

Race-Tec Motorsport

Water Pump Seal Technology

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Issue	C
Date	16/03/2006

- Low friction
- Low Shaft Wear
- Compact design
- Spring-loaded Ptfе Lip
- Multiple Lip Configurations



Race-Tec NAK have successfully applied PTFE-Lined Seal (PL Seal) technology to a number of prestigious race engine water pump projects.

The most common problems found when using standard PTFе seals in race engine water pump applications include coolant leakage, severe wear of the shaft 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. The experience built up over a number of years working with 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.

In water pumps the Race-Tec PL Seals typically out-perform those other seals with improved sealing reliability, significant friction reduction & reduced shaft wear.

Race-Tec NAK PL Seals for water pumps have a proven history in motorsport race engine applications ranging from F1, LMES / ALMS, LMP 675 / 900, GT, Champcar & Historic race engines to water-cooled Karting engines.

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Performance Features

Materials

The elastomer selected may be any of the common compounds, Nitrile (NBR), Ethylene Propylene (EPDM) and Hydrogenated Nitrile (HNBR).

The PTFE grade selected may be basic "virgin" PTFE through a range of filled and special grades, which are designed and selected according to the application requirements.

Technical Features

Since the PL Seal design concept & geometry is different to other seal technologies, the PL Seals do not experience the same levels of problems associated with boundary lubrication as experienced with other seal technologies in water pump applications.

For some applications seals multiple lips may be required to ensure that coolant control and sealing function is strictly maintained. To meet this requirement PL Seals with two (or more) PTFE Lined lips may be provided.

When necessary PL Seals can be supplied pre-lubricated with grease in discreet locations to aid lip protection under adverse conditions.

Seal with two PTFE lined lips



Applications

Race-Tec NAK seals are used in all forms of top motorsport i.e. F1, F3000, F3, Nascar, Champ Car, IRL, BTCC, WTCC, DTM, LMES, ALMS, Sportcars, WRC, GP1, GP3, GP500, etc, where the seals are custom designed to meet the performance demands of the application, whether it be ultra-low friction qualifying, High Vacuum retention, dirt exclusion, etc.

Race-Tec NAK race proven custom sealing

