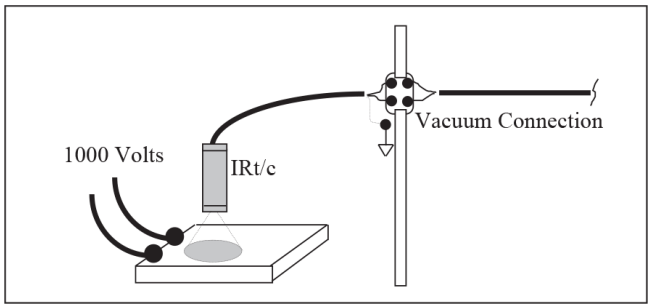
IRt/c SOLVES VACUUM FURNACE ELECTRICAL ISOLATION PROBLEM

A vacuum furnace manufacturer employs a heat treating process in which the metal parts experience an electrical potential of 1000 volts. To control the heating process to produce the correct metallurgical properties, a conventional thermocouple embedded in one of the parts produces the temperature signal for the controller. However, since the parts are at 1000 volts, an elaborate electrical isolation system has to be employed to permit the thermocouple to work safely, at a cost of well over $2,000.



Replacing the contact thermocouple with a noncontact IRt/c, the manufacturer effectively replaced $2,000 worth of equipment with about 1 inch (2.5 cm) of vacuum separation between the IRt/c and test part - which is free. Unlike a contact thermocouple, the IRt/c can easily see the part through the vacuum, measure its temperature without touching, remaining completely isolated electrically by the gap between the part and IRt/c. Since the part is heated to 1000°F (538°C), an aluminum clamp is employed as a heat sink to keep the IRt/c itself below 200°F (93°C). Since the part emissivity is low (shiny metal) the test part has a small area painted with Rustoleum® Barbecue Black Paint, rated to 1300°F (704°C), to raise the emissivity.

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