Laser Marking +
Engraving Solutions

FOBA®
Laser at your service

Product Overview

Systems, Workstations and Vision-Assisted Workflows for Laser Marking and Engraving

Laser Marking Systems

For integration into production systems, lines, special machines or FOBA laser marking/engraving machines

	Fiber laser (Yb)	Fiber laser (Yb)	Fiber laser (Yb)
Power classes in Watts	20	20, 30	10, 20, 30, 50, 100
Wavelength in nm	1,060 – 1,070	1,060 – 1,070	1,060 – 1,070
Stimulation mode	Diode-pumped	Diode-pumped	Diode-pumped
Products	Fiber laser marker: FOBA Y.0200-S	FOBA Titus™ (Y.0200-xs, Y.0300-xs)Fiber laser markers: FOBA Titus™ (Y.0200-xs, Y.0300-xs)	markers pulsed: FOBA Y.0100, Y.0200, Y.0201, Y.0300, Y.0500, Y.1000, Y.0201-DN Fiber laser

FOBA Y-Series (90°, 0°)

	Gas laser (CO2)	Vanadate laser (Nd:YVO4) - UV	Vanadat-Laser (Nd:YVO4) - GR
Power classes in Watts	10, 30, 60	4	10
Wavelength in nm	10.600, 10.200, 9.300	355	532
Stimulation mode	Diode-pumped	Diode-pumped	Diode-pumped
Products	Gas laser markers: C.0102, C.0302, C.0602, C.0303	UV laser marker : V.0042-uv	Green laser marker: V.0102-gn

	Ultrashort Pulse Laser (USP)
Power classes in Watts	10
Wavelength in nm	1030
Stimulation mode	Diode-pumped
Products	F.0100-ir

Machines for Laser Marking and Laser Engraving

Turn-key, customer-specific configured manual workstations or special machines for laser marking and engraving

	M1000	M2000-B, M3000-B
Basic laser markers for integration	Fiber laser markers: Y-Series Vanadat Laser: V-Series	Fiber laser markers: Y-Series Vanadat Laser: V-Series Ultrashort Pulse Laser: F.0100-ir
Features	Contact area: 450 x 250 mm	Worktable, electric lift door (option: backlight)
Work piece weight	Max. 25 kg	Max. 50 kg
Protection class	Laser class 1	Laser class 1
Axes	Programmable Z-axis with 290 mm hub (rotation axis as an option)	Laser marking workstation with worktable and programmable Z-axis (options: rotation axis and rotation/swivel unit)

	M2000-P, M3000-P	M2000-R, M3000-R
Basic laser markers for integration	Fiber laser markers: Y-Series Vanadat Laser: V-Series Ultrashort Pulse Laser: F.0100-ir	Fiber laser markers: Y-Series Vanadat Laser: V-Series (only M3000-R) Ultrashort Pulse Laser: F.0100-ir (only M3000-R)
Features	Programmable axes (X, Y*, Z), electric lift door (option: backlight)	2-position rotary table (option: backlight)
Work piece weight	Max. 30 kg	2 x 10 kg
Protection class	Laser class 1	Laser class 1
Axes	Laser marking workstation with programmable axes X, Y, Z (options: rotation axis and rotation/ swivel unit)	Laser workstation with 2-position rotary table and programmable Z-axis, other axes on request

*not available in combination of M2000-P with Y-series or F.0100-ir

Accessories and Options

Extensive options for more flexibility and broader application

Accessories

- → Fume exhaust systems for a broad range of application requirements
- → Laser safety accessories such as laser safety goggles and windows

Special Options

- → **For medical manufacturers:** vision-assisted laser marking workflow solution for medical part marking, IQOQ, MQ
- → **For manufacturers of Day & Night design parts:** special exhaust option, air knife, backlight

General Options

- → Positioning options (for linear and rotary movement, height-adjustable work piece supports, etc.)
- → Marking head options for a broad range of application requirements
- → Lens options to accommodate different marking field, working distance and line width requirements
- → Usability options (pilot laser, Autofocus for M-Series)
- → Data integration options (digital I/O's, external order selection, PROFINET, Profibus/TCP/IP, EtherCAT)
- → Custom software solutions

Software

Software programs for a fully-automated and smooth production process

UIs for Laser Marking and Engraving	Special Features and Options	User Interface
FOBA MarkUS for complex applications	Creation and production of marking contents. MarkUS includes the axis control. **Vision:** For part detection, mark alignment, mark verifi cation and code validation, MarkUS can be interfaced to the camera systems IMP and Point & Shoot. **MOSAIC:** Enables fixtureless part marking through full-field imaging.* Operators can place the part anywhere under the laser in any orientation. The mosaic image of the part, created within a second, is used to validate the part presence, its identity and align the mark content to match the part position. Available with IMP (Intelligent Mark Positioning) only.	
FOBA GO for remote control and simple marking	Creation and production of marking contents with free form editor for web/browser-based operation of FOBA marking lasers. Software installation or a PC are not needed. Super easy remote laser operation from virtually anywhere: Either locally with the optional FOBA Touch display, or on the "go" using a common mobile device such as a tablet or smartphone.	
FOBA Draw (Smart Graph) for general and moving applications	Creation and production of marking jobs. Especially suited for mark-on-the-fly applications and general marking applications (serial numbers, barcodes, 2D codes).	

*patent pending

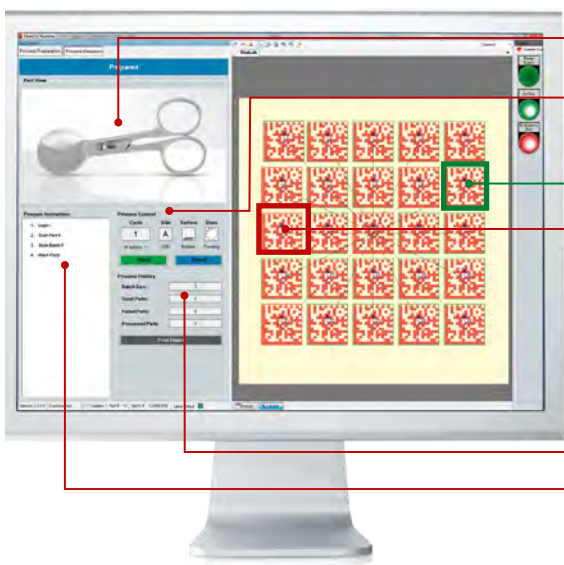
PlugIns

FOBA Advanced Operator PlugIn: minimalistic GUI for the fast, safe and reliable laser marking of all sorts of products, parts and devices.

Custom Software Solutions

A variety of **remote options** is available to log in, to diagnose, configure and program the laser marking system – depending on the customer provided infrastructure and access.

Customer-specific software for laser marking and laser engraving applications



Part preview for error reduction
Operator information

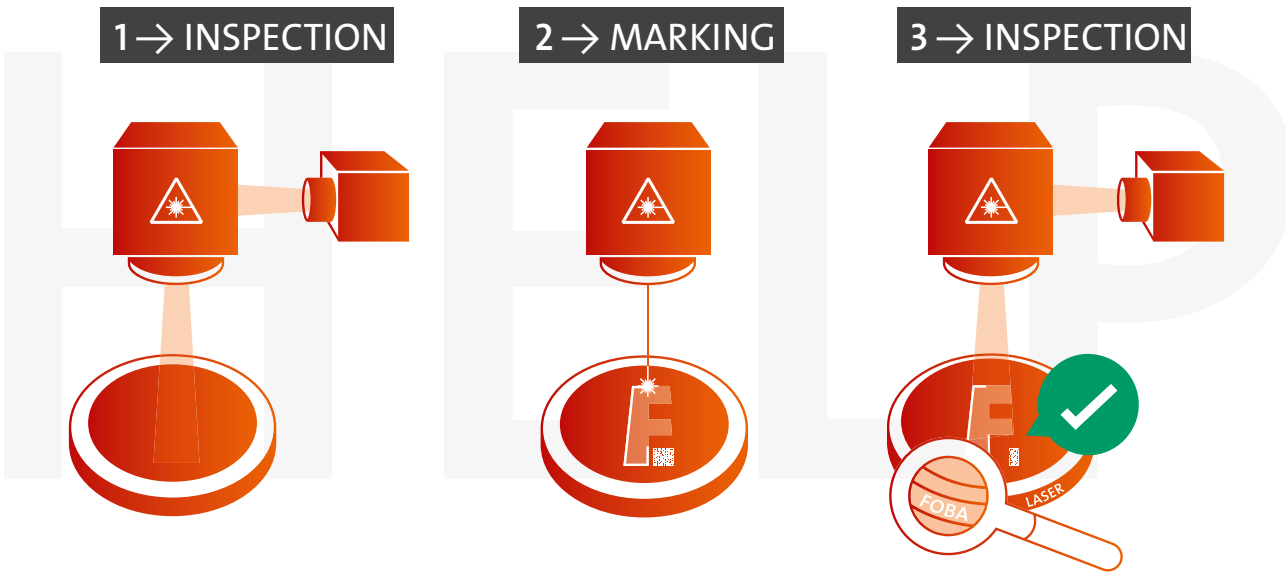
Direct visual verification
feedback (good and bad parts)

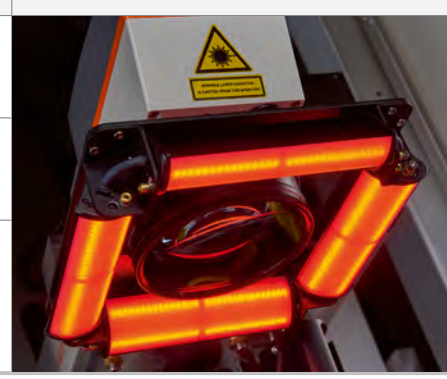
Information on the processing status
Operator instructions and user guidance

Vision Systems and HELP (Holistic Enhanced Laser Process)

Focused on precision, economy, and marking and engraving quality without compromise

Intelligent Mark Positioning IMP for Automatic Operations	Point & Shoot for Manual Operations
Automatic visual component detection and marking/engraving alignment.	Visual-manual alignment tool for marking and engraving contents.
Perfect for automation.	Perfect for high-quality work pieces and individual part production.
Patented vision system that automatically detects the position of the work piece and aligns the marking, engraving or frosting content precisely as required.	Visual positioning system for the marking content. With the camera focused on the product, the user creates the marking content and places it (via drag & drop) precisely where it should be applied.
Quality control: Advanced optical verification of the final laser marking content (character, graphic or 2D code) and its position.	Speeds up operations by reducing setup times and time-consuming trial-and-error processes.



HELP (Holistic Enhanced Laser Process)		
HELP is a holistic vision-assisted laser marking process that offers part and mark validation prior and right after marking. HELP helps to avoid marking errors and is capable of validating laser contents right after marking. This is particularly important for users with strict quality and code integrity requirements.		
1: Pre-mark verification	**2: Laser marking (product identification)**	**3: Post-mark verification**
Part validation: Validates correct part and prevents marking of wrong or defective parts.		**Mark verification:** Validates that marks have been placed correctly (positioning, alignment, size).
Pre-mark verification: Confirms that only unmarked parts are being processed.		**Optical Character Verification (OCV):** Validates that every character marked by the laser matches the expected content.
Mark alignment: Aligns the mark relative to the position of the part.		**2D code validation and code reading:** Reads the contents of 1D and 2D codes (Datamatrix, e.g. ECC 200, GS1; QR) and compares the results to the expected content. A classification of the code into quality classes is included.

Professional Service

Consulting

Good advice, long-term benefits.
Our key to your success.
→ Sustainable consulting → System configuration
→ After-sales consulting → Experienced sales, service and project engineers → Focus on partnership

Guaranteed and direct

Everything from one source. Always up-to-date.
→ International manufacturer service
→ Manufacturer warranty on all original parts and services
→ Transparent and fair rates
→ From one source: application consulting, installation, training, tech support, spare parts, maintenance, repairs
→ Always up-to-date with the latest hardware and software

Application Consulting

Applied expertise.
→ Detailed marking, engraving and material tests
→ Recommendations on laser and system specifications
→ Individual application studies
→ Cutting-edge laser application labs

Tech Support & Repair Service (RMA)

Fault detected, problem eliminated.
→ Reliable repair service with our proven RMA process: Return Material Authorization
→ Global network of local service technicians
→ Spare parts → Installation → Maintenance → Preventive services for more production reliability, smooth operation and less downtime → 24/7 Self Service Portal

Hotline & Spare Parts Service

Your direct link to our experts.
Quick replacement. More productivity
→ Prompt support → Service hotline across all time zones
→ Error analysis → Initial support → Spare parts consulting
→ Global spare parts storage for fast availability and more productivity → Manufacturer warranty on all original spare parts and services

Maintenance

Individual maintenance concepts.
→ Maintenance and inspection concepts that can be customized
→ Repairs and exchange of system components
→ For optimum system availability → Less downtimes
→ Preventive support

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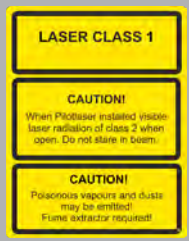

Laser class 4