



## BR 23s · Segmented Ball Valve

Stainless steel Segmented Ball Valve in DIN-Version



### Application

Segmented Ball Valve with high flow capacity for technical process plants, especially at media with solid parts:

- **Nominal size DN 100 to DN 300**
- **Nominal pressure PN 10**
- **Temperature -10°C to 200°C**

The control valve consists of a stainless steel segmented ball valve and a pneumatic quarter-turn actuator or a hand-operated actuator.

The valve is designed according to the modular-assembly principle and has the following features:

- Minimized dead spaces with high flow capacity for process media containing solid particles and dirt
- Stainless steel one-piece valve body
- Stem sealed by spring-loaded PTFE V-ring packing
- Static charging of the ball discharged
- Face-to-face dimensions of flanged valves with two-piece body according to EN 558, Series 1
- Special face-to-face dimensions of sandwich valves (see Table 7)
- Mounting flange for actuators according to DIN ISO 5211

### Versions

The BR 23s Segmented ball valve is available in the following versions:

- Segmented ball valve with hand-operated actuator
- Segmented ball valve with pneumatic quarter-turn actuator, (for details see respective data sheet)
- According to customer specifications

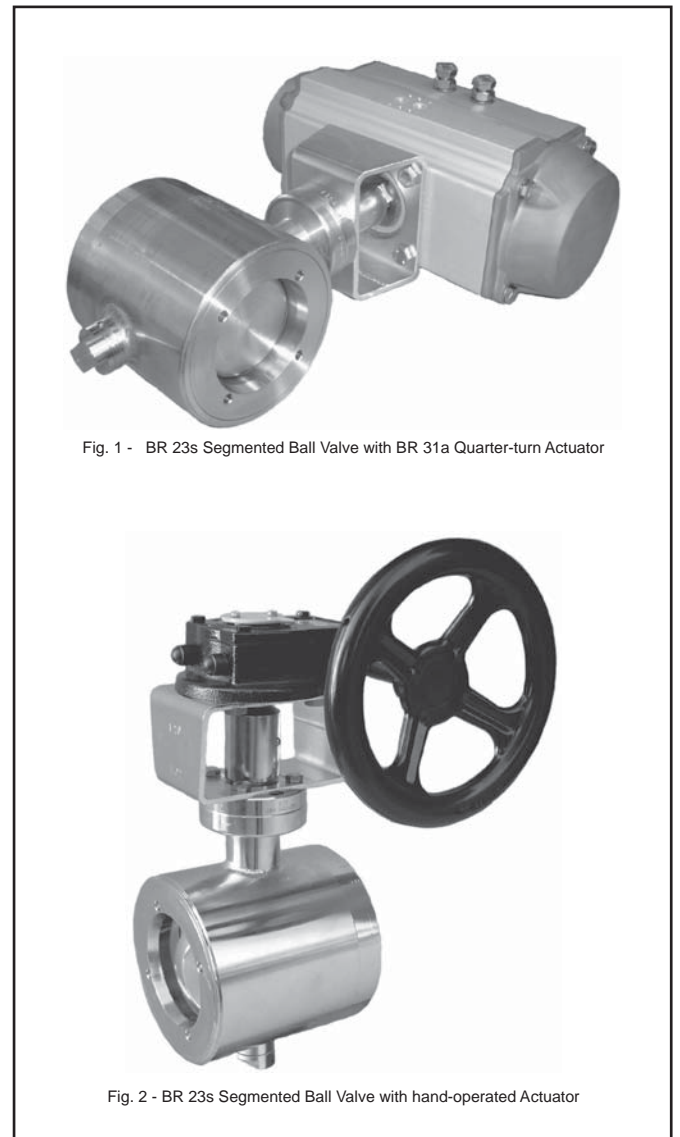


Fig. 1 - BR 23s Segmented Ball Valve with BR 31a Quarter-turn Actuator

Fig. 2 - BR 23s Segmented Ball Valve with hand-operated Actuator

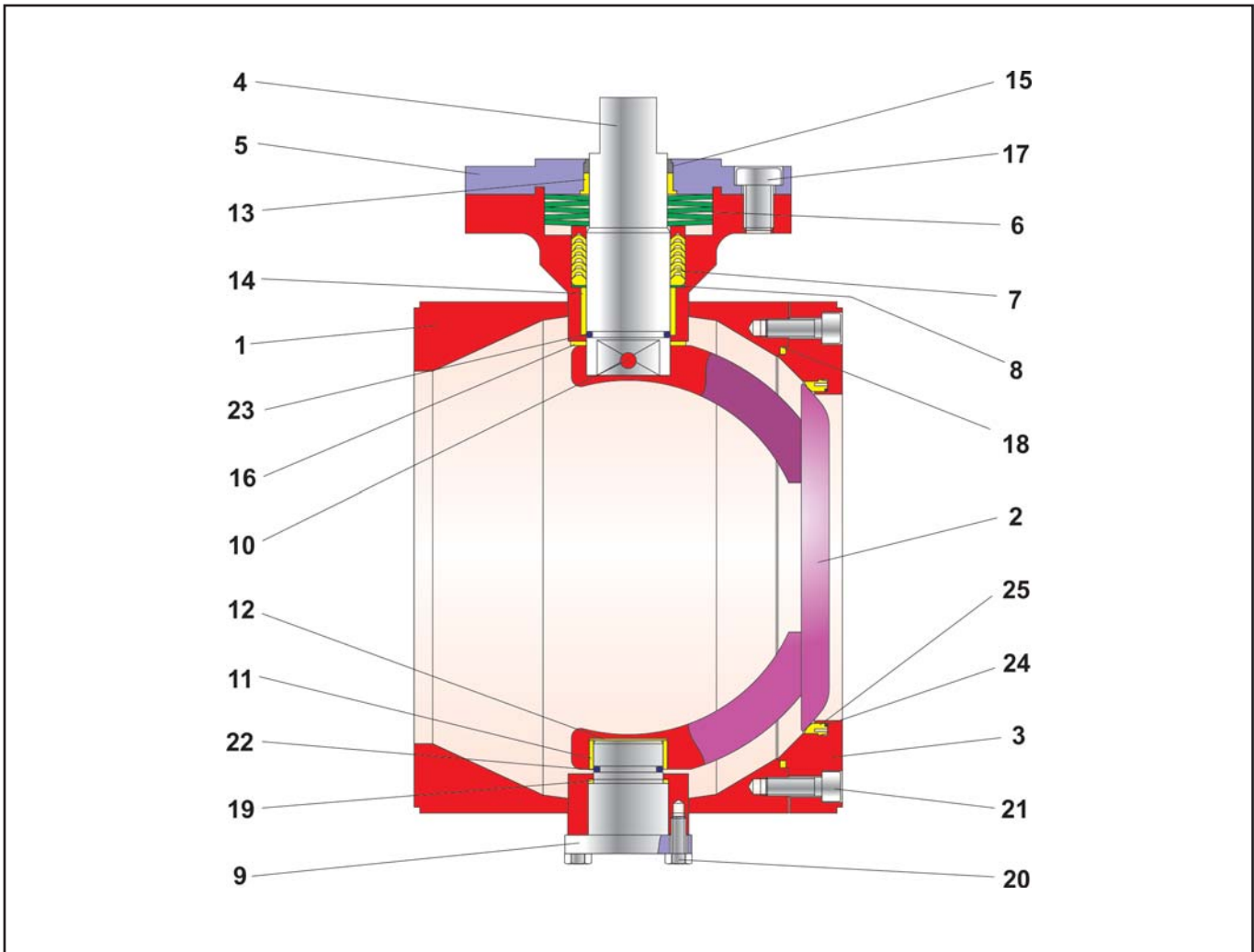


Fig. 3 - Segmented ball valve

Item	Description
1	Valve body
2	Segmented Ball
3	Retainer
4	Shaft
5	Packing flange
6	Set of disk springs
7	V-ring packing
8	Thrust washer
9	Trunnion
10	Taper pin
11	Bearing bushing
12	Washer
13	Bearing bushing

Item	Description
14	Bearing bushing
15	Bearing bushing
16	Shim
17	Screw
18	Body gasket
19	Trunnion sealing
20	Screw
21	Screw
22	O-ring
23	O-ring
24	O-ring
25	Seat ring

Table 1 - Parts list

## Special design

- Heating jackets
- Valve body and ball segment are available in special materials (e.g. Hastelloy)
- Version for large sizes and wide temperature range -200°C to 450°C
- Shaft sealed by double packing with test connection
- Purge connections and rinsing nozzle systems
- GMP and FDA-compliant version

## Principle of operation

The process medium flows through the valve indicated by the arrow.

In special cases, the process medium can flow through the valve in the reverse direction (details available on request).

The segmented ball ( 2 ) determines the flow through the area released between the ball and seat ring ( 25 ). The seat ring shuts off the valve tightly.

This construction ensures excellent valve shut-off, high flow capacity and facilitates interchangeability of the seat rings.

The stem is sealed by a maintenance-free PTFE V-ring packing ( 7 ). The disk washers ( 6 ) on top of the packing compress the packing.



### Notice:

Before use in hazardous areas, observe the possible use of the segmented ball valve according to the Directive **2014/34/EU** (ATEX) based on the Operating Instructions <BA 23a>.

## Fail-safe position

Depending on how the actuator is mounted, the valve has two fail-safe positions, which the valve moves to when the pressure is relieved or upon air supply failure:

### Fail-close valve

On failure of air supply the ball valve closes.

The opening of the ball valve occurs on rising of air supply against the force of the springs.

### Fail-open valve

On failure of air supply the ball valve opens.

The opening of the ball valve occurs on rising of air supply against the force of the springs.

## Advantages of the live-loaded sealing system

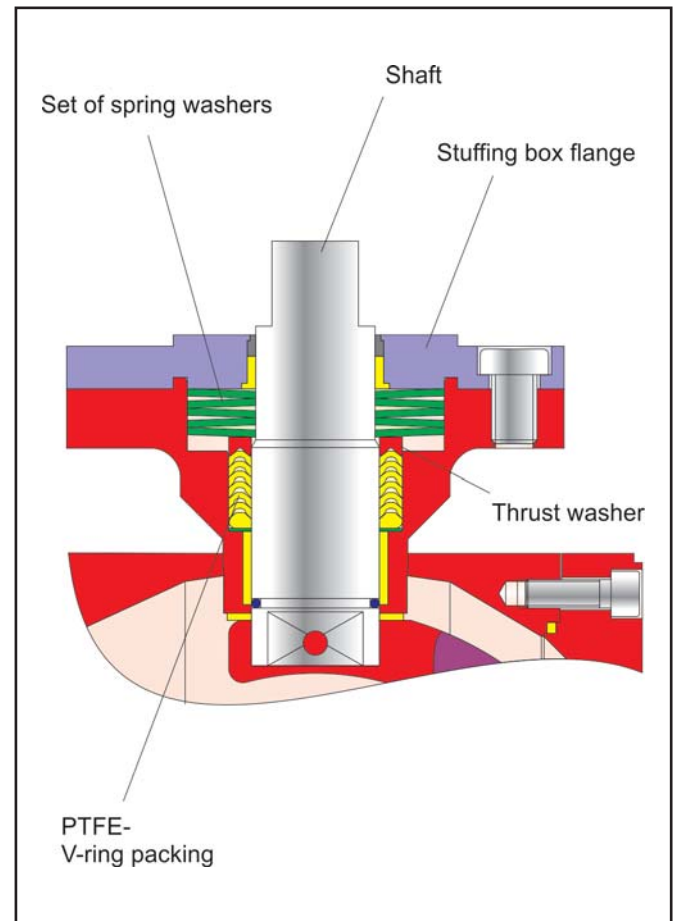


Fig. 4 - Live-loaded V-ring packing

- Maintenance-free and self-adjusting
- Highest tightness, even under extreme pressure and temperature conditions
- High durability
- **All in all:**  
**Extremely economic!**

## Additional accessories

The following accessories are available (separately or in combination):

- Pneumatic or electric quarter-turn actuators
- Positioner
- Limit switches
- Solenoid valves
- Filter regulator

Further accessories are possible on customer request.

## General technical data

Nominal size	DN 100 to DN 300
Nominal pressure	PN 10
Temperature range	-10°C to 200°C
Shut-off valve leakage rate	Leakage rate A acc. to DIN EN 12266-1, test P12 (Leakage rate 1 BO acc. to DIN 3230 Part 3)
Connections	All flanges in DIN versions / sandwich version

Table 2 - technical data

## Materials

Valve body	1.4404
Segmented ball	1.4404
Shaft	1.4404
Retainer	1.4404 or equivalent
Seat ring	TFM (PTFE) + Compounds
Packing	PTFE - V-ring packing loaded by disk washers (1.8159)
Bearing bushing	PTFE-Compound
Bonnet gasket	PTFE

Table 3 - Materials

## Torque and breakaway torques

DN	Permissible torque $M_{dmax.}$ in Nm	Required torque $M_d$ in Nm	Required breakaway torque $M_{dl}$ in Nm
100	168	110	110
150	226	220	220
200	437	250	350
250	749	490	
300	1497	670	

Table 4 - max. permissible torque  $M_{dmax.}$ , required torque  $M_d$  and breakaway torque  $M_{dl}$

The breakaway torques specified are average values which were measured with air at 20°C with the corresponding differential pressures. Operating temperature, process medium and long operating times may affect the permissible torques and breakaway torques considerably. The listed max. permissible operating torques are valid for the standard materials in table 3.

## Pressure-Temperature diagram

The area of application is determined by the pressure-temperature diagram. Process data and the process medium can affect the values in the diagram.

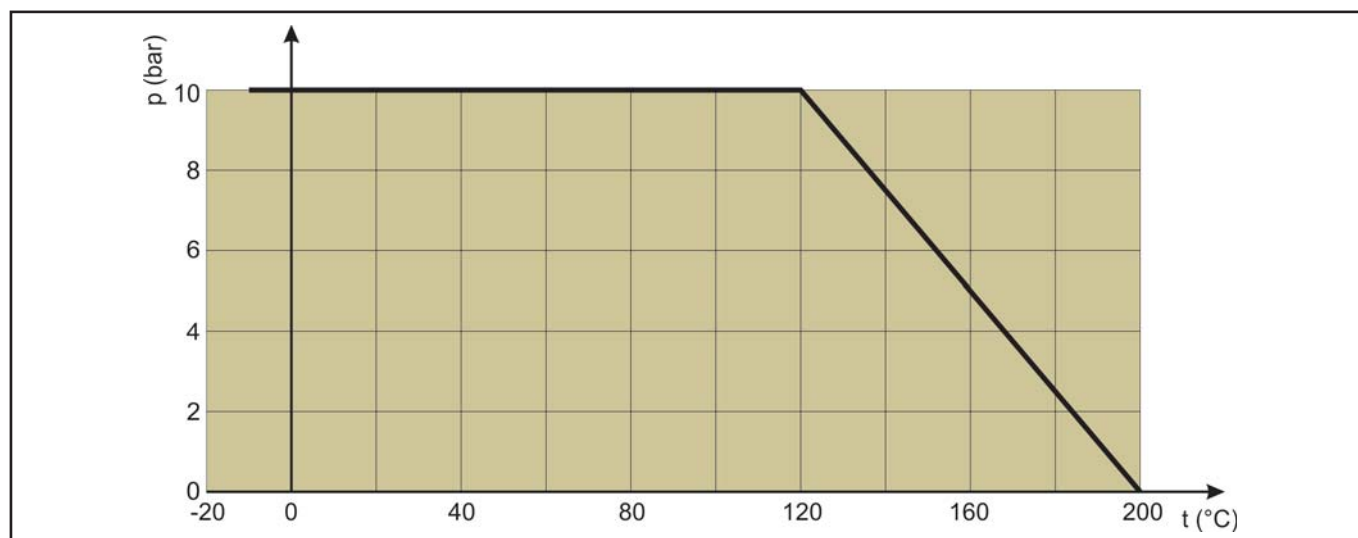


Fig. 5 - Pressure-Temperature Diagram

## Dimensions

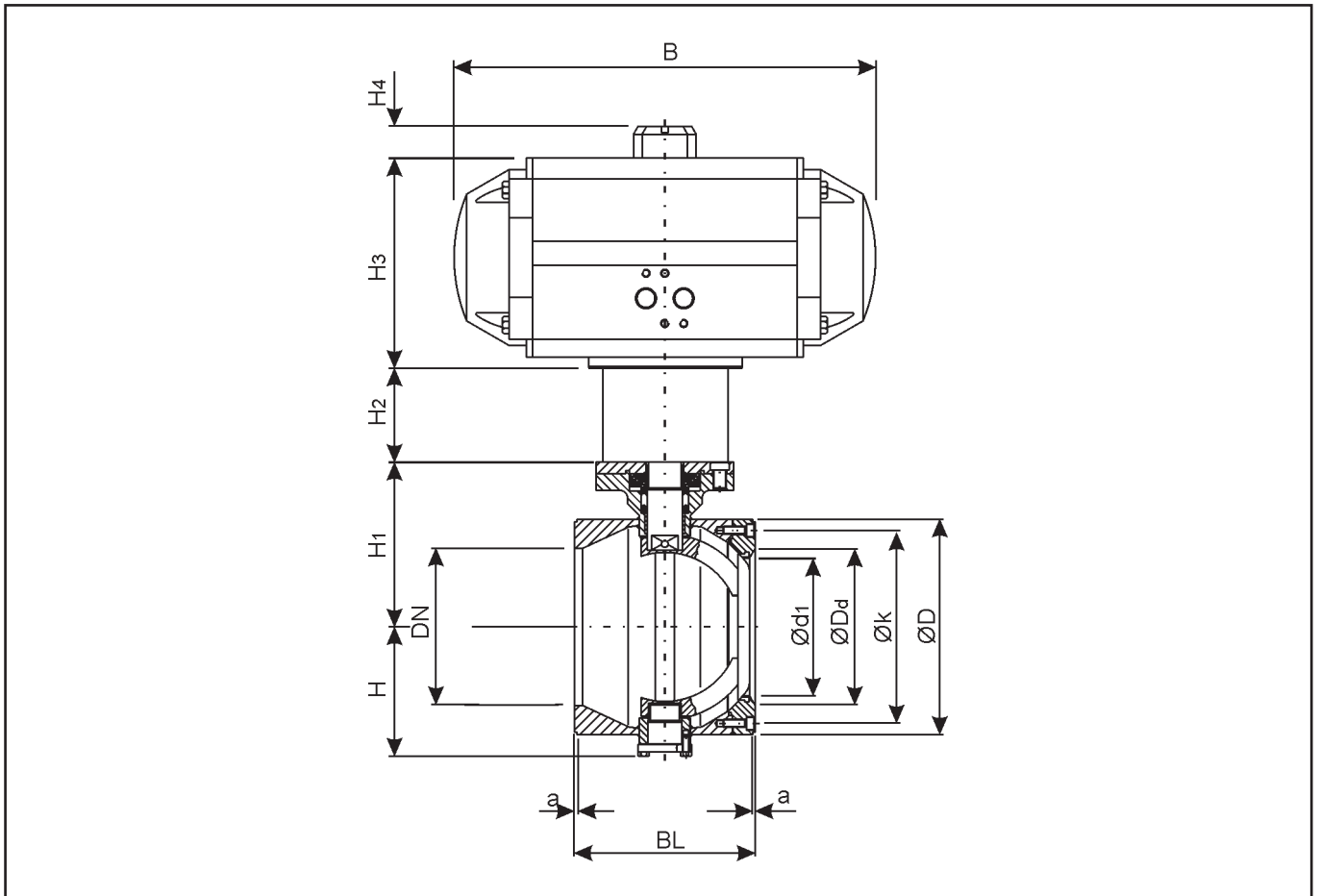


Fig. 5 - Dimensional drawing

DN	100	150	200	250	300
BR 31a Actuator, SRP	300	600	900	1200	2000
BL	160	180	230	250	350
a	3	3	3	3	3
Ød1	94	136	175	190	220
Øk	112	165	246	269	320
ØD	163	218	274,5	299,5	352
ØDd	100	150	200	250	300
H	113.5	130	164,5	180	245
H1	152	165	210	235	315
H2	80	80	90	100	180
H3	157	196	220,5	245	299
H4	30	30	50	50	50
B	345	437.5	487	543	621
DIN ISO Connection	F07 / F10	F10 / F12	F14 / F14	F16 / F14	F25 / F16
SW	19	24	30	34	46

Table 5 - Dimensions in mm

## Selecting and sizing the Segmented ball valve

1. Calculate the appropriate  $k_{vs}$  value
2. Check the application based on the pressure-temperature diagram.
  1. Select the actuator from Table 4.
  2. Select additional equipment.



### Notice:

All relevant details regarding the version ordered, which deviate from the specified version in this technical description data, can be taken if required, from the corresponding order confirm.

## Ordering text

Stainless steel BR 23s Segmented Ball Valve

DN . . . .

PN . . . .

Optional special version

Hand operated actuator or quarter-turn actuator: . . . .

Supply pressure: . . . . bar

Fail-safe position: . . . .

Limit switch (brand name): . . . .

Solenoid valve (brand name): . . . .

Positioner: . . . .

Others: . . . .

## Associated data sheets

- Rotary actuator with a rolling diaphragm TB 30a
- PFEIFFER quarter-turn actuators TB 31a