Laser Marking +
Engraving Solutions

FOBA®
Laser at your service

M2000-/M3000-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 workpieces as well as small and large batches of parts. The M-Series is available in two sizes (M2000, M3000) and three model options each (B: with worktable, R: with turntable, P: with axes X/Y/Z).

The M2000-B and M3000-B laser workstations are equipped with a programmable Z-axis, a worktable 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 many plastic processing industries.

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

M2000-B *M3000-B*

The Basic models of the M-Series:
Large worktable, moveable Z-axis, high-precision markings

The M2000-B and M3000-B are the base models within the M-Series. Equipped with a spacious worktable and a programmable Z-axis, they are well suited for many applications. For marking on the circumference of cylindrical parts, a swiveling unit is available as an option. To ensure that all laser markings are applied accurately to each part, a high-precision calibration is an integral part of each machine.

Your product benefits at a glance

→ **Precision and process reliability:**
Rigid machine (polymer concrete) 1
Intelligent imaging technology 2

→ **Flexibility:**
Integration into customer processes 3
Various laser systems available 4
Accessories and options for optimal customization

→ **Economy:**
Small footprint (M2000-B: 1 m², M3000-B: 1.4 m²) 5
Optimal accessibility 6
Air-cooled laser systems 4

→ **Ergonomic workstations:**
Height adjustable machines for standing/seated work 7
Individual adaptation to user's needs 8

For precision and process reliability:
Rigid workstation, intelligent imaging

The rigid construction of the M2000 and M3000 laser marking workstations 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.

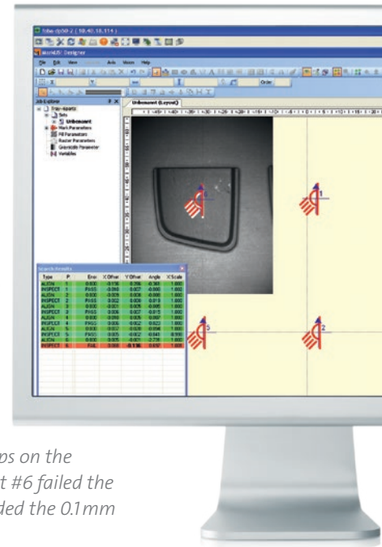
Rigid polymer concrete workstations

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 external vibrations and ensure ultimate **process reliability and stability**.

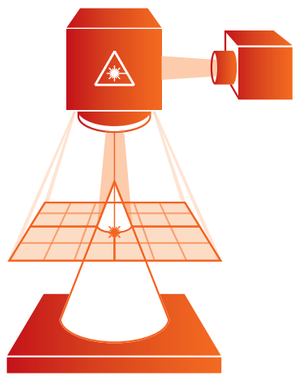
Automatic mark alignment and verification

The patented camera system IMP automatically detects workpieces 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 0.1 mm tolerance.



→ **IMP (camera system)**
The IMP vision alignment system, proven and tested in over one hundred installations, detects the positioning of areas and components to be processed, and adjusts the marking precisely as required.
Added value:
+ Exceptionally suited for automated batch processing
+ Consistently highest processing quality
+ Faster marking and finishing
+ Improved accuracy
+ Increased efficiency
+ Increased productivity
+ Drastically reduced scrap

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/ quality control, etc.)

More efficiency
in the smallest space

The minimal footprint and optimal workstation accessibility ensure more efficiency in the smallest space. The compact laser marking workstations are designed for maximum utilization of space and optimal service and maintenance accessibility.

→ Footprint M2000-B: 1 m²
Footprint M3000-B: 1.4 m²

→ Access for loading:
from the front

→ Access for service and maintenance:
from the front and through all lateral doors

M3000-B with open front door (electric lift door) and open lateral doors.

More ergonomics
for maximum ease of use

Designed for both standing and seated work, and highly adaptable to individual needs, the M-Series workstations provide maximum ease of use and meet 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
(lowest position: 1,844 mm, maximum position: 2,144 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.

Entire machine room is accessible
→ loading from the front
→ workstation access (for service, maintenance) from the front and from all lateral doors

Entire machine room is visible
→ both during and after the processing with the front door opened
→ evenly illuminated working area
→ large laser safety window for good visibility of the working area during processing (with the front door closed)

Height adjustment range for the M2000-B (the same height range applies for the M3000-B).

Technical Data

Model	Laser marking workstation with worktable and programmable Z-axis	
Available laser systems	**Fiber laser markers** Y.0100, Y.0200, Y.0300, Y.0301, Y.0500	
Workstation	M2000-B	M3000-B
Features	Worktable, Z-axis (590 mm), electric lift door	Worktable, Z-axis (590 mm), electric lift door
User interfaces	Laser marking software FOBA MarkUS	
Axes	Programmable Z-axis → Travel 590 mm → Travel speed 25 mm/s (1.5 m/min)	Programmable Z-axis → Travel 590 mm → Travel speed 25 mm/s (1.5 m/min)
Dimensions (W x D x H, mm)	850 x 1,205 x (1,844 up to 2,144)*	1,200 x 1,205 x (1,844 up to 2,144)*
Footprint (m^2)	0.95	1.36
Working chamber (m^3)	0.136	0.2
Door opening (W x H, mm)	620 x 450	970 x 450
Weight** (kg)	approx. 630	approx. 650
Safety classes	→ Laser class 1 (according to DIN EN 60825-1) → workspace IP20, supply room IP4x	
Max. load (kg)	50	50
Max. workpiece size (W x D x H, mm)	620 x 380 x 450	970 x 380 x 450
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 | Humidity	15 – 35 °C (depending on laser system also up to 40 °C) | 10 – 90 %, non-condensing	
Options/accessories	→ Exhaust systems → Vision systems → Other axes on request → Rotation axis → Rotation/swiveling unit → Interfaces for the integration of client processes	

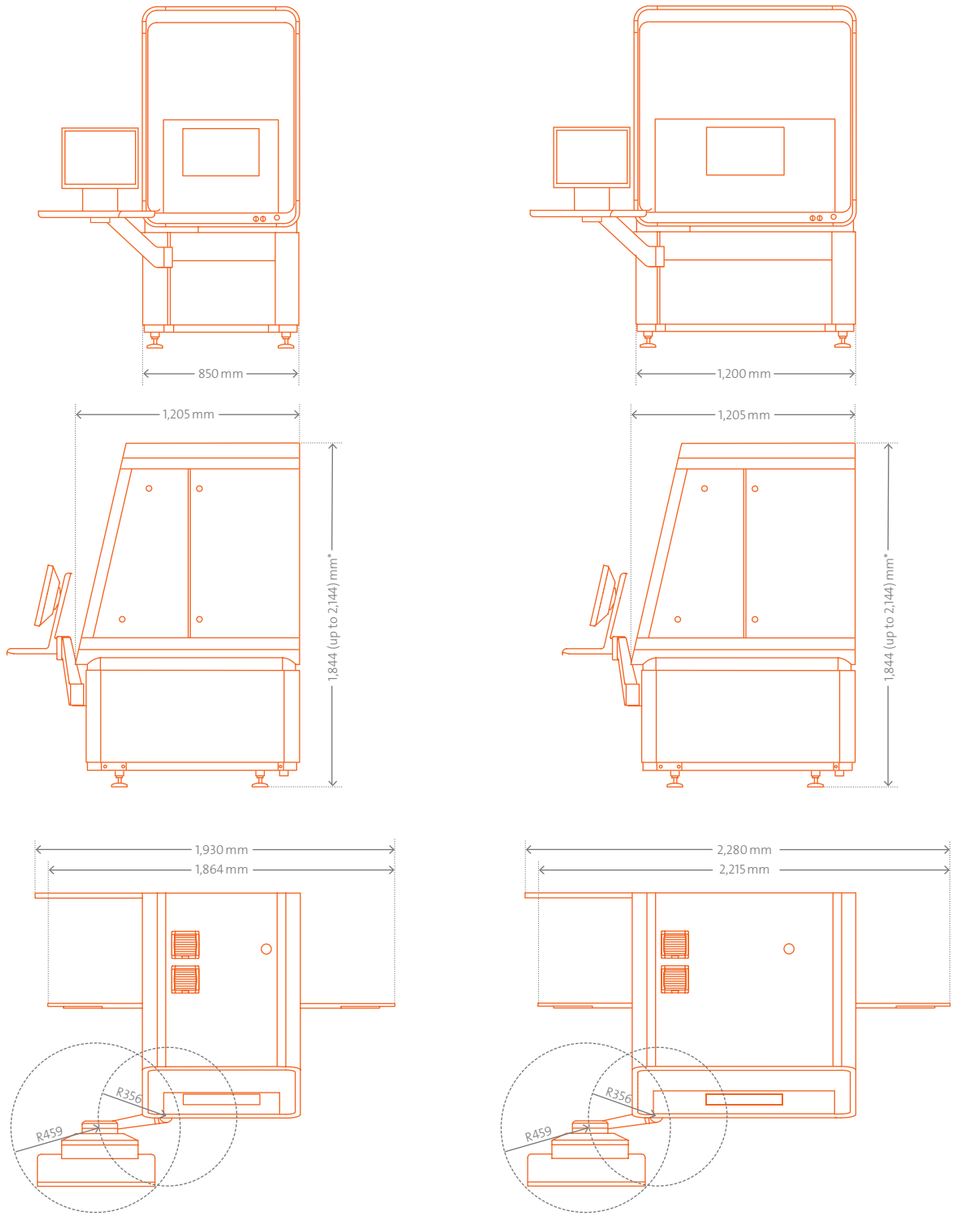
* Height adjustment range (incl. feet) ** Without laser and external components

Available Workstations FOBA M-Series

Two housing sizes	for processing smaller (M2000) and larger (M3000) parts
Three workstation models	→ with worktable (M2000-B, M3000-B) → with 2-station turntable (M2000-R, M3000-R) → with three axes (X/Y/Z) (M2000-P, M3000-P) > can be extended up to five axes as an option

Dimensioned Drawings

M2000-B	M3000-B



Front view

Side view
* Heigth adjustable from 1,844 – 2,144 mm (incl. feet)

Top view
with open doors

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M2000-B and M3000-B
Lookbook

Top: M2000-B
Center: M3000-B
Bottom:
→ M2000-B height adjustment range (minimum and highest position)
→ M3000-B height adjustment range (minimum and highest position)

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