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)		Gas laser (CO2)	Vanadate laser (Nd:YVO4) - UV	Vanadat-Laser (Nd:YVO4) - GR
Power classes in Watts	20	20, 30	10, 20, 30, 50, 100		10, 30, 60	2	7, 14
Wavelength in nm	1,060 – 1,070	1,060 – 1,070	1,060 – 1,070		10,600; 10,200; 9,300	355	532
Stimulation mode	Diode-pumped	Diode-pumped	Diode-pumped		RF-excited	Diode-pumped	Diode-pumped
Products	Fiber laser marker: FOBA Y.0200-S	Fiber laser markers: FOBA Titus™ (Y.0200-xs, Y.0300-xs)	Fiber laser markers pulsed: FOBA Y.0100, Y.0200, Y.0201, Y.0300, Y.0500, Y.1000, Y.0201-DN		Gas laser markers: C.0102, C.0302, C.0602	UV laser marker: V.0020-uv	Green laser marker: V.0071-gr, V.0141-gr

FOBA Y.1000

FOBA Y.0200-S

FOBA Titus™

FOBA Y-Series (90°, 0°)

FOBA C.0102, C.0302, C.0602

FOBA V.0020-uv

FOBA V.0071-gr, V.0141-gr

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 (M3000-B UV)		M2000-P, M3000-P (M3000-P UV)	M2000-R, M3000-R
Basic laser markers for integration	Fiber laser markers: only Y-Series	Fiber laser markers: Y-Series UV laser marker: only available for M3000-B		Fiber laser markers: Y-Series UV laser marker: only available for M3000-P	Fiber laser markers: Y-Series
Features	Contact area: 450 x 250 mm	Worktable, electric lift door (option: backlight)		Programmable axes (X, Y, Z), electric lift door (option: backlight)	2-position rotary table (option: backlight)
Work piece weight	Max. 25 kg	Max. 50 kg		Max. 30 kg	2 x 10 kg
Protection class	Laser class 1	Laser class 1		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)		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

Software

Software programs for a fully-automated and smooth production process

UIs for Laser Marking and Engraving	Special Features and Options
FOBA MarkUS for complex applications	Creation and production of marking contents. MarkUS includes the axis control. **Vision:** For part detection, mark alignment, mark verification 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).

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

*patent pending

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.

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

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