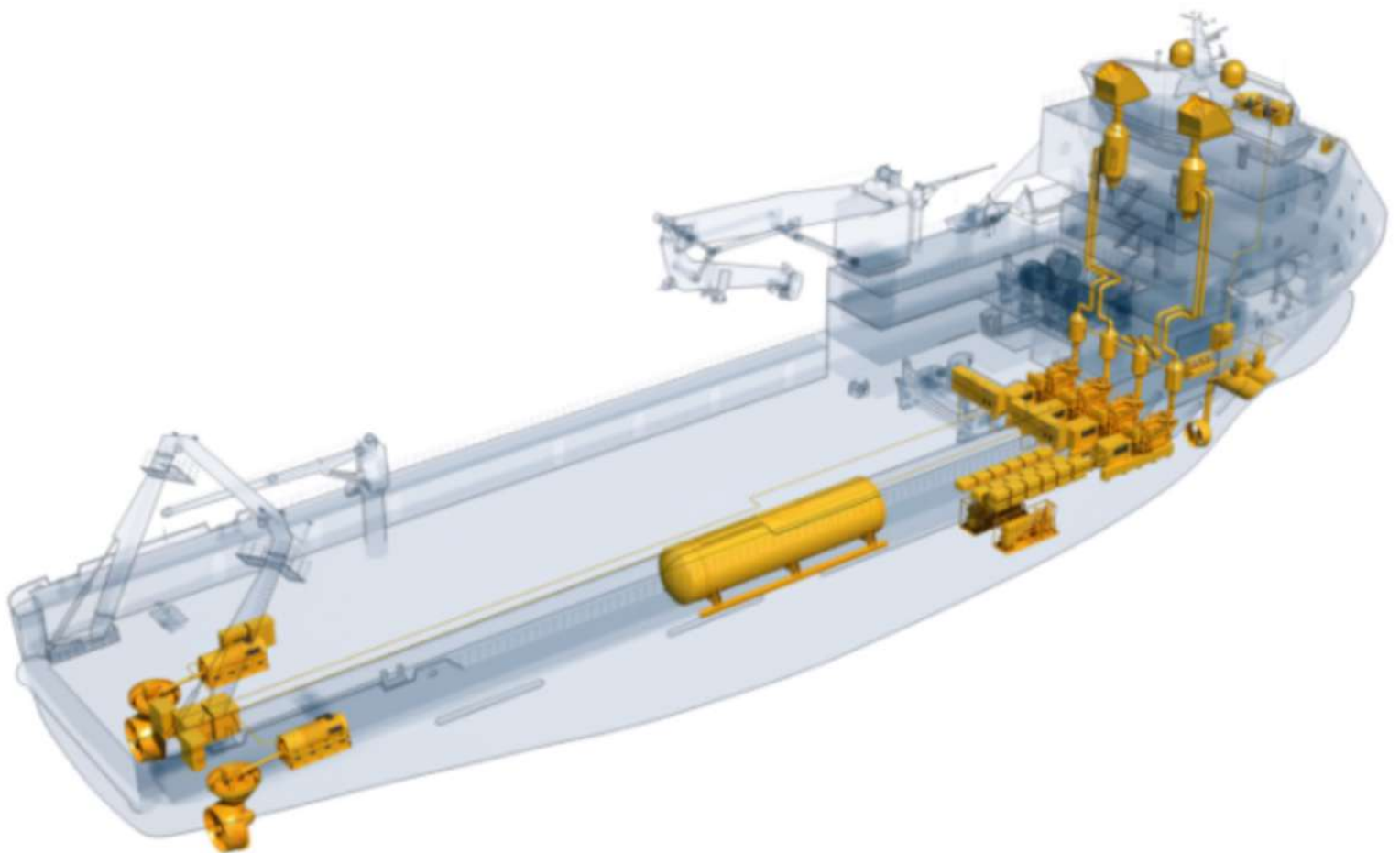




OZ MARINE SOLUTIONS

PROPULSION GUIDE SYSTEM



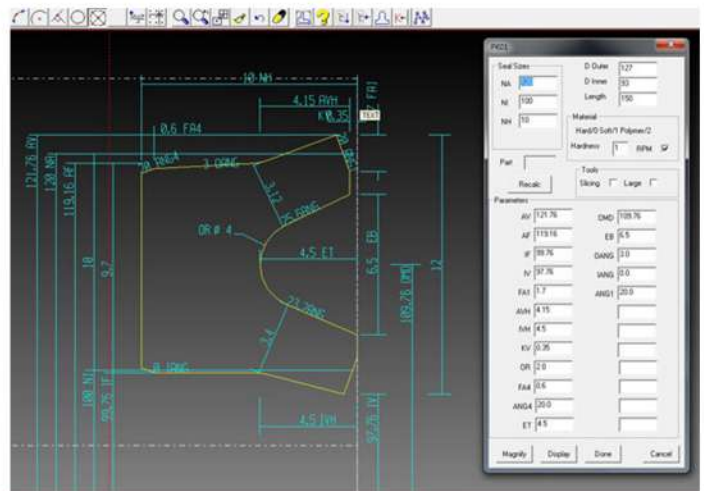
Our Capabilities

At OZ Seals, we provide custom & special seals for applications that would require superior materials and unique seal profiles. With our fast, precise and advanced Simploz Seal Manufacturing Systems, OZ Seals is able to formulate any special seal profile and non-standard seal dimensions according to your drawings in no time at all



Oz Seals, specializes in machining custom seals up to 2000mm in diameter. Our broad range of seal products are all manufactured from materials meeting the highest quality standards.

Oz Seals Design & Development team analyzes and examines all potential seal failures to ensure our clients have a successful seal in their hands.



The design and development process, involves defining the specification of your required seal through drawings, models or prototypes. The years of experience, have allowed OZ Seals to be equipped with world-class machines and advanced sealing technology software.

OZ Seals is constantly developing custom materials and unique seal profile designs to provide our clients with effective sealing solutions that will meet the specific demands of various critical industries.

The broad range of seal products, whether standard or custom/special seals, are all machined on demand in our workshop. Clients are able to order our seals as a single item or in small/large quantities . With the improved Sealnet, buying and customizing your seals has been made simple.

Operational Conditions



Shaft surfaces

In all Oz Seals marine applications, the sealing shaft or shaft sleeve has a fine ground finish of 0.2 to 0.8 $\mu\text{m Ra}$.

All our seal finishes are free from machining marks/burrs, dents, scratches and single pass wetness patterns.

For higher speeds (excess of 0.8 m/s), a range of 0.2 to 0.4 $\mu\text{m Ra}$ is highly recommended.

Shaft hardness

In applications where there is no water contact, conventional steel shafts would offer satisfactory results under normal operating conditions. A hardness level of 40-50 HRC is acceptable under these circumstances.

When there is little to no shaft wear (applications with high speeds, abrasion and pressure), a minimum hardness of 60 HRC is recommended.

For applications where the shaft is in water contact, corrosion steels or alloys can be used either as shafts themselves or used as sleeves which can be easily replaced when it is worn out.

Seal storage

All precision manufactured seals should be carefully stored to avoid damage or degradation. Seals are to be kept in a cool, dry and dark condition with no stress. Do not tie the seal with a string or wire as it might damage the sealing lip or edge which can lead to a reduced sealing efficiency.

Super Polymers

that are designed to outlast the equipments they seal.

SUPER RED

Hardness: 95±2 Shore A
Temp: -50 to + 120

Low compression set, low friction, outstanding toughness and abrasion resistance.



HNBR - HYDROGENATE BUTADIENE RUBBER

Hardness: 87 Shore A
Temp: -20 to + 150

Suitable for applications involving aliphatic hydrocarbons such as fuel, propane, butane, mineral oils and greases.



ULTRA PERFORMANCE

Hardness: 95±2 Shore A
Temp: -50 to + 120

Low compression set, outstanding toughness and abrasion resistance, excellent hot water resistance



VITON - FLUOROCARBON RUBBER

Hardness: 87 Shore A
Temp: -20 to + 200

High temperature and chemical resistance, low compression set even at high temperatures.



PROFLEX

Hardness: 85 Shore A
Temp: -50 to + 120

Outstanding toughness and abrasion resistance, good mineral oil compatability, good resistance to ozone attack weather, FDA approved



NBR - NITRILE RUBBER

Hardness: 85 Shore A
Temp: -30 to + 100

Good resistance to mineral oil, greases and water, good elasticity, non-resistant to non-mineral oils and automotive brake fluids.



New Generation Packings

asbestos-free, environmentally friendly

Packing Choices

PV10

Material: Impregnated /lubricated PTFE packing
pH: 5-11
Temperature: 121°C
Speed(FPM/MPS):1500 (7.5)

Braided natural ramie fibers which are extremely strong and therefore highly resistant



VP60

Material: Expanded graphite | Graphite fibres
pH: 0-14
Speed(FPM/MPS): 5000 psi/350 bar
Temperature: 650°C

Combines and maximises the performance of expanded Graphite and Graphite fibres.



PV20

Material: Pure Poly Acrylic Nitrile
pH: 2-14
Speed(FPM/MPS): 2200 (11)
Temperature: 260°C

A true, high specification, process industry packing



VP70

Material: Carbon yarns Impregnated with pure graphite
pH: 0-14
Speed(FPM/MPS): 4000 (20)
Temperature: 450°C
 Carbon yarns impregnated with pure graphite, special high temp lubricant and Molybdenum Disulphide



PV30

Material: High performance synthetic fibre
pH: 1-13
Speed(FPM/MPS): 2400 (12)
Temperature: 260°C

High performance packing that is well suited to applications where graphite impregnation may not be acceptable.



VP80

Material: Vacuum Impregnated PTFE
pH: 0-14
Speed: 2500 psi/103 bar
Temperature: 260°C

Offers exceptional chemical resistance along with high strength and low coefficient of friction



PV40

Material: Gore GFO Fibre
pH: 0-14
Speed(FPM/MPS): 4400 (22)
Temperature: 260°C

Manufactured from 100% Oz Seals Type GFO fibre.



V90

Material: PTFE Jointing Tape
pH: 0-14
Speed(FPM/MPS): 2500 psi/103 bar
Temperature: 260°C

A non-toxic, non-contaminating PTFE jointing tape.



VP50

Material: Graphite packing
pH: 0-14
Speed(FPM/MPS): 5000 psi/345 bar
Temperature: 650°C

Pure braided expanded graphite packing constructed from 100% Graphite yarns



V100

Material: Moldable dry PTFE thread sealing tap
pH: 0-14

Gas Approval. Military Specification MIL-T-27730A. High density PTFE thread tape.



New Generation Packings

asbestos-free, environmentally friendly

Packing Choices

V110

Material: Pure Graphite Tape

A corrugated or smooth formed pure graphite tape. Available with or without adhesive backing for ease of installation. V110 is able to conform to some stuffing box irregularities.



V120

Material: Pre-formed Graphite Rings

V120 graphite moulded rings are high-efficiency, moulded graphite sealing rings, produced to precise density and size. V120 has outstanding sealing performance over long adjustment free periods



V130

Material: PTFE Jointing Tape

pH: 0-14

Pressure: 150 bar

Temperature: -240°C + 280°C in air

A non-toxic, non-contaminating PTFE jointing tape. It is tough but gentle making it useful in high pressure steam joints and fragile glass joints



OZ MARINE SOLUTIONS

CONVENTIONAL PROPULSION SYSTEMS | PROPULSION THRUSTERS

Oz Seals offers compact and innovative marine seal designs that would suit well for maritime industries. Our seals are proven to have stability even under immense pressure. All seals can be custom manufactured to larger dimensions and also in various seal profile designs.

“From icy arctic oceans to the warm waters of the pacific, Oz seals has got you covered”

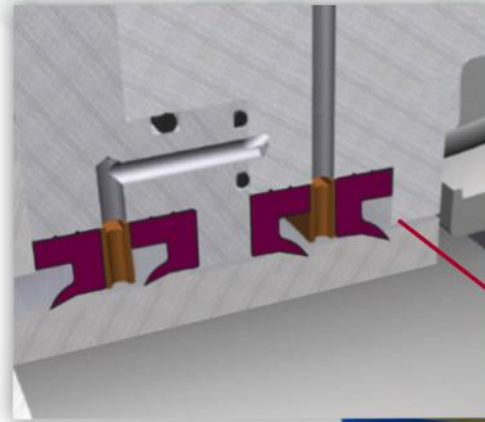
- Marc Prinz, Managing Director

OZ MARINE SEALING SOLUTIONS BP3MP

- Manufactured from Super Polmer a triple lubricated thermoset polyurethane
- Excellent resistance to abrasion, Hydrolysis, UV and extreme temperature range.
- Ideal for bore misalignment with large lip travel
- Easy installation with special click connect joint seal
- Compress bumps on outer seal and front for better grip and spilt seal compression when installed
- Sealing lip undercut and seal lip rear stabilizing bumpstop for less shaft friction.

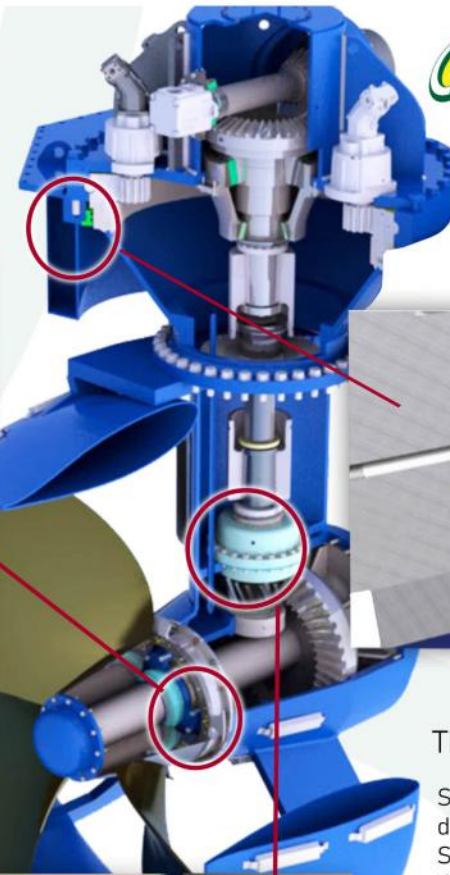
CLICK & CONNECT DESIGN

- Rounded off with no sharp edges makes a stronger connection
- Compact joint design which does not interrupt with seal lips
- Flexible for easy installation



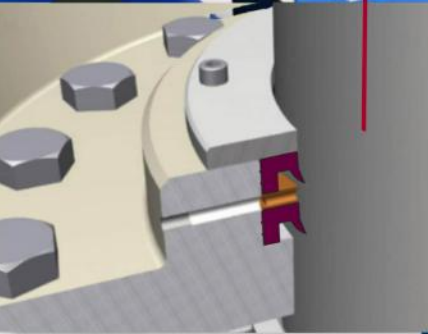
PROPELLOR SHAFT SEAL

Seals are placed to sit in this position as there would be pressure from the head of seawater. Leak detection port is recommended between the seals to collect any leakage and provide warning of when seals need to be replaced.



THRUSTER SWIVEL SEAL

Suited for pressures and demanding mechanical conditions. Seal configuration is similar to the propeller shaft.



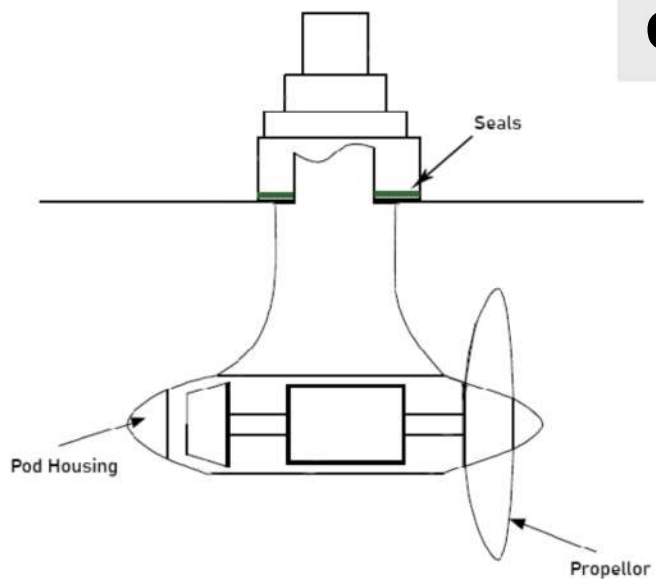
INPUT SHAFT SEAL

Due to inaccessibility, two split seals are fit in tandem. Careful installation is vital to ensure that the back-up seal is lubricated by interseal space with grease or providing an oil feed.

Compact designs that has stability under immense pressure.

Standard Profiles

Pod propulsion marine systems require compact seal designs that are stable when under immense pressure. With Oz Seals, seals that are required for these applications can be custom manufactured to large dimensions and also in various seal profile designs.



BP3M

Shaft surface speed: 5.1 m/sec
Temp: -29°C to + 121°C
Max Pressure: 0 to 0.48 bar

Features:

Flexible for easy installation
Long life seal
Spring loaded outside lip



GS6MP

Max speed: 1.0 m/sec
Temp: -45°C to + 110°C
Max Pressure: 400 bar

Features:

Made from high performance polyurethane
Excellent resistance to abrasion
Ideal for bore misalignment



BP6

Features:

A V-ring that is used to protect metal parts against dirt, oil, grease and dust.



BP8

Features:

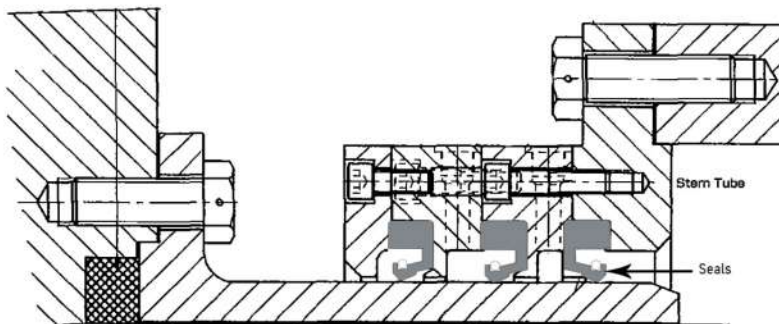
A V-ring that is used to protect metal parts against dirt, oil, grease and dust.



Long life service seals with flexible and compact designs

Propeller Seal Profiles

Oz Seals standard propeller seals features a non-metallic component for a damage free and a tight press fit on the shaft which prevents water leakage.

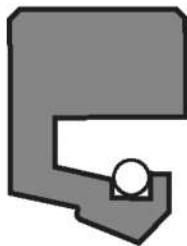


BP3

Shaft surface speed: 16.25 m/sec
Temp: -29°C to + 121°C
Max Pressure: 0 to 0.48 bar

Features:

- Flexible for easy installation
- Long life seal
- General service seal
- Solid or split design

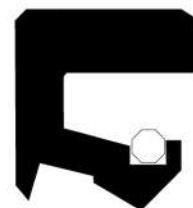


BP3LN

Max speed: 16.25 m/sec
Temp: -29°C to + 121°C
Max Pressure: 0 to 0.48 bar

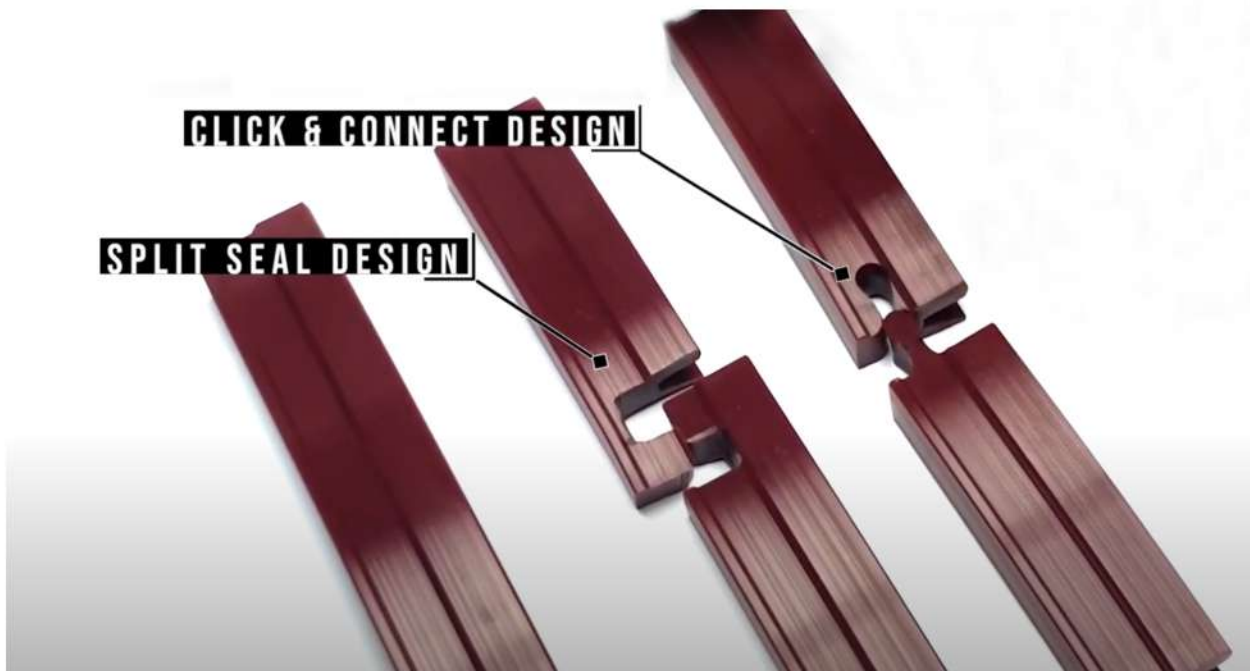
Features:

- Flexible for easy installation
- Long life seal
- Excludes light dust, fluids or contamination



Sealing Connections

Seal Connection Designs



The major advantage of opting for sealing connections is that it allows you to install the seal with no dismantling of the pump (or equipment). Oz Seals split seal connection designs offer leak-free performance. This leads to improved safety and environmental compliance and eliminates sleeve wear, and flush water usage, among many benefits.

Especially for large seal diameters, seal connections are highly recommended as it minimizes assembly and disassembly work. No matter if it is a once piece seal or a seal connection design, there are no limits when it comes to sealing diameters.

Split Seal Design



- Ideally used for seals with large cross sections.

- Not recommended for seals with short height dimensions as the joint takes up much of the seal profile

Oz Seals Latest Connection



Click & Connect Design

The click & connect seal connection is the latest innovative design by Oz Seals.

- Rouded off with no sharp edges, which makes it a much stronger connection.
- Compact joint design which does not interrupt with seal lips
- Flexible for easy installation.

Custom seal designs to meet specific marine applications

Special Solutions

Oz Cartridge Seals



Oz Cart 1

Face materials:

Silicone Carbide
Tungsten Carbide
Silicone Carbide

Metal Parts:

SS316, SS 304, Hastelloy-C
Monel, Alloy-20

Secondary Seal:

Elastomers, TCV

Operating limits:

Shaft diameter d1: 17...100.0mm
(0.875"...4.125")

Pressure: 25 bar max

Temperature: -20 + 180°C

Velocity: 20m/sec

The Oz Cart 1 is an exceptional high temperature seal. It's seal design improves film formation between the mechanical seal faces and significantly enhances face lubricity.

The film formation between the faces not only reduces heat generation but also increases its seal life in many high temperature application.



Oz Cart 1 is also useful in sealing fluids that have poor lubrication properties.

Oz Cart 1 Features:

- High temperature seal is designed for high speed and pressure
- External cooling requirements are not needed for most applications, eliminating support equipment
- Reduces the frictional seal face heat concerns common with standard contacting seal face designs
- Compact cartridge design for easy and reliable installation
- Use where external cooling is intermittent, limited or unavailable