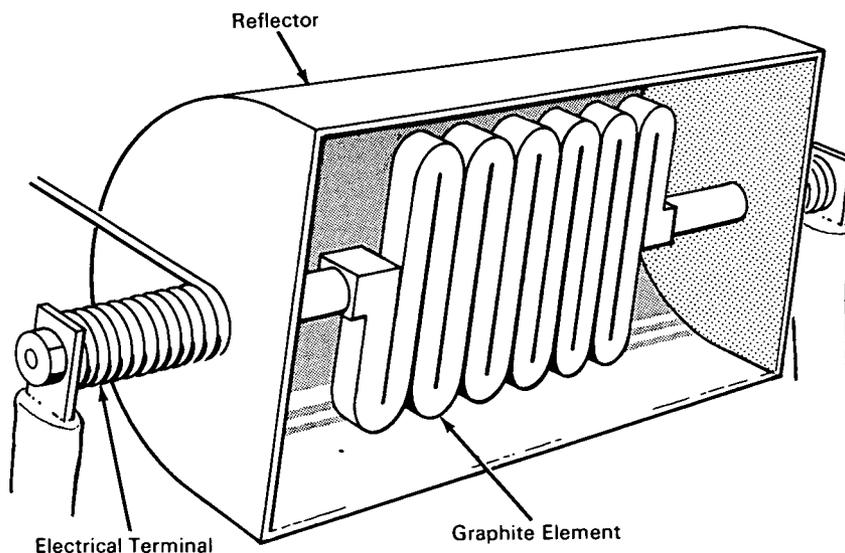


NASA TECH BRIEF



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Graphite Element Serves as Radiant Heat Source



The problem: To design a radiant heat source that provides higher heat fluxes and longer operational life than commonly used quartz infrared lamps.

The solution: A radiator machined from a graphite block to form a serpentine-type heating element.

How it's done: The radiant heat source is a 6-inch square graphite, serpentine-type heating element partially enclosed in a water-cooled metal reflector of gold-plated copper. Electrical terminals on either side of the reflecting enclosure are connected to a 40 kVA welding transformer that supplies the power. A radiation pyrometer behind the reflector monitors the radiator temperature.

Notes:

1. This radiator can provide energy to a blackbody receiver in a range of 10 to 80 Btu/ft²-second, within a tolerance of ± 2 Btu.

2. The device has a long operational life compared to the quartz lamps, for example, more than 7 minutes at 30 Btu/ft²-second.
3. This innovation would be useful in laboratories testing thermal resistance of materials.
4. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama, 35812
Reference: B65-10218

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: M-P&VE-M Laboratory
(M-FS-105)

Category No. 01