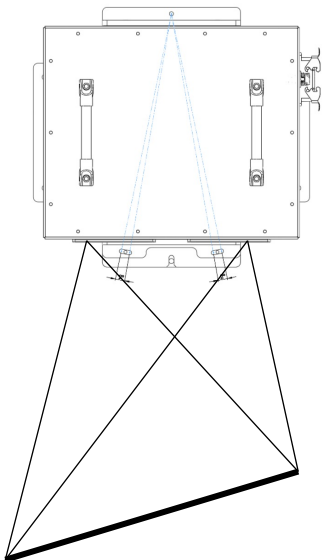




WG Series

Width Measuring Gauge



Width – Center Line – Edge Position

Optional Welding Hole Detection

Optional Water Cooling and Air Purging

Easy Installation and Maintenance

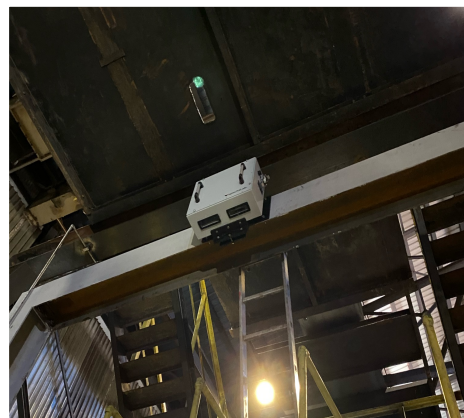
Application

WG Series Width Gauge is state-of-the-art technology measuring system designed for installation above strip in cold rolling mills and processing lines to measure the width and center deviation of steel sheets and other materials with high precision despite material undulation, tilt, lateral movement, and thickness variation.

This system is equipped with an integrated camera system that provides stereoscopic images using advanced optical sensors and intelligent algorithms.

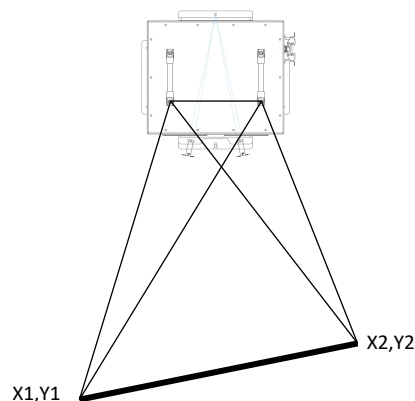
Main Features

- Prevents production errors by detecting even the slightest deviations with 0.1 - 0.25 mm precision.
- Advanced stereo calibration that accounts for lens distortion and achieves sub-pixel precision
- On-line non-contact measurement with line speeds reaching up to 600 mpm.
- Weld hole detection capability option down to 6mm includes advanced functionality for new strip detection.
- Adjustable tolerance inputs and instant alarms.
- Modular design allowing easy extension and implementation of effective solutions with end users.
- Retrospective data recording for 1 year and more.
- Easy and quick installation and maintenance.
- Digital/ Analog Input/Output, TCP/IP communication.
- Robust and durable design for cold and hot applications.



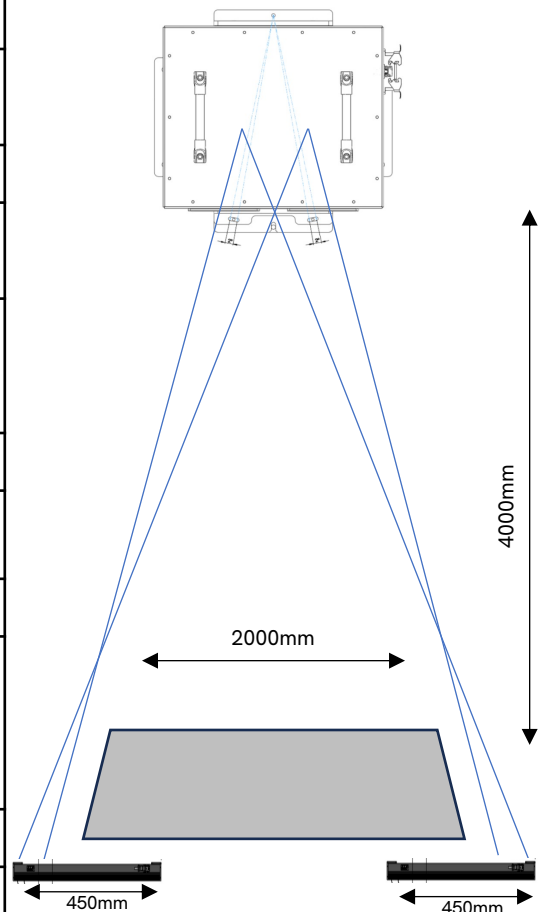
Operating Principle

SPECHTLAB Stereoscopic Width Gauge employs advanced digital edge detection to process and analyze digitized camera data. High-speed embedded processors execute software routines for precise sub-pixel edge detection in two dimensions. By capturing two sub-pixel edges from each camera, the system utilizes geometric triangulation to determine the exact material width. This approach compensates for variations in pass line, material thickness, and flutter, ensuring highly precise width measurements.



Technical Characteristics

Measuring Field *	20mm...2000mm
Measurement * Precision	0,25mm
Line Speed (Max)	Up to 600 mpm
Installation Height *	Typically, 4000 mm for 2000 mm strip width
Industrial Camera (x2)	4096px linear camera, 8/12bit Monochrome 24KHz/GigE
Communication	Level 2, SAP, PLC
Industrial Network	Modbus RTU/TCP, TCP/IP
Connections	Ethernet, Signal I/O
Inputs and Outputs	2 x Analog Input: 4-20mA 2 x Analog Output: 4-20mA 4 x Digital Input: 0-24V DC 2 x Digital Output: 0-24V DC
Operating Voltage	24V DC
Protection Class	IP65
Operating Temp.	0-50°C (Standard) 0-120°C (optional) with water cooling
Air Purging	Protection of the optic with dry and clean instrument air
Operating System	Linux (Standard) Windows Pro (Optional)
BL Series Back Light**	Red 1000-2000K



* For special application: strip size, mounting height, installation constraints...: contact us.

** For Welding Hole Detection optional version to be ordered separately.

Description

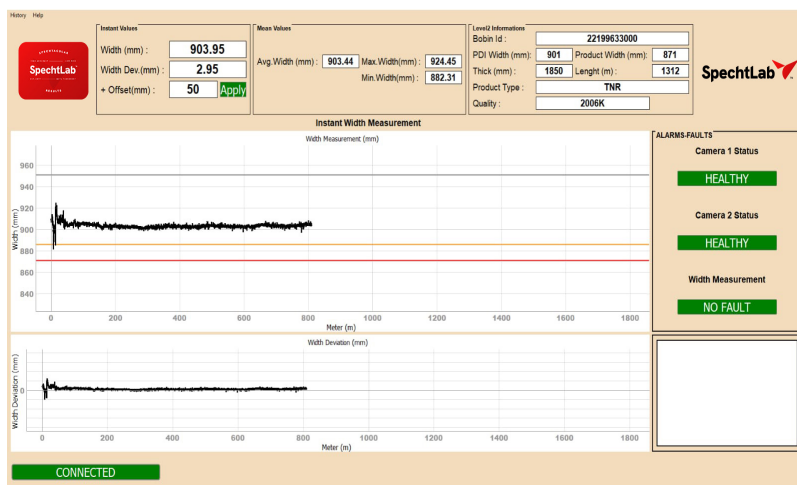
SpechtLab Width Gauge System processes image data captured by sensors within the stereoscopic head through a host computer located in the connection box. These processed width measurements are displayed in real-time and can also be reviewed historically on computers installed in operator control rooms.

The operator pulpit computers are equipped with the “SpechtLab Instant Width Measurement” application. This user interface (GUI), running on Windows 10 Pro, operates synchronously within the same network as the “SpechtLab Width Measurement” software on the host computer.

The system is designed to provide audible and visual alerts for monitoring real-time measurements and supports the review of historical data for analysis. A general view of the width measurement system’s user interface is provided below. For optimal operation of the application, all field installations must be completed accurately.

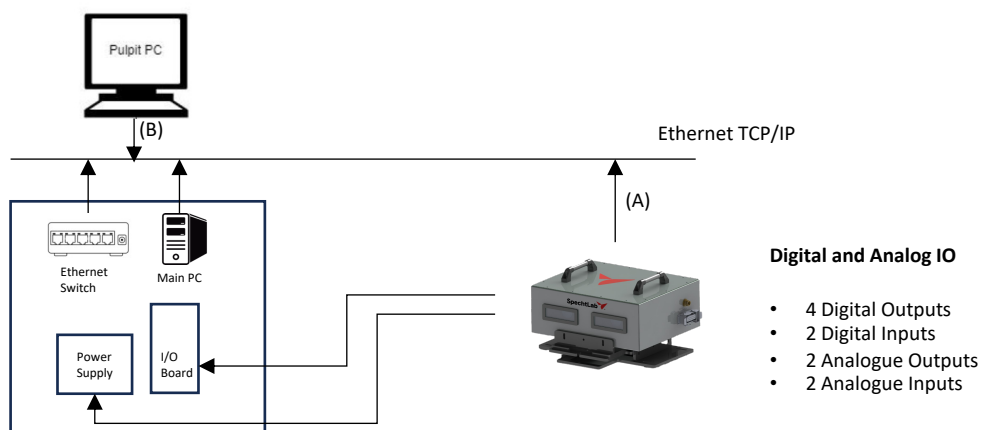
Standard displayed information includes:

- Coil identification number
- Reference width
- Average strip width
- Minimum strip width
- Maximum strip width
- +/- Deviation from the reference width
- Offset Input
- Date and time
- A graphic display of strip width and centerline deviation versus time or length



User Interface, Measuring graphs and diagnostics

Connectivity



Accessories and Options

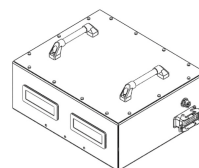
*Stereoscopic Head	Included
Three Degree of Freedom Bracket	Included
Calibration Plate	Included
Control Panel	Included
*BL Series Back Light 800mm x2	Included
SpechtLab Width Measurement Software and GUI	Included
Operator PC, Mouse and Keyboard	Optional
Weld Hole Detection Feature (For recognition of new strip or detection of hole)	Optional
BL Series Back Light 2500 for Hole Detection Feature	Supplied with Hole Detection Feature
Water Cooling (For Stereoscopic Head and Lighting)	Optional
Air Purging (For Stereoscopic Head and Lighting)	Optional
Windows Pro Operating System	Included
Linux Operating System	Optional
Power and I/O cable with 2 connectors for Stereoscopic Head	10m(Included) 15m (Optional) 20m (Optional)
Power and I/O cable with 2 connectors for Back Light	10m(Included) 15m (Optional) 20m (Optional)
Cables for Ethernet, 2x Male X-coded M12 connectors (A)	10m(Included) 15m (Optional) 20m (Optional)
Cables for Ethernet, 1x Male X-coded M12, 1xRJ45 connectors (B) (to be ordered with Operator PC)	10m (Optional) 15m (Optional) 20m (Optional)
Retrospective Data Record	1 year (Included)
* Recommended spare parts	

End-user's Scope

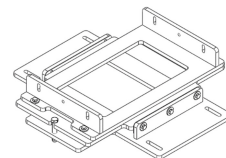
- 220/230V power supply to Control Panel
- Encoder signal connection from the line (If there is no encoder signal, it shall be ordered separately)
- Industrial water supply to Stereoscopic Head and Lighting (10 L/m 25 °C ... 20 L/m 35 °C water)
- Industrial air supply to Stereoscopic Head and Lighting
- Installation bridge and all other construction works.

Calibration

The SpechtLab WG Series Width Gauge System requires a calibration system to accurately and precisely calculate the width values. The positioning of the stereoscopic head on the bridge and the angles it makes with the axis of the line are crucial for the measurement system to function correctly. The "Three Degrees of Freedom Bracket" is designed to ensure that the cameras can look at the line at right angles in all three axes after the Stereoscopic Head is installed. With this bracket, the Stereoscopic Head gains the ability to rotate in the axes defined in Figure 1, Figure 2, and Figure 3.



Stereoscopic Head



Three Degree of Freedom Bracket

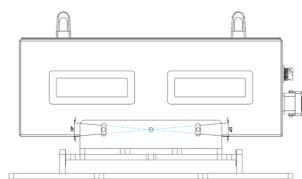


Figure 1: Roll Axis Mobility

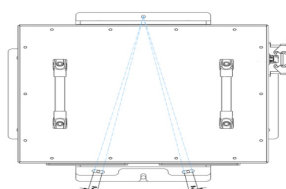


Figure 2: Yaw Axis Mobility

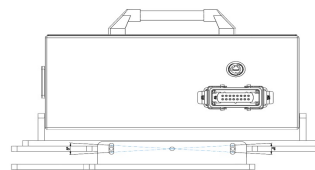


Figure 3: Pitch Axis Mobility

Calibration Plate

The calibration system is designed for the calibration of the Stereoscopic Head's roll axis and for the measurement and verification of various width values. This system consists of sigma profiles, corner connectors, and a calibration plate, as shown in Figure 4.

Once the calibration system is placed onto the rollers, as shown in Figure 5, the assembly is completed by tightening the bolts of the corner connectors

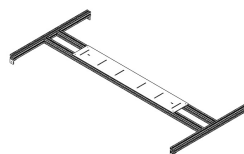


Figure 4: Calibration Plate

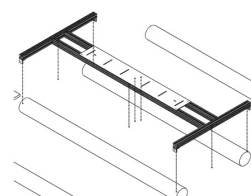
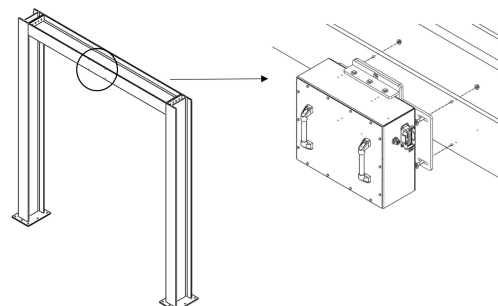


Figure 5: Mounting Calibration Plate on the rolls

Installation

Stereoscopic Head must be installed horizontally and centered on the line with a bridge. Installation height varies according to field conditions. *

The assembly of the Three Degrees of Freedom Bracket and Stereoscopic Head will be made with four M10x55 bolts and nuts installed on the bridge.



Inquiry Form (1/2)

Company:	
Competent:	
Title	
Tel:	
E-mail:	
Project City and Country:	

1.	What goals are intended to be achieved with the Width Measurement System? (Please briefly summarize your expectations or existing problems).
2.	What measurement data would you like to access?
3.	Is there any measuring device installed on the existing line that fully or partially meets your measurement expectations stated above?
4.	Is there a project budget or will there be a budget approval process?

INFORMATION ABOUT PRODUCTION LINE AND PRODUCT

1.	Name of line and installation point	
2.	Width of the line (mm)	
3.	Minimum and maximum allowed installation height (mm)	
4.	Material type	<input type="checkbox"/> Steel <input type="checkbox"/> Aluminum <input type="checkbox"/> Paper <input type="checkbox"/> Other.....
5.	Line Speed (m/s)	
6.	Minimum and maximum width of the strip (mm)	
7.	Minimum and maximum thickness or height of the material (mm)	
8.	Minimum and maximum length of the material (mm)	<input type="checkbox"/> Continuous <input type="checkbox"/> Other
9.	Is there any deviation or oscillation of the material from the axis?	
10.	Is there available encoder signal on the line?	

PRECISION REQUIREMENTS

1.	Required measurement precision (mm or mic.)	
2.	Desired measurement or scanning frequency (2 measurements/sec or /m)	

Inquiry Form (2/2)

ENVIRONMENT CONITIONS

1.	Max/Min ambient temperature of the area (°C)	
2.	Is there dust/dirt in the air?	
3.	Maximum installation height allowed on the line (mm)	
4.	Cable distance between installation point and panel (m)	
5.	Cable distance between panel and operator monitoring room (m)	
6.	Is there vibration or material fluctuation when the material flows on the line? (Yes No)	

ADDITIONAL INFORMATION

Please fill below part for requested optional equipment

1.	Operator PC, Mouse and Keyboard	<input type="checkbox"/>
2.	Hole Detection Feature	<input type="checkbox"/>
3.	BL Series Back Light 2500 for Hole Detection Feature	<input type="checkbox"/>
4.	Water Cooling	<input type="checkbox"/> For Stereoscopic Head <input type="checkbox"/> For Lighting
5.	Air Purging	<input type="checkbox"/> For Stereoscopic Head <input type="checkbox"/> For Lighting
6.	BL Series Back Light 2500 for Hole Detection Feature	<input type="checkbox"/>
7.	Linux Operating System	<input type="checkbox"/>
8.	Power and I/O cable with 2 connectors for Stereoscopic Head	<input type="checkbox"/> 15m <input type="checkbox"/> 20m
9.	Power and I/O cable with 2 connectors for Back Light	<input type="checkbox"/> 15m <input type="checkbox"/> 20m
10.	Cables for Ethernet, 2x Male X-coded M12 connectors (A)	<input type="checkbox"/> 15m <input type="checkbox"/> 20m
11.	Cables for Ethernet, 1x Male X-coded M12, 1xRJ45 connectors (B) (to be ordered with Operator PC)	<input type="checkbox"/> 15m <input type="checkbox"/> 20m
12.	Retrospective Data Record	<input type="checkbox"/> 2 Years <input type="checkbox"/> 3 Years

NOTES

- Including any photos of production line and product will speed up evaluation process of inquiry.
- Modular architecture of the WG Series allowing easy extension and implementation effective solutions with end user. For additional requirements or special applications please contact us.
- Spechtlab reserves all rights to change information contained in this document without notice.

Signed By _____