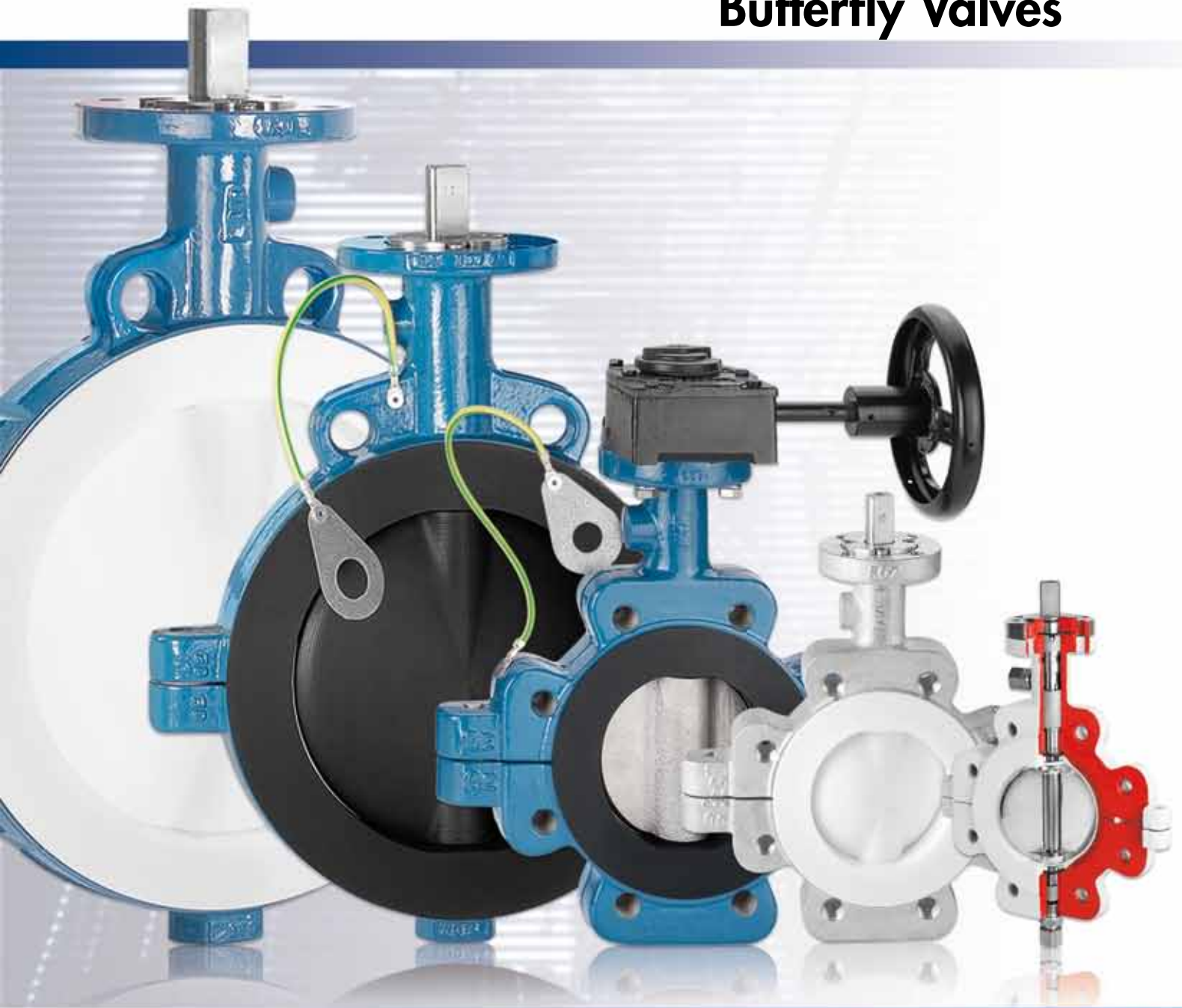


Garlock

Butterfly Valves



Garlock
SEALING TECHNOLOGIES®

an EnPro Industries company

Garlock Butterfly Valves

Corrosive and abrasive media

Garlock GAR-SEAL Butterfly Valves are renowned throughout the chemical, petrochem, process and many other industrial sectors for their quality, performance and reliability in arduous conditions.

The economic advantages of reduced maintenance, smooth operation and exceptional service life are proven over and over again. GAR-SEAL valves set the standards in TA-Luft compliance. The antistatic SAFETY-SEAL and MOBILE-SEAL valves for the transportation industry carry TÜ.AGG.044-84 approved certification.



GAR-SEAL

GAR-SEAL valves are used extensively where corrosive, abrasive and toxic media need to be reliably controlled. They are used, typically accurate control, throttling and shut-off duties in the chemical, petro-chemical, chlorine, paper, electro-plating and other industries.

GAR-SEAL butterfly valves offer reduced maintenance requirements and increased operational reliability.



MOBILE-SEAL

MOBILE-SEAL valves are used on road tanker vehicles, railway wagons, silos and other transportation and storage containers where high chemical resistance, reliability and special safety requirements are essential.



SAFETY-SEAL

SAFETY-SEAL valves are used in applications where corrosive, abrasive and toxic media need to be insulated against electrostatic charges.



STERILE-SEAL

STERILE-SEAL valves are used on duties where sterile processes need to be maintained in the pharmaceutical and food industries without unnecessary and costly overhauls and replacement.

The special characteristic of this valve is its external sterilisation capability. The design is such that the critical „dead“ areas of the valve, as well as the disc, body liner and seals, can be sterilised with steam without coming in contact with the process.

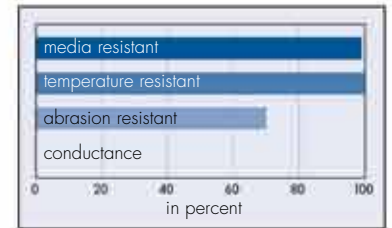
The correct type of liner



PTFE

Operating temperatur
-40 °C up to +200 °C

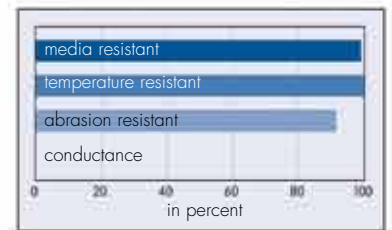
Void-free body liner and disc encapsulation isostatically moulded virgin PTFE. High material density >2.16 g/cm. Guaranteed liner thickness of at least 3 mm plus high crystallinity.



Abrasive PTFE

Operating temperatur
-40 °C up to +200 °C

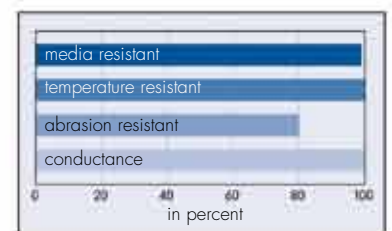
the chemical resistance of PTFE needed and the media also provided with abrasive characteristics, the use of PTFE Antiabrasive is recommended. This special PTFE compound is essential resistant to mechanical wear with nearly the same chemical resistance.



Antistatic PTFE

Operating temperatur
-40 °C up to +85 °C

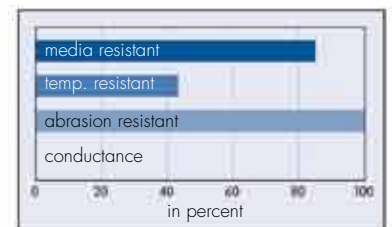
SAFETY-SEAL valves are supplied with electrostatically conductive liners. The service life is comparable to the values for valves lined with PTFE. The material is fully FDA approved. TÜV approval (TÜV 941 F 416 601). Surface resistance $\leq 10^6 \Omega$
Volume resistance $\leq 10^6 \Omega \text{ cm}$



UHMPE

Operating temperatur
-40 °C up to +135 °C

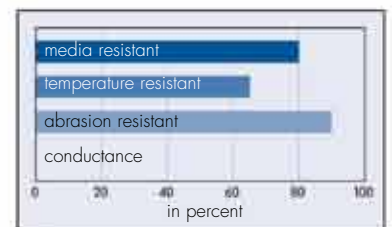
Used in extremely abrasive media applications while offering excellent chemical resistance. Garlock offers a complete, ultrahigh molecular weight PE (UHMWPE) liner and encapsulated disc.



PVDF

Operating temperatur
-40 °C bis + 85 °C

Bromine resistant. PVDF at 1.78 g/cm³ is very dense for a thermoplastic material. Compared to other fluoropolymer materials its strength and abrasion resistance are also very high. Creep resistance is higher compared to most fluoropolymer materials and water absorption is negligible. Up to a temperatur of + 130 °C yield stress is higher than PTFE. PVDF is flame resistance and physiologically acceptable.



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With reliability at the forefront

Section through the shaft and adapter flange



Spindle seal

The point where the shaft exits at the adapter flange of the valve is sealed against atmospheric pollution and corrosion by means of an "O"-ring. TA-Luft compliant sealing is standard.

Body

TÜV approved Garlock bodies comply with DIN 3840 for stress requirements. TÜV approval is in accordance with Pressure Equipment Directive 97/23/EG.

Extended valve neck for easy installation, maintenance and operating controls.



Flange types

GAR-SEAL valves are available in Wafer and Lug type flanges.

Valve disc

This Garlock specific approach extends to all areas in assembly, operation and leak-free tightness.

The valve disc is assembled onto the shaft with a positive fit.



Quality assurance

- DIN EN ISO 9001:2008
- QS-Quality manual
- QS-Process instructions
- QS-System certification (TÜV CERT)
- Quality assurance system in accordance with Directive 97/23/EG, Zertifikat-Nr.: 01202926/Q-01-00-19
- Quality test certificates:
DIN EN 10204- 3.1 B



Housing materials / materials

It is standard practice that the housings of the Garlock valves and fittings are manufactured from high-quality ductile cast iron (EN-JS 1049). Depending on the intended use, however, other materials, such as cast steel (GS-C 25) and stainless steel (1.4581) are available as well. All housings are manufactured and inspected in accordance with the specification of the pressure equipment directive.

Liner

Depending on the intended use, a large selection of lining materials is also available. To provide reliable seals, PTFE is available in several versions as well as UHMPE and PVDF. All lining materials are manufactured by specialists and inspected comprehensively. Your contact for Garlock products will be happy to assist you in selecting the suitable material.



Depending on the intended use, several different combinations of materials are possible. Gears, LUG 113-L-A-MT

Garlock SAFETY-SEAL with a conductive liner now also feature FDA-approval.

This means that the valves and fittings can be used in the pharmaceutical and food industry without any second thoughts.

Cost advantage:

The way the Garlock valves and fittings are designed makes it possible to join the valve disks and the housing liner. This reduces the necessary deformation of the liner to a minimum, so that heating the liner is not required. Due to the one-part changer shaft and the form-fitting connection of the valve disk with the changer shaft, Garlock valves have no need for soldering, welding, pin-coupling or otherwise connecting the valve shaft disc to the disc. No special tools are required for the assembly.



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Production

Custom-tailored service:

We are happy to help you find the most suitable product for your particular application. In this respect, you have a great number of standard products available to you. In addition, project planning and design of custom-made solutions for our customers is one of our strengths, where we look back on decades of experience as a global manufacturer of seals and valves.

We offer professional consulting and project planning that is geared towards your requirements. You benefit from our individual, on-site support services that are specifically tailored to meet your company's needs. We conduct training seminars, help optimize inventory, reduce emissions, ensure functionality and prevent costly downtime. Our experienced employees will be happy to assist you at any time.



All processes have been defined through our ISO 9001 quality assurance system. The system is regularly reviewed and constantly developed. Quality, service and flexibility of the highest order are standard requirements we impose on ourselves and all our suppliers.



Due to our production facility in Germany, we are in a position to react to customer requirements in a very short period of time.



We manufacture each valve according to customer requirements. In doing so, we carry out all necessary configurations as per your specifications.

Approvals

| | | | |
|-------------------------|--------------------------|--------------------------|------------------------------|
| • DIN 3840, TÜV 4101984 | • SIL EN 61508 | ADR/ RID-tested: | L - HOMOLOGATION |
| • SVS/ ASS 1264 | • Gost-R | D - TÜ.AGG.044-84 | M-01-88 |
| • TA-Luft, 5.2.6.4 | • Chlorine-Aproval (RUS) | F - SNCF 017732 | CH - CHAV-1-86 |
| TÜV-A. Nr. 03079017004 | | NL - VLGS 1073 | N - 85/ 1250-1/ 813 |
| • EL.STATLTF.(ZO) | | B - AIB 225 | DK - BREV. NR.1207-88 |
| TÜV 941F416601 | | A - A/Z 901-01-85 | |

The correct material choice for your application.

| Valve Material | | | Design Type | | | | | | | | |
|-----------------|-----------------------------|-----------------|-------------|-----------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|-----------------------------|-----------------|-------------|
| 1 Valve Body | | 2 Body Liner | | 3 Disc | | 4 Body Type | | 5 Specific Design Body Liner | | 6 Valve Type | |
| Code | Material | Code | Material | Code | Material | Code | Material | Code | Material | Code | Material |
| 1 | GGG 40.3 (0.7043) | 1 | PTFE** | 1 | PTFE** | W | WAFER Ring Body | A | antistatic (SAFETY-SEAL) | S | SAFETY-SEAL |
| 2 | GS-C 25 (1.0619) | 2 | UHMPE*** | 2 | UHMPE*** | L | LUG Flange-On-Body | C | abrasive Service | | |
| 3 | Stainless Steel (1.0619) | | | 3 | Stainless Steel (1.4581 u. a.) | MOBILE-SEAL | | V | For increased Vacuum | | |
| 4 | Others | | | 4 | Hastelloy B/ C* (2.4800/2.4602) | Code With existing pipe flanges | | | | | |
| | | | | 5 | Titan* (3.7035) | W-T | Wafer Design EN 1092 PN 10 | | | | |
| | | | | 6 | Monel 400* (2.4360) | L-T | LUG Design EN 1092 PN 10 | | | | |
| | | | | 7 | Uranus B6* (1.4500) | W-TW | Ringflange Design DIN 28459 PN 10 | | | | |
| | | | | 8 | Tantal* | | | | | | |
| | | 9 | PVDF**** | 9 | PVDF**** others | | | | | | |

| Examples | 1 | 2 | 3 | 4 | 5 | 6 | |
|--|---|---|---|---|------|---|----|
| GAR-SEAL , WAFER Design | 1 | 1 | 1 | W | - | - | MT |
| SAFETY-SEAL , LUG Design, antistatic | 3 | 1 | 1 | L | A | - | MT |
| MOBILE-SEAL , WAFER Design, acc to TW Standard | 1 | 1 | 1 | | W-TW | - | MT |
| STERILE-SEAL , LUG Design | 3 | 1 | 3 | L | - | S | |
| SAFETY-SEAL , WAFER Design, antistatic | 2 | 1 | 1 | W | A | - | MT |
| GAR-SEAL , WAFER Design Vacuum lining | 1 | 1 | 1 | W | V | - | MT |

Performance Data

DN 50 - 600, 2" - 24"
Nominal Pressure
max. 16 bar.(<DN 300)

Vacuum

up to 1 mbar abs.
(dep. upon temperature)

Operating temperature

-40 °C to +200 °C (for PTFE**)
-40 °C to +85 °C (for UHMPE***)
-40 °C to +135 °C (for PVDF****)

MT = GAR-SEAL Butterfly Valves
comply with the TA-Luft regulations.

* upon request

** Polytetrafluorethylene

*** Ultrahighmoleculare Polyethylene

**** Polyvinylidenfluoride

All information and recommendations contained in this catalogue are based on many years of experience and the current state of technology. Unknown factors may, however, limit generally accepted knowledge. Binding statements regarding the compatibility of our products are therefore possible only after practical onsite tests under operating conditions. Information contained in our catalogue does therefore not constitute or imply any representation of warranty. While the utmost care has been used in compiling this catalogue, we assume no responsibility for errors. Specifications subject to change without notice. This edition cancels all previous issues. Subject to change without notice.

Garlock Butterfly Valves provide improved reliability

Standards

Face-to-face dimensions

DIN EN 558-1 GR 20
ISO 5752 table 5 short

Adapter flange

DIN/ ISO 5211
NF E29-402

Identification

DIN EN 19
AD 2000 - Code

Body types

- Ring body
- Flange-on body
- With long neck for insulation in accordance with HeizAnl.V (German Heating Installations Ordinance)

Body strength against internal pressures

- DIN 3840 for
- Spheroidal graphite iron GGG 40.3 WN0.7043
 - Cast steel GS-C25 WN 1.0619
 - Stainless steel G-X5CrNiMoNb 18 10 WN 1.4581

Flange connection

EN 1092 PN 10
DIN 2501 PN 10
Ansi Class 150 LBS

Tightness

DIN EN 12266-1 P11+12
leckrate A

Vacuum tightness

$q^{He_{max}} < 10^{-6} \text{ mbar l} \cdot \text{s}^{-1}$

Liner material

- PTFE
- void-free
- isostatically pressed
- high density (min. 2,16 g/cm³)
- high crystallinity (~70%)
liner thickness
- min. 3mm

Sealing

Patented shaft seal
Patented safety seal between the body halves

Valve disc alignment

Centrally, i.e. energy-saving

Characteristic

Linear



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Test engineering

Vakuum

GAR-SEAL valves are suitable for use in a vacuum. For use in practical applications at elevated temperatures and simultaneously high vacuums there are special vacuum housing liners.

see also
Vacuum-Catalogue



To ensure constant high quality valves all components are subjected to stringent testing running in parallel with all stages of production.



Liner thickness dimensions

On all PTFE parts, the liner thickness is also checked in accordance with specific measuring methods. The test ensures that the required thicknesses are adhered to reliably for all parts. This measure is indicative of the special attention paid to quality requirements of GAR-SEAL valves. This therefore guarantees the particular longevity of the liners during operations.



Conductivity:

The liners of the interior part and the valve disk of the SAFETY-SEAL valves and fittings (conductive version) are all checked for the required conductivity, without exception.

These measurements are carried out with the resistivity measurement device in accordance with the specific guidelines. This ensures that electrostatic loads are safely discharged during operations.

Product Range



Hydraulic Components



Oil Seals



Gasketing Products



Metallic Gasketing



Resilient Metal Seals



Assemblies



Compression Packings



Graphite Seals



Inflatable Seals



Mechanical Seals



Valves



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