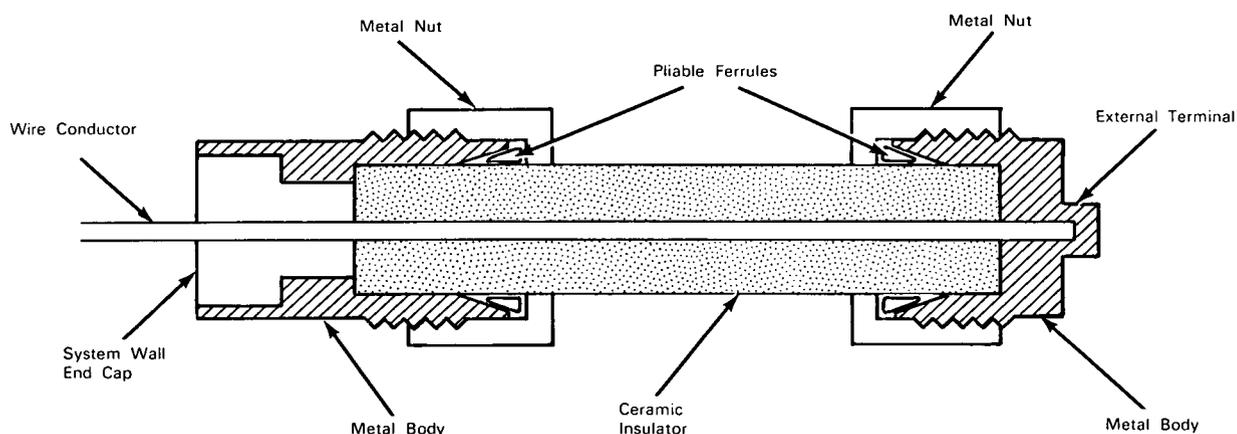


# NASA TECH BRIEF



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## Feed-Through Connector Withstands High Temperatures in Vacuum Environment



**The problem:** To provide an electrical connection through the wall of a vacuum device and retain vacuum integrity through successive cycles of high temperature. Conventional ceramic-to-metal brazed connectors tend to become porous and lose their vacuum tightness after a relatively small number of heating cycles.

**The solution:** A feed-through connector so designed that its sealing action is augmented by any increase in temperature.

**How it's done:** The feed-through connector consists of an inner ceramic insulator, rigid metallic (e.g., kovar) end members in the form of bodies and mating nuts having a coefficient of expansion less than that of the ceramic insulator, and intermediate ferrules of pliable metal having a coefficient of expansion greater

than the other parts. A wire through the center of the ceramic insulator provides the electrical path. This arrangement results in compression of the intermediate ferrules at elevated temperatures and assures the integrity of the vacuum seal.

**Note:** This connector would be useful in laboratories or shops where current must be introduced into an evacuated space subject to elevated temperature cycles.

**Patent status:** Title to this invention has been waived under the provisions of the National Aeronautics and Space Act (42 U.S.C. 2457 (f)), to the GCA Corporation, Bedford, Massachusetts.

Source: Wallace S. Kreisman of GCA Corporation under contract to Goddard Space Flight Center (GSFC-442)

Category 01