

### 3. Adhesive

The adhesive used to bond strain gauges to a spring material has to accurately transmit the strain of the spring material to the gauge. The following characteristics are required for the adhesive:

1. The adhesive bond should have enough strength to withstand temperature and humidity changes
2. The bonding should have sufficient insulation against temperature and humidity.
3. The degree of shrinkage should be small when curing.

The following are various adhesive agents used to conduct strain measurements:

1. Solvent-vaporization adhesives

Solvent-vaporization adhesives such as K-4 harden at room temperature, and paper gauges, porous base gauges, etc. can easily be attached.

2. Contact-curing adhesives

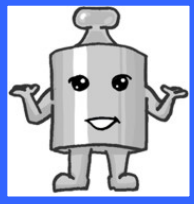
Alpha-cyanoacrylate adhesives such as CY-10 and Eastman 910. Gauges can be bonded in a few minutes.

3. Epoxy adhesives

Each epoxy adhesive differs in adhesive pressure and curing time.

4. Phenol adhesives

Phenol "Bakelite" adhesive is one type of thermoset that requires relatively high adhesive pressure and a long curing time. Phenol adhesives remain stable for a long period in a loaded state.



A load cell engineer says

After thoroughly polishing the bonding surface of the load cell (use an organic solvent such as acetone), dry and scribe the surface, then thinly coat the surface with an adhesive. Attach the gauges in a longitudinal direction in the same position on both sides. Then solder the lead wire. It is important to perform these operations accurately since they will affect the accuracy of the load cell. At each phase, special tools and jigs are used.



Mr. S