

# Type BV1002 Trunnion Mounted Ball Valve



## Application

Tight-closing ball valve for process engineering and industrial applications

Nominal size NPS 2 to 16

Nominal Pressure Class 150 to 300

Temperatures 0-200 °C

## Features

Type BV1002 ball valve equipped with pneumatic rotary actuator or hand lever.

- Valve body material: Cast stainless steel (or Cast steel).
- Valve ball material: Stainless steel.
- Seat ring installed at the side of the valve ball, can dynamically self-adjusting and be changed.
- Leakage rate according to ANSI/FCI70-2, up to class VI of on-off operation.
- The ball valves designed according to the modular assembly principle, can be equipped with various accessories.
- Ball shaft used blow-out proof, dust proof design, with PTFE packing.
- Face-to-face dimensions according to ASME B16.10-2000 CL150/CL300.
- Flange for attachment of actuators in accordance with DIN ISO 5211.

## Structural Characteristic

- Fire safe device
  - Antistatic device
  - Blow-out proof stem construction
  - Reliable sealing stem with O-rings and packing
  - The preload of springs ensuring the seat sealing at low pressure
  - Double block and discharge function
  - Easy adjustable stem packing for re-sealing
  - Built-in ISO 5211 mounting pad for easy automation
- Emergency grease injection(option)

## Standard Specification

- Design standard: ASME B16.34 API 6D API 608
- Structure length: ASME B16.10
- Flanged end: ASME B16.5
- Fire safe test: API 607 ISO 10497
- Inspection and test: API 598 API 6D



Fig. 1: Type BV1002 Ball Valve with Pneumatic Rotary Actuator

## 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

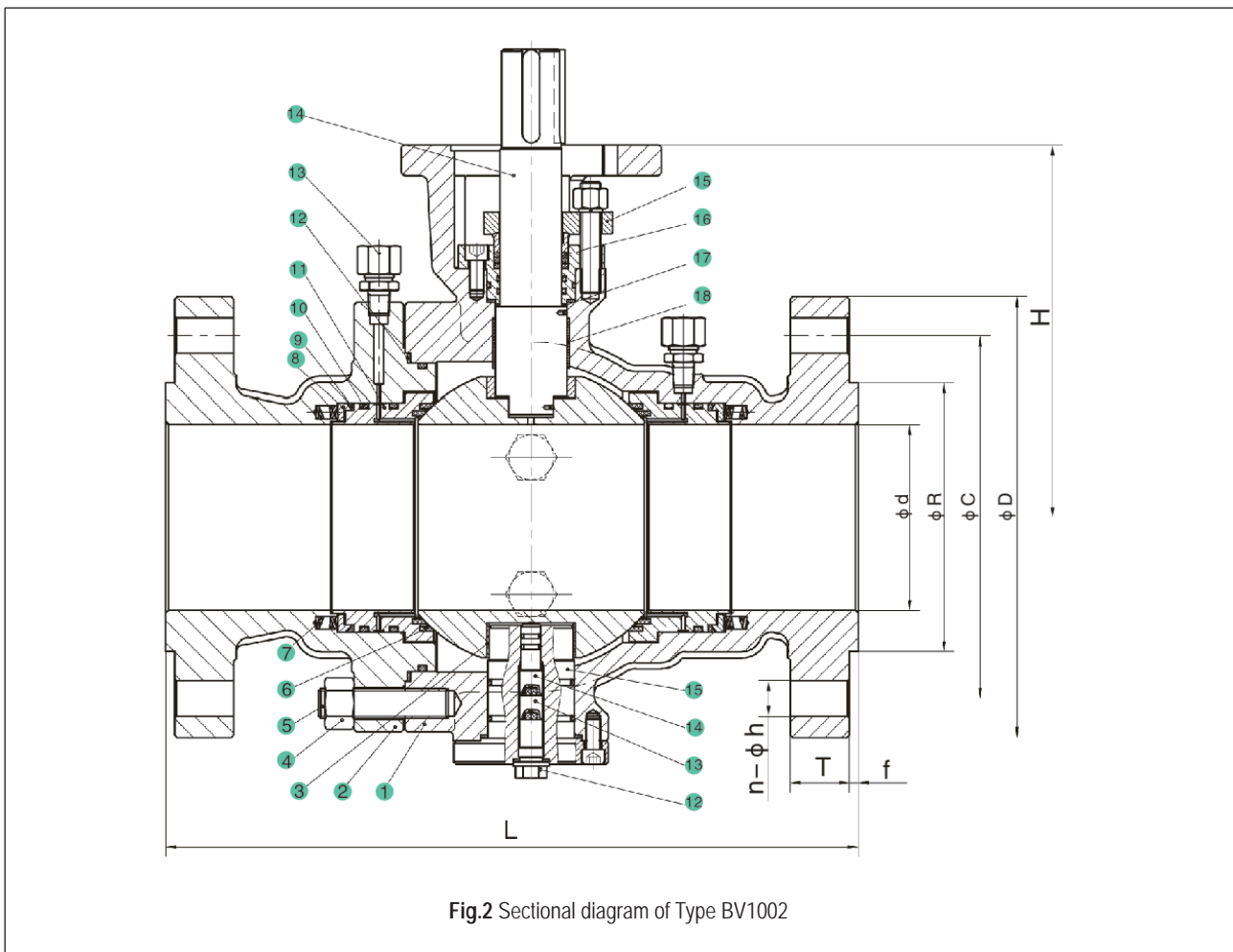
The ball valve opens when the air supply fails.  
The ball valve closes when the air supply increases to against the force of the springs.

**Table 1: Main technical data**

Nominal size	NPS	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"
Nominal pressure	Class	150/300											
Type of end connection	Flange	ASME B16.5-2009											
Seat/plug seal	PTFE Soft seal	PTFE Soft seal											
Temperature range	°C	-10 °C to 200 °C											
Leakage rate		according to ANSI/FCI 70-2											
Valve plug	Soft seal	VI											
	Metal seal	IV											

**Table 2: Material**

No.	Designation	Material			
1	Body	A216-WCB	A352-LCB	A351-CF8	A351-CF8M
2	Cap	A216-WCB	A352-LCB	A351-CF8	A351-CF8M
3	Ball	A105+ENP	A350-LF2-ENP	A182-F304	A182-F316
4	Nut	A 194-2H	A194 - 7	A 194-8	
5	Bolt	A193-B7	A320-L7	A192-B8	
6	Seat	PTFE/25%Carbon-TFM1600			
7	Spring	Inconel X - 750			
8	Gland	A105+ENP	A350-LF2-ENP	A182-F304	A182-F316
9	Anti-fire ring	Flexible graphite			
10	O ring	FKM/NBR			
11	Seat supporter	A105+ENP	A350-LF2-ENP	A182-F304	A182-F316
12	Gasket	204 Sprial wound+graphite+PTFE			316 Sprial wound
13	Grease injection valve	Assenbly			
14	Stem	A183-F6a		A182-F304	A182-F316
15	Gland fange	A216-WCB	A351-CF8		
16	Packing	PTFE/Flexible graphite			
17	Washer	PTFE			
18	Bearing	304+PTFE+MoS2			316+PTFE+MoS2
19	Bottom stem	A183-F6a		A182-F304	A182-F316
20	Adjustment shalf	A1930-B7	A320-L7	A193-B8	A193-B8M
21	Holding screw	A1930-B7	A320-L7	A193-B8	A193-B8M
22	Hex.Plug	A276-410		A276-304	A276-316



**Fig.2** Sectional diagram of Type BV1002

**Table 3: Dimensions in mm for standard version of Type BV1002-150/BV1002-300**

DN		Dimension						Flange dimension									
DN	NPS	L		H		D		T		F		R		C		N-Φh	
		150	300	150	300	150	300	150	300	150	300	150	300	150	300	150	300
50	2	216	216	180	180	150	165	17.5	20.7	2	2	92.1	92.1	120.7	127.0	4-Φ19	8-Φ19
65	2½	241	241	190	190	180	190	20.7	23.9	2	2	104.8	104.8	139.7	149.2	4-Φ19	8-Φ22
80	3	282	282	200	200	190	210	22.3	27.0	2	2	127.0	127.0	152.4	168.3	4-Φ19	8-Φ22
100	4	305	305	210	210	230	255	22.3	30.2	2	2	157.2	157.2	190.5	200.0	4-Φ19	8-Φ22
150	6	403	403	280	280	280	320	23.9	35.0	2	2	215.9	215.9	241.3	269.9	8-Φ22	8-Φ22
200	8	457	502	320	320	345	380	27.0	39.7	2	2	269.9	269.9	298.5	330.2	8-Φ22	12-Φ26
250	10	533	568	350	350	405	445	28.6	46.1	2	2	323.8	323.8	362.0	387.4	12-Φ26	16-Φ29
300	12	610	648	400	400	485	520	30.2	49.3	2	2	381.0	381.0	431.8	450.8	12-Φ26	16-Φ32
350	14	686	762	430	430	535	585	33.4	52.4	2	2	412.8	412.8	476.3	514.4	12-Φ29	20-Φ32
400	16	762	838	470	470	595	650	35.0	55.6	2	2	469.9	469.9	539.8	571.5	12-Φ29	20-Φ35

### 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 BV1001 DN... Class...
Valve body material	Acc. to table 2
Type of end connection	Flanges
Seat and plug	Metal sealing or soft sealing
Actuator	Pneumatic rotary actuator or hand lever
Fail-safe position	Fail-close or fail-open
Process medium	Density and temperature
Max. Flow rate	n kg/h or m³/h
Max Shut off DP	Δp
Pressure p1 and p2	(MPa, KPa bar)
Accessories	Limit switch, Solenoid valve, Supply pressure regulator
Others	

**Specifications subject to change without notice**