

LASER MARKING SYSTEMS

Product Group Guide

DATALOGIC
EMPOWER YOUR VISION



Datalogic at a glance

Datalogic Group is a global leader in the **automatic data capture and industrial automation** markets. It is well known around the world for designing and producing barcode readers, mobile computers, sensors for detection, measurement and safety, RFID, machine vision and laser marking systems. Datalogic solutions help customers increase the quality of their processes in the **Retail, Manufacturing, Transportation & Logistics,** and **Healthcare** industries.

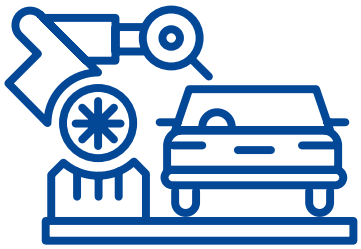
The Group has **more than 50 years of history** behind it, during which enormous successes have been achieved: **10 R&D centers and 3 DL Labs in Italy, USA, Vietnam, China, Czech Republic and Sweden; 10 manufacturing and repair facilities** in USA, Hungary, Slovakia, Italy, China and Vietnam; a **portfolio of about 1,200 patents and patent applications** in multiple jurisdictions; thousands of prestigious partners and customers spread across five continents.

Datalogic Group has **offices in 28 countries worldwide**, with the headquarters in Bologna, Italy. It is through the close cooperation of **approximately 2,700 employees** that Datalogic can boast some of the most remarkable automatic data capture and factory automation solutions available today in the market.

DATALOGIC TARGET INDUSTRIES



RETAIL



MANUFACTURING



TRANSPORTATION & LOGISTICS



HEALTHCARE

DATALOGIC PRODUCT RANGE



Fixed Retail Scanners



Handheld Scanners



Stationary Industrial Scanners



Mobile Computers



Laser Marking Systems



OEM Barcode Readers



RFID Systems



Sensors & Safety

by DATASENSING



Machine Vision

by DATASENSING



CUSTOMER SERVICE

Datalogic's Customer Service offers a wide and complete range of post-sales services. It is organized in three levels of support, in order to guarantee the most appropriate professional assistance based on the specific problem.
Datalogic's Customer Service can deploy in each territory a team of multi-lingual professionals, with a broad technical expertise across the whole product range.
Our standard service portfolio includes: warranty extension, fast turnaround time for repairs, 24/7/365 phone support, next day on-site intervention and site audits. Datalogic can tailor the service offering to your specific needs.
Our experts will support every stage of your projects, from feasibility study to extended post-sales support, performing, when necessary, root cause analysis and remediation.



EASEOFCARE Service Programs

Datalogic's EASEOFCARE Service Programs provide superior life-cycle support to ensure that products are always operating at peak performance. A variety of Service Programs are available to match your business requirements:



FAST REPAIR TURNAROUND (OVERNIGHT/2 DAYS)



ACCIDENTAL DAMAGE COVERAGE



BOTH WAYS FREIGHT PAID BY DATALOGIC



DATALOGIC SHIELD FOR MOBILE PRODUCTS INCLUDED

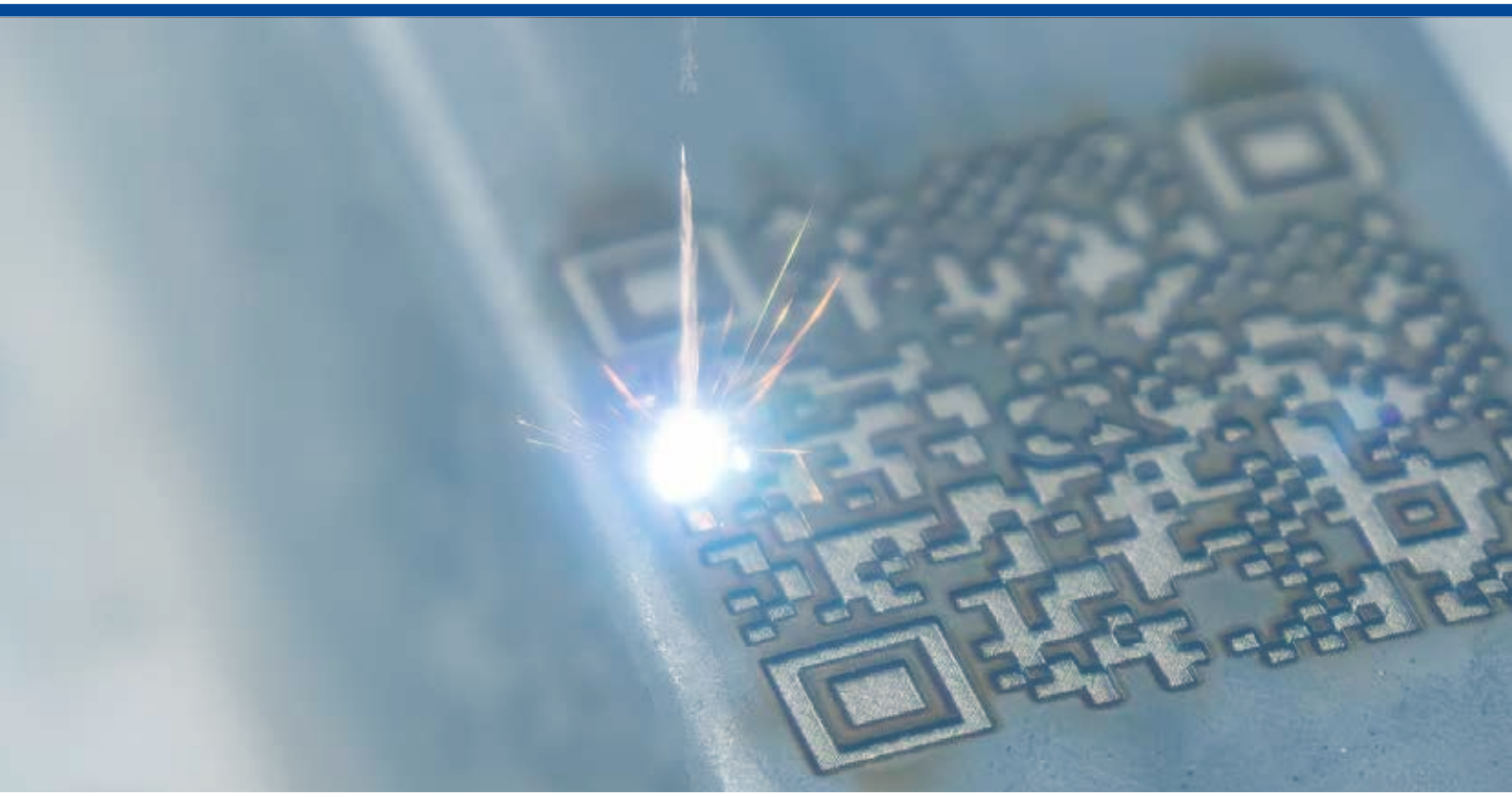


3-5 YEARS CONTRACT SERVICE OPTIONS

Please contact your sales representative to find out what type of services are available in your region.

www.datalogic.com

Laser Marking Systems overview



Datalogic Laser Marking is able to provide the best laser technology solution for your application, from fiber laser to solid state and CO_2, powered by the latest software platform and hardware controller.

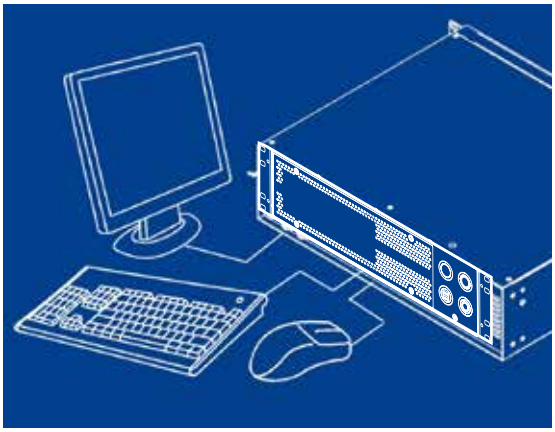
With the increasing popularity of Fiber lasers in recent years, Datalogic invested aggressively in this technology, and now we can offer a complete range of proprietary fiber laser sources. Moreover, when selecting a laser marker it is important to choose the best technology for the application and material that meets the requirements for speed, quality and budget.
Datalogic's product portfolio provides users the ability to select the perfect technology to provide the best results through a single software platform with flexible controller and integration I/O options.
No other manufacturer is so vertically integrated on Fiber technology (Pulsed and MOPA), Solid State technology (IR & UV) software and hardware controllers, scanning heads and marking system design!

ONE-RACK MARKING CONTROLLER

System setup and commissioning are made easy with Datalogic's Embedded Marker Controller (EMC) powered by LIGHTER Software Suite.

The unified 19-inch controller with standardized controls and I/O connections allow integrators to easily switch between Datalogic's laser technologies (Solid State , Fiber, CO^2) without any connection or wiring complications.

Everything required for your marking application is now included: a 100-240 VAC power supply, a Windows 10 IoT embedded PC, an iMark Embedded Laser controller with four independent axis controls (X, Y, Z, rotating axis), dedicated connectors for Marking On Fly (MOF), Datalogic's MATRIX code reader, and much more. All units come equipped with a built-in, pre-configured Teamviewer host to provide complete remote support from Datalogic.

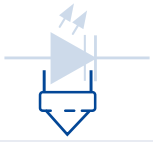


TECHNOLOGIES

SOLID STATE
High Peak power, Multi wavelength, for demanding materials

FIBER LASER
High reliability fiber laser technology

CO_2
Consolidated technology for painted, coated or organic material



SOLID STATE LASER MARKER: VLASE SERIES

The long history of market-leading Solid State technologies has enabled Datalogic to create the most comprehensive product portfolio in the marketplace by offering solutions with a wide variety of applications in multiple wavelengths.

DL product portfolio offers industrial grade solutions for Infrared and UV in a wide power range.

Solid State key features:

- Best-in-class laser peak power
- Two different wavelengths for best results even on highly reflective or high-stability materials
- Excellent beam quality and marking accuracy
- Low thermal footprint to ensure high contrast on thermoplastic materials and low impact on thermal sensitive components



FIBER LASER MARKER: UNIQ & AREX400 AF SERIES

Innovative design and performances combined with state-of-art technology, for the most demanding applications and industries. Datalogic's AREX400 AF and UniQ product lines are robust reliable and cost effective. Fiber laser technology is the solution of choice for high-end applications where speed, quality and efficiency are critical.

Fixed pulse width models (100 ns) ensure great thermal effect on metal marking materials, for high efficiency metal annealing and engraving.

Adjustable pulse width model (4 - 250 ns) based on MOPA technology offers the highest level of flexibility on heat-sensitive materials, and ensure the highest contrast on thermoplastic materials.

Fiber Laser key features:

- Ultra-compact, rugged IP64 scanhead fully protected against dust, water and oil droplets
- Low noise level
- Fast turn-on time, zero warmup
- High stability, reliable process
- Excellent on metal and plastic surfaces



CO_2 LASER MARKER: EOX SERIES

CO_2 laser technology is still the best solution to provide permanent laser marking for industrial traceability and coding on paper, carton, organic materials, coated/painted materials and plastic.

Long wavelength (10.6 µm) ensure good results even on glass, rubber, food, wood and many other materials.

CO2 Laser key features:

- Excellent on paper, cardboard, wood and plastics
- Marking on the fly compatible with variable speed
- Suitable for coding from medium to high throughput production lines

How does a laser marker work?

Laser marking is a way to permanently mark a physical item for branding, tracking, coding, personalizing, either for security or quality control reasons.

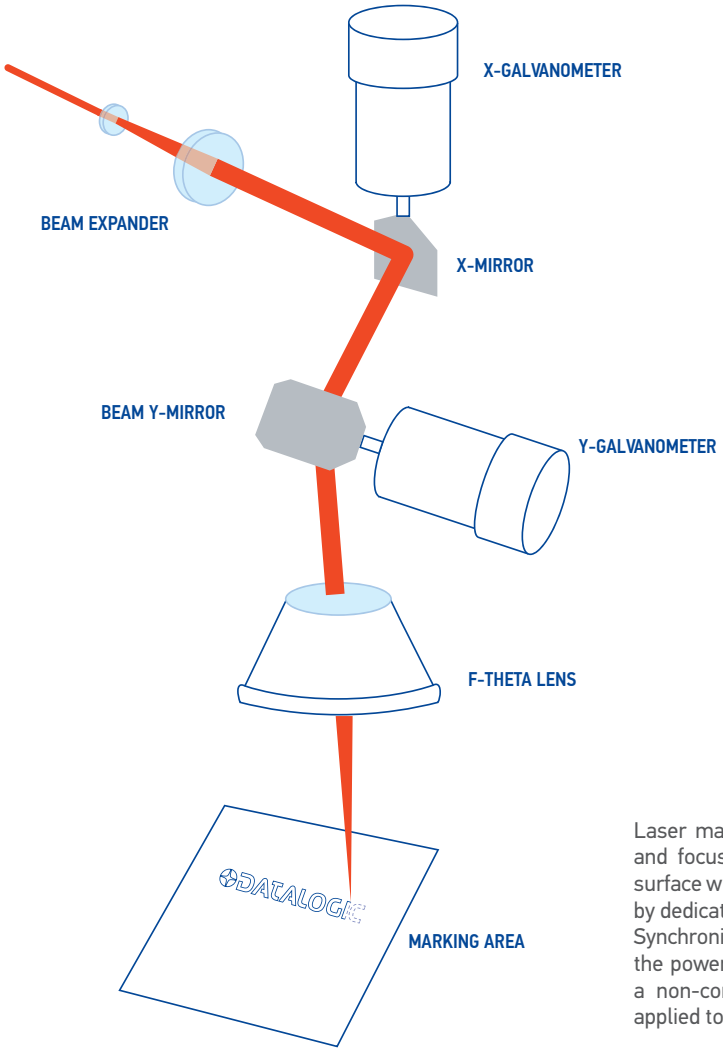
During the process, an intense, collimated laser light beam is focused on the surface of a target. By scanning this concentrated spot with moving mirrors on the target's surface the laser beam can create an image.

Depending on laser source characteristics, an instantaneous peak power density of several kilowatts are delivered on the target causing instantaneous modification to the surface.

Laser Marking does not involve the use of inks, masks, solvents, acids, nor does it require tools which contact the engraving surface and wear over time. These properties distinguish laser engraving from alternative engraving or marking technologies where inks or bit heads have to be replaced regularly.

While most forms of engraving result in a loss of some of the marked material when it is etched away, laser marking results in essentially no loss of material. Instead, the laser is used to create a shift in the color of the material, creating a visible, virtually indestructible mark with minimal impact to the item.

HOW DOES LASER MARKING WORK



Laser marking is obtained by delivering and focusing a laser beam on a target surface with motorized mirrors controlled by dedicated hardware and software. Synchronizing the XY movement with the power modulation of the laser beam a non-contact and permanent mark is applied to the target surface.

Advantages of laser marking

Laser marking technology is the preferred choice in manufacturing due to its intrinsic advantages:

PERMANENT & DURABLE
Abrasion proof, water, solvent, oil, temperature, UV resistant marking counterfeit proof
Strong interaction with substrate: Tamper proof, difficult to alter or remove

LONG TERM CONTRAST & READABILITY
Human and machine readable over long periods of time

NON CONTACT, CLEAN & DRY
Solvent and ink free with no mechanical interactions with materials, complex clamping or special handling systems, with no drying time

FAST - HIGH PRODUCTIVITY
On-the-fly and static marking with up to 600 characters per second

HIGH RESOLUTION, HIGH QUALITY
High resolution for graphics, logos or fonts, up to 600 DPI

FLEXIBLE
Fixed, variable, or dynamic text, full vectorial and bitmap graphics, 1D & 2D bar codes

RELIABLE & ENVIRONMENTALLY FRIENDLY
Laser marking requires no paint, ink, solvents, chemicals, or other consumables, resulting in an exceptionally low environmental impact. This allows environmentally-conscious companies to benefit from both cost savings and the eco-friendliness of laser marking solutions



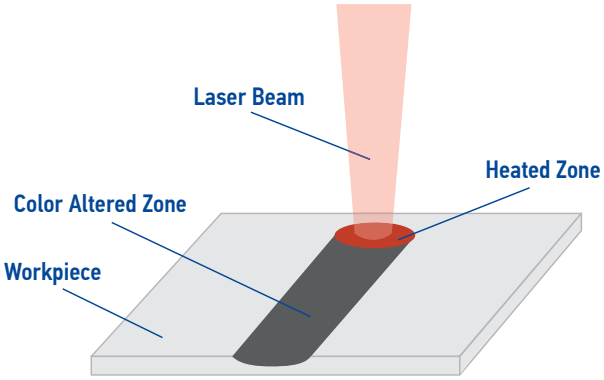


Laser Marking processes

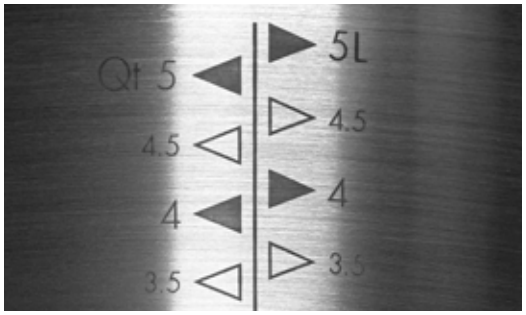
1 - Annealing

Materials:
Ferrous metals (iron, steel)
Titanium

Laser marking product:
AREX Series- Fiber Laser Marker
VLASE Series – Solid State Laser Marker
UNIQ™ - Fiber Laser Marker



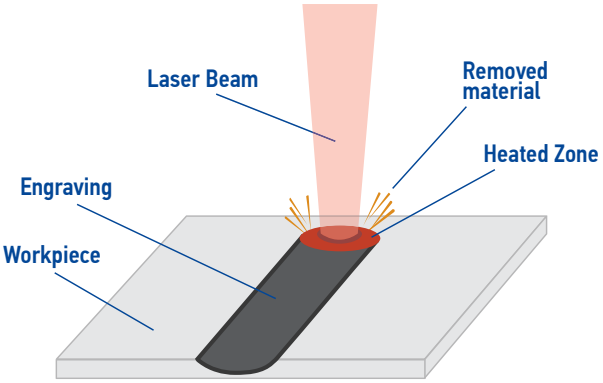
Laser annealing is a marking technique that uses laser irradiation to thermally induce local oxidation without noticeable material ablation, this process creates an indelible, permanent black mark without any cracks, depressions or burrs suitable for already finished surfaces like high surface precision on surgical instruments and tools.
Typical annealing processes usually penetrate 20 to 30 µm deep in the metal surface, resulting in a stable marking that is corrosion-proof ensuring the mark cannot be removed by acid, solvents, or abrasive techniques.
This dark, permanent mark is perfect for medical device applications where marks withstand passivation, salt spray testing, and autoclaving and where material removal is prohibited to ensure part integrity and surface quality.



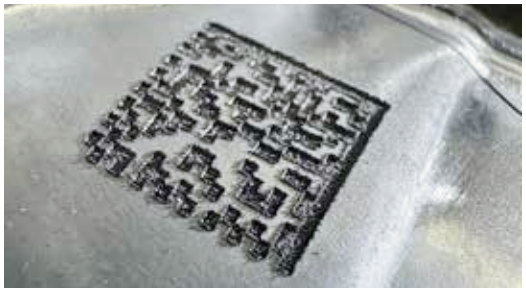
2 - Engraving

Materials:
Metals
Thermoplastic
Wood, organics

Laser marking products:
AREX Series- Fiber Laser Marker
VLASE Series – Solid State Laser Marker
EOX Series – CO_2 Laser Marker
UNIQ™ - Fiber Laser Marker



In laser engraving, the laser beam locally overheats the workpiece material to the vaporization point. In some cases, thermal effects are very evident with large Heat Affected Zones (HAZ), colored oxides can be produced at the bottom or the engraving further accentuating the marking.
A depression is created in the workpiece through melting and/or vaporization of material. Typical engraving depths vary between 0,001mm to 0,1mm and almost any material can be engraved with a suitable laser source (Fiber, YAG, CO_2).
Deep engraving is a method to create durable, direct and forgery-proof product marking which is resistance to wear and corrosion, even after painting or coating processes as used in automotive applications.
Deep engraving also includes 3D marking, which is the progressive removal of several layers of material at different depths to create a three-dimensional carving into the workpiece. 3D marking relies on external devices to reposition the focus field to affect different layers along the Z axis. Typical deep engraving depths vary between 0,1mm to 5mm.

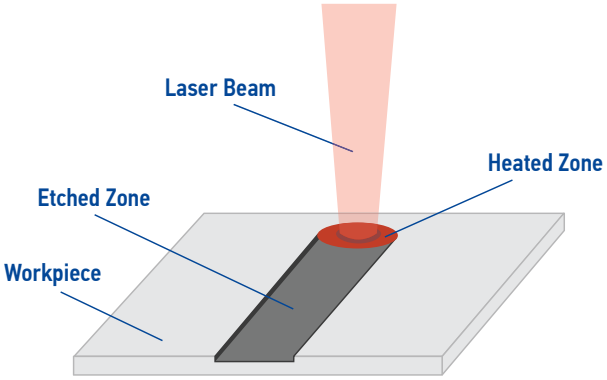


3 - Surface etching

Material marked:
Metals

Laser marking product:
AREX series - Fiber Laser Marker
VLASE series – Solid State Laser Marker
UNIQ™ - Fiber Laser Marker

The laser etching process consists of using laser irradiation to alter the superficial finish of a metal and create contrast by enhancing the way it reflects and diffuse ambient light.
Depth of penetration usually does not exceed 0.01mm. Laser etching is probably the most widely used high speed laser marking process.



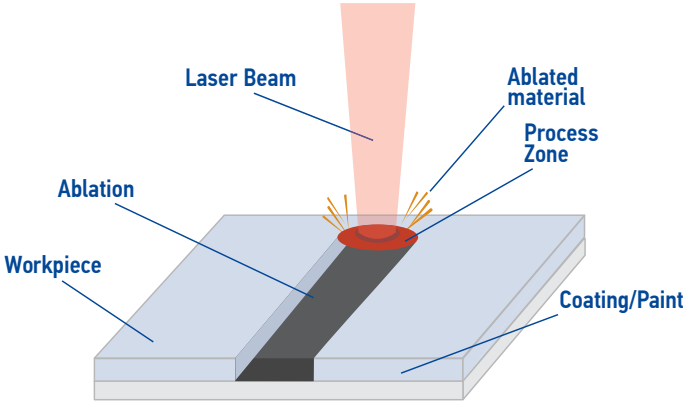


4 - Coating ablation /Paint stripping

Materials:
Multiple materials, depending on coating

Laser marking product:
AREX Series- Fiber Laser Marker
VLASE Series – Solid State Laser Marker
EOX Series – CO_2 Laser Marker
UNIQ™ - Fiber Laser Marker

Ablation marking process consists of the partial/complete removal of one or more coating layers which exposes the contrasting color of the substrate material.
This process is popular for backlight marking and 'night & day' buttons and keys in the automotive, computer and mobile electronics industries, where a dark spray coating is applied on a transparent substrate, and then selectively ablated by laser irradiation. Short pulses with high peak reduces the thermal impact on the material resulting in high resolution marking. Laser ablation can also be used to prepare substrates for other steps in the production process. For example welding of oily, dirty or oxidized surface or when an electrical contact is needed on metal frames. In these applications, cleaning and chemical agents can be eliminated and replaced with laser ablation.



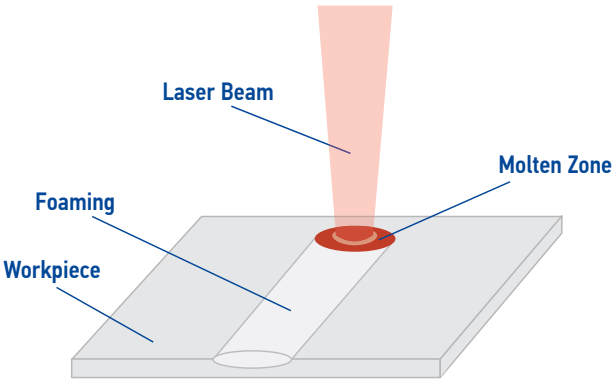


Laser Marking processes

5 - Foaming

Materials:
Thermoplastic Materials

Laser marking product:
AREX Series- Fiber Laser Marker
VLASE Series – Solid State Laser Marker
UNIQ™ - Fiber Laser Marker



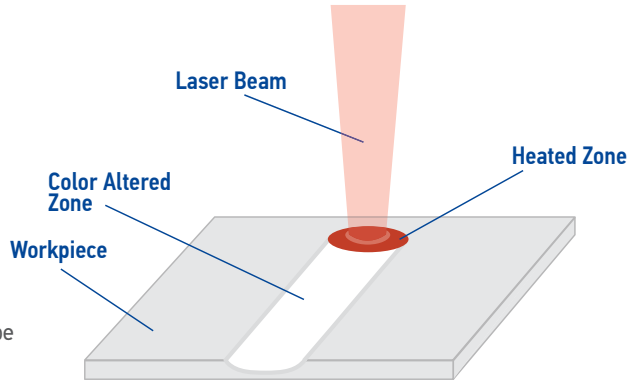
Due to laser absorption and low thermal conductivity the local workpiece temperature rises to its melting point. Small gas bubbles appear in the molten material, which increases its volume creating a type of plastic foam. The processed area appears much brighter then the surrounding material. This process is typically enhanced using laser marking additives that increase contrast and the reliability of the marking process. The foaming marking process is usually tactile and with poor scratch resistance.



6 - Color change / Blackening / Bleaching

Materials:
Thermoplastic Materials

Laser marking product:
AREX Series- Fiber Laser Marker
VLASE Series – Solid State Laser Marker
UNIQ™ - Fiber Laser Marker



On some thermoplastic materials "UV lasers" (third harmonic lasers @ 355 nm) can be used for bleaching and photo reduction marking processes.
This effect is also called "cold marking" for the reduced "thermal footprint" on the substrate.

The use of laser-sensitive additives in plastics can generate considerable advantages. Additives in plastics are able to increase outline sharpness and contrast and thus boost readability of the marking contents e.g. of machine-readable codes. Used with transparent and semi-transparent materials, additives lead to a uniform contrast. Additives in plastics increase the diversity of product colors and are of crucial importance for the markability of certain materials.

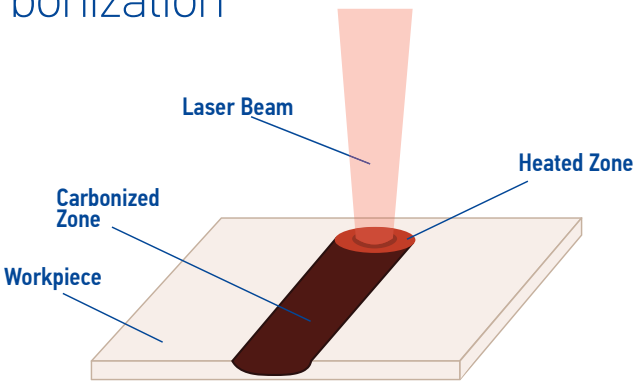


7 - Carbonization/Engraving With Carbonization

Materials:
Thermoplastic Materials
Paper, Wood, Organics

Laser marking product:
AREX Series- Fiber Laser Marker
VLASE Series – Solid State Laser Marker
EOX – Series – CO2 Laser

Carbonization of one or more specific pigments, flame retardants or other additives will provide consistent marking with sharp contrast in most light colored thermoplastic materials. Engraving may be present depending on the vaporization of the material and its absorption level.



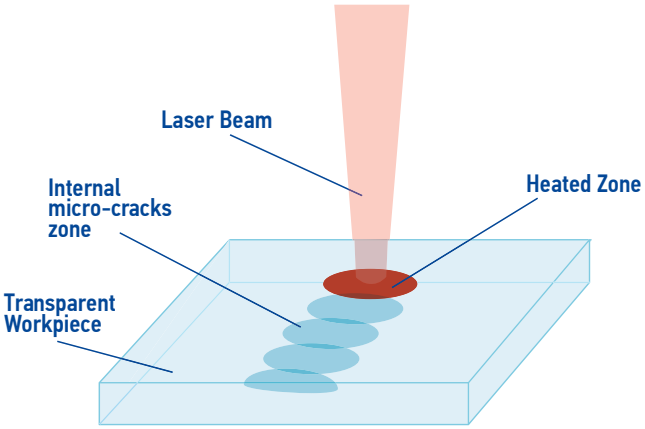


8 - SubSurface Laser Engraving (SSLE)

Materials:
Glass, transparent plastics

Laser marking product:
AREX Series- Fiber Laser Marker
VLASE Series – Solid State Laser Marker

Focusing intense laser radiation below the surface of a transparent object creates a mark made of micro-cracks induced by localized absorption of the laser light. As a result, microscopic cracks cause multiple internal light reflections which makes the spot look white. Without affecting the polished surfaces, two and three dimensional images can be created inside of the glass. This technique is popular for decoration as well as tamper-proof traceability.





Laser Marking processes

9 - Color Marking On Ferrous Metals And Titanium

Materials:
Ferrous metals (iron, steel)
Titanium

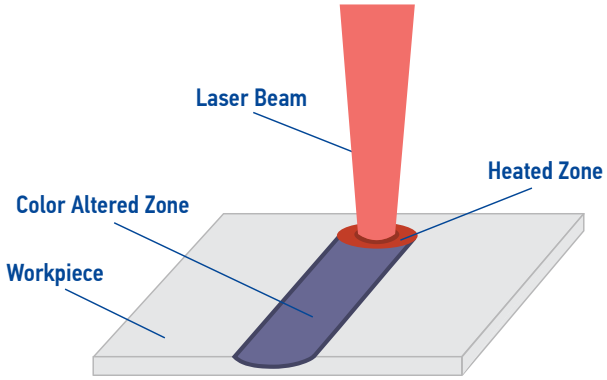
Laser marking product:
AREX42M AF MOPA Fiber Laser Marker

Laser Color Marking of stainless steel and titanium is a well-known marking technique but still with a limited diffusion in the industry.

Like laser annealing, laser color marking is based on surface oxidation, varying different laser parameters will results in different oxide coatings that can be seen as different colors by the viewer.

Most important parameters in laser marking are the focal spot diameter, power on sample, marking speed, line spacing, marking direction, repetition rate and pulse length.

Thanks to the capability to control laser pulse-width, and to its high stability, MOPA fiber lasers enable homogeneous and reliable color marking on ferrous metals and titanium.





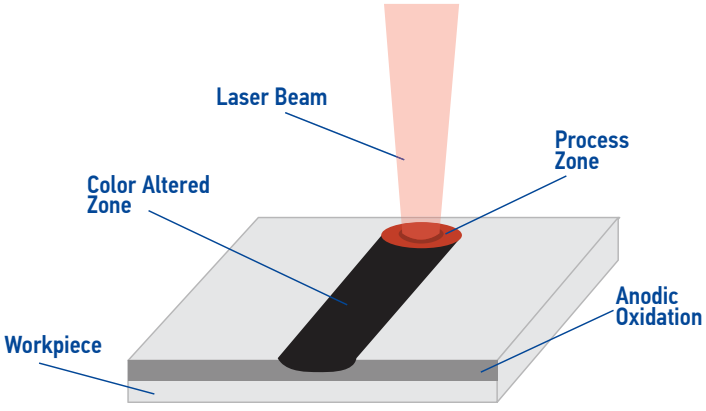
10 - Black Marking On Anodized Aluminum

Materials:
Anodized aluminum

Laser marking product:
AREX42M AF – MOPA Fiber Laser Marker

The so called “black marking” is a technique widely used by mobile device manufacturers to mark logos and serial numbers on the anodized aluminum case with high contrast, pleasing appearance and feel and no damage on the protective oxide layer.

Thanks to the capability to run at short pulses, to the high level of control of energy and peak power, Mopa fiber lasers are the best choice to combine real black appearance with the benefits of laser marking without corrupting the corrosion properties of the coated material.







Lighter Software

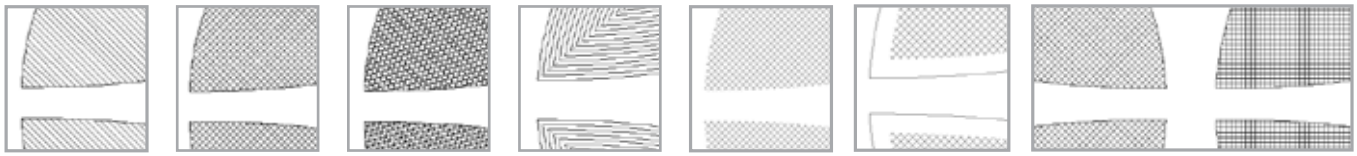
Thanks to its full graphical interface, **LIGHTER** combines advanced editing features with laser setup, controls and diagnostic for complete, flexible and ease of use laser marking system control.

LIGHTER SUITE is based on a quick-to-learn powerful WYSIWYG (What You See Is What You Get) graphical LASER EDITOR and an easy-to-use, LASER ENGINE.
This two-GUIs approach guarantee effective results in term of flexibility and operating speed.

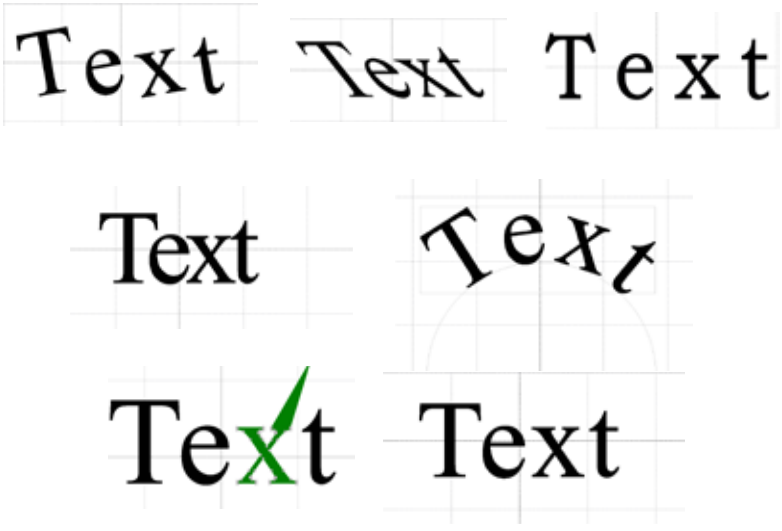
LASER EDITOR: Advanced Editing Function

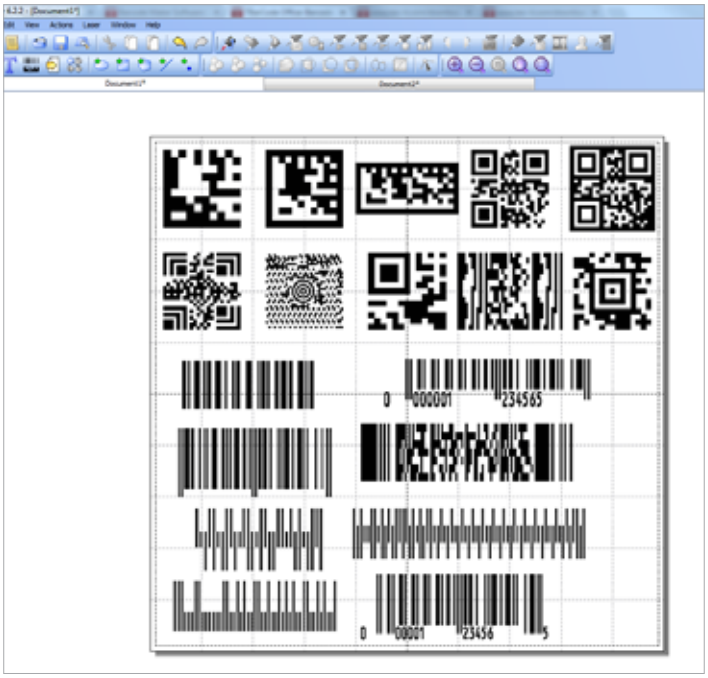
- Full Graphical interface, to easily design and edit any kind of marking layout.
- Built-in Property Browser for fast setting of all parameters
- Creates and edits texts, codes, imported vectorial graphics, logo, etc.
- Comprehensive and powerful coding library for 1D and 2D code (100+ code styles available)
- Direct import and edit of bitmap and vectors logo and graphics (BMP, PNG, GIF, JPG, SVG, TIF, PLT, DXF,DWG, AI, ...)
- Advanced filling and hatching features for objects and pattern structures with various styles.
- True Type Font (TTF) import tool, with advanced editing features (rounded text, slanted, compression etc.)
- Unicode language support
- Mark Preview – exact view of marking vectors.
- Clone function , array capabilities for IC marking,
- Gray tones marking

ADVANCED HATCHING FEATURES AND CAPABILITIES









Embedded coding library supports linear, 2D, GS1 and composite symbologies.
QR-Code, Datamatrix, are supported as well as other 100+ code styles.

AUTOMATION CAPABILITY

LIGHTER SUITE incorporates additional features to simplify automation and integration with automatic lines.

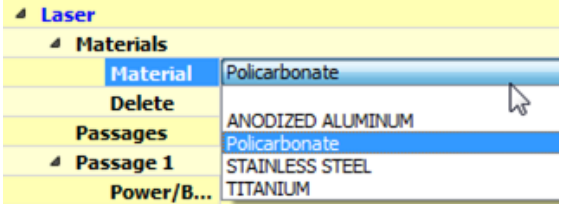
- Embedded Stepper Motor controller: up to 4 axes independent Mechanical Axis(: X, Y, Z and Rotary/indexer) at layout level
- User configurable general purpose I/Os with built-in I/Os monitor
- Marking-on-Fly (MOF) capabilities with Setup Wizard for easy set-up
- Sequence Editor to easily create sequential automated in a few clicks
- Powerful built-in counters and Global Variables Manager for serializing applications
- Built-in Material database
- Built in Script Engine for interaction with local or centralized database



GLOBAL VARIABLES MANAGER



LASER TEST & I/O MONITOR



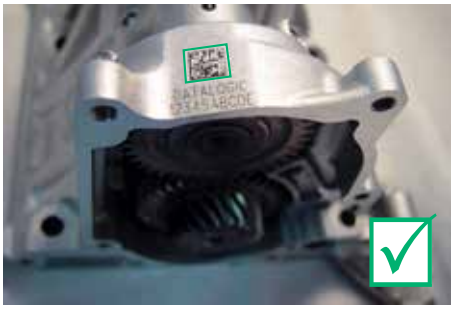
MATERIAL DATABASE

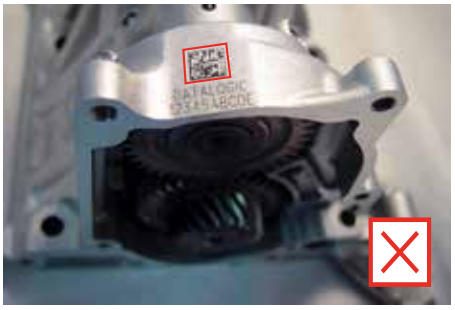
MA.R.V.I.S. : MARK READ VALIDATE INTEGRATED SOLUTION

Available with the LIGHTER software suite the new MARVIS (Mark Read Verify Integrated Solution) is the new Datalogic's solution for laser marking parts traceability.

LIGHTER MARVIS™ represents an important step ahead in the MARK & VALIDATE application setting a new standard in term of ease integration and ease of use.
Thanks to innovative approach LIGHTER MARVIS™ merges the capability to control both the full family of DATALOGIC Laser Markers and the entire family of MATRIX code readers, in a user friendly, simplified fully graphical interface.
MARVIS functionalities require an additional software license; see section ACCESSORIES.

MARVIS





MARVIS: MARK & VALIDATE IN ONE CLICK

Object-Oriented Configuration

In the Lighter Suite, each object is associated with specific LASER parameters and READER configuration; loading a graphical layout will automatically retrieve and update laser and reader configurations.
Product reconfiguration or format changes are as simple as loading a graphical layout.

Connectivity

The LIGHTER Suite allows OEMs and Machine builders to develop a complete and cost effective Laser Marking Station, based on embedded hardware and software resources (such as STAND ALONE mode) or to design an advanced Laser Marking Solution able to control machinery over a simple Ethernet connection with a supervisor computer (MASTER-SLAVE mode).
Lighter Suite natively embeds Ethernet TCP/IP and EtherNet/IP protocols.

Advanced Editing Function



- Easily create, import and edit texts, shapes and logos
- One-click code generator for 1D and 2D symbologies
- Object-related Property Browser for fast adjustment of Marker and Reader parameters
- Imports Bitmap and Vector files (DXF, DWG, PLT, PDF, AI, SVG, BMP, JPG, PNG and TIFF...)
- Advanced filling featured with various laser-optimized patterns

Scripting programmability

The LIGHTER Suite integrates the IDE (Integrated Development Environment) providing the users with a full set of tools to be used for extremely flexible customization.
The programming language is ECMAScript (also called JavaScript).
With Project Editor it is possible to:

- Control the entire marking process
- Create and fully customize marking layout and its content at runtime
- Interact with local or centralized databases
- Create alternative customized interfaces
- Interact with Third Party devices

Integrated Configuration and Setup

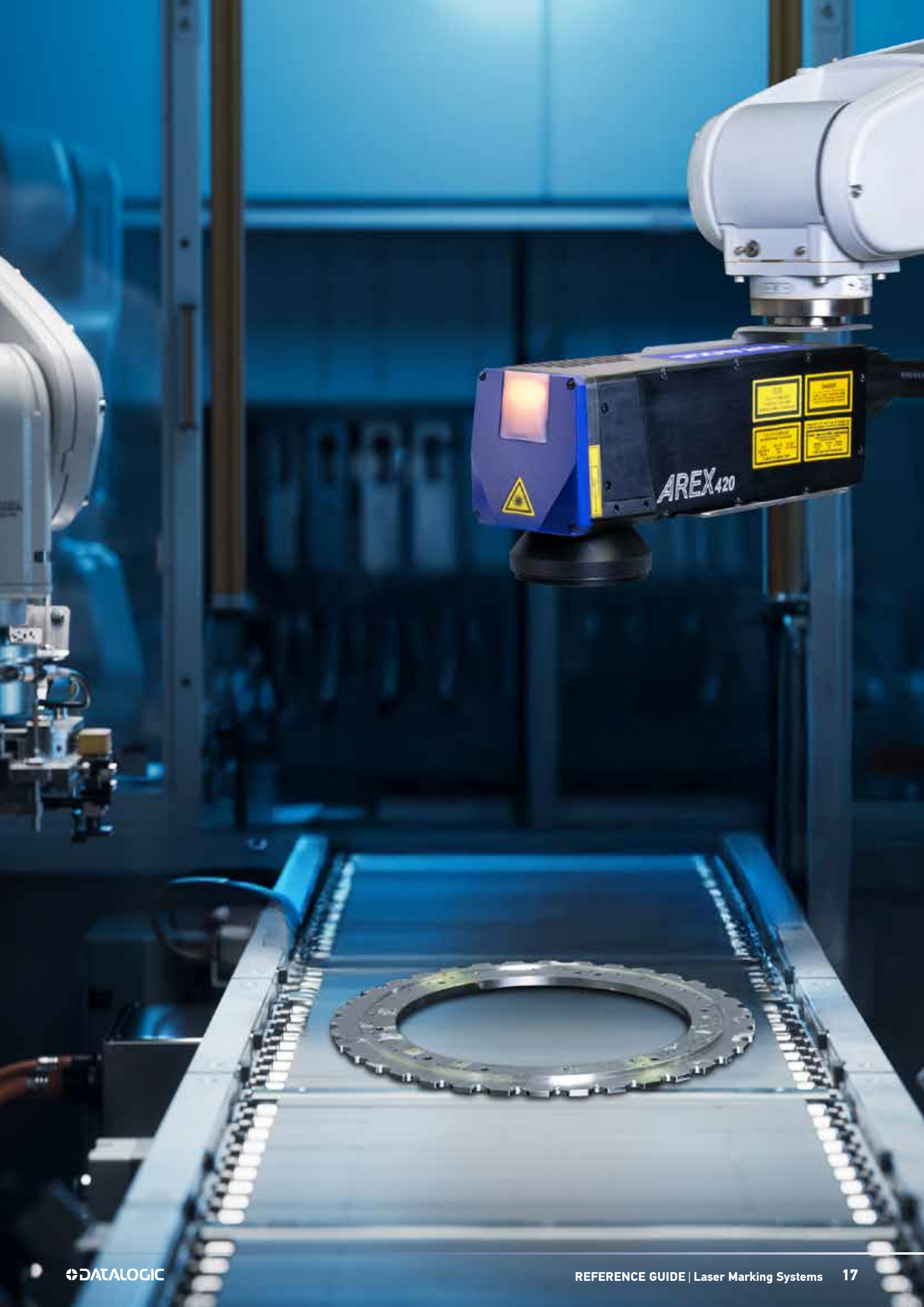


- IP address discovery and connection management
- Dedicated Digital output for in-line parts selection
- Dedicated Digital input for
- deferred reader trigger
- Configurable images storage pool
- New Code Quality Training feature to automatically define code quality threshold from "Golden Sample"
- Patent Pending "Quality Grade Metric Profile" (QGP)

Runtime Production Statistics and Reports



Built-in validation statistics dashboard.
Configurable log file with Quality Reporting and code images.


AREX 420

Fiber Laser Marking

FIBER LASER

Fiber lasers are not new in Industrial Laser Marking, CW fiber sources have been used for high speed marking of integrated circuits (IC) since 1998. In recent years, fiber lasers have tremendously progressed in terms of flexibility and overall performance enabling the 'Fiber Revolution' in the laser market.
With a monolithic, solid state, fiber-to-fiber design which eliminates mirrors and optics to align or adjust, fiber lasers have technological advantages that dramatically improve reliability and repeatability of laser processes.

Fiber lasers also offer integration and operational advantages:

- Fiber lasers are compact and deliver their energy through a flexible optical fiber
- Fiber lasers are scalable and more efficient than any other laser technology, with wall-plug efficiencies greater than 30%
- Fiber lasers offer higher and stable beam quality and excellent pulse-to-pulse stability ensuring the best repeatability over time, especially for critical marking processes
- Q-Switched Fiber lasers offer a long pulse-width (typ 100 nsec) that make these sources the first choice for marking metal in the automotive industry
- MULTIWAVE M.O.P.A. fiber laser technology offers the capability to select the emission pulsewidth from 4 ns to 250 ns ensuring superb marking performances in term of process optimization and repeatability.

APPLICATIONS & MATERIALS



High contrast marking on metal



High contrast marking on metal



Engraving & deep engraving on metal



Color change on plastics



Color change on thermoplastic polymer with additive

UNIQ™



UniQ™ marker is a revolutionary and innovative approach to Fiber Laser Marking.

UniQ™ fiber laser marker represent the perfect combination of a high performance fiber laser into a innovative, ultra-compact housing designed to provide an effective solution to the recent request of shorter, smaller production lines, in order to reduce footprint and floor area consumption.

Thanks to its advanced internal design, UniQ™ laser marker does not need any high-IP grade external cabinet, controller or power supply, and is totally free from delivery fiber constraints such as fiber length and fiber bending limitations.

The IP54 rated innovative housing guarantees maximum protection even in harsh factory environments and industrial applications.

UniQ™ laser marker works seamless with Datalogic's Lighter Suite, a powerful, quick and intuitive marking software, and is fully compatible with the latest Datalogic I/O interfaces.

Features & benefits

- Powerful 15W fiber laser source
- All-in-one, Fully integrated ultra-compact device
- Rugged IP54 rated housing
- All included: No external controller, no external power supply needed
- No fiber delivery constraints
- Built-in second generation EMC (Embedded Marking Controller)
- Great Money Vs Watt ratio
- Powered by Lighter software Suite

Main applications

Factory Automation

- **Automotive**
  - High Contrast DPM for traceability, quality control, testing & sorting
  - High stability marking for end-of-life traceability
- **Industrial Electronics**
  - High contrast marking on additivated plastic materials
  - High speed coding and branding on industrial electronic devices

Other

- **Medical & surgical tools**
  - Contactless and Clean Direct Marking Process for Branding & Personalization
  - Instant permanent marking: no drying time, no post processing, no solvent or additive
- **Precision Mechanics**
  - High precision marking with no mechanical stresses
  - Clear and precise annealing even on very small surface

PARAMETER		UNIQ
Wavelenght	nm	1060 – 1080
Nominal power	w	15
Repetition rate range	kHz	15 - 100
Pulsewidth	ns	120
Pulse energy	mJ	0.75
Peak power	kW	10
Marking capabilities		Standing, Rotary axis, On the fly (marking in motion)
Integration		Up to 4 mechanical axis driving capabilities (stepper motor) Up to 10 digital inputs and 10 digital output fully programmable dedicated connectors for Datalogic's Encoder and Photocell
Interface		Ethernet, RS 232, 4x USB
Power		100/240 VAC – 50/60 Hz
Cooling system		integrated air-cooled
Dimensions & weight - LxWxH		497x150 x183 mm - kg 10

MODEL SELECTION AND ORDER INFORMATION

ORDER NUMBER	DESCRIPTION	FULL DESCRIPTION
901390001	UNIQ 1150-1341 Fiber Marker	UniQ 15W@1064 with F160S-M39 Lens W10
901390002	UNIQ 1150-1641 Fiber Marker	UniQ 15W@1064 with F254S-M39 Lens W10
901390003	UNIQ 1150-1741 Fiber Marker	UniQ 15W@1064 with F254L-M85 Lens W10
901390004	UNIQ 1150-1941 Fiber Marker	UniQ 15W@1064 with F100L-M85 Lens W10

Fiber Laser Marking

AREX400 AF



The AREX400 AF is a new fiber laser marker that defines a significant advancement in Industrial Marking applications in such sectors as Automotive, Industrial Electronics, Machine Tools and Home Appliances.

The AREX400 AF is equipped with an Adjustable Focus (AF) module to allow dynamic focus distance adjustment through an internal optical Z-shifter. The AF module adds an extra z-axis field, enabling the laser to mark Z surfaces within a specified volume (several f-theta options available) with consistent quality and precision.

The AF functionality allows to effortlessly mark multi-tiered components, seamlessly adapt to format changes and easily compensate installation errors and tolerances.

Features & Benefits

- Internal Z focus shifter (adjustment range up to +/- 60 mm).
- Compact and rugged scanhead IP64.
- Robotic-grade conduit between rack and scanhead.
- Renewed industrial-grade PC with HDMI video output. Windows 10 IoT LTSC 2021
- Supports MARVIS functionality for code validation and code grading with DATALOGIC's MATRIX code scanners.
- Built-in industrial protocols TCP/IP, EtherNet/IP, and PROFINET.
- Powered by new LIGHTER™ Suite 9.
- Embedded Safe Laser Off (SLO) module for failsafe laser shutdown.

Applications

- Permanent and durable Direct Part Marking (DPM) traceability
- Serialization and functional marking of components and sub-assemblies
- Branding and logo marking on finished goods

Materials

- **Metals:** Stainless Steel, High-speed Steel, Carbide, Steel, Carbon steel, Copper, Iron, Ferrous Metals, Alloys, Magnesium, Aluminum, Brass, Titanium ...
- **Coated / Painted Metals:** Anodized Aluminum, Painted metals, electrodeposited metal alloy coatings, etc.
- **Plastic:** Polycarbonate (PC) Polysulfone (PSU), Polyphenylene sulfide (PPS), Polystyrene (PC), Acrylonitrile Butadiene Styrene (ABS)

Industries

- Automotive
- Industrial electronics
- General manufacturing
- Tooling and precision mechanics

PARAMETER		AREX 42M-xAF	AREX410-xAF	AREX420-xAF	AREX430-xAF	AREX450-xAF	AREX40C-xAF
Nominal average power	W	20	10	20	30	50	100
Source type		MOPA	Pulsed fiber				
Wavelength	nm	1055-1075					
Pulse Enegy (max.)	mJ	1					
Peak Power (max.)	kW	10					
PulseWidth (typ.)	ns	1.5 ÷ 350	100				
Pulse Repetition rate	kHz	2 ÷ 950	2 ÷ 500				
Aiming & Focusing Beam		2x 655 nm (class II)					
Scanning head		XY galvanometer + Z focus shifter					
F-theta available		160mm M; 254mm M; 420mm L					
Working distance	mm	Depending on f-theta: 158 ± 20; 261 ± 40; 492.5 ± 60					
Marking Area	mm^3	Depending on f-theta(*): 90 × 90 × 40; 140 × 140 × 80; 285 × 285 × 120					
Operating temperature	°C	5 to 40				5 to 35	
IP rating scanhead / rack		IP64 / IP31(**)					
Control rack cooling		Forced air					
Input voltage	V	100-240 VAC 50/60 Hz					
Max power consumption	W	350				600	
Scanhead dimensions (H×W×D)	mm	95.4 × 89.2 × 312.5 (***)					
Control rack dimensions (H×W×D)	mm	111 × 427 × 433.5					157.7 × 427 × 433.5
Umbilical cord length	m	3					
System weight scanhead / rack	kg	3.5 / 17.5 (***)					3.5 / 23.5
Scanhead installation		Any orientation; static or dynamic					
PC and controller		Windows 10 IoT LTSC; Intel embedded computer; embedded marking controller					
PC interface		5x USB, 3x LAN, 1x RS-232, HDMI®					
Marking capabilites		Static, Rotary axis, Extended layer, On-the-fly					
I/Os		Up to 4 external axes (stepper motors) Up to 10 digital inputs and 12 digital outputs (programmable), encoder M12, photocell M12, MATRIX code scanner, analog distance sensor					
Software		LIGHTER™ 9 Suite. Includes Laser Editor, Laser Interface and Project Editor.					
Software capabilities		True Type fonts, Datalogic fonts 1D codes, Datamatrix, QR, micro-QR. More than 100 symbologies and variants. Imported graphics (DXF, DWG, PLT, AI, PDF) and logos (BMP, JPG, TIFF, PNG)					
Communication		Ethernet TCP/IP 10-100 Mbit, Ethernet/IP, Profinet(****), Digital I/Os					

(*) With AF module enabled. (**) When rack installed horizontally; IP30 when vertical. (***) Without f-theta. (****) Additional Software license

TARGET INDUSTRIES AND APPLICATIONS

Industrial Electronics



Electronic enclosure

Automotive



Cast aluminum component

Automotive



Painted-metal motor body

Automotive



Fiberglass-reinforced PA66 part

Machine Tools



Ball bearing

Industrial Electronics



Multi-tiered thermoplastic case

MODELS SELECTION AND ORDER INFORMATION

ORDER NO.	MODEL	DESCRIPTION
985180149	AREX 410-MAF FIBER MARKER	AREX 410-MAF, 10W FIBER MARKER, IR@1070NM, F160M-M60, WIN10, ADJUSTABLE FOCUS
985180150	AREX 410-NAF FIBER MARKER	AREX 410-NAF, 10W FIBER MARKER, IR@1070NM, F254M-M60, WIN10, ADJUSTABLE FOCUS
985180153	AREX 420-MAF FIBER MARKER	AREX 420-MAF, 20W FIBER MARKER, IR@1070NM, F160M-M60, WIN10, ADJUSTABLE FOCUS
985180154	AREX 420-NAF FIBER MARKER	AREX 420-NAF 20W FIBER MARKER, IR@1070NM, F254M-M60, WIN10, ADJUSTABLE FOCUS
985180156	AREX 420-BAF FIBER MARKER	AREX 420-BAF, 20W FIBER MARKER, IR@1070NM, F420L-M85, WIN10, ADJUSTABLE FOCUS
985190011	AREX 42M-MAF FIBER MARKER	AREX 42M-MAF, 20W MOPA FIBER MARKER, IR@1070NM, F160M-M60, WIN10, ADJUSTABLE FOCUS
985190012	AREX 42M-NAF FIBER MARKER	AREX 42M-NAF, 20W MOPA FIBER MARKER, IR@1070NM, F254M-M60, WIN10, ADJUSTABLE FOCUS
985190014	AREX 42M-BAF FIBER MARKER	AREX 42M-BAF, 20W MOPA FIBER MARKER, IR@1070NM, F420L-M85, WIN10, ADJUSTABLE FOCUS
985180157	AREX 430-MAF FIBER MARKER	AREX 430-MAF, 30W FIBER MARKER, IR@1070NM, F160M-M60, WIN10, ADJUSTABLE FOCUS
985180158	AREX 430-NAF FIBER MARKER	AREX 430-NAF, 30W FIBER MARKER, IR@1070NM, F254M-M60, WIN10, ADJUSTABLE FOCUS
985180160	AREX 430-BAF FIBER MARKER	AREX 430-BAF, 30W FIBER MARKER, IR@1070NM, F420L-M85, WIN10, ADJUSTABLE FOCUS
985180161	AREX 450-MAF FIBER MARKER	AREX 450-MAF, 50W FIBER MARKER, IR@1070NM, F160M-M60, WIN10, ADJUSTABLE FOCUS
985180162	AREX 450-NAF FIBER MARKER	AREX 450-NAF, 50W FIBER MARKER, IR@1070NM, F254M-M60, WIN10, ADJUSTABLE FOCUS
985180164	AREX 450-BAF FIBER MARKER	AREX 450-BAF, 50W FIBER MARKER, IR@1070NM, F420L-M85, WIN10, ADJUSTABLE FOCUS
985180165	AREX 40C-MAF FIBER MARKER	AREX 401-MAF, 100W FIBER MARKER, IR@1070NM, F160M-M60, WIN10, ADJUSTABLE FOCUS
985180166	AREX 40C-NAF FIBER MARKER	AREX 401-NAF, 100W FIBER MARKER, IR@1070NM, F254M-M60, WIN10, ADJUSTABLE FOCUS
985180168	AREX 40C-BAF FIBER MARKER	AREX 401-BAF, 100W FIBER MARKER, IR@1070NM, F420L-M85, WIN10, ADJUSTABLE FOCUS

Important: All AREX400 AF models below are shipped without mains power cable. The desired cable can be ordered according to the destination region; see ACCESSORIES.

AREX400 AF model number callout

AREX 4 [x x] - [x] AF

POWER	
10	10 Watt
20	20 Watt
2M	20 Watt MOPA
30	30 Watt
50	50 Watt
0C	100 Watt

F-THETA LENS	
M	160M
N	254M
B	420L

AREX400 AF Marking Software

The AREX400 AF is powered by the newest release LIGHTER™ 9, designed to offer unmatched efficiency and adaptability in multiple scenarios: stand-alone stations, semiautomatic machines and fully automatic unattended production lines.

LIGHTER™ 9 MARKING SOFTWARE: FULL CONTROL DAY AFTER DAY

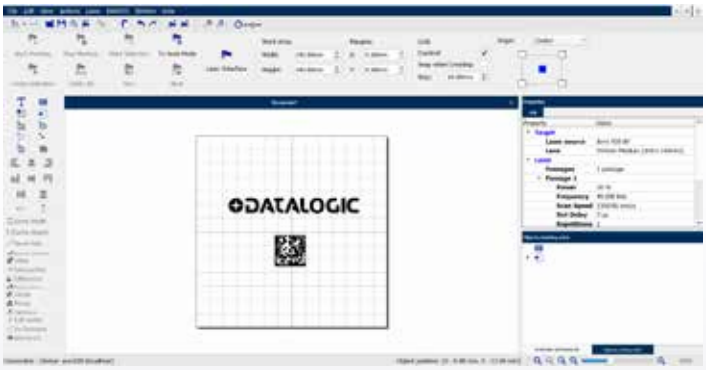
LIGHTER™ 9 Software Suite combines an intuitive GUI with advanced functionality. It simplifies workflows, manages focus with a single Z coordinate, supports 100+ symbologies, CAD graphics import, and backward-compatible jobs. Suitable for stand-alone or automated production, LIGHTER™ 9 offers multiple operating modes, rich automation, and broad interfacing possibilities while minimizing the learning curve.

The new release **LIGHTER™ 9** showcases a new user interface engineered to simplify design, setup, runtime and diagnostic operations.

The workspace of ***Laser Editor***, the design and configuration application, is reviewed to offer more space for layout editing. The menu and controls layout are rationalized to ensure more efficient workflow with fewer clicks.

The revised ***Laser Interface*** application is designed to manage automatic and dynamic operations, remote fieldbus communication and diagnostic/logging activities.

A script editor (***Project Editor***) is available to program special routines and automatized processes, which are then ran by the embedded interpreter. For example, communications with filesystem, database, handheld scanners are realizable.



LASER EDITOR



LASER INTERFACE

ALWAYS CONNECTED

The built-in industrial communication protocols, such as TCP/IP, EtherNet/IP, and PROFINET (*) enable seamless integration into complex industrial architectures, allowing interaction with various devices to monitor and drive the laser marker remotely in unattended operations.

(*) Additional PROFINET license necessary; see ACCESSORIES list.

EMBEDDED CONTROLLER AND OS

The new AREX400 AF embeds a new-generation industrial PC and a proprietary marking control board. The PC runs **Windows 10 IoT LTSC** (= Long-Terms Servicing Channel), making it suitable for future-proof environments and granting stability of performance.

The system is protected by an advanced **UWF filter** that prevents corruption or loss of configurations or machine data in case of abrupt shutdown.

To replace the legacy VGA port, AREX400 AF is now modernized to offer **HDMI-certified** port for video output, making it fully compatible with modern monitors.

The LIGHTER™ 9 marking software is pre-installed and activated on the system. Updates are regularly made available on DATALOGIC website and through qualified Partners.



CODE GRADING WITH MATRIX SCANNERS

AREX400 AF supports MARVIS functionalities (*) to configure the settings of the laser marker as well as of the scanner belonging to DATALOGIC's MATRIX (**) family, with the goal of realizing Code Validation and Code Grading applications of symbols directly marked on parts.

The MARIVS functionality opens several possibilities such as history of marked pieces, process statistics (good/bad pieces) and image capture, stored on the device or exported.

(*) Additional MARVIS license necessary; see ACCESSORIES list.

(**) Consult DATALOGIC or User Manual for the supported MATRIX scanners.

INNOVATE ON SOLID FOUNDATIONS

The new AREX400 AF builds on the experience of DATALOGIC's best-selling family AREX 400. The new AF feature is incorporated in the same **fixing points and beam exit** of the AREX 400 scanhead, ensuring easy upgrades.

The control rack's external interfaces too are designed with **back-compatibility** in mind. The digital I/O's connectors, Safe Laser Off (SLO) socket, photocell, encoder and auxiliary connectors are 1:1 compatible with existing AREX400 installations.

Users of AREX400 can easily upgrade to the new family with minimum reconfigurations, or upgrade within the AREX400 AF family in a breeze.

Solid State Laser Marking

SOLID STATE LASER

Diode Pumped Solid State Lasers (DPSSL) represent the most consolidated technology for laser marking applications and are still the most flexible solution to generate UV laser radiation.
The capability to provide extremely high peak power (up to 10 times higher than standard Fiber Lasers) and short pulse duration, make these laser sources very effective for difficult-to-mark materials such as highly reflective metals (copper, brass, silver, gold,...) or very stable polymer plastic.

Solid state lasers emission @ 1064 nm can be efficiently converted into UV emission @355nm (THG Third Harmonic Generation) enabling the capability to engrave virtually any kind of material with extremely high resolution and reduced Heat Affected Zones (HAZ). DPSSL are ideal for even thermally sensitive materials like silicon wafers, WLCSP, thin memory cards, ICs or highly reflective materials (copper, gold, silver).

DPSS lasers are suitable to process, damage free marking process high tech, multilayers, sensitive materials and components in Aerospace, and high technology Industry.

- DPSS lasers offer highest Peak Power and Short pulse width, providing cold process, extremely aggressive marking spot, even on stable and hard to engrave materials.
- DPSS lasers are available with IR and UV emission, for low thermal footprint marking process.
- DPSS lasers are the first choice for Thermoplastic Polymer Marking in electronics / electromechanical Industry.

APPLICATIONS & MATERIALS - INFRARED AND UV



Color change on high stability plastic polymer



Paint stripping, coating removal



Night & day



Paint stripping



Surface modification



High contrast marking on highly reflective metal



Marking on copper



UV glass marking

VLASE SERIES: IR & UV



VLASE SERIES now combines state-of-the-art YVO4 Solid State laser sources with the high flexibility and easy setup of the "ONE.RACK" embedded controller, providing machine builders, system integrators and end users a unified I/O interface for all three main laser marking technologies as well as only one control unit footprint and design. The high performance embedded controller provides easy operation in stand-alone configuration as well as sophisticated integration in master-slave configuration.

Features & benefits

- Compact, high performance laser resonator
- Detachable resonator & optical fiber
- High Peak power up to 60 kW
- Infrared, Green and UV on same platform
- Build-in embedded controller
- Ethernet, RS232, 4x USB ports
- Dedicated I/O for photocells and encoders
- 4 axis embedded controller

Main applications

Factory Automation

- **Automotive**
  - Coating removal and paint stripping for NIGHT & DAY application
  - High Contrast DPM for traceability, quality control, testing & sorting on high reflectivity materials
- **Electronics**
  - DPM traceability of thermal sensitive materials
  - Branding and high resolution product identification

Other

- **Healthcare**
  - Branding and high resolution product identification
  - DPM for traceability, quality control, testing & sorting, quality selection.
  - High quality marking on highly stable material for medical implants
- **High Precision Machining**
  - Branding and high resolution product identification
    DPM for traceability, quality control, testing & sorting, wip track and control, quality selection

PARAMETER		VLASE IR 10	VLASE IR 20	VLASE UV 3
Wavelenght	nm	1064	1064	355
Nominal power	w	10	20	3
Repetition rate range	kHz	10 ÷ 100	20 ÷ 200	20 ÷80
Pulse width	ns	15@10KHz	8@20KHz	8@25KHz
Max pulse energy	mJ	0.48@10kHz	0.55@20KHz	0.12@30KHz
Peak power	kW	32@10KHz	65@20KHz	14@25KHz
Marking capabilities		Standing, Rotary axis, On the fly (marking in motion)		
Integration		Up to 4 mechanical axis driving capabilities (stepper motor) Up to 10 digital inputs and 10 digital output fully programmable dedicated connectors Encoder and Photocell		
Interface		Ethernet, RS 232, USB		
Optical fiber		Detachable – 3 meters standard - 5 meters optional (IR models only)		
Power supply		100- 240 VAC 50/60Hz – 600 W max		
Cooling system		Air cooled		
Resonator dimensions & weight		686x128 x166 mm - kg 7		686x181x168 mm - kg 11
Controller dimension & weight		480x430x122 mm - kg 15		

MODEL SELECTION AND ORDER INFORMATION

ORDER NUMBER	MODEL	DESCRIPTION
985110073	VLASE 1109-1343 IR Marker	VLASE 10W@1064nm with F160S-M39 Lens W10
985110074	VLASE 1109-1443 IR Marker	VLASE 10W@1064nm with F160L-M85 Lens W10
985110075	VLASE 1109-1643 IR Marker	VLASE 10W@1064nm with F254S-M39 Lens W10
985110076	VLASE 1109-1743 IR Marker	VLASE 10W@1064nm with F254L-M85 Lens W10
985110080	VLASE 1209-1343 IR Marker	VLASE 20W@1064nm with F160S-M39 Lens W10
985110081	VLASE 1209-1443 IR Marker	VLASE 20W@1064nm with F 160L-M85 Lens W10
985110082	VLASE 1209-1643 IR Marker	VLASE 20W@1064nm with F254S-M39 Lens W10
985110083	VLASE 1209-1743 IR Marker	VLASE 20W@1064nm with F254L-M85 Lens W10
985110084	VLASE 1209-1A43 IR Marker	VLASE 20W@1064nm with F 330L-M85 Lens W10
985110085	VLASE 1209-1B43 IR Marker	VLASE 20W@1064nm with F 420L-M85 Lens W10
985110088	VLASE 3039-1843 UV Marker	VLASE 3W@355nm with F= 103-M39 Telecentric Lens W10
985110089	VLASE 3039-1443 UV Marker	VLASE 3W@355nm with F160L-M85 Lens W10

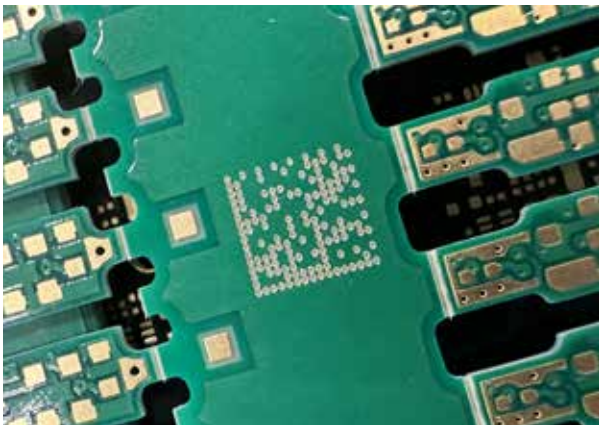
CO_2 Laser Marking

CO_2 LASER

Developed over 50 years ago, the CO_2 laser has captured the largest portion of the laser materials processing market. Current day CO_2 lasers are the best solutions for high thermal impact marking with wavelengths 10x longer than DPSS and Fiber lasers. The long wavelength (10600 nm) is extremely efficient on typical packaging materials, such as:

- Paper, Corrugated Cardboard
- Glass, Ceramic
- Plastic polymer , Rubber
- Painted, coated material (metals, plastic PCB)

APPLICATIONS & MATERIALS



PCB marking



Wood marking



PET coding



Direct marking on cardboard

EOX SERIES



EOX is a family of CO2 Laser Markers for laser coding and marking applications.
EOX offers high-quality permanent marking on a wide range of materials like paper, carton, wood, plastics, painted or coated metals, and many other organic materials.
Combining excellent laser beam quality and an advanced control unit, EOX is suitable for accurate industrial traceability, branding and coding applications.
Based on the Embedded Marking Controller Platform (EMC), flexible "Stand Alone" or "Master –Slave" control modes and provides axis control as well as dedicated photocell / encoder ports for marking-on-the-fly (MOF).
Thanks to its low operating cost, long lifetime and minimal maintenance, EOX provides a reliable and clean technology for industrial marking and coding applications.

Features & benefits

- Air-cooled, reduced footprint
- All-in-one design: scanning head, power & control electronics, marking controller, diagnostics and software suite
- Embedded visible aiming beam and focus beam for fast and easy focus setup and marking operation
- High resolution marking

Main applications

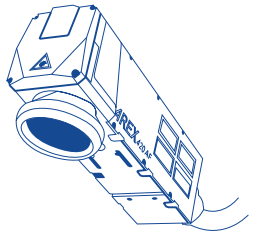
- **General Marking**
  Label marking, paint stripping & coating removal, kiss-marking and perforating labels
- **Electronics**
  PCB marking and coding, ceramic component marking, alumina marking
- **Healthcare**
  Branding and coding containers
- **Food**
  Direct, high contrast marking on food (cheese, bread, eggs, fruits, vegetables ...)
- **Packaging**
  Marking coated paper, inked paperboards, film cutting and perforating

PARAMETER		EOX 10	EOX 30
Nominal average power	W	10	30
Wavelength	nm	10600	
Marking capabilities		Static, Rotary axis, On the fly (marking in motion)	
Integration		Up to 4 mechanical axis driving capabilities (stepper motor) Up to 10 digital inputs and 10 digital output fully programmable dedicated connectors Encoder and Photocell to 75mt/min and 12.000 pcs/hour	
Aiming & focus beam		Class II Semiconductor laser @ 635 nm	
Cooling system		Air cooled	
Resonator dimensions (HxWxD) & weight		180x180x598 mm - 17 kg	180x180x598 mm - 17 kg
Controller dimensions (HxWxD) & weight		---	88.5x430x335 mm - 9 kg
Power supply		100 – 240 VAC 50/60 Hz	
Operating temperature range	C°	15 to 35	

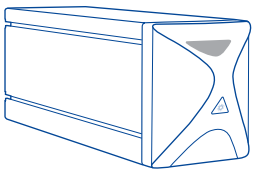
MODEL SELECTION AND ORDER INFORMATION

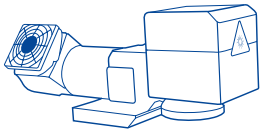
ORDER NUMBER	MODEL	DESCRIPTION
985140021	EOX 6102-1241 CO2 Marker	EOX 10W@10600nm with F100 lens W10
985140022	EOX 6102-1541 CO2 Marker	EOX 10W@10600nm with F200 lens W10
985140023	EOX 6302-1541 CO2 Marker	EOX 30W@10600nm with F200 lens W10
985140024	EOX 6302-1241 CO2 Marker	EOX 30W@10600nm with F100 lens W10

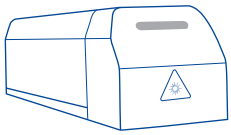
Laser Marking application map



	units	AREX410 AF	AREX420 AF	AREX42M AF	AREX430 AF	AREX450 AF
	W	10	20	20	30	50
	ns	100	100	1.5 - 350	100	100
	kW	10	10	10	10	10
	mJ	1	1	1	1	1
	nm	1070	1070	1070	1070	1070
APPLICATIONS						
Annealing		★	★★★	★★★	★★★	★★★
Color Marking		★	★	★★★	★	★
Engraving		★	★★	★	★★★	★★★
Deep Engraving		★	★	★	★★	★★★
Surface Etching		★★★	★★★	★★★	★★★	★★★
Coating Ablation		★★	★★★	★★★	★★★	★★★
Coating Removal (Night & Day)		★	★★	★★★	★★	★★
Bleaching		★★★	★★★	★★★	★★★	★★
Blackening		★★★	★★★	★★★	★★★	★★
Foaming		★★★	★★	★★★	★★	★★
Subsurface Engraving		★	★	★★	★	★
Texturing		★★	★★★	★★★	★★	★★

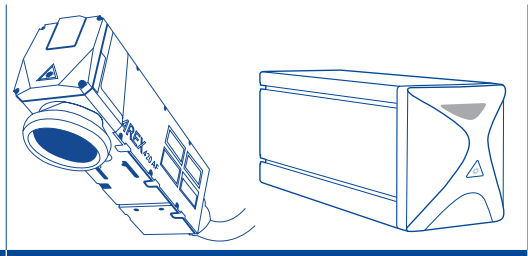




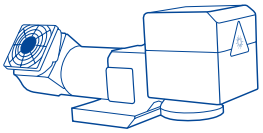


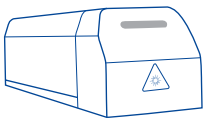
AREX40C AF	UNIQ	VLASE IR 10	VLASE IR 20	VLASE UV 3	EOX 10	EOX 30
100	15	10	20	3	10	30
100	100	15	8	8		
10	7,5	32	65	14		
1	0,75	0,5	0,6	0,1		
1070	1070	1064	1064	355	10600	10600
★★	★★★	★★★	★★★			
★	★	★	★★			
★★★	★★		★★		★★★	★★★
★★★	★★		★★		★★★	★★★
★★★	★★★	★★★	★★★	★★★		
★★★	★★★	★★★	★★★	★★★		
★	★★	★★★	★★★	★★		
★★	★★★	★★★	★★★	★★		
★★	★★★	★★	★★★	★★		
★★	★★★	★★★	★★	★★		
★	★	★	★★★	★		
★★	★★★	★★★	★★★	★★★	★★	★★

Laser Marking materials map



MATERIALS			AREX400 AF - UNIQ
PLASTIC			
Acrylonitrile Butadiene Styrene	ABS	Polylac	★★★
		Tairilac	
		Terluran	
Epoxy			★★★
High-density polyethylene	HDPE		★★★
Polyoxymethylene	POM		★★★
Polyamide	PA	Nylon®	★★★
	PA6	Arcony®l	★★★
	PA66	Workmid®	★★★
	PA66GF30	Vydyne®	★★★
	PA66GF25	Technyl®	★★★
	Natural PA66		
	Natural PA6		
Polybutylene terephthalate	PBT		★★★
	PBT GF30		
Polycarbonate	PC	Lexan®	★★★
		Makrolon®	★★★
Polyether ether ketone	PEEK		★★
Polyester	PES	Thermolite®, Polarguard®	★
Polyethylene	Natural PE	Mylar®	
Polyethylene terephthalate	PET	Mylar®	★
		Arnite®	
		Ertalyte®	
		Dacron®	
Polyetherimide	PEI-GF20		★★★
Polyimide	PI	Kapton®	★
Polymethyl-methacrylate	PMMA	Plexiglas®	★★
Polyoxymethylene Black	POM	Delrin®	★★★
Polyoxymethylene Natural			
Polypropylene	Natural PP		
Polystyrene	PS		★★★
Polystyrene Natural			
Polyurethane	PUR		
Polyvinil Chloride	PVC		★★★
Silicone			★
Styrene-acrylonitrile resin	SAN	Tyril®	★
Polytetrafluoroethylene	PTFE	Teflon	
Urea			
CERAMICS			
Aluminum Oxide	Al2O3	Alumina	★★
Tungsten Carbide	WC		★★
Silicon Carbide	SiSiC/SSiC	Rocar®	
Silicon Nitride	Si3N4		





VLASE IR	VLASE UV	E0X
★★★		★
★★★		★★★
★★★		
★★★		★★★
★★★	★★★	
★★★	★★★	
★★★	★★★	
★★★	★★★	
★★★	★★★	
★★	★★★	
★★★		★★
★★	★★★	★
★	★★	★
	★★	
		★★
★★★	★★★	
★		★
★★	★★★	★
★★★		★
		★
	★★	
★★★		★
	★	
	★★★	
★★★	★★★	★★★
★	★★★	★★
★	★★	★
		★
	★★	★★

MATERIALS			AREX400 AF - UNIQ	VLASE IR
METALS				
Chromium			★★★	★★★
Cobalt			★★★	★★★
Copper			★★	★★
Gallium			★★★	★★★
Gold			★	★★
Indium			★★★	★★★
Iron			★★★	★★★
Lead			★★	★★
Lithium			★★★	★★★
Magnesium			★★★	★★★
Molybdenum			★★★	★★★
Neodymium			★★★	★★★
Nickel			★★★	★★★
Palladium			★★★	★★★
Rodium			★★★	★★★
Samarium			★★★	★★★
Silicon			★★	★★★
Silver			★	★★
Tin			★★★	★★★
Tugsten			★★★	★★★
Vanadium			★★★	★★★
Zinc			★★★	★★★
Zirconium			★★★	★★★
METAL ALLOYS				
Aluminum Alloy	1xxx- 8xxx	Anticorodal®, Ergal®,	★★★	★★★
	2xxx	Avional®, Duraluminum®	★★	★★
	1xxx- 8xxx	Zama®	★★	★★
Brass			★★★	★★★
Stainless steel			★★★	★★★
Steel			★★★	★★★
Tungsten carbide	WC		★★★	★★★
Titanium alloy	Ti-6Al-4V, Ti-6Al-7Nb		★★★	★★★
OTHERS				
Glass				
Glass Pyrex				
Graphite				
Leather				
Paper				
Quartz				
Rubber				
Sapphire				
Stone				
Textiles				

VLASE UV	EOX
★★★	★★★
★★★	★
	★
	★★
	★★
★★	
★★	★★
★★	
	★
	★

Laser Marking accessories

Power Cords with pull prevention AREX400 AF



Power cords with pull-prevention mechanism.
Different plugs available: EU, CN, US; or stripped end.
→ Length 2m.

93ACC0445	EU POWER CORD 2M W/ V-LOCK AREX 400AF
93ACC0446	CN POWER CORD 2M W/ V-LOCK AREX 400AF
93ACC0444	US POWER CORD 2M W/ V-LOCK AREX 400AF
93ACC0447	STRIPPED POWER CORD 2M W/ V-LOCK AREX 400AF



Analog Distance Sensor Kit AREX400 AF



Measure target position displacement from optimal focus position and correct Z-focus, to compensate for tolerances or positioning errors.
→ Simplified connection to AREX400 AF scanhead.
→ Complete kit with mounting brackets, cable and protective YAG filter.

93ACC0448	ANALOG DISTANCE SENSOR KIT AREX400AF

F-Theta Protective Cap AREX400 AF



Easy to install, easy to replace.
Simplify preventive/periodic maintenance cleaning operation on f-theta lens and allow no-stop operations.
→ Ensure complete IP64 protection
→ Suitable for F160M and F254M lenses

93ACC0371	F-THETA PROTECTIVE CAP FOR M LENS

I/O Signal Conditioning Board



NEW Isolated Digital I/O Signal conditioning board with DIN-rail adapter.

→ "Clean contacts" output
→ "Clean Opto-isolated inputs"
→ Pass-through Command Box Connector

985330032	IO INTERFACE

Command Box DB25-to-free leads cable



3 meters cable DB25 Male-to-free-leads for simple and easy field connection to PLC or control system.

→ Connect laser units, quickly and easily onsite without having to solder or crimp contacts.
→ Individually labelled leads

985350032	SUB-D 25 PINS - TO FREE LEADS CABLE 3M

Control box



Ready to use remote pendant for UNIQ AREX VLASE.

→ 2 meters cable
→ Key & enable selectors
→ START STOP push-buttons
→ READY, BUSY, END, ALARM led signals

985330031	CONTROL BOX STANDARD (AREX UNIQ VLASE)

Remote start footswitch



Optional accessory dedicated to hands-free operations in manual loading machine and semi-automatic system

→ Rugged, long life cast-iron FootSwitch
→ Non-skid base and 3 meters cable.
→ M12 connector to Laser Unit

985350035	REMOTE START FOOT SWITCH

Accessories compatibility

Fumes extractor



Twin filtration system prefilter + activated carbon.
→ Entry-level, ultra-compact specialty laser fumes extractor
→ Max air flow 180 m3/h
→ Hose (50-50 mm, 4 m) and nozzle (50 mm) provided
→ Features:
- START/STOP pushbutton
- FILTER CHANGE LED
→ Dimensions 510x310x340 mm (HxDxW) – 23,5 kg
→ Two versions: EU (230 VAC) or US (115 VAC)

Suitable for:
• Metal Marking, Wood, paper marking, Rubber, Plastic marking

985340038	LAS FUME EXTRACTOR BOFA BASIC 230VAC
985340040	LAS FUME EXTRACTOR BOFA BASIC 115VAC



Twin filtration system prefilter + activated carbon.
→ High-capacity, smart, specialty laser fumes extractor
→ Max air flow 380 m3/h
→ Hose (75-50 mm, 4 m) and nozzle (50 mm) provided
→ Features:
- Digital START/STOP signal
- Digital FILTER CHANGE signal

Start OVERRIDE
→ Dimensions 970x500x447 mm (HxDxW) – 65 kg
→ Multi-supply: 90 – 257 VAC

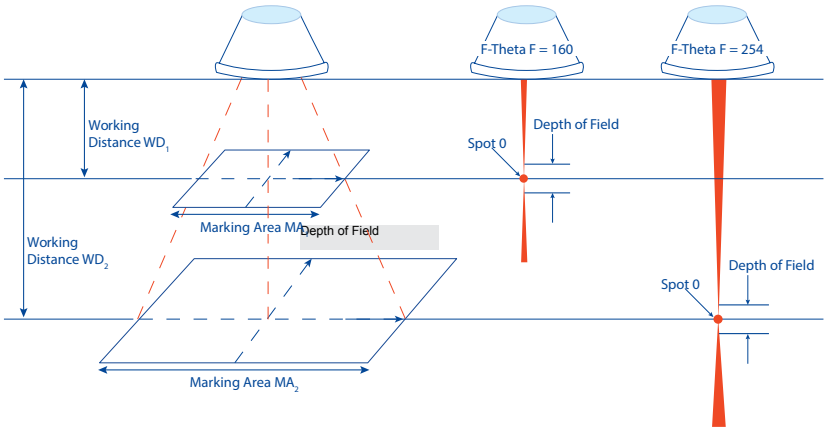
Suitable for:
• Metal Marking, Wood, paper marking, Rubber, Plastic marking

985340039	LAS FUME EXTRACTOR BOFA PRO 90-257VAC

MODEL	DESCRIPTION	AREX400	VLASE	UNIQ
93ACC0444	US POWER CORD 2m w/ V-Lock AREX 400AF	✓		
93ACC0445	EU POWER CORD 2m w/ V-Lock AREX 400AF	✓		
93ACC0446	CN POWER CORD 2m w/ V-Lock AREX 400AF	✓		
93ACC0447	STRIPPED POWER CORD 2m w/ V-Lock AREX 400AF	✓		
93ACC1918	MARVIS SW LICENCE	✓	✓	✓
93ACC1919	PROFINET LICENSE FOR LIGHTER	✓	✓	✓
93ACC0372	MARVIS BRACKETS FOR S&M&L FTHETA	✓		
93ACC1915	MARVIS MOUNTING BRACKET FOR UNIQ & M300N			✓
985350035	REMOTE START FOOT SWITCH	✓	✓	✓
985330032	RELE INTERFACE	✓	✓	✓
985330031	CONTROL BOX STANDARD	✓	✓	✓
985350038	M39 F-THETA PROTECTIVE CAP		✓ (only models VLASE 1x09-1343 and VLASE 1x09-1643)	
93ACC0371	F-THETA PROTECTIVE CAP FOR M LENS	✓ (only models AREX 4xx-MAF and AREX 4xx-NAF)		
93ACC0448	ANALOG DISTANCE SENSOR KIT AREX400AF	✓ (only models AREX 4xx-MAF and AREX 4xx-NAF)		
985350039	RACK HANDLES AREX 400	✓		
93ACC0413	EXTERNAL FOCUS POINTER for AREX400	✓ (only model AREX 4xx-BAF)		
985350032	DB25-TO-FREE LEADS CABLE	✓	✓	✓
985340038	LAS FUME EXTRACTOR BOFA BASIC 230VAC	✓	✓	✓
985340039	LAS FUME EXTRACTOR BOFA PRO 90-257VAC	✓	✓	✓
985340040	LAS FUME EXTRACTOR BOFA BASIC 115VAC	✓	✓	✓

F-THETA Lens specification





1070 nm F-THETA LENS & ADAPTER

F-THETA LENS	WORKING AREA WITH AF ENABLED [MA]	WORKING AREA WITHOUT AF ENABLED [MA]	WORKING DISTANCE	SPOT Ø (Typ)	LENS THREAD	Z-RANGE	LASER PRODUCT
MODEL	[WA] mm²	[WA] mm²	[WD] mm	µm	mm	mm	AREX400 AF
F160M	90 x 90	100 x 100	158	~ 45	X	±20	✓
F 254M	140 x 140	140 x 140	261	~ 65	X	±40	✓
F 420L	285 x 285	285 x 285	492.5	~ 115	M85x1.0	±60	✓

1064 nm F-THETA LENS & ADAPTER

F-THETA LENS	WORKING AREA	WORKING DISTANCE	SPOT Ø (Typ)	LENS THREAD	LASER PRODUCT	
MODEL	[WA] mm²	[WD] mm	µm	mm	UniQ	VLASE IR
F100L	50 x 50	99	~ 40	M85x1,0	✓	X
F 160S	100 x 100	183	~ 60	M39x1.0	✓	✓
F 254S	140 x 140	280	~ 100	M39x1.0	✓	✓
F 160L	110 x 110	176	~ 60	M85x1,0	*	✓
F 254L	180 x 180	296	~ 100	M85x1.0	*	✓
F 330L	220 x 220	388	~ 130	M85x1.0	✓	✓
F 420L	285 x 285	494	~ 160	M85x1.0	✓	✓

** not available on all product configurations*

355 nm F-THETA LENS

F-THETA LENS	WORKING AREA	WORKING DISTANCE	SPOT Ø (Typ)	LENS THREAD	
MODEL	[WA] mm²	[WD] mm	µm	mm	VLASE-UV
F 103T**	60 x 60	135	~ 30	M85x1.0	✓
F 160L	110 x 110	197	~ 35	M85x1.0	✓

***Telecentric F-theta Lens*

10.600 nm ZINC SELENIDE CO2 F-THETA LENS

F-THETA LENS	WORKING AREA	WORKING DISTANCE	SPOT Ø (Typ)	LENS THREAD	LASER PRODUCT	
MODEL	[WA] mm²	[WD] mm	µm	mm	EOX-10	EOX-30
F 100	70 x 70	100	approx. 230	Ø 48	✓	✓
F 200	140 x 140	200	approx. 460	Ø 48	✓	✓

When handling optics, one should always wear gloves. This is especially true when working with zinc selenide, as it is a hazardous material. For your safety, please follow all proper precautions, including wearing gloves when handling lenses and thoroughly washing your hands afterward.

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