Piston Valve (DN15-40)

Description

Forbes Marshall Piston Valves, PSVAL, provide perfect tightness and durable stability on different media such as steam, superheated steam, heat transfer fluid, water and compressed air.

Sizes and Pipe Connection

DN 15 / 20 / 25 / 32 / 40

Screwed BSPT / NPT, socket weld ends, flanged to class 150 / 300 / 600 available on special request

Limiting Conditions

For DN 15 / 20 / 25 / 32 / 40 Socket weld ends	
Maximum operating pressure	78 bar g
Maximum operating temperature	425° C for DN15-25 232° C for DN32-40
Maximum hydraulic test pressure	156 bar g (IBR requirement)

For DN 15 / 20 / 25 Screwed ends	
Maximum operating pressure	78 bar g
Maximum operating temperature	425° C
Maximum hydraulic test pressure	156 bar g (IBR requirement)

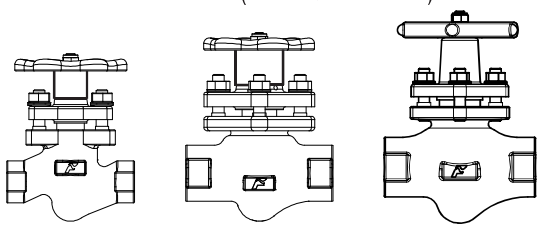
For DN 32 / 40 Screwed ends	
Maximum operating pressure	41.5 bar g
Maximum operating temperature	232° C
Maximum hydraulic test pressure	83 bar g (IBR requirement)

Body design conditions: **DN 15-40** Class 150 Flanged ends	
Maximum allowable pressure	19.6 bar g at 38° C
Maximum operating pressure	14 bar g at 196° C
Maximum operating temperature	425° C at 5.5 bar g for DN15-25 232° C at 12.7 bar g for DN32-40
Cold hydraulic test pressure	28 bar g (IBR requirement)

Body design conditions: **DN 15-40** Class 300 Flanged ends	
Maximum allowable pressure	51 bar g at 38° C
Maximum operating pressure	41.5 bar g at 253° C for DN15-25 41.5 bar g at 232° C for DN32-40
Maximum operating temperature	425° C at 28.8 bar g for DN15-25 232° C at 41.5 bar g for DN32-40
Cold hydraulic test pressure	83 bar g (IBR requirement)

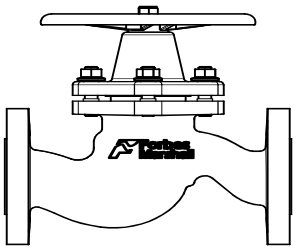
Body design conditions: **DN 15-40** Class 600 Flanged ends	
Maximum allowable pressure	102 bar g @ 38° C
Maximum operating pressure	78 bar g at 318° C for DN15-25 78 bar g at 232° C for DN32-40
Maximum operating temperature	425° C at 57.5 bar g for DN15-25 232° C at 78 bar g for DN32-40
Maximum hydraulic test pressure	156 bar g

DN15-40 PSVAL (SCRD & SWE ENDS)



DN 15 / 20 DN 25 DN 32 / 40

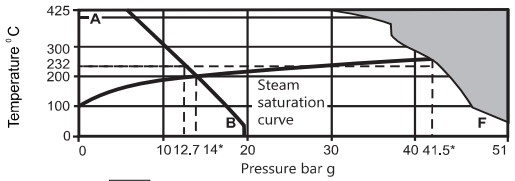
DN15-40 PSVAL (FLGD ENDS)



DN 15 - 40

Operating Range

ASME Class 150-300

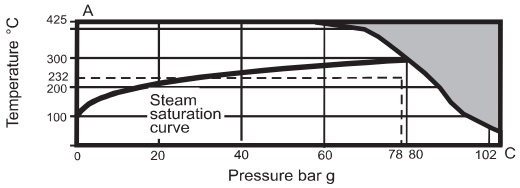


The product must not be used in this region.

A - B Flanged Class 150 A - F Flanged Class 300

* PMO- Maximum operating Pressure

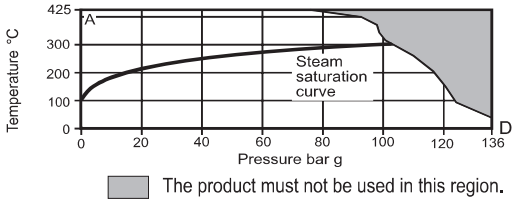
ASME Class 600



The product must not be used in this region.

A - C Flanged Class 600

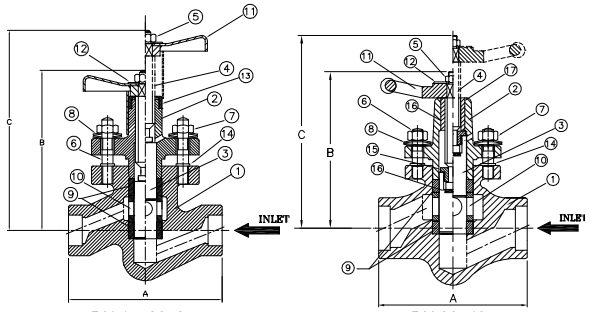
ASME Class 800 - Body design condition



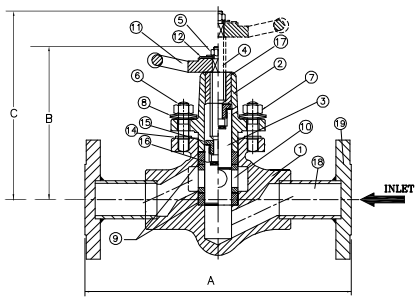
The product must not be used in this region.

A - D Screwed and socket weld

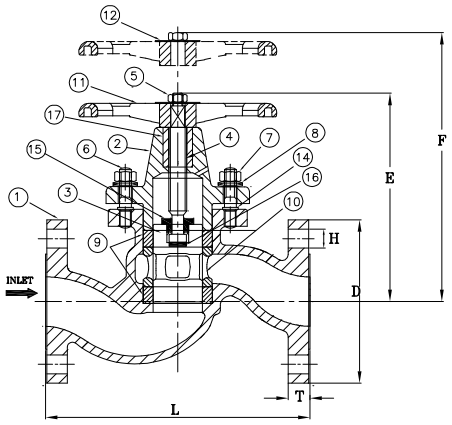
DN15-40 SCRD & SWE ENDS



DN15-40 WELD ON FLANGES



DN15-40 AS CAST FLANGES



As Cast Flanges Dimensions(mm) and Weights(Kg)-approx.

Size & Class	L	D	PCD	H	No. of Holes	T	E	F	Weight
DN15#150	108	90	60.3	16	4	9.6	118	146	4
DN15#300	152	95	66.7	16	4	12.7	118	146	4.8
DN20#150	117	100	69.9	16	4	11.2	118	146	4.6
DN20#300	178	115	82.6	19	4	14.3	118	146	6.3
DN25#150	127	110	79.4	16	4	12.7	133	165	5
DN25#300	203	125	88.9	19	4	15.9	133	165	6.5
DN32#300	216	135	98.4	19	4	17.5	180	220	10.8
DN40#150	165	125	98.4	16	4	15.9	180	220	9.25
DN40#300	229	155	114.3	22	4	19.1	180	220	12.2

For DN 32 only class 300 is available in integral Flange ends.

Material: DN 15-40:

No.	Description	Material	Standard
1	Body	Forged Carbon Steel/Cast Steel	ASTM A105N/ ASTM A216 WCB
2	Bonnet	Forged Carbon Steel	ASTM A105N
3	Piston	Stainless Steel	ASTM A 276 TYPE 304
4	Spindle	Stainless Steel	ASTM A 276 TYPE 410
5	Nyloc Nut	Carbon Steel	
6	Stud	Carbon Steel	ASTM A193 Gr. B7
7	Nut	Carbon Steel	ASTM A 194 Gr.2H
8	Belleville Washer	Spring Steel	50CrV4
9	Sealing stack	S.S. Reinforced Graphite	
10	Spacer	Stainless Steel	ASTM A 276 TYPE 410
11	*Handwheel	Sheet Metal / SG Iron	
12	Name Plate	Stainless Steel	ASTM A 240 TYPE 304
13	Grease Cap	Stainless Steel	SS 304
14	Gap ring	Stainless Steel	ASTM A 276\ TYPE 410

*Note: For DN 15-25 Handwheel - Sheet Metal

For DN32-40 Hand wheel-S.G. Iron

Additional material: DN32-40

No.	Description	Material	Standard
15	Split Nut	Brass	DIN EN12164
16	Thrust Plate	Stainless Steel	ASTM A 276 TYPE 420
17	Bush	Bronze	

Additional material: DN15-40 Weld on Flanges

No.	Description	Material	Standard
18	Pipe	Carbon Steel	ASTM A106 GR B
19	Flange	Forged Carbon Steel	ASTM A 105

Dimensions (approx. in mm)

Screwed & Socket weld ends

Size (DN)	A	B	C	Weight (kg)
15	110	118	146	2
20	110	118	146	2
25	126	133	165	4
32	165	175	215	7.5
40	165	175	215	8

Dimensions (approx. in mm)

Weld on Flanges *Tol ±1mm

Size (DN)	A*			B	C
	Class 150	Class 300	Class 600		
15	252	265	265	118	146
20	252	265	265	118	146
25	260	278	278	133	165
32	305	317	320	175	215
40	305	317	320	175	215

Weights (approx. in Kg)

Weld on Flanges

Size (DN)	Class		
	Class 150	Class 300	Class 600
15	3	3.5	4
20	4	5	5.5
25	6	7.5	8
32	10.7	12	13
40	11	13.5	14.5

Piston Valve (DN50-250)

Description

Forbes Marshall Piston Valves, PSVAL, provide perfect tightness & durable stability on different media such as steam, superheated steam, heat transfer fluid, water and compressed air.

Sizes and Pipe Connection

1. DN 50 / 65 / 80 / 100 / 125 / 150 / 200 / 250
   Flanged to class 150 / 300
2. DN 50 / 65 / 80 / 100 / 125 / 150 / 200 / 250
   Flanged to PN16 / PN25 / PN40

For higher sizes DN 250 and 300 contact Forbes Marshall

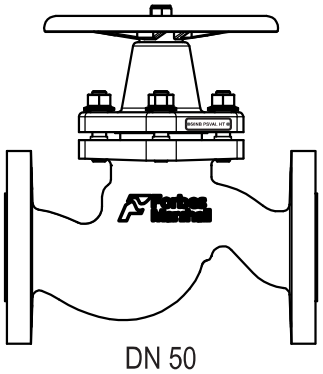
Body design conditions: **DN 50-250** Class 150 Flanged ends	
Maximum allowable pressure	19.6 bar g at 38^0 C
Maximum operating pressure	14 bar g at 197^0 C
Maximum operating temperature	232^0 C at 12.7 bar g
Cold hydraulic test pressure	28 bar g (IBR requirement)

Body design conditions: **DN 50-250** Class 300 Flanged ends	
Maximum allowable pressure	51 bar g at 38^0 C
Maximum operating pressure	41.5 bar g at 232^0 C
Maximum operating temperature	232^0 C at 41.5 bar g
Cold hydraulic test pressure	83 bar g (IBR requirement)

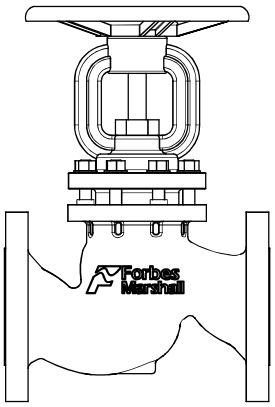
Body design conditions: **DN 50-200** PN 16 Flanged End	
Maximum allowable pressure	16 bar g at 38^0 C
Maximum operating pressure	16 bar g at 204^0 C
Maximum operating temperature	232^0 C at 16 bar g
Cold hydraulic test pressure	24 bar g

Body design conditions: **DN 50-150** PN 25 Flanged End	
Maximum allowable pressure	25 bar g at 38^0 C
Maximum operating pressure	25 bar g at 226^0 C
Maximum operating temperature	232^0 C at 25 bar g
Cold hydraulic test pressure	38 bar g

Body design conditions: **DN 50-200** PN 40 Flanged End	
Maximum allowable pressure	40 bar g at 38^0 C
Maximum operating pressure	39 bar g at 232^0 C
Maximum operating temperature	232^0 C at 39 bar g
Cold hydraulic test pressure	60 bar g



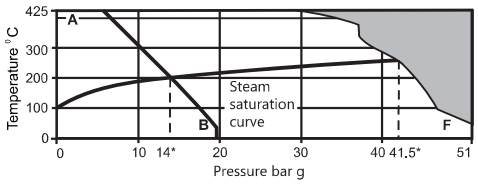
DN 50



DN 65 to 250

Operating Range

ASME Class 150-300

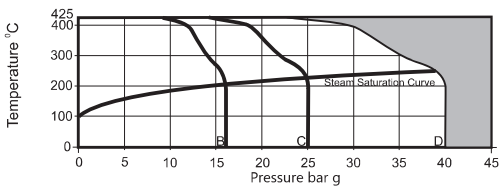


The product must not be used in this region.

A - B Flanged Class 150 A - F Flanged Class 300

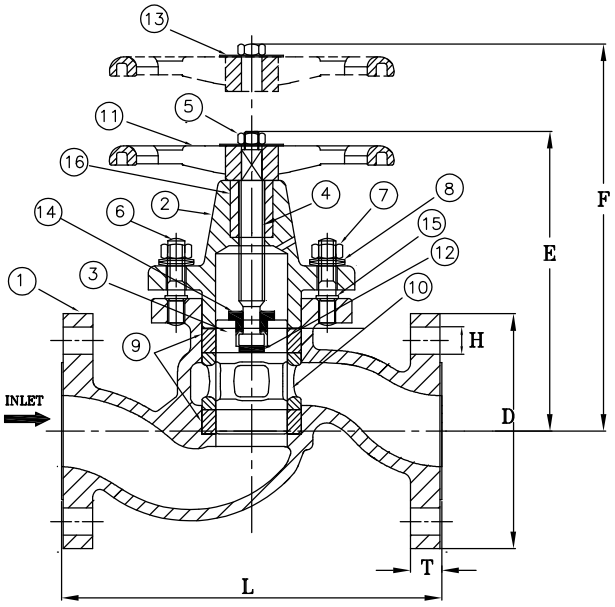
* PMO- Maximum operating Pressure

DIN PSVAL



The product must not be used in this region.

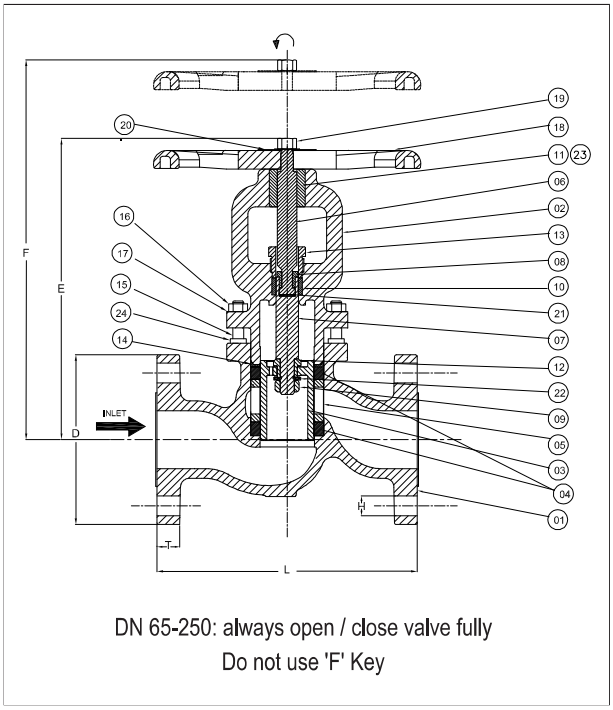
A - B Flanged PN 16 A - C Flanged PN 25 A - D Flanged PN 40



DN 50 Piston valve: always open / close valve
fully do not use valve key

Dimensions (approx. in mm) : Size DN 50

ANSI Class	L	D	PCD	H	No. of Holes	T	E	F	Weight (approx.)
150	203	152	121	19	4	19	210	262	14.5 kg
300	267	165	127	19	8	22	210	262	17.5 kg
PN 16/25	230	165	125	18	4	18	210	262	14.5 kg
PN 40	230	165	125	18	4	20	210	262	17.5 kg



DN 65-250: always open / close valve fully
Do not use 'F' Key

Material: DN 50

No.	Description	Material	Standard
1	Body	Cast Steel	ASTM A 216 Gr.WCB
2	Bonnet	Cast Steel	ASTM A 216 Gr.WCB
3	Piston	Stainless Steel	ASTM A 276 TYPE 304
4	Spindle	Stainless Steel	ASTM A 276 TYPE 410
5	Nyloc Nut	Carbon Steel	
6	Stud	Carbon Steel	ASTM A193 Gr. B7
7	Nut	Carbon Steel	ASTM A 194 Gr.2H
8	Belleville Washer	Spring Steel	50CrV4
9	Sealing stack	S.S. Reinforced Graphite	
10	Spacer	Stainless Steel	ASTM A 743 Gr.CA15
11	*Handwheel	SG Iron	
12	Thrust Plate	Stainless Steel	ASTM A 276 TYPE 420
13	Name Plate	Stainless Steel	ASTM A 240 TYPE 304
14	Split Nut	Brass	DIN EN 12164
15	Gap ring	Stainless Steel	ASTM A 276 TYPE 410
16	Bush	Bronze	

Material: DN 65-250

No.	Description	Material	Standard
1	Body	Cast Steel	ASTM A 216 Gr.WCB
2	Bonnet (100-250NB)	Cast Steel	ASTM A 216 Gr.WCB
	Bonnet (65-80NB)	Forged Carbon Steel	ASTM A 105N
3	Piston	Stainless Steel	ASTM A 351 CF8
4	Body Sealing Stack	S/S Reinforced Graphite	
5	Spacer	Stainless Steel	ASTM A 743 CA 15
6	Spindle	Stainless Steel	ASTM A 276 Type 410
7	Stem	Stainless Steel	ASTM A 276 Type 304
8	Split Nut	Brass	DIN EN 12164
9	LH Nut	Stainless Steel	ASTM A 276 Type 304
10	Gland Sealing Stack	S/S Reinforced Graphite	
11	Threaded Bush	Ph. Bronze	
12	Back Seat	Stainless Steel	ASTM A 276 Type 410
13	Hex.Gland Nut	Stainless Steel	ASTM A 276 Type 410
14	Bonnet Sealing Ring	Graphite	
15	Stud	Carbon Steel	ASTM A 193 Gr.B7
16	Nut	Carbon Steel	ASTM A 194 Gr.2H
17	Beleville Washer	Spring Steel	50CrV4
18	Handwheel	S.G. Iron	
19	Nyloc Nut	Carbon Steel	
20	Name Plate	Stainless Steel	ASTM A 240 TYPE 304
21	Thrust Plate	Stainless Steel	ASTM A 276 TYPE 420
22	Washer	Stainless Steel	ASTM A 240 TYPE 304
23	Grub Screw	Hardened Steel	I.S. 12.9
24	Gap Rings	Stainless Steel	ASMT A 276 TYPE 410