

FOIL STRAIN GAUGES

series F

 Operating temperature range
 -196°C ————— +150°C

 Temperature compensation range
 +10°C ————— +100°C

Suffix code for temperature compensation materials

-11: Mild steel ■ -17: Stainless steel ■ -23: Aluminium ■

Applicable adhesives

CN	-196 ~ +120°C
P-2	-30 ~ +150°C
EB-2	-60 ~ +150°C

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

GENERAL USE

Gauge pattern	Basic type	Gauge size L W	Backing L W	Resistance Ω
These gauges employ Cu-Ni alloy foils for the grid and special plastics for the backing. The plastics backing exhibits excellent electrical insulation performance, and is color-coded to identify the objective material for self-temperature-compensation. Various types of strain gauges such as "for residual stress measurement" are available in addition to general use gauges.	 			

Example of type number designation

FLA-5 -350 -11 -3LJB/-3LJBT (2-wire/3-wire)

↑ Length in meter and type of integral leadwire(*1)

↑ Self-temperature-compensation number(*2)

↑ Gauge resistance in ohm (Blank for 120Ω)

↑ Basic strain gauge type and gauge length

*1 : Not mentioned for gauges without leadwire

*2 : The following numbers are available for F series gauges

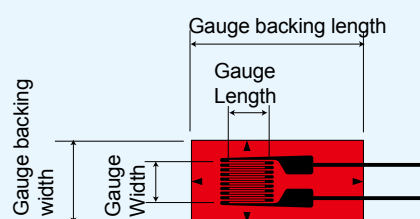
-11: Mild steel (11ppm/°C)

-17: Stainless steel, Copper alloy (17ppm/°C)

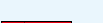
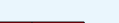
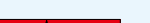
-23: Aluminium (23ppm/°C)

Single element : FLG/FLA/FLK

Each package contains 10 gauges.


 FLK type
with narrow gauge
width

 High gauge resistance
350Ω and 1000Ω

	FLG-02	0.2	1.4	3.5	2.5	120
	FLG-1	1	1.1	6.5	2.5	120
	FLA-03	0.3	1.4	3	2	120
	FLA-05	0.5	1.2	5	2.2	120
	FLA-1	1	1.3	5	2.5	120
	FLA-2	2	1.5	6.5	3	120
	FLA-3	3	1.7	8.8	3.5	120
	FLA-3-60	3	1.2	8	3	60
	FLA-5	5	1.5	10	3	120
	FLA-6	6	2.2	12.5	4.3	120
	FLA-10	10	2.5	16.7	5	120
	FLA-30	30	2	36.1	5.1	120
	FLK-1	1	0.7	4.5	1.4	120
	FLK-2	2	0.9	5.5	1.5	120
	FLK-6	6	10	11.2	2.2	120
	FLK-10	10	1.6	16.2	3.8	120
	FLA-1-350	1	1.6	4.5	3	350
	FLA-2-350	2	1.9	6.1	3.5	350
	FLA-3-350	3	1.6	7.2	3	350
	FLA-5-350	5	1.8	9.4	3.8	350
	FLA-6-1000	6	4.6	13.5	7	1000

–196°C Operating temperature range +150°C

Temperature compensation range
+10°C +100°C

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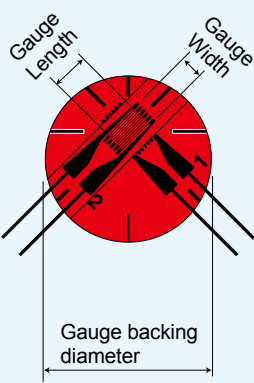
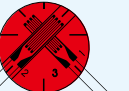
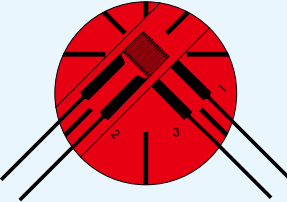
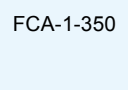
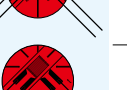
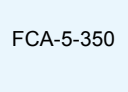
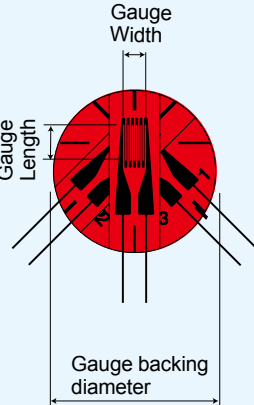
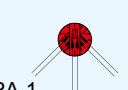
FOIL STRAIN GAUGES

series **F**

Applicable adhesives

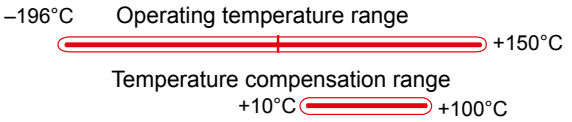
CN	–196 ~ +120°C
P-2	–30 ~ +150°C
EB-2	–60 ~ +150°C

GENERAL USE

Gauge pattern	Basic type	Gauge size L W	Backing L W	Resistance Ω
  Each package contains 10 gauges.				
0°/90° 2-element Rosette Stacked: FCA       	FCA-1	1 0.7	ϕ 4.5	120
	FCA-2	2 0.9	ϕ 7	120
	FCA-3	3 1.7	ϕ 11	120
	FCA-5	5 1.9	ϕ 12	120
	FCA-6	6 2.4	ϕ 14	120
	FCA-10	10 2.5	ϕ 17	120
350Ω 0°/90° 2-element Rosette Stacked: FCA    	FCA-1-350	1 1.6	ϕ 8	350
	FCA-2-350	2 1.9	ϕ 9.5	350
	FCA-3-350	3 2	ϕ 10	350
	FCA-5-350	5 1.8	ϕ 10	350
0°/45°/90° 3-element Rosette Stacked: FRA       	FRA-1	1 0.7	ϕ 4.5	120
	FRA-2	2 0.9	ϕ 7	120
	FRA-3	3 1.7	ϕ 11	120
	FRA-5	5 1.9	ϕ 12	120
	FRA-6	6 2.4	ϕ 14	120
	FRA-10	10 2.5	ϕ 17	120

FOIL STRAIN GAUGES

series **F**



Suffix code for temperature compensation materials
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Applicable adhesives

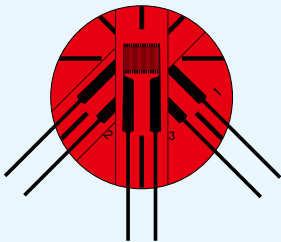
CN	-196 ~ +120°C
P-2	-30 ~ +150°C
EB-2	-60 ~ +150°C

GENERAL USE

Gauge pattern	Basic type	Gauge size L W	Backing L W	Resist- ance Ω
 				
Example of type number designation <u>FLA-5</u> <u>-350</u> <u>-11</u> <u>-3LJB/-3LJBT</u> (2-wire/3-wire) ↑ Length in meter and type of integral leadwire(*1) ↑ Self-temperature-compensation number(*2) ↑ Gauge resistance in ohm (Blank for 120Ω) ↑ Basic strain gauge type and gauge length *1 : Not mentioned for gauges without leadwire *2 : The following numbers are available for F series gauges -11: Mild steel (11ppm/°C) -17: Stainless steel, Copper alloy (17ppm/°C) -23: Aluminium (23ppm/°C)				

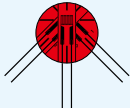
350Ω 0°/45°/90° 3-element Rosette Stacked: FRA

Each package contains 10 gauges.

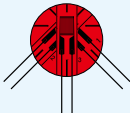


FRA-1-350 (x 3)

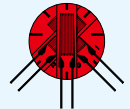
FRA-1-350



FRA-2-350



FRA-5-350



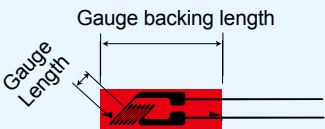
FRA-1-350	1	1.6	φ 8	350
FRA-2-350	2	1.9	φ 9.5	350
FRA-3-350	3	2	φ 10	350
FRA-5-350	5	1.8	φ 10	350

SPECIAL USE

Gauge pattern	Basic type	Gauge size L W	Backing L W	Resist- ance Ω
 				
Option F This code is appended to the basic type for strain gauges with lead-free solder in place of leaded solder. Fatigue life of the strain gauge may become shorter by the lead-free solder. Example of type number designation <u>FLT-05A</u> <u>-11</u> <u>-350</u> <u>-F</u> <u>-3LJC</u> <u>-F</u> ↑ Length in meter and type of integration leadwire ↑ Option F : LEAD-free soldering of strain gauge ↑ Gauge resistance (Blank for 120Ω) ↑ Self-temperature-compensation number ↑ Basic strain gauge type				

Shearing strain measurement : FLT

Each package contains 10 gauges.

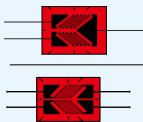
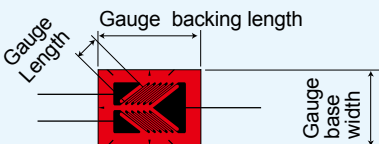


Left 45°
Right 45°

FLT-05A	0.5	0.66	4	1.3	120
FLT-05B	0.5	0.66	4	1.3	120

Torque measurement : FCT

Each package contains 10 gauges.



FCT-2	2	1.5	8.7	6.5	120
FCT-2-350	2	1.5	7.6	5.3	350

Operating temperature range
 -196°C  +150°C

Temperature compensation range
 +10°C  +100°C

Suffix code for temperature compensation materials
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For ordering, the above suffix code should be added to the basic gauge type.

FOIL STRAIN GAUGES

series **F**

Applicable adhesives

CN	-196 ~ +120°C
P-2	-30 ~ +150°C
EB-2	-60 ~ +150°C

SPECIAL USE

Gauge pattern

Option F

This code is appended to the basic type for strain gauges with lead-free solder in place of leaded solder. Fatigue life of the strain gauge may become shorter by the lead-free solder.

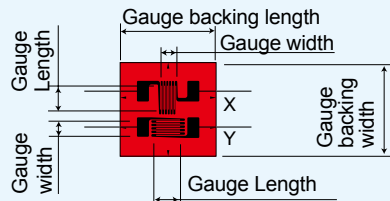


Example of type number designation

FLT-05A -11 -350 -F -3LJC -F

↑ Basic strain gauge type
 ↑ Self-temperature-compensation number
 ↑ Gauge resistance (Blank for 120Ω)
 ↑ Option F: LEAD-free soldering of strain gauge
 ↑ Length in meter and type of integration leadwire
 ↑ Option F: LEAD-free soldering of leadwire

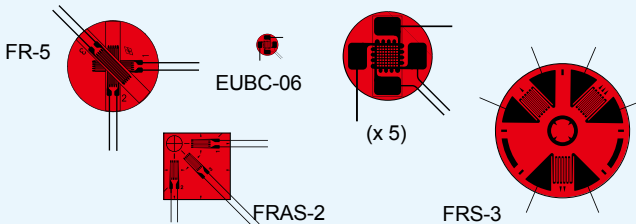
0°/90° 2-element Rosette Plane : FCB



Each package contains 10 gauges.

FCB-2	X and Y axes	2	1.5	8.2	8	120
FCB-6-350	X and Y axes	6	2.0	10	13	350

Residual stress measurement : FR/EUBC/FRS



Each package contains 10 gauges.

FR-5	5	1.5	ϕ 12	120
EUBC-06	0.6	0.7	ϕ 2.4	120
FRAS-2	2	1.1	9 9	120
FRS-2	1.5	1.3	ϕ 9.5	120
FRS-3	3	2.6	ϕ 17.5	120

GLASS, CERAMIC

Gauge pattern

Suffix code for temperature compensation materials

-8: Glass, Ceramic 

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



Example of type number designation

FLA-5 -8 -3LJC

↑ Basic strain gauge type
 ↑ Self-temperature-compensation number for glass, ceramic
 ↑ Length in meter and type of integration leadwire

Applicable adhesives

CN	-196 ~ +120°C
P-2	-30 ~ +150°C
EB-2	-60 ~ +150°C

Operating temperature range
 -196°C  +150°C

Temperature compensation range
 +10°C  +100°C

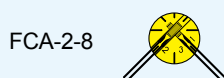
Single element : FLA



Each package contains 10 gauges.

FLA-2	2	1.5	6.5	3	120
FLA-5	5	1.5	10.0	3	120

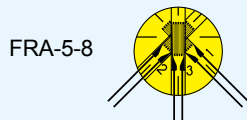
0°/90° 2-element stacked Rosette FCA



Each package contains 10 gauges.

FCA-2	2	0.9	φ 7	120
FCA-5	5	1.9	φ 12	120

0°/45°/90° 3-element stacked Rosette FRA



Each package contains 10 gauges.

FRA-2	2	0.9	φ 7	120
FRA-5	5	1.9	φ 12	120

FOIL STRAIN GAUGES

series **F**

−196°C Operating temperature range +150°C

Temperature compensation range
+10°C +100°C

Suffix code for temperature compensation materials

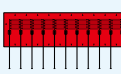
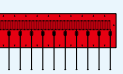
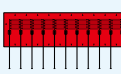
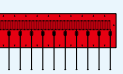
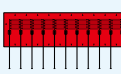
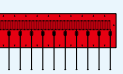
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Applicable adhesives

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P-2	−30 ~ +150°C
EB-2	−60 ~ +150°C

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STRESS CONCENTRATION MEASUREMENT

Gauge pattern	Basic type	Gauge size		Backing		Resistance Ω																																																																																															
		L	W	L	W																																																																																																
Option F This code is appended to the basic type for strain gauges with lead-free solder in place of leaded solder. Fatigue life of the strain gauge may become shorter by the lead-free solder.  Example of type number designation FXV-1-11-002LE -F -3LJC -F ↑ ↑ ↑ Basic strain gauge type, gauge length, polyimide leadwire including self-temperature-compensation number Option F: LEAD-free soldering of strain gauge Length in meter and type of integration lead wire Option F: LEAD-free soldering of leadwire																																																																																																					
5-element Single-axis : FXV/FYV/FBXV/FBYV Each package contains 10 gauges. FXV-1-11-002LE Gauge pitch 2mm   X-axis magnified FYV-1-11-002LE   Y-axis magnified Gauge pitch 2mm <table><tr><td>FXV-1-002LE</td><td>1</td><td>1.3</td><td>5</td><td>12</td><td>120</td></tr><tr><td>FYV-1-002LE</td><td>1</td><td>1.4</td><td>5</td><td>12</td><td>120</td></tr></table> -002LE: Polyimide insulated gauge lead of 2-cm pre-attached <tr><td colspan="7"> FBXV-04   magnified FBYV-06   magnified Gauge pitch 1mm <table><tr><td>FBXV-04-005LE</td><td>0.4</td><td>1.3</td><td>5.4</td><td>7.4</td><td>120</td></tr><tr><td>FBYV-06-005LE</td><td>0.6</td><td>0.8</td><td>5.3</td><td>7</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached </td></tr> <tr><td colspan="7"> 10-element 2 axes : FCV Each package contains 10 gauges. FCV-1   X and Y axes Y-axis leadwire is marked for identification. Gauge pitch 2mm <table><tr><td>FCV-1-005LE</td><td>1</td><td>1.4</td><td>7.5</td><td>12</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached </td></tr> <tr><td colspan="7"> Single element : FBX/FBY/FLX Each package contains 10 gauges. Single element cut away from the above Stress Concentration gauge. FBX-04  (x 3) FBY-06  (x 3) FLX-1  (x 3) <table><tr><td>FBX-04-005LE</td><td>0.4</td><td>1.3</td><td>5.4</td><td>1</td><td>120</td></tr><tr><td>FBY-06-005LE</td><td>0.6</td><td>0.8</td><td>5.3</td><td>1</td><td>120</td></tr><tr><td>FLX-1-002LE</td><td>1</td><td>1.3</td><td>5</td><td>2</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached -002LE: Polyimide insulated gauge lead of 2-cm pre-attached </td></tr> <tr><td colspan="7"> Chain Strain Gauges CCFXX, CCFYX Each package contains 10 gauges. CCFXX-1   X-axis 10-element CCFYX-1   Y-axis 10-element Gauge pitch 1.5mm <table><tr><td>CCFXX-1-002LE</td><td>1</td><td>1.5</td><td>16.4</td><td>4.5</td><td>120</td></tr><tr><td>CCFYX-1-002LE</td><td>1</td><td>1.5</td><td>16.4</td><td>4.5</td><td>120</td></tr></table> -002LE: Polyimide insulated gauge lead of 2-cm pre-attached </td></tr> <tr><td colspan="7"> These gauges are specially designed to use Complete correction method for strain and need our Data Logger TDS-540 for the measurement. For details, contact TML. </td></tr>							FXV-1-002LE	1	1.3	5	12	120	FYV-1-002LE	1	1.4	5	12	120	FBXV-04   magnified FBYV-06   magnified Gauge pitch 1mm <table><tr><td>FBXV-04-005LE</td><td>0.4</td><td>1.3</td><td>5.4</td><td>7.4</td><td>120</td></tr><tr><td>FBYV-06-005LE</td><td>0.6</td><td>0.8</td><td>5.3</td><td>7</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached							FBXV-04-005LE	0.4	1.3	5.4	7.4	120	FBYV-06-005LE	0.6	0.8	5.3	7	120	10-element 2 axes : FCV Each package contains 10 gauges. FCV-1   X and Y axes Y-axis leadwire is marked for identification. Gauge pitch 2mm <table><tr><td>FCV-1-005LE</td><td>1</td><td>1.4</td><td>7.5</td><td>12</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached							FCV-1-005LE	1	1.4	7.5	12	120	Single element : FBX/FBY/FLX Each package contains 10 gauges. Single element cut away from the above Stress Concentration gauge. FBX-04  (x 3) FBY-06  (x 3) FLX-1  (x 3) <table><tr><td>FBX-04-005LE</td><td>0.4</td><td>1.3</td><td>5.4</td><td>1</td><td>120</td></tr><tr><td>FBY-06-005LE</td><td>0.6</td><td>0.8</td><td>5.3</td><td>1</td><td>120</td></tr><tr><td>FLX-1-002LE</td><td>1</td><td>1.3</td><td>5</td><td>2</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached -002LE: Polyimide insulated gauge lead of 2-cm pre-attached							FBX-04-005LE	0.4	1.3	5.4	1	120	FBY-06-005LE	0.6	0.8	5.3	1	120	FLX-1-002LE	1	1.3	5	2	120	Chain Strain Gauges CCFXX, CCFYX Each package contains 10 gauges. CCFXX-1   X-axis 10-element CCFYX-1   Y-axis 10-element Gauge pitch 1.5mm <table><tr><td>CCFXX-1-002LE</td><td>1</td><td>1.5</td><td>16.4</td><td>4.5</td><td>120</td></tr><tr><td>CCFYX-1-002LE</td><td>1</td><td>1.5</td><td>16.4</td><td>4.5</td><td>120</td></tr></table> -002LE: Polyimide insulated gauge lead of 2-cm pre-attached							CCFXX-1-002LE	1	1.5	16.4	4.5	120	CCFYX-1-002LE	1	1.5	16.4	4.5	120	These gauges are specially designed to use Complete correction method for strain and need our Data Logger TDS-540 for the measurement. For details, contact TML.						
FXV-1-002LE	1	1.3	5	12	120																																																																																																
FYV-1-002LE	1	1.4	5	12	120																																																																																																
FBXV-04   magnified FBYV-06   magnified Gauge pitch 1mm <table><tr><td>FBXV-04-005LE</td><td>0.4</td><td>1.3</td><td>5.4</td><td>7.4</td><td>120</td></tr><tr><td>FBYV-06-005LE</td><td>0.6</td><td>0.8</td><td>5.3</td><td>7</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached							FBXV-04-005LE	0.4	1.3	5.4	7.4	120	FBYV-06-005LE	0.6	0.8	5.3	7	120																																																																																			
FBXV-04-005LE	0.4	1.3	5.4	7.4	120																																																																																																
FBYV-06-005LE	0.6	0.8	5.3	7	120																																																																																																
10-element 2 axes : FCV Each package contains 10 gauges. FCV-1   X and Y axes Y-axis leadwire is marked for identification. Gauge pitch 2mm <table><tr><td>FCV-1-005LE</td><td>1</td><td>1.4</td><td>7.5</td><td>12</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached							FCV-1-005LE	1	1.4	7.5	12	120																																																																																									
FCV-1-005LE	1	1.4	7.5	12	120																																																																																																
Single element : FBX/FBY/FLX Each package contains 10 gauges. Single element cut away from the above Stress Concentration gauge. FBX-04  (x 3) FBY-06  (x 3) FLX-1  (x 3) <table><tr><td>FBX-04-005LE</td><td>0.4</td><td>1.3</td><td>5.4</td><td>1</td><td>120</td></tr><tr><td>FBY-06-005LE</td><td>0.6</td><td>0.8</td><td>5.3</td><td>1</td><td>120</td></tr><tr><td>FLX-1-002LE</td><td>1</td><td>1.3</td><td>5</td><td>2</td><td>120</td></tr></table> -005LE: Polyimide insulated gauge lead of 5-cm pre-attached -002LE: Polyimide insulated gauge lead of 2-cm pre-attached							FBX-04-005LE	0.4	1.3	5.4	1	120	FBY-06-005LE	0.6	0.8	5.3	1	120	FLX-1-002LE	1	1.3	5	2	120																																																																													
FBX-04-005LE	0.4	1.3	5.4	1	120																																																																																																
FBY-06-005LE	0.6	0.8	5.3	1	120																																																																																																
FLX-1-002LE	1	1.3	5	2	120																																																																																																
Chain Strain Gauges CCFXX, CCFYX Each package contains 10 gauges. CCFXX-1   X-axis 10-element CCFYX-1   Y-axis 10-element Gauge pitch 1.5mm <table><tr><td>CCFXX-1-002LE</td><td>1</td><td>1.5</td><td>16.4</td><td>4.5</td><td>120</td></tr><tr><td>CCFYX-1-002LE</td><td>1</td><td>1.5</td><td>16.4</td><td>4.5</td><td>120</td></tr></table> -002LE: Polyimide insulated gauge lead of 2-cm pre-attached							CCFXX-1-002LE	1	1.5	16.4	4.5	120	CCFYX-1-002LE	1	1.5	16.4	4.5	120																																																																																			
CCFXX-1-002LE	1	1.5	16.4	4.5	120																																																																																																
CCFYX-1-002LE	1	1.5	16.4	4.5	120																																																																																																
These gauges are specially designed to use Complete correction method for strain and need our Data Logger TDS-540 for the measurement. For details, contact TML.																																																																																																					

FOIL STRAIN GAUGES series F

Operating temperature range

 -196°C +150°C

Temperature compensation range

 +10°C +100°C

Suffix code for temperature compensation materials
 -11: Mild steel -17: Stainless steel -23: Aluminium
 For ordering, the above suffix code should be added to the basic gauge type.

Applicable adhesives

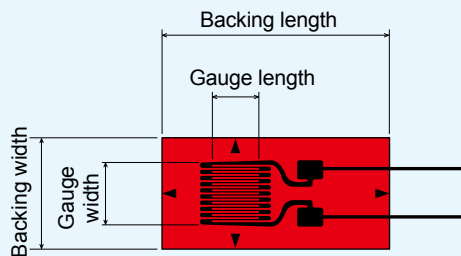
CN	-196 ~ +120°C
P-2	-30 ~ +150°C
EB-2	-60 ~ +150°C

GENERAL USE

Strain gauges compliant to RoHS2 Directive 2011/65/EU are added to the lineup in F series. They are supplied with CE marking as standard specification. Our logo GOBLET, which is an abbreviation of "Gauges Of Brilliant Lifespan and Environmental Thoughtful", is marked on the package of these gauges.



Single element



Example of type number designation
FLAB -5 -350 -11 -3LJB-F
 ↑ CE compliant leadwire
 ↑ Self-temperature-compensation number
 ↑ Gauge resistance (blank for 120Ω)
 ↑ Gauge length
 ↑ Basic gauge type

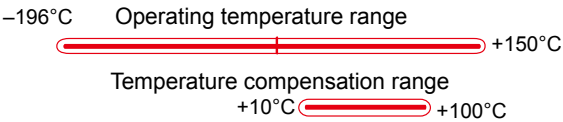
Gauge pattern	Basic type	Gauge size L W	Backing L W	Resistance Ω
	FLGB-02	0.2 1.4	3.5 2.5	120
	FLGB-1	1 1.1	6 2.5	120
	FLAB-03	0.3 1.4	3 2	120
	FLAB-05	0.5 1.2	4.3 2.2	120
	FLAB-1	1 1.3	5 2.5	120
	FLAB-2	2 1.5	6.5 3	120
	FLAB-3	3 1.7	7.7 3.5	120
	FLAB-3-60	3 1.2	7.7 3	60
	FLAB-5	5 1.5	10 3	120
	FLAB-6	6 2.2	11 4.3	120
	FLAB-10	10 2.5	15.4 5	120
	FLAB-30	30 2	35 5	120
FLK pattern with narrow gauge width	FLKB-1	1 0.7	4.5 1.4	120
	FLKB-2	2 0.9	5.5 1.5	120
	FLKB-6	6 1	11 2.2	120
	FLKB-10	10 1.6	15 3.8	120
350Ω Single element	FLAB-1-350	1 1.6	4.5 3	350
	FLAB-2-350	2 1.9	6 3.5	350
	FLAB-3-350	3 1.6	7.2 3	350
	FLAB-5-350	5 1.8	9.4 3.8	350
	FLAB-6-350	6 2.6	10.8 4.5	350
	FLAB-10-350	10 3	16 5	350
	FLAB-6-1000	6 4.6	11 7	1000

Each package contains 10 gauges.

FOIL STRAIN GAUGES

series F

Suffix code for temperature compensation materials
-11: Mild steel  -17: Stainless steel  -23: Aluminium 
For ordering, the above suffix code should be added to the basic gauge type.

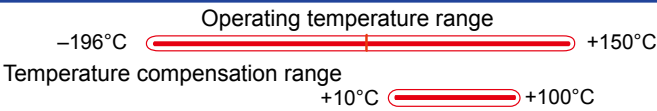


Applicable adhesives	CN	-196 ~ +120°C
	P-2	-30 ~ +150°C
	EB-2	-60 ~ +150°C

GENERAL USE

Gauge pattern	Basic type		Gauge size L W		Backing L W		Resist- ance Ω																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
CE M metal G general 0°/90° 2-element rosette stacked Gauge length Gauge width Backing diameter FCAB-1 FCAB-2 FCAB-3 FCAB-5 FCAB-6 FCAB-10 Example of type nubmer designation FCAB -5 -350 -11 -3LJB-F Basic gauge type Gauge length Gauge resistance (blank for 120Ω) Self-temperature-compensation number CE compliant leadwire Each package contains 10 gauges. <tr><td></td><td>FCAB-1</td><td>1</td><td>0.7</td><td>φ 4.5</td><td>120</td></tr><tr><td></td><td>FCAB-2</td><td>2</td><td>0.9</td><td>φ 7</td><td>120</td></tr><tr><td></td><td>FCAB-3</td><td>3</td><td>1.7</td><td>φ 11</td><td>120</td></tr><tr><td></td><td>FCAB-5</td><td>5</td><td>1.9</td><td>φ 12</td><td>120</td></tr><tr><td></td><td>FCAB-6</td><td>6</td><td>2.4</td><td>φ 14</td><td>120</td></tr><tr><td></td><td>FCAB-10</td><td>10</td><td>2.5</td><td>φ 17</td><td>120</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr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4.5	120		FCAB-2	2	0.9	φ 7	120		FCAB-3	3	1.7	φ 11	120		FCAB-5	5	1.9	φ 12	120		FCAB-6	6	2.4	φ 14	120		FCAB-10	10	2.5	φ 17	120																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Each package contains 10 gauges.



Suffix code for temperature compensation materials
-11: Mild steel -17: Stainless steel -23: Aluminium

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

FOIL STRAIN GAUGES
F Series



Applicable adhesives

CN	-196 ~ +120°C
P-2	-30 ~ +150°C
EB-2	-60 ~ +150°C

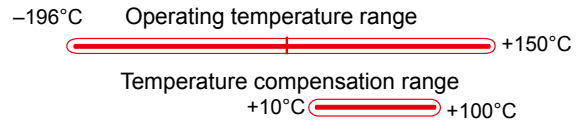
GENERAL USE

Gauge pattern	Basic type	Gauge size L W	Backing L W	Resist- ance Ω																																																		
0°/45°/90° 3-element rosette stacked 350Ω 0°/45°/90° 3-element rosette stacked	Example of type number designation FRAB -5 -350 -11 -3LJB-F ↑ ↑ ↑ ↑ Basic gauge type Gauge length Gauge resistance (blank for 120Ω) Self-temperature-compensation number CE compliant leadwire Each package contains 10 gauges. <table><tr><td>FRAB-1</td><td>1</td><td>0.7</td><td>φ 4.5</td><td>120</td></tr><tr><td>FRAB-2</td><td>2</td><td>0.9</td><td>φ 7</td><td>120</td></tr><tr><td>FRAB-3</td><td>3</td><td>1.7</td><td>φ 11</td><td>120</td></tr><tr><td>FRAB-5</td><td>5</td><td>1.9</td><td>φ 12</td><td>120</td></tr><tr><td>FRAB-6</td><td>6</td><td>2.4</td><td>φ 14</td><td>120</td></tr><tr><td>FRAB-10</td><td>10</td><td>2.5</td><td>φ 17</td><td>120</td></tr></table> Each package contains 10 gauges. <table><tr><td>FRAB-1-350</td><td>1</td><td>1.6</td><td>φ 8</td><td>350</td></tr><tr><td>FRAB-2-350</td><td>2</td><td>1.9</td><td>φ 9.5</td><td>350</td></tr><tr><td>FRAB-3-350</td><td>3</td><td>2</td><td>φ 10</td><td>350</td></tr><tr><td>FRAB-5-350</td><td>5</td><td>1.8</td><td>φ 10</td><td>350</td></tr></table>	FRAB-1	1	0.7	φ 4.5	120	FRAB-2	2	0.9	φ 7	120	FRAB-3	3	1.7	φ 11	120	FRAB-5	5	1.9	φ 12	120	FRAB-6	6	2.4	φ 14	120	FRAB-10	10	2.5	φ 17	120	FRAB-1-350	1	1.6	φ 8	350	FRAB-2-350	2	1.9	φ 9.5	350	FRAB-3-350	3	2	φ 10	350	FRAB-5-350	5	1.8	φ 10	350			
FRAB-1	1	0.7	φ 4.5	120																																																		
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FRAB-3-350	3	2	φ 10	350																																																		
FRAB-5-350	5	1.8	φ 10	350																																																		

FOIL STRAIN GAUGES series F

Suffix code for temperature compensation materials
-8: Glass, Ceramic

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



Applicable adhesives

CN	$-196 \sim +120^{\circ}\text{C}$
P-2	$-30 \sim +150^{\circ}\text{C}$
EB-2	$-60 \sim +150^{\circ}\text{C}$

GLASS, CERAMIC USE

Gauge pattern	Basic type	Gauge size		Backing		Resistance
		L	W	L	W	Ω
Single element FLAB-5-8 (x 2) 0°/90° 2-element rosette stacked FCAB-5-8 (x 2) 0°/45°/90° 3-element rosette stacked FRAB-5-8 (x 2) Example of type nubmer designation FRAB -5 -8 -3LJB-F Basic gauge type Gauge length Self-temperature-compensation number CE compliant leadwire						
Each package contains 10 gauges.						
FLAB-2-8	2	1.5	6.5	3	120	
FLAB-5-8	5	1.5	10	3	120	
Each package contains 10 gauges.						
FCAB-2-8	2	0.9	ϕ 7		120	
FCAB-5-8	5	1.9	ϕ 12		120	
Each package contains 10 gauges.						
FRAB-2-8	2	0.9	ϕ 7		120	
FRAB-5-8	5	1.9	ϕ 12		120	

Dedicated leadwires recommendable for strain gauge F series

Application	Leadwires	Operating temperature ($^{\circ}\text{C}$)	Leadwire code exemplified
General use (temperature unchanged during measurement)	Paralleled vinyl LJB / LJB-F Paralleled vinyl LJC / LJC-F	$-20 \sim +80$	FLA-5-11-3LJB FLA-5-11-3LJC
General use	3-wire paralleled vinyl LJBT / LJBT-F 3-wire paralleled vinyl LJCT / LJCT-F	$-20 \sim +80$	FLA-5-11-3LJBT FLA-5-11-3LJCT
Mid-high temperature	3-wire paralleled vinyl LXT / LXT-F	$-20 \sim +150$	FLA-5-11-3LXT
Temperature integration	3-wire paralleled vinyl TLJBT / TLJBT-F	$-20 \sim +80$	FLA-5-11-3TLJBT
1-Gauge 4-Wire measurement	Polypropylene 4-wire paralleled LQM / LQM-F	$-20 \sim +100$	FLA-5-11-3LQM (modular plug attached)

Recommendable for GOBLET strain gauges

Application	Leadwires	Operating temperature ($^{\circ}\text{C}$)	Leadwire code exemplified
General use (temperature unchanged during measurement)	Paralleled vinyl LJB-F Paralleled vinyl LJC-F	$-20 \sim +80$	FLAB-5-11-3LJB-F FLAB-5-11-3LJC-F
General use	3-wire paralleled vinyl LJBT-F 3-wire paralleled vinyl LJCT-F	$-20 \sim +80$	FLAB-5-11-3LJBT-F FLAB-5-11-3LJCT-F
Mid-high temperature	3-wire paralleled vinyl LXT-F	$-20 \sim +150$	FLAB-5-11-3LXT-F
Temperature integration	3-wire paralleled vinyl TLJBT-F	$-20 \sim +80$	FLAB-5-11-3TLJBT-F
1-Gauge 4-Wire measurement	Polypropylene 4-wire paralleled LQM-F	$-20 \sim +100$	FLAB-5-11-3LQM-F (modular plug attached)

NB: For use with CE compliant GOBLET strain gauges, specify leadwire with option -F having lead-free solder on order.