

Rotating shaft oil seals GP/W

DESCRIPTION

The GP_W series seals are high-performance dynamic seals designed for the retention of fluid oils and greases on rotating shafts. The profile combines a main lip preloaded by a garter spring, an auxiliary front dust lip and a rubber-covered outer diameter with a ribbed/wave profile. This configuration is specifically designed for mechanical components operating in highly contaminated environments and featuring light-metal housings subject to significant temperature fluctuations.

PROFILES

GP_W Standard

Double-lip profile, with a spring-loaded main sealing lip and an auxiliary dust lip without a spring, with an outer diameter featuring parallel rubber waves and an embedded "L"-shaped reinforcement.

GP_W Special

Variant with reinforced, extended or specially shaped dust lip, suitable for heavy-duty applications such as harsh agricultural and muddy environments.

MATERIALS

Materials and operating conditions

MATERIAL / COMPOUND	PERIPHERAL SPEED	TEMPERATURE	MAX PRESSURE
NBR Nitrile rubber 70 / 80 ShA	Up to 12.0 m/s Up to 0.5 m/s in low-speed applications	−30 / +100 °C	0.05 MPa Standard atmospheric pressure
FKM Fluoroelastomer / Viton	Up to 35.0 m/s	−20 / +200 °C	—

REINFORCEMENT COMPONENTS

Internal structure

Internal reinforcement	Stamped carbon steel vulcanized into the compound
Garter spring	Spring steel
Option	AISI 302/316 stainless steel for marine/chemical environments

COMPATIBLE FLUIDS

Mineral hydraulic oils, fluid gear lubricants, mineral and synthetic greases, water, mud and abrasive dust.

FEATURES

Main features

Multi-wave rubber-covered outer surface

The wave-shaped ribs deform elastically during mechanical press-fitting. This design reduces insertion force compared with a smooth outer surface, limits the risk of elastic rebound and helps prevent damage or scoring of the housing.

Compensation for aluminium housings

The wave-shaped outer finish ensures optimal static sealing by compensating for the high thermal expansion coefficient of housings made from light alloys such as aluminium and magnesium.

Double-lip protective action

The spring-loaded main lip retains the lubricant inside, while the second auxiliary lip shields and repels environmental contaminants such as sand, dust and moisture before they reach the primary dynamic sealing area.

ADVANTAGES

Advantages of the GP_W profile

Labyrinth effect in the housing

The external ribs create a series of micro-barriers in the housing groove, counteracting secondary static leakage even in housings with suboptimal surface roughness.

Extended service life

The dust lip prevents external abrasive particles from reaching the main lip and reduces the risk of premature scoring on the rotating shaft diameter.

Grease cavity

The space between the main lip and the dust lip can be filled with grease during installation, reducing friction on the auxiliary lip and trapping the finest dust particles.

COMPLIANCE AND STANDARDS

International standards

Construction dimensions, geometric tolerances and installation dimensions in compliance with DIN 3760 Form AS (Wave) and ISO 6194-1 Type 2 standards, for profiles with ribbed outer surfaces and a protective lip.

VARIANTS

Available configurations

NBR 70**GP_W Standard**

Configuration suitable for general industrial and automotive replacement parts exposed to the external environment, particularly suitable for aluminium housings operating with conventional mineral oils at standard temperatures in dusty environments.

ADVANTAGES

Excellent value for money, easy manual or power-assisted installation and wide availability in the product range.

FKM / VITON**GP_W Premium**

Specific configuration for high-speed shafts up to 35 m/s or for high-temperature environments in contact with aggressive synthetic oils, in the presence of significant thermal expansion of the housing and high environmental contamination.

ADVANTAGES

Continuous thermal resistance up to +200 °C, outer waves and dust lip resistant to loss of elastic memory and premature hardening.

COMMERCIAL EQUIVALENTS

Market equivalents

MANUFACTURER	GP_W STANDARD - NBR	GP_W PREMIUM - FKM / VITON
Net Seals	Oil Seal Series G_W with Dust Lip / WAS-w / TC-w	Viton Oil Seal Series G_W with Dust Lip / WAS-w FKM
Freudenberg (Simrit)	Simmerring® BASL Wave Profile	Simmerring® BASL FKM Wave Profile
Parker Prädifa	OSHAL Ribbed Profile	OSHAL FKM Ribbed Profile
Dichtomatik	WAS Wave Profile	WAS FKM Wave Profile
Kastas Sealing Technologies	K28 / K30 Wave Profile	—
Corteco	Type GP Ribbed Oil Seal Series with Dust Lip	—
SKF	—	Viton wave-profile radial shaft seals with auxiliary lip