



# TRANSLATION

## Declaration of Conformity as per Directive 2014/68/EU

The manufacturer	Pfeiffer Chemie-Armaturenbau GmbH, 47906 Kempen, Germany
declares that:	<b>Straight-pattern ball valves</b> <b>BR22a, BR26a, BR26b (ECO), BR26d, BR26e, BR26k, BR26s and BR26u</b> <b>with packing</b> <ul style="list-style-type: none"> <li>• with pneumatic/electric/hydraulic actuator</li> <li>• with free shaft end for subsequent mounting of an actuator</li> </ul>
<p>1. The valves are pressure accessories within the meaning of the Directive 2014/68/EU and conform with the requirements of this Directive,</p> <p>2. They may only be operated observing the operating instructions &lt;BA26a-01&gt; delivered together with the valve. 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. (See section 2.3 for ball valves intended for dead-end service)</p>	

Applied standards:

<b>AD 2000 Regulations</b>	<b>Regulations for pressurized valve body parts</b>
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Type designation and technical features:

<b>Pfeiffer data sheets &lt;TB22a, TB26a, TB26b, TB26d, TB26e, TB26k, TB26s and TB26u&gt;</b> <i>NOTE: This Manufacturer's Declaration applies to all valve types listed in this catalogue.</i>
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Applied conformity assessment procedure:

Conforming to Annex III of the Directive 2014/68/EU, Module H
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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>
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These Declarations become invalid when modifications are made to the ball valves and/or assemblies that affect the technical data of the ball 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. August 2017

Marcus Miertz, Chief Executive Officer

Stefan Czayka, IMS Representative

# Operating instructions

## Straight-pattern ball valve actuated

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## 0. Introduction

These instructions are designed to assist the user during installation, operation and maintenance of ball valves from the **BR22a**, **BR26a**, **BR26b (ECO)**, **BR 26d**, **BR26e**, **BR26k**, **BR26s** and **BR26u**.

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

 <b>Note</b>	<p>The <b>WARNING</b> and <b>CAUTION</b> notes must be strictly adhered to. Otherwise this may lead to personal injury and equipment damage and the manufacturer's warranty may become void. 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 ball valves are designed exclusively for shutting off or controlling media within the permissible pressure and temperature ranges.

The permissible pressure and temperature ranges for these ball valves are specified in the data sheets <**TB22a**, **TB26a**, **TB26b**, **TB26d**, **TB26e**, **TB26k**, **TB26s** or **TB26u**>.

 <b>Danger</b>	<p>Do not operate a ball valve when its permissible pressure/temperature rating is not sized for the operating conditions specified in the data sheets &lt;<b>TB22a</b>, <b>TB26a</b>, <b>TB26b</b>, <b>TB26d</b>, <b>TB26e</b>, <b>TB26k</b>, <b>TB26s</b> or <b>TB26u</b>&gt;. <b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b></p>
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### Interpretation of declaration to the Directive 2014/34/EU

 <b>Note</b>	<p>Pfeiffer valves have no own potential ignition source after testing the hazardous ignition in accordance to DIN EN 13463-1. Therefore Pfeiffer valves do not come under the directive 2014/34/EU. A CE marking in accordance with this Directive is not permissible. The incorporation of the valves into the equipotential bonding system of a plant applies to all metal parts in hazardous areas, irrespectively of the Directive.</p>
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- ⇒ Refer to the supplementary data sheet <**DB20a-kd**> if the ball valve is intended for throttling services.
- ⇒ The ball valve body may contain small amounts of medium in the closed and open position: In the case that the heat in the surroundings where the valve is installed can heat up the process medium in the valve, use the ball valve version with a relief bore to prevent an impermissible rise in pressure.
- ⇒ Parts subject to wear are not covered by the warranty.
- ⇒ Observance of section 2 <Safety instructions> is presumed for the Intended use.

## 2. Safety instructions

### 2.1 General safety instructions

For ball 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 ball 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 ball 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 ball valve:</b>                  It is especially important to make sure that the selected materials for wetted parts in the ball valve are suitable for the media used as well as the prevailing pressures and temperatures.</p> <p><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>
 <b>Warning</b>	<p><b>The valve should only be operated and serviced by personnel appropriately qualified for pressurized pipelines.</b>                  Skilled staff in the sense of these operating instructions is persons who, as a result of their training, their knowledge and their experience, as well as their knowledge of the relevant standards, are able to judge the tasks assigned to them and are able to recognize possible dangers.</p>

- ⇒ Make sure that an actuator unit which has been mounted subsequently onto the valve is adapted to the ball valve and its maximum torque is observed. It must be correctly set in the end positions and especially the open position of the ball valve.
- ⇒ 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.
- ⇒ 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.

 <b>Danger</b>	<p>We recommend to open and close the valve regularly. Depending on the valve model, we recommend opening and closing the valve at least once a year.                  Depending on how long the valve remains in one position, breakaway and operating torques may differ considerably than those specified in the data sheet. To take this matter into account on sizing the actuator, specify how long the valve is to remain in the same position in your inquiry.</p> <p>When the actuator is mounted subsequently onto the valve by the operator, the manufacturer does not assume any final responsibility for the correctness of the actuator sizing regarding how long the valve is to remain in one position.</p>
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- ⇒ Ball 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.

 <b>Danger</b>	<p>Do not insert your hand into the valve while it is being tested not yet installed into the pipeline. Otherwise, serious injuries may occur.</p>
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### 2.3 Particular hazards

 <b>Danger</b>	<p>Prior to removing the ball valve from the pipeline, <b>relieve pressure entirely in the pipeline</b> to ensure the process medium cannot escape uncontrollably from the pipeline.</p>
 <b>Warning</b>	<p>Should it be necessary to remove a ball valve from the pipeline, process medium may escape from the pipe or out of the ball valve. In the case of process media that can damage health or are dangerous, drain the pipeline completely before removing the ball valve from the pipeline.                  Take special care concerning any <b>remaining media that may still be in the pipeline or have collected in the cavities of the valve.</b></p>
 <b>Warning</b>	<p>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 &lt;EB22a, EB26a, EB26b, EB26d, EB26e, EB26k, EB26s or EB26u&gt;.</p>
 <b>Warning</b>	<p>For ball valves intended for dead-end service:                  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 ball valve is <b>properly protected against unauthorized operation.</b></p>

 <b>Warning</b>	If a ball valve used for dead-end service must be opened in a pressurized pipeline, special care must be taken to ensure that any <b>process media escaping under pressure</b> do not cause any damage.
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## 2.4 Designation of the ball valve

The designation of the ball valve includes the following details:

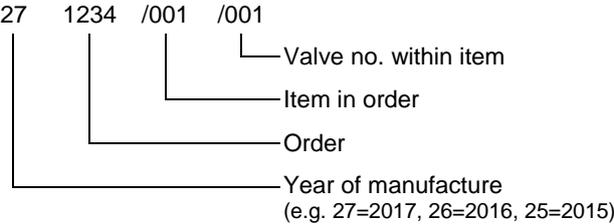
Details	Designation	Comments
Manufacturer	<b>Pfeiffer</b>	Address, see section 8 <Further information>
Valve type	<b>BR (and number)</b>	e.g. BR 26d = Series 26d, see Pfeiffer catalog
Body material	<b>e.g. 1.4408</b>	Material number acc. to DIN 10213-4
Size	<b>DN (and number)</b>	Value in mm, e.g. DN 80
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. 2009 onwards	<b>e.g.: 271234/001/001</b>	<p>27 1234 /001 /001</p>  <p>Valve no. within item Item in order Order Year of manufacture (e.g. 27=2017, 26=2016, 25=2015)</p>
	Serial no. up to 2008	<b>e.g.: 2070153/001/001</b>
Year of manufacture	<b>e.g.: 2017</b>	The year of manufacture is stamped on the valve upon customer request.
Conformity	<b>CE</b>	Conformity is certified separately by the manufacturer
Identification no.	<b>0035</b>	Notified body as per EU Directive = TÜV Rheinland Service GmbH
Direction of flow	<b>➔</b>	Note: see note in section 4.2 <Installation instructions>

Table 1 – Designation of the ball 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

Ball valves 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 ball valves that weigh over approx. 10 kg on pallets (or a similar type of support) right up to the point of installation.
- ⇒ 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 actuator and the end connections intended to connect the valve to the pipeline are not damaged through mechanical or other influences.

- ⇒ As a rule, ball valves are delivered in the completely open position. Store the valves in the condition they were delivered in. Do not operate the actuating device.
- ⇒ Series 26s Ball Valves must preferably be lifted and transported using lifting eye bolts (DIN 580) screwed into the tapped holes of the body intended for this purpose.

## 4. Installation in the pipeline

### 4.1 General

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

 <b>Note</b>	The mating flanges must have smooth facings Contact the manufacturer if you intend to use other flange forms.
 <b>Caution</b>	<i>For ball valves spring-loaded on one side:</i> To allow ball valves spring-loaded on one side and with a floating ball to function properly, install the ball valve into the pipeline in such a way that the direction of flow supports the spring loading (the seat ring in the body is spring-loaded). <b>If the valve is installed in the reverse direction, the spring may be damaged, depending on the differential pressure.</b>
 <b>Danger</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 ball valve. <b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b>
 <b>Warning</b>	<i>The actuating device is set for the operating data specified in the order:</i> Do not alter the settings for the final positions <b>OPEN</b> and <b>CLOSED</b> without the manufacturer's prior consent.
 <b>Warning</b>	<i>Only for ball valves with electric actuator:</i> Make sure that the actuator is switched off in the final positions by the <b>limit switch's signal</b> . If the actuator is switched off in an intermediate position by the <b>torque switch's signal</b> , this signal should be used additionally for fault indication. Remedy any faults as quickly as possible. See section 7 <Troubleshooting>. See the instructions for the electric actuator for further details.

The following warnings are to be observed for actuators:

 <b>Warning</b>	<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 ball valve.
 <b>Warning</b>	<i>Actuators that weigh more than the ball valve:</i> Support any actuator which due to its size and/or mounting situation would otherwise cause the valve to bend under the load.

The following warning is to be observed for metal-seated ball valves:

 <b>Caution</b>	To avoid impairing the shut-off performance of the valve, make sure the pipeline upstream and downstream of the place of installation is carefully cleaned from all hard and abrasive foreign material prior to installation of the ball valve.
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### 4.2 Installation instructions

- ⇒ Transport the valve in its original packaging right up to the point of installation. Remove packaging first at the point of installation to protect it from dirt.

- ⇒ Check valve and actuator for signs of damage that may have occurred during transportation. Do not install a damaged ball valve or actuator.
- ⇒ Make sure that only ball valves are installed when their pressure rating, end connections and face to face dimensions match the conditions of application. See the designation of the ball valve.

 <b>Danger</b>	<p>Do not install a ball 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 &lt;Designation&gt;. The permissible range is determined in section 1 &lt;Intended use&gt;.</p> <p><b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b></p>
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- ⇒ Make sure the end connections of the pipeline are aligned with the ball valve's end connections and their ends have parallel planes.
- ⇒ The connecting specifications for the actuator unit must match those of the control equipment. See nameplate(s) on the actuator unit.
- ⇒ Prior to installation, carefully clean the valve and the connecting section of the pipeline from dirt, especially hard foreign material.
- ⇒ The valve can be installed in any position. However, if possible, the actuator should not be located directly underneath the ball valve.
- ⇒ Make sure, in particular, that flange facings (and any flange gaskets) are free from any dirt prior to installation.
- ⇒ Make sure the arrow on the valve body corresponds with the direction of flow in the pipeline.

 <b>Note</b>	<p>In special cases, it may be necessary for the valve to be tightly shut against the direction of flow. For the installation in such special cases, the manufacturer must be consulted as this may lead to overloading of the seat rings, ball etc.</p>
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- ⇒ On inserting the valve (and any flange gaskets) into a ready mounted pipeline, keep a certain clearance between the pipeline ends to ensure that all facings (and gaskets) remain undamaged.
- ⇒ 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>.

 <b>Warning</b>	<p>Control commands that are not carried out correctly may result in personal injury and can damage equipment installed in the pipeline.</p>
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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 must not exceed the value **1.5 x PN** (see nameplate).
- ⇒ **Valve CLOSED:** The test pressure must not exceed the value **1.1 x PN** (see nameplate).

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

## 6. Standard operation and maintenance

- ⇒ Operate the valve/actuator unit over the control equipment signals. Ball 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 ball valves is not necessary. But, on checking the pipeline section, there should be no leakage at the flanged and bolted connections of the valve body or at the shaft packing.
- ⇒ If a valve leaks, proceed as described in section 7 <Troubleshooting>.

## 7. Troubleshooting

Observe the safety instructions listed in section 2 on troubleshooting.

 Warning	To remove a valve from a pipeline containing dangerous media and to take it out of the plant: Decontaminate the valves properly first.
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Type of fault	Action to be taken	Comment
Leak at the connection to the pipeline	Tighten flange bolts. <i>If the medium leaks out at the flanges even after tightening the flange bolts:</i> Remove the valve (observing the instructions in section 2.3 <Particular hazards>) and replace the gaskets.	Note 1: When ordering spare parts, include all the specifications listed in the valve designation. Only use original parts from Pfeiffer.  Note 2: If, after removing the valve from the pipeline, it is found that the body and/or internal parts are not sufficiently resistant to the process medium, select parts made of a suitable material.
Leak at the connection between valve body parts	Tighten bolts/screws with a torque wrench, see Pfeiffer repair instructions <EB22a, EB26a, EB26b, EB26d, EB26e, EB26k, EB26s or EB26u> <i>If the valve still leaks:</i> Remove the valve (observing the instructions in section 2.3 <Particular hazards>) and replace the gaskets. Contact Pfeiffer for spare parts and necessary instructions.	
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	Check actuator unit and control signals <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. <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.	
If a pneumatic actuator with springs must be removed from the valve	 <b>Caution: Risk of injury</b> Before removing the actuator from the valve, disconnect the signal pressure.	

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.

**Pfeiffer Chemie-Armaturenbau GmbH**  
 Hooghe Weg 41 • 47906 Kempen • Germany  
 Phone: +49 21 52 20 05 - 0 • Fax: +49 21 52 15 80  
 E-mail: [vertrieb@pfeiffer-armaturen.com](mailto:vertrieb@pfeiffer-armaturen.com) • Internet: [www.pfeiffer-armaturen.com](http://www.pfeiffer-armaturen.com)