

# Maintenance

## Butterfly Valve Series 14e

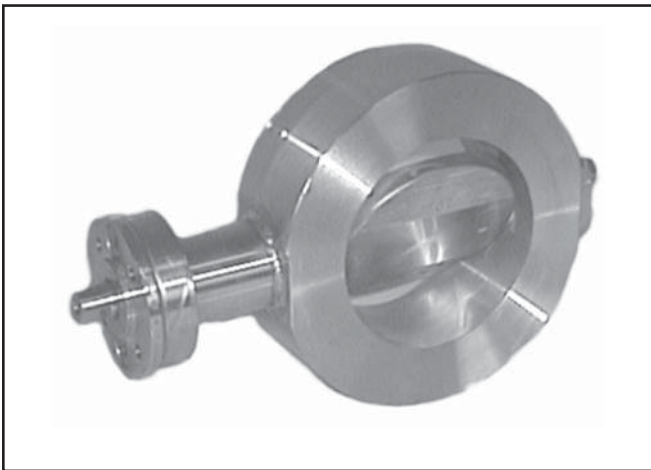


Fig. 1 – Butterfly valve Series 14e

### 0. Introduction

These instructions are intended to support the user in the assembly and repair of butterfly valves of the Series 14e.

Technical details, as a result of the further development of the valves mentioned in these instructions, are subject to alteration. The text and illustrations do not necessarily display the scope of supply or an eventual order of spare parts. Drawings and graphics are not to scale.

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

The transfer of these instructions to third parties is only allowed with the written approval of Pfeiffer Chemie-Armaturenbau GmbH. All documents are protected according to the laws of the German Copyright Act. The transmission and/or duplication of documents, even in abstracts, as well as the exploitation and communication of their content is not permitted, unless expressly granted.

Violations are an offence and liable to claims for damages. We reserve all rights for the exercise of industrial property rights.



The equipment may only be dismantled and disassembled by skilled staff who are familiar with the assembly, the start-up and the operation of this product.

Skilled staff in the sense of these repair and assembly instructions are 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.

### 1. Design, operation and dimensions

Design, operation and dimensions as well as all further details and technical data may be found in the **data sheet** < TB 14e\_EN >.

### 2. Installation, start-up and maintenance

Guidelines for the installation, start-up and maintenance are to be found in the **operating instructions**

< BA 14e-01\_EN > for pneumatic butterfly valves, resp.

< BA 14e-02\_EN > for hand-operated butterfly valves.

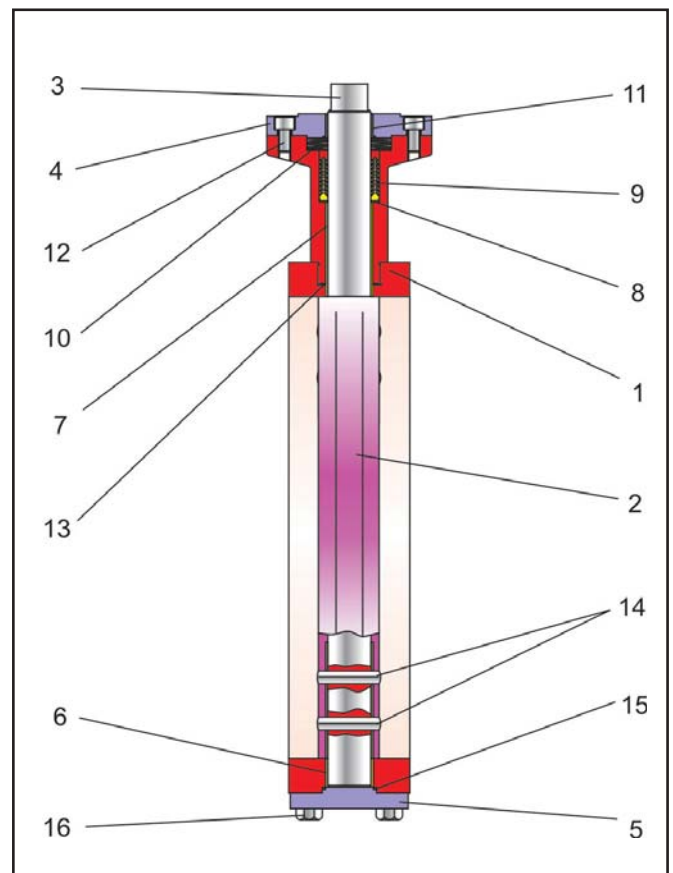


Fig. 2 - Cross-section through a butterfly valve Series 14e => for parts list see table 1 on page 2

# Butterfly Valve Series 14e

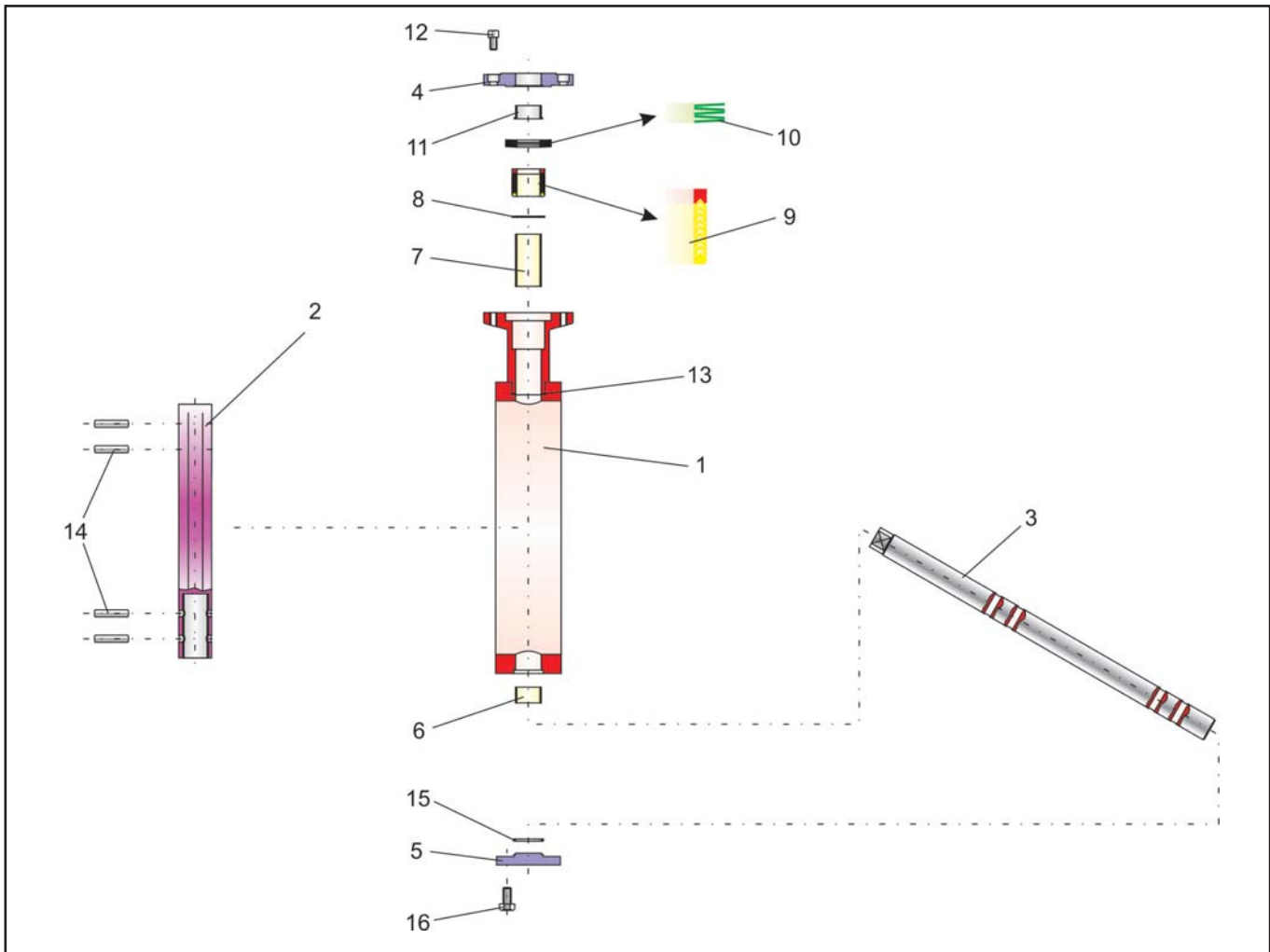


Fig. 3 – Detail drawing of the butterfly valve Series 14e

Item	Description	Material
1	Valve body	WN 1.4571 / WN 1.4581
2	Valve disc	WN 1.4571
3	Valve shaft	WN 1.4571
4	Stuffin box flange	WN 1.4571
5	Bonnet	WN 1.4571
6	Bearing bushing	PTFE
7	Bearing bushing	PTFE
8	Washer	WN 1.4571
9	V-ring packing	PTFE / WN 1.4305
10	Belleville spring washer	WN 1.8159 / Delta Tone
11	Bearing bushing	PTFE with Carbon
12	Screw	A2-70
13	O-ring	Viton
14	Grooved pin	WN 1.4571
15	O-ring	Viton
16	Screw	A2-70

Table 1 – Parts list ( WN = Material code)

## 3. Assembly of the butterfly valve

### 3.1 Preparation for the assembly

In order to assemble the butterfly valve, all the parts must be prepared, i.e. the parts are carefully cleansed and placed on a soft surface (rubber mat or similar).

Please pay attention! Plastic parts are nearly always soft and very sensitive, and particularly the sealing surfaces should not be damaged.



**Caution:** In order to prevent a cold welding of the screws in the bodies, a high-performance grease paste is employed during manufacturing (e.g. Gleitmo 805. from Fuchs).

For valves employed in oxygen environments, this agent may not be used. For grease-free valves, especially when employed in an oxygen environment, a suitable lubricant is to be chosen.



**Note:** The position and arrangement of the individual parts shown in the detail drawing (Fig. 3) are to be observed during assembly.

### 3.2 Pre-assembly of the butterfly valve

Insert the bearing bushing ( 7 ) into the upper bearing hole of the valve body ( 1 ).

Proceed in the same manner to insert the bearing bushing ( 6 ) into the lower bearing hole of the valve body ( 1 ).

Place the O-ring ( 15 ) into the body at the appropriate place.

Insert the bonnet ( 5 ) into the bearing hole of the body ( 1 ) and position correctly with the screws ( 16 ).

Fasten tight the bonnet evenly with the screws in a criss cross pattern.

Insert the butterfly disc ( 2 ) into the body that the bearing holes of the disc are matched with the bearing hole of the body.

Now insert the shaft ( 3 ) through the bearing holes of the body and the disc.

Push the thrust washer ( 8 ) over the shaft's free end at the appropriate place in the body.

Slide the PTFE V-ring packing ( 9 ) together in the sequence PTFE bottom end ring, PTFE V-rings and steel V-ring over the shaft into the body hole and press down using an assembling sleeve. The arrangement of the V-rings is shown in the detail drawing (Fig. 3).

Proceed in the same manner to add the set of the spring washers ( 10 ). The arrangement of the cup springs is also shown in the detail drawing (Fig. 3).

Press the black bearing bushing ( 11 ) into the stuffing box ( 4 ).

Carefully place the stuffing box which has just been assembled together onto the intermediate flange and position correctly using the fillister head screws ( 12 ).

Tighten the screws evenly in a criss-cross pattern.

### 3.3 Final assembly of the butterfly valve

Position the two plane faces of the shaft so that they are parallel to the disc and secure the shaft against further turning.



**Note:** On doing so, make sure that the shaft adjoins the bonnet ( 5 ).

Drill fitting holes to connect the shaft to the disc. Then connect the disc and shaft using close-tolerance grooved pins ( 14 ).

**The assembly of the butterfly valve is now completed.**

## 4. Malfunctions and their solution

Assistance in the case of malfunctions is provided in the **operating instructions** < BA 14e-01\_EN > for automatic butterfly valves, resp. < BA 14e-02\_EN > for manually-operated butterfly valves under section 7.

## 5. Repair of the control butterfly valve

### 5.1 Exchange of the stuffing box packing

If a leak is detected at the shaft bore of the control butterfly valve, the packing ( 9 ) may be defect.

It is then recommendable to check the condition of the packing rings. To remove the packing, the valve is disassembled in the reverse order to that described in chapter 3.

The PTFE packing rings are, together with all plastic parts, checked for damage and, in case of doubt, exchanged.

### 5.2 Exchange of the butterfly valve disc

If a leak is detected at the bore of the control butterfly valve, the lining or the butterfly valve disc (2) may be defect.

It is then recommendable to check the condition of the lining and the disc.

To remove the disc, the valve is disassembled in the reverse order to that described in chapter 3.

The disc are, together with all plastic parts, checked for damage and, in case of doubt, exchanged.

### 5.3 Further repair work

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

## 6. Queries to the manufacturer

(in case of queries please provide following information)

1. Order number (embossed on the type plate)
2. Type, product number, nominal diameter and design of control butterfly valve
3. Pressure and temperature of the flow medium
4. Flow rate in m<sup>3</sup>/h
5. Drawing of installation, if possible

For your special requirements please contact our technical sales department.

## **Pfeiffer Chemie-Armaturenbau GmbH**

Hooghe Weg 41 • 47906 Kempen  
Telefon: +49 21 52 20 05 - 0 • Telefax: +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)

Values subject to change