

Water Pump Seals Product Information

Water Pump Seals



- > **Self Lubricating**
- > **Compact Design**
- > **Multiple Lip Configurations**
- > **Low Friction**

Race-Tec Sealing has successfully applied PTFE Lined (PL) seal technology to a number of prestigious race water pump projects.

The most common problems found when using standard PTFE seals in race engine water pump applications include coolant leakage and destructive wear of the seal itself.

These interface problems are well understood being linked to the intermittent lubrication of the seal shaft interface by the coolant, plus the accelerated wear caused by the formation of silicates through the evaporation of the coolant. The experience built up over a number of years working in this environment and the developed Race-Tec knowledge base enables the problems associated with other seal technologies in a coolant water sealing environment to be overcome.

Our latest evolution of water pump seal allows us to extend our capability to the most demanding of applications in terms of speed and pressure in F1 engines. In this environment our latest technology has extended seal life to five times that of our original technology.



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Performance Features

Materials

The elastomer selected may be any of the common compounds, Nitrile (NBR), Ethylene Propylene (EPDM) or Hydrogenated Nitrile (HNBR). Due to the superior performance of the HNBR this is our preferred option.

During the development of the latest generation PL seal a new grade of PTFE has been developed with fillers to overcome the wear experienced on the more common grades.

Technical Features

Since the PL design concept and geometry is different to other seal technologies, particularly mechanical face seals which are significantly larger, the latest generation of PL seal does not experience the same levels of problems associated with boundary lubrication as experienced with other seal technologies. Our in house testing has shown the new generation of seals to exceed 100 hours of running at a constant speed of 12,500 rpm with a system pressure of 5 bar.

The latest generation of PL seal uses multiple sealing lips to ensure that the coolant control and sealing function is strictly maintained. This self lubricated design overcomes the abrasion issue created by the silicates formed on the sealing lip by the coolant.

Compared to a mechanical seal, significant space savings can be achieved as the PL seal only requires a radial section of 4.50mm, and an axial width of 6.00mm. In house testing has shown the PL seal to offer a significant reduction in friction.

Comparison of Race-Tec PL and Mechanical Seal



Applications

Race-Tec Sealing PL seals for water pumps can be used in all forms motorsport including motor-cycles and karting.