Garlock

PS-SEAL®

GYLON® Powered High Performance Seal

HIGH SPEED | HIGH PRESSURE | FDA COMPLIANT

Leaders in Sealing Integrity

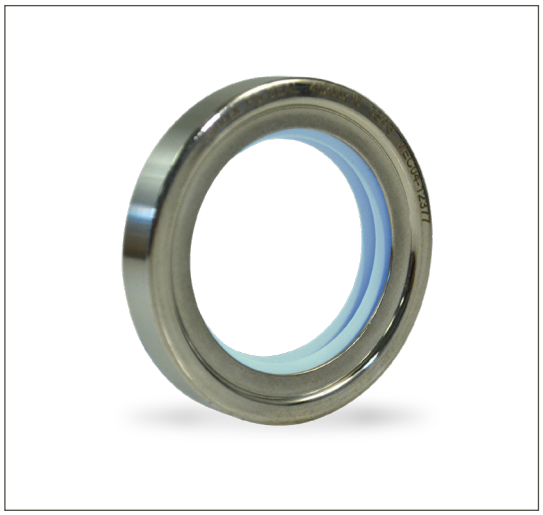
PS-SEAL®

The PS-SEAL® product line stands for reliable sealing of rotating shafts at high circumferential speed, high pressure and extreme temperatures. Abrasive media is sealed as well as aggressive media. Radial shaft seals typically do not perform well under these conditions as their seal lips are made of elastomeric materials.

These seals are used in many different applications and can also be an alternative to mechanical seals and braided packings.

The product line PS-SEAL® offers cost-effective and practical solutions to a wide range of applications. The portfolio of Garlock shaft seals offers the PS-SEAL® Standard single lip as well as a wide range of other configurations.

The high performance PS-SEAL® works with a sealing lip made of GYLON® or other modified PTFE. Garlock produces GYLON® using a proprietary process.



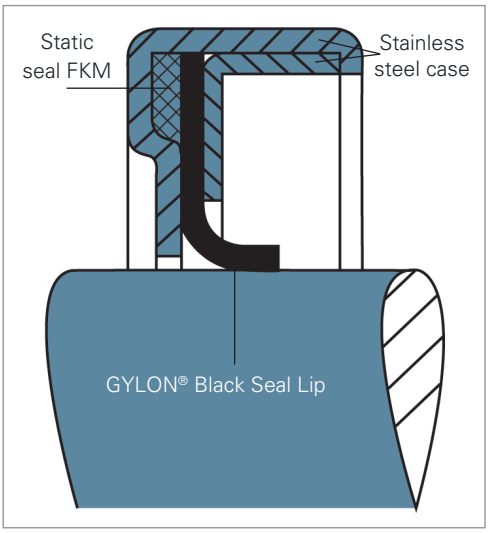
ADVANTAGES AT A GLANCE

» Useable under high pressure and extreme vacuum
» Very suitable for high circumferential shaft speeds
» Temperature resistant from -130˚F (-90˚C) up to 500˚F (260˚C)
» Excellent chemical resistance
» Useable in food and pharma applications (FDA)
» EN 1935/2004 certificate
» SIP/CIP compatible
» Good dry running capability
» Wear resistant and low friction

PS-SEAL® Standard Design

PS-SEAL® Standard is a Garlock shaft seal consisting of a stainless steel (1.4571) case, a GYLON Black seal lip and a static sealing element made of FKM.

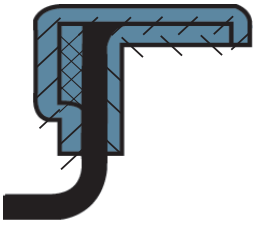
STANDARD CONFIGURATION



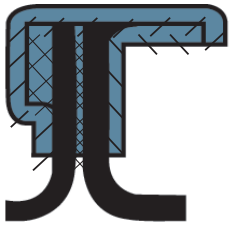
PS-SEAL® Non-Standard Design

Garlock PS-SEAL® Non-Standard are shaft seals with different configurations of their seal lips and different materials.

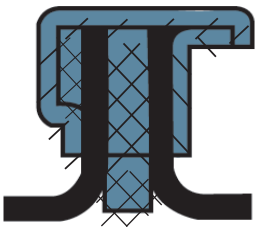
REVERSE LIP

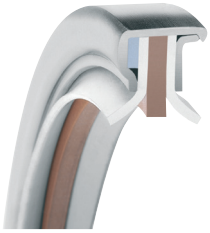


STANDARD LIP WITH DUST LIP

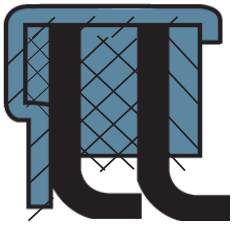


BACK TO BACK





TANDEM



The overview shows the most common configurations. Other configurations are also available upon request.

Technical Information

SEAL CASE

The standard material for the PS-SEAL® seal case is stainless steel 1.4571 (316SS). Other materials can be supplied on request.

OPERATING PRESSURE

- PS-SEAL® Standard ..... max. 145 psi
- PS-SEAL® Non-Standard ..... max. 362 psi (depending on version)
- PS-SEAL® Special ..... max. 362 psi (depending on version)
- PS-SEAL® Lip ..... max. 362 psi (depending on version)

For maximum pressure applications please check the p x v - value. Garlock recommends an axial fixation of the PS-SEAL® when it is used in applications under high pressure.

TEMPERATURE RANGE

PS-SEAL® lip material can handle temperatures between -130°F (–90°C) and +500 (260°C). Please note, that there is a difference between the temperature on the seal and the process-temperature due to the friction which releases additional energy/heat.

MATERIAL

GYLON® is being used as lip seal material of PS-SEAL® and significantly responsible for its successful operation. We offer highly diverse seal options and combinations of materials to cope with the very different requirements of many diverse industrial branches. GYLON® is a modified PTFE and is used due to its high chemical resistance, its high temperature range and its low friction.

COUNTER SURFACE

As the counter surface has a major impact on the efficiency and life-time of our seals, its configuration needs also to be considered. Garlock can offer an appropriate package of seal and counter surface (protection sleeve) to provide an optimal and durable sealing solution. For an optimal interaction between sealing and abrasion the following surface characteristics should be complied with:

SURFACE ABRASIVENESS

Ra = ... 3.94 – 15.75 µin
Rz = ... 23.62 – 78.74 µin
Rmax = ... 157.48µin

The running surface should not have a helical spiralling indentations as the arising conveying effect could cause leakage.

SURFACE HARDNESS

60 HRC

Under high stress (p x v - value) of more than 290 psi x m/s Garlock recommends an untwisted machined chromium oxide coating. Suitable coatings can be ordered from Garlock. Please consider a hard enough basic material when using micro-coatings.

Technical Information

LIP MATERIAL

The applied GYLON® lip materials guarantee a stopped cold flow with brilliant running characteristics when it comes to impermeability, abrasion and frictional heat. Many different compounds can be used for different applications. To cope with rising demands in terms of rotational speed and pressure in lubricated - as well as in dry running conditions. A higher operating safety and a longer service life can be reached by using multiple lip-seals arrangements. Please feel free to contact us for individual consulting.

LIP MATERIAL	INGREDIENTS	PROPERTIES	COLOR
GYLON® BLACK	graphite	» standard material » perfectly suitable for lubricated applications	Black
GYLON® WHITE	barium sulfate	» special material » FDA EN1935 conformity » recommended for food, pharmaceutical and beverage industries » partially capable of dry running	White
GYLON® BLUE	glass-microspheres	» special material » FDA EN1935 conformity » very flexible (high recovery capacity) » recommended for food, pharmaceutical and beverage industries » brilliant dry running characteristics	Blue
GYLON® BROWN-WHITE	Brown side: Abrasive-resistant additives White side: Heat dissipating additives	» special material » FDA EN1935 conformity » very flexible (high recovery capacity) » recommended for food, pharmaceutical and beverage industries » suitable for abrasive media	
F	Econol	» special material » FDA EN1935 conformity » recommended for food, pharmaceutical and beverage industries » suitable for vacuum-applications » brilliant dry running characteristics	Tan
MS	molybdenum disul-fide	» special material » suitable for abrasive media	Black
KF	carbon fiber	» special material » suitable for partial-abrasive media » good dry running characteristics	Black

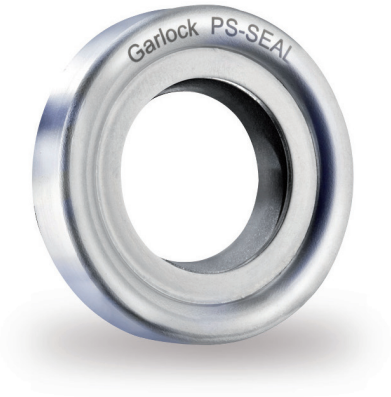
Please note: Surface finish and shaft hardness are critical in dry running applications.

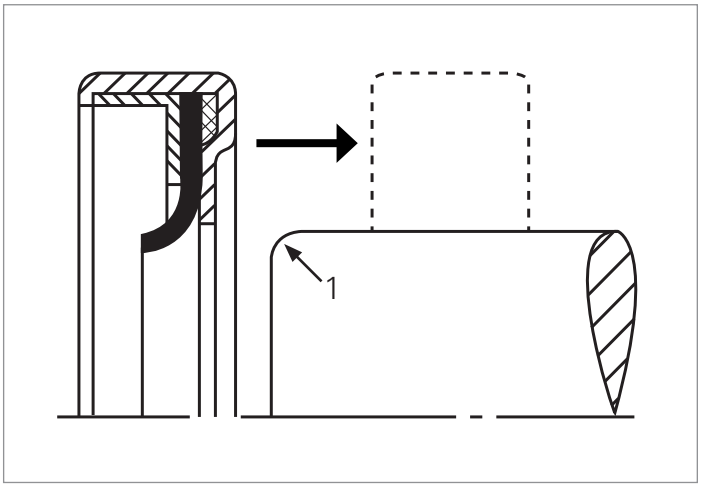
Installation and Assembly Advice

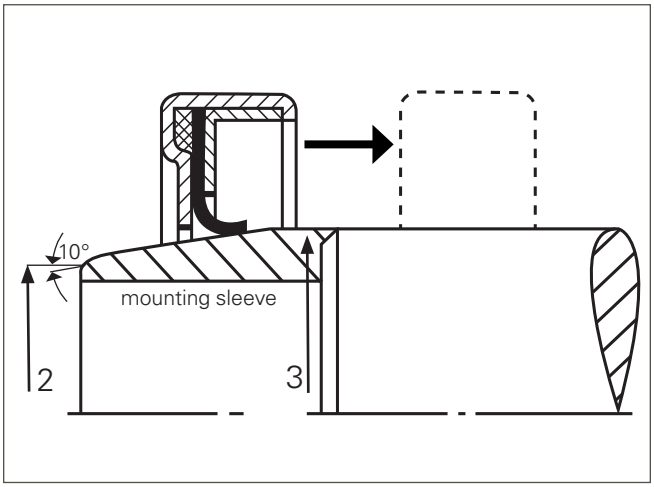
ASSEMBLY

PS-SEAL shaft seals must be installed without damage. Therefore never insert over sharp edges. The use of a common mounting paste makes installation easier.

1. R min 0.03 inch and polished
2. Shaft-Ø minus 0.196 inch
3. Shaft-Ø plus 0.157 inch







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