markem·imaje
a DOVER company

Right on the mark.

Maximizing coding throughput, quality and compliance with SmartLase® coding solutions

QLC, Inc. (800) 837-1309

Redefine the possible℠ ● markem-imaje.com

Did you know?

You can achieve higher throughput with **high quality** and **complex codes**,

30%
faster than competitor lasers

You can be

100%
compliant with industry standards with permanent and consistent printing in conditions up to 45°C

You can **improve** your line reliability and **coder lifetime** by

30%, with 60,000
hours MTBF (meantime between failure)

You can achieve **uptime** of

99.9%
in tough conditions with minimal maintenance, no plant air and IP55* as standard

*IP Ingress Protection rating regarding dust and liquid

Delivering high-quality laser codes with maximum efficiency

Lasers can be useful in many scenarios. They can code on small areas on inked boxes or across multiple lanes of wide web flexible film where other methods cannot reach, and can help you code effectively on glass or metal.

Laser's high contrast codes – which do not rub off or fade over time – can also ensure lifetime traceability of your products and protect them from being counterfeited.

That said, not all laser coders are created equal. Our SmartLase portfolio delivers better cost efficiency and smoother codes with higher uptime versus other lasers.

Our proprietary technology, such as our patented scribing system - **Intelli'Arc®** - paired with **Intelli'Cool®**, delivers faster codes with greater reliability and throughput at higher duty cycles – even in hot, humid and dusty environments.

This also holds true when marking products with increasingly complex codes like those being demanded in industries such as food, beverage, and pharmaceutical where traceability is essential and code lengths are soon expected to double.

Our range is supported by our deep familiarity with diverse applications and our ongoing innovation ensures our solutions remain best-in-class. Decades of experience mean we have strong insight on what is needed to deliver the most effective marking solutions tailored for your plant with hassle-free integration.

And, if you are concerned with sustainability, SmartLase products minimize waste and chemicals handling, reduce odors and cut carbon footprints. Good for your company, your employees and the environment.

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High performance
99.9% line availability and 30% longer coder life even in challenging environments

Wide portfolio of lasers and configurations
Versatile range of equipment and accessories to match your line speed, package size and material

User-friendly experience
Intuitive touch screen interface to minimize operator training and human errors

Efficient coding execution
Simplified data management and enterprise integration via CoLOS® software

Sustainable
No harmful chemicals, no consumables, no odors and no plant air

Unparalleled global support
Quick, consistent service wherever you need it, including specific service exchange modules

We understand your challenges can be different according to your role on the production line

1 | Production manager

Your challenges
- Attain high line productivity even at temperatures of 45°C / 113°F
- Minimize code and changeover adjustment time
- Assure operator safety

Our solution
- Patented scribing technology - **Intelli'Arc** - codes 30% faster* than vector lasers in part due to our unique **Intelli'Cool** systems which prevent overheating at high duty cycles and minimize downtime
- Aiming diode (standard) and CoLOS® software expedite changeovers and code adjustments
- Compliant to ISO 13849 (PLd) ensuring safety

Your benefits
- Greater peace of mind, more codes per minute even in extreme conditions, saving up to 150 hours per year with faster changeovers

2 | Quality manager

Your challenges
- Avoid damage to the packaging material
- Prevent missing or unreadable codes while meeting regulatory compliance requirements
- Ensure code integrity (right code, right product)

Our solution
- Consistent energy delivery with proprietary scribing patterns ensure laser does not dwell too long in one place to pierce or perforate material
- **Intelli'Cool** and **Intelli'Arc** provide high quality shapes and perfect codes
- User interface delivers data security via locked fields, protected profiles and parent/child mode. Extra control via CoLOS Data Management

Your benefits
- 100% code compliance
- No package damage, product claims, recalls or scrap due to incorrect or non-compliant codes

3 | Maintenance manager

Your challenges
- Maintain performance with minimum effort
- Keep maintenance costs low
- Diagnose issues easily and minimize downtime

Our solution
- Simple basic maintenance: tool-free, quick disconnect capabilities and modular design to enable straightforward part exchange and easy lens cleaning
- Range of service level agreements including advanced service exchange option of 24-48 hour service, configurable beam orientation solution
- Smart interface with warning messages and log files to guide maintenance

Your benefits
- Minimal corrective maintenance or downtime over 7 years, 99.9% line efficiency and 60,000 hours† MTBF

4 | Purchasing manager

Your challenges
- Achieve optimal return on investment (ROI) and low total cost of ownership (TCO)
- Maximize resources while minimizing capital and operating expenditures
- Ensure equipment can adapt easily to future needs

Our solution
- Lower running costs due to less energy used, no plant air or consumable costs, long-life extraction filters and extended maintenance intervals as well as a proven MTBF of 60,000 hours† and a 30%* longer life versus other options
- SMILE finance solutions and TCO guide
- Simple firmware upgrades to ensure laser remains effective as production requirements change
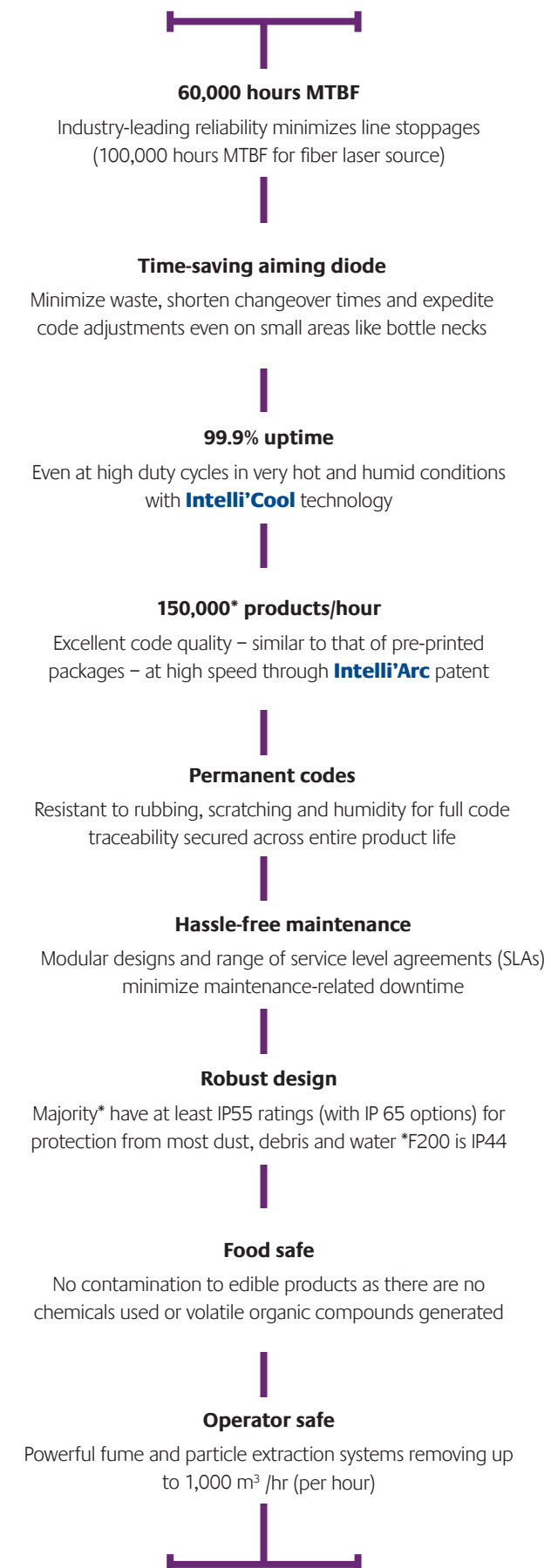
Your benefits
- Optimized ROI and TCO, today and tomorrow

* SmartLase C Series. SmartLase F lasers provide ultra-fast coding and ultra-smooth characters via unique algorithms
† 100,000 hours for fiber laser source

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Best-in-class laser performance as standard across the range, with solutions for many applications:
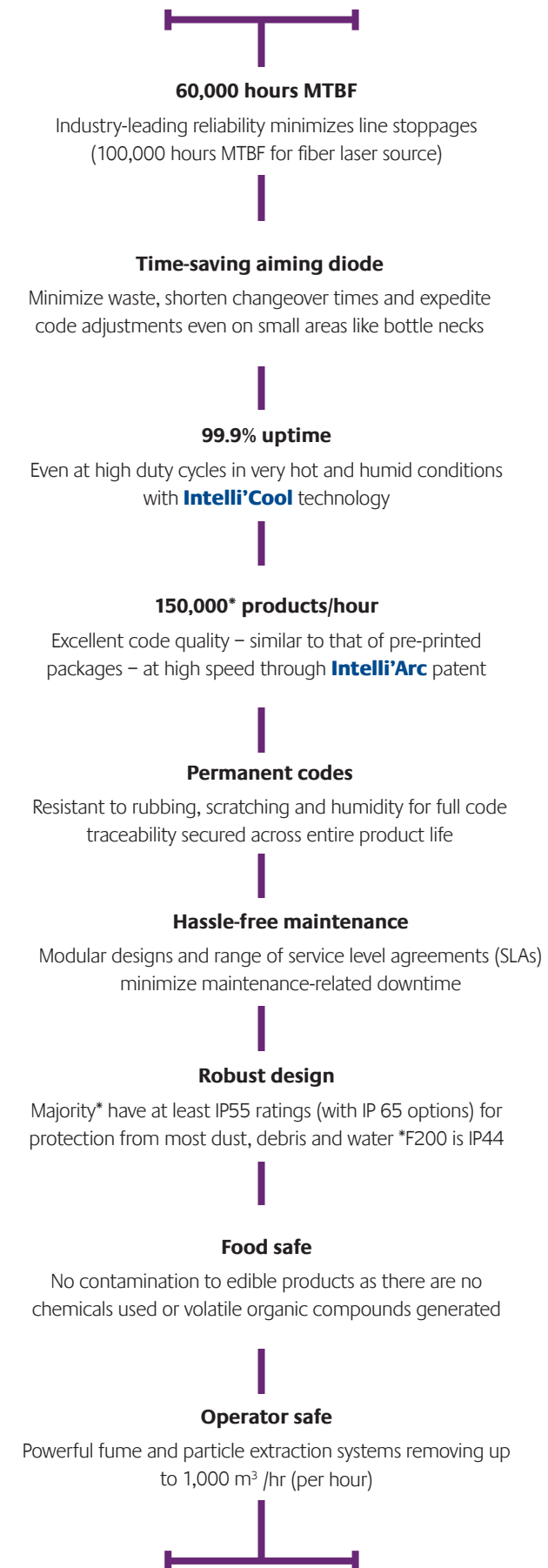## Food, confectionery, dairy, beverage, cosmetics, toiletries and industrial QLC, Inc. (800) 837-1309

60,000 hours MTBF
Industry-leading reliability minimizes line stoppages (100,000 hours MTBF for fiber laser source)

Time-saving aiming diode
Minimize waste, shorten changeover times and expedite code adjustments even on small areas like bottle necks

99.9% uptime
Even at high duty cycles in very hot and humid conditions with **Intelli'Cool** technology

150,000* products/hour
Excellent code quality – similar to that of pre-printed packages – at high speed through **Intelli'Arc** patent

Permanent codes
Resistant to rubbing, scratching and humidity for full code traceability secured across entire product life

Hassle-free maintenance
Modular designs and range of service level agreements (SLAs) minimize maintenance-related downtime

Robust design
Majority* have at least IP55 ratings (with IP 65 options) for protection from most dust, debris and water *F200 is IP44

Food safe
No contamination to edible products as there are no chemicals used or volatile organic compounds generated

Operator safe
Powerful fume and particle extraction systems removing up to 1,000 m³ /hr (per hour)

Inked boxes, glass, paper labels & films	PET bottles & sleeves	Flexible packaging & glossy laminated boxes	Wide web flexible stick pack film & foils	Pouches & labels
SmartLase C150 & C350	**SmartLase C150S & C350S**	**SmartLase C350L**	**SmartLase C350 HD, LHD SHD, HD+, LHD+**	**SmartLase C350 BOU, LBOU, SBOU**
For intermittent and continuous lines, the SmartLase C350 30-watt CO_2 laser coder addresses diverse medium and high speed applications requiring complex codes. For low speeds the SmartLase C150 10-watt version is the lower cost solution.	The SmartLase C350S 30-watt CO_2 laser coder is designed for high speed PET beverage production and provides crisp codes even in wet environments. SmartLase C150S is the 10-watt CO_2 option for medium speed lines.	The SmartLase C350L laser coder is engineered to meet the needs of medium and high speed food and confectionery flow wrap and pouch applications.	The SmartLase 30-watt HD (High Definition) family of laser coders produces coding on stick pack (including triplex), pouches and wide web films in static, multi-lane medium speed food and dairy applications up to 1,000 millimeter (mm) wide.	The SmartLase C350 BOU 30-watt laser coder family offers a flexible beam delivery solution for medium to high speed food and beverage applications along with easy integration into complex packaging machine areas.

SmartLase C150 & C350

Key benefits
- Flexibility to code in various packaging positions and orientations

Key features
- Wavelength of 10.6 µm providing the flexibility to code a wide range of surfaces
- Print at speeds up to 2,100* characters/s (per second)

SmartLase C150S & C350S

Key benefits
- No risk of perforation even on light-weight PET bottles
- Qualified for integration into the fastest filling and blower machines (Krones, KHS, Sidel Super Combi)
- Replaces 50 to 60-watt lasers reducing energy costs

Key features
- Optimal wavelength of 9.3 µm for PET bottles and sleeves
- Protocol specifically optimized for high-speed bottling lines, e.g. Krones Checkmat, to enable advanced traceability requirements for such lines

SmartLase C350L

Key benefits
- Sharp and perfect character shape without damaging laminate top layer
- No risk of perforation on flexible films thanks to advanced and unique laser settings (non-crossing and dot matrix fonts)
- Coding and scoring for easy open pouch applications
- Small characters (down to 1.5 mm) that are easy to read in multiple line codes on narrow spaces

Key features
- Optimal wavelength of 10.2 µm for films and laminate boxes

SmartLase C350 HD, LHD, SHD, HD+, LHD+

Key benefits
- Print more HD codes with fewer lasers on large areas
- Single point of control via CoLOS or dedicated controller for multiple head configurations
- Place code anywhere, in any orientation
- Last minute customization possible (flavor, weight, promotion, etc.) helping to reduce foil inventory
- Qualified on packaging machines - form/fill/seal (Synerlink Arcil, Ermi, Erca), stick pack (Mespack, Toyo)

Key features
- Optimal wavelength of 9.3, 10.2 and 10.6 µm for any common packaging material such as metalized and triplex films
- Advanced extraction kit for very dusty applications

SmartLase C350 BOU, LBOU, SBOU

Key benefits
- No risk of piercing even on light-weight PET bottles
- Integrates into standard labelers: Krones, Sidel, KHS

Key features
- Optimal wavelength of 9.3 µm for PET bottles, 10.2 µm for plastic labels and 10.6 µm for paper labels
- Code up to 45,000 bottle labels/hr on the fly or up to 130,000 pre-labeled bottles/hr
- Large choice of BOU (Beam Orientation Unit) tube lengths
  - BOU anchor tube: 342 and 142 mm
  - Extension tube: 190 and 80 mm
- Specific Krones S BOU to fit into latest Krones Checkmat generation

* Figures dependent on packaging material and code content

Best-in-class laser performance as standard across the range, with solutions for many applications

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Industry-leading reliability minimizes line stoppages (100,000 hours MTBF for fiber laser source)

Time-saving aiming diode

Minimize waste, shorten changeover times and expedite code adjustments even on small areas like bottle necks

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150,000* products/hour

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Permanent codes

Resistant to rubbing, scratching and humidity for full code traceability secured across entire product life

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Robust design

Majority* have at least IP55 ratings (with IP 65 options) for protection from most dust, debris and water *F200 is IP44

Food safe

No contamination to edible products as there are no chemicals used or volatile organic compounds generated

Operator safe

Powerful fume and particle extraction systems removing up to 1,000 m³ /hr (per hour)

Film, rigid plastics & metals

SmartLase Fiber F200 & F500

The SmartLase F500 50-watt fiber laser coder provides permanent codes at high speed on cans, plastics and polymers, flexible film and bare metals in beverage and other high throughput applications. The 20-watt F200 codes similar surfaces on medium speed lines.

Key benefits
- High contrast coding on white and black plastics
- Avoids need for 70 or 100W fiber lasers, saving energy costs
- Intuitive handheld touch screen user interface for quick job editing and changeovers

Key features
- Optimal wavelength of 1.06 μm for rigid plastics and metals
- Print up to 2,400* characters/s with the F500 and 1,000* characters/s with the F200
- Variety of fonts, 1D and 2D barcodes and graphics for most applications and languages
- Wide choice of lenses for various applications

* Figures dependent on packaging material and code content
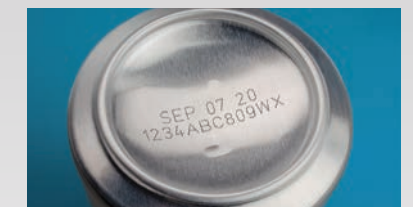

Laser samples

SmartLase C350S
PET Bottles - Beverage

SmartLase C350HD
Film – Multi-lane Dairy Application

SmartLase F500
Metal Cans - Beverage

SmartLase C350
Inked Boxes or Paper Cartons - Cosmetic & Pharmaceutical

SmartLase F200
Plastics - Polypropylene Containers - Dairy

SmartLase C350BOU
Paper Labels or Glass - Beverage

SmartLase C350L
Films or Paper Cartons - Confectionery

SmartLase C350HD+
Triplex film - Coffee Stick Pack Application

SmartLase C350
Inked Boxes or Paper Cartons - Frozen Food

Accessories

Laser fume extraction units

Markem-Imaje fume extractors eliminate a variety of fumes and particles generated when different materials are laser marked.

Key benefits
- Reduce or eliminate any health issues linked to inhalation of sub-micron particles or gases.
- Prevent contamination of products.
- Maintain high quality codes, extend laser life and limit downtime by eliminating particles that could affect or damage the laser optical system.

Guarding

Guarding tunnels are intended to achieve operator safety by blocking harmful laser radiation, direct or reflected.

Opaque elements of guarding are made of steel or aluminum with a dull / brushed non-reflective finish. Transparent elements of guarding are made of polycarbonate, at least 3 mm thick, for CO_2 lasers and Poly(methyl methacrylate) (PMMA), at least 2 mm thick, for fiber lasers.

Key benefits
- Operator safety within a Class IV laser environment.
- Easy integration: Eight standard sizes available for CO_2 laser guarding and custom guarding for fiber laser.
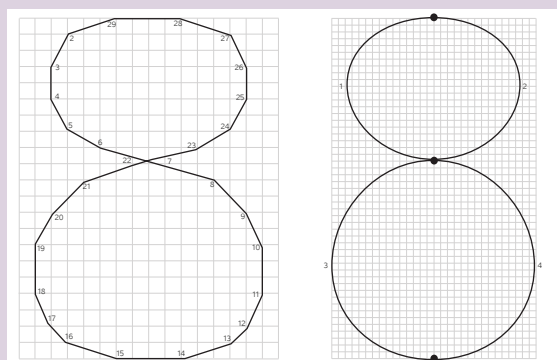
QLC, Inc. (800) 837-1309
www.QLC-Labeling.com

Top code quality and reliability with SmartLase coding technology

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Proprietary technology for the best codes

The patented scribing technology - **Intelli'Arc** - in the SmartLase C Series provides the smoothest, most crisp quality codes which can be scribed 30% faster than competitor lasers.
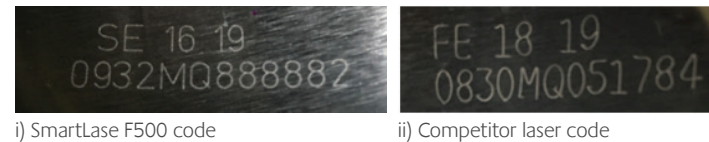
Competitor laser:
- 29 vectors with lower resolution
- 30% slower with reduced application
- Lower code quality

VS.

With Intelli'Arc:
- 4 arcs with best resolution
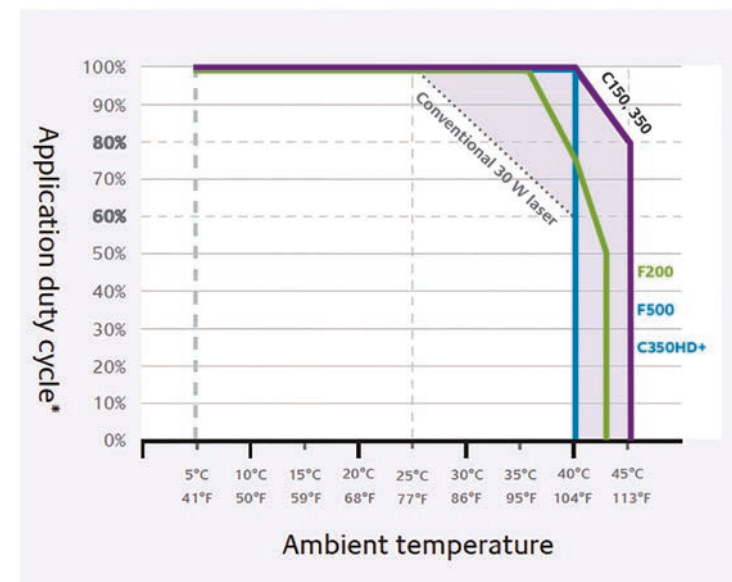- 30% faster than any competitor laser
- Best quality codes even at high speeds

SmartLase Fiber Series lasers also provide more precise, faster coding than competitor lasers – this time through the use of unique algorithms.

i) SmartLase F500 code   ii) Competitor laser code

Exclusive cooling systems for high reliability

Intelli'Cool technology within SmartLase lasers enable them to operate effectively across a wide ambient temperature range of 5°C to 45°C, even at high application duty cycles and without any adverse effect on quality and no downtime.

- In the SmartLase C Series, this is achieved via a proprietary cooling system which features two central fans and heat dissipaters at the front and rear, providing balanced cooling for the laser source located within the printhead.

- In the SmartLase F Series, proprietary computer-aided fluid dynamics modeling ensures the air flow inside the F500 controller and source cabinet supported by the ES500i+ (extractor and cooler) provides the coolest operating conditions for the laser source and electronics. In the F200 fans and manifolds direct the air in ways which minimize the impact of heat on the internal components.

By contrast, many competitor laser coders can only operate effectively at up to 40°C with application duty cycles limited to a maximum of 60% as they only have a single fan at the end of the laser and insufficient scanhead cooling. Indeed, Markem-Imaje's advanced **Intelli'Cool** systems mean manufacturers can replace less efficient, cumbersome higher wattage laser coders which require mandatory water cooling above 35°C.

Also, the faster scribing patterns versus competitor lasers let SmartLase units cool for longer since there is less marking time, improving laser source lifetime.

* A duty rate cycle is the percentage of one period in which the laser is active. It is expressed as D = T/P (T is the time the laser is active and P is the total period).
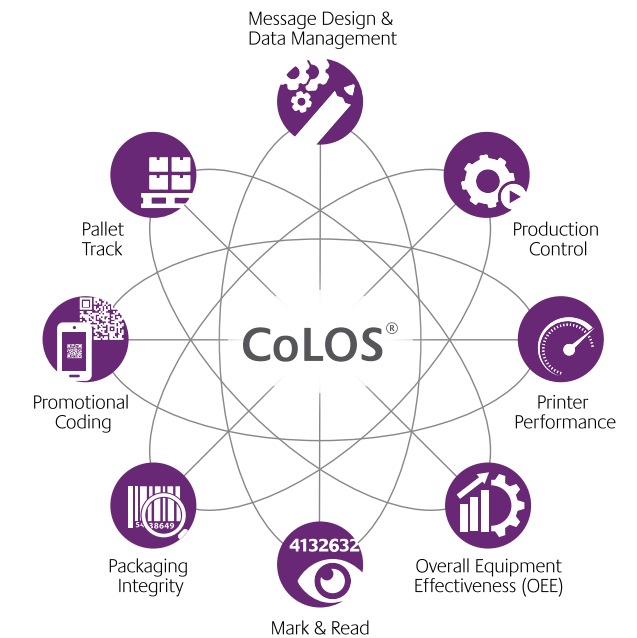
Drive efficient laser coding with CoLOS® information management system

Enhanced integration capabilities

In an era where margins are tight and traceability is ever more important as recall scandals can quickly go global, you need accuracy and efficiency in your printing and coding.

CoLOS minimizes risk of errors, ensures 100% compliance with regulations and can help reduce overall packaging running costs by up to 15%.

The automation it provides cuts manual data entry and message data maintenance by 90%, while halving changeover time between product runs, saving hundreds of hours of downtime per year. Recalls are also easier managed.

SmartLase for OEMs

The SmartLase C Series features web user interface capability, 0/90° or BOU or HD laser head configuration, pointing diode for easy integration into packaging machines and is compliant with ISO 13849 (PLd) and Pack ML. Compatible with industry standards like Weihenstephan (Krones, KHS), PackML (Sidel) and Codentify protocols.

Consulting & Integration Services
Delivering the right solution, each time, every time

While you can operate all your printers with our CoLOS system yourself and use many applications straight out of the box, we can offer you so much more – our experience in solution implementation.

Our industry-leading Consulting & Integration Services team can handle all aspects of solution implementation from initial needs discovery, through implementation, to in-service support. For applications beyond our standard hardware and software, we have experts who are fully trained in using toolkits to add further functionality to achieve the most advanced solutions.

Additionally, our standard project methodology allows us to achieve rapid, predictable, repeatable and successful solution implementations.

This can be done for single production facilities or easily rolled out across multiple global sites. Our solutions team can ensure you can design once and deploy many times.