

## **Contamination Monitoring System Buyer's Guide**

Under licence by CRM

# Table of Contents

What is a Contamination Monitoring System (CMS)?.....	3
Who Needs to Monitor Strip Contamination?.....	3
How does it work?.....	4
How accurate is it? .....	4
Where is it installed?.....	4
Why should I buy a CMS?.....	5

# Contamination Monitoring System (CMS) Buyer's Guide

## What is a Contamination Monitoring System (CMS)?

The Sarclad Contamination Monitoring System (CMS) provides continuous and real time measurement of very low levels of oil and iron fines contamination present on cold rolled steel strip during downstream processing. Critically, the system can distinguish between the 2 contaminants and provide a fully quantitative result for each. The system can measure at any point across the strip and along the entire length as required.



## Who Needs to Monitor Strip Contamination?

The CMS is designed for use in the processing lines of cold rolled strips (eg. galvanising and coating lines etc.). It is critical for the monitoring and optimisation of cleaning process that are essential for the production of high-quality coated products, eg. exposed automotive panels.

Poor control of the cleaning process for strip products will result in oil and iron fines prevailing into the subsequent process steps and causing product quality issues and process inefficiency in areas such as the furnace and zinc bath. Conversely, plants that have excellent cleaning processes may be overcleaning and therefore suffer a cost penalty in their production route. Accurate and timely measurement of the cleaning process can eliminate these concerns.

This new technology is designed to replace the “scotch tape” or “swab” tests. Such tests are known to suffer from subjectivity and poor reliability. They are also only carried out at low frequency on a very small sample area.

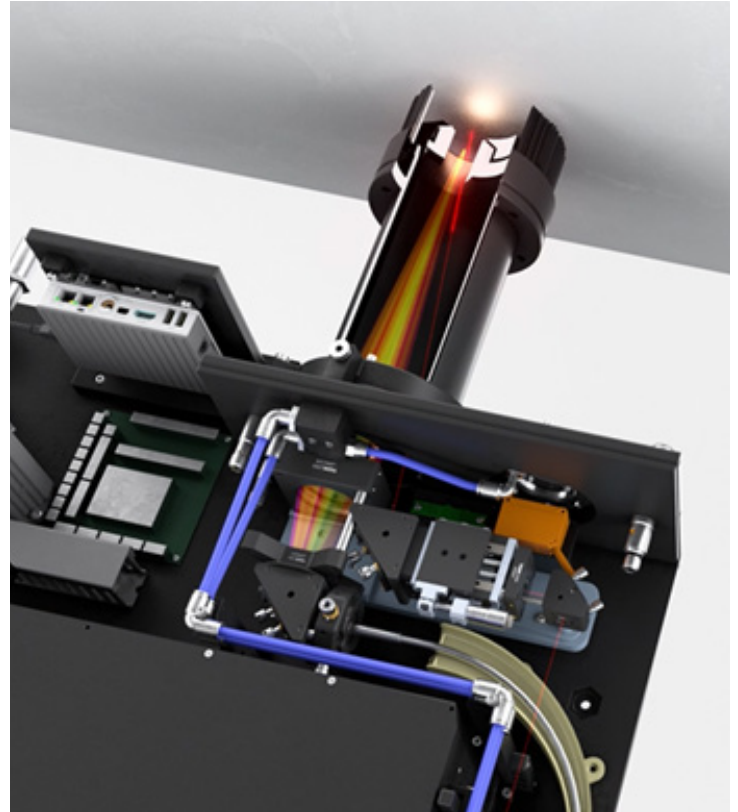
## How does it work?

The CMS uses Laser Induced Breakdown Spectroscopy (LIBS) to assess the cleanness of the surface. A pulsed laser beam is accurately focussed on the very surface of the steel strip as it passes in front of the device. The energy of this laser pulse generates a plasma by reacting with the surface contaminants. The wavelengths of light present in the plasma are unique to the chemical elements present, effectively giving a “signature” of levels of contamination.

The light from the plasma is captured and fed via an optic fibre to a spectrometer where the specific wavelengths of light are analysed to produce the measure of contamination.

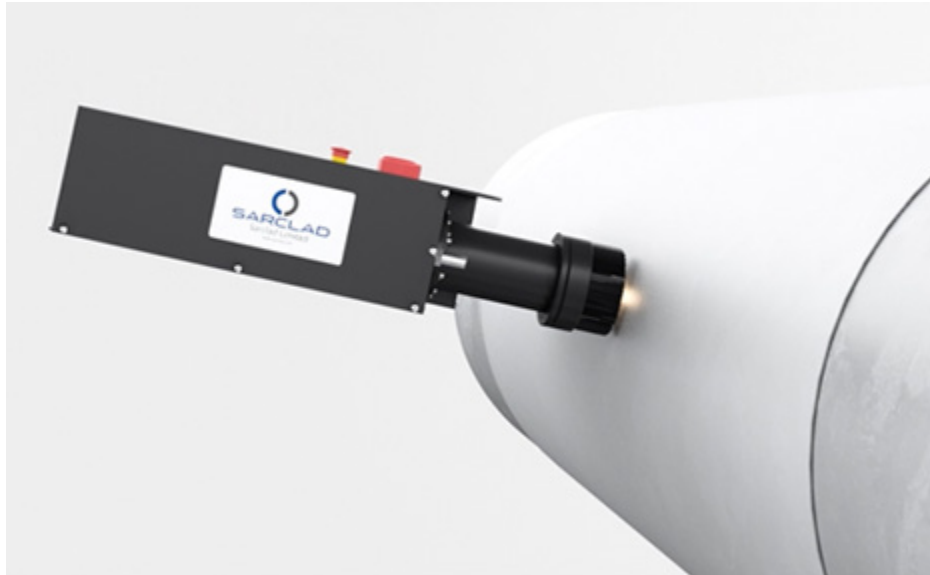
## How accurate is it?

	<b>Range mg/m<sup>2</sup></b>	<b>Sensitivity mg/m<sup>2</sup></b>
<b>Oil</b>	0-120	1
<b>Iron Fines</b>	0-200	2



## Where is it installed?

To facilitate the laser focussing required for the LIBS process the strip surface must be stable, therefore, it is required that the unit is positioned so that it can sample the material whilst it is present on a roll. On most production lines a suitable position can be found near a bridle or deflector roll.



## Why should I buy a CMS?

- **Product quality.** Continuous and real time quantitative monitoring of the strip cleanliness will enable optimised cleaning performance to attain the highest surface quality standards.
- **Money saver.** Reduce the cost of poor quality and optimise the cleaning process to give the best level of strip cleanliness at the lowest operating costs
- **Early warning.** Immediate detection of process drift, reducing costly downgrades and allowing early corrective actions.
- **Targeted problem resolution.** Differentiated cleanliness measures for iron fines and oil allows the most appropriate corrective action first time.
- **Integrate with your production process.** All data outputs are available for integration with the line process to allow viewing and analysis of the data anywhere.
- **Regional Sarclad service & support** (UK, United States, India and China)