Strain Gage Selection

Isoelastic Alloy

When purely dynamic strain measurements are to be made - that is, when it is not necessary to maintain a stable reference zero - isoelastic (D alloy) offers certain advantages. Principal among these are superior fatigue life, compared to A alloy, and a high gage factor (approximately 3.2) which improves the signal-to-noise ratio in dynamic testing.

D alloy is not subject to self-temperature compensation. Moreover, as shown in the Thermal Output graph , its thermal output is so high [about 80 microstrain/deg F (145 microstrain/deg C)] that this alloy is not normally usable for static strain measurements. There are times, however, when D alloy finds application in special-purpose transducers where a high output is needed, and where a full-bridge arrangement can be used to achieve reasonable temperature compensation within the circuit.

Other properties of D alloy should also be noted when considering the selection of this grid material. It is, for instance, magnetoresistive; and its response to strain is somewhat nonlinear, becoming significantly so at strains beyond ± 5000 microstrain.