



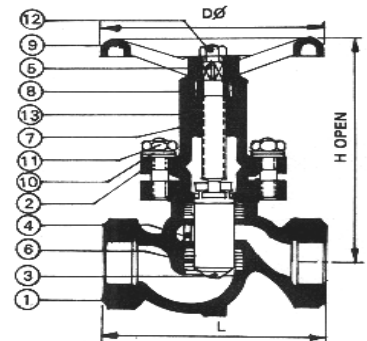
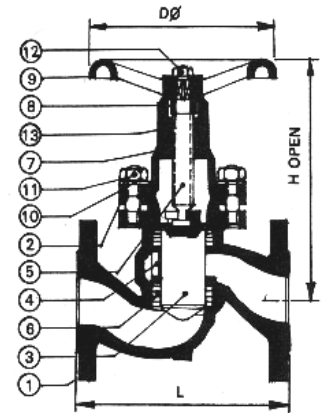
PISTON VALVES

Woodland Engineers

- Seatless & glandless valves.
- Piston valves are maintenance free.
- Sealing rings easily replaced online.
- Adapts as regulating valve.
- The bubble tight seal is formed by:
 1. The cylindrical piston precision-ground stainless steel
 2. The resilient sealing rings-made from Specially imported material
 3. The load on the bonnet nuts compresses the resilient sealing rings firmly around the piston giving a pressure-tight seal
- Ends flanged & drilled to DIN. BS-10, ANSI, etc or socket weld / screwed to B.S.P, B.S.P.T, N.P.T, ETC.



Sr.No.	Part	Material
1	Body	<ul style="list-style-type: none"> ◆ C.IIS 210 Gr.20-25 (Cast Iron) ◆ ASTM A 216 Gr.WCB (Cast Steel)
2	Bonnet	<ul style="list-style-type: none"> ◆ C.IIS 210 Gr.20-25 (Cast Iron) ◆ ASTM A 216 Gr.WCB (Cast Steel)
3	Piston	AISI 304 / 316
4	Lantern Bush	AISI 410
5	Spindle	AISI 410
6	Sealing Rings	Made from imported material
7	Yoke Bush	Gun Metal (G.M.)
8	Indicator	Mild Steel (M.S)
9	Hand Wheel	Cast Iron (C.I)
10	Belleville Washers	Cr.V.Spring Steel
11	Studs Nuts	ASTM A -193 / 194
12	Wheel Nut	Mild Steel (M.S)
13	Set Screw	Mild Steel (M.S)
14	Spindle-Lock Nut	AISI 410



Weight of Piston valves in Kg. (approx)										
SIZE	15	20	25	32	40	50	65	80	100	150
Flange type	3.7	4.7	6.8	11.5	12.0	18.0	27.0	35.5	54.5	145.0
Screwed type	2.0	2.5	3.8	8.5	10.5	13.0	0	0	0	0



Woodland Engineers

Operating Manual

All WOODLAND Piston valves can be kept permanently tight without trouble.

Shortly after the piston valve is first put into service, the cover nuts should be lightly tightened with the valve in closed position, which in-turn compresses the valve packing ring firmly around the position.

When a leak develops it is easy to correct it with an ordinary spanner.

1. Shut the valve fully.
2. Tighten each cover nuts $1/8^{\text{th}}$ of a turn.
3. If the leak is slight and has not persisted for any length of time, this will be found sufficient, If not, then repeat the process until the valve is steam tight.

It is important to follow instruction no.1, If the cover nuts are tighten down with the valve open then the bottom ring may be compressed in the passage and get damaged by the Piston when the valve is again closed.

No undue force should be used in tightening the piston valve nuts. They should move easily with a standard spanner of the corresponding size & should be tightened equally to avoid tilting of the cover. Please do not use a wheel spanner on the hand wheel since there is no use of any undue force to shut the piston valve, it may simply damage the spindle.

Life of the rings depends on the above process as & when required until the rings are worn out & needs replacement.

To remove old sealing rings use a tang of an old file or screwdriver bent at right angle to form a hook, now pull out the top ring, lantern bush & the bottom ring one after another.

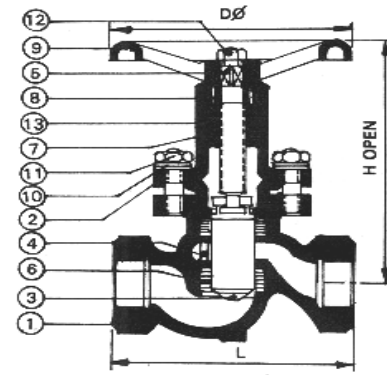
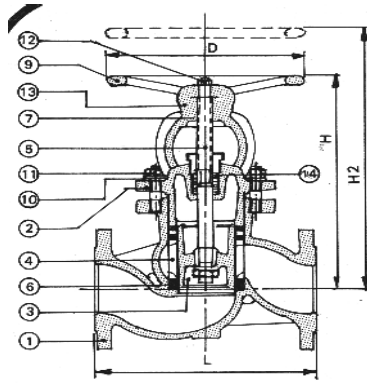
Replacing new piston & sealing rings is a simple matter, as they are provided with a machined Horseshoe slot. In some cases the piston are fitted by means of a split washer and nut.

- All nuts have left hand threads.
- The pistons are accurately machined & carefully finished, if it is necessary to hold the piston while fitting then grip it between a soft wooden clamp to avoid damaging the surface.
- Open the valve wide.
- Remove the cover nuts.
- Screw down the spindle (turn right) to lift the cover off the studs.
- Turn the cover so that it rests on top of the studs.
- Screw spindle up (turn Left) to withdraw piston from rings.
- Lift off cover parts, taking care to avoid scratching the piston.
- Use only genuine WOODLAND valve rings.
- Insert a new ring & drive it gently home using a punch / a short bar metals or wood having a slight small diameter than that of the ring. Tap the punch with the hammer lightly & drive the ring till the bottom of the bore.
- Replace the lantern bush, which should enter the bottom bore & sit flat on the ring.
- Insert the top ring by the same way as the bottom.

Replacing the valve cover

- See that the piston is in good condition, enter the piston through the passage between the rings and replace the cover.
- Screw down the cover nuts lightly, then screw down the hand wheel (turn right) then unscrew (Turn left) drawing the cover into position.
- Run the nuts down, shut the valve & tighten with spanner evenly just enough to grip the rings.
- Make sure that the cover is sitting square on the valve body.

Remember when the piston valve is first put under service, the cover nuts should be tightened lightly and evenly with the valve in closed position, this will enable to settle the rings firmly around the piston. This will increase the life of the rings & failure to this may result in premature leakage. Also note that the cover nuts should not be tighten without the Belleville washers.



Flanges as per ANSI B 16.5 Class 150 (RF)														
SIZE	PORT	L	H	H1	OD	B	O9	f	KPCD	N	OJ	O wh	Ods	Lift
15	15	130	130	160	89	11.1	35	1.58	60.3	4	15.9	80	14	30
20	20	150	140	172	98.4	12.7	43	1.58	69.9	4	15.9	120	14	32
25	25	160	167	207	108	14.3	51	1.58	79.4	4	15.9	140	16	38
32	32	180	205	250	117	15.9	63.5	1.58	88.9	4	15.9	160	18	45
40	40	200	225	275	127	17.5	73	1.58	98.4	4	15.9	180	20	50
50	50	230	250	311	152.4	19	92	1.58	120.6	4	19	200	22	55
65	65	290	198		178	22	122	1.6	139.7	4	19	250		
80	80	310	327		190	19	127	1.6	152.4	4	19	250		
100	100	350	374		229	23.9	157	1.6	190.5	8	19	280		
150	150	480	477		279	25.4	216	1.6	241.3	8	22.2	360		

Flanges as per ND-10 DIN to 2632 - 33 (RF)														
SIZE	PORT	L	H	H1	OD	B	O9	f	KPCD	N	OJ	O wh	Ods	Lift
15	15	130	130	160	95	14	45	2	65	4	14	80	14	30
20	20	150	140	172	105	16	58	2	75	4	14	120	14	32
25	25	160	167	207	115	16	68	2	58	4	14	140	16	38
32	32	180	205	250	140	16	78	2	100	4	18	160	18	45
40	40	200	225	275	150	16	88	3	110	4	18	180	20	50
50	50	230	250	311	165	18	102	3	125	4	18	200	22	55
65	65	290												
80	80	310												
100	100	350												
150	150	480												

Flanges as per ND - 40 DIN to 2634 - 35 (RF)														
SIZE	PORT	L	H	H1	OD	B	O9	f	KPCD	N	OJ	O wh	Ods	Lift
15	15	130	130	160	95	16	45	2	65	4	14	80	14	30
20	20	150	140	172	105	18	58	2	75	4	14	120	14	32
25	25	160	167	207	115	18	68	2	85	4	14	140	16	38
32	32	180	205	250	140	18	78	2	100	4	18	160	18	45
40	40	200	225	275	150	18	88	3	110	4	18	180	20	50
50	50	230	250	311	165	20	102	3	125	4	18	200	22	55
65	65	290												
80	80	310												
100	100	350												
150	150	480												

Butt / socket weld							Screwed Ends						
SIZE	PORT	L	H1	L1	D	D1	SIZE	PORT	L	H1	L1	D	D1
15	15	100	159	10	29	21.7	15	15	100	159	10	29	21.7
20	20	120	171	13	35	27.1	20	20	120	171	13	35	27.1
25	25	135	207	13	43	33.8	25	25	135	207	13	43	33.8
32	32	160	245	13	50	41	32	32	160	245	13	50	41
40	40	185	274	13	58	48.6	40	40	185	274	13	58	48.6
50	50	220	311	16	71	61.1	50	50	220	311	16	71	61.1

TESTING PRESSURE				
	HYDROSTATIC			PNEUMATIC
	ND-10 Kg /Cm ²	ND-25 Kg /Cm ²	ND-40 Kg /Cm ²	
SEAT	10	25	40	5
BODY	16	40	64	5



Woodland Engineers

Brief Write-up

Piston valve is a Seatless & Glandless valve

The valve up to the size 6" does not have any stuffing box. The salient feature of this valve is that of the piston operation. The piston slides between the two packing rings made of specially treated & graphite asbestos and do not rotate; hence there is minimum wear. The only wearing part is the packing ring and that too after an extensive use. A ported lantern bush separates the two packing rings. The bottom ring rests on a cast machined groove of the body and upper packing ring is being held and remained pressed by a bonnet on top. The bonnet rests on the top ring, when tightened evenly by the nut of the stud presses the lantern bush, which in turn presses the bottom ring. This is done by keeping the valve in closed position. Thus the mechanism is aligned compressed and ready for operation. Here the bottom ring of the valve serves the purpose of the seat while the upper ring serves the purpose of a gland. The advantage of the valve is when any leakage is observed from the hole of the bonnet, specially provided for this purpose; it can be stopped on the line. This is done by tightening the nut of the bonnet evenly, keeping the valve in closed position. The maximum thickness of the ring is utilized and when the valve cannot be further tightened to stop the leakage, it is only required to replace the packing rings. This can be done on the line itself. The pressure drop in this valve is considered as high as 18%.

APPLICATION: The valve finds its best application in control of steam & thermic fluid line. The valve also has numerous applications in the control of liquids and gases also.

RANGE: The valves can be supplied in various metal constructions to suit the condition. The valves are available in ND/16 and ND/25 rating. The flange of piston valve can be supplied in accordance to BS, DIN, ASA, IS dimensions. The range for the valve is from 15 mm to 150mm

ACTUATION: The valves can be supplied with electrical and pneumatic actuation

Telefax: 91 22 26238208 / 91 79 22894562 Mobile: +91 9987188208
Email: info@woodlandengineers.com / info@jecwoodland.com