Operating Instructions
ERHARD Butterfly Valve
EAK
manually operated

These operating instructions must always be used in combination with operating instructions BA01E001!

1 Description of Product and Range of Application

ERHARD Butterfly Valves  PN10 >= DN 700  Product No.  5074
ERHARD Butterfly Valves  PN16 >= DN 600  Product No.  5075
ERHARD Butterfly Valves  PN25 >= DN 150  Product No.  5016
ERHARD Butterfly Valves  PN40 >= DN  80  Product No.  5017

Valve design:  DIN EN 593
with double offset shaft bearing
resilient seated, tightly closing
of ductile cast iron SG GGG
with flanges

The valve disc closes in clockwise direction (turning e.g. the handwheel to the right). A 90° swinging movement is to be done from position “OPEN” to “CLOSED” which is transferred into a rotating movement by the mounted stem gearbox.
2 Design Features – Technical Data

2.1 Butterfly Valve

DN 150 - DN 2000 to drawing 4.111 221
The profile ring (6) of resilient rubber is supported in a profile groove around the valve disc (10) and is efficiently fixed and adjustable by means of a clamping ring (7).
Body seat (2) according to type:
50.. 95.. rolled-in solid ring of austenitic CrNi steel
50.. 72.. ERHARD vitreous enamel
Positive connection of the valve disc (10) with the shaft (11) by means of keys (12).
The shafts are borne in large sized, maintenance-free PTFE compound bearings (3).
Sealing of the shaft passage on the gearbox side is attained by two successively arranged 0-rings (4). The bearing cover (18) is sealed by means of enclosed 0-ring (17). In the closed limit position, the surface of the valve disc is moved into the mating seat with the given sealing pressure (offset bearing). In the closed limit position, a completely tight seating is achieved (at nominal pressure or given working pressure, DIN EN 1074, leakage rate A).

2.2 Stem gearbox

The rugged ERHARD stem gearbox turns the rotary movement of the stem into a translatory motion of the valve shaft. A nut running on the stem moves – depending on the type of gearbox – a gearbox fork or gearbox crank (with toggle lever) which is securely connected with the drive shaft. In both limit positions, the stem is equipped with grooved nuts serving as fixed limit stops. These stops limit the torques initiated by the stem preventing excessive forces from being transmitted onto the valve in the limit positions.

The stem gearbox is irreversible.

An indicator behind a sight-glass on the cover of the stem gearbox shows the valve position in a continuous manner. The indicator position corresponds to the position of the valve disc. The limit positions are shown as readily comprehensible symbols. The sight-glass made from shock-resistant polycarbonate (PC) is tightly screwed into the gearbox cover (IP 67).

Therefore, the stem gearbox is suitable for installation in plants and chambers as well as for buried service.
3 Installation into the Pipeline - Mounting

Remove all packing materials from the valve. Prior to installation, check the pipeline for impurities and foreign bodies and clean it if necessary.

ATTENTION:

For valves with an arrow pointing in flow direction observe direction of installation! For valves with weight-loaded hydraulic actuator observe actuator arrangement! For valves with foot plate, foot plate only serves as support of the valve and not as point of anchorage or support of the pipeline.

It is important that all around the valve there is free access for operation and maintenance. For outdoor installation, the customer has to protect the valve against direct effects of the weather.

During installation of the valve, the distance between the pipe flanges should exceed the valve face-to-face dimension by at least 20 mm. Thus, the raised faces will not be damaged and the gaskets can be inserted. Steel-reinforced rubber seals to DIN 2690 are recommended to be used as flange gaskets (consider resistance to flow medium and temperature), for slip-on flanges they are absolutely necessary.

The mating pipe flanges must be plain-parallel and concentric.

Tighten the connecting bolts evenly (without distortion) and crosswise. The pipeline mustn't by any means be pulled up to the valve.

In open position the valve disc exceeds the valve face-to-face dimension. Keep corresponding distance to any fitting or valve, e.g. check valve, see drawing no. 4E98300.

4 Initial Operation

After installation, check valve for smooth operation: move the valve at the handwheel over the total travel (OPEN-CLOSED).
5 Operation and Application

The valve is operated by means of the handwheel of the stem gearbox or with operating key to DIN 3223 without any need of excessive forces.

Inadmissible Operation

Installation behind elbows or similar disturbing installation parts is to be prevented.
Long-time operation in throttled position leads to higher wear.
Do not exceed limiting values of the flow medium temperature.
Do not exceed limiting values of the working pressure.
Closed valve may only be charged up to the nominal pressure.
For EPDM profile sealing rings and sealings: rubber parts must not get in contact with mineral oil or grease (EPDM swells!).

6 Maintenance

6.1 Maintenance

ERHARD Butterfly Valves are equipped with maintenance-free plain bearings.
Gearbox stem and gearbox bearing are of the long-time lubricating type. Control of the performance and tightness is to be done regularly in intervals of \( \leq 4 \) years according to DVGW print W392.

In case of regulating service, the internal components of the gearbox have to be checked for wear and tear once a year and to be regreased as described under paragraph 6.5.

Before carrying out work on the valve, the inspection valve must be closed and the pipe section must be made pressureless.
Observe operating instructions for special actuator.

6.2 Inspection

Check external condition of the valve including operating gear.
If necessary clean the valve and repair the coating.
Check tightness at flanges.
Check for smooth operation of valve and operating gear.
Move valve manually over total travel.
Check seat tightness: close the valve.
Check pressure drop upstream and downstream of the valve.

6.3 Readjustment of Profile Ring  see drawing No. 4.111 221

ERHARD Butterfly Valves starting from DN 150 are equipped with a readjustable sealing system. The profile ring (6) can be readjusted in closed position of the valve disc. For this purpose, loosen the counter pins (9) and tighten evenly the tensioning screws (8). Afterwards tighten counter pins (9) by turning them in clockwise direction.
6.4 Replacement of Profile Ring  see drawing No. 4.111 221

Slightly turn valve disc off the body seat.
Mount from valve side "B".
Counter pins (9) remain in their position.
Mark position of clamping ring.
Loosen and screw off tensioning screws (8).
Lift off clamping ring (7) and profile ring (6) from the valve disc (10).
Clean profile groove in valve disc and clamping ring, apply new corrosion protection if necessary.
Insert new profile ring into profile groove of the valve disc.
Mount clamping ring (7) in marked position.
Screw in and tighten tensioning screws (8) until the limit stop of the counter pins is reached.
Slightly grease the new profile ring in the sealing zone (comply with grease recommendation).

<table>
<thead>
<tr>
<th>Flow medium</th>
<th>Lubricant</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>UNISILIKON L 641</td>
<td>Kühler Lubrication München KG</td>
</tr>
<tr>
<td>Gas</td>
<td>NOSOL GBY 2</td>
<td>Kühler Lubrication München KG</td>
</tr>
</tbody>
</table>

6.5 Relubricating of the internal parts of stem gearbox  see drawing No 4.125474

Screw off hexagon bolts (25) and lift off gearbox cover (24).
Lubricate stem (7) and sliding surfaces of gearbox fork (5) with lubricant. *)
Put on gearbox cover (24) with flange seal (23) and screw in hexagon bolts (25).

Pay attention to the flange seal (23) being inserted so that it fits on all sides.

*) Lubricant Manufacturer NLGI Class
Renolit CX-FO20  Fuchs Europe Schmierstoffe, Mannheim  KP 2 N-30
Operating Instructions for ERHARD Butterfly Valve, manually operated

**Ausführung:**

<table>
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<th>Gehäuse</th>
<th>body</th>
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</thead>
<tbody>
<tr>
<td>Gehäusesitz</td>
<td>body seat</td>
</tr>
<tr>
<td>Lagerbuchse</td>
<td>bearing bush</td>
</tr>
<tr>
<td>O-Ring</td>
<td>O-ring</td>
</tr>
<tr>
<td>Stützring</td>
<td>back-up-ring</td>
</tr>
<tr>
<td>Profilring</td>
<td>profile ring</td>
</tr>
<tr>
<td>Klemmring</td>
<td>clamping ring</td>
</tr>
<tr>
<td>Spannschraube</td>
<td>set screw</td>
</tr>
<tr>
<td>Konterstift</td>
<td>counterpin</td>
</tr>
<tr>
<td>Klappenscheibe</td>
<td>valve disc</td>
</tr>
<tr>
<td>Antriebswelle</td>
<td>drive shaft</td>
</tr>
<tr>
<td>Keil</td>
<td>key</td>
</tr>
<tr>
<td>Sicherungsblech</td>
<td>safety plate</td>
</tr>
<tr>
<td>6kt Schraube</td>
<td>hexagon head cap screw</td>
</tr>
<tr>
<td>Lagerzapfen</td>
<td>trunnion</td>
</tr>
<tr>
<td>Passring</td>
<td>fitting ring</td>
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<tr>
<td>O-Ring</td>
<td>O-ring</td>
</tr>
<tr>
<td>Lagerdeckel</td>
<td>bearing cover</td>
</tr>
<tr>
<td>6kt Schraube</td>
<td>hexagon head cap screw</td>
</tr>
</tbody>
</table>

**Type:**

- stainless steel body seat
- siège du corps en acier inoxydable

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**ERHARD-Absperklappe** Lager- und Dichtpartie
**ERHARD Butterfly Valve** Bearing and sealing zone
**Vanne papillon ERHARD** Zone de logement et d’étanchéité

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Operating Instructions for ERHARD Butterfly Valve, manually operated

Die ERHARD-Absperrklappen sind in beide Richtungen dicht. ERHARD Butterfly Valves are tight in both directions.

Les robinets à papillon sont étanches dans les deux directions.

Bei einseitiger Druckbeeinflussung soll der Druck von der Seite A anstehen (bevorzugte Druckrichtung).

When the pressure is applied from one side it should act from side A (preferred pressure direction).

S'il la pression est appliquée d'un côté, elle devrait agir du côté A (direction préférée de la pression).

ERHARD-Absperrklappen können in allen Lagen eingebaut werden. Sämtliche Bilder sind auch für senkrechte Rohrleitung verwendbar.

ERHARD Butterfly Valves can be installed in any position.

Les robinets à papillon ERHARD peuvent être installés dans toutes les positions.

Durch Rechtsdrehen des Handrades schließt die Klappe der Scheibe.

The valve disc is closed by turning the handwheel in clockwise direction.

Le papillon est fermé en tournant le volant à droite.

Gehäuse DN 150-1000 mit Flanschoben, ab DN 1100 nur unten.

Body equipped DN 150-1000 with flange feet, from DN 1100 only at bottom.

Le corps DN 150-1000 est muni de pieds-bride, à partir du DN 1100 seulement au-dessous.
ATTENTION:

The valve has to be installed in such a way that the weight-loaded lever of the ERHARD Check Valve is located on the left seen in flow direction, and the gearbox of the ERHARD Butterfly Valve on the right in flow direction. Thus, there is no collision of weight-loaded lever and gearbox.