ERHARD butterfly valves – the overview

This table contains the most important specifications for the standard products in the ERHARD butterfly valve range (DIN EN 593). Numerous other options are available on request.

### ERHARD butterfly valves by nominal sizes and pressure ratings

<table>
<thead>
<tr>
<th>DN</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>300</th>
<th>350</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>600</th>
<th>700</th>
<th>800</th>
<th>900</th>
<th>&gt;=1000</th>
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</thead>
<tbody>
<tr>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>PN 16</td>
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</tr>
<tr>
<td>PN 25</td>
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</table>

### ROCO ROCO Premium EAK

<table>
<thead>
<tr>
<th>Nominal size DN</th>
<th>ROCO</th>
<th>ROCO Premium</th>
<th>EAK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure rating PN</td>
<td>80-125</td>
<td>150-600</td>
<td>80-1800</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>16</td>
<td>25</td>
</tr>
</tbody>
</table>

- **Face-to-face dimensions DIN EN 558 Basic line 14**
  - • • • • • • • •
- **Flange DIN EN 1092-1 Type 21 DG**
  - • • • • • • • •
- **Flange DIN EN 1092-2 Type 21 DG**
  - • • • • • • • •
- **Body and valve disc material**
  - Spheroidal graphite cast iron EN-JS 1030
  - • • • • • • • •
  - Spheroidal graphite cast iron EN-JS 1025
  - • • • • • • • •
- **Body corrosion protection**
  - All-round EKB / Cr steel seat
  - • • • • • • • •
  - Inside vitreous enamel, outside EKB / vitreous enamel seat
  - • • • • • • • •
- **Valve disc corrosion protection**
  - ERHARD EKB fusion bonded epoxy
  - • • • • • • • •
  - Enamel up to DN 1400 PN 16
  - • • • • • • • •
  - ERHARD Pro-Enamel
  - • • • • • • • •
- **Main seal**
  - Valve disc butter lined all round
  - • • • • • • • •
  - Profiles sealing ring butter lined all round
  - • • • • • • • •
  - Profile ring and clamping ring
  - • • • • • • • •
- **Sealing materials**
  - EPDM KTW W270
  - • • • • • • • •
  - Perbunan [NBR]
  - • • • • • • • •
  - Viton [FPM]
  - • • • • • • • •
  - PU [PUR]
  - • • • • • • • •
- **Shaft material: ferritic Cr steel**
  - • • • • • • • •
- **Connection between shaft and valve disc**
  - Polygon shaft hub connection
  - • • • • • • • •
  - Key with key securing device
  - • • • • • • • •
  - Bronze bearing bushes
  - • • • • • • • •
  - Lag P1 [PTFE] bearing bushes erbuschen P1 [PTFE]
  - • • • • • • • •
- **Screws**
  - External and internal A2
  - • • • • • • • •
  - External A2 and internal A4
  - • • • • • • • •
- **Gearbox**
  - Travelling-nut type gearbox (SP)
  - • • • • • • • •
  - Slider crank mechanism (SK/SKG)
  - • • • • • • • •

* Standard – • available on request – 1) PN 10 available for DN 200 and larger – 2) Profile ring and separate clamping ring Cr steel – 3) for DN 1000 and larger – 4) for DN 800 and larger – 5) for DN 700 and larger – 6) for DN 600 and larger – 7) additional seat Cr steel – 8) PN 25 DN 80-125
The ERHARD ROCO Premium butterfly valve as a logical and consistent development of the ERHARD butterfly valves that have been tried and tested for many years stands for highest quality in the nominal sizes DN 80 to 600. Perfect solutions ensure outstanding product properties with respect to operating safety, durability and cost effectiveness:

- Polygon shaft-hub connection [1] between shaft and valve disc with shut valve eye and 20 % more torque reserves.
- Safe sealing using a rolled up, solid seat ring made of stainless steel or in the enamelled version, it sits directly on the smooth vitreous enamel.
- Fully rubberised EPDM clamping ring [2] which simultaneously serves as a sealing element, can be easily readjusted and, if necessary, can be easily replaced at any time.
- Encapsulated and therefore not touched by the medium shafts [3]
- Double-eccentrically supported valve disc with optimised flow performance.
- Slider crank mechanism with optimal movement kinematics which corresponds almost exactly to the characteristic curve of the valve
- DIN EN 558 basic line 14; optional face-to-face dimension basic line 15 and bypass DN 400 to DN 600
ERHARD ROCO Premium butterfly valve – the overview

**Brief specifications**

**Butterfly valve according to DIN EN 593 materials and finishes**

- **Body**: spheroidal graphite cast iron EN-JS 1030
- **Body seat**: ERHARD EKB design: austenitic Cr-Ni steel
- **Valve disc**: soft-sealed, with double eccentricity support, made of spheroidal graphite cast iron EN-JS 1030,
- **Valve shaft**: ferritic Cr steel
- **Shaft bearing**: bearing bronze in accordance with DIN 50930 TG and Drinking Water Regulations, maintenance-free
- **Shaft seal**: elastomer
- **Profiled sealing ring**: rubberised (EPDM or NBR rubberised), steel-reinforced, optional Viton profile ring
- **Screws**: with contact with media A4, external A2
- **SKG slider crank mechanism**: degree of protection IP68
- **Gearbox body**: grey cast iron EN-JL 1040 / EKB
- **Gearbox crank**: steel / black-finished
- **Stem nut**: special brass
- **Stem**: ferritic Cr steel
- **Handwheel**: steel / EKB
- **Gearbox configuration**: standard according to page 21/ figure 1

**Corrosion protection of the body parts**: heavy-duty corrosion protection in accordance with quality assurance RAL-GZ 662 (GSK); at least 250 μm, ERHARD EKB fusion bonded epoxy coating, optionally with ERHARD vitreous enamelling (colour "blue") on the inside (body resp. body and valve disc) or fully enamelled with ERHARD Pro-Enamel. Further coating variants are possible, we will be happy to advise you.

### Areas of use

<table>
<thead>
<tr>
<th>PN</th>
<th>10</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN</td>
<td>200–600</td>
<td>80–600</td>
</tr>
</tbody>
</table>

**Water up to max. 60 °C**

| Test pressure in bar according to DIN EN 12266-1 |
|---|---|
| Body | 17,0 | 25,0 |
| Closure | 11,0 | 17,6 |

| Largest allowable working pressure in bar |
|---|---|
| 10,0 | 16,0 |

**Gas up to max. 60 °C**

| Area of use and tests for use in ... |
|---|---|
| Gas pipes according to DIN 2470, Part 1 | • |
| > Pressure tests according to DIN 3230, Part 5, PG 1 | • |
| Gas supply systems according to DIN 30 6902, Part 1 | • |
| > Pressure tests according to DIN 3230, Part 5, PG 3 | • |
ERHARD ROCO Premium butterfly valve – the dimensions table

| DN  | PN | L  | D  | h1 | h1 | h2 | b  | e1  | e2  | e3  | e4  | e5  | e6  | d1 | d2 | G  | G  | G  | G  | G  | G  | u |
|-----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|---|
| 80  | 16 | 180| 200| 199| 222| 438| 117| /   | 100 | 167| 229| 267| 404| 85 | 180| 185| 148| 334| 18 | 200| 22 | 44 | 18 |
| 100 | 16 | 190| 220| 199| 222| 438| 117| /   | 110 | 182| 244| 282| 419| 85 | 180| 185| 148| 334| 18 | 200| 26 | 26 | 48 | 18 |
| 125 | 16 | 200| 250| 199| 222| 438| 117| /   | 125 | 195| 257| 295| 432| 85 | 180| 185| 148| 334| 18 | 200| 30 | 30 | 52 | 18 |

Dimensions used

- **L** [mm] face-to-face dimensions
- **D** [mm] flange
- **G** [kg] weight
- **u** handwheel revolutions (Open/Close)
- **RZ** with round trunnion
- **HR** with handwheel
- **EA** with electric rotary actuator

(dimensions can vary depending on the actuator manufacturer)
ERHARD ROCO Premium butterfly valve
dismantling type – the overview

Brief specifications
Butterfly valve according to DIN EN 593 materials and finishes

- **Body**: spheroidal graphite cast iron EN-JS 1030 / vitreous enamel
- **Body seat**: ERHARD vitreous enamelling
- **Valve disc**: double eccentricity support, made of spheroidal graphite cast iron
  EN-JS 1030, EN-JS 1030 enamelled on request
- **Valve shaft**: ferritic Cr steel
- **Bushing for shaft**: St / Sn / PTFE, maintenance-free, in stainless steel / PTFE
  or bronze / PTFE on request
- **Shaft seal**: elastomer
- **Profiled sealing ring**: St 37 / elastomer, rubberised [steel-reinforced]
- **Screws**: with contact with media A4, external A2
- **SKG slider crank mechanism**: degree of protection IP68
- **Gearbox body**: grey cast iron EN-JL 1040 / EKB
- **Gearbox crank**: DG / steel / black-finished
- **Stem nut**: special brass
- **Stem**: ferritic Cr steel
- **Handwheel**: steel / EKB
- **Gearbox configuration**: standard according to figure 1
- **Corrosion protection of the body parts**: Enamel, ERHARD EKB fusion
  bonded epoxy coating, internal with ERHARD vitreous enamelling, colour
  „blue“. Further coating variants are possible, we will be happy to advise you.
ERHARD ROCO Premium butterfly valve dismantling type – the dimensions table

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>L</th>
<th>D</th>
<th>h1</th>
<th>h1'</th>
<th>h2</th>
<th>b</th>
<th>e1</th>
<th>e2</th>
<th>e3</th>
<th>e4</th>
<th>e5</th>
<th>e6</th>
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<th>G</th>
<th>G</th>
<th>G</th>
<th>G</th>
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<tr>
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<td>209/215</td>
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<td>185</td>
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<td>200</td>
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<td>160</td>
<td>205</td>
<td>205</td>
<td>376</td>
<td>22</td>
</tr>
</tbody>
</table>

Dimensions used
- **L** [mm] face-to-face dimensions
- **D** [mm] flange
- **G** [kg] weight
- **u** handwheel revolutions [Open/Close]
- **RZ** with round trunnion
- **HR** with handwheel
- **EA** with electric rotary actuator

(dimensions can vary depending on the actuator manufacturer)
ERHARD EAK butterfly valves

The tried and tested butterfly valve for large nominal sizes and pressure ratings

The used for many years ERHARD butterfly valves cover with nominal sizes between DN 700 and 3600 [1] and pressure ratings from PN 10 to PN 40 a wide range of applications. Proven details ensure reliable quality and a high degree of cost-effectiveness:

1. Drive shaft and bearing pin are supported in maintenance-free, self-lubricating plain bearings and hence are highly resilient [2]
2. Connection between drive shaft and valve disc with proved and robust key connection for force transmission without play even under the highest stresses [3]
3. Main seal through profile ring that is clamped onto the valve disc and fixed with a clamping ring
4. Double-eccentrically supported valve disc with optimised flow performance
5. Sliding crank mechanism with optimal movement kinematics which is almost exactly corresponding to the valve’s characteristic curve (from DN 800 spindle gear up)
ERHARD EAK butterfly valve –
the overview

Brief specifications
Butterfly valve according to DIN EN 593 materials and finishes
- **Body**: spheroidal graphite cast iron EN-JS 1030
- **Body seat**: austenitic Cr-Ni steel
- **Valve disc**: soft-sealed, with double eccentricity support, made of spheroidal graphite cast iron EN-JS 1030
- **Valve shaft**: ferritic Cr steel
- **Shaft bearing**: P1 [PTFE] according to DIN 1494-4, maintenance-free
- **Shaft seal**: elastomer
- **Profiled sealing real**: elastomer, confined with clamping ring, EPDM or NBR, optionally Viton
- **Screws**: internal and external A2
- **SKG / SK slider crank mechanism**: degree of protection IP68 / IP67
- **Gearbox body**: grey cast iron EN-JL 1040 / EKB
- **Gearbox crank**: steel / black-finished
- **Stem nut**: special brass
- **Stem**: ferritic Cr steel
- **Handwheel**: steel / EKB
- **Gearbox configuration**: standard according to Figure 1
- **Corrosion protection of the body parts**: heavy-duty corrosion assurance in accordance with quality assurance DIN 30 677-2 (at least 250 µm), ERHARD EKB fusion bonded epoxy coating, optionally with ERHARD vitreous enameling on the inside, each "blue" coloured. Other coating options are available, please contact us for advice.

Areas of use

<table>
<thead>
<tr>
<th>PN</th>
<th>10</th>
<th>16</th>
<th>25</th>
<th>40</th>
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<tbody>
<tr>
<td>DN</td>
<td>700-3600</td>
<td>700-2400</td>
<td>80-1800</td>
<td>150-1800</td>
</tr>
</tbody>
</table>

Water up to max. 60 °C

<table>
<thead>
<tr>
<th>Body</th>
<th>Test pressure in bar according to DIN EN 12266-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>17,0</td>
</tr>
</tbody>
</table>

| Closure | 11,0 | 17,6 | 27,5 | 44,0 |

| Largest allowable working pressure in bar | 10,0 | 16,0 | 25,0 | 40,0 |
ERHARD EAK butterfly valve – the dimensions table

| DN | PN | L | D | h1 | h1 | h2 | e1 | e2 | e3 | e4 | e5 | e6 | d1 | d2 | G | G | u |
|----|----|---|---|----|----|----|----|----|----|----|----|----|----|----|--|----|

### Basic line R15

<table>
<thead>
<tr>
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<th>d</th>
<th>b</th>
<th>d2</th>
<th>Anz</th>
<th>f</th>
<th>B</th>
<th>e1</th>
<th>e2</th>
<th>e3</th>
<th>e4</th>
<th>e5</th>
<th>e6</th>
<th>L</th>
<th>d3</th>
<th>d5</th>
<th>G</th>
<th>G1</th>
</tr>
</thead>
</table>

Other nominal sizes, pressure ratings and actuator options on request.
**ERHARD EAK butterfly valve – the dimensions table**

```
Basic line R15
```

**Dimensions used**
- L [mm] face-to-face dimension
- D [mm] flange
- G [kg] weight
- G1 [kg] weight with bypass
- u handwheel revolutions (Open/Closed)

**Options**
- RZ with round trunnion
- HR with handwheel
- EA with electric rotary actuator

(dimensions can vary depending on the actuator manufacturer)
Headloss coefficients

<table>
<thead>
<tr>
<th>DN</th>
<th>PN 10</th>
<th>PN 16</th>
<th>DN</th>
<th>PN 10</th>
<th>PN 16</th>
<th>DN</th>
<th>PN 10</th>
<th>PN 16</th>
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<td>0,12</td>
<td>0,16</td>
<td>2900</td>
<td>0,11</td>
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<tr>
<td>450</td>
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<td>0,16</td>
<td>3000</td>
<td>0,10</td>
<td>0,13</td>
</tr>
</tbody>
</table>

Headloss coefficients $\zeta$ with fully opened butterfly valve. The results were obtained in ERHARD’s test centre following extensive test series and correspond to the actual performance of the fitting.

Calculation of the pressure loss:

\[
\Delta p = \zeta \cdot \frac{\rho \cdot v^2}{2}
\]

- $\Delta p$: Pressure loss [Pa] - 10^5 Pa = 1 bar
- $\zeta$: Headloss coefficient of the valve [from the diagram]
- $v$: Flow velocity [m/s]
- $\rho$: Density of water [kg/m^3]
ERHARD butterfly valves – installation suggestion for ERHARD check valve

Direction of flow

![Diagram showing ERHARD check valve, Intermediate support, and ERHARD butterfly valve]

<table>
<thead>
<tr>
<th>DN</th>
<th>L</th>
<th>L1</th>
<th>a</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
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</tr>
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<td>300</td>
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# ERHARD butterfly valves – Assignment electric actuator AUMA

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The ERHARD butterfly valves are tight in both directions. At pressure only from one side, then should be the pressure at side A (direct side); preferred pressure direction. ERHARD butterfly valves can be installed in all positions. All figures are also suitable for vertical pipe. By right turning the handwheel closes the valve disc.
齿轮装配

With electric drive

The ERHARD butterfly valves are tight in both directions. At pressure only from one side, then should be the pressure at side A (direct side); preferred pressure direction. ERHARD butterfly valves can be installed in all positions. All figures are also suitable for vertical pipe. By right turning the handwheel closes the valve disc.
**Kv-Values**

Degree of opening % (100 % = open)

DN 80 PN 16

DN 100 PN 16

DN 125 PN 16

DN 150 PN 16

DN 200 PN 16

DN 250 PN 16
Kv-Values

DN 300 PN 16

Degree of opening % [100 % = open]

DN 350 PN 16

Degree of opening % [100 % = open]

DN 400 PN 16

Degree of opening % [100 % = open]

DN 450 PN 16

Degree of opening % [100 % = open]

DN 500 PN 16

Degree of opening % [100 % = open]

DN 600 PN 16

Degree of opening % [100 % = open]

ERHARD butterfly valves
Kv-Values

DN 700 PN 16

Degree of opening % (100 % = open)

Kv-Value [ ]

DN 800 PN 16

Degree of opening % (100 % = open)

Kv-Value [ ]

DN 900 PN 16

Degree of opening % (100 % = open)

Kv-Value [ ]
Zeta-Values

Degree of opening % (100 % = open)

DN 80 PN 16

DN 100 PN 16

DN 125 PN 16

DN 150 PN 16

DN 200 PN 16

DN 250 PN 16

ERHARD butterfly valves
Zeta-Values

Degree of opening % (100 % = open)

ERHARD butterfly valves
Zeta-Values

Degree of opening % (100 % = open)

Zeta-Value [-]

DN 700 PN 16

Zeta-Value [-]

DN 800 PN 16

Zeta-Value [-]

DN 900 PN 16

Degree of opening % (100 % = open)
TALIS is the undisputed Number One for water transport and water flow control. TALIS has the best solutions available in the fields of water and energy management as well as for industrial and communal applications. We have numerous products for comprehensive solutions for the whole water cycle – from hydrants, butterfly valves and knife gate valves through to needle valves. Our experience, innovative technology, global expertise and individual consultation processes form the basis for developing long-term solutions for the efficient treatment of the vitally important resource “water”.

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