

# HIGH TEMPERATURE series QF STRAIN GAUGES

Operating temperature range  
 -20°C +200°C  
 Temperature compensation range  
 +10°C +100°C

Suffix code for temperature compensation materials  
 -11: Mild steel -17: Stainless steel -23: Aluminium -28: Magnesium

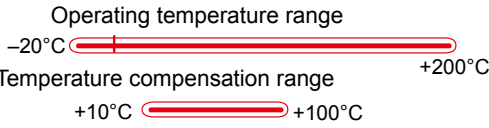
Applicable adhesives

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

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

## GENERAL PURPOSE/SHEARING STRESS MEASUREMENT

Gauge pattern	Basic type	Gauge size		Backing			Resistance Ω	
		L	W	L	W	T		
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.								
<b>Single element : QFLG/QFLA/QFLK</b>								
Each package contains 10 gauges.								
	General purpose	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	7.7	3.5	120	
		QFLA-5-11	5	1.5	10	3	120	
		QFLA-6-11	6	2.2	11	4.3	120	
	FLK type with narrow gauge base	QFLK-1-11	1	0.7	4.5	1.4	120	
		QFLK-2-11	2	0.9	5.5	1.5	120	
	for Magnesium	QFLK-2-28	2	0.9	5.5	1.5	120	
	High gauge resistance	QFLA-1-350-11	1	1.6	4.5	3	350	
	QFLA-2-350-11	2	1.9	6	3.5	350		
	QFLA-3-350-11	3	1.6	7.2	3	350		
	QFLA-6-350-11	6	2.6	10.8	4.5	350		
	QFLA-6-1000-11	6	4.6	11	7	1000		
<b>0°/90° 2-element plane Rosette QFCA</b>								
Each package contains 10 gauges.								
	QFCA-1-11	1	1.3	7.2	7.2	120		
	Y X QFCB-2-11	3	1.7	11	11	120		
	QFCB-2-11	X and Y axes 2	1.5	8.2	8	120		
<b>0°/45°/90° 3-element plane Rosette QFRA</b>								
Each package contains 10 gauges.								
	QFRA-1-11	1	1.3	7.2	7.2	120		
	QFRA-3-11	3	1.7	11	11	120		
<b>Single element Shearing strain measurement</b>								
Each package contains 10 gauges.								
		(x 3)	QFLT-05A-11-002LE	0.5	0.66	4	1.3	120
		(x 3)	QFLT-05B-11-002LE	0.5	0.66	4	1.3	120
		(x 3)	QFLT-1A-11-002LE	1.2	1.1	5.7	2	120
		(x 3)	QFLT-1-350A-11-002LE	1.2	1.1	5.7	2	350
		(x 3)	QFLT-1B-11-002LE	1.2	1.1	5.7	2	120
		(x 3)	QFLT-1-350B-11-002LE	1.2	1.1	5.7	2	350
N.B. -002LE: Polyimide leadwire of 2-cm pre-attached								



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## STRESS CONCENTRATION MEASUREMENT

Gauge pattern	Basic type	Gauge size		Backing			Resist- ance Ω
		L	W	L	W	T	
<b>CE</b>							
<b>5-element single-axis : QFXV/QFYV/QFBXV/QFBYV</b>		Each package contains 10 gauges.					
QFXV-1-11-002LE  Gauge pitch 2mm X-axis magnified	QFYV-1-11-002LE  Gauge pitch 2mm Y-axis magnified	QFXV-1-11-002LE	1	1.3	5	12	120
		QFYV-1-11-002LE	1	1.4	5	12	120
N.B. -002LE: Polyimide insulated gauge lead of 2-cm pre-attached							
QFBXV-04  Gauge pitch 1mm magnified	QFBYV-06  Gauge pitch 1mm magnified	QFBXV-04-11-005LE	0.4	1.3	5.4	7.4	120
		QFBYV-06-11-005LE	0.6	0.8	5.3	7	120
N.B. -005LE: Polyimide leadwire of 5-cm pre-attached							
<b>Single element : QFBX/QFBY/QFLX</b>		Each package contains 10 gauges.					
Single element cut away from the above Stress Concentration gauge.							
QFBX-04	(x 3)	QFBX-04-11-005LE	0.4	1.3	5.4	1	120
QFBY-06	(x 3)	QFBY-06-11-005LE	0.6	0.8	5.3	1	120
QFLX-1	(x 3)	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							
<b>Torque measurement : QFCT</b>		Each package contains 10 gauges.					
QFCT-2-11	(x 3)	QFCT-2-11	2	1.5	8.7	6.5	120
QFCT-2-350-11	(x 3)	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
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 -3LJC-F/-3LJCT-F (2-wire/3-wire)**

- QFLA-5: Basic strain gauge type
- 11: Self-temperature-compensation number (\*2)
- 3LJC-F/-3LJCT-F: Length in meter and type of integral leadwire(\*1) CE compliant

\*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)