

**James Walker**<sup>®</sup>

# Hydraulic Sealing Products — Overview

Issue 28.1

- *Rod/gland seals*
- *Piston seals*
- *Wipers & scrapers*
- *Bearing strips*
- *'O' rings*



High Performance Sealing Technology



# Hydraulic Sealing Products — Overview

## Introduction

From the heaviest forging and extrusion presses, down to small control actuators, we have hydraulic seals designed to work in the most demanding conditions, with:

- Optimum equipment performance.
- Long trouble-free working life.
- Reduced leakage.
- Low friction operation.
- Sizes to national and international standards, plus customised specials.

Our products are also exceptionally well proven in less demanding roles, where their superior quality provides best value benefits in terms of reduced plant downtime and maintenance costs.

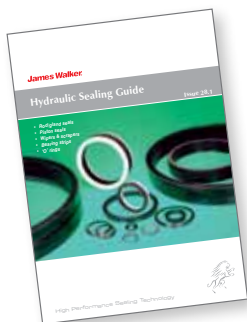
## James Walker service

When you select one of our many sealing products, you immediately get the full expertise of James Walker on your side — wherever in the world you may be. We endeavour to provide the best levels of:

- Customer service.
- Technical support and expert advice.
- Supply, to meet JIT schedules as well as your urgent, non-scheduled maintenance demands.
- After sales service.

## Full technical information








This leaflet gives basic information on our hydraulic sealing products. For full details, please see our *Hydraulic Sealing Guide*.



The 86-page version is available from your local James Walker contact, and in PDF format from

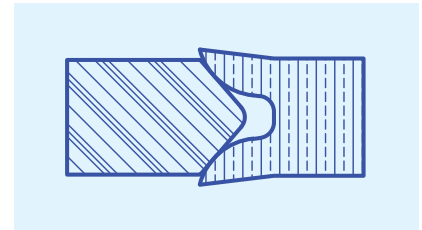
[www.jameswalker.biz](http://www.jameswalker.biz).

## Key to materials

-  Elastomers
-  Polyurethanes
-  Thermoplastics
-  Rubber-proofed fabric
-  PTFE — virgin & filled
-  Resin-proofed fabric
-  Metals

## Twinset

**Rod/gland seal**  
**Piston seal**

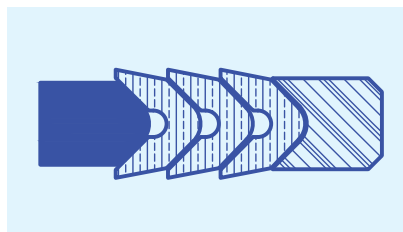


### **Decades of duty on older plant**

Max operating pressure: 34MPa  
Max surface speed: 0.5m/s  
Max temperature: +100°C  
Supplied: Endless

## Chevron® (known as Shallex® in some regions)

**Rod/gland seal**  
**Piston seal**

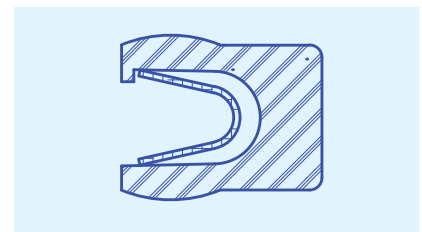


### **Universally proven multi-lip packing**

Max operating pressure: 42MPa  
Max surface speed: 0.5m/s  
Temperature range: -20°C to +100/120°C  
Supplied: Split & endless

## Lionsele® LF

**Rod/gland seal**  
**Piston seal**

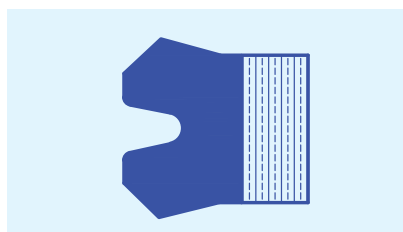


### **Very low friction: smoothest operation**

Max operating pressure: 40MPa  
Maximum surface speed: 5.0m/s  
Temperature range: -250°C to +260°C  
Supplied: Endless

## Solosele® G

**Rod/gland seal**  
**Piston seal**

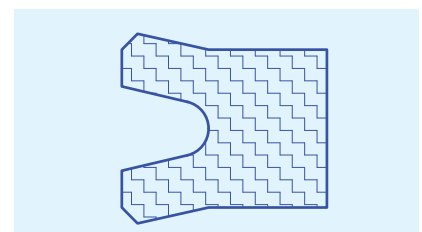


### **Robust single element seal**

Max operating pressure: 42MPa  
Max surface speed: 0.5m/s  
Temperature range: -20°C to +120°C  
Supplied: Endless (split can be supplied)

## Lionsele® U1

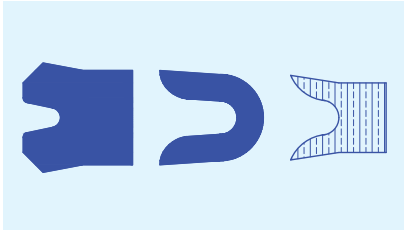
**Rod/gland seal**  
**Piston seal**



### **Ideal for aggressive environments**

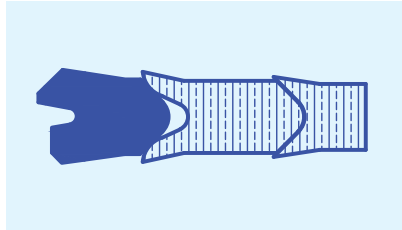
Max operating pressure: 42MPa  
Maximum surface speed: 0.5m/s  
Temperature range: -30°C to +100°C  
Supplied: Endless

U-rings  
**Rod/gland seals**  
**Piston seals**



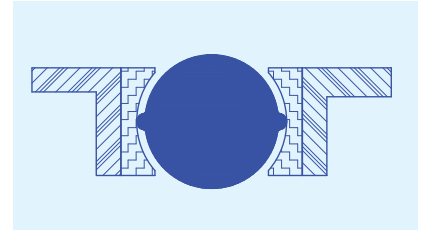
**Operating capabilities:** Depend on design and materials of construction. Supplied in a variety of elastomers and rubberised fabrics.

Lofilm® HD  
**Rod/gland seal**



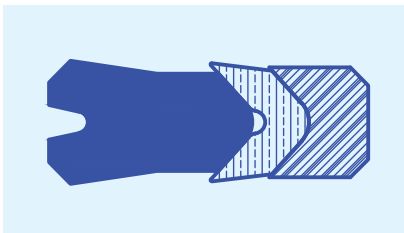
**For forging & extrusion presses**  
 Max operating pressure: 62MPa  
 Max surface speed: 0.5m/s  
 Temperature range: -20°C to +120°C  
 Supplied: Split & endless

Lionsele® SP  
**Piston seal**



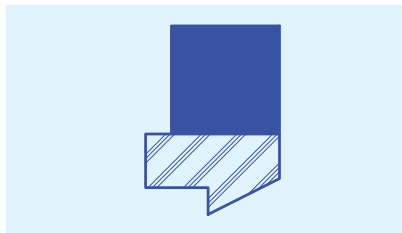
**Double-acting, for spool-type pistons**  
 Max operating pressure: 42MPa  
 Maximum surface speed: 0.5m/s  
 Temperature range: -20°C to +100°C  
 Supplied: Endless

Lofilm®  
**Rod/gland seal**



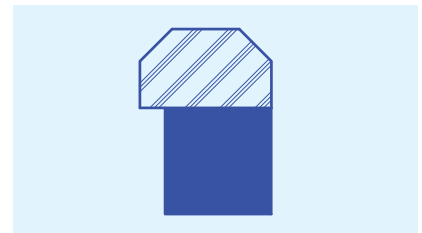
**Highly versatile multi-lip seal**  
 Max operating pressure: 42MPa  
 Max surface speed: 0.5m/s  
 Temperature range: -20°C to +120°C  
 Supplied: Split & endless

Lionsele® G  
**Rod/gland seal**



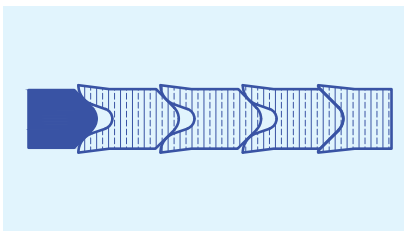
**High performance, single-acting**  
 Max operating pressure: 40MPa  
 Max surface speed: 5.0m/s  
 Temperature range: -25°C to +120°C  
 Supplied: Endless

Lionsele® P  
**Piston seal**



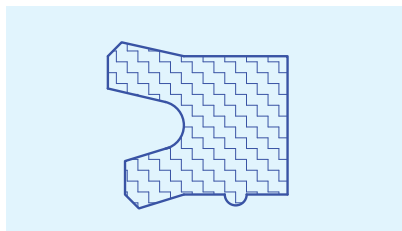
**High performance, double-acting seal**  
 Max operating pressure: 40MPa  
 Max surface speed: 5.0m/s  
 Temperature range: -25°C to +120°C  
 Supplied: Endless

Lion® Expanding Packing  
**Rod/gland seal**



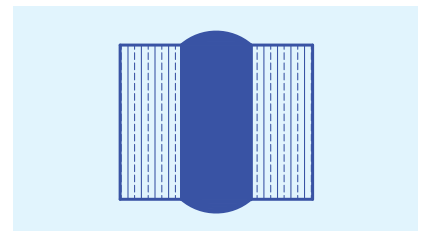
**Robust multi-lip packing**  
 Max operating pressure: 62MPa  
 Max surface speed: 0.5m/s  
 Temperature range: -20°C to +100°C  
 Supplied: Split & endless

Lionsele® U2  
**Rod/gland seal**



**Single-acting seal in polyurethane**  
 Max operating pressure: 42MPa  
 Maximum surface speed: 0.5m/s  
 Temperature range: -30°C to +100°C  
 Supplied: Endless

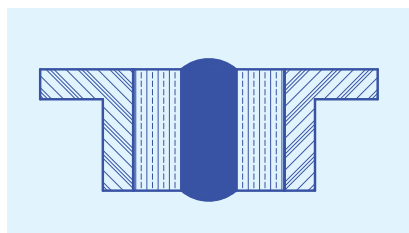
Solosele® S  
**Piston seal**



**For split-type piston heads**  
 Max operating pressure: 42MPa  
 Max surface speed: 0.5m/s  
 Temperature range: -20°C to +120°C  
 Supplied: Endless

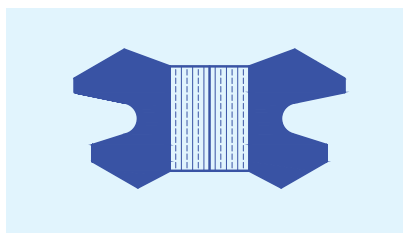
# Hydraulic Sealing Products — Overview

Solosele® SW  
Piston seal



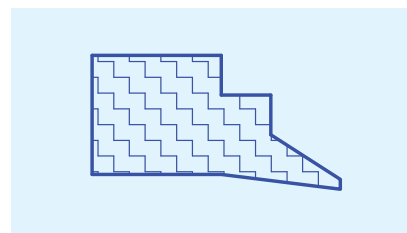
**Robust double-acting seal**  
Max operating pressure: 42MPa  
Max surface speed: 0.5m/s  
Temperature range: -20°C to +100°C  
Supplied: Endless

Solosele® KB Hydro  
Special duty seals



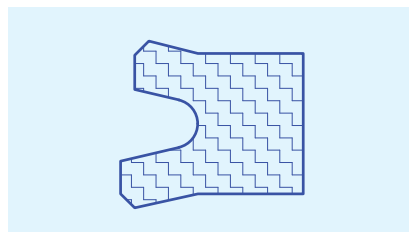
**Blade root seal for Kaplan turbines**  
Cost effective, long-term sealing on slow oscillating duties associated with Kaplan water turbines.  
Supplied: Endless & OSJ® (On-Site Joining)

Lionsele® W1  
Wiper



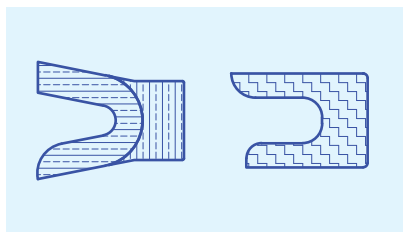
**Medium duty wiper for sand & mud**  
Temperature range: -30°C to +100°C  
Supplied: Endless  
High performance polyurethane wiper with excellent wear resistance.

Lionsele® U3  
Piston seal



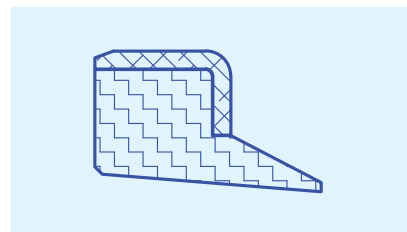
**Reduces risk of inter-seal pressure**  
Max operating pressure: 42MPa  
Maximum surface speed: 0.5m/s  
Temperature range: -30°C to +100°C  
Supplied: Endless

Tube test seals  
Special duty seals



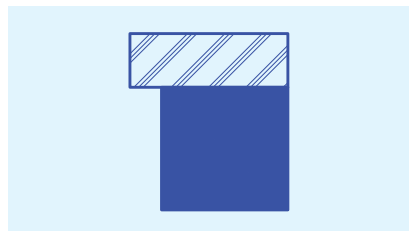
**For hydrostatic testing**  
Maximum operating pressures:  
Polyurethane versions: 100MPa  
Rubberised fabric versions: 69MPa  
Supplied: Endless  
Used on tube testing machines that seal and release repeatedly.

Lionsele® W2  
Wiper



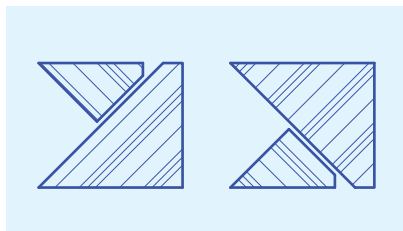
**Medium-to-heavy duty wiper**  
Temperature range: -30°C to +100°C  
Supplied: Endless  
Metal-cased polyurethane wiper. Self-retaining design for open-faced housings.

Composite seals  
Special duty seals



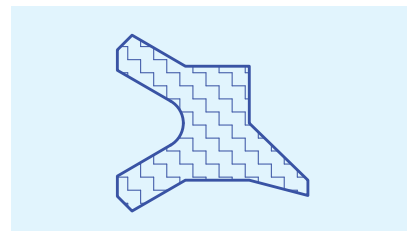
**Custom-designed & manufactured**  
Combine compactness with low break-out and dynamic friction for instant response on customer-specific hydraulic and pneumatic control systems.  
Supplied: Endless

Self-aligning Gland Rings  
Special duty — optional feature



**Recommended for arduous conditions**  
For Chevron®, Lion® Expanding Packing, Lofilm® and Lofilm® HD seals when used with heavily worn rams, shafts with large offset, and systems with extrusion gaps.

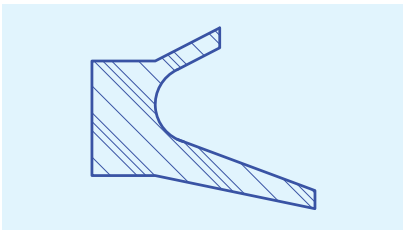
Lionsele® W3  
Wiper



**Double-acting wiper**  
Temperature range: -30°C to +100°C  
Supplied: Endless  
Polyurethane wiper with chamfered lips designed to prevent dirt ingress and control fluid film build up.

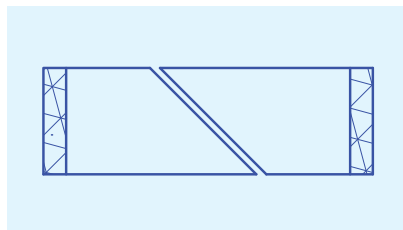
# Hydraulic Sealing Products — Overview

Wyclip®  
Scraper/wiper



**Heavy duty scraper/wiper**  
Temperature range: -40°C to +100°C  
Supplied: Endless  
A simple design of clip-in wiper that is widely used on hydraulic actuators.

Lionsele® B2  
Bearing strip

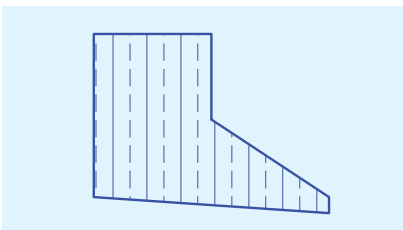


**For heavy duty applications**  
Max bearing stress (static; RT): 400MPa  
Max bearing stress (dynamic; RT): 90MPa  
Max relative speed: 1.0m/s.  
Temperature range: -60°C to +100°C  
Supplied: Strip form or machined bearing.

'O' rings  
Highly versatile seals

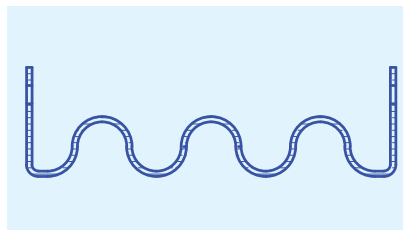


Wiper Type L  
Wiper



**Wiper for highly abrasive media**  
Temperature range: -35°C to +120°C  
Supplied: Split & endless  
Robust and wear-resistant wiper of tough rubberised fabric construction.

Comflex® Bellows  
Ram protectors

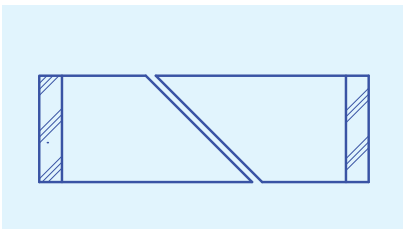


**Robust, heavy-duty protection**  
Fabric-reinforced elastomeric bellows of fully vulcanised construction. Protect rams working in aggressive environments on forging presses, pulverising mills, etc.

**Many thousands of types and sizes**  
BS ISO 3601-1 (metric & inch).  
BS 1806 (inch: now superseded by BS ISO 3601-1 Class A).  
SAE AS 586 (inch).  
BS 4518 (metric).

Stocked material grades include:  
Nitrile rubber (NBR).  
Elast-O-Lion® hydrogenated nitrile (HNBR) including RGD resistant.  
Ethylene-propylene (EPM).  
Silicone rubber (VMQ).  
Fluoroelastomer (FKM), including RGD resistant.

Lionsele® B1  
Bearing strip



**Bronze-loaded PTFE for low friction**  
Max bearing stress (static; RT): 25MPa  
Max bearing stress (dynamic; RT): 12MPa  
Max relative speed: 5.0m/s  
Temperature range: -60°C to +150°C  
Supplied: Strip form or machined bearing.

## 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).



# James Walker®

## James Walker companies worldwide

### James Walker & Co

Tel: +44 (0)1270 536000  
Fax: +44 (0)1270 536100  
Email: [csc@jameswalker.biz](mailto:csc@jameswalker.biz)

### James Walker Australia

Tel: +61 (0)2 9721 9500  
Fax: +61 (0)2 9721 9580  
Email: [sales.au@jameswalker.biz](mailto:sales.au@jameswalker.biz)

### James Walker Benelux (Belgium)

Tel: +32 3 820 7900  
Fax: +32 3 828 5484  
Email: [sales.be@jameswalker.biz](mailto:sales.be@jameswalker.biz)

### (Netherlands)

Tel: +31 (0)186 633111  
Fax: +31 (0)186 633110  
Email: [sales.nl@jameswalker.biz](mailto:sales.nl@jameswalker.biz)

### James Walker Brasil

Tel: +55 21 2220 2152  
Fax: +55 21 2531 1704  
Email: [sales.br@jameswalker.biz](mailto:sales.br@jameswalker.biz)

### James Walker China

Tel: +86 21 6876 9351  
Fax: +86 21 6876 9352  
Email: [sales.cn@jameswalker.biz](mailto:sales.cn@jameswalker.biz)

### James Walker Deutschland

Tel: +49 (0)40 386 0810  
Fax: +49 (0)40 389 3230  
Email: [sales.de@jameswalker.biz](mailto:sales.de@jameswalker.biz)

### James Walker France

Tel: +33 (0)437 497 480  
Fax: +33 (0)437 497 483  
Email: [sales.fr@jameswalker.biz](mailto:sales.fr@jameswalker.biz)

### James Walker Iberica

Tel: +34 94 447 0099  
Fax: +34 94 447 1077  
Email: [sales.es@jameswalker.biz](mailto:sales.es@jameswalker.biz)

### James Walker Ireland

Tel: +353 (0)21 432 3626  
Fax: +353 (0)21 432 3623  
Email: [sales.ie@jameswalker.biz](mailto:sales.ie@jameswalker.biz)

### James Walker Italiana

Tel: +39 02 257 8308  
Fax: +39 02 263 00487  
Email: [sales.it@jameswalker.biz](mailto:sales.it@jameswalker.biz)

### James Walker Mfg (USA)

Tel: +1 708 754 4020  
Fax: +1 708 754 4058  
Email: [sales.jwmfg.us@jameswalker.biz](mailto:sales.jwmfg.us@jameswalker.biz)

### James Walker New Zealand

Tel: +64 (0)9 272 1599  
Fax: +64 (0)9 272 3061  
Email: [sales.nz@jameswalker.biz](mailto:sales.nz@jameswalker.biz)

### James Walker Norge

Tel: +47 22 706800  
Fax: +47 22 706801  
Email: [sales.no@jameswalker.biz](mailto:sales.no@jameswalker.biz)

### James Walker Oil & Gas (USA)

Tel: +1 281 875 0002  
Fax: +1 281 875 0188  
Email: [oilandgas@jameswalker.biz](mailto:oilandgas@jameswalker.biz)

### James Walker Singapore

Tel: +65 6777 9896  
Fax: +65 6777 6102  
Email: [sales.sg@jameswalker.biz](mailto:sales.sg@jameswalker.biz)

### James Walker South Africa

Tel: +27 (0)31 304 0770  
Fax: +27 (0)31 304 0791  
Email: [sales.za@jameswalker.biz](mailto:sales.za@jameswalker.biz)

## James Walker & Co Ltd

Customer Support Centre  
1 Millennium Gate, Westmere Drive  
Crewe, Cheshire CW1 6AY, UK  
Tel: +44 (0)1270 536000  
Fax: +44 (0)1270 536100  
Email: [csc@jameswalker.biz](mailto:csc@jameswalker.biz)

[www.jameswalker.biz](http://www.jameswalker.biz)



CERTIFICATE No. FM 01269  
BS EN 9100:2003  
BS EN ISO 9001:2008