trotec

Solutions

InMarker series

Integrable marking laser
with safety solution for laser class 1

SETTING NEW STANDARDS

InMarker series

Industrial laser engravers for metals and plastics

All of the marking lasers within the InMarker series share a very compact, robust and lightweight design. Together with the quality of our manufacturing, this allows us to guarantee continuously accurate marking with short cycle times. Designed for Industry 4.0, these marking lasers are provided as standard with communication connection points suitable for all common fieldbus systems, such as Profinet. This means they can be integrated in your production line, robot cell or production facility both quickly and cost-effectively. Furthermore, all preliminary work right up to protection class 1 has already been finished for the InMarker series!

These integrable lasers can either be fitted with a fiber or MOPA* laser source from 20 watts to a powerful 200 watts, allowing them to be accurately customized to meet the individual requirements of your usage set-up. Thanks to the easily adjustable laser parameters, you can also adapt the marking, quickly and flexibly, to the individual material being used. This means that you are also ideally equipped for future material challenges.

efficient / reliable / secure

*The abbreviation MOPA stands for Master Oscillator Power Amplifier. With MOPA lasers, the master oscillator produces the beam while the optical power amplifier raises the output power.

Standard for flexible usage

Robust and compact

Despite being one of the smallest and lightest integration lasers on the market, these robust lasers meeting the requirements of IP 54 protection class, making them suitable for use in harsh environments.

Simple integration

Complete, comprehensive safety documentation and fieldbus interfaces ensure they can be rapidly integrated into your new or existing production line, robot cell or production facility in a cost-effective manner.

Stabile and powerful

Compatible with all common fieldbus systems and with the option for it to be fitted with a fiber or MOPA laser source ranging from 20 watts to a powerful 200 watts, it is possible to achieve continuous, accurate marking with short cycle times.

Flexible selection of materials

Irrespective of whether you're working with plastic, metal or hard alloys, you can always expect high-contrast precision marking.

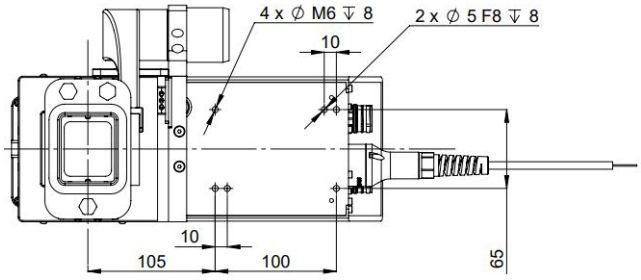
Rapid and reliable

The InMarker series eliminates the need for clamping or high transverse forces associated with other technologies, which in turn speeds up the production line. In addition, the optional laser protection “Safetycone” is the perfect safety-related solution for laser operations without the need for protective housing.

Extensive data variables

Up to 255 marking variables can be used to transfer data from the control system to the laser job. The content can, for example, be used as marker content.

InMarker marking laser



Flexibility across the industry

The design of the InMarker marking lasers is both compact and lightweight, enabling it to be used within multiple industries and production units. Very compact and weighing just 4.6 kg, the InMarker is one of the smallest and lightest integrable lasers on the market. This in turn allows multiple industrial sectors and their suppliers to use them flexibly within their production machines and production lines.

Fiber laser & MOPA Laser

The powerful industrial laser engravers guarantee precise labeling with short cycle times as part of your production line, robot cell or production facility. There is also an option to fit them with 20, 30 or 50 watt pulsed Yb fiber laser sources or with 20 or 100 watt MOPA laser sources and these lasers produce perfect annealing marking and surface engraving.

The optimal choice for DPM and PIN marking

Compared to needle embossing, laser marking is contactless, thereby allowing reliable labelling to take place without the need for any interruption to production that can be time-consuming and cost-intensive. No scratching of tools or components, no smudged markings. It is therefore possible to quickly implement practically any industrial labeling in short cycle times without fixing the material.

Industrial equipment

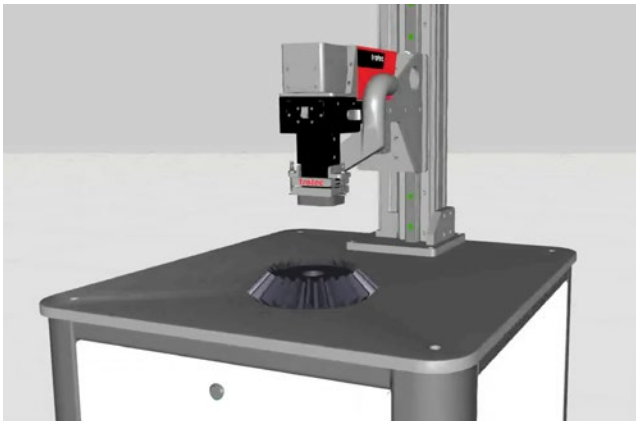
Designed to meet the requirements of Industry 4.0, the InMarker is fitted with field bus interfaces such as Profinet, pilot laser for simply commissioning, different lenses, a trailing cable in different lengths of your choice, and much more, making them well-equipped to comply with the standards for labeling components and workpieces. This also means there is no need for unnecessary displays or extra personnel for controlling the system.

Simple integration

Complete, comprehensive safety documentation, easy step-by-step assembly instructions, Sistema modules and all of the industrial equipment noted above ensure that the integrator and production manager can rely on full support when integrating the laser into your production line. The InMarker does not need any force-fit clamping to take place with regard to the robot, manipulator or balancer.

Powerful and stable

Irrespective of the data that is being labeled, such as PIN and serial numbers, logos, or data matrix and QR codes, the InMarker is designed for consistent precision labelling on an ongoing basis in short cycle times, even when used as part of shift work (24/7).



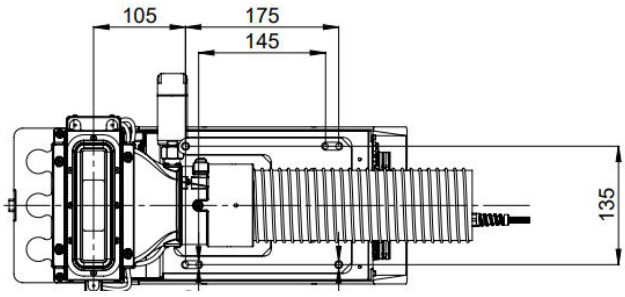
Application example for integration on single workstations

Safetycone – safety solution

The “Safetycone” laser protection funnel for integrated laser marking saves both the effort and cost of housing and a control cabinet. A patented safety solution in Austria, you can read more about it on page 8.

DPM stands for Direct Part Marking
PIN stands for Product Identification Number

VIN Marker
Fiber laser for deep engraving



High-quality marking

Developed specifically for 24/7 use, the VIN Marker consistently and repeatedly presents a perfect typeface at high speed on every type of chassis. All with the need for any reworking.

Powerful fiber laser

These powerful integration lasers offer the perfect turnkey solution for the automotive industry and associated suppliers. Co-developed, tested and used by household-name car manufacturers, they meet all the requirements of Industry 4.0.

Economical and full of performance

Depending on the project implementation, the VIN Marker takes just 15 seconds to engrave a complete vehicle identification number (FIN/VIN) that includes 17 characters + 2 special characters and moreover, is cheaper than many other systems.

Flexible selection of materials

The use of non-contact laser technology means the VIN Marker can also be used to seamlessly engrave materials such as hard metals like titanium, hardened steel, cast aluminum and others. This means you remain flexible in with regard to choosing materials in the future.

Industrial equipment

Looking at fieldbus interfaces such as Profinet or Profisafe and different lengths of trailing connection cables that are monitored for fiber breakage, the air-cooled VIN Marker is optimally designed to provide VIN marking that is compliant with the standards.

Compact integration laser

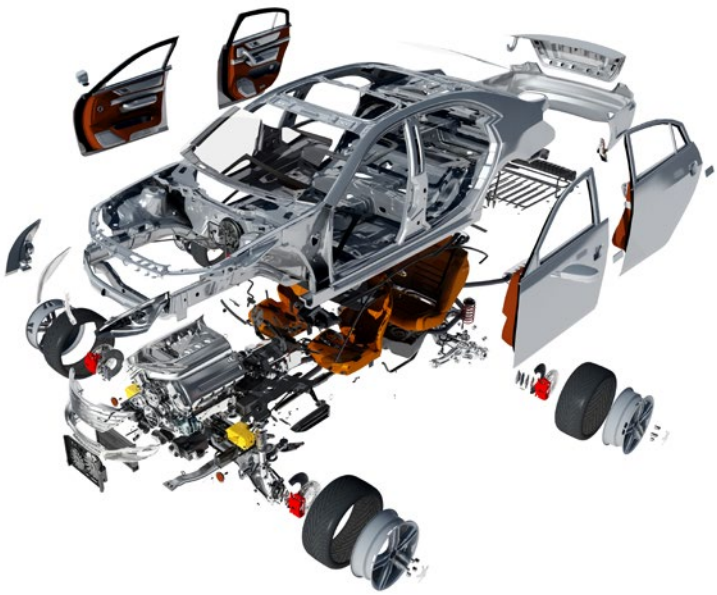
The VIN Marker is suitable for harsh environments due to its robust housing and IP 54 protection class, while also remaining one of the most compact integration lasers on the market. A further advantage is that the VIN Marker does not need any force-fit clamping to take place with regard to the robot, manipulator or balancer.

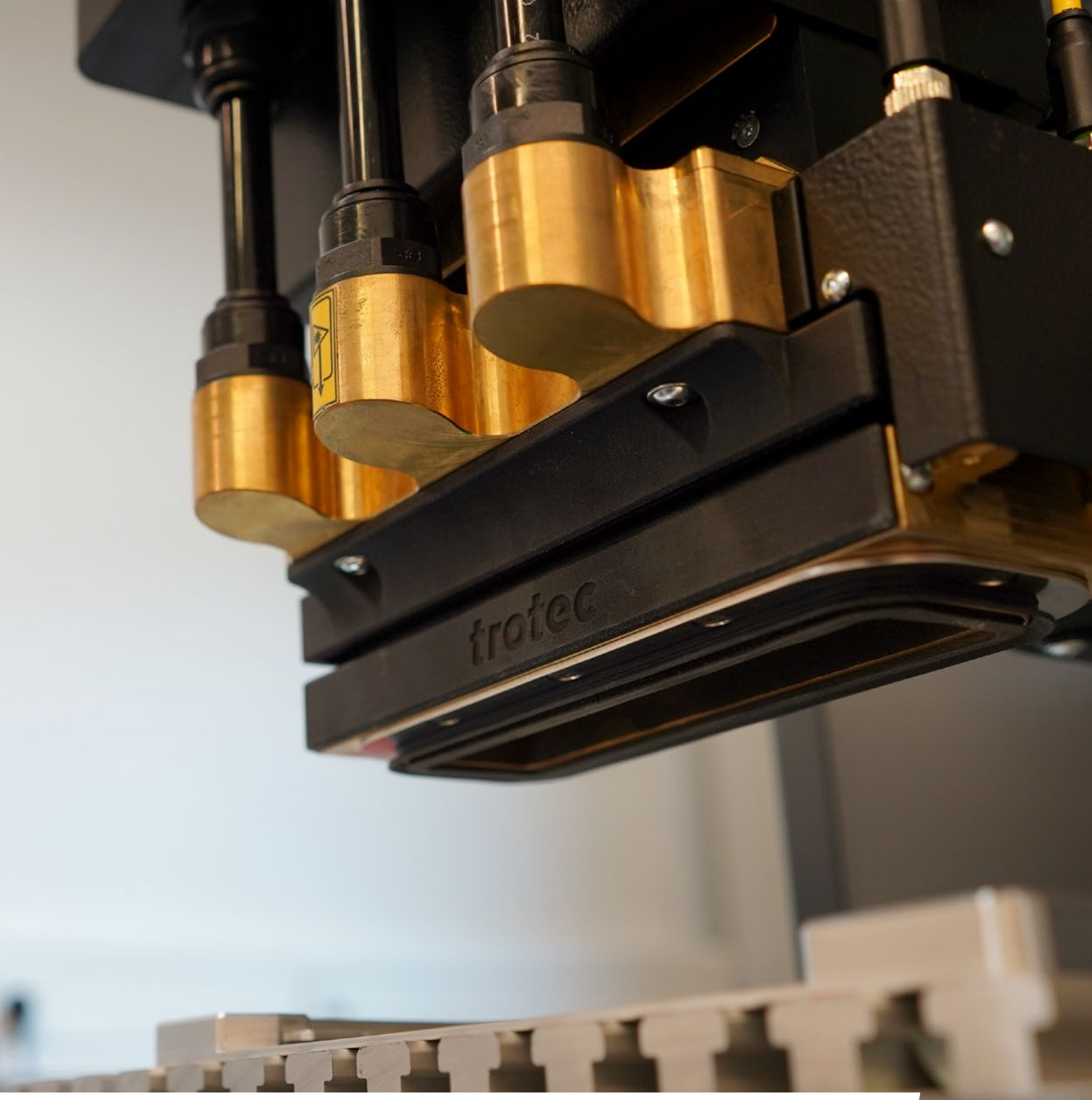
Safetycone – safety solution

The “Safetycone” laser protection funnel for the VIN Marker saves both the effort and cost of housing and a control cabinet. It simultaneously removes particles and smoke in an effective manner. Read more about this safety solution on Page 8.

Simple integration

Complete, comprehensive safety documentation, easy step-by-step assembly instructions, Sistema modules and all of the industrial equipment noted above ensure that the integrator and production manager can rely on full support when integrating the laser into your production line. The ability to fully integrate it in the production line means there is no need for time-consuming adjustment work on the chassis.

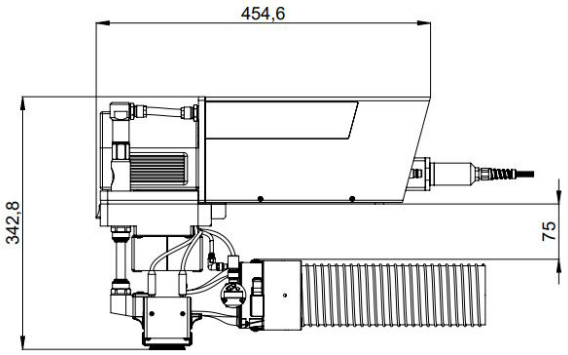




Safetycone – laser protection feature for integration lasers

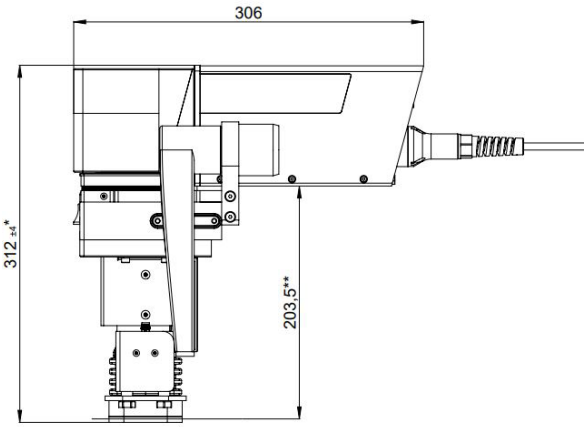
VIN Marker Safetycone

The marking area with the Safetycone is adapted to the VIN number for 120 x 20 mm. The standard version meets the operational requirements under laser class 1. Simultaneously, the way in which the Safetycone works with the extraction and ventilation system means that controlled air flow is generated to efficiently remove particles and smoke. This provides protection for both the working environment and any expensive material components.



InMarker Safetycone

Depending upon whether you select the option to include the pilot laser with the InMarker or not, the complete system meets the requirements for laser class 1 (with laser class 2 for pilot laser). The marking area with the Safetycone is either 50 x 40 mm or 90 x 70 mm, or can be individually adapted to your requirements. The standard versions are designed for plan surfaces. It is possible to customize the Safetycone if the surface is curved or bent



Patented safety solution

The “Safetycone” laser protection funnel, which is patented in Austria, saves both the effort and cost of protective housing as part of the production process. With protection in place through a number of sensors, the Safetycone isolates the laser beam during the marking or engraving process on your component. This allows the highest levels of safety to be achieved within your production environment.

Simple integration

The modular design of the Safetycone allows it to be easily mounted on all InMarker series integration lasers; it can also therefore be optimally integrated into existing or new production lines. By using our compact integration lasers that are fitted with the Safetycone safety solution, it is possible to eliminate the need for clamping and high transverse forces that are associated with other technologies, which in turn speeds up your process line.

Cost-effective and space-saving

In the same way as our integration lasers, the “Safetycone” laser protection funnel was designed to be particularly compact so that it can be installed in confined and restricted areas. This means the Safetycone is more cost-effective and takes up less space than laser protective housing, but still meets all occupational safety requirements in relation to employees.

More than just a laser

We understand that integrable lasers only form one part of the entire process chain, which is why it is even more important for us to have an understanding of the best processes for our customers. This is why we work in close collaboration with top industrial partners in sectors including cameras and robotics. The industry specialists based within our team will look after your series and integration requirements. These expert teams will provide you with advice and support from the very first meeting through to carrying out a feasibility study, training and commissioning. This team and the support of an approximate additional 750 employees across the world provide you with a competent and reliable partner for your industrial processes.

+750
Employees

16
Offices

16
Technical Support Center

+90
Countries

113
Partners

+30,000
Systems installed

For over 120 years

Trotec has been working with laser technology for over 25 years and is part of the TroGroup, a group of companies that is majority-owned privately. With production facilities located around the world (headquartered in Austria) as well as research and development groups based in Austria and Germany, and a total of nearly 2,000 employees globally, we have been developing innovations to help our customers for over 120 years.

Technical data

Model	VIN Marker	InMarker				
Laser source	Pulsed Yb fiber lasers					
Wave length	1064 nm					
Laser power	200 W	20 W	30 W	50 W	20 W MOPA	100 W MOPA
Laser class	with Safetycone prepared for laser class 1	possible with Safetycone and laser class 2 pilot laser, possible with Safetycone without laser class 1 pilot laser and Safetycone laser class 4				
Pilot laser	no	yes – red (optional without pilot laser)				
Pulse duration	20-500 ns	200 ns			2-500 ns	
Pulse frequency	2-4000 kHz	1-600 kHz			1-4000 kHz	
Max. pulse energy	2 mJ (@ 250 & 500 ns / 100 kHz)	0.8 mJ (@ 25 kHz)	0.8 mJ (@ 37 kHz)	1.25 mJ (@ 40 kHz)	0.8 mJ (@ 25 kHz)	1.5 mJ (@ 67 kHz)
Typical service life for pump diodes	100,000 h					
Laser beam quality	$M^2 < 1.8$	$M^2 < 1.5$		$M^2 < 1.8$	$M^2 < 1.4$	$M^2 < 1.6$
Marking area with Safetycone only possible with a focal length of 160 or 163 mm.	Marking field X x Y: 120 x 20 mm Support surface: 150 x 50 mm	Variant S - marking area X x Y: 50 x 40 mm / Top area: 80 x 70 mm Variant L - marking area X x Y: 90 x 70 mm / Top area: 120 x 100 mm Alternative variants: Customized				
Marking area without Safetycone		70 x 70 mm, 120 x 120 mm, 160 x 160 mm, 190 x 190 mm				
Focal distance	163 mm	optionally: 100 mm, 160 mm, 210 mm, 254 mm				
Fieldbus / interface	Profinet					
Communication	Ethernet, USB, HDMI					
Safety interface	Profisafe Han3A RJ45	Standard: Han 3A 6pol, Optional: Profisafe / Han3A RJ45				
Exhaust system interface	Harting Han6 24-pin					
Cooling	active air-cooling					
IP protection class	IP 54 (marking head)					
Power consumption	3,300 W	max. 1000 W				
Power supply	230 V / 50-60 Hz /1-N-PE	110-230 V / 50-60 Hz / 1-N-PE				
Laser rack	Interfaces & integrated power supply					
Safetycone	Interfaces & integrated power supply					
Fiber length	~ 8.3 m	Standard: 3 m / optional: 5 m				
Head/rack connection pack	Connection cable set: ~ 8.5 m	Standard: 3 m / optional: 5 m				
Rack/rack connection pack	Hybrid cable 1.5 m	Hybrid cable 1.5 m				
Marking head operating environment	15 - 45 °C not condensing	15 - 35 °C not condensing				
Rack operating environment	15 - 35 °C, 0 - 60 % not condensing					
Marking head weight	11 kg	4.6 kg				
Safetycone weight	4.9 kg	Variant S: 2.8 kg, Variant L: 3 kg				
Laser rack weight 19'' 4HE	23.4 kg	13 kg		16 kg	13 kg	18 kg
Control rack weight 19'' 4HE	16.5 kg	14 kg				
Marking head dimensions	180 x 145 x 450 mm	306 x 120 x 106 mm				
Safetycone dimensions	205 x 220 x 230 mm	209 x 183.5 x 269.5 mm				
Laser rack dimensions 19'' 4HE	450 x 177 x 540 mm					
Control rack dimensions 19'' 4HE	450 x 177 x 540 mm					
Applicable standards and directives	IEC EN 60825-1, Machinery Directive 2006/42/EC, TROS					

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