

Sealing Integrity for the Fossil Power Generation



Garlock

an EnPro Industries family of companies



A culture of **safety**.

The Garlock family of companies is acknowledged as the global leader in high-performance 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.





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: 8093 DSA Packing Set

> Pump Casing Gaskets

- Style 3760 MULTI-SWELL™ Gasket

> KLOZURE® Bearing Isolators

- GUARDIAN™ bearing isolator
- ISO-GARD® bearing isolator

> AODD Pumps Diaphragms

- Abrasion Resistant GARLOCK ONE-UP®

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 9000 EVSP
- Style 1303 FEP
- Quickset® Style 9001

- Motor Operated Valves (MOV)
- Style 9000 EVSP
- Quickset® Style 9001

> Body-Bonnet Gaskets

- Style 9850 Gasketing

> Flange Gaskets

- Style 9850 Gasket
- FLEXSEAL® Spiral Wound
- GRAPHONIC®
- KAMMPROFILE®
- IFG 5500 Gasketing

- Air Operated Valves (AOV)

- Quickset® Style 9001
- Encapsulated Gasket HI GRAPH Style 212



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 compared to products from other manufacturers. 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® (MILL-RIGHT® ES and MILL-RIGHT® V anti abrasion elastomers)

> Compression Packing

- Inerting steam system valves
- Style 1303 FEP
- Quickset® Style 9001
- Style 9000 EVSP



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 9850 Gasket
- Therma-Pur™ Style 4122

> Fuel Oil Gaskets

- Style 3760 MULTI-SWELL™ Gasket

> PTFE Gaskets

- GYLON® Style 3504
- GYLON® Style 3545

> Metal Gaskets

- FLEXSEAL® Type RWI Spiral Wound with inner ring
- GRAPHONIC®
- KAMMPROFILE®

Applications Based Solutions - Turbines (Gas, Steam)

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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™ High Temperature Spiral Wound

> Crossover Gaskets

- Style 9850 Gasket
- GRAPHONIC®
- KAMMPROFILE®
- Encapsulated Gasket HI GRAPH Style 212
- Therma-Pur™ High Temperature Spiral Wound

Applications Based Solutions - Soot Blowers

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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 cup & cone design, low friction and excellent bearing & sealing properties
- Style 9000 EVSP
- Quick-Set Style 9001



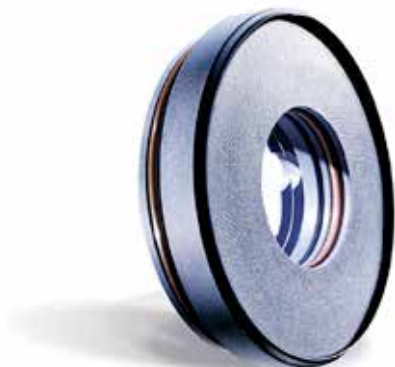
Model 64® Oil Seal

Model 64® is a seal that survives in severe service. Manufactured with a heavy-duty metal outer case and the original carrier/garter double 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 and shaft diameters of 8" (203 mm) to 90" (2286 mm).



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).



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 IP66 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 0,10 mm diameter, making the finished braid non-scoring and thermally conductive. Is in compliance with the most stringent Volatile Organic Compound (VOC) and Volatile Hazardous Air Pollutant (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 8093-DSA Packing

The 8093-DSA set is designed for service in clean media, such as condensate, boiler feed water and feedwater. 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 Style 9001 is an extremely low friction cup & cone packing set, specifically designed for shallow stuffing boxes. This feature combined with its bearing properties makes QUICKSET an excellent packing for short stuffing boxes like those found in many soot blowers. 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 use of plant air and electricity in controlling actuated valves.



Style 9000 EVSP

If your Soot Blowers are difficult to maintain, install Style 9000 EVSP cup & cone sets. Its combination of low and high density pure graphite rings guarantees an excellent sealing with a low friction, combined with great bearing properties to guide the lance properly. 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!



Style 5882

The power generation industry is challenged with achieving leak free valve sealing combined with responsive and smooth valve actuation. Our 5882 Series product offering addresses these industry needs with an easy to install, stable, low friction valve stem packing. Garlock Style 5882 is constructed from a high quality carbon fiber core and a PTFE shell, optimizing the low friction qualities of PTFE and the structural integrity of high quality carbon fiber. The packing is available in spool stock and die formed ring sets for end user convenience.



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 GYLON® 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.



THERMa-PUR™

THERMa-PUR™ is a proprietary new gasketing material designed for use in high temperature sealing applications. It is produced using an environmentally friendly solventfree process and combines a unique formulation with a patent-pending fibre core. THERMa-PUR™ is yet another innovative Garlock sealing solution that provides more than just temperature resistance.



IFG® Style 5500

Inorganic fibers with a nitrile binder offers an excellent thermal stability with minimal weight loss. Furthermore there is a reduced creep relaxation and improved torque retention providing optimal sealability. Non-oxidizing fibers withstand a continuous operating temperature of up to 550°F (290°C) and maximum spike of 800°F (425°C). IFG® 5500 has passed the Garlock Fire Test and is ABS Fire Safe Type Approved.



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.



GRAPHONIC® Corrugated 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.



FLEXSEAL® Spiral Wound Gaskets

FLEXSEAL® offers a durable, easy to install and easy to remove spiral wound gasket. It seals pressure to flange ratings, in accordance with ASME B16.5 and DIN flanges. The suitable temperature ranges from cryogenic to 2000 °F (1093 °C). The guide ring simplifies centering of the sealing element in the flange face.



HI GRAPH Style 212

HI GRAPH Style 212 is typically used in power plant steam systems. The encapsulating metal nickel casing provides complete protection of the graphite against oxidation even for temperatures widely exceeding 450 °C.



GARLOCK ONE-UP® Diaphragm

GARLOCK ONE-UP® pump diaphragms, containing high performance PTFE GORE® sheet on the wetted side, are a significant advancement over conventional PTFE diaphragms. Considerably stronger, with greater flex life, they provide a dramatic improvement in service life. Documented case histories show that the average service life is 3.5 times longer than conventional PTFE diaphragms.



GAR-SEAL Valve

GAR-SEAL valves are used extensively where corrosive, abrasive and/ or toxic media need to be reliably controlled. They are used typically in acute control, throttling and shut-off duties in the chemical applications in Power Plants, like cooling water treatment plants or desulphuration units.

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