

Development and Application of PTFE Compound Bearings

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Abstract

The PTFE (Poly Tetra Fluoro Ethylene) compound bearing is a water lubricated shaft bearing that is made of synthetic rubber and PTFE compound. This paper outlines the development and applications of PTFE compound bearings, which enable the shaft to start-up without initial lubricating water. The unique characteristic is the three-layer structure using elastic, synthetic rubber which is sandwiched between PTFE compound and the outer metal shell. This special structure is designed to solve bearing issues that are incompatible with each other. That the bearing has sufficient hardness to be excellent against wear and yet is flexible to compensate for shaft misalignment and vibration. Friction characteristics and performance data are introduced comparing PTFE and conventional rubber bearings. Long time running tests are carried out in very demanding conditions and the test data are shown. Over 15 years of actual operational service data on naval vessels and high speed, long-distance cruising ferries are introduced.

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