

INCH



# HIGH PRESSURE BALL VALVES

H27 SERIES



 **HABONIM**  
Industrial Valves & Actuators

DEDICATED TO INNOVATION

# HIGH PRESSURE BALL VALVES

## Introduction

The H27 Series is built for endurance and specifically designed for High Pressure applications, with a working pressure range up to 6,000psi; ANSI Class up to 2500.

The unique ball and seats configuration assures smooth two-way flow, tight shut off and instant adaptability to changing pressures and temperature variations. The H27 Series delivers reliable performance in the most demanding applications such as offshore, petrochemical and oil refining.

The H27 Series features long-life valve construction for less maintenance, and comes in carbon, steel, stainless, steel and various exotic materials. A range of end connections can be used such as welded, threaded and any flange type. Other options available include High Cycle Operation, Fire Safe, NACE and more.

Rigid handles indicating flow direction with optional Locking Devices

Blowout proof stem with optional firesafe and Antistatic device

Interchangeable seats, balls, stems and seals for various applications

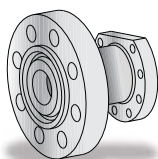
Various types of seat designs and materials

Floating ball concept for positive shutoff

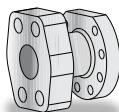
High flow capacity with low pressure drop at full opening

Easy in-line serviceable with swing-out body

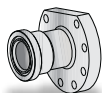
A large range of end connections for Full or Reduce bore valves



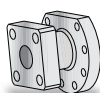
ANSI-RTJ



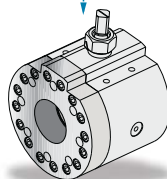
SAE



SAE Connector



ISO6164



Wafer

## Technical Summary

<b>Size Range:</b>	1/4" - 8" (DN6 - DN200)
<b>Class Range:</b>	1/4" - 21/2" up to class 2500, (413 bar 6000 psi) 3"-8" up to class 1500, (255 bar 3700 psi)
<b>End Connections:</b>	Screwed, Socket weld, Butt weld, Flanged (ANSI, ISO, SAE, DIN)
<b>Design:</b>	ASME/ANSI B16.34
<b>Application:</b>	Offshore drilling, Oil & Gas production, Chemical, Petrochemical, Refining, Energy
<b>Service:</b>	Liquids & Gases
<b>Materials:</b>	Stainless Steel, Carbon Steel and others
<b>Certification:</b>	Fire safe to API 607 4th edition PED 97/23/EC ATEX Directive 94/9/EC Lloyds Type approved to ISO 17292 & API 6D
<b>Operation:</b>	Hand or Gear operated, Pneumatic or Electric Actuated.

Valve Size	Flow Coefficients		Limiting Stem Input Torque*	
	Cv	Kv	17-4PH Stem material	
			NM	inch-Lb
1/2"	8	6.9	91	800
3/4"	12	10.3	91	800
1"	32	27.6	165	1,460
1 1/4"	57	49.1	165	1,460
1 1/2"	80	69.0	268	2,370
2"	104	89.7	268	2,370
2 1/2"	240	206.9	497	4400
3"	320	275.9	1920	17,000
4"	580	500.0	1920	17,000
6"	820	706.9	7500	66,300
8"	1540	1327.6	7500	66,300

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

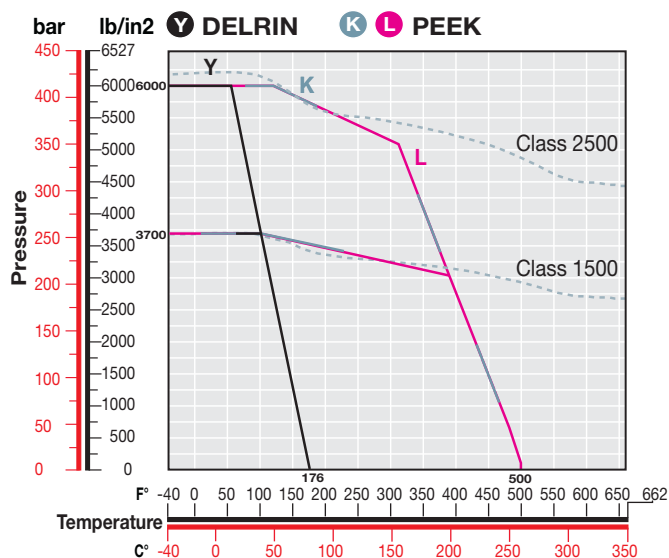
Kv - Flow in m3/hr at 1 bar pressure drop.

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.

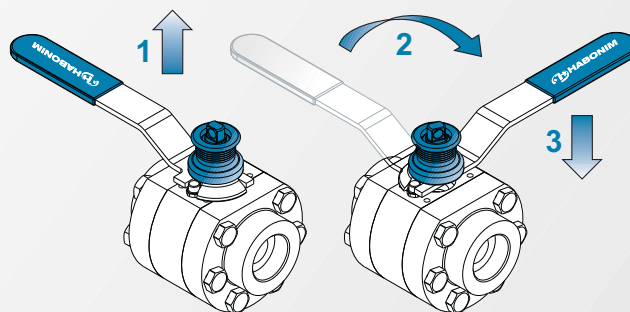
## Temp / Pressure Graph



## Locking Device

LLP (Locked in Last Position)

The Habonim spring loaded locking device (LD) is ideal for applications where it is critical to keep the valve position without the risk of accidental operation. The locking device fits easily to the valve stem by simply removing the stem nut and threading the lock stem above the handle. The LD can lock the valve in closed or open position. The LD can be fitted to the valve in-line. Available in sizes 1/2" to 2".



Valve in Open Position

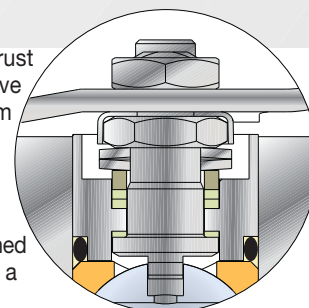
Valve in Closed Position

While lifting the lock housing above the stop pin (1) turn the wrench (2) to its new position. When the handle is in its new position release the housing to fit on the stop pin (3).

## Standard Stem Assembly

Sizes 1/2" to 2"

A blowout-proof stem and thrust washer are inserted in the valve cavity. A set of one or two stem packings followed by a stem centering follower are spring loaded and fastened by a nut and a locking clip from the outside. A rigid handle is fastened above it by a second nut and a serrated washer.



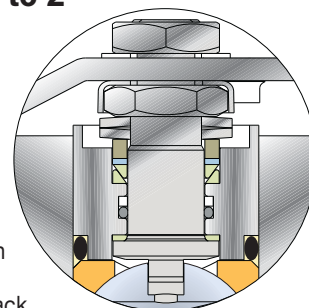
## Hydrogen Stem assembly

Sizes 3/4" (1/2" FB) to 2" \*

Hydrogen stem assembly is designed for Hydrogen applications where it is essential to have low emission at maximum pressure of 200 bar and can also be used for Helium applications. special stem assembly consists of V ring or sandwich style stem seals and an encapsulated O ring with a back up ring inserted into a unique machined in the body it self.

This special stem assembly provides excellent stem sealing and can only be implemented on sizes 3/4" and larger. It is marked with a suffix -HYD in the valve description.

\*Other sizes available on request



# HIGH PRESSURE BALL VALVES

## Material Specifications 1/2"- 2 1/2"

Item	Description	Material Specifications	Qty.
1**	Body	Stainless St. ASTM A479 316, Carbon St. ASTM A105, Carbon St. ASTM A350 LF2	1
2	End Connector	Stainless St. ASTM A479 316 / 316L Carbon St. ASTM A105, Carbon St. ASTM A350 LF2	2
3	Ball ( 1/2" -3/4")	Stainless St. ASTM A564 17-4PH	1
3	Ball ( 1" -2")	Stainless St. ASTM A 351 CF8M	1
4	Stem	Stainless St. ASTM A564 17-4PH	1
5*	Seat Ring	Delrin, PEEK	2
6*	Body Seal	NBR shore 90, Graphite	2
7	Stem Thrust Seal	Nylatron, PEEK	1
8*	Stem Packing	25% Carbon Filled PTFE, Graphite	2

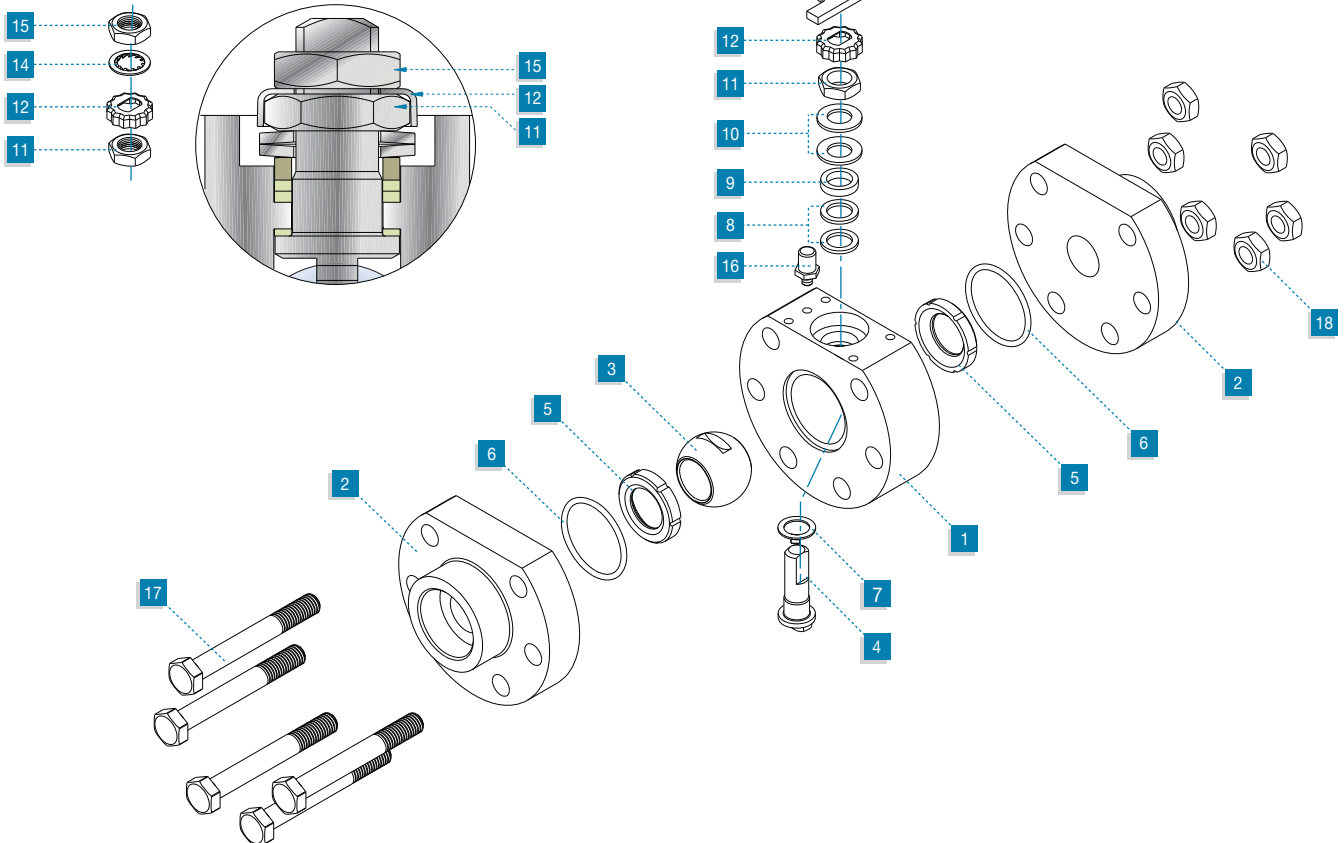
Item	Description	Material Specifications	Qty.
9*	Follower	Stainless St. ASTM B783 316L	1
10	Disc Spring	Stainless St. ASTM A693 17-7PH	2
11	Stem Nut	Stainless St. ASTM A194 316	1
12	Locking Clip	Stainless St. ASTM A164 304	1
13	Handle	Stainless St. ASTM A240 430 Carbon St. ST 37 Zinc Plated	1
14	Serrated Washer	Stainless St. AISI 410	1
15	Handle Nut	Stainless St. ASTM A194 316	1
16	Stop Pin	Stainless St. ASTM A582 303	1
17	Body Bolts	Stainless St. ISO 4014 A4-80 Carbon St. ISO 4014 Gr. 8.8 Zinc Plated	6-8
18	Body Nuts	Stainless St. ISO 4032 A4 Carbon St. ISO 4032Gr. 8.8 Zinc Plated	6-8
19	Handle Sleeve	Vinyl Plastisol	1

\* Standard items for repair kits

\*\* Other Material are available on request.

## Stem arrangement for actuated valves

Release the handle nut **15** and serrated washer **14**. Remove the handle **19** and refasten the nut **15** on the locking clip **12**. Valves 1/2" to- 3/4" reduced bore (1/2" full bore) do not require the handle nut **15**.



## Material Specifications 3"- 8"

Item	Description	Material Specifications	Qty.
1**	Body	Stainless St. ASTM A479 316, Carbon St. ASTM A105, Carbon St. ASTM A350 LF2	1
2**	End Connector	Stainless St. ASTM A479 316 / 316L Carbon St. ASTM A105, Carbon St. ASTM A350 LF2	2
3	Ball	Stainless St. ASTM A 351 CF8M, A479 316	1
4	Stem	Stainless St. ASTM A564 17-4PH	1
5*	Seat Ring	Delrin, PEEK	2
6*	Body Seal	NBR shore 90, Graphite	2
7	Stem Thrust Seal	Naylatron, PEEK	1
8*	Stem Packing	25% Carbon Filled PTFE Graphite	3 1
9*	Follower	Stainless St. ASTM B783 316L	1

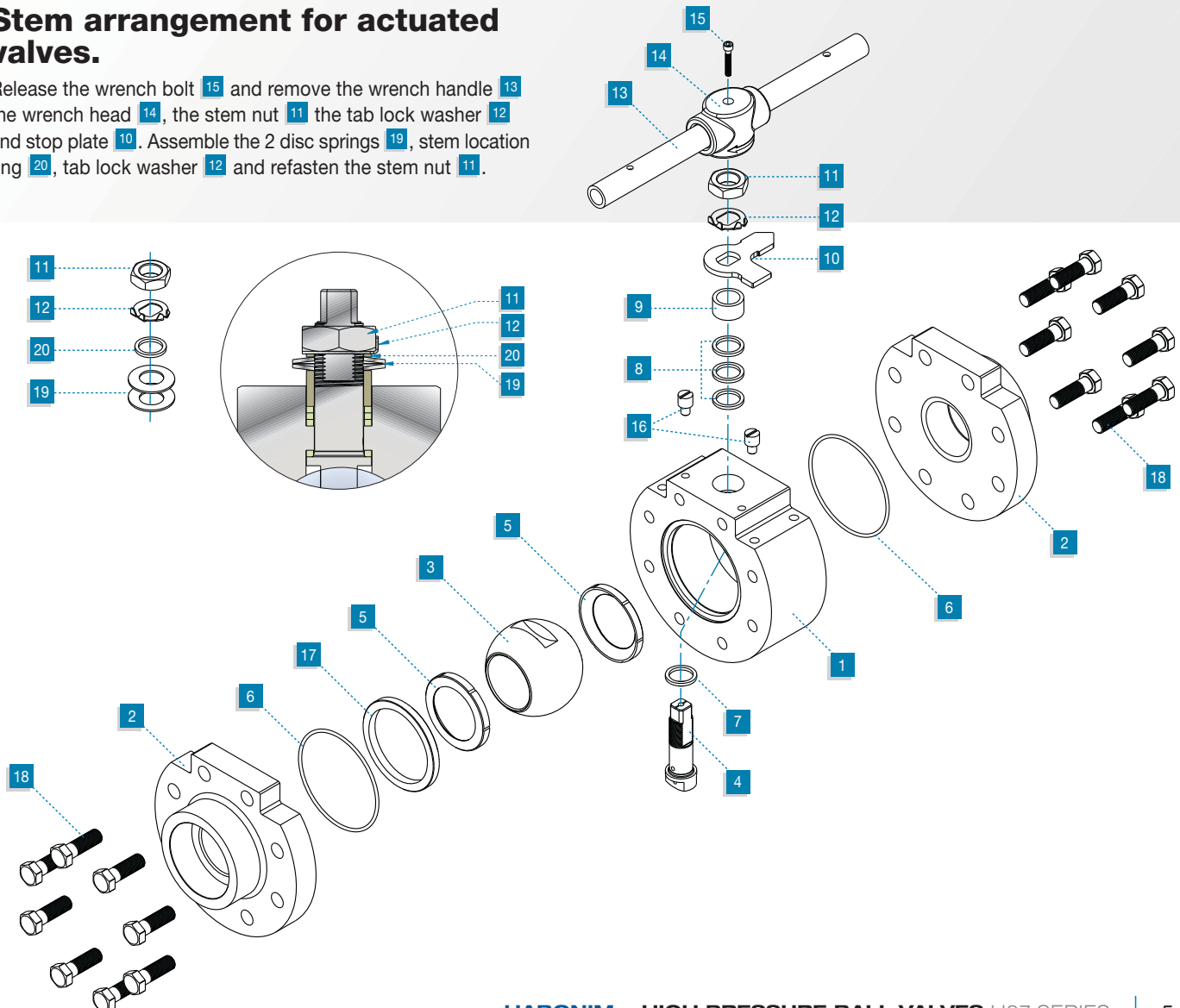
Item	Description	Material Specifications	Qty.
10	Stop Plate	Carbon St. ST 37 Zinc Plated	1
11	Stem Nut	Carbon St. Zinc Plated	1
12	Tab Lock Washer	Stainless St. ASTM A164 304	1
13	Wrench Handle	Carbon St. Zinc Plated	1
14	Wrench Head	ASTM A47 Maleable Iron	1
15	Wrench Bolt	Stainless St. ISO 4014 A2-70	1
16	Stop Pin	Stainless St. ASTM A582 303	2
17	Seat Retaining Ring	Stainless St. ASTM A479 316, Carbon St. ASTM A105, Carbon St. ASTM A350 LF2	1
18	Body Bolts	Stainless St. ISO 4014 A4-80 Carbon St. ISO 4014 Gr. 8.8 Zinc Plated	16-28

\* Standard items for repair kits

\*\* Other Material are available on request.

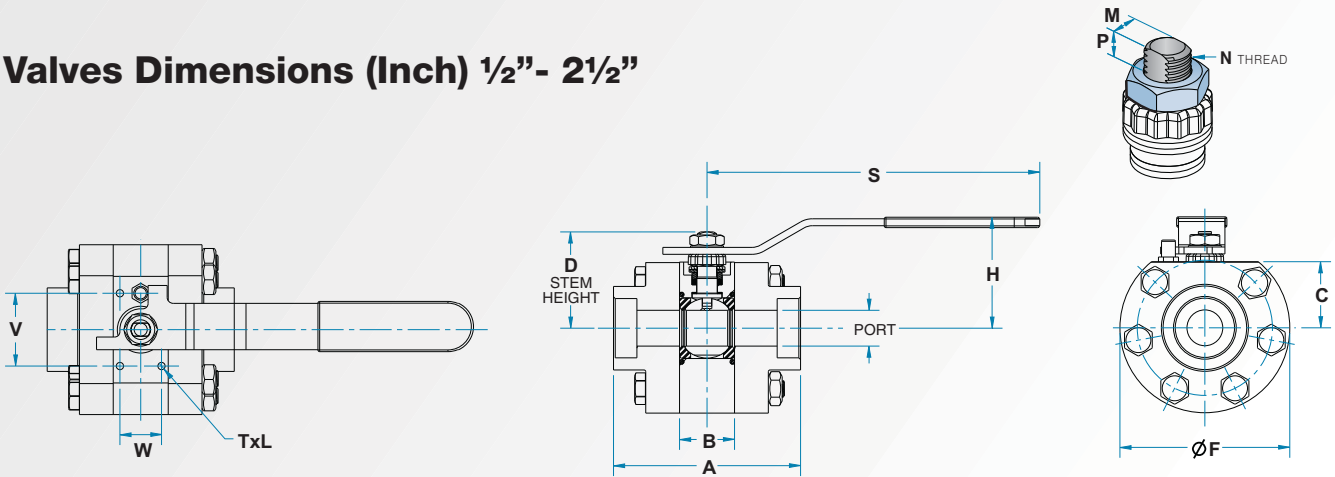
### Stem arrangement for actuated valves.

Release the wrench bolt 15 and remove the wrench handle 13 the wrench head 14, the stem nut 11 the tab lock washer 12 and stop plate 10. Assemble the 2 disc springs 19, stem location ring 20, tab lock washer 12 and refasten the stem nut 11.



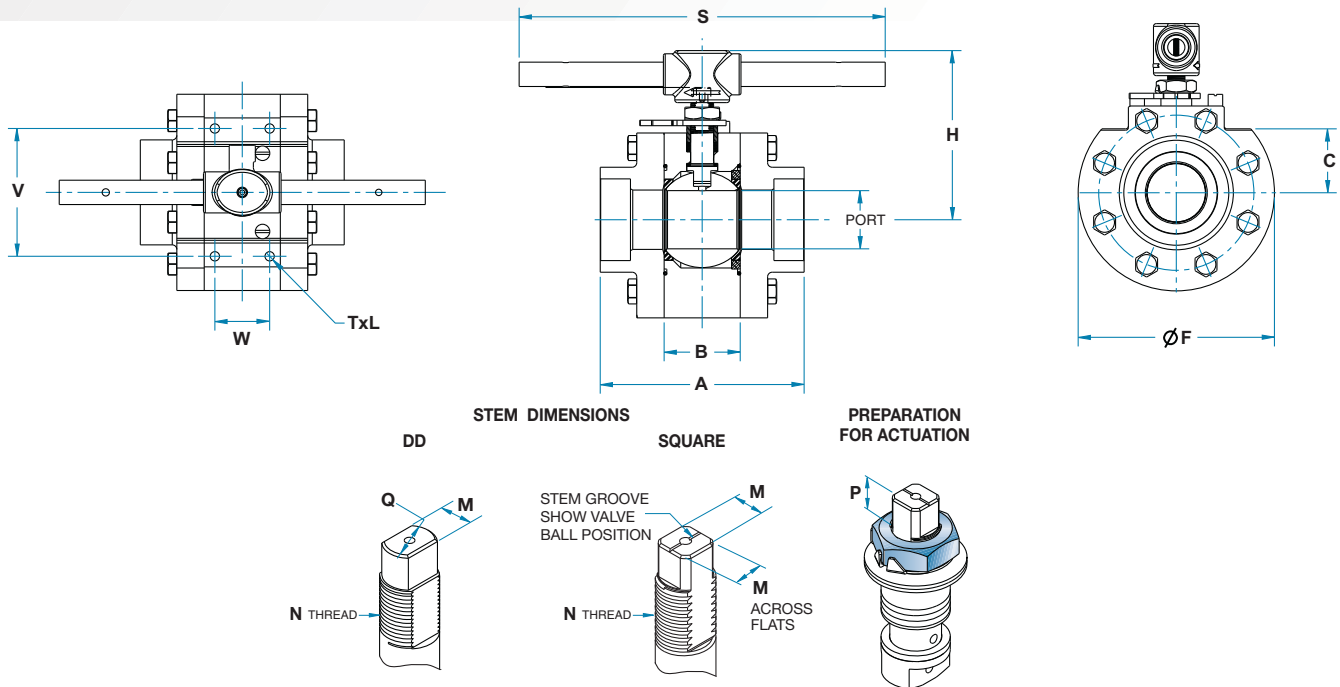
# HIGH PRESSURE BALL VALVES

## Valves Dimensions (Inch) 1/2" - 2 1/2"



Size	Port	A	B	C	D	ØF	H	M	N	P	S	TxL	W	V	Weight
1/2"	0.437	3.071	0.811	1.063	1.496	2.736	1.811	0.218	3/8" UNF	0.276	7.047	M5x8	-	1.339	3.53 lb
3/4"	0.563	3.346	0.969	1.157	1.591	3.110	1.890	0.218	3/8" UNF	0.276	7.047	M5x8	0.591	1.339	5.29 lb
1"	0.811	4.252	1.252	1.504	2.193	3.858	2.520	0.297	7/16" UNF	0.276	7.559	M5x8	0.945	1.654	9.92 lb
1 1/4"	1.000	4.764	1.622	1.504	2.374	4.134	2.705	0.297	7/16" UNF	0.276	7.559	M5x8	0.945	1.654	11.90 lb
1 1/2"	1.252	5.157	1.906	1.969	2.866	5.039	3.193	0.343	9/16" UNF	0.394	11.299	M6x8	1.417	1.575	20.94 lb
2"	1.504	5.591	2.217	2.165	3.063	5.709	3.193	0.343	9/16" UNF	0.394	11.299	M6x8	1.575	2.283	28.88 lb
2 1/2"	2.004	6.795	2.858	3.039	4.559	7.480	5.787	0.548	M20x2.5-6g	0.650	10.079	M12x16	1.969	3.622	55.12 lb

## Valves Dimensions (Inch) 3" - 8"



Size	Port	A	B	C	D	ØF	H	M	M(DD)	N	P	Q	S	TxL	W	V	Weight
3"	2.559	8.819	3.280	2.756	5.705	8.465	7.283	0.745	0.625	1"-14 UNS -2A	0.654	0.894	15.827	M10x12	2.362	5.512	85.98 lb
4"	3.256	10.551	4.283	3.543	6.327	9.843	7.913	0.745	0.625	1"-14 UNS -2A	0.654	0.894	24.016	M10x12	2.756	5.906	141.09 lb
6"	4.488	13.228	5.752	4.724	8.909	11.614	11.024	1.120	0.935	1 1/2"-12 UNF -1A	1.031	1.386	36.063	M16x18	2.598	5.512	264.55 lb
8"	5.185	21.992	7.031	5.354	11.839	13.701	-	1.414	-	2"- UN -2A	2.283	-	-	M20x25	3.780	6.693	496.04 lb

## H27 Series Automated Valves Dimensions

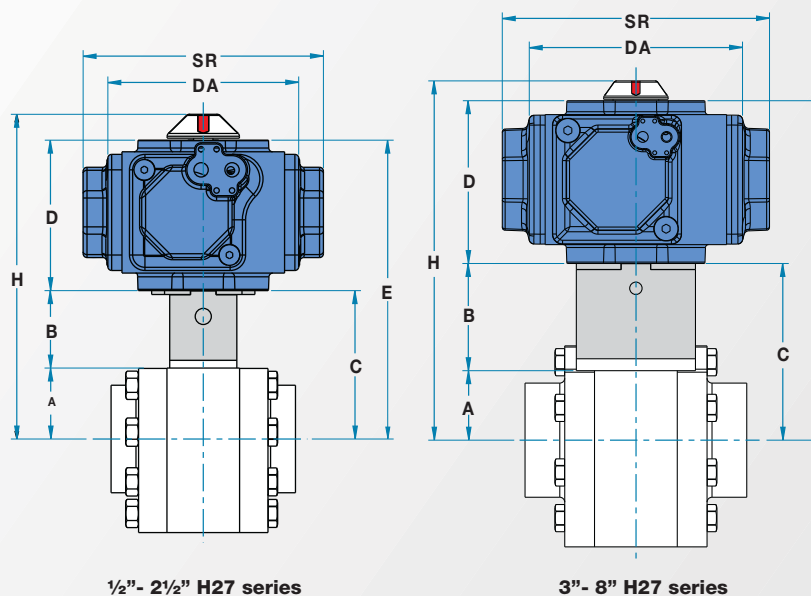
### Actuation

Where automation is required, the H27 series ball valves are available with Habonim's unique 4-Piston pneumatic Compact actuator. The Compact actuator is available in 8 sizes, spring return or double acting. All the valve mounting flanges are according to ISO 5211 and are suitable for accommodating any quarter turn actuator (pneumatic or electric) for valve automatization. Valves can be operated for on-off or not with high pressure valves application. The actuators have a NAMUR air connection interface for attaching solenoids. Limit switches and positioners can be mounted on the actuator top face according to VDI / VDE 3845.

For information, please refer to Bulletin B360.

### Actuator Sizing

Valve sizing tables of the Compact actuators on Habonim valves are available on request. The sizing tables are based on valve size, differential pressure, valve seat types, working temperature, flowing media and frequency of operation. The valve torque figures are calculated from tests using water at room temperature at different pressure drops for each seat material and actuator air pressure. Please consult with HABONIM for more details.

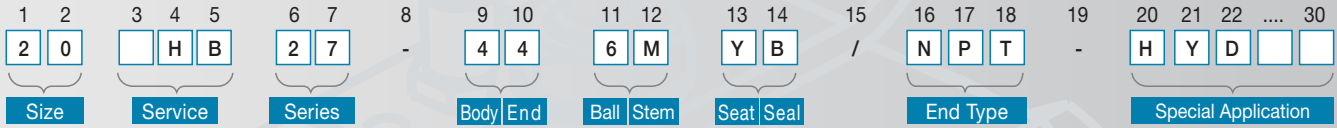


Valve Size	Actuator size	H27 Series					Compact Actuator		
		A	B	C	E	H	D	DA	SR
1/2"	C20	1.063	1.575	2.732	5.909	6.697	3.177	4.016	5.157
	C25		1.575	2.732	6.559	7.346	3.827	5.197	6.339
3/4"	C20	1.157	1.575	3.079	6.256	7.043	3.177	4.016	5.157
	C25		1.575	3.079	6.906	7.693	3.827	5.197	6.339
1"	C25	1.504	1.969	3.472	7.299	8.087	3.827	5.197	6.339
	C30		1.969	3.472	8.063	8.850	4.591	5.945	7.323
1 1/4"	C25	1.504	1.969	3.472	7.299	8.087	3.827	5.197	6.339
	C30		1.969	3.472	8.063	8.850	4.591	5.945	7.323
1 1/2"	C30	1.969	2.362	4.331	8.921	9.709	4.591	5.945	7.323
	C35		2.362	4.331	9.665	10.453	5.335	7.165	8.740
2"	C30	2.165	2.362	5.402	9.992	10.780	4.591	5.945	7.323
	C35		2.362	5.402	10.736	11.524	5.335	7.165	8.740
2 1/2"	C35	3.039	2.362	5.402	10.736	11.524	5.335	7.165	8.740
	C45		2.362	5.402	11.858	12.646	6.457	8.701	10.591
3"	C45	2.756	4.252	7.008	13.465	14.252	6.457	8.701	10.591
	C60		4.252	7.008	15.571	16.752	8.563	11.220	14.173
4"	C60	3.543	4.134	7.677	16.240	17.421	8.563	11.220	14.173
	C75		4.134	7.677	18.307	19.488	10.630	13.465	17.205
6"	C60	4.724	5.394	10.118	18.681	19.862	8.563	11.220	14.173
	C75		5.394	10.118	20.748	21.929	10.630	13.465	17.205
8"	C75	5.354	5.020	10.374	21.004	22.185	10.630	13.465	17.205

# HIGH PRESSURE BALL VALVES

H27 Series

## How to order The HABONIM H27 Ball Valve Identification Code



Size		
Code	inch	mm
02	1/4"	6
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

Service	
A	Anti Static
B	Full Bore
F	Fire Safe
H	High Pressure

Body / End / Ball / Stem	
4	Carbon Steel A105
6	Stainless Steel 316/316L
F	Carbon Steel LF2
M	17-4PH
Z	Inconel 718

Seat	
K	PEEK
L	Virgin PEEK
Y	Delrin®

Seal	
B	NBR Sh90
G	Graphite
I	Impregnated Graphite
V	Viton

End Connection	
1500	ANSI 1500 RF
2500	ANSI 2500 RF
SW2500	Socket Weld Class #2500
BW160	Butt Weld SCH 160
XBW160	Extended BW SCH 160
SAE3000	SAE Flanged 3000 psi Code 61
SAE6000	SAE Flanged 6000 psi Code 62
CON61	SAE Split Flange Code 61
CON62	SAE Split Flange Code 62
ISO 6164	ISO 6164 Flanged
DIN3852	Threaded DIN 3852
SAEJ1926	SAE J1926 & ISO 11926
NPT	ANSI B1.20.1

Other special materials and type of ends are available on request.

Special Application	
P250	Ball With Pressure Relief Hole
HYD	Special Stem Assembly For Hydrogen
RTJ	Flanged With Ring Type Joint
WR	Double D Stem
TV	Tween Valve
DS	Dual Safe (Dbb)
NACE	NACE Service

## Standards of Compliance

Design	ANSI B16.34
Threaded End Connections	NPT ANSI B1.20.1 DIN 3852, SAE J1926 (ISO 11926)
Socket Weld End Connections	ANSI B16.11
Buttweld End Connections	ANSI B16.25
Flanged End Connections	ANSI B16.10, SAE J518 (ISO 6162), ISO 6164, DIN
Pressure Testing	API 598, API 6D EN 12266-1:2003, BS EN 12266-2 ISO 5208
Certification	ISO 9001-2008 PED 97/23/EC Module H ATEX Directive 94/9/EC
Fire Safe	API 607, API 6FA
NACE (must be specified)	MR-0175

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**Headquarters Habonim ISRAEL**  
Tel: +972-4-6914911, Fax: +972-4-6914902  
sales\_international@habonim.com

**ISRAEL**  
Tel: +972-4-6914903  
Fax: +972-4-6914935  
sales\_israel@habonim.com

[www.habonim.com](http://www.habonim.com)

**North America**  
Toll Free Phone: 1-866-261-8400  
Toll Free Fax: 1-866-243-9959  
sales\_usa@habonim.com

**Europe**  
Habonim Europe  
Tel: +972-4-6914733  
Fax: +972-4-6914703  
sales\_europe@habonim.com

**U.K.**  
Habonim UK  
Tel: +44-1633-484554  
Fax: +44-1633-482252  
sales@habonimuk.com

**China**  
Habonim China  
Tel: +86 21 5219 1139  
Fax: +86 21 5219 3780  
sales\_china@habonim.com.cn

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