

ε F-SERIES
FLT, FCT, FCB, FR, EUBC, FXV, FYV,
FBX, FBY, FCV, CCF

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

GENERAL USE



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.

Please specify the type number as shown in the example below

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

- ↑ Gauge series name
- ↑ Gauge resistance (blank for 120Ω)
- ↑ Objective material for temperature compensation
- ↑ Option F: LEAD-free soldering of strain gauge
- ↑ Length in meter and type of integral leadwire
- ↑ Option F: LEAD-free soldering of leadwire

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.

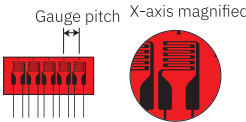
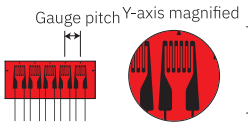
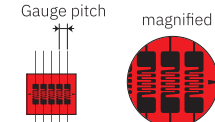
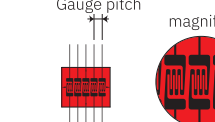
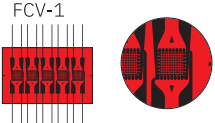
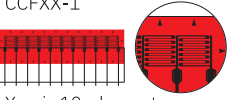
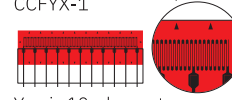



RESIDUAL STRESS MEASUREMENT

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)		Resist- ance Ω	
		Length	Width	Length	Width		
5-element Single-axis							
FXV-1-11-002LE FYV-1-11-002LE  	Gauge pitch 2mm	FXV-1-11-002LE	1	1.3	5	12	-002LE: Polyimide insulated gauge lead of 2-cm pre-attached
		FYV-1-11-002LE	1	1.4	5	12	
FBXV-04 FBYV-06  	Gauge pitch 1mm	FBXV-04-11-005LE	0.4	1.3	5.4	7.4	-005LE: Polyimide insulated gauge lead of 5-cm pre-attached
		FBYV-06-11-005LE	0.6	0.8	5.3	7	
10-element 2-axes							
FCV-1 	Gauge pitch 2mm	FCV-1-11-005LE	1	1.4	7.5	12	-005LE: Polyimide insulated gauge lead of 5-cm pre-attached
Chain Strain Gauges							
CCFXX-1 CCFYX-1  	Gauge pitch 1.5mm	CCFXX-1-11-002LE	1	1.5	4.5	16.4	-002LE: Polyimide insulated gauge lead of 2-cm pre-attached
		CCFYX-1-11-002LE	1	1.5	4.5	16.4	
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	-005LE: Polyimide insulated gauge lead of 5-cm pre-attached -002LE: Polyimide insulated gauge lead of 2-cm pre-attached
FBY-06  Q (x 3)		FBY-06-11-005LE	0.6	0.8	5.3	1	
FLX-1  Q (x 3)		FLX-1-11-002LE	1	1.3	5	2	
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.