Rollscan

Roll Inspection

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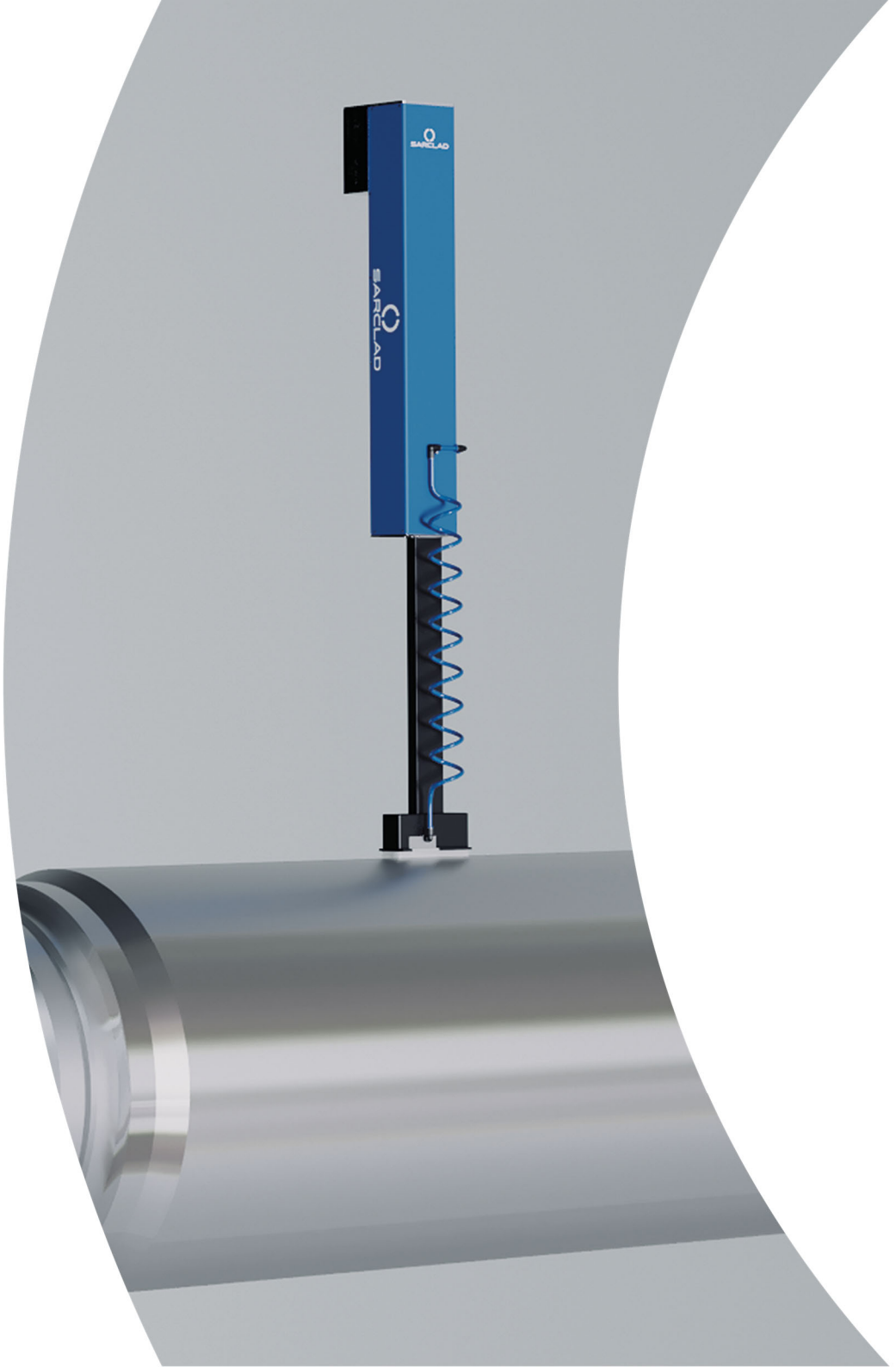



SARCLAD
TECHNOLOGY FOR THE METALS INDUSTRY

Sarclad roll inspection : Ensuring roll integrity whilst minimising mill downtime

Ultimate protection for your roll fleet

Grinder mounted inspection system of rolls for the following industries:

> Hot and cold roll steel rolling mills
> Forged Rolls, Cast Rolls & HSS Rolls
> Aluminium rolling mills
> Copper and brass rolling mills

Safety First

> Detects not only minute cracks and bruises on the surface but also will highlight issues for action that may be embedded in the roll such as non metallic inclusions and porosity

Consistent Surface Quality

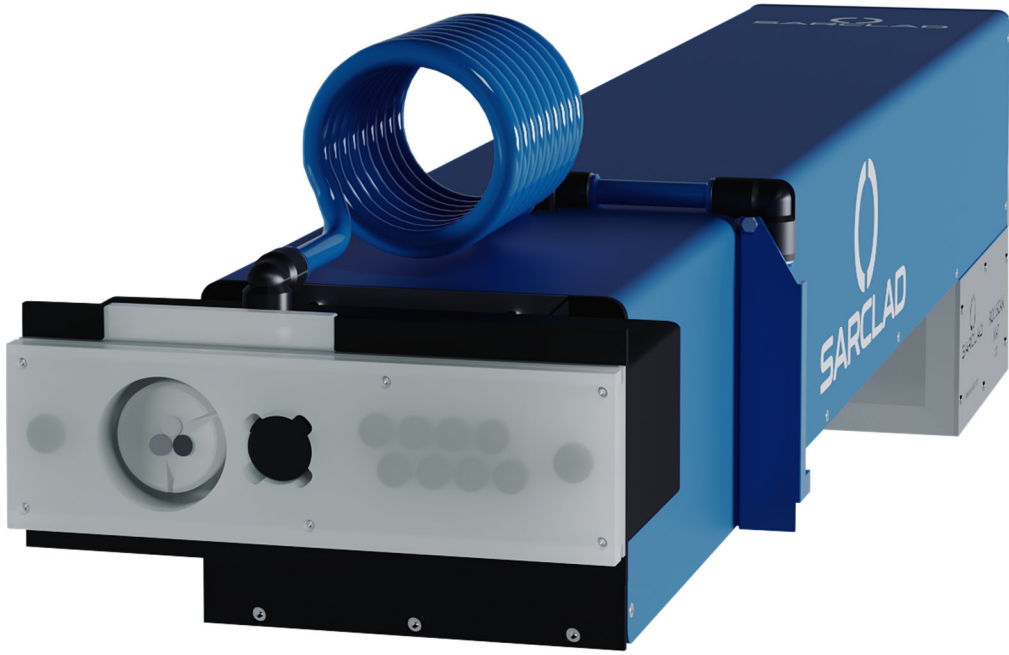
> The Sarclad Mark7 Rollscan combines up to 3 defect technologies in the probe head to maximise probability of detection
> Locate and grind out all defects above threshold level set
> Precision coordinate guidance to exact location of defects (Defect Finder®)

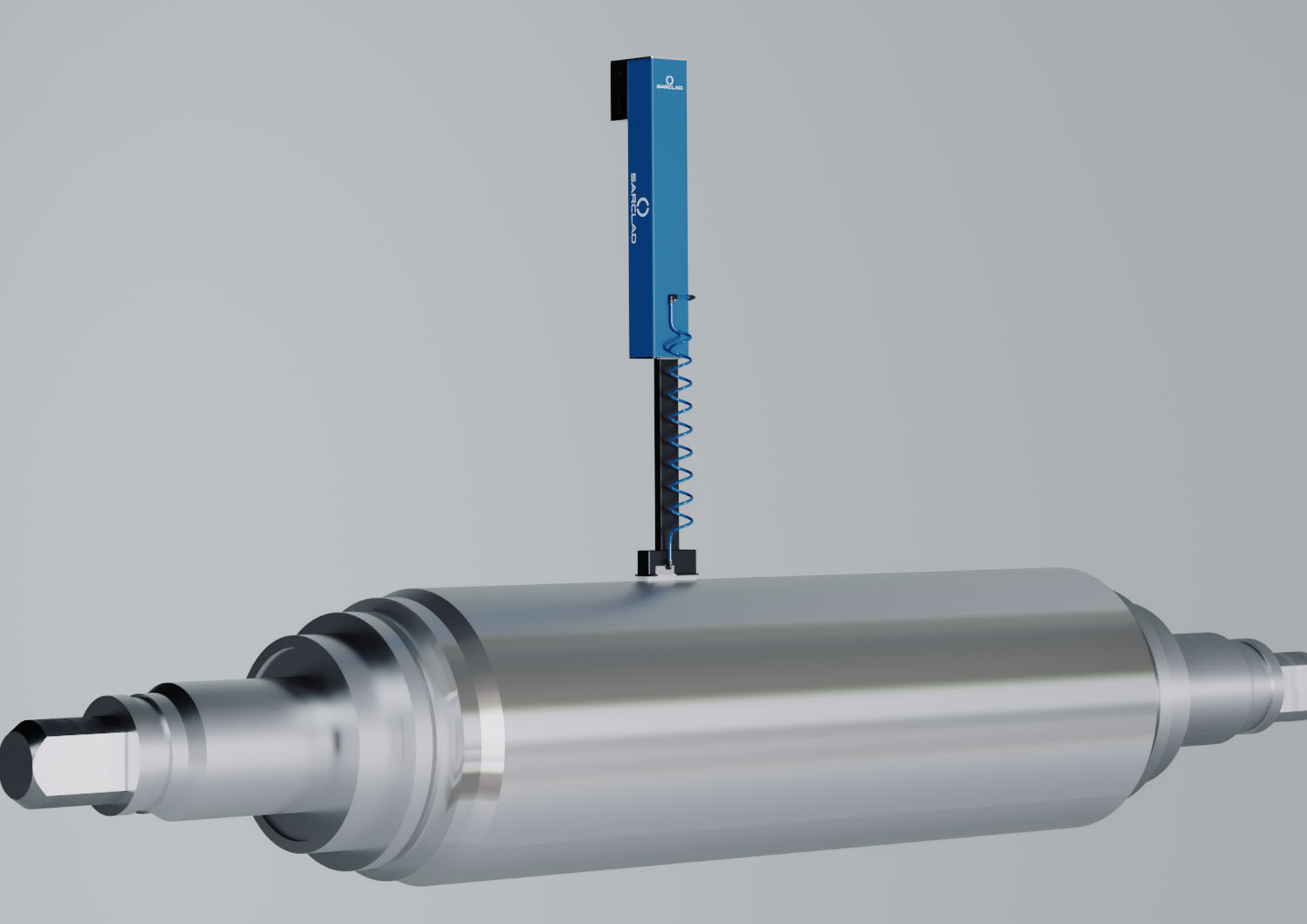
Save Time & Money

> Maximise the wear life of your fleet
> Grinding intel - grind out unnecessary roll life removal
> Minimise your quarantined rolls with Defect Finder® enabled decision making
> Secure warranty protection from your roll supplier

Rollscan Key Features

- Eddy Current, Compression Wave and Surface Wave detection all available on one probe head
- Grinder integration capability (incl. Profinet)
- Gap sensors can be tailored to ensure detection near the edge / shoulder of the roll
- System electronics contained entirely within the test head - no front end processor
- Low operational and capital cost
- Robust and simple to use
- Real-time assessment of roll condition
- Fully automated operation and roll analysis
- Suitable for hot and cold mill, work rolls and backup rolls
- Network access and exporting of measurement data
- Automated de-magnetiser and support structure available
- Can be customised to your needs

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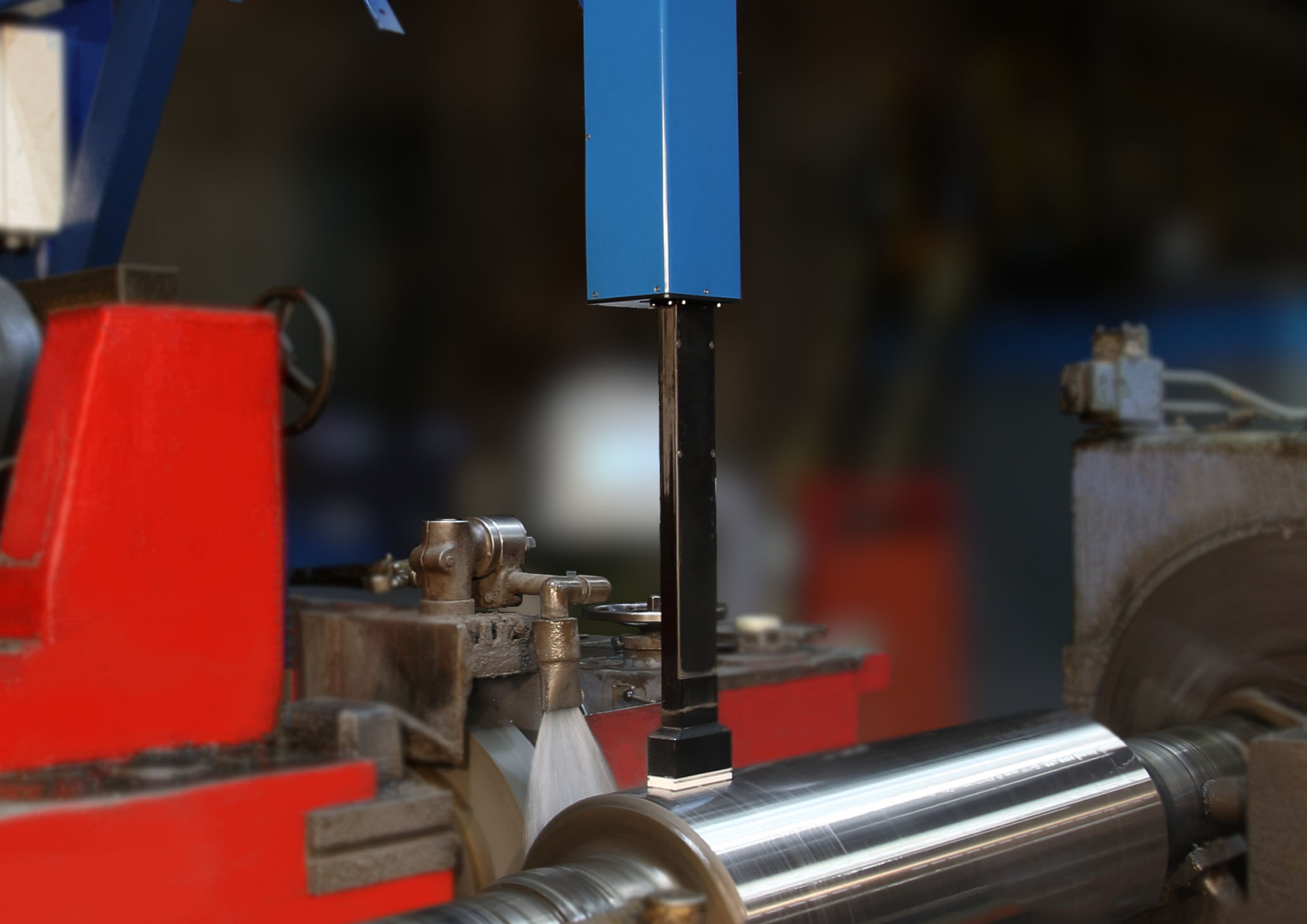
Key Technical Features

	Eddy Current Version A	**Compression Wave** Version B **(+A)**	**Surface (Creep) Wave** Version C **(+A & B)**
Area of detection	Roll surface defects	+ Up to 100mm depth	+ Creep wave surface inspection
Defects detected	Cracks & Bruises	+ Porosity, non-metallic inclusions, internal cracks, interface separation	+ Non surface breaking cracks
Smallest detectable defect (surface)*	**Shallow Crack** >0.05mm **Length** >2.5mm **Deeper Crack** >0.1mm **Length** >1.0mm	**Shallow Crack** >0.05mm **Length** >2.5mm **Deeper Crack** >0.1mm **Length** >1.0mm	**Shallow Crack** >0.05mm **Length** >2.5mm **Deeper Crack** >0.1mm **Length** >1.0mm
Smallest detectable defect (sub surface)	X	2mm @2.5MHz 1mm @5MHz	2mm @2.5MHz 1mm @5MHz
Filtering	Digital	Digital	Digital
Inspection sensor width	32mm EC	+ 20mm sub surface	+ 7.5mm creep wave
Inspection area	Surface	2.5 to 60 / 4 to 100mm	0 to 0.25mm
Inspection speed	2.5m/s	1.0 m/s	1.0m/s
Display results	Histogram; Historic; Water Fall; Heat map	+ Bubble View	+ Bubble View
Operator interface	Windows 10 and full touch screen interface		
Frequency available	1 MHz	2.25 to 5 MHz	10MHz
Grinder integration	Profinet, Profibus, customised solutions		
Support stand	Design and installation as required including automated option		
Coupling	Industrial water preferred - Grinding coolant possible with 50um filtering		

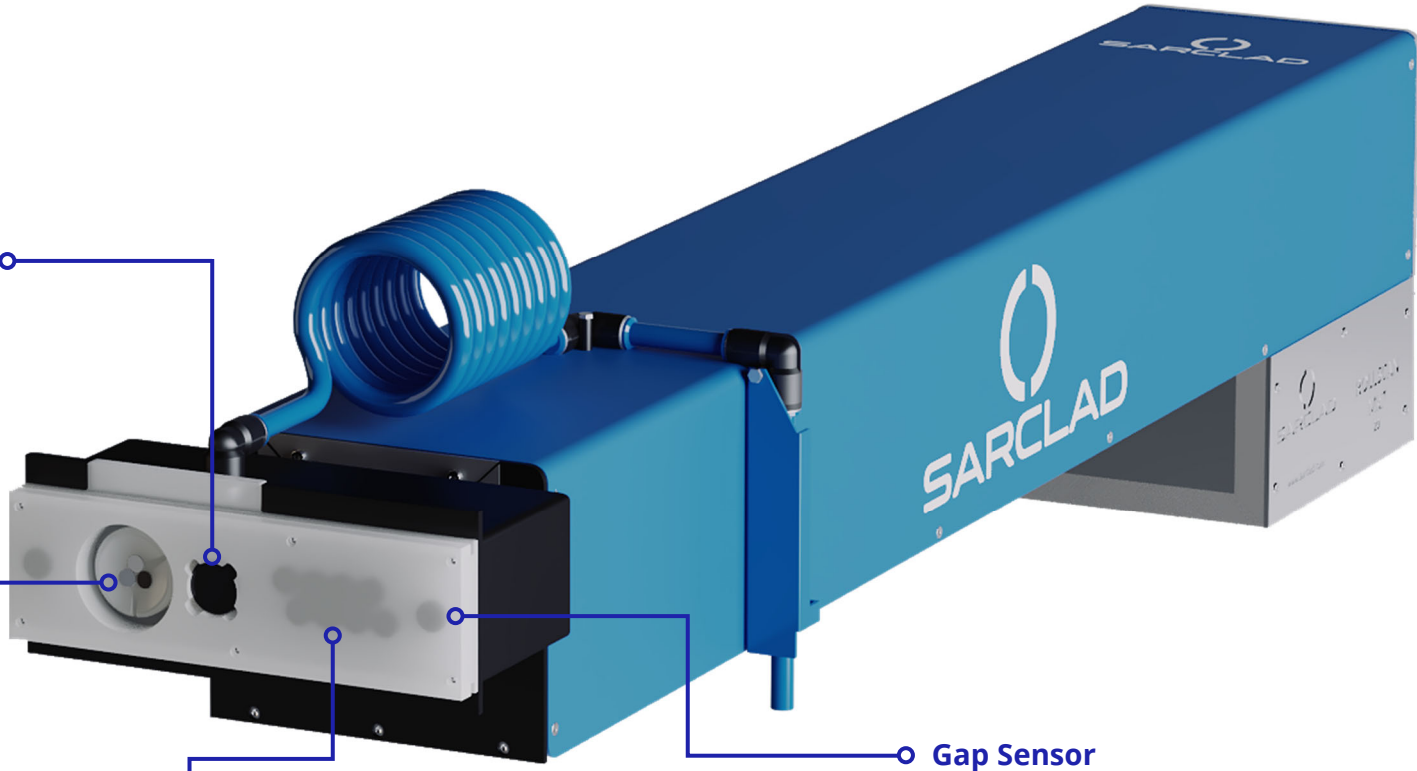
*Based on forged & high speed steels

For further technical information, please refer to Rollscan 7 Technical Specification



Probe Head Technology

Compression Wave Ultrasonics
Twin crystal 2.25 MHz compression wave 20mm coverage per revolution.



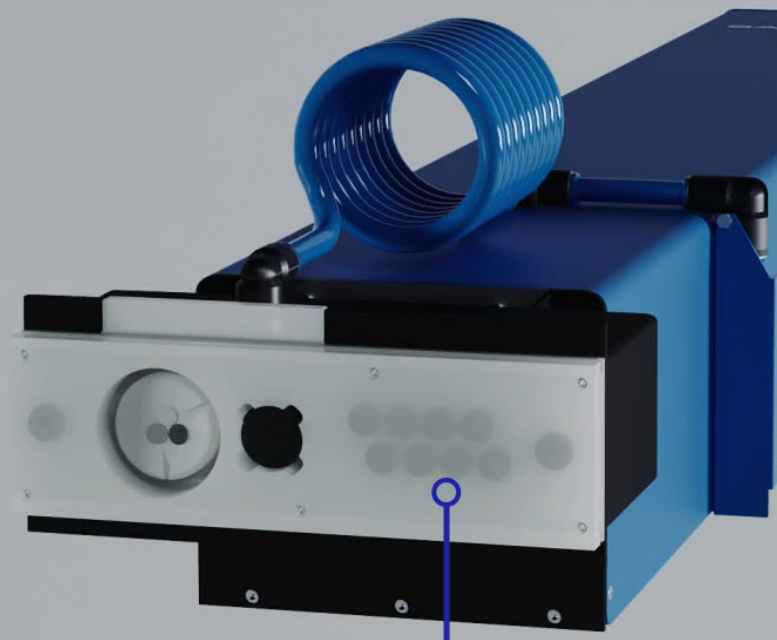
Creep (Surface) Wave Ultrasonic
Introduces the ultrasonic beam obliquely at the roll surface, allowing the detection of non-surface breaking defects immediately below the surface.

Eddy Current Probes
8 probes providing 35mm coverage per revolution.

Gap Sensor
Control and maintain a stable 0.75mm distance between roll surface and inspection probe capsule.

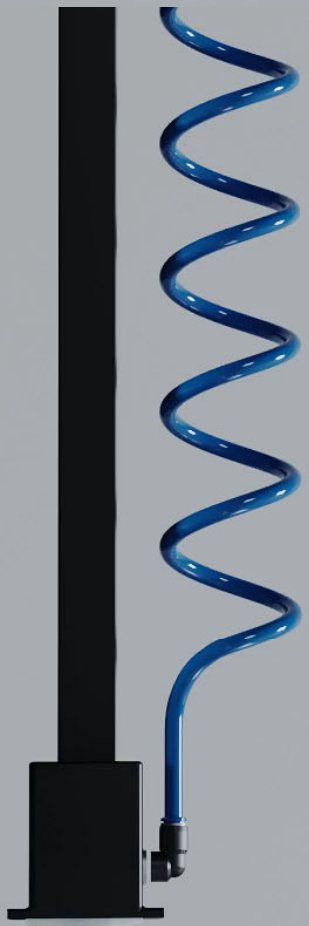
Surface Cracks

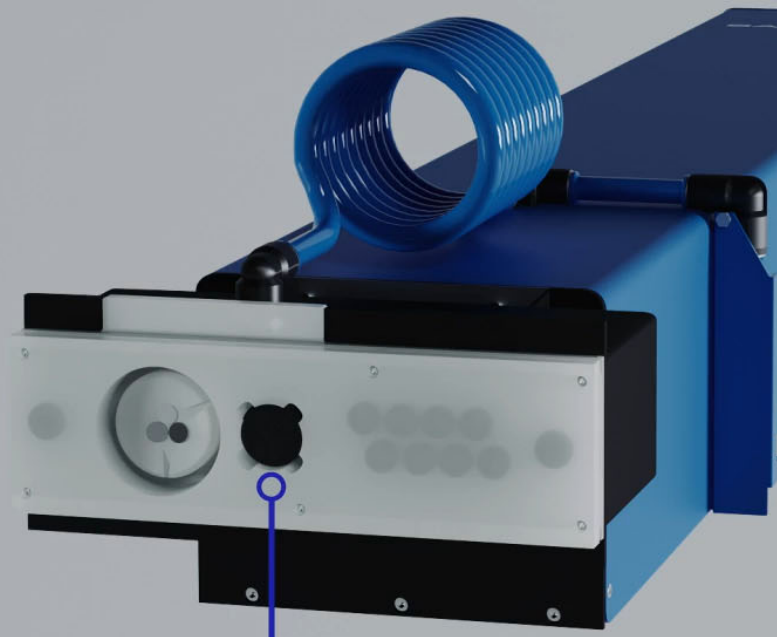
Bruises



Eddy Current For Surface Inspection

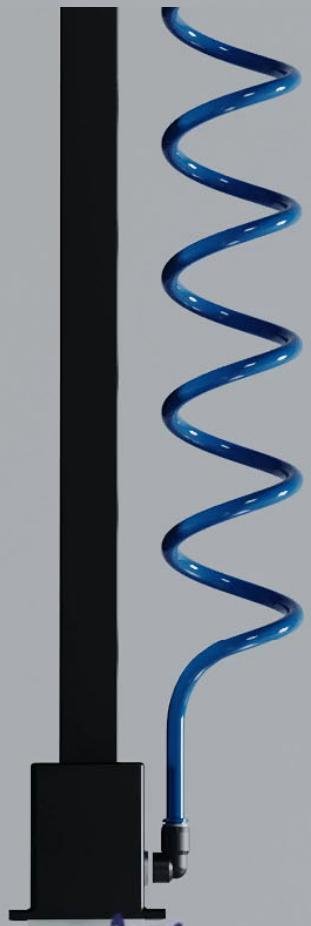
- Surface Cracks
- Bruises

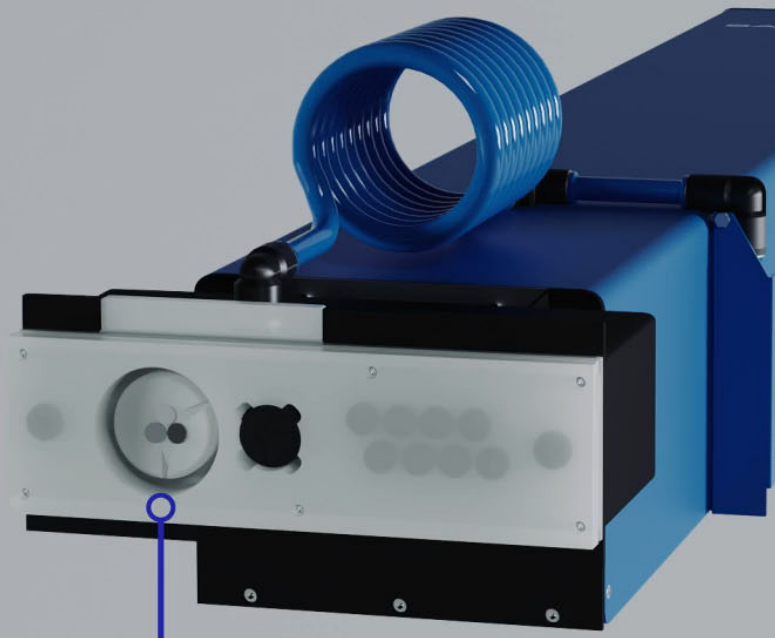




Compression Wave Ultrasonics

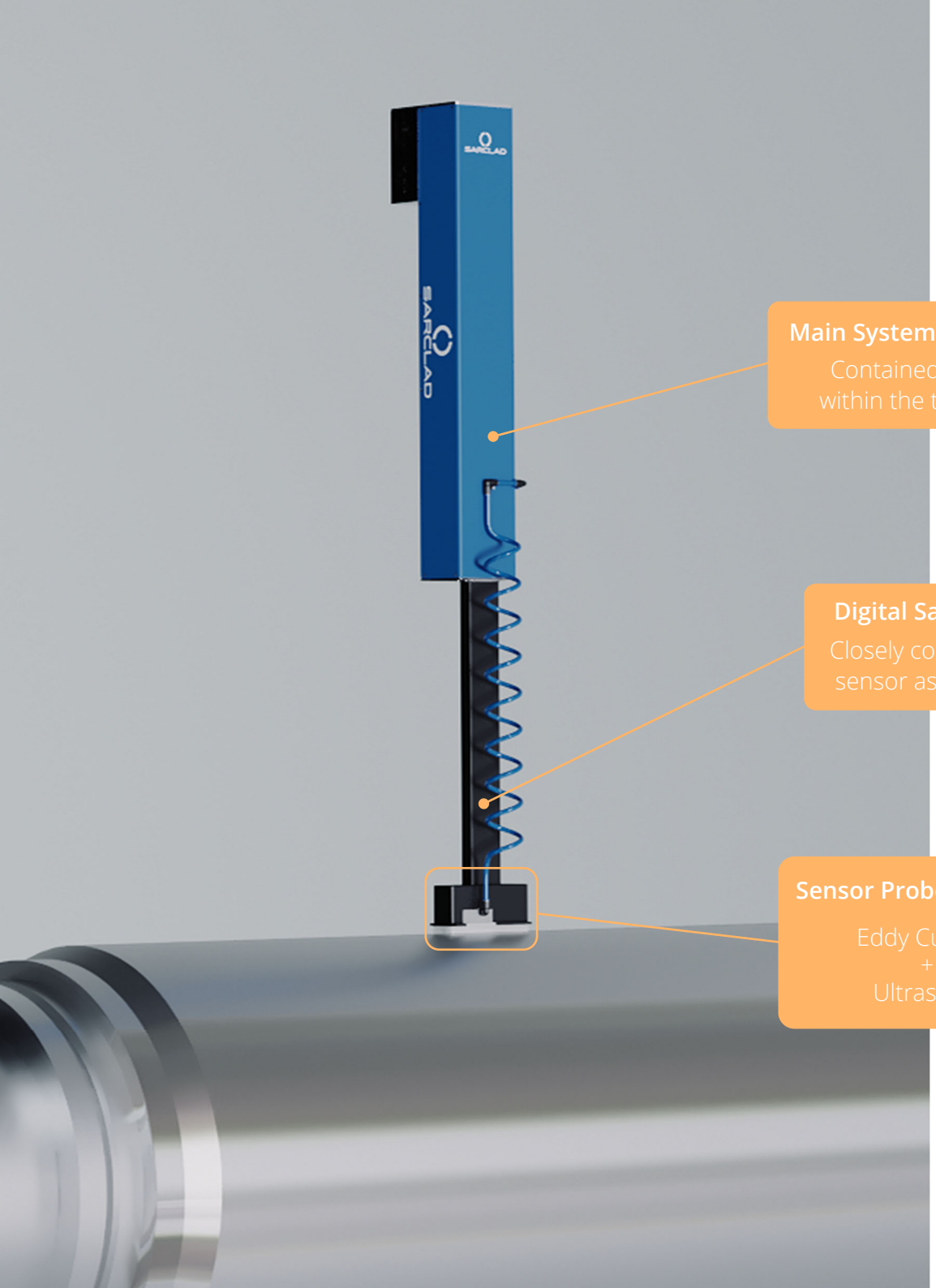
- Sub-Surface Cracks
- Shell-Core Interface Defects
- Non-Metallic Inclusions
- Porosity





Creep (Surface) Wave Ultrasonics

- Non-Surface Breaking Defects Immediately Below Surface



Main System Electronics

Contained entirely within the test head.

Digital Sampling

Closely coupled to sensor assembly.

Sensor Probe Assembly

Eddy Current
+
Ultrasonic

System Overview

Highly optimised eddy current and ultrasonic technology, closely coupled with advanced front end digital signal processing (DSP).

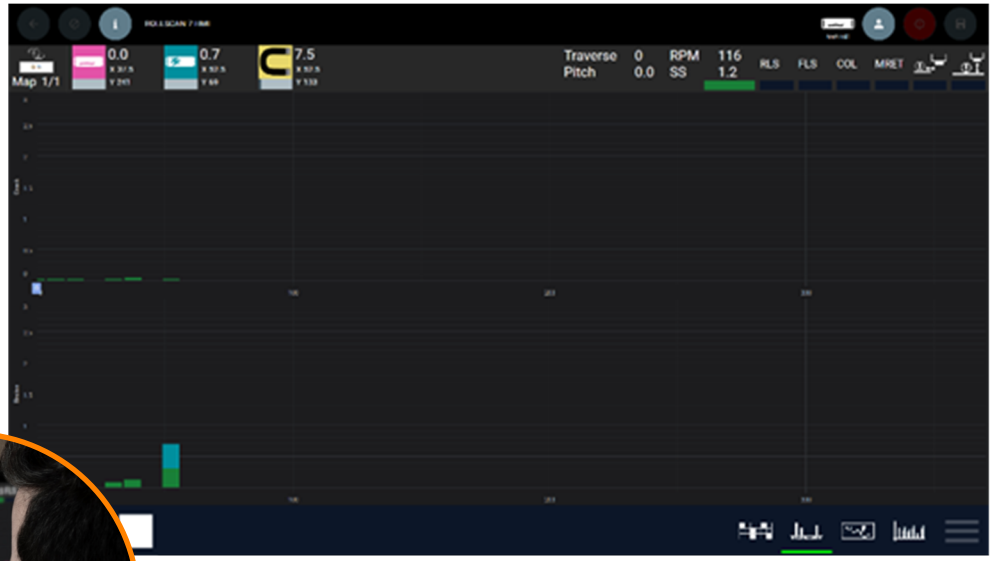
- > Uniform inspection scan coverage
- > Exceptionally repeatable defect measurement
- > Highly resilient to the effects of lift off
- > Closely coupled sampling technology for improved signal integrity
- > Integration with grinder

User Interface – Touchscreen PC

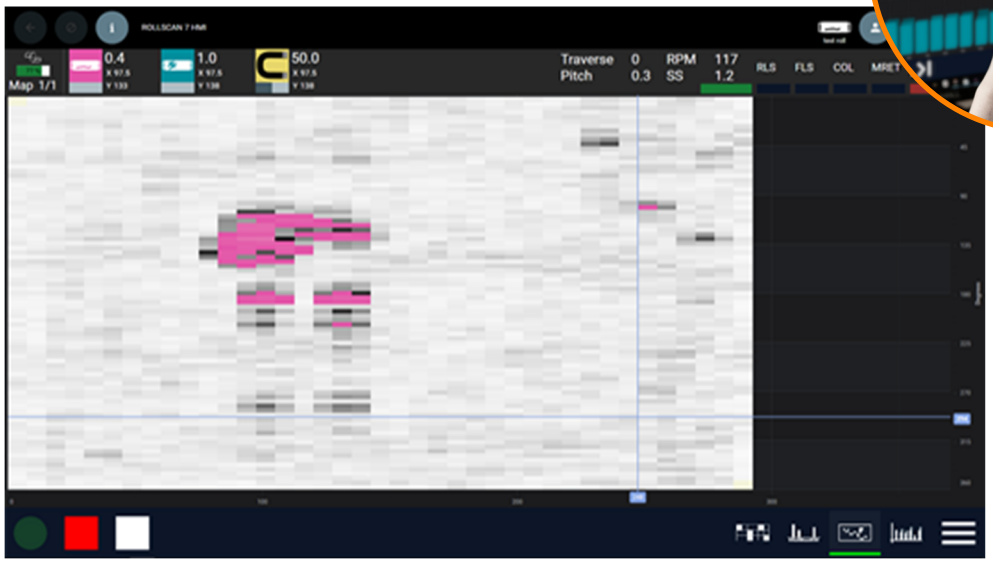
Mounted wherever preferred, this touchscreen PC serves as a user interface and repository for roll inspection records.

Waterfall

Histogram

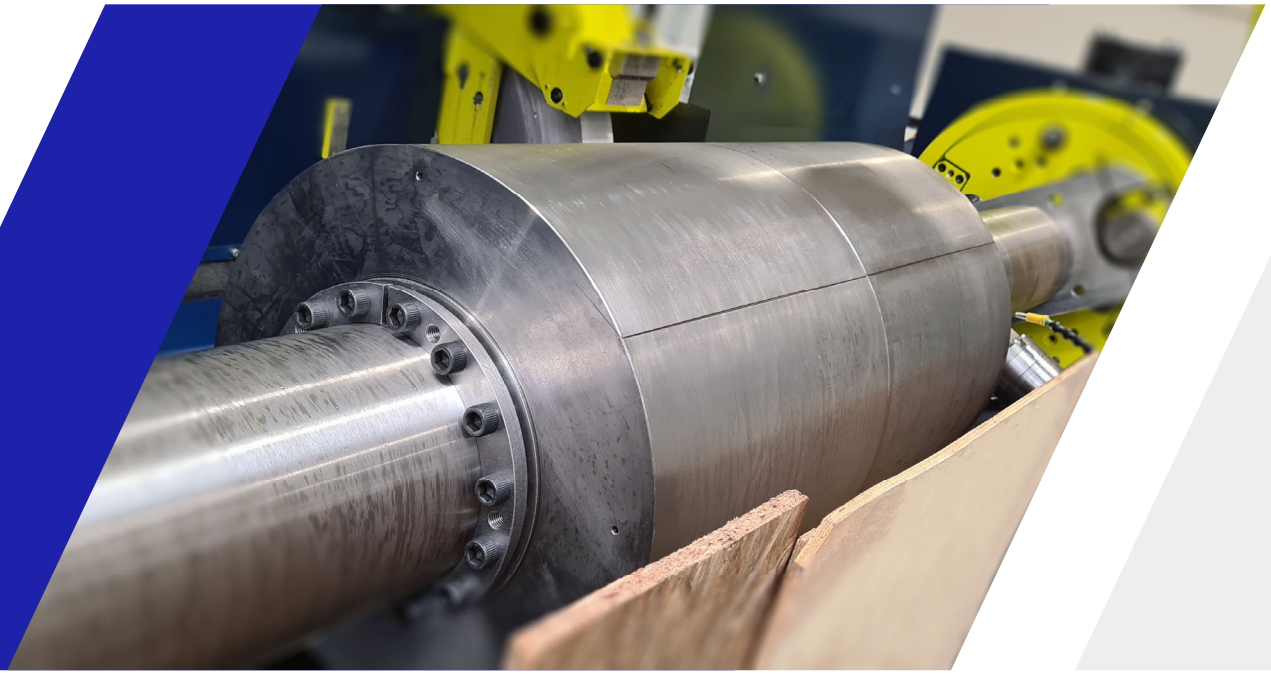


Heat Map



Historic

Inspection & Integration



> All surface and sub surface defects detected by the Rollscan on both cast iron and steel rolls

> Results delivered on Grinder HMI screen

What our customers say...

The Rollscan 7 unit does everything that we could hope for and more. We needed to source a replacement roll inspection system for our fleet of backups, and the Rollscan 7 did not disappoint. From quotation, to install, to training and follow up support; it was a smooth process.

US Steel Hot Mill Roll Shop

The installation of the unit was a direct replacement. It bolted up to the existing mounting with no modifications. There are less bulky electronics with the new unit and we were able to eliminate one electrical cabinet. The setup and tuning of the unit for the different types of rolls was accomplished quickly. The operators needed very little time to reach a feeling of confidence and understanding of the operation of the unit. There was no difficulty encountered in the training.

NLMK Indiana Roll Shop Supervisor

Service back up

Supported by regional offices in the UK, USA, China and India, along with our extensive network of local agents, we are proud to offer a global reach service for system sales, aftersales support and system maintenance throughout the lifetime of your Sarclad product.

Locations

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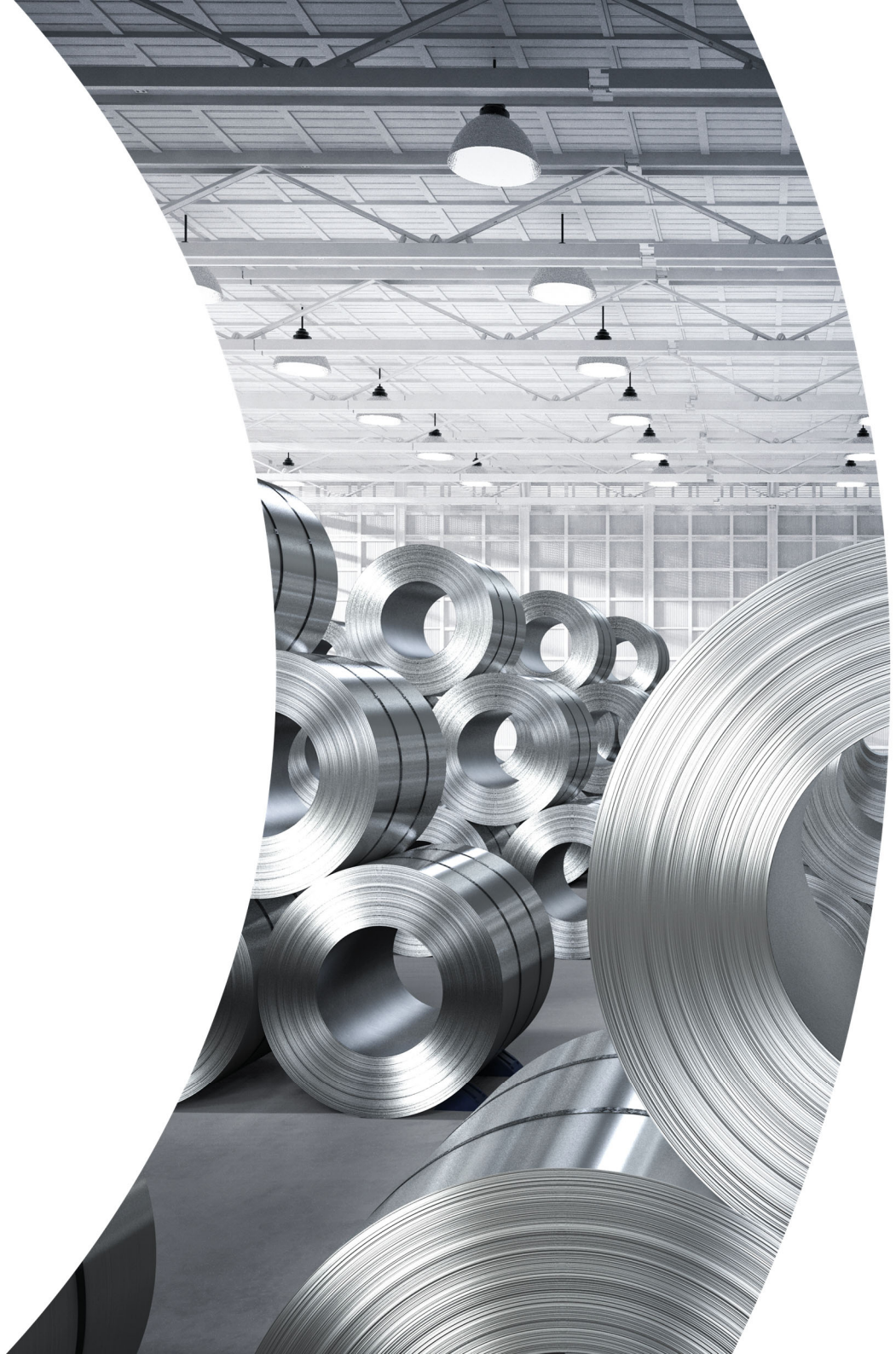

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