Angst+Pfister

evolast®

Perfluoroelastomers FFKM

ENGINEERED FOR EXTREMES. BUILT FOR PRECISION.



Local Engineering.
Global Excellence.

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evolast® FFKM



Angst+Pfister: One single partner integrating seamlessly compounding, engineering, production and distribution – And a 100 % European value chain.

evolast® FFKM is the next generation of perfluoroelastomer, combining the exceptional chemical and thermal resistance of PTFE with the elasticity and compression set resistance of elastomers. This translates to seals that can withstand extreme temperatures (up to +350 °C for premium grades) and a wider range of aggressive chemicals compared to other elastomers.

Heavy duty equipment in critical processes where mechanical seals, valves and pumps require the maximum performance in particularly harsh environments call for evolast® FFKM – The top choice for the most demanding applications in the Chemical Processing, Pharma, Semiconductor, Oil & Gas, and Aerospace industries.

Main Properties

- High thermal resistance – Wide temperature range from –46 °C up to +350 °C
- Trusted by leaders in the Chemical Processing, Pharma, Semiconductor, Oil & Gas, and Aerospace industries
- Over 30 different materials available, plus endless customization possibilities
- 100 % European based production
- High purity grades available and cleanroom manufacturing
- Regulatory compliance according to FDA, USP Class VI, EU 1935/2004, NORSOK, NACE, ISO 23936/2, API6A, and more
- Almost universal chemical resistance against acids, bases, solvents, plasma and more
- One single partner seamlessly integrating compounding, engineering, production and distribution

evolast® FFKM Solutions

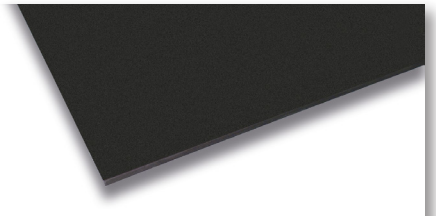
A wide choice of components for static and dynamic sealing applications – Both in standard and customised geometries and dimensions



O-Rings
Simple geometry and high sealing performance



Molded Parts
Special geometry engineered for specific sealing applications



Plates
For stamped parts production

One single partner

evolast® FFKM is 100 % developed, compounded and manufactured in-house at Angst+Pfister's Italian centers of excellence. The complete control of the entire value chain, from formulation, to engineering, to production, allows us to provide customized sealing solutions tailored to each customer's needs and to ensure the fastest lead times with the reassurance of quality and traceability.

Material Selection & Development



- Compound matched to media, temperature, and cleaning regimen
- Validation and certification to meet stringent purity requirements
- Optimised cure and flow for reliable, cost-efficient molding

Engineering & Design



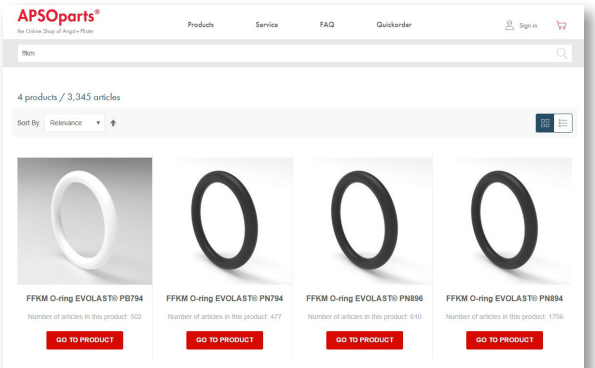
- Contact-pressure modelling under extreme conditions
- Lifetime prediction with aged-material data
- Groove optimisation & custom molded geometries
- FEA and 3D simulations for first-time-right fit

Tooling, Testing & Production



- Flash-free tool design guided by advanced mold-flow simulation
- Full lab & customer testing for chemical, mechanical, and compression-set performance

Support & Distribution



- Technical expertise and dedicated service in 24 countries across 3 continents
- Advanced Digital Supply Chain Solutions
- Real time ordering via online shop for standard O-Rings



Chemical Process Industry

In the chemical process industry, where corrosive chemicals, high temperatures and challenging operating conditions are prevalent, the choice of materials for equipment components is critical. FFKM materials have emerged as indispensable solutions due to their exceptional resistance to a wide range of chemicals, including acids, bases, solvents, and aggressive fluids. evolast® FFKM can be versatile in the chemical process industry, from seals and gaskets to diaphragms and valve components. They are able to withstand harsh environments, ensure process integrity, and enhance equipment reliability and are the material of choice for demanding applications in the chemical process industry, contributing to safety, efficiency, and productivity in various chemical manufacturing processes.

Typical applications

- Glasslined equipment
- Reaction vessels
- Vacuum systems

Your Challenge

- Aggressive Chemicals: Many chemicals degrade standard elastomers, e.g. acids, solvents, caustics.
- High Temperatures: Reactors, distillation, and cleaning processes often exceed +200 °C.
- Frequent Cycling: Pressure and temperature cycling can lead to seal fatigue and leakage.
- Downtime Costs: Unscheduled maintenance due to seal failure is extremely costly.

Our Solution

- Exceptional Chemical Resistance: evolast® handles corrosive media that destroy conventional elastomers.
- Thermal Stability: Delivers consistent sealing at elevated process temperatures of up to +350 °C
- Seal Integrity: Withstands cycling without cracking, shrinking, or loss of elasticity
- Operational Efficiency: Reduces unplanned stops and lowers total maintenance costs
- Process Safety: Protects equipment and environments by preventing critical leaks

evolast® FFKM Compounds

evolast® Compound	Shore A	Colour	Service Temperature Range	Suggested Applications
PN894	75	Black	–25 °C to +275 °C	Excellent choice for use in aggressive chemical environments, providing a broad chemical resistance to different media such as acids, bases, water, steam, amines, solvent based chemistries. It is recommended as a multipurpose compound in all applications where fluid handling of different substances is required due to its excellent chemical resistance to a wide range of chemicals. Ideal for valves, pumps, mechanical seals, sprayers, compressors, reactors. FDA tested according to 21 CFR 177.2600 e)-f) (migration test only), SGS test report 7926099.
PN896	75	Black	–15 °C to +330 °C	For a wide operational temperature range without compromising chemical resistance in valves, pumps, mechanical seals, sprayers, compressors, reactors. Excellent choice for use in aggressive chemical environments, when thermal resistance is also required, exhibiting outstanding high temperature stability and low compression set.
PN775	75	Black	–5 °C (-10°C) to +330 °C (+350°C)*	For use with aggressive chemicals. Not suitable for steam and amines. High temperature capability and a low compression-set at continuous temperature up to +330 °C. AMS 7257E certified compound.
PN7LT	75	Black	–46 °C to +250 °C	Designed specifically for the chemical process industry where ultra low temperature capabilities are required. Excellent choice for use with aggressive chemicals, acids, bases, steam, amines, organic and inorganic media.
PN8SR	75	Black	–15 °C to +330 °C	For steam and hot water resistance. Statical short time up to +340 °C.
PN897	80	Black	–30 °C to +260 °C	Chemical process industry at low temperatures. Well suited for use in a wide range of applications from mechanical seals to pump housing.
PN7HC	70	Black	–20 °C to +260 °C	Suitable for steam, hot water and amines.
PB694	60	White	–20 °C to +260 °C	Made with FDA compliant elastomer. Provides superior chemical resistance and low contamination extractables for Pharmaceutical, Medical and Food & Beverage handling applications. Approvals according to FDA, USP Class VI – 3A-Sanitary Standard.
PN694	60	Black	–25 °C to +260 °C	Excellent choice for use with aggressive chemicals, acids, bases, steam, amines, organic and inorganic media, methanol, TBA and MTBE, esters and ethers.
PN994	90	Black	–30 °C to +260 °C	Ideal for high pressure and low temperature applications. High hardness and high molecular weight reduce the possibility of gap extrusion.
PG75M	75	Yellow	–30 °C to +260 °C	Excellent choice for use in aggressive chemical environments, providing a broad chemical resistance to different media such as acids, bases, water, steam, amines and solvent based chemistries. It is recommended as a multipurpose compound in all applications where fluid handling of different substances is required due to its excellent chemical resistance to a wide range of chemicals. Ideal for valves, pumps, mechanical seals, sprayers, compressors and reactors. Very good Low Temperature Resistance. BMW GS 93010-5432 (2017-10) certified compound.

* Performance depends on operating environment and application parameters. Please consult us to find the best sealing solution for your needs.



Pharmaceutical Industry

In the Pharmaceutical industries, where patient safety, regulatory compliance, and process purity are non-negotiable, the performance of sealing materials plays a pivotal role. evolast® FFKM stands out for its exceptional chemical resistance, thermal stability, and cleanliness, making it ideal for use in highly sensitive manufacturing and processing environments. From active pharmaceutical ingredient (API) production to sterile filling and cleaning-in-place (CIP) systems, evolast® seals maintain their integrity under exposure to aggressive cleaning agents, steam sterilization, and high-pressure fluids, all while minimizing contamination risk. With low extractables and leachables, and compliance with key industry standards (such as FDA, USP Class VI, and EU 10/2011), evolast® ensures process reliability, product purity, and regulatory peace of mind. Whether used in single-use systems, bioreactors, or critical valves and pumps, evolast® enables pharmaceutical and medical manufacturers to maximize uptime, reduce maintenance costs, and safeguard end-product quality.

Typical applications

- Sterile filling lines
- Bioreactors and fermentation vessels
- Peristaltic pumps and diaphragm valves
- Cleanroom and aseptic processing systems
- Chromatography equipment
- CIP/SIP systems

Your Challenge

- Sterilization Stress: Frequent SIP, CIP, and autoclaving degrade conventional elastomers
- Contamination Risk: Poor-quality seals can release extractables and leachables.
- Compliance Pressure: Seals must meet FDA, USP Class VI, and EU 1935/2004 standards.
- Batch Loss: Seal failure can lead to costly product contamination and wasted batches.

Our Solution

- Purity & Biocompatibility: Ultra-low extractables for safe contact with APIs, biologics, and excipients
- Sterilization Resistance: Withstands repeated exposure to steam, chemicals, and high temperatures
- Regulatory Confidence: Fully compliant with global pharma and medical standards
- Process Reliability: Minimises downtime and ensures product integrity across batches
- Traceability: Validation-ready materials with full documentation and manufacturing transparency

evolast® FFKM Compounds

evolast® Compound	Shore A	Colour	Service Temperature Range	Suggested Applications	Compliance/Certification
PB694	60	White	–20 °C to +270 °C	Made with FDA compliant elastomer. Provides superior chemical resistance and low contamination extractables for Pharmaceutical, Medical and Food & Beverage handling applications.	• According to FDA, USP Class VI – 3A-Sanitary Standard
PB7LT	70	White	–40 °C to +250 °C	Designed specifically for applications where low temperature capabilities are required. An excellent choice for use with aggressive chemicals, acids, bases, steam, amines, organic and inorganic media. Ultra low temperature.	• According to FDA, USP Class VI – 3A-Sanitary Standard
PN697	60	Black	–40 °C to +250 °C	Ultra low temperature.	• According to FDA 21 CFR 177.2400
PB795	70	White	–15 °C to +300 °C	For valves, pumps, mechanical seals, sprayers, biomedical equipment, food equipment and fermenters. High temperature.	• According to FDA, USP Class VI – 3A-Sanitary Standard
PB895	80	White	–15 °C to +300 °C	For high temperature applications in Pharma and Food & Beverage.	• According to FDA, USP Class VI – 3A-Sanitary Standard
PB794	70	White	–20 °C to +270 °C	For valves, pumps, mechanical seals, sprayers, biomedical equipment, food equipment and fermenters.	• Certified FDA 21 CFR 177.2400, BfR XXI, DM 21.03.1973, USP Class VI • According to 3A-Sanitary Standard, Reg. EC 1935/2004
PN794	70	Black	–25 °C to +270 °C	For high temperature in Food & Beverage within valves, pumps, mechanical seals, sprayers, compressors and reactors.	• Certified FDA 21 CFR 177.2600, USP Class VI • According to FDA 21 CFR 177.2400, 3A-Sanitary Standard



Semiconductor & Electronics Industry

In the Semiconductor industry, where precision, reliability and contamination control are paramount, evolast® FFKM materials play a crucial role. They are known for their exceptional resistance to extreme temperatures, harsh chemicals and aggressive plasma environments, making them ideal for use in critical semiconductor manufacturing processes. From sealing applications in semiconductor equipment to wafer handling, evolast® offers unmatched performance, ensuring integrity of processes and minimizing downtime due to material failure. Sealing solutions show key qualities such as low plasma erosion rates, high temperature stability, excellent resistance to various chemical processes (dry and wet), and exceptional sealing performance. Additionally, to maintain product purity, all evolast® seals are manufactured and packaged in a cleanroom environment.

Typical applications

- Lithography machines
- Wafer handling machines
- Wafer surface treatment machines
- Chip process machines
- Vacuum machines

Your Challenge

- Plasma Exposure: Reactive gases in etching and deposition chambers degrade standard seals.
- Contamination Risk: Outgassing and particle shedding can damage sensitive wafers.
- Vacuum Demands: Conventional elastomers struggle in ultra-clean, high-vacuum environments.
- Microleakage: Tiny leaks can cause defects in high-precision processes.

Our Solution

- Extreme Plasma & Chemical Resistance: Engineered for outstanding durability, especially in fluorine-rich and reactive environments
- Ultra-Low Outgassing: Minimizes particle release to protect wafer integrity
- Vacuum Compatibility: Special FFKM grades perform reliably in cleanroom and vacuum conditions.
- Process Stability: Reduces contamination and failures to improve yield and extend uptime

evolast® FFKM Compounds

evolast® Compound	Shore A	Colour	Service Temperature Range	Suggested Applications
PS152	75	Black	–25 °C to +275 °C	Filling machines, wafer preparation and photolithography. To maintain product purity, the seals are manufactured and packaged in a cleanroom environment. Outstanding resistance to chemicals, including organic and inorganic acids, alkalis, esters, ethers, ketones, and aldehydes, it excels in harsh wet chemical processes.
PS221	75	Amber translucent	–15 °C to +275 °C	Gas inlet seals, gas orifice seals, gas feedthrough seals, other plasma applications, other static and low stress/low sealing force applications. To maintain product purity, the seals are manufactured and packaged in a cleanroom environment.
PS251	75	Black	–15 °C to +350 °C	Center ring seals, chamber seals, fittings, plenum seals, quartz tube seals. To maintain product purity, the seals are manufactured and packaged in a cleanroom environment.
PS321	65	Amber translucent	–15 °C to +275 °C	Gas inlet/orifice seals, chamber lid seals, isolation valve seals and photolithography. To maintain product purity, the seals are manufactured and packaged in a cleanroom environment. Specifically designed for semiconductor plasma and gas deposition processes. Low outgassing and minimal metal content.
PS341	75	Brown	–15 °C to +330 °C	Gas inlet/orifice seals, chamber lid seals and isolation valve seals. To maintain product purity, the seals are manufactured and packaged in a cleanroom environment.
PS342	65	Brown	–15 °C to +325 °C	Gas inlet/orifice seals, chamber lid seals and isolation valve seals. To maintain product purity, the seals are manufactured and packaged in a cleanroom environment.
PS343	75	Brown translucent	–15 °C to +325 °C	Gas inlet/orifice seals, chamber lid seals, isolation valve seals. To maintain product purity, the seals are manufactured and packaged in a cleanroom environment.



Oil & Gas and Energy Industry

Sealing solutions are essential in the Oil & Gas industry, ensuring the integrity, safety, and efficiency of equipment and processes. From exploration and production to refining and transportation, they must perform reliably under harsh and demanding conditions. In exploration and production, evolast® FFKM seals are used in wellheads, valves, pumps, and other equipment to prevent fluid leaks. They withstand high pressure, extreme temperatures, corrosive fluids, and abrasive particles in downhole environments.

In refining, seals ensure containment in pipelines, reactors, distillation towers, and storage tanks. They resist aggressive chemicals, high temperatures, and mechanical stress. During transportation, evolast® sealing systems maintain the integrity of pipelines, valves, and fittings over long distances. They handle environmental stresses like temperature shifts, vibration, and pressure, while preventing emissions and ensuring safety.

Typical applications

- Completion tools
- Drilling and wireline tools
- Process instrumentation
- Packing systems
- Mechanical seals
- Pumps
- Valves
- Compressors

Your Challenge

- Low Temperature, High Temperature and High Pressure Conditions: Subsea and downhole environments combine extreme pressure and temperature.
- Sour Gas Exposure: H_2S and CO_2 degrade conventional elastomers over time.
- Mechanical Stress: High vibration, compression, and extrusion risks challenge seal integrity.
- Strict Compliance: Safety and environmental standards demand reliable, high-performance sealing.

Our Solution

- Chemical & Pressure Resistance: Performs reliably under HPHT, RGD and sour gas conditions with minimal degradation
- Mechanical Durability: Withstands thermal cycling and mechanical loads in critical components like wellheads, pumps, and valves
- Extended Service Life: Reduces maintenance needs and helps prevent leakage or blowouts
- Operational Safety: Supports compliance and integrity in high-risk environments
- Seals for Hydrogen & CCUS: We have developed sealing solutions specifically engineered for CO_2, H_2, and NH_3 applications.

evolast® FFKM Compounds

evolast® Compound	Shore A	Colour	Service Temperature Range	Suggested Applications	Certifications
PN9LT	90	Black	–46 °C to +250 °C (+270 °C)*	For valves, pumps, drilling tool, wellheads and turbines. Excellent mechanical and sealing properties.	• RGD_5,33 cs_NORSOK M710 Ed.2 • LIFE PREDICTION_100 % CO_2 66 days_NORSOK M710 Ed.3 & ISO 23936-2 • RGD_100 % CO_2 209 bar 5,33 cs_NORSOK M710 Ed.3 & ISO 23936-2 • AGEING TEST_100 % NH_3 1 week
PN9EX	90	Black	–15 °C to +330 °C	High temperature applications for valves, pumps, drilling tool, wellheads and turbines. Excellent mechanical and sealing properties.	• RGD_5,33 cs_NORSOK M710 Ed.3 & ISO 23936-2
PN9ED	90	Black	–15 °C (–20 °C) to +260 °C (+290 °C)*	For valves, pumps, drilling tool, wellheads and turbines. Excellent mechanical and sealing properties.	• RGD_5,33 cs_NORSOK M710 Ed.2 • API6A_10 % H_2S • SOUR FLUID_5 % H_2S_NACE TM0187 (2011) • SOUR FLUID_20 % H_2S_NACE TM0187 (2011) • LIFE PREDICTION_SOUR FLUID 56 days_NORSOK M710 Ed.3 & ISO 23936-2
PN994	90	Black	–35 °C to +260 °C	Ideal for high pressure and low temperature applications. High hardness and high molecular weight reduce the possibility of gap extrusion.	
PN96M	90	Black	–30 °C to +260 °C	Ideal for high pressure and very low temperature applications	

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About Us

The Angst+Pfister Group, headquartered in Switzerland, has been a leading innovation development partner for technical components and engineering solutions for over a hundred years.

Through local sales and technical organizations, the company serves every year more than 20,000 customers in over 50 countries. Angst+Pfister operates research and development centers as well as production facilities worldwide.

Together with a global network of highly selective partners, we serve our customers in the most efficient and innovative way.

Angst+Pfister stands for the highest possible degree of responsibility. Good corporate governance, fair competition, employee wellbeing, and social and environmental responsibility are our guiding principles in all areas of our business.

Get in Touch with Us!

We're here to help you find the best sealing solutions for your needs. Contact us today to learn more about how Angst+Pfister can support your operations.

www.angst-pfister.com

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Support all over the World.

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