Made in Ukraine

HPM High Precision measurements

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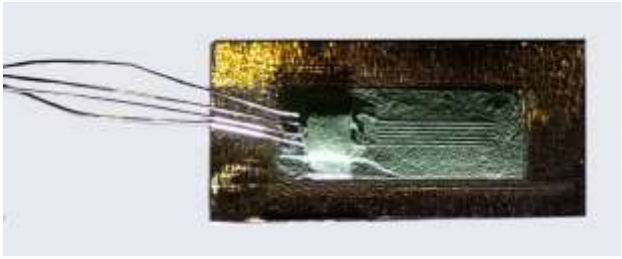
31-Oct-2022

WTN series weldable high temperature strain gages

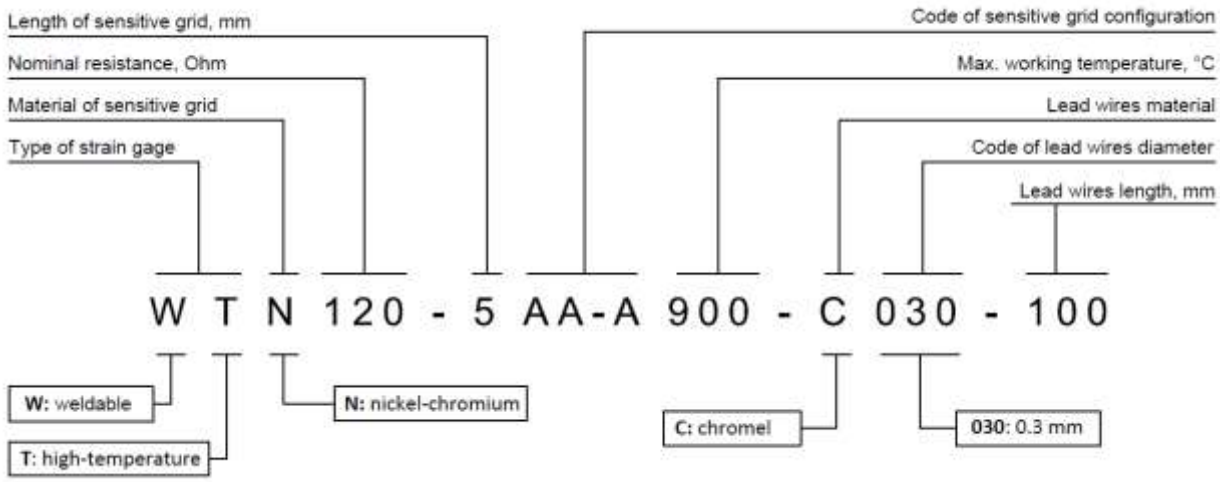
Product Datasheet

General information:



WTN series weldable high temperature strain gages are dedicated for measurements of deformations in the details of machinery and equipment under dynamic loads in -269…+900°C temperature range.
These gages are intended for installation in places where bonding with ceramic cements is not possible either due to complication in surface preparation (polishing, degreasing, etc.) or due to large dimensions of the test object (cannot be thermally treated for cement curing).
Construction-wise a WTN series strain gage is a STN series wire strain gage, installed on a small piece of thin metal foil with ceramic cement and protected with organosilicon varnish.
Sensitive grid of the gage is made of 20…30 um diameter nickel-chromium wire.
Backing material is an oxidation and corrosive resistant nickel-chromium superalloy. This material is selected to match the thermal expansion coefficient of the sensitive grid.
Sensitive grid is installed on the backing using high temperature ceramic cement, applicable for long-term operation at 900°C. Ceramic cement also acts as an insulator layer between backing and the grid. Cement layer is protected against humidity with an organosilicon varnish.
Lead wires are made in a 2-core chromel/alumel cable in silica braid sheath. Typical diameter of the cores is 0.3 mm, but can be changed on demand. Typical length of the lead wires is 100 mm.

Designation system:



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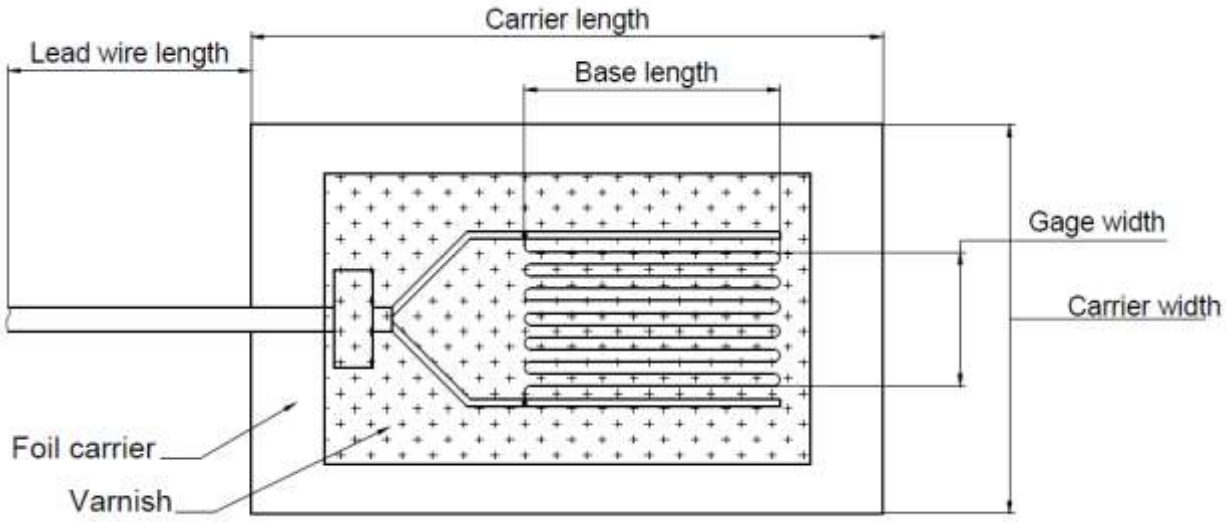
Schematic drawing:



Standard configurations:

Designation	Nominal resistance, Ohm	Nominal base length, mm	Nominal gage width, mm	Carrier length/width, mm	Lead wires length, mm
WTN120-3.5AA-A900-C030-100	120±3%	3.5	2.0	13.0 × 8.0	100.0*
WTN350-3.5AA-A900-C030-100	350±3%	3.5	2.6		

*Other lead wire length can be supplied on request

Installation method:

Spot welding (e.g. using SW-03 spot welding machine). Rough polishing of the installation surface is recommended if possible.

Packaging:

Individual strain gages are supplied on plastic or glass carriers, covered with protective plastic foil. Each strain gage is labelled with the actual electric resistance values.
Groups of strain gages are packed in plastic boxes in max. amount of 10. Each group packing has a label with the main parameters of the gages, including resistance range of the gages group, gage factor, production date, etc.
Batches of strain gages are packed in plastic containers. Each batch container has a label with all main parameters of the gages, general description, batch number and production date.

Fatigue life:

$1 \cdot 10^6$ at ±1000 microstrain at 300°C.

Shelf life and storage conditions:

6 months at +10~+40°C, 50% RH max.