



# TRANSLATION

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

The manufacturer	Pfeiffer Chemie-Armaturenbau GmbH, 47906 Kempen, Germany
declares that:	<b>Butterfly valves</b> <b>BR14a, BR14b, BR14b eco+, BR14b-Type HD, BR14c, BR14e, BR14p-Type PSA, BR14t and BR74b</b> <b>with packing and adjustable stuffing box</b> <ul style="list-style-type: none"> <li>• with worm gear and handwheel</li> <li>• with lever for 90° operation</li> </ul>
<p>1. The valves are pressure accessories within the meaning of the Pressure Equipment 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;BA14b-02&gt; delivered together with the valve.  <i>(For butterfly valves which are intended for dead-end service, see section 2.3).</i></p>	

*Applied standards:*

<b>EN 593</b> <b>AD 2000 Regulations</b>	<b>Product standard for butterfly valves</b> Regulations for pressurized valve body parts
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*Type designation and technical features:*

Pfeiffer data sheets <TB14a, TB14b, TB14b eco+, TB14e, TB14t, TB74b, DB14b-07 and DB14p-01> NOTE: This Manufacturer's Declaration applies to all valve types listed in this catalogue.
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*Applied conformity assessment procedure:*

<b>Conforming to Annex III of the Pressure Equipment Directive 2014/68/EU, Module H</b>
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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 butterfly valves and/or assemblies that affect the technical data of the butterfly 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, 6. January 2021

  
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 Marcus Miertz, Chief Executive Officer

  
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 Stefan Czayka, IMS Representative

# Operating instructions


## Butterfly valves manually operated

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## 0. Introduction


These instructions are designed to assist the user during installation, operation and maintenance of butterfly valves from the **BR14a, BR14b, BR14b eco+, BR14b-Type HD, BR14c, BR14e, BR14p-Type PSA, BR14t** and **BR74b**.

	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.
<b>Note</b>	Please contact the manufacturer if you have any queries, see section 8 for contact address.


## 1. Intended use

After installing the valve in the pipeline, manually operated butterfly 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 butterfly valves are specified in the data sheets <**TB14a, TB14b, TB14b eco+, TB14e, TB14t, TB74b, DB14b-07** and **DB14p-01**>.

	Do not operate a butterfly valve when its permissible pressure/temperature rating is not sized for the operating conditions specified in the data sheets < <b>TB14a, TB14b, TB14b eco+, TB14e, TB14t, TB74b, DB14b-07</b> and <b>DB14p-01</b> >.
<b>Danger</b>	<b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b>

### Observation of conformity with the Directive 2014/34/EU.

	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.
<b>Note</b>	Relating to this directive a CE-marking is not permissible. The valve could be incorporated into potential compensation of plants independent of the directive, valid for metallic parts in hazardous areas.

- ⇒ Refer to the limitations in the above mentioned data sheets if the butterfly valve is intended for throttling services.
- ⇒ 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 butterfly 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 butterfly valves.

### 2.2 Safety instructions for the operator



The manufacturer does not assume any responsibility. Therefore, when using the butterfly 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>Preventing misuse of the butterfly valve:</b> It is especially important to make sure that the wetted parts in the butterfly valve are suitable for the media used as well as the prevailing pressures and temperatures.
<b>Warning</b>	<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>




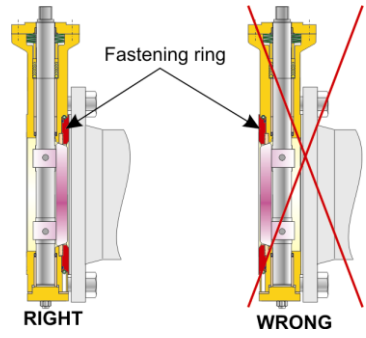



 <b>Danger</b>	<p><b>The valve should only be operated and serviced by personnel appropriately qualified for pressurized pipelines:</b>                  Skilled staff in the sense of these operating instructions is persons who, as a result of their training, their knowledge and their experience, as well as their knowledge of the relevant standards, are able to judge the tasks assigned to them and are able to recognize possible dangers.</p>
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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.
- ⇒ 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.
- ⇒ That operating parameter near the cavitation limit and/or sound emission clearly above 85 dB, have been approved with the manufacturer Pfeiffer.

 <b>Warning</b>	<p>We recommend to <b>open</b> and <b>close</b> 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.</p>
 <b>Attention</b>	<p><i>For double eccentric valves:</i>                  Make sure, that the butterfly disc is always operated within a range of between 0° - 90°. Turning the butterfly valve over 0° leads to irreparable damage to the sealing ring e.g. sealing strip, this must therefore be avoided.</p>

- ⇒ Butterfly 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.

### 2.3 Particular hazards

 <b>Danger</b>	<p>Prior to unscrewing the bonnet or removing the butterfly 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 butterfly valve from the pipeline, process medium may escape from the pipe or out of the butterfly valve. In the case of process media that can damage health or are dangerous, drain the pipeline completely before removing the butterfly 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><i>For butterfly 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 butterfly valve is properly protected against unauthorized operation.</p>	
 <b>Warning</b>	<p>If a butterfly 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.</p>	
 <b>Note</b>	<p><b>Application as end valve:</b>                  The valve must be mounted, so that the fastening ring mounted on the valve body with cheese screws i.e. tension spring, is pressed against the piping flange.                  Sealing cannot be guaranteed, if mounted in reverse.</p>	
 <b>Danger</b>	<p><i>For Butterfly valves with adjustable Stuffing box:</i>                  The shaft is sealed with a stuffing box packing. Prior to unscrewing the stuffing box gland, relieve pressure entirely in the pipeline to ensure the process medium cannot escape uncontrollably from the stuffing box packing.</p>	

## 2.4 Designation of the butterfly valve

The designation of the butterfly valve includes the following details:

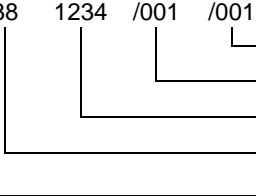
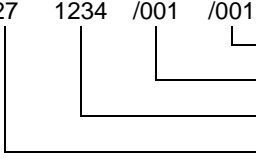
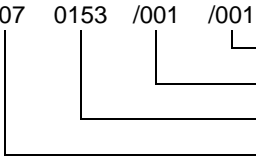
Details	Designation	Comments
Manufacturer	<b>Pfeiffer</b>	Address see section 8 <Information>
Valve type	<b>BR (and number)</b>	e.g. BR 14a = Series 14a, see Pfeiffer catalogue
Body material	<b>e.g.: 1.4408</b>	Material number acc. to DIN EN 10213-4
Size	<b>DN (and number)</b>	Value in mm, e.g. DN200
Maximum pressure	<b>PN (and number)</b>	Value in bar at room temperature
Perm. temperature	<b>TS (and number)</b>	<b>PS</b> and <b>TS</b> are associated values at maximum permissible operating temperature and maximum permissible operating pressure.
Perm. pressure	<b>PS (and number)</b>	
Serial no. 2018 onwards	<b>e.g.: 381234/001/001</b>	 <p>38 1234 /001 /001</p> <ul style="list-style-type: none"> <li>— Valve No. into the Item</li> <li>— Item in Commission</li> <li>— Commission</li> <li>— year of manufacture (e.g. 38=2018, 39=2019, 30=2020)</li> </ul>
		 <p>27 1234 /001 /001</p> <ul style="list-style-type: none"> <li>— Valve No. into the Item</li> <li>— Item in Commission</li> <li>— Commission</li> <li>— year of manufacture (e.g. 27=2017)</li> </ul>
		 <p>207 0153 /001 /001</p> <ul style="list-style-type: none"> <li>— Valve No. into the Item</li> <li>— Item in Commission</li> <li>— Commission</li> <li>— year of manufacture (e.g. 207=2007)</li> </ul>
Serial no. 2009 to 2017	<b>e.g.: 211234/001/001</b>	
Serial no. up to 2008	<b>e.g.: 2070153/001/001</b>	
Year of manufacture	<b>e.g.: 2017</b>	On request of customer 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 butterfly 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




Butterfly 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 butterfly 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 internal parts 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 facings of the flanges are not damaged through mechanical or other influences. Do not stack butterfly valves!
- ⇒ As a rule, butterfly valves are delivered in the closed position. Store the valves in the condition they were delivered in. Do not operate the valve.



## 4. Installation in the pipeline

### 4.1 General


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

 <b>Note</b>	<p><i>The mating flanges must have smooth facings.</i> Contact the manufacturer if you intend to use other flange forms.</p>
 <b>Danger</b>	<p><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.</p>
 <b>Warning</b>	<p>In exceptional cases, when a valve is installed into a pipeline without an actuator mounted, make sure that pressure is not applied to these valves. 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 butterfly valve. <b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b></p>

The following warnings are to be observed for Gears:


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

The following warnings are to be observed for high-performance butterfly valves including a seat with metal sealing:

 <b>Caution</b>	<p>To avoid that the seat seal is damaged, 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 butterfly valve.</p>
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### 4.2 Installation instructions

- ⇒ Store and transport the valve with its protective packing right up to the point of installation.
- ⇒ Check valve (and gear) for signs of damage that may have occurred during transportation. Do not install a damaged butterfly 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 butterfly valves are installed when their pressure rating, end connections, (flow rate) and face to face dimensions match the conditions of application. See the designation of the butterfly valve.

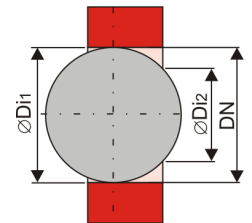
 <b>Danger</b>	<p>Do not install a butterfly valve if its permissible pressure/temperature ranges do not apply to the operating conditions. The limits of application are marked on the valve, see section 2.4 &lt;Designation&gt;. The permissible range is determined in section 1 &lt;Intended use&gt;. <b>Failure 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 butterfly valve's end connections and their ends have parallel planes.



- ⇒ 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.
- ⇒ The preferable mounting position for butterfly valves is with the shaft in a horizontal position. However, if possible, the gear should not be located directly underneath the butterfly valve.

	The valve must be inserted between the pipeline flanges with the butterfly disc in closed position. Otherwise, the disc might be damaged and the valve could become leaky.										
	The inside diameter of the mating flanges must leave sufficient room for the opened butterfly disc to ensure that it cannot be damaged on swinging out. See Table 2.										
	DN	80	100	150	200	250	300	350	400	500	600
	NPS	3	4	6	8	10	12	14	16	20	24
BR14a	ØDi row 16	-	56	113	162	205	257	295	343	443	540
BR14b	ØDi1	54	78	128	180	227	276	308	365	406	-
BR14c	row 20	22	50	82	122	151	217	252	308	446	-
BR74b	ØDi2 row 25	35	60	96	153	210	256	283	308	446	-
	row 16	-	-	118	166	217	260	301	348	454	-
BR14b- Type HD	ØDi1	65	87	137	187	233	280	324	371	-	-
	ØDi2	39	58	120	168	217	260	302	348	-	-
BR14p- Type PSA	ØDi1	-	87	135	183	233	-	-	-	-	-
	ØDi2	-	58	118	166	217	-	-	-	-	-
BR14t	ØDi1	53	77	127	172	223	256	-	-	-	-
	ØDi2	44	59	119	170	221	267	-	-	-	-



	DN	50	80	100	150	200	250	300	600
BR14e	ØDi	26	66	86	140	191	241	290	580

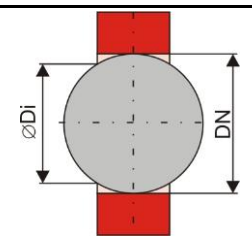


Table 2 – Minimum required inside diameter Di of the mating flanges

- ⇒ Make sure the arrow on the valve body corresponds with direction of pressure in the pipeline.

	In special cases, it may be necessary for the valve to be tightly shut against the pressure direction. 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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- ⇒ 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.

	<i>For butterfly valves with re-adjustable stuffing box:</i> The necessary torques for tightening the adjustable stuffing box can taken for table 3. The use of torque wrenches ensure, that the torques are reached.
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DN [mm]	80	100	150	200	250	300
MA [Nm]	4	5	6	7	7	9

Table 3 – Tightening values for the adjustable stuffing box

## 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 before operating the valve.
- ⇒ **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


- ⇒ Depending on the design and construction in use, the operating shaft sealings are maintenance free
  - The operating shaft with a PTFE-V-ring pack sealing, is pre-loaded with a spring washer set, and therefore maintenance free
  - The operating shaft with PTFE-meshwork pack sealing is pre-loaded with a compression spacer and must only be adjusted when required
- ⇒ 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 operation torque.

 <b>Note</b>	<i>Butterfly valves with lever:</i> The position of the lever indicates the valve's position: Lever at a 90° angle to the pipeline: <b>Valve CLOSED,</b> Lever parallel to the pipeline: <b>Valve OPEN.</b>
 <b>Danger</b>	<i>Butterfly valves with lever:</i> 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. <b>Failure to follow these safety precautions may result in personal injury and can damage equipment installed in the pipeline.</b>

- ⇒ Regular maintenance work on the butterfly valves is not necessary. When checking the pipeline section, make sure that no medium leaks out at the flanged and threaded ends of the body and 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.

 <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.
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Type of fault	Action to be taken	Comment
Leak at the connection to the pipeline or at the cover	Tighten flange bolts. <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>).	<p><b>Note 1:</b> When ordering spare parts, include all the specifications listed in the valve designation. Only use original parts from Pfeiffer.</p> <p><b>Note 2:</b> If, after removing the valve from the pipeline, it is found that the internal parts are not sufficiently resistant to the process medium, select parts made of a suitable material.</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. <i>For Butterfly valves with adjustable Stuffing box:</i> Alternately tighten both bolts at the stuffing box gland by turning them clockwise (in steps of 1/4 turns) until the leakage stops. <i>If the valve still leaks:</i> The valve must be repaired. Contact Pfeiffer for spare parts and necessary instructions. <i>On loosening or unscrewing the nuts at the stuffing box gland (counterclockwise):</i>  <b>Danger:</b> To protect the operator, relieve pressure entirely in the pipeline upstream and downstream of the valve prior to loosening the nuts. Observe instructions in section 2.3 <Particular hazards>.	
No tight shut-off when the valve is closed	Check whether the valve is 100% closed. <i>Important note for control valves BR14e:</i> This valve has a sweeping disc and does not have a tight seal in the closed position. <i>If the valve leaks in closed position:</i> Open/close the valve several times under differential pressure. <i>If the valve still leaks:</i> The valve must be repaired: replace the seat ring (observing the instructions in section 2.3 <Particular hazards>). Contact Pfeiffer for spare parts and necessary instructions.	
Malfunction	<i>If the valve is damaged:</i> The valve must be repaired. 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**  
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