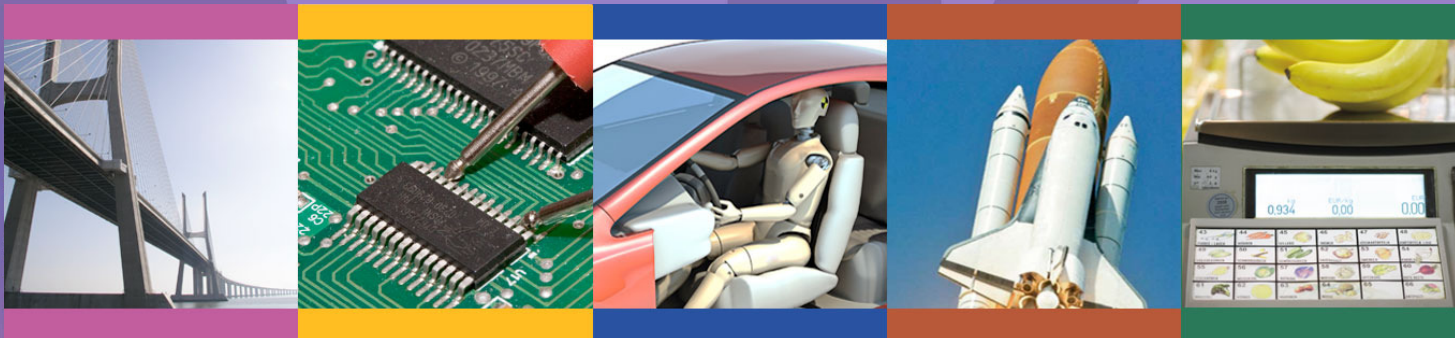




New Miniature Strain Gages from Micro-Measurements 新款微型应变片



Where the World Goes
for Precision Measurement and Control

New Strain Gages from Micro-Measurements

- 新技术 Technology
- 微型直片 Miniature Linear Gages
- 压力膜片 Pressure Diaphragm Gages
- 全桥片 Full Bridge Gages



New Miniature Strain Gages from Micro-Measurements

Technology 新技术

新技术 Technology

- Micro-Measurements 开发出应变片新技术，可以增加阻值并减小栅丝尺寸。在1mm x 1mm的栅丝区域，我们可以制造出10K Ω 的应变片。

Micro-Measurements has developed technology that can increase the resistance value and reduce the grid area. In a grid area of 1mm x 1mm, we can manufacture a 10K ohm strain gage.

新技术 Technology

- 使用带有温度自补偿的镍铬（卡玛合金）箔材，使用与我们常规尺寸应变片相同的基底和树脂。

We are using Ni - Cr (Karma) foil with self-temperature compensation. The backing and the resin are the same as we use in our standard size gages.

新技术 Technology

- 新型应变片的灵敏度系数为**2.1**(标称值)，电阻误差为**0.2%**。

New gages have a gage factor of 2.1(nominal) and a resistance tolerance of 0.2%.

- 新型应变片以环氧(**E3**)涂层覆盖，仅裸露焊盘。

New gages are encapsulated with epoxy (E3) coating; only the solder pads are open.

- 此新技术适用于多种应用——微型直片、压力圆膜片、全桥片。

This new technology is appropriate for several applications – Miniature Linear Gages, Pressure Diaphragm Gages, Full Bridge Gages.



New Strain Gages from Micro-Measurements

Miniature Linear Gages

微直片

微直片 Miniature Linear Gages

- Micro-Measurements设计出新款高阻值微直片，可用于常规应用或微型应用行业。

Micro-Measurements has designed new high resistance miniature linear gages that can be used in standard applications or in miniature applications.

- 减小整个栅丝尺寸，但焊盘的尺寸仍保持在0.5mm x 0.5mm，故仍可手工焊接。

The total grid size was decreased, but the tabs were kept at 0.5mm x 0.5mm (20mil x 20mil) so that they can still be hand soldered.

微直片 Miniature Linear Gages

- 利用此技术，我们可以根据客户的应用需求，生产出各种类型的特殊的微型应变片。

With this technology, we can build miniature gages for all types of special gages used for customers applications.

微直片 Miniature Linear Gages

- 使用带有温度自补偿的镍铬（卡玛合金）箔材，使用与我们常规尺寸应变片相同的基底和树脂。

We are using Ni-Cr (Karma) foil with self-temperature compensation. The backing and the resin are the same as we use in our standard size gages.



Micro-Measurements

New Miniature Strain Gages from Micro-Measurements

Pressure Diaphragm Gages 压力膜片

压力膜片 Pressure Diaphragm Gages

- Micro-Measurements 已开发出微型的5000Ω直线型膜片。

Micro-Measurements has developed miniature 5000-ohm Linear Diaphragm Gages.

- 此应变片可提供4种不同的圆膜片直径：200、250、400和500mils。

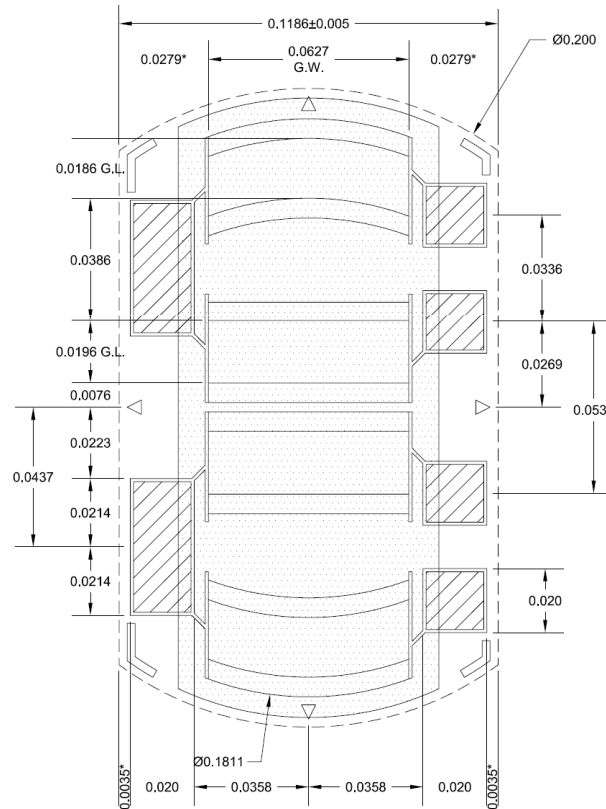
The gages are available for four different diaphragm diameters: 200, 250, 400 and 500 mils.

压力膜片 Pressure Diaphragm Gages

- 使用带有温度自补偿的镍铬（卡玛合金）箔材，使用与我们常规尺寸应变片相同的基底和树脂。

We are using Ni-Cr (Karma) foil with self-temperature compensation. The backing and the resin are the same as we use in our standard size gages.

压力膜片 Pressure Diaphragm Gages



5000 Ω
直线型圆膜片

5000-Ohm Linear
Diaphragm Drawing

* THESE MATRIX RELATED
DIMENSIONS ARE ± 0.0025

压力膜片 Pressure Diaphragm Gages

使用高阻值微型直线型膜片的优势在于:

- 更高的输出量
- 更低的桥路电流
- 直径小
- 成本低

The benefits of using high resistance miniature linear diaphragm gages include:

- Higher Output
- Lower Bridge Current
- Small Diameter
- Cost Reduction

压力膜片 Pressure Diaphragm Gages

- 更高的信号输出——相对于栅丝长的应变片，栅丝短使的应变片拥有更高的信号输出和更大的电阻。由于更高的信号输出，压力测量范围也可变得更高。

Higher Output – the short grid lengths give the gage design higher output and higher resistance compared to a gage with longer grids. As a result of the higher output, the pressure measuring range can be higher.

- 更低桥路电流——相对于典型的应变片具有更低的桥路电流，这点对于压力变送器和由电池供电的设备是很重要的。

Lower bridge current compared to typical strain gages – this is important in pressure transmitters and battery powered devices.

压力膜片 Pressure Diaphragm Gages

- 直径小——由于非常小的直径，这类应变片可以用于高压应用。

Small Diameter – as a result of the very small diameter, these gages can be used for high pressure applications.

- 成本低——微型直线型膜片较同类型单直片降低了组装成本（配线和粘贴）。

Cost Reduction – the miniature linear diaphragm gage reduces the assembly costs of equivalent single grid gages (wiring and bonding).



New Miniature Strain Gages from Micro-Measurements

Full Bridge Gages 全桥片

全桥片 Full Bridge Gages

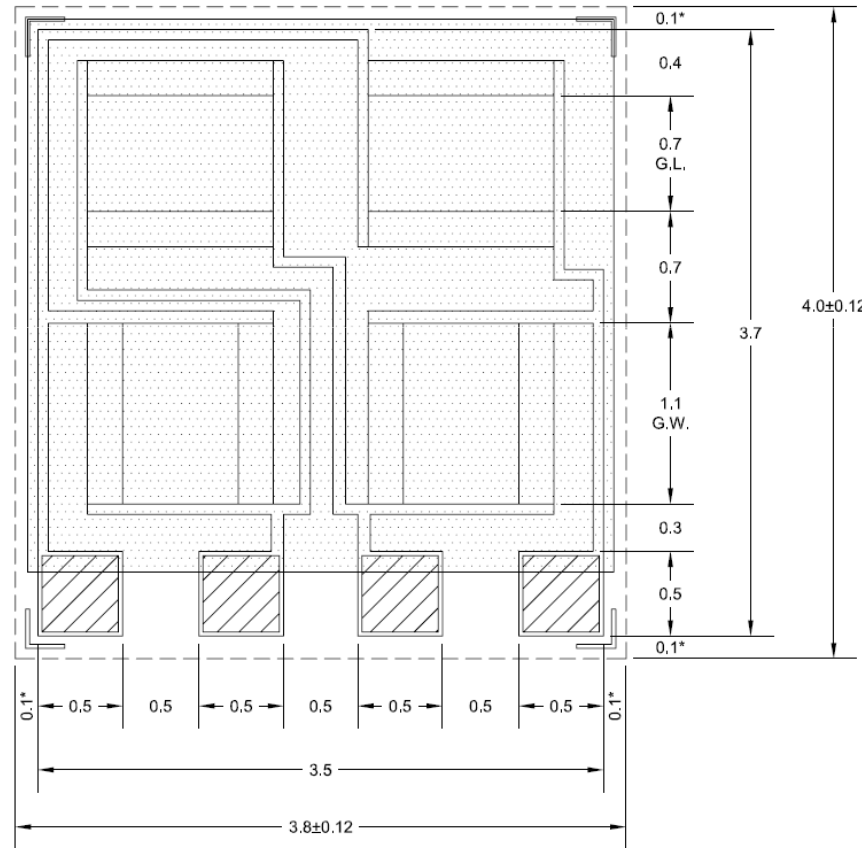
- 新的应变片技术可以用于高阻微型全桥片。
The New Gage Technology can be used for high resistance miniature full bridge gages.
- 5KΩ全桥片的尺寸为3.8mm x 4.0mm。
The size of the 5K full bridge is 3.8mm x 4.0mm.
- 每个栅丝调整为5KΩ ± 0.2%。
Each grid is adjusted to 5K ohms ± 0.2%.

全桥片 Full Bridge Gages

- 使用带有温度自补偿的镍铬（卡玛合金）箔材，使用与我们常规尺寸应变片相同的基底和树脂。

We are using Ni-Cr (Karma) foil with self-temperature compensation. The backing and the resin are the same as we use in our standard size gages.

全桥片 Full Bridge Gages



5000Ω
全桥片

5000-Ohm
Full Bridge
Drawing

全桥片 Full Bridge Gages

- 全桥片可用于不同的力测量应用。
Full Bridge Gages can be used for several different force measurement applications.
- **Micro-Measurements**还有一种带有栅丝导向的用于剪切力测量(45°)的全桥片。
Micro-Measurements also has a full bridge with grids oriented for shear force measurement (45°).



New Strain Gages from Micro-Measurements

- 衷心希望Micro-Measurements研发出的这些新款微型高阻应变片能有机会和贵司在上述这些特殊应用方面开展合作。

We welcome the opportunity to work with you on your specific applications for these new Strain Gages from Micro-Measurements.

- 谢谢！
Thank you.