

COMPOSITE USE STRAIN GAUGES series UBF

Operating temperature range

-30°C  +150°C

Static measurement : -30 ~ +120°C

Dynamic measurement : -30 ~ +150°C

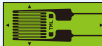
These strain gauges are not self-temperature-compensated. These may be necessary to measure the thermal output using a dummy specimen prior to the measurement.



Applicable adhesives

CN	-20 ~ +120°C
EB-2	-30 ~ +150°C

COMPOSITE MATERIALS USE

Gauge pattern	Basic type	Gauge size		Backing		Resistance Ω
		L	W	L	W	
These are foil strain gauges developed for measurement on composite materials. They have a specially designed grid pattern to reduce the stiffening effect of the strain gauges. In addition, owing to the development of gauge backing with better compliance, the number of repetition in thermal cycling test and the creep characteristics have been significantly improved compared to conventional strain gauges.  Single element 						
	Example of type number designation <u>UBFLA-1</u> <u>-3LJB</u> <u>-F</u>					

COMPOSITE USE STRAIN GAUGES series BF

Operating temperature range

-20°C  +200°C

Temperature compensation range

+10°C  +80°C

Suffix code for temperature compensation materials
-3, -5 or -8 : composite materials 

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



Applicable adhesives

CN	-20 ~ +120°C
NP-50B	-20 ~ +200°C
EB-2	-30 ~ +150°C

COMPOSITE MATERIALS USE

Gauge pattern	Basic type	Gauge size		Backing		Resistance Ω
		L	W	L	W	
These are foil strain gauges designed for measurement on composite materials. They have a specially designed grid pattern to enable small stiffening effect and excellent performance in strain measurement up to 200°C. This series is available with self-temperature-compensation for a material having coefficient of thermal expansion of 3,5 or $8 \times 10^{-6}/^{\circ}\text{C}$. This series is recommended for use on ceramic, carbon and composite materials. 						
Single element		Each package contains 10 gauges.				
	BFLA-2	Single element				
0°/90° 2-element plane Rosette		0°/90° 2-element plane Rosette				
	BFCA-2-3					
0°/45°/90° 3-element plane Rosette		0°/45°/90° 3-element plane Rosette				
	BFRA-2-3					

Example of type number designation

BFLA-2 -3 -3LJC -F

Basic strain gauge type, gauge length

Self-temperature-compensation number

Length in meter and type of leadwire

Option F : LEAD-free soldering of leadwire

BFLA-2	2	0.9	7.6	2.5	120
BFLA-5	5	1.5	12.3	3.3	120
BFCA-2	2	1.3	8	8	120
BFCA-5	5	1.5	11.5	11.5	120
BFRA-2	2	1.3	8	8	120
BFRA-5	5	1.5	11.5	11.5	120

Point

Composite materials consisting of plastic matrix and fibers such as glass fibers (GFRP), carbon fibers (CFRP) or aramid fibers (AFRP) have different elastic modulus and linear thermal expansion coefficient depending on their fiber orientation. For strain measurement, consideration of materials property and fiber orientation should be taken.