Global supply of

- Best-value fluid seals & gaskets
- Standard & custom-designed products
- Expansion joints & bellows
- Bolting technology
- Vibration damping & control
Sealing guide for conventional thermal power generation

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Inconel® Special Metals Corporation
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Mylar® E I du Pont de Nemours and Company or its affiliates
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To ensure you are working with the very latest product specifications, please consult the relevant section of the James Walker website: www.jameswalker.biz.

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Introduction

James Walker is a dynamic global manufacturer and distributor that supplies a vast range of specialised products to the power generation industry on a global basis.

From fuel handling and preparation plant, through combustion systems, high pressure steam raising, to exhaust processing, and heavy electrical plant — we have a long-proven track record as a leader in fluid sealing and associated technologies.

Our world-leading expertise and capabilities are led by design and materials technology, plus the willingness to solve sealing problems for equipment manufacturers, plant operators and maintenance contractors.

To achieve this, we embrace the complete industrial cycle from research, development and manufacture, to product application and plant maintenance.

This publication covers coal, gas, oil, and waste-fired plant, as well as CCGT. The Quick reference chart (pages 6-7) follows a route through the power generation process and itemises the James Walker products and services applicable to different plant.

As well as supplying well over quarter of a million standard products, we also specialise in the custom design, prototyping, testing and manufacture of sealing products and systems to solve specific problems.

In addition, we formulate and compound special high-performance elastomers, and undertake the custom moulding and extrusion of rubber components of all sizes and complexities for industrial applications.

Separate sealing guides cover the nuclear power sector, hydropower industry, and wind energy (see page 17).

Our range is being constantly developed to meet the changes and increased demands of the power industry, so please contact your local James Walker company — as shown on rear cover — if your need falls outside the products and services described.

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Meeting global demands

Global services

Our role as a global supplier demands an international manufacturing base, plus highly efficient sales and distribution operations.

We have a worldwide family of companies with over 50 production, engineering, distribution and customer support sites spread across Europe, Asia, Asia Pacific, Australasia, Southern Africa, and North and South America.

At the local level, a close-knit network of James Walker companies and official distributors supplies products and services to well over 100 countries. Our highly developed IT-networks, e-commerce systems and logistics operations give customers the surety of supply they need.

Partnering contracts

E-commerce and logistics feature strongly in our long-term partnering contracts with major national and multi-national corporations. Their engineers are able to specify, select and order sealing items on-line from site, anywhere in the world, in the sure knowledge that their requirements will be swiftly and efficiently met.

These contracts are managed by dedicated managers, backed by specialised teams of experts, whose sole responsibility is to service the needs of that customer's sites across different countries and continents. In many cases we hold stocks of customer-specific products local to their sites for immediate delivery.

Our service, however, is not limited to the supply of items to meet planned maintenance and unscheduled shutdowns.

Our power generation industry specialists work in close harmony with customers’ engineers and scientists to solve their complex fluid sealing problems and generate best-value solutions. This leads to the development of new products that meet ever-increasing demands, changing health and safety regimes and new environment legislation.
Quality — our prime consideration

Quality design, quality manufacture and quality service are paramount throughout our worldwide operations. We start with the best raw materials and use advanced manufacturing techniques with strict quality control of every process.

This culture is reinforced by top-level technical support, logistics operations and a multitude of customised services.

Our quality standards are third-party certified to ISO 9001 and AS/EN 9100. Industry bodies, as well as corporations, utilities and government organisations, regularly assess and approve our standards. In addition, we are certified to OHSAS 18001 Occupational Health & Safety Management, and ISO 14001 Environmental Management.

Leading with technology

By operating at the leading edge of technology, we ensure that our products and services match the ever-growing complexity of industrial plant — both for today and into the future.

Fluid sealing is not a stand-alone technology: it is based on materials development, innovative design and skilled application. It depends greatly on constant advances in elastomers, engineering plastics, metallurgy and manufacturing techniques, as well as chemistry, tribology and fastener technology.

We make best use of these capabilities to help industry improve its safety, environmental systems and revenue protection. Many of our products efficiently control fugitive emissions of volatile organic compounds to TA-Luft and other standards.

We also provide specialised knowledge and products to companies that must meet the latest environmental legislation, such as the European Union’s wide-ranging Integrated Pollution Prevention and Control (IPPC) directive 96/61/EC.

Scientists and engineers at the James Walker Technology Centre work constantly on in-house and customer-specific research and development projects — often in conjunction with other sites of excellence — to convert innovative materials and ideas into sealing production reality.

These are just a few examples of our R&D successes:

- **Walkersele® OSJ-2** — OSJ® is our patented technique for On-Site Joining a seal around a shaft without stripping down the housing or shaft. This saves plant operators days of maintenance time and plant shutdown, without loss of sealing integrity or operational life.

- **Walkersele® Ultraglide** — A reformulated hydrogenated nitrile (HNBR) material with optimised properties that greatly extend the working life of rotary seals running for long periods under hot and abrasive conditions. Under such arduous conditions, Walkersele® Ultraglide has given six times the maintenance-free life of a traditional nitrile (NBR) seal.

- **RotaBolt®** — Range of safety bolts that give a clear indication of tension loss across a bolted joint. These bolts improve safety regimes and offer significant savings in maintenance costs.
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To order or get further details, call your local contact shown on rear cover or listed at www.jameswalker.biz
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Our vast ranges of sealing products cater for virtually every sector of industry, with power generation being one of our major areas of activity.

Many of our products have been developed specifically to operate efficiently and reliably in the aggressive environments encountered in the conventional thermal power sector.

Hydraulic sealing products

We manufacture an all-embracing family of hydraulic sealing products that includes:

- Rod/gland seals
- Piston seals
- Wipers and scrapers
- Bearing strips
- Protector bellows.

From the heaviest compactors and pulverising mills, down to small control actuators, we have products specifically developed to give:

- Optimum equipment performance
- Reduced leakage
- Low-friction operation
- Long trouble-free working life.

For heavy duties in the power sector, we recommend our highly proven Chevron®/Shallex® universal lip packings and our compact Solosele® G single-element seal. On double-acting pistons, our robust Solosele® S and Solosele® SW are widely used.

‘O’ rings

We stock ‘O’ rings in thousands of size/material combinations for same-day despatch. Non-stocked items are swiftly manufactured to meet urgent demands.

‘O’ ring size ranges

- BS ISO 3601-1 (metric & inch sizes)
- SAE AS 568 (inch sizes)
- BS 1806 (inch sizes, now superseded by BS ISO 3601-1 Class A)
- BS 4518 (metric sizes)
- JW Chart 17000 (inch sizes)
- Non-standard rings to any size; endless rings to 2.2m OD.

‘O’ ring materials Include grades of:

- Acrylic (ACM)
- Butyl (IIR)
- Chloroprene/neoprene (CR)
- Chlorosulphonyl polyethylene (CSM)
- Elast-O-Lion® hydrogenated nitrile (HNBR)
- Epichlorohydrin (ECO)
- Ethylene propylene (EPM/EPDM)
- Fluolion® (PTFE)
- Fluoroelastomer (FKM)
- Fluorosilicone (VFMQ)
- Kalrez® perfluoroelastomer (FFKM)
- Natural rubber (NR)
- Nitrile (NBR)
- Polyurethane (AU/EU)
- Silicone (VMQ)
- Tetrafluoroethylene/propylene dipolymers (FEP), eg, Aflas®.

For details of our full family of hydraulic sealing products, please ask for James Walker’s Hydraulic Sealing Guide or download a pdf copy from www.jameswalker.biz.

For our full range of ‘O’ ring products, please ask for James Walker’s ‘O’ Ring Guide, or download a pdf copy from www.jameswalker.biz.

Back-up rings In Fluolion® (virgin or filled PTFE), and PEEK®.
Expansion joints, bellows & penetration seals

Our standard ranges and custom-designed expansion joints and bellows are used throughout the power generation sector. A project-managed turnkey service from site survey with thermal imaging to on-site installation is available.

**Comflex® expansion joints**
We have expansion joints for high-temperature ducts of all designs, as well as for gas turbine inlets, pulverised fuel mills and hoppers. Many frame and joint designs are available for different operating regimes, backed by technical support including finite element analysis.

**Metallic & rubber bellows:** to absorb expansion and movement in pipework.

**Protector bellows:** manufactured in fabric-reinforced elastomer or polyurethane, these act as highly efficient ram protectors on hydraulic systems.

**Sidewall seals & sling-rod penetration seals:** typically in boiler dead space.

For more details, ask for James Walker Townsend guide to Comflex® Expansion Joints & Bellows plus its power sector leaflets, or download from www.jameswalker.biz.

Sheet jointings & cut gaskets (CNAF)

We supply precision cut gaskets to any shape, size and quantity, as well as sheet jointings, in a range of calendered non-asbestos fibre (CNAF) materials.

**Centurion®**
Our most popular jointing for thermal power generation applications. It is a high performance material, based on glass and aramid fibres with a nitrile rubber (NBR) binder, and has anti-stick surfaces.

This is widely used on pumps, valves, valve bonnets, pipework flanges, gearboxes, etc, throughout the plant.

Centurion® is chemically and thermally stable for duties up to 440°C, and suitable for a wide range of media. It meets the requirements of BS 7531 Grade X.

**Chieftain®**
Our premium grade universal sheet jointing, comprising an advanced carbon fibre material with a nitrile (NBR) binder.

It offers high strength and stability with outstanding chemical and steam resistance. It surpasses BS 7531 Grade X requirements, and is suitable for ASME Class 300 flanges to at least 260°C. Maximum operating temperature is 450°C.

**Sentinel®**
General purpose jointing that offers outstanding performance for its class. It exceeds BS 7351 Grade Y property requirements.


Expanded graphite gaskets & jointings

Supagraf® plain and reinforced jointings offer excellent resistance to steam and chemicals, plus high levels of joint stability and sealing integrity over extended periods. Precision cut gaskets to any shape, size and quantity are supplied.

**Supagraf® Plain**
Sheet jointing of 98% pure exfoliated graphite, with a temperature capability up to 400°C (oxidising media) and 2500°C (inert/reducing media).

**Supagraf® Tanged T10**
Sheet jointing of 98% pure exfoliated graphite reinforced with a central layer of 0.1mm thick tanged stainless steel. The graphite is compressed on to the perforated metal sheet to give a secure mechanical lock without adhesive. This gives the material exceptional resistance to blow out and crushing.

Maximum temperature for inert/reducing media is 700°C, or 400°C for oxidising media.

Supagraf® jointings are recommended for flanges on pumps, valves and pipework where long life, high temperature capability and resistance to steam and chemical action are needed.

Spiral wound gaskets

**Metaflex® spiral wound gaskets**
These will seal flanges where pressure, temperature, vibration or flow rates are beyond the capability of conventional jointing materials.

Typical applications include pressure vessels, steam lines, heat exchangers and condensers.

The gaskets are wound in V-section metal strip with a soft filler material, so that flange faces are presented with a spiral of alternate metal/filler layers. Metal support rings inside and/or outside the spiral winding enable the gasket to be used for high line pressures on flat or raised flange surfaces.

Winding strip materials are formed in a selection of stainless steels, nickel alloys or titanium. Filler materials include graphite and PTFE.

System pressures range from high vacuum to in excess of 35MPa/350bar. Higher pressures (eg, 43MPa/430bar for Class 2500 flanges) are considered on request. Operating temperatures (with graphite filler) range from cryogenic up to 650°C in steam; 600°C in inert/reducing media; or 500°C in oxidising media.


Kammprofile & metal gaskets

**Metakamm® Kammprofile gaskets**
We recommend these for flange joints on high-pressure pipework and vessels where operating conditions fluctuate.

Typical applications include heat exchangers and condensers.

These gaskets comprise a metal core with concentric grooves on either side. They usually have a soft layer of sealing material bonded to both grooved faces.

The metal cores are supplied in a range of stainless steels, nickel alloys, titanium or copper. Sealing faces are typically graphite or PTFE.

Maximum system pressure is 25MPa/250bar. Maximum operating temperatures (with graphite faces) are 650°C in steam, or 500°C in oxidising media.

**Other metal gaskets**
For specific applications we also recommend our Moorside® Ring Joints (UK manufactured under API licence), as well as Machined Metal Gaskets, Corrugated Metal Gaskets, and Metal Jacketed Gaskets with a soft pliable core.

For more detailed specifications on our gasket products, ask for James Walker’s *Gaskets & Jointings Guide*, or download a pdf copy from [www.jameswalker.biz](http://www.jameswalker.biz).

Transformer & switchgear gaskets

Five of our Nebar® cork-elastomer jointings are manufactured specifically for gaskets on switchgear, transformers and other heavy electrical plant in power generation and distribution.

**Nebar® Black**: Hi-performance Electrical, is our top grade with a minimum resistivity of 10^10ohm.cm at 100V dc. It is ideal for applications on hydrogen coolers and plant containing SF6 gas.

**Nebar® White**: Premium Neoprene Electrical, is our top grade for heavy plant containing mineral-based transformer oils.

**Nebar® Grey**: Premium Nitrile Electrical, meets ABB specifications for switchgear and transformers.

**Nebar® Purple**: Nitrile Electrical, offers the highest resistance to over-compression of all Nebar® grades.

**Nebar® Orange**: Neoprene Electrical, is our economically priced, high-quality cork-elastomer jointing for switchgear and transformers.

Operating capabilities depend on the specific grade.

For further details of our gaskets and related products, please ask for James Walker’s *Gaskets & Jointings Guide*, or download a pdf copy from [www.jameswalker.biz](http://www.jameswalker.biz).
Cut rubber gaskets & profiles

We precision cut complex profiles and gaskets from a wide range of specification grade, high performance, and commercial grade elastomers.

Of particular value are specific grades of:
- Butyl (IIR)
- Chloroprene/neoprene (CR)
- Elast-O-Lion® hydrogenated nitrile (HNBR)
- Ethylene-propylene (EPM/EPDM),
- Fluoroelastomer (FKM), eg, DuPont™ Viton®
- Fluorosilicone (FMO/FVMQ)
- Kalrez® perfluoroelastomer (FFKM)
- Natural rubber (NR)
- Nitrile (NBR)
- Polyurethane (AU/EU)
- Tetrafluoroethylene/propylene (FEPM), eg, Aflas®
- Silicone (VMQ/MQ).

We also supply blended compounds — such as styrene butadiene and natural rubber (SBR/NR) — and sheets containing insertion layers of cotton or polyester scrim.

Operating capabilities depend on material type and specific grade.

Flange insulation sets

Each set comprises an electrically insulating flange gasket, plus insulating bolt sleeves and washers to prevent electrical conduction through bolts.

These are used widely in cathodic protection systems and to help eliminate galvanic corrosion, as well as reducing the risk of eddy current build-up. They prove of particular value on pipelines for water, oil or gas.

Four designs of set are available to cater for many different flange sizes, specifications and arrangements — including those with ‘O’ ring grooves or handling very high pressures.

Standard gaskets are neoprene-faced phenolic. Standard sleeves are polyester or DuPont™ Mylar®. Standard insulation washers are reinforced phenolic. Back-up washers are zinc-plated carbon steel. Ranges of alternative materials are available.

Rotary/radial lip seals

Walkersele® is our exceptionally well proven family of radial lip seals for rotating shafts and rotary plant. Duties in the power sector include gearboxes and transmission systems on conveyors, pulverizing mills and fans.

Specific features
- Protect bearings, to extend bearing life and improve plant reliability.
- Ultraglide® version greatly extends seal life in hot and abrasive environments.
- Prevent ingress of external media that contaminate bearing lubricants.
- Prevent oil and grease from escaping to contaminate process media.
- Provide efficient sealing in both directions when used in back-to-back configuration or manufactured with a secondary lip.
- Reduce maintenance costs and plant downtime, especially when fitted using our OSJ® On-Site Joining technique.
- Sizes to unlimited diameter.

We manufacture Walkersele® in a wide range of designs and materials to work at under-lip temperatures up to 200°C and surface speeds up to 25m/s, dependent on conditions and seal features.

For our full range of rotary/radial lip seals, please ask for James Walker’s guide to Walkersele® Radial Lip Seals or download a pdf copy from www.jameswalker.biz.
Valve stem packings

Our range of compression packings for valve stem sealing covers virtually every duty within the power generation sector.

For valves on steam systems we provide Supagraf® RibbonPak M which comprises exfoliated graphite ribbons reinforced with Inconel® wire. This has a steam capability up to 650°C or maximum system pressure of 30MPa/300bar. Our Grafpak comprises cross-plaited graphite filament yarns, and has a steam capability up to 550°C or 15MPa/150bar.

For cooling water systems, we offer Fluograf® made from GFO® yarn. In addition, our aramid-based Duramid®, and Ramix® natural fibre packing, both provide excellent resistance to abrasion and extrusion.

For fuel oil and gas systems we recommend Supagraf® Premier — for world-beating VOC fugitive emission control — and Supagraf® Control for control valves to TA Luft requirements. Both of these products are based on exfoliated graphite and provide low-friction action for positive and accurate valve action.

Soot blower packing rings

Manufactured in knitted copper wire and graphite yarns, these tough dense packings will combat wear and resist the actions of excessive lance movement.

Moulded graphite sealing rings for valves

Our Supagraf® Moulded Sealing Rings are produced to a precise density and dimensions in high-purity graphite foil without binders, elastomers or fillers.

They are recommended as a valve stem packing for systems handling high-temperature steam, demineralised water, heat transfer media, inorganic and organic acids, and alkalis.

**Specific features**

- Chemically inert in the range pH 0-14.
- Outstanding sealing performance over long adjustment-free periods.
- No loss of volatiles.
- Fire safe capability.

**Operating capabilities**

**Maximum temperatures:**
- Steam: +650°C.
- Oxidising conditions: +500°C.
- Non-oxidising: +1000°C.

**Minimum temperature:** -200°C

**Maximum system pressure:**
- 25MPa/250bar.

For our full range of valve packings, please ask for James Walker’s Compression Packings Guide, or download a pdf copy from www.jameswalker.biz.

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Pump & rotary plant gland packings

We manufacture long-life gland packings for centrifugal pumps and rotary equipment, as well as reciprocating pumps and rams.

Liongraf is our economical packing for universal application. It is suitable for condensate, effluents, fuels and oils. On rotary duties it operates up to 17.5m/s or 2MPa/20bar; on reciprocating duties it operates at maximum rod speed of 2m/s, or 8MPa/80bar maximum system pressure.

For harsh conditions, we recommend our tough Hornet packing which can absorb the eccentric action of worn shafts and bearings. Maximum rotary shaft speed is 20m/s; maximum system pressure is 2MPa/20bar.

Our tough aramid-based Duramid® also has a maximum rotary shaft speed of 20m/s, but can also operate up to 2.5MPa/25bar.

Ramiex offers a maximum rotary shaft speed of 17.5m/s or maximum system pressure of 2MPa/20bar. However on reciprocating duties, it offers a maximum rod speed of 2m/s, or maximum system pressure of 25MPa/250bar, which is extendible up to 70MPa/700bar with special support rings on some applications.
Products

Bridgman-type valve seating rings

Our sealing rings of reinforced moulded graphite solve problems on Bridgman-type valves used in power generation.

The rings are moulded in Supagraf® graphite that has been internally reinforced with stainless steel wire mesh. They replace metallic valve-bonnet seals that handle steam and water at combined cycle gas turbine (CCGT) and combined heat and power (CHP) stations.

These composite rings have higher sealing efficiency and cost less than OEM seals. They are supplied in sizes up to 460mm OD, with diameters to 1000mm available as specials. Split-type seals are provided to accommodate modified valves.

Valve seats in Devlon® thermoplastics

Devlon® V-API is a superior seat material, for many valve types, developed by James Walker in close co-operation with the valve industry.

It is widely specified by valve manufacturers that need seating rings with enhanced performance.

Devlon® V-API is a proprietary formula that includes additives allowing the material to perform at higher pressures and temperatures than the majority of soft valve seat materials.

(In China this material is know as: JW DV-API.)

Elastomeric mouldings

We provide technical expertise and support to customers, together with expert advice, general and high-performance elastomers, and custom designs for special components.

Typical examples include coupling drive rubbers and discs for conveyor systems.

The resulting items are prototyped and tested before being installed. As well as working with customers at original design stage for such products, we are willing to go into the field to solve on-site problems.

This level of service is freely available to OEMs, end users, maintenance specialists and plant refurbishment contractors.

Our elastomer moulding facilities are world class, matched by the materials development, processing and application skills that customers rely upon when quality is the prime requirement.

We have vast arrays of compression and vacuum presses in the UK and USA that produce precision elastomeric mouldings from the smallest ‘O’ ring up to massive seals and other items of 2.2m diameter — and to unlimited diameter using special mould-joining techniques.

Glass/ceramic ropes & tapes

Braided glass yarns are supplied in round, square or rectangular sections, and in different densities.

These are typically used as high-temperature capability seals for doors and access points, such as on PF mills, hot air ducts, boiler access areas, and ash plant.

Glass webbing tape and ladder tape are also supplied, along with rope/pipe lagging.

Valcor® Hi-Temp

With a temperature capability up to 1000°C (constant) or 1100°C (intermittent), this non-hazardous fibre material replaces normal ceramic fibre constructions that can prove hazardous to health.

It is supplied as a densely braided packing for door seals in sections up to 100mm, square, round or rectangular. We also manufacture it as braided insulation sleeves, webbing tapes, ladder tapes, twisted ropes, lagging ropes, blankets and paper, and woven cloth.

Valcor® Hi-Temp offers far better value for money than other non-hazardous high temperature materials, such as those made of pure silica fibre.
Cartridge & mechanical seals

We custom-design and manufacture cartridge seals for many high integrity industrial applications.

HydroSele®
In the power generation sector, we recommend our HydroSele® for main shaft sealing on large diameter cooling/circulating water pumps.

This cartridge seal features modular split construction for ease of assembly and installation. It contains two main sealing elements working back-to-back with flush water introduced between them.

HydroSele® is well proven on long-term duties with water at up to 1MPa/10bar system pressure and 33m/s shaft speed. It also contains a maintenance seal that enables the main sealing elements to be changed simply and swiftly without dewatering the culvert.

Other designs of cartridge seal or mechanical seal are available for power station duties on fuel oil systems, lubrication systems and slurry pumps.

Machinery mounting pads

Our Tico® machinery mounting products are designed to match today’s fast changing industrial environment. They also attenuate vibration and transmitted noise.

Typical power station applications include conveyor systems, fans, motors and gearboxes.

Tico® S machinery mounts
These resilient mounting pads are recommended for general plant duties and are compatible with all types of machine base. They are manufactured from a blend of selected cork particles and elastomers.

Tico® Hi-duty pads and buffers
We have three grades of very tough and resilient pad that absorb highly destructive shock loads to prolong machinery life. Pad composition is varied to suit specific duties and retain its properties under extreme conditions.

Tico® LF mounting pads
These scientifically designed bonded-sandwich pads are designed to isolate disturbing low frequencies at the plant/structure interface.

For information on the full range of machinery mounting pads, please ask for Tico® technical literature, or visit www.jameswalker.biz.

Elastomeric extrusions

Our elastomeric processing facilities include the extrusion of natural and synthetic rubbers using both continuous and batch production methods. We produce solid, hollow and sponge-filled profiles using extrusion techniques.

Hollow & inflatable seals
We recommend these where compressibility is needed for high-integrity doors or hatch seals. Hollow extrusions allow the section to be compressed, and can then be inflated and deflated by pressurised gas or liquid via a securely moulded in valve.

Sponge extrusions
Sponge and sponge-filled extrusions provide compressibility with increased stiffness.

Solid elastomeric extrusions
These are manufactured in standard and high-performance elastomers, and in a virtually unlimited range of profiles. Endless components are readily formed by mould joining.
Hoppers & chutes
We supply hopper and chute liners manufactured in high molecular weight polyethylene. These products are abrasion resistant for long trouble-free life under arduous working conditions.

Other materials include a high strength wear-resistant elastomer. Based on a blend of natural and synthetic elastomers, it acts as a long-life sacrificial lining for conveyors, silos and other plant that handle highly abrasive dry minerals or slurries.

Duct membranes
For the exhaust processing systems of coal-fired plant, we manufacture and supply air slide duct membranes in our LR5505 graphite-coated glass fibre cloth.

Chimney seals
As a member of CICIND, James Walker Townson is one of the leading suppliers of quality seals for chimney applications. We are therefore well qualified to offer expert advice on designs and installation.

When temperatures within chimneys fall below dew point, the internal surface can be exposed to very corrosive condensate. As a result, the internal surface must be constructed from materials that can withstand this chemical attack.

The internals of both brick and metallic chimneys can take many forms, and the smooth exterior wall of a chimney can hide many complicated configurations.

As in many fields of engineering, seals within chimneys have changed and developed with the advancement of materials and the increasing demand required of seals.

Chimney seals must provide the same corrosive resistance as the inside of the chimney yet remain flexible and offer resistance to abrasion. To meet such demanding criteria, we provide the ultimate in chimney seals made from either fluoroelastomer or fluoroplastics materials.

Rubber-to-metal bonding
Our custom capabilities include high integrity rubber-to-metal bonding — as well as metal-to-PTFE bonding and metal-to-plastics bonding.

These services are widely used across industry in the manufacture of high-integrity components and fluid seals.

In the power generation sector, we provide these services for rubber/metallic components used in conveyor systems.

Our process produces intimate bonds of very high strength, using state-of-the-art plant and technology.

We bond all standard elastomers, and virtually every high specification grade, to a wide variety of metal substrates.
Pipe support systems

Tico® pipe support products are widely used on cooling system pipework. They are fire retardant components that do not support the surface spread of flame.

Our Tico® Pipe Grips are designed specifically to isolate pipes, minimising vibration transmission between pipework and hanger, and preventing corrosion between dissimilar metals.

We have two designs of pipe grip, a Guide Type with a PTFE inside surface to allow movement of the pipework, and a Grip Type that securely holds the pipe to prevent movement. They are available for use with stainless steel or Cu/Ni pipes.

Tico® Clamp Blocks provide protection and uniform spacing of pipe lines. They absorb shock, noise and vibration caused by fluid velocity and turbulence in pipes, which would otherwise be transmitted through the clamp to the surrounding structure or building. They are supplied in single or multiple pipe carrying sections.

Tico® Clip Strips provide the highest level of shock and vibration isolation between pipework and hanger. Available in three grades for varying applications, they fit most common strap widths, are easy to install, and can be manufactured to suit temperatures up to 300°C.

For further information, please ask for the Tico® Pipe Support Systems guide.

Tension monitoring fasteners

Our RotaBolt® range of tension monitoring fasteners provides either finger-tip or visual monitoring of tension throughout the life of a bolted joint. The pre-set bolt loads can therefore be swiftly checked and maintained.

RotaBolts have been specified in the power generation sector for many years, on a wide variety of flange joints and structural assemblies subject to fatigue, vibration, pressure containment or slippage.

The inclusion of RotaBolt® tension control at plant design stage will help to ensure the integrity of bolted joints where safety, reliability, security and ease of maintenance are essential.

Trouble-shooting

These safety bolts are often used, along with our gasket products, in trouble-shooting projects where flange joint leakage is a problem on critical and high temperature, high pressure plant.

In such cases we work closely with the plant operator or equipment supplier to design a new or modified flange jointing arrangement that will operate efficiently under the temperature/pressure cycling involved for the required maintenance period.

This flange arrangement is then tested before operational use.

Tension versus torque control

The RotaBolt tension monitoring system surpasses traditional tightening methods such as hydraulic tensioners, flogging, and torque systems. Such techniques have severe control limitations that can result in unpredictable bolt tension and joint failure.

With RotaBolt® types 1 and 2, tension is easy to finger-check, even when wearing protective clothing. RotaBolt® Vision is readily monitored at a distance, and in many locations where access is difficult.

We manufacture RotaBolts in alloy steels up to 12.9 strength grade, stainless steels, cupro-nickel, nickel and titanium alloys. Customers’ existing fasteners can also be modified.

For further information, please ask for the RotaBolt® Assurance Through Measurement guide, or download a pdf copy from www.jameswalker.biz.
These guides give detailed technical information on the products and services covered in this publication. Please ask for your copies, or visit our website www.jameswalker.biz where many of them can be downloaded in pdf form.
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