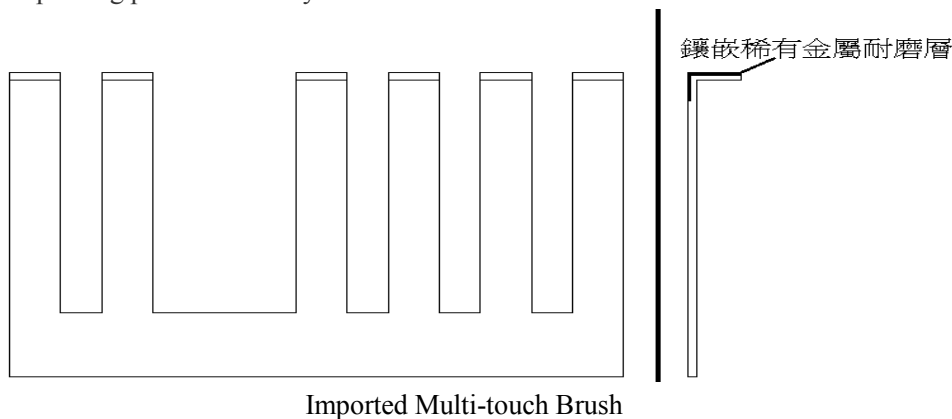


## MINOR Displacement Transducer Characteristics

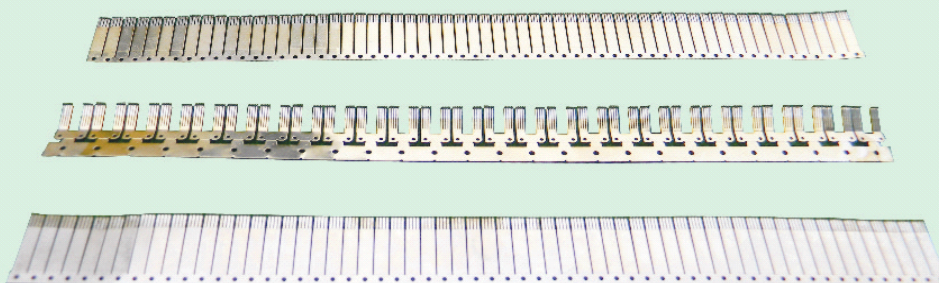
The joint efforts of the engineering and technical personnel of the Company, the MINOR series product being continue to improve by customers and the relevant departments of actual testing in the last seven years, performance and quality of our products have reached international advanced level. Therefor MINOR brand has a higher visibility in the industry.

MINOR series displacement sensor consists of five parts:

1. **Aluminum housing.** Surface anode electrophoresis, the internal structural designed by finite element analysis, high strength, flexural torsional capacity is outstanding. MINOR series products not only has the appearance of smooth, delicate touch, but also with strong corrosion resistance, field operations can be carried out without external protection status.
2. **Multi-touch brush.** The company has imported special composite material (rare metal brush material) of aviation from European, the brush was made through inlaying 0.03mm precious metals(It was laudatory named as metal diamond with high abrasion resistance, corrosion resistance and excellent electrical conductivity) on 0.07mm substrate material surface by the world top technology, effectively improve the brush wear and conductive properties. Multi-finger design to make the brush to keep strength and elasticity, aslo ensure brush always being connect well with the resistor substrate in vibration condition, this multi-contact safety design concept makes the contact resistance of minoxidil products always maintain a steady state lay a solid foundation for improving product linearity.



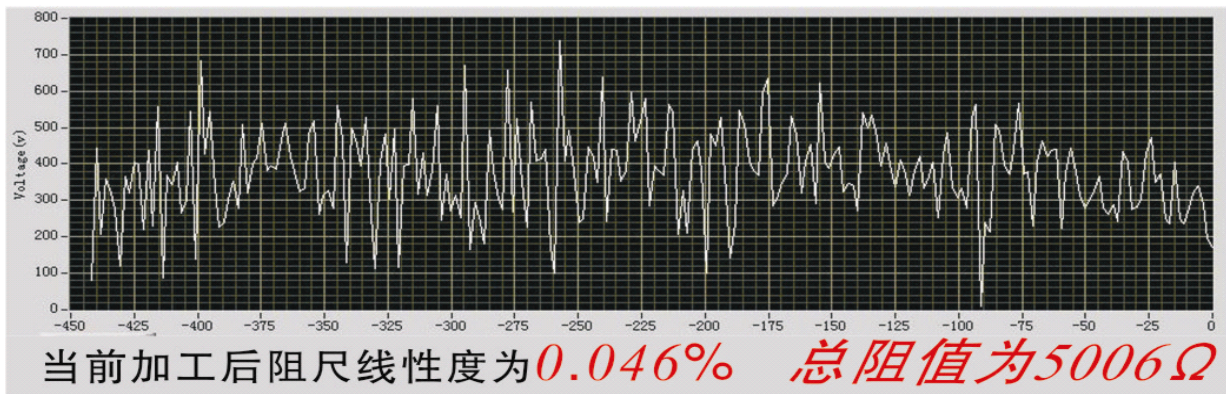
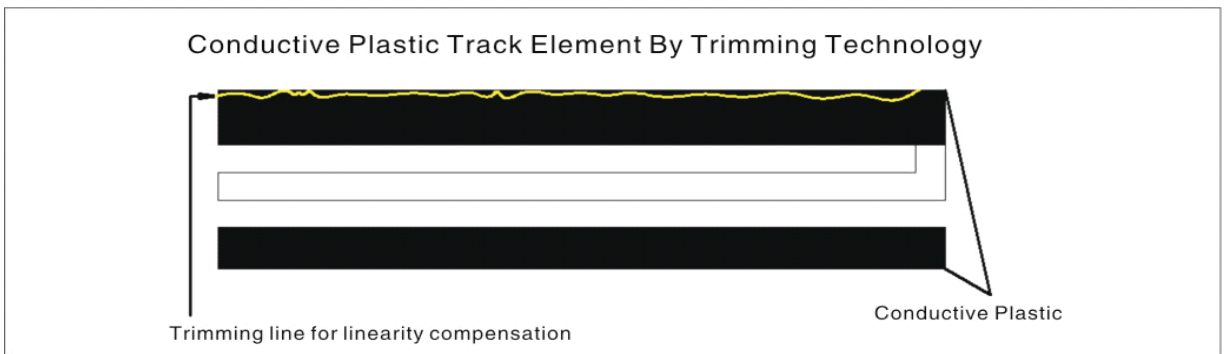
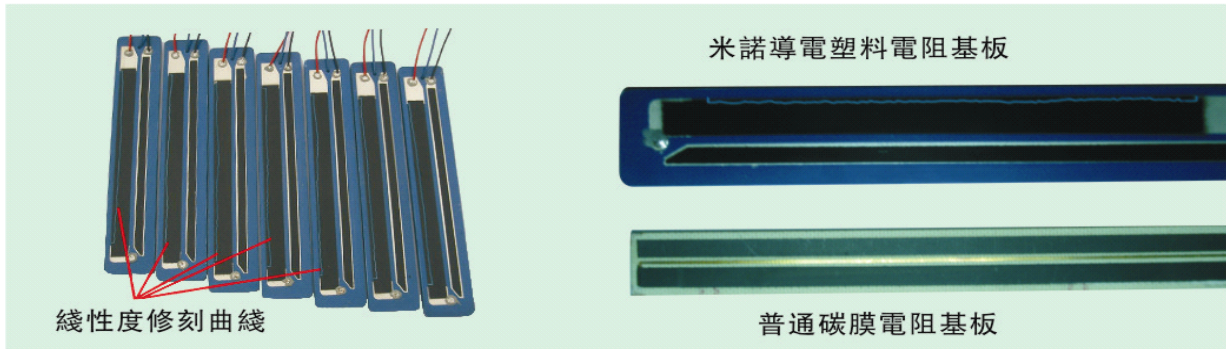
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3. **The resistance substrate.** It is the most important component to determine the product performance and quality. The operation mechanism of the resistive sensor determines the resolution of the product is infinitesimal. Minoxidil has been abandoned traditional printed carbon film resistors, but use conductive plastic technology in favor of the military level. The nature of the displacement sensor resistor substrate is a printed circuit, the maximum operating temperature must not exceed 90 ° C, the carbon film wear ability of the conductors of the printed circuit is not enough, running for some time, the product will generate a lot of wear and tear, not only changed the initial resistance, reducing the smoothness of the output signal, but also toner

adhesion on the brush leading to unstable output signal, the sampling noise, linearity plummeted. Mino's ultra-wearable conductive plastics completely overcome this shortcoming, the conductive plastic resistive substrate in 200 °C high temperature thermal polymerization molding, and after 96 hours of aging at 170 °C under the conditions of processing, without loss of output lines linearity and smoothness of the premise to ensure that the product has one hundred million times of operating life. Due to the resistance track is not high, can not meet the industrial demand for high precision, the linearity of resistance must be amended. The MINOR unique linear trimming technic can making our products has up to 0.03% output linearity and leading domestic counterparts.

**MINOR® 位移傳感器技術**



4. **Stainless steel rod.** The rod was connected flexible by using universal joints or ball coupling to compensate for part of the installation angle, reducing the accuracy requirements for installing, allowing the angle deviation of installation .
5. **Shafi sealing rings.** It is the main factor to determine the grade of product protection. We use two-way shaft sealing technology, raw material was good at oil proof, wear ability, seal performance, so our transducers has good effect at the dust, oil resistant and water proof performance, some of the products protection performance can up to IP66. While applying the principle of flexible cushioning effective buffer and absorb the strong vibration in the course of the displacement sensor.

## The Main Performance Comparison

Comparison Items	MINOR	Other	Comparison Result
Housing Material	Aluminium	Aluminium	same
Housing Material Processing	Anodic electroplating	-	MINOR products has beautiful appearance and better corrosion resistance
Brush Material	Imported precious metals	Common wear-resistant steel	MINOR products has better wear-resisting property
Brush Material Processing	Metal inlay	-	MINOR brush has the good wear resistance of contact part and high elasticity of non-contact part to ensure good contact
Resistance Material	Conductive plastic	Carbon film	MINOR conductive plastic has super wear resistance than carbon film
Resistance Material processing	Thermoplastic inlay	Printing	MINOR products resistance substrate has better smooth surface, stable running, low noise etc
Linearity Amend	CNC linear trimming	-	MINOR product linearity far more than the similar products, up to 0.03% and precise to ensure the amount of sol
Operating Life	100×10 <sup>6</sup> Cycles	Around million cycles	MINOR products working life is about 100 times than the others.