



Strain Gages

Outline

Lead-wire cable

General

Waterproof

Concrete

Composite material
PCB
Plastics

Ultra-small strain
High temp.
Low temp.

High elongation

Non-magneto
resistive

Hydrogen gas
Bending

With protector
Embedded

Crack

Adhesive
Coating agent

Custom-
designed

Strain Gages for Measuring Axial Tension of Bolts

Patterns Gage Resistance, Gage Factors	Models	Dimensions (mm)				Remarks																												
		Gage (Grid)		Base																														
		Length	Width	Length	Width																													
<p>●KFB Strain Gages for Measuring Axial Tension of Bolts</p> <p>Uniaxial Resistance: 120 Ω Gage factor: Approx. 1.9</p> <p>Length from the tip of base to the center of grid</p> <table border="1"> <tr> <td>KFB-3: 2.7 mm</td> </tr> <tr> <td>KFB-1.5: 1.75 mm</td> </tr> </table> <p>RoHS</p> <p>If it is difficult to bond a strain gage to the surface of a bolt for measuring the tightening stress, these gages enable measurement by embedding them into a hole, 2 mm diameter, bored from the top head of the bolt.</p> <p>φ0.14 Polyester-coated copper cable 5 cm long</p> <p>Applicable Adhesives</p> <table border="1"> <tr> <th></th> <th>Operating Temp. after Curing the Adhesive</th> </tr> <tr> <td>EP-370</td> <td>Normal Temp. to 50°C</td> </tr> </table> <p>Optional Accessories Dedicated gage terminal</p> <table border="1"> <tr> <th>Model</th> <th>Dimensions</th> <th>Base material</th> <th>Conductor material</th> <th>Remarks</th> </tr> <tr> <td>T-F29</td> <td>Outer: φ6 Inner: φ2.5</td> <td>Glass epoxy</td> <td>Copper foil</td> <td>For bolt gages</td> </tr> </table> <p>5 gages/pkg</p> <p>5 gages/pkg</p> <p>T-F29</p> <table border="1"> <tr> <td>KFB-3-120-C20-11 N5C2</td> <td>3</td> <td>Approx. 6</td> <td>11.5</td> <td>φ1.9</td> <td>Bore diameter 2</td> </tr> <tr> <td>KFB-1.5-120-C20-11 N5C2</td> <td>1.5</td> <td>Approx. 6</td> <td>5</td> <td>φ1.9</td> <td>Bore diameter 2</td> </tr> </table>							KFB-3: 2.7 mm	KFB-1.5: 1.75 mm		Operating Temp. after Curing the Adhesive	EP-370	Normal Temp. to 50°C	Model	Dimensions	Base material	Conductor material	Remarks	T-F29	Outer: φ6 Inner: φ2.5	Glass epoxy	Copper foil	For bolt gages	KFB-3-120-C20-11 N5C2	3	Approx. 6	11.5	φ1.9	Bore diameter 2	KFB-1.5-120-C20-11 N5C2	1.5	Approx. 6	5	φ1.9	Bore diameter 2
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General-purpose Foil Strain Gages (KFGT)

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<p>●KFGT Series Foil Strain Gages with a Temperature Sensor</p> <p>Uniaxial 3-wire system Polyester-coated copper lead wire 1 m long each Resistance: 120 Ω Gage factor: Approx. 2.1 Temperature sensor: T-type thermocouple Accuracy: Within ±1.5 °C</p> <p>RoHS</p> <p>The KFGT gages are foil strain gages incorporating a T-type thermocouple for simultaneous measurement of strain and temperature. They ensure efficient strain measurement under environments where temperature change or temperature gradient requires simultaneous measurement of strain and temperature. They also provide highly precise compensation of thermally-induced apparent strain. It is recommended to use Kyowa data logger UCAM-60C M14 as a measuring instrument.</p> <p>Applicable Adhesives</p> <table border="1"> <tr> <th></th> <th>Operating temp. after Curing the Adhesive</th> </tr> <tr> <td>CC-33A</td> <td>-10 to 120°C</td> </tr> <tr> <td>CC-36</td> <td>-10 to 100°C</td> </tr> <tr> <td>CC-35</td> <td>-10 to 120°C</td> </tr> <tr> <td>EP-340</td> <td>-10 to 120°C</td> </tr> </table> <table border="1"> <tr> <td>KFGT-5-120-C1-11 N1M3</td> <td rowspan="5">5</td> <td rowspan="5">2.1</td> <td rowspan="5">10</td> <td rowspan="5">4.5</td> <td rowspan="10">Standard accessories: Lead-wire stopper to prevent damage to the gage Pre-attached lead wire 1-m long 5 gages/ pkg</td> </tr> <tr> <td>KFGT-5-120-C1-16 N1M3</td> </tr> <tr> <td>KFGT-5-120-C1-23 N1M3</td> </tr> <tr> <td>KFGT-5-120-C1-27 N1M3</td> </tr> <tr> <td>KFGT-2-120-C1-11 N1M3</td> </tr> <tr> <td>KFGT-2-120-C1-16 N1M3</td> <td rowspan="4">2</td> <td rowspan="4">1.8</td> <td rowspan="4">7</td> <td rowspan="4">4.5</td> </tr> <tr> <td>KFGT-2-120-C1-23 N1M3</td> </tr> <tr> <td>KFGT-2-120-C1-27 N1M3</td> </tr> <tr> <td>KFGT-2-120-C1-27 N1M3</td> </tr> </table> <p>*The above picture is KFGT-5-120-C1-11 N1M3.</p> <p>Optional Accessories Extension lead-wire cables</p> <table border="1"> <tr> <th rowspan="2">Models</th> <th colspan="2">Dimensions (mm)</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Length</th> <th>Operating Temperature</th> </tr> <tr> <td>NT-1M</td> <td>1000</td> <td rowspan="3">-10 to 120°C</td> <td rowspan="3">5 gages/pkg</td> </tr> <tr> <td>NT-2M</td> <td>2000</td> </tr> <tr> <td>NT-4M</td> <td>4000</td> </tr> </table> <p>Gage terminal T-F25</p> <p>Color: Blue Color: Red</p> <p>T-type thermocouple φ0.2, cross-linking polyethylene-coated copper wire φ0.2, cross-linking polyethylene-coated constantan wire</p> <p>Lead-wire cable φ0.08, cross-linking polyethylene-coated wire (Resistance/wire: Approx. 0.22Ω/m)</p>								Operating temp. after Curing the Adhesive	CC-33A	-10 to 120°C	CC-36	-10 to 100°C	CC-35	-10 to 120°C	EP-340	-10 to 120°C	KFGT-5-120-C1-11 N1M3	5	2.1	10	4.5	Standard accessories: Lead-wire stopper to prevent damage to the gage Pre-attached lead wire 1-m long 5 gages/ pkg	KFGT-5-120-C1-16 N1M3	KFGT-5-120-C1-23 N1M3	KFGT-5-120-C1-27 N1M3	KFGT-2-120-C1-11 N1M3	KFGT-2-120-C1-16 N1M3	2	1.8	7	4.5	KFGT-2-120-C1-23 N1M3	KFGT-2-120-C1-27 N1M3	KFGT-2-120-C1-27 N1M3	Models	Dimensions (mm)		Remarks	Length	Operating Temperature	NT-1M	1000	-10 to 120°C	5 gages/pkg	NT-2M	2000	NT-4M	4000
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