# VALVE TECHNOLOGY

## PRODUCT OVERVIEW

GEFA PROCESSTECHNIK GMBH

## Further product ranges

**Filter technology**

- Coarse filtration
- Fine filtration
- Microfiltration
- Mud heat exchanger
- Control technology
- Accessories
- Service

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GEFA VALVE TECHNOLOGY | PRODUCT OVERVIEW



All pressure and temperature specifications are maximum application limits, which are influenced by the interaction of all application factors. Therefore, without technical design and without our confirmation, the specifications are without commitment.

# BUTTERFLY VALVE

Resilient-seated | series K

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## Advantages

Centric valve disc with firm, clearance-free disc/stem connection

Very service-friendly:
Very quick change of the seat ring due to the two-piece body design

Complete body is lined with elastomer with the seat ring as a multifunctional sealing element

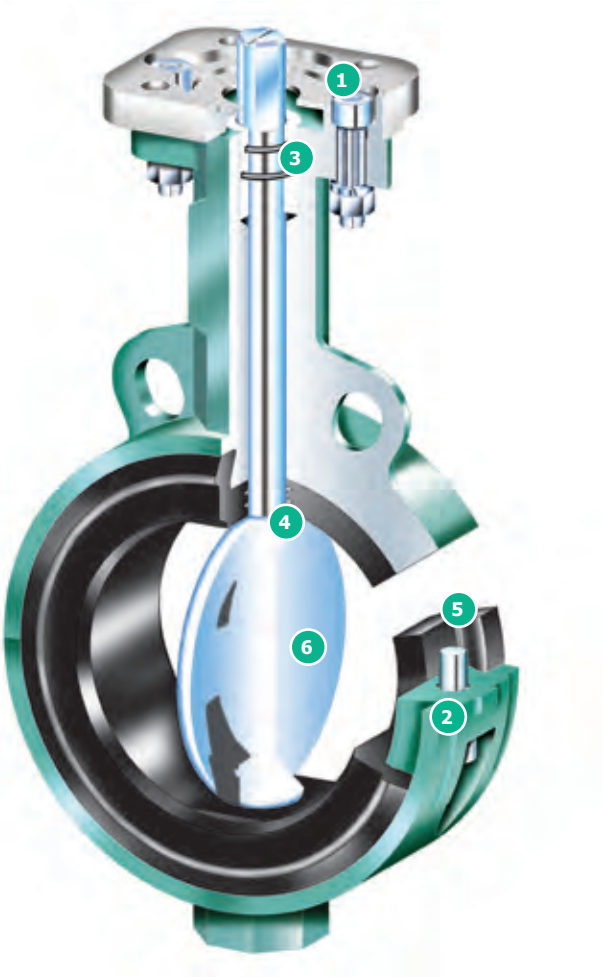
Can be used for almost all media, from use with acids to the sensitive food and pharmaceutical industries

Control and regulation of processes without hysteresis

Corresponds to the norm EN 593

CE
TA-LUFT VDI 2440
ISO 15848
FDA APPROVED
EC 1935/2004
BPA FREE
Animal Derived Ingredient FREE
GMP Good Manufacturing Practice EU 2023/2006

## Efficient and safe automation with the interchangeable flange GEFA-MULTITOP




### 1 Automation

- Standard mounting flange according to EN ISO 5211
- Direct actuator mounting without interruption of the stem
- Variable and exchangeable for any actuator size
- Actuator protection against leakage

### 2 Two-piece body

Standard face-to-face dimension, very servicefriendly, simple exchange of internal parts only possible because of the two-piece body design.

### 3 Bearing bush with O-ring seal

### 4 Primary sealing

Integrated in the seat ring, guarantees the cavity-free and pressure-resistant sealing to the outside, additional labyrinth layout.

### 5 Seat ring

Multifunctional sealing element, easy to replace, maintenance-free, long service life, tight sealing in the seat, to the flanges and at the stem passage; secure locking in the dovetail, embedded in the body without edge protruding over the flange area.

### 6 Valve disc and stem

One-piece design, absolutely clearance-free, large free cross-section, minimal pressure loss.

# THE TYPES

Butterfly valve | resilient-seated | series K

## Type KG 9

DN 50 – DN 300

**Technical data**
Wafer type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150 upon request. Two-piece body, self-centring, one-piece disc and stem, bubble-tight up to 16 bar, vacuum-tight.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type KG 7

DN 50 – DN 300

**Technical data**
Lug type butterfly valve for installation between flanges EN 1092,
DN 50 - DN 150: PN 10/16,
DN 200 - DN 300: PN 10,
DN 200 - DN 300: PN 16,
ASME class 150 upon request. Two-piece body with threaded cams for a firm flange connection from both sides. The pipeline can be removed from the flange on one side, vacuum-tight.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Typ K(G) 7/17/9/19

DN 50 - DN 500
Food

**Technical data**
Design for use in the food sector according to regulation EC1935/2004 and/or FDA. For installation between flanges EN 1092, PN 10/16, ASME Class 150 upon request. Two-piece body, self-centring, valve disc and shaft in one piece, tight-closing up to 16 bar, vacuum-tight.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type K 19

DN 350 – DN 500

**Technical data**
Wafer type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150 upon request. Two-piece body, self-centring, one-piece disc and stem, bubble-tight up to 16 bar, vacuum-tight.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type K 17

DN 350 – DN 500

**Technical data**
Lug type butterfly valve for installation between flanges EN 1092, PN 10, ASME class 150 upon request. Two-piece body with threaded cams for a firm flange connection from both sides. One-piece disc and stem, bubble-tight up to 16 bar and vacuum-tight. The pipeline can be removed from the flange on one side.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type K 07

DN 600 – DN 1000

**Technical data**
Double flanged butterfly valve for installation between flanges EN 1092, PN 6/10. One-piece body in double flange design, suitable for dead-end service. Continuous valve stem, internally connected with the valve disc by dowel pins. The connection is shielded from the medium. Changeable seat ring with additional steel support ring as firm rubbermetal connection in compliance with a solid elastomer thickness of approx. 15 – 17 mm.

**Face-to-face dimension**
according to factory standard
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type K 08

DN 600 – DN 1000

**Technical data**
Wafer type butterfly valve for installation between flanges EN 1092-1, PN 6/10/16. One-piece body. Continuous valve stem, internally connected with the valve disc by dowel pins. The connection is shielded from the medium. Changeable seat ring with additional steel support ring as firm rubber-metal connection in compliance with a solid elastomer thickness of approx. 15 – 17 mm.

**Face-to-face dimension**
according to factory standard
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type K 11

DN 25 – DN 150 (Optional acc. EC1935/2004 or FDA)

**Technical data**
Wafer type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150 upon request. Two-piece stainless steel body with centring lugs. In compliance with all the advantages of the basic series KG9, this completely stainless steel version is offered for all areas, which also demand a corrosion-free use of the external components. This is the case in the food/beverage industry and in the area of pharmacy, as well as in chemistry and in case of seawater applications.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

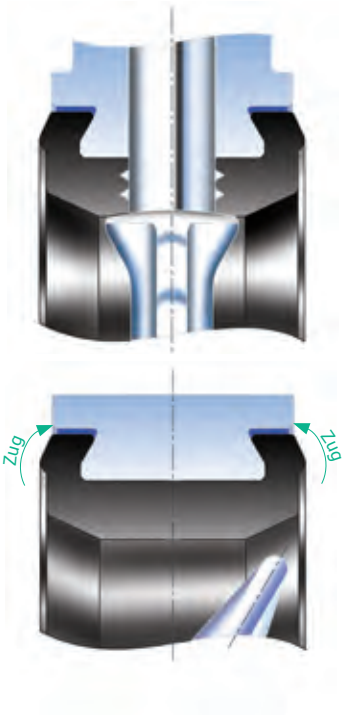
# DETAILED SOLUTIONS

Butterfly valve | resilient-seated | series K

## Seat ring change

**1** **2** **3** **4** **5** **6**

**1** The actuator remains installed at the upper part of the body. **2** After loosening the two body screws, the lower part of the body is pulled out downwards together with the internal parts. **3** Simply pull the seat ring from the valve disc. **4** Pull the new seat ring onto the valve disc – this is very simple! **5** Press the lower part of the body together with the internal parts and tighten the two body screws. **6 Finished!**



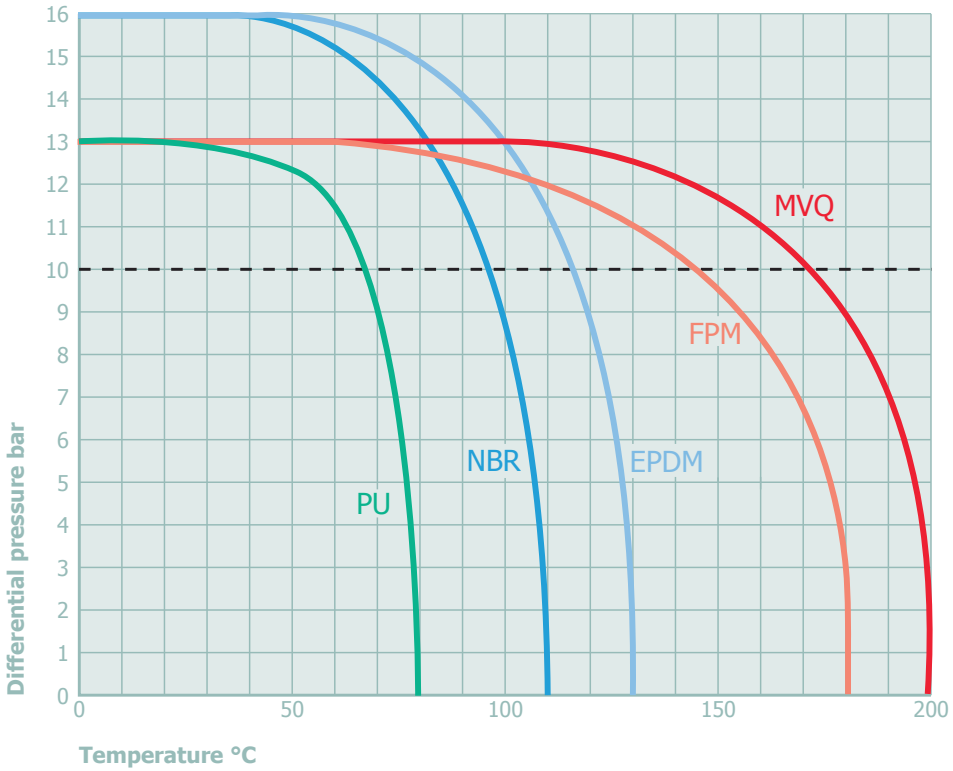

One-piece disc/stem connection – without clearance and hysteresis, cavity-free and cleanable in a sterile way. Bacteria formation due to cavities and all other disadvantages of the "plugged" stem connections can be excluded. The valve disc is implemented in a spherical form for the primary sealing of the stem passage through the seat ring. This ensures a uniform contact pressure of the valve disc sealing surface to the seat ring and thus a more secure surface sealing. A second sealing function is achieved via the additional labyrinth function between the valve disc stem and the seat ring.

Stable, thick-walled dimensioning of the seat ring in the sealing area on the inside and to the edges. The edge-free, rounded passage to the dovetail guide (clamping zone to the flanges) ensures a secure locking with high tear resistance. High flow velocities, crust formations and abrasive media are perfectly under control. No formation of bulges on the inside because the seat ring is pulled outwards through the flange clamping into the dovetail.

## Pressure and temperature range diagram

**Control range**
20° – 60° opening angle
Vacuum-tight up to $10^{-2}$ mbar
**Valves from DN 200**
In case of a differential pressure of more than 13 bar, it is necessary to use seat rings with a higher Shore hardness
**Valves from DN 600**
max. differential pressure 10 bar, available seat ring materials: EPDM and NBR
**Lug style body**
If it is removed from the flange on one side, max. differential pressure 6 bar

The pressure and temperature range diagram shows the application limits ofthe different seat ring materials. Theselimits apply to the intended use. Process variables and characteristics of the medium can influence the values of the diagram. Temperatures below 0 °C upon request.




## Available materials

| Code | Gehäuse |
|---|---|
| 22 | Grey cast iron GG25, EN GJL-250 |
| 23 | Ductile iron GGG40 / EN-GJS-400-15 |
| 24 | Ductile iron GGG40.3 EN-GJS-400-18-LT |
| 44 | Cast steel GS-C25, EN GP 240 H+N |
| 66 | Stainless steel 1.4517 |

| Code | Seat ring |
|---|---|
| E | EPDM |
| Ew | EPDM white |
| B | NBR |
| S | MVQ (silicone) |
| V | FPM |
| PU | PU (polyurethane) |

| Code | Valve disc |
|---|---|
| 66 | Stainless steel 1.4517 |
| 31 | Stainless steel 1.4517, polished |
| 13 | Bronze |
| 69 | Stainless steel 1.4529 |
| 77 | PTFE-lined |
| 78 | E-CTFE-coated |
| 79 | EPDM-rubber lined |
| 93 | Alloy C 22 |
| 94 | Titanium |

**EPDM** (Ethylene-Propylene-Terpolymer)
Operating temperature: -20 °C to +130 °C

**EPDM white**
Operating temperature: -20 °C to +130 °C

**NBR** (nitrile rubber)
Operating temperature: -20 °C to +110 °C

**MVQ** (silicone rubber)
Operating temperature: -30 °C to +200 °C

**FPM** (fluorine elastomer)
Einsatztemperatur: -10 °C to +180 °C

**PU** (polyurethane)
Operating temperature: -20 °C to +80 °C

# BUTTERFLY VALVE

With inflatable seat ring | type KS9 | KS7

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## Advantages

Low-wear function

Secure shut-off of solids without friction in the seat

The valve opens and closes without seat compression

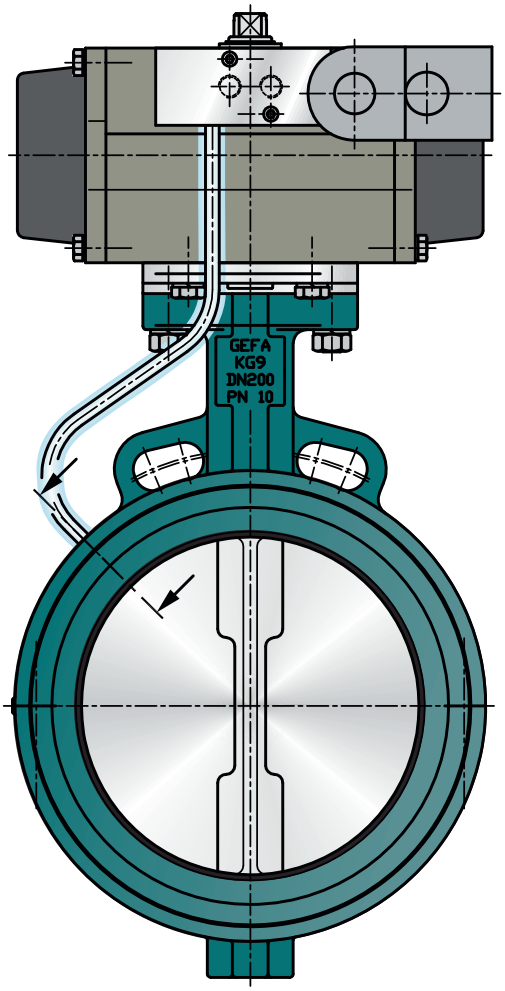
Very service-friendly: Very quick change of seat ring due to the two-piece body design

Long service life of the seat ring due to stable thick-walled dimensioning of the elastomer

The valves are available as wafer version (type KS 9) and as lug version (type KS 7)

# DETAILED SOLUTIONS

Butterfly valve | with inflatable seat ring | type KS9 | KS7




## Type KS

DN80 - DN500

Seat ring inflatable

**Technical data**

Butterfly valve or flanged butterfly valve for installation between flanges EN 1092 PN10 PN16 or ASME Class 150. Safe shut-off of solids without friction in the seat.

Due to the pneumatic pressurisation of the seat ring in position CLOSED, the valve switches without friction and without preload between seat and valve disc. Signs of wear are avoided in this way.

**Face-to-face dimension**

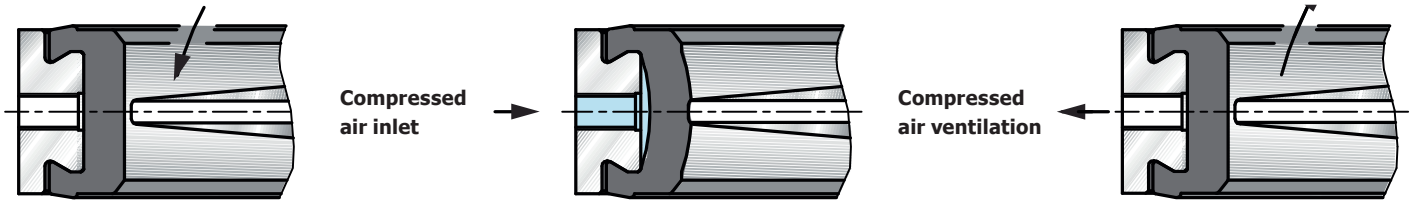
DIN EN 558 line 20
API 609 table 1

**Mounting flange**

DIN EN ISO 5211

**Test**

DIN EN 12266 P10 P11 P12
Leakage rate A




Valve closes without seat compression

Valve closed seat ring pneumatically preloaded and bubble-tight

Valve opens without friction when the seat is unloaded

# BUTTERFLY VALVE

Centric | type KG 2 | KG 4

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## Advantages

Centric butterfly valve for the effective and safe industrial application

Economic equipment with the one-piece body design

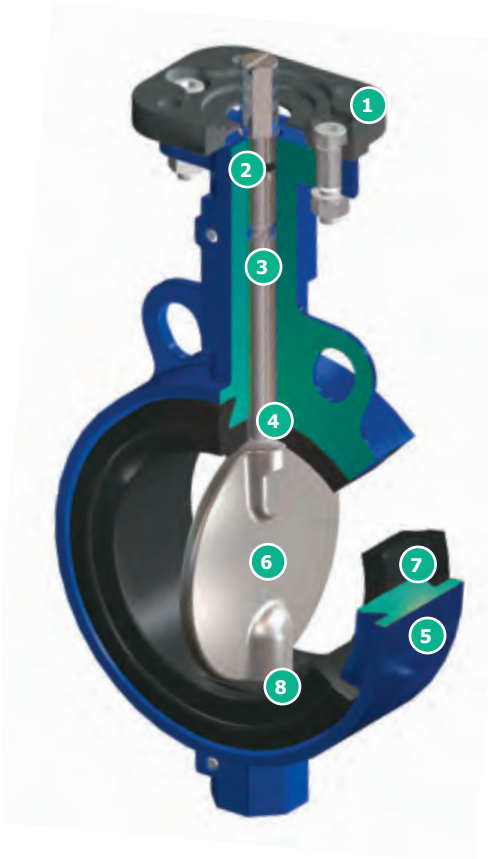
Complete body is lined with elastomer with the seat ring as a multifunctional sealing element

Corresponds to the norm EN 593

CE FDA APPROVED

EC 1935/2004 · Ex · DVGW · BPA FREE · ADI Animal Derived Ingredient FREE · GMP Good Manufacturing Practice EU 2023/2006

## Efficient and safe automation with the interchangeable flange GEFA-MULTITOP




### 1 Automation

- Standard mounting flange according to EN ISO 5211
- Direct actuator mounting without interruption of the stem
- Variable and exchangeable for any actuator size
- Actuator protection against leakage

### 2 Additional O-ring seal

Seals the stem guide to the outside.

### 3 Two-piece, anti-blowout stem

Provides a stable bearing of the valve disc.

### 4 Primary sealing

Integrated in the seat, guarantees a pressure-resistant sealing to the outside, additional labyrinth layout, seals towards the stem.

### 5 Body

One-piece with centring lugs or threaded cams as flange version.

### 6 Valve disc

With high all-round finish.

### 7 Seat ring

Multifunctional sealing element, easy to replace, maintenance-free, long service life, tight sealing in the seat, to the flanges and at the stem passage, secure locking in the dovetail, embedded in the housing without edge protruding over the flange.

### 8 Seat tightness

An absolute seat tightness up to 10 bar is achieved due to the special design of the valve disc sealing surface.

# THE TYPES

Butterfly valve | centric | type KG 2 | KG 4

## Type KG 2

DN 50 – DN 500

**Technical Data**
Wafer type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150. One-piece body, self-centring, two-piece disc and stem connection, bubble-tight up to 10 bar, vacuum-tight.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type KG 4

DN 50 – DN 500

**Technical Data**
Lug type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150. One-piece body, selfcentring, two-piece disc and stem connection, bubble-tight up to 10 bar, vacuum-tight. The pipeline can be removed from the flange on one side.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type KG 2/4

DVGW gas
DN 50 – DN 500

**Technical Data**
Wafer type butterfly valve or lug type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150. One-piece body, self-centring, two-piece disc and stem connection, bubble-tight up to 10 bar, vacuum-tight. DVGW-approved for gas according to DIN EN 13774.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type KG 2/4

DN 50 – DN 500
Food

**Technical data**
Version for use in the food sector according to regulation EC1935/2004 and/or FDA, as a wafer type butterfly valve or lug type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150. One-piece body, selfcentring, two-piece disc and stem connection, bubble-tight up to 10 bar, vacuum-tight.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1

**Mounting flange**
DIN EN ISO 5211

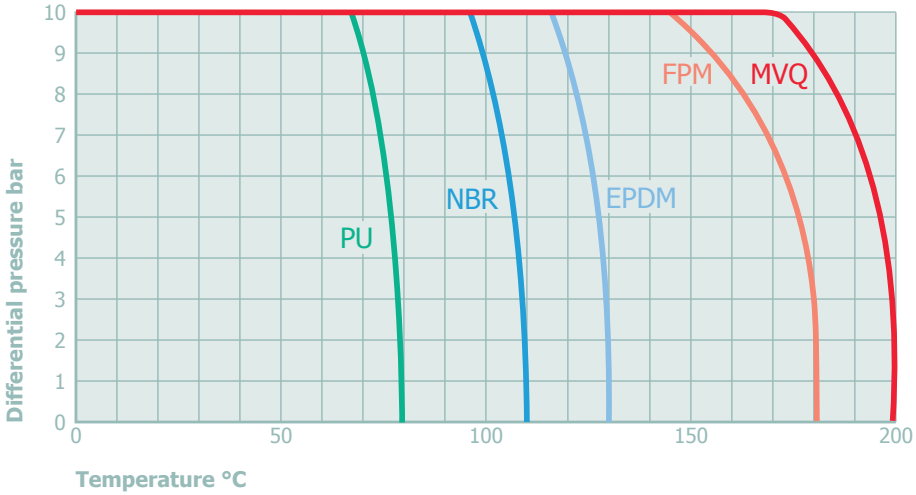
**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Pressure and temperature range diagram

**Control range**
20 ° – 60 ° opening angle

**Vacuum-tight**
up to $10^{-2}$ mbar(a)

**Valves DN 50 to DN 500**
max. differential pressure 10 bar




The pressure and temperature range diagram shows the application limits of the different seat ring materials.

These limits apply to the intended use.

Process variables and characteristics of the medium can influence the values of the diagram.

Temperatures below 0 °C upon request.

## Available materials

| Code | Body |
|---|---|
| 23 | Ductile iron GGG40 / EN-GJS-400-15 |

| Code | Valve disc |
|---|---|
| 66 | Stainless steel 1.4408 |

| Code | Valve stem |
|---|---|
| | Stainless steel 1.4021 |

| Code | Seat ring |
|---|---|
| E | EPDM |
| Ew | EPDM white |
| B | NBR |
| S | MVQ (silicone) |
| V | FPM |
| PU | PU (polyurethane) |

# BUTTERFLY VALVE

PTFE-lined | series K

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## Advantages

Centric valve disc with firm, clearance-free disc / stem connection

Complete body is lined with PTFE (min. 3 mm)

Permanent sealing with full chemical resistance

Very aggressive and corrosive media are transported safely

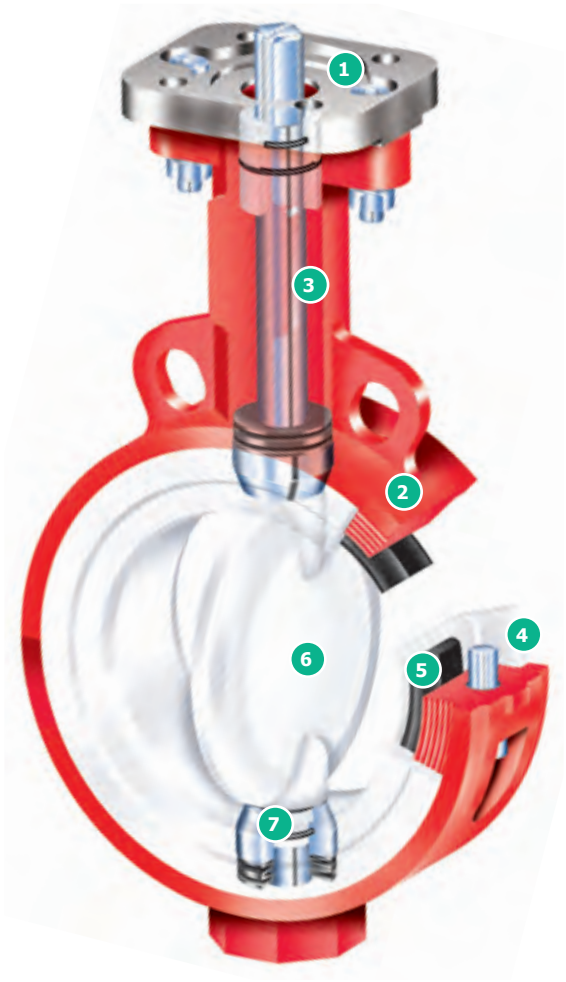
Option: Pharmaceutical version/ cavityfree with smooth PTFE sealing surfaces to the flange also as conductive version with FDA approval and EU10/2011 conformity

Corresponds to the norm EN 593

CE TA-LUFT VDI 2440 FUGITIVE EMISSIONS ISO 15848

FDA APPROVED · EC 1935/2004 EU 10/2011* · Ex · USP CI VI · BPA FREE · ADI Animal Derived Ingredient FREE · GMP Good Manufacturing Practice EU 2023/2006 · KORROSIONSFEST

## Efficient and safe automation with the interchangeable flange GEFA-MULTITOP




### 1 Standard mounting flange

- Standard mounting flange according to EN ISO 5211
- Direct actuator mounting without interruption of the stem
- Variable and exchangeable for any actuator size
- Actuator protection against leakage

### 2 Two-piece body

Standard face-to-face dimension, very servicefriendly, simple exchange of internal parts only possible because of the two-piece body design.

### 3 Bearing bush with O-ring seal

### 4 PTFE-seat ring

In solid design (3 mm), diffusion-resistant, ensures a permanent sealing at the stem passage, in the shut-off and to the flanges.

### 5 Elastomer spring element

Exactly fitted flexible ring of MVQ or EPDM behind the PTFE seat ring ensures flexible sealing of the shut-off.

### 6 PTFE valve disc

Solid (4 mm) PTFE- / PFA-coated stainless-steel carrier with stem protection in the primary sealing area.

### 7 Primary sealing

Integrated in the seat ring, guarantees the cavity-free andpressure-resistant sealing to the outside. Pressure is applied by the spring-loaded thrust bearings.

# THE TYPES

Butterfly valve | PTFE-lined | series K

## Type KG 6

DN 50 – DN 300

**Technical Data**
Wafer type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150 upon request.

Two-piece body, selfcentring, one-piece valve disc and stem, bubble-tight up to 10 bar.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type KG 8

DN 50 – DN 300

**Technical Data**
Lug type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150 upon request.

Two-piece body, selfcentring, one-piece valve disc and stem, bubble-tight up to 10 bar.

The pipeline can be removed from the flange on one side.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type K 16

DN 350 – DN 500

**Technical Data**
Wafer type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150 upon request.

Two-piece body, selfcentring, one-piece valve disc and stem, bubble-tight up to 10 bar.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type K 18

DN 350 – DN 500

**Technical Data**
Lug type butterfly valve for installation between flanges EN 1092, PN 10/16, ASME class 150 upon request.

Two-piece body, selfcentring, one-piece valve disc and stem, bubble-tight up to 10 bar.

The pipeline can be removed from the flange on one side.

**Face-to-face dimension**
DIN EN 558 line 20
API 609 table 1

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10 P11 P12
Leakage rate A

## Type KG 6 / KG 8
DN 50 – DN 300

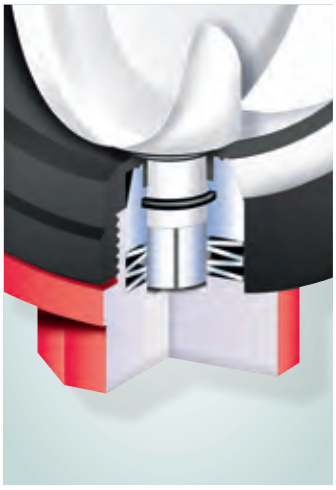
**Seat ring**
**PTFE standard**

PTFE standard seat ring of pure PTFE in solid design (3 mm), completely diffusion-resistant.

Elastomer spring element as exactly fitted flexible ring of MVQ or EPDM behind thePTFE seat ring ensures a flexible sealing of the shutoff.

Ensures the permanent sealing at the stem passage, in the shut-off and to the flanges.

Range of application -30 °C to 180 °C depending on the elastomer.



## Type KG 6/KG 8
DN 50 – DN 300

**Seat ring**
**PTFE carbon/**
**PTFE conductive**

PTFE seat ring with stabilising carbon content for increased strength and better temperature resistance.

PTFE conductive seat ring as a mixture with a carbon content of approx. 1 %.

Ensures the electrical conductivity, which meets the requirements of the ATEX directive.

Range of application -30 °C to 200/180 °C depending on the elastomer.

## Type KG 6/KG 8
DN 50 – DN 300

**Seat ring**
**PTFE pharmaceutical version**

PTFE seat ring of pure PTFEin solid design (3 mm), completely diffusion-resistant without return at the flange sealing surface.

Therefore, completely cavityfree structure for the use in the food production or in the pharmaceutical area.

Range of application -30 °C to 180 °C depending on the elastomer.

## Type KG 6/KG 8
DN 50 – DN 300

**Seat ring**
**PTFE carbon/conductive pharmaceutical version**

Seat ring of PTFE carbon in solid design (3 mm), completely diffusion-resistant without return at the flange sealing surface according to the FDA directives.

For the use in the food production and in the pharmaceutical industry, where a conductivity according to the ATEX directive and conformity with the FDA is required.

Range of application -30 °C to 180 °C depending on the elastomer.

## Primary sealing

The primary sealing of the stem passage is adjusted to a defined value via the spring-loaded stainless steel thrust bearing. The medium is already shut off securely at this contact surface (supported by an additional PTFE-flexible sealing) between the primary sealing surface of the valve disc and the preloaded PTFE lining.

The valve stem does not come into contact with the medium. A gas lock at the stem outlet is phased as additional – third – barrier directly behind the primary sealing. This "threefold sealing" ensures the completely tight function to the outside and prevents leakages into the space inside the body behind. This is the most secure and effective method in order to counteract the emissions according to the TA-Luft (German Technical Regulations on Emissions).

Aggressive and corrosive media are shut off, controlled and regulated safely with the chemical valve – PTFE-lined and centric. The material PTFE ensures an almost unlimited use with full chemical resistance. The minimum material thickness is even exceeded in important areas, in order to ensure a high diffusion resistance. Only two components come into contact with the medium: valve disc and seat ring.

A typical application is the use in the food production and in the pharmaceutical area thanks to the completely cavity-free structure and the physiologically neutral characteristic of the PTFE material where product contact can occur.

The dual spring-loading principle behind the seat ring ensure a permanent sealing in the shut-off.

The sealing function is achieved reliably at the full circumference of the shut-off with the "spring element" elastomer insert behind the PTFE lining.

The primary sealing of the stem passage is spring-loaded separately by means of precisely adjusted disc spring washers.

## Pressure and temperature range diagram

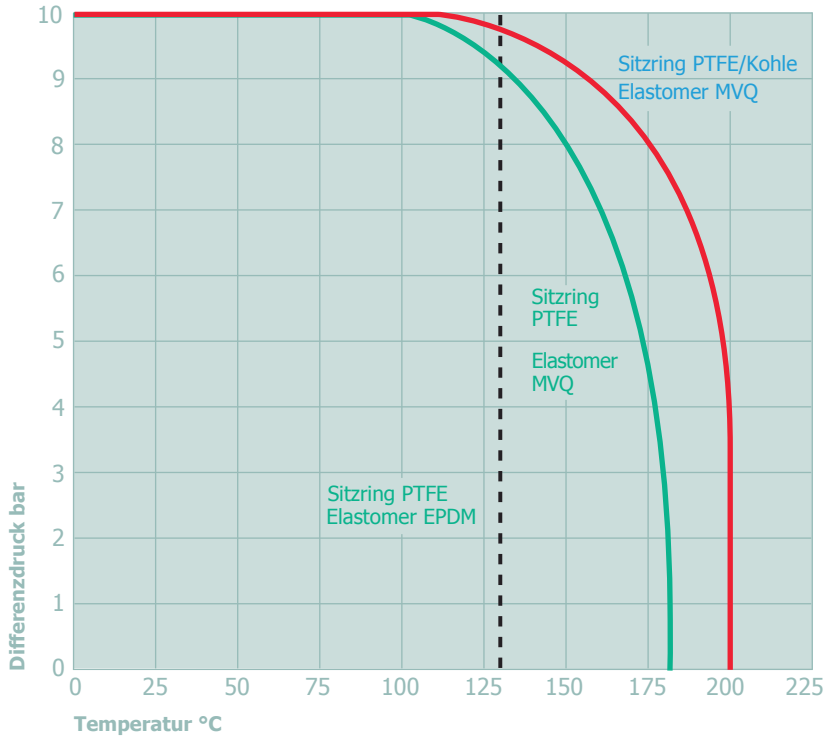
**Control range**
20° – 60° opening angle

**Valves DN 50 to DN 500**
max. differential pressure 10 bar

**Vacuum-tight**
DN 50 – to DN 300: up to 1 mbar(a)
from DN 350 to 200 mbar(a) for the temperature range -10 °C to +100 °C

**PTFE (polytetrafluorethylene) with EPDM elastomer**
Operating temperature:
-20 °C to +130 °C
with MVQ or FPM elastomer
Operating temperature: up to +180 °C

**PTFE / carbon**
(Reinforced polytetrafluorethylene with a carbon content as filler material) with silicone elastomer
Operating temperature: up to + 200 °C




The pressure and temperature range diagram shows the application limits of the different seat ring materials. These limits apply to the intended use. Process variables and characteristics of the medium can influence the values of the diagram. Temperatures below 0 °C upon request.

## Available materials

| Code | Body |
|---|---|
| 22 | Grey cast iron GG25 / EN GJL-250 |
| 23 | Ductile iron GGG40 / EN-GJS-400-15 |
| 24 | Ductile iron GGG40.3 EN-GJS-400-18-LT |
| 44 | Cast steel GS-C25 / EN GP 240 H+N |
| 66 | Stainless steel 1.4408 |
| 6A | Stainless steel 1.4408 |

| Code | Valve disc |
|---|---|
| 66 | Stainless steel 1.4517 |
| 31 | Stainless steel 1.4517, poliert |
| 69 | 1.4529 |
| 77 | PTFE lined |
| 76 | PFA lined |
| 75 | PTFE, conductive, lined |
| 93 | Alloy C22 |
| 94 | Titanium |

| Code | Seat ring |
|---|---|
| T | PTFE |
| TK | PTFE/carbon |
| TT | PTFE pharmaceutical version/cavity-free |
| TL | PTFE, conductive |
| TF | TFM |
| U | UHMWPE |
| TLT | PTFE, conductive, cavity-free |

# HIGH PERFORMANCE BUTTERFLY VALVE

Butterfly valve double offset design | type HG

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

Reliable sealing against high pressures and low torques due to the double offset design

Low-wear switching characteristics

Secure stem sealing (Option: TA-Luft)

Variable seat ring materials

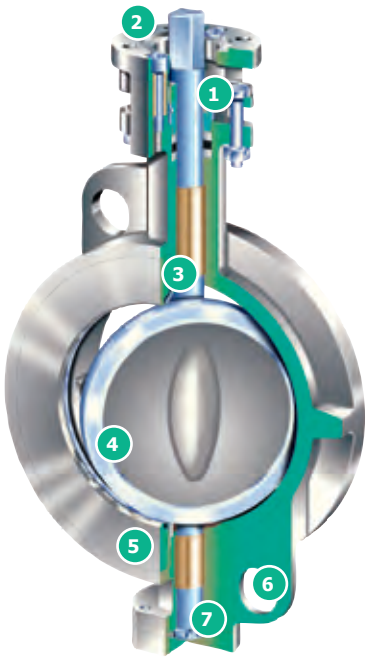
GEFA-MULTITOP Efficient automation with variable interface without interruption of the stem

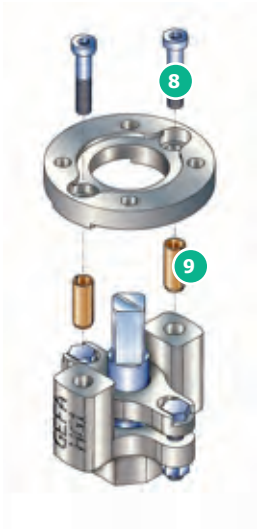
Pivoting angle limitation and optical position indicator at the stem prevents wrong position of the stem during servicing

Corresponds to the norm EN 593


CE · TA-LUFT VDI 2440 · FDA APPROVED · BPA FREE · ADI Animal Derived Ingredient FREE · $H_2$ · USP Cl VI · Ex Zone 0 IIC · EC 1935/2004 EU 10/2011* · Ex · FIRESAFE · SIL IEC 61508 / IEC 61511 · $O_2$ für Sauerstoffeinsatz · -196°C CRYO-AUSFÜHRUNG · GMP Good Manufacturing Practice EU 2023/2006 · FUGITIVE EMISSIONS ISO 15848

## Efficient and safe automation with the interchangeable flange GEFA-MULTITOP




### 1 Automation

- Standard mounting flange according to EN ISO 5211
- Direct actuator mounting without interruption of the stem
- Variable and exchangeable for any actuator size
- Actuator protection against leakage

### 2 Safety (option: TA-Luft)

Stem sealing can be re-tensioned beneath the mounting flange; thus, it can be readjusted without dismounting the actuator.

### 3 Long service life

The insert ring of the body efficiently protects the seat ring from the direct medium flow and prevents wear such as erosion and abrasion.

### 4 Reliability

The double offset design with spherical sealing surface at the disc allows switching with minimum wear and offers the highest level of tightness and low torques at the same time.

### 5 Exact and variable

Face-to-face dimension: EN 558 line 20/25/16
Option: Design with groove / spring EN 1092, form D

### 6 Precise mounting

Easy mounting due to centring aids for all standard flanges.

### 7 Service-friendly

The axial centring of the stem can be reached easily and is prepared for later service.

### 8 Efficient and safe

The cylindrical screws fix the mounting flange without transferring torques (driving torques).

### 9

The clamping sleeves guarantee a clearance-free connection between themounting flange and the body and transfer the driving torques.

# THE TYPES

Butterfly valve double offset design | type HG

## Type HG 1

DN 50 – DN 600

Double offset valve as wafer type butterfly valve for high pressure and temperature loads

**Wafer style**

**Technical Data**
For installation between flanges EN 1092,
PN 10/16/25/40, PS 25
ASME Cl 150/300,
PS 25 or PS 40
**Temperature range**
-50 °C to + 400 °C
Vacuum: up to 1 mbar (abs)
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

## Type HG 7

DN 50 – DN 600

Double offset valve with lugs for high pressure and temperature loads

**Can be removed from the flange on one side**

**Technical Data**
For installation between flanges EN 1092,
PN 10/16/25/40, PS 25
ASME Cl 150/300, PS 25
**Temperature range**
-50 °C to + 400 °C
Vacuum: up to 1 mbar (abs)
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

## Type HG 1 / HG 7

> DN 600

Double eccentric butterfly valve as clamp-in or double flange valve for high pressure and temperature loads

**Intermediate flange fitting or flangeable**

**Technical data**
For installation between flanges EN 1092,
PN 6/10/16 PS 10
ASME Cl 150 PS 10
**Temperature range**
- 50 °C to + 400 °C
Vacuum: up to 1 mbar (abs)
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

## Type HG 5

DN 80 – DN 300

Double offset high-performance butterfly as double flange design FTF row 13, API609

**Technical Data**
PN10-PN40, ANSI150
**Temperature range**
- 196 °C bis/to + 400 °C

## Type HGF

DN 50 – DN 600

**FireSafe version**

Double offset valve for the use in the FireSafe area according to DIN EN ISO 10497, API 607 und BS 6755 Part 2

**Wafer or lug style**

**Technical Data**
For installation between flanges EN 1092,
PN 10/16/25/40, PS 25
ASME Cl 150/300, PS 25
**Temperature range**
-50 °C to +200 °C
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

## Type HGC

DN 50 – DN 600

**Cryo version**

Double offset valve for the use down to -200 °C with cryogenic stem extension as pressure chamber

**Wafer or lug style**

**Technical Data**
For installation between flanges EN 1092,
PN 10/16/25/40, PS 10
ASME Cl 150/300, PS 10
**Temperature range**
-200 °C to +200 °C
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

## Type HGH/HGHL

DN 50 - DN 800

**Valve with heating jacket**

Double offset valve with double shell for heating or double jacket without interruption of the pipeline heating.

**Technical Data**
For installation between flanges EN 1092,
PN 10/16/25/40, PS 25
ASME Cl 150/300, PS 25
**Temperature range**
- 50 °C to + 400 °C
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
According to customer specification (type HGHL)
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

## Type HG 7 ...BK

DN 50 – DN 600

Double offset valve with lugs for high pressure and temperature loads

**Can be removed from the flange on both sides**

**Technical Data**
For installation between flanges EN 1092,
PN 10/16/25/40, PS 25
ASME Cl 150/300, PS 25
**Temperature range**
-50 °C to +400 °C
Vacuum: up to 1 mbar (abs)
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

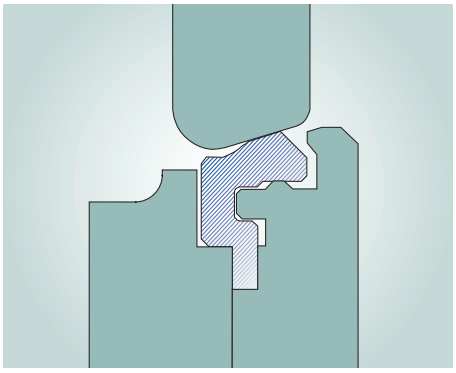
# DETAILED SOLUTIONS

Butterfly valve double offset design | type HG

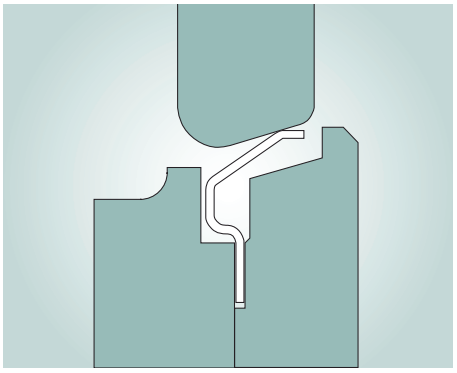
## The seat ring system

**Highly flexible with optimised restoring force**
If it is installed in the recommended flow direction, the differential pressure efficiently supports the bubble-tight sealing

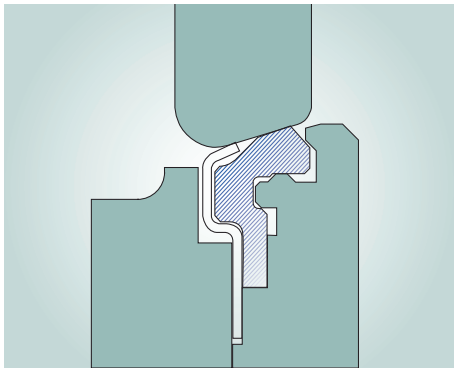
**Options**
- Low temperature seat ring
- Seat ring made of high performance plastics for extreme cases of application



**PTFE seat ring**
Flexible and highly resistant to chemicals. Made of PTFE with stabilising glass fibre or carbon reinforcement for high pressures and temperatures or pure PTFE for sensitive applications.



**Metal seat ring**
Excellent spring characteristics due to the special form. High temperature-resistant due to the seat ring construction of: 1.4571 nitrated, tightness up to +400 °C, EN12266,leakage rate B.



**Firesafe seat ring**
Double seat PTFE/1.4571 certified according to EN ISO 10497:2010-06 API607, 6th edition.

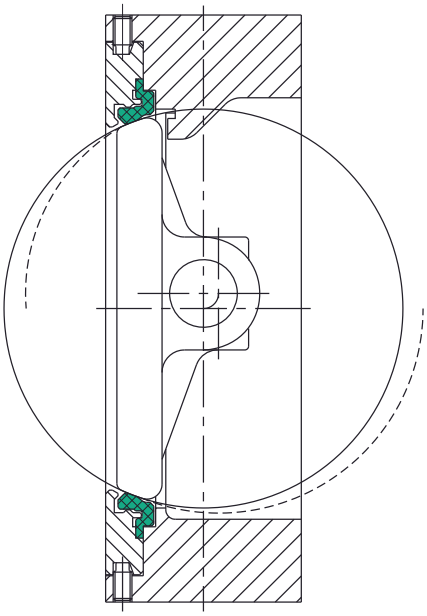
## The double offset design

The double offset design allows a reliable, almost wear-free shut-off. Due to the double displacement of the pivot, the valve disc is lifted from the seat at the beginning of the opening movement. The seat is then free from heavy pressure over the whole circumference.

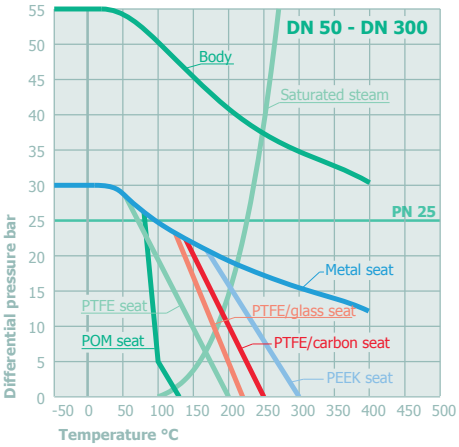
**The 90 ° turning is frictionless at even reduced torques.**

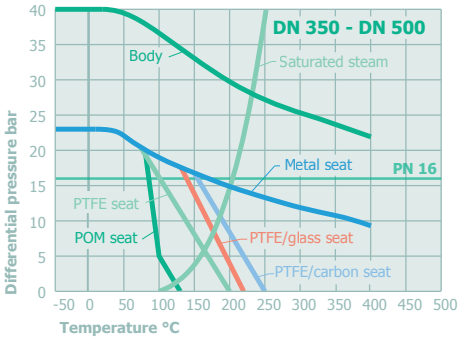
These design characteristics allow an extremely long functional life – even at high switching frequencies. The recommended pressure direction (arrow mark at the body) ensures complete tightness.

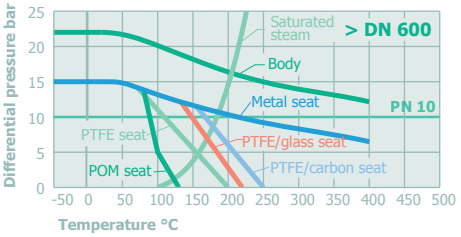
The active pressure (differential pressure) of the medium additionally supports the sealing function via the pressing effect of the seat ring against the sealing surface of the disc. The insert ring and the body additionally protect the flexible seat ring efficiently against negative flow influences.

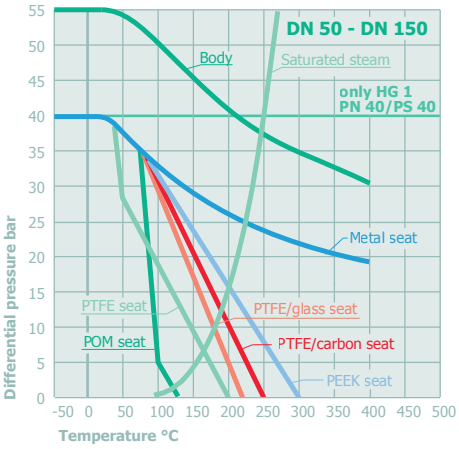


## Pressure and temperature range diagram




**Control range**
20 ° – 60 ° opening angle
**Vacuum-tight**
up to 1 mbar (a)
**Flange surfaces**
according to DIN EN 1092-1 form B1

The pressure and temperature range diagram shows the application limits of the different seat ring materials. These limits apply to the intended use. Process variables and characteristics of the medium can influence the values of the diagram. Temperatures below - 50 °C upon request.

| Nominal size | Nominal pressure | max. operating pessure |
|---|---|---|
| DN 50 – DN 300 | PN 10/16/25/40<br>ANSI 150/300 | 25 bar or 40 bar |
| DN 350 – DN 500 | PN 10/16/25<br>ANSI 150 | 16 bar |
| > DN 600 | PN 10/16<br>ANSI 150 | 10 bar |

The maximum operating pressure depends on the operating temperature.

## Available materials

| Position | Designation | Material | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ≤ DN 300<br>≥ DN 350 | HG 4466 TG<br>HG 4444 TG | HG 6666 TG | HG 4435 M<br>HG 4444 M | HG 6635 M | HG 4435 HM<br>HG 4444 HM | HG 6635 HM | HGF 4466 TM | HGF 6666 TM |
| **max. operating temp.** | | + 220 °C | + 220 °C | + 220 °C | + 220 °C | + 400 °C | + 400 °C | + 200 °C | + 200 °C |
| 1 | Body | 1.0619 | 1.4408 | 1.0619 | 1.4408 | 1.0619 | 1.4408 | 1.0619 | 1.4408 |
| 2 | Valve disc<br>≤ DN 300<br>≥ DN 350 | 1.4408<br>1.0619/<br>nickel-plated | 1.4408<br>1.4408 | 1.4408/<br>nitrated<br>1.0619/<br>nickel-plated | 1.4408/<br>nitrated<br>1.4408/<br>nitrated | 1.4408/<br>nitrated<br>1.0619/<br>nickel-plated | 1.4408/<br>nitrated<br>1.4408/<br>nitrated | 1.4408/<br>nitrated<br>1.0619/<br>nickel-plated | 1.4408<br>1.4408 |
| 3 | Welle | 1.4571 | 1.4571 | 1.4571 | 1.4571 | 1.4571 | 1.4571 | 1.4571 | 1.4571 |
| 4* | Seat ring | PTFE/Glas | PTFE/Glas | 1.4571/<br>nitrated/<br>Graphite** | 1.4571/<br>nitrated/<br>Graphite** | 1.4571/<br>nitrated/<br>Graphite** | 1.4571/<br>nitrated/<br>Graphite** | PTFE/1.4571/<br>nitrated+<br>Graphite | PTFE/1.4571/<br>nitrated+<br>Graphite |
| 5 | Bearing bush | 1.4401/PTFE | 1.4401/PTFE | 1.4401/PTFE | 1.4401/PTFE | 1.4571/nitrated | 1.4571/nitrated | 1.4571/nitrated | 1.4571/nitrated |
| 6* | Package | PTFE | PTFE | PTFE | PTFE | Graphite | Graphite | Graphite | Graphite |
| 7 | Insert ring | C-steel | 1.4571 | C-steel | 1.4571 | C-steel | 1.4571 | 1.4571 | 1.4571 |

* Spare part/wear part, **Option: 1.4571/nitrated/PTFE

# HIGH PERFORMANCE BUTTERFLY VALVE

Triple offset | type HGT

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

Tight shut-off in both pressure directions

Temperature range up to + 400 °C

Frictionless switching to the laminated seat

Installation of the laminated seat in the body

Secure stem sealing (Option: TA-Luft)

GEFA-MULTITOP

Efficient automation with variable interface without interruption of the stem

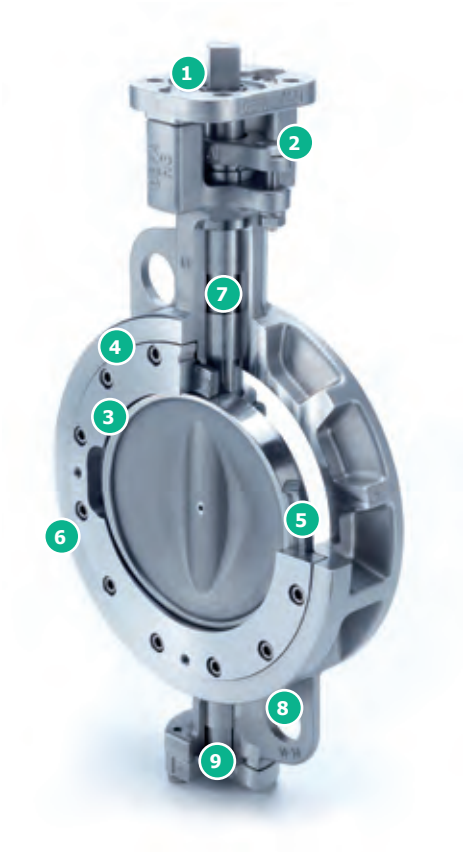
Pivoting angle limitation and optical position indicator at the stem prevents wrong position of the stem during servicing

Corresponds to the norm EN 593


CE TA-LUFT VDI 2440 FIRESAFE

Ex Ex Zone 0 IIC $H_2$ BPA FREE A Animal D Derived I Ingredient FREE GMP Good Manufacturing Practice EU 2023/2006

## Efficient and safe automation with the interchangeable flange GEFA-MULTITOP




### 1 Automation

- Standardized mounting flange acc. to DIN3337/ISO5211
- Direct mounting of actuator, allowing correct alignment
- Variable topworks arrangements, allowing for different actuator sizes to be mounted

### 2 TA-Luft tested safety (optional)

Adjustable stem sealing, located below the top flange, allowing adjustment without removing the actuator.

### 3 Long service life

The insert ring, mounted with its orientation against the direction of flow, actively protects the integrated laminated seat/seal from premature erosion and wear, providing longer service life and reduced costs and downtime.

### 4 Insert ring

Pressure-sealed bolted design – located outside of the flange sealing surface according to TA-Luft.

### 5 Reliability

Due to the design of the seat, triple offset valves are torque-seated. Therefore the actuator torque is constantly used to ensure contact pressure between the seating surfaces. This is necessary to provide zero leakage performance.

### 6 Exact and variable

Face-to-face dimension: EN 558, line 20 (25/16)

### 7 Bearing

- Stem bearings absorb adverse loads and securely support the stem
- Continuous secured stem guidance provides maximum support for the single-piece shaft constructed of high-tensile materials

### 8 Precise mounting

Simple and precise mounting using wafer body location holes for all face-to-face dimensions.

### 9 Axial securing

Axial securing device and hardened axial securing ring ensure perfect stem and disc alignment, positioned away from the medium and built into the bottom flange.

# THE TYPES

High performance butterfly valve | triple offset | type HGT

## Type HGT 1

DN 80 – DN 300

Triple offset valve as wafer type butterfly valve
for high pressure and temperature loads

**Wafer style**

**Technical Data**
For installation between flanges
EN 1092, PN 10/16/25/40, PS 25, ASME Cl 150/300, PS25
**Temperature range**
-50 °C to +400 °C
Vacuum: up to 1 mbar (abs)
FireSafe according to: DIN EN ISO 10497 and API 607
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

## Type HGT 7

DN 80 – DN 300

Triple offset valve with lugs for high pressure
and temperature loads

**Can be removed from the flange on both sides**

**Technical Data**
For installation between flanges
EN 1092, PN 10/16/25/40, PS 25, ASME Cl 150/300, PS25
**Temperature range**
-50 °C to +400 °C
Vacuum: up to 1 mbar (abs)
FireSafe according to: DIN EN ISO 10497 and API 607
**Face-to-face dimension**
DIN EN 558 line 20
Optional: line 25 and line 16
API 609 table 1
**Mounting flange**
DIN EN ISO 5211
**Test**
DIN EN 12266 P10 P11 P12 F20
**Marking**
DIN EN 19, AD 2000

## Laminated seat

The laminated stainless steel/graphite seat ensures bidirectional, zero leakage shut-off throughout the full temperature range of -50 °C to +400 °C.

- Metal-Metal, frictionless non-interference disc operation
- Continuous smooth jam-free operation due to the offset angle of the sealing surface
- Laminated seat/seal system, made of stainless steel/graphite
- Seat/seal system integral to valve body – not on the disc
- The insert ring, mounted against the direction of flow, actively protects the laminated seat/seal system against wear.
- Additionally the laminated seat will not wear prematurely as it is common with laminated disc seal systems.
- The flexible metal laminated seat/seal is securely fastened by the insert ring positioned in front. The floating, self-centred design of the laminated seat/seal system ensures accurate mounting in the valve body.
- When re-seating the disc, the laminated seat/seal system self-centres to the disc.
- The elasticity of the laminated seat/seal system ensures uniform peripheral sealing with the disc.
- Zero leakage acc. to DIN EN 12266-part 1, leakage rate A as well as low torques and continuous smooth operation.

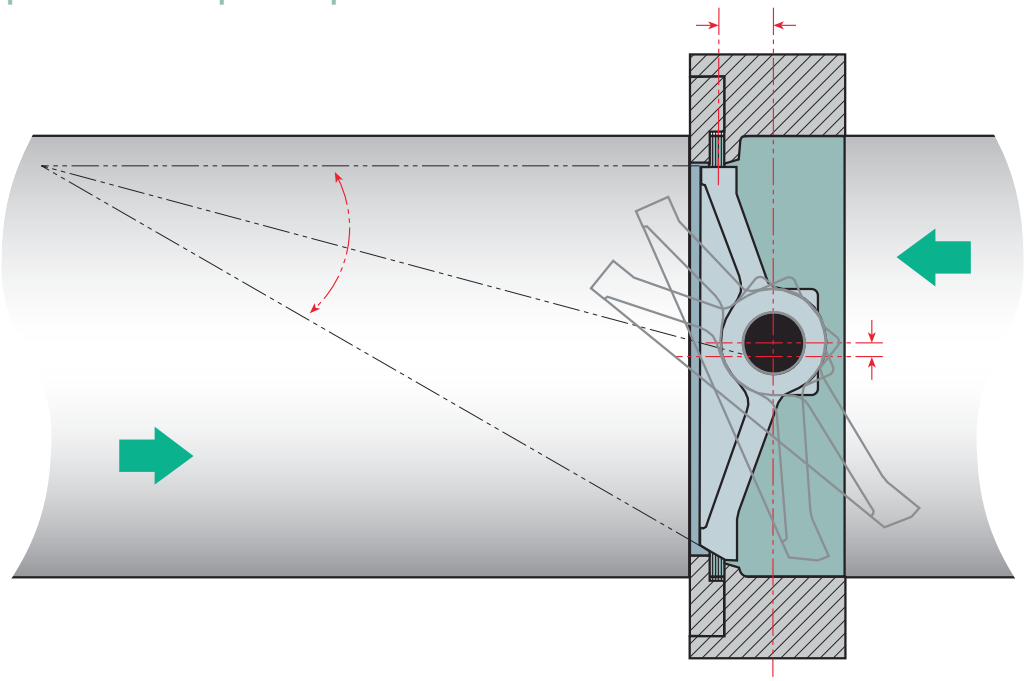
**Bearing**
Stem bearings absorb adverse loads and securely support the stem.

Continuous secured stem guidance provides maximum support for the single-piece shaft constructed of high tensile materials

# DETAILED SOLUTIONS

High performance butterfly valve | triple offset | type HGT

## The triple offset principle



The triple offset butterfly and regulating valves are the advancement of the double offset technology.

In addition to the described double displacements of the sealing surface from the stem pivot, the third eccentricity is achieved by the displacement of the axial symmetry of the sealing surfaces (the seat axis is displaced from the tube axis).

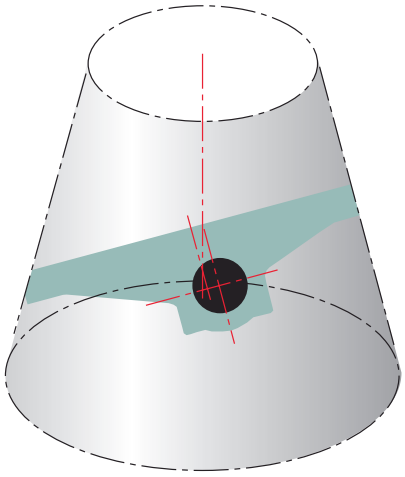
As a cubic body, the cone is the starting point for this function.

The cone is not cut in the straight, centric level, but e.g. (as shown on the schematic drawing), at a right angle to the external bodyline.

The valve disc is not switched to the seat through this gate until the last possible moment. The contact of the two sealing surfaces takes place without friction and without jamming. This design principle ensures a low switching torque with high pressures and temperatures at the same time.

**Cone**

The cone section is the basis for the function of the third eccentricity.



## Pressure and temperature range diagram

**Control range**
20 ° – 60 ° opening angle

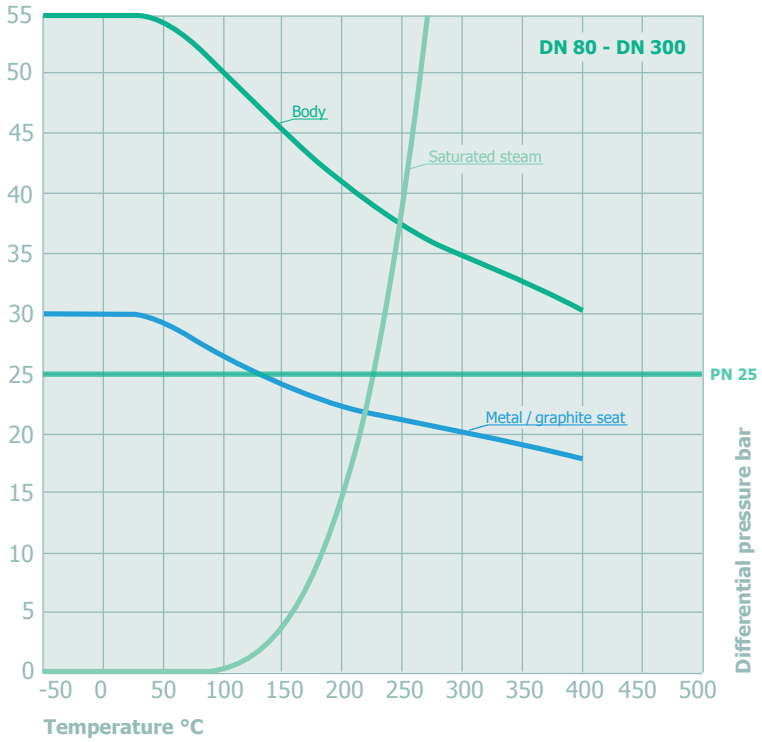
**Vacuum-tight**
up to 1 mbar (a)

The pressure and temperature range diagram shows the application limits of the metal / graphite seat ring.

These limits apply to the intended use.

Process variables and characteristics of the medium can influence the values of the diagram.

Valve for temperatures below -50 °C: upon request.




## Available materials

| Designation | Material | |
|---|---|---|
| | HGT 4435 MG | HGT 6635 MG |
| Body | 1.0619 | 1.4408 |
| Valve disc | 1.4408, hardened | 1.4408, hardened |
| Stem | 1.4542 | 1.4542 |
| Seat ring* | Laminated 1.4571/Graphite | Laminated 1.4571/Graphite |
| Bearing bush | 1.4571, nitrated | 1.4571, nitrated |
| Packing[1)] | Graphite | Graphite |

* Spare part/wear part
[1)] Alternative: PTFE/LATTYflon (TA-Luft)/graphite TA-Luft approved

| Pressure class/max. working pressure | | |
|---|---|---|
| Nominal size | Nominal pressure | max. working pressure |
| DN 80 - DN 300 | PN 10/16/25/40<br>ASME class 150/300 | 25 bar |

The maximum operating pressure depends on the operating temperature.

**Flange surfaces**
according to DIN EN 1092-1
form B1

# THROTTLE AND REGULATING VALVE

Triple offset | type KGT

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

Good control behaviour

Throttle valve completely made of stainless steel 1.4408

Smooth surfaces due to precision casting technology

Inner contour additionally processed in a clean mechanical way

Direct mounting of all actuators – efficient and safe

CE

**BUTTERFLY VALVES**

## Type KGT

DN 80 – DN 250

**Technical Data**

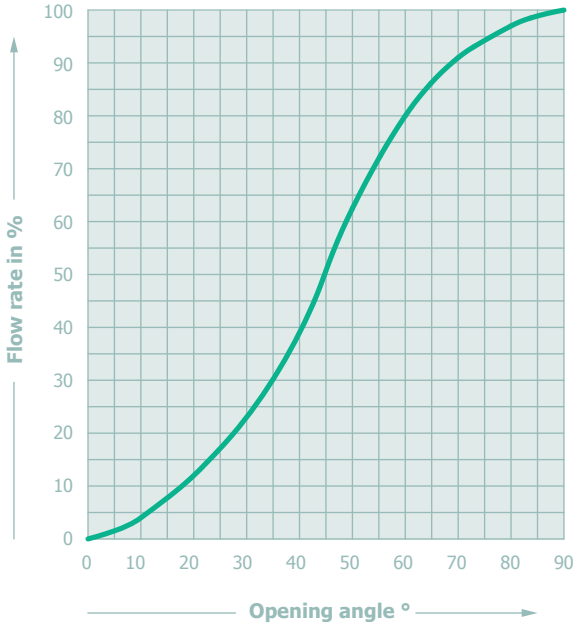
Wafer type butterfly valve for installation between flanges EN 1092, PN 10, one-piece body with centring lugs, end-to-end valve stem, flat disc design with excellent flow characteristics.

**Face-to-face dimension**

EN 558 line 20

**Mounting flange**

EN ISO 5211




The setting range 0 ° – 70 ° is used for normal operation. In the area of 20 ° – 60 °, the valve has an almost linear flow characteristic curve.

| Technical Features | |
|---|---|
| Available nominal sizes | DN 80 – DN 250 |
| Installation between flanges | EN 1092, PN 10 |
| max. differential pressure Δp | 8 bar |
| Leakage rate in position CLOSED | 1 – 2 % |
| max. temperature | 180 °C |

| DN | kvs 90° |
|---|---|
| 80 | 520 |
| 100 | 850 |
| 150 | 1.900 |
| 200 | 3.200 |
| 250 | 5.500 |

# ACTUATION / AUTOMATION

90° valves

GEFA PROCESSTECHNIK GMBH
www.gefa.com

GEFA automates all offered valves with devices from our own range of products or according to customer requests and specifications

Advantage:
Efficient processing and delivery of complete functional units, which are adjusted technically to one another and are tested with regard to proper functioning prior to delivery

# THE TYPES

**Hand lever**
Aluminium or stainless steel,
notch plate made of steel,
galvanised or stainless steel

**Worm gear with handwheel**
Aluminium, grey cast iron,
stainless steel,
marine version/C5M

**Pneumatic actuator**
Double-/single acting with safety position in case of energy/compressed air failure, optional end position adjustment OPEN/CLOSE,
high temp. version/low temp. version,
stainless steel/C5M, ATEX,SIL

**Solenoid valves**
3/2 -5/2-ways, 5/3-ways optionally with air chokes, throttle block, quick exhaust valves, ATEX, SIL

**Electro-pneumatic positioner**
Options: analogue/digital diagnostics software Industrie 4.0, ATEX, SIL

**Limit switch**
Mounted limit switches or inductive proximity switches, ASI-Bus, ATEX, SIL

**Electric actuators (on/off and modulating)** For OPEN/CLOSE function, inching and normal operation (option: normal operation with variable speed), Profibus, ATEX, SIL

**End position feedbacks**
Body made of aluminium/plastic/VESTAMID/stainless steel with optical position indicator, mechanic SPDT switches OPEN/CLOSE, inductive proximity sensors, slotted proximity sensors, REED contacts, ASI-Bus, ATEX, SIL

# BALL VALVE

Full/reduced bore | 3-piece | series DG

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

Proven and reliable ball valve even in case of high pressures

Very service-friendly:
Very quick replacement of seals due to the center section, which can be swivelled out

For applications with corrosive media the DG-valves can be supplied in material 1.4529

The ball valves can be adjusted to your applications and requirements due to the wide range of end connectors

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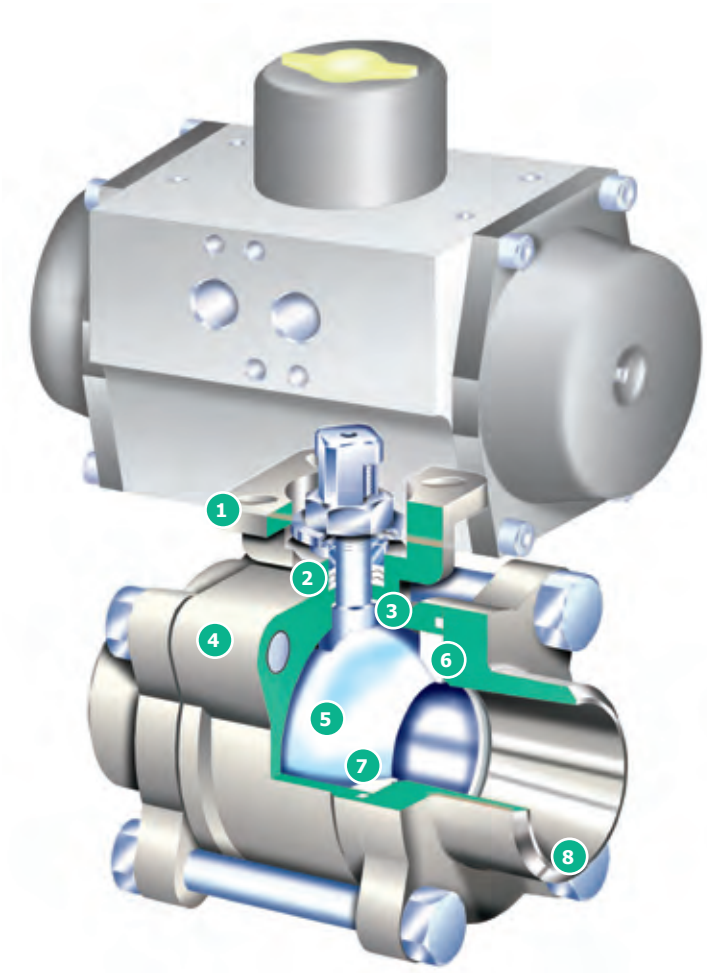
# TECHNICAL FEATURES

Ball valve | full/reduced bore | 3-piece | series DG




## 1 Automation

- Standard mounting flange according to EN ISO 5211
- Direct actuator mounting without interruption of the stem
- Pneumatic, electric or manual actuation possible

## 2 Safety

Stem seal provided by spring-loaded V-rings made of PTFE or graphite packing. TA-Luft compliant with ISO 15848 available as an option.

## 3 Primary sealing

Together with the complex design of the anti-blowout stem, the internal seal ensures a leakage-free application, even in case of a high number of cycles.

## 4 Service-friendly and exact mounting

The center section is guided through the fully centred screw guidance to the correct position at the flanges.

## 5 Shut-off valve

The surface of the ball is high-gloss polished and extremely accurate (roundness)

## 6 Body seal

Secure sealing due to the separate, fully encapsulated body seal.

## 7 Seat ring

Completely leak-tight in the bore due to the special form of the seat rings. The preload of the seat rings causes a spring effect, which results in a reliable sealing in all pressure ranges. Materials: PTFE, PTFE/glass, PTFE/carbon, PEEK, UHMWPE, POM, PVDF.

## 8 Variable end connectors

- Butt weld end, short
- Butt weld end, long
- Orbital weld ends
- Threaded end / female thread / NPT
- Full bore / reduced bore
- Welding flanges

# THE TYPES

Ball valve | full/reduced bore | 3-piece | series DG

## DG1 connection 2

Short butt weld ends
DN8 – DN150

Full and reduced bore

**Technical data**
Ball valve for welding, short version, 3-piece body, pressure class depending on the nominal size up to PN 125, floating ball, vacuum-tight. Optional: seat rings with cavity filler

**Pipe dimensions**
Can be adapted to customer specifications.

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10,P11,P12
Leakage rate A

## DG1 connection 3

Threaded ends
DN8 – DN100

Full and reduced bore

**Technical data**
Ball valve with female thread ends according to DIN 2999-Rp (pipe thread), ISO 228/1-G or NPT, 3-piece body, pressure class depending on the nominal size up to PN 125, floating ball, vacuum-tight. Optional: seat rings with cavity filler

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10,P11,P12
Leakage rate A

## DG1 connection 7

Long butt weld ends
DN8 – DN50

Full bore

**Technical data**
Ball valve for welding, long version, 3-piece body, pressure class depending on the nominal size up to PN 125, floating ball, vacuum-tight. Optional: seat rings with cavity filler

**Special features**
No disassembly necessary for welding.

**Pipe dimensions**
Can be adapted to customer specifications.

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10,P11,P12
Leakage rate A

## DG1 connection 1

Welding flanges
DN8 – DN150

Full and reduced bore

**Technical data**
Ball valve for installation between flanges according to DIN EN 1092 or ASME, 3-piece body, pressure class depending on the nominal size up to PN 125, floating ball, vacuum-tight. Optional: seat rings with cavity filler

**Face-to-face dimension**
EN 5581 line 1 (DIN 3202F1)
Other face-to-face dimensions are possible.

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10,P11,P12
Leakage rate A

## DG1 connection 8

ORBITAL weld ends
DN8 – DN100

Full bore

**Technical data**
Ball valve for welding in ORBITAL welding process, 3-piece body, pressure class depending on the nominal size up to PN 125, floating ball, vacuum-tight. Optional: seat rings with cavity filler

**Special features**
For the application with ultra-clean media.

**Pipe dimensions**
Can be adapted to customer specifications.

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10,P11,P12
Leakage rate A

## Series DG1L / DG1A

Food version
DN8 – DN150

Full and reduced bore

**Technical data**
Ball valve DG1L for use in food applications according to regulation EC1935/2004 with sealing materials according to EU10/2011 or DG1A with FDA compliant sealing materials. Optional: seat rings with cavity filler

**Special features**
Can be combined with all kinds of end connectors.

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10,P11,P12
Leakage rate A

## Series DG F

Firesafe version
DN8 – DN100

Full and reduced bore

**Technical data**
Ball valve with Firesafe approval according to BS6755-2, 3-piece body, pressure class depending on the nominal size up to PN 40, floating ball, vacuum-tight. Optional: seat rings with cavity filler

**Special features**
Can be combined with all kinds of end connectors. Functional safety due to metallic emergency sealing. No disassembly necessary for welding.

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10,P11,P12
Leakage rate A

## Series DG H

Heating jacket
DN8 – DN150

Full and reduced bore

**Technical data**
Ball valve with heating jacket for all common heating media (pressure pmax = 20 bar), 3-piece body, pressure class depending on the nominal size up to PN 125, floating ball, vacuum-tight. Optional: seat rings with cavity filler

**Special features**
Can be combined with all kinds of end connectors. For constant temperatures in the interior of the valve.

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10,P11,P12
Leakage rate A

# DETAILED SOLUTIONS

Ball valve | full/reduced bore | 3-piece | series DG

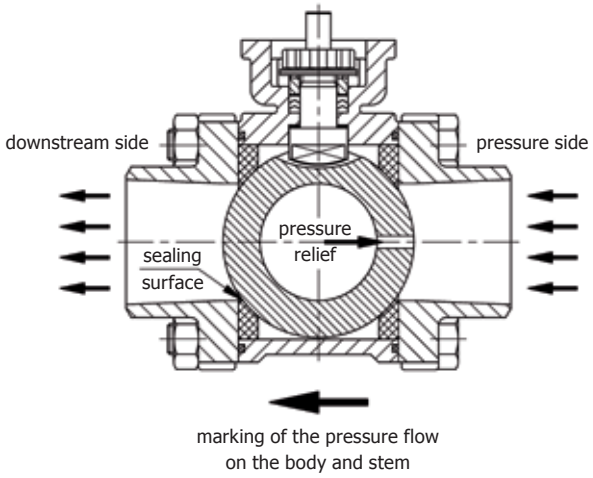
## The Firesafe principle

If PTFE sealed valves are exposed to flames in case of fire, this may cause the melting of the sealing materials, which will inevitably result in leakages to the outside and in the bore. In order to be suitable for these requirements, the ball valve DGF is equipped with a special sealing system.

The stem packing as well as the body seal are made of graphite in order to also withstand high temperatures. Due to the groove and tongue system of the end connector and of the body, the encapsulated body seals are safely pressed and the tightness of the valve to the outside remains ensured.

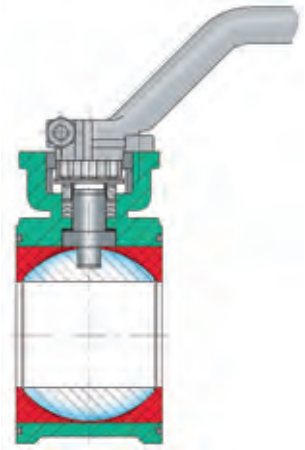
The contour of the end connectors to the ball are designed in a way, that the ball will press against a metallic sealing edge, if the seat ring melts and that an emergency sealing function is achieved in the passage.

## Option: Pressure relief bore




If liquid and thus not compressible media are transported, the pressure in the cavity of the ball valve may increase considerably in case of an increase in temperature. This may be the case, e.g. in case of liquid and thus cold $CO_2$. The pressure relief bore ensures that the space between ball and body is connected with a pipeline section and that the pressure in the cavity can never increase above the pipeline pressure. As standard, the pressure relief bore is made from the convex surface of the ball to the ball bore. As an alternative it is also possible to make the pressure relief bore towards the stem. In this case, however, there will only be a pressure relief in the passage position of the ball.

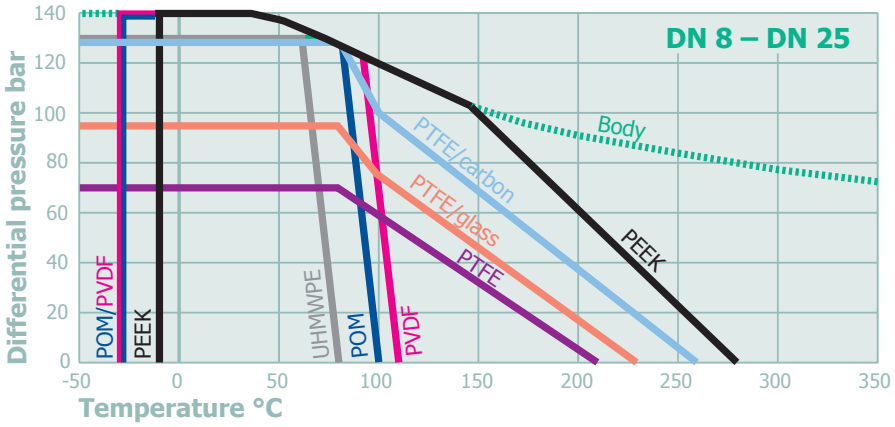
## Option: Passage with few cavities

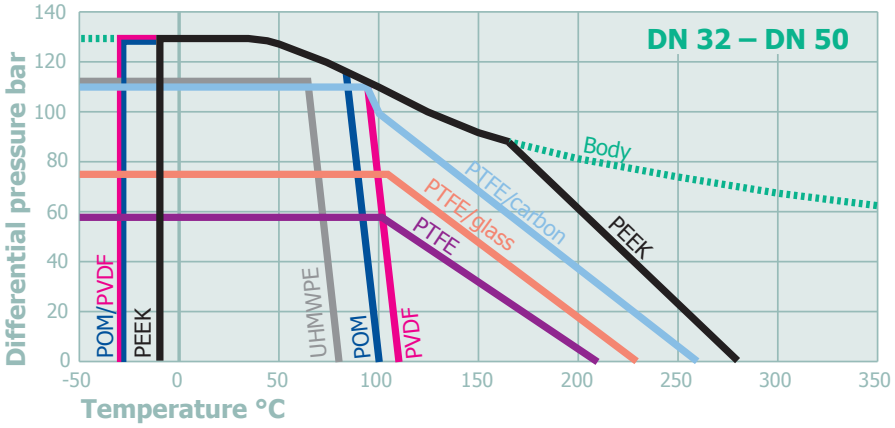


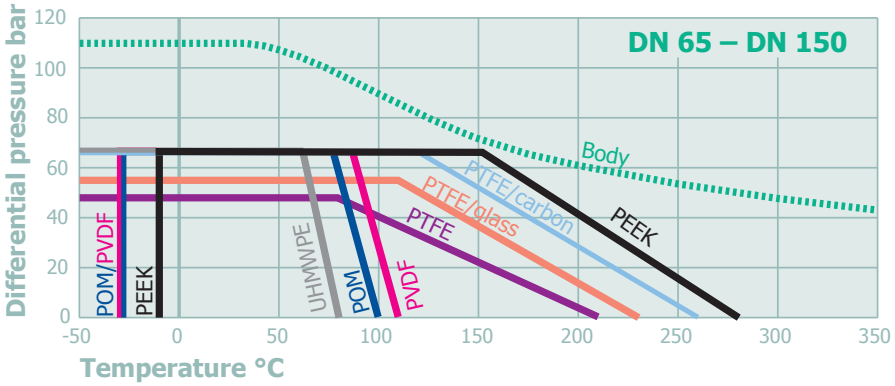
In order to prevent product residues and to prevent the interior from running completely empty, the seat rings filling the cavities enclose the ball and fill the otherwise present cavity.

All common compounds are available as seat ring materials.

## Pressure and temperature range diagram




| Designation | Material |
|---|---|
| Stainless steel body | 1.4408<br>1.4529 |
| Ball | 1.4408<br>1.4529<br>Ceramic |
| Stem | 1.4542 (17-4PH) |
| End connectors | Stainless steel 1.4408<br>Stainless steel 1.4529<br>Stainless steel 1.4409<br>Steel 1.0619 (GS-C25) |
| Seat and body rings | PTFE/glass<br>PTFE/carbon<br>PTFE<br>PEEK<br>UHMWPE<br>POM<br>PVDF |

All pressure and temperature specifications are maximum application limits, which are influenced by the interaction of all application factors. Therefore, without technical design and without our confirmation, the specifications are without commitment.

# MULTIPLE WAY BALL VALVE

3-piece | series DG

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

Variable use due to different ball types and connections

Manual or automatic version available

Vertical or horizontal connection possible

Cost-effective because standard components of the ball valve DG are used

Service-friendly due to 3-piece design

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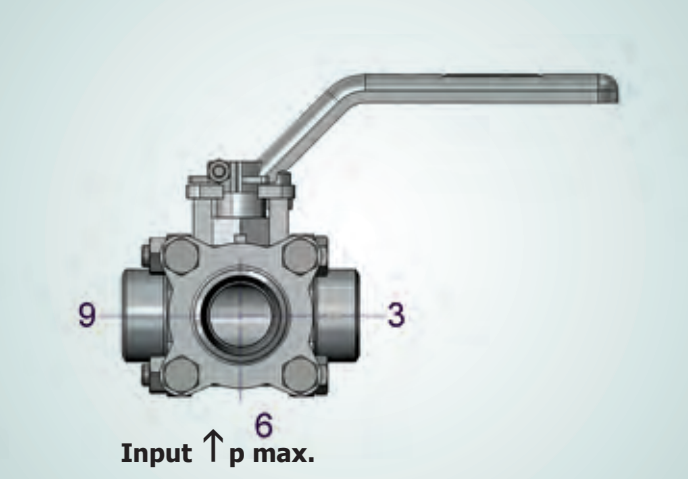
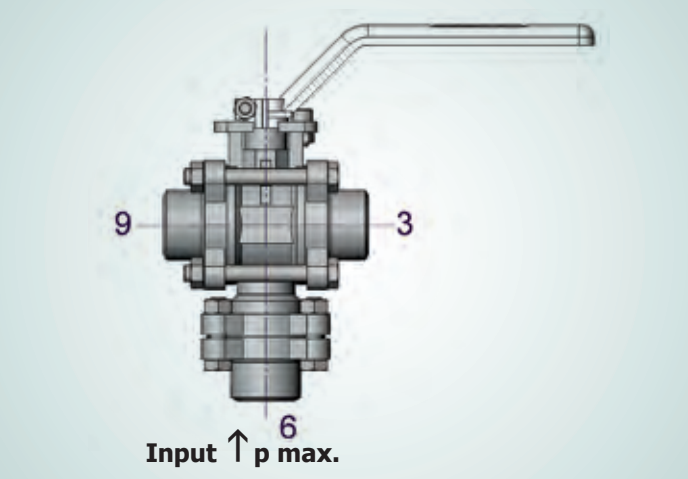
# TECHNICAL FEATURES

Multiple way ball valve | 3-piece | series DG




## Series DG 3

DN8 – DN65

3-way ball valve
Horizontal design
Full and reduced bore

**Technical data**
Pressure class up to PN40
Materials and basic version
correspond to the series DG1

**Special features**
Can be combined with all end connectors

**Mounting flange**
DIN EN ISO 5211

**Switching function**
L-bore, T-bore

## Series DG 4

DN8 – DN65

3-way ball valve
Vertical design
Full and reduced bore

**Technical data**
Pressure class up to PN40
Materials and basic version
correspond to the series DG

**Special features**
Can be combined with all end connectors

**Mounting flange**
DIN EN ISO 5211

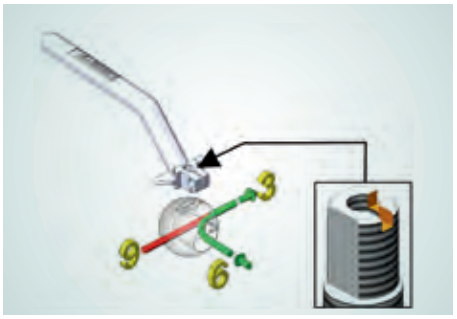
**Switching function**
L-bore, T-bore, LL-bore, TL-bore

# TECHNICAL FEATURES

Multiple way ball valve | 3-piece | series DG 3

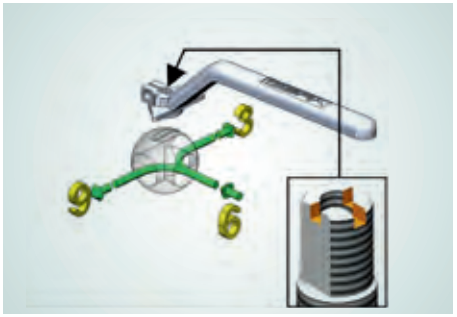
## Switching functions DG 3


L-bore, 0°, 90° turning




L-bore, 90°, 90° turning


T-Bohrung, 0°, 90° turning




T-Bohrung, 90°, 180° turning


T-Bohrung, 180°, 180° turning

## Switching functions DG 4


L-bore, 0°, 180° turning


L-bore, 90°, 180° turning

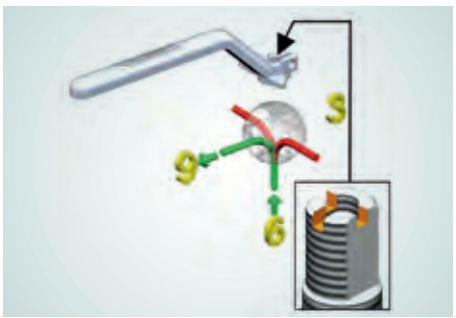

L-bore, 180°, 180° turning


T-bore, 0°, 90° turning


T-Bore, 90°, 90° turning

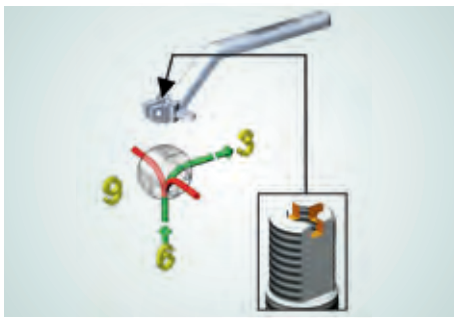

LL-bore, 0°, 90° turning


LL-bore, 90°, 90° turning




TL-bore, 0°, 180° turning


TL-bore, 90°, 180° turning




TL-bore, 90°, 180° turning

# BALL VALVE

3-piece | ORBITAL weld ends | series DG 1 type 8

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

For applications in supply and process systems with ultra-clean media

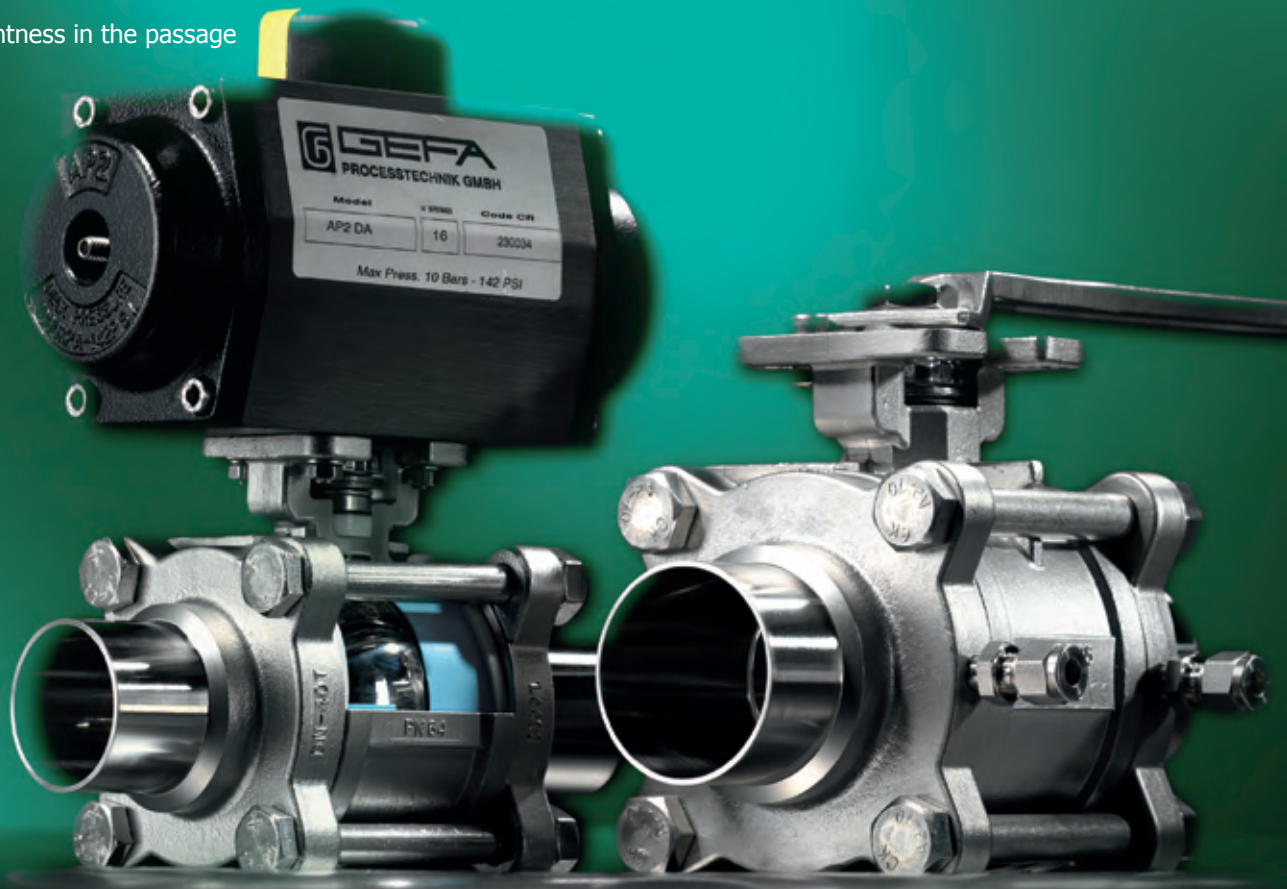
Reliable stem sealing

High switching frequency

For continuously welded pipeline connections and consistent high weld seam qualities

Safe sealing to the outside

High degree of tightness in the passage

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# TECHNICAL FEATURES

Ball valve | 3-piece | ORBITAL weld ends | series DG 1 type 8

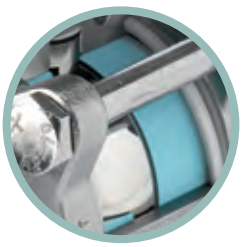
The ball valve series DG 1 type 8 – with the entire advantages of the basic series – was currently developed further as welding valve with ORBITAL weld ends for the ORBITAL welding technology. With this, we are able to provide a perfect solution for supply and process systems for ultra-clean media to the user and to plant engineering. Optionally, it is possible to polish the entire internal passage of the ball valve to Ra ≤ 0.8 µm in order to meet the high purity requirements of the "high-purity" applications of microelectronics, bioelectronics and pharmacy. The ORBITAL weld ends are turned cylindrically to the required pipe dimensions both in the inner and in the outer pipe diameter, so that a continuous transition is created between valve and pipeline.
The external cylindrical diameter of the weld ends allows to take up the ORBITAL welding device.

Pipe connection dimensions according to the following, among others:
DIN 11866 – line A (DIN 11850),
DIN 11866 – line B (EN ISO 1127),
DIN 11866 – line C (ASME BPE), DIN EN 10220, DIN EN 10305,
ASME Schedules

## Available materials

| Designation | Material |
|---|---|
| Body | 1.4408<br>1.4529 |
| Ball | 1.4408<br>1.4529<br>Ceramic |
| Stem | 1.4542 (17-4PH)<br>1.4529 |
| Weld ends | 1.4409 |
| Seat rings | PTFE<br>PTFE/glass<br>PTFE/carbon<br>UHMWPE<br>PEEK<br>POM<br>PVDF |

## Options



**Option**
Seat rings filling the cavities

**Option**
Flushing connections on both sides (SWAGELOK screwing)

**Option**
Ball valve passage electropolished

# FLANGED BALL VALVE

Type FG

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

Cost-effective automation and safe connection

Low pressure loss

Face-to-face dimension
EN 558 line 27 (DIN 3202-F4)
EN 558 line 1 (DIN 3202F1)

High quality guarantees high security

Tests and certificates confirm the high quality of the ball valve

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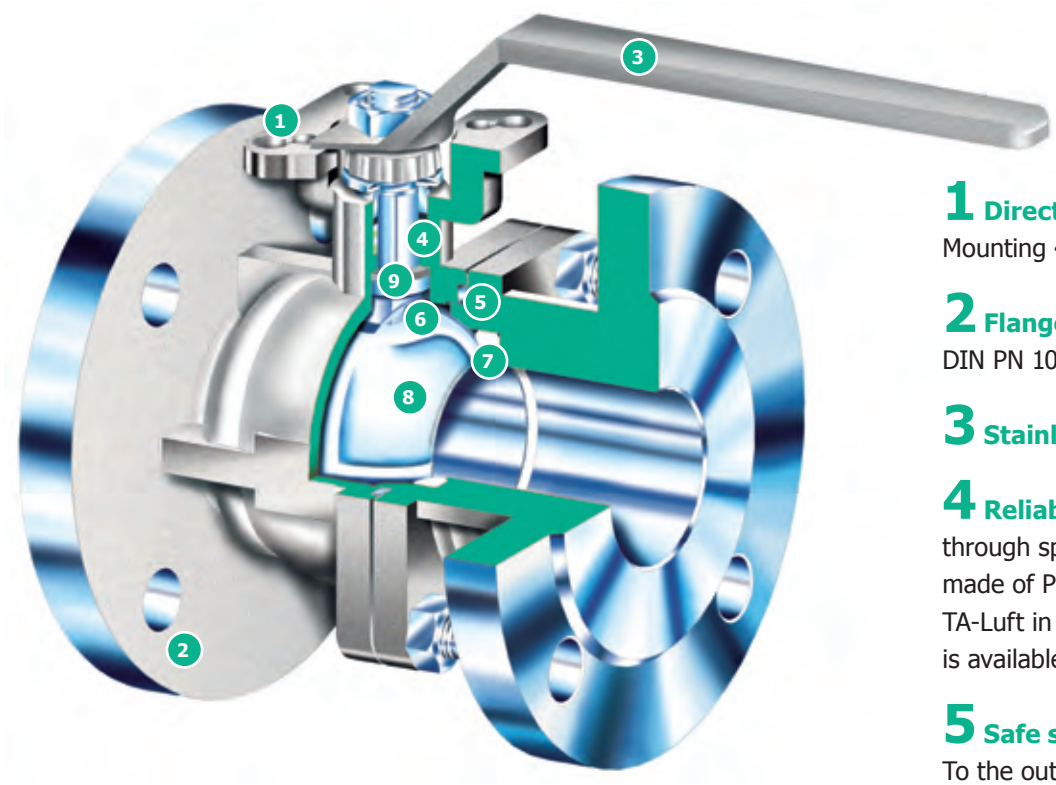
## Two-piece stainless steel ball valve – ideally and cost-effectively prepared for automation according to your requirements




**1 Direct mounting**
Mounting 4 flange EN ISO 5211

**2 Flange connection**
DIN PN 10/PN 40

**3 Stainless steel hand lever**

**4 Reliable stem sealing**
through spring-loaded V-rings made of PTFE or graphite packing. TA-Luft in accordance with ISO 15848 is available as an option

**5 Safe sealing**
To the outside guaranteed by the separate and fully encapsulated body seat.

**6 Antistatic design**
Standard feature.

**7 Seat rings**
Materials: PTFE/glass, PTFE/carbon, PTFE, PEEK, UHMWPE, POM, PVDF.

**8 Super-polished ball surface**
Extremely precise contour (roundness).

**9 Anti-blowout stem**
Inserted from the inside.

# THE TYPES

Flanged ball valve | type FG

## Type FG DN 15 – 100

Flanged ball valve
PN 10 – 40

**Technical data**
Two-piece ball valve for installation between flanges according to DIN EN 1092, pressure class depending on the nominal size up to PN 40, floating ball, vacuum-tight.

**Face-to-face dimension**
EN 558 line 27 (DIN 3202-F4)
EN 558 line 1 (DIN 3202F1)

**Mounting flange**
DIN EN ISO 5211

**Test**
DIN EN 12266 P10, P11, P12
Leakage rate A

## Type FG DN 150

Flanged ball valve
PN 16

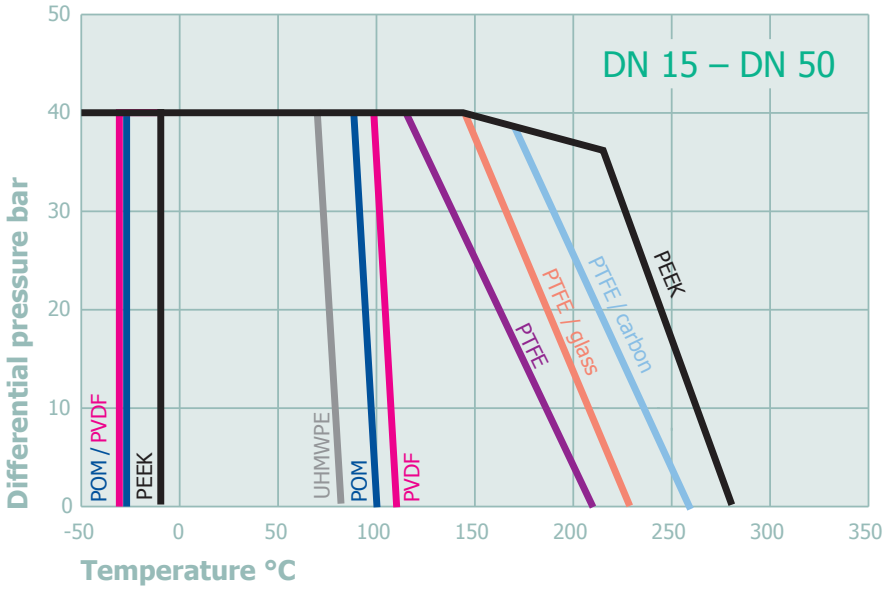
**Technical data**
Two-piece ball valve for installation between flanges according to DIN EN 1092, pressure class PN 16, floating ball, vacuum-tight.

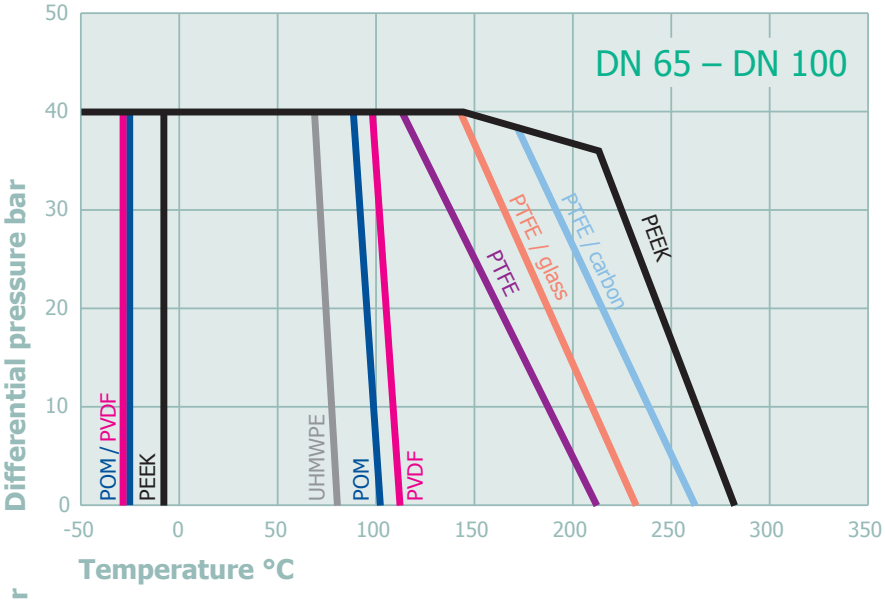
**Face-to-face dimension**
EN 558 line 15 (DIN 3202-F5)

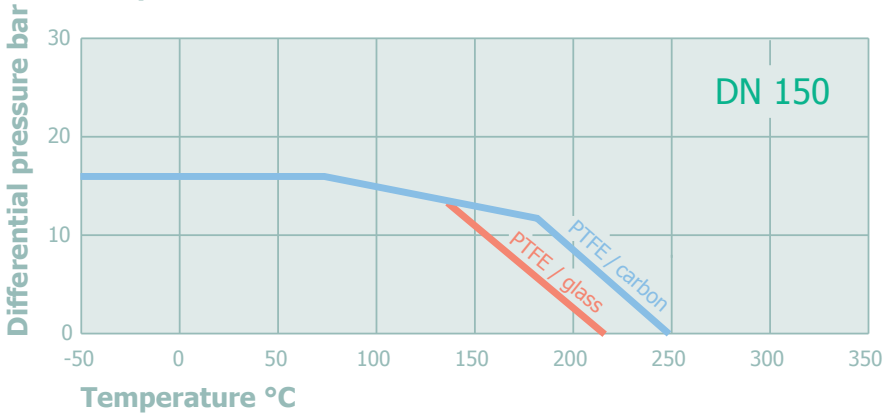
**Mounting flange**
DIN EN ISO 5211 with Multitop

**Test**
DIN EN 12266 P10, P11, P12
Leakage rate A

## Pressure and temperature range diagram




## Available materials

| Designation | Material DN15–100 (PN10/PN40) FG 6666 |
|---|---|
| Body | 1.4408 |
| Ball | 1.4408 |
| Stem | 1.4542 (17-4PH) |
| Body ring | 1.4401 / graphite |
| Seat rings | PTFE<br>PTFE / glass<br>PTFE / carbon<br>PEEK<br>UHMWPE<br>POM<br>PVDF |

| Designation | Material DN15–100 (PN10/PN40) FGF 6666 T |
|---|---|
| Body | 1.4408 |
| Ball | 1.4408 |
| Stem | 1.4542 (17-4PH) |
| Body ring | 1.4401 / graphite |
| Seat rings | PTFE |

| Designation | Material DN150 (PN16) FG 6666 |
|---|---|
| Body | 1.4408 |
| Ball | 1.4408 / 1.4401 |
| Stem | 1.4401 |
| Body ring | 1.4401 / graphite |
| Seat rings | PTFE<br>PTFE / glass |

All pressure and temperature specifications are maximum application limits, which are influenced by the interaction of all application factors. Therefore, without technical design and without our confirmation, the specifications are without commitment.

# FLANGED BALL VALVE

Stainless steel | PFA-lined | type FGT

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

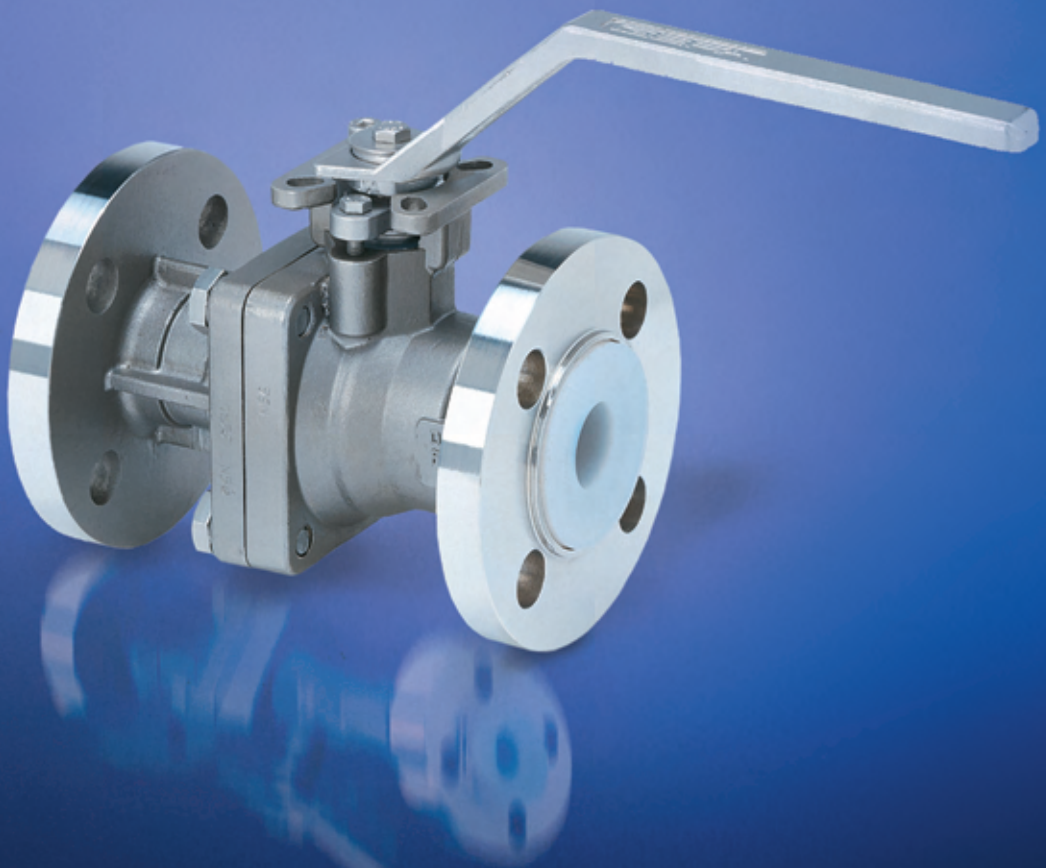
Reliable chemical resistance due to PFA-lining on the inside – stainless steel on the outside

High diffusion-resistance due to thick-walled lining

Full bore

Minimum contamination due to optimised/reduced cavity

Direct mounting of actuators – safe and efficient – due to interface according to EN ISO 5211



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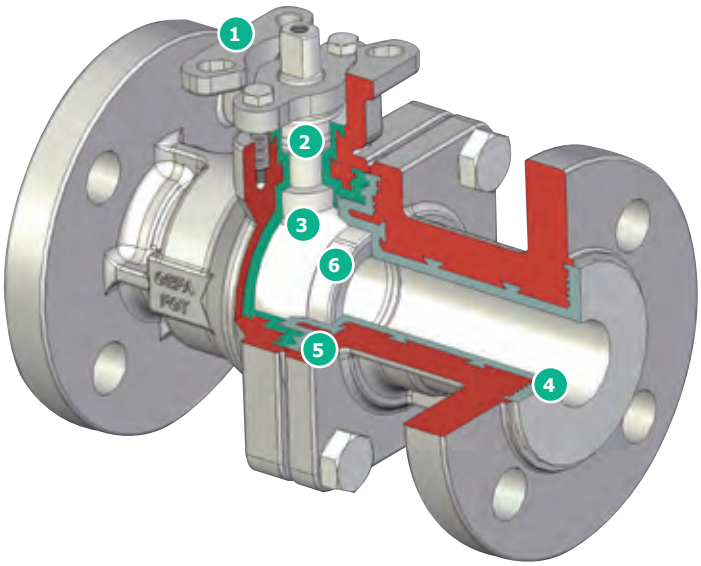
# TECHNICAL FEATURES

Flanged ball valve | stainless steel | PFA-lined | type FGT

## Two-piece stainless-steel ball valve – ideally and cost-effectively prepared for the automation according to your requirements




### 1 Automation

- Standard mounting flange according to EN ISO 5211
- Direct actuator mounting without interruption of the stem
- Pneumatic, electrical or manual actuation possible

### 2 Safety

- Low-maintenance due to spring-loaded V-rings made of PTFE
- Anti-blowout stem

### 3 Stem and ball

Ball and stem are PFA-lined for maximum protection against aggressive media.

### 4 Lining

Thick-walled designed PFA-lining (3 mm), dimensionally stable, connected with the body and highly diffusion-resistant.

### 5 Body seal

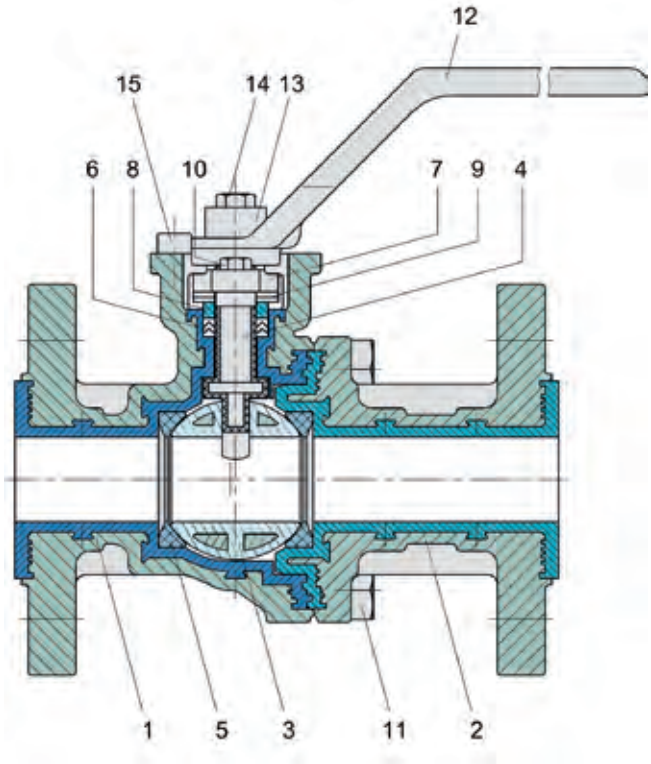
Safe, labyrinth-shaped sealing of the body halves due to the lining material. No separate body seal necessary.

### 6 Seat ring

Completely leak-tight in the bore due to the special form of the PTFE seat rings. The preload of the seat rings causes a spring effect, which results in a reliable sealing in all pressure ranges.

# THE TYPES

Flanged ball valve | stainless steel | PFA-lined | type FGT




## Type FGT

PFA-lined flanged ball valve DN 15 – 50
PN 10 – PN 40 / class 150 with full bore

The material combination stainless steel 1.4408 on the outside and PFA fluoropolymer as lining coming into contact with the medium ensures a very good chemical resistance and the external corrosive influences are also considered. The interface according to EN ISO 5211 allows a cost-effective automation and the direct mounting of actuating elements and actuators.

**Technical data**
**Lining of body, ball and stem:**
PFA

**Mounting flange**
EN ISO 5211

**Face-to-face dimension**
EN 558 line 1 (DIN3202-F1)

**Flange connection**
EN 1092, PN 10 - PN 40
ASME B 16.5 – Class 150

## Parts list

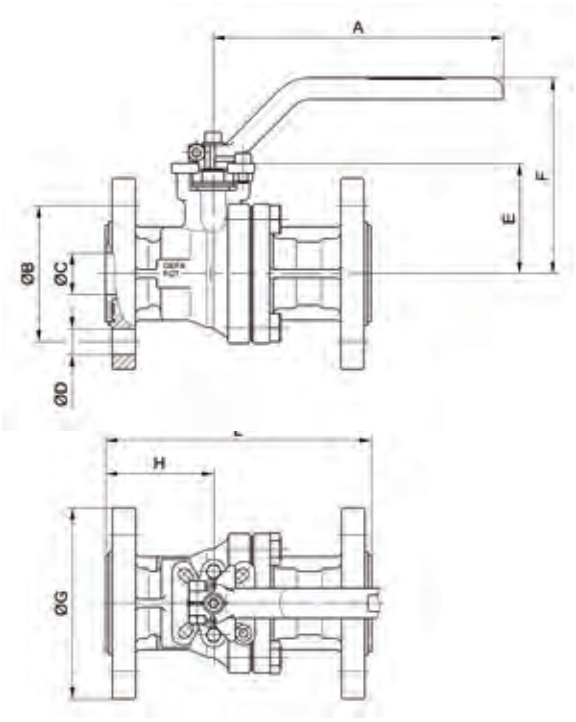
| Pos. | Designation | Werkstoffe |
|---|---|---|
| 1 | Body | 1.4408 / PFA |
| 2 | Partial body halves | 1.4408 / PFA |
| 3 | Ball | 1.4408 / PFA<br>Ceramic |
| 4 | Stem | 1.4313 / PFA |
| 5* | Seat ring | PTFE |
| 6* | Packing | PTFE |
| 7 | Gland flange | 1.4308 |
| 8 | Gland | 1.4301 |
| 9 | Disc spring washer | 1.4310 |
| 10 | Hexagon screw | Stainless steel A2 |
| 11 | Hexagon screw | Stainless steel A2 |
| 12 | Hand lever | 1.4308 |
| 13 | Case | 1.4305 |
| 14 | Hexagon screw | Stainless steel A2 |
| 15 | Stop screw | Stainless steel A2 |

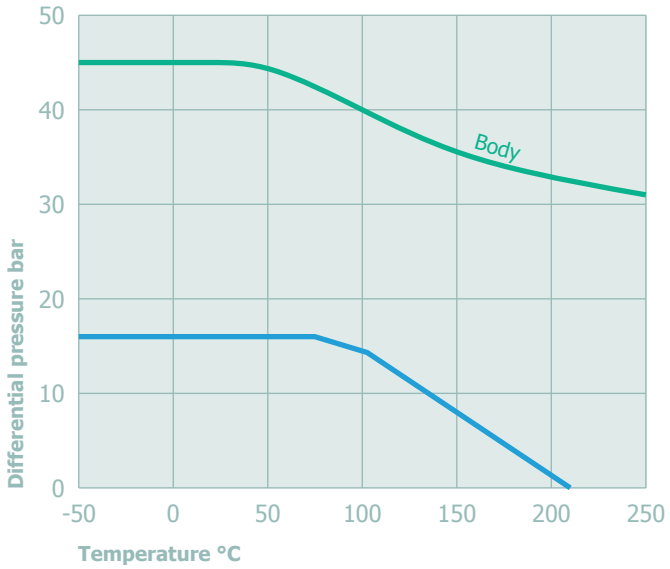
* Wear parts (seal kit)

# TECHNICAL DATA

Flanged ball valve | stainless steel | PFA-lined | type FGT

## Pressure and temperature range diagram




| DN | NPS | A | ø B | | ø C | ø D | | E | F | ø G | H | L | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PN10-40 | Class150 | | PN10-40 | Class150 | | | | | | |
| 15 | ½" | 160 | 65 | 60,5 | 17 | 4 x 14 | 4 x 15,7 | 53 | 102 | 95 | 58 | 130 | 2,5 |
| 20 | ¾" | 160 | 75 | 69,9 | 20 | 4 x 14 | 4 x 15,7 | 56 | 104 | 105 | 65 | 150 | 3,3 |
| 25 | 1" | 175 | 85 | 79,2 | 25 | 4 x 14 | 4 x 15,7 | 67 | 120 | 115 | 65 | 160 | 4,2 |
| 32 | 1 ¼" | 175 | 100 | 88,9 | 32 | 4 x 18 | 4 x 15,7 | 72 | 125 | 140 | 75 | 180 | 5,7 |
| 40 | 1 ½" | 220 | 110 | 98,6 | 40 | 4 x 18 | 4 x 15,7 | 83 | 140 | 150 | 85 | 200 | 7,3 |
| 50 | 2" | 220 | 125 | 120,7 | 50 | 4 x 18 | 4 x 19,1 | 91 | 147 | 165 | 100 | 230 | 10 |

All pressure and temperature specifications are maximum application limits, which are influenced by the interaction of all application factors. Therefore, without technical design and without our confirmation, the specifications are without commitment.

# KNIFE GATE VALVE

Series Domino

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

Maintenance-free and self-adjusting sealing

No necessity for gland packing

Bidirectional tight shutoff

Smooth-running even after long downtimes

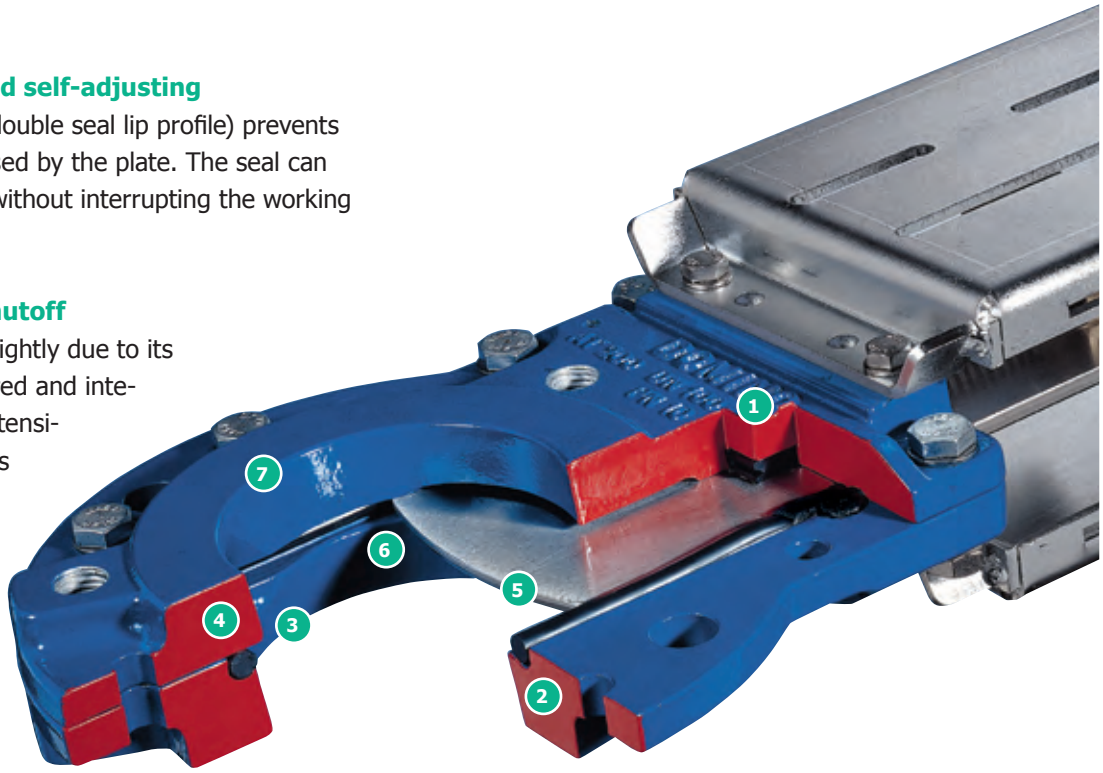
High resistance against water hammer

Locking of the plate in close position

Variety in actuation: hand wheel, hand lever, sprocket, chain wheel, bevel gear, electric actuator, pneumatic and hydraulic cylinder


CE FDA APPROVED EC 1935/2004 Ex Ex Zone 0 IIC SIL

## Maintenance-free and self-adjusting COMPACT cross seal




### 1 Maintenance-free and self-adjusting

The COMPACT cross seal (double seal lip profile) prevents leakage to the outside caused by the plate. The seal can be readjusted at any time without interrupting the working process.

### 2 Bidirectional tight shutoff

The valve closes pressure-tightly due to its elastic seat that is chambered and integrated in the body. Its pre-tensioned installation guarantees high leak tightness.

### 3 Self-cleaning effect

The valve cleans itself by flush-out corners that are part of the body as well as a cutting edge underneath the gate (5). Both features ensure that the sealing is flushed when the valve closes.

### 4 Total absence of residues

The interplay of the cutting edge of the plate with the one of the lower body allows the media to be cut with neither solids nor fibres to remain in the sealing zone.

### 5 Segmental arched profile

of the plate prevents solids and fibres from being trapped between the plate and sealing while closing the valve.

### 6 Metal guide

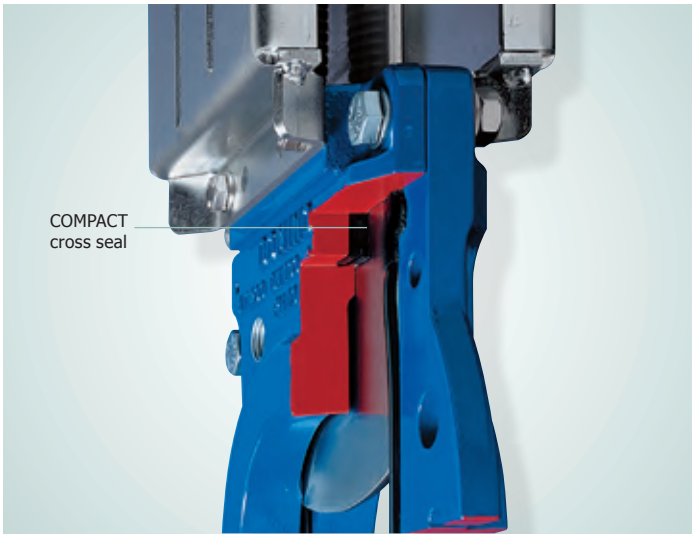
Due to the design of the valve the plate is guided by the metal guide in the rear body only. Thus the round seal has a sealing function only, without any need to support the guiding of the plate.

### 7 High resistance to corrosion

due to powder coated bodies and mounting parts.

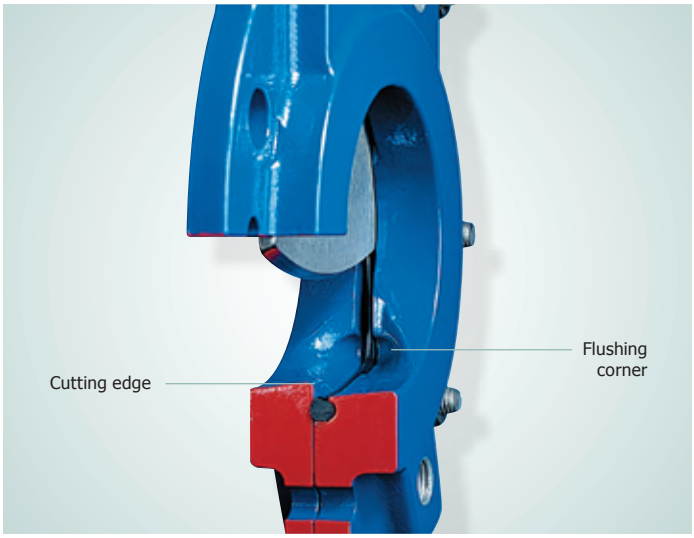
# KNIFE GATE VALVE

Series Domino

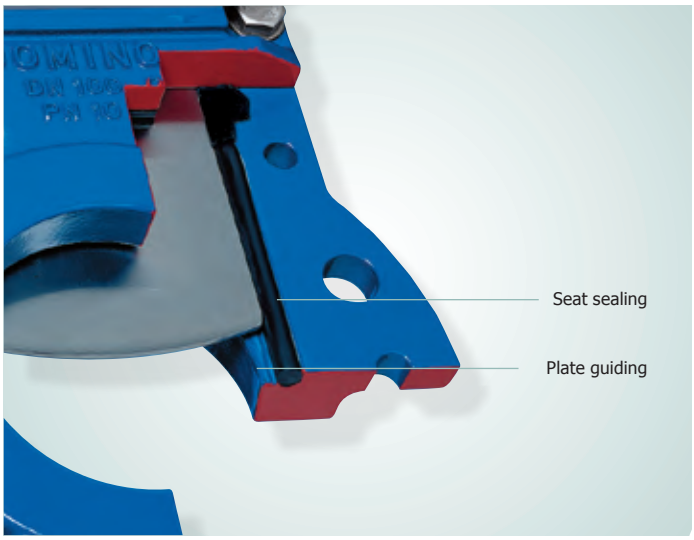



## The design of the Domino-knife gate valves fulfils the users' highest requirements:

The maintenance-free COMPACT cross seal (double seal lip profile) guarantees tight shutoff and can be adjusted without interrupting the working process.




The self-cleaning effect is achieved by flush-out corners in the body and the cutting edge underneath the gate. Solids and fibres are cut by the cutting edge before tightening is done against the elastic seat. The guidance of the gate is interrupted on stroke length, thus dirt can be ejected.

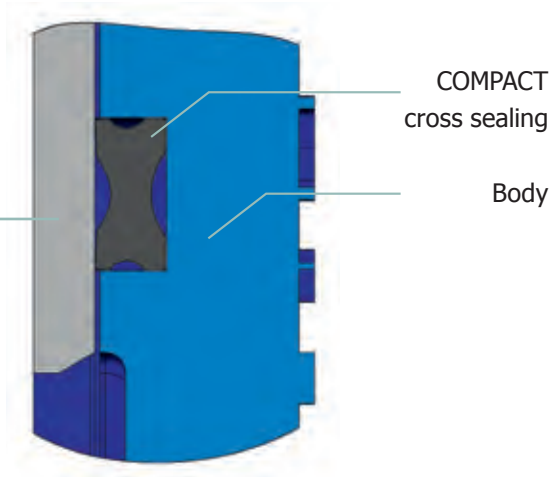



Bidirectional shutoff is achieved by the lateral gate surfaces and the elastic seat which is integrated in the body. The seat is chambered and prestressed mounted. The high finish of the guide- and sealing surface at both sides guarantees long service and tight shutoff. The lateral guidance of the gate prevents the gate from fluttering in either of the flow directions or in throttle positions.

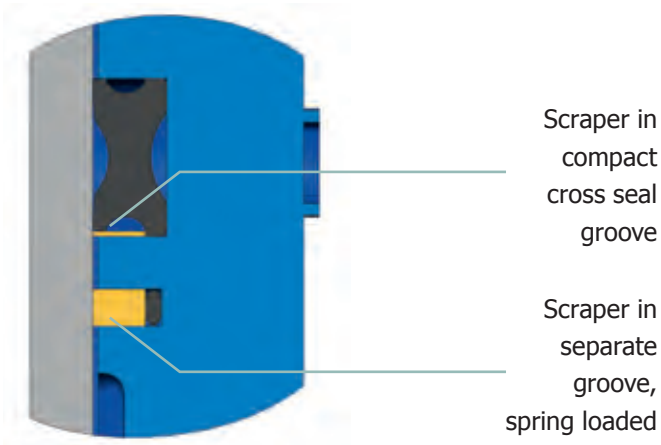
## Pre-tensioned and self-adjusting COMPACT cross sealing

**Material:** Solid elastomer profile (NBR, EPDM, FPM, MVQ) The necessary compression is absorbed in the lateral grooves. An inevitable abrasion is compensated by the high degree of spring effect, i.e. there is a natural permanent preload from the sealing itself. As the sealings can be moved freely, a higher internal pressure causes a higher contact pressure at the same time.

COMPACT cross seal
(standard)



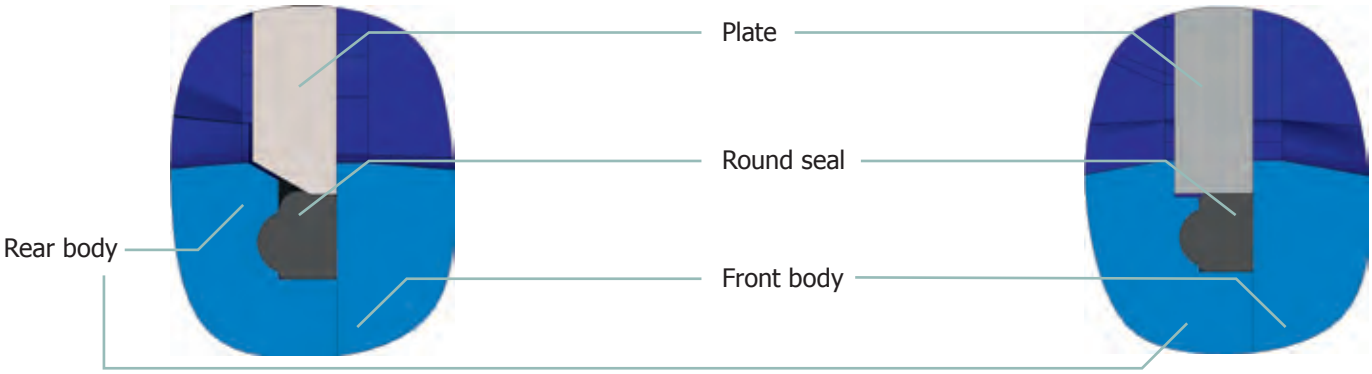

COMPACT cross seal
with scrapers (optional)




## Round seal in the gate

lower sealing

lateral sealing




**Lower sealing**
The arched profile of the plate as well as both cutting edges – the one from the body and the one from the plate – allow a total absence of residues, which are totally flushed away from the round seal when the valve is closed. This way leakage is to be prevented.

**Lateral sealing**
Due to the design and functionality there is a small contact surface between the sealing and the plate only. Thus only small operating force is needed to move the plate. Furthermore, the resistance against possible pressure shocks and blows is given by metal supports.

# THE TYPES

Knife gate valve | series Domino

## Type SD 1 – AT 100

DN 100 – DN 400

Wafer type knife gate valve for installation between flanges, from size DN 250 onwards also available as lug type execution for flanges acc. to EN 1092-1 / PN 10. Two-piece body, bidirectional tight shutoff. Metal guided plate, locked when closed. Self-adjusting COMPACT cross seal, no necessity for gland packing – maintenance-free. Self-cleaning flush-out corners with cutting edge in the lower body area.

**Face-to-face dimension**
according to EN 558-1 line 20
(DIN 3202 K1)
**Body**
GG25, EN GJL-250
**Coating**
EKB, both inside and outside
**Colour**
RAL 5010
**Plate**
Stainless steel 1.4301 or 1.4571
**Sealing**
NBR (EPDM, FPM, PTFE,
ceramic fibre etc.)

## Type SD 5 – AT 150

DN 50 – DN 400
Stainless steel execution

Wafer and lug type knife gate valve for installation between flanges acc. to EN 1092-1 / PN 10. Two-piece body, bidirectional tight shutoff. Metal guided plate, locked when closed. Self-adjusting COMPACT cross seal, no necessity for gland packing – maintenance-free. Self-cleaning flush-out corners with cutting edge in the lower body area.

**Face-to-face dimension**
according to EN 558-1 line 20
(DIN 3202 K1)
**Body**
Stainless steel 1.4408
**Plate**
Stainless steel 1.4571 hard chrome-plated
**Sealing**
NBR (EPDM, FPM, PTFE,
ceramic fibre etc.)

## Type SD 7 – AT 200

DN 50 – DN 1800

Lug type knife gate valve for installation between flanges acc. to EN 1092-1 / PN 10. DN 200-DN 400 also available in PN 16. Also suitable for dead-end service. Two-piece body, bidirectional tight shutoff. Metal guided plate, locked when closed. Self-adjusting COMPACT cross seal, no necessity for gland packing – maintenance-free. Self-cleaning flush-out corners with cutting edge in the lower body area.

**Face-to-face dimension**
according to EN 558-1 line 20/16
(DIN 3202 K1/K3)
**Body**
GG25, EN GJL-250/GGG 40,
EN GJS-400-15, stainless steel 1.4408
**Coating**
EKB, both inside and outside
**Colour**
RAL 5010
**Plate**
Stainless steel 1.4301, 1.4571, 1.4462 etc.
**Sealing**
NBR (EPDM, FPM, PTFE,
ceramic fibre etc.)

## Type SDR – AT 200 R

DN 50 – DN 1200

Control knife gate valve

With optimised control plate designed for precise air volume control with almost linear control function, e.g. for ventilation tasks in sewage installation plants. Lug type knife gate valve for installation between flanges acc. to EN 1092-1 / PN 10. Also suitable for dead-end service. Two-piece body, bi-directional tight shutoff. Metal guided plate, locked when closed. Self-adjusting COMPACT cross seal, no necessity for gland packing – maintenance-free.

**Face-to-face dimension**
according to EN 558-1 line 20
(DIN 3202 K1)
**Body**
GG25, EN GJL-250/GGG 40,
EN GJS-400-15
**Coating**
EKB, both inside and outside
**Colour**
RAL 5010
**Plate**
Stainless steel 1.4301, or 1.4571
**Sealing**
NBR (EPDM, FPM, PTFE)

## Type SD 3 – AT 300

DN 100 – DN 300

High pressure execution

Up to 40 bar operating pressure, e.g. for dewatered sewage sludges or biomass. Lug type knife gate valve for installation between flanges acc. to EN 1092-1 / PN 10-PN 40. Also suitable for dead-end service. Two-piece body, bidirectional tight shutoff. Metal guided plate, locked when closed. Self-adjusting COMPACT cross seal, no necessity for gland packing – maintenance-free. Self-cleaning flush-out corners with cutting edge in the lower body area.

**Face-to-face dimension**
according to EN 558-1 line 16
(DIN 3202 K3)
**Body**
GGG 40, EN GJS-400-15
**Coating**
EKB, both inside and outside
**Colour**
RAL 5010
**Plate**
Stainless steel 1.4301, 1.4571,
1.4462 etc.
**Sealing**
NBR (EPDM, FPM, MVQ)

## Type SD 4 / SD 9 – AT 400 / AT 416

DN 40 – DN 1200

With completely round bore – with a special design according to customer requests possible. Lug type knife gate valve for installation between flanges acc. to EN 1092-1 / PN 2,5-PN 40. Special pressure classes, lengths and nominal sizes possible. Also suitable for dead-end service (SD 9). Two-piece body, bidirectional tight shutoff. Metal guided plate, locked when closed. Self-adjusting COMPACT cross seal. Optional: secondary sealing, readjustable from the outside. Cutting edge in the lower body area.

**Face-to-face dimension**
according to e.g. EN 558-1 line 16/25/16
(DIN 3202 K1/K2/K3)
**Body**
GGG 40, EN GJS-400-15, steel,
stainless steel
**Plate**
Stainless steel 1.4301, 1.4571,
1.4462 etc.
**Sealing**
NBR (EPDM, FPM, MVQ, etc.)

# THE TYPES

Knife gate valve | series Domino

## Type SD 75 – AT 750

DN 50 – DN 500

Through conduit execution

Lug type knife gate valve for installation between flanges acc. to EN 1092-1/ PN 2.5-PN 100. Also suitable for dead-end service. High pressure and through conduit execution up to PN 100 for dewatered sewage sludges or biomass. Completely round and smooth bore, special lengths and nominal sizes possible. Two-piece body, bidirectional tight shutoff. Metal guided plate embedded protected against pressure shocks. COMPACT cross seal. Optional: secondary sealing, readjustable from the outside.

**Face-to-face dimension**
according to e.g. EN 558-1 line 16/25/16 (DIN 3202 K1/K2/K3),
**Body**
Steel, stainless steel V2a or V4A
**Plate**
Stainless steel 1.4301, 1.4571, 1.4462 etc.
**Sealing**
NBR (EPDM, FPM, MVQ, etc.)

## Type SD 6 – AT 600

Rectangular execution

Lug type knife gate valve for installation between flanges acc. to customer specifications or manufacturer standard. Also suitable for dead-end service. With a special design and different sizes according to customer requests possible. Completely water- and air-tight version for liquids, sludges and granulated solids. Two-piece body, bidirectional tight shutoff. Metal guided plate, locked when closed. Self-adjusting COMPACT cross seal to the atmosphere. Optional: secondary sealing, readjustable from the outside. Cutting edge in the lower body area.

**Face-to-face dimension**
according to customer requests
**Body**
Steel, stainless steel V2 or V4A
**Plate**
Stainless steel 1.4301, 1.4571, 1.4462 etc.
**Sealing**
NBR (EPDM, FPM, MVQ, ceramic fibre, PTFE etc.)
**Clear widths**
Upon request

## Type SD 2 – AT 200 F

DN 200 – DN 1000

Solid material execution

Lug type knife gate valve for installation between flanges acc. to EN 1092-1/ PN 10. Also applicable as wafer type and suitable for dead-end service. ATEX approved for category II 1D/2GD c. For granulated solids, such as carbon dust. Two-piece body with conically designed plate bed milling groove. Lateral plate guidance interrupted alternately in the front and rear body. Bidirectional tight shutoff in both flow directions.

**Flange**
DIN EN 1092-1 PN 10
**Face-to-face dimension**
DIN EN 558 line 20
**Body**
EN-GJL-250 (GG 25), narrowed in the bore
**Coating**
EKB, both inside and outside
**Colour**
RAL 9005, electrically conductive
**Plate**
1.4301 or 1.4571
**Scraper**
PTFE with MVQ support
**Sealing**
Ceramic fibre, NBR, EPDM, FPM

## Type SD 8 – AT 500/AT 510 F

DN 200 – DN 800

Solid material execution

Lug and wafer type knife gate valve for installation between flanges acc. to EN 1092-1/PN 10. Also suitable for dead-end service in vertical pipelines and below silos. ATEX approved for category II 1/2 D c TX. One-piece body with funnel-shaped outlet for the prevention of product deposits, sealing on one side, flushing connections in the body at the end of the plate stroke allows the closing of the standing product column.

**Flange**
DIN EN 1092-1 PN 10
**Face-to-face dimension**
Manufacturer standard
**Body**
EN-GJS-400-15 (GGG 40)
**Coating**
EKB, both inside and outside
**Colour**
RAL 9005, electrically conductive
**Plate**
1.4301 or 1.4571
**Sealing**
NBR
**Package**
PTFE / NBR

## SDH – AT 550F

Solid material execution

For pharmaceutical and chemical industries. Lug and wafer type knife gate valve for installation between flanges acc. to EN 1092-1/PN 10. Also suitable for dead-end service in vertical pipelines and below silos. Two-piece body with funnel-shaped outlet for the prevention of product deposits, sealing on one side, flushing connections in the body at the end of the plate stroke allows the closing of the falling or standing product column.

**Flange**
DIN EN 1092-1 PN 10
**Face-to-face dimension**
Manufacturer standard
**Body**
1.4408, completely high-gloss polished on the inside
**Plate**
1.4401 high-gloss polished
**Sealing**
MVQ (FDA-conform)
**Package**
LATTYflon 3206SO with quad ring MVQ (FDA-conform)
**Nominal sizes**
Upon request

## SD65 – AT 650

Rectangular execution for solid materials

With a special design and different sizes according to user requests possible. Knife gate valve for solid materials applications for installation between flanges. Also suitable for dead-end service in downpipes or below silos. Flanges according to customer specifications or manufacturer standard. Two-piece body, sealing on one side. Metal guided plate, locked when closed. Self-adjusting COMPACT cross seal. Optional: secondary sealing, readjustable from the outside. Cutting edge in the lower body area.

**Face-to-face dimension**
According to customer request
**Body**
Steel or stainless steel V2 or V4A
**Plate**
Stainless steel 1.4301, 1.4571, 1.4462 etc.
**Sealing**
NBR (ceramic fibre/graphite, PTFE, EPDM, FPM, MVQ, etc.)
**Clear widths**
Upon request

# KNIFE GATE VALVE

Series Domino

The knife gate valve “System DOMINO” is preferably used for sludge and water treatment, substrate applications in biogas plants and process technology. Media containing sludge or fibres are controlled reliably.
The knife gate valve seals pressure-tightly in both flow directions! The versatile designs and actuator versions provide our customers and interested parties with a well-developed and sophisticated product range to benefit from.

## Available materials depending on the types and maximum operating temperatures

| Body | | |
|---|---|---|
| | **Material** | **Temperature** |
| 22 | Grey cast iron EN-GJL-250 | - 10 °C up to max. 250 °C |
| 23 | Ductile iron EN-GJS-400-15 | - 10 °C up to max. 350 °C |
| 44 | Cast steel GS C25 | - 40 °C up to max. 450 °C |
| 45 | Steel ST52/ST37 | - 40 °C up to max. 450 °C |
| 66 | Stainless steel 1.4408 | - 50 °C up to max. 500 °C |
| Further materials such as aluminium, Hastelloy, etc. possible | | |

| Plate | |
|---|---|
| | **Material** |
| 63 | Stainless steel 1.4301 |
| 66 | Stainless steel 1.4571 |
| 31 | Stainless steel 1.4571 polished |
| 64 | Duplex stainless steel 1.4462 |
| Further materials such as aluminium, Hastelloy, etc. possible | |

## Sealing

**NBR** (nitrile rubber)
Operating temperature:
- 20 °C to + 110 °C

**EPDM** (Ethylene-Propylene-Terpolymer)
Operating temperature:
- 20 °C to + 130 °C

**EPDM white** (Ethylene-Propylene-Terpolymer)
Operating temperature:
- 35 °C to + 150 °C, FDA compliant
Regulation 21 CFR § 177.2600 complies with Regulation (EC) No. 1935/2004

**MVQ** (silicone rubber)
Operating temperature:
- 30°C to + 200°C

**FPM** (fluorine elastomer)
Operating temperature:
- 10 °C to + 180 °C

**FFPM** (Perflour rubber)
Operating temperature:
- 10 °C to + 300 °C

**PU** (Polyurethane)
Operating temperature: -10 °C to +60 °C

**FEP** coated FPM
Operating temperature:
- 26 °C to + 200 °C

**PTFE** (Polytetrafluorethylene)
Operating temperature:
- 200 °C to + 220 °C

**Ceramic fibre/graphite**
Operating temperature:
- 50 °C to + 500 °C

## Maximum working pressure

| SD1 – AT 100 | SD5 – AT 150 | SD7 – AT 200 | SDR – AT 200R |
|---|---|---|---|
| DN 100 – DN 150: 10 bar<br>DN 200 – DN 300: 6 bar<br>DN 350 – DN 400: 4 bar | DN 50 – DN 150: 10 bar<br>DN 200 – DN 300: 6 bar<br>DN 350 – DN 400: 4 bar | DN 50 – DN 80: 16 bar<br>DN 100 – DN 300: 10 bar<br>DN 350 – DN 400: 6 bar<br>DN 450 – DN 800: 4 bar<br>DN 900: 3 bar<br>DN 1000: 2.5 bar<br>from DN 1200: 2 bar<br>Higher operating pressures are possible depending on the medium | DN 50 – DN 300: 10 bar<br>DN 350 – DN 400: 6 bar<br>DN 450 – DN 800: 4 bar<br>DN 900: 3 bar<br>DN 1000: 2.5 bar<br>DN 1200: 2 bar |
| **SD3 – AT 300** | **SD4/SD9 – AT 400/AT416** | **SD75 – AT 750** | **SD6 – AT 600** |
| DN 100 – DN 250: 40 bar<br>DN 300: 25 bar<br>(for de-watered media) | Standard version up to 16 bar<br>Higher operating pressures are possible depending on the medium | Up to 160 bar<br>(for de-watered media) | Standard version up to 2 bar<br>Higher operating pressures are possible depending on the medium |
| **DN 200 – DN 300: 6 bar** | **SD8 – AT 500F/AT510F** | **SD65 – AT 650F** | |
| Standard version max. 1 bar<br>(with solids as medium)<br>Static:<br>DN 200 – DN 300: 10 bar<br>DN 350 – DN 400: 6 bar<br>DN 450 – DN 600: 4 bar<br>DN 700 – DN 900: 3 bar<br>DN 1000 – 2.5 bar | Standard version max. 1 bar<br>(with solids as medium)<br>Static: max. 3 bar | Max. 2 bar depending on the nominal size and the operating conditions (consultation necessary) | |

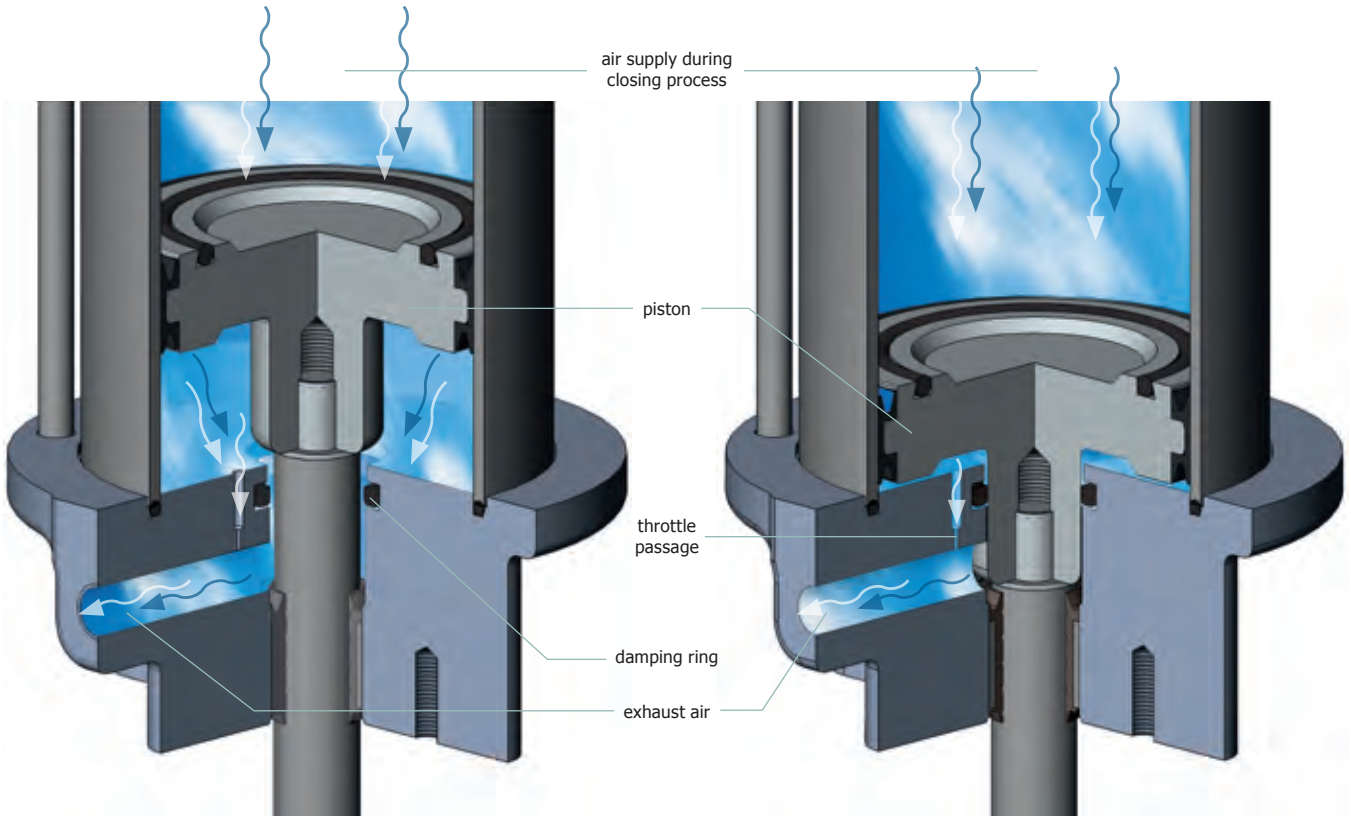
## Vacuum

For the standard types SD1, SD5, SD7, SDR, SD3, SD4, SD9
with elastomer seals NBR, EPDM, FPM: max. 100 mbar absolute
with PTFE seals: max. 200 mbar absolute

## The pneumatic end position damping in closing direction allows a gentle closing of the gate valve plate into the seat sealing of the gate valve in the bottom area (lower sealing in the shut-off).

During the closing process, the exhaust air is shut-off within the last centimetres of the stroke via the air connection by retracting the lower plate of the piston into the damping ring. The residual volume is only released via the throttle passage from this moment on.

In this way, a considerable higher counter-pressure is built-up for a short time in the air chamber of the outflowing air, which counteracts the movement. The speed of the cylinder piston and thus also the closing speed of the gate valve plate is reduced significantly within a short period of time.



| DOMINO-Pneumatikzylinder | | |
|---|---|---|
| **Kolbendurchmesser** | **Standardhübe** | **Druckluftanschlüsse** |
| 80 mm | 51 mm, 66 mm, 81 mm | R ¼" |
| 100 mm | 102 mm, 127 mm | R ¼" |
| 160 mm | 152 mm, 202 mm | R ¼" |
| 200 mm | 202 mm, 252 mm | R ¼" |
| 250 mm | 253 mm, 303 mm | R ¼" |
| 300 mm | 352 mm, 402 mm, 452 mm, 502 mm, 602 mm, 702 mm | R ½" |

**DOMINO pneumatic cylinder**
Double-acting, control pressure 6 – 10 bar, cylinder jacket and bases made of aluminum (optionally stainless steel), piston plate made of steel or aluminum, piston rod made of stainless steel 1.4104, optionally 1.4571

**DOMINO Pneumatic Cylinder**
Single acting, spring closing Control pressure min. 6 bar, cylinder: aluminum, spring chamber: steel, (otherwise as above)

**Hydraulic cylinder**
Double-acting, for control pressures up to 250 bar. Also available with hydraulic end position indicator and distance measuring system for continuous position feedback

**Electric actuator**
For rising stems, applicable for both control or regular operation


**Hand wheel**
Hand-wheel for non-rising stem made of cast iron GGG 40 – JS 1030, diameter 150 mm – 500 mm. Also available with ball handle upon request

**Chain wheel**
Made of aluminium with galvanised steel chain or stainless steel chain. Made of stainless steel with stainless steel chain. Adapted to the standard handwheel

**Bevel gearbox**
Reduction gears, as angular or spur gearboxes

# MOUNTING PARTS

Actuations and automation

**Hand lever**
Hand lever made of quick-shot lever made of galvanised steel, piston rod made of stainless steel 1.4301, optionally 1.4571. available up to DN 200.

Control of the pneumatic actuators via solenoid valves, 3/2 ways, 5/2 ways, 5/3 ways with blocked intermediate position, quick exhaust and booster valves, ATEX, SIL.

Indication of the end position OPEN / CLOSE via proximity sensors, wiring in terminal boxes possible, ATEX and ASi-Bus versions upon request.

Indication of the end position OPEN / CLOSE via mechanical proximity switches with roller swivelling lever, open mounting, wiring in terminal boxes possible, optionally also for Exatmospheres.

Signalling of end position OPEN / CLOSED via magnetic switch on pneumatic cylinder.

**Position controller**
For single- and double-acting pneumatic cylinders, optionally with quick exhaust valves and booster valves, ATEX version

GEFA pipe accessories in the form of solid 90 cast iron pipe bends and transition elbows (pipe bends from one nominal size to the next smaller or larger one) in nominal sizes DN 100 - DN 100, PN10.

The shape and dimensions of the cast elbows are in accordance with DIN EN 545 and DIN EN 969, the flanges in accordance with DIN EN 1 092-2, PN10. Limiting dimensions of the bolt circle diameter and the distance between two adjacent bolt holes according to DIN 28030-2.

Differentiation of pipe bends and exercise bends into
**N-pieces (pipe bends with foot)** and
**Q-pieces (pipe bends without foot)**

## Available materials

| Materials |
|---|
| EN-GJL-250 / DIN EN 1 561 /<br>Casting dimensional tolerance according to GTB 17 DIN 1 686 |
| EN-GJS-400-15 / DIN EN 1 563/<br>Casting dimensional tolerance according to GTB 17 DIN 1 685 |

**Pipe bends N-piece**

**Pipe bends Q-pieces**

# NON RETURN VALVES

Series RG | short length

GEFA PROCESSTECHNIK GMBH
www.gefa.com

## Advantages

Sandwich construction for installation between flanges PN 6 – PN 40

Backflow is reliably prevented due to the spring

Low weight

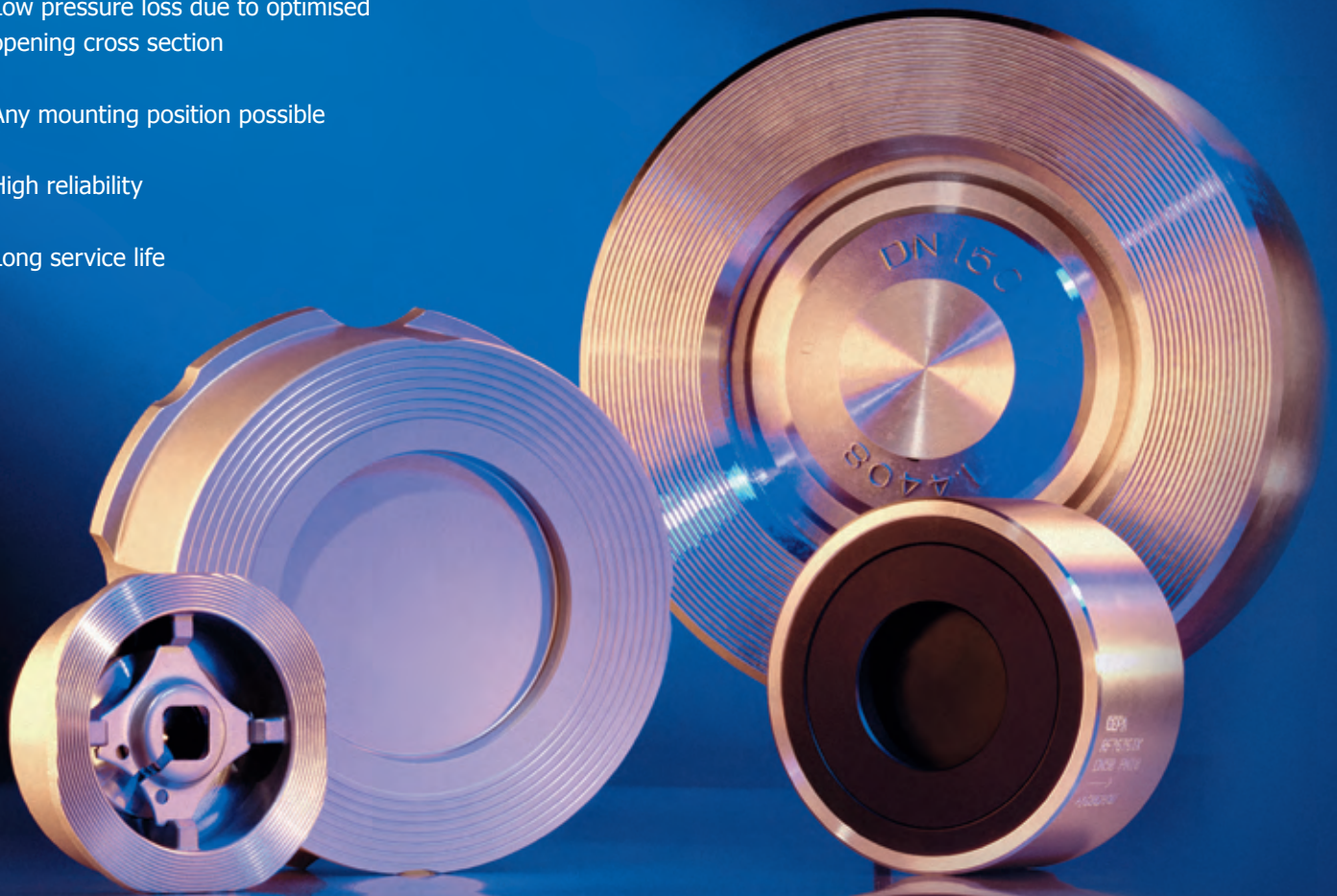
Low noise

Low pressure loss due to optimised opening cross section

Any mounting position possible

High reliability

Long service life

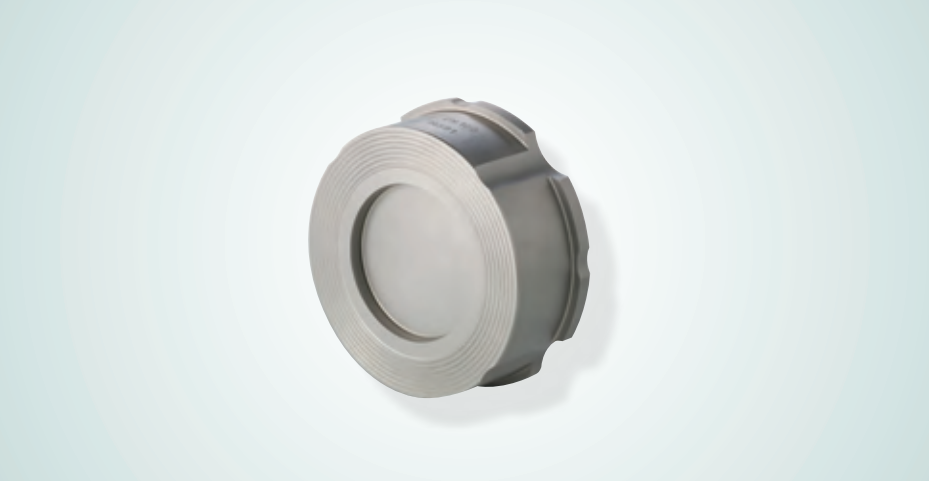



CE FDA APPROVED BPA FREE Animal Derived Ingredient FREE $H_2$ USP CI VI

EC 1935/2004 EU 10/2011* KORROSIONSFEST $O_2$ für Sauerstoffeinsatz -196°C CRYO-AUSFÜHRUNG GMP Good Manufacturing Practice EU 2023/2006

# THE TYPES

Non return valve | series RG | short length



## RG16666

Soft seated
DN 15 – DN 100 PN 6 – PN 40
DN 125 – DN 150 PN 10/16

**Technical data**
**Materials**

| | |
|---|---|
| Body | 1.4408 |
| Valve plate | 1.4571 |
| Spring holder | 1.4571 |
| Spring | 1.4571 |

Special materials upon request

**Sealing**
EPDM, NBR, FPM, FEP/FPM

**Working temperature**
-20 °C to +250 °C

**Face-to-face dimension**
DIN EN 558-1 line 49 (DIN 3202/K4)

**Test**
DIN EN 12266-1 leakage rate A

## RG16666M

Metal seated
DN 15 – DN 100 PN 6 – PN 40
DN 125 – DN 150 PN 10/16

**Technical data**
**Materials**

| | |
|---|---|
| Body | 1.4408 |
| Valve plate | 1.4571 |
| Spring holder | 1.4571 |
| Spring | 1.4571 |

Special materials upon request

**Working temperature**
-50 °C to +400 °C

**Face-to-face dimension**
DIN EN 558-1 line 49 (DIN 3202/K4)

**Test**
DIN EN 12266-1

## RG28686TK

PTFE execution
DN 15 – DN 50 PN 10/PS 10
DN 65 – DN 80 PN 10/PS 6
DN 100 – DN 125 PN 10/PS4

**Technical data**
**Materials**

| | |
|---|---|
| Body | PTFE carbon |
| Back-up ring | 1.4301 |
| Valve plate | PTFE carbon |
| Spring holder | PTFE carbon |
| Spring | 1.4571 FEP-coated |
| Valve seat | PTFE carbon |

Special materials upon request

**Working temperature**
-30 °C to +180 °C

**Face-to-face dimension**
DIN EN 558-1 line 52 (DIN 3202/K5)

# SUSTAINABILITY

## Sustainability

For us as a company with a high awareness of social responsibility, sustainability is an essential building block of our DNA.

Every day, our employees in all business sectors think about how we can make our value chain more sustainable. This is an ongoing process that is not limited to our own company boundaries, but should also have a positive impact on the environment and society.

Energy and climate

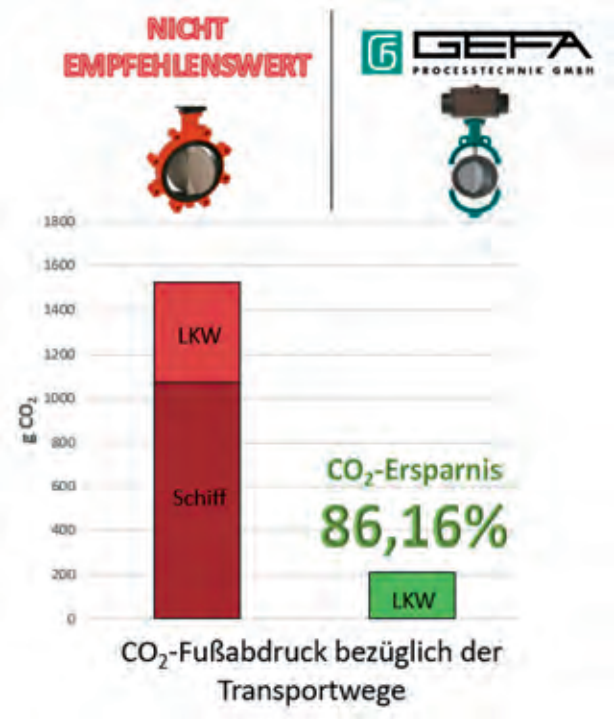
Social and societal progress

Material and waste

Health and safety

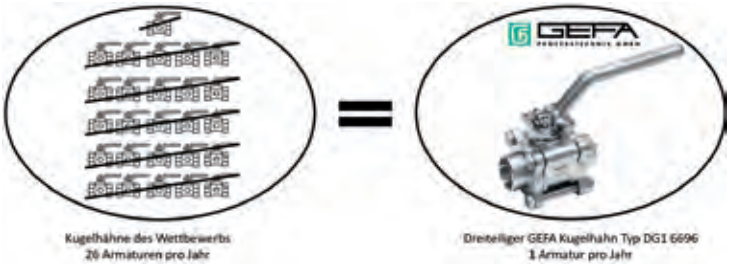
# Our contribution for your sustainability

We not only want to offer our customers sustainable products, but also support our customers in their sustainability culture with our products. That is why we are at your side with our extensive application knowledge.




Butterfly valve series K (two-piece body), transport-$CO_2$-footprint during revision

Energy cost savings when using DOMINO control valves AT200R as a replacement for valves on aeration tanks in wastewater treatment plants.




Service life extension through DG series ball valves with ceramic ball

Saving of drinking water to compensate by sustainable filtration of the cooling medium in the bypass flow through GEFA backwash filters of the FW series

GEFA Processtechnik GmbH has been offering you innovative solutions in the fields of industrial valves and filtration technology since 1964.
We also have a wide range of products for specific applications and are happy to work with you to develop customised solutions for your requirements.
We attach great importance to quality, innovative strength and expertise. We are characterised by a strong international presence. We are represented in more than 20 countries worldwide. Our extensive warehousing guarantees short delivery times and a quick response to your requirements

| | |
|---|---|
| **Legal form:** | Limited liability company |
| **Capital stock:** | 1.54 million Euro |
| **Managing director:** | Benjamin Ploeger |
| **Foundation and development:** | The company was registered as limited liability company in the commercial register on 15.09.1965 |
| **Sector and products:** | Industrial valves – filter technology |
| **Employees:** | 140 employees |
| **Turnover:** | approx. 30 million Euro |
| **Business premises:** | The office and company building (Germaniastraße 28 in Dortmund) is owned by the company, office building/ factory hall and warehouse 6,770 square metres, company premises approx. 13,000 square metres |
| **Stock:** | approx. 7 million Euro |

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As of: 07 - 2026 | Subject to technical modifications