

Laser Marking + Engraving Solutions

FOBA®
Laser at your service



FOBA M2000-B

Advanced laser marking workstations for reliability and economic parts marking

The M-Series is FOBA's new generation of advanced laser marking workstations for the precise and economic processing of small, large and geometrically complex work pieces as well as small and large batches of parts. The M-Series is available in two sizes (M2000 and M3000) and with three model options each (B: with work table, R: with turntable, P: with axes X/Y/Z).

The laser marking workstation M2000-B is equipped with a programmable Z axis, a work table and an electric lift door. The manually loaded general-purpose marking machine is perfect for marking smaller and larger parts – among others in the automotive and tools and metal industries, mechanical engineering, medical technology or in plastic processing industries.



*Steering wheel housing: color
change on plastic | Ejector pins:
black marking on metal*

Your product benefits

- **Precision and process reliability:** highly rigid workstation (polymer concrete), intelligent imaging technology
- **Flexibility:** integration into customer processes, various laser systems available, accessories and options for optimal customization
- **Economy:** small footprint (1sqm), optimal accessibility, air-cooled laser systems
- **Ergonomics:** height-adjustable workstation for standing/seated work, individual adaption to user's needs





For precision and process reliability: Highly rigid workstation, intelligent imaging

The highly rigid construction of the M2000 workstation together with the patented vision alignment and verification system IMP (Intelligent Mark Positioning) ensure ultimate precision and process reliability. As a result, all marks and processings are executed precisely and with repeat accuracy.

Highly rigid polymer concrete workstation

The workstation's polymer concrete slab is float-mounted on the machine frame. As a result all M-Series workstations are insensitive to variations in temperature and vibrations and ensure ultimate **process reliability and stability**.

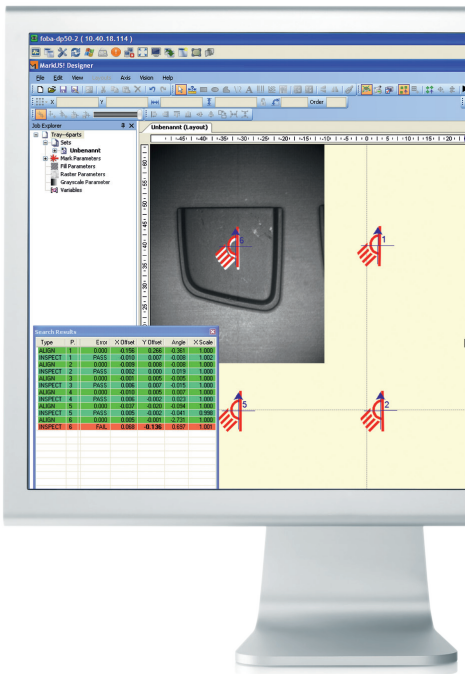
Automatic mark alignment and verification

The camera system IMP automatically detects work pieces and their positioning, and adjusts the marking/engraving accordingly. IMP also detects changes in the part geometry or position and defective or faulty components. Either the processing is re-aligned automatically or – in the case of parts with negative test results – completely skipped. The operator is informed with an error message instead. Thus, IMP ensures **less scrap and mismarked products**.

With its verification feature, IMP provides the capability to achieve **pre-mark or post-mark verifications**. The pre-mark verification feature prevents over marking already marked parts. The post-mark verification validates that the mark placement is accurate (position and orientation). This feature also helps check for poor contrast marks that can be caused by an early degradation of the laser performance or a change in material characteristics.

Verification report: Due to bumps on the surface of the raw material, part #6 failed the inspection, the Y position exceeded the 0.1mm tolerance.

Vision system FOBA IMP: Detects parts/positions, and aligns the processing automatically and precisely as required. Thus, IMP ensures consistent highest marking/engraving quality and accuracy without compromise.



More flexibility for individual processes

The M-Series adapts to the customer's laser process and not vice versa. The workstation provides the flexibility that is needed to design, extend, ensure and implement these laser processes.

- **Interfaces in the working chamber** of the workstation for the integration of auxiliary equipment or instruments (cameras, measurement devices, sensors, etc.) are available as an option
- **Flexible machine control** for the integration of additional process steps (quality assurance/control, etc.)

More efficiency in the smallest space

The minimal footprint (1sqm) and optimal workstation accessibility ensure more efficiency in the smallest space. The compact marking machine is designed for maximum utilization of space and optimal service and maintenance accessibility.

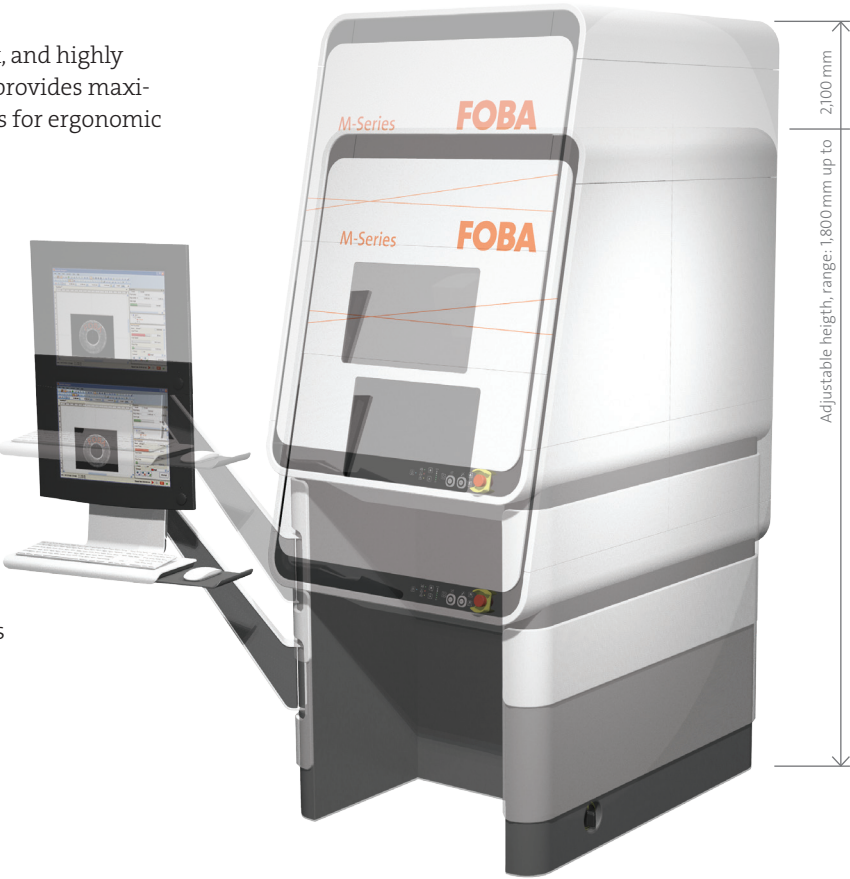
- Access for loading: from the front
- Access for service and maintenance: from the front and through all lateral doors (on both sides, in front and at the back)



More ergonomics for maximum ease of use

Designed for both standing and seated work, and highly adaptable to individual needs, the M-Series provides maximum ease of use and meets all requirements for ergonomic working:

- **Electrical height adjustment** for seated or standing work, each intermediate position is adjustable, height adjustment range: 750 – 1,050 mm.
- **Control panel** (with monitor, keyboard and computer mouse): workstation can be configured with panel on the left or right side of the machine.
- **Major control elements and status displays** are directly integrated in the front of the workstation to ensure optimal accessibility.
- **Complete machine room is accessible:** Loading from the front, workstation access (for service, maintenance) from the front and from all lateral doors.



FOBA M2000-B

Technical Data

Model Laser marking workstation with work table and programmable Z axis

Available Laser Systems (Extract)

Fiber laser markers Y.0100-fc, Y.0200-fc, Y.0300-fc, Y.0301-f, Y.0500-fc
Y.0100, Y.0200, Y.0300, Y.0301, Y.0500

UV marking laser V.0020-uv

Machine

Features Work table (700x375 mm), electric lift door
User interfaces Laser marking software FOBA MarkUS™
Axes Programmable Z axis

→ Travel 500 mm
 → Travel speed 15 mm/s
Dimensions 850x1,200x(1,800–2,100)* mm (WxDxH)

Footprint 1.02 m²

Working chamber 0.136 m³

Weight Approx. 600 kg**

Safety class → Laser class 1 (acc. to DIN EN 60825-1)

→ Supply room IP4x

Max. load 30 kg

Max. work piece size 680x400x500 mm (WxDxH)

Supply → Depends on workspace and utilized laser system

Electrical requirements 1/N/PE, AC 110/230 V, 50/60 Hz

Power consumption Depends on utilized laser system, < 2 kW

Temperature 15–35 °C (dependig on laser system also up to 40 °C)

Humidity 10–90 %, non-condensing

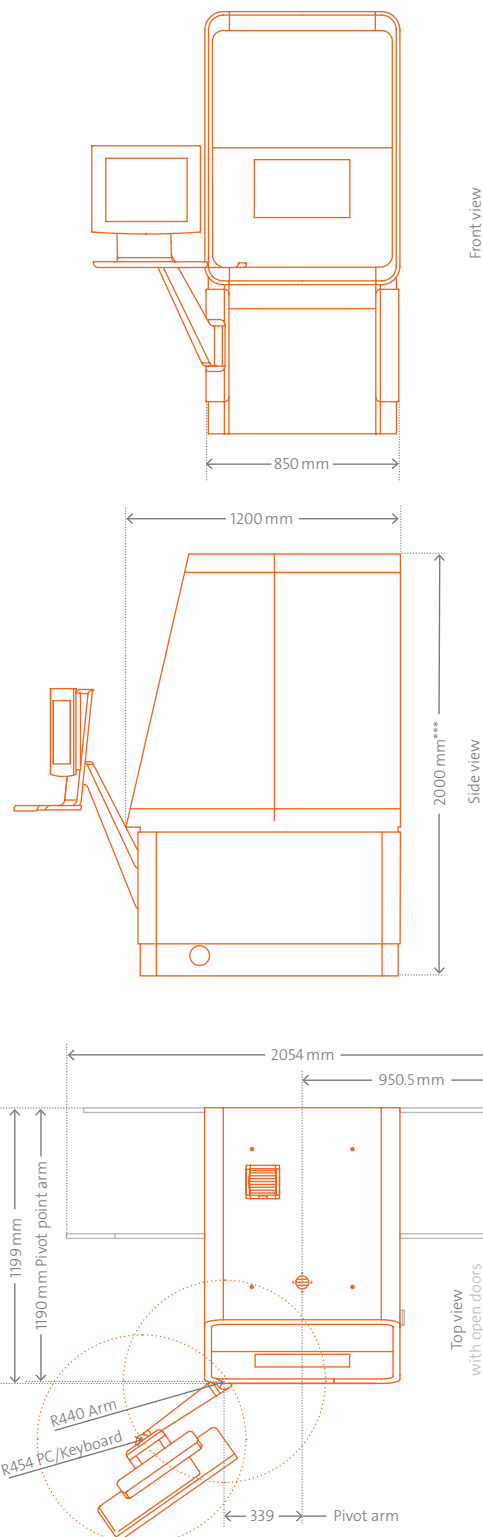
Options and Accessories

- Exhaust systems
- Vision systems
- Other axes on request
- Rotation axis
- Rotation/swiveling unit
- Interfaces for the integration of client processes

Available Workstations **Two housing sizes** for processing smaller (M2000) and larger (M3000) parts

Three workstation models

- with work table (M2000-B, M3000-B)
- with 2-station turntable (M2000-R, M3000-R)
- with three axes (X/Y/Z) (M2000-P, M3000-P)



* Height adjustment range ** Without laser and external components *** Height adjustable from 1,800–2,100 mm

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