

# Be Miniature, Be Precision

**A shaft is smaller than an ant while a motor is thinner than an eraser. Imagine that. Downsizing components focuses on the details.**

With the constant development of 3C, the optoelectronic and biomedical industries, and domestic component manufacturing technologies keep upgrading and transforming accordingly. In recent years, portable, intelligent and versatile product trends have driven a rapid growth in precision manufacturing technology.

In 2003, MIRDC conducted pre-research in micro/meso manufacturing technology. It took three years to solve the heat dissipation and power system problems of mobile electronic products. In 2005, MIRDC successfully developed the first thin brushless three-phase DC motor in Asia. Another extraordinary result is the  $\Psi$  10mm miniature drive system, which has ten key components. With the miniaturized and easy-to-produce advantages, two components among them earned gold medals at the Nuremberg Invention Show respectively in 2010 and 2011. MIRDC acquired six domestic patents and 4 foreign patents for the system.

The slice motor technology enabled the Yen Sun Technology Corp. to develop the high-performance ultra-thin fan. If the technology can be applied to ultra-thin laptops or micro-projectors, it is expected to create production values of at least NT\$2 billion. Meanwhile, the research that resulted in a miniature drive system was applied in dental electric treatment

drive equipment instruments and supported the Codent Technical Industry Co. to become the first domestic manufacturer to develop dental handpieces.

In accordance with small quantity, large variety product demand, MIRDC developed a prototype machine for reconfigurable micro manufacturing equipment in 2012. MIRDC is currently cooperating with the Mindman Industrial Co. and other companies. In the future, MIRDC will work toward the hybrid features of micro progressive die and micro electrochemical machining. Meanwhile, MIRDC will promote R&D of equipment integration and production systems.

For the purpose of building a sound industrial environment similar to Switzerland's, and being able to manufacture high-quality and high-stability products in Taiwan, MIRDC will assist manufacturers through the localization of micro manufacturing technology, equipment and mold & die in order to lower production costs and shorten delivery times. In this way, related R&D capabilities can also be utilized in the development of other micro products, such as 3C and optoelectronics. It is estimated to create an annual production value of at least NT\$1 billion and lead traditional domestic industries in the march toward increasing profits.