

# MiT Development

Spring

## Bearings Demonstrate High Load and Temperature Capabilities

### Compliant Surface Journal Bearing Tested at High Temperatures

In a collaborative effort with engineers at NASA's Lewis Research Center, a Miti Compliant Surface Hydrodynamic Gas Journal Bearing has demonstrated load capacities exceeding 32 psi at 36,000 rpm while subjected to 650 °C temperatures. This ground breaking development combines a new state-of-the-art Miti bearing design and advanced NASA high temperature solid film coatings. Figure 1, shows that the capabilities of this new bearing exceed previous designs by approximately 15%. Load capacities for speeds above 60,000 rpm are expected to exceed 100 psi. Coatings developed by the

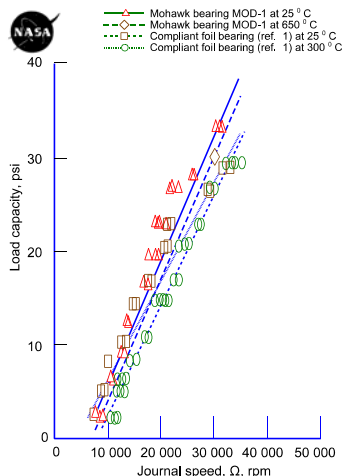


Figure 1 Bearing Load Capacity

Surface Science And Tribology Group at NASA are applied to the journal and bearing surfaces as shown in Figure 2.

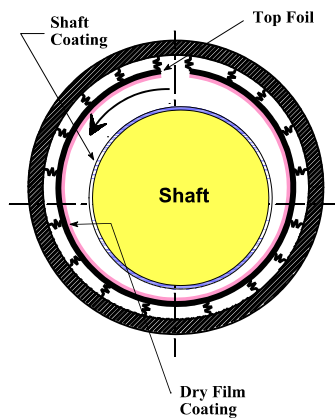


Figure 2 Compliant Surface Bearing

### Thrust Bearing Develops High Load Capacity

In a parallel development, Miti has designed and tested a compliant surface hydrodynamic thrust bearing capable of supporting thrust loads in excess of 200 pounds, as shown in Figure 3. This new thrust bearing design comes in a compact package and can also benefit from the NASA developed high temperature coating.

This combination of high temperature and load capacity makes applications

in turboalternators, auxiliary power units, small gas turbine engines and extreme environment applications possible. Oil free compliant surface bearings are attractive alternatives to conventional bearings when long life, high speed or extreme environments (from cryogenic to high temperatures) are expected and/or contamination free operation is required. For additional information contact:

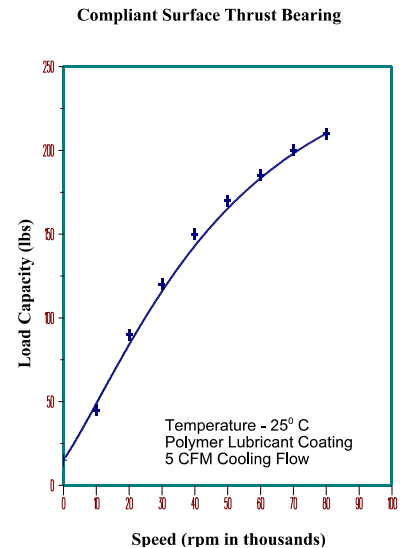


Figure 3 Thrust bearing capacity.

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