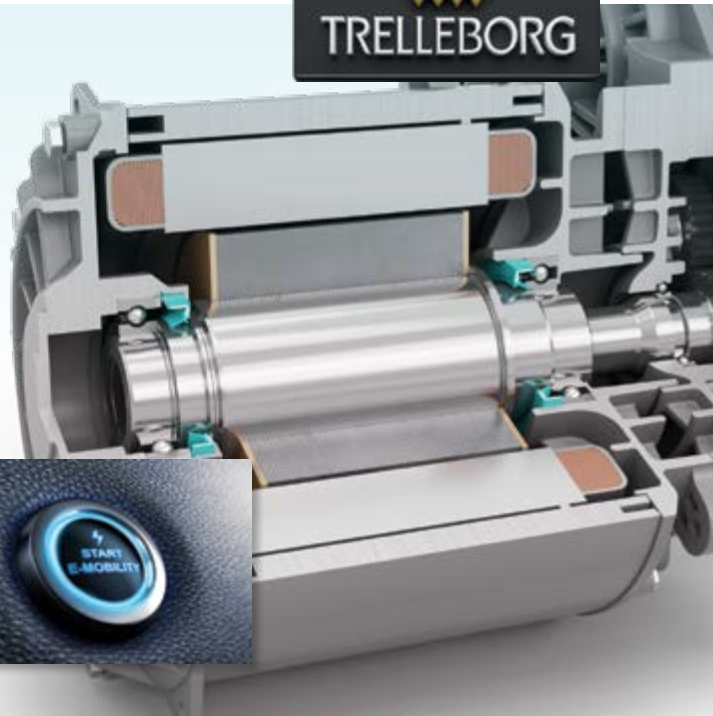




HiSpin® HS40

HIGH SPEED ELASTOMER ROTARY SEALING ACROSS A WIDE RANGE OF LUBRICATION CONDITIONS AND TEMPERATURES



HiSpin® HS40 meets the demanding temperature requirements of e-Mobility and high-speed electric motor applications, offering energy efficient sealing and extended life time performance.

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.

Providing outstanding low friction capabilities, **HiSpin® HS40** meets the demanding conditions of automotive high-speed electric motors. A unique hydrodynamic feature helps reduce frictional torque, while oil back-pumping leads to improved sealing performance without causing any shaft damage.

Our proprietary XLT high-performance fluoroelastomer (FKM) elastomer range provides outstanding resistance to extreme engine conditions resulting from high motor speeds and aggressive synthetic ATF fluids. Testing of the new generation

XLT compounds has proven that these low temperature FKM grades outperform and extend the temperature performance capability of traditional FKM elastomers.

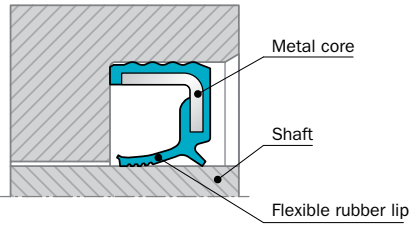
Features and Benefits

- Works at high speeds up to 40 m/s
- Bi-directional sealing capability
- Compact design to reduce assembly space
- Wide temperature range, from -45°C to +200°C due to XLT FKM
- Ability to handle run out
- Excellent sealing performance in different lubricated environments
- Adds value with low frictional torque
- Reduction of heat development
- Proven compatibility with various eMobility transmission fluids
- Negligible shaft wear
- Easy installation
- Cost effective solution
- Available in different outer diameter configurations, e.g. partially rubber covered

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

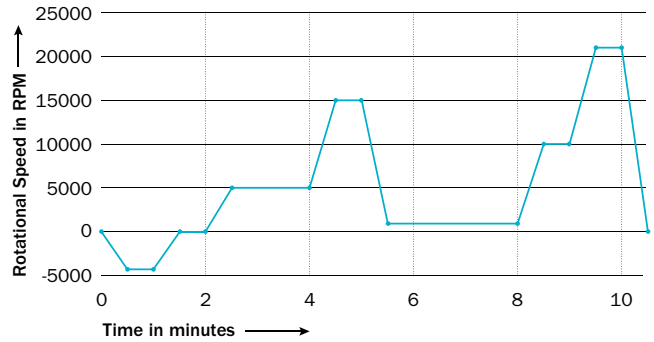
Groove Dimensions

Housing design and correct installation are important for the performance of the HiSpin® HS40. Information on shaft and housing design with installation guides are available from your local Trelleborg Sealing Solutions marketing company.

Test Conditions

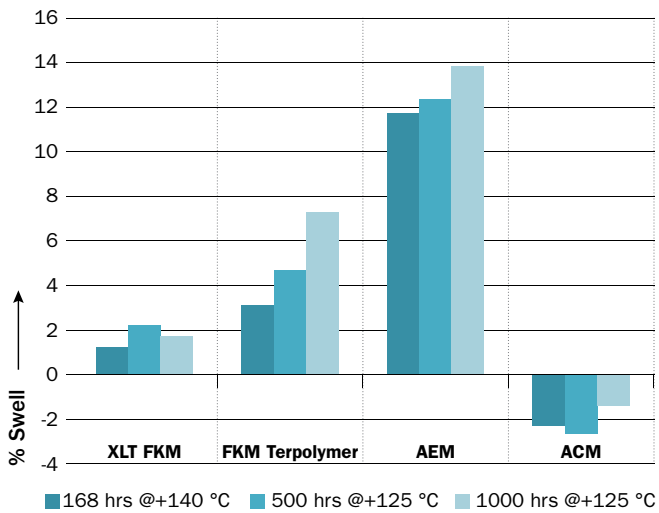
Shaft diameter:	Ø38 mm
Shaft speed:	21,000 rpm
Temperatures:	up to 150°C
Media:	ATF Fluid
Test cycle:	Load cycle according to figure and according to ISO 6149
Test duration:	500 hours

Running Profile Example

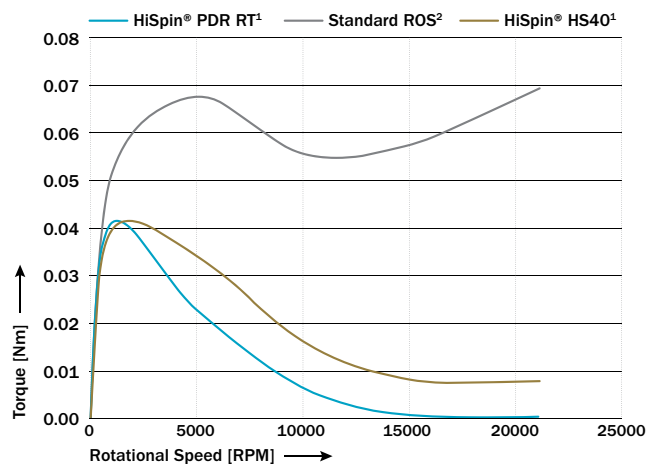


Test Results

Aging in Mobil LV ATF HP - Volume Change (%)



Torque Comparison



¹ Torque test performed in oil mist condition
 ² Torque test performed in ¼ shaft oil filled condition

