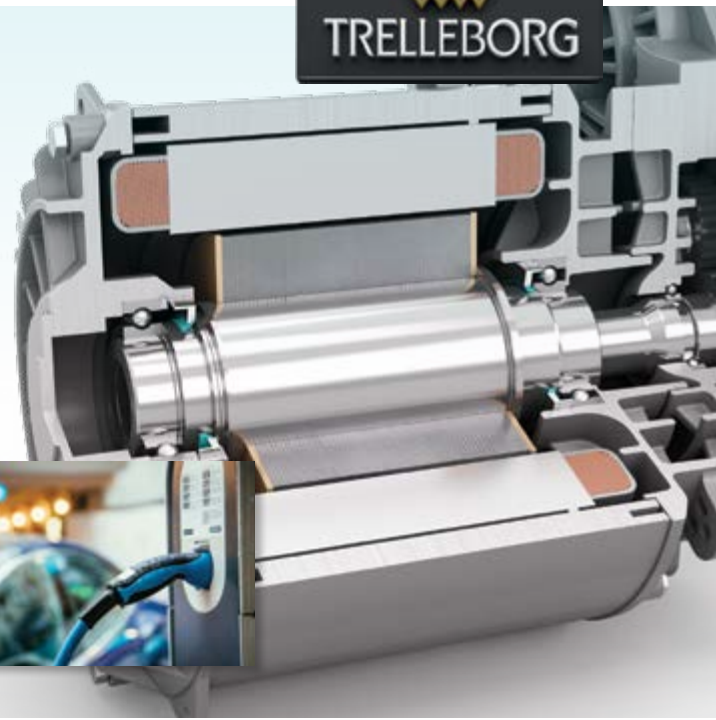




HiSpin® PDR RT

ULTRA-HIGH SPEED PTFE ROTARY SEALING ACROSS A WIDE RANGE OF LUBRICATION CONDITIONS AND TEMPERATURES



HiSpin® PDR RT is tested under extreme conditions to ensure sealing efficiency at high rotational speeds in e-Mobility applications.

Developers are continuously improving the effectiveness of the electric drive unit; a combined electric motor and gearbox in a shared housing.

The drive unit is the main cost-driver of future electric vehicle development and offers new challenges for automotive manufacturers. While the gearbox requires efficient lubrication, it is essential that the motor remains dry. Therefore, a highly reliable seal is required between the two parts.

Trelleborg Sealing Solutions is at the forefront of the development of sealing systems for electric-powered drivetrains, having been involved in the technology since its inception. As a result, engineered solutions have been developed specifically for electric-drive units that are also suitable for a broad variety of other electric-drive applications. Tested under extreme conditions, these seals offer superior, cost-effective performance and reliability.

Running in dry, moist or lubricated environments, **HiSpin® PDR RT** meets ever growing demand for seal integrity at increasingly higher rotational speeds. The seal has excellent sealing characteristics at speeds of up to at least 60 meters per second.

A combination of a unique material, an innovative manufacturing process and specialized sealing lip design, reduces the friction by up to 75 percent when compared to

traditional PTFE seals, leading to a significant reduction in power consumption. In addition, heat generation is reduced, as is wear for both the seal itself and its mating surface.

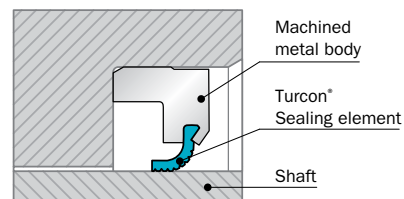
Features and Benefits

- Capable of operational surface speeds up to 60 m/s and beyond
- Bi-directional sealing capability
- Compact design reduces assembly space requirement
- Wide temperature range, from -60 °C to +200 °C
- Ability to handle pressure
- Excellent sealing performance with and without lubrication
- Extremely low friction and heat development
- Wide media compatibility
- Negligible shaft wear
- Design optimized for durability and long service life

Trelleborg Sealing Solutions develops, manufactures and supplies innovative engineered solutions for automotive applications. We have a commitment to satisfy our customers and to supply a consistent quality, according to IATF 16949.

TECHNICAL DETAILS

Assembly cross section



Surface Requirements of shaft:

Ra:	0.1-0.2µm
Rz:	1.0µm
Bearing ratio (Tp (Mr)):	(50 - 70% @ depth of p = 0.25 Rz (Rtm); relative to a ref. line c: 5% tp
Mating Surface Hardness:	min. 55 HRC

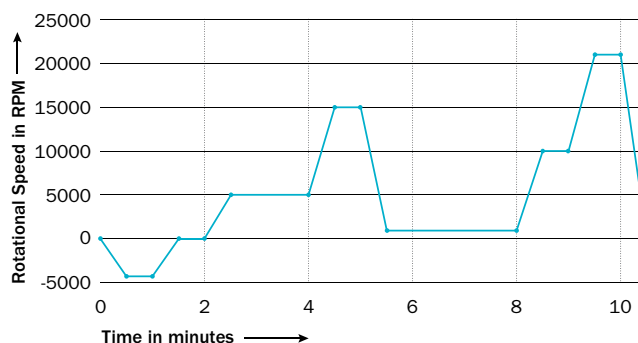
Groove Dimensions

Housing design and correct installation are important for the performance of the HiSpin® PDR RT. Information on shaft and housing design with installation guides are available from your local Trelleborg Sealing Solutions marketing company.

Test Conditions

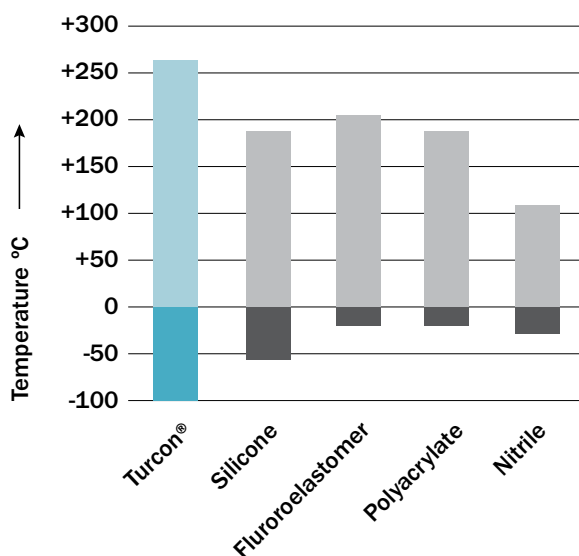
Shaft diameter:	Ø38 mm
Shaft speed:	21,000 rpm
Temperatures:	up to +150 °C
Media:	ATF Fluid
Test cycle:	Load cycle according to figure and according to ISO 6149
Test duration:	500 hours

Running Profile Example

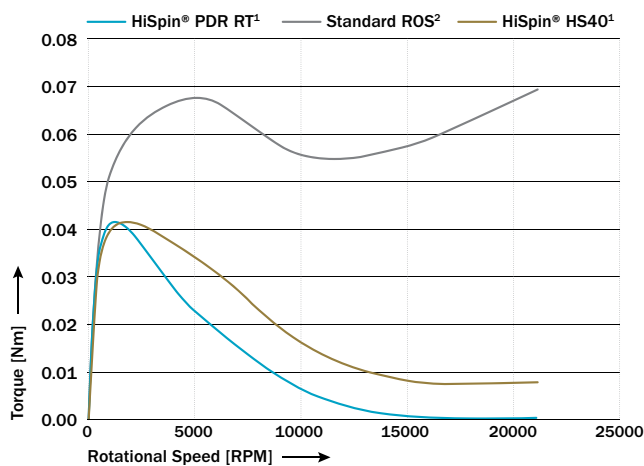


Test Results

Operating Temperatures for Different Materials



Torque Comparison



¹ Torque test performed in oil mist condition

² Torque test performed in ¼ shaft oil filled condition



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