

AI MEETS GREEN STEEL

Transforming Rebar Measurement with RIB3D



**Precision
at every
step**

AUTOMATED HIGH PRECISION:

Fully automated measurements of over 30 critical rebar parameters with customized reporting compliant with all international standards.

AI POWERED MEASUREMENT AND PROCESS CONTROL

Advanced AI capabilities for production quality evaluation, process control providing comprehensive visualization and statistical analysis.

IMPROVED SUSTAINABILITY AND EFFICIENCY

Get comprehensive reports with AI Production Score and Carbon Score reducing waste and energy consumption by data-driven manufacturing.

DURABLE AND USER FRIENDLY

Proven performance with over 50,000 hours of operation for 24/7 use providing intuitive, single-click operations for a seamless experience.

Automated Measurement
and Standard Reporting of

**Steel Rebars
Ribbed Steels
Steel Meshes
Bar & Rods
Screws & Bolts**





RIB3D TECHNICAL SPECIFICATIONS

MODEL	PRECISION SERIES		EXPERT SERIES		MASTER SERIES	
	Precision L	Precision H	Expert	Expert Pro	Master	Master Pro
Measurement Type	3D	3D	3D	3D	3D	3D
Nominal Diameter Range (mm)	1-22	18-40	1-55	1-55	1-65	1-65
Max. Sample Diameter (mm)	30	52	70	70	80	80
Max. Sample Length (mm)	500	500	700	700	1200	1200
Accuracy (mm/deg)	±0.005 / ±0.1	±0.005 / ±0.1	±0.005 / ±0.1	±0.005 / ±0.1	±0.005 / ±0.1	±0.005 / ±0.1
Repeatability (mm/deg)	±0.002 / ±0.05	±0.002 / ±0.05	±0.002 / ±0.05	±0.002 / ±0.05	±0.002 / ±0.05	±0.002 / ±0.05
Sample Chuck	Motorized	Motorized	Motorized	Motorized	Motorized	Motorized
Motorized Scanning Vision Unit	-	-	-	Included	-	Included
3D Laser Scanning Unit	-	-	-	Included	-	Included
Motorized Sample Clamping Unit	-	-	-	-	-	Optional
Robotic Arm Integration	-	-	-	-	-	Included
Mass & Length Metrics Unit	-	-	-	Optional	-	Optional
Dimension (WxLxH in mm)	455x783x563	455x783x563	455x783x1170	455x783x1170	455x783x1170	455x783x1170
Weight (kg)	70	70	150	160	160	180
Vision System	PCAM optic unit equipped with scientific color CMOS cameras and planar apochromatic optics.					
Illumination	Episcopic & diascopic illumination (420-780nm) with an available laser illumination unit at 632nm.					
Calibration	Autocalibration with certified calibration rods.					
Measurement Parameters	<p>Rebars: Nominal diameter, core diameter, relative rib area, maximum height of transverse rib, height of transverse rib at one-quarter and three-quarter points, transverse rib spacing, gap between adjacent rib rows, gap percentage between adjacent rib rows, transverse rib length, transverse rib head width, transverse rib base width, longitudinal rib height and width, angle between the axis of transverse ribs and rebar, transverse rib flank inclination angle, ovality, eccentricity.</p> <p>Bars and Rods: Maximum and minimum diameter, diameter deviation profile, eccentricity, ovality based on raw data, least square circle, least square ellipse, and minimum zone circles methods.</p> <p>Screws and Bolts: Pitch, major, minor, and pitch diameters, thread angle.</p> <p>Metrology, Defects, and Corrosion: User-defined measurements on any cylindrical objects, including length, width, height, angle, arc, circular, rectangular, elliptical, and irregular area measurements.</p>					
International Standard Compliance	Compliant with all relevant international standards. Automatic verification of measured parameters against standards.					
AI Metrics	<p>AI-Powered Scoring System: Evaluate production quality with intelligent grading algorithms; Smart Statistical Analysis: Leverage advanced filtering and multivariate analysis for insights; Comprehensive Data Visualization: Generate detailed run charts, capability indices, control charts (X, R, C, U, NP, P, I, MR), and Pareto analysis; In-Depth Insights: Visualize confidence intervals, explore correlation analysis, and uncover relationships between rebar parameters.</p> <p>Carbon Scoring: Quantify carbon intensity and assess stability, capability, and compliance.</p>					
Reporting	Excel format, customizable with customer logo. Individual, batch, daily shift, or production-based reporting. Password protection available. Custom reports based on user-defined standards.					
Device Database	Systematic archiving of measurements, reporting saved measurement, raw data storing.					
Database Connectivity	Communication with the SQL database server located at the customer's facility, enabling data sharing and integration.					
Smart Manufacturing Integration	Supports external triggers via software, TTL and hardware high-emp SW, with compatibility for PLC and MODBUS protocols, facilitating automation.					
Software Language	English (other languages available upon request)					
Tool PC	Includes a PC with monitor, keyboard, and mouse for complete system control.					
Electronic Controller	All USB 2.0/3.0 supported, 100-240V, 50/60Hz, with a maximum 10A fuse for stable power management					
Operating Temperature Range (°C)	5-45					

† Introducing the next generation of rebar measurement systems with the RIB3D Precision, Expert, and Master Series. Formerly known as the E1L, E1H, E2A, M2A, and M2A+, these newly named models offer enhanced capabilities, greater precision, and cutting-edge technology while maintaining the trusted reliability of their predecessors.

†† PSARON reserves the right to modify technical specifications without prior notice.

The RIB3D system combines robust hardware with intuitive software to provide accuracy and versatility for all rebar measurement needs.

Key System Features

Intuitive User Interface

Perform standard rebar measurements with a single click.

Advanced tools allow users to explore rebar parameters in detail.

Comprehensive Rebar Analysis

Measures rebars with various row configurations and rib patterns, evaluating over 30 parameters for compliance with rebar standards.

Instantly compares results to defined limits, alerting users.

Custom Standards and Reporting

Create custom standards with specific limits for each parameter.

Generate reports tailored to user preferences, selected parameters and custom company logos.

Data Management and Archiving

Save measurements with user-defined fields such as Steel Source, Batch, Rolling Machine, Quality, Cast, Sample Number and User, plus custom entries.

Embedded database enables archiving, retrieval, and reporting anytime.

SQL integration ensures communication with facility servers.

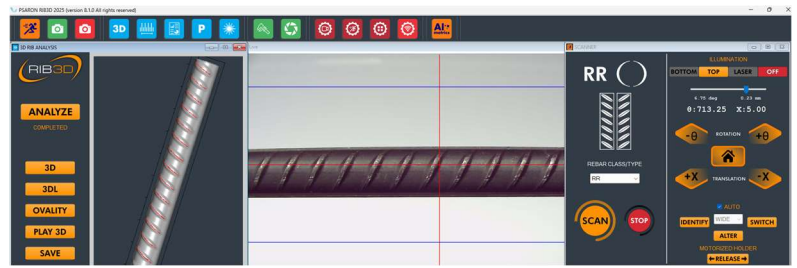
Calibration

Advanced autocalibration using certified calibration rods with calibration reports for traceable accuracy.

Flexible Measurement Options

Measure any cylindrical parts other than rebars using the built-in toolbox.

Enhancing precision and efficiency in rebar measurement and analysis



STANDARD	NOMINAL DIAMETER [mm]	ROW 1	ROW 2	ROW 3	ROW 4	ROW 5	ROW 6	AVG.	DIAM. AVG. [mm]
Great Britain BS-4449	20.00	1.20	1.16	1.04	1.04	0.84	1.11	1.11	20.50
CORE DIAMETER [mm]	19.18	0.88	0.87	0.89	0.84	0.84	0.85	0.87	19.13
DENSITY AT DIAM. [kg/m]	2.245	0.85	0.89	0.81	0.95	0.85	0.85	0.85	2.170
RELATIVE RIB AREA	0.081	10.46	10.46	10.20	10.21	nan	nan	10.36	10.36
AVG. RIB LENGTH [mm]	20.56	1.76	1.91	2.20	2.06	nan	nan	1.98	1.98
RIB EXTENSION [%]	79.48	70.9	70.9	70.7	71.3	nan	nan	70.9	70.9
RIBLESS GAP Σ [mm]	12.89	35.2	35.3	35.0	35.3	nan	nan	35.4	35.4
MASS [g]	590	15.6	15.6	15.7	15.4	nan	nan	15.6	15.6
LENGTH [mm]	227	46.5	47.6	47.2	46.9	nan	nan	47.1	47.1
LONG. RIB HEIGHT [mm]	0.00	0.00	0.00	0.00	0.00	nan	nan	0.00	0.00
LONG. RIB WIDTH [mm]	2.47	4.11	2.33	3.95	nan	nan	nan	3.22	3.22
DEVIATION [% kg/m]	-1.38	2.47	4.11	2.33	3.95	nan	nan	3.22	3.22
ACTUAL DIAM. [mm]	19.86	4.03	4.03	4.12	3.95	nan	nan	4.04	4.04

CUSTOM STANDARDS

STANDARD	DIAMETER	MIN	MAX
Great Britain BS-444	32	6.029	6.597

REPORT PARAMETERS

- DIAMETER
- DENSITY AT DIAM.
- ANGLE Beta
- ANGLE Beta ALTN.
- ANGLE Alpha
- RELATIVE RIB AREA
- RIB SPACING
- RIB HEIGHT am
- RIB HEIGHT a1/4
- RIB HEIGHT a3/4
- LONG. RIB HEIGHT
- RIB LENGTH
- RIB EXTENSION %
- RIBLESS GAP Sum e
- HEADWIDTH
- SAMPLE MASS gr

REPORTING OPTIONS

CATEGORIZE REPORTS BY SELECTION

- DIAMETER
- CAST
- QUALITY

MULTI-ROW PARAMETER REPORTING

- SAMPLE NO
- CAST
- QUALITY
- SOURCE
- ROW (LONG. MILL)

REPORT ALL ROWS

INCLUDE GRAPHICS IN REPORTS

GENERATE PASSWORD PROTECTED REPORTS

THEMED REPORT

INSERT SIGNATURE LINES

INSERT FORM NAME

SAVE

DATABASE (DB) SETTINGS

DB SERVER: IXIR 1433

DB NAME: psaron

DB USER: psaron

DB PASSWORD: psaron21

DB TABLE: RIB3D

TRUST CONN. CREATE TABLE

SQL DRIVER: SQL Server

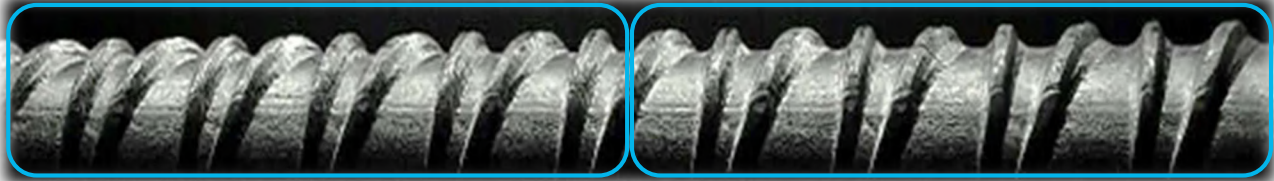
CHECK SAVE

Date	Time	Sample No	Nominal Diameter (e mm)	Core Diameter (e mm)	Rib angle (β°)	Rib angle (α°)	Relative rib area (RR)	Rib spacing (c) (mm)	Rib height (am) (mm)	Long. Rib height (mm)	Rib extend (%)	Ribless gap (Ea) (mm)	Sample mass (gr)	Sample length (mm)	Sample (Kg/m)	Deviation (%) (Kg/m)	Actual Diameter (mm)
38.11.2024	16:35	1	32	31.56	57.2	46.7	0.090	24.47	3.12	1.41	91.7	8.37	1568	253	6.198	-1.83	31.71
38.11.2024	16:32	2	32	31.58	57.5	47.7	0.087	24.47	3.42	1.45	74.9	25.37	1568	253	6.198	-1.83	31.71
38.11.2024	17:40	3	32	31.56	57.2	46.7	0.086	24.47	3.38	1.35	91.7	8.37	1450	253	5.686	-9.83	31.71
38.11.2024	18:07	4	32	31.54	57.7	44.7	0.084	24.47	3.41	1.28	89.3	8.37	1568	253	6.198	-1.83	31.71
38.11.2024	18:07	5	32	31.58	57.2	46.7	0.084	24.47	2.12	1.4	91.8	8.37	1568	253	6.198	-1.83	31.71
38.11.2024	18:53	6	32	31.55	58.5	48.7	0.090	24.47	3.18	1.43	92.7	8.37	1568	253	6.198	-1.83	31.71
38.11.2024	19:10	7	32	31.62	57.8	46.3	0.090	24.47	3.21	1.45	81.7	8.37	1568	253	6.198	-1.83	31.71

Motorized Scanning Vision Unit

The motorized vision unit empowers users to perform measurements at any location along the rebar with ease and accuracy.

Flexible Operation Move along the rebar to inspect the surface and conduct measurements at specific regions of interest.



Enhancing precision and efficiency for detailed rebar surface investigations

3D Laser Scanning Unit

The motorized imaging unit is enhanced with a cutting-edge three-dimensional laser scanning system, designed to analyze intricate geometrical features, detect defects, and assess corrosion.

Accurate Measurement for Challenging Samples Ideal for indented samples where conventional lighting falls short, the laser unit provides precise measurements of features like pit heights.

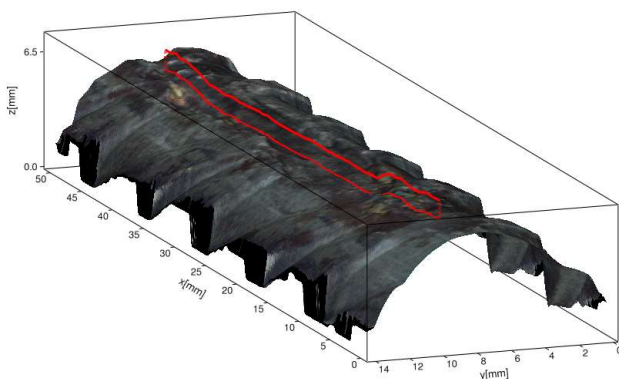
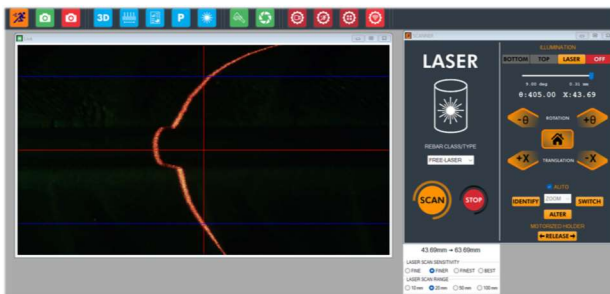
Fully Automated Functionality The software offers automated modes, enabling measurements at multiple locations along the rebar. Results are combined and reported for analysis.

Comprehensive 3D Profiling

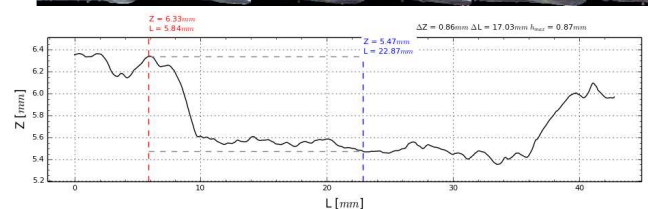
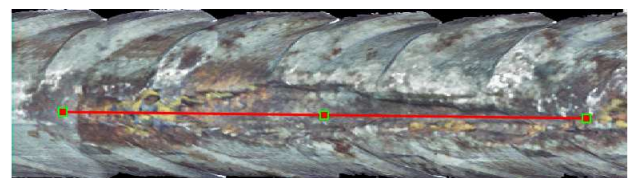
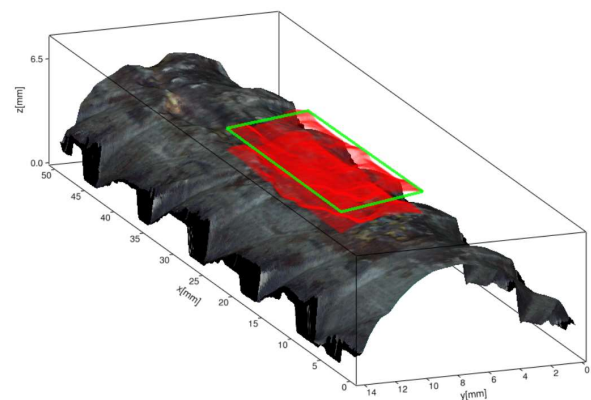
Advanced for accurate assessment of volumetric and surface area loss from corrosion or wear.

Quantitative Surface Comparison

Provides tools to compare reference surfaces pre-process and post-process, enabling visualization and quantification of geometrical differences.



Developed to enhance analysis capabilities



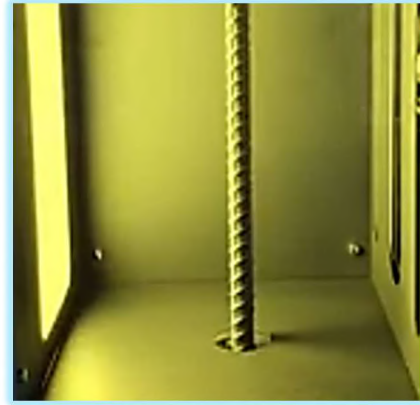
Motorized Sample Clamping Unit

The motorized clamping unit streamlines the sample handling process, offering full automation for clamping and releasing rebar samples before and after measurements.

Versatile Compatibility While the manual clamping unit is quick and easy to use, the motorized unit excels in environments demanding higher levels of automation.

External Control Integration Equipped with communication protocols, the clamping unit can be controlled externally by other software.

Automated Clamping for Efficiency Ideal for applications requiring automated operations, ensuring consistent and secure sample handling. Designed to work with robotic arms for fully automated sample measurement.



Ideal for streamlining measurements in modern production lines.

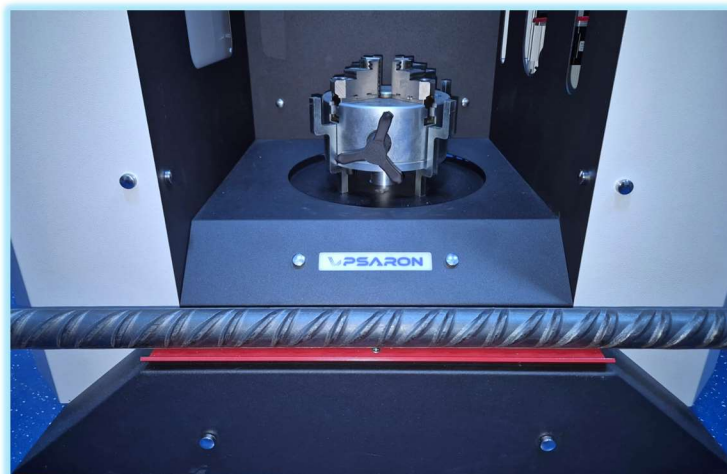
The Mass & Length Metrics Unit

The Mass & Length Metrics Unit is an add-on designed to automate the measurement of sample mass and length, ensuring precise calculations for mass per unit length (kg/m).

Automated Mass and Length Measurement Automatically measures the mass and length of the rebar sample either before or after conducting geometrical measurements.

Accurate Mass per Unit Length Calculation Provides precise estimates of kg/m by combining automated measurements. If unit is unavailable, users can manually input mass and length for calculations.

Standard Compliance Checks Compares kg/m values and deviations against international standards, calculating equivalent diameter as needed.



Ensure compliance with ease using this fully automated solution