



Sealing Reliability for Pulp & Paper

Product Recommendation Guide



Garlock

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.

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.

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.

Sealing Solutions



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.

Areas of a Mill



Wood Yard

Wood and Chip Handling

The Wood Yard plays a critical role in the efficient operation of a pulp and paper mill. Overcoming the many challenges of wood and chip handling requires optimal wood yard design, technology, and maintenance routines.

Recommended Products:

CONVEYOR / DEBARKER

Hydraulics

- Style 432

KLOZURE®

- GUARDIAN®
- Model 23
- Model 26

GEAR BOX COVERS

Gasketing

- MULTI-SWELL™ Style 3760

CHIPPER

Compression Packing

- Style 98

KLOZURE®

- GUARDIAN®
- Model 23
- Model 26
- Model 59
- Model 87

BLOWER CHIP STORAGE BINS

Expansion Joints

- P2000

Areas of a Mill



Pulp Mill

Cooking Equipment/Processing of Pulp

Consistent pulp production is the lifeline of the paper mill. Garlock manufactures sealing products designed to deliver reliable long-term performance for a safer work environment and less unscheduled maintenance downtime, keeping the pulp mill producing pulp to feed the front end of the mill.

Recommended Products:

BATCH DIGESTER / CONTINUOUS DIGESTER

Gasketing

- GYLON® Style 3510
- GYLON EPIX® Style 3510
- GYLON® Style 3545
- GYLON® Style 3561
- Kammprofile

KLOZURE®

- GUARDIAN®
- Model 26
- Model 59
- Model 87
- GMP

Expansion Joints

- P2000
- Style 204
- Style 206
- GUARDIAN® FEP Lined
- SURE-LINK®

Compression Packing

- Style 98
- Style 105
- Style 1333
- Style 5000

Common Applications:

- White Liquor Line Flanges - GYLON EPIX® Style 3510
- Liquor Heater Head - GYLON EPIX® Style 3510
- Low Pressure / High Pressure Feeders - GYLON EPIX® Style 3510
- Batch Digester Blow Lines - GYLON® Style 3561
- Liquor Pump Expansion Joints - GUARDIAN® FEP Lined Expansion Joint

Areas of a Mill



Chemical Recovery & Lime Kiln

Evaporators/Recovery Boiler/Recausticizing

The chemical recovery process plays a vital role in minimizing pollution by recovering chemicals from spent cooking liquors, converting recovered chemicals into fresh liquor, and consolidating organic residuals that are used for energy production.

Recommended Products:

CHEMICAL RECOVERY

Gasketing

- GYLON® Style 3510
- GYLON EPIX® Style 3510
- GYLON® Style 3545
- GYLON® Style 3561
- STRESS SAVER®
- Kammprofile
- FLEXSEAL® Spiral Wounds
- GRAPHONIC®

KLOZURE®

- GUARDIAN®
- Model 26
- P/S-II
- GMP

Expansion Joints

- P2000
- Style 204
- Style 206
- GUARDIAN® FEP Lined
- SURE-LINK®

Compression Packing

- Style 105
- Style 1333
- Style 5000
- Style 8093

Common Applications:

- Evaporator Manways - GYLON EPIX® Style 3510
- Black & Green Liquor Line Flanges - GYLON EPIX® Style 3510
- Liquor Pump Expansion Joints - GUARDIAN® FEP Lined Expansion Joint

Areas of a Mill



Paper-making & Recycled Paper

Preparation of stock

The primary objective of the stock preparation area is to produce a uniform paper-making stock which is then fed into the paper machine operation. Garlock has fluid sealing solutions designed to provide effective, reliable seals that do not introduce contamination into the stock.

Recommended Products:

REFINER / STOCK PUMPS / SCREENS / STOCK CHESTS

Gasketing

- GYLON® Style 3510
- GYLON EPIX® Style 3510
- GYLON® Style 3545
- MULTI-SWELL™ Style 3760
- STRESS SAVER®

Expansion Joints

- P2000
- Style 204
- Style 206
- GUARDIAN® FEP Lined
- SURE-LINK®

Compression Packing

- Style 105
- Style 1925
- Style 5000
- Style G-200
- Style 8091
- Style 8093

KLOZURE®

- GUARDIAN®
- P/S-II
- GMP

PSM

Gasketing

- GYLON® Style 3504*
- GYLON EPIX® Style 3504
- GYLON® 3545*
- GYLON EPIX® Style 3510
- 3504 STRESS-SAVER®

*For metallic flanges only

WASHING / BLEACHING

Gasketing

- GYLON® Style 3510
- GYLON EPIX® Style 3510
- GYLON® Style 3545
- STRESS SAVER®

Expansion Joints

- P2000
- Style 204
- Style 206
- GUARDIAN® FEP Lined
- SURE-LINK®

KLOZURE®

- GUARDIAN®
- Model 23
- Model 26
- P/S-II
- ISO-GARD®
- GMP

Compression Packing

- Style 105
- Style 1925
- Style 5000
- Style 5889

Areas of a Mill



Paper Machine

Paper Manufacture (Wet End / Dry End)

Reliable fluid sealing products ensure plant safety, eliminate unscheduled downtime, and reduce overall operating costs. Garlock provides engineered solutions for even the most challenging fluid sealing applications, ensuring the dependable operation of the paper machine between scheduled maintenance.

Recommended Products:

WET END / HEAD BOX / FELTS / PRESSES

Gasketing

- MULTI-SWELL™ Style 3760

KLOZURE®

- Model 26
- Model 59
- Model 64
- Model 87
- ISO-GARD®
- GMP

Expansion Joints

- P2000
- Style 204
- Style 206
- Style 8400

Compression Packing

- Style 105
- Style 1925
- Style 5000
- Style G-200
- Style 8091
- Style 8093

DRY END / DRYERS / CALENDERS / REEL

Gasketing

- Style 5500

Hydraulics

- Style 432

KLOZURE®

- Model 26
- Model 59
- Model 64
- Model 87
- P/S-11
- GMP
- GUARDIAN®

Common Applications:

- Dryer Can Doors - Consult Garlock Applications Engineering
- Lubrication Flange/Covers - MULTI-SWELL® Style 3760

Areas of a Mill



Mill Services

Power / Water Pollution Abatement

Boilers are essential for any pulp and paper operation as they provide the required process steam and a dependable supply of good quality water. Garlock fluid sealing products offer the quality and reliability you can count on to keep power and water supplied for your operations.

Recommended Products:

POWER PLANT / POWER RECOVERY

Gasketing

- GRAPH-LOCK® Style 3128
- MULTI-SWELL™ Style 3760
- Style 5500
- FLEXSEAL® Spiral Wounds

KLOZURE®

- GUARDIAN®

Expansion Joints

- P2000
- Style 204
- Style 206

Compression Packing

- Style 1333
- Style 8093

WATER TREATMENT

Gasketing

- MULTI-SWELL™ Style 3760
- STRESS SAVER®

Expansion Joints

- P2000
- Style 204
- Style 206

Compression Packing

- HYDRA-JUST® Style 8091
- Style 8093

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.



Model 64

The Model 64 oil seal is the ultimate sealing tool. With the industry's highest shaft to bore misalignment ratings coupled with one of the fastest shaft speed ratings, the Model 64 oil seal can handle the most aggressive applications.



Model 87

The Model 87 series provides elite sealing capabilities with a rubber O.D. to prevent any damage to the housing.

KLOZURE® Mechanical Seals, Oil Seals & Bearing Isolators

Mechanical Seals



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.



3-D Seal

Designed for high radial misalignment and high run-out applications, the industry-leading 3-D Seal combines our proven P/S®-II and expansion joint technologies into a single solution. Typically used on agitators and mixers, the 3-D Seal can be configured to fit a virtually endless array of applications.



Model 15

For Moderate Misalignment, the Model 15 improves P/S-II with a sturdier housing and creates an additional load support point by supporting the shaft with an integrated radial bearing, eliminating Shaft-To-Bore-Misalignment at the seal location.

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 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.

Compression Packing



Style 98

Suitable for the widest range of applications and operating conditions, simplifying packing selection, lowering chance of costly mistakes, and reducing inventory. As the most conformable carbon packing, it is easy to install and adjust quickly, minimizing downtime followed with a shorter break-in period.



Style 1333

Premium high purity graphite packing with potential for handling a high speed pump and high temperatures, with the lowest leak rate of a clear non-abrasive media. Allows equipment to run cooler and requires less flush water which saves water and energy.



Style 5000

Premium carbon packing able to handle several demanding conditions happening at the same time. Most versatile non-contaminating packing available. Helps reduce application specific packing needs and related inventory.



Style 8091/8093

These engineered packing sets will provide resources and maintenance cost savings by reducing leakage, water, and energy consumption. 8091 can be used in slurry applications reducing flush water and dilution, with little or almost no leakage required. 8093 is designed for service in clean media, such as condensate, boiler feedwater and white water. It has dry-running and self-adjusting capabilities.



Style 5889

Style 5889 is the imperative choice for rotary shaft service when no other option is available to meet chemical resistance requirements. PTFE is used as both the base material and blocking agent with the addition of an inert lubricant for rotary shaft service safety and reliability.



Style G-200

A premium-grade, high performance, graphite fiber packing rugged enough to meet the demanding dynamic, high-temperature applications found in pulp and paper production.

Metallic Gaskets



FLEXSEAL® Spiral Wounds

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.

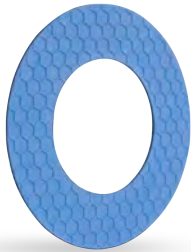
Hydraulic Seals



Style 432 CHEVRON®

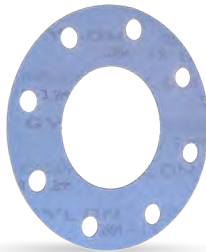
Style 432 offers a variety of custom design options that can be used to overcome the typical problems experienced with stuffing box applications. It's a multipurpose packing good for general hydraulic oils and water emulsions.

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 3504

GYLON® Style 3504 gasket is made of PTFE with aluminosilicate microspheres. It is designed for use in many acids, some caustics, hydrocarbons, refrigerants, and more.



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).



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 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 where initiating and maintaining an extremely tight seal is critical.



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).

Gasketing Products



MULTI-SWELL™ Style 3760

The MULTI-SWELL™ 3760 is the ultimate problem solver for light-weight 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.



GYLON® Style 3545 PTFE

The GYLON® Style 3545 is a highly compressible, microcellular PTFE with a rigid PTFE core for improved handle-ability. 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.



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.



SURE-LINK®

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. SURE-LINK® can be customized with different convolutions for your application needs.



Style P2000

Style P2000 expansion joint combines optimal mechanical design with the latest advancements in textiles and elastomer technology. With exceptional pressure and movement capability, this style has the versatility for applications ranging from common piping to the most critical and safety conscious.



Style 206 EZ-FLO®

Style 206 EZ-FLO® expansion joints contain a single wide flowing arch, eliminating the need for filled arches on slurry services. Suitable for high pressure applications, their self-flushing design eliminates media buildup and reduces fluid turbulence.



Style 8400

This multi-convoluted, 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.



GUARDIAN® FEP Lined

GUARDIAN® FEP tube offers first-in-class chemical resistance paired with a proprietary mechanically bonded tube, creating the sealing industry's strongest, safest expansion joint. Chosen and trusted when safety and reliability are paramount, this uniquely engineered sealing solution remains in service long after most competitor's glued in liners have separated.

TECHNICAL SERVICES

Training

Worldwide, Garlock customer training programs are available by request. 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 comprehensive 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 most 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

Our engineering staff will work with your maintenance and technical people to design and recommend products to meet your specific application needs.

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 team 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.



Garlock
1666 Division Street
Palmyra, New York 14522 USA

1-315-597-4811 | 1-800-448-6688
Fax: 1-800-543-0598 | 1-315-597-3039
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