

High pressure GAP

DESCRIPTION

The GAP series rotary shaft seals, also commercially known as reinforced pressure oil seals or BABSL type, are special dynamic seals designed to operate in the presence of internal circuit pressure. The profile features a short main sealing lip supported by a garter spring, together with an auxiliary front dust lip. The smooth rubber-covered outer casing ensures static sealing within the housing and counteracts internal hydraulic thrust.

PROFILES

Type GAP Standard

Double-lip profile, with a short spring-loaded sealing lip and an auxiliary dust lip without a spring. The outer diameter is made of completely smooth elastomer with an "L"-shaped structural reinforcement insert.

Type GAP/S Special

Variant with a modified dynamic lip or high-load spring, specifically designed for particularly high industrial rotational speeds and pressure peaks.

MATERIALS

Materials and operating conditions

MATERIAL / COMPOUND	PERIPHERAL SPEED	TEMPERATURE	MAX PRESSURE
NBR Nitrile rubber 70 / 80 ShA	Up to 12.0 m/s	−30 / +100 °C	Up to 1.0 MPa 10 bar continuous, depending on peripheral speed
FKM Fluoroelastomer / Viton	Up to 35.0 m/s	−20 / +200 °C	—

REINFORCEMENT COMPONENTS

Internal structure

Internal reinforcement	Heavy-gauge stamped carbon steel, fully embedded in the rubber
Garter spring	Precision spring steel
Option	AISI 302/316 stainless steel for chemical pumps

COMPATIBLE FLUIDS

Mineral hydraulic oils, fluid gear lubricants, mineral and synthetic greases and, for the FKM/Viton version, special synthetic hydraulic fluids.

FEATURES

Main features

Short-section dynamic lip

Unlike standard oil seals, the GAP profile uses a short, rigid lip supported by the reinforcement. This geometry limits lip deflection under pressure and allows continuous pressures up to **10 bar (1.0 MPa)**.

Smooth rubber-covered static fit

The elastomer outer casing ensures static sealing against the housing. It compensates for structural thermal expansion of the metals and counteracts the axial thrust generated by internal hydraulic pressure.

Double hydrodynamic protection

The garter spring maintains a calibrated radial load on the shaft surface, while the front dust lip prevents abrasive dust and external moisture from reaching the primary sealing area.

ADVANTAGES

Advantages of the GAP profile

Sealing under pressure

Allows use on rotating shafts where the internal fluid reaches high pressures, such as in front-mounted hydraulic pumps or hydraulic motors, reducing the need for complex external drainage circuits.

Controlled heat generation

The stability of the lip reduces the dynamic contact area under pressure, limiting localized overheating caused by friction and wear on the shaft surface.

Safe installation

The outer rubber coating reduces the mechanical force required during press-fitting and limits the risk of scratches or deformation in housings made from aluminium or light alloys.

COMPLIANCE AND STANDARDS

International standards

Construction dimensions, geometric tolerances and installation dimensions in compliance with international standards and standardized tables for ISO 6194 hydraulic pumps and special BABSL-type high-pressure profiles.

VARIANTS

Available configurations

NBR 70**Type GAP Standard**

Reference configuration for standard hydraulic pumps and hydraulic motors operating in light- and medium-duty mobile hydraulics. It provides resistance to back-pressure and compatibility with mineral oils at medium temperatures.

ADVANTAGES

Excellent value for money, high static elastic memory and axial stability during storage.

FKM / VITON**Type GAP Premium**

Specific configuration for applications with high peripheral speeds, up to 35 m/s, or subject to continuous operating temperatures up to +200 °C. The fluoroelastomer provides greater resistance to modern synthetic lubricants.

ADVANTAGES

High thermal resistance, maintenance of the spring's radial load and protection against hydrodynamic wear under pressure.

COMMERCIAL EQUIVALENTS

Market equivalents

MANUFACTURER	TYPE GAP STANDARD - NBR	TYPE GAP PREMIUM - FKM / VITON
Net Seals	Pressure Oil Seal Series BABSL / TCN / GAP	Viton Pressure Oil Seal Series BABSL / GAP FKM
Freudenberg (Simrit)	Simmerring® BABSL / 829N PR Profile	Simmerring® BABSL FKM Profile
Parker Prädifa	TCN / BP Profile	TCN (FKM) Profile
Kastas Sealing Technologies	K33 / K34 Profile	—
Corteco	BABSL High-Pressure Oil Seal Series	—
Dichtomatik	—	BABSL FKM Profile
SKF	—	Viton High-Pressure Seals (CRW5)