# PRODUCT
# CATALOG

AN INNOVATIVE MOVEMENT, BY SPECHTLAB.

MEASURE THE ENTIRE SPECHTRUM · MEASURE THE ENTIRE SPECHTRUM ·

## SpechtLab™

SPECHTLAB.COM

# Specht-acular results with higher accuracy.

SpechtLab

# Welcome,

## To the Center of Spechtacular Innovations.

Welcome to **SpechtLab**, a leading brand that specializes in cutting-edge measuring instruments with state-of-the-art AI-based vision systems. Our company was founded in 2019 with a mission to develop imaging technology and create top-quality optical measurement products that leverage new and innovative technologies. Our products are widely used in a range of industries, including steel and non-ferrous metal production and processing, chemical, cement, glass, scientific research, and others. With a global client base, SpechtLab is dedicated to providing cutting-edge solutions that meet the needs of various industries worldwide.

MEHMET EMİN CÜRMEN
Founder & General Manager

Cürmen

# WHO ARE WE?

"We produce innovative, digitally-integrated measurement systems that boost efficiency of production facilities from any industry, help them lower the risk of malproduction, and accelerate their production rates."

**SpechtLab**, established in 2019, is a high-tech enterprise specializing in the R&D and market expansion of measurement devices with artificial intelligence-based vision systems.

We are committed to the development of imaging technology and optical measurement products, pursuing high quality and new technologies.

Our products are widely used in the production and processing of steel and non-ferrous metals, chemical, cement, glass, refractory materials, coking, crystal material production, medium and high frequency induction heating, plasma heating, microwave heating equipments, vacuum equipments, scientific research and many other industries all over the world.

## OUR VISION

Our ideal is to transform the entire iron and steel industry by helping them achieve perfection within their production, and to create the best working environment for passionate and talented engineers.

## OUR MISSION

We will achieve that vision by embracing challenges, never being afraid of taking risks, making room for never-ending improvement and hardwork, making room for freedom to fail and learn, laser focus on research and development, and staying on the track of science.

**SpechtLab**™

**SpechtLab**™

We are highly sensitive about **what makes sense for your future.**

**It makes sense** to develop the most sensitive technology ever.

# CONTENT

REVOLUTIONARY SYSTEMS.
**Developed espechtially for you.**
SEE → SPECHTLAB.COM
SpechtLab™

# 1

# MEASURING SYSTEMS

High **precision,**
High **accuracy,**
High **speed.**

PM SERIES

# 2D/3D
# Laser Profiler

# PM SERIES 2D/3D LASER PROFILER

SpechtLab PM is a series of 2D/3D profile sensors that provide high-resolution and real-time height, width and position measurements using laser triangulation. Lightweight and with IP65 protection class, these profile sensors are suitable for use in steel, automotive, white goods, electronics, semiconductors, etc. Ideal for in-line measurement, inspection, identification and guidance applications in factory automation industries. Our company specializes in developing advanced sensor technologies and 2D/3D image processing systems, fully compliant with Industry 4.0 requirements and equipped with the latest communication standards. With our more than 30 existing products, we successfully detect, examine and measure objects by collecting and evaluating data through appropriate interfaces.

Our smart profile sensors go beyond learning thanks to the ability to think and act independently.

## Application Areas

- Surface profiling and inspection
- Size measurement and verification
- Detecting and classifying errors
- Robotics and automation
- Quality control and process monitoring
- Alignment and positioning

## High Precision Measurements:
Provides the opportunity to obtain accurate and detailed measurements for critical applications with precision up to 20μm.

## Fast and Efficient Performance
Increases productivity and reduces cycle times with efficient data collection.

## Wide - Range Applications
Outstanding performance in a variety of industries including manufacturing, quality control, robotics and automation.

## User-Friendly Interface:
Optimizes your workflow and simplifies sensor installation.

## Real Time Data Analysis:
Provides the ability to make informed decisions to ensure optimal product quality and process control.
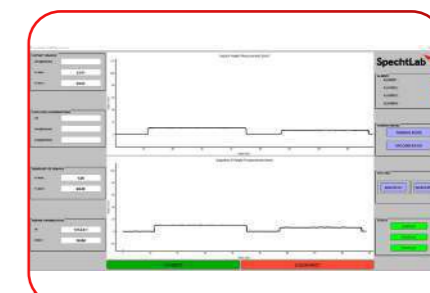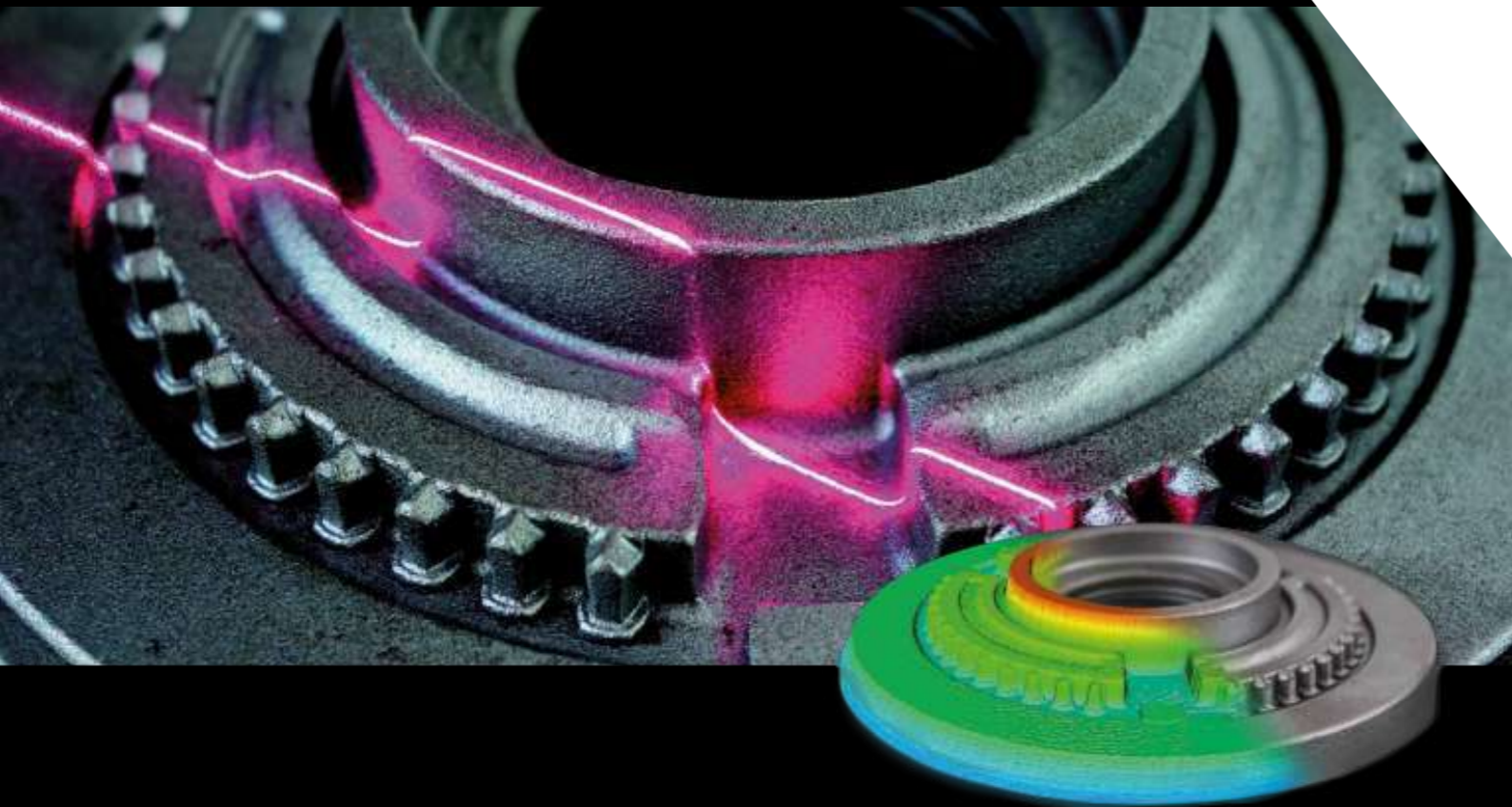
## Sturdy and Durable Design:
Offers long-lasting performance and reliability.

## Flexible Connection Options:
Provides seamless integration into your preferred network or control system.

## Customizable Solutions:
Offers customized solutions for your specific needs.

- Laser triangulation sensor for object measurement (Width, Height, Position)

- Measurement range and time: 200-600mm / 10ms

- Laser line lenght: Max. 140mm

- Integrated analog interface

- Communication with PLC, SAP and Level -2

- Configuration via Fast/Gagabit Ethernet

- Logic processing option up to 4 Measurement Areas / 8 Detection Areas

- Activation Input, Trigger Input, Cascaded Output

## PRECISE

The most accurate results in measurement

## PRECIOUS

Solutions that minimize risk.

## PREMIUM

Superior customer service.

## OPTICAL DATA

| | |
|---|---|
| **Measurement Range - Z:** | Optional  (60 to 2100mm) |
| **Measurement Resolution - Z:** | 25 - 1000μm |
| **Laser Line Range  - X:** | 65 - 575mm |
| **Measurement Resolution - X:** | 55 - 439μm |
| **Scanning Speed:** | 400 - 650 μm/sq |
| **Laser Light:** | Red: 650nm |
| | Blue: 450nm |
| **Laser Class 3B:** | 15mW   -  650nm |
| **Laser Class 3R:** | 10mW   -  450nm |
| | 25mW   -  650nm |
| | 20mW - 450nm |

## WORKING CONDITIONS

| | |
|---|---|
| **Operational Ambient Temp:** | 0 - 50°C |
| **Storage Temp:** | -20 - 70°C |
| **Operating Voltage:** | 18-30V DC |
| **Interface:** | Ethernet TCP/IP |
| **Short Circuit Protection:** | Yes |

## MECHANICAL DATA

| | |
|---|---|
| **Housing:** | AISI 310 |
| | IP65 |
| | Water & Air Cooling Options |
| **Connection Type:** | M12 x1 |
| | RJ45 x1 |

## OPTIONS

| | |
|---|---|
| **Temperature Control:** | Optional  (PT100, Relay) |
| **Water/Air Cooling:** | Optional |
| **Radiation Protection:** | Optional |
| **Water Control System:** | Optional |

0.2     5.61     8.05     13.52     16.08

LAZER
SENSÖR

BLIND ZONE
NEAR FOV
WORKING RANGE
FAR FOV
LASER LİNE LENGHT
Y - SCAN DIRECTION

18 - 30 V DC     ETHERNET
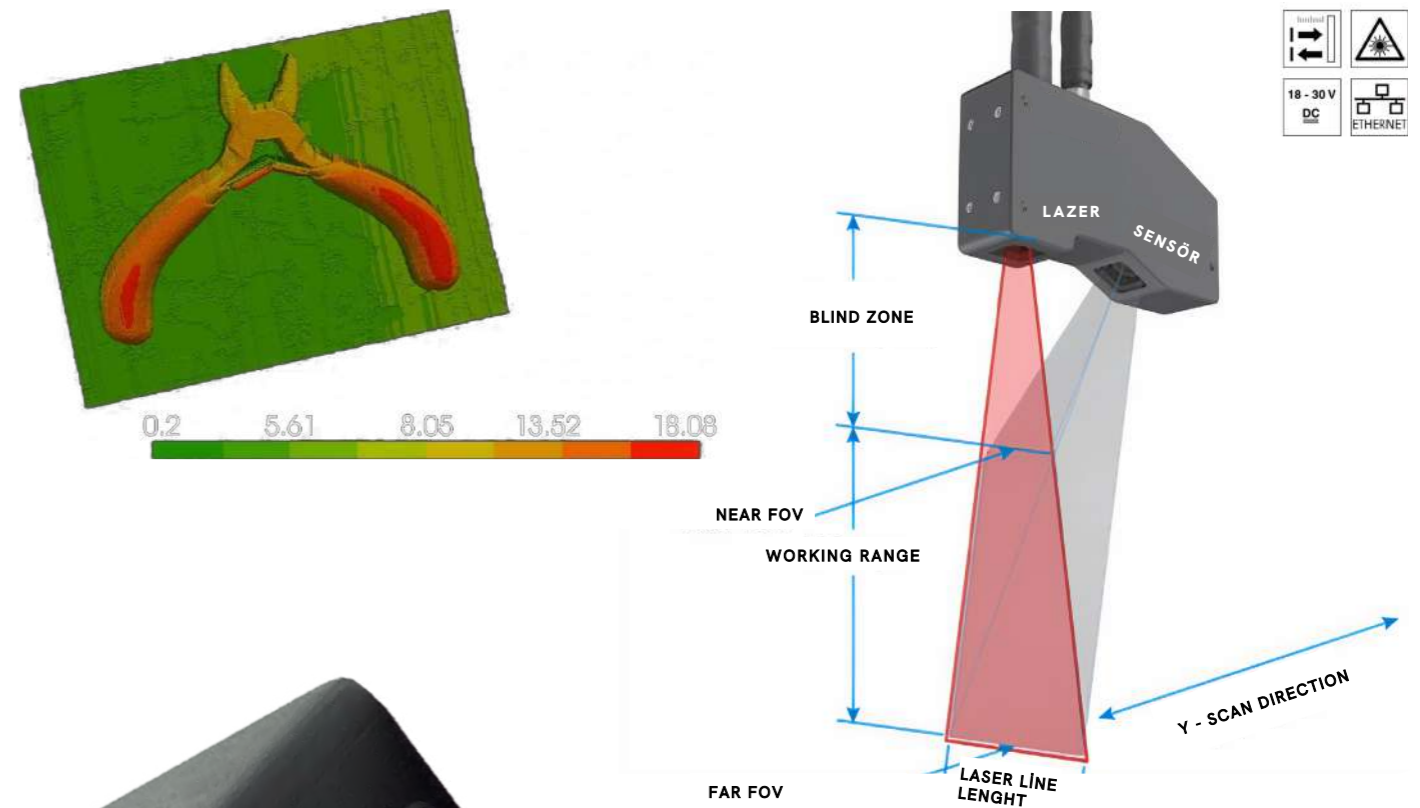
### FOR DETAILED INFORMATION CONTACT US.

info@spechtlab.com
+90 506 884 01 56

Easy **integration**,
High **efficiency**,
Perfect **solution.**

PM SERIES

# Slab
# Profiler

# PM SERIES SLAB PROFILER

Spechtlab PM Series Slab Profiler is an advanced measurement system that measures the width, edge profile, convexity/concavity, center deviation and both edge and center thicknesses of slabs or plates. The system is suitable for installation in cold or hot applications, before or after the breaker or at the reheat furnace inlet.

The system performs direct measurement of the shape of slabs using two lasers and captures the actual cross-section and edge thickness simultaneously.  It increases edge scrap efficiency in hot strip milling by providing information about the Slab's edge profile, correct edge thickness and width before it enters the rolling machine.

With the instant and accurate data offered by the system, you can maximize quality control and process analysis in your production line.



**Real 3D Non-Contact Measurement:**
Non-contact dimensional 3D measurement of slabs or plates.

**Waste Reduction:**
Reducing wastage caused by non-conforming production.

**Fast Recognition:**
Rapid recognition of slabs that are incompatible in shape and size.

**Production History:**
Trend charts showing production history.

**Providing Instant Data:**
Providing instant slab size information to the rolling machine

**Damage Prevention**
Preventing damage to hot strip rolling machine edge rollers.

**Control Information:**
Providing information to control adjustable moulds.

**Quick Detection**
Rapid detection of concavity, convexity, edges and other edge profile anomalies.

**Easy Integration:**
Easy integration with PLC, SAP and process control systems for Level 2 communication.

## OPTICAL DATA

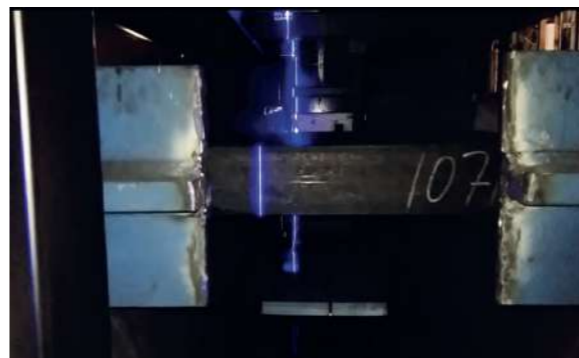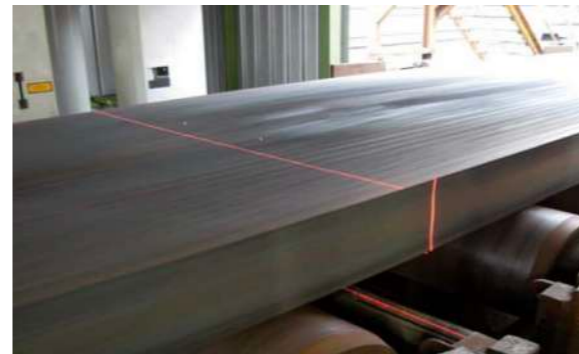| | |
|---|---|
| Working Range - Z : | 650...2200mm |
| Measurement Range - Z : | 750mm |
| Measurement Range - X : | 225..575mm |
| Resolution - Z : | 230 ... 439µm |
| Resolution - X : | 655 ... 1095µm |
| Resolution - Y (Scanning Speed) : | 400 ... 650µm |
| Light Source : | Laser ( BLUE) |
| Wavelenght : | 450Nm |
| Laser Class : | 3B |

## WORKING CONDITIONS

| | |
|---|---|
| Operating Temp : | 0 - 400°C (with water cooling) |
| Storage Temp : | -20 - 50 °C |
| Operating Voltage : | 18-30V DC |
| Operating Current (Maks) : | 950 mA |
| Short Circuit Protection : | Yes |
| Interface : | Ethernet TCP/IP |
| Transfers Speed : | 100/1000Mbit/s |

## MECHANICAL DATA

| | |
|---|---|
| Housing : | AISI310 |
| Protection Class : | IP65 |
| Connection Type : | M12 x 1 ; 12 pin |
| Ethernet Connection Type : | M12 x 1 ; 8 pin X code  Cam |
| Optical Cover : | (IR/Bandbass Filter) |
| Weight : | 4.620 g. |

## OPTIONS

| | |
|---|---|
| Temperature Control : | PT100 |
| Air Cooling : | Yes |
| Water Cooling | Yes |
| Radiation Protection : | Yes |
| Flow Control System : | PNP/NPN |

**Operatör Takip Ekranı**
Operator Interface

**Seviye-2 Sistemi**
Level 2 System

Connection Board
**Bağlantı Paneli**

Air and Water Cooling Sensors
**Hava ve Su Sensörleri**

PM Series Slab Profiler
**Profil Ölçüm Sistemi**

**Profil Ölçüm Sistemi**
PM Series Slab Profiler

## FOR   DETAILED INFORMATION:
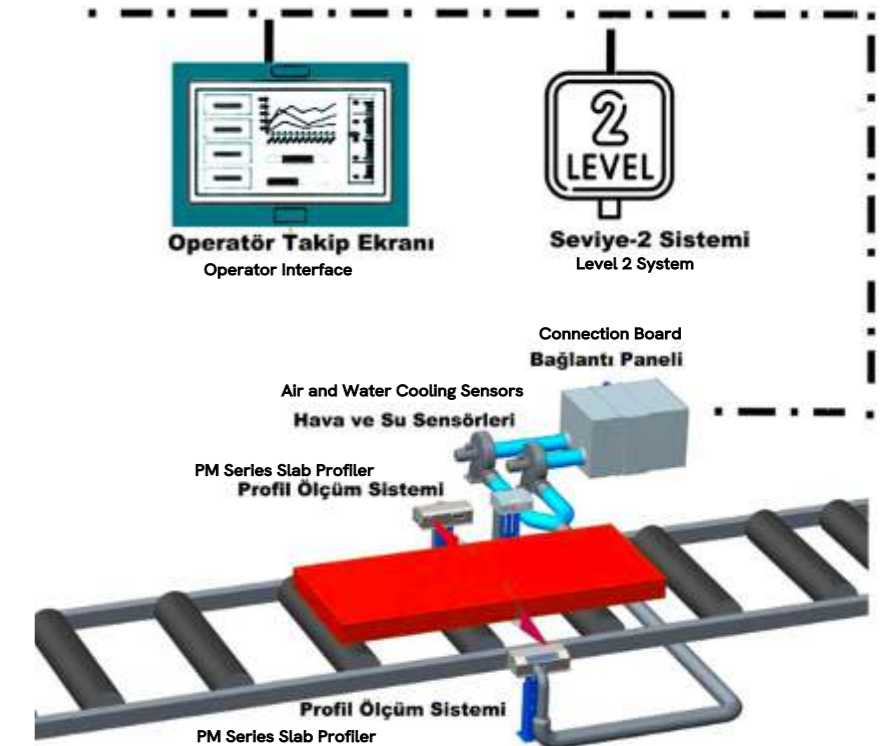
info@spechtlab.com
+90 506 884 01 56

SPECHTLAB.COM        INFO@SPECHTLAB.COM

**Maximum** control,
**minimum** loss
in production.

WG SERIES

# Stereoscopic
# Width Gauge

# SPECHTLAB WG SERIES WIDTH GAUGE

In the constantly developing and changing iron and steel industry, quality control and operational efficiency are becoming increasingly important. To respond to these demands, SpechtLab offers a unique solution to steel manufacturers and many other industries, the WG Series Width Gauge.

The WG Series is a state-of-the-art measuring system designed to precisely measure the width and center deviations of steel sheets, coils, plates and strips, as well as a variety of other materials. Using advanced optical sensors and intelligent algorithms, this system delivers micron-level precision, enabling manufacturers to confidently meet the most stringent industry standards.

WG series Width Gauge has been developed for instantaneous, uninterrupted and non-contact width measurement and quality control during production. The combined camera system to be mounted on the line provides stereoscopic images. The stereoscopic image consisting of two cameras allows a precise measurement regardless of depth, thickness of the material and the rebound effect of the material as it moves on the role.

Product illumination is provided by Backlight and Frontlight. The software algorithm developed by SpechtLab enables the measured value to be transferred to PLC, SAP and Level - 2 systems via Ethernet/RS485 line.

## Applications

- Width detection
- Center line detection
- Detection of deviation from the center
- Diagonality Detection
- Detection of edge positions
- Quality control and process monitoring
- Alignment and positioning

## Precision and Reliability:
Prevents production errors by detecting even the slightest deviations with 0.25mm precision.

## Non-contact measurement:
Offers precise measurements and communication with PLC, SAP and level 2 systems without damaging the products.

## Real-time feedback:
Instantly detects deviations and allows making the necessary adjustments.

## Efficiency and Customizability
With a line speed of up to 600 mpm, allows instantaneous measurements on lines flowing at high speeds.

## Customizable settings:
Adapts to different material types and sizes.
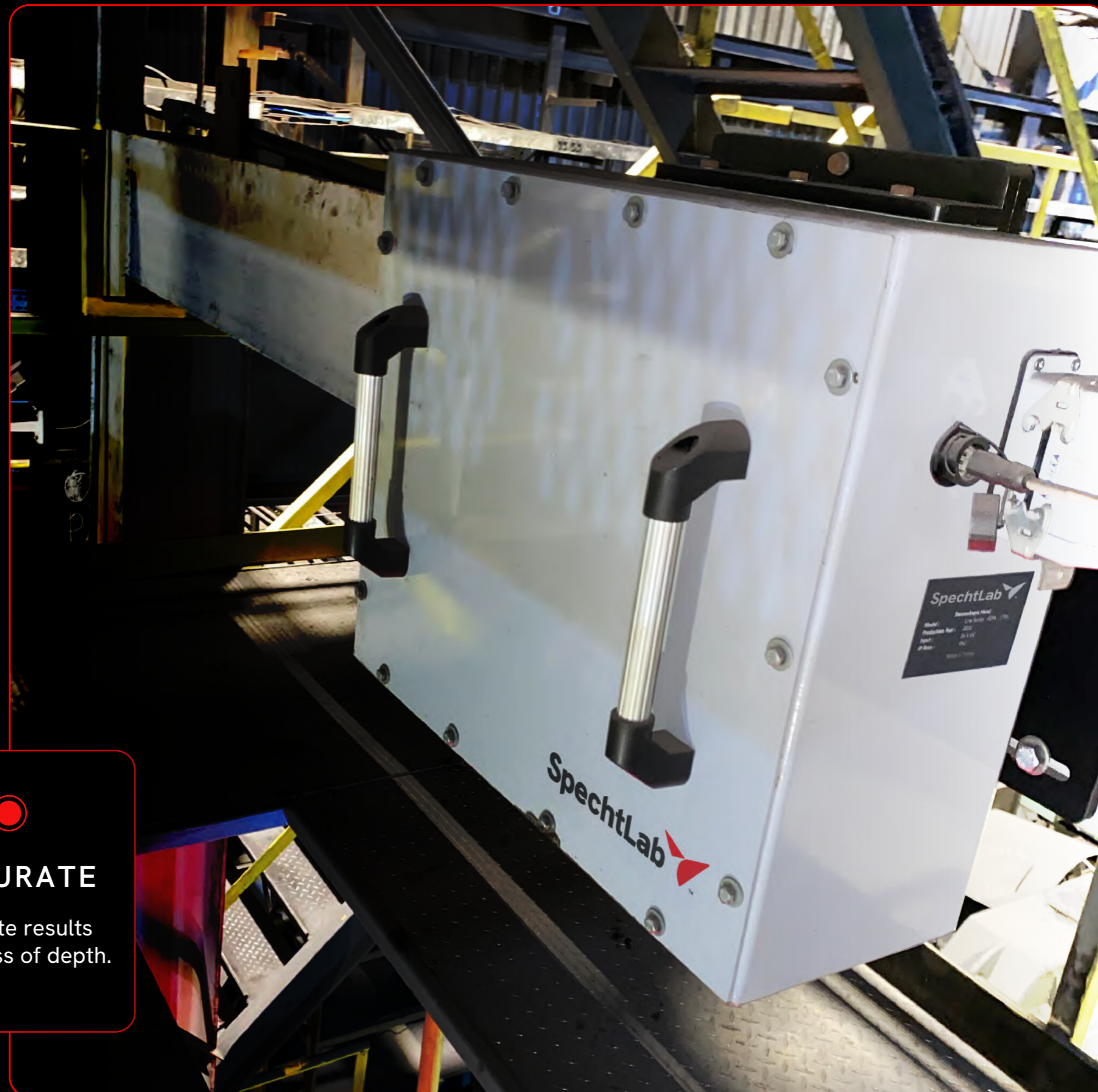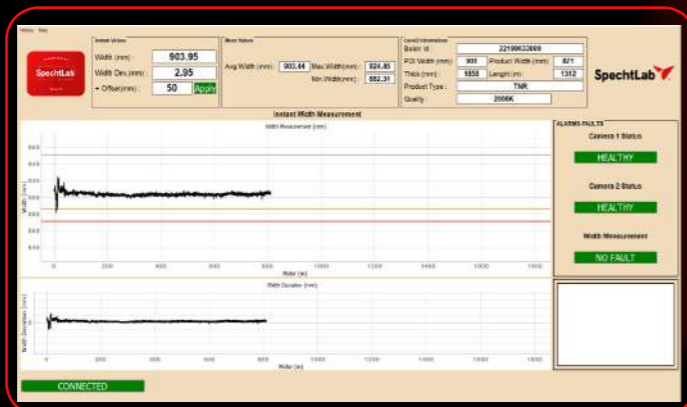
## Data-Driven Decision Making:
Provides amplitude variations, trends and statistical information with comprehensive reports and analysis.

## Process improvement:
Allows indentifying and resolving potential problems in advance.

## Increased production:
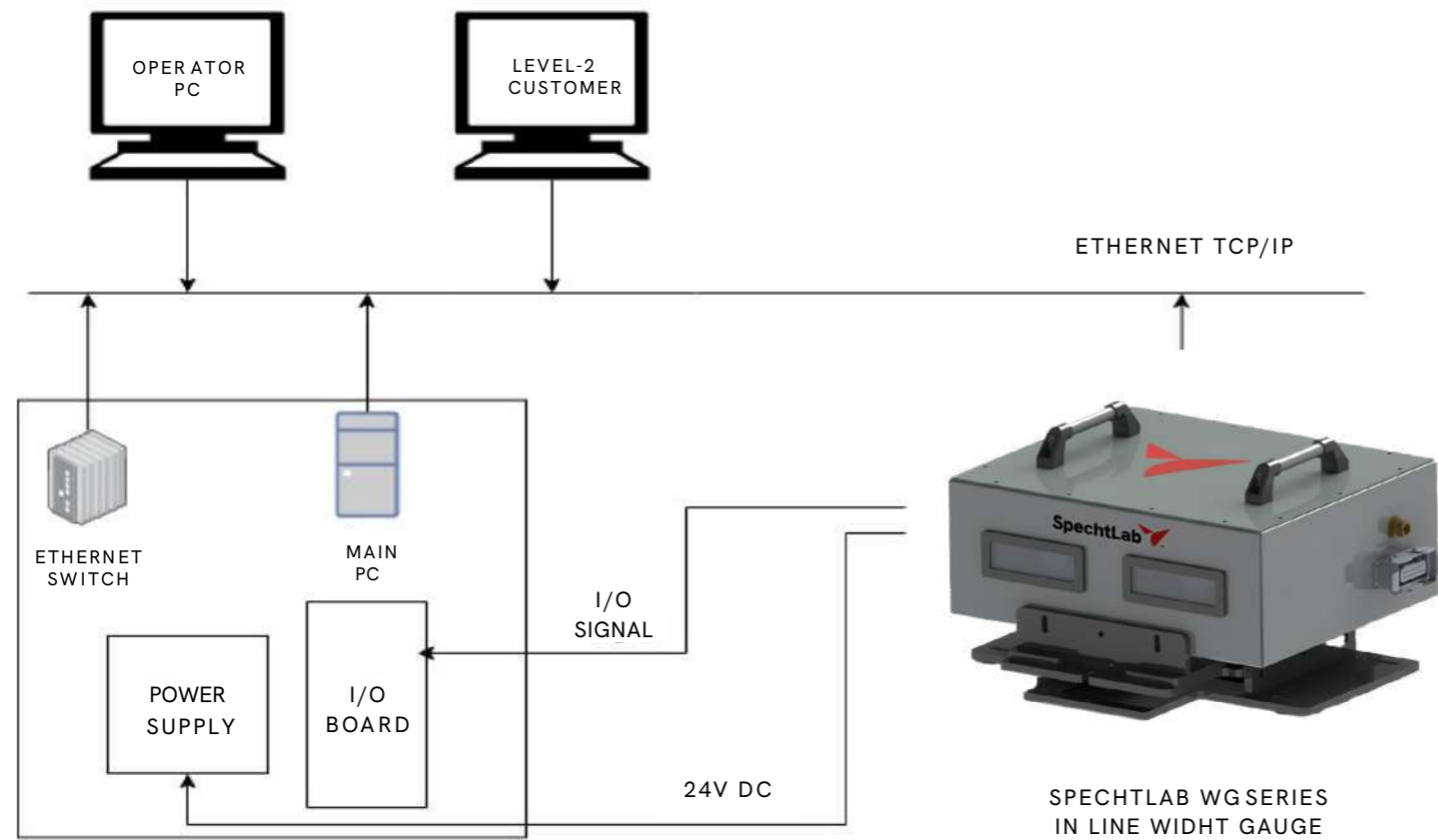Increases production by optimizing material usage and preventing errors.

## RISKLESS

Eliminates the risk of improper results

## INTELLEGENT

Software algorithm developed in-house.

## ACCURATE

Accurate results regardless of depth.

ETHERNET TCP/IP

OPERATOR
PC

LEVEL-2
CUSTOMER

ETHERNET
SWITCH

MAIN
PC

I/O
SIGNAL

POWER
SUPPLY

I/O
BOARD

24V DC

SPECHTLAB WG SERIES
IN LINE WIDHT GAUGE

| | |
|---|---|
| Working Range : | 450 - 2200mm |
| Measurement Precision : | +/- 0,25mm |
| Line Speed : | Up to 600mpm |
| Installation Height : | 3625mm |
| Camera (x2) : | 4096px camera, 8/12bit Monochrom |
| | 24KHz/GigE |
| Connection : | Ethernet TCP/IP |
| | Signal I/O |
| Analog Output : | 2 Analog Outpıut: 4-20mA |
| Analog Input : | 2 Analog Input: 4-20mA |
| Digital Output : | 4 Digital Output: 0-24V DC |
| Digital Input : | 2 Digital Input: 24V DC |
| Operating Voltage : | 24V DC |
| Protection Class : | IP65 |
| Operating Temp : | 0-50°C (Without water cooling)) |
| | 120°C (With water cooling: |
| | 10l/min 25°C, 20lmin 35°C) |
| Air Cooling : | Keeps optical surfaces dry and clean. |
| Operating System : | Windows 10 Pro |
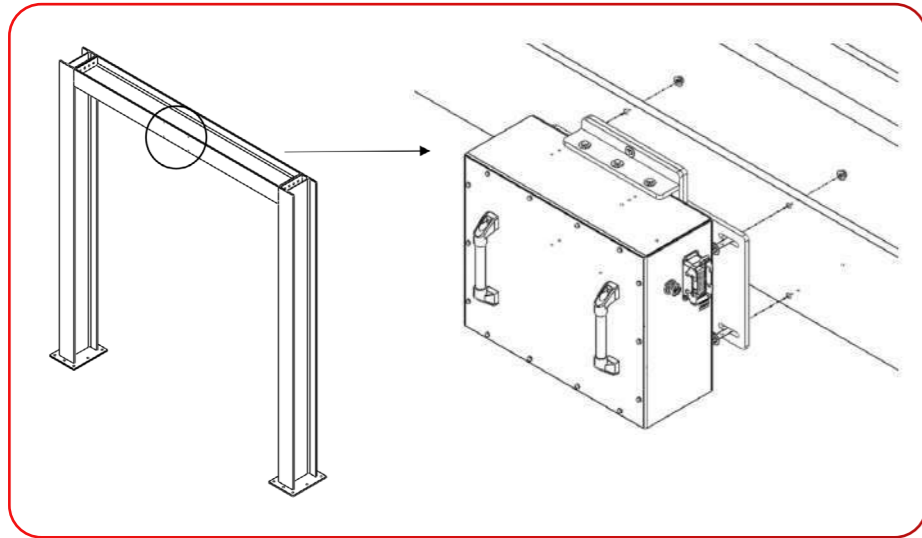


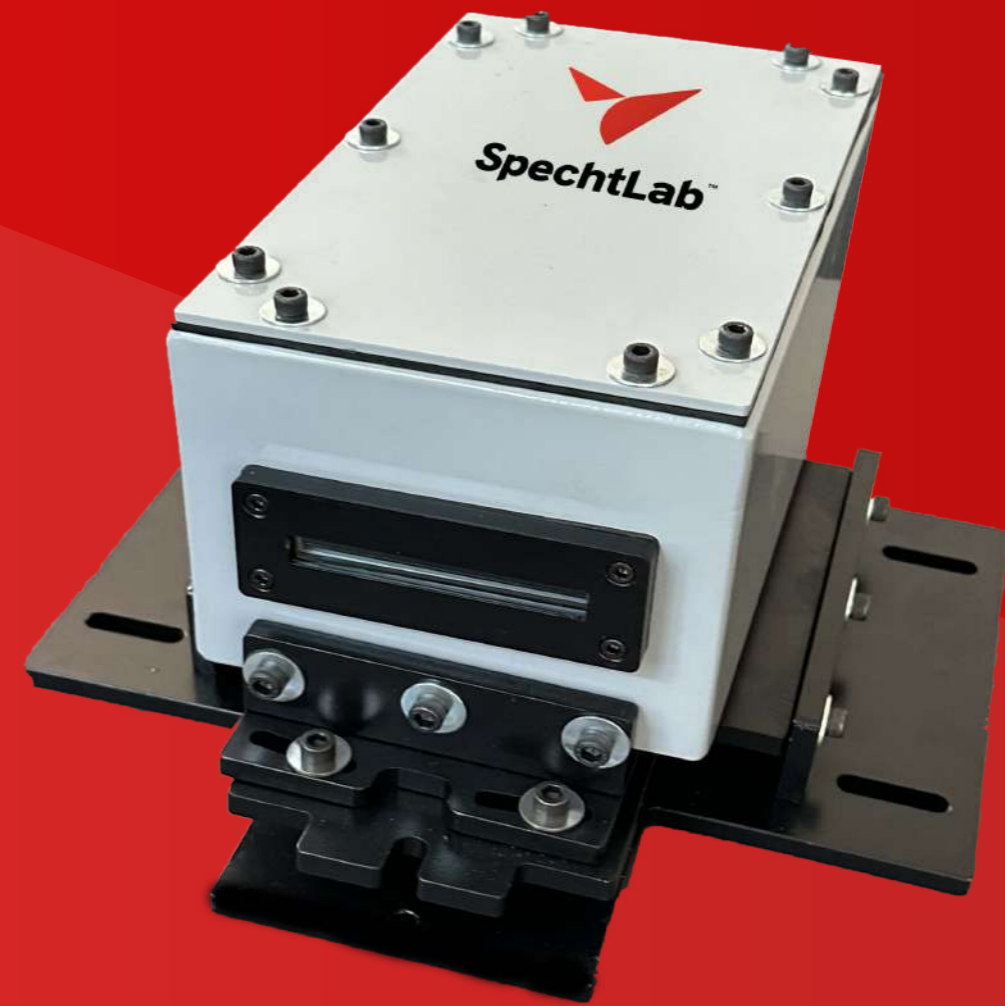EASY INSTALLATION
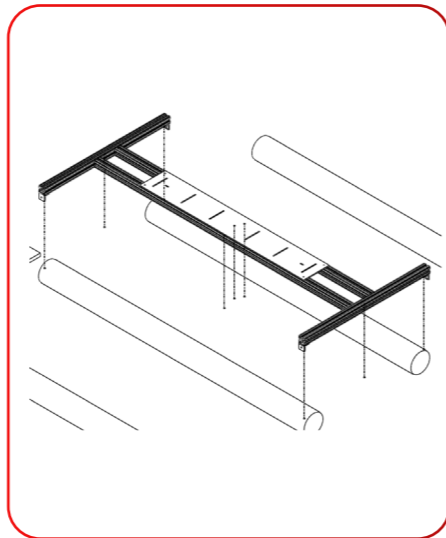


EASY CALIBRATION
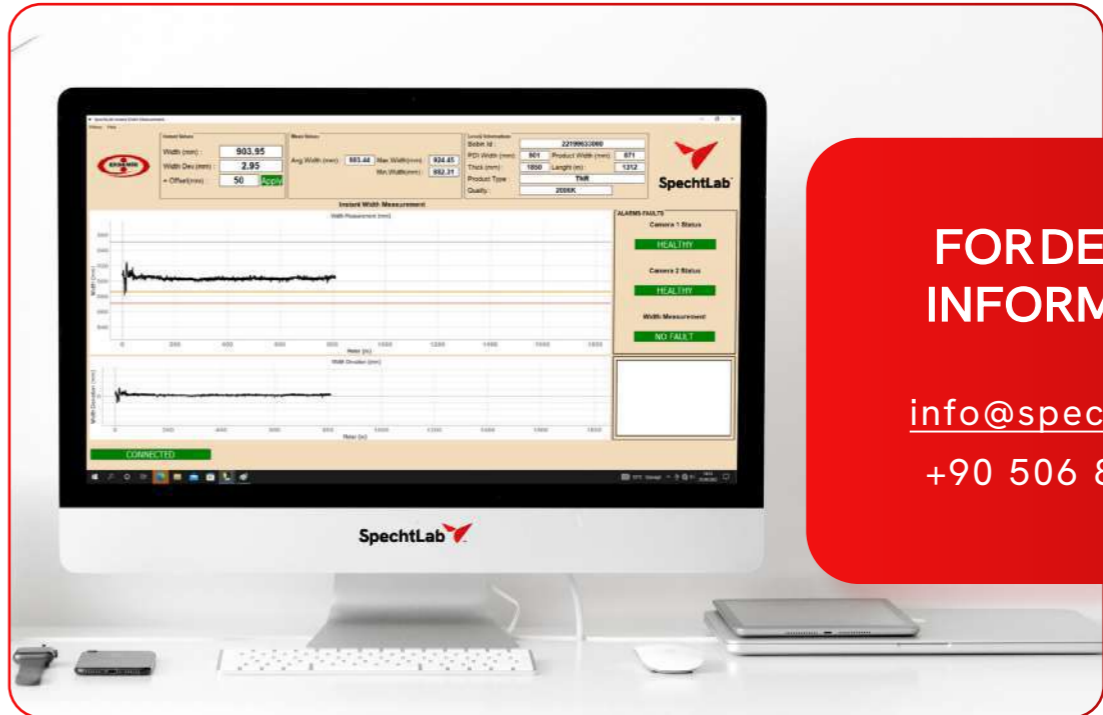


FOR DETAILED
INFORMATION:

info@spechtlab.com
+90 506 884 01 56

**Maksimum** control,
**Minimum** loss.



WG SERIES

# Board Measuring  Sensor

# SPECHTLAB WG SERIES

Developed by Spechtlab, the WG Series Board Measuring Sensor is a groundbreaking solution for quality measurement and fully automated process control in wood-based panel production. Designed for in-line panel measurement, this system utilizes advanced image processing technologies to measure the dimensions and diagonal measurements of panels with high precision. The acquired measurement data is employed to optimize production line processes in real time and significantly reduce the panel rejection rate.

## Seamless Integration with Existing Systems:
The ability to seamlessly integrate with existing systems enables rapid and effortless retrofitting of your production line without disrupting operations.

## Compact Design for Space-Efficient Installation:
The compact design of the system eliminates the need for additional installation space, ensuring a seamless integration into your existing production environment.

## Enhancing Process Precision and Consistency:
By eliminating errors arising from manual measurements, the system ensures enhanced process precision and consistency, leading to improved product quality and reduced waste.

## Eliminating Manual Measurements for a Safer Work Environment:
By eliminating the need for manual measurements, the system contributes to a safer working environment within the production facility, minimizing the risk of accidents and injuries.

## Real-time Monitoring for Minimized Panel Rejects:
By continuously monitoring the dimensions of panels, the system significantly reduces the rejection rate of non-comforming panels, leading to improved product quality and reduced waste.

## Consistent High Production Quality:
By enabling the control of panel dimensions after cutting and the immediate adjustment of the knife if necessary, the system facilitates the achievement of consistently high production quality.

## Customizable Settings:
By enabling the input of desired custom dimensions and tolerance values, the system facilitates the real-time detection of non-conformities, ensuring that panels meet user-defined specifications.

## Database Process Optimization:
By analyzing measurement data obtained from production, the system enables the optimization of process parameters, leading to increased production efficiency and reduced waste.
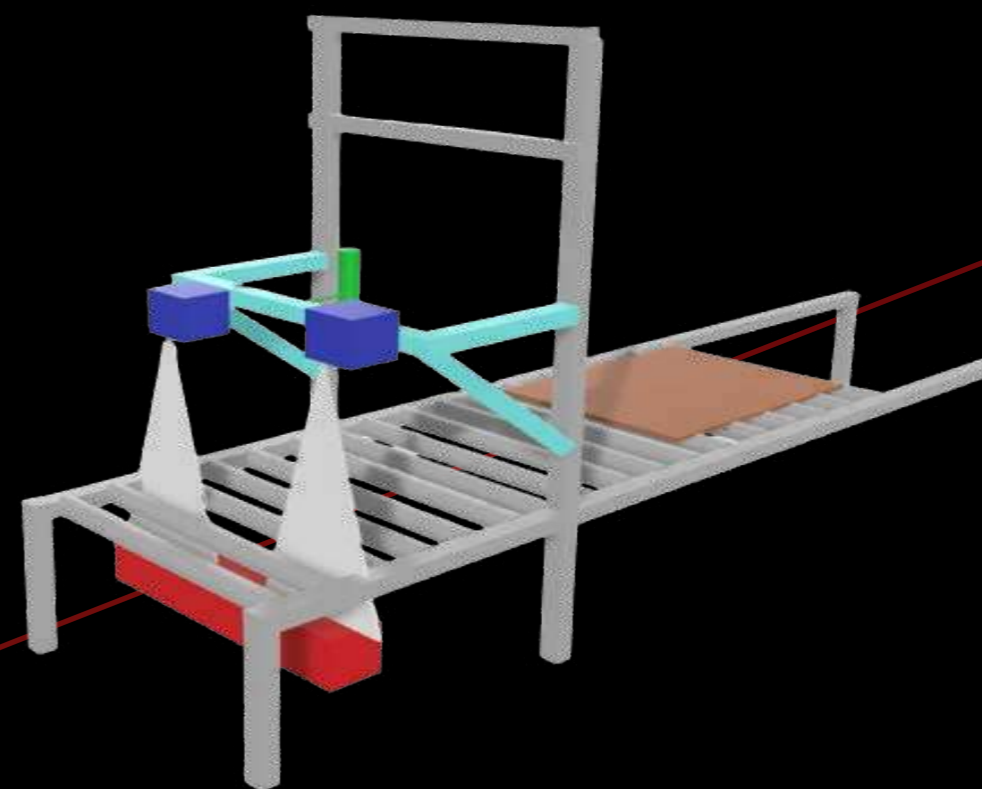
| | |
|---|---|
| **Material Widht:** | 500 - 4500mm |
| **Measurement Precision:** | 1/1000 px/mm |
| **Production line speed:** | Up to 4 m/s |
| **Installation Height:** | Up to 3500mm |
| **Connection:** | Ethernet TCP/IP |
| | Sinyal I/O |
| **Analog Output:** | 2 Analog Output: 4-20mA |
| **Analog Input:** | 2 Analog Input: 4-20mA |
| **Digital Output:** | 4 Dijital Output: 0-24V DC |
| **Digital Input:** | 2 Dijital Input: 24V DC |
| **Operating voltage:** | 24V DC |
| **Protection Class:** | IP65 |
| **Operating temperature:** | 0-50°C |
| | |
| **Air Cooling:** | Keeps optical surfaces dry and clean. |
| **OS:** | Lunix or equivalent. |
| **Lighting:** | Backlight/Frontlight (Red/Blue) |

*Contact us for customized solutions.

**Legend:**
- Köprü
- Ölçüm Sensörleri
- Aydınlatma
- Var/Yok Sensörü
- Enkoder
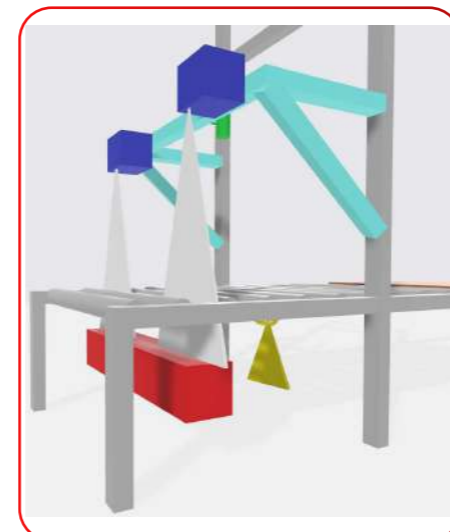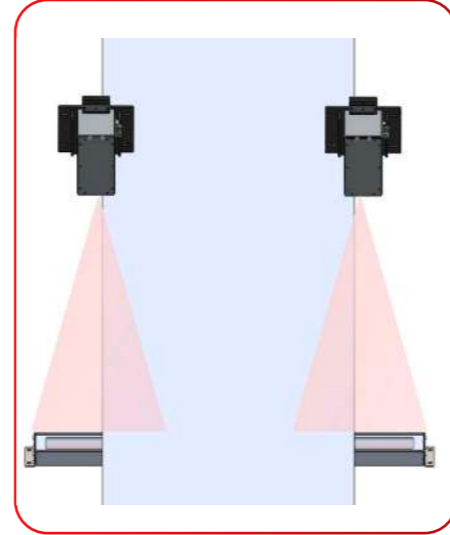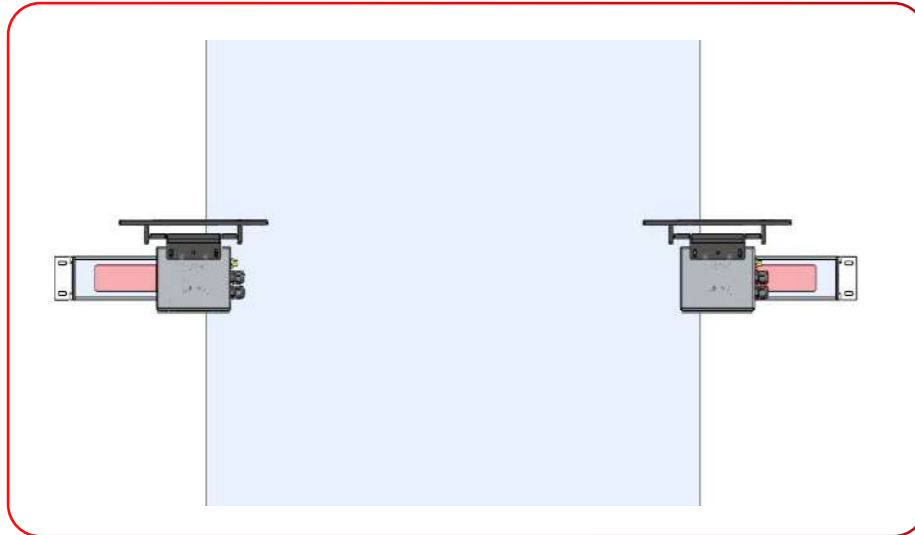






## FOR DETAILED INFORMATION

info@spechtlab.com

+90 506 884 01 56

Extraordinary **speed**,
excellent **result.**

**HDS SERIES**

# Hole Detection System

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# SPECHTLAB HDS SERIES

HDS is a high-tech optical sensor developed by SpechtLab for weld point hole detection. This sensor is designed to precisely detect the weld hole made to determine the connection point between two strips. HDS works together with BL series light emitter to ensure high accuracy and reliability. This integrated system increases quality control in industrial processes, significantly improving the efficiency and reliability of production lines.
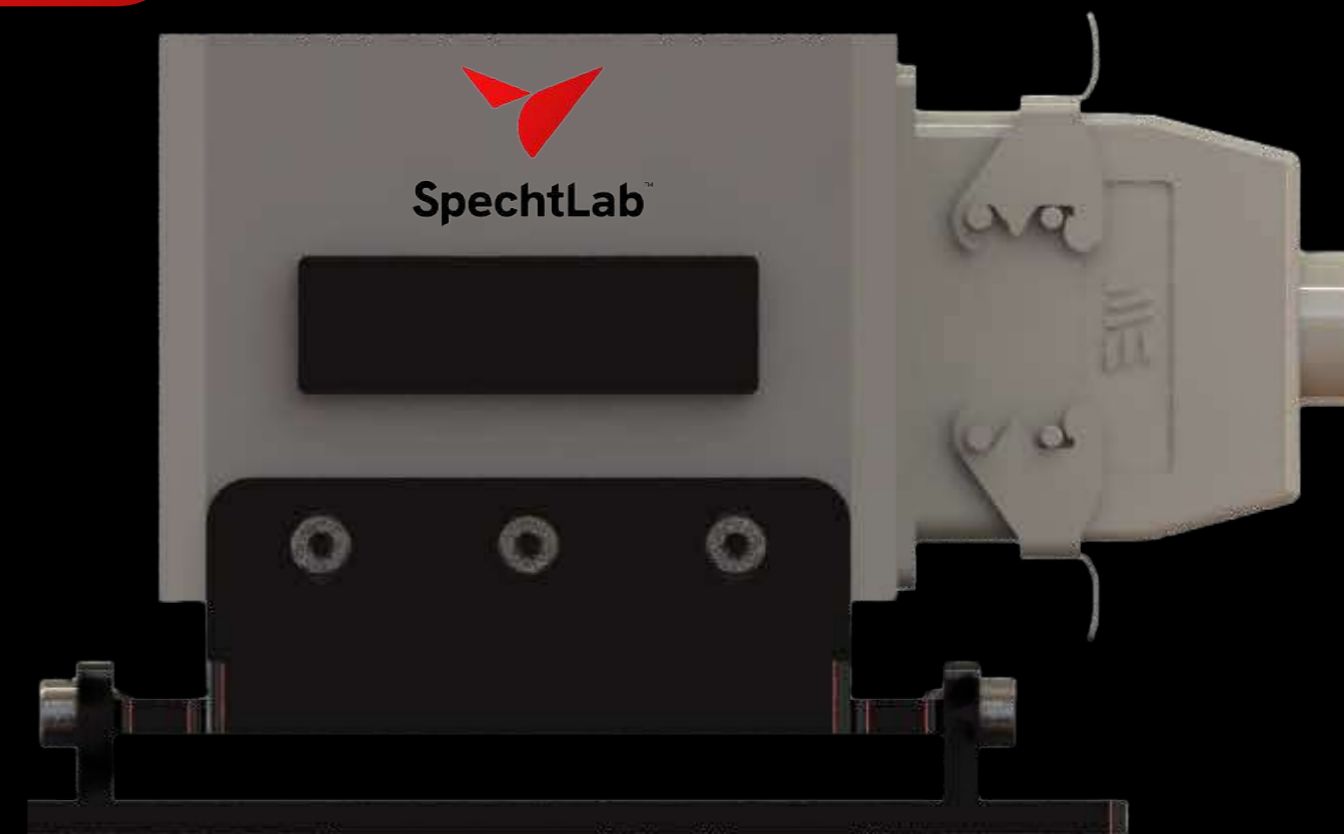
## Ultra Fast Processing:
Instant real-time detection capability at speeds up to 25m/s.

## Consistent Performance:
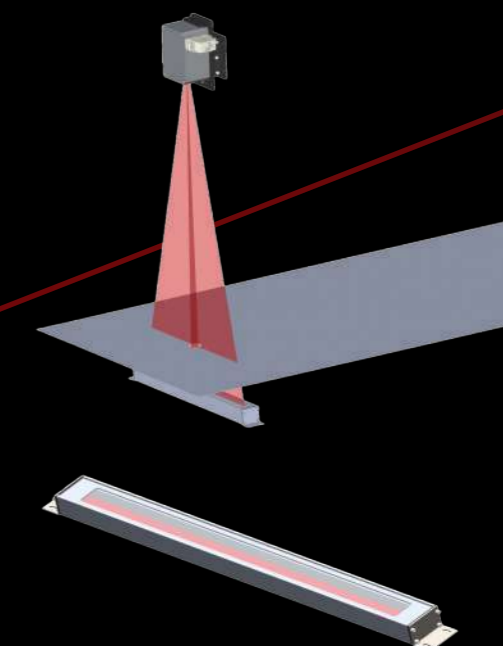Suppression of interference thanks to high detection area and modulated light.

## Durability:
Powerful LED use for long lifespan designed for steel industry conditions.

**FAST**

Real time detection

**RAPID**

High range detaction

**CONSISTENT**

High detection ability

## SPECHTLAB HDS SERIES

| | |
|---|---|
| Maximum Line Speed: | 25 m/s |
| Minimum Hole Diameter: | 6mm |
| Max. Distance Between Receiver and Emitter : | 3000mm |
| Reaction time : | 1 ms |
| Operating temperature : | -20 ... 70°C |
| Protection Class : | IP65 |
| BL - Emitter Type: | Modulated, Red Light |
| Dimensions of Emitter (Length/Width) : | 400/30 mm |
| Operating Temperature : | -20...50°C |

(up to 100°C with cooling system)

**Excellent performance** in harsh environmental conditions.

OCR SERIES

# AI Based
# Optical Character Recognition System

# OCR SERIES AI BASED OPTICAL CHARACTER RECOGNITION SYSTEM

OCR Series is a product identification (ID) recognition system by Spechtlab designed to increase production efficiency and close data gaps in highly automated production processes. Leveraging our extensive experience in image processing, we use various camera technologies and advanced processing algorithms to read product IDs.

The OCR System was developed to read product identities regardless of product type, marking technology and environmental conditions. It utilizes various industrial imaging technologies such as CCD and CMOS to provide stable imaging to achieve the highest identification rates. This system uses the power of artificial intelligence to read the identities of the materials quickly and with high accuracy. Also, allows instantly following every step in the production line.

**Advantages of OCR System:**

**Error Reduction and Cost Saving:** Provides cost savings by reducing waste in production by preventing errors such as product number confusion and charge mixing problems.

**Real-Time Tracking:** By tracking every material, it allows instantly monitor and control every step in the production line.

**Increase Efficiency:** Significantly increases overall production efficiency by streamlining production processes and reducing bottlenecks.

**Artificial Intelligence Power:** Provides the highest reliability by providing 98% character and 99% system-wide accuracy rate with advanced artificial intelligence algorithms

**Applicable to Various Surfaces and Marking Methods:**
Can be used on different material surfaces and marking methods.

**Applicable to Moving Lines:**
Can also be applied to fast and variable lines.

**Tracking with Production Date:**
Provides the opportunity to track materials according to their production dates.

**Tracking by Product ID:**
Provides tracking according to product IDs.

**DataPool Integration:**
Has a modular structure that can be expanded integrated with SpechtLab products.

**Customizable Operator Tracking Screen:**
Offers easy use with its user-friendly interface.

**Communication with PLC System:**
Can communicate with all PLC, SAP and Level 2 systems in production line.

**2 Year Retroactive Data Record:**
Provides data storage and analysis for up to 2 years

**Ease of Assembly and Maintenance:**
Offers easy installation and maintenance.

**SpechtLab**

| | |
|---|---|
| Product Types : | Slab, coil, plate, pipe |
| Marking Methods : | stamped, needle punched, hot spraying, metal powder, paint/ink, labels, laser |
| Marking Data : | 1codes, characters, numbers, special characters, |
| Control Type : | Artificial intelligence |
| Hardware Triggering : | 24VDC |
| Camera Resolution : | 1920 x 1200 px |
| Connection : | Ethernet TCP/IP |
| Signal I/O | |
| Analog Output : | 2 analog output: 4-20 mA |
| Analog Input : | 2 Analog Input: 4-20 mA |
| Digital Output : | 4 Digital Output 0-24 VDC |
| Digital Input : | 2 Digital Input: 24 VDC |
| Operating Voltage : | 230 VAC |
| Protection Class : | IP65 |
| Operating Temp : | 0 °C - 50 °C (Without water cooling) 120 °C and above (With water cooling: 10 liters / minute 25 °C water, 20 liters / minute 35 °C water) |
| Air Cooling : | :Keeps optical glasses dry and clean |
| Operation System : | Linux, Windows 10 and later |

**SpechtLab Lighting System**

| | |
|---|---|
| Operating voltage : | 24 VDC |
| Protection Class : | IP 65 |
| Operation time : | 10000 hour |
| Type : | lens with IR Cut Filter |

FOR DETAILED INFORMATION:

info@spechtlab.com

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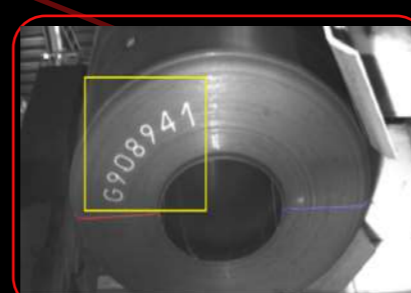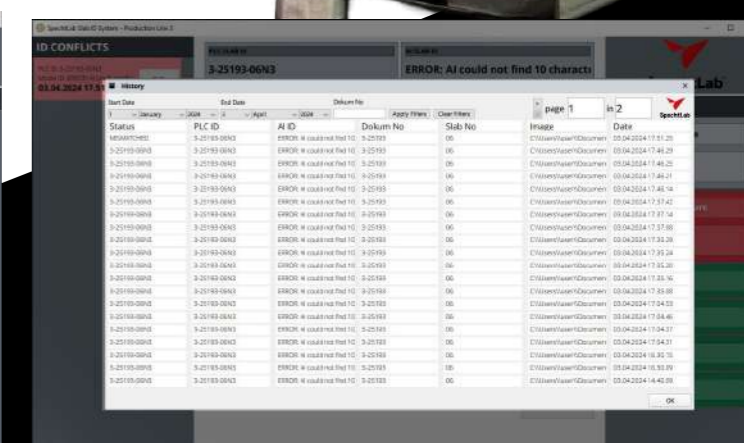
### RELIABLE
99% accuracy rate throughout the system

### STURDY
Resistance to Harsh Environmental Conditions

### FLEXIBLE
Various surfaces and markings

Discover the **future** in your data.

INDUSTRY 4.0

# DataPool ™

# SPECHTLAB DATAPOOL ᵀᴹ - INDUSTRY 4.0

We combine SpechtLab experience in the production of measurement sensors and devices with the SpechtLaB DataPool service, an innovative solution designed to upgrade your production processes to Industry 4.0 standards. Our DataPool services deliver unmatched efficiency, quality control and in-depth analysis for your production lines using artificial intelligence and big data.

## Key Features and Benefits:

- **Comprehensive Data Integration:**
  It seamlessly integrates data from all sensors and devices in your production line. It provides easy access and analysis by collecting data in a central location, thus enabling you to evaluate your production operations from a holistic perspective.

- **Advanced AI Analytics:**
  It analyzes large amounts of data in real time using the latest artificial intelligence algorithms. It allows you to make proactive decisions by detecting patterns, anomalies and trends invisible to the human eye.

- **Real-Time Monitoring and Reporting:**
  It enables real-time monitoring of production metrics and performance indicators. It creates comprehensive reports that can be customized to your organization's specific needs.

- **Scalable and Flexible Solutions:**
  It adapts to the unique needs of different production environments and scales seamlessly as your operations grow. Supports a wide range of manufacturing processes and industries.

- **Predictive Maintenance:**
  Reduces downtime and maintenance costs by predicting equipment failures before they occur. It extends the life of machinery and equipment by planning maintenance activities at the most appropriate times.

- **Advanced Quality Control:**
  It constantly monitors product quality, ensuring that each product meets the highest standards. It minimizes waste and rework costs by detecting errors in the early stages of the production process.

- **Optimized Production Efficiency:**
  Analyzes workflow and process efficiency. Identifies bottlenecks and areas for improvement. It delivers actionable in-depth analysis to streamline operations, increase efficiency and reduce costs.
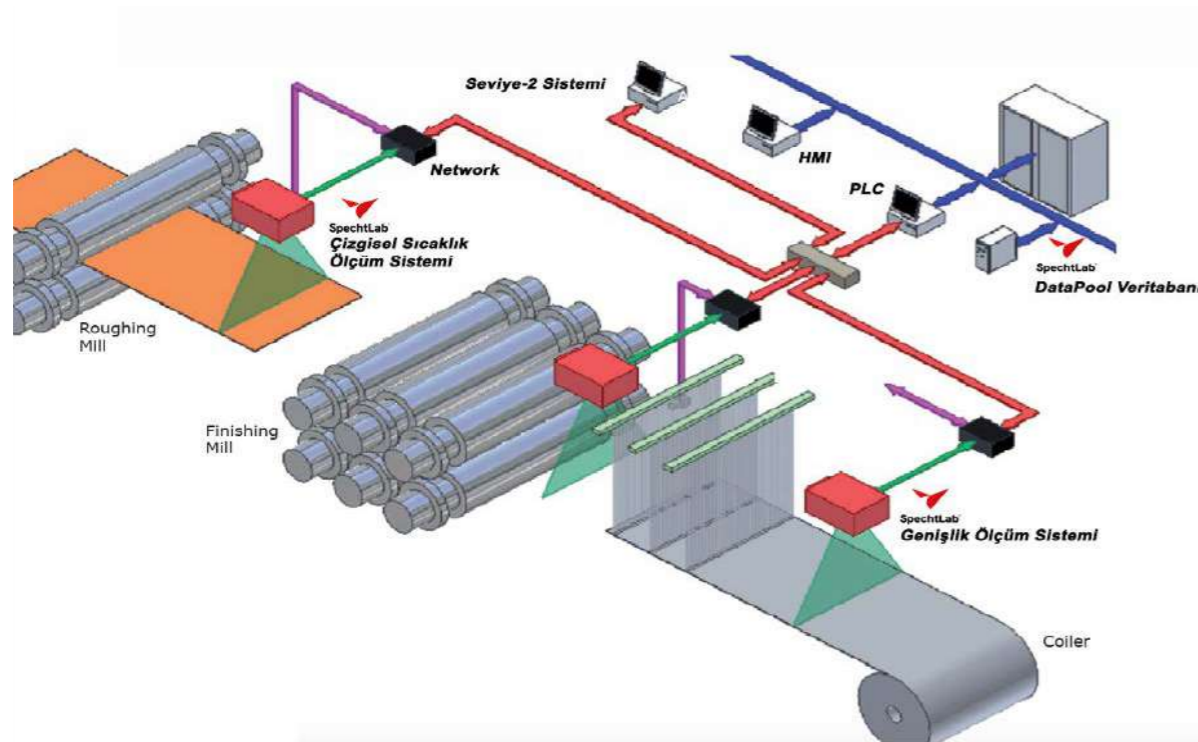


**FOR DETAILED INFORMATION:**

info@spechtlab.com
+90 506 884 01 56

# 2

# COOLING HOUSING UNITS

**LC SERIES**

# WATER COOLING
# CAMERA HOUSING

# SPECHTLAB LC SERIES

SpechtLab LC series camera housing is designed to protect cameras in harsh industrial environments. The camera housing made of stainless steel can operate at high ambient temperatures and harsh industrial conditions. With its specially designed structure, it allows easy camera settings after installation. It provides complete cooling with industrial water or nitrogen gas.

It is used in high temperature production facilities such as iron, steel, glass and cement production facilities.

- Water and Air Cooled Camera Housing with IP65 protection class

- It enables the operator to perform rapid repairs, maintenance and installation in high-temperature areas that pose OHS risks.

- It has PoE and 24Volt connection.

## FAST
Fastest cooling performance.

## STRONG
One of the most powerful products on the market.
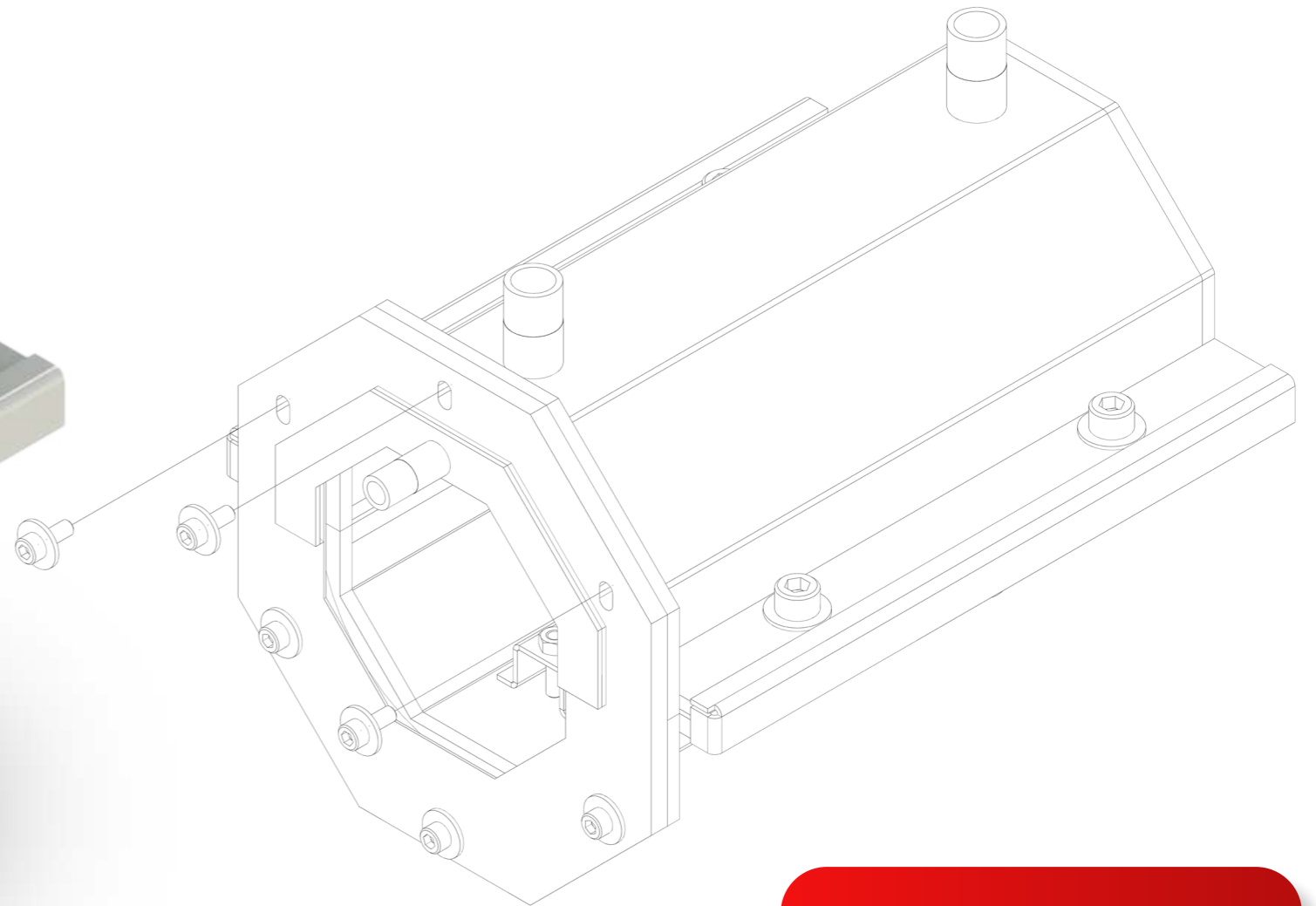
## RELIABLE
Completely transparent results.

| Operating voltage : | 220V - 24V - PoE |
| Operating temperature : | Max. 400°C |
| Industrial Water Pressure : | Max. 4 bar |
| Industrial Water Temperature: | Max. 35°C |
| Industrial Water Flow Rate : | 10l/min 25°C, 20l/min 35°C |



## FOR DETAILED INFORMATION:

info@spechtlab.com
+90 506 884 01 56

If you would like to integrate the technology of the future into today's production, you can contact us:

Web: www.spechtlab.com

E-Mail: info@spechtlab.com

Phone: +90 506 884 01 56

LET'S CREATE
THE FUTURE
TOGETHER.

SPECHT-ACULAR RESULTS
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WITH SPECHTLAB QUALITY

SPECHTLAB YAZILIM İMALAT İTHALAT
İHRACAT SAN. VE TİC. LTD. ŞTİ.
ODTÜ TEKNOKENT, ANKARA, TÜRKİYE
WWW.SPECHTLAB.COM
INFO@SPECHTLAB.COM
+90 506 884 01 56