

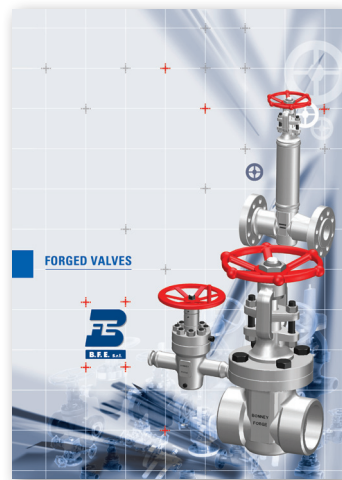
# Forged Pressure Seal Valves



**B.F.E. s.r.l.**

BONNEY FORGE

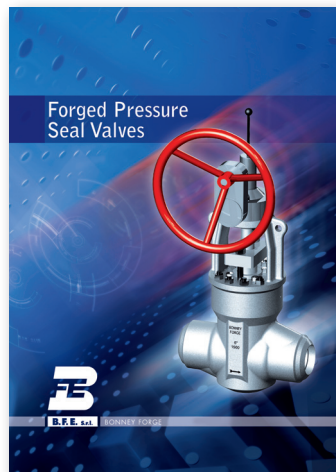
# BFE AVAILABLE CATALOGUES



**Forged Valves**



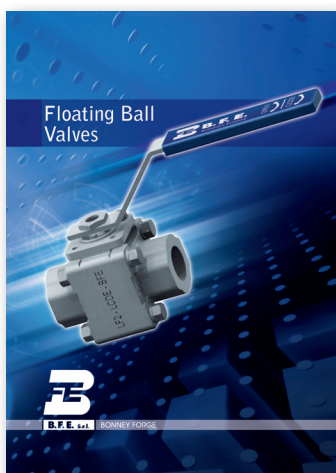
**Cast Steel Valves**



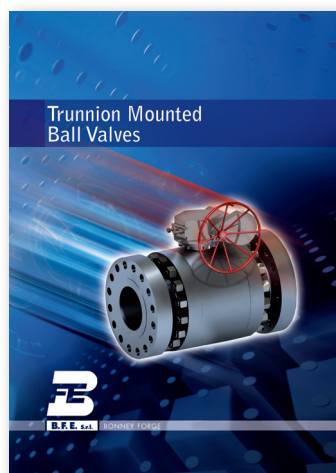
**Forged Pressure Seal Valves**



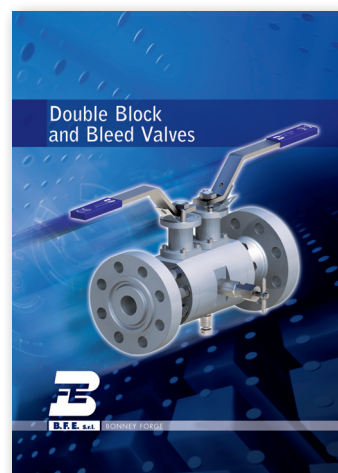
**API 6A Valves**



**Forged Floating Ball Valves**



**Trunnion Mounted Ball Valves**

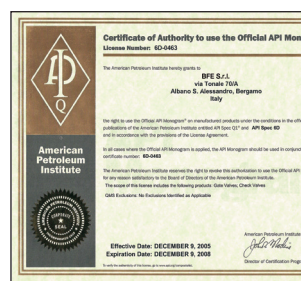
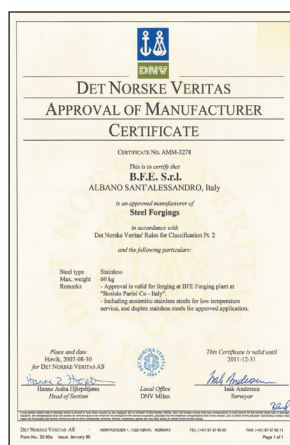
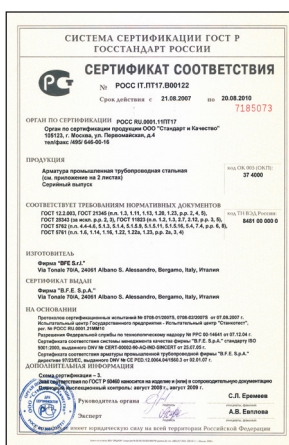
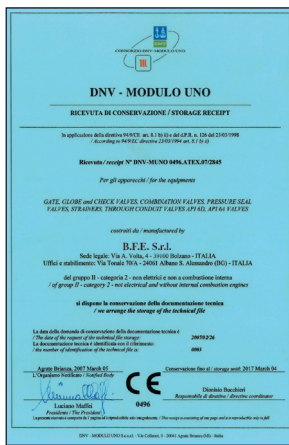


**Double Block & Bleed Valves**



Global quality. Total reliability. Two recurrent claims in present-day corporate strategies. But the transition from words to actions demands tangible measures. Specialization and organization underlie what amounts to a "quality culture" at BFE, not in the abstract but as a set of specific rules governing every stage of production. An operating model that is good to have in a partner who bears the responsibility of supplying valves that are essential to plant safety and regulation.

**B. F. E. s.r.l.**



**B. F. E. s.r.l.**

# DESIGN, CONSTRUCTION, MARKING FOR PRESSURE SEAL VALVES

BFE manufactures a complete line of quality Pressure Seal valves, and can provide the exact valves and actuators to meet the most demanding application requirements.

Our Pressure Seal valves are available in an extensive range of designs, materials, sizes and pressure classes and are in full conformance with ASME specifications.

All Pressure Seal valves are designed in accordance with ASME B16.34 and EN 12516.

The BFE family of API 6A valves provides positive shut-off of fluids and gases under extreme service conditions.

BFE uses only high-quality materials inspected & tested to International Standards and utilizes advanced manufacturing technology with special emphasis on safety, quality, and long service life of our products, to ensure that our clients receive the "best in class" products available from us at a competitive price and delivered on time.

The forging material can ensure the best rigidity and strength under maximum rated operation pressure without inherent flaw of cast.

Other properties found in forging include greater impact resistance, resistance to fatigue cracking, particularly when cycling at either high or cryogenic temperature. Overdesigned wall thickness and adaptation of high strength tie bolts are convenient for valve maintenance and sufficient to bear the stress of pipe.

The internal parts of valve are carefully designed and selected to ensure reliability under all kinds of work conditions.

Since a variety of materials are available, BFE valves can be used with various fluids and gases including petroleum based oils and extreme sour gas service.

BFE Pressure Seal Valve design is developed using the latest software based analysis tools. At the design stage, all projects are analysed using 3D solid modeling tools.

Benefits include reduction of development time and costs, improved product quality, and ability to solve field problems for customers.

Product flexibility and accuracy is assured.

Finite Element Analysis (FEA) is a very important step of the development stage and ensures the best possible performance requirements. Valves operational problems, pressure/temperature related deformations

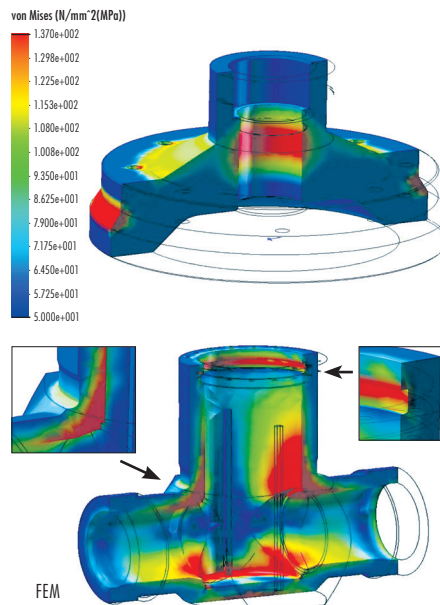
and flow-related forces within a valve can be evaluated.

BFE uses the FEA for predicting failure due to unknown stresses by showing problem areas in a material and allowing designers to see all of the theoretical stresses within. This method of product design and testing is far superior to the manufacturing costs which would accrue if each sample was actually built and tested.

During any analysis project, it is the responsibility of the BFE analyst to verify that analysis results conform to the physics of the problem under study. Understanding the response of a structure or manufactured product allows effective design decisions to be made in developing structures and products that are functional, meet all engineering requirements, and can be manufactured and assembled.

Computational Fluid Dynamics (CFD) is used to simulate operating flow conditions.

Evaluation of Valve CV coefficient and convective heat transfer coefficient takes place at the design stage.



## GENERAL MAIN FEATURES

### SEAT RING

The seat rings on the gate and swing check valves are welded on the body for sizes over 1,5 inches.

Pressed in for size up 1.5 inches.

On globe and piston check valves the seat is integral with the body.

## PACKING

BFE standard packing is made with pure graphite (99%) pressed rings with on top and bottom of braided graphite with corrosion inhibitor to prevent damage of stem surface. The chamber wall surface roughness is Ra 1,6 and the roughness of stem surface is 0,2 Ra.

Live loading design to reduce the maintenance of packing is available on request. Particular design and materials has been selected and tested in our internal laboratory to obtain a low emission from packing room.

## OPERATION

BFE valves are available with hand wheel, bevel gear, spur gear or actuator.

Electrical, pneumatic or hydraulic actuators can be supplied on customer request.

## INSPECTION AND TESTING

Every valve is subjected on a routine basis to different non-destructive testing, like dye penetrant test on butt weld ends and on all hard faced and cladding areas.

Non-destructive tests are also carried out on the critical areas as defined by ASME B16.34.

Optional examinations like:

Radiographic

Magnetic particles

Ultrasonic

Helium leak test

Personnel performing NDT are trained and qualified to EN 473/ ASNT-SNT-TC-1A.

Every valve is subject to a pressure test in accordance with the standard API 598 or BS 6755 Part.1.

The rated pressure for the applicable pressure class is in accordance with ANSI B.16.34 / EN 12516-1-2.

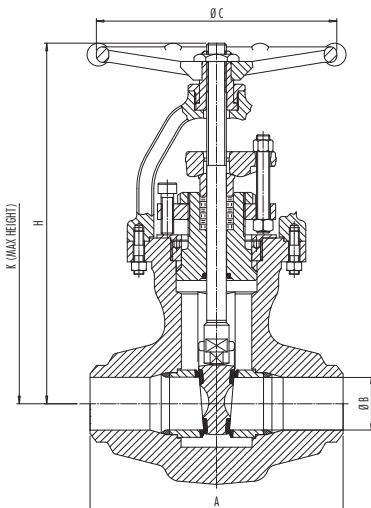
## MARKING AND IDENTIFICATION

Each valve is identified on proper name plate and on valve body as required by MSS-SP 25, ASME B16.34. Name plate carries all information on rating, size, valve body and trim material, customer tags. Body marking includes material designations (per ASTM) and heat code and of course the trade mark.

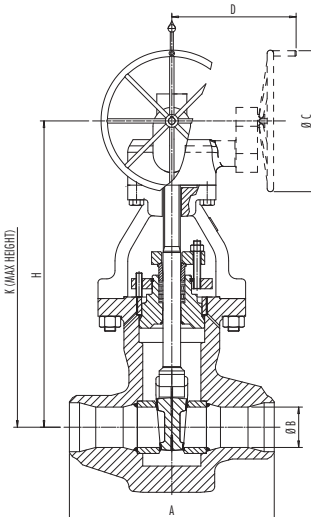
# PRESSURE SEAL GATE WEDGE VALVE

PRESSURE RATING DESIGNATION	SIZE	DESIGN TYPE	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]	K [mm]	WEIGHT [Kg]	FIGURE
<b>ASME 900</b>	1/2"	1	216	14	97	N.A.	210	273	6,5	9PS 103
	3/4"	1	229	18	138	N.A.	240	312	10,5	9PS 104
	1"	1	254	24	138	N.A.	265	344	13	9PS 105
	1-1/2"	1	305	36,6	172	N.A.	345	448	23	9PS 107
	2"	1	368	47	234	N.A.	400	520	45	9PS 108
	3"	2	305	62	300	310	480	650	74	9PS 1010
	4"	2	356	80	400	340	560	900	150	9PS 1011
	6"	3	508	120	600	210	750	1130	330	9PS 1013
	8"	3	660	160	600	250	900	1300	610	9PS 1014
	10"	3	787	210	600	410	1150	1710	1150	9PS 1015
	12"	3	914	245	600	550	1480	1950	1770	9PS 1016
	14"	3	991	260	600	550	1510	2050	1870	9PS 1017
	16"	3	1092	330	600	620	1700	2300	3000	9PS 1018
	18"	3	1346	350	600	620	1750	2600	4000	9PS 1019
	20"	3	1473	370	600	620	1810	2850	4300	9PS 1020
	22"	3	1664	415	600	620	2000	3300	6900	9PS 1022
24"	3	1943	480	600	620	2200	3600	9500	9PS 1024	
<b>ASME 1500</b>	1/2"	1	216	14	97	N.A.	210	273	6,5	15PS 103
	3/4"	1	229	18	138	N.A.	240	312	10,5	15PS 104
	1"	1	254	24	138	N.A.	265	344	13	15PS 105
	1-1/2"	1	305	36,6	172	N.A.	345	448	23	15PS 107
	2"	1	368	47	234	N.A.	400	520	45	15PS 108
	3"	2	305	62	300	310	480	650	74	15PS 1010
	4"	2	406	80	400	340	560	900	155	15PS 1011
	6"	3	559	120	600	210	750	1130	350	15PS 1013
	8"	3	711	160	600	250	900	1300	630	15PS 1014
	10"	3	864	210	600	410	1150	1710	1215	15PS 1015
	12"	3	991	245	600	550	1480	1950	1870	15PS 1016
	14"	3	1067	260	600	550	1510	2050	2000	15PS 1017
	16"	3	1194	310	600	620	1600	2350	3000	15PS 1018
	18"	3	1346	350	600	620	1750	2600	4120	15PS 1019
	20"	3	1473	370	600	620	1810	2850	4600	15PS 1020
	22"	3	1664	415	600	620	2000	3300	7400	15PS 1022
24"	3	1943	480	600	620	2200	3600	9500	15PS 1024	
<b>ASME 2500</b>	1/2"	1	264	11,5	138	N.A.	285	370	14,5	25PS 103
	3/4"	1	273	15	138	N.A.	320	416	15	25PS 104
	1"	1	308	19,5	172	N.A.	325	422	26	25PS 105
	1-1/2"	1	387	28	234	N.A.	390	507	56	25PS 107
	2"	1	451	38	320	N.A.	430	559	60	25PS 108
	3"	2	368	57	400	340	560	800	160	25PS 1010
	4"	2	457	72	400	340	560	800	162	25PS 1011
	6"	3	610	110	600	250	810	1250	570	25PS 1013
	8"	3	762	147	600	410	1050	1610	1125	25PS 1014
	10"	3	914	185	600	550	1390	1860	1800	25PS 1015
	12"	3	1041	218	600	550	1500	1950	2100	25PS 1016
	14"	3	1118	241	600	550	1550	2100	2300	25PS 1017
	16"	3	1245	260	600	620	1850	2500	4000	25PS 1018
	18"	3	1397	280	600	620	2000	3200	5500	25PS 1019
	20"	3	1500	310	600	620	2100	2850	7000	25PS 1020
	22"	3	1750	340	600	620	2300	3500	9000	25PS 1022
24"	3	2100	370	600	620	2500	4000	13000	25PS 1024	

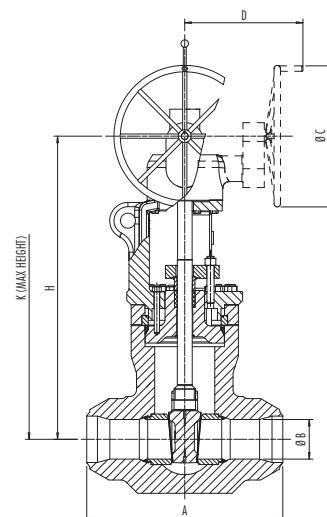
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**DESIGN TYPE 2**



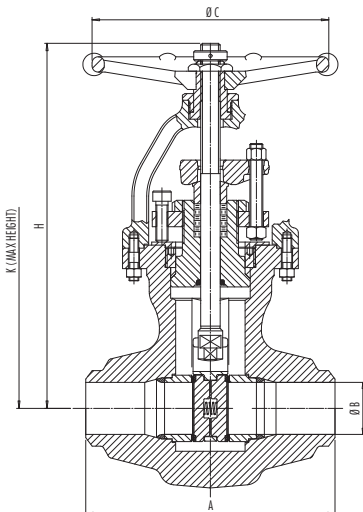
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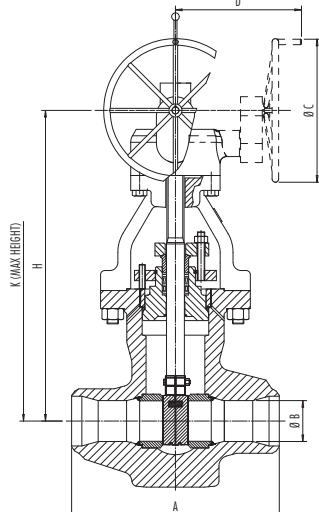
# PRESSURE SEAL PARALLEL SLIDE VALVE

PRESSURE RATING DESIGNATION	SIZE	DESIGN TYPE	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]	K [mm]	WEIGHT [Kg]	FIGURE
<b>ASME 900</b>	1/2"	1	216	14	97	N.A.	210	273	6,5	9PS 103-DD
	3/4"	1	229	18	138	N.A.	240	312	10,5	9PS 104-DD
	1"	1	254	24	138	N.A.	265	344	13	9PS 105-DD
	1-1/2"	1	305	36,6	172	N.A.	345	448	23	9PS 107-DD
	2"	1	368	47	234	N.A.	400	520	45	9PS 108-DD
	3"	2	305	62	300	310	480	650	74	9PS 1010-DD
	4"	2	356	80	400	340	560	900	150	9PS 1011-DD
	6"	3	508	120	600	210	750	1130	330	9PS 1013-DD
	8"	3	660	160	600	250	900	1300	610	9PS 1014-DD
	10"	3	787	210	600	410	1150	1710	1150	9PS 1015-DD
	12"	3	914	245	600	550	1480	1950	1770	9PS 1016-DD
	14"	3	991	260	600	550	1510	2050	1870	9PS 1017-DD
	16"	3	1092	330	600	620	1700	2300	3000	9PS 1018-DD
	18"	3	1346	350	600	620	1750	2600	4000	9PS 1019-DD
	20"	3	1473	370	600	620	1810	2850	4300	9PS 1020-DD
	22"	3	1664	415	600	620	2000	3300	6900	9PS 1022-DD
24"	3	1943	480	600	620	2200	3600	9500	9PS 1024-DD	
<b>ASME 1500</b>	1/2"	1	216	14	97	N.A.	210	273	6,5	15PS 103-DD
	3/4"	1	229	18	138	N.A.	240	312	10,5	15PS 104-DD
	1"	1	254	24	138	N.A.	265	344	13	15PS 105-DD
	1-1/2"	1	305	36,6	172	N.A.	345	448	23	15PS 107-DD
	2"	1	368	47	234	N.A.	400	520	45	15PS 108-DD
	3"	2	305	62	300	310	480	650	74	15PS 1010-DD
	4"	2	406	80	400	340	560	900	155	15PS 1011-DD
	6"	3	559	120	600	210	750	1130	350	15PS 1013-DD
	8"	3	711	160	600	250	900	1300	630	15PS 1014-DD
	10"	3	864	210	600	410	1150	1710	1215	15PS 1015-DD
	12"	3	991	245	600	550	1480	1950	1870	15PS 1016-DD
	14"	3	1067	260	600	550	1510	2050	2000	15PS 1017-DD
	16"	3	1194	310	600	620	1600	2350	3000	15PS 1018-DD
	18"	3	1346	350	600	620	1750	2600	4120	15PS 1019-DD
	20"	3	1473	370	600	620	1810	2850	4600	15PS 1020-DD
	22"	3	1664	415	600	620	2000	3300	7400	15PS 1022-DD
24"	3	1943	480	600	620	2200	3600	9500	15PS 1024-DD	
<b>ASME 2500</b>	1/2"	1	264	11,5	138	N.A.	285	370	14,5	25PS 103-DD
	3/4"	1	273	15	138	N.A.	320	416	15	25PS 104-DD
	1"	1	308	19,5	172	N.A.	325	422	26	25PS 105-DD
	1-1/2"	1	387	28	234	N.A.	390	507	56	25PS 107-DD
	2"	1	451	38	320	N.A.	430	559	60	25PS 108-DD
	3"	2	368	57	400	340	560	800	160	25PS 1010-DD
	4"	2	457	72	400	340	560	800	162	25PS 1011-DD
	6"	3	610	110	600	250	810	1250	570	25PS 1013-DD
	8"	3	762	147	600	410	1050	1610	1125	25PS 1014-DD
	10"	3	914	185	600	550	1390	1860	1800	25PS 1015-DD
	12"	3	1041	218	600	550	1500	1950	2100	25PS 1016-DD
	14"	3	1118	241	600	550	1550	2100	2300	25PS 1017-DD
	16"	3	1245	260	600	620	1850	2500	4000	25PS 1018-DD
	18"	3	1397	280	600	620	2000	3200	5500	25PS 1019-DD
	20"	3	1500	310	600	620	2100	2850	7000	25PS 1020-DD
	22"	3	1750	340	600	620	2300	3500	9000	25PS 1022-DD
24"	3	2100	370	600	620	2500	4000	13000	25PS 1024-DD	

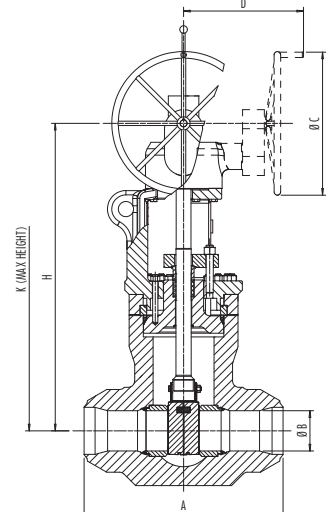
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## DESIGN TYPE 2



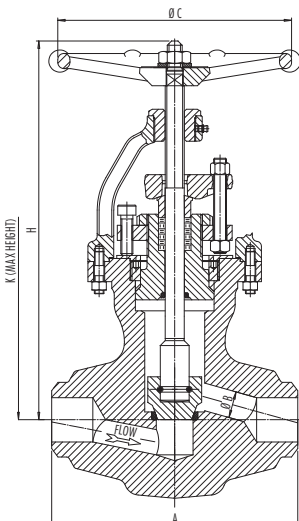
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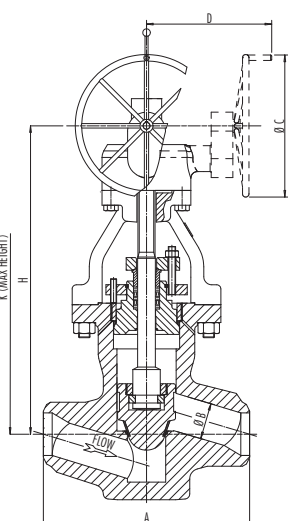
# PRESSURE SEAL GLOBE "T" PATTERN VALVE

PRESSURE RATING DESIGNATION	SIZE	DESIGN TYPE	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]	K [mm]	WEIGHT [Kg]	FIGURE
<b>ASME 900</b>	1/2"	1	216	14	97	N.A.	210	273	6,5	9PS 303
	3/4"	1	229	18	138	N.A.	240	312	10,5	9PS 304
	1"	1	254	24	138	N.A.	265	344	13	9PS 305
	1-1/2"	1	305	36.6	172	N.A.	345	448	23	9PS 307
	2"	1	368	47	234	N.A.	400	520	45	9PS 308
	3"	2	305	60	300	310	490	720	90	9PS 3010
	4"	2	356	78	600	390	590	958	230	9PS 3011
	6"	3	508	105	600	410	760	1212	380	9PS 3013
	8"	3	660	140	600	550	1070	1443	840	9PS 3014
	10"	4	787	178	600	550	1560	1710	2380	9PS 3015
	12"	4	914	220	600	550	1630	1950	3300	9PS 3016
	14"	4	991	235	600	650	1790	2050	3950	9PS 3017
	16"	4	1194	270	600	750	1990	2540	4628	9PS 3018
	18"	4	1346	300	600	750	2015	2620	5252	9PS 3019
	20"	4	1473	335	600	1000	2245	2840	7280	9PS 3020
	22"	4	1664	370	600	1000	2470	3140	10400	9PS 3022
24"	4	1943	400	600	1200	2840	3485	15600	9PS 3024	
<b>ASME 1500</b>	1/2"	1	216	12	97	N.A.	233	302	7,5	15PS 303
	3/4"	1	229	14.5	138	N.A.	250	325	10,5	15PS 304
	1"	1	254	19	138	N.A.	250	325	15	15PS 305
	1-1/2"	1	305	31	172	N.A.	365	474	26	15PS 307
	2"	1	368	40	234	N.A.	430	559	48	15PS 308
	3"	2	305	60	300	310	490	720	90	15PS 3010
	4"	2	406	78	600	390	590	958	240	15PS 3011
	6"	3	559	105	600	410	760	1212	400	15PS 3013
	8"	3	711	140	600	550	1070	1443	860	15PS 3014
	10"	4	864	178	600	550	1560	1710	2470	15PS 3015
	12"	4	991	220	600	550	1630	1950	3380	15PS 3016
	14"	4	1067	235	600	650	1790	2050	4060	15PS 3017
	16"	4	1194	270	600	750	1990	2540	4628	15PS 3018
	18"	4	1346	300	600	750	2015	2620	5252	15PS 3019
	20"	4	1473	335	600	1000	2245	2840	7280	15PS 3020
	22"	4	1664	370	600	1000	2470	3140	10400	15PS 3022
24"	4	1943	400	600	1200	2840	3485	15600	15PS 3024	
<b>ASME 2500</b>	1/2"	1	264	11	138	N.A.	320	416	16	25PS 303
	3/4"	1	273	14.5	138	N.A.	325	422	17	25PS 304
	1"	1	308	19	172	N.A.	360	468	30	25PS 305
	1-1/2"	1	387	28	234	N.A.	450	585	65	25PS 307
	2"	1	451	38	234	N.A.	465	604	75	25PS 308
	3"	2	368	53	400	340	560	898	190	25PS 3010
	4"	2	457	56	600	390	590	958	255	25PS 3011
	6"	3	610	100	600	550	1070	1447	815	25PS 3013
	8"	4	762	132	600	450	1050	1610	1950	25PS 3014
	10"	4	914	150	600	550	1300	1860	2990	25PS 3015
	12"	4	1041	184	600	550	1500	1950	3900	25PS 3016
	14"	4	1118	200	600	650	1560	2100	5070	25PS 3017
	16"	4	1245	225	600	750	1730	2210	5785	25PS 3018
	18"	4	1397	250	600	750	1755	2275	6565	25PS 3019
	20"	4	1450	280	600	1000	1950	2470	9100	25PS 3020
	22"	4	1600	305	600	1000	2150	2730	13000	25PS 3022
24"	4	1800	335	600	1200	2470	3030	19500	25PS 3024	

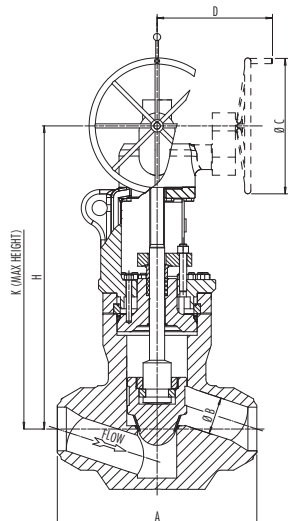
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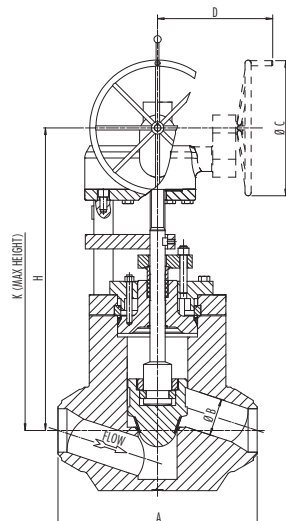
**DESIGN TYPE 2**



**DESIGN TYPE 3**



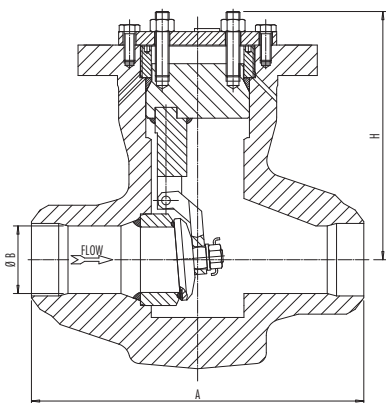
**DESIGN TYPE 4**



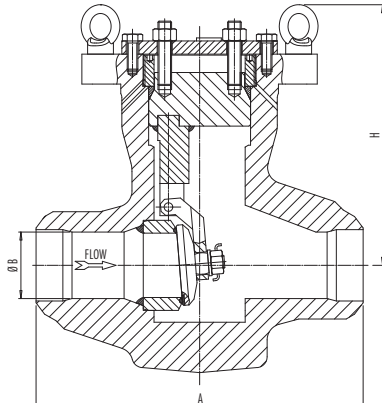
## PRESSURE SEAL SWING CHECK VALVE

PRESSURE RATING DESIGNATION	SIZE	DESIGN TYPE	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]	K [mm]	WEIGHT [Kg]	FIGURE
<b>ASME 900</b>	1/2"	1	216	14	N.A.	N.A.	105	N.A.	6	9PS 603
	3/4"	1	229	18	N.A.	N.A.	125	N.A.	10	9PS 604
	1"	1	254	24	N.A.	N.A.	135	N.A.	12	9PS 605
	1-1/2"	1	305	36,6	N.A.	N.A.	155	N.A.	14	9PS 607
	2"	1	368	47	N.A.	N.A.	195	N.A.	28	9PS 608
	3"	2	305	62	N.A.	N.A.	260	N.A.	40	9PS 6010
	4"	2	356	80	N.A.	N.A.	320	N.A.	95	9PS 6011
	6"	3	508	120	N.A.	N.A.	430	N.A.	215	9PS 6013
	8"	3	660	160	N.A.	N.A.	550	N.A.	440	9PS 6014
	10"	3	787	210	N.A.	N.A.	650	N.A.	700	9PS 6015
	12"	3	914	245	N.A.	N.A.	700	N.A.	1100	9PS 6016
	14"	3	991	260	N.A.	N.A.	750	N.A.	1400	9PS 6017
	16"	3	1092	330	N.A.	N.A.	800	N.A.	1900	9PS 6018
	18"	3	1346	350	N.A.	N.A.	900	N.A.	2500	9PS 6019
	20"	3	1473	370	N.A.	N.A.	1000	N.A.	3400	9PS 6020
	22"	3	1664	415	N.A.	N.A.	1100	N.A.	4700	9PS 6022
24"	3	1943	480	N.A.	N.A.	1200	N.A.	6400	9PS 6024	
<b>ASME 1500</b>	1/2"	1	216	14	N.A.	N.A.	105	N.A.	6	15PS 603
	3/4"	1	229	18	N.A.	N.A.	125	N.A.	10	15PS 604
	1"	1	254	24	N.A.	N.A.	135	N.A.	12	15PS 605
	1-1/2"	1	305	36,6	N.A.	N.A.	155	N.A.	14	15PS 607
	2"	1	368	47	N.A.	N.A.	195	N.A.	28	15PS 608
	3"	2	305	62	N.A.	N.A.	260	N.A.	40	15PS 6010
	4"	2	406	80	N.A.	N.A.	320	N.A.	100	15PS 6011
	6"	3	559	120	N.A.	N.A.	430	N.A.	220	15PS 6013
	8"	3	711	160	N.A.	N.A.	550	N.A.	450	15PS 6014
	10"	3	864	210	N.A.	N.A.	650	N.A.	800	15PS 6015
	12"	3	991	245	N.A.	N.A.	700	N.A.	1200	15PS 6016
	14"	3	1067	260	N.A.	N.A.	750	N.A.	1500	15PS 6017
	16"	3	1194	310	N.A.	N.A.	800	N.A.	2000	15PS 6018
	18"	3	1346	350	N.A.	N.A.	900	N.A.	2600	15PS 6019
	20"	3	1473	370	N.A.	N.A.	1000	N.A.	3500	15PS 6020
	22"	3	1664	415	N.A.	N.A.	1100	N.A.	4800	15PS 6022
24"	3	1943	480	N.A.	N.A.	1200	N.A.	6500	15PS 6024	
<b>ASME 2500</b>	1/2"	1	210	11,5	N.A.	N.A.	145	N.A.	11,5	25PS 603
	3/4"	1	210	15	N.A.	N.A.	150	N.A.	13	25PS 604
	1"	1	230	19,5	N.A.	N.A.	170	N.A.	21	25PS 605
	1-1/2"	1	230	28	N.A.	N.A.	195	N.A.	38	25PS 607
	2"	1	279	38	N.A.	N.A.	210	N.A.	57	25PS 608
	3"	2	368	57	N.A.	N.A.	320	N.A.	80	25PS 6010
	4"	2	457	72	N.A.	N.A.	320	N.A.	100	25PS 6011
	6"	3	610	110	N.A.	N.A.	450	N.A.	420	25PS 6013
	8"	3	762	147	N.A.	N.A.	630	N.A.	900	25PS 6014
	10"	3	914	185	N.A.	N.A.	650	N.A.	1100	25PS 6015
	12"	3	1041	218	N.A.	N.A.	670	N.A.	1500	25PS 6016
	14"	3	1118	241	N.A.	N.A.	700	N.A.	1800	25PS 6017
	16"	3	1245	260	N.A.	N.A.	900	N.A.	2500	25PS 6018
	18"	3	1397	280	N.A.	N.A.	1000	N.A.	3400	25PS 6019
	20"	3	1500	310	N.A.	N.A.	1200	N.A.	5000	25PS 6020
	22"	3	1750	340	N.A.	N.A.	1400	N.A.	7000	25PS 6022
24"	3	2100	370	N.A.	N.A.	1500	N.A.	9500	25PS 6024	

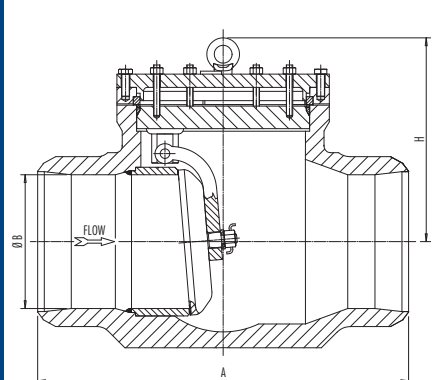
**DESIGN TYPE 1**



**DESIGN TYPE 2**



**DESIGN TYPE 3**

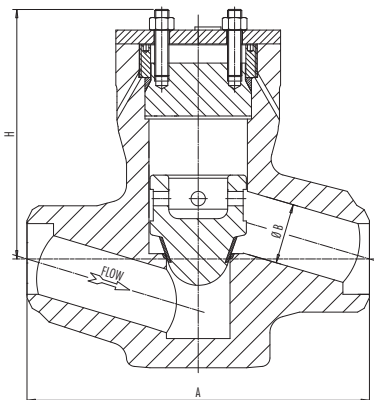




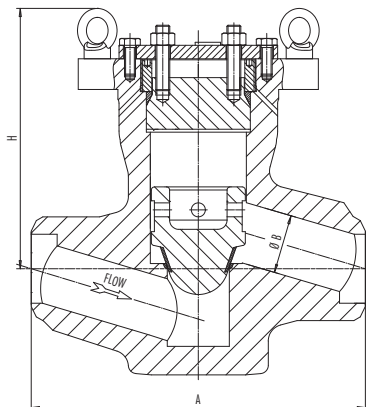
# PRESSURE SEAL PISTON CHECK "T" PATTERN VALVE

PRESSURE RATING DESIGNATION	SIZE	DESIGN TYPE	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]	K [mm]	WEIGHT [Kg]	FIGURE
<b>ASME 900</b>	1/2"	1	216	14	N.A.	N.A.	105	N.A.	6	9PS 403
	3/4"	1	229	18	N.A.	N.A.	125	N.A.	10	9PS 404
	1"	1	254	24	N.A.	N.A.	135	N.A.	12	9PS 405
	1-1/2"	1	305	36.6	N.A.	N.A.	155	N.A.	14	9PS 407
	2"	1	368	47	N.A.	N.A.	195	N.A.	28	9PS 408
	3"	2	305	60	N.A.	N.A.	480	N.A.	40	9PS 4010
	4"	2	356	78	N.A.	N.A.	560	N.A.	95	9PS 4011
	6"	3	508	105	N.A.	N.A.	430	N.A.	215	9PS 4013
	8"	3	660	140	N.A.	N.A.	550	N.A.	440	9PS 4014
	10"	3	787	178	N.A.	N.A.	650	N.A.	700	9PS 4015
	12"	3	914	220	N.A.	N.A.	700	N.A.	1100	9PS 4016
	14"	3	991	235	N.A.	N.A.	750	N.A.	1400	9PS 4017
	16"	3	1194	270	N.A.	N.A.	800	N.A.	1900	9PS 4018
	18"	3	1346	300	N.A.	N.A.	900	N.A.	2500	9PS 4019
	20"	3	1473	335	N.A.	N.A.	1000	N.A.	3400	9PS 4020
	22"	3	1664	370	N.A.	N.A.	1100	N.A.	4700	9PS 4022
24"	3	1943	400	N.A.	N.A.	1200	N.A.	6400	9PS 4024	
<b>ASME 1500</b>	1/2"	1	216	12	N.A.	N.A.	105	N.A.	6	15PS 403
	3/4"	1	229	14.5	N.A.	N.A.	125	N.A.	10	15PS 404
	1"	1	254	19	N.A.	N.A.	135	N.A.	12	15PS 405
	1-1/2"	1	305	31	N.A.	N.A.	155	N.A.	14	15PS 407
	2"	1	368	40	N.A.	N.A.	195	N.A.	28	15PS 408
	3"	2	305	60	N.A.	N.A.	480	N.A.	40	15PS 4010
	4"	2	406	78	N.A.	N.A.	560	N.A.	95	15PS 4011
	6"	3	559	105	N.A.	N.A.	430	N.A.	220	15PS 4013
	8"	3	711	140	N.A.	N.A.	550	N.A.	450	15PS 4014
	10"	3	864	178	N.A.	N.A.	650	N.A.	800	15PS 4015
	12"	3	991	220	N.A.	N.A.	700	N.A.	1200	15PS 4016
	14"	3	1067	235	N.A.	N.A.	750	N.A.	1500	15PS 4017
	16"	3	1194	270	N.A.	N.A.	800	N.A.	2000	15PS 4018
	18"	3	1346	300	N.A.	N.A.	1000	N.A.	3400	15PS 4019
	20"	3	1473	335	N.A.	N.A.	1200	N.A.	5000	15PS 4020
	22"	3	1664	370	N.A.	N.A.	1400	N.A.	7000	15PS 4022
24"	3	1943	400	N.A.	N.A.	1500	N.A.	9500	15PS 4024	
<b>ASME 2500</b>	1/2"	1	264	11	N.A.	N.A.	145	N.A.	11.5	25PS 403
	3/4"	1	273	14.5	N.A.	N.A.	150	N.A.	13	25PS 404
	1"	1	308	19	N.A.	N.A.	170	N.A.	21	25PS 405
	1-1/2"	1	387	28	N.A.	N.A.	195	N.A.	38	25PS 407
	2"	1	451	38	N.A.	N.A.	210	N.A.	57	25PS 408
	3"	2	368	53	N.A.	N.A.	560	N.A.	80	25PS 4010
	4"	2	457	56	N.A.	N.A.	560	N.A.	100	25PS 4011
	6"	3	610	100	N.A.	N.A.	450	N.A.	450	25PS 4013
	8"	3	762	132	N.A.	N.A.	630	N.A.	900	25PS 4014
	10"	3	914	150	N.A.	N.A.	650	N.A.	1100	25PS 4015
	12"	3	1041	184	N.A.	N.A.	650	N.A.	1200	25PS 4016
	14"	3	1118	200	N.A.	N.A.	700	N.A.	1800	25PS 4017
	16"	3	1245	225	N.A.	N.A.	900	N.A.	2500	25PS 4018
	18"	3	1397	250	N.A.	N.A.	1000	N.A.	3400	25PS 4019
	20"	3	1450	280	N.A.	N.A.	1200	N.A.	5000	25PS 4020
	22"	3	1600	305	N.A.	N.A.	1400	N.A.	7000	25PS 4022
24"	3	1800	335	N.A.	N.A.	1500	N.A.	9500	25PS 4024	

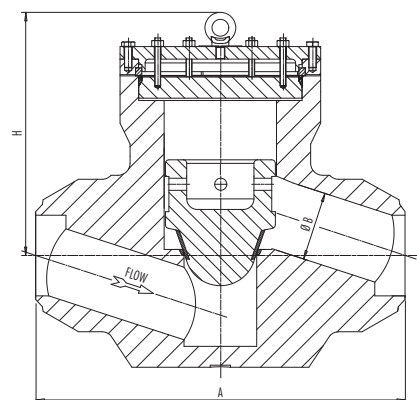
## DESIGN TYPE 1



## DESIGN TYPE 2



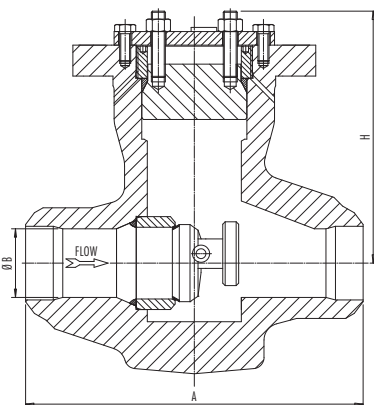
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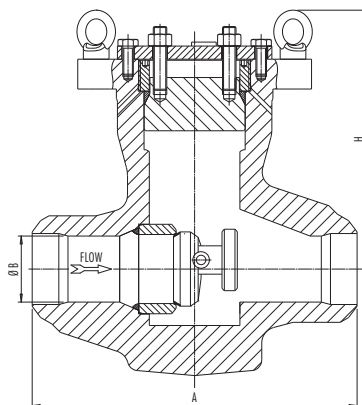
## PRESSURE SEAL TILTING DISC VALVE

PRESSURE RATING DESIGNATION	SIZE	DESIGN TYPE	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]	K [mm]	WEIGHT [Kg]	FIGURE
<b>ASME 900</b>	1/2"	1	216	14	N.A.	N.A.	105	N.A.	6	9PS 603-TILT
	3/4"	1	229	18	N.A.	N.A.	125	N.A.	10	9PS 604-TILT
	1"	1	254	24	N.A.	N.A.	135	N.A.	12	9PS 605-TILT
	1-1/2"	1	305	36,6	N.A.	N.A.	155	N.A.	14	9PS 607-TILT
	2"	1	368	47	N.A.	N.A.	195	N.A.	28	9PS 608-TILT
	3"	2	305	62	N.A.	N.A.	260	N.A.	40	9PS 6010-TILT
	4"	2	356	80	N.A.	N.A.	320	N.A.	95	9PS 6011-TILT
	6"	3	508	120	N.A.	N.A.	430	N.A.	215	9PS 6013-TILT
	8"	3	660	160	N.A.	N.A.	550	N.A.	440	9PS 6014-TILT
	10"	3	787	210	N.A.	N.A.	650	N.A.	700	9PS 6015-TILT
	12"	3	914	245	N.A.	N.A.	700	N.A.	1100	9PS 6016-TILT
	14"	3	991	260	N.A.	N.A.	750	N.A.	1400	9PS 6017-TILT
	16"	3	1092	330	N.A.	N.A.	800	N.A.	1900	9PS 6018-TILT
	18"	3	1346	350	N.A.	N.A.	900	N.A.	2500	9PS 6019-TILT
	20"	3	1473	370	N.A.	N.A.	1000	N.A.	3400	9PS 6020-TILT
	22"	3	1664	415	N.A.	N.A.	1100	N.A.	4700	9PS 6022-TILT
24"	3	1943	480	N.A.	N.A.	1200	N.A.	6400	9PS 6024-TILT	
<b>ASME 1500</b>	1/2"	1	216	14	N.A.	N.A.	105	N.A.	6	15PS 603-TILT
	3/4"	1	229	18	N.A.	N.A.	125	N.A.	10	15PS 604-TILT
	1"	1	254	24	N.A.	N.A.	135	N.A.	12	15PS 605-TILT
	1-1/2"	1	305	36,6	N.A.	N.A.	155	N.A.	14	15PS 607-TILT
	2"	1	368	47	N.A.	N.A.	195	N.A.	28	15PS 608-TILT
	3"	2	305	62	N.A.	N.A.	260	N.A.	40	15PS 6010-TILT
	4"	2	406	80	N.A.	N.A.	320	N.A.	100	15PS 6011-TILT
	6"	3	559	120	N.A.	N.A.	430	N.A.	220	15PS 6013-TILT
	8"	3	711	160	N.A.	N.A.	550	N.A.	450	15PS 6014-TILT
	10"	3	864	210	N.A.	N.A.	650	N.A.	800	15PS 6015-TILT
	12"	3	991	245	N.A.	N.A.	700	N.A.	1200	15PS 6016-TILT
	14"	3	1067	260	N.A.	N.A.	750	N.A.	1500	15PS 6017-TILT
	16"	3	1194	310	N.A.	N.A.	800	N.A.	2000	15PS 6018-TILT
	18"	3	1346	350	N.A.	N.A.	900	N.A.	2600	15PS 6019-TILT
	20"	3	1473	370	N.A.	N.A.	1000	N.A.	3500	15PS 6020-TILT
	22"	3	1664	415	N.A.	N.A.	1100	N.A.	4800	15PS 6022-TILT
24"	3	1943	480	N.A.	N.A.	1200	N.A.	6500	15PS 6024-TILT	
<b>ASME 2500</b>	1/2"	1	210	11,5	N.A.	N.A.	145	N.A.	11,5	25PS 603-TILT
	3/4"	1	210	15	N.A.	N.A.	150	N.A.	13	25PS 604-TILT
	1"	1	230	19,5	N.A.	N.A.	170	N.A.	21	25PS 605-TILT
	1-1/2"	1	230	28	N.A.	N.A.	195	N.A.	38	25PS 607-TILT
	2"	1	279	38	N.A.	N.A.	210	N.A.	57	25PS 608-TILT
	3"	2	368	57	N.A.	N.A.	320	N.A.	80	25PS 6010-TILT
	4"	2	457	72	N.A.	N.A.	320	N.A.	100	25PS 6011-TILT
	6"	3	610	110	N.A.	N.A.	450	N.A.	420	25PS 6013-TILT
	8"	3	762	147	N.A.	N.A.	630	N.A.	900	25PS 6014-TILT
	10"	3	914	185	N.A.	N.A.	650	N.A.	1100	25PS 6015-TILT
	12"	3	1041	218	N.A.	N.A.	670	N.A.	1500	25PS 6016-TILT
	14"	3	1118	241	N.A.	N.A.	700	N.A.	1800	25PS 6017-TILT
	16"	3	1245	260	N.A.	N.A.	900	N.A.	2500	25PS 6018-TILT
	18"	3	1397	280	N.A.	N.A.	1000	N.A.	3400	25PS 6019-TILT
	20"	3	1500	310	N.A.	N.A.	1200	N.A.	5000	25PS 6020-TILT
	22"	3	1750	340	N.A.	N.A.	1400	N.A.	7000	25PS 6022-TILT
24"	3	2100	370	N.A.	N.A.	1500	N.A.	9500	25PS 6024-TILT	

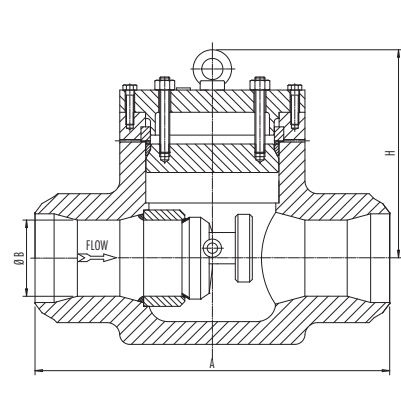
**DESIGN TYPE 1**



**DESIGN TYPE 2**



**DESIGN TYPE 3**



# PRESSURE SEAL GLOBE "Y" PATTERN VALVE

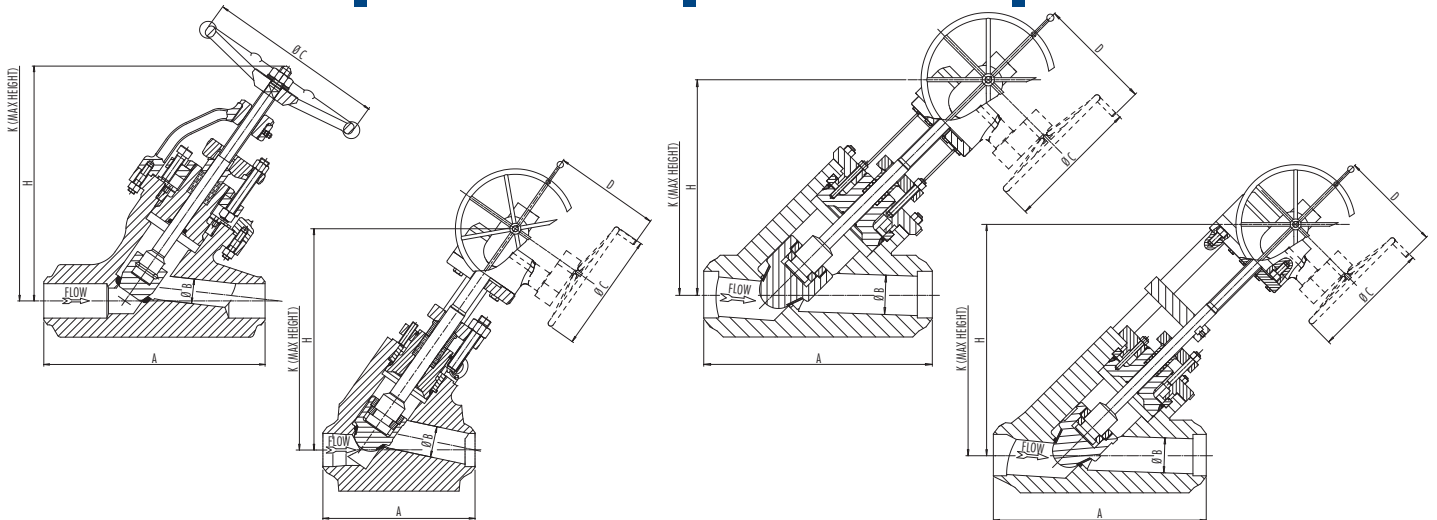
PRESSURE RATING DESIGNATION	SIZE	DESIGN TYPE	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]	K [mm]	WEIGHT [Kg]	FIGURE
<b>ASME 900</b>	1/2"	1	216	14	97	N.A.	147	191	6	9PSY 303
	3/4"	1	229	18	138	N.A.	168	218	10	9PSY 304
	1"	1	254	24	138	N.A.	185	240	12	9PSY 305
	1-1/2"	1	305	36.6	172	N.A.	241	313	14	9PSY 307
	2"	1	368	47	234	N.A.	280	364	28	9PSY 308
	3"	2	305	60	400	310	350	500	150	9PSY 3010
	4"	2	356	78	600	390	430	620	350	9PSY 3011
	6"	3	508	105	600	410	650	1000	600	9PSY 3013
	8"	3	660	140	600	550	850	1180	870	9PSY 3014
	10"	4	864	178	600	550	1200	1550	1900	9PSY 3015
	12"	4	991	220	600	550	1250	1650	2600	9PSY 3016
	14"	4	1067	235	600	650	1380	1900	3120	9PSY 3017
	16"	4	1194	270	600	750	1530	1955	3560	9PSY 3018
	18"	4	1346	300	600	750	1550	2015	4040	9PSY 3019
	20"	4	1473	335	600	1000	1725	2185	5600	9PSY 3020
	22"	4	1550	370	600	1000	1900	2415	8000	9PSY 3022
24"	4	1650	400	600	1200	2185	2680	12000	9PSY 3024	
<b>ASME 1500</b>	1/2"	1	216	12	97	N.A.	163	211	6	15PSY 303
	3/4"	1	229	14.5	138	N.A.	175	227	10	15PSY 304
	1"	1	254	19	138	N.A.	175	227	12	15PSY 305
	1-1/2"	1	305	31	172	N.A.	255	331	14	15PSY 307
	2"	1	368	40	234	N.A.	301	391	28	15PSY 308
	3"	2	305	60	400	310	350	500	150	15PSY 3010
	4"	2	406	78	600	390	430	620	400	15PSY 3011
	6"	3	559	105	600	410	650	1000	630	15PSY 3013
	8"	3	711	140	600	550	850	1180	900	15PSY 3014
	10"	4	864	178	600	550	1200	1550	1900	15PSY 3015
	12"	4	991	220	600	550	1250	1650	2600	15PSY 3016
	14"	4	1067	235	600	650	1380	1900	3120	15PSY 3017
	16"	4	1194	270	600	750	1530	1955	3560	15PSY 3018
	18"	4	1346	300	600	750	1550	2015	4040	15PSY 3019
	20"	4	1473	335	600	1000	1725	2185	5600	15PSY 3020
	22"	4	1550	370	600	1000	1900	2415	8000	15PSY 3022
24"	4	1650	400	600	1200	2185	2680	12000	15PSY 3024	
<b>ASME 2500</b>	1/2"	1	264	11	138	N.A.	224	291	11.5	25PSY 303
	3/4"	1	273	14.5	138	N.A.	227	295	13	25PSY 304
	1"	1	308	19	172	N.A.	252	327	21	25PSY 305
	1-1/2"	1	387	28	234	N.A.	315	409	38	25PSY 307
	2"	1	451	38	234	N.A.	325	422	57	25PSY 308
	3"	2	368	53	400	340	400	600	320	25PSY 3010
	4"	2	457	56	600	390	500	720	400	25PSY 3011
	6"	3	610	100	600	550	850	1150	900	25PSY 3013
	8"	4	762	132	600	450	810	1150	1500	25PSY 3014
	10"	4	914	150	600	550	1000	1400	2300	25PSY 3015
	12"	4	1041	184	600	550	1150	1550	3000	25PSY 3016
	14"	4	1118	200	600	650	1200	1650	3900	25PSY 3017
	16"	4	1245	225	600	750	1329	1700	4450	25PSY 3018
	18"	4	1397	250	600	750	1350	1750	5050	25PSY 3019
	20"	4	1450	280	600	1000	1500	1900	7000	25PSY 3020
	22"	4	1600	305	600	1000	1650	2100	10000	25PSY 3022
24"	4	1800	335	600	1200	1900	2330	15000	25PSY 3024	

## DESIGN TYPE 1

## DESIGN TYPE 2

## DESIGN TYPE 3

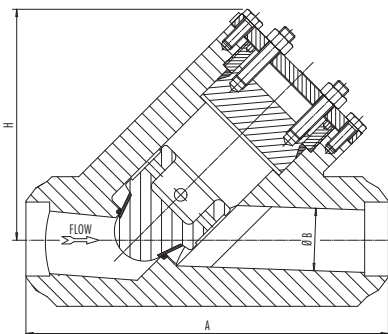
## DESIGN TYPE 4



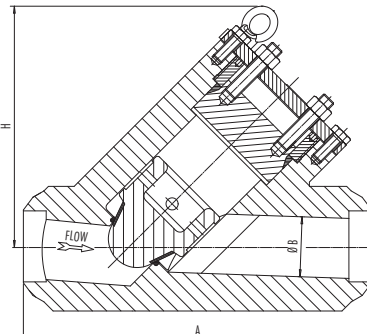
# PRESSURE SEAL PISTON CHECK "Y" PATTERN VALVE

PRESSURE RATING DESIGNATION	SIZE	DESIGN TYPE	A [mm]	B [mm]	C [mm]	D [mm]	H [mm]	K [mm]	WEIGHT [Kg]	FIGURE
<b>ASME 900</b>	1/2"	1	216	14	N.A.	N.A.	105	N.A.	6	9PSY 403
	3/4"	1	229	18	N.A.	N.A.	125	N.A.	10	9PSY 404
	1"	1	254	24	N.A.	N.A.	135	N.A.	12	9PSY 405
	1-1/2"	1	305	36.6	N.A.	N.A.	155	N.A.	14	9PSY 407
	2"	1	368	47	N.A.	N.A.	195	N.A.	28	9PSY 408
	3"	2	305	60	N.A.	N.A.	300	N.A.	150	9PSY 4010
	4"	2	356	78	N.A.	N.A.	320	N.A.	210	9PSY 4011
	6"	3	559	105	N.A.	N.A.	390	N.A.	265	9PSY 4013
	8"	3	711	140	N.A.	N.A.	500	N.A.	540	9PSY 4014
	10"	3	864	178	N.A.	N.A.	590	N.A.	960	9PSY 4015
	12"	3	991	220	N.A.	N.A.	640	N.A.	1440	9PSY 4016
	14"	3	1067	235	N.A.	N.A.	680	N.A.	1800	9PSY 4017
	16"	3	1194	270	N.A.	N.A.	730	N.A.	2400	9PSY 4018
	18"	3	1346	300	N.A.	N.A.	820	N.A.	3120	9PSY 4019
	20"	3	1473	335	N.A.	N.A.	910	N.A.	4200	9PSY 4020
	22"	3	1664	370	N.A.	N.A.	1000	N.A.	5760	9PSY 4022
24"	3	1943	400	N.A.	N.A.	1090	N.A.	7800	9PSY 4024	
<b>ASME 1500</b>	1/2"	1	216	12	N.A.	N.A.	105	N.A.	6	15PSY 403
	3/4"	1	229	14.5	N.A.	N.A.	125	N.A.	10	15PSY 404
	1"	1	254	19	N.A.	N.A.	135	N.A.	12	15PSY 405
	1-1/2"	1	305	31	N.A.	N.A.	155	N.A.	14	15PSY 407
	2"	1	368	40	N.A.	N.A.	195	N.A.	28	15PSY 408
	3"	2	305	60	N.A.	N.A.	300	N.A.	150	15PSY 4010
	4"	2	406	78	N.A.	N.A.	320	N.A.	220	15PSY 4011
	6"	3	559	105	N.A.	N.A.	390	N.A.	265	15PSY 4013
	8"	3	711	140	N.A.	N.A.	500	N.A.	540	15PSY 4014
	10"	3	864	178	N.A.	N.A.	590	N.A.	960	15PSY 4015
	12"	3	991	220	N.A.	N.A.	640	N.A.	1440	15PSY 4016
	14"	3	1067	235	N.A.	N.A.	680	N.A.	1800	15PSY 4017
	16"	3	1194	270	N.A.	N.A.	730	N.A.	2400	15PSY 4018
	18"	3	1346	300	N.A.	N.A.	820	N.A.	3120	15PSY 4019
	20"	3	1473	335	N.A.	N.A.	910	N.A.	4200	15PSY 4020
	22"	3	1664	370	N.A.	N.A.	1000	N.A.	5760	15PSY 4022
24"	3	1943	400	N.A.	N.A.	1090	N.A.	7800	15PSY 4024	
<b>ASME 2500</b>	1/2"	1	264	11	N.A.	N.A.	145	N.A.	11.5	25PSY 403
	3/4"	1	273	14.5	N.A.	N.A.	150	N.A.	13	25PSY 404
	1"	1	308	19	N.A.	N.A.	170	N.A.	21	25PSY 405
	1-1/2"	1	387	28	N.A.	N.A.	195	N.A.	38	25PSY 407
	2"	1	451	38	N.A.	N.A.	210	N.A.	57	25PSY 408
	3"	2	368	53	N.A.	N.A.	330	N.A.	200	25PSY 4010
	4"	2	457	56	N.A.	N.A.	350	N.A.	270	25PSY 4011
	6"	3	610	100	N.A.	N.A.	430	N.A.	505	25PSY 4013
	8"	3	762	132	N.A.	N.A.	575	N.A.	1080	25PSY 4014
	10"	3	914	150	N.A.	N.A.	590	N.A.	1320	25PSY 4015
	12"	3	1041	184	N.A.	N.A.	590	N.A.	1440	25PSY 4016
	14"	3	1118	200	N.A.	N.A.	640	N.A.	1920	25PSY 4017
	16"	3	1245	225	N.A.	N.A.	820	N.A.	3000	25PSY 4018
	18"	3	1397	250	N.A.	N.A.	910	N.A.	4080	25PSY 4019
	20"	3	1450	280	N.A.	N.A.	1090	N.A.	6000	25PSY 4020
	22"	3	1600	305	N.A.	N.A.	1275	N.A.	8400	25PSY 4022
24"	3	1800	335	N.A.	N.A.	1365	N.A.	11400	25PSY 4024	

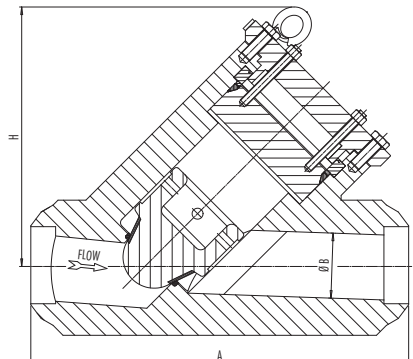
**DESIGN TYPE 1**



**DESIGN TYPE 2**



**DESIGN TYPE 3**



# GENERAL SALE CONDITIONS

## QUOTATION VALIDITY

Unless otherwise agreed, quotations are valid for four weeks from date of issue.

The delivery terms are always "ex-works" unless otherwise stated.

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