

**James Walker®**

# Hydraulic Sealing Products

*Complete family of proven products,  
backed with full technical support, for*

- *General duties*
- *Arduous conditions*
- *Critical applications*
- *Standard & non-standard sizes*



High Performance Sealing Technology



# Hydraulic sealing products

## Introduction

From control actuators right up to the heaviest forging and extrusion presses, our hydraulic seals have been specifically developed to give you:

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

These 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 provides

- Top level technical support worldwide.
- One-stop-shop for all your hydraulic sealing needs.
- Comprehensive family of products in a vast range of sizes.
- Availability to national and international standards.
- Non-standard sections and sizes to match precisely your requirements.
- Products that are third-party tested, and thoroughly tested in-house by James Walker Technology Centre.

## Technical advice

This document gives a brief overview of our hydraulic sealing products. Please consult our Technical Support Team for full details including sections, sizes, fluid compatibility and supply. Also please contact us if your requirements fall outside a product's stated limits, as we may be able to suggest an alternative.

## Key to materials

-  Nitrile rubber (NBR)
-  Polyurethane (PU)
-  Rubberised fabric
-  Thermoplastic
-  Resin/fabric
-  Filled Fluolion® PTFE

## Overview of product range

### Rod/gland seals

Chevron®  
Solosele® G  
Lionsele® LF  
Twinset  
U-rings  
Lionsele® G  
Lofilm®  
Expanding Packing  
Lofilm® HD

### Piston seals

Chevron®  
Solosele® G  
Lionsele® LF  
Twinset  
U-rings  
Lionsele® P  
Solosele® S  
Solosele® SW

### Special duty seals

Solosele® KB Hydro  
Tube test seals

### Optional feature

Self-aligning Gland Rings

### Wipers

Wyclip®  
Lionsele® W3  
Wiper Type L

### Bearing strips

Lionsele® B1  
Lionsele® B2

### 'O' rings

To virtually all standards and sizes

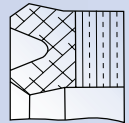
### Chevron® Rod/gland & piston seal



Maximum operating pressure 42MPa  
Maximum surface speed 0.5m/s  
Temperature range -20°C to +100°C  
(+120°C above 250mm OD)  
Supplied Split & Endless

- Highly proven universal lip packing.
- Fits adjustable and non-adjustable housings.
- Suits adverse mechanical conditions.
- Header and gland of acetal below 250mm OD.
- Available with Self-aligning Gland Ring.
- Spring-loaded header option for wear compensation.

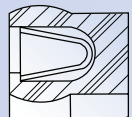
### Solosele® G Rod/gland & piston seal



Maximum operating pressure 42MPa  
Maximum surface speed 0.5m/s  
Temperature range -20°C to +120°C  
Supplied Endless

- Robust, compact single element seal.
- Excellent performance at high and low pressures.
- Flexible chamfered lips provide high sealing integrity.
- Also Solosele® H for horizontal grooves: robust alternative to 'O' rings on static duties.

### Lionsele® LF Rod/gland & piston seal

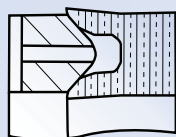


Maximum operating pressure 40MPa  
Maximum surface speed 5.0m/s  
Temperature range -250°C to +260°C  
Supplied Endless

- Special spring design gives constant loading.
- Very low friction for smoothest operation.
- Extremely wide temperature range.
- Compatible with virtually all media.

### **Twinset**

#### **Rod/gland & piston seal**

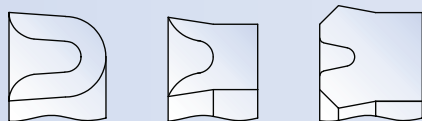


Maximum operating pressure 34MPa  
Maximum temperature 100°C  
Supplied Endless

- Very well proven design.
- For older plant with up-stroking/gravity return rams; also suitable for gland and piston head service.
- Spring-loaded header option for wear compensation.
- More advanced products are now recommended for these duties. Please contact our Technical Support Team.

### **U-rings**

#### **Rod/gland & piston seals**



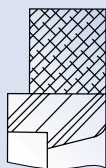
All operating conditions depend on the materials of construction, therefore please consult our Technical Support Team for recommendations.

Our U-rings are available in the following materials:

- Rubber — numerous grades.
- Rubberised fabric — numerous grades.
- Polyurethane (PU).

### **Lionsele® G**

#### **Rod/gland seal**

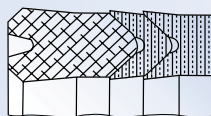


Maximum operating pressure 40MPa  
Maximum surface speed 5.0m/s  
Temperature range -25°C to +120°C  
Supplied Endless

- Compact high performance seal.
- Very smooth operation.
- Low break-out and dynamic friction.

### **Lofilm®**

#### **Rod/gland seal**

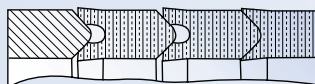


Maximum operating pressure 42MPa  
Maximum surface speed 0.5m/s  
Temperature range -20°C to +120°C  
Supplied Split & Endless

- Excellent performance at high and low pressures.
- Very low leakage levels.
- No in-service adjustment required.
- Available with Self-aligning Gland Ring.
- Gland ring of acetal below 250mm OD.

### **Expanding Packing**

#### **Rod/gland seal**



Maximum operating pressure 62MPa  
Maximum surface speed 0.5m/s  
Temperature range -20°C to +100°C  
Supplied Split & Endless

- Robust multi-lip packing for heavy duty systems.
- Handles side loads and pressure peaks.
- Available with Self-aligning Gland Ring.

### **Lofilm® HD**

#### **Rod/gland seal**

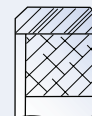


Maximum operating pressure 62MPa  
Maximum surface speed 0.5m/s  
Temperature range -20°C to +120°C  
Supplied Split & Endless

- Very robust packing for heaviest duties.
- Recommended for forging and extrusion presses.
- Instant response under all loads.
- High integrity sealing on worn surfaces.
- Available with Self-aligning Gland Ring.

### **Lionsele® P**

#### **Piston seal**

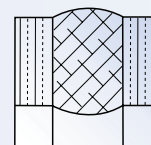


Maximum operating pressure 40MPa  
Maximum surface speed 5.0m/s  
Temperature range -25°C to +120°C  
Supplied Endless

- High performance double-acting seal.
- Low break-out and dynamic friction.
- Instant response to pressure with low power consumption.
- Different material combinations available for specific duties.

### **Solosele® S**

#### **Piston seal**

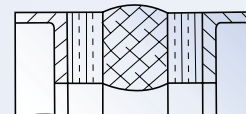


Maximum operating pressure 42MPa  
Maximum surface speed 0.5m/s  
Temperature range -20°C to +120°C  
Supplied Endless

- Robust double-acting seal for split type pistons.
- Fully moulded single-piece design.
- Integral anti-extrusion element for long operational life.

### **Solosele® SW**

#### **Piston seal**

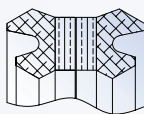


Maximum operating pressure 42MPa  
Maximum surface speed 0.5m/s  
Temperature range -20°C to +100°C  
Supplied Endless

- Double-acting seal for split type pistons.
- Robust and well proven design.
- Plastic bearings provide piston guidance.

# Hydraulic sealing products

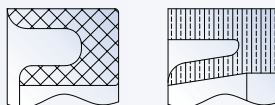
## Solosele® KB Hydro Special duty seal



This blade root seal is designed for slow oscillating duties on Kaplan water turbines.

- Cost effective, long-term sealing.
- Greatly reduces turbine downtime.
- Seals efficiently on eccentric shafts.
- Supplied: Endless for OEM installation, and in two OSJ® (On-Site Joining) modes for swift and efficient maintenance retrofit duties.

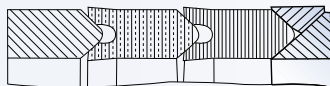
## Tube test seals For hydrostatic testing



Maximum pressure  
Polyurethane (PU) versions 100MPa  
Rubberised fabric versions 69MPa

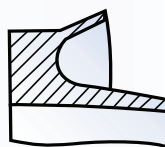
- Used with tube test machines that repeatedly seal and release tube ends.
- Extremely wear resistant.
- Special lip profile for maximum life.
- Manufactured in high tensile, impact resistant polyurethane (PU) for dual or single hardness seals, or in wear resistant rubberised fabric.

## Self-aligning Gland Rings For arduous conditions



- Optional feature for our Chevron®, Lofilm®, Expanding Packing, and Lofilm® HD hydraulic seals.
- Recommended for heavy-duty packings where conditions are particularly arduous — typically heavily worn rams, shafts with large offset, and systems with large extrusion gaps.
- Manufactured in engineering thermoplastics, and supplied as two split rings to meet the specific duty.

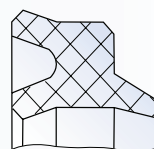
## Wyclip® Scraper/wiper



Temperature range -40°C to +100°C  
Supplied Endless

- Heavy duty scraper ring and rod wiper.
- Simple clip-in design.
- Very effective at scraping abrasive particles.
- Extremely hardwearing.
- Widely used on hydraulic actuators.

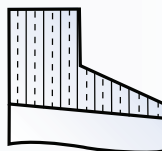
## Lionsele® W3 Wiper



Temperature range -30°C to +100°C  
Supplied Endless

- Double acting wiper.
- Moulded in high performance polyurethane (PU).
- Chamfered sealing lips provide minimum fluid film conditions.

## Wiper Type L Wiper



Temperature range -35°C to 120°C  
Supplied Split & Endless

- Effective wiping in abrasive media.
- Rubberised fabric construction.
- Profile and housing method may be varied to suit existing metal gland components.

## Lionsele® B1 Bearing strip



Maximum surface speed 5.0m/s  
Temperature range -60°C to +150°C  
Supplied Strip form, Endless or Split

- Bronze-filled Fluolion® PTFE.
- Compatible with virtually all fluid media.
- Very low coefficient of friction.

## Lionsele® B2 Bearing strip



Maximum surface speed 1.0m/s  
Temperature range -60°C to +100°C  
Supplied Strip form, Endless or Split

- Resin-impregnated synthetic fabric.
- For heavy duty applications.
- Accepts high side loadings.

## 'O' rings



We manufacture and stock a very large range of 'O' rings, including sizes to meet the following standards:

- ISO3601-1 (metric & inch).
- BS1806 (inch: superseded by ISO3601).
- SAE AS586 (inch).
- BS4518 (metric).
- DIN3771-1 (metric)
- Japanese industry standards.

Our stocked grades include:

- Nitrile rubber (NBR).
- Elast-O-Lion® hydrogenated nitrile (HNBR).
- Ethylene-propylene (EPM, EPDM).
- Silicone rubber (VMQ).
- Fluoroelastomer (FKM).

Separate 'O' Ring Guide is available.



## Hydraulic sealing services

### Customer support

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 aim to supply you with the very best:

- Customer service.
- Technical support.
- Fluid sealing products.
- Delivery.
- After sales service.



Our high technology Customer Support Centre leads the fluid sealing industry with its service to tens of thousands of customers worldwide.

On-site technical advice comes from our professional field engineers and industry sector specialists. With the backing of our James Walker Technology Centre, they are able to solve virtually any fluid sealing problem for our customers.

### Surety of supply

Surety of supply is vitally important to the vast majority of our customers. This is especially true when maintenance engineers are tackling a plant breakdown or an OEM is working to a JIT schedule. We meet such demands by means of:

- Our worldwide network of companies and distributors covering 100 countries, supported by a secure web-based and highly developed logistics operation.
- Up to ten million fluid sealing products held in stock at our automated warehouses.
- Over 100,000 mould tools for express manufacture of non-stocked items.

### Non-standard seals



The design and manufacture of non-standard seals is a James Walker speciality. This is undertaken by highly experienced engineers, materials scientists and production personnel. Together, they can solve your sealing problems associated with:

- Worn rams and other components.
- Refurbished or re-machined shafts.
- Out-of-tolerance housings.
- Old plant for which seals are now difficult to source.

In addition we will design, prototype and perfect new sealing systems to match precisely the requirements of hydraulic systems that are under development or need to be upgraded.

In this case, the benefits we offer include:

- Innovative design capability.
- Fullest knowledge of seal, elastomer and engineering plastics technology.
- Advanced design, finite element analysis and prototyping capabilities.
- In-house static, dynamic, thermal and RGD (rapid gas decompression) test facilities.
- An ability to simulate closely the true operating conditions of plant and equipment.

Only when both the James Walker Technology Centre and our client are fully satisfied with test rig results will the new sealing system be subjected to field trials on a working plant.

### Sealing kits

We supply complete sealing kits to order. These contain all the products needed for the assembly, maintenance or refurbishment of a specific hydraulic assembly.



Kits can be custom-branded and over-printed with dedicated part numbers to simplify end-user ordering, stocking and issuing routines.

### James Walker quality

Quality is the watchword at every James Walker manufacturing plant and customer support location worldwide.

We start with the best raw materials and use advanced production techniques, with strict quality control at every stage, culminating in an exacting finished part inspection.

Our quality systems are third party registered to BS EN ISO 9001:2000.



We are also regularly assessed and quality approved by a wide range of industry bodies and individual customers — including multinational corporations, utilities and government organisations.