

Upright / Hub Seals Product Information

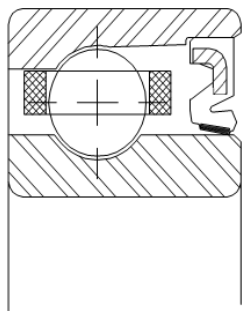
Upright / Hub Seals



- > **PTFE lined sealing lip**
 - > **Low friction**
 - > **Space saving narrow designs**
 - > **Suitable for soft shaft materials**
- materials**

Race-Tec Sealing introduced the low friction compact PL1 (PTFE Lined) seals into Formula 1 in 1992, rapidly becoming the “state of the art” and enabling space and weight savings to be achieved in the uprights. The wide range of designs and technologies make the Race-Tec seals suitable for use with all fabricated upright assemblies and wheel hub components in current and historic race car applications.

As a development of the PL1, the PL2 design incorporates dual sealing lips; a rubber lip to prevent dirt ingress and a spring energised PTFE lined lip for the main sealing function. The PL2 seals have been designed to run on soft shaft materials. Although originally designed for F1 applications, these seals are now commonly used in GT, sportscar and Super V8 cars.



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Performance Features

Materials

The elastomer selected may be any of the common compounds; nitrile (NBR), hydrogenated nitrile (HNBR), and fluoroelastomers. Race-Tec has a range of materials that have been formulated to optimise the properties for each application.

The PTFE grade selected may be basic “virgin” PTFE though a range of filled and special grades, which are designed and selected according to their application.

Technical Features

Ultra narrow PL1 seals (VM-PL and VC-PL) are typically 2.7 to 3.2mm wide, and enable the upright design to be reduced in the quest for performance. VC-PL seals feature moulded rubber O/D pro- files to give a “soft” fit, while VM-PL series seals have precision machined cases in steel, aluminium alloy, or titanium, to match the thermal expansion properties of the mating upright housings.

The PL2 seal lip technology may be applied to either VM or VC style seals with an overall width of typically 3.5mm and to date have been used in bore diameters up to 130.0mm. Developments of the PL2 seal for severe external environments such as in WRC and S2000 rally cars bringing together the low friction performance of the compact GT hub seals with the additional external protection features.

A typical hub seal function is to retain the grease and prevent dirt ingress. We have provided solutions for customers looking to gain a performance advantage from their hub designs leading to the development of seals suitable for oil lubricated hub.

In the aim to reduce weight, we have also developed seals capable of running on aluminium alloy shafts. This led to an extensive development program for new PTFE grades and lip designs to minimise shaft wear.

