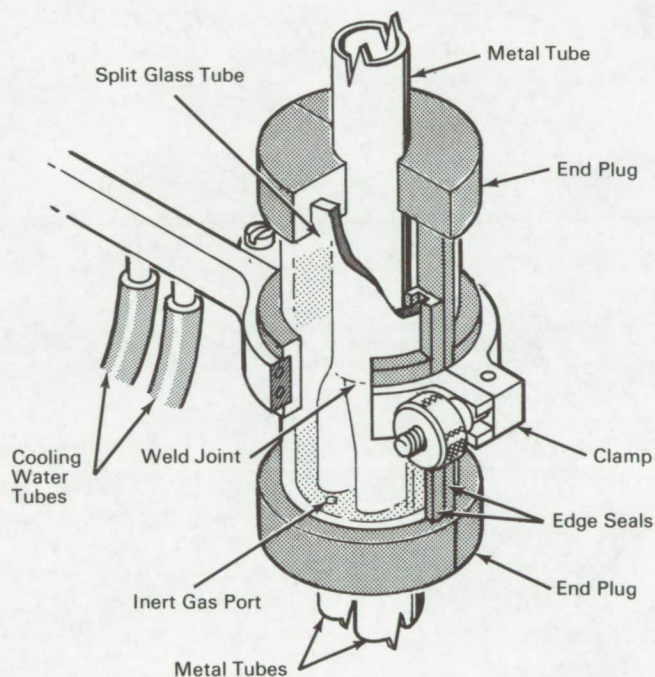


NASA TECH BRIEF



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Split Glass Tube Assures Quality in Electron Beam Brazing



The problem:

To accomplish electron beam brazing of metal tubes in an inert gas atmosphere with good visibility of the brazing action. Prior methods have offered poor visibility and have introduced magnetic-field interference with the electron beam.

The solution:

A sealed enclosure of heat-resistant glass tubing and silicone rubber molds bonded together that is easily applied to and removed from the brazing area by operation of a clamp.

How it's done:

A section of heat-resistant glass tubing is cut lengthwise and fitted with edge-seals of silicone rubber. The glass halves are held together with tape while end plugs of silicone rubber are cast. These end plugs are cast with appropriate openings to receive the tubing to be brazed and for the argon gas purge inlet. The plugs are then split in the same plane as the glass and the entire assembly is secured as a unit by a clamp that carries cooling water and permits opening and closing of the assembly in much the same manner as

(continued overleaf)

an old fashioned book that is clamped shut when not being used.

Notes:

1. Use of the glass tubing halves and silicone seals eliminates magnetic-field interference with the electron beam.
2. Progress and quality of the weld can be continually observed through the glass tubing.
3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama, 35812
Reference: B66-10151

Patent status:

No patent action is contemplated by NASA.

Source: Willard J. Kressin
of North American Aviation, Inc.
under contract to
Marshall Space Flight Center
(M-FS-564)