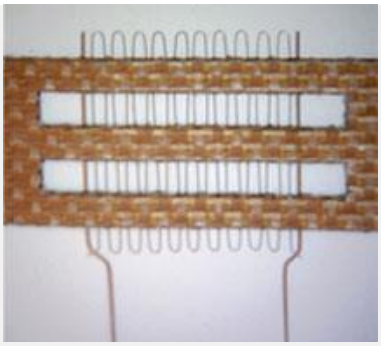
Product Data Sheet



HFK-35-250-6-ZCW

HFK Series > High Temperature Bondable Strain Gages

Self-Temperature Compensating

Maximum operating temperature: 650°F (350°C)

Description: Wire resistance strain gages constructed of K alloy (Evanohm), and factory heat treated to provide temperature compensation of 6ppm/°F (10.8ppm/°C) on standard materials.

Features: Good fatigue life and excellent stability.

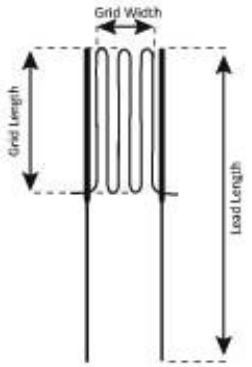
Uses: Recommended for static measurements in long term monitoring applications.

AVAILABLE IN THE FOLLOWING CONFIGURATIONS

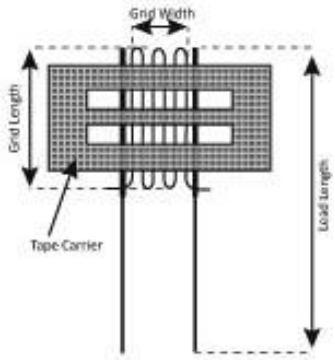
Application Methods

Free filament gages are bonded to components using flame sprayed rod or powder, or with a ceramic cement application.

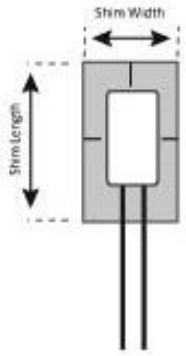
Weldable gages are attached to the component using a capacitive fine-spot welder.



Tapeless free filament gage with lead wires



Free filament gage with temporary tape carrier



*Pre-installed weldable strain gage

For more info about weldable strain gages, please see our High Temperature Weldable data sheets.

STANDARD PART NUMBERS

Standard Part Numbers	Strain Type	Gage Resistance (nominal)	Gage Factor (nominal)	Grid Length	Grid Width	Lead Wire	Lead Length	Lead Type	Specification Drawing
HFK-12-125-ZCW	Static	120 Ohms	2.0	.125"	.155"	.003" Chromel A[2]	2.75"	Z Lead	50-531
HFK-12-250-ZCW	Static	120 Ohms	2.0	.250"	.085"	.003" Chromel A[2]	2.75"	Z Lead	50-530

Standard gage configurations can be customized for individual application needs. Please see the following options table for custom orders; then consult our sales and/or engineering department to confirm availability and compatibility with your application.

CUSTOM OPTIONS TABLE

Gage Resistance	Grid Length	Lead Length
12 – 120 Ohms	063 – 1/16"	Standard – 2.75"
35 – 350 Ohms	125 – 1/8"	Custom – 2.75" – 12"
	250 – 1/4"	

Lead Wire Configurations

SPW	0.003" Platinum-Nickel
LPW	0.005" PT 10 RHO
SCW	0.003" Chromel A^2
LCW	0.005" Chromel A
SNR	0.003" x 0.015" NiChrome Ribbon
SMW	0.003" Moleculoy Wire
SHW	0.003" Hoskins 875
LHW	0.005" Hoskins 875
ISMW	0.003" Moleculoy wire – inboard configuration with straight lead wire
ICMW	0.003" Moleculoy wire – inboard configuration with convoluted lead wire

Packaging: Strain gages are supplied on glass slides, and sold in packages of 5.

Lead Wires: Standard design is a straight, 2.75" length lead. For custom lead lengths and configurations, please consult the Custom Options Table.

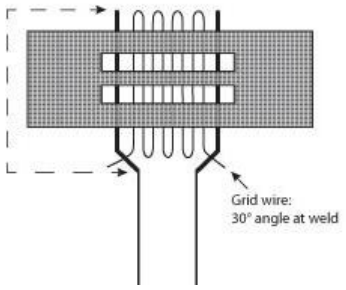
Lead Configurations: High fatigue Z-type leads can be custom ordered for most gages. Consult our sales department for more information.

Tape Carrier: Fiberglass reinforced Teflon with silicone adhesive. Shelf life: 9 months (adhesive)

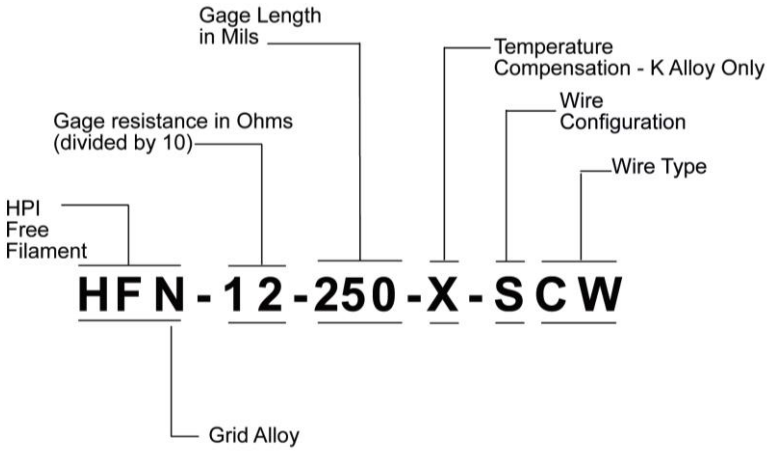
Fatigue Life (nominal)**:** 1 x 10^6 cycles at ± 750µ"/" at room temperature.

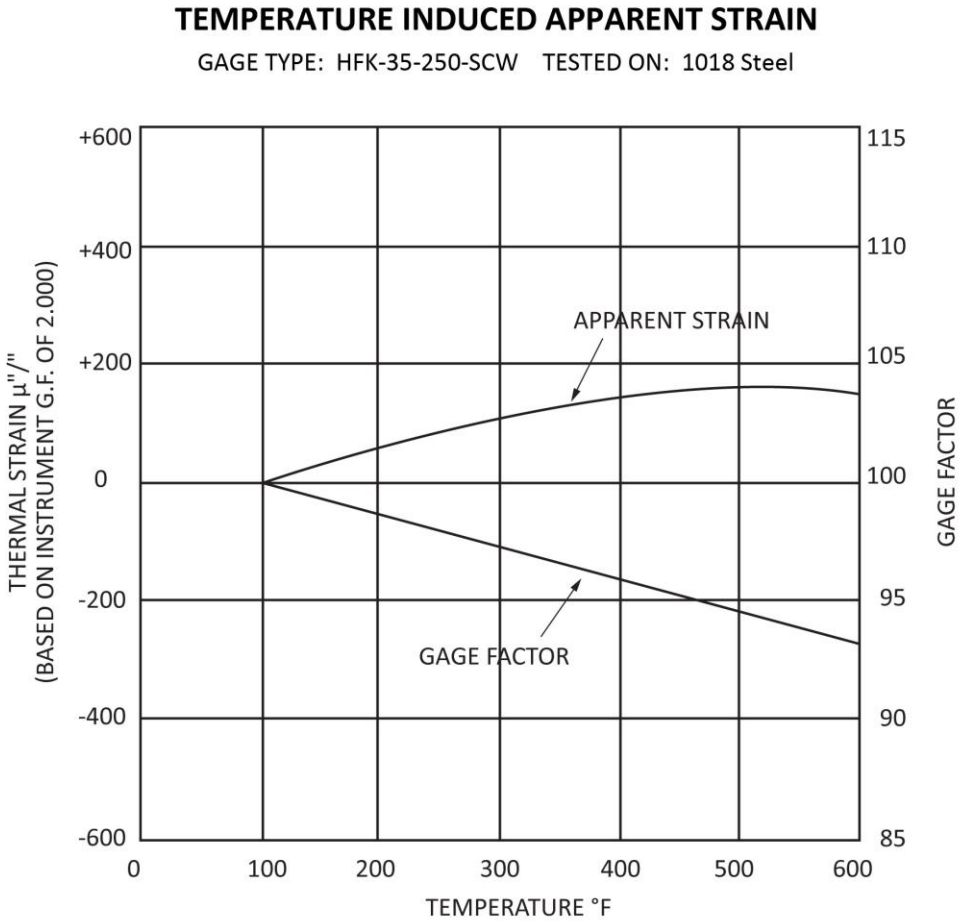
Z-LEAD CONFIGURATION

Wire in this area is flattened to .0015" and angled for better stability for long leads (to prevent twisting and rolling)



Part Number Designation Code:





INSTALLATION GUIDELINES

Three Wire Circuit

In most cases the lead wires used to connect a self-temperature compensated gage to an instrument are not self-temperature compensated. For HFK gages, chromel is typically used. Also, many times gages are supplied with only 2 lead wires. Be sure to order three wire gages if desired.

In order to achieve the best results, close attention to detail should be given to the lead wire installation. Below, is a diagram of a three-wire lead system; which if properly installed, will minimize lead wire errors in a constant voltage system. It is necessary, if the temperature induced resistance changes in the lead wires are to cancel, the leads must be stable, have exactly the same resistance, be from the same spool, and subject to exactly the same temperatures.

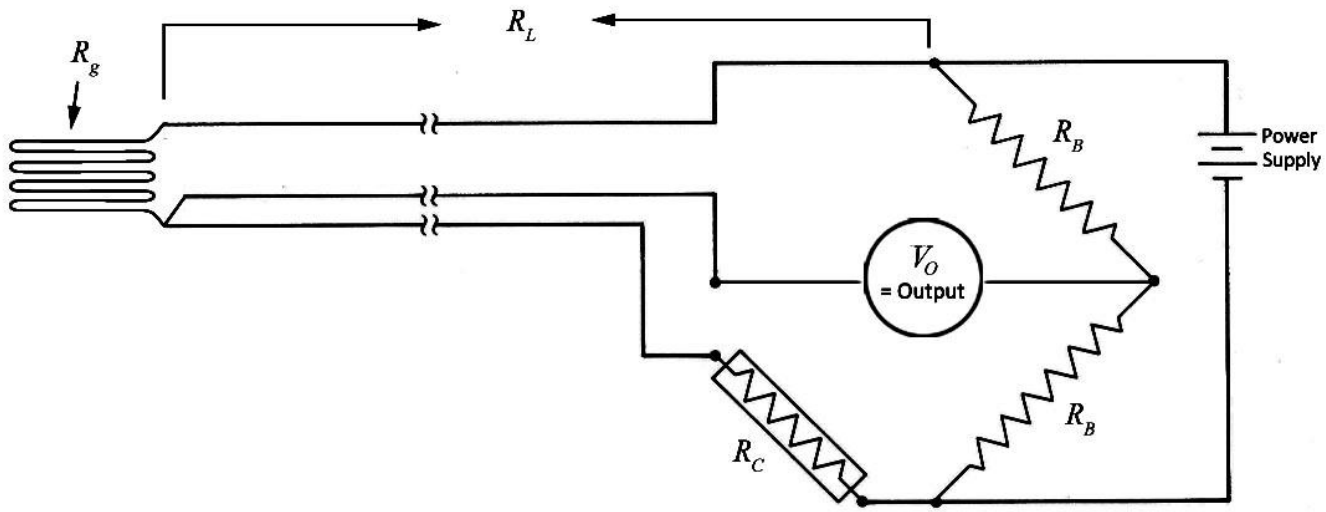
If they are not equal, the temperature coefficient of the leads will alter the apparent strain curve of the installation. The location of the third lead wire must be the same for each installation and should be as close to the other leads as possible. The three-wire circuit works in theory only. Don't assume perfect compensation. There is enough variation from wire to wire to cause an apparent strain, which often times is quite large. This error determination should be part of the gage calibration procedures.

Desensitization

The addition of lead wire resistance in series with the strain gage reduces the sensitivity of the installation. The resistance and gage factor given for the strain gage does not include the resistance of the leads. The gage factor for the completed installation is determined as follows:

G.F. (installation) = G.F. (gage) $\dfrac{R_g}{R_g + R_L}$

The value for $R_L + R_g$ must be measured for the installation to the degree of accuracy required. Where extreme accuracy is required, it is recommended that R be measured after the gage installation and cure are complete and just prior to lead wire connection. If the lead wires have a high temperature coefficient of resistance, the lead resistance must be measured at operating temperature and the correction applied to the elevated temperature gage factor.



SYMBOLS

R_g = Resistance of gage grid only

R_L = Resistance of main lead wire

R_C = Resistance of compensating gage

R_B = Resistance of bridge

For current pricing on strain gages and installation products, please contact our Sales Dept.