

# Rotary Shaft Seals



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Often called oil seals, grease, fluid or dirt seals, rotary shaft seals close spaces between stationary and moving components in mechanical equipment, helping prevent lubricant escape.



Rotary shaft seals are used to seal fluids on rotating shafts at various speeds. Rotary shaft seals are available with either a single or double sealing lip. In most cases the function of the secondary sealing lip on double lipped seals is used as an excluder to keep contaminants from entering the system. Common rotary seal applications include: gear boxes, electric motors and pumps.

Rotary shaft seals are produced by vulcanising an elastomer, most commonly Nitrile, to a metal ring which acts as a stiffener and utilises a metal tensioning spring behind the sealing lip.

Rotary shaft seals for use on external rotation applications are available upon request.

We also offer a range of large diameter seals (available in imperial and metric sizes) for heavy duty applications such as equipment used in steel mills, pulp / paper plants and turbines. See overleaf for more information.

“ Rotary shaft seals conform to DIN 3760 and are available in many different designs to suit a range of applications. ”

ELASTOMER MATERIALS	TEMP RANGE
Viton®/Fluorocarbon	-20°C to +220°C
Nitrile	-30°C to +100°C
HNBR	-40°C to +150°C

## Common Rotary Seal Profiles



**R1**  
Fully metal encased single rubber lip rotary seal. Spring loaded primary seal lip additional reinforcing metal insert.



**R4**  
Metal case, single rubber lip rotary seal. Spring-loaded primary seal lip.



**R6**  
Metal case, double rubber lip rotary seal. Spring-loaded primary seal lip with additional dust lip.



**R21**  
Rubber covered metal inner single sealing lip rotary seal. Spring-loaded primary seal lip.



**R23**  
Rubber covered metal inner double lip seal. Spring-loaded primary seal lip. Additional dust lip.

Sealing can be affected by the following and must always be taken into consideration when selecting the correct profile and material for optimum performance:

- Shaft rotational speed / direction
- Operating temperature
- Application hardware details
- Medium being sealed both internally and externally
- Pressure seen within sealed unit

# Large Diameter Seals

Eastern Seals offer a range of heavy duty and large diameter seals of upto 3000 mm in high end rubber and plastic materials in endless (one piece) for any industry.

Large Diameter Seals are available in metric or imperial sizes, and are utilised for many applications including:

- Mild Steel
- Oil and Water Hydraulic Presses
- Forging Presses
- Wind Turbines
- Heavy Duty Presses
- Steel Mills
- Pulp and Paper Plants
- Automotive Stamping Presses
- Cement Plant
- Ship Hydraulics
- Shears

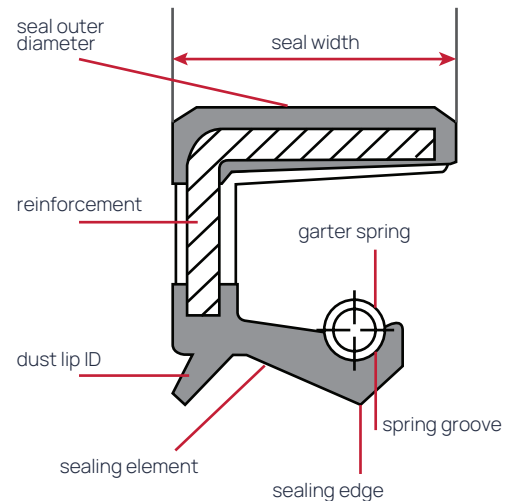


Fig 1.1 Typical rotary shaft seal components

## Common Large Diameter Profiles



Internal fabric shaft seal similar to the AFA profile but produced without a garter spring. Due to its construction, it can be used to control grease, light and dust. The seal lip is flexible, and the outside body is made from fabric to minimise damage during installation.

### TYPICAL APPLICATIONS

Suitable for very small sections. This seal is typically used where space is limited.



Highly successful general purpose standard design seal. It is suitable for the majority of bearing protection duties and other radial lip seal applications across all industry sectors. The lip profile minimises heat generation and shaft wear.

### TYPICAL APPLICATIONS

Used in all types of marine propulsion systems including bearings, gearboxes and associated equipment.



This is a widely used seal and offers a robust profile with a pressure-resistant lip that prevents the ingress of liquid or solid contaminants in aggressive industrial environments. It's flexible yet robust lip maintains sealing contact on slightly misaligned or eccentric shafts.

### TYPICAL APPLICATIONS

Suitable for ships, stabilisers, blow thrusters, as well as numerous process plant and transmission system duties.



A full rubber seal combined with a flexible steel band. This seal does not require a retainer ring, and can be assembled easily in open housing.

### TYPICAL APPLICATIONS

Suitable for hot rolled or cold rolled steel rolling mills.