Why SKF? Piston seals

Piston seals maintain sealing contact in a sliding motion between the piston and the cylinder bore. Differential pressures acting on the piston to extend or retract the piston rod can be in excess of 400 bar (5 800 psi).

The pressure acting on the piston seal increases contact forces between the piston seal and cylinder surface. Therefore, the surface properties of the sealing surfaces are critical to proper seal performance.

Piston seals are typically classified into single-acting seals (pressure acting on one side only) and double acting seals (pressure acting on both sides).

Depending on the profile and the required characteristics of its components, a piston seal can consist of one or more materials. Common materials used for piston seals are thermoplastic polyurethane (TPU), polytetrafluorethylene (PTFE), polyamide (AP), and nitrile rubber (NBR).

Common applications:

- Hydraulic cylinders used in off-highway equipment for:
  - Construction
  - Mining (mobile and stationary applications)
  - Agriculture
  - Forestry
- Industrial stationary cylinders and presses

Product features

- Single acting and double acting seals
- Wide range of profiles, sizes and materials for a wide variety of operating conditions and applications
- Low friction design
- Optimized compatibility with operating fluids

User benefits

- Improved sealing performance
- Extended system service life
- Increased productivity
- Reduced maintenance costs
- Increased mean time between failures (MTBF)
- Optimized design and development of fluid sealing systems for custom applications

Profile overview

Profile	Description	Profile	Description
MPV 	Polyurethane slide ring, nitrile rubber energizer; suitable for heavy duty applications	**LTP** 	Sealing ring made of nitrile rubber, supported by polyamide anti-extrusion rings; good gap extrusion resistance; suitable for high pressures
DPV 	Polyurethane slide ring, nitrile rubber energizer; fits wide, shallow inch size housings; suitable for heavy duty applications	**CUT** 	Step cut polyamide slide ring, nitrile rubber energizer; suitable for high pressures
LPV 	Polyether based polyurethane slide ring, nitrile rubber energizer; suitable for light to medium duty applications	**SCP** 	Step cut polyamide slide ring, oval nitrile rubber energizer; fits wide, shallow inch size housings; suitable for extreme pressures
CPV 	Polyurethane slide ring, nitrile rubber energizer; fits wide, shallow inch size housings; suitable for light to medium duty applications	**MD-L** 	One-piece nitrile rubber sealing ring integrated polyester elastomer support rings and POM guide rings; common in older cylinder designs
GH 	PTFE slide ring, nitrile rubber energizer; low breakaway friction	**UNP** 	Polyurethane U-cup profile; single-acting; may be used in double-acting cylinders when facing in opposite directions
APR 	PTFE slide ring with incorporated rubber X-ring, nitrile rubber energizer	**Rod seals that can be used as piston seals** These rod seal profiles are designed with similar inside and outside sealing geometry and, therefore, can also be used as piston seals	
LCP 	PTFE slide ring supported by polyamide anti-extrusion rings, nitrile rubber energizer; very good gap extrusion resistance; suitable for high pressures	**PTB**  **STD**  **DZ** 	

More piston seals

The piston seals listed above represent the preferred profiles available in common sizes.

SKF supplies many additional sizes and profiles. SKF can manufacture a wide variety of piston seal profiles with different materials and sizes both moulded and with its industry-leading SKF SEAL JET production system.

For additional information about these profiles or if the application requires a solution different than what is shown here, contact SKF.

SKF can provide customized sealing solutions for the toughest application conditions.

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