



# Maintenance

## Rotary Plug Valve Series 23e



Fig. 1 - Series 23e Rotary Plug Valve

Technical details, as a result of further development of valves mentioned in these instructions are subject to alteration without notice. The text and illustrations do not necessarily display the scope of supply or any ordering of spare parts. Drawings and graphics are not to scale.

Customer related special designs, which are not in accordance with our standard range, are not shown.



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.

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### 1. Introduction

These instructions are intended to assist the user on assembly and repair of Series 23e Rotary Plug Valves.

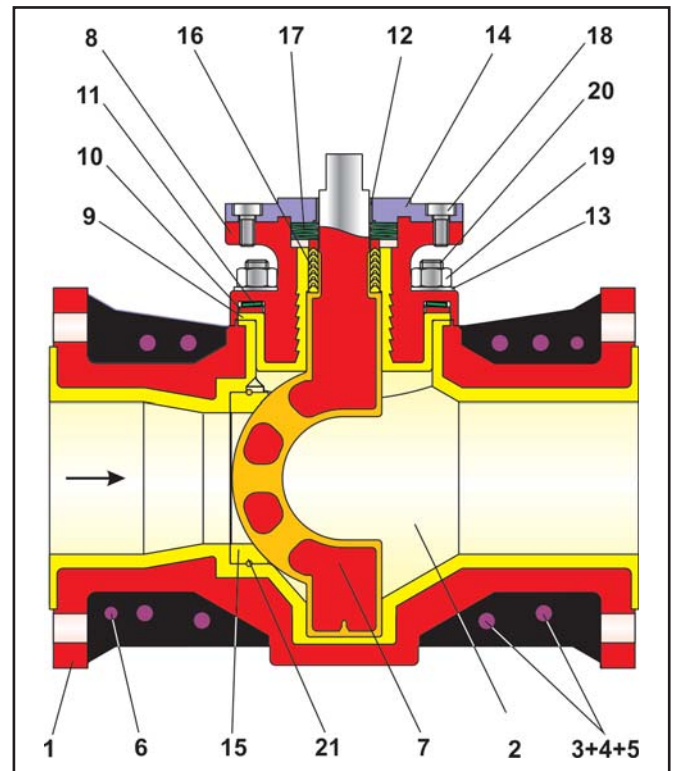


Fig. 2 - Sectional diagram of Series 23e Rotary Plug Valves => see Table 1 for list of parts

## 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 23e>.

## 3. Installation, start-up and maintenance

Instructions for the installation, start-up and maintenance are to be found in Operating Instructions <BA 01a-01> for pneumatic valves, <BA 01a-02> for manually operated valves.

## 4. Assembly of the rotary plug valve

Item	Description	Material
1	Rotary plug valve body	0.7043
2	Liner for valve body	PTFE
3	Screw	A2-70
4	Screw	A2-70
5	Nut	A2-70
6	Straight pin	1.4301
7	Rotary plug	1.4313 with TFM coating
8	Bonnet flange	0.7043
9	Liner for bonnet flange	PTFE
10	Thrust ring	1.4571
11	Spring washer	1.8159
12	Bearing bushing	PTFE with carbon
13	Washer	A2-70
14	Stuffing box	1.4408
15	Seat ring	PTFE
16	V-ring packing	PTFE / 1.4305
17	Set of spring washers	1.8159 / DeltaTone
18	Screw	A2-70
19	Nut	A2-70
20	Stud bolt	A2-70
21	Cord	PTFE

Table 1 - List of parts

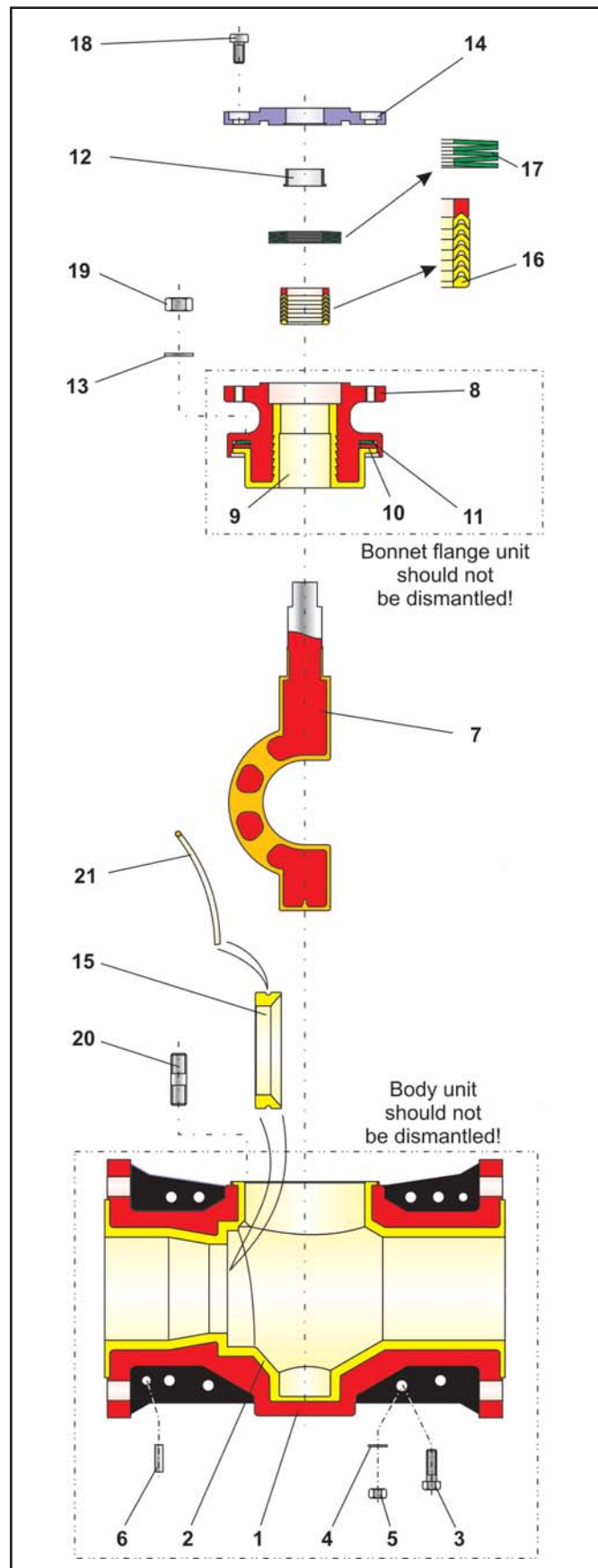


Bild 3 - Explosionszeichnung des Drehkegelventils BR 23e

#### 4.1 Preparation for assembly

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



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 (Fig. 3) are to be observed during assembly.

#### 4.2 Assembly of the rotary valve body

The valve body halves ( 1 ) made of spheroidal graphite iron form a unit together with the PTFE liner ( 2 ) which is assembled together with straight pins ( 6 ), fillister head screws ( 3 ), washers ( 4 ) and nuts ( 5 ).



**Note:**

This body unit should not be dismantled anymore.

Screw the stud bolts ( 20 ) into the ready-assembled body ( 1 ).

#### 4.3 Assembly of the bonnet flange

The bonnet flange ( 8 ) made of spheroidal graphite iron forms a unit together with the PTFE liner ( 9 ), thrust ring ( 10 ) and spring washers ( 11 ).



**Note:**

The bonnet flange unit should not be dismantled anymore.

#### 4.4 Final assembly of the valve

Position the ready-assembled body unit so that the opening on the bonnet flange side is easily accessible.

Press the seat ring ( 15 ) into the groove intended for it.

Press the cord ( 21 ) into the groove of the seat ring and use it to connect the seat ring with the liner in the body.

Insert the rotary plug ( 7 ) into the body and place it carefully on the ready-assembled seat ring ( 15 ).



**Caution:**

Make sure the seat ring ( 15 ) and the rotary plug ( 7 ) are not damaged during assembly.

Carefully place the ready-mounted bonnet flange over the stud bolts ( 20 ) onto the body and align it using the washers ( 13 ) and nuts ( 19 ).

Tighten the nuts evenly in a criss-cross pattern.



**Caution:**

Make sure the PTFE liner is not damaged during assembly.

Slide the V-ring packing ( 16 ) turning the parts slightly over the shaft of the mounted rotary plug ( 7 ) and place them in the packing chamber of the bonnet flange ( 8 ).

The arrangement of the V-rings can be found in the detail drawing (Fig. 3).

Place the set of spring washers ( 17 ) on the V-ring packing. The arrangement of the spring washers can be found in the detail drawing (Fig. 3).

Press the bearing bushing ( 12 ) into the stuffing box ( 14 ).

Place the stuffing box ( 14 ) over the shaft of the rotary plug onto the bonnet flange and align it using the screws ( 18 ).

Tighten them evenly in a criss-cross pattern.

**Assembly of the rotary plug valve is now completed.**



**5. Checking the position of the rotary plug before mounting the actuator**

**5.1 Mounting actuator fail-close**

**5.2 Montage bei Federkraft „öffnend“**

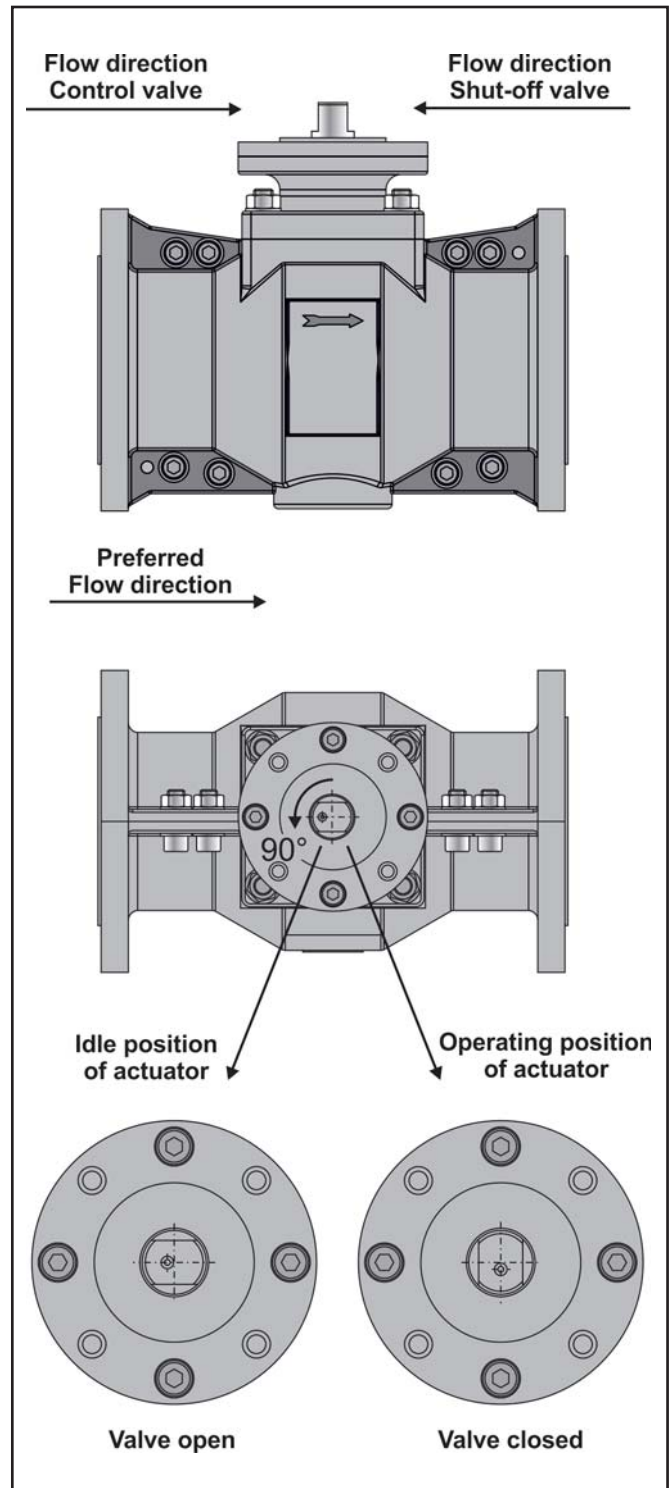
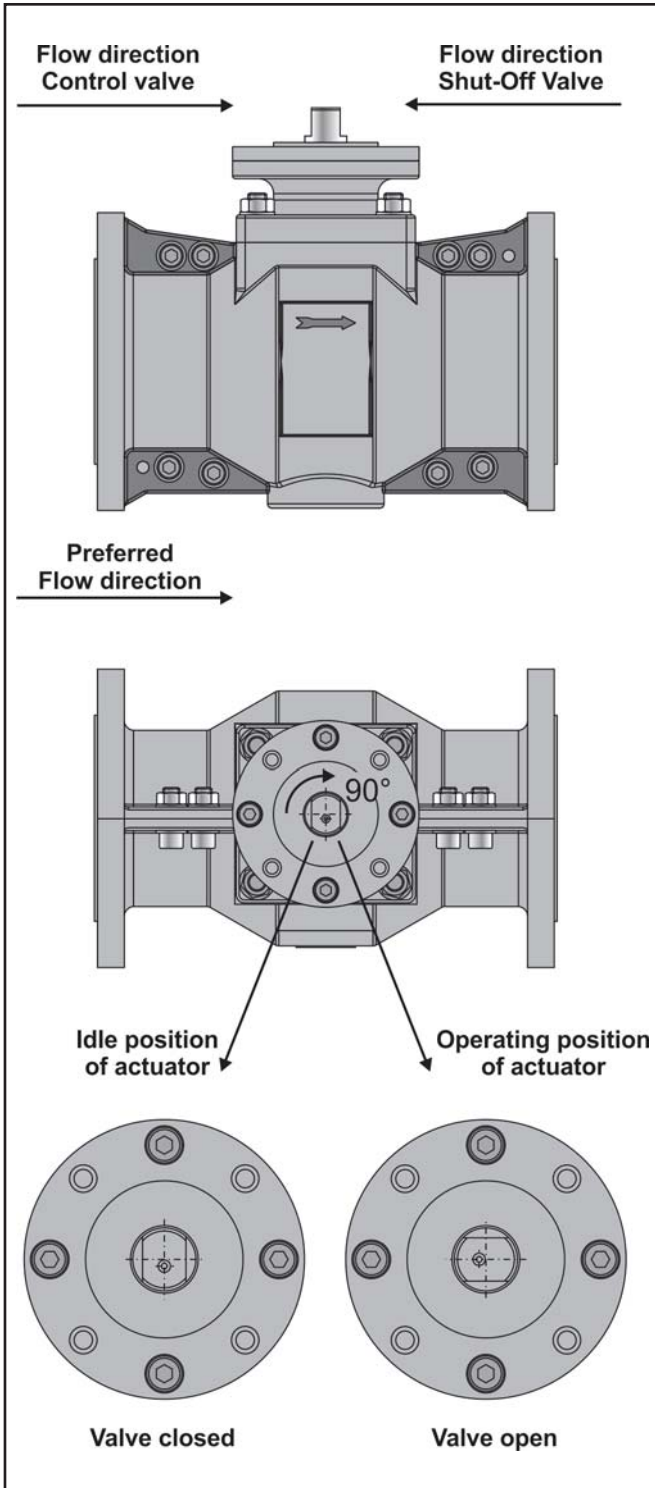


Fig. 4 – Mounting actuator fail-close

Fig. 5 - Mounting actuator fail-open



## 6. Troubleshooting

Refer to section 7 of Operating Instructions <BA 23e-01> for pneumatic rotary valves or <BA 23e-02> for manually operated rotary plug valves.

## 7. Repair of the rotary plug valve

### 7.1 Replacing the V-ring packing

If a leak is detected at the packing, the PTFE rings of the V-ring packing ( 16 ) 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.

### 7.2 Replacing the seat ring and plug

If case of the valve does not shut-off properly, the seat ring ( 15 ) and the rotary plug ( 7 ) may be defective.

We recommend checking the condition of these components.

To remove the seat ring and the rotary plug, disassemble the valve in reverse order to that described in section 3.

Check the seat ring and the rotary plug are, together with all plastic parts for damage. In case of doubt, replace the parts with new ones.

### 7.3 Further repair work

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

## 8. Customer inquiries

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

1. Order number (embossed on the valve body)
2. Type, product number, nominal size and version of the valve
3. Pressure and temperature of the process medium
4. Flow rate in m<sup>3</sup>/h
5. Installation sketch, if possible

