

Sealing Integrity for Power Generation



Garlock
an EnPro Industries family of companies

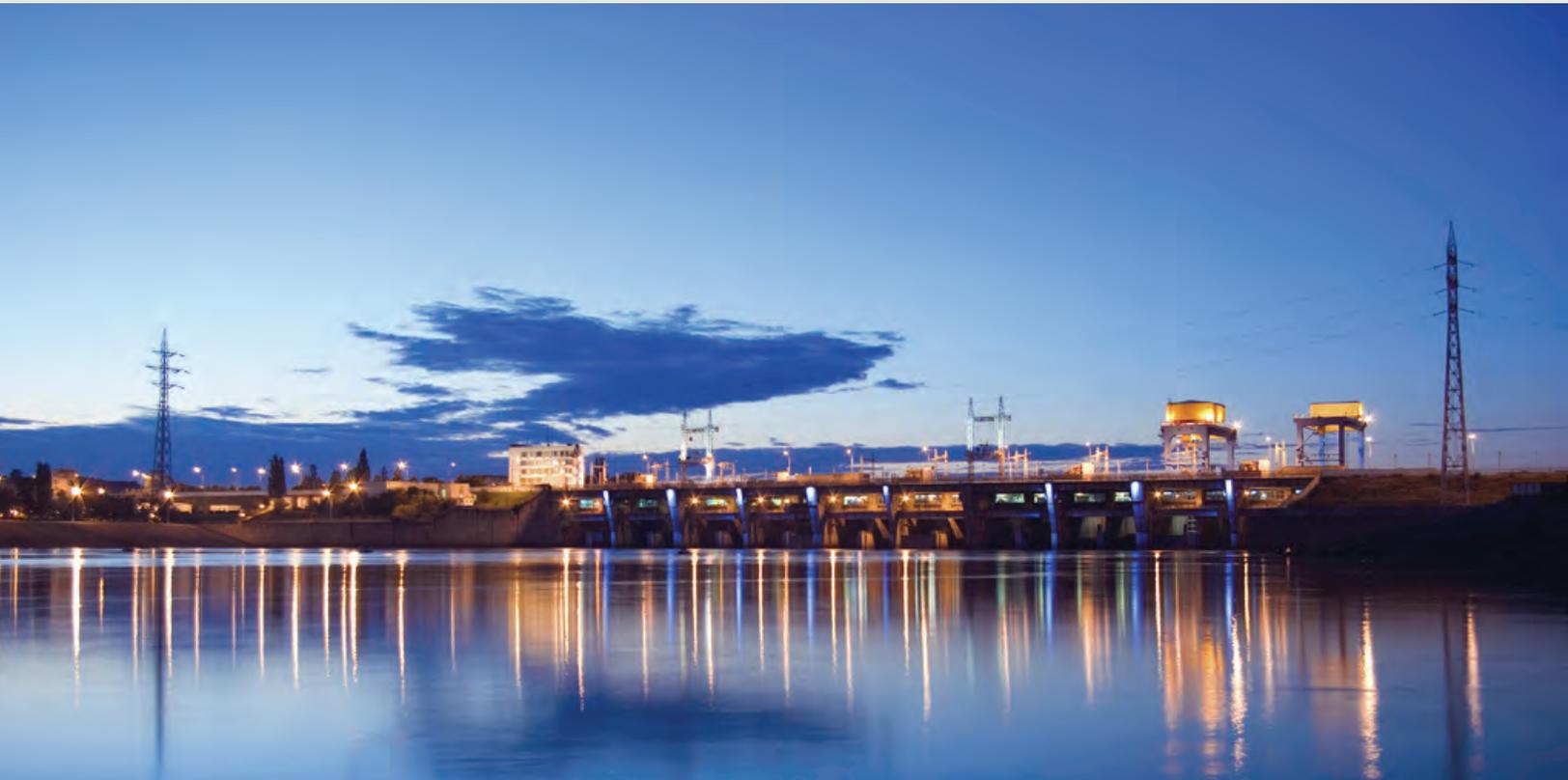


Meeting and exceeding your most rigorous sealing requirements.

Garlock companies offer advanced sealing solutions for the varied needs of power generation industries. With a vast catalog of sealing products, we offer solutions based on the specific demands of the market, including high-temperature seals, flange gaskets, rotary seals and much, much more. However demanding the environment or aggressive the application, we provide sealing solutions to the most challenging power issues, keeping power flowing to the millions of people who depend on it.

*Sealing products for the **fossil** **fuel** power industry:*

Sealing solutions engineered to withstand pressure / temperature extremes, thermal cycling, and vibration while extending the product and application in-service life. Garlock offers products to suit a broad range of fluid sealing solutions for the following applications: industrial pumps, static and actuated valves, coal pulverizers, piping systems, soot-blowers, turbine crossover connections, and conveyor bearing protection solutions.



Applications Based Solutions - Industrial Pumps

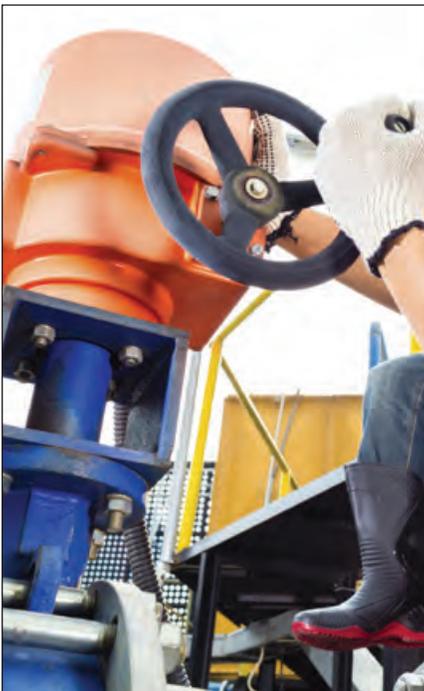


Industrial pumps are key equipment in the efficient operation of your plant systems. Key to this operation is keeping equipment in service and running efficiently. Our family of fluid sealing products addresses each of the sealing needs in pumps whether they be rotary, reciprocating, or diaphragm.

Recommended Products:

- > **Compression Packing**
 - Dry running or with flush water
 - Feed water pumps: 1333-G Stealth Set
 - Condensate pumps: DSA Packing Set
- > **Pump Casing Gaskets**
 - Style 3760 MULTI-SWELL™ Gasket
- > **Expansion Joints**
 - Absorber recycle pumps inlet/outlet
 - Style 204
 - Style 206
- > **KLOZURE® Bearing Isolators**
 - GUARDIAN bearing isolator
 - ISO-GARD® bearing isolator

Applications Based Solutions - Industrial Valves



The control of your media flow is dependent on the smooth and efficient operation of valves. Whether your facility has control, relief or static valves, Garlock has the sealing solutions to address the application needs in these valves. Our proven solutions ensure a long service life and efficient operation.

Recommended Products:

- > **Compression Packing**
 - High pressure steam service
 - Style 1303 FEP
 - Air Operated Valves (AOV)
 - Low friction packing sets
 - Style 9001 die formed Graphite set
 - Motor Operated Valves (MOV)
 - Style 9000 EVSP Simplified™
 - Quickset® Style 9001
- > **Actuator Diaphragms**
 - Pulse valves
- > **Bonnet Gaskets**
 - Style 9850 Gasketing
 - Style 3128 HOCHDRUCK®
- > **Flange Gaskets**
 - Gasket Style 9850
 - RWI Spiral Wound
 - GRAPHONIC® Spiral Wound
 - KAMMPROFILE® Spiral Wound
 - BLUE-GARD® Gasketing

Applications Based Solutions - Coal Pulverizers



Pulverizers are one of the critical paths to efficient operation. Keeping the bearings in a clean oil bath is critical to the smooth operation of the grinding process. Our gasketing and oil seal products have demonstrated an increase in service life of three times our competition. This dramatic increase in operational efficiency along with the decrease in labor equates to a bottom line savings for our customers.

Recommended Products:

- > **KLOZURE® Oil Seals**
 - Pulverizer Journal Shaft
 - Model 64® (Viton, MILL-RIGHT®)
- > **Access Cover Manway**
 - Style 3760 MULTI-SWELL™ Gasket

Applications Based Solutions - Flange Gaskets



Basic to all power generation facilities is their extensive piping systems. Flange gasketing, while not a large part of the overall expense of the system, is however very important to the continued operation and safety of the workers in the environment.

Recommended Products:

- > **High Temperature Gaskets**
 - Style 9900
 - Style 9850
 - Therma-Pur™ Style 4122
- > **Fuel Oil Gaskets**
 - Style 3760 MULTI-SWELL™ Gasket
- > **Graphite Gaskets**
 - Style 3128 HOCHDRUCK®
- > **PTFE Gaskets**
 - GYLON® Style 3504
 - GYLON® Style 3545
- > **Metal Gaskets**
 - RWI Spiral Wound with inner ring
 - GRAPHONIC® Spiral Wound
 - KAMMPROFILE®

Applications Based Solutions - Turbines (Gas, Steam)



Turbines and associated piping have a number of pressure zones. Garlock products are uniquely positioned to be the Best In Class in high pressure/temperature, medium and low pressure bolted assemblies.

Recommended Products:

- > **Gas Turbine Exhaust Gasket**
 - Therma-Pur™ Spiral Wound RWI
- > **Crossover Gaskets**
 - GRAPHONIC® Spiral Wound Gasket
 - KAMMPROFILE® Spiral Wound Gasket
 - Metallic Gasket Style 606

Applications Based Solutions - Piping Systems



Piping systems require proper layout, support systems and equipment to handle vibration, misalignment, and transitions. Elastomeric expansion joints are a critical component in these systems, allowing for thermal movement, vibration and correcting misalignment.

Recommended Products:

- > **Circulating water, Feed water/Make-up water**
 - Style 204
 - Style 206 EZ-FLO®
- > **Turbine Condenser**
 - U-Type
 - Style 207
 - Style 208
- > **Condensate**
 - Style 204 Extreme Vacuum Service (EVS)
 - Style 204 HP
- > **Scrubber**
 - Style 204
 - Style 206 EZ-FLO®



Soot Blowers are difficult to maintain and install. To help with this, the proper packing selection can double the operating life of a soot blower re-pack, which will lower your spending on packing and decrease the frequency of your maintenance headaches.

Recommended Products:

> **Compression Packing**

- Rugged service, high temperature, die formed, standard sizes
- Tornado Set F-1
- Tornado Set F-3
- Tornado Set F-5

COMPONENT SERVICE: Expansion Joints



Style 204

Style 204 spool-type expansion joints can be constructed as single- or multiple-arch types. They connect pipe flanges in concentric or eccentric tapers, to join piping of unequal diameters. Fully lab- and field-tested for long life and exceptional reliability. High pressure and vacuum-resistance increases safety and ensures suitability for wide range of applications.



Style 206 EZ-FLO®

EZ-FLO® expansion joints contain a single wide flowing arch, eliminating the need for filled arches on slurry services. Garlock EZ-FLO® expansion joints have successfully served all major industries, including pulp and paper, steel, waste and water, HVAC, power generation, chemical, petrochemical and marine.



Model 26 Oil Seal

Model 26 is a fabric reinforced seal offered in both solid or split design configurations. A reverse bevel lip design prevents lip rollover, and has a reinforced rubber OD. A molded-in finger stainless steel finger spring prevents spring dumping and equipment damage. Material selection includes MILL-RIGHT® N, ES and V and shaft diameters of 0.750" (19 mm) to 60" (1524 mm).



Model 64® Oil Seal

Model 64® is an aggressive seal that survives in severe service. Manufactured with a heavy-duty metal outer case and the original carrier/garter spring configuration, Model 64 is ideal for your aggressive application. This seal also offers the industry's highest shaft-to-bore misalignment capability. Material selection includes MILL-RIGHT® N, ES and V as well as Silicone and shaft diameters of 8" (203.2 mm) to 90" (2286 mm).



ISO-GARD® Bearing Isolator

ISO-GARD bearing isolators provide excellent chemical resistance within a wide temperature range making it suitable for bearing protection in many applications. Its press fit design allows for ease of installation and with no tools required, reducing production downtime and saving maintenance costs.



GUARDIAN™ Bearing Isolator

GUARDIAN bearing isolators offer exceptional bearing protection for pumps, motors, and bearing supported industrial equipment under the harshest conditions. The engineered labyrinth design excludes liquid and solid contamination while retaining bearing lubrication. The GUARDIAN extends bearing life by retaining bearing lubrication and excluding contamination to IP56 levels for some designs.



Style 1303-FEP Packing

Style 1303-FEP is manufactured from a proprietary yarn consisting of several strands of high purity GRAPH-LOCK® contained by an INCONEL filament jacket. This INCONEL wire filament is only 0.004" diameter, making the finished braid non-scoring and thermally conductive. Is in compliance with the most stringent VOC and VHAP emissions regulations.



Style 1333-G Packing

Garlock Style 1333-G is braided from graphite fiber reinforced flexible graphite yarns and high purity graphite filament yarns that appear on the corners as well as throughout the body of the packing. The graphite reinforcement of the flexible graphite yarns provide greater tensile strength. The placement of the graphite filament yarns add abrasion resistance for rotary services and anti-extrusion resistance for valve applications.



Style 8094 DSA Packing

The 8094-DSA set incorporates a split Model 26 for excluding solids from the stuffing box in abrasive services. The DSA has a patented cup & cone rings to expand radially to form a positive seal against both shaft and box bore. It requires less axial force to effect a seal and withstands a wide range of chemicals while reducing equipment wear and maintenance.



QUICK-SET® Style 9001

Garlock QUICKSET is a low emissions alternative specifically designed for shallow stuffing boxes. Like EVSP, QUICKSET offers less than 100 ppm service and exceptionally long life. Unlike EVSP however, QUICKSET provides low emission benefits with approximately 20% less stem friction. This results in a more efficient and therefore less costly use of plant air and electricity in controlling actuated valves.



Tornado Pack F1, F3, F5

If your Soot Blowers are difficult to maintain, install Tornado Pack. It can double the operating life of a soot blower re-pack, which will lower your spending on packing and decrease the frequency of your maintenance headaches! It's not magic, it's the science of sealing and it comes with every set of Tornado Pack.



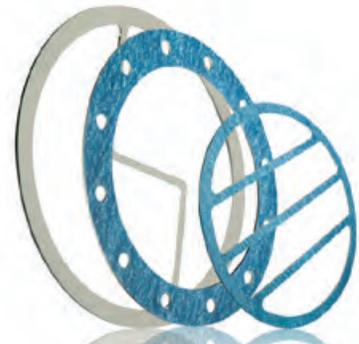
GYLON® Style 3504 Gasket

PTFE Gasketing with aluminosilicate microspheres providing a tighter seal and improving performance over conventional PTFE. Reduces product loss and emissions along with reducing creep relaxation. Unique manufacturing process minimizes cold flow problems typical of skived and expanded PTFE sheets. Style 3504 withstands a wide range of chemicals for extended service life in a wide variety of applications and cuts operational costs.



GYLON® Style 3545 Gasket

Our innovative Style 3545 offers a tighter seal by highly compressible PTFE outer layers sealing under low bolt load which is suitable for many non-metallic flanges. The pure PTFE makeup withstands a wide range of chemicals and can easily be cut from larger sheets, reducing inventory costs and downtime.



MULTI-SWELL® Style 3760 Gasket

Creating compressive load in light weight flanges in oil and water services, this gasket will seal where most others will not. MULTI-SWELL® performs well in flanges that might crush an elastomer gasket and is easy to cut and handle.



Style 9850 Gasket

High temperature gasket that is ideal for harsh conditions. Excels in high heat, pressure, saturated steam and hot oils. It is also laboratory tested for fire safety. Style 9850 is ideal for standard ANSI flange connectors as well as turbine crossover piping connectors.



Style 9900 Gasket

Style 9900 is ideal for high temperature applications that is ideal in heat and oxidation resistance environments. The graphite fiber gasketing withstands the extreme pressures and temperatures as well as many chemicals. Style 9900 has passed Garlock fire tests and is ABS Fire Safe Type Approved.



BLUE-GARD® Style 3000

The BLUE-GARD gasket offers a variety of elastomers that excel in a wide range of services. It consists of aramid fibers with a NBR binder that provides improved torque retention and drastically lowered emissions levels. Ideal for utility services as it has excellent sealability, and cuts operational costs through reduced waste, maintenance, stocked inventory fluid loss and energy consumption.



**GRAPH-LOCK® Style 3128
HOCKDRUCK®**

High performance multi-layer graphite with 316SS inserts provides high compressive strength, blow-out resistance, excellent handling properties and improved tightness.



GRAPHONIC® Spiral Wound Gasket

Corrugated metal core encapsulated by soft sealing elements. Excellent for high temperatures and corrosive chemicals. Works well in less-than-perfect flanges and thermocycling applications.



KAMMPROFILE Metallic Gasket

Serrations concentrate bolt load on small area for a tight seal at lower stress. Kammprofile's solid metal core resists cold flow, overcompression and blowout. The rigid core provides exceptional stability, even in large sizes, and facilitates handling and installation.



*A culture of **safety.***

The Garlock family of companies is acknowledged as the global leader in high-performance fluid sealing products, committed to a culture of safety-- making the world safer, sustainable and more reliable.

Our commitment to safety stems from our workplace culture and dedication to sealing integrity. We embrace safety not only for our employees, but for all of our customers as well. Our sealing products and solutions are tested to meet or exceed industry and regulatory agency standards. Garlock's culture of safety is one that we live by and where there is no compromise.



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