

Glass-insulated platinum microwire

Application area:

- as a heating coil in catalytic (pellistors) and conductometric sensors.
- in platinum resistance thermometers (for aggressive environments as well).



Glass-coating method: in this process, known as "Taylor-Ulitovski process", the platinum is placed into a glass tube (typically of high-silica glass) closed at one end and afterwards heated by a high-frequency inductor. The tube is heated until metal part is molten liquid and the glass of the tube has softened enough to be drawn into a fine glass capillary with a metal core. Thus, a microwire is formed, consisting of a central metallic core and a continuous glass shell. Received glass-insulated microwire is wound on a receiving coil for further storage and transportation.

The glass insulation not just improves thermal stability of the microwire, but also helps prevent the interaction of platinum with ambient atmosphere.

Advantages of glass-insulated microwire.

High-silica glass insulation allows isolate the platinum wire from the environment thereby stabilizing its thermal and electrical parameters.

To ensure electrical contact the glass insulation must be removed in hydrofluoric acid.

Main parameters

Nominal diameter of internal metal core, μm	10 \pm 2
Outer diameter of microwire (incl. glass insulation), μm	14-18
Resistance, Ohm/m	1000-1300
TCR of metal core per degree Celsius	(3,4 \pm 0,1) $\times 10^{-3}$
Glass insulation resistance Min, MOhm	100
Tensile strength, Min	0,5 g on 1 μm
Length range of microwire on the coil, m	10-500
Operating temperature range, C	- 60 \div + 850
Life time	Unlimited