

## Declaration of Conformity as per Directive 97/23/EC

The manufacturer	<b>Pfeiffer Chemie-Armaturenbau GmbH, 47906 Kempen, Germany</b>
declares that:	<b>PTFE-lined Rotary plug valves Series 23e, with packing</b> <ul style="list-style-type: none"> <li>• with lever for 90° operation</li> <li>• with worm gear and handwheel</li> </ul>
<p>1. The valves are pressure accessories within the meaning of the Pressure Equipment Directive 97/23/EC and conform with the requirements of this Directive,</p> <p>2. They may only be operated observing the operating instructions &lt;BA23e-02_EN&gt; delivered together with the valve.</p> <p><i>(For Rotary plug valves which are intended for dead-end service, see section 2.3).</i></p>	

*Applied standards:*

<b>AD 2000 Regulations</b>	<b>Regulations for pressurized valve body parts</b>
----------------------------	---

*Type designation and technical features:*

**Pfeiffer data sheets <TB23e\_EN>**

*NOTE: This Manufacturer's Declaration applies to all valve types listed in this catalog.*

*Applied conformity assessment procedure:*

**Conforming to Annex II of the Pressure Equipment Directive 97/23/EC, Module H**

*Name of notified body:*

*Identification number of the notified body:*

<b>TÜV Rheinland Service GmbH</b> Am Grauen Stein 51101 Köln Germany	<b>0035</b>
---	-------------

These Declarations become invalid when modifications are made to the Rotary plug valves and/or assemblies that affect the technical data of the Rotary plug valve or the <Intended use> described in section 1 of the operating instructions, and considerably change the valve or an assembly delivered with it.

Kempen, 1. December 2006

Lorenz Stolzenberg, Managing Director

These Declaration of Conformity and operating instructions have been generated electronically and are legally binding without signature

# Operating instructions


## Rotary plug valve with PTFE lining manually operated

### Contents

<b>0</b>	<b>Introduction</b>	<b>3</b>
<b>1</b>	<b>Intended use</b>	<b>3</b>
<b>2</b>	<b>Safety instructions</b>	<b>3</b>
2.1	General safety instructions	3
2.2	Safety instructions for the operator	3
2.3	Particular hazards	4
2.4	Designation of the Rotary plug valve	4
<b>3</b>	<b>Transport and storage</b>	<b>4</b>
<b>4</b>	<b>Installation in the pipeline</b>	<b>5</b>
4.1	General	5
4.2	Installation instructions	5
<b>5</b>	<b>Pressure check in pipeline section</b>	<b>6</b>
<b>6</b>	<b>Standard operation and maintenance</b>	<b>6</b>
<b>7</b>	<b>Troubleshooting</b>	<b>7</b>
<b>8</b>	<b>Further information</b>	<b>7</b>

## 0 Introduction


These instructions are designed to assist the user during installation, operation and maintenance of PTFE-lined Rotary plug valves from the Series 23e.

 <b>Note</b>	<p>The WARNING and CAUTION notes must be strictly adhered to. <b>Otherwise this may lead to personal injury and equipment damage</b> and the manufacturer's warranty may become void.  Please contact the manufacturer if you have any queries, see section 8 for contact address.</p>
--	--


## 1 Intended use

After installing the valve in the pipeline, the manually operated Rotary plug valves are designed exclusively for shutting off or controlling media (often corrosive) within the permissible pressure and temperature ranges.

The permissible pressure and temperature ranges for these Rotary plug valves are specified in the data sheets <TB23e\_EN>.

 <b>Danger</b>	<p>Do not operate a Rotary plug valve when its permissible pressure/temperature rating is not sized for the operating conditions specified in the data sheets &lt;TB23e_EN&gt;.  <b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b></p>
--	--

### Observation of conformity with the Directive 94/9/EC.

 <b>Note</b>	<p>Pfeiffer valves do not have their own potential ignition source according to the risk assessment in the rare incident of an operating fault in accordance with DIN EN 13463-1:2000 and therefore do not fall within the scope of the Directive 94/9 EC. Relating to this directive, CE marking is not permissible.  The integration of valves into the equipotential bonding of a plant applies to all metallic parts in hazardous areas regardless of the directive.</p> <p>Valves with plastic lining (PFA, PTFE) in applications with chargeable media have to be lined with conductive plastic lining with a surface resistance less than 1 Gigaohm (<math>10^9</math> Ohm) in accordance with paragraph 7.4 of DIN EN 13463-1:2001.</p>
---	---

Observe the limitations in the above mentioned data sheets if the rotary plug valve is intended for throttling services.

Observance of section 2 <Safety instructions> is presumed for the Intended use.

## 2 Safety instructions


### 2.1 General safety instructions

For Rotary plug valves, the same safety regulations apply as for the pipelines in which they are installed. These instructions only specify those safety instructions which need to be additionally observed concerning Rotary plug valves.

### 2.2 Safety instructions for the operator

The manufacturer does not assume any responsibility. Therefore, on using the Rotary plug valve, make sure the following instructions are observed:

⇒ The valve is to be used only for its intended use as described in section 1.

 <b>Warning</b>	<p><b>Preventing misuse of the Rotary plug valve:</b>  It is especially important to make sure that the selected lining for wetted parts in the Rotary plug valve is suitable for the media used as well as the prevailing pressures and temperatures.  <b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline. The manufacturer does not assume any final responsibility.</b></p>
---	--

⇒ Make sure that the pipeline has been installed correctly and is checked at regular intervals. The valve body wall thickness must be designed to take into account an additional load  $F_z$  in the usual order ( $F_z = \pi/4 \cdot DN^2 \cdot PS$ ) for a correctly sized pipeline.






⇒ The valve needs to be connected correctly to the pipeline.

⇒ Rotary plug valves that are operated at temperatures greater than +50°C or lower than -20°C must be protected, together with the pipeline connections, against being touched.

⇒ Make sure the usual flow velocities are not exceeded in continuous service in this pipeline. Exceptional operating conditions such as oscillations, water hammering, cavitation and large proportions of solid matter in the process medium, especially abrasive, must be clarified beforehand with the manufacturer.

- ⇒ A gear unit mounted subsequently onto the valve must fit the Rotary plug valve properly and its final positions, especially the open position, need to be correctly adjusted.
- ⇒ The valve should only be operated and serviced by personnel appropriately qualified for pressurized pipelines.

### 2.3 Particular hazards

 <b>Danger</b>	Prior to removing the Rotary plug valve from the pipeline, <b>relieve pressure entirely in the pipeline</b> to ensure the process medium cannot escape uncontrollably from the pipeline.
 <b>Warning</b>	Should it be necessary to remove a Rotary plug valve from the pipeline, process medium may escape from the pipe or out of the Rotary plug valve. In the case of process media that can damage health or are dangerous, drain the pipeline completely before removing the Rotary plug valve from the pipeline. Take special care concerning <b>any remaining media that may still be in the pipeline or have collected in the cavities of the valve</b> .
 <b>Warning</b>	Only unscrew or loosen any screws or bolts connecting the body parts after the valve has been removed from the pipeline. Tighten the screws on reassembly with a torque wrench according to repair instructions <EB23e_EN>.
 <b>Warning</b>	<i>For Rotary plug valves intended for dead-end service:</i> During standard operation, in particular, with gases or hot and/or dangerous media, <b>mount a blank flange at the free end connection</b> or ensure that the Rotary plug valve is <b>properly protected against unauthorized operation</b> .
 <b>Warning</b>	If a Rotary plug valve used for dead-end service must be opened in a pressurized pipeline, special care must be taken to ensure that <b>any process media escaping under pressure</b> do not cause any damage. <b>Take into consideration that in most cases the process medium is a dangerous substance!</b>

### 2.4 Designation of the Rotary plug valve

The designation of the control valve includes the following details:

Details	Designation	Comments
Manufacturer	<b>Pfeiffer</b>	Address, see section 8 <Further information>
Valve type	<b>BR (and number)</b>	e.g. BR 23e = Series 23e, see Pfeiffer catalog
Body material	e.g.: <b>EN-JS 1049</b>	Material number acc. to DIN EN 1563 (formerly GGG 40.3)
Size	<b>DN (and number)</b>	Value in mm, e.g. DN 50
Maximum pressure	<b>PN (and number)</b>	Value in bar at room temperature
Perm. temperature	<b>TS (and number)</b>	PS and TS are associated values at maximum permissible operating temperature and maximum permissible operating pressure.
Perm. pressure	<b>PS (and number)</b>	
Serial no.	e.g.: <b>2060153/001/001</b>	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>206</p> <p>0153</p> <p>/001</p> <p>/001</p> </div> <div style="margin-left: 10px;"> <p>Valve no. within item</p> <p>Item in order</p> <p>Order</p> <p>Year of manufacture (e.g. 206=2006)</p> </div> </div>
Year of manufacture	e.g.: <b>2006</b>	On customer request, the year of manufacture is stamped on the valve.
Conformity	<b>CE</b>	Conformity is certified separately by the manufacturer
Identification no.	<b>0035</b>	Notified body as per EU Directive = TÜV Anlagentechnik GmbH
Direction of flow	<b>➔</b>	<b>Note:</b> see note in section 4.2 <Installation instructions>

Table 1 – Designation of the control valve

Keep the labeling on the valve body and on the nameplate to ensure that the valve can be identified at all times.

## 3 Transport and storage

Rotary plug valves **with linings must be carefully handled, transported and stored:**





- ⇒ Store the valve with its protective packing and/or with its protective caps in place in the end connections. Store and transport the Rotary plug valves that weigh over approx. 10 kg on pallets (or a similar type of support) right up to the point of installation. The packing is designed to protect the valve's plastic lining, that is prone to scratching, against being damaged.
- ⇒ Store the valve in a closed room before it is installed. Protect it against damaging influences such as dirt or moisture.

- ⇒ Make sure, in particular, that the plastic-lined facings of the flanges intended to connect the valve to the pipeline are not damaged through mechanical or other influences. Do not stack Rotary plug valves!
- ⇒ As a rule, Rotary plug valves are delivered in the completely open position. Store the valves in the condition they were delivered in. Do not operate the actuating device.


## 4 Installation in the pipeline

### 4.1 General


The same instructions apply for installing the Rotary plug valves in the pipeline as for connecting pipes and similar pipeline equipment. The following instructions additionally apply for Rotary plug valves. Also observe section 3 for transporting the Rotary plug valve to the point of installation.

 <b>Caution</b>	<i>The valve is lined with PTFE:</i> Handle with special care and follow the instructions for flange connection.
 <b>Note</b>	<i>The facings of the valve body are lined with plastic.</i> If additional flange gaskets are used, we recommend using gaskets made of PTFE. The mating flanges must have smooth facings. Contact the manufacturer if you intend to use other flange forms.
 <b>Warning</b>	<i>The actuating device is set for the operating data specified in the order.</i> <b>Do not alter the settings for the final positions OPEN and CLOSED</b> without the manufacturer's prior consent.
 <b>Warning</b>	If an actuator unit has been mounted subsequently, torque, direction of rotation, operating angle as well as the final positions OPEN and CLOSED must be adapted to the Rotary plug valve. <b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b>


The following warnings are to be observed for gears:

 <b>Warning</b>	<i>Gears are not designed to be used as step-ladders:</i> Do not apply any weight/load to the gears. This can damage or destroy the Rotary plug valve.
---	---


### 4.2 Installation instructions

 <b>Caution</b>	<i>The lined surface of the valve must be specially protected before/during installation:</i> Transport the valve in its original packaging right up to the point of installation. Remove packaging first at the point of installation.
---	--

- ⇒ Check valve and actuator for signs of damage that may have occurred during transportation. Do not install a damaged Rotary plug valve.
- ⇒ Prior to installation, carry out a function check. The valve must open and close properly. Any function errors that are recognized must be remedied before commissioning. See also section 7 <Troubleshooting>.
- ⇒ Make sure that only Rotary plug valves are installed when their pressure rating, end connections and face to face dimensions match the conditions of application. See the designation of the Rotary plug valve.

 <b>Danger</b>	Do not install a Rotary plug valve if its permissible pressure/temperature ranges do not apply to the operating conditions. The limits of application are marked on the valve, see section 2.4 <Designation>. The permissible range is determined in section 1 <Intended use>. <b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b>
--	---

- ⇒ Make sure the end connections of the pipeline are aligned with the Rotary plug valve's end connections and their ends have parallel planes. Connecting flanges that are not parallel can damage the PTFE lining during installation!
- ⇒ Prior to installation, carefully clean the valve and the connecting section of the pipeline from dirt, especially hard foreign material.
- ⇒ Make sure, in particular, that flange facings and the flange gaskets used are free from any dirt prior to installation.
- ⇒ On inserting the valve (and flange gaskets) into a ready mounted pipeline, keep a certain clearance between the pipeline ends to ensure that all facings (and gaskets) remain undamaged.

 Tighten the flange bolts evenly and in a criss-cross pattern in at least three steps.  
Tighten all flange bolts using the torques specified in Tables 2 or 3.  
Use a torque wrench to ensure that the torque specified is reached, yet not exceeded.


<b>DN [mm]</b>	25	40	50	80	100	150
<b>MA [Nm]</b>	25	50	60	65	75	140

Table 2 – Flange torques for DIN-Flanges

<b>DN [Zoll]</b>	1"	1 1/2"	2"	3"	4"	6"
<b>MA [Nm]</b>	15	30	40	65	50	100

Table 3 – Flange torques for ANSI-Flanges

- ⇒ The valve can be installed in any position. However, if possible, the gear should not be located directly underneath the Rotary plug valve.
- ⇒ Make sure the arrow on the valve body corresponds with the direction of flow in the pipeline.

 In special cases, it may be necessary for the valve to be tightly shut against the direction of flow. The installation in such special cases **must be determined by the operator of the pipeline** (e.g. to protect a pump).

## 5 Pressure check in the pipeline section

The pressure check of valves has already been carried out by the manufacturer. To check the pressure of a section of pipeline with installed valves, the following points must be observed:

- ⇒ Carefully flush newly installed pipes to remove any foreign material.
- ⇒ **Valve OPEN:** The test pressure should not exceed the value **1.5 x PN** (see nameplate).
- ⇒ **Valve CLOSED:** The test pressure should not exceed the value **1.1 x PN** (see nameplate).

If a valve leaks, see section 7 <Troubleshooting>.


## 6 Standard operation and maintenance


Due to the fact of flowing plastic flange facings we strongly recommend to check flange bolt torques acc. to specified figures in section 4.2 after commissioning and normal operation temperature has been reached.

The shaft is sealed with a V-ring packing preloaded with a set of spring washers and does not require any maintenance.

Regular maintenance work on the Rotary plug valves is not necessary.



Normal manual force is sufficient to operate the manual operation. Turn the handwheel clockwise to close the valve. It is not permissible to use extensions to increase the operating torque.

 **Note**  
*Rotary plug valves with lever:*  
The lever's position indicates the position of the valve:  
Lever at an 90° angle to the pipeline: **Valve CLOSED,**  
Lever parallel to the pipeline: **Valve OPEN.**

 **Danger**  
*Rotary plug valves with lever:*  
Do not open and close the valve with sudden movements, but quick enough to prevent pressure surges and/or temperature shocks occurring in the pipeline. **Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.**

## 7 Troubleshooting

Observe the safety instructions listed in section 2 on troubleshooting.

 <b>Warning</b>	To remove a valve from a pipeline containing dangerous media and to take it out of the plant: Decontaminate the valves properly first.	
Type of fault	Action to be taken	Comment
Leak at the connection to the pipeline	<p><i>If the medium leaks out at the flanges of the lined valve:</i> Retighten the flange bolts  <b>Caution:</b> The permissible tightening torque of the flange bolts is restricted. See table 2 or 3 in section 4.2 &lt;Installation instructions&gt;. If necessary, the torque may be increased by max. 20 %.</p> <p><i>If the medium leaks out at the flanges even after tightening the flange bolts:</i> Unscrew the flange bolts and remove the valve (on doing so, observe the instructions in section 2.3 &lt;Particular hazards&gt;). Check the parallel planes of the flanges and, if necessary, correct them. Also check the facing of all the flanges. If the plastic lining is damaged, replace it together with the associated flange gasket.</p>	<p><b>Note 1:</b> <i>When ordering spare parts, include all the specifications listed in the valve designation. Only use original parts from Pfeiffer.</i></p> <p><b>Note 2:</b> <i>If, after removing the valve from the pipeline, it is found that the PTFE/PFA lining is not sufficiently resistant to the process medium, select parts made of a suitable material.</i></p>
Leak at the connection between valve body parts	<p>For the permissible tightening torque to retighten the body halves of the valve, see Pfeiffer repair instructions &lt;EB23e_EN&gt;</p> <p><i>If the valve still leaks:</i> Replace the flange gasket and/or valve.</p>	
Leak at the shaft packing	Remove the valve (observing the instructions in section 2.3 <Particular hazards>), dismantle the valve and replace the shaft packing. Contact Pfeiffer for spare parts and necessary instructions.	
No tight shut-off when the valve is closed	Remove the valve (observing the instructions in section 2.3 <Particular hazards >) and check it.  <i>If the valve is damaged:</i> If it must be repaired, remove the valve, observing section 2.3 <Particular hazards>. Contact Pfeiffer for spare parts and necessary instructions.	
Malfunction	<i>If the valve is damaged:</i> If it must be repaired, remove the valve, observing section 2.3 <Particular hazards>. Contact Pfeiffer for spare parts and necessary instructions.	

## 8 Further information

Contact the address below for the listed <Data sheets> and <Repair instructions> as well as further information.

### Pfeiffer Chemie-Armaturenbau GmbH

Hooghe Weg 41 • 47906 Kempen • Germany  
Phone: +49 2152 2005 - 0 • Fax: +49 21 52 1580  
E-Mail: [vertrieb@pfeiffer-armaturen.com](mailto:vertrieb@pfeiffer-armaturen.com) • Internet: [www.pfeiffer-armaturen.com](http://www.pfeiffer-armaturen.com)

**Pfeiffer Chemie-Armaturenbau GmbH**

Hooghe Weg 41 • 47906 Kempen  
Telefon: 02152 / 2005-0 • Telefax: 02152 / 1580  
E-Mail: [vertrieb@pfeiffer-armaturen.com](mailto:vertrieb@pfeiffer-armaturen.com) • Internet: [www.pfeiffer-armaturen.com](http://www.pfeiffer-armaturen.com)