General performances of Type N11-MA-5-120-11 Strain Gauge

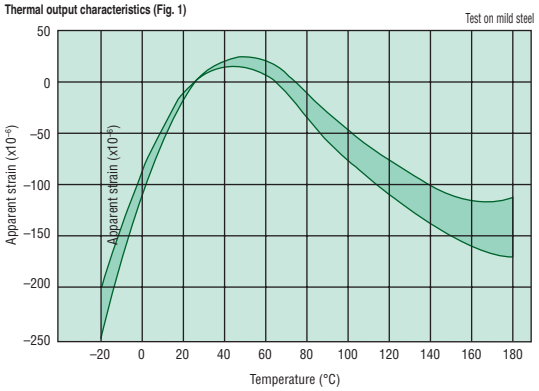
Features:

- Almost no effect on test object
- Distant and multi-points measurements are possible
- Applicable to both static and dynamic strains
- Both surfaces being completely laminated, the gauge grids are entirely protected
- The gauges, being fitted with leads, are easy to handle

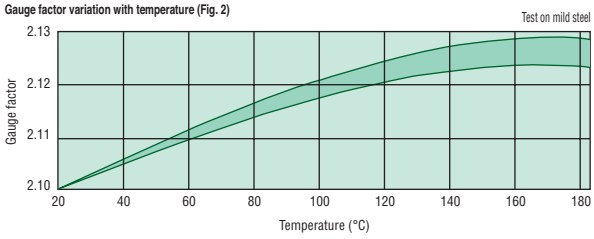
Standard specifications

Gauge length	0.3mm min. to 60mm max.
Measurable strain	2 to 4% maximum. Up to 10% with foil yielding strain gauges
Temperature range	FA (Polyester backing) –30°C to +80°C MA (Polyamide backing) –30°C to +180°C
Thermal output (See Fig. 1)	FA Within ±2με/°C (At room temperature up to +80°C) MA Within ±1με/°C (At room temperatue up to +160°C) Within ±5με/°C (At room temperatue up to +180°C)
Gauge factor change with temperature (See Fig. 2)	Within ±0.015%/°C
Gauge resistance tolerance	Within ±0.5% of the nominal resistance
Gauge factor	2.00 (Nominal)
Gauge factor tolerance	Within ±1% of the value indicated on individual gauge packet for gauge lengths of 5mm to 60mm Within ±2% of the value indicated on individual gauge packet for gauge lengths of 0.3mm to 3mm
Fatique life	More than 10^5 reversals at 1000 x 10^{-6} strain

Thermal output characteristics (Fig. 1)



Gauge factor variation with temperature (Fig. 2)



General performances of Type N11-MA-5-120-11 Strain Gauge

Configurations

N11 - FA - 5 - 350 - 16 - L03

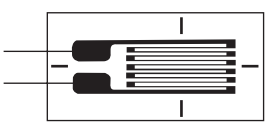
- Optional specifications
  - 03 Length of leads
  - L Resin clad copper wire (up to 0.3m)
  - W Waterproof moulded type
  - P Optional pattern type (subject to special quotations)
- Linear expansion factor of material against which strain gauge is self-temperature compensated and its base colour classification

Base colour	Materials against which strain gauge is self temperatue compensated	Linear expansion factor of materials	Codes
Red	Mild steel	10.8 x 10^{-6}/°C	11
Orange	Stainless steel	16.2 x 10^{-6}/°C	16
Blue	Aluminium alloy	23.4 x 10^{-6}/°C	23

Remarks: Base colour classifications are made in FA Series only.
Code of "11" for mild steel can be deleted.

- Gauge resistance
  Expressing strain gauge nominal resistance in the unit of Ω. Can be deleted when nominal resistance is 120Ω.
- Gauge length
  Expressing grid effective length in figures in the unit of mm.
- Foil material
  A: Cu-Ni Alloy
- Base material
  F: Polyester; M: Polyimide
- Basic pattern and its combinations

Patterns and specifications

Strain Gauge Pattern	Type	Nominal resistance (Ω)	Dimensions (mm)				Approx. gauge factor	Material against which strain gauge is self-temperature compensated			Compatible cement				Number of gauges per packet
			Grid		Base			Mild steel (11)	Stainless steel (16)	Aluminium Alloy (23)	F1	F3	101	E110	
			Length	Width	Length	Width									
	N11-MA- 8-120-(11, 16, 23)	120	8.0	2.0	13.0	4.0	2.1	●	●	●	●	●	●	●	