



Thermal Management for Unique Protoflight Thermal Challenges

For aerospace thermal management with light weight and small size, designers call on k-Core® carbon fibre composite (CFC) radiators, to get better isothermal performance than traditional aluminium systems.



k-Core thermal components like heat shields, radiators and chassis are proven effective under tough conditions that are literally out of this world — like the temperatures faced by [satellite](#) components in space. Using a CFC radiator of only .4M diameter, satellite thermal engineers can reduce peak temperatures for a 200 W load to less than half of the temperatures attained by standard solid aluminium designs (20°C vs 50°C). That helps meet the unique thermal challenges encountered by protoflight components that are entering new, outer space mission environments for the first time.

For large [aerospace](#) components, k-Core solutions can integrate heat pipes and heat spreading approaches, making large structures virtually isothermal.



With less mass than aluminium, a CFC-encapsulated k-Core composite lithium-ion battery chassis for a Mars Lander programme can effectively contain temperature changes and produce better isothermal performance (ΔT of 3.5°C vs 17.3°C for aluminium). When every ounce and every degree of temperature is critical to a mission's success, k-Core comes through with dependable performance.

k Technology components are also at work in specialised heat shields, straps, conduction bars and optical benches. [k-Core products](#) can be tailored to a wide range of applications by choosing encapsulants with specific mechanical features.