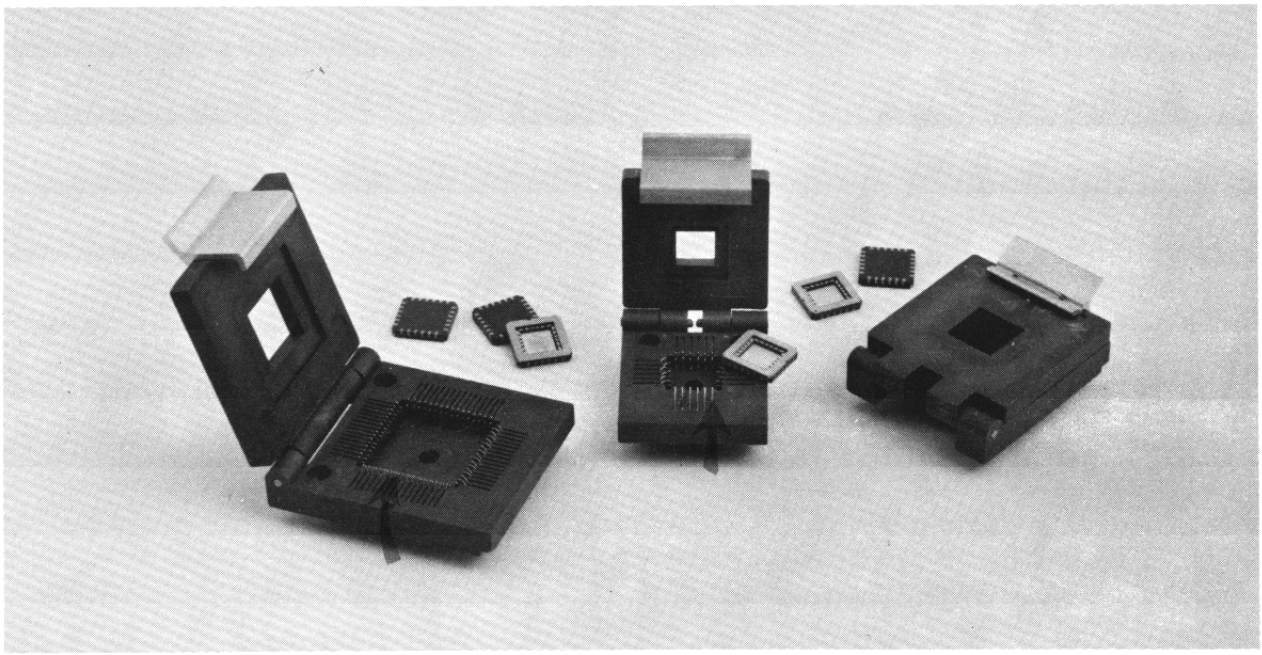
Application Report

BRUSHWELLMAN
ENGINEERED MATERIALS

AR 36-11-3

Industry: Electronic Component Sockets
Product: Beryllium Copper Strip



Zero insertion force sockets designed for the new leadless chip carriers utilize many of the properties that are found in beryllium copper alloys.

Engineering Requirements

The parts must exhibit a high resistance to initial permanent set, and to the stress relaxation which occurs over time at elevated temperatures.

Benefits of Beryllium Copper

The parts are stamped from Brush Wellman Alloy 165 mill-hardened strip. It is easily soldered and performance is not affected by temperatures up to 200°C.

Alloy 165 was found to be the cost effective material in an evaluation that compared it to phosphor bronze and copper-nickel-tin in this application.

For additional information, contact:

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(216) 486-4200

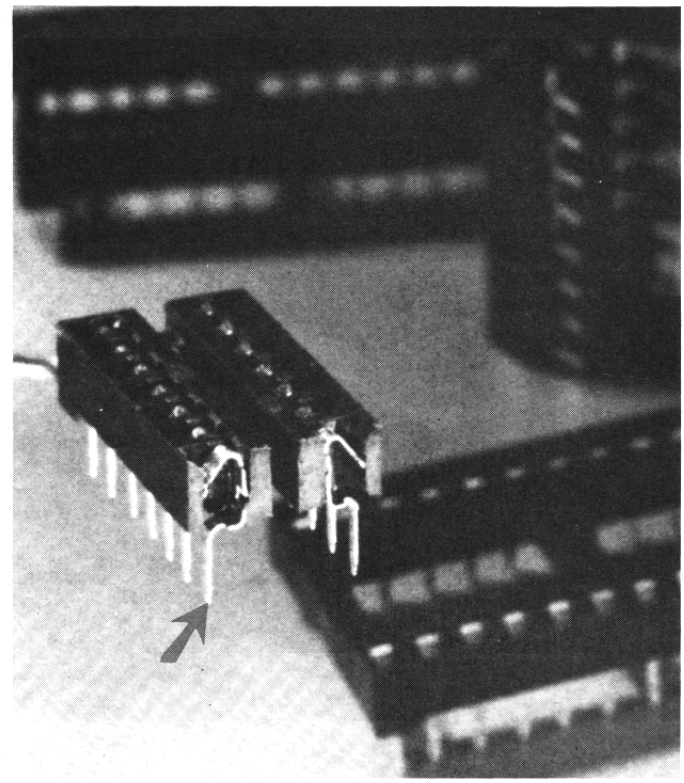
Application Report

BRUSHWELLMAN
ENGINEERED MATERIALS

AR 36-11-7

Industry: Electronic Component Sockets
Product: Beryllium Copper Strip

Top-of-the-line integrated circuit dual-in-line package (DIP) sockets, available from leading connector firms, utilize beryllium copper strip for the contact spring.



Material Requirements

- **Resistance to Stress Relaxation**
- **Good Electrical Conductivity**
- **High Thermal Conductivity**
- **High Strength**
- **Readily Electroplated**

One manufacturer of DIP sockets selected Brush Wellman mill-hardened Alloy 190 HM temper strip for the contact spring. This alloy provided sufficient formability to stamp and form the part. Since it is mill-hardened, no further heat treatment is required.

Typical material thicknesses for these parts are between 0.005 and 0.008 inches. This mill-hardened alloy can be selectively electroplated with tin or gold prior to stamping.

Specific Advantages

For this application, Alloy 190 HM provided greater resistance to stress relaxation than phosphor bronze and copper-nickel-tin alloys used in lower performance sockets of essentially the same design.

The material was also more resistant to overstressing during testing and assembly. Beryllium copper exhibited higher component withdrawal forces and higher contact normal forces.

The alloy has proven cost effective in the high volumes in which it is used.

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