

## SpectraQuest introduces Innovative Transducers for Bearing Prognostics Simulator (BPS)

- *A smart design for performing accelerated run-to-failure tests on bearings*
- *Ideal tool for characterizing bearing friction torque*
- *Innovative and proprietary transducers for measuring bearing friction torque, transverse and axial loads applied to bearing*
- *Measure applied force and perform signature analysis as a function of wear damage growth*
- *Research signal processing techniques and sensor types for condition monitoring of bearings for prognostics*



Frictional Torque Sensor

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SpectraQuest introduces innovative, proprietary and in-house developed force transducers for Bearing Prognostics Simulator. BPS is an innovative tool specifically designed to conduct fundamental research in bearing wear and in modeling bearing damage evolution process. An outstanding feature of the BPS is the inclusion of SpectraQuest's proprietary transducers for measuring bearing friction torque, transverse and axial loads applied to the bearing. The friction torque and the load transducers provide unique data, previously not available, for understanding bearing prognostics signature and modeling bearing failure mechanisms. The BPS provides an opportunity to develop a predictive model of bearing remaining life based on routine condition monitoring measurement. The torque transducer is sensitive enough to measure the small frictional torque bearing resistance under several thousand pounds of transverse/axial load.



Transverse measurement

The strain gage based custom force transducer was developed in-house for measuring the applied force and performing signature analysis as a function of wear damage growth. The transducer design ensures that the orientation and the point of application can be adjusted such that the load is applied along the center line of the bearing, which is particularly important with increasing loads.

Bearing Friction torque transducer is designed to study characteristics of the frictional force between rotating and the stationary components of the bearing are expected to evolve. This transducer design featured innovative ideas to cancel the torque associated with the bending forces and minimize the effects of supporting structure. It is also possible to make field adjustments to eliminate the effects of increased lateral loading on the support deformation. This smart design makes it possible to obtain bearing frictional torque information as a function of damage growth. The results can be used to characterize bearing failure mechanisms for developing a prognostics model. Please download the brochure at <http://www.spectraquest.com/resources/downloads/> for more details.

## ***About SpectraQuest***

SpectraQuest is a leading developer and manufacturer of turnkey systems and products for enhancing reliability of rotating and reciprocating machinery. These products are ideal platform for research and education in machine fault diagnosis/prognosis, teaching dynamics and vibration courses, and wind turbine drivetrain studies. The distinguishing feature of SpectraQuest is a wide variety of Machinery Fault Simulators and Custom Designed Test Rigs which are sold in over forty five countries around the world. Further information is available at <http://www.spectraquest.com/>.

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