



F series

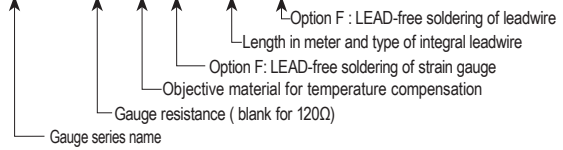
In the F series, strain gauges dedicated to a special usage (shearing strain measurement, torque measurement, residual stress measurement or stress concentration measurement) and 2-axis plane type strain gauges are compliant to RoHS Directive when they are supplied with Option-F.



Operating temperature range	-196~+150°C	Applicable adhesives	CN -196~+120°C
Temperature compensation range	+10~+100°C	P-2	-30~+150°C
		EB-2	-60~+150°C

Please specify the type number as shown in the example below.

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



Objective material for temperature compensation (coefficient of linear thermal expansion $\times 10^{-6}/^{\circ}\text{C}$)

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

Shearing • Torque • Plane

Gauge pattern	Type	Gauge size(mm)		Backing size(mm)		Resistance Ω
		Length	Width	Length	Width	
●Shearing strain measurement 	FLT-05A	0.55	0.66	4	1.3	120
	FLT-05B	0.55	0.66	4	1.3	120
●Torque measurement 	FCT-2	2	1.5	8.7	6.5	120
	FCT-2-350	2	1.5	7.6	5.3	350
●0° /90° 2-axis Plane type 	FCB-2	2	1.5	X / Y axis 8.2 8		120
	FCB-6-350	6	2	X / Y axis 10 11.9		350

Minimum order quantity is 10 strain gauges.

Residual stress measurement

Gauge pattern	Type	Gauge size(mm)		Backing size(mm)		Resistance Ω
		Length	Width	Length	Width	
●Residual stress measurement 	FR-5	5	1.5	Φ12		120
	EUBC-06	0.6	0.7	Φ2.4		120
●Residual stress measurement using hole drilling method 						
	FRAS-2	2	1.1	9	9	120
	FRS-08	0.8	0.7	Φ7		120
	FRS-2	1.5	1.3	Φ9.5		120
	FRS-3	3	2.6	Φ17.5		120

Minimum order quantity is 10 strain gauges.

Stress Concentration Measurement

Gauge pattern	Type	Gauge size(mm)		Backing size(mm)		Resistance Ω		
		Length	Width	Length	Width			
●5-element Single-axis								
<p>FXV-1-11-002LE FYV-1-11-002LE</p>	Gauge pitch 2mm	FXV-1-11-002LE	1	1.3	5	12	120	
		FYV-1-11-002LE	1	1.4	5	12	120	
-002LE: Polyimide insulated gauge lead of 2-cm pre-attached								
<p>FBXV-04 FBYV-06</p>	Gauge pitch 1mm	FBXV-04-11-005LE	0.4	1.3	5.4	7.4	120	
		FBYV-06-11-005LE	0.6	0.8	5.3	7	120	
-005LE: Polyimide insulated gauge lead of 5-cm pre-attached								
●10-element 2-axes								
<p>FCV-1</p> <p>X and Y axes Y-axis leadwire is marked for identification.</p>	Gauge pitch 2mm	FCV-1-11-005LE	1	1.4	7.5	12	120	
-005LE: Polyimide insulated gauge lead of 5-cm pre-attached								
●Chain Strain Gauges								
<p>CCFXX-1 CCFYX-1</p> <p>X-axis 10-element Y-axis 10-element</p>	Gauge pitch 1.5mm	CCFXX-1-11-002LE	1	1.5	4.5	16.4	120	
		CCFYX-1-11-002LE	1	1.5	4.5	16.4	120	
-002LE: Polyimide insulated gauge lead of 2-cm pre-attached								
These gauges are specially designed to use Complete Compensation Method of Strain and need our Data Logger TDS-540 for the measurement. For details, contact TML.								
●Single axis								
Single element cut away from the above Stress Concentration gauge								
FBX-04		Q (x 3)	FBX-04-11-005LE	0.4	1.3	5.4	1	120
FBY-06		Q (x 3)	FBY-06-11-005LE	0.6	0.8	5.3	1	120
FLX-1		Q (x 3)	FLX-1-11-002LE	1	1.3	5	2	120
-005LE: Polyimide insulated gauge lead of 5-cm pre-attached -002LE: Polyimide insulated gauge lead of 2-cm pre-attached								

Minimum order quantity is 10 strain gauges.



Important point

Option F

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



Note

These gauges are specially designed to use Complete Compensation Method of Strain and need our Data Logger TDS-540 for the measurement. For details, contact TML.