



PISTON VALVES

YVN - YVNB
YVMN - YVSN

2020 - 01

YAKACIK VALF having long term experience on elastic sealing systems, designed piston valve by long term research activities. Lots of YAKACIK piston valves were used and are still in use in Turkey and all around the world. Main application areas are vapor, steam, water, heat transfer oils, high temperature hot water, thermal oil, chemical industry using corrosive fluids and food industry. YAKACIK realized the idea of replacing seat and plug with elastic sealing rings and cylindrical piston in globe valves. Our aim is to ensure customer satisfaction by manufacturing valves meeting expectations based on international standards and legal regulations.

Application Examples



YAKACIK piston valves can be used to control the flow of almost all kinds of fluids. YAKACIK VALF offers the optimum solutions. Valve body material may be cast iron, ductile iron, cast steel and stainless steel with appropriate sealing rings.



YAKACIK

Piston Valves

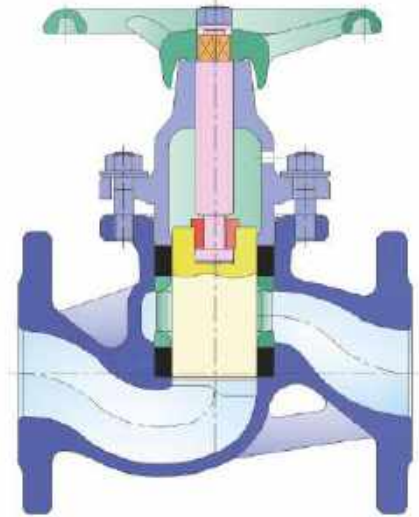


YAKACIK Piston Valves have two important components: fine ground cylindrical piston made of stainless steel and elastic valve rings. Suitable ring materials are used for almost all kinds of fluids. Elastic upper lower rings compress the piston with the required tightness. Thrust is provided by tightening the bonnet nuts. It is transmitted from upper ring to lower ring via lantern bushing. Axial thrust is converted to radial pressure by compressing the elastic rings. The compressed rings enable an outstanding leaktightness. the lower ring is leakproof across the ports, the upper ring is leakproof to atmosphere. At fully open or fully closed position, since there is no contact between the cylindrical piston surface and the fluid; abrasion does not take place

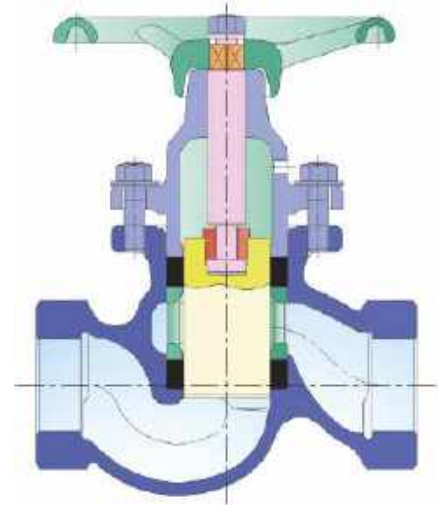
Advantages

- Asbestos free
- Energy efficient
- Maintenance free
- Exceptional leaktightness across the ports and to atmosphere
- Abrasionproof sealing surface
- Valve rings are replaceable in the pipeline
- Excellent control characteristics
- Fire safe is tested according to ISO 10497 / API 607
- TUV certified
- Suitable for oxygen line
- Economic, easy to service
- Conforms to German TA Luft and USA EPA

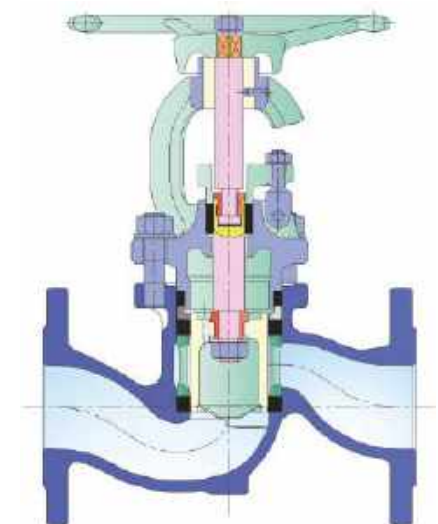
YVN 15-50



YVMN 1/4"-2" and YVSN 1/4"-2"



YVNB 65-200



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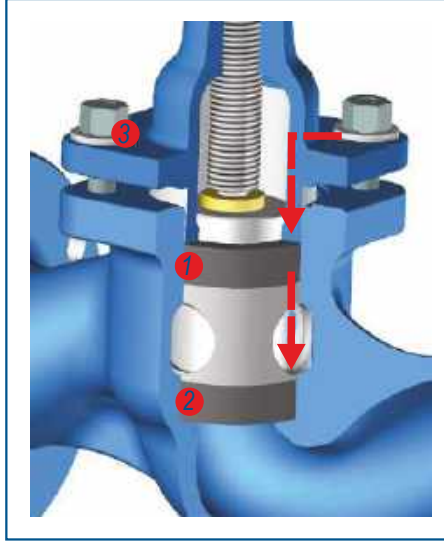
Sealing System

- Sealing system in the piston valve is enabled by a stainless steel piston and a couple of special elastic rings which surround the piston tightly.
- Sealing surface is the side surface of the piston. While upper ring provides sealing to atmosphere (outside), lower ring provides tightness in the line (inside).
- Leakproofing is provided by tightness in the bonnet nuts acting axially to upper ring. The thrust is transmitted from upper ring to lower ring via lantern bushing. Special elastic rings are thereby compressed and transform this thrust into a radially acting pressure on the piston.
- Elastic rings, being supported against the wall of the valve body, surround the cylindrical piston surface thereby result in an outstanding sealing.



- The piston valves of model YVN 15 to 50 have the same sealing system. There is no stuffing box with the ring.
- The balanced piston valves of model YVNB 65 to 200, have stuffing box with the ring. Easy operation is enabled thanks to pressure balance across the piston.
- Ring replacement takes short time, there is no need for difficult mechanical processes like seat grinding etc. for YAKACIK piston valves. A new valve is obtained just by replacing sealing rings. Since they are supported by stainless steel plate, rings have long service life.

Piston Valve Working Principle



1. YX-GT upper ring
2. YX-GT lower ring
3. Belleville washer

- Layers of YX-GT rings press radially on the sealing surface of the piston
- Belleville washers compensate the pressure and temperature changes. Thereby, a spontaneous and permanent sealing is provided by itself.

Is not affected by unexpected materials flowing in the fluid.
No corrosion on the leakproofing surface.

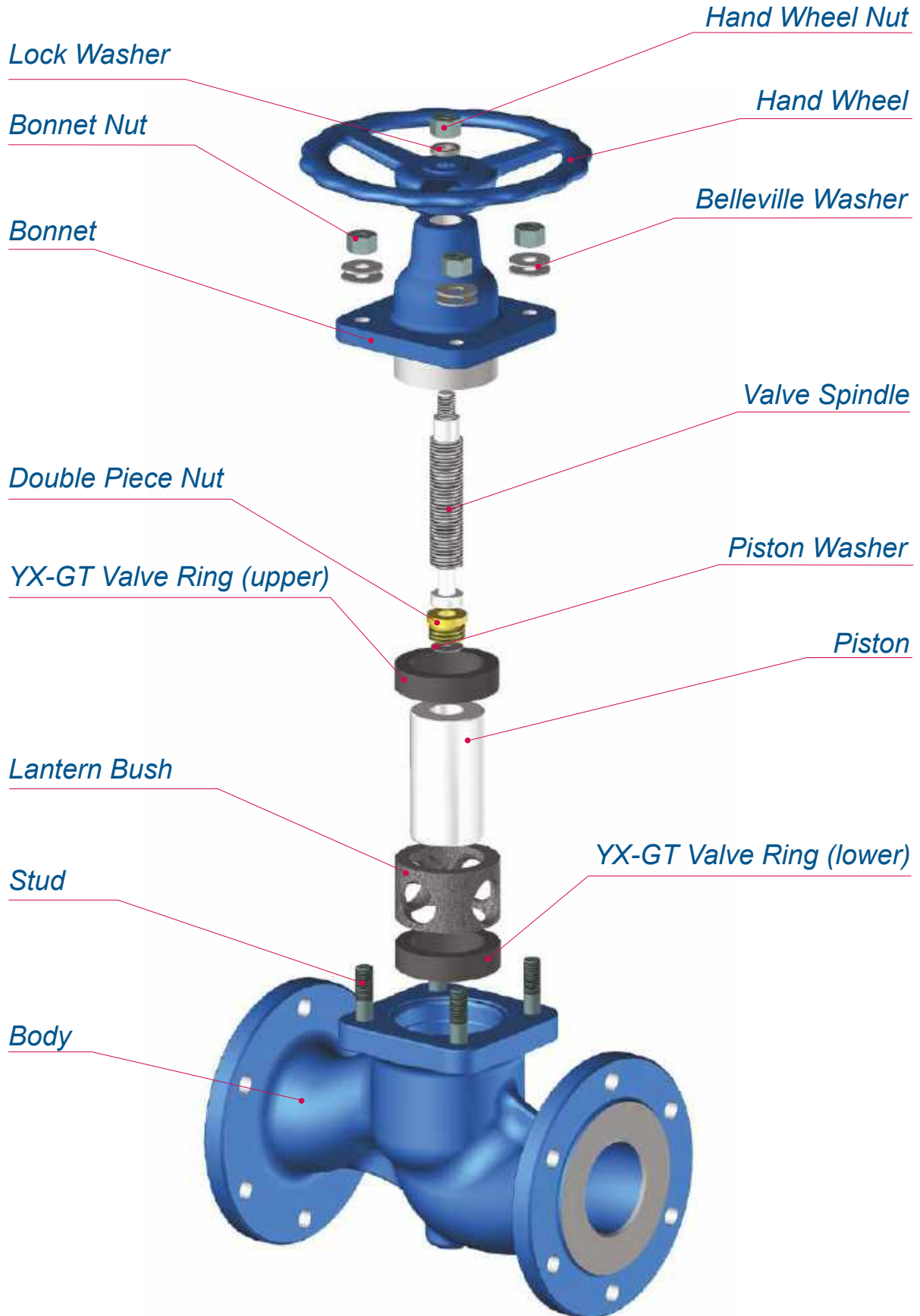
- There is no direct contact of the piston surface and the fluid. Therefore, there is no corrosion risk for the sealing surfaces. Only the bottom surface of the piston gets into contact with the fluid. This part is not related to the sealing performance.
- Unexpected materials in the medium do not harm a piston valve. When the valve is being shut and the piston enters the lower ring, it sweeps out any particles of sand, welding globules and other impurities existing in the medium. The possibility of damage to the sealing system by abrasive matter existing in the fluid; a well-known problem with seat valves, is eliminated with the piston valves. Fibrous and contaminated media can be reliably shut off without trouble.

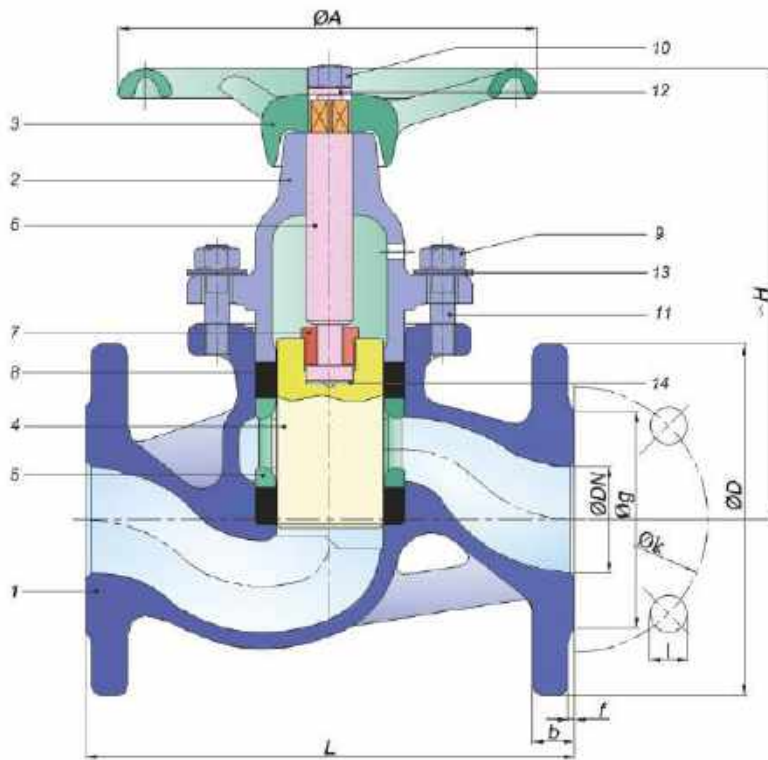


No environmental contamination
Saves energy

- YAKACIK piston valves, providing an outstanding leaktightness across both to atmosphere and to line, prevent environmental contamination. Toxic fluids remain in the piping system and are not allowed to diffuse into atmosphere.
- Piston valves save energy via preventing leakage of steam and other power transfer fluids to atmosphere.

Piston Valve YVN 15-50





Piston Valves

DN 15 - 50

Type: YVN Flanged

Material Type	Cast Iron	Ductile Iron	Cast Steel	Stainless Steel
Size	DN15-50	DN15-50	DN15-50	DN15-50
Pressure Class	PN16	PN25	PN40	PN40
Dimensions	DIN EN 558/1.serie	DIN EN 558/1.serie	DIN EN 558/1.serie	DIN EN 558/1.serie
Assembly	Flanged according to DIN EN 1092-2	Flanged according to DIN EN 1092-2	Flanged according to DIN EN 1092-1	Flanged according to DIN EN 1092-1
Temperature	-10°C +300 °C	-10°C +350 °C	-10°C * +400°C	-10°C * +400°C
Material Code	2	8	7	9
Order Code	YPG.2F__00	YPG.8F__00	YPG.7F__00	YPG.9F__00

Fluid Types

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

P.No	Part Name	Cast Iron	Ductile Iron	Cast Steel	St. Steel	St. Steel
1	Body	GJL 250	0.7040	1.0619	1.4308	1.4408
2	Upper Bonnet	GJL 250 ****	0.7040 ****	1.0619 ****	1.4308	1.4408
3	Hand Wheel	GJL 200	GJL 200	GJL 200	GJL 200	GJL 200
4	Piston	1.4021	1.4021	1.4021	1.4301	1.4401
5	Lantern Bush	GJL 200 + Phosphate	GJL 200 + Phosphate	GJL 200 + Phosphate	1.4308***	1.4408***
6	Valve Spindle	1.4021/St-42	1.4021/St-42	1.4021/St-42	1.4301	1.4401
7	Double Piece Nut	Ms-58	Ms-58	Ms-58	1.4301	1.4401
8	Valve Ring	Graphite	Graphite	Graphite	Graphite	Graphite
9	Nut	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
10	Nut	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
11	Stud	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
12	Lock Washer	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
13	Belleville Washer	50CrV4	50CrV4	50CrV4	A2-70	A2-70
14	Piston Washer	Ms-58	Ms-58	Ms-58	1.4301	1.4301

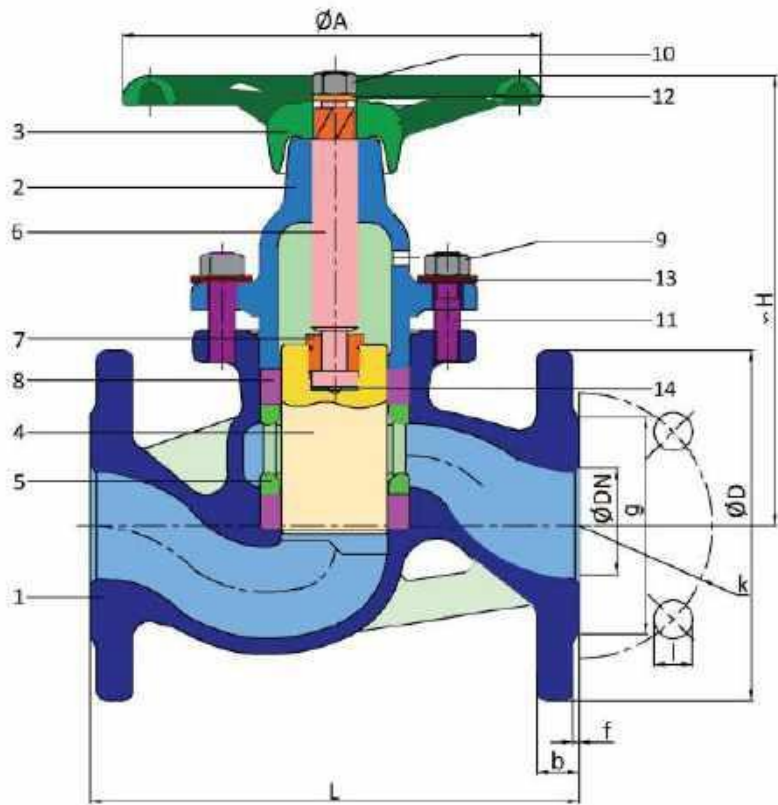
DN			Dimensions			Assembly size												
mm	inch	Type	L	H	A	D	g	Hole Nr.	k	PN16			PN25			PN40		
										b	f	l	b	f	l	b	f	l
15	1/2"	YVN 15	130	105	100	95	45	4	65	14	2	14	16	2	14	16	2	14
20	3/4"	YVN 20	150	120	120	105	58	4	75	16	2	14	18	2	14	18	2	14
25	1"	YVN 25	160	138	140	115	68	4	85	16	2	14	18	3	14	18	2	14
32	1 1/4"	YVN 32	180	154	160	140	78	4	100	18	2	19	18	3	19	18	2	18
40	1 1/2"	YVN 40	200	186	180	150	88	4	110	18	3	19	18	3	19	18	2	18
50	2"	YVN 50	230	211	200	165	102	4	125	20	3	19	20	3	19	20	2	18

* For temperatures below -10°C, stud and nut material should be stainless steel

***1.4401 for DN15 and DN20

**** Ck22 for DN15 and DN20

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Piston Valve

DN 15 - 50

Type: YVN Flanged

Pressure: Class 150

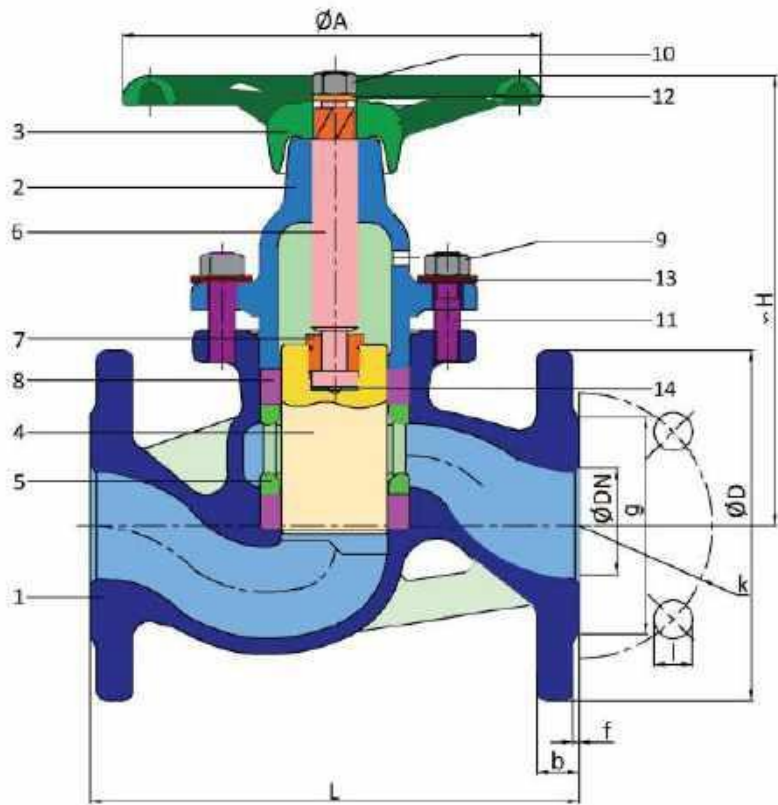
Material Type	Cast Steel	St. Steel - CF8	St. Steel - CF8M
Size	DN 15-50	DN 15-50	DN 15-50
Pressure Class	Class 150	Class 150	Class 150
Dimensions	ASME B16.10	ASME B16.10	ASME B16.10
Assembly	ASME B16.5 - RF	ASME B16.5 - RF	ASME B16.5 - RF
Temperature	-29°C +400°C	-29°C +400°C	-29°C +400°C
Material Code	7	6	9
Order Code	YPG.7F.____	YPG.6F.____	YPG.9F.____

Fluid Types:

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

P.No	Piece Name	Cast Steel	St. Steel - CF8	St. Steel - CF8M
1	Body	A-216 Grade WCB	A-351-CF8	A-351-CF8M
2	Bonnet	A-216 Grade WCB	A-351-CF8	A-351-CF8M
3	Hand Wheel	GJL 200	GJL 200	GJL 200
4	Piston	AISI 420	AISI 304	AISI 316
5	Lantern Bush	GJL 200 + Phosphate	A-351-CF8	A-351-CF8M
6	Spindle	AISI 420/St-42	AISI 304	AISI 316
7	Split Nut	Ms-58	AISI 304	AISI 316
8	Sealing Ring	Graphite	Graphite	Graphite
9	Nut	8.8+Gal.	A2-70	A2-70
10	Nut	8.8+Gal.	A2-70	A2-70
11	Stud Bolt	8.8+Gal.	A2-70	A2-70
12	Lock Washer	8.8+Gal.	A2-70	A2-70
13	Belleville Washer	50CrV4	A2-70	A2-70
14	Piston Washer	Ms-58	AISI 304	AISI 304

Sizes	inch	Type	L	H	A	D	g	f	Hole Nr.	l	k	b
15	1/2"	YVN 15	108	105	100	90	34.9	2.0	4	15.9	60.3	11.6
20	3/4"	YVN 20	117	120	120	100	42.9	2.0	4	15.9	69.9	13.2
25	1"	YVN 25	127	138	140	110	50.8	2.0	4	15.9	79.4	14.7
40	1 1/2"	YVN 40	165	186	180	125	73	2.0	4	15.9	98.4	17.9
50	2"	YVN 50	203	211	200	150	92.1	2.0	4	19.1	120.7	19.5



Piston Valve

DN 15 - 50

Type: YVN Flanged

Pressure: Class 300

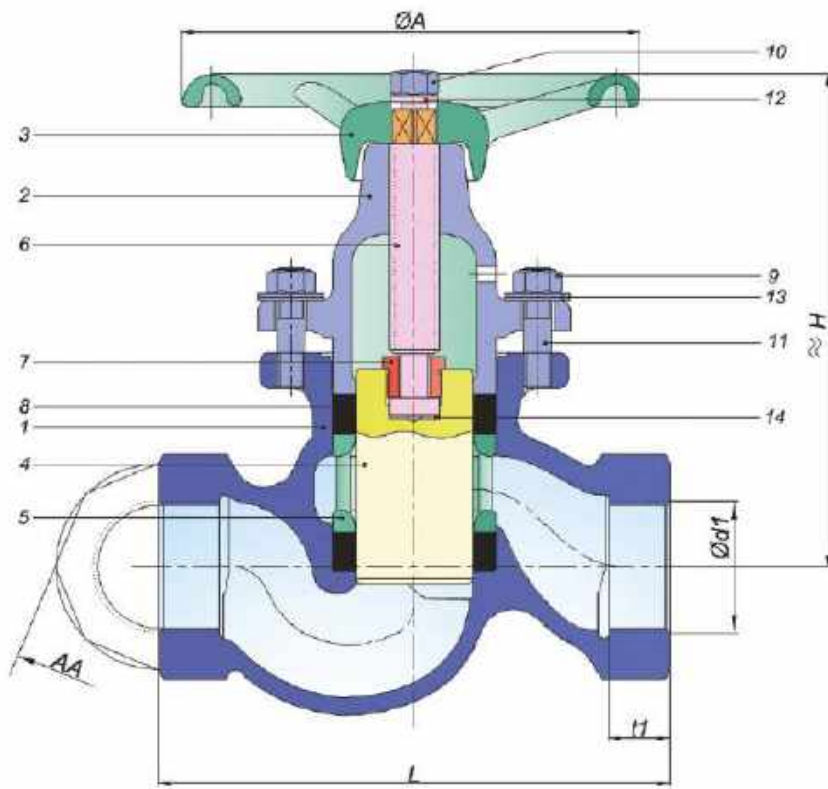
Material Type	Cast Steel	St. Steel - CF8	St. Steel - CF8M
Size	DN 15-50	DN 15-50	DN 15-50
Pressure Class	Class 300	Class 300	Class 300
Dimensions	ASME B16.10	ASME B16.10	ASME B16.10
Assembly	ASME B16.5 - RF	ASME B16.5 - RF	ASME B16.5 - RF
Temperature	-29°C +400°C	-29°C +400°C	-29°C +400°C
Material Code	7	6	9
Order Code	YPG.7F.____	YPG.6F.____	YPG.9F.____

Fluid Types:

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

P.No	Piece Name	Cast Steel	St. Steel - CF8	St. Steel - CF8M
1	Body	A-216 Grade WCB	A-351-CF8	A-351-CF8M
2	Bonnet	A-216 Grade WCB	A-351-CF8	A-351-CF8M
3	Hand Wheel	GJL 200	GJL 200	GJL 200
4	Piston	AISI 420	AISI 304	AISI 316
5	Lantern Bush	GJL 200 + Phosphate	A-351-CF8	A-351-CF8M
6	Spindle	AISI 420/St-42	AISI 304	AISI 316
7	Split Nut	Ms-58	AISI 304	AISI 316
8	Sealing Ring	Graphite	Graphite	Graphite
9	Nut	8.8+Gal.	A2-70	A2-70
10	Nut	8.8+Gal.	A2-70	A2-70
11	Stud Bolt	8.8+Gal.	A2-70	A2-70
12	Lock Washer	8.8+Gal.	A2-70	A2-70
13	Belleville Washer	50CrV4	A2-70	A2-70
14	Piston Washer	Ms-58	AISI 304	AISI 304

Sizes	inch	Type	L	H	A	D	g	f	Hole Nr.	l	k	b
15	1/2"	YVN 15	152	105	100	95	34.9	2.0	4	15.9	66.7	14.7
20	3/4"	YVN 20	178	120	120	115	42.9	2.0	4	19.1	82.6	16.3
25	1"	YVN 25	203	138	140	125	50.8	2.0	4	19.1	88.9	17.9
40	1 1/2"	YVN 40	229	186	180	155	73.0	2.0	4	22.2	114.3	21.1
50	2"	YVN 50	267	211	200	165	92.1	2.0	8	19.1	127.0	22.7



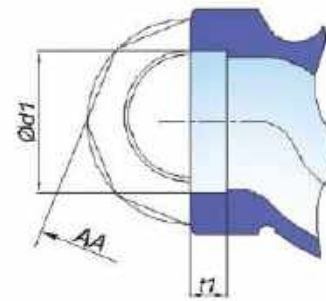
Threaded Type-YVMN

Piston Valves

DN 1/2"-2"

Type: YVMN Threaded

YVSN Socket Weld

Socket type – YVSN
(For steel and stainless steel)

Material Type	Cast Iron	Ductile Iron	Cast Steel	Stainless Steel
Size	DN1/4"-2"	DN1/4"-2"	DN1/4"-2"	DN1/4"-2"
Pressure Class	PN16	PN25	PN40 DN 1/4"-2" PN63 DN 1/4"-1"	PN40 DN 1/4"-2" PN63 DN 1/4"-1"
Dimensions	DIN EN 3202-4/M9 (Except DN 1/4")	DIN EN 3202-4/M9 (Except DN 1/4")	DIN EN 3202-4/M9 (Except DN 1/4")	DIN EN 3202-4/M9 (Except DN 1/4")
Assembly (Threaded)	Threaded according to DIN EN ISO 228-1	Threaded according to DIN EN ISO 228-1	Threaded according to DIN EN ISO 228-1	Threaded according to DIN EN ISO 228-1
Assembly (Socket)	—	—	Socketed according to DIN EN 12760*****	Socketed according to DIN EN 12760*****
Temperature	-10°C +300 °C	-10°C +350 °C	-10°C * +400 °C	-10°C * +400 °C
Material Code	2	8	7	9
Order Code (Threaded)	YPG.2M.__.00	YPG.8M.__.00	YPG.7M.__.00	YPG.9M.__.00
Order Code (Socket)	—	—	YPG.7S.__.00	YPG.9S.__.00

Fluid Types

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

P.No	Part Name	Cast Iron	Ductile Iron	Cast Steel	St. Steel	St. Steel
1	Body	GJL 250	0.7040	1.0619	1.4308	1.4408
2	Upper Bonnet	GJL 250 ****	0.7040	1.0619 ****	1.4308	1.4408
3	Hand Wheel	GJL 200	GJL 200	GJL 200	GJL 200	GJL 200
4	Piston	1.4021	1.4021	1.4021	1.4301	1.4401
5	Lantern Bush	GJL 200 + Phosphate	GJL 200 + Phosphate	GJL 200 + Phosphate	1.4308***	1.4408***
6	Valve Spindle	1.4021/St-42	1.4021/St-42	1.4021/St-42	1.4301	1.4401
7	Double Piece Nut	Ms-58	Ms-58	Ms-58	1.4301	1.4401
8	Valve Ring	Graphite	Graphite	Graphite	Graphite	Graphite
9	Nut	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
10	Nut	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
11	Stud	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
12	Lock Washer	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
13	Belleville Washer	50CrV4	50CrV4	50CrV4	A2-70	A2-70
14	Piston Washer	Ms-58	Ms-58	Ms-58	1.4301	1.4301

DN			Dimensions			Assembly				
mm	inch	Type	L	H	A	d1		t1		AA
						Threaded	Socket	Threaded	Socket	
6	1/4"	YVMN 1/4"	85	105	100	R 1/4"	Max:11.15 Min:10.65	10.5	10	32
		YVSN 1/4"								
10	3/8"	YVMN 3/8"	85	105	100	R 3/8"	Max:18.05 Min:17.55	12.5	10	32
		YVSN 3/8"								
15	1/2"	YVMN 1/2"	100	105	100	R 1/2"	Max:22.20 Min:21.70	15.5	10	36
20	3/4"	YVMN 3/4"	120	120	120	R 3/4"	Max:27.55 Min:27.05	16	13	41
		YVSN 3/4"								
25	1"	YVMN 1"	135	138	140	R 1"	Max:34.30 Min:33.80	19	13	50
32	1 1/4"	YVMN 1 1/4"	160	154	160	R 1 1/4"	Max:43.05 Min:42.55	21	13	65
		YVSN 1 1/4"								
40	1 1/2"	YVMN 1 1/2"	185	186	180	R 1 1/2"	Max:49.15 Min:48.65	21	13	75
50	2"	YVMN 2"	220	211	200	R 2"	Max:61.60 Min:61.10	26	16	90
		YVSN 2"								

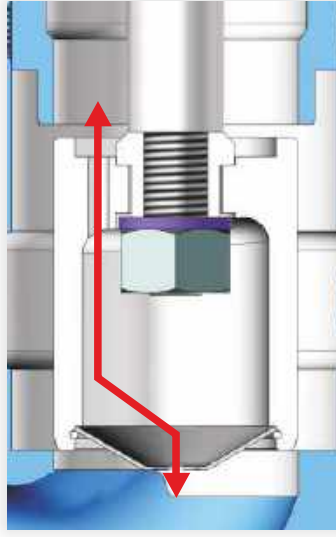
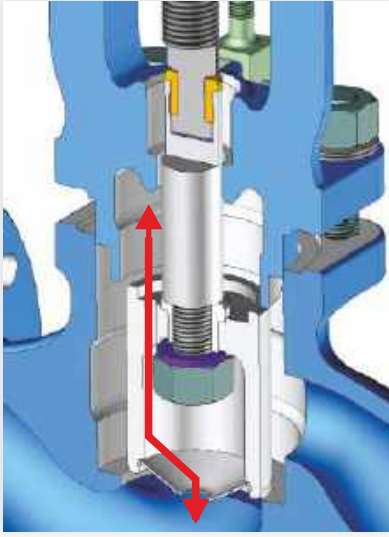
* For temperatures below -10°C, stud and nut material should be stainless steel

***1.4401 for DN15 and DN20

**** Ck22 for DN15 and DN20

*****NPT Threaded type is available according to ANSI 2.1 1960 on demand

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■ Easy to operate:

For balanced piston valves, top and bottom surfaces of the piston are in contact with fluid. In balance piston valves, the force applied by the fluid to the piston is determined by the valve shaft, not the piston. This keeps the fluid load on the piston at a low level, making it easy to open / close.



Sealing System

① Spindle Sealing

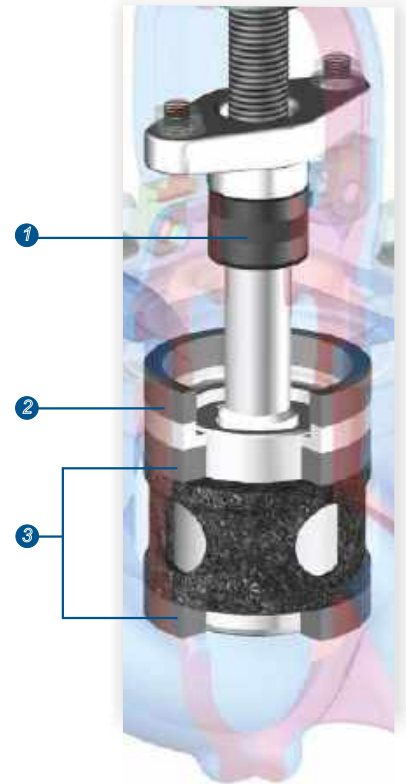
The sealing between spindle and atmosphere is provided by stuffing box composed of 3 pieces of YX-GT rings.

② Body Sealing

The sealing between body and atmosphere is provided by 1 piece of YX-GT ring located between body and bonnet.

③ Inner Sealing

The inner sealing is provided by 2 pieces of specially manufactured YX-GT rings surrounding the piston elastically.

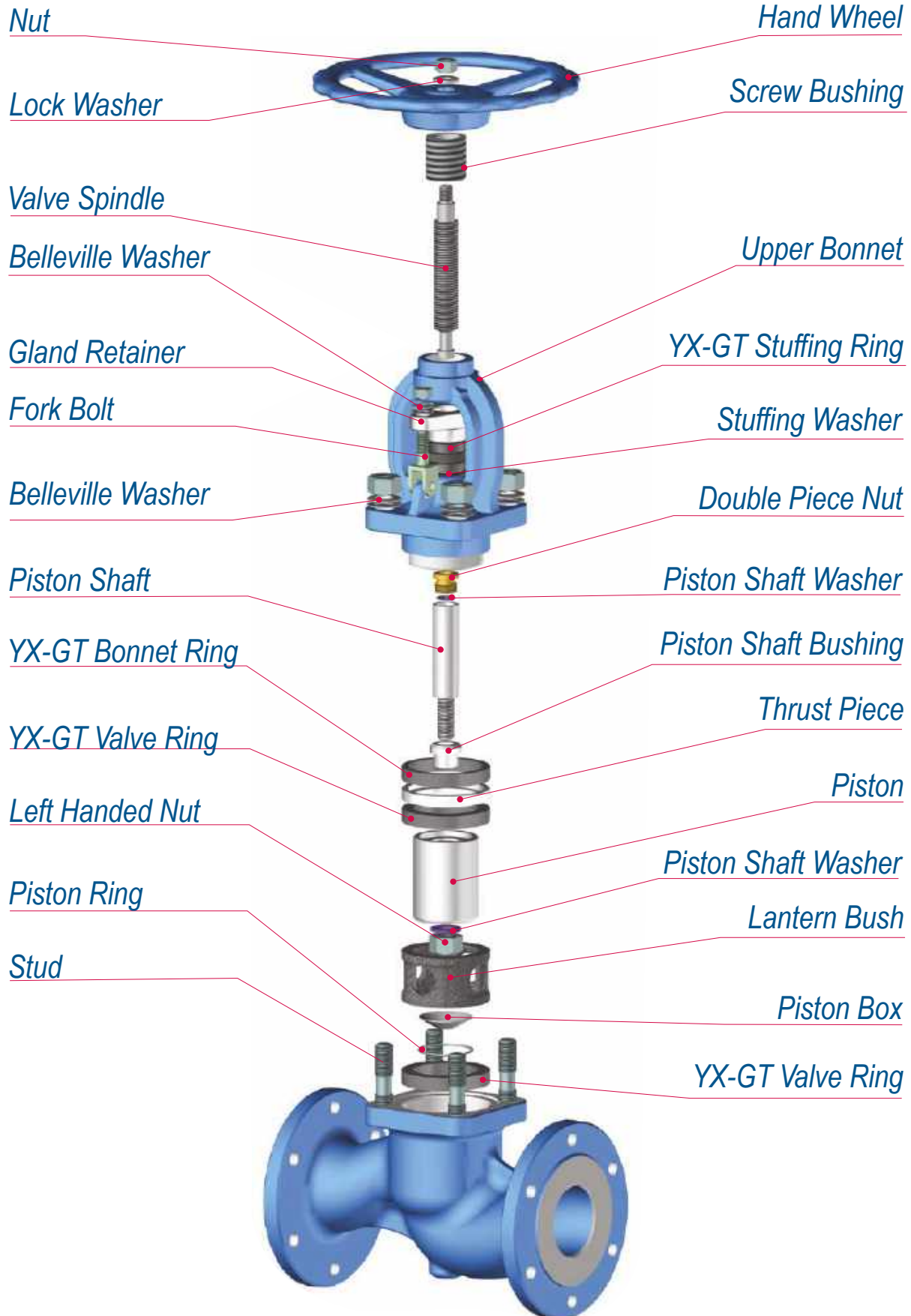


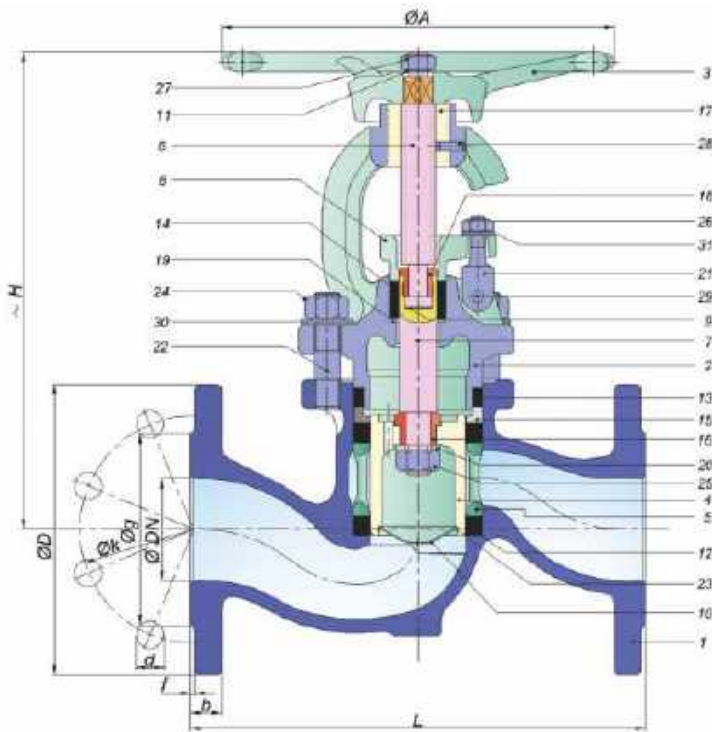
■ Maintenance Free

High temperature resistant Belleville washers, one located on the bonnet and the other located under the stuffing box nuts, create a constant thrust on the rings. This compensates pressure and temperature variations and avoids loosening due to abrasion. An outstanding maintenance free sealing is achieved for a long service life.



Balanced Piston Valve YVNB 65-200





Balanced Piston Valves

DN 65 - 200

Type: YVNB Flanged

Material Type	Cast Iron	Ductile Iron	Cast Steel	Stainless Steel
Size	DN65-200	DN65-200	DN65-200	DN65-200
Pressure Class	PN16	PN25	PN40	PN40
Dimensions	DIN EN 558/1.serie	DIN EN 558/1.serie	DIN EN 558/1.serie	DIN EN 558/1.serie
Assembly	Flanged according to DIN EN 1092-2	Flanged according to DIN EN 1092-2	Flanged according to DIN EN 1092-1	Flanged according to DIN EN 1092-1
Temperature	-10°C +300 °C	-10°C +350 °C	-10°C* +400°C	-10°C* +400°C
Material Code	2	8	7	9
Order Code	YPG.2F__00	YPG.8F__00	YPG.7F__00	YPG.9F__00

Fluid Types

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

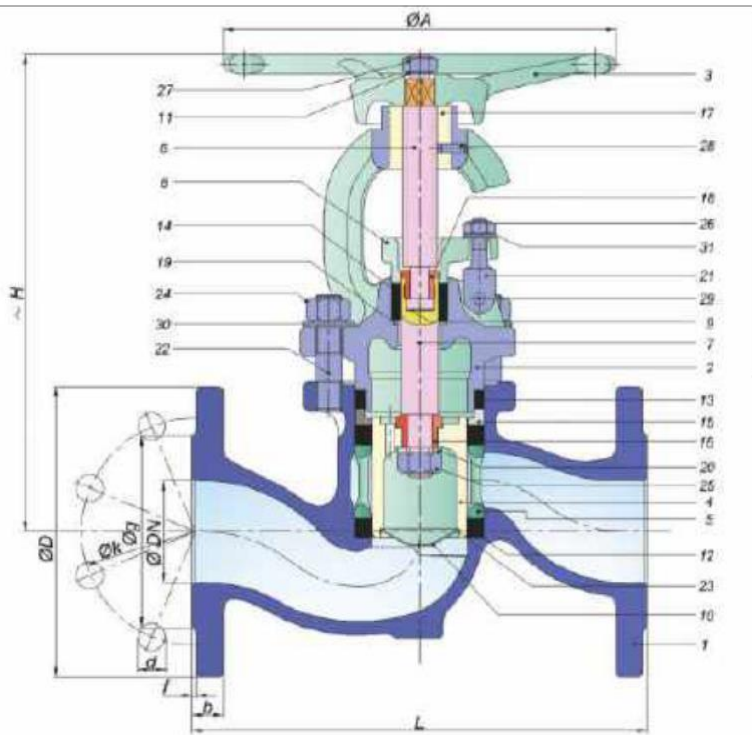
P.No	Part Name	Cast Iron	Ductile Iron	Cast Steel	St. Steel	St. Steel
1	Body	GJL 250	0.7040	1.0619	1.4308	1.4408
2	Upper Bonnet	GJL 250	0.7040	1.0619	1.4308	1.4408
3	Hand Wheel	GJL 200	GJL 200	GJL 200	GJL 200	GJL 200
4	Piston	1.4016	1.4016	1.4016	1.4308	1.4408
5	Lantern Bush	GJL 200 + Phosphate	GJL 200 + Phosphate	GJL 200 + Phosphate	1.4308	1.4408
6	Valve Spindle	St-42	St-42	St-42	1.4301	1.4401
7	Piston Shaft	1.4021	1.4021	1.4021	1.4301	1.4401
8	Gland Retainer	0.7040	0.7040	0.7040	1.4308	1.4408
9	Piston Shaft Washer	1.4301	1.4301	1.4301	1.4301	1.4301
10	Piston Box	1.4301	1.4301	1.4301	1.4301	1.4401
11	Lock Washer	55Si7	55Si7	55Si7	A2-70	A2-70
12	Valve Ring	Graphite	Graphite	Graphite	Graphite	Graphite
13	Bonnet Ring	Graphite	Graphite	Graphite	Graphite	Graphite
14	Stuffing Ring	Graphite	Graphite	Graphite	Graphite	Graphite
15	Thrust Piece	GJL 200 + Phosphate	GJL 200 + Phosphate	GJL 200 + Phosphate	1.4308	1.4408
16	Piston Shaft Bushing	1.4021	1.4021	1.4021	1.4301	1.4401

P.No	Part Name	Cast Iron	Ductile Iron	Cast Steel	St. Steel	St. Steel
17	Screw Bushing	Ms-58	Ms-58	Ms-58	Ms-58	Ms-58
18	Double Piece Nut	Ms-58	Ms-58	Ms-58	1.4301	1.4301
19	Stuffing Washer	St-37+Gal.	St-37+Gal.	St-37+Gal.	1.4301	1.4401
20	Piston Washer	Ms-58	Ms-58	Ms-58	1.4301	1.4401
21	Fork Bolt	St-42	St-42	St-42	1.4301	1.4401
22	Stud	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
23	Piston Ring	1.4301	1.4301	1.4301	1.4301	1.4301
24	Nut	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
25	Left Handed Nut	A2-70	A2-70	A2-70	A2-70	A2-70
26	Nut M10	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
27	Nut	8.8+Gal.	8.8+Gal.	8.8+Gal.	A2-70	A2-70
28	Pin 6x15	St-42+Gal.	St-42+Gal.	St-42+Gal.	A2-70	A2-70
29	Sloted pin 8x22	8.8	8.8	8.8	1.4301	1.4301
30	Belleville Washer	50CrV4	50CrV4	50CrV4	A2-70	A2-70
31	Belleville Washer (20/10.2x11)	50CrV4	50CrV4	50CrV4	A2-70	A2-70

DN			Dimensions			Assembly size																							
mm	inch	Type	L	H	A	PN16								PN25								PN40							
						D	b	g	Hole Nr.	d	k	f	D	b	g	Hole Nr.	d	k	f	D	b	g	Hole Nr.	d	k	f			
65	2 1/2"	YVNB 65	290	306	250	185	20	122	4	19	145	3	185	20	118	8	19	145	3	185	22	122	8	18	145	2			
80	3"	YVNB 80	310	327	250	200	22	138	8	19	160	3	200	22	132	8	19	160	3	200	24	138	8	18	160	2			
100	4"	YVNB 100	350	374	280	220	24	158	8	19	180	3	235	24	156	8	23	190	3	235	24	162	8	22	190	2			
125	5"	YVNB 125	400	447	320	250	26	188	8	19	210	3	270	26	184	8	28	220	3	270	26	188	8	26	220	2			
150	6"	YVNB 150	480	477	360	285	26	212	8	23	240	3	300	26	211	8	28	250	3	300	28	218	8	26	250	2			
200	8"	YVNB 200	600	561	400	340	30	268	12	23	295	3	360	30	274	12	28	310	3	375	34	285	12	30	320	2			

*For temperatures below -10°C, stud and nut material should be stainless steel

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Balanced Piston Valve DN 65 – 200

Type: YVNB Flanged
Pressure: Class 150

Material Type	Cast Steel	St. Steel - CF8	St. Steel - CF8M
Size	2 ½" – 8" (DN 65-200)	2 ½" – 8" (DN 65-200)	2 ½" – 8" (DN 65-200)
Pressure Class	Class 150	Class 150	Class 150
Dimensions	ASME B16.10	ASME B16.10	ASME B16.10
Assembly	ASME B16.5 – RF	ASME B16.5 – RF	ASME B16.5 – RF
Temperature	-29°C* +400°C	-29°C* +400°C	-29°C* +400°C
Material Code	7	6	9
Order Code	YPG.7F.____	YPG.6F.____	YPG.9F.____

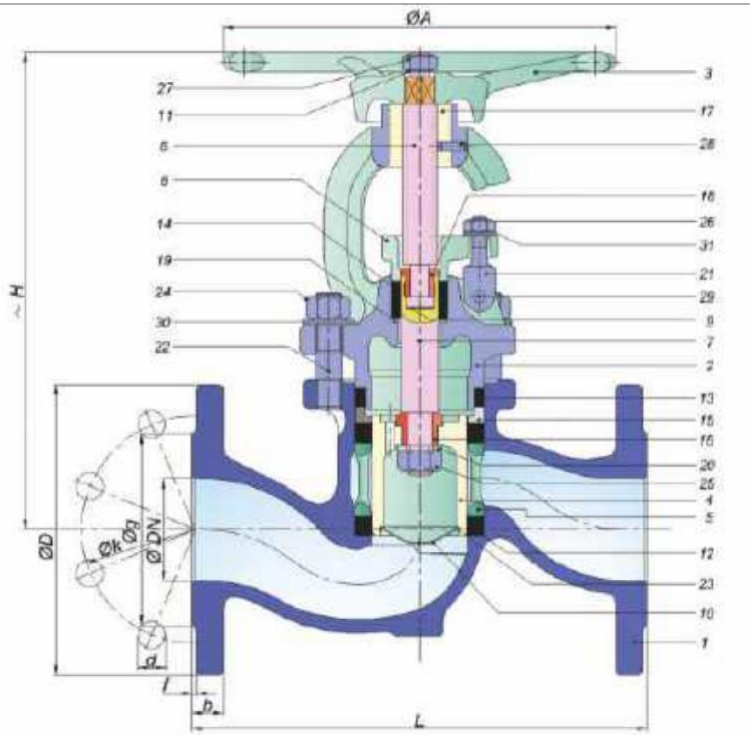
Fluid Types:

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

P.No	Piece Name	Cast Steel	St. Steel - CF8	St. Steel - CF8M	P.No	Piece Name	Cast Steel	St. Steel - CF8	St. Steel - CF8M
1	Body	A216 Gr. WCB	A351 Gr. CF8	A351 Gr. CF8M	17	Screw Bushing	Ms-58	Ms-58	Ms-58
2	Bonnet	A216 Gr. WCB	A351 Gr. CF8	A351 Gr. CF8M	18	Double Piece Nut	Ms-58	AISI 304	AISI 304
3	Hand Wheel	GJL 200	GJL 200	GJL 200	19	Stuffing Washer	St-37+Gal.	AISI 304	AISI 316
4	Piston	AISI 430	A351 Gr. CF8	A351 Gr. CF8M	20	Piston Washer	AISI 304	AISI 304	AISI 316
5	Lantern Bush	GJL 200+Phosphate	A351 Gr. CF8	A351 Gr. CF8M	21	Fork Bolt	1020	AISI 304	AISI 316
6	Spindle	1040	AISI 304	AISI 316	22	Stud Bolt	1020	A2-70	A2-70
7	Piston Shaft	AISI 420	AISI 304	AISI 316	23	Piston Ring	AISI 304	AISI 304	AISI 304
8	Gland Retainer	0.7040	A351 Gr. CF8	A351 Gr. CF8M	24	Nut	8.8+Gal.	A2-70	A2-70
9	Piston Shaft Washer	AISI 304	AISI 304	AISI 304	25	Left Handed Nut	A2-70	A2-70	A2-70
10	Piston Box	AISI 304	AISI 304	AISI 316	26	Nut	8.8+Gal.	A2-70	A2-70
11	Lock Washer	55Si7	A2-70	A2-70	27	Nut	8.8+Gal.	A2-70	A2-70
12	Valve Ring	Graphite	Graphite	Graphite	28	Pin	1020	A2-70	A2-70
13	Bonnet Ring	Graphite	Graphite	Graphite	29	Slotted pin	1020	AISI 304	AISI 304
14	Stuffing Ring	Graphite	Graphite	Graphite	30	Belleville Washer	50CrV4	A2-70	A2-70
15	Thrust Piece	GJL 200+Phosphate	A351 Gr. CF8	A351 Gr. CF8M	31	Belleville Washer	50CrV4	A2-70	A2-70
16	Piston Shaft Bushing	AISI 420	AISI 304	AISI 316					

DN	NPS	TYPE	L	H	A	D	g	f	Hole Nr.	d	k	b
65	2 ½"	YVNB 65	216	306	250	180	104.8	2.0	4	19.1	139.7	22.7
80	3"	YVNB 80	241	327	250	190	127.0	2.0	4	19.1	152.4	24.3
100	4"	YVNB 100	292	374	280	230	157.2	2.0	8	19.1	190.5	24.3
125	5"	YVNB 125	356	447	320	255	185.7	2.0	8	22.2	215.9	24.3
150	6"	YVNB 150	406	477	360	280	215.9	2.0	8	22.2	241.3	25.9
200	8"	YVNB 200	495	561	400	345	269.9	2.0	8	22.2	298.5	29.0

* For temperature below -10°C, stud and nut material should be stainless steel.



Balanced Piston Valve DN 65 – 200

Type: YVNB Flanged
Pressure: Class 300

Material Type	Cast Steel	St. Steel - CF8	St. Steel - CF8M
Size	2 ½" – 8" (DN 65-200)	2 ½" – 8" (DN 65-200)	2 ½" – 8" (DN 65-200)
Pressure Class	Class 300	Class 300	Class 300
Dimensions	ASME B16.10	ASME B16.10	ASME B16.10
Assembly	ASME B16.5 – RF	ASME B16.5 – RF	ASME B16.5 – RF
Temperature	-29°C* +400°C	-29°C* +400°C	-29°C* +400°C
Material Code	7	6	9
Order Code	YPG.7F.____	YPG.6F.____	YPG.9F.____

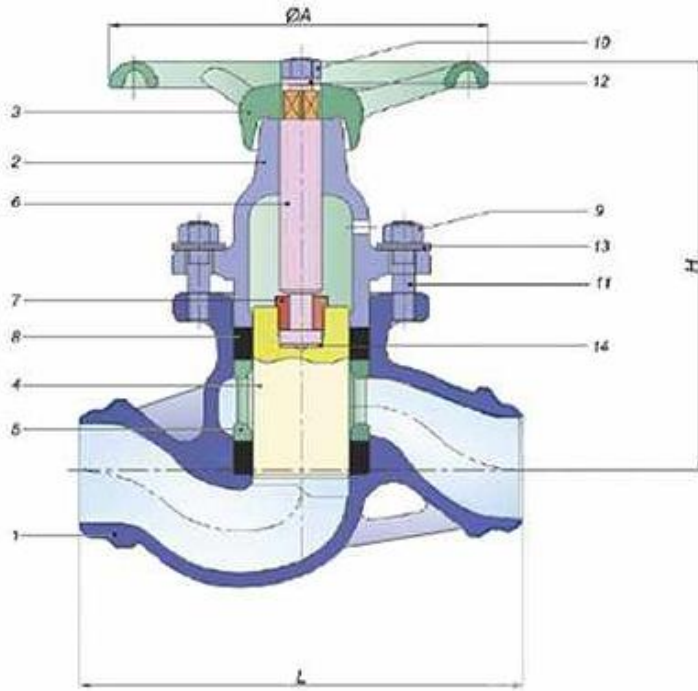
Fluid Types:

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

P.No	Piece Name	Cast Steel	St. Steel - CF8	St. Steel - CF8M	P.No	Piece Name	Cast Steel	St. Steel - CF8	St. Steel - CF8M
1	Body	A216 Gr. WCB	A351 Gr. CF8	A351 Gr. CF8M	17	Screw Bushing	Ms-58	Ms-58	Ms-58
2	Bonnet	A216 Gr. WCB	A351 Gr. CF8	A351 Gr. CF8M	18	Double Piece Nut	Ms-58	AISI 304	AISI 304
3	Hand Wheel	GJL 200	GJL 200	GJL 200	19	Stuffing Washer	St-37+Gal.	AISI 304	AISI 316
4	Piston	AISI 430	A351 Gr. CF8	A351 Gr. CF8M	20	Piston Washer	AISI 304	AISI 304	AISI 316
5	Lantern Bush	GJL 200+Phosphate	A351 Gr. CF8	A351 Gr. CF8M	21	Fork Bolt	1020	AISI 304	AISI 316
6	Spindle	1040	AISI 304	AISI 316	22	Stud Bolt	1020	A2-70	A2-70
7	Piston Shaft	AISI 420	AISI 304	AISI 316	23	Piston Ring	AISI 304	AISI 304	AISI 304
8	Gland Retainer	0.7040	A351 Gr. CF8	A351 Gr. CF8M	24	Nut	8.8+Gal.	A2-70	A2-70
9	Piston Shaft Washer	AISI 304	AISI 304	AISI 304	25	Left Handed Nut	A2-70	A2-70	A2-70
10	Piston Box	AISI 304	AISI 304	AISI 316	26	Nut	8.8+Gal.	A2-70	A2-70
11	Lock Washer	55Si7	A2-70	A2-70	27	Nut	8.8+Gal.	A2-70	A2-70
12	Valve Ring	Graphite	Graphite	Graphite	28	Pin	1020	A2-70	A2-70
13	Bonnet Ring	Graphite	Graphite	Graphite	29	Slotted pin	1020	AISI 304	AISI 304
14	Stuffing Ring	Graphite	Graphite	Graphite	30	Belleville Washer	50CrV4	A2-70	A2-70
15	Thrust Piece	GJL 200+Phosphate	A351 Gr. CF8	A351 Gr. CF8M	31	Belleville Washer	50CrV4	A2-70	A2-70
16	Piston Shaft Bushing	AISI 420	AISI 304	AISI 316					

DN	NPS	TYPE	L	H	A	D	g	f	Hole Nr.	d	k	b
65	2 ½"	YVNB 65	292	306	250	190	104.8	2.0	8	22.2	149.2	25.9
80	3"	YVNB 80	318	327	250	210	127.0	2.0	8	22.2	168.3	29.0
100	4"	YVNB 100	356	374	280	255	157.2	2.0	8	22.2	200.0	32.2
125	5"	YVNB 125	400	447	320	280	185.7	2.0	8	22.2	235.0	35.4
150	6"	YVNB 150	444	477	360	320	215.9	2.0	12	22.2	269.9	37.0
200	8"	YVNB 200	559	561	400	380	269.9	2.0	12	25.4	330.2	41.7

* For temperature below -10°C, stud and nut material should be stainless steel.



Piston Valve

DN 15 - 50

Type: YVNB Butt
Welded

Pressure: PN 40

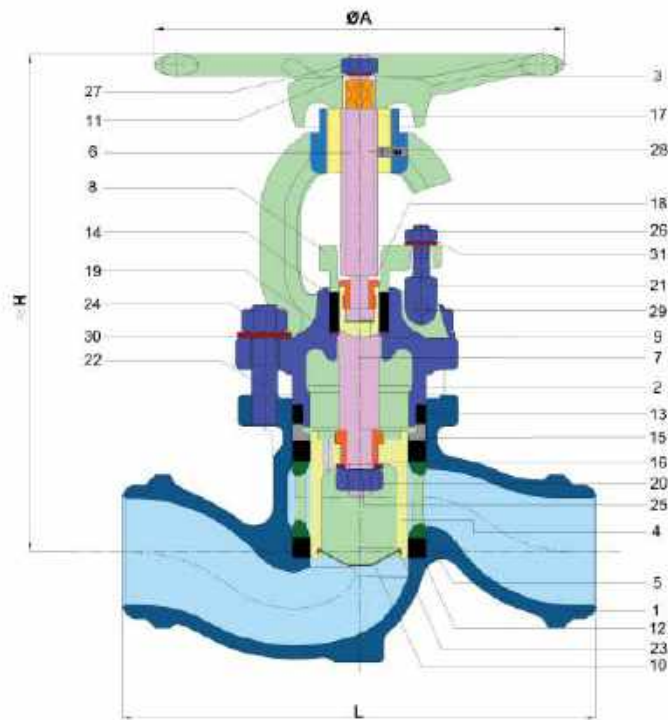
Material Type	Cast Steel	St. Steel – 1.4308	St. Steel – 1.4408
Size	DN 15-50	DN 15-50	DN 15-50
Pressure Class	PN 40	PN 40	PN 40
Dimensions	DIN EN 12982	DIN EN 12982	DIN EN 12982
Assembly	DIN EN 12627 - Fig.6	DIN EN 12627 - Fig.6	DIN EN 12627 - Fig.6
Temperature	-10°C +400°C	-10°C +400°C	-10°C +400°C
Material Code	7	6	9
Order Code	YPG.7A...00	YPG.6A...00	YPG.9A...00

Fluid Types:

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

P.No	Piece Name	Cast Steel	St. Steel – 1.4308	St. Steel – 1.4408
1	Body	1.0619	1.4308	1.4408
2	Bonnet	1.0619	1.4308	1.4408
3	Hand Wheel	GJL 200	GJL 200	GJL 200
4	Piston	1.4021	1.4301	1.4401
5	Lantern Bush	GJL 200 +Phosphate	1.4308	1.4408
6	Spindle	1040	1.4301	1.4401
7	Split Nut	Ms-58	1.4301	1.4401
8	Sealing Ring	Graphite	Graphite	Graphite
9	Nut	8.8+Gal.	A2-70	A2-70
10	Nut	8.8+Gal.	A2-70	A2-70
11	Stud Bolt	1020	A2-70	A2-70
12	Lock Washer	8.8+Gal.	A2-70	A2-70
13	Belleville Washer	50CrV4	A2-70	A2-70
14	Piston Washer	Ms-58	1.4301	1.4301

Size	inch	Type	L	H	A
15	1/2"	YVN 15	130	105	100
20	3/4"	YVN 20	150	120	120
25	1"	YVN 25	160	138	140
32	1 1/4"	YVN 32	180	154	160
40	1 1/2"	YVN 40	200	186	180
50	2"	YVN 50	230	211	200



Balanced Piston Valves

DN 65 - 200

Type: YVNB Butt Welded

Material Type	Cast Steel	St. Steel - 1.4308	St. Steel - 1.4408
Size	DN65-200	DN65-200	DN65-200
Pressure Class	PN40	PN40	PN40
Dimensions	DIN EN 12982	DIN EN 12982	DIN EN 12982
Assembly	DIN EN 12627 according to fig.6	DIN EN 12627 according to fig.6	DIN EN 12627 according to fig.6
Temperature	-10°C +400°C	-10°C +400°C	-10°C +400°C
Material Code	7	9	9
Order Code	YPG.7F__00	YPG.6F__00	YPG.9F__00

Fluid Types

All kinds of fluids such as water, hot water, high temperature hot water, steam, thermal oil, LPG, fuel oil, pressurized air, etc.

P.No	Part Name	Cast Steel	St. Steel	St. Steel
1	Body	1.0619	1.4308	1.4408
2	Bonnet	1.0619	1.4308	1.4408
3	Hand Wheel	GJL 200	GJL 200	GJL 200
4	Piston	1.4016	1.4308	1.4408
5	Lantern Bush	GJL 200 + Phosphate	1.4308	1.4408
6	Spindle	1.4021/St-42	1.4301	1.4401
7	Piston Shaft	1.4021	1.4301	1.4401
8	Gland Retainer	0.7040	1.4308	1.4408
9	Piston Shaft Washer	1.4301	1.4301	1.4301
10	Piston Cone	1.4301	1.4301	1.4301
11	Lock Washer	55Si7	1.4301	1.4301
12	Valve Ring	Graphite	Graphite	Graphite
13	Bonnet Ring	Graphite	Graphite	Graphite
14	Stuffing Ring	Graphite	Graphite	Graphite
15	Thrust Piece	GJL 200 + Phosphate	1.4308	1.4408
16	Piston Shaft Bushing	1.4021	1.4301	1.4401

P.No	Part Name	Cast Steel	St. Steel	St. Steel
17	Screw Bushing	Ms-58	Ms-58	Ms-58
18	Split Nut	Ms-58	1.4301	1.4301
19	Stuffing Washer	St-37+Gal.	1.4301	1.4401
20	Piston Washer	1.4301	1.4301	1.4401
21	Fork Bolt	St-42	1.4301	1.4301
22	Stud	8.8+Gal.	A2-70	A2-70
23	Piston Ring	1.4301	1.4301	1.4301
24	Nut	8.8+Gal.	A2-70	A2-70
25	Left Threaded	A2-70	A2-70	A2-70
26	Nut	8.8+Gal.	1.4301	1.4301
27	Nut	8.8+Gal.	A2-70	A2-70
28	Pin	St-42	A2-70	A2-70
29	Sloted Pin	St-42	1.4301	1.4301
30	Belleville Washer	50CrV4	1.4301	1.4301
31	Belleville Washer	50CrV4	1.4301	1.4301

DN			Dimensions		
mm	inch	Type	L	H	A
65	2 1/2"	YVNB 65	290	306	250
80	3"	YVNB 80	310	327	250
100	4"	YVNB 100	350	374	280
125	5"	YVNB 125	400	447	320
150	6"	YVNB 150	480	477	360
200	8"	YVNB 200	600	561	400

Piston Valves with Pneumatic Actuators DN15 - DN100

Type: YVN, YVNB, YVMN, YVSN

Actuator types:

1. Single acting spring return
2. Double acting

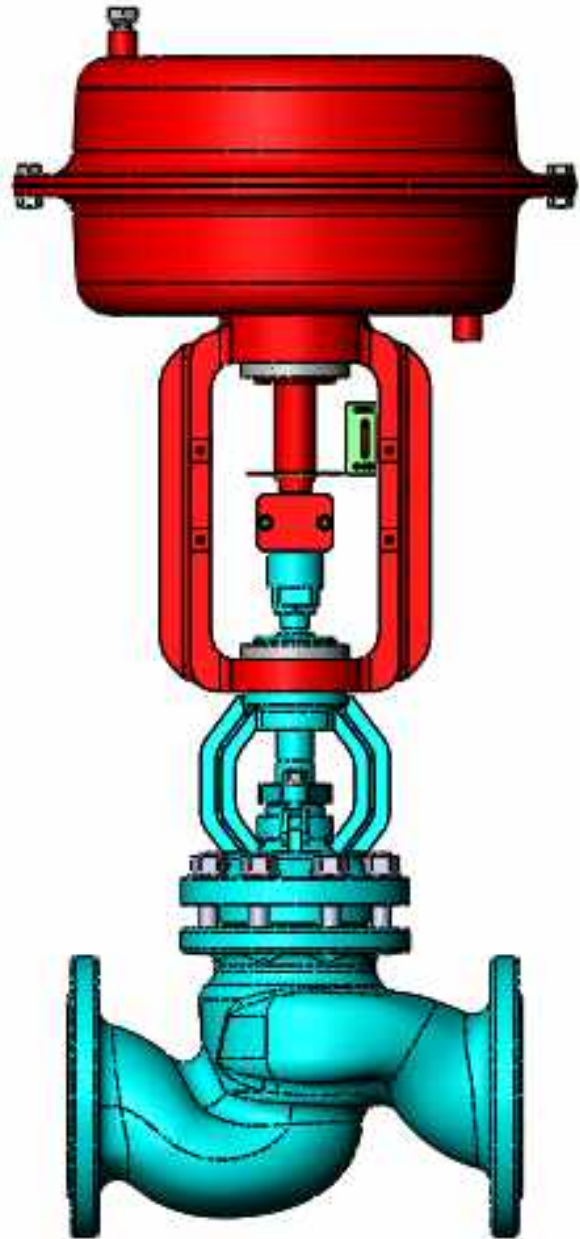
Standard air connection:
NPT 1/4" - 18

Upon request other
connections (BSP 1/4", ...) are available

Control types:

1. On / off
2. With regulating lantern

Suitable to mount positioner



Piston Valve Rings

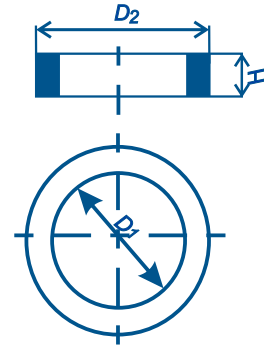


Piston Valve Ring Size

YVN YX-GT 15-50		Size		
Model	Used Areas	D ₂ (Outer Diameter)	D ₁ (Inner Diameter)	H (Height)
YVN YX-GT 15 YVMN 1/2", YVSN 1/2"	Sealing Ring (2 pcs.)	23.5	15	8
YVN YX-GT 20 YVMN 3/4", YVSN 3/4"	Sealing Ring (2 pcs.)	30	20	9.3
YVN YX-GT 25 YVMN 1", YVSN 1"	Sealing Ring (2 pcs.)	38	25	10.6
YVN YX-GT 32 YVMN 1 1/4", YVSN 1 1/4"	Sealing Ring (2 pcs.)	45	30	14.6
YVN YX-GT 40 YVMN 1 1/2", YVSN 1 1/2"	Sealing Ring (2 pcs.)	58	40	14.6
YVN YX-GT 50 YVMN 2", YVSN 2"	Sealing Ring (2 pcs.)	70	50	16

Balanced Piston Valve Ring and Stuffing Box Ring Size

YVNB YX-GT 65-200		Size		
Model	Used Areas	D ₂ (Outer Diameter)	D ₁ (Inner Diameter)	H (Height)
YVNB YX-GT 65	Bonnet Ring (1 pc.)	82	69	10
	Sealing Ring (2 pcs.)	82	60	13.3
	Stuffing Box Ring (3 pcs.)	36	24	8
YVNB YX-GT 80	Bonnet Ring (1 pc.)	94	80	10
	Sealing Ring (2 pcs.)	94	70	14.6
	Stuffing Box Ring (3 pcs.)	36	24	8
YVNB YX-GT 100	Bonnet Ring (1 pc.)	112	100	11
	Sealing Ring (2 pcs.)	112	90	14.6
	Stuffing Box Ring (3 pcs.)	46	30	10
YVNB YX-GT 125	Bonnet Ring (1 pc.)	135	121	13
	Sealing Ring (2 pcs.)	135	110	16
	Stuffing Box Ring (3 pcs.)	46	30	10
YVNB YX-GT 150	Bonnet Ring (1 pc.)	155	141	13
	Sealing Ring (2 pcs.)	155	130	17.3
	Stuffing Box Ring (3 pcs.)	46	30	10
YVNB YX-GT 200	Bonnet Ring (1 pc.)	200	184	15
	Sealing Ring (2 pcs.)	200	170	18.6
	Stuffing Box Ring (3 pcs.)	46	30	10

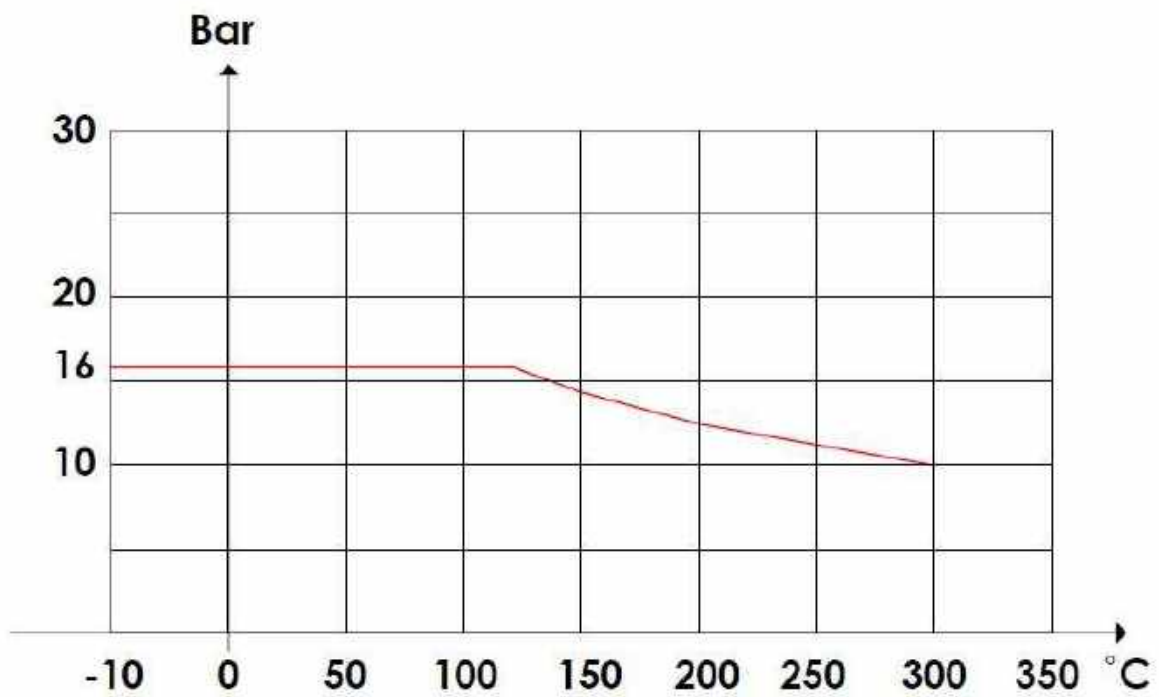


Material code	Body	Bonnet	Colour of body
II	cast iron	cast iron	grey
III	ductile iron	ductile iron	green
VII	cast steel	cast steel	blue
Xb	stainless steel	stainless steel	polished, pickled



PISTON VALVE

Temperature Pressure Diagram

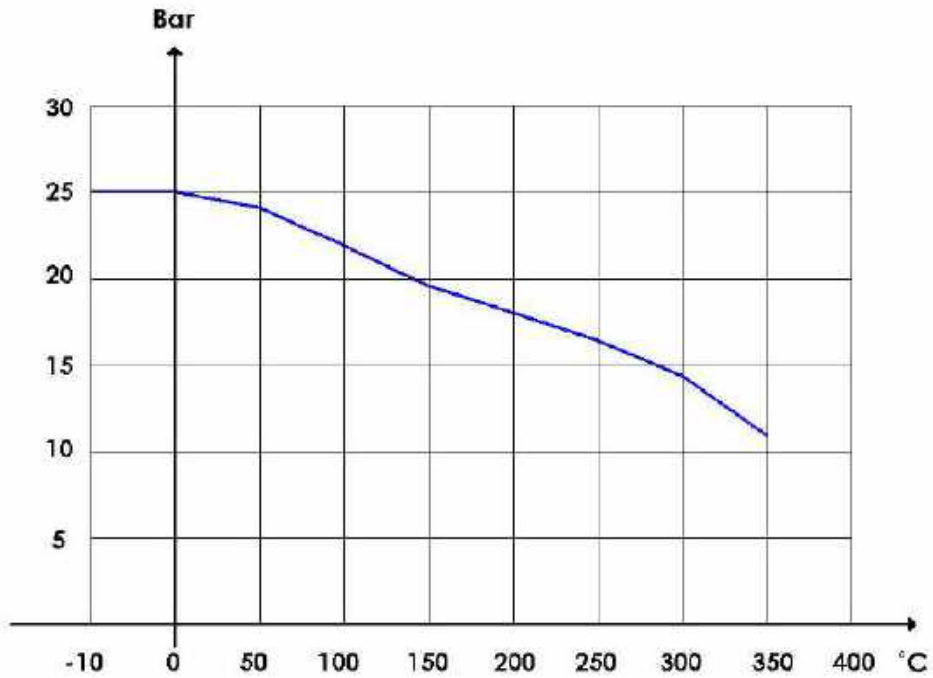


Pressure Class : PN16

Material : GJL 250

PISTON VALVE

Temperature Pressure Diagram

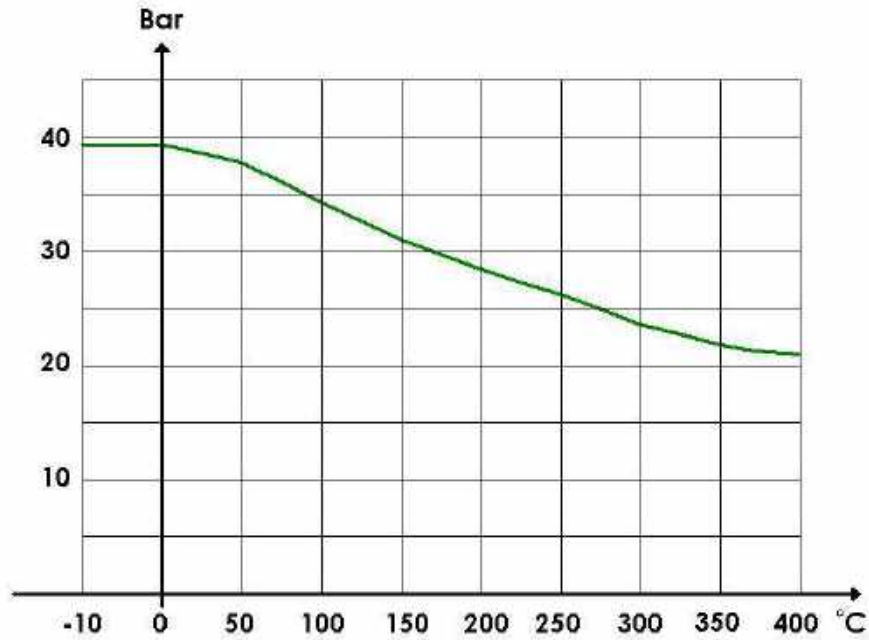


Pressure Class : PN25

Material : 0.7040

PISTON VALVE

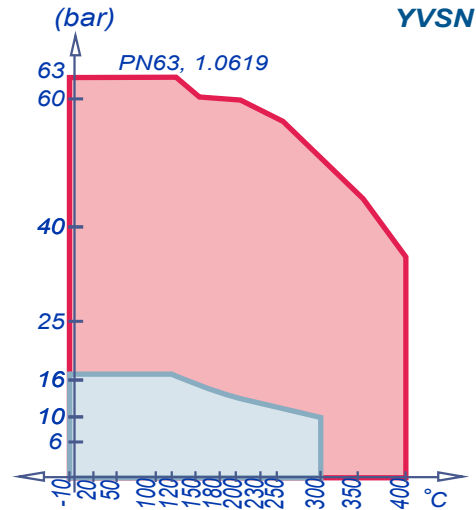
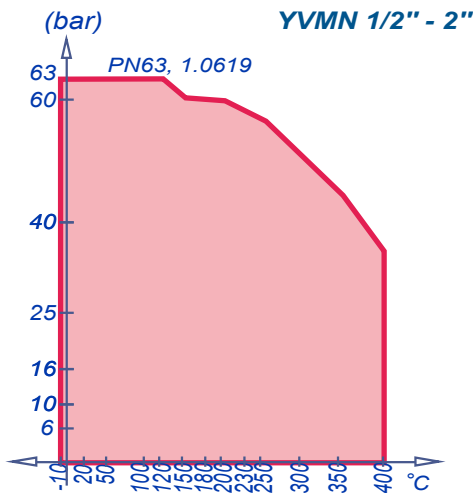
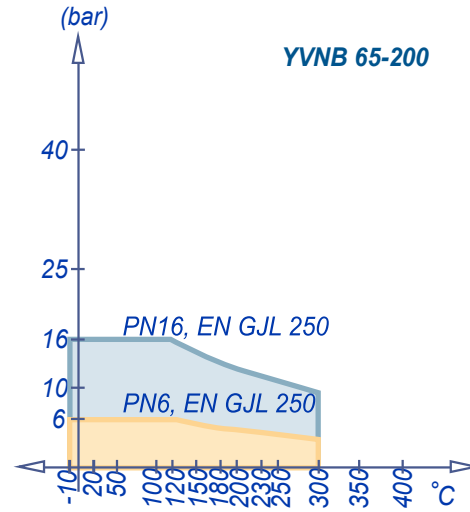
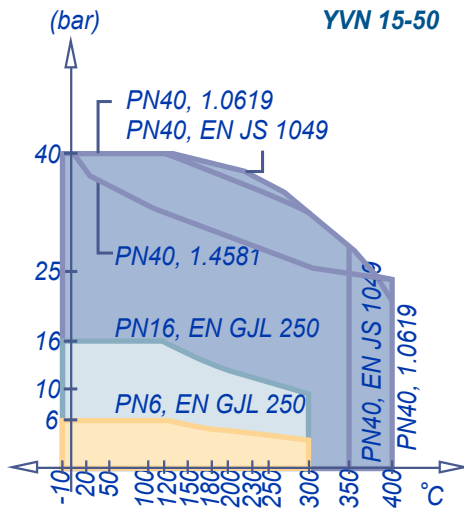
Temperature Pressure Diagram



Pressure Class : PN40

Material : 1.0619

Pressure / Temperature Diagrams



Pressure drop calculation in piston valves

DN	ξ	K_v
15	4	4,5
20	4	8
25	4	12,5
30	4	20,5
40	4	32
50	4	50
65	6	69
80	6	104
100	6	163
125	7,2	233
150	7,2	335
200	7,5	582

Pressure drop formula $\Delta p =$ pressure drop (mmWC)

$$\Delta p = \xi \frac{W^2}{2g} \rho \text{ (mmWC)}$$

$$\Delta p = \left(\frac{Q}{K_v} \right)^2 \times \frac{\rho}{1000}$$

ξ : zeta value

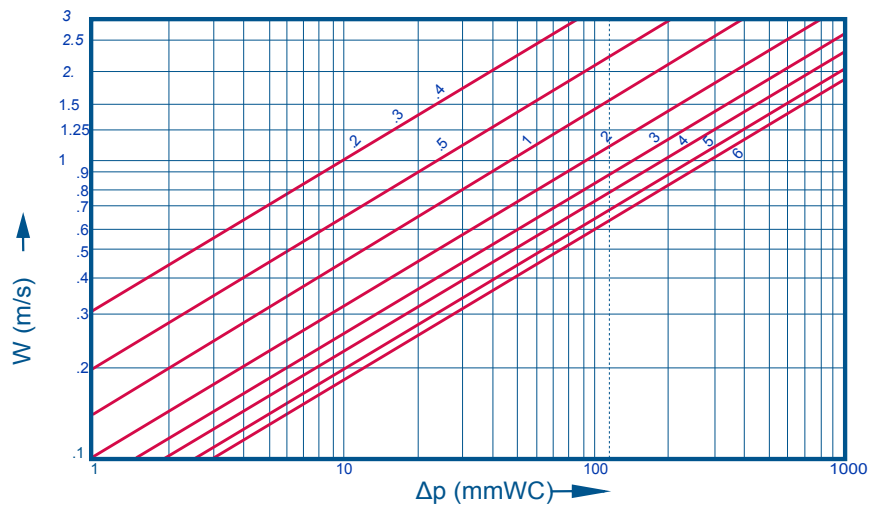
W : fluid velocity, m/s

2g : 20 m/s²

ρ : 1000 kg/m³

K_v : flow coefficient, m³/h. For $\Delta p = 10$ mWC

Q : flow rate, m³/h

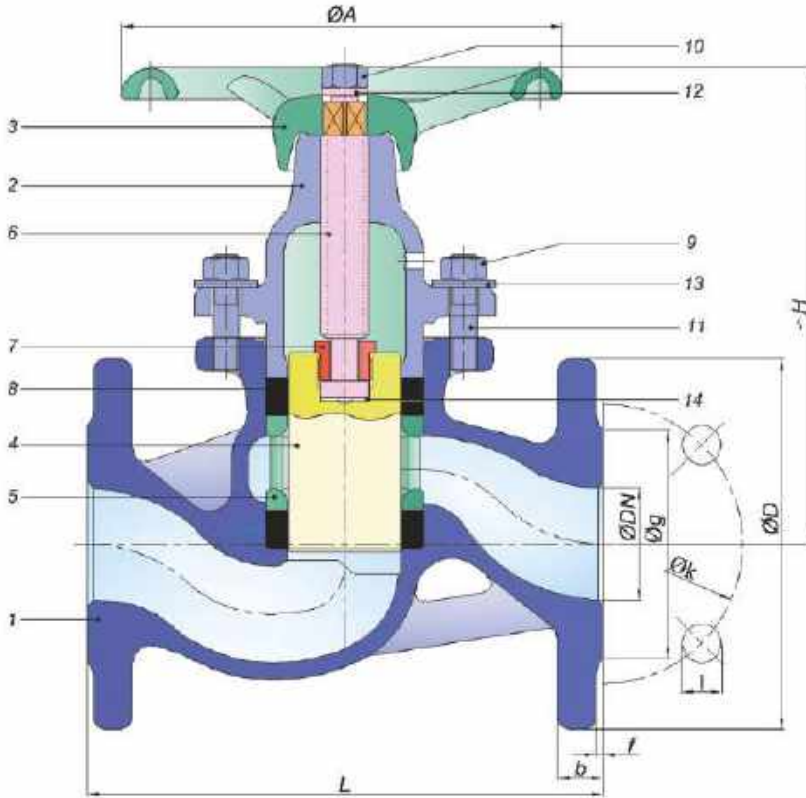


Maintenance - Repair Instructions

Maintenance of YAKACIK Valves and Ring Replacement

In case a YAKACIK valves causes leakage in the piping system, first put the valve in fully closed position. Then tighten the nuts located on the bonnet and the leakage will disappear. If leakage still continues then the rings should be replaced.

Replacement can be done easily and in a short time. There is no need to remove the seat or grind any part. It's not necessary to remove the valve from the piping system. Rings can be replaced as follows:



Mounting, Dismounting and Maintenance Instructions of YAKACIK Piston Valves

- 1- Adjust the valve to fully open position, remove the bonnet fastening nuts (9).
- 2- Turn the handwheel (3) clockwise, the bonnet (2) will rise and be released from the studs (11).
- 3- Turn the bonnet a few degrees and place it on top of studs. Turn handwheel clockwise, piston (4) will get out of upper ring (8).
- 4- Remove the upper ring.
- 5- Remove the lantern bush (5).
- 6- Remove the lower ring.
- 7- Clean the inner part of the valve and the surface to which the rings contact.
- 8- Remove the nut (10) on the handwheel after the valve was put in closed position. Remove the handwheel and turn the valve spindle (6) by your hand. Take the spindle and the piston together out of the bonnet.
- 9- By removing the two piece nut (7), the piston and the shaft may be separated from each other.
- 10- By using appropriate tool suitable to ring dimensions, place the new lower ring into its location.
- 11- Place the lantern bush.
- 12- Place the new upper ring.
- 13- Place the bonnet, the piston will be guided by the upper ring. Thrust bonnet into its position and screw the nuts a few turns.
- 14- First turn the wheel to reach closed position, then turn it to reach open position, the bonnet will slide to its final position. Tighten the nuts.
- 15- After the valve is connected to piping system, close the valve and fasten the nuts (9) a little more.

Reliable on Fire

YVN - YVNB Series are Fire Safe

In September 2013, our YVN and YVNB series cast steel piston valves have been fire tested under fire according to API 6FA:2008 and ISO 10497:2010, with the guidance of notified body, TÜV SÜD.

Our valves have been passed the tests with extremely good results and approved as "fire safe" valves.



Parameters Used for Valve Orders

It is important that you should specify the parameters stated below to choose the suitable valve. Please contact us for unclear issues.

1- Valve Type

2- Quantity

3- Valve Size

4- Max. Operating Pressure

5- Max. and Min. Operating Temperatures

6- Connection Type

(Flanged, Screwed, Socket or Butt Welded)

7- Fluid

Water, hot water, air, gas, steam, LPG, oil, thermal oil, acid, base, etc.

(Concentration and other specifications)

8- Actuation Type

9- Using Purpose

Fully open or fully closed, throttling element

10- Special requests

(Material, control, etc.)



VALVE ORDER

You can use the following encoding system in your orders.

Example: YPG.2F.40.00

Piston Valve, Cast Iron, Flanged, DN40, DIN Norm

Product Code	Material Code	Assembly Type	Dimensions	Norms
YPG	2	F	40	00
Piston Valve YPG	2 Cast Iron 8 Ductile Iron 7 Cast Steel 9 Stainless Steel	F Flanged M Screwed S Socket	DN 20 - 15 DN 20 - 20 DN 25 - 25 DN 32 - 32 DN 40 - 40 DN 50 - 50 DN 65 - 65 DN 80 - 80 DN 100 - 81 DN 125 - 82 DN 150 - 83 DN 200 - 84	00 DIN 01 ASA 150 02 ASA 300

YAKACIK VALF Products

- **Piston Valves DN15 - DN50**
- **Balanced Piston Valves DN65 - DN200**
- **YX - GT Ring Sets DN15 - DN200**
- **Bellows Sealed Globe Valves DN15 - DN300**
- **Globe Valves DN15 - DN300**
- **Boiler Blowdown Valves DN32 - DN50**
- **Ball Valves DN15 - DN400**
- **T Type Strainers DN15 - DN300**
- **Y Type Strainers DN15 - DN500**
- **Expansion Joints DN25 - DN2500**
- **Cryogenic Valves DN15 - DN50**
- **Manometer Cocks 1/2"**
- **Ball Valves (for natural gas) DN15 - DN400**
- **Ball Valves Monoball DN15 - DN100**
- **Check Valves DN15 - DN300**
- **Disc Check Valves DN25 - DN100**
- **Dual Plate Check Valves DN40 - DN400**
- **Butterfly Valves DN32 - DN500**
- **Level Gauges YPBR - YUPR - YUPT**
- **Transparent Gauge Glass**
- **Safety Valves DN 20x32 - DN 100x150**
- **Fire Hydrants DN80 - DN150**



ISO 9001-2015

QUALITY MANAGEMENT SYSTEM



AD 2000 - W 0

MANUFACTURING QUALIFIED CERTIFICATE



CE 0045

PED 2014/68/EU



FIRE SAFE

BALL / PISTON VALVES



ATEX



TA LUFT



EAC

YAKACIK VALF SAN. ve TİC. A.Ş.

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