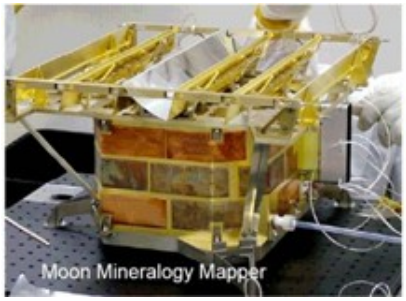
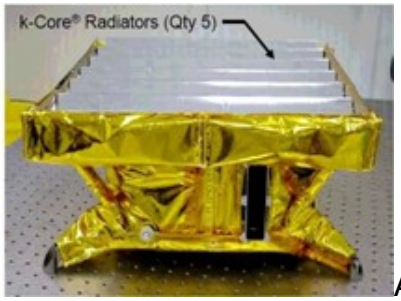
Lunar Mapping Mission Employs Advanced Thermal Technology





Advanced thermal technology design and fabrication capabilities from Thermacore (www.thermacore.com [1]), a leading provider of advanced thermal solutions, helped make the recent historic orbital flight of the Moon Mineralogy Mapper (M3) possible.

During India's first moon mission, scientists made the breakthrough discovery of significant absorbed water on the moon. To help support this mission, Thermacore's k Technology Division provided reliable thermal solutions, which included sophisticated radiator panels and high performance thermal straps, along with design and fabrication services.

Thermacore's k Technology Division involvement began during the design phase as NASA's Jet Propulsion Laboratory (JPL) sought the most efficient and maintenance-free methods to dissipate heat from the M3's powerful and extremely sensitive electronics. These electronics enable the instrument to identify lunar minerals from orbit 100 km above the moon's surface. The k Technology Division helped JPL engineers develop thermal specifications for optimum rejection of high heat loads from the M3, and also worked with JPL to design a system that would work without the need for maintenance or adjustments.

Thermacore's solution involved six radiator panels, featuring their patented k-Core advanced high conduction composites, to reject excess heat out into space. Thermal straps, also fabricated by Thermacore's k Technology Division, were used as heat spreaders within the instrument. In addition, Thermacore's k Technology Division tested the completed components to ensure compliance with performance objectives.

"We are proud to have contributed to this historic space exploration milestone," said Jerome Toth, Thermacore president and CEO. "The M3 thermal solution is a real tribute to our advanced technological capabilities and engineering expertise, which allows us to meet the most rigorous specifications in the unique environment of outer space."

The M3 was the key component in Chandrayaan-1, India's first deep-space mission, launched on Oct. 22, 2008. In October 2009, the M3 made history by detecting

absorbed water on moon. This discovery suggests to scientists that there is much more water on the moon than previously believed.

For information about Thermacore, visit www.thermacore.com [1].

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