

Declaration of Conformity as per Directive 97/23/EC and Manufacturer`s Declaration as per Directive 98/37/EC

The manufacturer	Pfeiffer Chemie-Armaturenbau GmbH, 47906 Kempen, Germany
declares that:	PTFE-lined Rotary plug valves Series 23e with packing <ul style="list-style-type: none"> • with pneumatic/electric/hydraulic actuator • with free shaft end for subsequent mounting of an actuator
<ol style="list-style-type: none"> 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, 2. The valves are not complete machinery within the meaning of the Machinery Directive 98/37/EC, but meet the relevant requirements of this Directive, 3. They may only be operated observing the operating instructions <BA23e-01_EN> delivered together with the valve. <p>The commissioning of these valves is only permitted after the valve has been installed from both sides in the pipeline and a risk of injury can be ruled out. (For Rotary plug valves which are intended for dead-end service, see section 2.3).</p>	

Applied standards:

AD 2000 Regulations DIN-EN 292-2000	Regulations for pressurized valve body parts Safety of Machinery, Part 2: Technical requirements
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Type designation and technical features:

Pfeiffer data sheets <TB23e_EN> <i>NOTE: This Manufacturer`s Declaration applies to all valve types listed in this catalog.</i>

Applied conformity assessment procedure:

Conforming to Annex II of the Pressure Equipment Directive 97/23/EC, Module H
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Name of notified body:

Identification number of the notified body:

TÜV Rheinland Service GmbH Am Grauen Stein 51101 Köln Germany	0035
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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 actuated


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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.


These instructions apply only to the Rotary plug valve itself. In addition, refer to the instructions of the mounted actuator.

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

After installing the valve in the pipeline and connecting the actuator to the control equipment, these 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>.

 Danger	<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 <TB23e_EN>.</p> <p>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</p>
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Observation of conformity with the Directive 94/9/EC.

 Note	<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.</p> <p>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 (10^9 Ohm) in accordance with paragraph 7.4 of DIN EN 13463-1:2001.</p>
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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, as well as for the control equipment connected to the actuator. These instructions only specify those safety instructions which need to be additionally observed concerning Rotary plug valves.

Additional safety instructions are specified in the instructions for the actuator assemblies.

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.

 Warning	<p>Preventing misuse of the Rotary plug valve:</p> <p>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.</p> <p>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.</p>
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⇒ Make sure that the pipeline and control equipment have been installed correctly and are 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 and to the control equipment.

⇒ 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.
- ⇒ An actuator 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

 Danger	Prior to removing the Rotary plug valve from the pipeline, relieve pressure entirely in the pipeline to ensure the process medium cannot escape uncontrollably from the pipeline.
 Warning	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 any remaining media that may still be in the pipeline or have collected in the cavities of the valve.
 Warning	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>.
 Warning	<i>For Rotary plug valves intended for dead-end service:</i> During standard operation, in particular, with gases or hot and/or dangerous media, mount a blank flange at the free end connection or ensure that the Rotary plug valve is properly protected against unauthorized operation.
 Warning	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 any process media escaping under pressure do not cause any damage. Take into consideration that in most cases the process medium is a dangerous substance!

2.4 Designation of the Rotary plug valve

The designation of the control valve includes the following details:

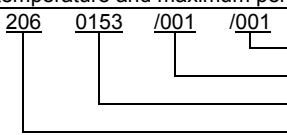
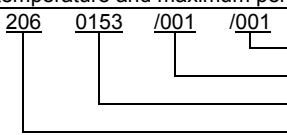
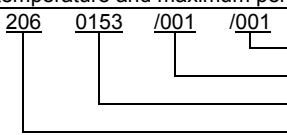
Details	Designation	Comments										
Manufacturer	Pfeiffer	Address, see section 8 <Further information>										
Valve type	BR (and number)	e.g. BR 23e = Series 23e, see Pfeiffer catalog										
Body material	e.g.: EN-JS 1049	Material number acc. to DIN EN 1563 (formerly GGG 40.3)										
Size	DN (and number)	Value in mm, e.g. DN 50										
Maximum pressure	PN (and number)	Value in bar at room temperature										
Perm. temperature	TS (and number)	PS and TS are associated values at maximum permissible operating temperature and maximum permissible operating pressure.										
Perm. pressure	PS (and number)											
Serial no.	e.g.: 2060153/001/001	<table style="border: none;"> <tr> <td style="text-align: center;">206</td> <td style="text-align: center;">0153</td> <td style="text-align: center;">/001</td> <td style="text-align: center;">/001</td> <td></td> </tr> <tr> <td colspan="4" style="border: none;">  </td> <td style="border: none;"> Valve no. within item Item in order Order Year of manufacture (e.g. 206=2006) </td> </tr> </table>	206	0153	/001	/001						Valve no. within item Item in order Order Year of manufacture (e.g. 206=2006)
206	0153	/001	/001									
				Valve no. within item Item in order Order Year of manufacture (e.g. 206=2006)								
Year of manufacture	e.g.: 2006	On customer request, the year of manufacture is stamped on the valve.										
Conformity	CE	Conformity is certified separately by the manufacturer										
Identification no.	0035	Notified body as per EU Directive = TÜV Anlagentechnik GmbH										
Direction of flow	➔	Note: 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.

 Caution	<i>The valve is lined with PTFE:</i> Handle with special care and follow the instructions for flange connection.
 Note	<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.
 Warning	<i>The actuating device is set for the operating data specified in the order.</i> Do not alter the settings for the final positions OPEN and CLOSED without the manufacturer's prior consent.
 Warning	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. Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.
 Warning	<i>Only for Rotary plug valves with electric actuator:</i> Make sure that the actuator is switched off in the final positions by the limit switch's signal . If the actuator is switched off in an intermediate position by the torque switch's signal , this signal should be used additionally for fault indication. Remedy any faults as quickly as possible. See section 7 <Troubleshooting>. <i>See the instructions for the electric actuator for further details.</i>


The following warnings are to be observed for actuators:

 Warning	<i>Actuators are not designed to be used as step-ladders:</i> Do not apply any weight/load to the actuators. This can damage or destroy the Rotary plug valve.
 Warning	<i>Actuators that weigh more than the Rotary plug valve:</i> Support any actuator which due to its size and/or mounting situation would otherwise cause the valve to bend under the load.

4.2 Installation instructions


 Caution	<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.
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- ⇒ Check valve and actuator for signs of damage that may have occurred during transportation. Do not install a damaged Rotary plug valve or actuator.
- ⇒ 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.

 Danger	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>. Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.
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- ⇒ The connecting specifications for the actuator unit must match those of the control equipment. See nameplate(s) on the actuator unit.

- ⇒ 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 any flange gaskets) 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.

 Caution	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.


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

Table 2 – Flange torques for DIN-Flanges


DN [Zoll]	1"	1 1/2"	2"	3"	4"	6"
MA [Nm]	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 actuator 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.

 Note	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).
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- ⇒ The associated instructions apply for connecting the actuator unit to the control equipment.
- ⇒ After completing installation, carry out a function check using the signals issued by the control equipment. The valve must open and close properly corresponding with the control signals. Any function errors that are recognized must be remedied before commissioning. See also section 7 <Troubleshooting>.

 Warning	Control commands that are not carried out correctly may result in personal injury and can damage equipment installed in the pipeline.
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5 Pressure check in 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.

Operate the valve/actuator unit over the control equipment signals. Rotary plug valves delivered with the actuator already mounted are precisely set and should not be readjusted.

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



Normal manual force is sufficient to operate the manual override on the actuator (if required). It is not permissible to use extensions to increase the operating torque.

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

If a valve leaks, proceed as described in section 7 <Troubleshooting>.

7 Troubleshooting

Observe the safety instructions listed in section 2 on troubleshooting.

 Warning	<i>To remove a valve from a pipeline containing dangerous media and to take it out of the plant: Decontaminate the valves properly first.</i>	
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></p> <p>Retighten the flange bolts Caution: The permissible tightening torque of the flange bolts is restricted. See table 2 or 3 in section 4.2 <Installation instructions>. 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 <Particular hazards>). 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>Note 1: <i>When ordering spare parts, include all the specifications listed in the valve designation. Only use original parts from Pfeiffer.</i></p> <p>Note 2: <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 <EB23e_EN></p> <p><i>If the valve still leaks:</i> Replace the flange gasket and/or valve.</p>	
Leak at the shaft packing	<p>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.</p>	
No tight shut-off when the valve is closed	<p>Remove the valve (observing the instructions in section 2.3 <Particular hazards>) and check it.</p> <p><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.</p>	
Malfunction	<p>Check actuator unit and control signals</p> <p><i>If actuator and control equipment are in order:</i> Remove the valve (observing the instructions in section 2.3 <Particular hazards>) and check it.</p> <p><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.</p>	
If a pneumatic actuator with springs must be removed from the valve	<p> Caution: Risk of injury Before removing the actuator from the valve, disconnect the signal pressure.</p>	

For malfunctioning actuator units, refer to the actuator instructions.

8 Further information

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

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