

HIGH TEMPERATURE series QF STRAIN GAUGES

Suffix code for temperature compensation materials

-11: Mild steel -17: Stainless steel -23: Aluminium -28: Magnesium

Applicable adhesives

Backing colors are all the same with different materials For ordering, the above suffix code should be added to the basic gauge type.

Operating temperature range

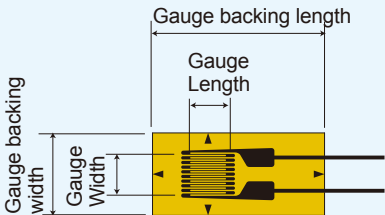
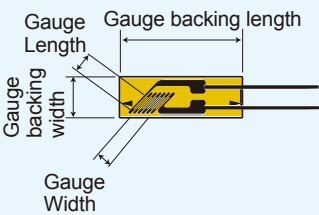
-20°C  +200°C

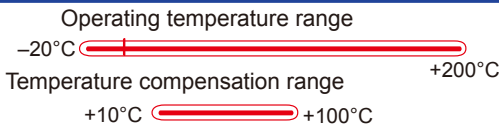
Temperature compensation range

+10°C  +100°C

CN	-20 ~ +120°C
NP-50B	-20 ~ +200°C
C-1/EB-2	-20 ~ +200°C

GENERAL PURPOSE/SHEARING STRESS MEASUREMENT

Gauge pattern	Basic type	Gauge size L W	Backing L W T	Resistance Ω
These are foil strain gauges having a polyimide resin backing, which exhibits excellent performance in high temperature up to 200°C. Stress concentration measurement gauges and shear stress measurement gauges are also available in this series.  Single element : QFLG/QFLA/QFLK Each package contains 10 gauges.  General purpose     FLK type with narrow gauge base  for Magnesium High gauge resistance  				
	QFLG-02-11	0.2 1.4	3.5 2.5	120
	QFLA-1-11	1 1.3	5 2.5	120
	QFLA-2-11	2 1.5	6.5 3	120
	QFLA-3-11	3 1.7	8.8 3.5	120
	QFLA-5-11	5 1.5	10 3	120
	QFLA-6-11	6 2.2	12.5 4.3	120
	QFLK-1-11	1 0.7	4.5 1.4	120
	QFLK-2-11	2 0.9	5.5 1.5	120
	QFLK-2-28	2 0.9	5.5 1.5	120
	QFLA-1-350-11	1 2	5 4	350
	QFLA-2-350-11	2 1.9	6.1 3.5	350
	QFLA-3-350-11	3 3.2	8.5 5	350
	QFLA-6-350-11	6 2.6	12.5 4.5	350
	QFLA-6-1000-11	6 4.6	13.5 7	1000
0°/90° 2-element plane Rosette QFCA Each package contains 10 gauges.  QFCA-1-11  QFCB-2-11 Y X				
	QFCA-1-11	1 1.3	7.2 7.2	120
	QFCA-3-11	3 1.7	11 11	120
	QFCB-2-11	X and Y axes 2 1.5	8.2 8	120
0°/45°/90° 3-element plane Rosette QFRA Each package contains 10 gauges.  QFRA-1-11				
	QFRA-1-11	1 1.3	7.2 7.2	120
	QFRA-3-11	3 1.7	11 11	120
Single element Shearing strain measurement Each package contains 10 gauges.  (x 3)   (x 3)   (x 3)   (x 3)   (x 3)  				
	QFLT-05A-11-002LE	0.5 0.66	4 1.3	120
	QFLT-05B-11-002LE	0.5 0.66	4 1.3	120
	QFLT-1A-11-002LE	1.2 1.1	5.7 2	120
	QFLT-1-350A-11-002LE	1 1.1	5.7 2	350
	QFLT-1B-11-002LE	1.2 1.1	5.7 2	120
	QFLT-1-350B-11-002LE	1 1.1	5.7 2	350
N.B. -002LE: Polyimide leadwire of 2-cm pre-attached				



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Applicable adhesives

CN	-20 ~ +120°C
NP-50B	-20 ~ +200°C
C-1/EB-2	-20 ~ +200°C

STRESS CONCENTRATION MEASUREMENT

Gauge pattern		Basic type		Gauge size		Backing			Resistance Ω	
				L	W	L	W	T		
CE										
5-element single-axis : QFXV/QFYV/QFBXV/QFBYV				Each package contains 10 gauges.						
QFXV-1-11-002LE		QFYV-1-11-002LE		Gauge pitch 2mm	QFXV-1-11-002LE	1	1.3	5	12	120
 Gauge pitch		 X-axis magnified			QFYV-1-11-002LE		1	1.4	5	12
		 Y-axis magnified		N.B. -002LE: Polyimide insulated gauge lead of 2-cm pre-attached						
QFBXV-04		QFBYV-06		Gauge pitch 1mm	QFBXV-04-11-005LE	0.4	1.3	5.4	7.4	120
 magnified		 magnified			QFBYV-06-11-005LE		0.6	0.8	5.3	7
				N.B. -005LE: Polyimide leadwire of 5-cm pre-attached						
Single element : QFBX/QFBY/QFLX				Each package contains 10 gauges.						
Single element cut away from the above Stress Concentration gauge.										
QFBX-04				QFBX-04-11-005LE	0.4	1.3	5.4	1	120	
QFBY-06				QFBY-06-11-005LE	0.6	0.8	5.3	1	120	
QFLX-1				QFLX-1-11-002LE	1	1.3	5	2	120	
				N.B. -005LE: Polyimide leadwire of 5-cm pre-attached N.B. -002LE: Polyimide leadwire of 2-cm pre-attached						
Torque measurement : QFCT				Each package contains 10 gauges.						
QFCT-2-11				QFCT-2-11	2	1.5	8.7	6.5	120	
QFCT-2-350-11				QFCT-2-350-11	2	1.7	7.6	5.3	350	

Recommendable integral leadwire for QF series

Application	Leadwires	Operating temperature (°C)	Leadwire code exemplified
General use (temperature unchanged during measurement)	Paralleled vinyl LJCT-F	-20~ +80	QFLA-1-11-3LJCT-F
General use	3-wire paralleled vinyl LJCT-F	-20~ +80	QFLA-1-11-3LJCT-F
Waterproof	3-wire twisted cross-linked vinyl LJRTA	-20~ +100	QFLA-1-11-3LJRTA-F
High temperature	3-wire twisted fluorinated resin (FEP) 6FA_LT-F (No Tetra-Etch required for surface preparation) 3-wire twisted fluorinated resin (FEP) 6FB_LT-F	-269~ +200	QFLA-1-11-6FA3LT-F QFLA-1-11-6FB3LT-F

Example of type number designation.

QFLA-5 -11 -3LJCT-F-3LJCT-F (2-wire/3-wire)

CE compliant leadwire
 Length in meter and type of integral leadwire(*1)
 Self-temperature-compensation number (*2)
 Basic strain gauge type

*1: Not mentioned for gauges without integral leadwire.

*2: QF-series gauges are available for self-temperature-compensation with -11 (Mild steel of 11ppm/°C)

For the following numbers, contact TML or your local representative.

-17: Stainless steel, Copper alloy (17ppm/°C)
 -23: Aluminium (23ppm/°C)