

LOW ELASTIC MODULUS STRAIN GAUGES series GF

Operating temperature range
 -20°C +80°C
 Temperature compensation range
 +10°C +80°C

Suffix code for temperature compensation materials
 -50, or -70 : Plastics



Applicable adhesives

| | |
|----|-------------|
| CN | -20 ~ +80°C |
|----|-------------|

For ordering, the above suffix code should be added to the basic gauge type.

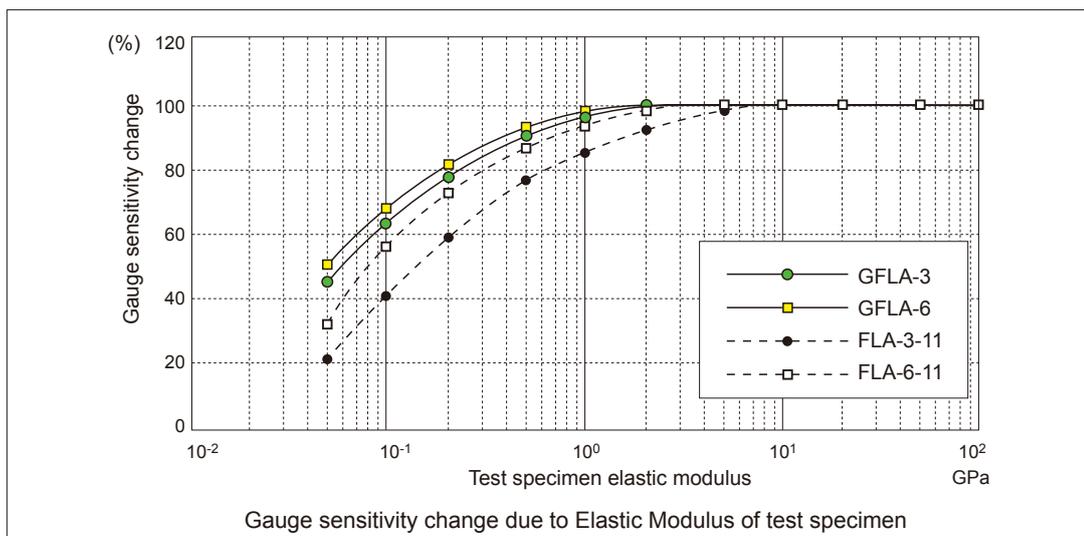
PLASTICS USE

| Gauge pattern | Basic type | Gauge size | | Backing | | Resistance Ω | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|------------|------|---------|-----|---------------------|--------|-----|-----|-----|-----|-----|--------|---|-----|----|---|-----|------------|---|-----|----|---|-----|------------|---|-----|----|---|-----|--------|---|-----|------|------|-----|------------|---|-----|----|----|-----|--------|---|-----|------|------|-----|------------|---|-----|----|----|-----|
| | | L | W | L | W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>These gauges are suited for the measurement on materials such as plastics, which have low elastic modulus compared to metal. These specially designed grid reduces the stiffening effect of the strain gauges to the specimen material, and also reduces the effect of Joule heat in the strain gauges. This series is available with self-temperature-compensation for the material having a coefficient of thermal expansion of 50 or $70 \times 10^{-6}/^{\circ}\text{C}$.</p> <p>Single element</p> GFLA-3 Single element | <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Example of type number designation GFLA-3 -350 -50 -3LJC ↑ ↑ ↑ ↑ Basic strain gauge type, gauge length Gauge resistance (Blank for 120Ω) Self-temperature-compensation number Length in meter and type of leadwire </div> <p style="text-align: center;">Each package contains 10 gauges.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>GFLA-3</td><td>3</td><td>2.3</td><td>9.5</td><td>4</td><td>120</td></tr> <tr><td>GFLA-6</td><td>6</td><td>2.5</td><td>14</td><td>5</td><td>120</td></tr> <tr><td>GFLA-3-350</td><td>3</td><td>2.9</td><td>10</td><td>5</td><td>350</td></tr> <tr><td>GFLA-6-350</td><td>6</td><td>2.7</td><td>15</td><td>5</td><td>350</td></tr> <tr><td>GFLA-3</td><td>3</td><td>1.4</td><td>10.5</td><td>10.5</td><td>120</td></tr> <tr><td>GFLA-3-350</td><td>3</td><td>2.9</td><td>15</td><td>15</td><td>350</td></tr> <tr><td>GFRA-3</td><td>3</td><td>1.4</td><td>10.5</td><td>10.5</td><td>120</td></tr> <tr><td>GFRA-3-350</td><td>3</td><td>2.9</td><td>15</td><td>15</td><td>350</td></tr> </table> | | | | | | GFLA-3 | 3 | 2.3 | 9.5 | 4 | 120 | GFLA-6 | 6 | 2.5 | 14 | 5 | 120 | GFLA-3-350 | 3 | 2.9 | 10 | 5 | 350 | GFLA-6-350 | 6 | 2.7 | 15 | 5 | 350 | GFLA-3 | 3 | 1.4 | 10.5 | 10.5 | 120 | GFLA-3-350 | 3 | 2.9 | 15 | 15 | 350 | GFRA-3 | 3 | 1.4 | 10.5 | 10.5 | 120 | GFRA-3-350 | 3 | 2.9 | 15 | 15 | 350 |
| GFLA-3 | | | | | | | 3 | 2.3 | 9.5 | 4 | 120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GFLA-6 | 6 | 2.5 | 14 | 5 | 120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GFLA-3-350 | 3 | 2.9 | 10 | 5 | 350 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GFLA-6-350 | 6 | 2.7 | 15 | 5 | 350 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GFLA-3 | 3 | 1.4 | 10.5 | 10.5 | 120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GFLA-3-350 | 3 | 2.9 | 15 | 15 | 350 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GFRA-3 | 3 | 1.4 | 10.5 | 10.5 | 120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GFRA-3-350 | 3 | 2.9 | 15 | 15 | 350 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>0°/90° 2-element plane Rosette</p> GFCA-3 0°/90° 2-element plane Rosette | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>0°/45°/90° 3-element plane Rosette</p> GFRA-3 0°/45°/90° 3-element plane Rosette | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Point

■ Effect of low elastic modulus of specimen

When a strain gauge is installed on materials such as plastics that have low elastic modulus, the stiffness of the strain gauge causes to disturb the stress distribution around the strain gauge, thus resulting in reduced strain sensitivity. This is referred to as the strain gauge stiffening effect and it gets larger as the elastic modulus of specimen gets smaller. For materials with an elastic modulus of 2.9GPa (approx. 300kgf/mm²) or less, a preparatory test must be conducted to correct the gauge factor.



■ Effect of Joule heat

The GF series gauges have a specially designed grid to reduce the effect of Joule heat. Though an allowable current is 30mA or less for metallic specimens in general, a current of 10mA or less is recommended for plastic specimen.