אמירוניק בע"מ
AMIRONIC LTD

FOIL STRAIN GAUGES

INSTRUCTION FOR INSTALLATION

Surface Preparation and Gauge Location

Surface where gauges are to be bonded must be smooth, free of tool marks, deep grooves and pits. This may be achieved by grinding or filing if the surface is very rough as in castings. Rust, paint and scales if any must be removed from the metal surface. Surface finish of 20 microns is correct smoothness to start.

Remove oil and grease from the surface by washing with solvents like trichloroethylene, acetone or methylethyl- ketone.

Clean the surface further by rubbing with medium or fine grade abrasive paper (medium grade - 180 grit size, fine grade - 320 to 600 grit size) Finer abrasives should be used for soft metals and coarser abrasives should be used for harder ones like steel.

The major axis of the gauge should be aligned to the strain axis. Location marks are scribed (fig. 1) on the abraded surface with sharpened 4H pencil or markers. Marking should not come below the gauge position.

Clean abraded surface area much larger than the strain gauge area. Take lint free tissue paper. Saturate it with laboratory grade trichloroethylene or acetone. Wipe the area until the swab comes out clean after wiping the surface. The cleaned surface should be prevented from further contamination. Every wiping should be done with afresh paper.

Gauge Cleaning

The bonding side of strain gauge (having no metal grid) should be cleaned with cotton swab tissue paper saturated with trichloroethylene. Once cleaned the gauges should only be handled with cleaned flat tweezers.

CAUTION : DO NOT USE ACETONE FOR CLEANING STRAIN GAUGES

Bonding the Gauge

Locate the gauge depending on the orientation required. Do this as follows : Pick up the strain gauge on an adhesive tape (fig.2) and locate it with respect to reference marks already put on the surface (Fig.3). Let one end of the cellotape stick to the surface, lift other end (Fig.4), apply cement in between the gauge and job surface. Relocate the cellotape, taking care to see that the cellotape is not displaced. Excess cement betweeen the gauge and surface may be squeezed out by running the thumb from the centre of the gauge towards (Fig.5). Wipe out the excess cement. Place a piece of teflon or cellophane sheet on the installation. Keep a neoprene rubber sheet and a metal flat of size larger than the gauge over it and clamp it with a pressure of about 0.5 - 1.0 kg/Sq.cm. Thickness of rubber sheet should be about 2 mm. For curing the cement follow the procedure recommended for that cement.

Lead Wire Attachment

Bond an etched terminal near the gauge tabs. The procedure for bonding the terminals is same as for bonding gauge. Tin terminals and tabs of gauge with low wattage soldering iron (6 watts to 10 watts) having a fine tip. Loop a fine (30 gauge) tinned copper wire as U and solder one end to the gauge and other end to the terminal. Similarly carry out the procedure for the other tabs also. Circuit wires may be taken from the terminals.

RECOMMENDED CEMENTS

1. EP - 160 Epoxy cement Apply cement and air dry for 3 to 4 minutes. Clamp the installation under a pressure of 0.5 - 1 kg/sq. cm. Cure for 2 hrs at 140 deg cent. Remove the clamps and give a second curing cycle of 160 deg cent 2 hrs.

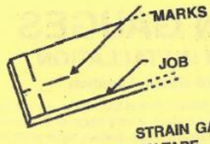

Fig. 1 Marking the Centre Line

Fig. 2 Gauges picked up on cellotape with Tweezers

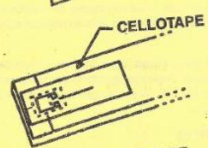

Fig. 3 Gauge on cellotape positioned on marks

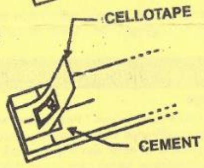

Fig. 4 Gauge Lifted on Cellotape

Fig. 5 Thumb motion to spread the Cement

GAUGING PROCEDURE ILLUSTRATED

Amironic LTD. Tel: +972-3-9047744 Fax: +973-3-9047755 www.amironic.co.il