SMARTMARK® LASER
PRODUCT CATALOG

MECCO®

Why MECCO? Our vast industry experience means that whatever your needs - whether OEM, benchtop, or turnkey solutions - we deliver. Unlike other laser marking manufacturers, we listen to your challenges and devise solutions tailored specifically to your needs.

Together, we forge a working partnership that saves you time, money and resources, so that you can focus on doing what you do best.

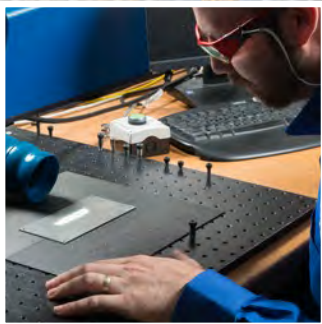## TABLE OF CONTENTS

MADE IN THE USA

THE MECCO EXPERIENCE
INNOVATIVE RELATIONSHIPS, INNOVATIVE SOLUTIONS.

At MECCO, we are powered by one word: innovation. We believe that in order to deliver the very best in industrial product marking and identification systems, we must provide relationships and solutions that are grounded in innovation.

ENGINEER   TEST   BUILD

How do we do it? It all begins with our culture, one that is built around honest communication, win-win scenarios and designing success. It comes to life through our quality-built equipment, responsiveness to your needs, and turnkey marking systems that can't be beat. You and your company gain when you choose The MECCO Experience.

www.mecco.com

ONE CLICK, ONE CALL GETS IT ALL

When you work with us, we address your full-scale needs so that you don't have to turn to multiple suppliers. With just one call, we'll get it all and get it right. And with our steadfast emphasis on high quality manufacturing and integration, you can expect peace of mind every step of the way.
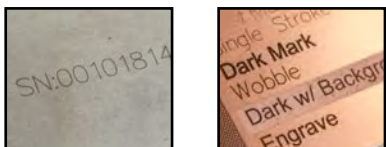
3

SMARTMARK®
LASER MARKING SYSTEMS

Simplified Marking And Real-time Traceability

SMARTmark Systems are used to etch or engrave serial numbers, barcodes and other information for the purpose of product identification and traceability. Our configurable laser equipment–focused on delivering "Simplified Marking And Real-time Traceability"–are most often chosen by customers because of the quality of the equipment and the mark it produces.

| FIBER LASER	TIBURON LASER	CO2 LASER
1064 nm wavelength: Fiber lasers use an optical fiber doped with rare earth elements such as ytterbium. They are versatile marking systems that mark the widest variety of parts.	1064 nm wavelength: A Diode-pumped laser with patented diodes pumping YAG Crystal, using high peak power which is ideal to mark plastics and removing paint or anodization.	10600 nm wavelength: The CO2 Laser is a carbon dioxide continuous wave laser that is ideal for marking wood, glass, plastic and rubber.
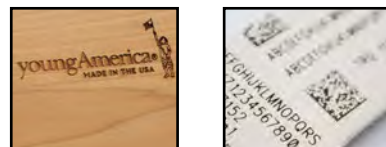
CHOOSING A LASER SOURCE

Choosing a laser begins by picking the source that works best for your application.

Material (Type of Mark)	FIBER	TIBURON	CO2
Steel (Anneal)	★	✓	✕
Steel (Etch)	★	✓	✕
Steel (Engrave)	★	✕	✕
Copper (Dark Mark)	✓	★	✕
Copper (Etch/Cut)	★	✕	✕
Aluminum (Etch)	★	✓	✕
Aluminum (Engrave)	★	✕	✕
Anodized Aluminum	✓	★	✓
Plastic	✓	★	✓
Ceramic	★	✕	✓
Brass	★	✓	✕
Glass	✕	✕	★
Cardboard	✕	✕	★
Wood	✕	✕	★

★ Best Option ✓ Will Mark ✕ Will Not Mark

BENEFITS OF LASER MARKING

Lasers create a permanent and durable mark using a variety of application methods such as engraving, carbon migration, annealing, layer removal and discoloration. Reasons for choosing a laser over other technologies include speed, high resolution, high contrast, no contact, and minimal consumables.

LASER SAFETY

Avoid eye or skin exposure to direct or scattered radiation from this product. Consult with one of our laser product engineers to discuss safety measures for your facility. Class I laser-safe enclosures and integration options are available in a range of sizes. For a Class IV workstation, laser safe eye protection or shields must be used.

INTEGRATING & USING YOUR
LASER MARKING SYSTEM

*Your Guide to Positive Outcomes 'Beyond the Mark'*

We believe that one size doesn't fit all. So when we work together, we don't start by pushing a product. Instead, we work to find the right solution for you by addressing high-level issues:

» What do you need your traceability system to do?

» How will it integrate with the rest of your business?

» How does it need to be used to achieve optimal results?

It is with this methodology that we're able to provide a solution that is designed to work for you, setting up your long-term success.

Starting with traceability and how it integrates with your operations leads us down a better path to product selection. As we discuss how data will be sent back and forth, we can start to map out the needs of your laser marking system.

Manufacturers have relied on us to collaborate, problem-solve, and transform what's possible in marking and traceability ever since 1889. You'll find that when you talk, our team listens. Then we foster working relationships that save you time, money, and resources–while you can focus on doing what you do best.
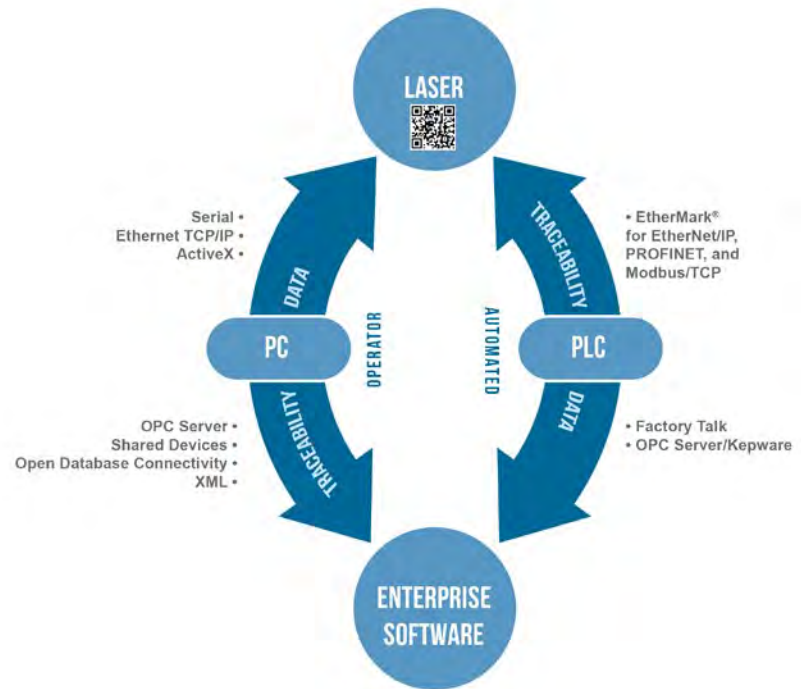
OPERATOR VS AUTOMATED: THE TWO WORLDS OF LASER INTEGRATION

In typical manufacturing environments, a laser is either communicating with a PLC or a PC to transmit or receive traceability information.

In both environments, the communication protocols can vary depending on manufacturing systems. MECCO's traceability solutions are easily configurable and flexible for integration to the manufacturing floor and the enterprise software.

SUPPORTED COMMUNICATION PROTOCOLS
FROM LASER MARKING SYSTEM(S)

To PC:	To PLC:
• Serial	• EtherNet/IP
• Ethernet TCP/IP	• PROFINET
• ActiveX	• Modbus

SUPPORTED APPLICATION INTERFACES
TO ENTERPRISE SOFTWARE

From PC:	From PLC:
• OPC Server	• Factory Talk
• Shared Drives	• OPC Server
• ODBC	
• XML	

TRACEABILITY FOR
THE CONNECTED FACTORY

Connect Track-And-Trace with Your Enterprise

To overcome today's industrial challenges, manufacturers need to work smarter by connecting the factory. They need to increase efficiency, reduce costs, and increase quality. All of these goals can be accomplished using an integrated track and trace system.

Most factory equipment like robotics and vision systems are controlled through programmable logic controllers (PLCs). These systems communicate directly with the PLC using EtherNet/IP to automate processes in assembly lines.

Laser marking part information in barcode or human readable form is the critical component for achieving traceability, but it has historically required proprietary Application Programming Interfaces in order to communicate. This resulted in 30 to 80+ hours of custom programming.

OPTIMIZING CONNECTIVITY TO ENSURE DATA INTEGRITY

EtherMark® provides direct communication from the PLC to the laser marking device. Now that laser marking equipment, via EtherMark, is connected to the factory floor, it becomes easier to implement a traceability system and obtain the benefits of cost reduction and increased efficiencies.

This EtherMark technology enables much faster initial deployment, simpler maintenance and fewer potential points of failure in communication. As an ODVA certified device, Add-On Profiles and Add-On Instructions reduce the programming time from 30+ hours to as little as 8 minutes.

## CONNECTIVITY IN THE AUTOMATED FACTORY
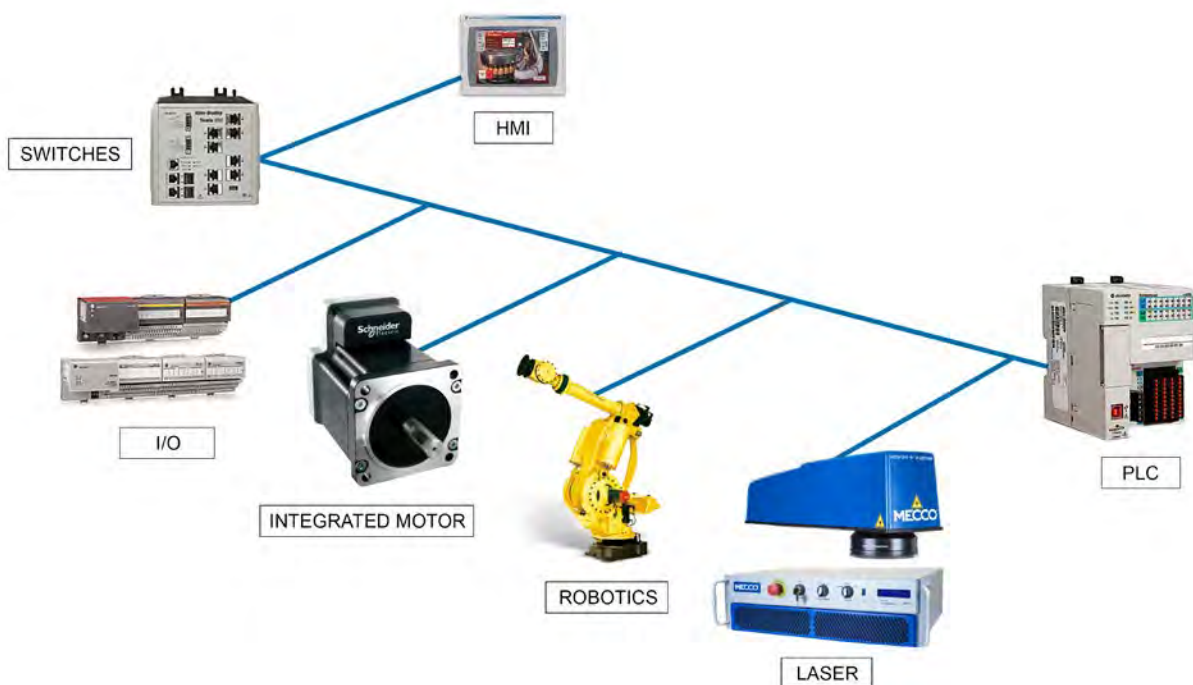
INTEGRATED SOLUTION
ETHERMARK®

Do you need to push any sequence of data, even if non-incremental, to your marker?

EtherMark is a patent-pending technology solution that facilitates integration of marking systems into factory automation networks using Ethernet-based industrial protocols like EtherNet/IP™, PROFINET, and Modbus. MECCO developed this integration architecture with embedded control technology in order to save manufacturers time and money by eliminating the need for custom programming of programmable logic controllers (PLC's), which was previously required in the laser marking industry.

Traditional marking systems employ vendor-specific proprietary API's (Application Programming Interfaces). These interfaces require the PLC programmers to learn a proprietary command set and create custom code to perform basic marking operations.

EtherMark allows factory floor PLC's to use their Ethernet-based industrial protocol to control part marking systems' operations and traceability data management, and simplifies the communication process to only one command by the PLC for marking a job file.
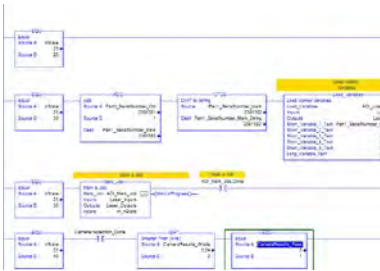
LADDER LOGIC
Add-on instructions simplify programming by allowing a user to drag and drop all of the typical commands to the unit (i.e. load job, load text, mark job).

OBJECT MODEL
EtherMark provides simple Allen-Bradley PLC Registers (Tags) which control or report the behavior of various functionality within the laser marking unit. Inputs allow you to supply settings like X and Y offsets, specify job file names and strongs of information, while outputs report mark cycle time and machine status.
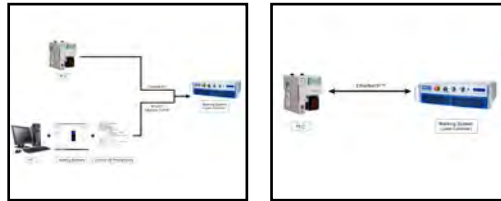
ADD-ON PROFILE
Allows plug and play compatibility between MECCO marking devices and Allen-Bradley PLC's.

Traditional Integration

Integrating a traditional marking system has always been a complex process to allow proprietary software to communicate with the rest of the production floor.

EtherMark® Integration

EtherMark removes the need for custom programming by providing object model interfacing to all of our marking products.

NETWORK & HARDWARE SPECIFICATIONS

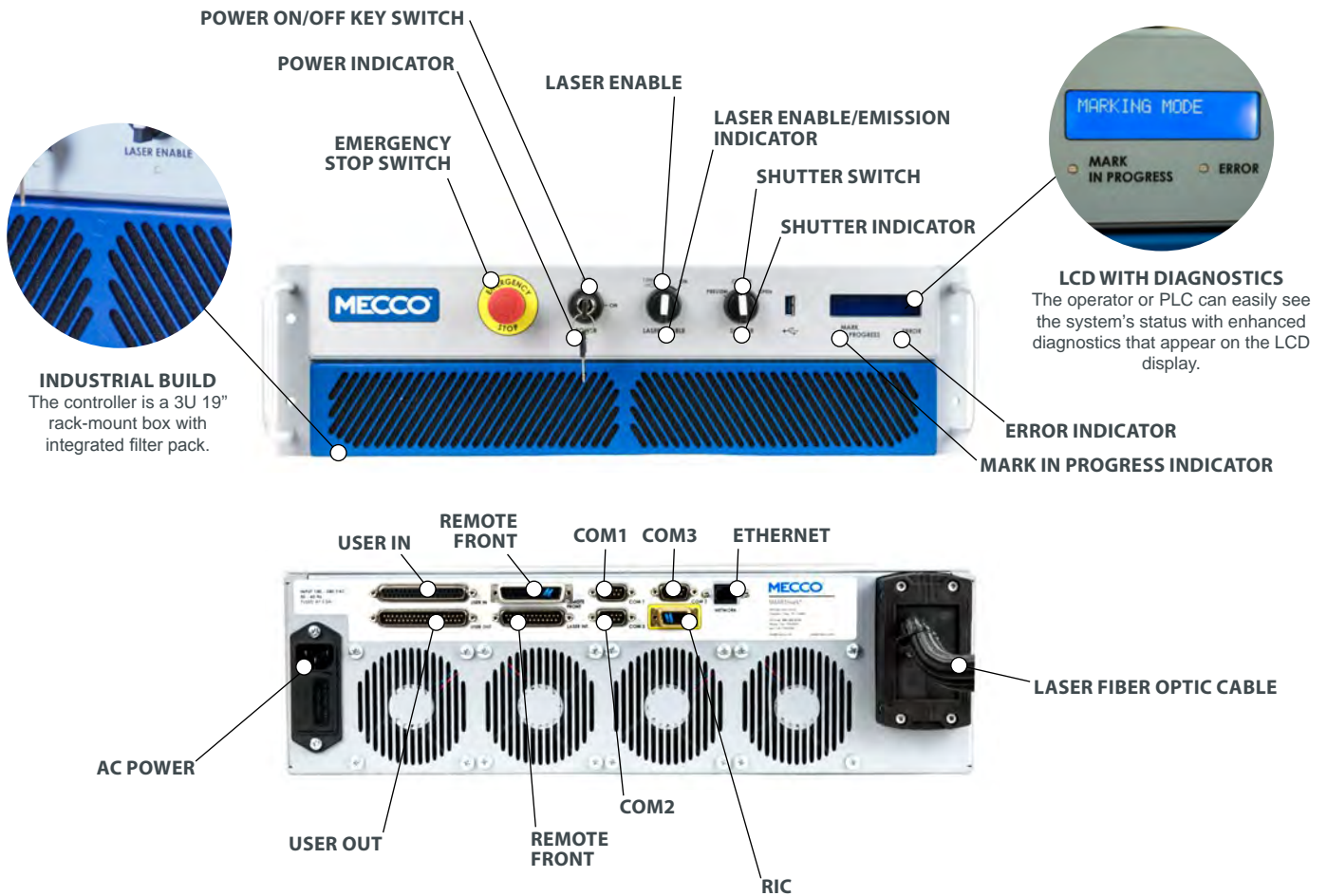|	
Connection:	10/100 Mbps Ethernet standard RJ45 port, to network and PLC
IP Address:	Manually set fixed IP configured by user
Firmware:	Flash firmware upgrade via Ethernet or USB
Control:	Supervisory control of LEC Laser Marker
	Supervisory control of Couth Dot Peen Marker
Barcoding:	Laser: Capable of 3000 characters in a 2D barcode with string concatenation Dot Peen: Capable of up to 75 characters in a 2D barcode

SMARTMARK®
LASER CONTROLLER

Functionality and Connectivity for SMARTmark Lasers

The laser controller for the SMARTmark line of laser marking systems contains the operational control switches as well as status/indicator lights for ease of troubleshooting. Inside the control box reside the main system control devices and power supplies.

POWER ON/OFF KEY SWITCH

POWER INDICATOR

LASER ENABLE

LASER ENABLE/EMISSION INDICATOR

EMERGENCY STOP SWITCH

SHUTTER SWITCH

SHUTTER INDICATOR

LCD WITH DIAGNOSTICS
The operator or PLC can easily see the system's status with enhanced diagnostics that appear on the LCD display.

INDUSTRIAL BUILD
The controller is a 3U 19" rack-mount box with integrated filter pack.

ERROR INDICATOR

MARK IN PROGRESS INDICATOR

USER IN

REMOTE FRONT

COM1 **COM3** **ETHERNET**

LASER FIBER OPTIC CABLE

AC POWER

COM2

USER OUT

REMOTE FRONT

RIC

SMARTMARK® CONTROLLER SPECS

Laser Umbilical	Hard wired to laser rail to provide controls and power to laser resonator
Power Umbilical	Hard wired to laser rail to provide control wires to scanhead, safety shutter and lights
Controller Dimensions	19.486" x 5.250" x 17.275"
Controls	LEC Industrial computer based controller
Communications	Ethernet TCP/IP, EtherNet/IP™, PROFINET, Modbus TCP, RS232
Connectors	User In, User Out, Remote Front, Laser Int., COM1, COM2, COM3, RIC, NETWORK, NETWORK (Optional), AC Input

STANDALONE SOLUTION
EMBEDDED CONTROLLER

The SMARTmark laser controller's LEC card contains a fully integrated processor and operating system capable of operating in a fully independent stand-alone mode.

The embedded controller might be the best fit for you if you answer "yes" to the following questions:

» Do you want to remove the PC from your shop floor?

» Do you have a pre-defined job file to use repeatedly?

» Do you need to mark incremental serialization or timestamps?

The number of jobs that can be saved is limited only by the available storage on either the built-in Flash memory, or an installed USB Flash drive. Individual jobs to be processed are accessed based on digital I/O signals or selected on a local pendant interface.

CONFIGURATION

The following figure illustrates the control architecture configuration possible in stand-alone mode. In addition to running jobs for the laser, standalone mode is capable of integrating with a button box and saving motion control commands to the LEC.
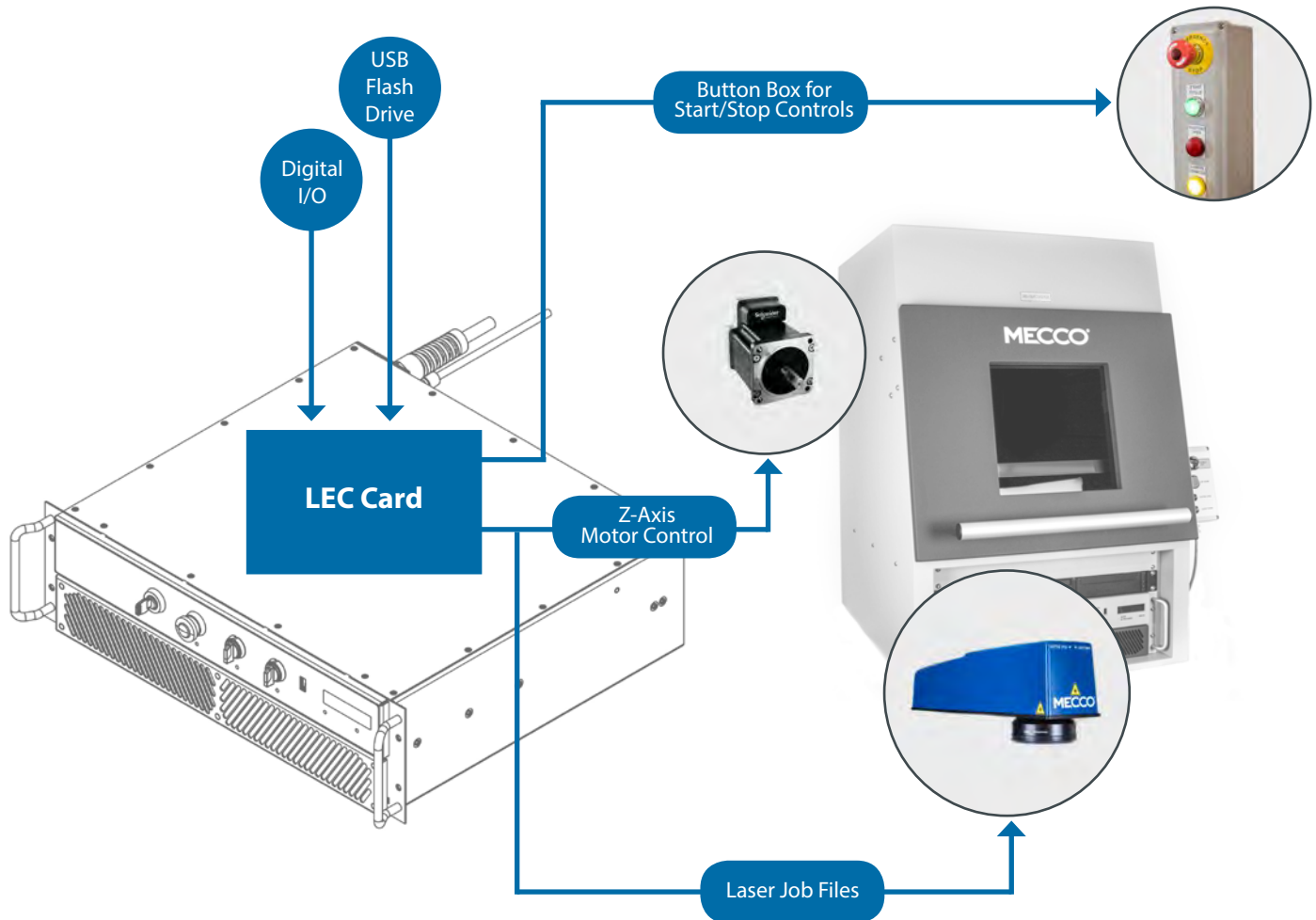
WINLASE®
LASER MARKING SOFTWARE

With MECCO's laser marking software, you will have the most innovative, easy-to-use laser marking interface available in the market today. Compatible with Windows XP®, Windows Vista®, Windows 7® and Windows 10®, this system will provide networking and intelligent control that allows connection to multiple laser systems from one PC.

Software might be the best fit for you if you'd answer "yes" to the following questions:

» Is your product flow constantly changing?

» Do you only mark static or aesthetic marks?

MECCO's software provides a robust array of capabilities to make the marks you need, from fonts to barcoding to motion control.

FEATURES

Graphics File Importing
SMARTmark® Laser Marking Software can import DXF, AI, CDR, PLT, BMP, JPEG, GIF, TIFF, PNG, and many other file types. Graphics can be moved, scaled, filled, rotated and aligned in our simple Windows GUI interface.

Laser Markable Fonts
Any TrueType font that is installed on the PC can be used within the laser marking software. These text objects can be utilized to create serial numbers, date and time codes, and shift or machine IDs, which can be marked in a straight line, radially, vertically, or even circumferentially.

External Control
The system and software can be controlled from external systems such as PLCs via RS-232, TCP/IP and Profibus. A built-in COM automation server allows for rapid development of custom graphic user interfaces (GUIs). Pendants are also available for simplified handheld local control when running in standalone mode without a PC. The software can be programmed to control external devices via I/O objects.

Barcoding
SMARTmark® software offers the ability to mark a wide range of 1D and 2D bar codes, and editing the code's overall size, cell size, line spacing, inversion and shape is made easy with our user interface. Includes the most commonly used options, such as:

1D: UPC/EAN/JAN, Codabar, Interleaved 2 of 5, Code 39, Code 128, Code 93, Pharmacode, GS1 Databar
2D: Data Matrix, QR Code, MicroQR Code, PDF417, MicroPDF, Optional for VeriCode®

Dynamic Logo / Text Filling Capabilities
There is no longer any need to change fill settings in external software. Our software is capable of filling any TrueType font text or logo with ease, providing options for the fill pattern, angle of fill, fill spacing, and multiple passes for ultimate flexibility and mark control.

WYSIWYG
Providing a simple Windows interface that allows the user to see exactly how the mark will look, SMARTmark® software can be used to set up background templates that mimic the look, size and shape of your parts. Click-to-drag, re-size, rotate, and many other easy-to-use editing features are available all within the software.

With MECCO's live 'Preview Mark' capability, you can view an outline of the mark right on your part and make edits in real time without having to enter and exit a preview mode. This tool helps to make job set-up easier in order to avoid mistakes.

System Security
There are three levels of password protection for users designated as Administrator, Technician, or Operator. Each level is completely customizable, allowing the Administrator to have full rights, the Technician to have limited rights and the Operator to only have rights to open and process jobs that are pre-qualified.

Built-In Motion Control
SMARTmark® Laser Marking Software can control up to 4-axis of motion simultaneously that can be programmed directly into each individual job, including rotary indexers, x-y tables, rotary tables, and z-axis. This allows for one-time pre-programming of movements and rotations of parts that will automatically run every time the job is opened.

CUSTOM
GRAPHICAL USER INTERFACES

To determine if a custom GUI is necessary for your application, considering the following questions:

- » Is ease-of-use to the operator very important?
- » Is the laser mark data variable, requiring that it be sourced from, and/or written back to, a database?
- » Are there special database, serialization, and/or traceability requirements?

- » Is custom automation required?
- » Is vision inspection of the marking required?
- » Are there special marking requirements?

MECCO's custom GUIs are written using Microsoft Visual BASIC.NET, an industry standard development environment. The GUI is a Windows application, running in the Windows environment.
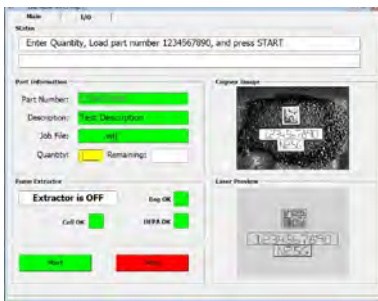
Custom GUI screen ready to start marking.

Screen can hide buttons when they shouldn't be used, such as hiding "Start" while marking is in progress.
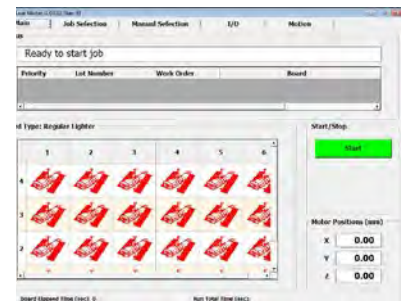
Custom GUI for an XYZ pallet of parts.

DATA CONNECTIVITY

MECCO has developed integration-ready packages for the following common methods of data connectivity.

GETTING DATA TO THE MARKER (PRE-MARK)

Open Database Connectivity (ODBC):
MECCO has used ODBC extensively to interface to Microsoft SQL Server, Access, and other common databases to allow the use of direct SQL queries and/or stored procedures to obtain custom marking information. The referenced database may be local to the marker PC, or hosted on the customer's network.

XML Web Services:
The user provides the mark information via their company intranet or the internet. The marker will derive mark data from the customer provided web service in XML form.

Drop Folder Polling:
The marker retrieves mark data from a customer provided text file. The customer specifies the drop folder, and provides the mark data in a file at the time of marking. The marking template and variable mark data are read from the file and used to configure the marker and mark the part.

OPC (Object Linking and Embedding for Process Control):
MECCO has worked with several different commercial OPC servers as a conduit to retrieve custom marking information.

EtherNet/IP™ and PROFINET®: MECCO's EtherMark® product supports these two industrial protocols for PLC to marker communication.

GETTING DATA FROM THE MARKER (POST-MARK)

In general, all of the techniques described above for getting information to the marker can be employed to obtain information from the marker. Information from the marker typically includes the date and time of marking, the data that was marked, barcode grading, and as-marked images, for example.

As standard operation, MECCO stores the marking information locally in the form of a Microsoft Excel compatible .CSV file, and to a Microsoft Access database file (.mdb). Any of the above described techniques can be used to export this data from the marker to the customer's information systems.

SMARTMARK®
FIBER LASER MARKING SYSTEM

The SMARTmark Fiber Laser is a versatile tool, combining a wide array of application capabilities with the user-friendliness of our advanced controller.
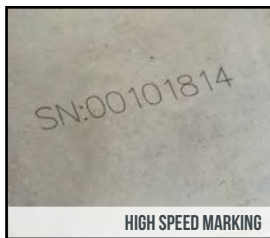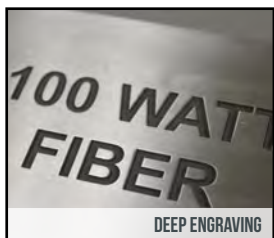
MODELS

| 10W | 20W | 30W | 50W | 100W |

Providing an industrial solution for product identification and traceability, SMARTmark Fiber Laser Marking Systems allow manufacturers to mark or engrave serial numbers, bar codes, 2D Data Matrix and graphics on the widest variety of materials, including metals, plastics and ceramics.

With five different power levels available, this laser can meet different application needs regarding depth, speed and material, including cutting and welding.
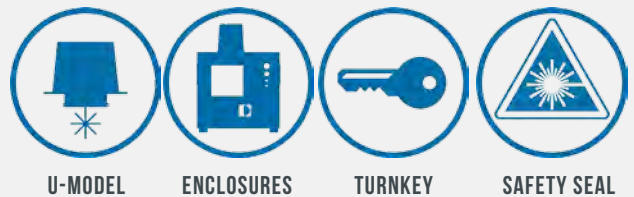
MARKING CAPABILITIES

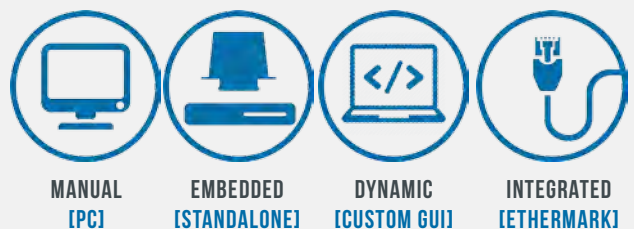Marks the widest variety of materials, inlcuding steel, titanium, aluminum, copper, ceramics and some plastics.

DEEP ENGRAVING

HIGH SPEED MARKING

CONTRAST ON BLACK PLASTIC

SURFACE MARK ON E-COATED STEEL

CUTTING WITH 100W

DARK WITH FROSTED BACKGROUND

LASER USE CONFIGURATIONS

Choose from a variety of configurations to meet laser safety standards.

| U-MODEL | ENCLOSURES | TURNKEY | SAFETY SEAL |

CONTROL OPTIONS

Choose the level of automation and integration for your system.

| MANUAL [PC] | EMBEDDED [STANDALONE] | DYNAMIC [CUSTOM GUI] | INTEGRATED [ETHERMARK] |

SMARTMARK® FIBER LASER SPECS

Laser Source	Fiber, Ytterbium doped
Output Power	10W, 20W, 30W, 50W or 100W
Power Requirements	110/220 VAC, 10A, 50/60Hz
Wavelength	1064nm
M²	<1.4
Operation Mode	Pulsed
Pulse Rep Rate	20-200 kHz depending on model
Cooling	10-50W: Fan Assisted Air Cooling 100W: Air Cooled
Scanning Method	XY galvanometer
Rail Weight	20 lbs
Rail Dimensions	10W-50W: 19.736" x 5.188" x 4.961" 100W: Contact MECCO
Cable Length	5 meters (10W) 3 meters (20-100W)
Controller Dimensions	19.486" x 5.250" x 17.275"
Accuracy	3.5 μm across field
Max Line Speed	3,000 mm/sec using 160mm lens
Software	WinLase Software
Controls	LEC Industrial computer based controller
Communications	Ethernet TCP/IP, EtherNet/IP™, PROFINET, Modbus TCP, RS232

3D models are available at www.mecco.com/support-resources.

LASER MARKING RECIPE
Standard material settings are included with the laser marking profiles on our WYSIWYG system software.
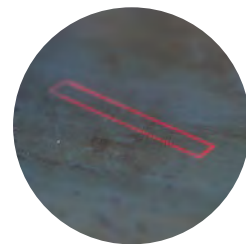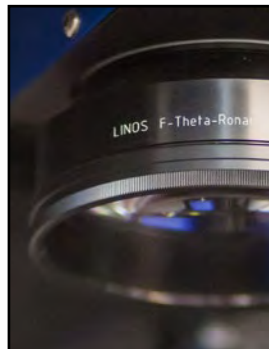
LCD WITH DIAGNOSTICS
The operator or PLC can easily see the system's status with enhanced diagnostics that appear on the LCD display.

LENS OPTIONS

Our high quality lenses are available in multiple configurations for this laser system to meet the needs of your marking area.

Lens	Marking Field	Focal Length
100mm	65mm x 65mm (2.5" x 2.5")	97mm (3.82")
160mm	110mm x 110mm (4.3" x 4.3")	175mm (6.89")
254mm	175mm x 175mm (6.9" x 6.9")	296mm (11.65")
330mm	228.6mm x 228.6mm (9" x 9")	387mm (15.23")
420mm	330.2mm x 330.2mm (13" x 13")	494mm (19.45")

VISIBLE LIVE POINTER
Shorten setup time with a red pointer that moves in real-time so that you can see the results of adjusting position and size.

AUTOMATED FOCUS ADJUSTMENT UPGRADE

Laser lenses need to be properly distanced from the part in order to be in focus. Standard systems come with a focal stick for manual measurements. The SMARTmark Fiber Laser is also available with a focal distance laser pointer that intersects with the live pointer when the laser is in focus.

MECCO EXPERIENCE
We listen to your challenges and ensure your needs are met with a system designed to work for you.

SMARTMARK® TIBURON
LASER MARKING SYSTEM

When your application demands razor-sharp marking with minimal surface disruption, MECCO's Tiburon Laser is the answer.

MODELS

5W

The Tiburon's ultra-short pulses deliver three times the peak power of conventional fiber lasers. Metals experience a smaller heat-effected zone and plastics absorb energy more easily, creating crisper, brighter marks with almost zero debris. Higher peak energy removes paint, anodization, and oxide 25 - 50% faster while brightening the base material significantly. The result: Higher-contrast marks; barcodes that scanners read more easily; and improved traceability throughout your process.

Tiburon marks are smooth to the touch. Edges stay crisp, without debris or discoloration that compromise functionality or appearance with conventional systems. The Tiburon is ideal for traceability and branding applications where mark quality and contrast are critical for success.
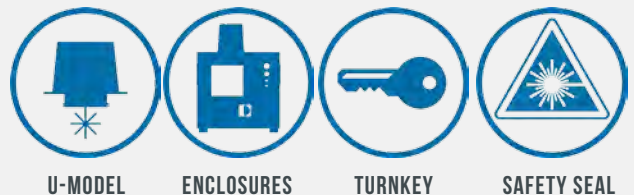

MARKING CAPABILITIES

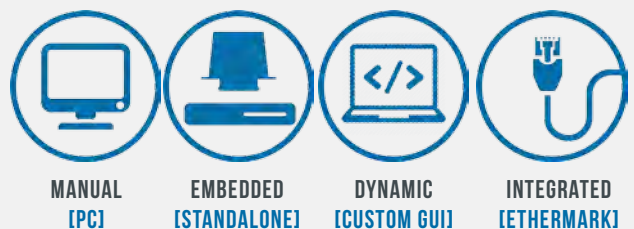Produces sharper, faster surface-level marks on plastics & anodized aluminum.
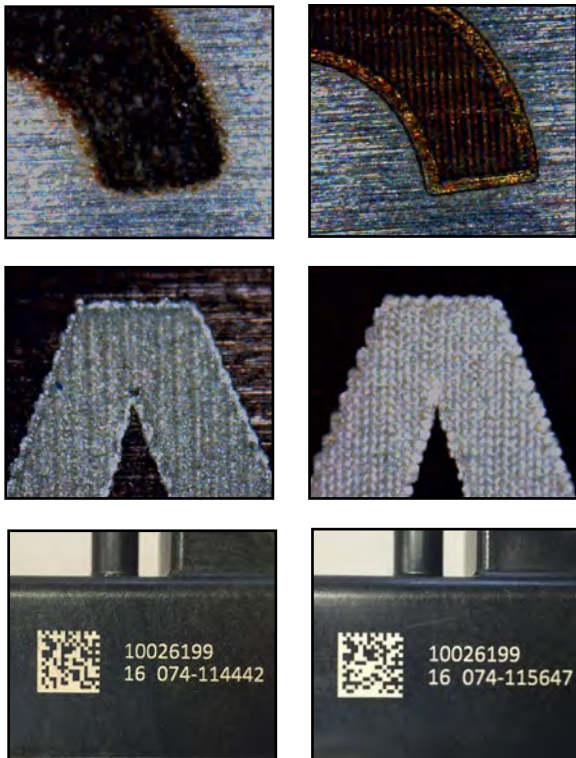
LASER USE CONFIGURATIONS

Choose from a variety of configurations to meet laser safety standards.

U-MODEL	ENCLOSURES	TURNKEY	SAFETY SEAL

CONTROL OPTIONS

Choose the level of automation and integration for your system.

MANUAL [PC]	EMBEDDED [STANDALONE]	DYNAMIC [CUSTOM GUI]	INTEGRATED [ETHERMARK]

SMARTMARK® TIBURON LASER SPECS

Laser Source	Patented Diodes Pumping YAG Crystal
Output Power	5W
Power Requirements	100/240 VAC, 5A, 50/60Hz
Wavelength	1064nm
M²	<1.2
Operation Mode	Pulsed
Pulse Rep Rate	30 kHz
Cooling	Air
Scanning Method	XY Galvanometer
Rail Weight	23 lbs
Rail Dimensions	17.5" x 6.595" x 6.438"
Cable Length	2.75 meters, hard wired
Controller Dimensions	19.486" x 5.250" x 17.275"
Accuracy	3.5 μm across field
Max Line Speed	2,500 mm/sec using 160mm lens
Software	WinLase Software
Controls	LEC Industrial computer based controller
Communications	Ethernet TCP/IP, EtherNet/IP™, PROFINET, Modbus TCP, RS232

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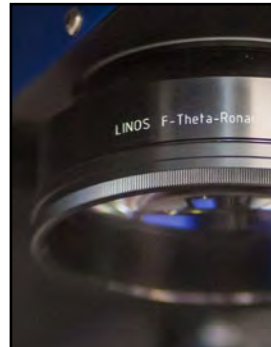
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Lens	Marking Field	Focal Length
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254mm	175mm x 175mm (6.9" x 6.9")	296mm (11.65")
330mm	228.6mm x 228.6mm (9" x 9")	387mm (15.23")
420mm	330.2mm x 330.2mm (13" x 13")	494mm (19.45")

HIGH PEAK POWER
High peak power and short pulse width enable better marking of reflective metals and thin plastics without deforming the material.

MECCO EXPERIENCE
We listen to your challenges and ensure your needs are met with a system designed to work for you.

MECCOMARK®
CO$_2$ LASER MARKING SYSTEM

Mark on wood, glass, rubber, plastics, cardboard, and product packaging with the only Rockwell Automation Encompass Partner CO2 Laser.
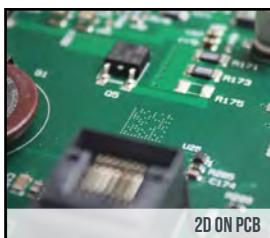
MODELS

| 10W | 30W | 100W |

For product identification and traceability, the MECCOmark CO$_2$ Laser offers the most cost-effective solution in laser marking and engraving technology.

These compact units commonly replace other marking technologies such as ink jet, dot peen and labeling due to the CO$_2$ laser's ability to achieve high-speed marking while maintaining mark quality. These lasers provide non-contrast marking in plastics as well as ink removal for date coding.
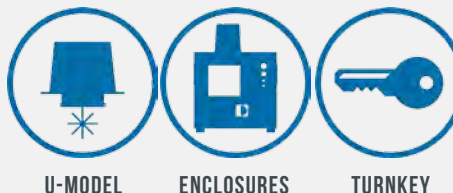
MARKING CAPABILITIES

If you need to mark organic materials, the CO$_2$ Laser is the best choice due to its larger wavelength that is easily absorbed by these materials.
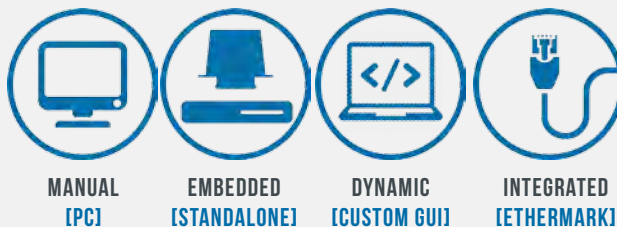
DEEP ENGRAVE WOOD

2D ON PCB

PACKAGING INK LAYER REMOVAL

LOGO ON GLASS

CLEAR PLASTIC

CARDBOARD PACKAGING

LASER USE CONFIGURATIONS

Choose from a variety of configurations to meet laser safety standards.

U-MODEL   ENCLOSURES   TURNKEY

CONTROL OPTIONS

Choose the level of automation and integration for your system.

MANUAL [PC]   EMBEDDED [STANDALONE]   DYNAMIC [CUSTOM GUI]   INTEGRATED [ETHERMARK]

MECCOMARK® CO$_2$ LASER SPECS

Laser Source	CO$_2$
Output Power	10W, 30W or 100W
Power Requirements	10-30W: 110/220 VAC, 10A, 50/60Hz 100W: 110/220 VAC, 15A, 50/60Hz
Wavelength	10600nm
M²	1.2 ± 0.1
Operation Mode	Continuous Wave
Pulse Rep Rate	N/A
Cooling	10-30W: Fan Assisted Air Cooling 100W: Water or Air Cooled
Scanning Method	XY galvanometer
Rail Weight	10W: 45 lbs, 30W: 85 lbs, 100W: 91 lbs
Rail Dimensions	10W: 31.15" x 6.82" x 7.74" 30W: 37.4" x 8.05" x 11.5" 100W: 49.2" x 8.22" x 9.14"
Cable Length	5 meters (10W) 3 meters (30-100W)
Controller Dimensions	19" x 6.75" x 19"
Accuracy	3.5 µm across field
Max Line Speed	2,000 mm/sec using 200mm lens
Software	WinLase Software
Controls	LEC Industrial computer based controller
Communications	Ethernet TCP/IP, EtherNet/IP™, PROFINET, Modbus TCP, RS232

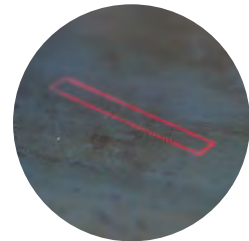*3D models are available at www.mecco.com/support-resources.*

LASER MARKING RECIPE
Standard material settings are included with the laser marking profiles on our WYSIWYG system software.

MODULAR DESIGN
The CO$_2$ Laser's modular components allow for easy serviceability and maintenance.

LENS OPTIONS

Our high quality lenses are available in multiple configurations for this laser system to meet the needs of your marking area.

Lens	Marking Field	Focal Length
100mm	70mm x 70mm (2.8" x 2.8")	81mm (3.19")
200mm	140mm x 140mm (5.5" x 5.5")	184mm (7.24")
360mm	250mm x 250mm (9.8" x 9.8")	351mm (13.82")
450mm	387mm x 387mm (15.2" x 15.2")	454mm (17.87")

VISIBLE LIVE POINTER
Shorten setup time with a red pointer that moves in real-time so that you can see the results of adjusting position and size. (30W & 100W Only.)

AUTOMATED FOCUS ADJUSTMENT UPGRADE

Laser lenses need to be properly distanced from the part in order to be in focus. Standard systems come with a focal stick for manual measurements. The MECCOmark CO$_2$ Laser is also available with a focal distance laser pointer that intersects with the live pointer when the laser is in focus.

MECCO EXPERIENCE
We listen to your challenges and ensure your needs are met with a system designed to work for you.

SMARTMARK®
MINI ENCLOSURE

SPECIFICATIONS

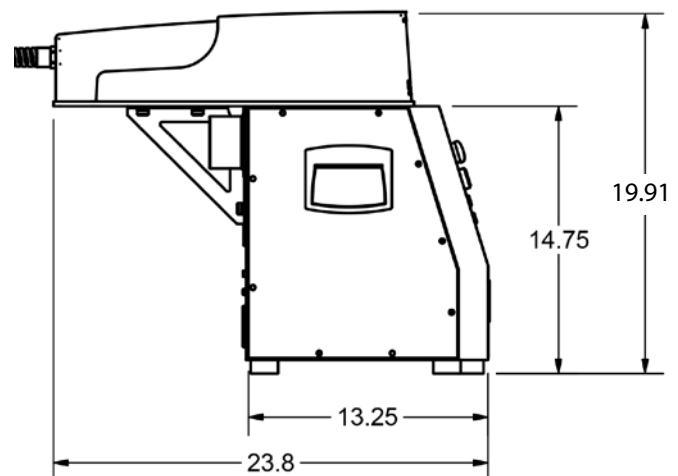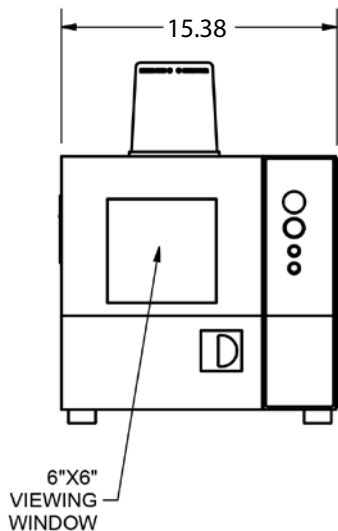|	
Lens Options	160MM
Dimensions	15.38" wide x 13.25" deep x 14.75" high
Weight	45 lbs
Max Part Dimensions	9" wide x 8.3" deep x 5" high
Z-Axis Movement	5"
Z-Axis Adjustment	Manual or Programmable
Cooling	Air cooled
Power Requirements	110/220VAC, 50/60 Hz, 15A

THE DESKTOP SOLUTION

The Mini Enclosure has been specifically designed as a desktop solution with a small footprint for the most compact Class 1 enclosure. Its features make this enclosure a value packed, low-cost solution for one-piece workflow or trays of small parts.

Access more drawings and the 3D model of this enclosure at www.mecco.com/support-resources.

FEATURES:

COMPACT FOOTPRINT FOR DESKTOP OPERATION

OPTION FOR INTERNAL SINGLE BOARD COMPUTER

CLASS 1 LASER-SAFE

LASER SAFE VIEWING WINDOW

START MARK BUTTON

SAFETY INTERLOCKS

DIMENSIONS

15.38

6"X6" VIEWING WINDOW

19.91

14.75

13.25

23.8

General dimensions. Please consult factory for specific applications

SMARTMARK®
# SMALL ENCLOSURE

TABLETOP SYSTEM FOR SMALL PARTS

The Small Enclosure is sized for tabletop use, featuring a vertically-opening door to save workspace. The simplicity of this system is a budget-conscious option that retains the quality and safety benefits of a high end system without compromising quality.

Access more drawings and the 3D model of this enclosure at www.mecco.com/support-resources

FEATURES:

HINGED MANUAL VERTICAL DOOR

WORK PLATE WITH 1/4" TAPPED HOLES ON 1" CENTERS

MAINTENANCE ACCESS PANELS

LASER SAFE VIEWING WINDOW - 10" SQUARE

EXHAUST TUBE PORT (3" DIAMETER)

PORTS FOR ETHERNET, MONITOR, USB (3)

SAFETY INTERLOCKS
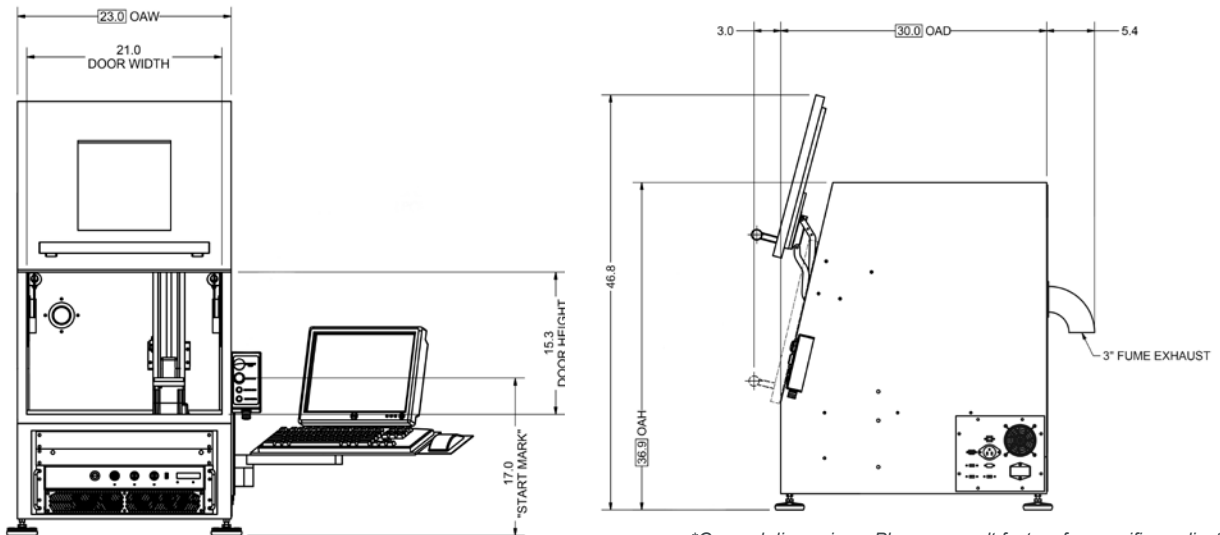
DIMENSIONS

General dimensions. Please consult factory for specific applications

SMARTMARK®
LARGE ENCLOSURE

SPECIFICATIONS

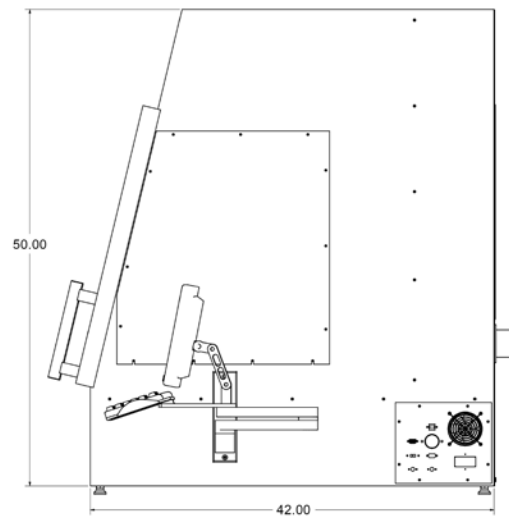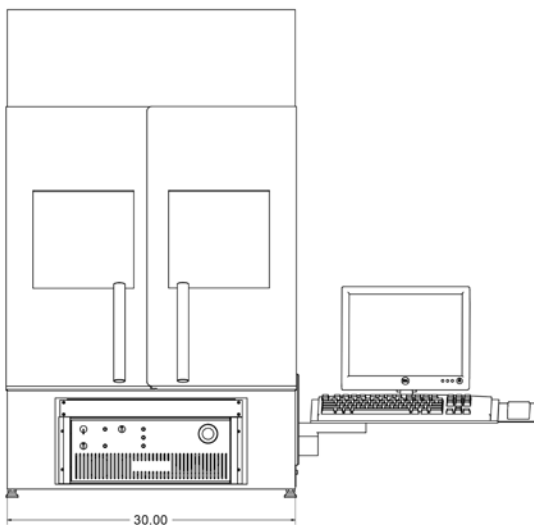|	
Lens Options	160MM, 254MM, 330MM or 420MM
Dimensions	30" wide x 42" deep x 56" high
Weight	500 lbs
Max Part Dimensions	28" wide x 26" deep x 26" high
Z-Axis Movement	26"
Z-Axis Adjustment	Manual or Programmable
Cooling	Air cooled
Power Requirements	110/220VAC, 50/60 Hz, 15A

MARK LARGER PARTS OR BATCHES

The Large Enclosure is a Class I laser safety enclosure for your medium to large parts. It is also ideal for marking multiple parts at once. This system is easily customizable with removable side panels, side doors, and more.

Access more drawings and the 3D model of this enclosure at www.mecco.com/support-resources.

FEATURES:

LASER SAFE VIEWING PANELS

MANUAL SLIDE DOORS

COMPLETE SAFETY INTERLOCK SYSTEM

MAINTENANCE ACCESS PANELS

START MARK BUTTON

SWIVEL MOUNT FOR MONITOR & KEYBOARD

DIMENSIONS

30.00

50.00

42.00

General dimensions. Please consult factory for specific applications

SMARTMARK®
XL ENCLOSURE

SPECIFICATIONS

Lens Options	160MM, 254MM, 330MM or 420MM
Dimensions	40" wide x 45" deep x 91" high
Weight	650 lbs
Max Part Dimensions	36" wide x 26" deep x 38" high
Z-Axis Movement	32" with 160MM lens
Z-Axis Adjustment	Fixed or Programmable
Cooling	Air Cooled
Power Requirements	110/220VAC, 50/60 Hz, 15A

## ENCLOSURE FOR THE LARGEST PARTS

The XL Enclosure is a Class 1 laser safety enclosure that is ideal for the largest parts, featuring a door opening that is 22" x 25". Customize this system to meet the needs of your project with removable side panels, conveyor belts, side doors and more.

Access more drawings and the 3D model of this enclosure at www.mecco.com/support-resources.

FEATURES:

LASER SAFE VIEWING PANEL

MANUAL SLIDE DOORS

COMPLETE SAFETY INTERLOCK SYSTEM

MAINTENANCE ACCESS PANELS

START MARK BUTTON

SWIVEL MOUNT FOR MONITOR & KEYBOARD
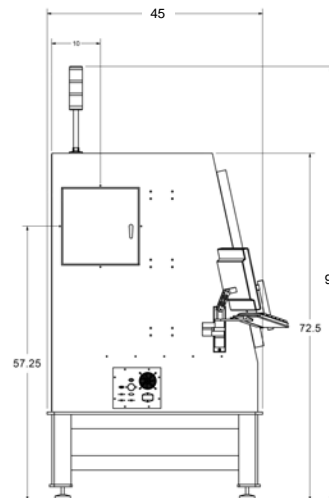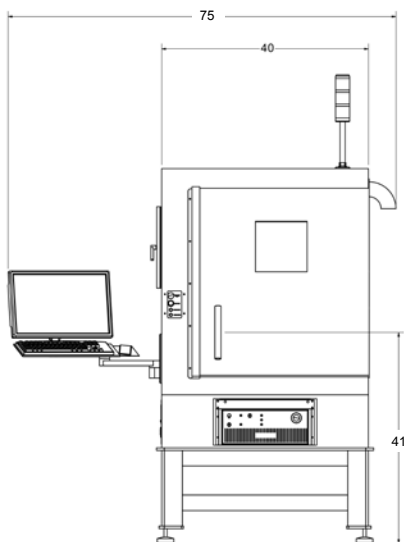
DIMENSIONS

General dimensions. Please consult factory for specific applications

SMARTMARK®
SAFETY SEAL

The SMARTmark Safety Seal allows for Class I laser-safe integration without large enclosures.

MODELS

| FIBER | TIBURON |

MECCO's patented Safety Seal technology uses the part being marked as the sixth side of the enclosure by vacuum sealing against it, creating a light tight laser-safe environment.

The system is constantly drawing and measuring vacuum pressure on the part during the marking process. Sensors monitor the pressure, as well as part presence and cylinder position, in order to ensure that the Safety Seal meets all requirements for marking. If these safety conditions are not met or vacuum pressure drops while marking is in progress, the Safety Seal will close the safety shutter so that the laser output is interrupted. This safety circuit ensures laser safety at all times during the marking process.

MARKING CAPABILITIES

The Safety Seal is compatible with SMARTmark Fiber and Tiburon lasers, so you can mark on virtually all metals and plastics.

CE   SIL

SAFET SEAL CONTROLLERS

The Safety Seal comes with an additional control box for it's specific features:

» Power
» Cylinder Movement
» Vacuum Power
» Shutter State
» Part Presence

CONTROL OPTIONS

Choose the level of automation and integration for your system.

| MANUAL [PC] | EMBEDDED [STANDALONE] | DYNAMIC [CUSTOM GUI] | INTEGRATED [ETHERMARK] |

SMARTMARK® SAFETY SEAL SPECS

|	
Laser Compatibility	Fiber or Tiburon with 254mm lens
Output Power	5W, 10W, 20W, 30W, 50W or 100W
Power Requirements	10W-50W: 110/220 VAC, 10A, 50/60Hz 100W: 220 VAC, 16A, 50/60Hz
Wavelength	1064nm
M²	<1.4
Operation Mode	Pulsed
Pulse Rep Rate	20-200 kHz depending on model
Cooling	10-50W: Fan Assisted Air Cooling 100W: Water or Air Cooled
Scanning Method	XY galvanometer
Weight	47 lbs + Laser Rail
Dimensions	18" x 19.25" x 10.5" + Laser Rail
Cable Length	2.75 meters (5W), 5 meters (10W) 3 meters (20-100W)
Controller Dimensions	*Controller 1:* 19.486" x 5.250" x 17.275" *Controller 2:* 19" x 6.75" x 19"
Accuracy	3.5 μm across field
Max Line Speed	3,000 mm/sec using 254mm lens
Software	WinLase Software
Controls	LEC Industrial computer based controller
Communications	Ethernet TCP/IP, EtherNet/IP™, PROFINET, Modbus TCP, RS232

3D model available at www.mecco.com/support-resources.

4" MARKABLE AREA
The Safety Seal can be customized for up to a 4" diameter markable area.

VACUUM CONTROL
The vacuum pressure is adjustable to your needs, with a red/green readout to ensure a good seal is made. Thresholds are adjustable.
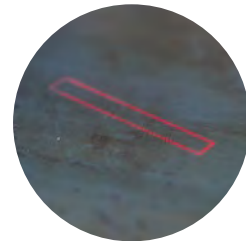
SENSORS

Using sensors to verify that safety conditions are met, the Safety Seal ensures that the laser only fires when properly connected.

CONTACT SEAL

The contact seal is engineered to your part geometry to ensure a Class I environment, allowing the Safety Seal to seal on different shapes, materials, and casts.

VISIBLE LIVE POINTER
Shorten setup time with a red pointer that moves in real-time so that you can see the results of adjusting position and size.

PROTECTIVE LENS ASSEMBLY

This interlocked safety lens keeps the main system's optics clean and can be removed for easy maintenance.

MECCO EXPERIENCE
We listen to your challenges and ensure your needs are met with a system designed to work for you.

SMARTMARK®
ROTARY WORKSTATIONS

Improve efficiency with a rotary dial workstation that allows for loading & unloading during part marking.

MODELS

| 2 POSITION | 4 POSITION |

Available in various configurations within the SMARTmark Small, Large and XL Enclosures, the Rotary Workstation allows for other process steps to be conducted while laser marking occurs inside the enclosure. Configurations could be adjusted for faster throughput or automated vision verification steps pre- and post-laser marking.

FEATURES:

FIXTURE MOUNTING HOLES IN PLATE PER CUSTOMER-SUPPLIED FIXTURES

LIGHT CURTAIN FOR OPERATOR SAFETY

PROGRAMMABLE Z-AXIS WORK DECK WITH 11" VERTICAL TRAVEL

MAINTENANCE ACCESS PANELS WITH SAFETY INTERLOCKS

MINIMUM 23" X 42" X 39" OVERALL DIMENSIONS

CONFIGURATIONS:

Enclosure	Dial Table (Ø)	No. of Positions
Small	16"	2 or 4
Large	24"	2 or 4
XL	36"	2 or 4

For maximum part sizes, please consult factory. Dimensions may vary slightly from standard enclosure models.

ROTARY INDEXER
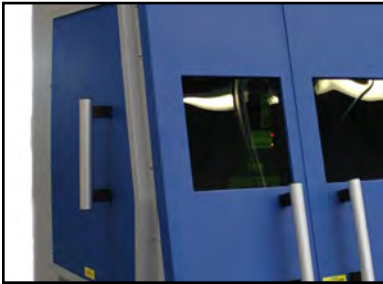
Up to 8x Faster in a More Compact Design

Software-controlled rotation for marking around the circumference of parts. Motion is programmable through our laser marking software.

CAPACITY:
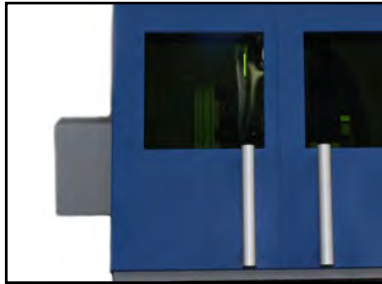
5" AVAILABLE PART DIAMETER

MAX PART WEIGHT OF 100 LBS

ENCLOSURE OPTIONS

SIDE DOOR
Add a side door to an enclosure for easier loading and unloading of oversized parts. Side doors are also helpful in rotary workstations so that you can view the back of the rotary table.

PASS THROUGH
Adding a pass through to your enclosure provides a way to mark parts on a conveyor or parts that are too long for the enclosure while still maintaining a small footprint on your production floor. Note: May change safety classification of enclosure.
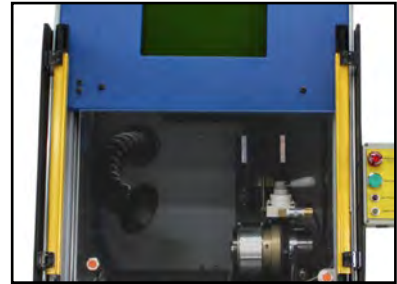
PNEUMATIC DOOR
Air powered lifting mechanism of the door includes light curtain or bumper bars to prevent injuries. Configuration options:
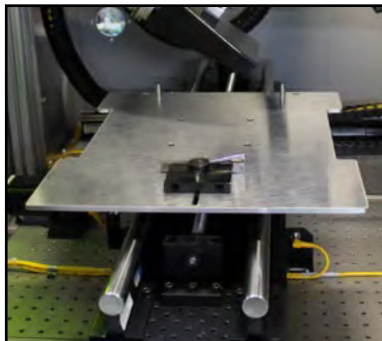
» Auto open upon marking completion
» Foot pedal activation
» Dual hand controls

FUME EXTRACTOR
Add a fume extractor to your enclosure system to remove gas and odor in the air during the laser marking process.

» HEPA filter keeps air healthy
» Protects the laser lens against debris
» Turns on only when laser is in use
» Requires separate 110VAC, 15A circuit

XY TABLES: 10X10 - 20X20
Reduce the frequency that operators have to load more parts by adding an XY table to increase marking area. This programmable moving surface allows you to maintain a small spot size for detail marking while marking a larger area.

NEMA ENCLOSURES
Add an air-tight, clean environment enclosure to your system and extend the life of your laser.

» Protects electronics from heat & dirt
» From NEMA 1 to NEMA 12
» Vortex cooler uses compressed air
» Programmable A/C unit with digital thermostat shuts laser down over 105°F

CHOOSE YOUR BASE

WORK TABLES
Extruded aluminum or welded steel tables can be constructed to any height for ergonomic use by the operator.

» Adjustable feet stabilizers
» Keeps enclosure secure
» Optional castors for easy moving

INTEGRATED VISION FOR
VERIFICATION

Leading Technology for Manufacturing Automation

Adding vision capabilities to your SMARTmark Laser is a vital part of traceability and quality control for your parts. It enables tracking, sorting, and identifying through part type, orientation & mark area recognition, mark grading, and defect detection.

With a great amount of flexibility in how the options can be customized per project, verification and data collection can be used to improve your processes by connecting with your database.

Using high quality 2D bar code marking and optical character recognition (OCR), you can ensure good quality and meet grading standards for your marks while identifying defective parts that can be discarded.

» Program templates for Cognex Camera supplied by MECCO
» Easy setup within EtherMark
» Various lighting options to optimize readability per material

2D VERIFICATION & OCR

Ensure your mark meets specification every time with 2D verification and optical character recognition. What you do with marks that receive a low grade is up to you: you have the option to create settings that will automatically re-mark those low-graded marks.

» Integrate fix mount or handheld scanners
» Fix-mounted verification systems comply with ISO 15426-2
» Verifies to the following symbol grading standards: ISO 15415, AS 9132, ISO 16022, AIM DPM Quality Guideliness 2006-1
» Data Construction Validation includes GS1, UID MIL STD 130N, ISO 15418 and ISO 15434

FEATURE RECOGNITION

With a vision system, you can automate the process of identifying different parts. This allows you to mark different types and sizes of parts with one system, with no need for adjustment by an operator.

» Range of lighting options tailored to the application
» Automatic defect detection

PART LOCATION & RECOGNITION

Automatically detect XY and rotational position, and apply marks in a specific location.

» Eliminates fixturing costs for different parts
» Save job files that remember part shape, eliminating the possibility of marking the wrong part

LASER MARKING
TURNKEY SOLUTIONS

Seamless Traceability for Demanding Applications

Traceability doesn't operate in a vacuum. With the Industrial Internet of Things and connected factories becoming more common, there's more to part marking than ordering a basic laser. That's why MECCO builds complete solutions for your requirements.

We are the leader in manufacturing very sophisticated custom workstations and retrofitting SMARTmark lasers into existing integrations. You can expect to work with real people who are really good at what they do, striving to make your life easier by providing you technical expertise and a system designed to work for you.

AUTOMATE PART LOADING
WITH ROBOTICS OR CONVEYORS & CUSTOM FIXTURES

INCREASE ACCURACY OF DATA ENTRY
SCANNERS, HMI SCREENS OR DATABASE INTEGRATION

INCREASE QUALITY
WITH INTEGRATED VISION

ENSURE SAFETY
WITH LIGHT CURTAINS AND HAND CONTROLS

SERVICE & SUPPORT

INSTALLATION & TRAINING
MECCO performs installation and on-site training of machine operations, preventive maintenance, and system troubleshooting. Continuing education is also available via webinars.

TROUBLESHOOTING
Get help fast with a variety of troubleshooting options. MECCO offers remote diagnostics, lifetime phone support, and a service team that brings technical expertise right to your facility: no shipping or uninstallation required.

PARTS
Standard components including scan heads, control boards and electronics are stocked for overnight shipment. For complex issues, MECCO offers no-cost loaner components and systems during the repair process.

PREVENTIVE MAINTENANCE PLANS
Structured to ensure that your equipment is functioning at the highest possible degree of efficiency, this plan delivers extended equipment life to control replacement costs. The yearly plan includes a 28 point checklist, review of job file settings, and unlimited software updates.

VIRTUAL PRODUCT SUPPORT
Get 24/7 online training and troubleshooting support via Virtual Product Support: a library of engineering, training, and support resources, including videos and documentation for basic troubleshooting and repairs.

www.mecco.com/support

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