Flexible Thermal Conductors -- Thermal Straps & Strap Assemblies

Boyd has developed a family of flexible thermal conductors. Metal and highly conductive Annealed Pyrolytic Graphite (APG) designs are available as “simple point-to-point” conductors or in complex strap assemblies. These products are used worldwide on many advanced platforms.

Custom Metal Foil Thermal Strap

Key Features and Benefits

- Metal foil thermal strap assemblies are layered metal foils with consolidated end flanges. k Technology’s design and consolidation methods ensure high conductance and high flexibility.
- Metal foil strap assemblies are fabricated from a variety of metals including aluminum and copper. Designs using 0.0005 to 0.0100 inch thick foils have been produced.
- Strap assemblies are designed, built and tested to comply with customer requirements such as conductance, stiffness (flexibility) and mass.

Custom Encapsulated APG Thermal Strap Assemblies

Key Features and Benefits

- k Technology has developed thin encapsulated Annealed Pyrolytic Graphite (APG) thermal straps. These Polyimide APG straps typically are 3 to 5 times more conductive per mass than aluminum foil designs and 9 to 15 times per mass of copper foil designs.
- APG is highly conductive graphite (4X the conductivity of copper) which is flexible in thin sections (< 0.01 inch).
- Encapsulation materials include polyimide, aluminum foil, or copper foil.
Highly Conductive k-Core® Thermal Straps

Thin “Point-to-Point” Thermal Straps

k-Core® based Thermal Straps are highly conductive formable or semi-dynamic heat transfer components. These straps are macro-composite components containing the same highly conductive APG (Annealed Pyrolytic Graphite) heat transport material found in our rigid product line. k-Core® straps effectively move heat away from sensitive components.

Key Features

- Encapsulated APG Material System - provides high k path
- High Conductance - Effective Conductivity Value up to 1200 W/m·K
- Encapsulating skins seal the APG and enhance the structural integrity
- Encapsulation material selected to satisfy requirements

Key Benefits

- Dynamic Flexibility or Bend to Shape
- Light Weight
- Qualified in Space (TRL 9)
- Ease of Implementation

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