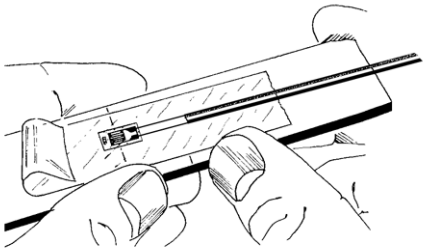
Installing Gages with Option P

Gages supplied with Option P can be installed in a wide variety of applications. General gage installation procedures provided in Micro-Measurements technical literature and training programs provide a sound foundation; however, the need for leadwire attachment after gage bonding is eliminated by Option P. Although application conditions may dictate certain installation procedures, the following guidelines are recommended for maximum performance. They supplement any standard procedures when installing gages with preattached leadwires.

GAGE HANDLING AND CABLE SUPPORT

The jumper wires, while sturdy, should never be used to support the weight of the cable. After removing the gage and its protective window from the pouch in the plastic box, hold the gage/cable assembly by the cable bundle. Release a comfortable working length of cable and place the gage on a chemically clean surface. Temporarily secure the remainder of the bundle before removing the gage from its protective window with a pair of blunt-nosed tweezers.

Separate the jumper wires by approximately 1/8 in (3mm) and apply a strip of PCT-2M gage installation tape to the gage face on which the jumpers are soldered. This transfer tape can be applied in the direction transverse to the leadwires on shorter gages. If applied longitudinally over the gage, jumper wires, and end of the cable, however, the tape will provide additional strengthening during gage handling and bonding.



The jumper wires can become permanently attached to the specimen surface by adhesive flash during gage bonding. In critical applications, this should be avoided by covering the jumpers with a strip of TFE-1 Teflon film. Cut a strip wide enough to extend about 1/8 in (3mm) on either side of the jumpers. Carefully lift the tape from the surface at a shallow angle. Using the mastic on the transfer tape to hold the film in place, leave about 1/16 in (1.5mm) of space between the edges of the tape and gage. With the bonding face of the gage down, reposition the gage on the clean surface and gently press the tape and film together around the jumpers with a clean CSP-1 cotton swab.

When ready to bond the gage, carefully lift the tape from the surface at a shallow angle. Unsecure the cable bundle and hold the gage/cable/tape assembly by the bundle when moving it to the installation site.

SURFACE PREPARATION

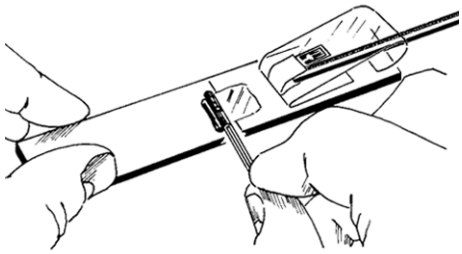
Surface preparation for bonding is essentially identical to that described in Application Note B-129, Surface Preparation for Strain Gage Bonding, for gages with preattached leadwires. Because of the relatively long jumper wires, a larger-than-normal clean area may be required for cable anchoring and application of a protective coating.

Temporarily secure the cable bundle to the specimen, and, using the transfer tape, position the gage for bonding.

GAGE BONDING

To preclude damage to the cable insulation, the adhesive selected should be curable at a temperature of no more than +180°F (+80°C).

Lift the gage end of the gage/tape assembly at a shallow angle to the specimen surface (less than 45 degrees) until the gage is no longer in contact with the surface. Continue lifting the tape until it is free from the surface about 1/2 in (13mm) beyond the gage. Tuck the loose end of the tape under itself and apply the adhesive according to the instructions provided. Whenever possible, lift the jumper wires from the surface before curing the adhesive.



After the adhesive has cured, remove the transfer tape by pulling it back directly over itself, peeling it slowly and steadily off the surface. An application of RSK-1 Rosin Solvent will quickly soften the mastic and ease tape removal. Then, gently lift the cable and jumper wires and remove the Teflon film.

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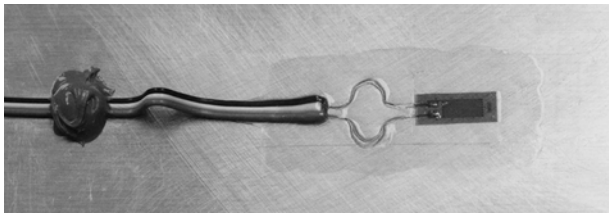
PROTECTIVE COATINGS

Option P provides electrical insulation of the gage grids, solder joints, and conductors on the gaged end of the cable. Nevertheless, an additional protective coating is recommended when the gage installation is exposed to moisture, chemical attack, or potential for mechanical damage. When applying coatings, pay particular attention to the junction between the jumper and cable leadwires. The vinyl insulation covering this connection does not provide a waterproof barrier. Apply an appropriate coating in this area before the cable is permanently anchored to the specimen.

STRAIN RELIEF

Before unsecuring the cable bundle, it is recommended that strain relief loops be provided in both the cable and jumper wires. Form these loops over the handle of a dental probe or rod of similar diameter. The jumper-wire loop, which should lie in the plane of the specimen, is usually held in place by the protective coating. The cable loop, which should remain upright, is usually located outside the coated area. 3145 RTV silicone rubber can be used as a cable anchor.



After the cable has been properly anchored, the remainder of the bundled cable can be unsecured and routed to the strain gage instrumentation. If a cable extension is added, remember that it should be attached by soldering. Alligator clips, twist caps, and most other mechanical connections should be avoided when making electrical connections within strain gage circuits.

Gages supplied with Option P can be installed readily with these techniques in most applications. Should you have any questions about your particular application, our Applications Engineering staff here at Micro-Measurements are always ready to assist you.