

Type BV2001

Floating Mounted Ball Valve



Application

Tight-closing ball valve for process engineering and industrial applications

Nominal size NPS $\frac{1}{2}$ to NPS 4

Nominal pressure Class 600

Temperatures -10 to 200 °C

Body material

- Carbon Steel
- Stainless Steel

Ball material

- Stainless steel

Further features

- Design Standard: API 6D, ASME B 16.34
- Test and inspection: API 598, API 6D
- Face-to-face dimensions according to API 6D, ASME B16.10
- Flanged Ends: ASME B 16.5
- Exchangeable PTFE seat rings
- Blow-out proof ball shaft with spring-loaded PTFE V-ring packing
- TA-Luft (German clean air act) equivalent certification

Ball valve made of corrosion-resistant materials equipped with

- Pneumatic actuator or
- Manual actuator

The ball valves with pneumatic actuators can be equipped with positioners, limit switches and solenoid valves.

Leakage rate acc. to IEC 60534-4 or ANSI/FCI 70-2: IV,V

Other Versions

– Body, ball and ball stem made from TITANIUM (TA1, TA2), Nickel (N6t N201), HASTELLOY (B,C), INCOLOY (800,825,903), MONEL (400,500), INCONEL (625,690), ZIRCONIUM 702, 904L, 20# Alloy, S32750 (SAF2507, F53), S31803 (SAF2205, F51), F55 (S32760), F60 (S32205), A4,C4 or other materials

- Ball valves for higher temperatures
- Ball valves for low temperatures
- Fire-safe versions according to API 607/6FA
- Others on request



Fig. 1: Type BV2001 Ball Valve with Manual Actuator

Anti blow out stem

Our ball valves are always provided with anti-blow out stem design, which ensures total safety and integrity.

Full bore

Ball valves are generally designed so that internal flow passage is large enough to pass flow without a significant restriction. The diameter of the bore is the same as the diameter of the pipe to which it connects.

Reduced bore

Often, a system does not expected to operate at the full capacity of the pipe. This offers an opportunity for reducing equipment costs.

A reduced bore ball valve uses a ball/seat combination which has a smaller diameter than the pipe. The nominal valve size is referred to by the outlet size x the ball diameter — for example 3" x 2".

Soft seated ball valves

The seat design features a deep pocket with a protective lip which makes the design a long lasting design. The seat assembly consists in an outer metallic seat carrier with a soft seat insert. The soft insert is located into a groove in the metallic seat carrier.

The complete seat assembly is floating inside valve body and it is energized by a set of springs which load the seat assembly against the ball preventing leakage from behind the seat.

Seat assembly is provided with outer o-ring to avoid leakage through the seat carrier and a graphite back up ring which ensure the tightness in case the o-ring is damaged.

Metal seated ball valves

Metal to metal sealed design has been employed perfectly for the ball and seat, which has also adopted the advanced hardening technologies, such as ultrasonic spray coating, nickel base spray welding, surface specially hardening, stellite spray welding, ceramic material with high strength and hardness, and so on. Surface hardness of the ball and seat may generally reach more than HRC60, Maximum is up to HRC74, and application temperature of the material may be up to 540°C, Maximum is 980°C.

Principle of operation

The process medium can flow through the ball valve in both directions. The ball with its cylindrical bore (ball channel) rotates around the center axis. The rotary angle of the ball determines the flow rate across the free area between the body and the ball channel. The ball shaft, can be optionally connected to a pneumatic actuator or equipped with a manually operated lever actuator. The ball is sealed by means of exchangeable seat rings. The ball shaft is sealed with PTFE/Flexible graphite ring packing.

Additional equipment and accessories:

The ball valve, following accessories can be used individually or in combination

- Pneumatic actuator
- Limit switch
- Various solenoid valves
- Supply pressure regulator
- According to user specifications can provide other attachments



Fail-safe position

Depending on the different initial install position of in the pneumatic actuators, the ball valve has two fail-safe positions, which become automatically close or open when the supply air fails:

Control valve CLOSED without supply air

The ball valve closes when the air supply fails.

The ball valve opens when the air supply increases to against the force of the springs.

Control valve OPEN without supply air

The ball valve opens when the air supply fails.

The ball valve closes when the air supply increases to against the force of the springs.

Table 1: Main Parameter Specification

Nominal size	NPS	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
Nominal pressure	Class	150 to 600										
Design and Manufacture		API6D,ASME,B16.34,API608,MSS-SP-72(BS5351)										
Face to Face Dimension		ASME B16.10,API6D										
Connection Dimension		ASME B16.5										
Test and Inspection		API 598.API 6D										
Fire-Safe Design		API 607/6FA										
Temperature range	C	-10 C to 200 C										
Leakage		according to ANSI/FCI 70-2										
Valve plug	Soft seal	VI										
	Metal seal	IV										

Table 2: Bill of Material

No.	Designation	Material
1	Left Body	Carbon Steel,Stainless Steel, TITANIUM(TA1,TA2),Nickel(N6,N201). HASTELLOY(B,C),INCOLOY(800,825,903),MONEL(400,500). INCONEL(625,690),ZIRCONIUM 702,904L,20#Alloy,S32750(SAF2507,F53). S3 1803(SAF2205,F51),F55(S32760),F60(S32205),A4,C4"
2	Seat	PTFE,RPTFE,PEEK,PPL,POM,KARBATE,NYLON,MOLON,DEVLON
3	Ball	A105+ENP,A350 LF2+ENP,A182 F6,F304,F304L,F316,F316L,F51,F53,ALLOY-20,SS321
4	O-Ring	VITON,NBR
5	Gasket	Flexble Graphite+304,Flexble Graphite+316,PTFE
6	Bolt	A194-2H,2HM,8,8M
7	Nut	A193-B7,B7M,B8,B8M
8	Right Body	Carbon Steel,Stainless Steel, TITANIUM(TA1,TA2),Nickel(N6,N201). HASTELLOY(B,C),INCOLOY(800,825,903),MONEL(400,500). INCONEL(625,690),ZIRCONIUM 702,904L,20#Alloy,S32750(SAF2507,F53). S3 1803(SAF2205,F51),F55(S32760),F60(S32205),A4,C4"
9	Small Spring	SS304,SS316
10	Small Ball	SS304,SS316
11	Thrust Washer	PTFE
12	Stem	A276-T410,T304,T304L,T316,T316L,T321,ALLOY-20,1045+ENP,A182-F51,F53,4140+ENP,17-4PH
13	Packing	Flexble Graphite,PTFE
14	Gland	A276-T410,T304,T304L,T316,T316L,T321,ALLOY-20,A182-F51,F53
15	Gland Flange	A216-WCB,A351-CF8
16	Limited Plate	1025,Stainless Steel
17	Wrench	A216-WCB
18	Screw	1035
19	Screw	A193-B7,B8
20	O-Ring	VITON

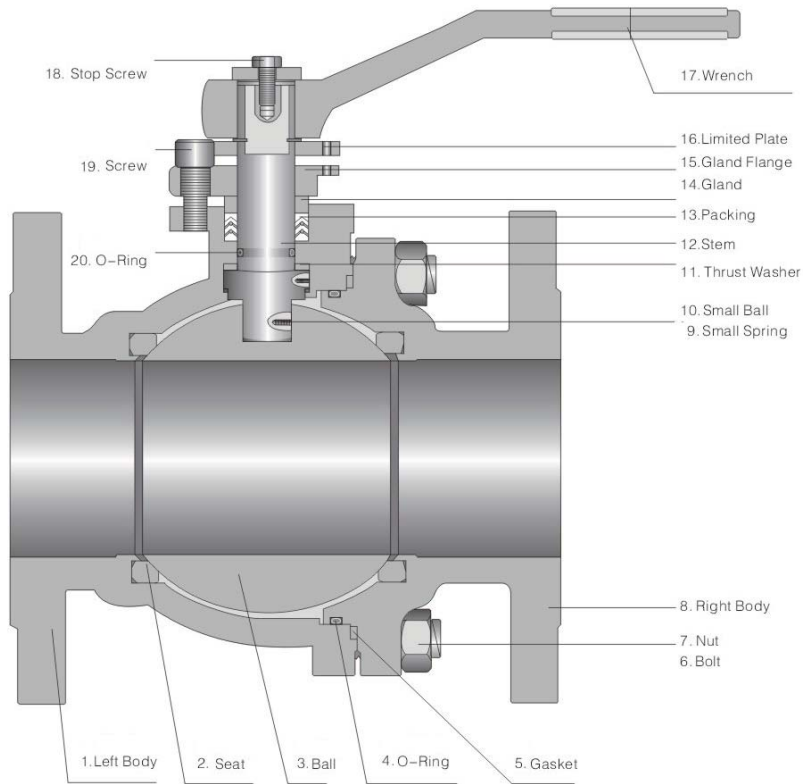


Fig.2 2PC Full Bore Floating Ball Valve Major Features of Type BV2001

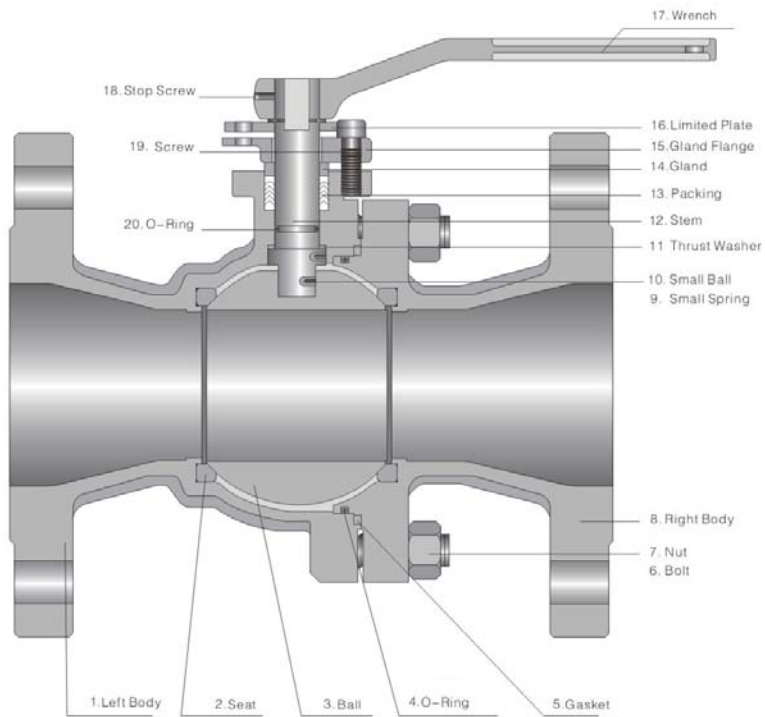


Fig.3 2PC Reduced Bore Floating Ball Valve Major Features of Type BV2001

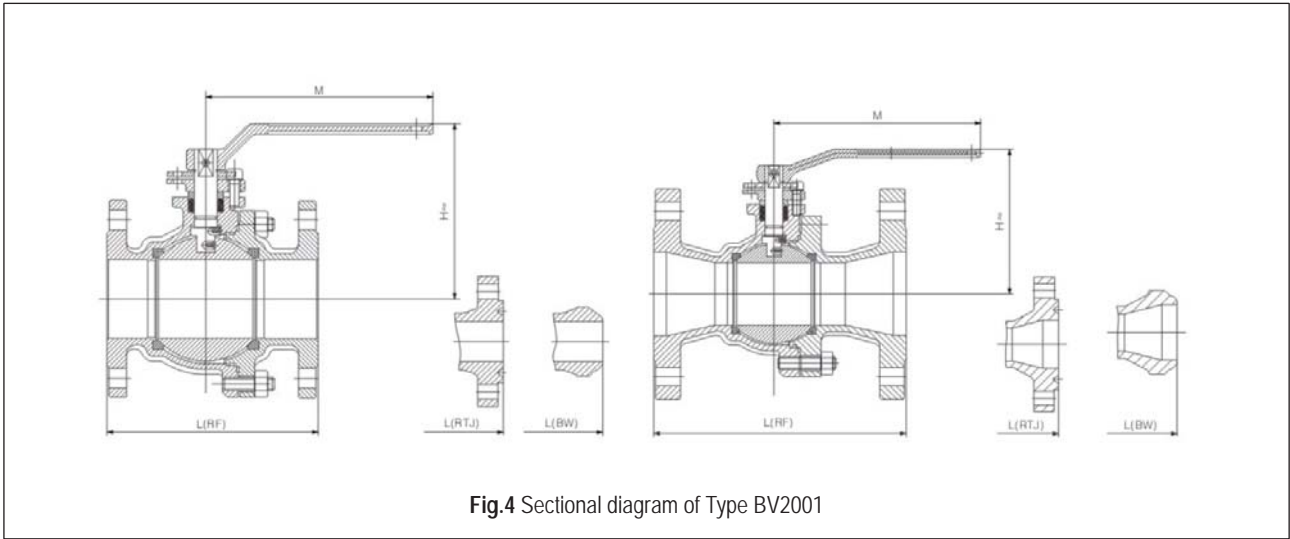


Table 3: Dimensions in mm for standard version of Type BV2001

Table 3.1: 2PC Full Bore Floating Ball Valve Major Features

SIZE(in)	L(RF) (mm)	L(RTJ) (mm)	L(BW) (mm)	H≈ (mm)	M≈ (mm)	W≈ (kg)
1/2×3/8 G	140	151	140	79	140	3
1/2	140	151	140	79	140	3.5
3/4×1/2 G	152	165	152	79	140	4
3/4	152	165	152	90	160	4
1×3/4 ®	165	178	165	90	160	4.5
1×1/2 G	165	178	165	79	140	3.2
1	165	178	165	94	160	5
1 1/4	178	191	178	102	160	8
1 1/2×1 ®	191	203	191	94	160	5.5
1 1/2×1 1/4 G	191	203	191	102	160	5.5
1 1/2	191	203	191	120	200	11
2×1 1/4 ®	216	232	216	102	160	5.7
2×1 1/2 G	216	232	216	120	200	6
2	216	232	216	142	250	13
2 1/2	241	257	241	158	300	25
3×2 ®	283	298	283	147	250	14
3×2 1/2 G	283	298	283	158	300	28
3	283	298	283	170	350	30
4×2 1/2 ®	305	321	305	158	300	33
4×3 G	305	321	305	170	350	38
4	305	321	305	210	400	45
6×3 ®	403	419	403	170	350	48
6×4 G	403	419	403	210	400	57
6	403	419	457	366	800	90
8×4 ®	419	435	419	210	400	75
8×6 G	419	435	419	366	800	100
8	502	518	521	440		201

G:Regular bore; ®:Reduce bore; W:The W in the table means weight of RF End Ball Valve

Table 3.2: 2PC Reduced Bore Floating Ball Valve Major Features

SIZE(in)	L(RF) (mm)	L(RTJ) (mm)	L(BW) (mm)	H≈ (mm)	M≈ (mm)	W≈ (kg)
1/2×3/8 G	165	163	165	85	160	4
1/2	165	163	165	85	160	4.5
3/4×1/2 G	191	191	191	85	160	6
3/4	191	191	191	93	200	7
1×3/4 G	216	216	216	93	200	8
1×1/2 ®	216	216	216	85	160	6.6
1	216	216	216	99	200	10
1 1/4	229	229	229	100	200	15
1 1/2×1 ®	241	241	241	99	200	13
1 1/2×1 1/4 G	241	241	241	100	200	17
1 1/2	241	241	241	117	200	20
2×1 1/4 ®	292	295	292	100	200	21
2×1 1/2 G	292	295	292	117	200	28
2	292	295	292	180	350	27
2 1/2	330	333	330	210	400	45
3×2 ®	356	359	356	180	350	33
3×2 1/2 G	356	359	356	210	400	51
3	356	359	356	244	700	56
4×2 1/2 ®	432	435	432	210	400	58
4×3 G	432	435	432	244	700	63
4	432	435	432	265	800	95

G:Regular bore; ® :Reduce bore; W:The W in the table means weight of RF End Ball Valve

Selecting and sizing the ball valve:

Accordance with ball valve operation and design conditions:

- Calculate the required nominal size, on-off valve generally based on user pipe size to calculate diameter of the valve.
- Select the suitable materials from Table 2.
- Select accessories.

Ordering text:

Ball valve	Type BV2001
Nominal size	DN ...
Nominal pressure	PN ...
Type of end connections	Flanges
Leakage rate	
On option, special version	
Actuator Type	Pneumatic rotary actuator or Manual lever
Fail-safe position	Fail-close or Fail-open
Signal pressure	... bar
Accessories	Limit switch, Solenoid valve, Supply pressure regulator
Operating pressure	... bar
Medium temperature	... °C
Sealing type	...Soft or Metal
Others	

Specifications subject to change without notice