

## The world's smallest 3-axis fibre laser marker

KEYENCE developed the world's smallest laser marker with a fanless architecture, the MD-F series. KEYENCE's unique fanless marking technology provides for more stability, increased productivity and more flexible mounting possibilities compared to conventional laser markers.

A fibre laser marker utilises a fibre optic cable that has been doped with Yb (Ytterbium) as a laser generating medium. The fibre laser doesn't require an amplifier and offers higher performance compared to solid-state lasers, making it possible to decrease the size of the marker. A high light conversion ratio allows for decreased power consumption compared to conventional laser markers.

The MD-F Series combines a high-power 30W output and naturally-cooled fanless marking unit by maximising the cooling effect using original technology developed by KEYENCE. This brings dramatic improvement in marking time and quality in most applications.

The MD-F Series has a built-in laser power monitor in this world's smallest marking unit. Thus, external devices are no longer necessary since it is now possible to do easy and accurate measurement of laser outputs without making contact with the equipment. This makes on-site preventive maintenance easy for any operator and will ensure that each mark is made with the same quality and consistency, regardless of the age of the marking head.

Precise 3D marking is possible on complex shapes with 3-axis marking controlled by the Z-axis scanner. With the 3D configuration software, marking on any target surface is easily programmed. The MD-F series plays an important role in every industry including the automotive, precision part manufacturing and medical industries. Precise 2D codes can be marked on automotive parts at high speed, which greatly contributes to improved productivity for management of manufacturing history and process controls. For precision metal components, it is ideal to produce easy to read, black markings. The MD-F series can generate highly-visible black markings while minimising surface damage. In medical industry with 2D codes on medical equipment, reliable distinct marks can be provided not only for the manufacturing history, but also for tracking equipment through the sterilisation process, usage history, storage and maintenance.

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