



Maintenance BR 26d Ball Valve



Fig. 1 – BR 26d Ball valve

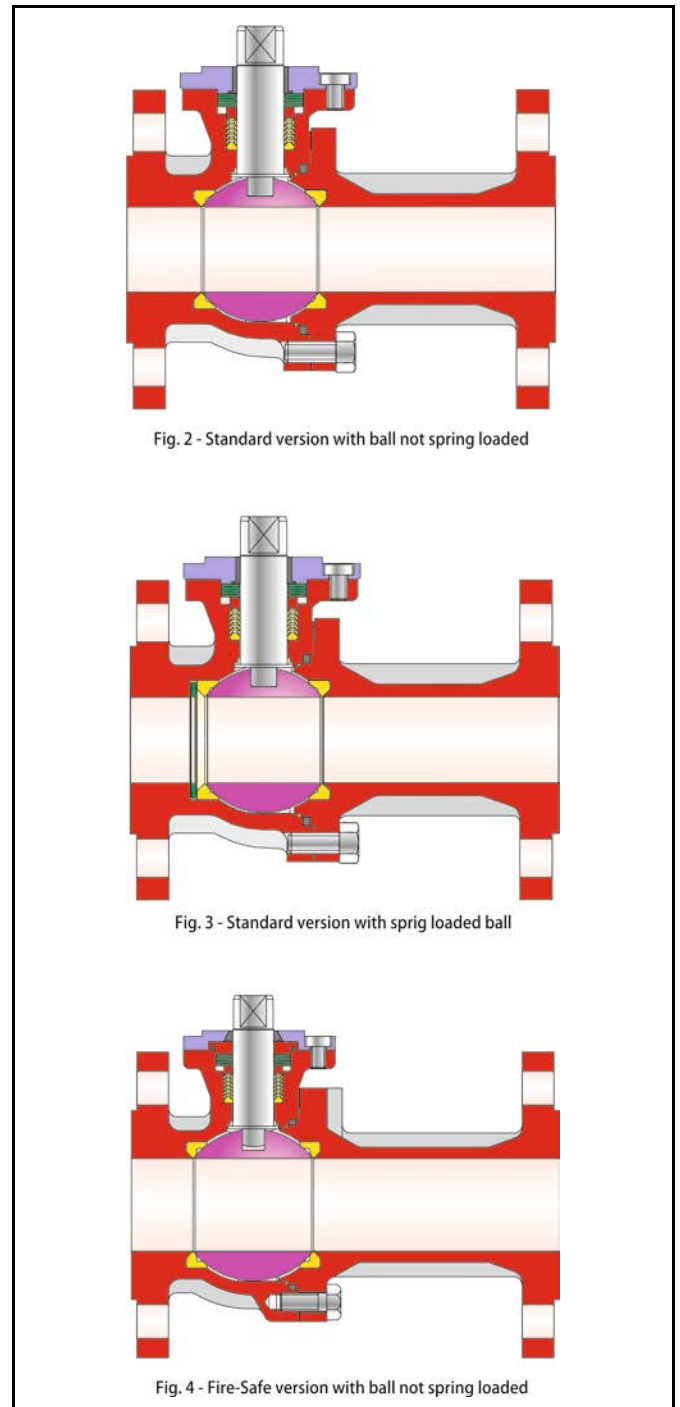


Fig. 2 - Standard version with ball not spring loaded

Fig. 3 - Standard version with spring loaded ball

Fig. 4 - Fire-Safe version with ball not spring loaded

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1. Introduction

These instructions are intended to assist the user on assembling and repairing BR 26d Ball Valves. Before operating the unit, please read this manual thoroughly and retain it for future reference.

Specifications are subject to change without notice. The text and drawings do not necessarily display the scope of supply or any ordering of spare parts.

Drawings and graphics are not to scale. Customer-specific designs not in accordance with our standard product range are not shown.

Parts subject to wear are not covered by the warranty.



The equipment may only be dismantled and disassembled by skilled staff who are familiar with the assembly, start-up, and operation of this product.

In these maintenance and assembly instructions, the term skilled staff refers to individuals who are able to judge the responsibilities assigned to them as well as recognize potential hazards due to their specialized training, knowledge, and experience as well as their special knowledge of the relevant standards

2. Design, operation, and dimensions

Design, operation, and dimensions as well as all further details and technical data can be found in Data Sheet <TB 26d>.

3. Installation, start-up and maintenance

Instructions for the installation, start-up and maintenance are to be found in Operating Instructions

<BA 26a-01> for pneumatic ball valves,
<BA 26a-02> for manually operated ball valves.

4. Assembly of the ball valve

4.1 Preparation for assembly

Before assembling the ball valve, carefully clean all parts and place them on a soft surface (rubber mat or similar).

Plastic parts are nearly always soft and very sensitive. Take particular care when handling the sealing surfaces to ensure that they do not get damaged.



Note!

A high-performance grease paste is used during manufacturing to prevent the screws from cold welding in the bodies (e.g. Gleitmo 805 by Fuchs).



Note!

Do not use this lubricant with valves intended for oxygen service. Use a lubricant suitable for valves that are free of grease, especially for oxygen service.



Note!

The position and arrangement of the individual parts shown in the detail drawing are to be observed during assembly.

4.2 Assembly of BR 26d Ball valve, Standard Version

(see Fig. 5, Page 3)

4.2.1 Assembling the main body

The assembly begins with the main body (1).

Place the main body with the flange facing downwards on a flat, clean working surface to allow you to easily access the inside of the valve.

Standard version: Ball not spring-loaded

Press the sealing ring (9a) into the main body.

Version with spring-loaded ball only

Insert the coated disc spring (13) into the main body (1). Refer to the drawing (Fig. 6) for the disc spring's position of installation.

Press the sealing ring (9a) into the body until it rests on the disc spring.

Continued assembly instructions for all versions

Push while slightly turning the bearing bushing (7) onto the control shaft (5).

Apply a small amount of lubricant to the control shaft (5).

Insert shaft together with the bearing bushing (7) through the shaft bore from the inside into the main body (1).

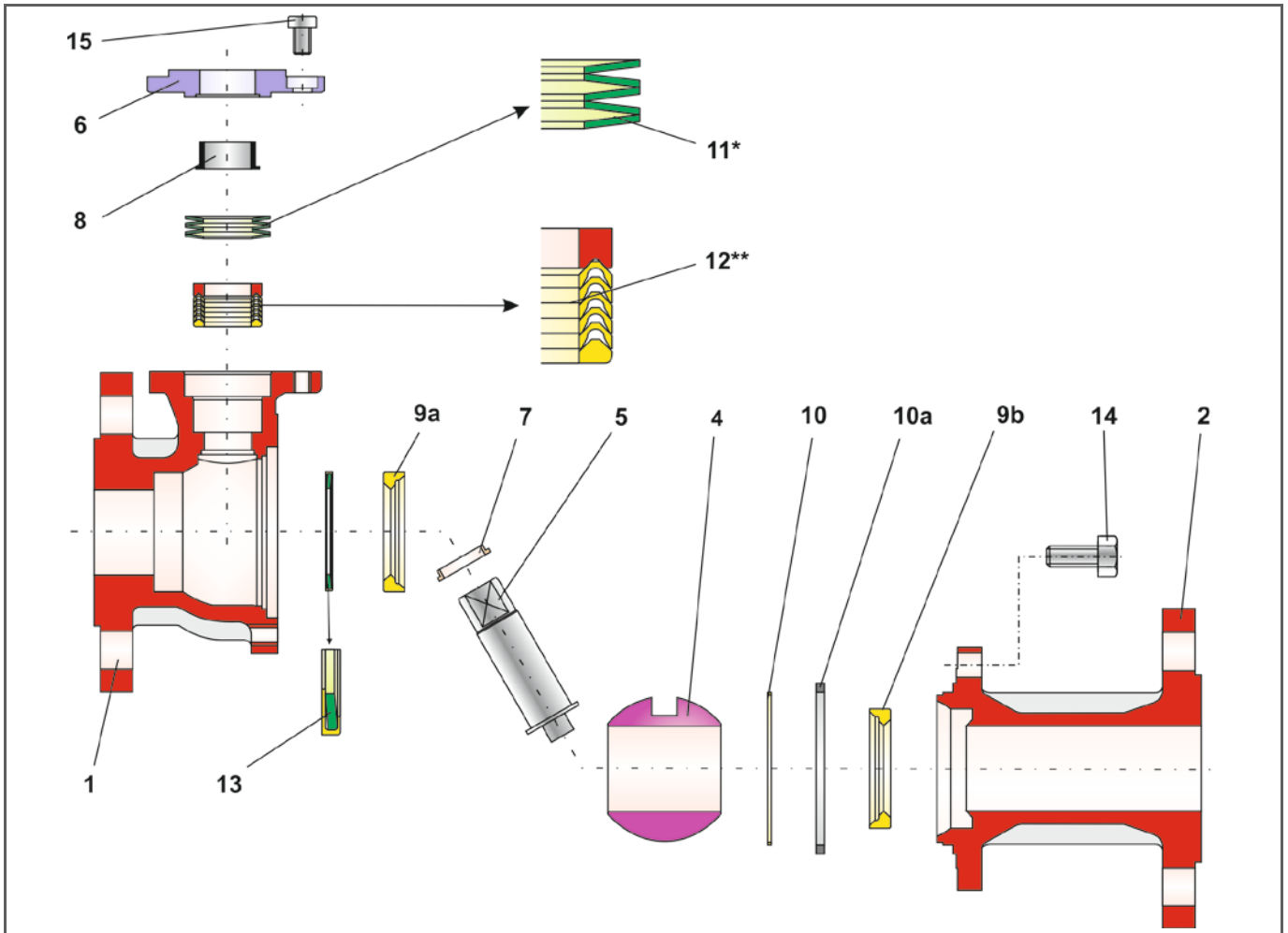


Fig. 5 – Exploded view of BR 26d Ball valve, Standard-Version

Item	Description	Material
1	Main body	1.4408
2	Side body	1.4408 / 1.4571
4	Ball	1.4408
5	Control shaft	1.4462
6	Stuffing box flange	1.4571
7	Bearing bushing	PTFE with glass
8	Bearing bushing	PTFE with carbon
9	Set of sealing rings	TFM
10	Ring	PTFE
10a	Ring	Carbon-graphite
11	Set of spring washers	1.8159 / Delta Tone
12	V-ring packing	PTFE / 1.4305
13	Spring washer (Option)	1.4404 / PTFE
14	Screw	A2-70
15	Screw	A2-70

Table 1 – List of parts

DN	NPS	** Quantity of V-rings	* Quantity of Spring washers
15	½	4	3
25	1	4	4
40	1½	6	5
50	2	6	5
80	3	6	5
100	4	6	5

Table 2 – Quantity of V-rings and Spring washers

* Arrangement of Spring washers		
3 Piece	4 Piece	5 Piece

Table 3 – Arrangement of Spring washers



Note! Take care not to damage the sealing surface of the control shaft (5).

Make sure the bearing bushing (7) is positioned, together with the control shaft (5), in the groove of the main body (1) without being jammed.

Turn the control shaft (5) until the flattened part is vertical to the worktop.

Lightly spray the ball (4) with silicone and carefully insert it.

Insert the PTFE body sealing (10) into the grooves in the main body (1).

Sparsely apply graphite grease to carbon-graphite ring (10a) and insert it into its groove in the main body (1).

4.2.2 Assembling the side body

Insert the sealing ring (9b) into the side body (2).

Place the side body (2) together with the preassembled sealing ring (9b) on the main body (1) and carefully push them together.

4.2.3 Final assembly of the ball valve

Turn the side body (2) until the boreholes of the two body halves (1 and 2) are aligned with one another.

Tighten the slightly greased hex bolts (14) evenly in a criss-cross pattern to ensure that the shaft with the bearing bushing cannot get jammed.



Note: Also here, the tightening torque for each nominal size can be obtained from table 7 section 4.4.1.

Push the v-ring packing (12), turning it slightly, over the mounted control shaft (5) and position it in the packing seat of the main body (1).

Refer to Fig. 5 as well as table 2 for the arrangement of the V-rings.

Stack the spring washers (11) on the v-ring packing.

Refer to Fig. 5 as well as table 2 and table 3 for the arrangement of the spring washers.

Press the bearing bushing (8) into the stuffing box flange (6).

Place the stuffing box flange (6) over the control shaft onto the body.

Align them using the greased fillister head screws (15) and tighten them evenly in a criss-cross pattern to ensure that the shaft with the bearing bushing cannot get jammed.



Note: Also here, the tightening torque for each nominal size can be obtained from table 8 section 4.4.2.



Note: Actuate the valve a few times before leak testing it to allow the ball to centre itself on the sealing rings, thus ensuring a tight shut-off.

Assembly of the ball valve is now completed.

4.3 Assembly BR 26d Ball valve, Fire-Safe Version (see Fig. 6, Page 5)

4.3.1 Assembling the main body

The assembly begins with the main body (1).

Place the main body with the flange facing downwards on a flat, clean working surface to allow you to easily access the inside of the valve.

Fire safe version: Ball not spring-loaded

(see Fig. 6, Page 5)

Press the sealing ring (9a) into the main body.

Push while slightly turning the bearing bushing (7) onto the control shaft (5).

Apply a small amount of lubricant to the control shaft (5). Insert shaft together with the bearing bushing (7) through the shaft bore from the inside into the main body (1).



Note!

Take care not to damage the sealing surface of the control shaft (5).

Make sure the bearing bushing (7) is positioned, together with the control shaft (5), in the groove of the main body (1) without being jammed.

Turn the control shaft (5) until the flattened part is vertical to the worktop.

Lightly spray the ball (4) with silicone and carefully insert it.

Insert the PTFE body sealing (10) into the grooves in the main body (1).

Sparsely apply graphite grease to carbon-graphite ring (10a) and insert it into its groove in the main body (1).

4.3.2 Assembling the side body

Insert the sealing ring (9b) into the side body (2).

Place the side body (2) together with the preassembled seat ring (9b) on the main body (1) and carefully push them together.

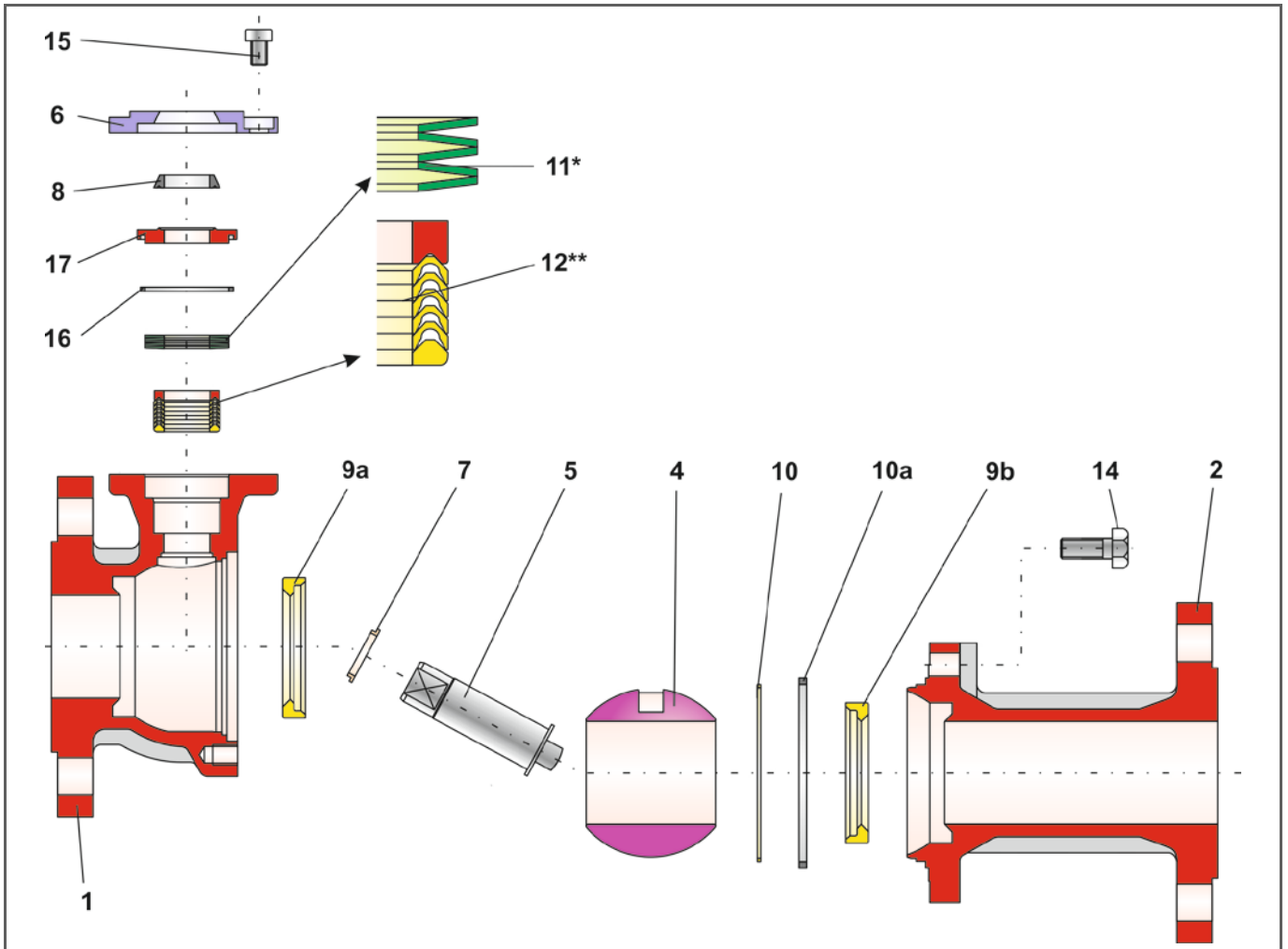


Bild 6 - Explosionszeichnung des Kugelhahns BR 26d, Fire Safe Ausführung

Item	Description	Material
1	Main body	1.4408
2	Side body	1.4408 / 1.4571
4	Ball	1.4408
5	Control shaft	1.4462
6	Stuffing box flange	1.4571
7	Bearing bushing	PTFE with glass
8	Bearing bushing	PTFE with carbon
9	Set of sealing rings	TFM
10	Ring	PTFE
10a	Ring	Carbon-graphite
11	Set of spring washers	1.8159 / Delta Tone
12	V-ring packing	PTFE / 1.4305
14	Screw	A2-70
15	Screw	A2-70
16	Ring	Carbon-graphite
17	Bushing	1.4571

Table 4 – List of parts

DN	NPS	** Quantity of V-rings	* Quantity of Spring washers
15	½	4	3
25	1	4	4
40	1½	6	5
50	2	6	5
80	3	6	5
100	4	6	5

Table 5 – Quantity of V-rings and Spring washers

* Arrangement of Spring washers		
3 Piece	3 Piece	3 Piece

Table 6 – Arrangement of Spring washers



4.3.3 Final assembly of the ball valve

Turn the side body (2) until the boreholes of the two body halves (1 and 2) are aligned with one another.

Tighten the slightly greased hex bolts (14) evenly in a criss-cross pattern to ensure that the shaft with the bearing bushing cannot get jammed.



Note: Also here, the tightening torque for each nominal size can be obtained from table 7 section 4.4.1.

Push the v-ring packing (12), turning it slightly, over the mounted control shaft (5) and position it in the packing seat of the main body (1).
Refer to Fig. 6 and table 5 for the arrangement of the V-rings.

Stack the Spring washers (11) on the v-ring packing (12).
Refer to Fig. 6 as well as table 5 and table 6 for the arrangement of the Spring washers.

Press the carbon-graphite ring (16) into the bushing (17).

Slide the bushing (17) with the carbon-graphite ring (16) over the control shaft (5) until it rests on the spring washers.

Carefully slide the carbon-graphite ring (8) over the shaft until reaches the bushing (17).

Place the stuffing box flange (6) over the control shaft onto the body.

Align them using the greased fillister head screws (15) and tighten them evenly in a criss-cross pattern to ensure that the shaft with the bearing bushing cannot get jammed.



Note: Also here, the tightening torque for each nominal size can be obtained from table 8 section 4.4.2.



Note: Actuate the valve a few times before leak testing it to allow the ball to centre itself on the seat rings, thus ensuring a tight shut-off.

Assembly of the ball valve is now completed

4.4 Tightening torques

4.4.1 Tightening torques for body sections

The tightening torques for bolt connections must be observed when connecting both body sections together. The screws will be tightening in a criss-cross pattern.

Nominal size			Qty.	Screw	Tightening torques
DN	NPS				
15	½	cl150	4	M8 x 20	22 Nm
-	½	cl300	4	M10 x 25	33 Nm
25	-	-	4	M10 x 25	49 Nm
-	1	cl150	4	M10 x 20	49 Nm
-	1	cl300	4	M12 x 30	73 Nm
40	1½	cl150	5	M10 x 25	49 Nm
-	1½	cl300	6	M12 x 35	73 Nm
50	-	-	7	M10 x 30	49 Nm
-	2	cl150	7	M10 x 25	49 Nm
-	2	cl300	8	M12 x 35	73 Nm
80	3	cl150	6	M16 x 30	105 Nm
-	3	cl300	8	M16 x 40	105 Nm
100	-	-	8	M16 x 32	105 Nm
-	4	cl150	8	M16 x 35	105 Nm
-	4	cl300	8	M16 x 40	105 Nm

Table 7 – Tightening torques for body sections

4.4.2 Tightening torques for stuffing box flanges

The tightening torques for bolt connections must be observed when connecting stuffing box flange together. The screws will be tightening in a criss-cross pattern.

Nominal size			Qty.	Screw	Tightening torques *)
DN	NPS				
15	½	cl150	4	M6 x 10	6 Nm
-	½	cl300	4	M6 x 10	6 Nm
25	1	cl150	4	M6 x 10	6 Nm
-	1	cl300	4	M6 x 10	6 Nm
40	1½	cl150	3	M8 x 12	14 Nm
-	1½	cl300	3	M8 x 12	14 Nm
50	2	cl150	3	M8 x 12	14 Nm
-	2	cl300	3	M8 x 12	14 Nm
80	3	cl150	4	M10 x 16	30 Nm
-	3	cl300	4	M10 x 16	30 Nm
100	4	cl150	4	M10 x 16	30 Nm
-	4	cl300	4	M10 x 16	30 Nm

Table 8 – Tightening torques for stuffing box flanges

*) Tighten the screws of the stuffing box until the stuffing box rests on the dome.

5. Troubleshooting

Refer to section 7 of Operating Instructions

<BA 26a-01> for pneumatic ball valves or
<BA 26a-02> for manually operated ball valves.

6. Repair of the ball valve

6.1 Replacing the V-ring packing

(see Fig. 5 / Fig. 6)

If a leak is detected at the packing, the PTFE rings of the v-ring packing (12) may be defective. We recommend checking the condition of the packing.

To remove the packing, disassemble the valve in reverse order to that described in section 4.

Check the PTFE rings of the packing and all plastic parts for damage. In case of doubt, replace the parts with new ones.

6.2 Replacing the sealing unit and ball

(see Fig. 5 / Fig. 6)

If the ball valve does not shut off tightly, the set of seat rings (9a and 9b) and/or the ball (4) may be defective. We recommend checking the condition of these components.

To remove the seat rings and the ball, disassemble the valve in reverse order to that described in section 4.

Check the seat rings and the ball as well as all plastic parts for damage. In case of doubt, replace the parts with new ones.

6.3 Further repair work

In case of severe damage, we recommend the repair work to be carried out by Pfeiffer.

7. Customer inquiries

(Should you have any inquiries, please submit the following details:)

1. Order number (embossed on the ball valve body)
2. Type, product number, nominal size, and version of the valve
3. Medium (Description and Consistency)
4. Pressure and temperature of the process medium
5. Flow rate in m³/h
6. Installation sketch, if possible
7. Actuated / manually operated