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## **An Innovative Approach to Flexible Thermal Straps using Aluminum, Copper, and Pyrolytic Graphite Film**

*Thursday, 10 July 2014 18:00 (15 minutes)*

Thermotive LLC has developed standardized foil-type thermal straps for use in ground, air, and space applications. Furthermore, Thermotive has a new patent pending thermal strap technology called Pyrovo Pyrolytic Graphite Film (Pyrovo PGF) for the most demanding thermal control applications. Pyrovo PGF offers lighter, thinner, more flexible, and as much as 7x the thermal conductivity of aluminum and 4x that of copper – making them an ideal choice for many aerospace applications.

The thermal conductivity of these new thermal straps peak between 180-210K, but the specific thermal conductivity is still very attractive below these temperatures. At room temperature the thermal conductivity can be near 1500 W/m<sup>2</sup>K in plane, while the cross plane conductivity is significantly lower by nearly two orders of magnitude. Terminal design and thermal strap fabrication is key to maximizing the performance of these new thermal straps.

This paper presents thermal, mechanical, design, and application data on the new technology. Some novel applications and distinct advantages are also discussed.

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