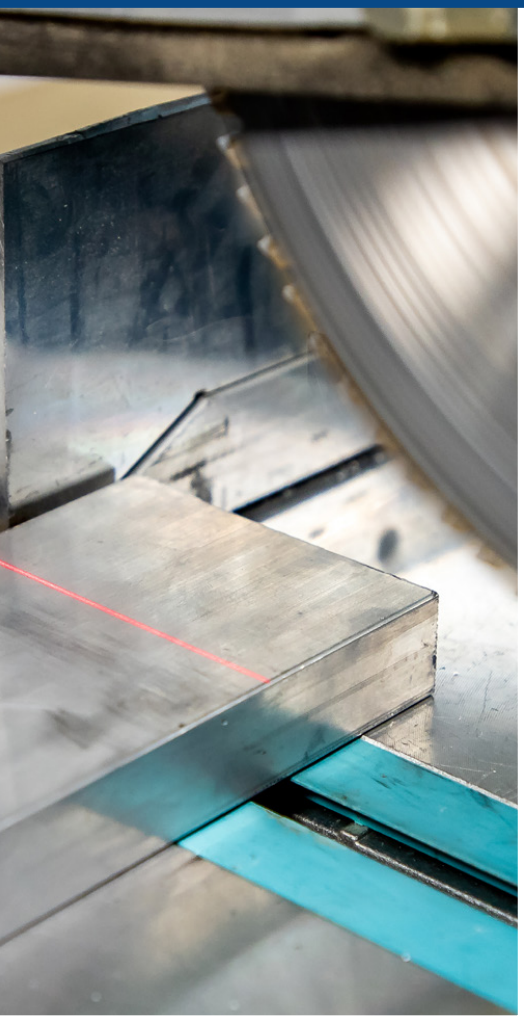
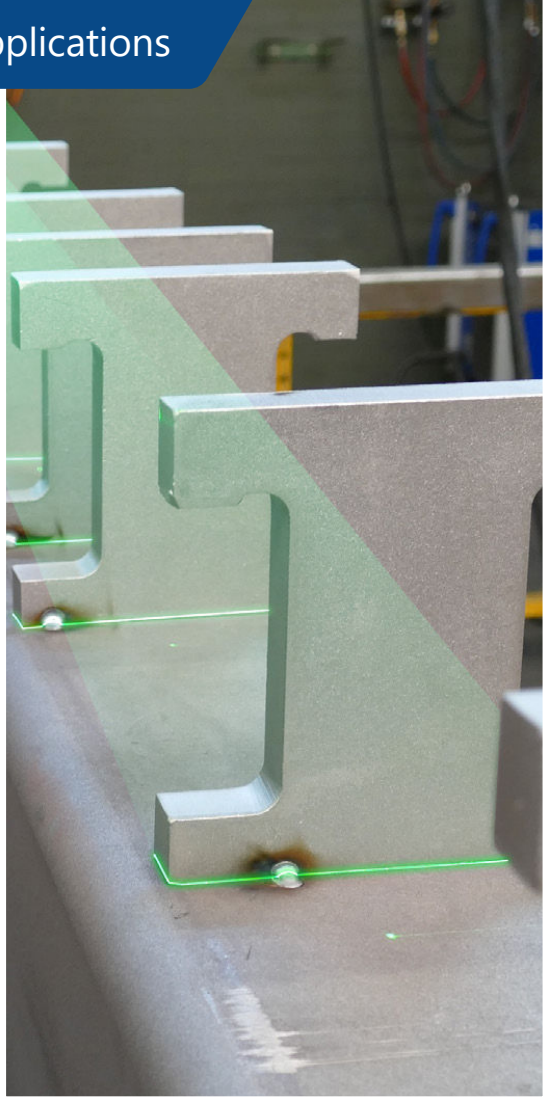
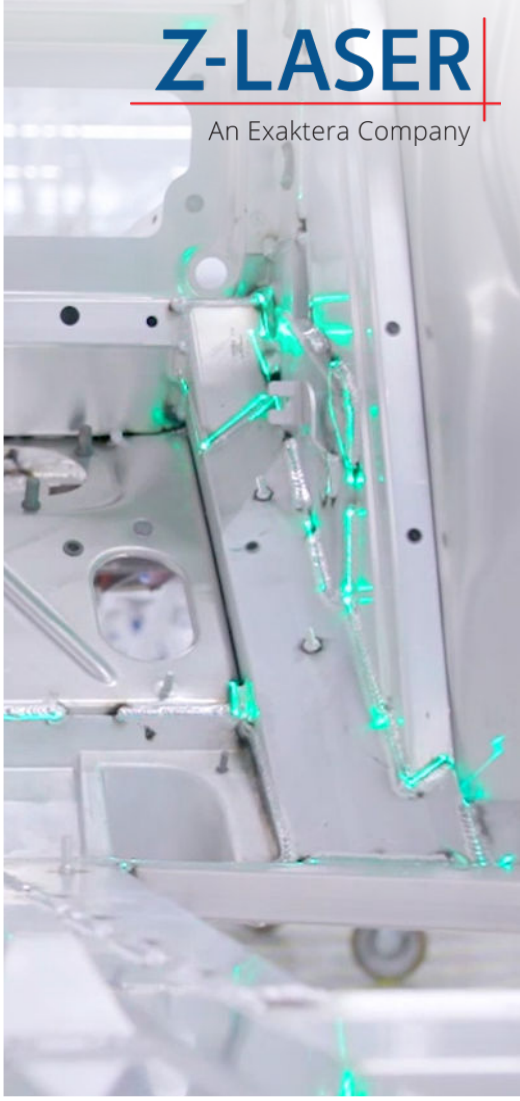
Z-LASER
An Exaktera Company





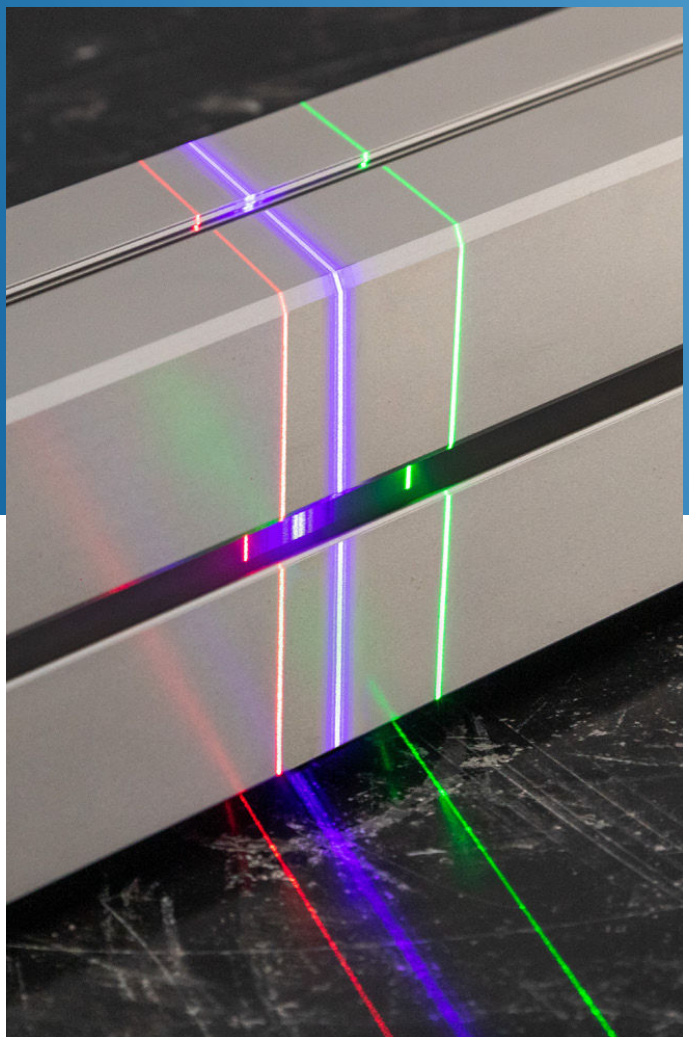


More precision, quality and efficiency

Laser solutions for all metal processing applications

Process steel and sheet metal even more efficiently

In the metals industry, lasers are a versatile tool for optimizing work processes: Aligning, separating, joining, inspecting – all these work steps and many more can be completed faster and more efficiently with the right laser solution.

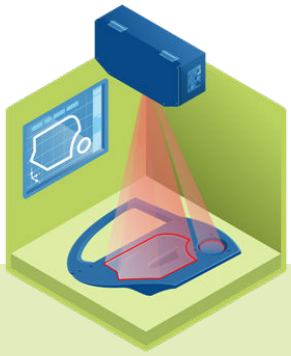


Laser light and metal

your unbeatable match

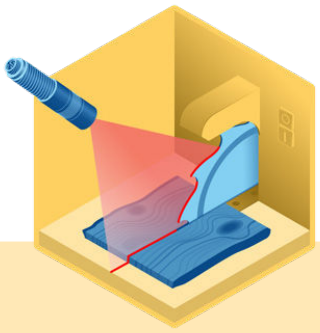
In the metal industry, competition and cost pressure are your constant companions. However, by using well thought-out laser solutions from Z-LASER, it is possible to quickly achieve noticeable advantages over the competition. Through visual guidance, laser projectors, positioning lasers and lasers for machine vision make it possible for you to fully utilize machines, optimize process steps, reduce scrap and support employees in the process so that they always know exactly what needs to be done. This not only increases quality and output – it also reduces your costs.

Matching laser solutions from slab to plate



Laser Projectors

These optical guidance systems make it possible to work without templates in many manufacturing processes. They show directly on the workpiece how tools must be positioned or how a component must be mounted. In this way, laser projectors guide employees step-by-step through the process. Laser projectors are also used in quality inspection, for example when checking weld seams.



Positioning Laser

Lasers for positioning safely and reliably indicate specific positions on a wide variety of materials. As line lasers, they are often used on cutting machines. As cross lasers, they mark reference marks for drilling or punching, among other things. With the help of circular lasers, the correct positioning of round objects is made much easier.

Lasers for Machine Vision

Lasers for machine vision from Z-LASER are used as structured illumination in many machine vision systems. The combination of laser illumination and machine vision offers interesting possibilities for the automation of optical quality control. In addition, the spatial contours of moving and non-moving objects can be captured.

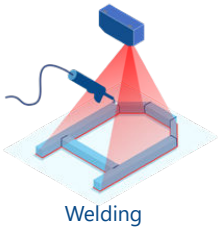
„Harsh conditions, demanding applications and high-quality products? Exactly the right conditions for our products! Z-LASER has been proud to support the metal industry with innovative laser solutions for many years. This enables our customers worldwide to work even more efficiently, to ensure their quality and to produce in a more resource-saving way."

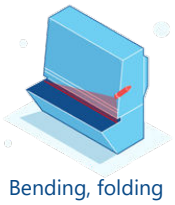
- Christian Rees
Product manager | Z-LASER

Process support and worker guidance

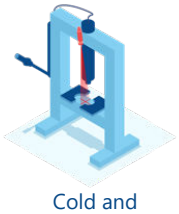

Sawing, cutting


Waterjet/flame and laser cutting

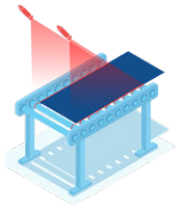

Welding

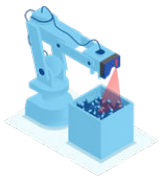

Bending, folding

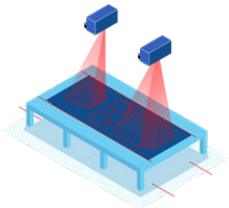

Drilling, punching

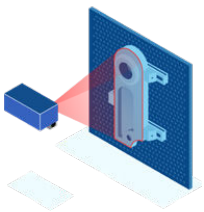

Cold and hot forming

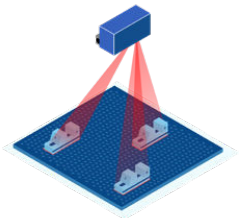
Page 4

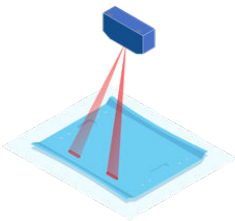

Aligning rolled plates


Bin-picking


Nesting, sorting

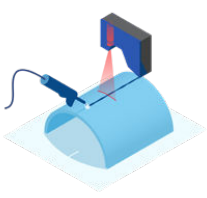

Displaying measuring points and measuring tools

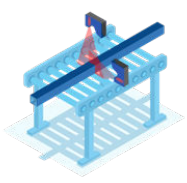

Setting up tools, equipment and machines

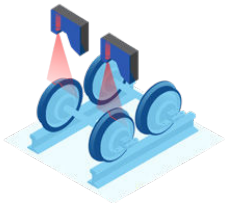

Applying labels

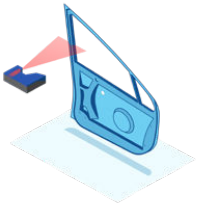
Page 6

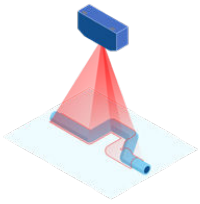
Quality control and production monitoring


Checking weld seams

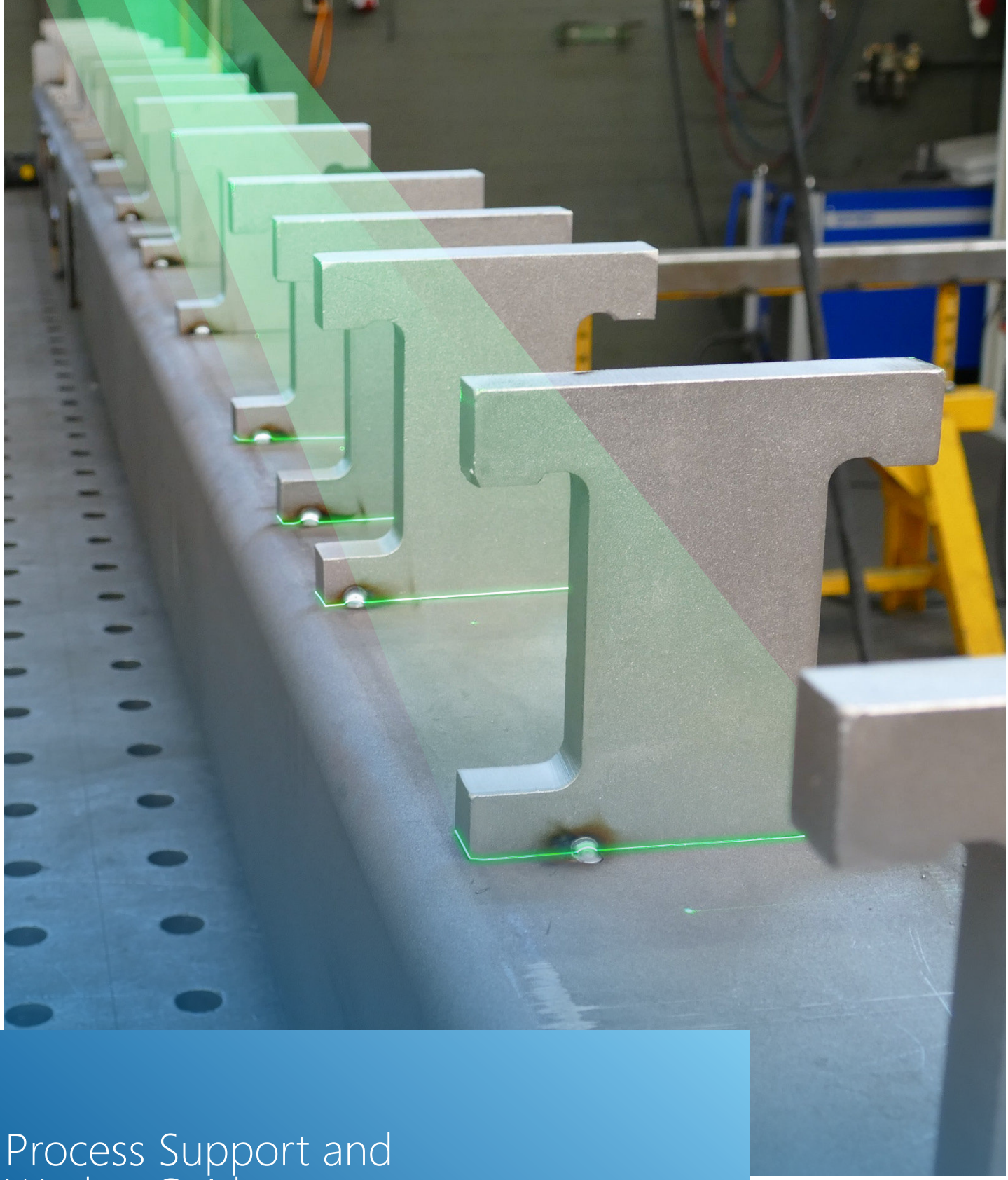

Measuring metal profiles


Inspecting railroad wheels


Gap measurement


Quality inspection and radius control of bent parts

Page 8

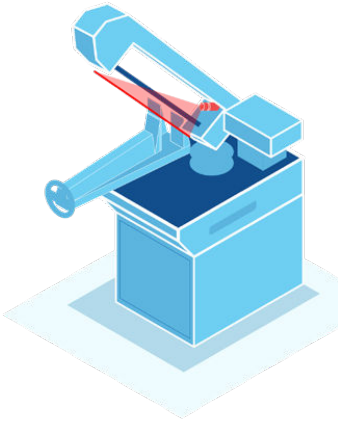


Process Support and Worker Guidance:

Cutting, Drilling, Forming, Joining

Doing the right things right – that‘s what laser solutions from Z-LASER are used for in the metal industry worldwide. When it comes to precisely separating, joining, forming or drilling components, suitable laser solutions are indispensable. Read here how you can noticeably optimize these processes with the help of Z-LASER.

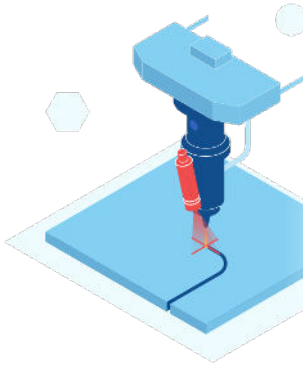
- Reduce costs
- Ensure quality
- Optimize processes



Sawing, separating

All kinds of saws and cut-off machines can be used highly efficiently with line and positioning lasers. The laser helps especially when there is no mechanical stop or when slabs as well as long sheets must be cut.

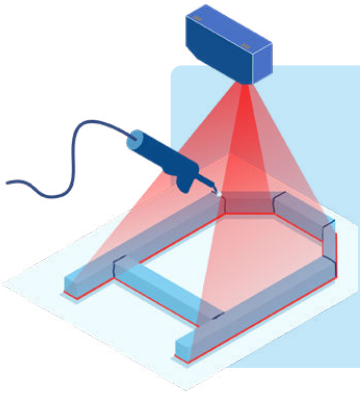
Positioning Laser



Water jet/flame and laser cutting

A positioning laser indicates on the material exactly the point at which flame, waterjet or laser cutting systems must be applied to cut out the desired shape with millimeter precision.

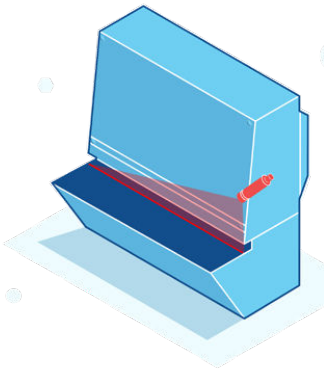
Positioning Laser



Welding

Precise positioning is an essential aspect for a clean result, not only in the production of complex 3D frame and structural parts. This work step is considerably simplified using laser projectors, which display the exact target position when tacking components.

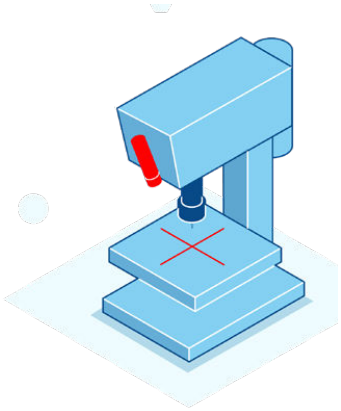
Laser Projectors



Folding, bending

In the so-called „free bending“ of sheets without back gauges, a supporting use of a laser is necessary to achieve precise results.

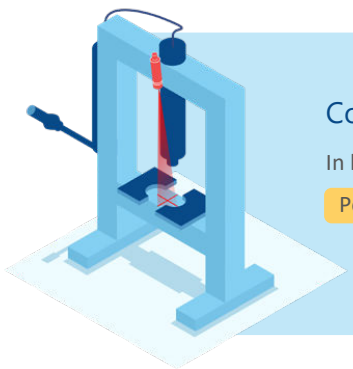
Positioning Laser



Drilling, punching

A cross laser assists in both the correct placement of the metal plate/sheet and the precise drilling or punching of holes.

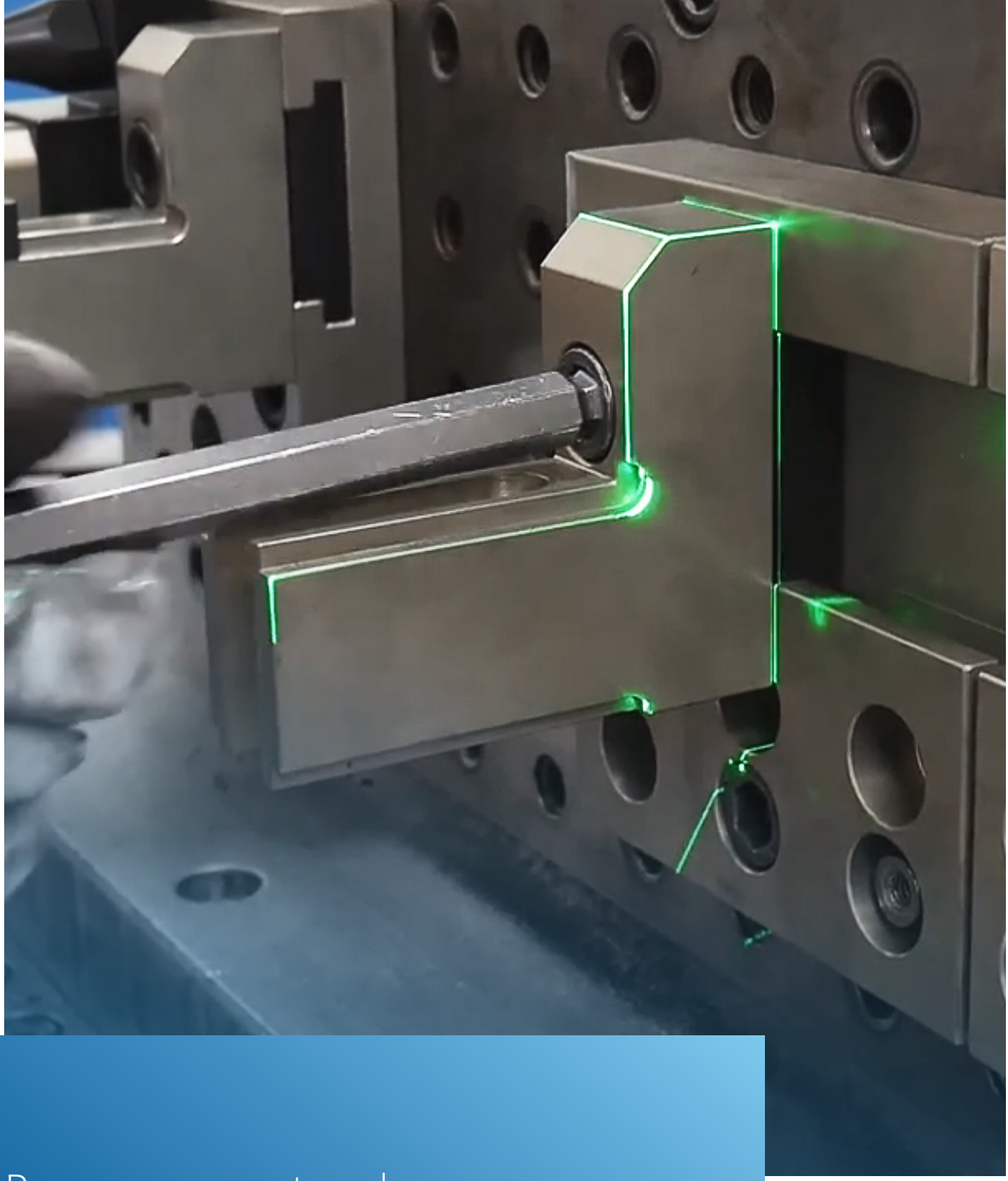
Positioning Laser



Cold and hot forming

In hydraulic presses, the laser is used for repetitively accurate placement of the component in the press.

Positioning Laser

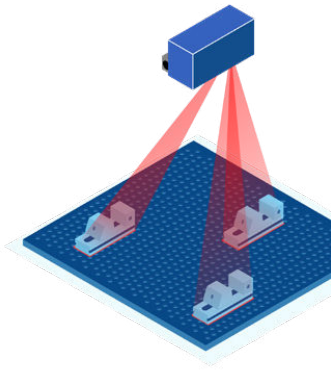


Process support and worker guidance:

Further applications

Especially in the many regularly recurring work steps in the metal industry, laser solutions can provide targeted support by offering people and machines visual guidance and orientation. They save material and time, increase quality and achieve optimal work results.

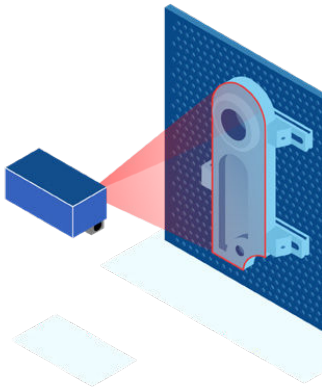
- Improved efficiency
- Increased precision
- Optimized added value



Setting up tools, systems and machines

When setting up individual work processes, a laser projector helps to guide employees through the setup process by means of easy-to-understand projections that show the positions of supports, clamping devices and components in detail.

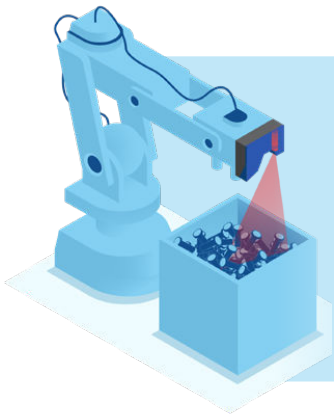
Laser Projectors



Displaying measuring points and measuring tools

When using a laser projector for measurement and inspection tasks, individual inspection steps are projected in a user-friendly manner and in the pre-determined sequence. To select the correct measuring tool, it is marked in the tool magazine by projecting an arrow or frame. This ensures high quality of the inspection results.

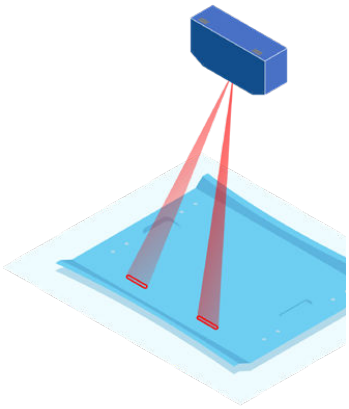
Laser Projectors



Bin-picking

Triangulation sensors detect the inside of disorderly loaded wire mesh boxes before each removal and redetermine the arrangement of the parts they contain. This information is then passed to the robot, which can then pick up the next part. A laser projector also reliably displays the corresponding removal tray as well as additional information such as the number of pieces, etc.

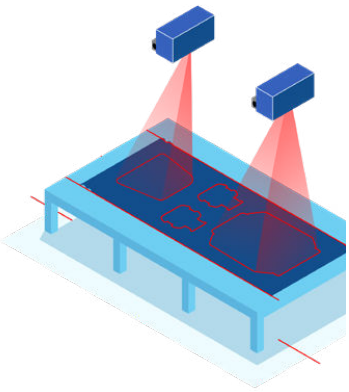
Laser Projectors Lasers for Machine Vision



Applying labels

The application of various labels and tags is an integral part of many industrial manufacturing processes. By displaying labels in the correct positions for the respective labels, this work step can be simplified using laser projectors.

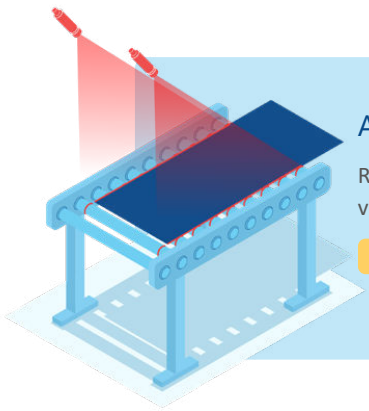
Laser Projectors



Nesting, sorting

The use of laser projectors makes it easier to sort cut metal parts. Employees can then remove and further process the respective marked part in the specified sequence.

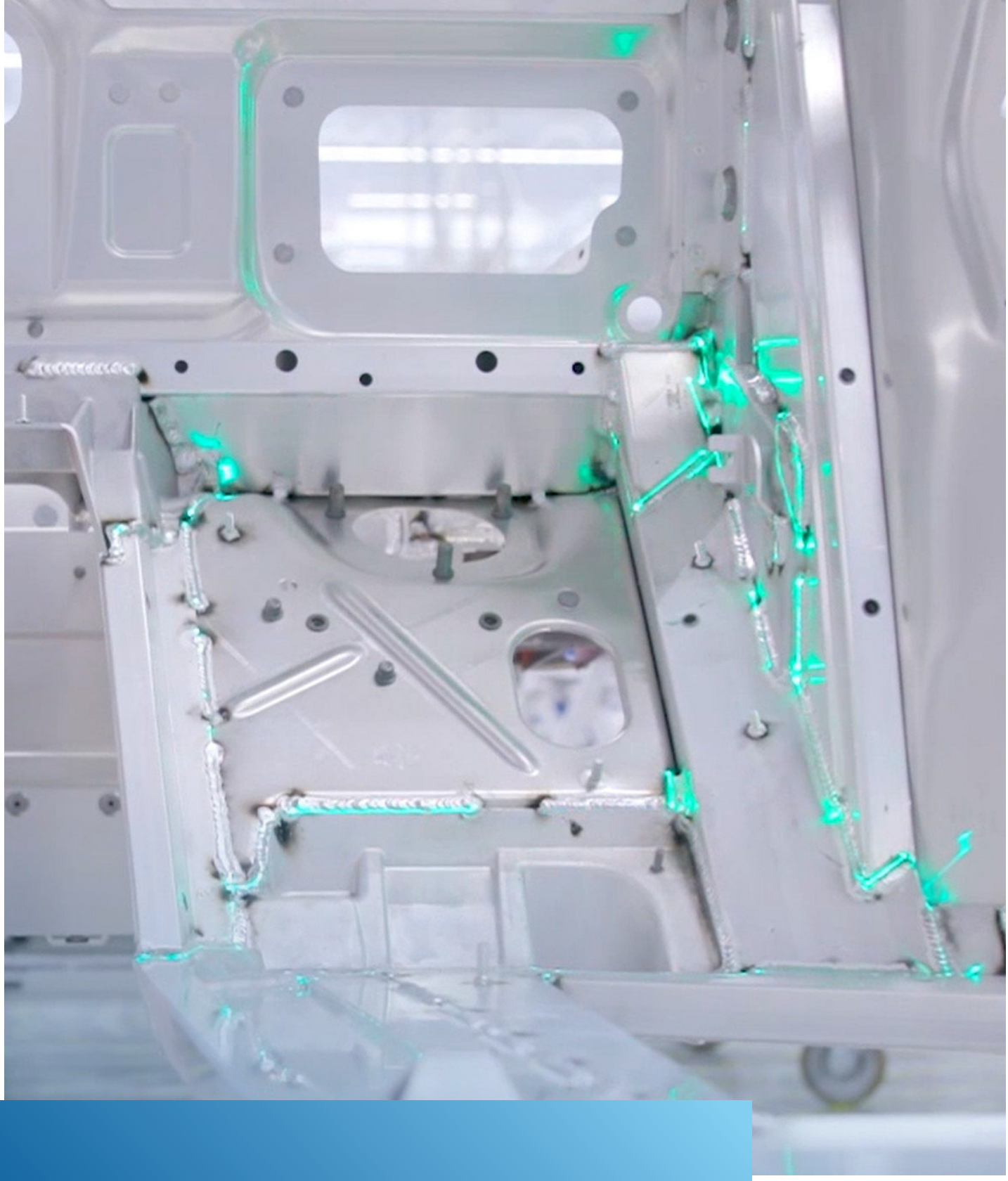
Laser Projectors



Aligning rolled plates

Rolled metal plates must be precisely aligned after rolling for the next processing step, e.g., on a roller conveyor, to avoid scrap.

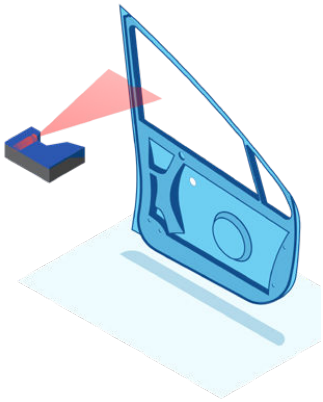
Positioning Laser



Quality control and production monitoring

In the manufacture of metal workpieces, quality control plays an important role in the process – after all, we are often talking about components for infrastructure projects, mechanical engineering or the automotive industry.

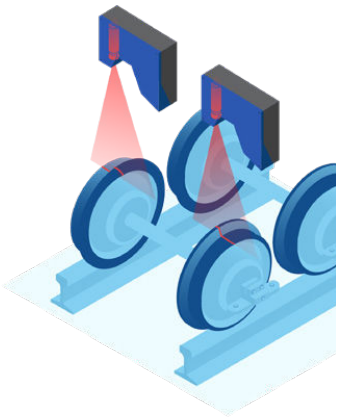
- Ensure product quality
- Ensure production reliability
- Retain customers in the long term



Gap measurement

Gap and flush measurements with triangulation sensors are performed to check fit accuracy and alignment between two surfaces. In the automotive industry, for example, perfect gaps and flush fit are ensured on every delivered vehicle.

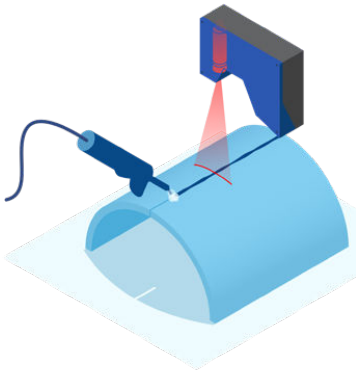
Lasers for Machine Vision



Inspecting railroad wheels

Triangulation sensors automatically and precisely inspect wheelsets as they pass through. Defects on the running surface of the wheels, such as spalling, flat spots, etc., are detected and analyzed by the machine vision system.

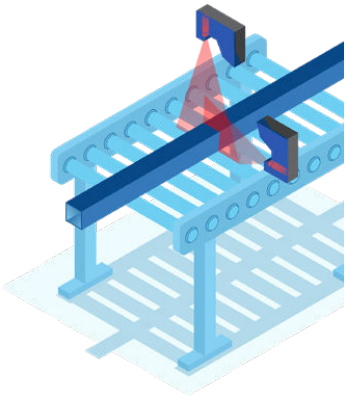
Lasers for Machine Vision



Checking weld seams

After welding/brazing, a robot guides a laser triangulation scanner along the seam. Its three-dimensional contours are captured in real time and compared with an expected shape. Defects are indicated and allow direct rework. At the same time, process problems can be detected at an early stage.

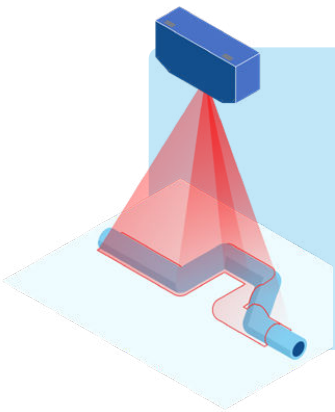
Lasers for Machine Vision



Measuring metal profiles

In the production of metal profiles and tubes, dimensions or entire profile cross sections must be continuously monitored and measured. Using laser modules, lines are projected onto the profile from all sides and recorded by cameras. The profile of the entire measured object can thus be checked for faulty radii, surface defects or other deviations.

Lasers for Machine Vision



Quality inspection and radius control of bent parts

Precise quality inspection is essential in the production of bent parts. By using laser projectors, the exact position of the placed workpiece is determined and the target contour of the component is projected onto the work surface. This makes it possible to see with the naked eye whether the component meets the quality requirements.

Laser Projectors

Product recommendations

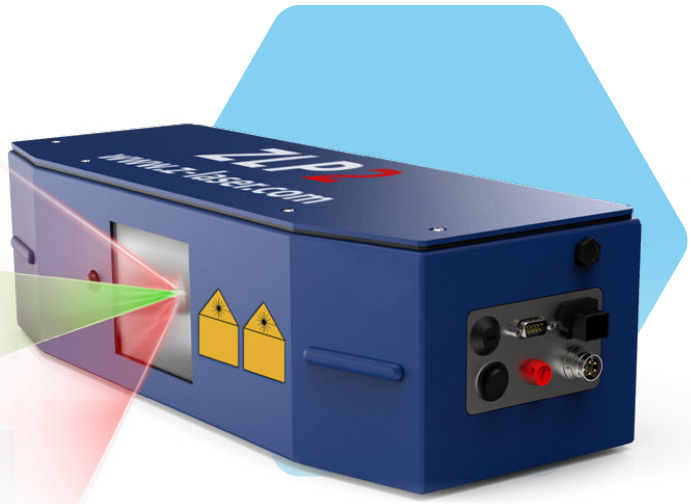
The requirements for the various processes, materials and methods in the metal industry are high. Nevertheless, to provide you with the best possible support, we have summarized here suitable laser solutions for the applications described in this brochure.

Laser projector ZLP2

High-Performance Laser Projector with Z-FIBER Source

Optimized for projection onto 3D objects, the ZLP2 offers the maximum performance in laser projection. By using fiber-coupled laser sources, the ZLP2 features unprecedented beam quality. With an accuracy of 0.25mm/m working distance, the model is predestined for the most demanding applications in the metal industry.

Laser Projectors

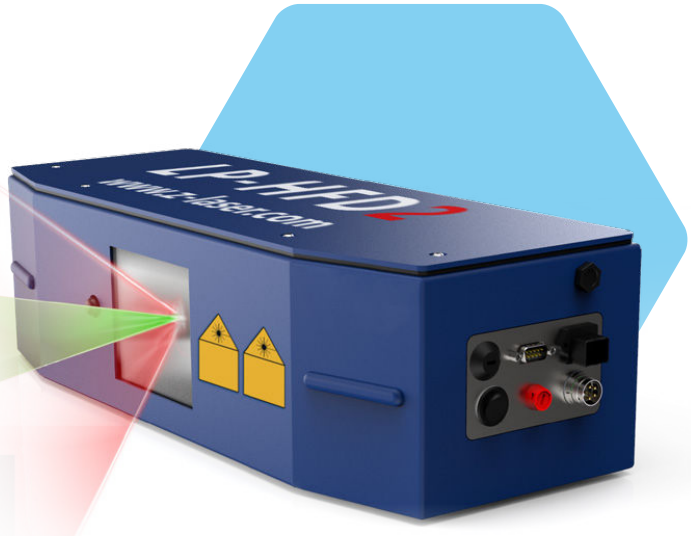


Laser projector LP-HFD2

Proven model for a wide range of applications

This laser projector allows you to have a very accurate, fast and stable laser projection. With its large aperture angle of up to 80° x 80°, it covers a large working range. In addition to a new housing with IP65 protection class, special emphasis was placed on temperature stability during development.

Laser Projectors

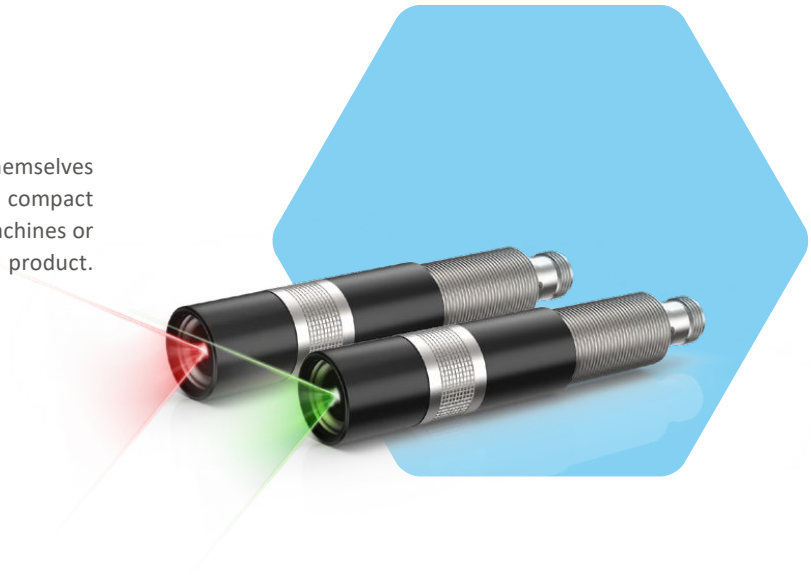


ZM18

The perfect all-rounders

The laser modules of the ZM18 family have long proven themselves in the metal industry as positioning aids („line lasers“). The compact design in sensor look allows easy integration into existing machines or systems. An easy-to-operate focusing optics rounds off the product. Simply the perfect all-rounder.

Positioning Laser

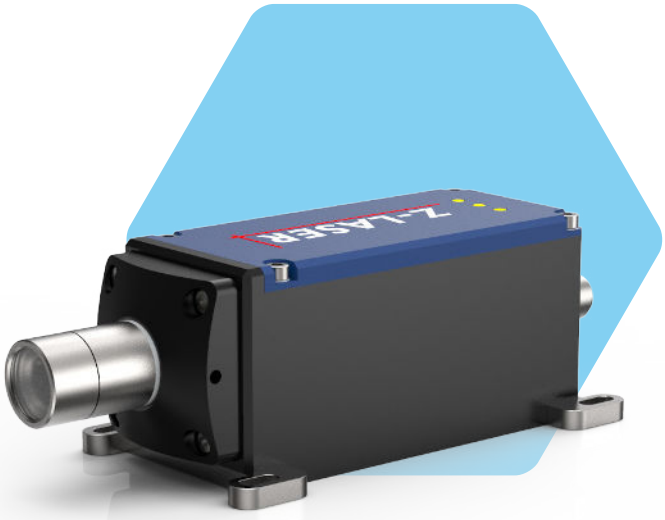


ZQ1

Compact and powerful

The ZQ1 laser series was developed for the most demanding measurement processes on the market. Wherever high output power, good beam characteristics and industrial-grade design are required, the ZQ1 series is the right choice. Thanks to tool-free focusing, the user can optimally adjust the working distance of the module to the application. The laser, together with its intelligent monitoring functions, enables high performance stability even in harsh environments.

Laser for Machine Vision



Z-LASER

An Exaktera Company

Innovative light for better results

Providing visual guidance to people and machines with laser solutions

Z-LASER has been developing and producing innovative, high-quality laser solutions since 1985.

By providing visual guidance and orientation for people as well as machines, our lasers contribute to optimizing your production processes, ensuring quality, and to using resources carefully.

German engineering since 1985

Over 120 employees develop and manufacture completely in Freiburg, Germany.

Innovators by conviction

25 % of our workforce is involved in R&D.

Rooted locally, at home globally

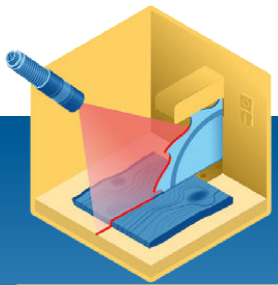
Sales offices and over 60 distributors worldwide.

The right solution for every challenge

Developed in close customer exchange, our products adapt perfectly to your requirements.

Modular products for efficient processes

Modularity means less maintenance, optimized performance and better scalability.

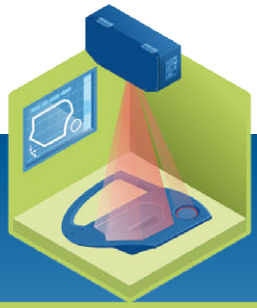


Positioning Laser

Benefit from increased precision for more efficient processes with lower material consumption.

Laser for Machine Vision

Automate your optical quality control with structured laser light.



Laser Projectors

Replace mechanical templates with laser projections and save time, money and material.

Contact

Contact us.
We would be happy to advise you!

www.z-laser.com/contact

Headquarter
Z-LASER GmbH
Merzhauser Str. 134
79100 Freiburg
Germany

Tel: +49 761 296 44-44
E-Mail: info@z-laser.de
Web: www.z-laser.com

Salesoffice
Z-LASER Italia Srl.
Via Gran Paradiso, 4
20861 Brugherio MB
Italy

Tel: +39 039 287 1860
E-Mail: info@z-laser.com
Web: www.z-laser.com