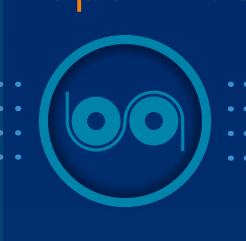


Sealing Integrity for the Pulp and Paper Industry



Leaders in Sealing Integrity

Garlock
an EnPro Industries family of companies





High-Performance Sealing Solutions for Pulp and Paper Processing


Garlock® sealing solutions reduce downtime, increase efficiency, conserve resources and improve safety in a wide variety of pulp and paper processing applications.

We deliver innovative sealing technologies and solutions for all stages of pulp and paper processing, including digesters, high-speed canister rolls, bleachers, refiners and more. From sealing flanges with water, pulp and liquors to sealing dynamic shaft assemblies on pumps and agitators to protecting against contaminants and preventing emissions, Garlock® sealing solutions are designed to provide long-term, reliable performance and eliminate loss of process fluids with an end goal of ensuring a safe and productive work environment.

The Leader in Safety

As the global leader in highly engineered sealing solutions, we at Garlock® make safety the number one priority and the driving force behind everything we do. Our products perform critical functions in the industries we serve. We go the extra mile to make sure our sealing solutions comply with the highest environmental standards in order to prevent unwanted emissions and deliver unmatched reliability and performance in some of the most demanding environments on earth.





Within the pulp and paper market, we understand the industry's unique needs and potential hazards, and we never stop developing, testing and refining our products to better meet the worldwide needs of the industry. At the Garlock® family of companies, our sealing solutions are not just about productivity and cost control; they're about people. We are all parents, brothers, sisters, sons and daughters, and it's those relationships that motivate us to develop nothing short of the best sealing solutions available. As our customers embrace their families before leaving for work in the morning, we want their loved ones to feel confident in the safety of the environments in which they make their living.

Paper-Making Process

Key

KLOZURE® Mechanical Seals, Oil Seals & Bearing Isolators

- | | | |
|-------------|--------------|--------------------|
| 16 Style 16 | 59 Model 59 | ISO ISO-GARD® |
| 23 Model 23 | 63 Model 63 | GDN GUARDIAN™ |
| 26 Model 26 | 64 Model 64® | GMP GMP-I & GMP-II |
| 35 Style 35 | 80 Style 80 | PSII P/S®-II |
| 53 Model 53 | 87 Model 87 | SGI SGI® |

Compression Packing

- | | | |
|-----------------|------------------|------------------|
| 98 Style 98 | 1925 Style 1925 | 8093 Style 8093 |
| 105 CARBAE™ 105 | 5000 Style 5000 | 5889 Style 5889 |
| 1333 Style 1333 | 8091 HYDRA-JUST® | G200 Style G-200 |

Metallic Gaskets

- | | | |
|---------------|----------------|-----------------|
| FLX FLEXSEAL® | GRA GRAPHONIC® | KAM Kammprofile |
|---------------|----------------|-----------------|

Non-Metallic Gasketing

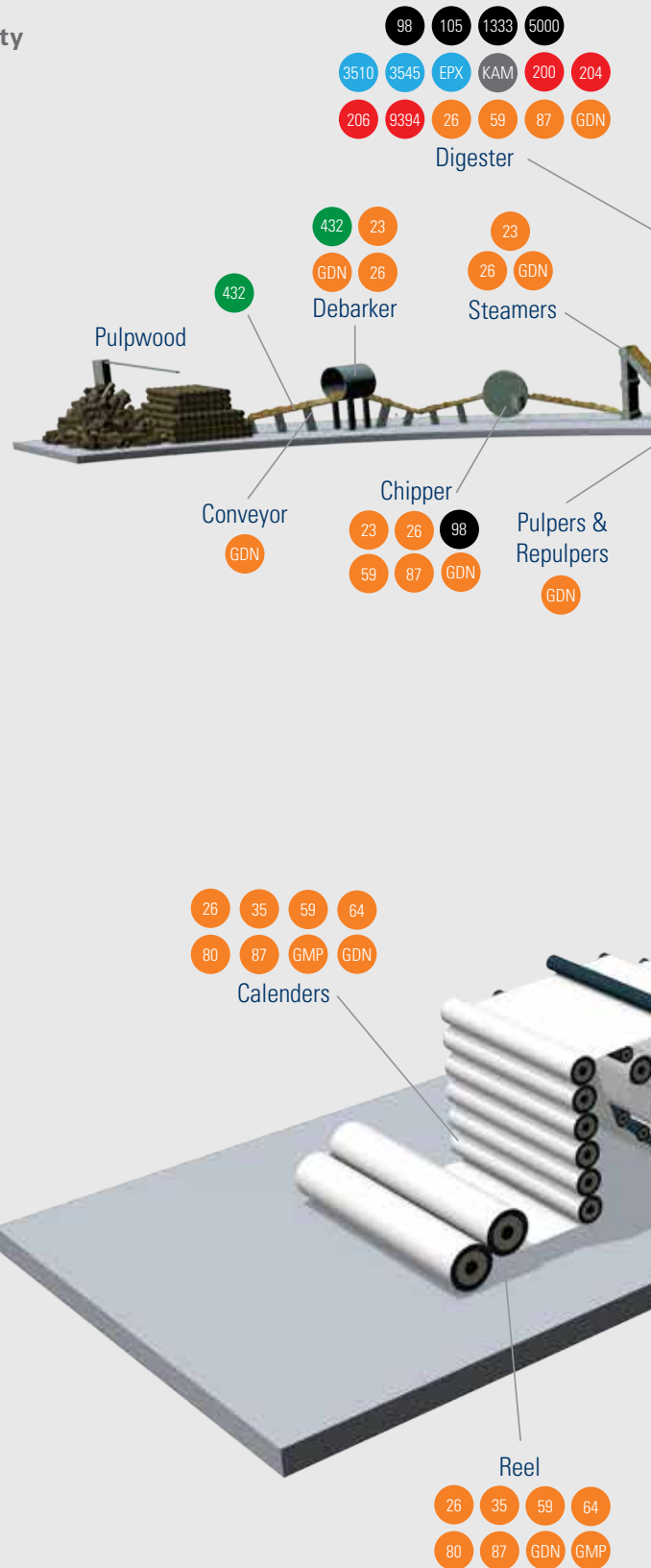
- | | | |
|-------------------------------|--------------------------------|---------------------------------|
| 3128 Style 3128 | 3545 GYLON®
Style 3545 PTFE | 3760 MULTI-SWELL™
Style 3760 |
| 3510 GYLON® 3510 | 3561 GYLON®
Style 3561 | 5500 IFG® 5500 |
| EPX GYLON EPIX™
Style 3510 | SS STRESS SAVER®
Style 370 | |

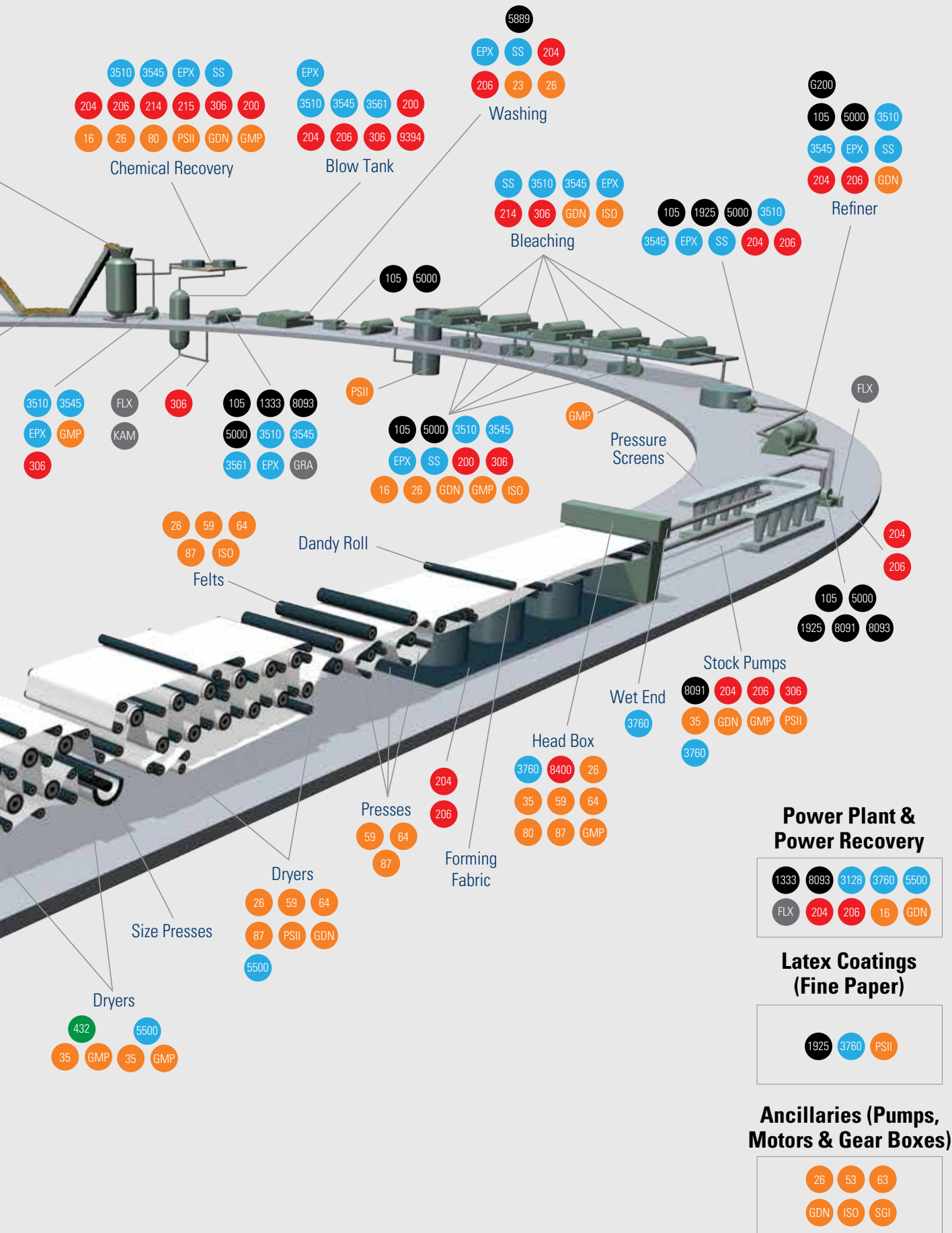
Expansion Joints

- | | | |
|-------------------|------------------------------|-----------------|
| 200 GUARDIAN® 200 | 214 Style 214 | 8400 Style 8400 |
| 204 Style 204 | 215 Style 215 | 9394 Style 9394 |
| 206 Style 206 | 306 GUARDIAN®
306 EZ-FLO® | |

Hydraulic Seals

- | |
|------------------------|
| 432 Style 432 CHEVRON® |
|------------------------|







A Complete Range of Sealing Solutions

Paper mills place rigorous and unique demands on sealing products. Recognizing that there is no one-size-fits-all solution to fluid sealing in such a wide variety of applications, we at Garlock® engineer and manufacture sealing solutions that are ideally suited to the specific environments in which they must perform.

Our sealing materials undergo extensive testing and documentation at exposures beyond those in the field in order to ensure safety and performance not only at the time of installation, but well after the project is completed.

We strive to provide the full range of products for your sealing needs, allowing for administrative savings and superior customer service throughout the project.



Applications

Power Plant & Power Recovery

Power plants and power recovery systems are necessary to provide power to paper-processing plants. Garlock® offers advanced solutions for coal, natural gas, fossil fuel, gas turbines and more. Our products combine high-performance, technology-driven, fluid-sealing performance with industry expertise and a commitment to environmental sustainability.



RECOMMENDED PRODUCTS:

Compression Packing

- Style 1333
- Style 8093

Non-Metallic Gaskets

- Style 3128
- Style 3760
- Style 5500

Metallic Gaskets

- FLEXSEAL®

Expansion Joints

- Style 204
- Style 206

KLOZURE® Rotating Seals

- Style 16 Mechanical Seal
- GUARDIAN™ Bearing Isolator

Latex Coatings (Fine Paper)

Coatings improve the appearance and printability of paper following the production process. The coating is applied to the paper as it travels through a series of rotating rolls or Calenders. Garlock® sealing solutions, including KLOZURE® products which are ideal for rotating applications, keep equipment running longer and more efficiently, providing an improved return on investment.



RECOMMENDED PRODUCTS:

Compression Packing

- Style 1925

Non-Metallic Gaskets

- MULTI-SWELL™ Style 3760

Expansion Joints

- Style 206

KLOZURE® Rotating Seals

- P/S®-II
- Model 64® Oil Seals
- GUARDIAN™ Split Pillow Block Bearing Isolators

Ancillaries (Pumps, Motors and Gear Boxes)

Ancillary equipment such as pumps, motors and gear boxes are important to the finishing portion of the paper-making process. Contamination from paper dust is the primary cause of bearing and ancillary equipment failure. Garlock® KLOZURE® sealing products effectively extend the service life of ancillary components.



RECOMMENDED PRODUCTS:

KLOZURE® Rotating Seals

- Model 26 Oil Seal
- Model 53 Oil Seal
- Model 63 Oil Seal
- GUARDIAN™ Bearing Isolator
- ISO-GARD® Bearing Isolator
- SGi® Bearing Isolator

KLOZURE® Mechanical Seals, Oil Seals & Bearing Isolators

Oil Seals



Model 23

Model 23 is a general service split seal with over 300,000 sizes readily available. Cover plate required.



Model 26

Model 26 is a high-performance seal available in a solid or split design. Its reverse-bevel lip design prevents lip rollover and potential spring dumping.



Model 59

The Model 59 series integrates the MILL-RIGHT® materials with its robust lip design, providing a great solution to common industry sealing problems. It is ideal for high-speed, high-misalignment applications such as paper machines.

Bearing Isolators



ISO-GARD®

ISO-GARD® bearing isolators offer exceptional bearing protection for pumps, motors and bearing-supported industrial equipment under the harshest conditions. It's made from filled PTFE material which provides excellent chemical resistance.



GUARDIAN™

The patented Cam-Lock design of the GUARDIAN™ provides excellent bore retention while allowing easy installation by hand and the unitizing element prevents the components from separating during operations which could cause premature failure. Its standard bronze construction can be customized using other metals, depending on the needs of the application.

KLOZURE® Mechanical Seals, Oil Seals & Bearing Isolators

Mechanical Seals



Style 16

The Style 16 is a balanced, multi-spring, outside-mounted rotary seal. This design provides sealing without product contact with the metal seal parts. It is often used in chemical applications where the seal must be mounted on a non-metallic shaft. In these cases, the Style 16 can be provided with a clamp-type drive collar; otherwise, a set screw-type driver is the standard.



GMP-I

A single cartridge-mounted face seal with a stationary, balanced design for service in higher pressures and higher speeds than typical unbalanced alternatives, the GMP-I is for use in clean general service and moderate abrasive service. It's available in a wide range of materials to accommodate application requirements. Its balanced design allows it to perform in pressure and vacuum service. Repair kits are available for easy repair.



GMP-II

A double cartridge-mounted face seal which is both stationary and balanced, the GMP-II can be used in higher pressures and at higher speeds than unbalanced alternatives. It can be used with a pressurized barrier fluid (double-seal applications) or unpressurized buffer fluid (tandem applications). The GMP-II seal is available in a wide range of materials to suit the application requirements.



P/S®-II

The P/S®-II seal is a cartridge-mounted, multi-lip seal which is designed to seal those thick, viscous, temperature-sensitive products that create problems for face seals. The P/S®-II seal is extremely successful sealing positive displacement and centrifugal pumps within the published operating limits. The seal is not recommended in applications where the sealed product contains solids. Simple repair kits available.

Compression Packing



Style 98

The “Problem Solver” for high-runout, low-speed, rotary equipment.



Style 1333

Premium, flexible graphite (FG) packing with field-proven performance and reliability. The packing material is reinforced with high-purity, graphite-fiber yarn giving it superiority over other lower-performing reinforcement materials.



Style 5000

Style 5000 is a tough, low-abrasion, carbon-fiber packing impregnated with PTFE and treated with a high-temperature break-in lubricant.



HYDRA-JUST®

A leak-free, no-dilution Engineered Sealing System designed for industrial pumping applications with high potential for water consumption reduction.



Style 5889

Style 5889 is treated with PTFE dispersion and an inert ingredient for high-speed rotary shaft service in marine, wastewater treatment and other volatile applications. This style offers excellent chemical resistance.



Style G-200

A premium-grade, high-performance, graphite-yarn pump packing rugged enough to meet many industrial, high-temperature applications.

Metallic Gaskets



FLEXSEAL®

Designed specifically for boiler manholes and tube cap assemblies, the FLEXSEAL® HH fits most standard boilers.



GRAPHONIC®

GRAPHONIC® gaskets with flexible graphite sealing elements are an excellent choice for heat exchangers and low-pressure applications. The metal core is completely encapsulated by the compressible sealing element. Also available with an eyelet.



Kammprofile

Serrated, solid-metal core gasket with soft, deformable sealing material and integral outer ring.

Gasketing Products



Style 3128

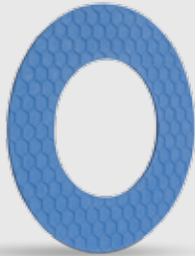
GRAPH-LOCK® 3128 HOCHDRUCK® is a multi-layer, high-strength sheet material composed of high-purity, flexible graphite and layers of 316 stainless-steel foil insert. It provides high compressive strength, blow-out resistance, excellent handling properties and improved tightness.



GYLON® Style 3504

Constructed of PTFE with aluminosilicate microspheres, the GYLON® Style 3504 gasket is designed for use in moderate concentrations of acids, caustics, hydrocarbons, refrigerants and more.

Gasketing Products



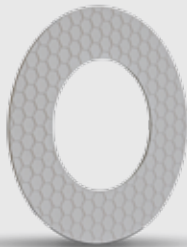
GYLON EPIX™ Style 3504

GYLON EPIX™ Style 3504 is a high-performance, aluminosilicate microsphere-filled, PTFE sheet material designed for use in moderate concentrations of acids and caustics, as well as hydrocarbons, refrigerants and more.



GYLON® Style 3510

The GYLON® Style 3510 is a high-performance, barium sulfate-filled, PTFE gasketing material. GYLON® 3510 PTFE gasket is designed for use in strong caustics and toxic chemicals, such as chlorine, ammonia and phosgene, where initiating and maintaining an extremely tight seal is critical.



GYLON EPIX™ Style 3510

GYLON EPIX™ Style 3510 is a high-performance, barium sulfate-filled, PTFE gasketing material. GYLON EPIX™ Style 3510 is designed for use where initiating and maintaining an extremely tight seal is critical; these applications include strong caustics and moderate acids, chlorine, gases, water, steam, hydrocarbons and cryogenics.



GYLON® Style 3545 PTFE

The GYLON® Style 3545 is a highly compressible, microcellular PTFE with a rigid PTFE core for improved handleability. The GYLON® 3545 designed to compress and conform to irregular or damaged surfaces, making it suitable for flanges that generate lower compressive stresses, such as glass-lined flanges and equipment.

Gasketing Products



GYLON® Style 3561

GYLON® Style HP 3561 is high-performance, barium sulfate-filled PTFE gasketing material that contains a perforated 316L stainless-steel insert for improved pressure resistance (can withstand up to 2,500 PSI).



MULTI-SWELL™ Style 3760

The MULTI-SWELL™ 3760 is the ultimate problem solver for lightweight flanges and covers where nuisance oil and water leaks plague industrial facilities. Unlike traditional vegetable fiber and cork gaskets that allow water and oil to “wick” through the body of the gasket, MULTI-SWELL™ absorbs the media at the inside edge, swells and creates a tighter, long-term seal.



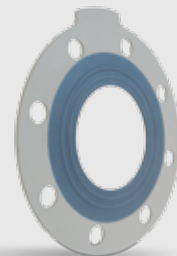
IFG® 5500

Garlock® inorganic fiber gasketing offers excellent thermal stability with minimal weight loss, reduced creep relaxation and improved torque retention. The inorganic fibers have excellent thermal and oxidation resistance, withstanding a continuous operating temperature of up to 550° F (290° C), and maximum spike of 800° F (425° C).



GYLON® Style 3535 Joint Sealant Tape

The GYLON® Style 3535 joint sealant tape is made of solid PTFE. This joint sealant tape can withstand a wide range of chemicals and meets FDA regulations. Style 3535 is easy to cut and form, and the adhesive backing makes it easy to install on narrow and hard-to-reach flanges.



STRESS SAVER® Style 370

STRESS SAVER® 370 gaskets feature raised, molded-in sealing rings to seal with 75% less surface area, improving performance in non-metallic flanges. This style features a pure PTFE sealing surface for superior chemical resistance and contaminant-free EPDM construction, making it ideal for a variety of high-purity applications.

Expansion Joints



Style 204

Style 204 spool-type expansion joints are typically used in vacuum and pressure applications and can be constructed in single-, multiple- or filled-arch versions. They can connect pipe flanges in concentric or eccentric tapers in order to join piping of unequal diameters and connect misaligned piping.



Style 214/215

These PTFE, concentric, spool-type, flexible couplings are designed to reduce noise and compensate for expansion, contraction and minor piping misalignment in chemical processing, air conditioning and heating systems. Style 214 has 2 convolutions, while Style 215 has 3 convolutions.



GUARDIAN® 306 EZ-FLO®

Garlock® GUARDIAN® 306 EZ-FLO® spool-type expansion joints feature a self-flushing arch with an FEP lining fused to the body. The GUARDIAN® 306 EZ-FLO® is designed for the chemical processing and pulp and paper industries, where its ability to resist corrosive attack at normal or elevated temperatures and pressures is unequaled.



Style 9394

This multiconvolute, lightweight expansion joint is designed for low-pressure applications that require significant amounts of movement, axially and/or laterally. Its low spring rates make it ideal for air handling, load cell, bin activator, vibrating bin, silo and pellet/dough hopper applications.

Hydraulic Seals



Style 432 CHEVRON®

Style 432 offers a variety of custom design options that can be used to overcome the typical problems experienced with stuffing box applications. It's a multipurpose packing good for general hydraulic oils and water emulsions.



Technical Services

Training

Garlock® has developed training programs that have been globally offered. They range in scope from public field seminars to programs that are tailored to meet the specific needs of your on-site contractors or plant-maintenance personnel.

Garlock® customers also benefit from the extensive factory training programs that our own sales, marketing and technical personnel must undergo. This rigorous training provides them with the product knowledge and hands-on experience required to service your fluid-sealing needs.

Testing Capabilities

Our testing capabilities enable us to provide Garlock® customers with extensive performance data and ensure that the products we manufacture are not only of the finest quality, but that they also are safe. Garlock® testing facilities are the most comprehensive and sophisticated in the industry. As a result, our products are thoroughly tested to worldwide standards such as API, DIN, JIS, ASTM and more, and are proven for the widest range of applications, temperatures, pressures and chemicals.

Environmental Awareness

Through our global network, we stay informed of environmental standards and laws so that our sealing technologies and products will always meet or exceed your needs. We make every effort to keep our customers fully informed of changing standards and regulations.

Our products help customers remain good neighbors by conserving water and other natural resources, reducing noise pollution and increasing safety in the workplace.

Technical Support/Engineering Capabilities

Garlock® engineering staff will work with your maintenance and technical people to design and recommend products to meet your specific application needs. In addition, Garlock® engineering staff personnel may also be contacted for technical support.

Research and Development

Using some of the most technologically advanced equipment available, our research and development teams explore new opportunities presented by new materials, constructions and applications.

Problem-Solving Assistance

Garlock® technicians are available for problem-solving when and where you need them. This includes being available to monitor or assist in the installation of products in critical applications to ensure that products are properly installed, and to offer application recommendations and troubleshooting tips.

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