

**James Walker®**

# Wellhead Sealing Guide

Issue 2

- *Sealing solutions for the Oil & Gas industry*
- *Innovative technology offering safety, performance and reliability*
- *Global customer service and product support*



High Performance Sealing Technology



## About James Walker

### The Oil & Gas industry

James Walker has long been committed to the provision of sealing solutions for the exploration and production of oil and gas.

Our capabilities in high performance materials science are relied upon worldwide by customers who need top quality materials that are validated and proven to operate:

- At extremes of pressure
- In chemically aggressive and physically abrasive environments
- Under rapid gas decompression (RGD) conditions
- In naturally occurring chemical / sour gas environments
- With large clearances and / or poor surface conditions
- To the highest performance specifications laid down by international industry
- With temperature cycling regimes
- At extremes of temperature
- Where failure could have significant health & safety, environmental or financial risk

**The correct selection and specification of sealing materials and products is a prerequisite to the safe and effective operation of plant and the prevention of expensive downtime.**

**Please see the relevant James Walker guide for comprehensive product descriptions.**

**To get your copy, see the contact details on the rear cover, or visit our website [www.jameswalker.biz](http://www.jameswalker.biz).**



### Technology & innovation

- Working in partnership with the Oil & Gas industry for over 40 years
- In-house development of world-beating rapid gas decompression (RGD) resistant elastomers
- Confidential research projects both for and in partnership with clients
- Development of current best in class emissions control technology for valve stem sealing

### Testing and verification

- We hold test equipment for all relevant ANSI, API, ASA, ASTM, BS, DIN, DTD, ISO and NATO standards
- Environmental chambers capable of replicating conditions from -70°C to +130°C
- Rapid gas decompression rigs – amongst the most advanced in the world
- Steam skid for testing seal design and materials under steam regimes
- Rotary and reciprocating test rigs with a variety of shaft sizes and speeds up to in excess of 6,000 rpm
- Chemical type-approval testing allowing customers the opportunity for third party-witnessed testing of elastomers and polymers in their anticipated chemical environment

### Manufacturing excellence

- Special expertise in the machining of thin-walled annular components
- Highly skilled at working with nickel alloys that are difficult to machine
- Total control from concept through manufacture to supply and commissioning
- Full certification and traceability of all materials
- In-house processing and compound manufacture of elastomers and thermoplastics
- James Walker Moorflex is API Spec Q1 licensed for ring joint manufacture
- ISO 9001:2008 approved for design, manufacture and technical support

### Customer service

- Key operational hubs in Aberdeen, Houston, Singapore and Rio de Janeiro
- Worldwide family of James Walker companies
- Over 50 production, engineering, distribution and customer support sites spread across Europe, Australasia, Asia Pacific, Africa and the Americas
- Local network of James Walker companies and official distributors working in close partnership with customers in well over 100 countries

### General information

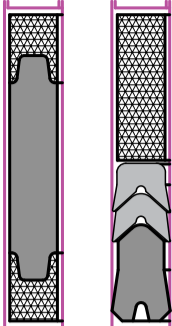
*Health warning: If PTFE or fluoroelastomer (eg,FKM, FFKM, FEPM) products are heated to elevated temperatures, fumes will be produced which may give unpleasant effects, if inhaled. Whilst some fumes are emitted below 250°C from fluoroelastomers or below 300°C from PTFE, the effect at these temperatures is negligible. Care should be taken to avoid contaminating tobacco with particles of PTFE or fluoroelastomer, or with PTFE dispersion, which may remain on hands or clothing. Material Safety Data Sheets (MSDS) are available on request.*

*Information in this publication and otherwise supplied to users is based on our general experience and is given in good faith, but because of factors which are outside our knowledge and control and affect the use of products, no warranty is given or is to be implied with respect to such information. Unless governed by type approval or contract, specifications are subject to change without notice. Statements of operating limits quoted in this publication are not an indication that these values can be applied simultaneously.*

*To ensure you are working with the very latest product specifications, please consult the relevant section of the James Walker website: [www.jameswalker.biz](http://www.jameswalker.biz).*

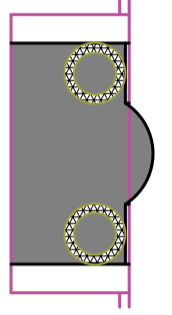
**Tie-down & lock-down screw packings**

- Seals for bolts used to fasten and retain tubing & casing hangers
- Customised design to meet specific requirements
- Available in compressed expanded graphite, PTFE or moulded elastomers
- See *JW elastomeric seals & components guide*



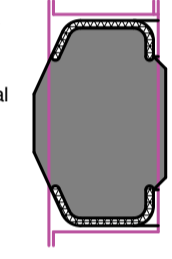
**'S' seals**

- Extrusion-resistant double-acting seal for arduous static sealing duties available for internal or external groove applications
- Materials: tough HNBR or FKM elastomers
- Stainless steel anti-extrusion toroidal springs
- Wide range of sizes to fit standard SAE housings
- Validated to API 6A
- See *JW elastomeric seals & components guide*



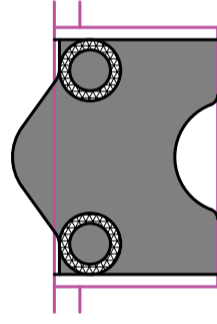
**MEC seals**

- Hybrid metal/elastomer extrusion-resistant seals for high-pressure casing and tubing applications
- Makes intimate metal-to-metal seal with housing
- Energised by bonded high-performance elastomer
- Stainless steel or inconel for corrosion resistance
- Range of sections and sizes



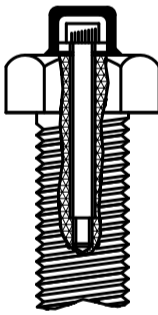
**FS casing, tubing and 'P' seals**

- Casing and tubing hanger seals on wellheads
- Tough Elast-O-Lion® hydrogenated nitrile
- Stainless steel anti-extrusion toroidal springs
- Standard API diameters from 4 to 30 inch
- Tested to API 6A
- See *JW elastomeric seals & components guide*



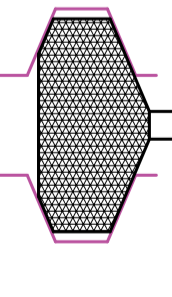
**RotaBolt® assured tension control**

- Bolts and stud tension control indicators
- For applications requiring precise tensioning of bolts
- Finger-feel registering device loosens if tension drops below specified level
- Range of materials to ensure compatibility and corrosion resistance
- Wide range of sizes
- See *JW bolted joint integrity guide*



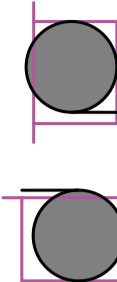
**Moorside® API ring joints**

- Metal seals for wide range of high-pressure oilfield applications
- Materials: soft iron, low carbon steel, alloys and stainless steels
- API and ASME standards
- Range of standard sections and diameters
- See *James Walker Moortflex metal seals and components guide*



**'O' rings**

- Versatile sealing devices for wide range of static and dynamic duties
- Precision-moulded, high-integrity endless rings
- Materials include NBR, HNBR or FKM elastomers
- Available in thousands of imperial and metric sizes
- SAE AS568, BS1806/4518
- See *JW elastomeric seals & components guide*
- See *JW 'O' Rings Guide*



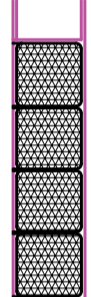
**Specialist machined components**

- Metal seals and H4 gaskets
- Thinwall machining
- Casing and tubing hangers
- Precision machining capability
- High nickel alloys
- Full materials traceability
- See *JW Moortflex metal seals and components guide*



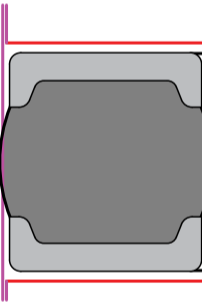
**Compression packings**

- Extensive range of packing products for pump, valve, lid and gland sealing duties
- Class-leading TA-Luft certified Supagraf® Premier and Supagraf® Control
- Shell standard SPE85-203 / 204 PremiPak combination packing
- See *JW Compression Packings Guide*



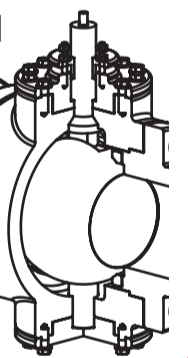
**Casing & tubing hanger packing**

- For axial sealing against tubing or casing pipe
- Various designs available depending on application and service conditions
- Rectangular section of elastomer, with or without anti-extrusion elements
- See *JW elastomeric seals & components guide*



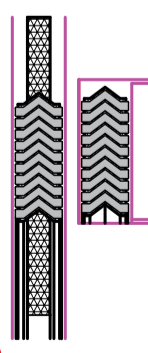
**Valve sealing and components**

- Spring energised PTFE lip seals
- 'O' rings
- Metal and semi-metallic gaskets
- Valve bonnets
- Valve seat carriers
- Devlon® V-API thermoplastic seats and seat insert material
- PTFE, graphite, PEEK and nylon seats
- See *JW valve sealing and emissions control guide*



**Metaflex® spiral wound gaskets**

- For pipe and vessel flanges in arduous temperature, flow or vibration conditions
- V-section stainless steel or alloy strip, combined with graphite or PTFE filler
- ASME, BS, DIN standards
- TA-Luft emission control certified
- Diameters: 10mm to 3.5m
- See *James Walker Moortflex gasket technology guide*



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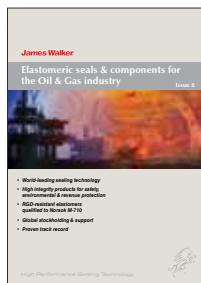
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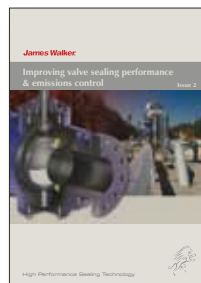
Elastomeric products



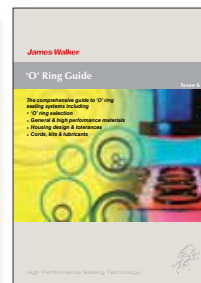
RotaBolt® tension control



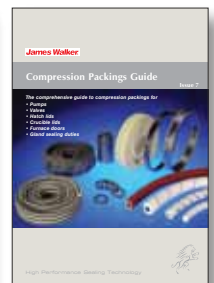
Gasket technology



Valve components



'O' rings



Compression packing

### James Walker & Co Ltd

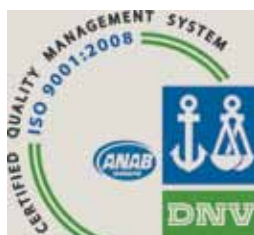
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