

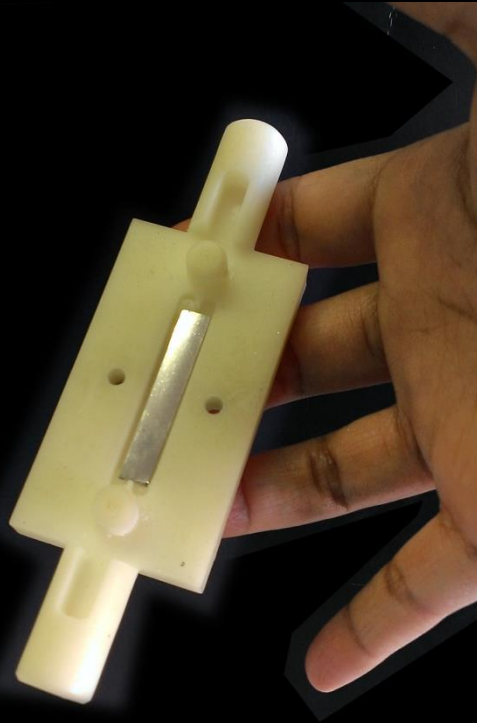
Project **SENSOSTRICTIVE**

Intrinsically wireless and passive microdeformation sensor

pr  mete



Description



Recent developments in the field of the magnetoelastic sensors make possible to obtain a new generation of magnetoelastic sensors completely wireless and passive (any power supply) to measure microdeformations.

The basic idea of this technological application is that – thanks to their intrinsic characteristics – the magnetoelastic sensors can be excited and interrogated by means of magnetic methods, without the use of wires nor the need for a dedicated power supply for each sensor, using only a single central apparatus complex but portable.

The unit cost of each sensor, so simplified in design, would be very low.

Technology readiness level

The current objectives consist in:

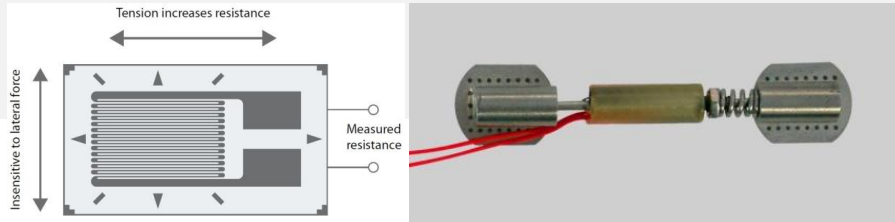
Prototype realization of a new class of low cost of microstrain sensors, wireless, passive (without need of power supply), and with the potential to "immerse" and abandon them in the structure to be monitored, and then interrogate them in remote.

Development of the excitation- receiving station for this new class of sensors.

Comparison

with other types of microstrain monitoring system

The resistive "strain gauge" or the vibrating wire sensors, are characterized by high costs



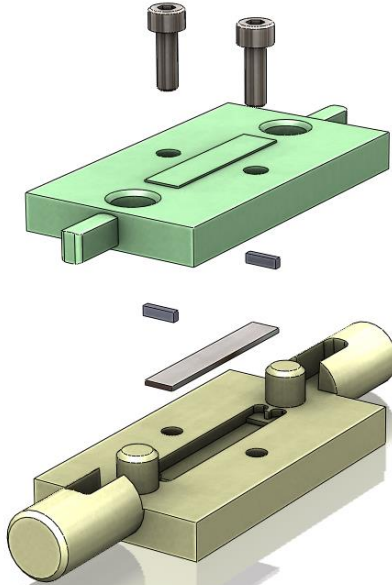
- only externally use
- not wireless
- needs power supply
- great difficulty of installation
- not working in autonomy,
- not suitable to be left "in situ",
- needs maintenance

The polymers for the external structure provide excellent resistance to mechanical stresses and to the degradation caused by the action of external agents, in hostile environment, too.

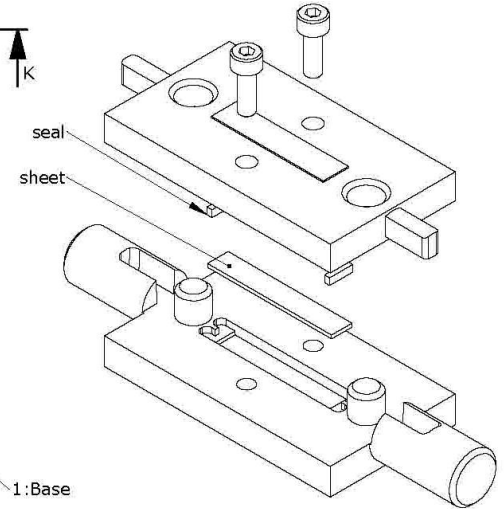
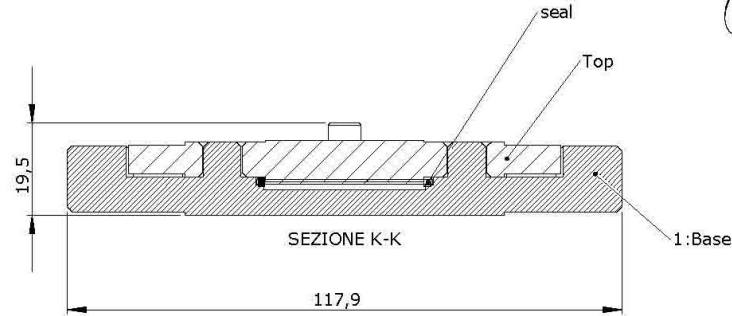
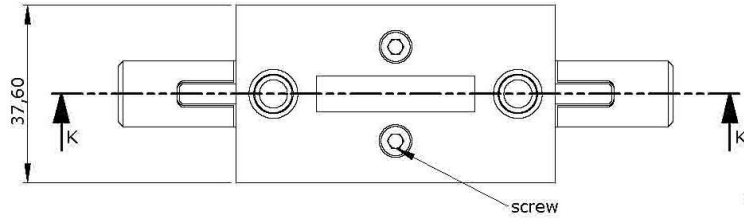
extremely easy and economical assembly.

- to use internally
- wireless
- is "passive", does not need power supply
- easy installation
- measure of local microstrain and their variation in time in complete autonomy
- does not need maintenance

From concept to engineering



Dim. 117 x 37,6 x 22mm
Weight 50 g
Volume: 0,05 L



Intellectual property

Italian patent

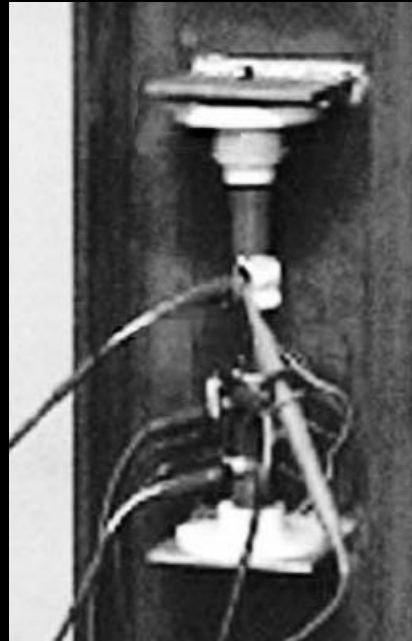
n. PD2001A000204:

"Sensore e metodo di misura di microdeformazioni statiche e dinamiche".

International patent

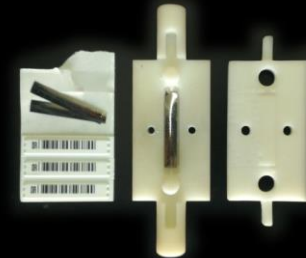
n. WO/2003/016891:

"Static and dynamic measurements method and sensor"



Italian Patent

Dimension 220 x75x75 mm



Sensostrictive 1.0

Dimension 117 x38x22 mm

Potential applications

In any situation where is required a microstrain monitoring system

materials lab
testing;
nondestructive
analysis;
static & dynamic
analysis
of components or
mechanical
systems in situ;
monitoring of
structural
components or
systems

outdoor/indoor
buildings



static & dynamic
analysis



cultural heritage



basement of
buildings



civil
infrastructures



materials science



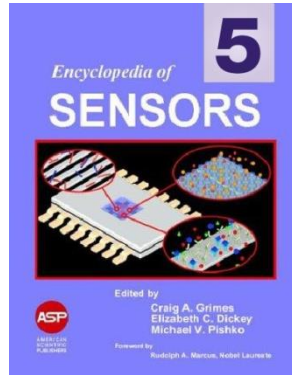
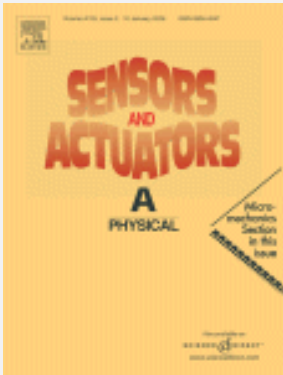
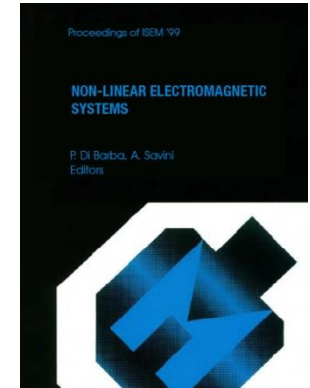
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