

QUALITY MADE IN GERMANY

WE LIVE INDUSTRY 4.0!

Industry 4.0
included

The Rayonic RX product line is **state-of-the-art!** The X-Ray thickness gauges support the **Industry 4.0** concept by connecting all relevant actors (e.g. mill, technological controls, drive system, etc.) in production. Communication is realized by standard interfaces such as Ethernet, Profinet and Profibus that provide a secure connection to the Industrial PLC control. RX systems facilitate a fast and cost-effective adaption to the mill requirements and a smooth integration into the automation. By using the RX product line, companies make a big step towards Industry 4.0 – **easily, fast, and individually!**

Ready for
retrofitting and
more

- Connectivity through all standard communication interfaces
- Ready for retrofitting, modernisation, and extension
- High stability and lifetime through metal-ceramic X-ray tubes
- Ionization chambers with noble gas filling
- Constant monitoring of stop positions and movement time of the electrical shutter for radiation
- 24 V DC operation of X-ray sources and sensors
- Client server technology for visualization and long-term data storage

Constant
monitoring
and predictive
maintenance!



EXPERTS IN THICKNESS MEASUREMENT

Based in Forchheim, Germany, Rayonic has a long experience in producing and installing X-ray thickness gauges all over the world. **Since 1997**, Rayonic has installed more than **70 X-ray thickness gauges** in **14 different countries**. "Measure the difference" – that's what keeps us going!

We provide cutting-edge technology at reasonable prices while ensuring perfect system design and availability.

Local supplier
network
provides a
sustainable
production

Production environments are organic plants. Because after all, installation is not the end of the story.

QUICK, EASY AND RELIABLE SERVICE DURING THE WHOLE LIFE CYCLE

Rayonic knows this and therefore offers its customers services throughout the entire life cycle of the gauges. We also actively increase this life, thanks to our predictive maintenance solutions.

Permanent condition monitoring of the rolling process and the measuring device makes it possible to continuously record production-relevant data, detect anomalies and take appropriate countermeasures. Calibrate the measuring device? We know exactly when it's time. Construction, manufacturing, testing and service. **Everything you need from one source!**

With a deep customer orientation, Rayonic offers transparency: from project planning to final acceptance, from order processing to machine installation - we live it!

Our customers benefit from a sophisticated service management concept. With our spare parts warehouse, we are able to provide the right parts in the shortest possible time. For a long time, various customers have benefited from this service within the framework of service contracts. And if a customer cannot solve a problem himself: Our training and service centre helps with remote diagnosis and remote maintenance - so we can help individually, quickly and without long journeys. Rayonic thickness gauges offer the highest level of quality.

Made in Germany!

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rayonic
Measure the difference



RAYONIC | **ALUMINIUM**
RX-40 | **STRIP**
RX-60 | **THICKNESS**
RX-80 | **MEASUREMENT**

MEASURE THE DIFFERENCE

RAYONIC RX-40/60/80

Beverage cans, airframes, railed vehicles, automotive body sheets and offset printing plates: Aluminium strip produced on hot, cold and foil rolling mills has become an indispensable part of modern production.

The number of different applications shows: Metal processors have different requirements for the thickness, flatness, surface properties and formability of the material. It is therefore clear that the process must be optimised and run efficiently to ensure high-quality and reliable aluminium production. With Rayonic measurement gauges, producers can get more information out of their plants while monitoring the process constantly.

RELIABLE THICKNESS MEASUREMENT WITH RAYONIC

The thickness of the metal is a central parameter in production. Knowing the data allows companies to optimise production, record and log data and to generate quality reports for further evaluation. In aluminium hot, cold and foil rolling mills, X-ray thickness gauges are therefore playing an increasingly important role. The **Rayonic RX-40/60/80** thickness gauges have been specially developed for individual needs

and the customised requirements in different applications. Our RX product lines are available in numerous dimensions to cover the space restrictions, installation requirements and the strip thickness requirements produced on the various mill types and production lines.

The available standard version is mill mount, retractable C-frame for centre line measurement and scanning system for cross profile. The thickness gauges differ only in the high voltage generators allowing an optimal adjustment to the required measurement range and accuracy. The thickness gauges are characterised by their robustness. The X-ray sources, sensors, high voltage generation and emission control are installed in sealed stainless-steel housings with thermal insulation and cooling. Cable and hoses are fire-retardant and resistant to mill coolant, emulsion and other aggressive fluids. The metal-ceramic X-ray tubes are operated below the maximum ratings which significantly increases lifetime.

MEET OUR SOLUTIONS

Hot rolling mill, cold rolling mill, foil rolling mill: The RX series can do it all! Rayonic RX-40 and RX-60 gauges offer a measurement range in aluminium from 0.1 to 20 mm and even 0.002 mm to 0.2 mm in foil. When producing thicker aluminium strip with thicknesses from 20 mm up to 50 mm, RX-80 is the perfect choice!

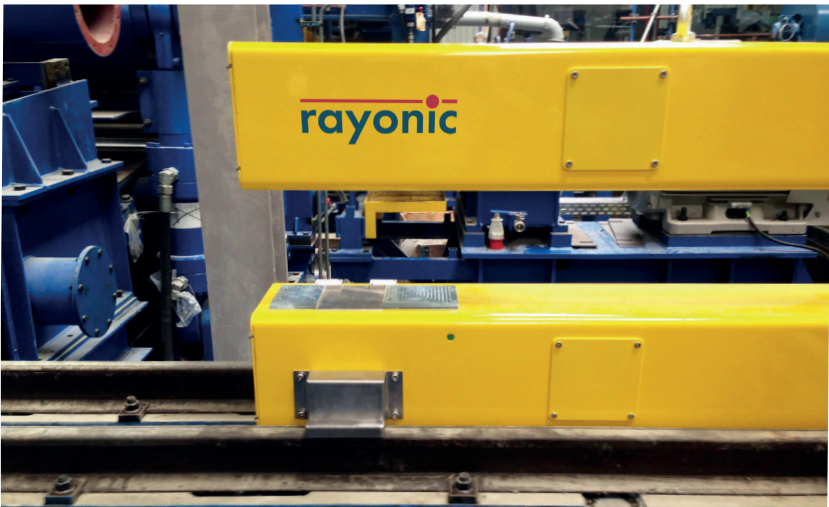
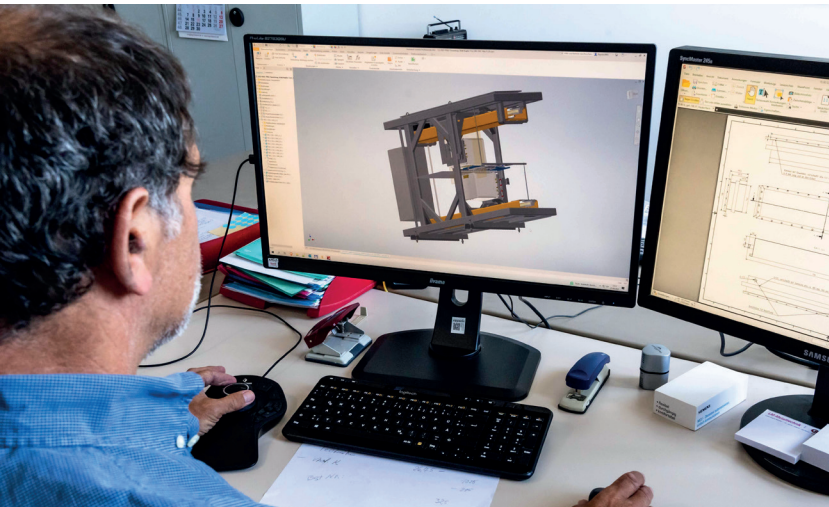
Accuracy, reliability and security have always been written into Rayonic’s DNA. With a typical accuracy of 0.05 percent, RX X-ray gauges provide a continuous, non-contact measurement while ensuring high quality. And, in addition: The thickness gauges help to optimise the ecological and economic footprint of the production! Due to the high production quality, scrap is reduced and therefore, the material use is optimized. With that being the case, RX thickness gauges offer a short amortisation period.

Gauge Model	RX-40	RX-40	RX-60	RX-80
Application	Foil Mill	Cold Mill	Cold Mill	Hot Mill
Material	Aluminium	Aluminium	Aluminium	Aluminium
X-Ray-Source	TS40-SL	TS40-C	TS60-C	TS80-C
Operating Parameters	12.8 kV / 0.7 mA	40 kV / 0.3 mA	60 kV / 0.3 mA	80 kV / 1 mA
Measurement Range	0.002 mm - 0.2 mm	0.1 mm - 8.0 mm	0.5 mm - 20 mm	1.0 mm - 50 mm
Measurement Gap	100 mm	300 mm	300 mm	300 mm
Accuracy	0.05 %	0.05 %	0.05 %	0.05 %

THAT’S HOW IT WORKS

Radiometric thickness measurement is based on the partial absorption of ionizing radiation in matter. By using X-ray technology, thickness gauges direct the beam perpendicular at the aluminium strip. On the other side of the metal, the intensity of passed-through radiation is measured by a suitable detector. Depending on the absorbing material – aluminium, iron, copper, etc. – the measured radiation differs. X-ray thickness gauges use that information for measurement. The absorption coefficient μ depends on the measured material, its composition, and the energy distribution of the X-radiation. A big advantage of X-ray sources is the possibility to adjust the radiation energy and the absorption coefficient to the required measurement range and material properties.

The radiometric non-contact measurement method provides very precise thickness values at a very high measurement rate for automatic control and quality assurance. X-ray thickness gauges are the first choice for online non-contact thickness measurement in production facilities – remote reading and predictive maintenance are not far away.



Sounds difficult? It is not! The measurement principle can be pictured as follows:

intensity measured with the material present

intensity measured without the material present

absorption coefficient

material thickness

$$I = I_0 * e^{-\mu d}$$

Constant monitoring of aluminium strip thickness measurement

Suitable during the whole measurement process

