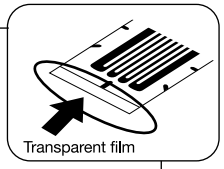
KFEM Ultrahigh-elongation Foil Strain Gage INSTRUCTION MANUAL

Bonded with the CC-36 adhesive, the KFEM gage can measure plastic strain of 20 to 30%. Bond the gage onto the target object referring to this instruction manual carefully. Gage bonded conditions affect the strain measuring performance.

Gage Bonding Points

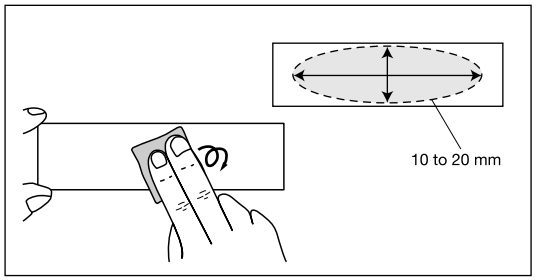


(1) Be sure to clean the surface onto which the gage is bonded.
(2) Never stain the bonding surface of the gage.
Take care not to touch the surface with a finger.
(3) Use the CC-36 adhesive. Recommended bonding environment is 20 to 30°C and 40% RH minimum.
(4) Apply the adhesive to the gage in an amount as least as possible.
(5) After putting the gage onto the measuring object, press it with a thumb for 3 minutes or so, while the time differs depending on the environment.
(6) Make sure that the transparent film at the top end of gage is uniformly bonded and bears no bubbles and is not floating. Also, make sure that the adhesive is forced out from around the gage base.
(7) The adhesive often deposits around gage leads and delays curing there. Re-apply finger pressure as required by checking the bonded condition.

1. Surface Treatment

To bond the strain gage to the measuring object, the gage bonding site should be treated so that the adhesive may easily bond the strain gage to the site.

(1) Wipe off oils and fats from the gage bonding site and polish there with sandpaper. As shown below, conduct the task like drawing circles. The treating area should be wider than the gage base.

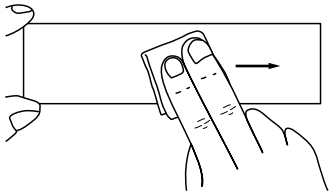


Measuring Objects & Sandpaper Gradings
- Steel (ordinary steel, stainless steel) #320
- Nonferrous metals (copper alloy, aluminum alloy) #600 or higher
- Plastics & composite materials #800 to #1000

(2) Using an industrial tissue paper dipped in a solvent such as acetone, wipe off dirt from the surface. Depending on the type of dirt, select an optimum solvent and if required, wash repeatedly using different types of solvents.

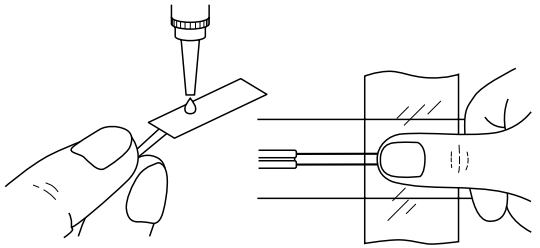
1. When using an organic solvent, ensure good ventilation.
2. When using a solvent, be careful with fire.

At the final stage, wipe the surface repeatedly in a single direction until no dirt is adhered to the industrial tissue paper.



2. Bonding

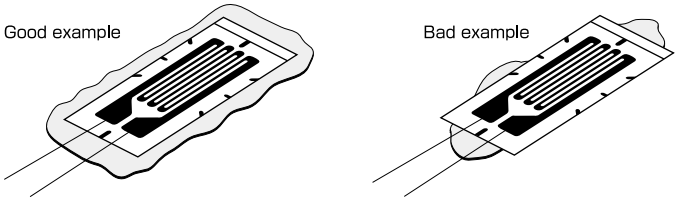
The KFEM gage should be bonded using the cyanoacrylate instantaneous adhesive CC-36.
(1) Apply a drop of adhesive to the back (gage base). The quantity may be 0.0018 to 0.0024 g.
(2) Put the strain gage on the prescribed bonding position. Cover the gage with a polyethylene sheet and press it with a fingertip. Proper pressure is 100 to 300 kPa (approx. 1 to 3 kgf/cm^2).
(3) The finger pressure application time should be 3 minutes or so while it depends on ambient temperature and humidity.
(4) Measurement is possible 2 hours after finger pressure application. For stable measurement, however, leave the strain gage as it is for 24 hours at a room temperature.



Bonding with the adhesive CC-36 is considerably affected by temperature and humidity.
Temperature and humidity ranges suitable for bonding the gage are 20-30 °C and 40-80% RH, respectively. Temperature or humidity lower than the range may delay curing or lower the bonding strength, thereby causing the gage to be peeled off.

3. Confirmation of Bonded Conditions

After bonding the strain gage, perform visual inspection of bonded conditions.
Any of the following conditions indicates inferior bonding.
(1) The adhesive is not protruded from some part around the gage base.
(2) The adhesive is not applied completely between the gage base and the measuring object. (Especially, make sure that there is no irregular bonding at the top end of the gage.)
(3) The gage base seems to be partially floating. (Especially, bonding condition around gage leads should be checked carefully.)
(4) There are bubbles or dust between the gage base and the measuring object.



4. Connection

If the strain gage is equipped with only gage leads (silver-clad copper wires 25-mm long each), it should be connected to a measuring instrument using the leadwire cable. Connect the gage leads to the leadwire cable via the Kyowa gage terminal T-F13 or T-F17.
If the strain gage is delivered with the leadwire cable pre-attached, it can be connected to a measuring instrument as it is.

5. Suitable Measuring Instrument

Strain measurement in a plastic region makes the strain gage output larger. Thus, the measuring instrument should be selected considering the expected strain output. Since the ultrahigh-elongation strain gage KFEM can measure strain of 20 to 30%, the output may be 200,000 με or more. To measure 200,000 με or more, use Kyowa data logger UCAM-60B or UCAM-65B.

INSTRUMENTS TECHNO TEST

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