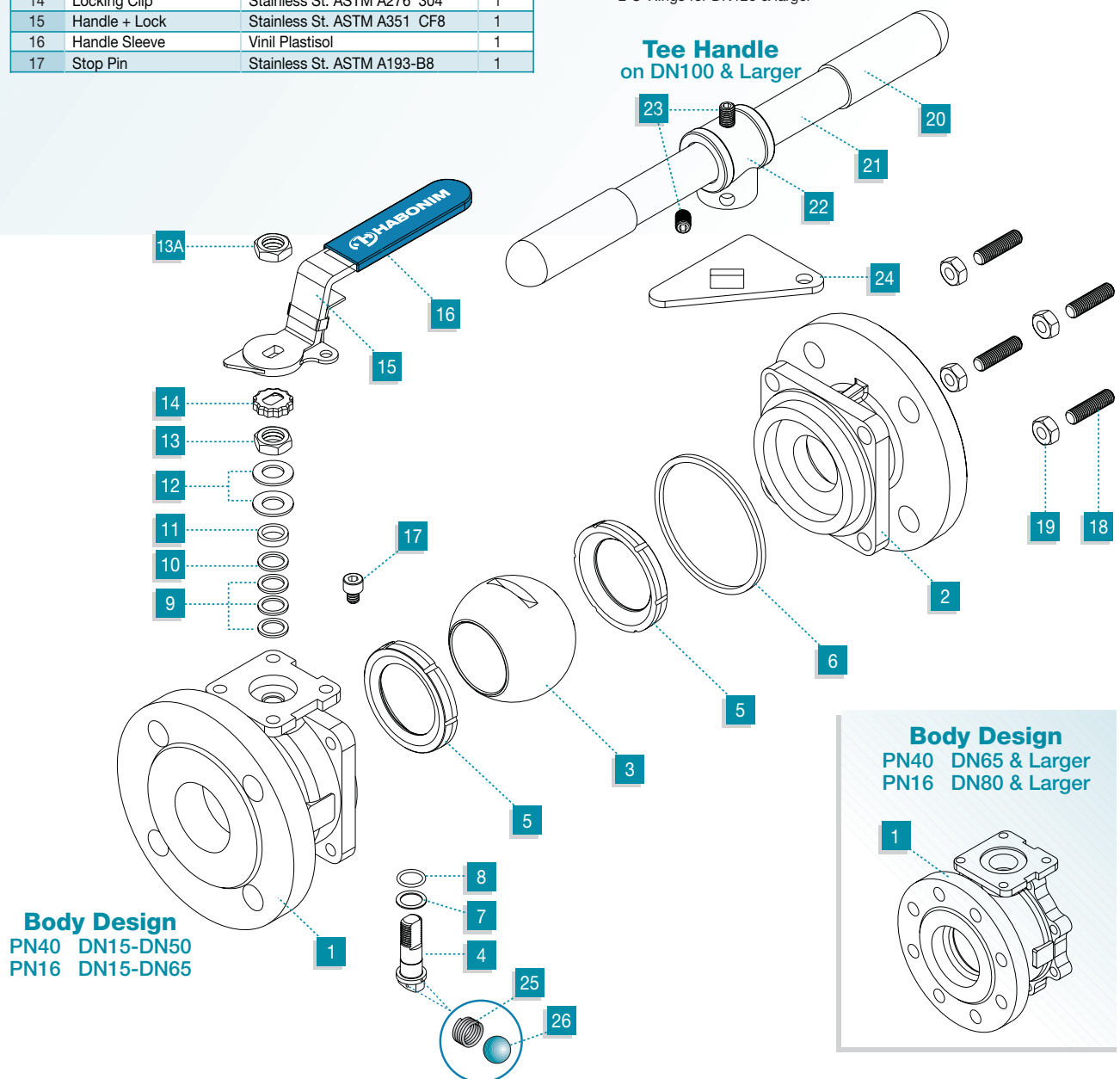
FLANGED FULL BORE BALL VALVES

Valve Specification DN15-DN200

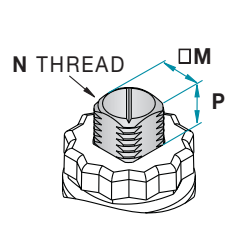
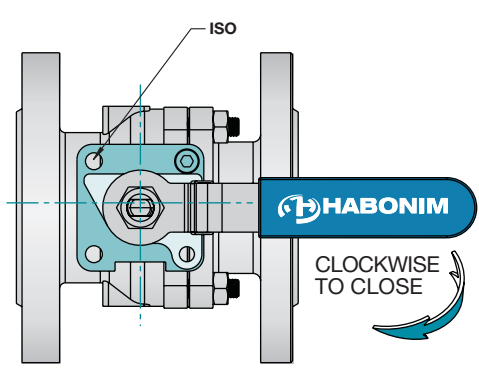
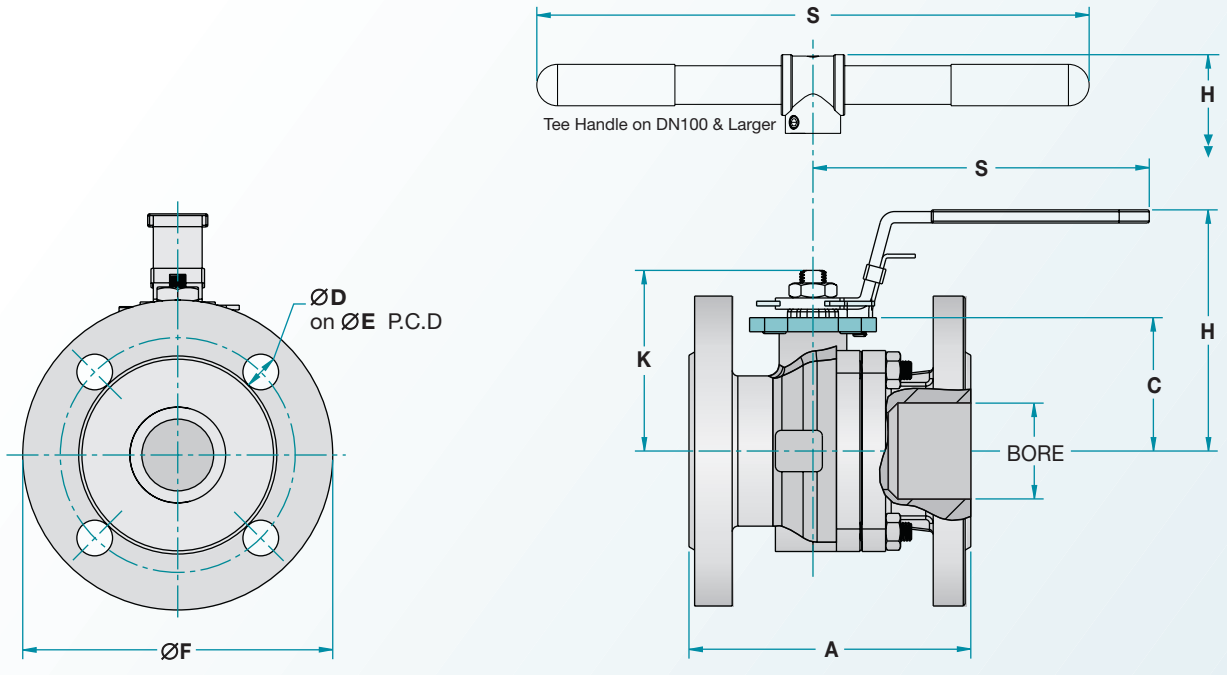
Item	Description	Material Specifications	Qty.
1	Body	Carbon St. EN-10213-2 1.0619 Stainless St. EN-10213-4 1.4408	1
2	Body Connector	Carbon St. EN-10213-2 1.0619 Stainless St. EN-10213-4 1.4408	1
3	Ball	Stainless St. EN-10213-4 1.4408 Stainless St. EN-10213-4 1.4308**	1
4	Stem	Stainless St. ASTM A276 316 Stainless St. ASTM A276 304**	1
5*	Seat Ring	PTFE, RPTFE, NRG, TFM	2
6*	Body Seal	PTFE, Graphite	1
7*	Stem Thrust Seal	PTFE	1
8*	O-Ring	Viton (FKM)	1-2***
9*	Gland Packing	PTFE Graphite	2-5
10*	Bushing	Stainless St. ASTM A276 304	1
11	Follower	Stainless St. 304	1
12	Disc Spring	Stainless St. 301	2
13	Stem Nut	Stainless St. ASTM A194-8	1
13A	Handle Nut	Stainless St. ASTM A194-8	1
14	Locking Clip	Stainless St. ASTM A276 304	1
15	Handle + Lock	Stainless St. ASTM A351 CF8	1
16	Handle Sleeve	Vinil Plastisol	1
17	Stop Pin	Stainless St. ASTM A193-B8	1

Item	Description	Material Specifications	Qty.
18	Body Connector Studs	Carbon St. ASTM A193-B7 87P	4-10
		Stainless St. ASTM A193-B8	
		Carbon St. ASTM A193-B7 88P	4-12
		Stainless St. ASTM A193-B8	
19	Body Connector Nuts	Carbon St. ASTM A194-2H 87P	4-10
		Stainless St. ASTM A194-8	
		Carbon St. ASTM A194-2H 88P	4-12
		Stainless St. ASTM A194-8	
20	Handle Sleeve (DN100 & up)	Vinil Plastisol	2
21	Pipe Handle (DN100 & up)	Carbon St. Zinc Plated	1
22	Tee Wrench (DN100 & up)	Stainless St. ASTM A351 CF8	1
23	Set Screw (DN100 & up)	Stainless St. ASTM A193-B8	2
24	Stop Plate (DN100 & up)	Stainless St. ASTM A276 304	1
25	Antistatic Spring	Stainless St. 304**	2
		Stainless St. 316	
26	Antistatic Ball	Stainless St. 304**	2
		Stainless St. 316	

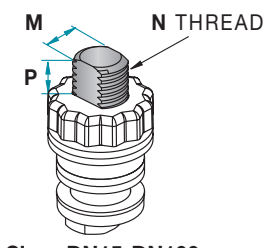
* Standard item for repair kit
 ** For Carbon St. valve DN65 & larger
 *** 2 O-Rings for DN125 & larger



Valve Specification DN15-DN200



Sizes DN125-DN200



Sizes DN15-DN100

DN	PN	Port	A	C	ØD	ØE	ØF	H	K	M	N	P	S	ISO	Weight (kg)
15	40	15.0	115.0	36.5	14.0 x 4	65.0	95.0	86.0	57.5	6.3	3/8"-24UNF	10.0	135.0	F04	2.3
20	40	20.0	120.0	40.0	14.0 x 4	75.0	105.0	90.0	61.0	6.3	3/8"-24UNF	10.0	135.0	F04	3.2
25	40	25.0	125.0	45.5	14.0 x 4	85.0	115.0	96.0	69.5	9.0	9/16"-18UNF	11.0	170.0	F05	4.1
32	40	32.0	130.0	50.0	18.0 x 4	100.0	140.0	102.0	74.0	9.0	9/16"-18UNF	11.0	176.0	F05	5.5
40	40	38.0	140.0	62.0	18.0 x 4	110.0	150.0	114.0	89.0	9.6	5/8"-18UNF	16.0	200.0	F07	7.2
50	40	50.0	150.0	71.0	18.0 x 4	125.0	165.0	127.0	98.0	9.6	5/8"-18UNF	16.0	200.0	F07	9.7
65	16	63.5	170.0	89.0	18.0 x 4	145.0	185.0	146.0	131.8	16.0	7/8"-14UNF	26.0	250.0	F10	14.8
	40			107.0	18.0 x 8			164.0	149.8						
80	16	76.0	180.0	100.0	18.0 x 8	160.0	200.0	183.0	142.8	16.0	7/8"-14UNF	26.0	250.0	F10	18.3
	40			117.0				200.0	159.8						
100	16	100.0	190.0	121.0	18.0 x 8	180.0	220.0	214.0	170.5	18.0	1 1/8"-12UNF	26.0	400.0	F10	29.5
	40			134.0	22.0 x 8			190.0	235.0						
125	16	125.0	325.0	183.0	18.0 x 8	210.0	250.0	260.0	211.0	27.0*	1 3/8"-12UNF	28.0	600.0	F12*	51.0
	40				26.0 x 8	220.0	270.0								
150	16	150.0	350.0	204.0	22.0 x 8	240.0	285.0	280.0	232.0	27.0*	1 3/8"-12UNF	28.0	800.0	F12*	72.5
	40				26.0 x 8	250.0	300.0								
200	16	200.0	400.0	252.0	22.0 x 12	295.0	340.0	450.0	280.0	27.0*	1 3/4"-12UN	28.0	800.0	F12*	144.3
	40				30.0 x 12	320.0	375.0								

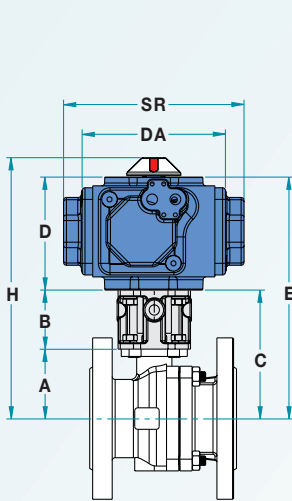
* Square stem & thru holes on mounting pad

FLANGED FULL BORE BALL VALVES

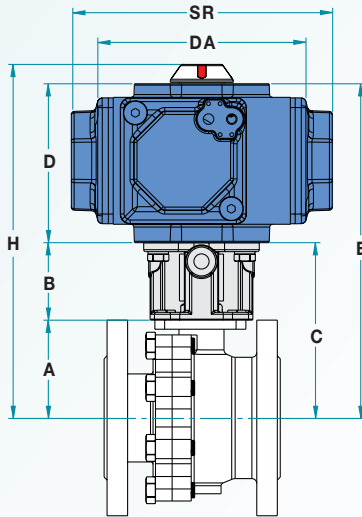
87P/88P Series Automated Valve Dimensions

Actuation

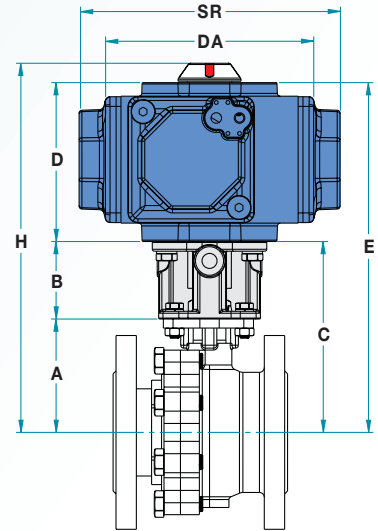
Accurate automated control is an essential part of most fluid control applications today. The 87P/88P Series valves are designed with mounting flanges in accordance with ISO 5211, and can accommodate any pneumatic or electric quarter-turn actuator for valve automation. Habonim's Compact II, 4-Piston pneumatic actuator - the most rugged pneumatic actuator available on the market, comes in 8 sizes for either spring return or double acting operation. Compact II uses a NAMUR air connection interface for attaching solenoids. Limit switches or positioners can be mounted on the actuator top face according to VDI / VDE 3845. Refer to the 'Compact II Series' Bulletin B-360 to learn more.



Sizes 1/2" - 2 1/2"



Sizes 3" - 4"



Sizes 5" - 8"

Valve Size	Actuator Size	87P/88P PN16/40 Series					Compact Actuator		
		A	B	C	E	H	D	DA	SR
1/2" F04	C15	36.5	50.0	86.5	155.5	175.5	69.0	86.0	110.0
	C20		50.0	86.5	167.2	187.2	80.7	102.0	131.0
	C25		50.0	86.5	183.7	203.7	97.2	132.0	161.0
3/4" F04	C15	40.0	50.0	90.0	159.0	179.0	69.0	86.0	110.0
	C20		50.0	90.0	170.7	190.7	80.7	102.0	131.0
	C25		50.0	90.0	187.2	207.2	97.2	132.0	161.0
1" F05	C20	45.5	60.0	105.5	186.2	206.2	80.7	102.0	131.0
	C25		60.0	105.5	202.7	222.7	97.2	132.0	161.0
	C30		60.0	105.5	222.1	242.1	116.6	151.0	186.0
1 1/4" F05	C25	50.0	60.0	110.0	207.2	227.2	97.2	132.0	161.0
	C30		60.0	110.0	226.6	246.6	116.6	151.0	186.0
	C35		60.0	122.0	219.2	239.2	97.2	132.0	161.0
1 1/2" F07	C30	62.0	60.0	122.0	238.6	258.6	116.6	151.0	186.0
	C35		60.0	122.0	257.5	277.5	135.5	182.0	222.0
	C45		60.0	131.0	247.6	267.6	116.6	151.0	186.0
2" F07	C35	71.0	60.0	131.0	266.5	286.5	135.5	182.0	222.0
	C45		60.0	131.0	295.0	315.0	164.0	221.0	269.0
	C60		80.0	169.0	304.5	324.5	135.5	182.0	222.0
2 1/2" F10	C35	89.0	80.0	187.0	322.5	342.5	135.5	182.0	222.0
	C45		80.0	187.0	351.0	371.0	164.0	221.0	269.0
	C60		80.0	180.0	344.0	364.0	164.0	221.0	269.0
3" F10	C45	100.0	80.0	180.0	397.5	427.5	217.5	285.0	360.0
	C60		80.0	197.0	361.0	381.0	164.0	221.0	269.0
	C60		80.0	197.0	414.5	444.5	217.5	285.0	360.0
4" F10	C45	121.0	80.0	201.0	365.0	385.0	164.0	221.0	269.0
	C60		80.0	201.0	418.5	448.5	217.5	285.0	360.0
	C60		80.0	214.0	378.0	398.0	164.0	221.0	269.0
4" F10	C45	134.0	80.0	214.0	431.5	461.5	217.5	285.0	360.0
	C60		100.0	283.0	500.5	530.5	217.5	285.0	360.0
	C75		100.0	283.0	553.0	583.0	270.0	342.0	437.0
6" F12	C75	204.0	100.0	304.0	574.0	604.0	270.0	342.0	437.0
	C75		252.0	100.0	352.0	622.0	652.0	270.0	342.0

FOR PN16 ONLY FOR PN40 ONLY

Actuator Sizing

Valve sizing tables for Compact actuators fitted on Habonim valves are available upon request.

Sizing tables are based on factors such as valve size, differential pressure, valve seat material, working temperature, flow media, and frequency of operation. Valve torque figures are calculated from test data evaluating several types of seat materials and actuator air supply pressures; using water at room temperature and at varying pressure drops.

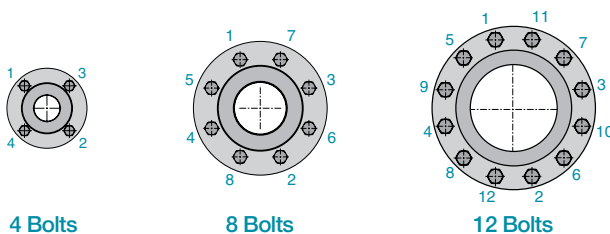
Flanged Valve Sizing Table

The following table is for reference only; sizing for PN16 and PN40 flanged valves with PTFE seats at ambient temperatures and with 10 bar pressure drop.

Valve Size (DN)	Double Acting (DA)			Spring Return (SR)		
	60 psi	80 psi	100 psi	60 psi	80 psi	100 psi
15	C15	C15	C15	C20 2A2B	C15 1B2	C15 2
20	C15	C15	C15	C25 2A2B	C20 2C	C15 2
25	C20	C15	C15	C25 2A2B	C25 2C	C20 3
32	C20	C20	C15	C30 2A2B	C25 2C	C25 3
40	C25	C20	C20	C30 2A2B	C30 2C	C25 3
50	C25	C25	C20	C35 2A2B	C30 2C	C30 3
65	C30	C25	C25	C45 2A2B	C35 2C	C35 3
80	C35	C30	C30	C60 2A2B	C45 2C	C45 3
100	C45	C35	C30	C60 2A2B	C60 2C	C45 3
125	C45	C45	C45	C75 2A2B	C60 2C	C60 3
150	C60	C60	C45	CONSULT	C75 2C	C75 3
200	C60	C60	C60	CONSULT	CONSULT	C75 3

Valve Installation

All Habonim's flanged valves are delivered in the open position and fitted with flange protection covers. Flanged valves are installed directly into the pipe line. When installing the valves in-line, follow the bolt tightening patterns shown below, using the recommended torque figures for safe operation. For more information, please refer to Habonim's flanged valve IOM Manual.



4 Bolts

8 Bolts

12 Bolts

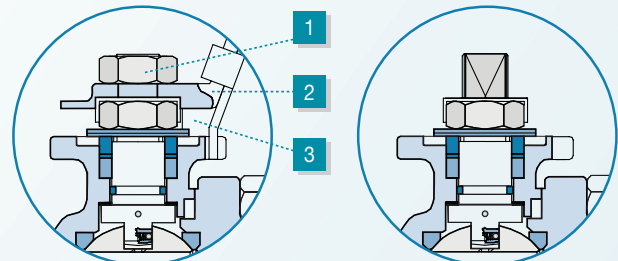
Valve Size (DN)	PN 16		PN 40	
	Nm	in.lb	Nm	in.lb
15	55	485	55	485
20	55	485	55	485
25	55	485	55	485
32	150	1,330	150	1,330
40	150	1,330	150	1,330
50	150	1,330	150	1,330
65	150	1,330	150	1,330
80	150	1,330	150	1,330
100	150	1,330	220	1,950
125	150	1,330	320	2,835
150	220	1,950	320	2,835
200	220	1,950	360	3,185

Mounting Actuators or Gear Operators

When preparing a valve for actuation, make sure to follow the instructions below.

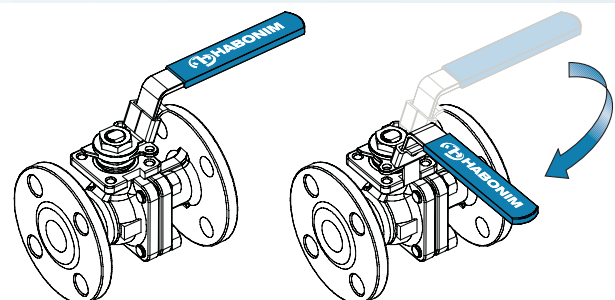
Stem arrangement for actuated valves

Release the Handle Nut **1**, remove the Handle **2** and the Stop Pin **3**. Valve sizes DN100 and up use a T Wrench Handle.



Locking Device

Habonim's locking Device (LD) for the 87P/88P Series, is ideal for applications where it is critical to keep the valve position fixed, without the risk of accidental operation. The LD allows the valve to be locked in either the open or closed position.

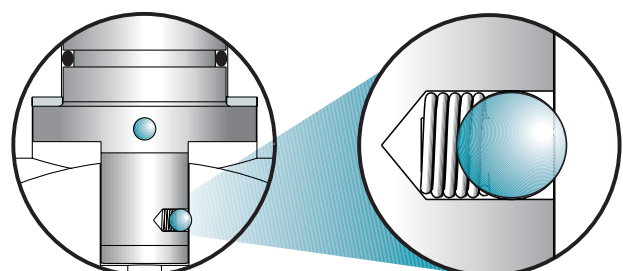


Valve in OPEN position

Valve in CLOSED position

Antistatic Device

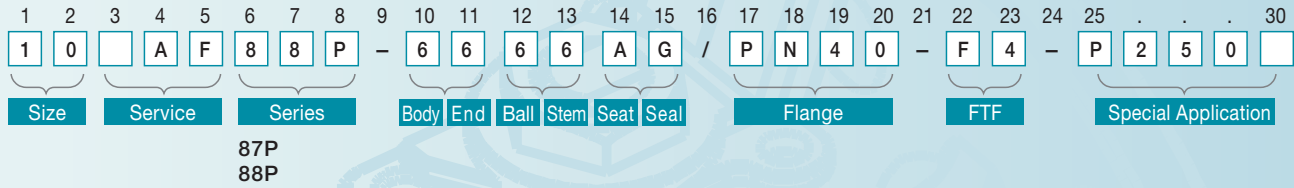
The antistatic device discharges static electricity build up on the ball, conforming to ISO 17292 (BS 5351) for continuous electrical contact between ball/stem and stem/body. The contact is made by a spring loaded stainless steel element inserted in the stem. Valve sizes up to DN50 feature a stem/body contact, while larger size valves also have a ball/stem contact.



FLANGED FULL BORE BALL VALVES

87P/88P SERIES

How to order The HABONIM 87P/88P Identification Code



Size		Service		Body / End Ball / Stem		Seat		Seal		Flange		Special Application	
Code	DN	A	F	4	6	8	A	T	G	PN16	DIN 2501	P250	Ball with pressure relief hole
05	15	A	F	4	6	8	A	T	G	PN16	DIN 2501		
07	20	F		6			P			PN40	DIN 2501		
10	25	O		8			R						
12	32	W					T						
15	40												
20	50												
25	65												
30	80												
40	100												
50	125												
60	150												
80	200												

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

Standards of Compliance	
Flanges:	DIN 2501 PN16 & PN40
Face to face:	DIN 3202 F4/F5
Flange facing:	DIN 2526 form C
Anti static:	ISO 17292 (BS 5351)
Design:	DIN 3357, ASME B16.34
Pressure testing:	DIN 3230/3, BS EN 12266, ISO 5208, API 598
Fire testing:	ISO 10497, API 607 5th edition
Quality assurance:	ISO 9001-2000
Certification:	PED 97/23/EC BS EN 10204 ATEX Directive 94/9/EC TA LUFT 2002 (VDI 2440)

How to Order

Habonim's easy to use order form helps you find the valves and accessories best suited for your application. Please fill in as many parameters as possible for accurate results such as: Media, Temperature, Pressure, Pipeline diameter, and Connection type.

Example: 10 AF88P - 4466AG / PN40-F4

Size DN25 (10), Antistatic (A), Fire Safe (F), Full Bore Din PN40 (88P), C. St. Body & End Cap (4), S. St. 316 Ball & Stem (6), TFM Seats (A), Graphite Body Seals (G), PN40 RF Flange (PN40), Short Pattern (F4).

Quality Assurance

Habonim is an ISO 9001- 2000 certified company, operating in strict accordance with internal manufacturing specifications written for each application and for each customer individually. From design inception to final inspection of assembled valves, Habonim follows rigorous procedures to ensure the integrity of parts, high level manufacturing, proper storage and preservation, and excellence in final assembly. All valves are 100% leak tested before packaging, and tagged for traceability. Materials certification can be provided upon request. Habonim conducts internal audits every three months and regulatory audits every six months to maintain and improve our standards.

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In accordance with our policy to continuously strive for product perfection, we reserve the right to alter dimensions, technical data and information included in this catalogue as required, and without prior notice.

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