



M&S Armaturen GmbH

PARTNER NOT JUST SUPPLIER.

Operating instructions

-Translation of the original-

Ball valve KV

M&S Article No. 69300 - 693XX



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2 Safety notes

2.1 Marking of safety instructions in operating instructions



Danger warnings

Danger warnings are denoted by the danger symbol which appears on the left and are framed.



Information

Descriptions to which particular attention must be paid are denoted by this symbol which appears on the left and are also framed.

2.2 Proper use

The M&S ball valves KV are only intended for use as described. Any use beyond that is considered to be improper use. M&S is not liable for any resulting damage, the risk is solely with the operator. Requirement for perfect safe operation of the valve are proper transport and storage as well as professional set-up and assembly. Proper use also includes adherence to the requirements for operation, maintenance and repair. Unauthorised changes and modifications that impair the safety of the valve are not permitted. Only use original spare parts and accessories approved by the manufacturer.

2.3 Personnel

Operating and maintenance personnel must be qualified for the respective tasks. They must have had special instructions about any occurring hazards and must know and observe the safety advices mentioned in the operating instructions.

2.4 General instructions

The user is obliged to operate the valve in perfect condition only. Apart from the operating instructions, the following apply

- pertinent regulations on the prevention of accidents
- generally accepted safety-related rules
- internal work and safety regulations



3 Use and operating principle

The M&S ball valve is used to open and close (partially or completely) pipeline sections. It is mainly used in pipelines, power units and tanks and containers. It is a shutoff valve with full opening. Due to the completely free cross-section without deflection, no local flow loss occurs, and the valve is piggable.

The valve is opened or closed with hand operation or via a pneumatic actuator.

4 Transport and storage



When you receive the ball valve, check the information on order and delivery papers to make sure they correspond.

Check that the delivery is complete, and check its condition.

If there are visible signs of transit damage and/or packing units are missing, notify the forwarding agent immediately in the consignment note. You (the recipient) should take recourse against the forwarding agent immediately in writing, and M&S Armaturen GmbH must be informed of this action.

Complaints regarding transit damage that is not immediately evident must be made to the forwarding agent within 6 days.

The recipient must bear the costs for claims made after this period.

4.1 Transport



The packing units/valves must only be transported using suitable lifting equipment and slinging gear.

Pay attention to the graphic symbols on the packaging.

Transport the ball valve carefully to prevent damage from sudden impacts; exercise due care when loading/unloading.



5 Sectional drawings

5.1 Sectional drawing ball valve SS without actuation (welding version)

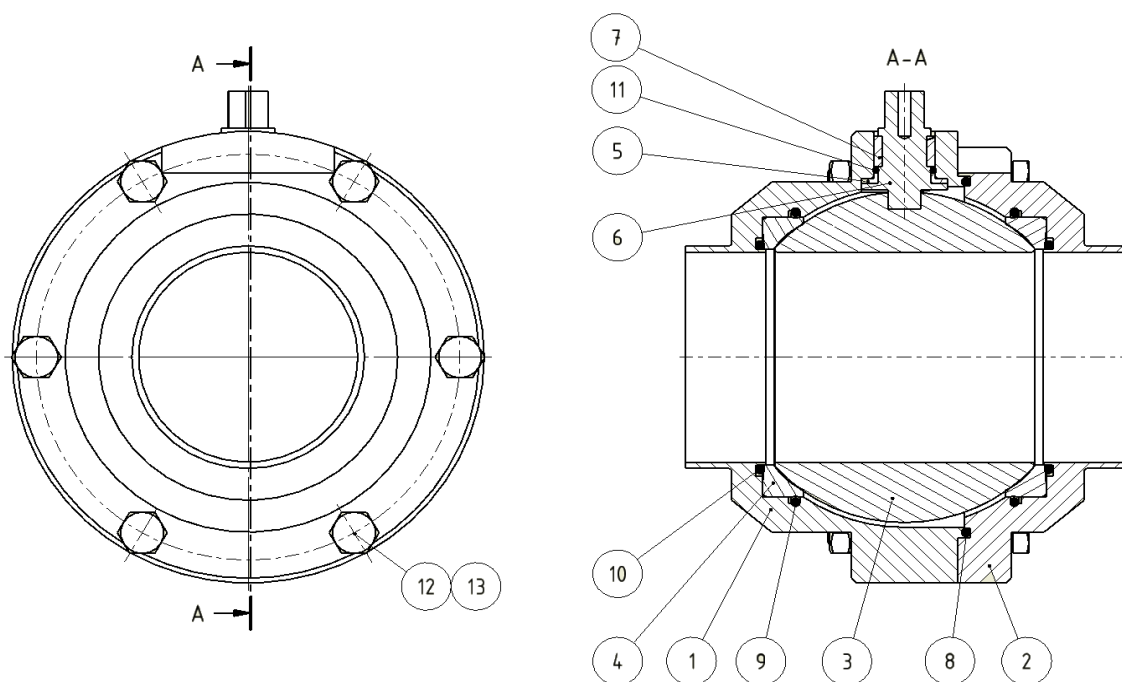


Figure 1 Sectional drawing ball valve SS without actuation (welding version)

Table 1 Bill of material ball valve SS without actuation (welding version)

Pos.	Designation	Pos.	Designation
1	Flange, long	8	O-ring
2	Flange, short	9	O-ring
3	Switching ball	10	O-ring
4	Ball gasket	11	O-ring
5	Bush	12	Hexagon screw
6	Switch shaft	13	Hexagon nut
7	Guide bush		

5.2 Sectional drawing ball valve BF without actuation (in-between flange version)

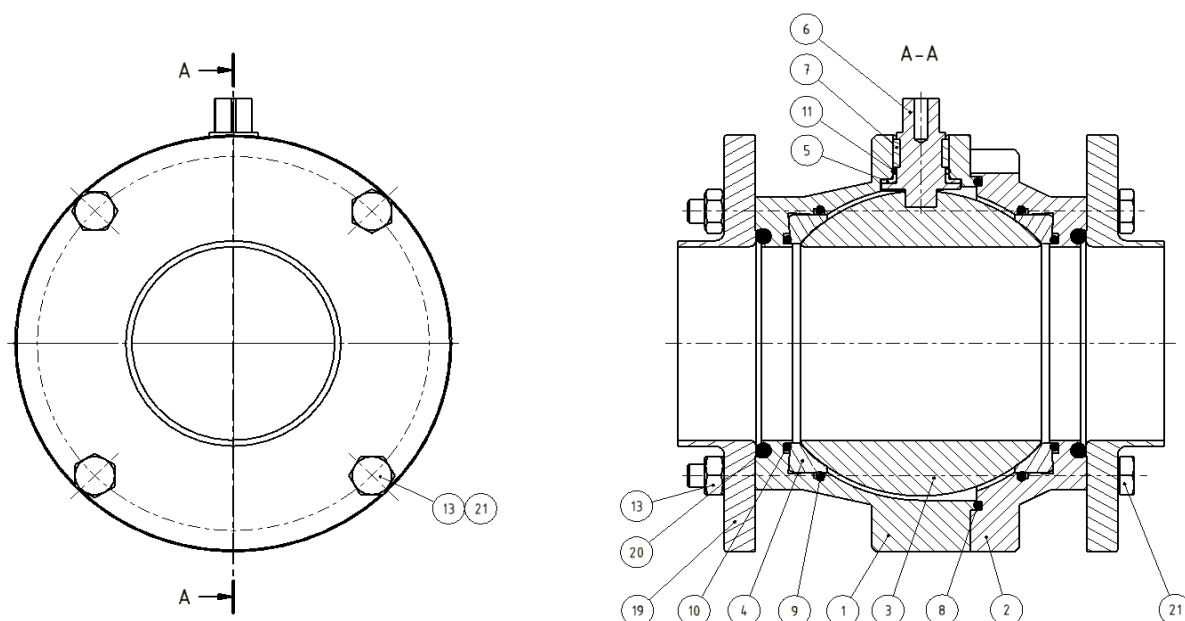


Figure 2 Sectional drawing ball valve BF without actuation (in-between flange version)

Table 2 Bill of material ball valve BF without actuation (in-between flange version)

Pos.	Designation	Pos.	Designation
1	Flange, long	9	O-ring
2	Flange, short	10	O-ring
3	Switching ball	11	O-ring
4	Ball gasket	12	Hexagon screw
5	Bush	13	Hexagon nut
6	Switch shaft	19	Flange
7	Guide bush	20	O-ring
8	O-ring	21	Hexagon screw

5.3 Ball valve SS/BF with hand operation or pneumatic actuator

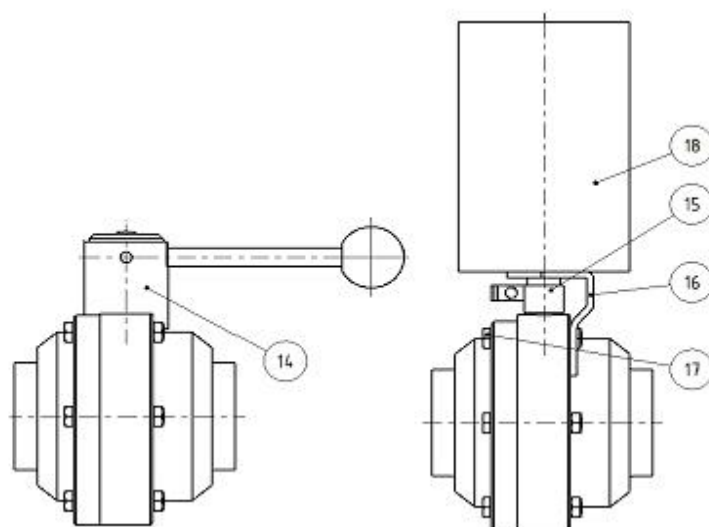


Figure 3 Ball valve SS with hand operation or pneumatic actuator

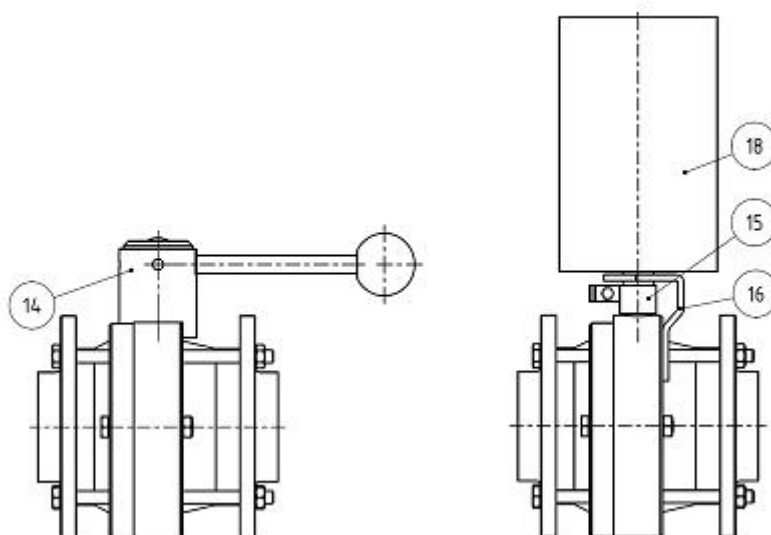


Figure 4 Ball valve BF with hand operation or pneumatic actuator

Table 3 Bill of material Ball valve SS with hand operation or pneumatic actuator

Pos.	Designation	Pos.	Designation
14	Handle	15	Switch cam
		16	Bracket for actuator
		17	Hexagon screw
		18	Pneumatic actuator L/L or L/F



Ball valve KV

6 Installation / disassembly / assembly



Before maintenance, the pipeline containing the valve must be free from pressure and fluids!

For safe maintenance of the valve refer to the installation instructions (chap. 6).

6.1 Installation



Observe the relevant national guidelines and regulations.

Install the valve without tension into the pipeline system.

The valve must only be installed without pressure applied and cooled down.

Before welding them in, you must disassemble the ball valves completely (see chapter Disassembly). All components must be removed from the valve. Welding must then be done in partially assembled state without actuator, gasket, ball. When welding, pay attention not to transmit any outer deformation tension to the butterfly valve. The subsequent assembly may only be done after the part has cooled down and been cleaned.

6.2 Disassembly



Ball valves may only be disassembled by specialist personnel who have received the necessary technical training, and are equipped with the experience and knowledge to carry out the tasks involved.

6.3 Disassembly pneumatic actuator

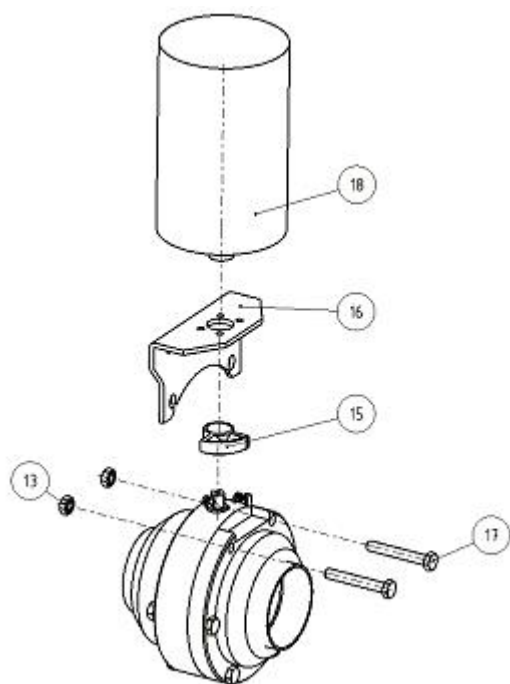


Figure 5 Ball valve SS, pneumatic actuator

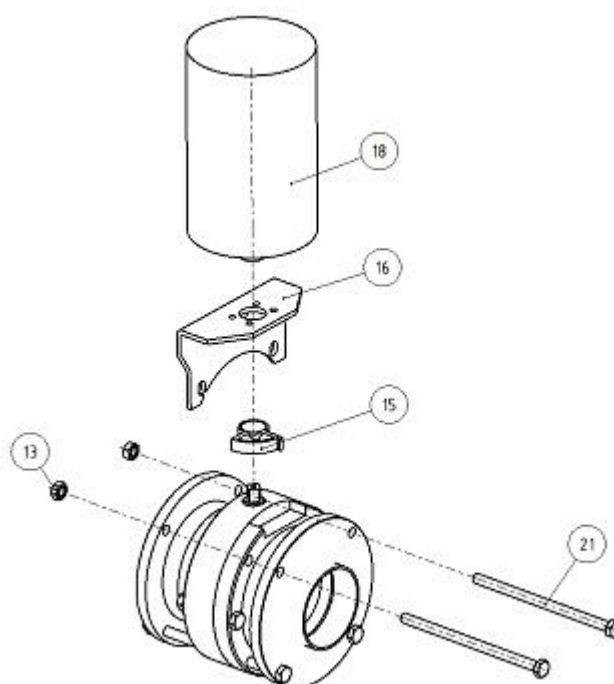


Figure 6 Ball valve ZF, pneumatic actuator

- Undo and remove screws KV-SS (17); KV-ZF (21) and nuts (13)
- Remove the pneumatic actuator (18) completely with bracket (16) from the valve
- Remove bracket (16)
- Remove switch cam (15)

6.3.1 Disassembly of handle

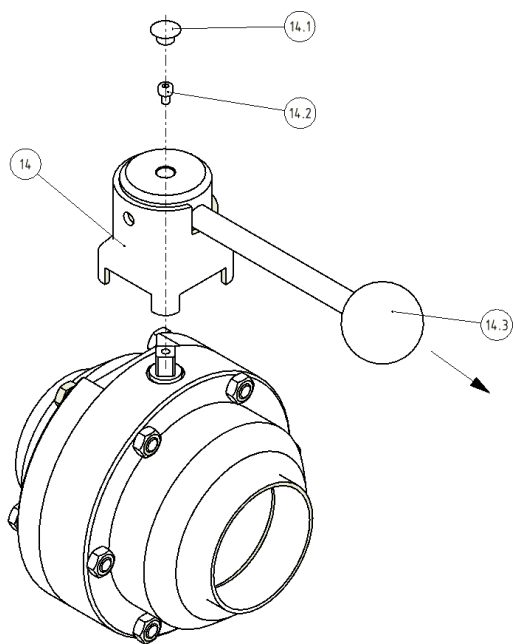


Figure 7 Ball valve SS, hand operated

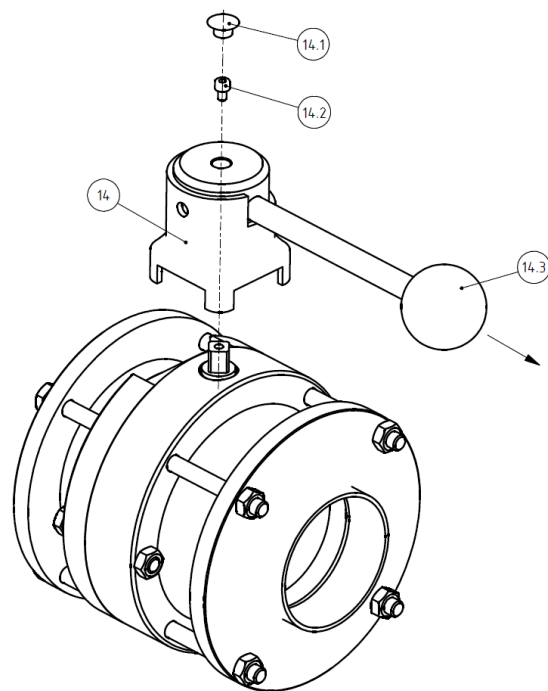


Figure 8 Ball valve ZF, hand operated

- Remove plugs (14.1)
- Pull lever (14.3) off the handle (14) and then undo accessible hexagon-socket screw (14.2) using an Allen key
- Remove handle (14) completely

6.3.2 Disassembly ball valve SS

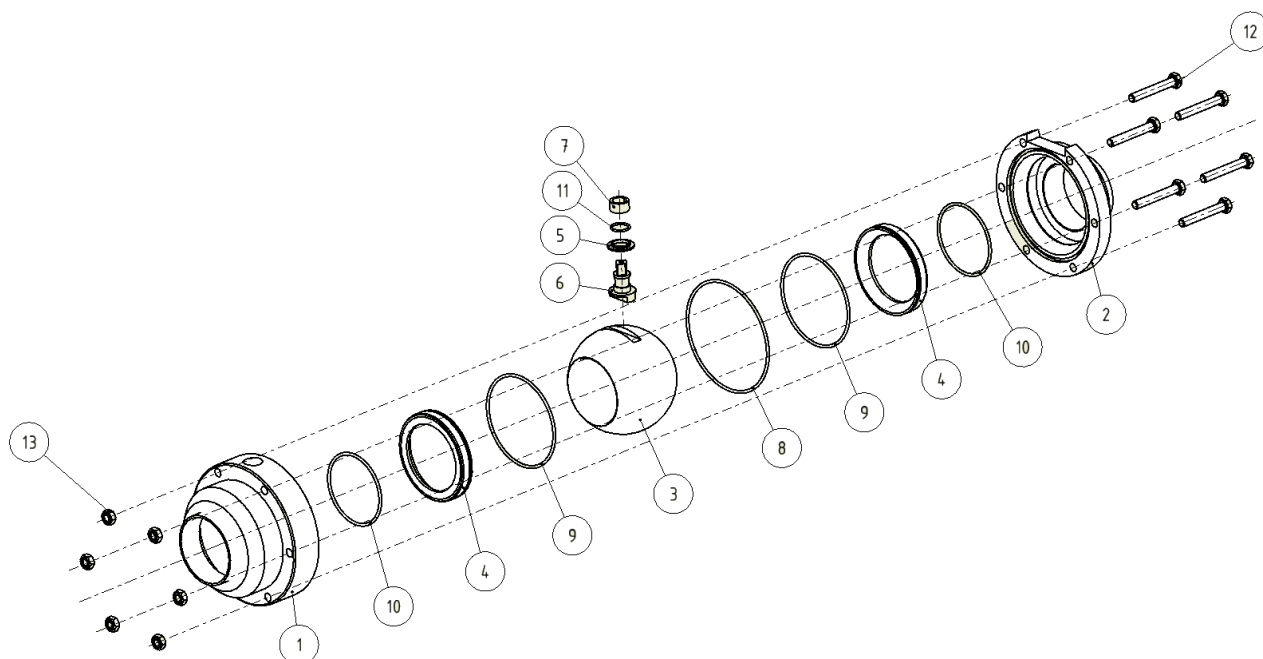


Figure 9 Ball valve SS without actuator (exploded view)

- Close ball valve
- Undo and remove screws (12) and nuts (13)
- Pull flange long (1) and flange short (2) apart
- Remove switch ball (3) carefully
- Remove and disassemble switch shaft (6), bush (5), guide bush (7) and O-ring (11)
- Replace O-ring (11), if damaged
- Remove O-ring (8), replace if damaged
- Remove ball gasket (4), replace if damaged
- Remove O-ring (10 and 9), replace if damaged

6.3.3 Disassembly ball valve BF

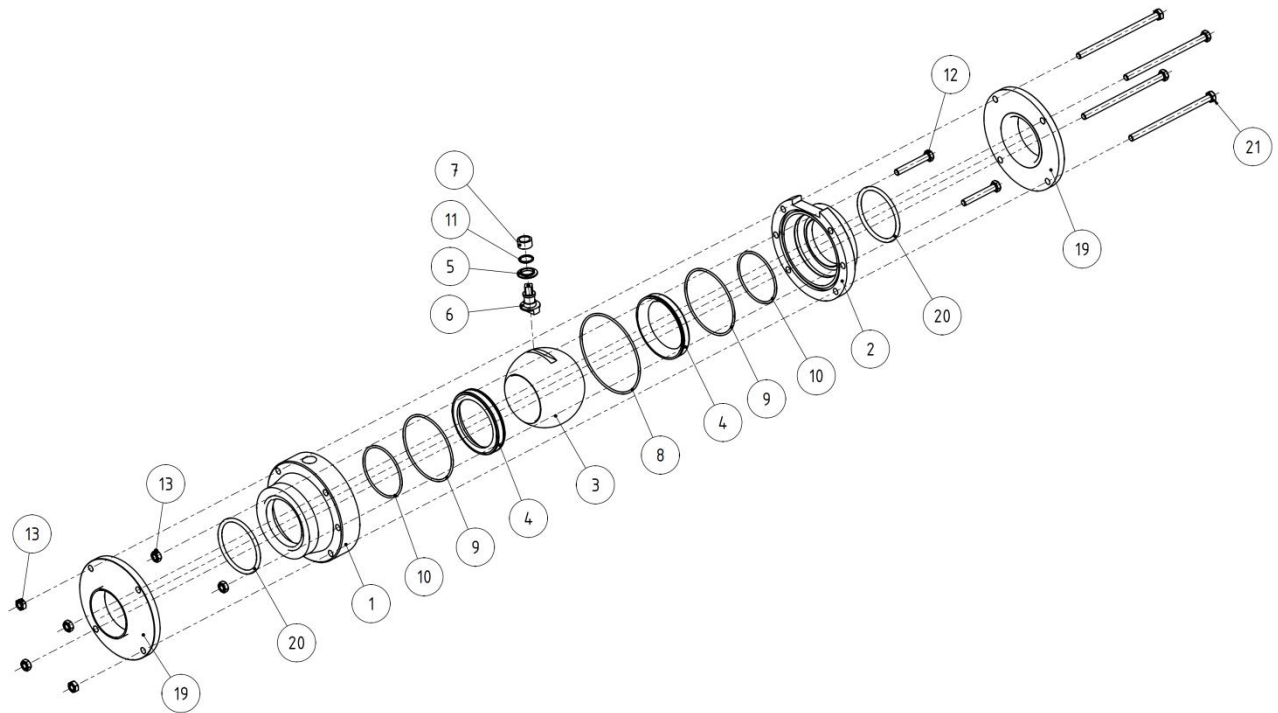


Figure 10 Ball valve BF without actuator (exploded view)

- Close ball valve
- Undo and carefully remove screws (21) and nuts (13)
- Carefully remove ball valve and O-ring (20)
- Replace O-ring (20), if damaged
- Undo and remove screws (12) and nuts (13)
- Pull flange long (1) and flange short (2) apart
- Remove switch ball (3) carefully
- Remove and disassemble switch shaft (6), bush (5), guide bush (7) and O-ring (11)
- Replace O-ring (11), if damaged
- Remove O-ring (8), replace if damaged
- Remove ball gasket (4), replace if damaged
- Remove O-ring (10 and 9), replace if damaged

6.4 Assembly



The valve must only be installed with no pressure applied.
During assembly make sure not to damage the gasket.

- Before assembly, clean installation space and running surfaces.
- If necessary, replace the O-rings (8,9,10,11).
- Assemble the ball valve in reverse order to disassembly (see 6.2).
- Check valve function.

7 Repairs/Maintenance



In order to ensure highest operational safety of the ball valves, replace all wear parts on a regular basis.

The maintenance intervals differ from case to case, the operator should define them by himself basing on sporadic checks.



M&S Armaturen GmbH cannot accept liability for claims made as a result of nonobservance of these Operating Instructions or constructional changes to the butterfly valve.

Any other use or use outside the defined scope is considered to be improper use. M&S Armaturen GmbH will not accept liability for losses incurred as a result of improper use.

8 Cleaning



Observe the safety data sheets by the cleaning agent manufacturers! Only use cleaning agents that do not attack stainless steel, gaskets or plastic.

- Clean individual parts thoroughly



9 Technical data

9.1 Dimensions ball valve SS

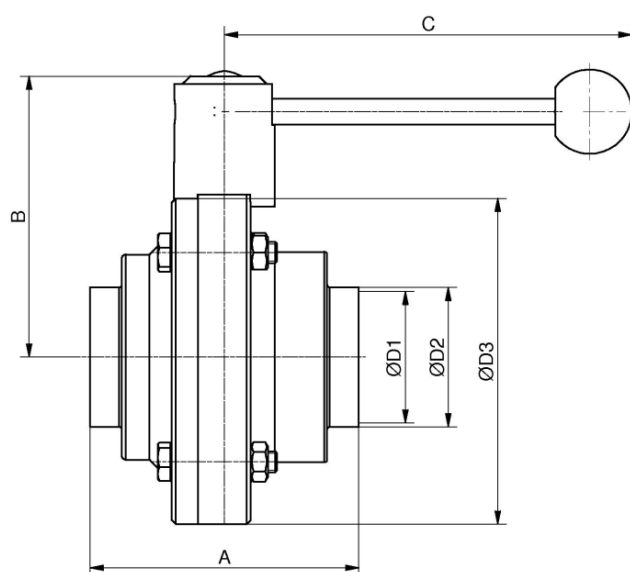


Figure 11 Ball valve SS, hand operated

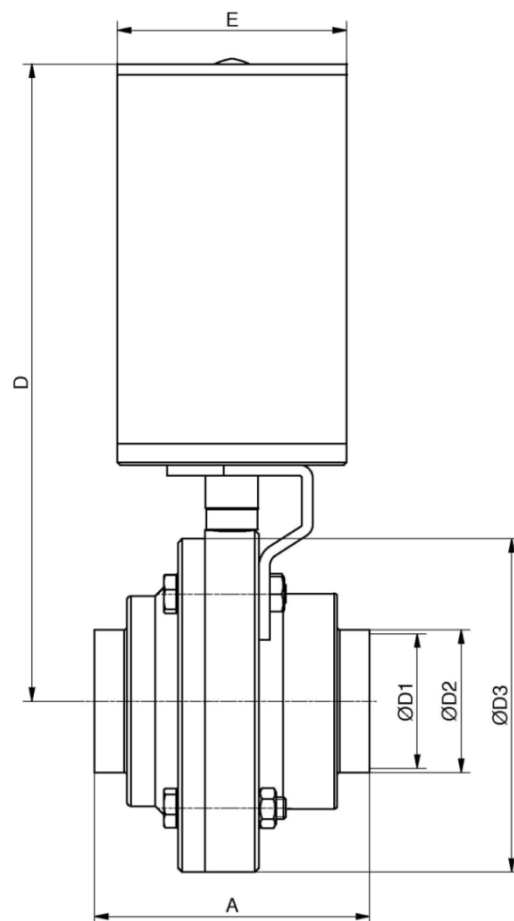


Figure 12 Ball valve SS, pneumatic actuator

Table 4 Dimensions ball valveSS

DN	ØD1 [mm]	ØD2 [mm]	ØD3 [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
25	26	29	92	71	91	150	225	85
40	38	41	110	92	100	150	230	85
50	50	53	127	110	109	150	237	85
65	66	70	142	136	126	220	263	85
80	81	85	162	146	135	220	271	114
100	100	104	200	190	162	220	281	114



Ball valve KV

9.2 Dimensions ball valve BF

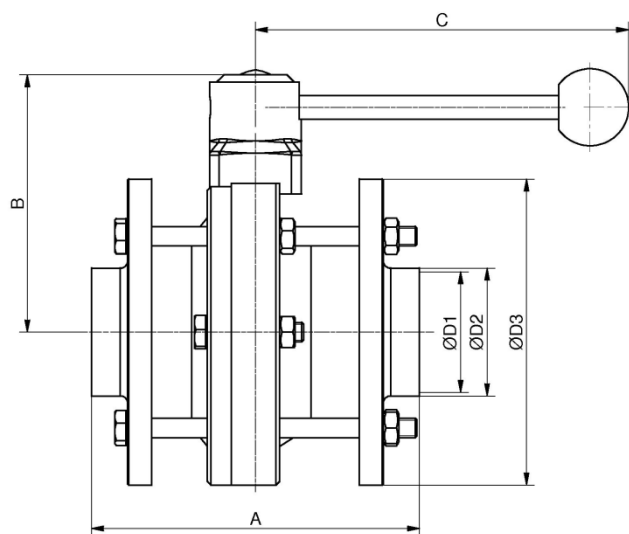


Figure 13 Ball valve ZF, hand operated

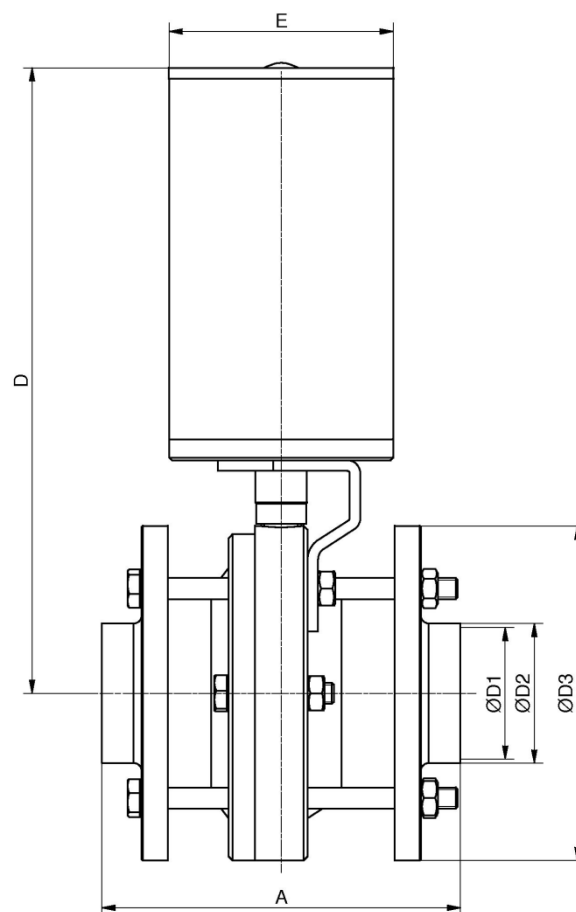


Figure 14 Ball valve ZF, pneumatic actuator

Table 5 Dimensions ball valve ZF

DN	ØD1 [mm]	ØD2 [mm]	ØD3 [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
25	26	29	97	97	91	150	225	85
40	38	41	110	122	100	150	230	85
50	50	53	127	136	109	150	237	85
65	66	70	142	168	124	220	263	85
80	81	85	162	181	135	220	271	114
100	100	104	200	238	162	220	281	114



Ball valve KV

9.3 Materials

Material:	1.4404 - AISI 316L
Surfaces:	Standard precision turned $Ra \leq 1.6\mu m$, upon request electrolytically polished, product range $Ra \leq 0.8\mu m$
Gaskets:	Ball gasket PTFE O-rings FKM (FEP jacketed)

9.4 Permitted operating pressures for ball valve KV

Table 6: Permitted operating pressures for ball valve KV

DN	max. permissible operating pressure [MPa]	Max. permitted operating pressure [bar]	max. permissible operating temperature [°C]
25	1.0	10	depending on medium
40			
50			
65			
80			
100			





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