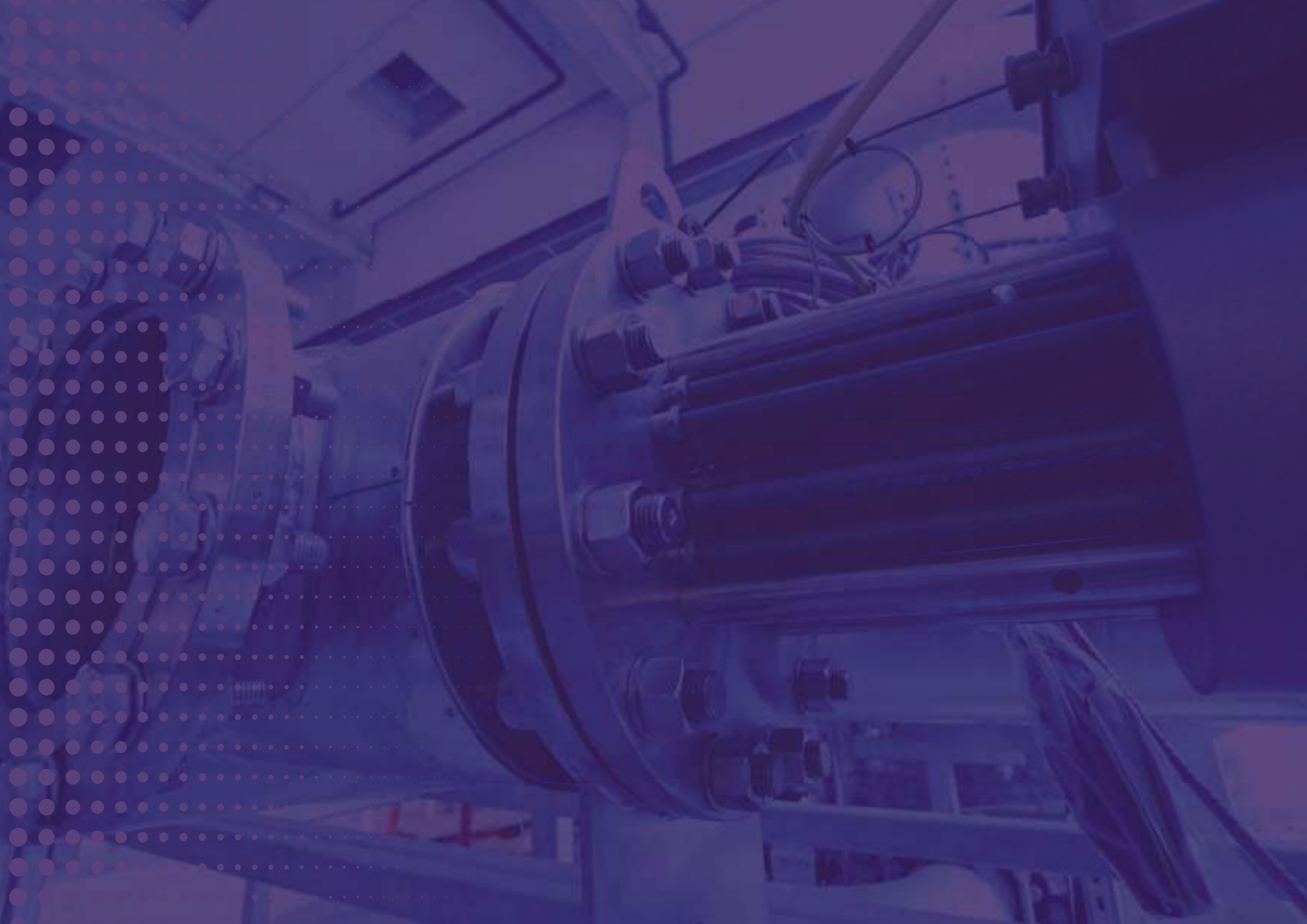
PHOENIX

Product Guide



The Phoenix Group

A globally successful business delivering exceptional customer service, innovation and unrivalled technical expertise.

Our products and services are widely specified within a range of industrial sectors including oil and gas, chemical, nuclear, pulp and paper, power generation and original equipment manufacturing.

What We Do

Phoenix manufacture and supply a range of high quality industrial sealing products, provide industry leading emission reduction programs and deliver world class expertise through a range of technical services.

Sheet Materials

A range of high performance sheet products designed to cover the full spectrum of non-metallic sealing applications. Developed by the Phoenix team of industrial sealing experts, our sheeting is manufactured to the highest quality standards and is specified in applications across the globe.

Metallic Gaskets

High integrity metallic gaskets for arduous service. Available in a range of materials in both standard and non-standard designs and supported by our renowned application support team. Delivering innovative sealing technology through the Halo Seal.

Environment & Safety

The UK's leading environmental monitoring division with over 15 years' experience in implementing and managing leak detection and repair (LDAR) programs globally. This division also supplies a range of innovative safety products, such as the Fingersaver, with a proven track record in delivering a safer workplace.

OEM Management Programs

We deliver innovative solutions for the management and supply of OEM consumables and store spares, fully supported by our state of the art CNC cutting facilities producing precision cut parts and gaskets in a wide range of shapes and materials.

Sealing Products

We supply a wide range of engineering products for industrial applications including rubber seals, O-Rings and other cut parts. Our technical expertise and unrivalled manufacturing capabilities, ensures that we are able to satisfy our clients requirements for rapid delivery of high quality products.

Training & Technology

Phoenix deliver high quality training and provide industry-leading technical support in all aspects of bolted joint integrity. Our courses are designed to ensure that technicians are competent to undertake processes associated with the assembly and disassembly of bolted flange connections.

Phoenix engineering specialists have the experience and expertise to deliver innovative and cost effective solutions to complex sealing issues.

Compressed Fibre Sheet

Our PG range of high performance compressed fibre sheet materials are manufactured to the highest standards and are designed to cover a wide range of applications.

Benefits

- Widely specified in applications across the globe
- Can be supplied as standard or non-standard gaskets
- Easy to handle and to cut
- Excellent sealability and good bolt torque retention
- The economic choice for many industrial flange applications

PG-E

Description:
PG-E is a cost effective medium quality grade of compressed fibre sheet material based on aramid and inorganic fibre with a high quality nitrile binding system.

Application:
PG-E is a general purpose gasket material with excellent mechanical properties, suitable for a wide range of fluids including oils, water, solvents, gas, low pressure steam and many chemicals.

PG-O / PG-Y

Description:
PG-O and PG-Y are good quality compressed sheet materials, based on aramid and inorganic fibre with a high quality nitrile binding system. The grades are identical and differ only in colour.

Application:
PG-O and PG-Y are high performance materials that meet the requirements of BS 7531 Grade Y. The materials have excellent sealing properties and are suitable for oils, water, solvents, gas, low pressure steam and many dilute acids and alkalis.

PG-G

Description:
PG-G is a high quality grade of compressed fibre sheet material based on a combination of expanded graphite and synthetic fibres with a high quality nitrile binder system.

Application:
PG-G is a premium performance material with excellent mechanical properties and a high degree of flexibility. The material is designed for use in a wide range of applications including steam, hydrocarbons and general chemicals.

PG-X

Description:
PG-X is a premium grade of compressed fibre sheet material based on aramid and inorganic fibres with a high quality nitrile binding system.

Application:
PG-X is a superior performance material meeting the requirements of BS 7531 Grade X and with outstanding mechanical properties. It is suitable for many fluids including hydrocarbons, steam, gases, dilute acids and alkalis.

PG-C

Description:
PG-C is a premium quality grade of compressed fibre sheet material based on aramid and carbon fibre with a high quality nitrile binding system.

Application:
PG-C is an outstanding material which exceeds the requirements of BS 7531 Grade X and has excellent temperature resistance. The material is suitable for alkalis, hydrocarbons, fuels, refrigerants, steam and many other fluids.

PG-1995

Description:
PG-1995 is a compressed fibre material comprising inorganic and aramid fibers with an oil-resistant synthetic rubber binder.

Application:
PG-1995 is an outstanding gasket material with a track record of successful application in demanding applications, supported by a wealth of approvals. Suitable for a wide range of fluids and for applications requiring good electrical resistance or fire safety.

PTFE Products

A range of high quality PTFE products with outstanding chemical resistance and excellent sealing properties. Includes our widely specified range of high performance, biaxially orientated materials with reduced creep and uniform strength throughout.

PC-B

Description:
PC-B is a high quality, restructured PTFE sealing material with a glass microsphere filler system.

Application:
PC-B is a highly compressible material suitable for steel, glass-lined, ceramic or plastic coated flanges. It is suitable for sealing all chemicals across the whole pH range, except molten alkali metals, fluorine or hydrogen fluoride.

Benefits

- FDA compliant
- Resistant to virtually all chemicals
- Temperature capability from Cryogenic to 260°C
- Suitable for low bolt load applications
- Easy to handle and cut
- Extremely low gas permeability

PC-F

Description:
PC-F is a high quality, restructured PTFE sealing material with a silica filler system.

Application:
PC-F is a high performance material with excellent mechanical properties. The material is suitable for use across a wide range of chemicals including strong acids (except hydrofluoric), steam, solvents and hydrocarbons.

PC-W

Description:
PC-W is a high quality, restructured PTFE sealing material with a barium sulphate filler system.

Application:
PC-W is a high performance material with excellent mechanical properties. The material is suitable for use across a wide range of chemicals including strong caustics, hydrofluoric acid, chlorine and aluminium fluoride.

PC-S

Description:
PC-S is a high compression PTFE material with a biaxially orientated core and highly conformable surface layers.

Application:
The soft surface layers make the material ideal for irregular, distorted or plastic and glass lined flanges and in applications where the available bolt load is limited. The rigid core reduces cold flow and creep and make the gaskets easy to install even at large diameters. The material is suitable for sealing across the full pH range.

PC-EX

Description:
PC-EX is an expanded PTFE sheet manufactured in such a way to have good strength in all directions.

Application:
PC-EX is a soft and compressible material with almost universal chemical resistance. It can be used to seal FRP, porcelain, plastic, and glass-lined piping or vessels as well as large diameter steel flanges.

Also available in tape form.

Graphite

Our graphite products are designed for demanding applications of higher temperature. Manufactured from high purity exfoliated graphite in a variety of forms and available with or without metallic reinforcement.

Benefits

- Excellent chemical resistance
- Good compressibility
- Outstanding stress retention
- Suitable for high operating temperatures
- Temperature range from cryogenic to +600°C*

*Oxidation resistant grades

PG-T

Description:
PG-T is a high quality graphite laminate material in which exfoliated graphite is mechanically bonded to a 316 stainless steel tanged insert.

Application:
PG-T has excellent mechanical strength, a wide temperature range and outstanding stress retention properties making it ideal for demanding applications. It is capable of sealing a wide range of fluids including steam, hydrocarbons and most chemicals.

Graphite Grades

Standard
High quality flexible graphite foil with a purity of 98%. Ideal for general purpose applications from cryogenic to 450°C.

Oxidation Resistant
High quality flexible graphite foil incorporating an oxidation inhibitor for high temperature applications of up to 600°C.

High Purity
High purity flexible graphite foil with a purity of 99%. Ideal as a seal within nuclear power plants and other critical applications.

Corrosion Resistant
High purity flexible graphite foil (ash content of < 0.15%) treated with a corrosion inhibitor, for critical applications in nuclear power plants and oil and gas facilities.

PG-F

Description:
PG-F is a high quality graphite laminate material in which exfoliated graphite is bonded to a 316 stainless steel foil insert.

Application:
PG-F has a wide temperature range, excellent chemical resistance and good stress retention properties making it ideal for many demanding applications. It is relatively easy to cut and so is a good alternative to PG-T in sheet form if cutting on site is required.

PG-P

Description:
PG-P is a high quality exfoliated graphite material supplied without metallic reinforcement.

Application:
PG-P is a high compressibility material with excellent stress retention properties. Its wide temperature range makes it ideal for applications in the petrochemical industry and as a filler or facing for metallic gaskets. It is available in either sheet form or as rolls and can be slit into any width.

PG-ML

Description:
PG-ML is a multi-layer material in which layers of exfoliated graphite are mechanically bonded to a 316 stainless steel foil, without the use of an adhesive.

Application:
PG-ML has excellent mechanical strength and can be used to seal high internal pressures. Its ability to resist high loads makes it ideal for tongue and groove and heat exchanger flanges or in hazardous applications where resistance to blow out is paramount.

Mica

Our PG-Therm range of mica based materials are globally specified in applications where resistance to extreme temperatures is a requirement. Available in a variety of configurations and thicknesses to cover the full spectrum of high temperature sealing.

Benefits

- Suitable for extreme temperatures of up to 1000°C
- Wide thickness range from 0.1mm to 6mm
- Electric and thermal insulation
- Excellent chemical resistance
- When combined with inhibited graphite ensures outstanding sealabilty at high pressures

PG-Therm

Description:
PG Therm is a high temperature gasket material comprising mica (phlogopite) and a small amount of high quality silicone binder.

Application:
PG Therm is ideal for high temperature applications such as exhaust systems, heat exchangers and turbochargers. It is designed for high temperature sealing applications of moderate pressure. Due to its excellent thermal and electric insulation properties it is often specified as an insulator or thermal barrier.

PG-Therm (Tang)

Description:
PG-Therm (Tang) is a high temperature gasket material comprising mica (phlogopite) and a small amount of high quality silicone binder, reinforced with a tanged insert.

Application:
PG Therm (Tang) is ideal for high temperature applications such as exhaust systems, heat exchangers and turbochargers. It is designed for high temperature sealing applications of moderate pressure. The tanged reinforcement provides stability particularly for gaskets of narrow width.

PG-Therm (Strip)

Description:
PG-Therm (Strip) is a high temperature sealing material comprising mica (phlogopite) and a small amount of high quality silicone binder. It is available in strip and roll form.

Application:
PG-Therm (Strip) is available in various thicknesses and a variety of widths and lengths. It is ideally suited as filler material for spiral wound gaskets. When combined with oxidation resistant graphite it delivers outstanding sealability even under extreme process conditions.

Metallic Gaskets

A range of innovative and high quality metallic gaskets for demanding applications. Available in a wide selection of materials and in both standard and non-standard designs.

Benefits

- Industry leading technical support from sealing specialists and metallurgical experts
- Ability to supply in the widest range of configurations, sizes and materials
- Widely specified across the globe
- Custom design and manufacturing
- Large stocks of standard gaskets

Spiral Wound Gasket

Description:
Phoenix spiral wound gaskets comprise a pre-formed metal strip and a softer filler material, spirally wound together to form a seal with excellent mechanical resistance and outstanding recovery. By the addition of retaining rings and the selection of specific alloys and materials, the gaskets can be configured to suit almost any application.

Application:
Spiral wound gaskets have wide scale applicability in a range of industrial sectors including refining, chemical, power and general pipeline construction. The robust nature of their design means that they are particularly suited to arduous operating conditions. They can be used across the full range of pipe pressure classes as well as in vessel flanges and other non-standard applications.

Kammprofile

Description:
Phoenix Kammprofile gaskets comprise a concentrically grooved metal core with a thin layer of sealing material applied to each face. The soft sealing layer compresses into the grooves of the core and provides a high integrity seal, while the core imparts compressive strength and resistance to lateral flow of the layer material.

Application:
Kammprofiles are suited to high temperature and high pressure systems making them ideal for heat exchanger service. Their unique combination of soft sealing material and grooved core also makes them suitable for relatively lightly loaded flanges. They can be used across the full range of flange classes as well as in non-standard applications.

Metal Jacketed Gasket

Description:
Metal Jacketed Gaskets consist of a soft filler material encased in a metallic shell. The filler material deforms under load and gives the gasket resilience while the metal jacket provides compressive strength and protection against the service conditons.

Application:
Metal Jacketed Gaskets are available in a wide range of configurations, materials and sizes making them an economic choice for heat exchangers, pressure vessels and other equipment applications. Due to their limited strength and recovery characteristics, they have largely been replaced by Kammprofiles in arduous applications.

Ring Type Joints

Description:
Phoenix Ring Type Joints are solid metal gaskets capable of sealing extreme pressures. They are machined to concentrate bolt load over a small area generating high sealing stresses. To prevent flange damage, the hardness of the ring joint should always be less than that of the flange groove.

Application:
Ring Type Joints are widely used in the Oil and Gas and Petrochemical industries in ASME and API flanges. They are available in a wide range of standard styles and in various alloys. We also supply specialised ring type joints for critical and non-standard applications.

Halo Seal

Description:
The Halo Seal is a revolutionary sealing product which delivers a reliable, cost effective and an environmentally friendly method of sealing flange joints. The gasket has a unique, detachable sealing element and reusable outer ring, reducing the life cycle cost of the gasket considerably.

Application:
The Halo Seal is ideal as a replacement for Spiral Wound and Kammprofile gaskets in standard pressure classes. The unique reusable sealing core is common across all flange standards and pressure classes making it a cost effect choice. The sealing core, based on Kammprofile technology, delivers low emission sealing.

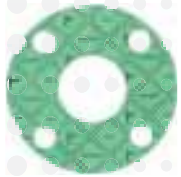
OEM Management Programs

We deliver innovative solutions for the management and supply of OEM consumables and store spares, fully supported by our state of the art CNC cutting facilities producing precision cut parts and gaskets in a wide range of shapes and materials.

Why choose Phoenix?

- Experience in delivering optimum performance contracts
- Reduced costs with inventory optimisation
- Specialist packs for the management of spares
- State of the art Atom Flash cutting machinery
- Fast turnaround of complex shapes and designs
- Drawings can be loaded directly from CAD
- A complete range of sealing materials

Precision Cut Parts



Phoenix Sheet

We produce gaskets in a range of standard sheet materials. Parts can be cut in complex designs rapidly and drawings can be loaded directly from CAD saving time on set up. Expert advice is available to help you select the correct product for your application.

Rubber

We manufacture a full range of rubber parts including solid, reinforced, foam sponge or self-adhesive backed. Parts can be manufactured from natural, neoprene, nitrile, EPDM, silicone, viton, styrene butadiene, butyl, and hypalon rubber, and in any dimension or shape.

Cork

Phoenix supply a wide range of cork gaskets designed for low flange pressures and moderate temperature duty. Materials include nitrile bonded cork and neoprene bonded cork and are typically used to seal oils, fuels and solvents.

Gasket Paper

Gasket papers are a low cost solution for oil based applications of low temperature and pressure. They are based on cellulose fibre which is impregnated with a plasticized gelatine. Gasket paper jointing is typically used in engines, axles, pumps, and cover joints.

Spares Management Programs

We have developed a range of innovative solutions for the management of consumables and spares including specialist aftermarket and bolting packs. Our site teams can survey existing requirements, helping to identify obsolete items and optimise inventory.

"Phoenix OEM management programs have a proven track record of reducing costs, improving operational efficiency, and optimising inventory."

Simon Winfield, Managing Director, Phoenix Group

Aftermarket Kits

We supply high quality kits for the aftermarket sector. Produced in a variety of materials and specifications to suit automotive engine parts and OEM machinery.

Gasket & Bolt Kits

Our Gasket and Bolt kits contain all the components required for flange sealing. Each kit incorporates a gasket and set of bolts and nuts and can be customised to suit almost any flange size.

Sealing Products

Benefits

- Highest quality products
- Extensive stocks ensuring rapid delivery
- World class technical support
- Widely specified in critical applications

We manufacture and stock a range of high quality sealing products to suit every industry and service. Our leading experts are at hand to assist you in choosing the most effective seal for your applications.

Insulation Sets

Description:
Insulation sets are used to electrically isolate flanges. They are typically used in cathodic protection systems and to help eliminate galvanic corrosion between dissimilar flange materials. We offer insulation sets in a range of style and configurations including high pressure kits based on stainless steel reinforced epoxy gaskets with pressure energising O-Rings, and lower pressure, economical alternatives which use a neoprene faced phenolic seal.

O-Rings

Description:
An O-Ring serves as a barrier, preventing a leak path between the sealing surfaces. It has advantages over other sealing systems with its simplicity of construction, standardised seal dimensions and suitability for both static and dynamic applications. O-Rings are available in a wide selection of elastomeric materials including NBR, Viton®, EPDM, silicone and polyurethane.

Graphite Tape

Description:
We supply graphite tape in a range of thicknesses and widths. Tapes can be supplied plain or corrugated and with adhesive if required. Our graphite tape can be used in gaskets as the filler for spiral wound, a facing for Kammprofiles or as part of a metal jacketed gasket. It is ideal for an on-site valve and pump packing and as the material in the manufacture of graphite pressed rings.

PTFE Tape

Description:
Phoenix Thread Seal tape is manufactured from high quality unsintered PTFE, extruded and rolled into tape form. It is very soft, non-contaminating and can be easily removed. The tape is widely used in general water plumbing applications. Yellow gas tape is also available certified by Underwriters Laboratory (UL) USA for usage in threaded assemblies for the oil and gas industries.

Graphite Die Formed Rings

Description:
Graphite die formed rings are designed for higher pressure applications typical of the power generation, oil and gas sectors. They are manufactured from graphite tape which is formed under pressure, using a die, to produce a seal with a density of between 1.3 g/cm^3 to 1.8 g/cm^3. Available in a standard, high purity, corrosion resistant and oxidation inhibited grades and in a variety of shapes and styles.

Compression Packings

Description:
Compression packings are designed to provide a seal between a moving spindle or shaft and the pressurised housing into which it locates. Typically the equipment is a pump, valve or mixer. They are relatively simple to install and maintain, and are a cost effective alternative to more complex seals. We supply a range of compression packings using a variety of yarns including graphite, PTFE, aramid and flax.

Flexible Seals

Description:
Phoenix Group supply flexible fabric connectors and compensators for the most challenging of applications. These Flexible Seals are produced from a range of fabrics and are suitable for both low and high temperature applications.

Environment & Safety

The market leader in the provision of emission monitoring programs and a major supplier of specialist safety products, designed to prevent injury on site.

Products & Services:

- Development and implementation of LDAR programs
- Emission calculations and reporting
- Third-party audits, including comparative monitoring
- Internal and external training programs
- Optical gas imaging camera surveys
- Safety products designed to prevent injuries on site

Environmental Control

"A quality LDAR program pays for itself by reduction in lost product."

Dr Kevin McQuillan,
Solomon Associates

Emission Monitoring

Our environmental monitoring division has over 15 years' experience in the implementation and management of leak detection and repair (LDAR) programs across the globe. We use pioneering technology, supported up by industry leading expertise, to ensure our clients minimise the release of airborne pollution and contaminants and so reduce their environmental impact.

Optical Gas Imaging Camera

Our optical gas imaging cameras use infrared technology to visualise leaks that would otherwise go undetected. In a complex petrochemical facility where there may be many thousand potential leak paths, a gas imaging camera allows the users to examine many potential leak sources in a short time and from a distance.

Safety Products

Our safety products have a proven track record in improving the safety of the workplace. They assist in preventing injury when working on site, helping to ensure a safer, working environment for all.

Fingersaver

Description:
The finger saver is designed to prevent finger injuries by keeping hands away from the impact position of the hammer on flogging spanners and pinch points when using impact wrenches and hydraulic torque equipment.

Cable Tidy

Description:
Hoses and cables that are left untidy in a workplace, can cause serious tripping hazards and lead to injury. The hose and cable tidy is ideal for keeping all types of hoses and cables tidy, resulting in a safer environment for all employees.

Tool Lanyard

Description:
Our safety tool lanyard is 1m long and made from a tough seat belt webbing material that can be attached to hand tools to prevent them falling to the ground when working at height.

Training & Technology

Experienced, expert engineers deliver high quality joint integrity training and provide world class technical support on all aspects of fluid sealing.

Why choose Phoenix?

- World Class experts in sealing technology and bolt integrity
- Dedicated test facilities that deliver innovation
- Certified training in bolted joint integrity
- Comprehensive application design service
- Bolt calculation capability and software design

"Bolted flange connections play a critical role in the containment of process fluids within industrial facilities. Without due care paid to their design, selection and assembly they will leak and leaks endanger the safety of plant, impact the environment and result in a loss of revenue for the operator."

Dr. G. Smith, Technical Director, Phoenix Group

Design Software

Phoenix develops selection and torque calculation software to assist in the design of sealing solutions. The software can be tailored to suit individual requirements and developed as an app, a desktop application or a web based program.

Engineering Support

Our engineering specialists have the experience and expertise to deliver cost effective solutions to complex sealing problems. We have the capability to design and manufacture application specific solutions, run calculations, undertake product testing and review applications on site.

Research & Development

Our R&D center in Chesterfield is focused on the development of the next generation of sealing products. We deliver innovation through research, product testing and competitor benchmarking, all conducted by experienced multi-disciplinary teams.

Training

We provide certified and awareness training on bolted joint integrity. Our courses are delivered by experienced instructors and ensure attendees are competent to undertake the necessary processes associated with the assembly of flange connections. Training can be conducted at our dedicated training facility in Chesterfield or on-site.

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