

EXCELLENCE IN ELASTOMERS.

Liners for EBRO shut-off and control valves

RESEARCH GIVES US THE EDGE.

Elastomer liners are crucial components in various applications, facing diverse stresses and loads that can significantly impact their performance. To ensure our valves consistently deliver maximum reliability and durability, even under the harshest conditions, we invest heavily in the quality of our elastomer liners. Through intensive materials research and close collaboration with end users and manufacturers, we develop state-of-the-art solutions that meet the highest standards.

FANTASTICALLY ELASTIC.

EBRO's research and development department rigorously tests the elastomers used in its high-performance liners. The team adjusts elastomer formulations based on customer requests and refines them to meet the demands of future applications.

TIGHT. NO MATTER WHAT.

When selecting the right liners, many factors must be considered, including operating pressure, media, hygiene, cleaning, temperature, and cycle frequency. Each system, process, and medium introduces unique challenges for the components and sealing liners of a valve. Additionally, the development of new industrial processes and new materials and substances continually bring new requirements.

TAILORED TO YOUR APPLICATIONS.

Besides mechanical and thermal stresses, our research and development focus particularly on chemical interactions between the sealing material and the medium. Our specialists analyze specific applications and conduct tests to identify the optimal elastomer for each medium.

This ensures that our high-quality liners provide excellent performance not only with bulk materials and aggressive media but also meet the highest standards of hygiene, purity, and cleanability in industries such as food processing, pharmaceuticals, and paint manufacturing.



Tensile testing



Chemicals testing



Shore A hardness testing



Compression set testing (pressure testing)



IR spectroscopy



Leak-tightness testing

OVERVIEW OF LINERS.

Material	Temperature range	Properties	Typical applications
EPDM (ethylene propylene diene rubber)	-10 °C to +120 °C	<ul style="list-style-type: none"> Resistant to diluted acids, alkalis and alcohols Weather resistant and resilient to ozone 	Water, steam, hot water, acids, alkalis, air
NBR (acrylonitrile butadiene rubber)	Up to +90 °C	<ul style="list-style-type: none"> Highly resistant to media containing oils and fats 	Oil, gasoline, gas Highly abrasive media (NBR-HAR)
HNBR (hydrogenerated acrylonitrile rubber)	Up to +130 °C		
FKM (fluoroelastomer)	-10 °C to +180 °C	<ul style="list-style-type: none"> Highly resistant to swelling Increases chemical resistance with high fluorine content 	Mineral oils, gasoline, fats, food products, acids, alkalis, ozone
PUR (polyurethane)	-30 °C to +80 °C	<ul style="list-style-type: none"> Highly resistant to abrasion when used with abrasive media thanks to its greater toughness Free from plasticizer 	Bulk materials
CSM (chlorosulphonated polyethylene)	Up to +60 °C	<ul style="list-style-type: none"> Highly weather-resistant and resilient to ozone and acids 	Chlorinated water, swimming pools
SBR (styrene-butadiene rubber)	Up to +70 °C	<ul style="list-style-type: none"> Suitable for bulk material applications 	Abrasive media
VMQ (silicone rubber)	-40 °C to +200 °C	<ul style="list-style-type: none"> Excellent resistance to high and low temperatures 	Hot air, food products and the pharmaceutical industry
FVMQ (floursilicone rubber)	-50 °C to 200 °C	<ul style="list-style-type: none"> High resistance to hot air and excellent low-temperature flexibility Good resistance to weathering and ozone 	Low temperatures, fuels, mineral oils

MASTERPIECE OF SEALING.

Only EBRO offers liners in this design and this level of performance. They are the result of decades of experience in material development and the implementation of technical requirements across various applications.

Combined with a precision-engineered body, EBRO's liner design ensures exceptional resilience, sealing and durability. As a result, we and our customers are now in a position to handle thousands of different media safely and effectively.

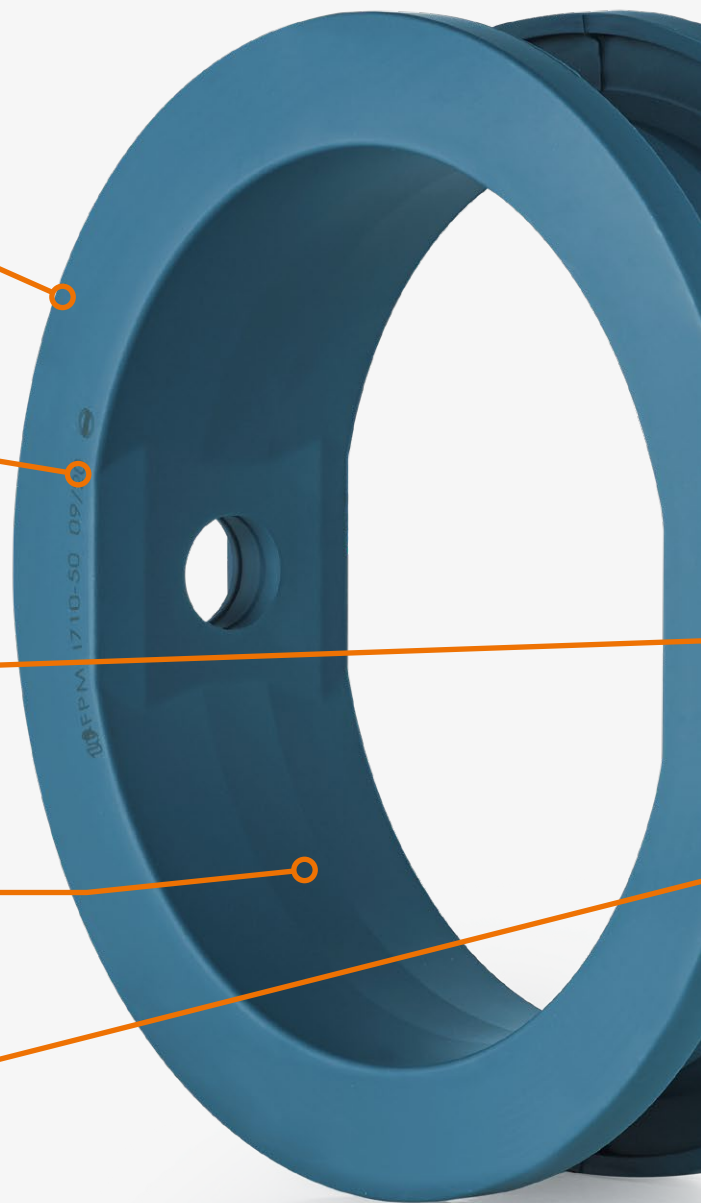
Convex profile for secure sealing against the flanges

Lasered marking for clear identification

Additional sealing inside the shaft passage

Optimal shaping of the sealing surface

Groove around the circumference ensuring a secure fit of the liner



THE LINER: HEART OF THE VALVE.

The liner is the crucial component of any shut-off or control valve. When the valve is closed, it ensures reliable sealing; when the valve is open, it allows for unobstructed flow of the medium and maintains optimal sealing at the shaft and flange connections.

Elastic liners are subjected to a range of mechanical, chemical, and thermal stresses, including abrasive or aggressive media, as well as extreme temperatures and pressures. Additionally, they endure deformation with each opening and closing cycle.

OUR VALVES DELIVER ON THEIR PROMISE.

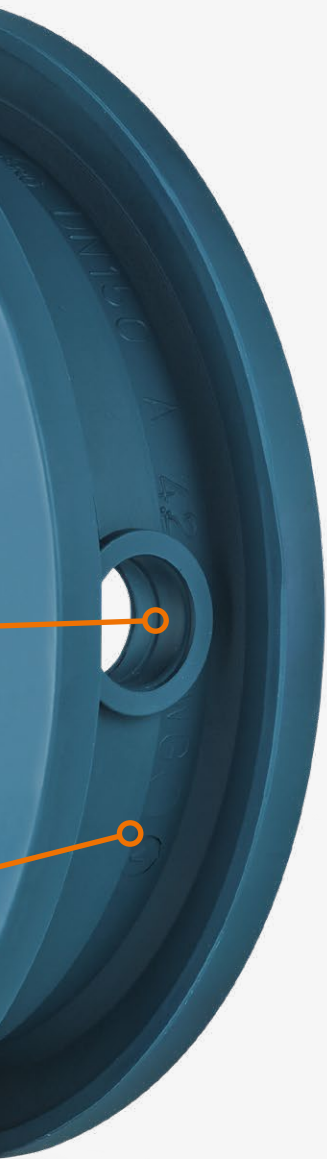
The material, shape and design of the elastomer liners used in our valves have been optimized to suit their conditions of use. Their exceptional functional reliability, resistance and durability are based on a smart seal design and elastomers with specific physical and chemical properties.

THE SECRET: IT'S ALL IN THE MIX.

In response to the factors affecting the liner and the media, we precisely adjust the formulations and mixture of our elastomers to meet specific requirements and approval conditions. Regular quality checks during production ensure that our customers can always rely on a high level of functional reliability.

SIMPLE AND CLEAR: COLOR-CODED.

To clearly differentiate between material grades and usage classes, we offer liners in various colors. For example, white liners are mainly used in food processing and pharmaceutical applications. Our liners for these industries meet all requirements set by the US Food and Drug Administration (FDA) or the German Federal Institute for Risk Assessment (BfR).



EPDM

Ethylene Propylene Diene Rubber

is the most commonly used elastomer for non-critical applications. It is resistant to diluted acids, alkalis and alcohols and suitable for temperatures from -10°C to +120°C.

Typical area of application:

- Water, hot water
- Steam
- Acids and alkalis
- Air

Possible mixtures:

- Drinking water approvals (DVGW, WRAS, ACS, NSF etc.)
- Food approvals (FDA, EG)
- Color variants (black, white)
- Specific properties (ATEX, low-friction, etc.)



NBR

Acrylonitrile Butadiene Rubber

is highly resistant to media containing oils and fats. Special variants such as NBR-HAR (High-Abrasive-Resistant) are available, which are highly resistant to mechanical wear. NBR can be used up to +90 °C, while HNBR liners made from hydrogenated nitrile rubber can be used up to +130 °C.

Typical area of application:

- Oil, gasoline, gases
- Food products
- Abrasive media

Possible mixtures:

- Gas approvals
- Food approvals (FDA, EG)
- Color variants (black, white, blue)
- Specific properties (ATEX, abrasion-resistant, etc.)



FKM

Fluor Elastomer

offers high chemical resistance, which increases with higher fluorine content. The recommended temperature range is from -10 °C to +180 °C.

Typical area of application:

- Mineral oils, gasoline, gases
- Fats
- Food products
- Acids and alkalis
- Ozone, UV

Possible mixtures:

- Food approvals (FDA, EG)
- Color variants (black, white, blue)
- Specific properties (ATEX, high chemical resistance, etc.)



PUR

Polyurethane

is a highly resilient plastic commonly used in valves exposed to heavy mechanical loads. It can handle temperatures from around -30 °C to +80 °C. At EBRO this material is referred to as „GMX“.

Typical area of application:

- Bulk materials



CSM

Chlorosulphonated Polyethylene

is highly weather-resistant and resilient to ozone and acids. It is used in swimming pool sanitation, with an upper temperature limit of +60 °C.

Typical area of application:

- Swimming pool technology



SBR

Styrene Butadiene Rubber

is particularly suitable for bulk material applications. Its maximum operating temperature is +70 °C, which is lower than that of most other elastomers.

Typical area of application:

- Abrasive Media



VMQ

Silicone Rubber

covers a temperature range from -40 °C to +200 °C, providing high resistance to hot air and excellent flexibility at low temperatures. VMQ also offers good resistance to weathering, ozone and solvents.

Typical area of application:

- Hot air
- Food products
- Pharmaceutical industry

Possible mixtures:

- Food approvals (FDA, EG)
- Color variants (red, white)



FVMQ

Fluorosilicone Rubber

combines the excellent high and low temperature properties of silicone with the superior chemical resistance of FKM to fuels and mineral oils. The temperature range extends from -50 °C to +200 °C.

Typical area of application:

- Low temperatures
- Fuels
- Mineral oils





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