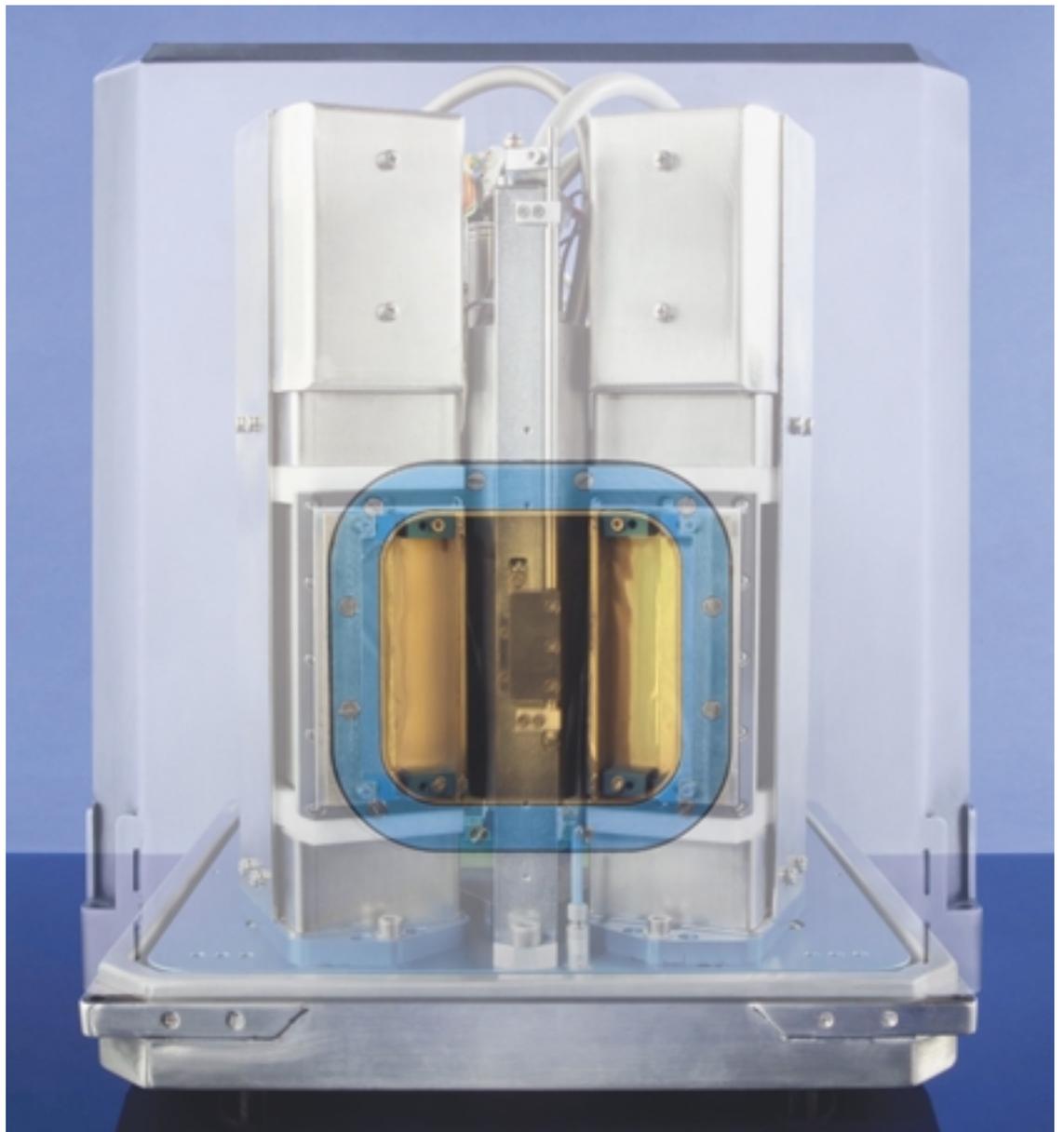


Industrial

X-Ray Measuring Technology

for Rolling Mills and Process Lines



Technology

Characteristic for Rayonic measurement systems are the specific adaption to the conditions of the production line and the requirements of the customer. A wide range of high voltage generators and metal-ceramic X-ray tubes allows the optimal adaption to the measured product and the required measurement range.

The standard design of the measurement systems includes the following highlight features:

- X-ray source and sensor with sealed stainless steel housing and connectors
- Electronically controlled cooling, efficient shielding and insulation
- Metal-ceramic X-ray tubes operated at about 30% of the maximum ratings (voltage and power consumption) guarantee high stability and lifetime
- Electrical beam shutter with monitoring of stop positions and travel time
- Ionization chambers with noble gas filling for fast, stable and precise response, long lifetime and high availability
- Digitizing of measurement signals directly in or at the gauge-heads
- 24 VDC operation of X-ray sources and sensors because of internal generation and control of the high voltage

The visualization software NetRayVis provides a clear display of the measured values in cross-profile and trend diagrams, histograms and bar charts. Through the up-to-date network technology and client-server architecture the actual and archived measurement data are always readily available.

For the product quality the measured thickness or coating thickness is the primary control variable of the automation systems of rolling mills and coating lines. In addition to a better quality the Rayonic measurement systems increase the process reliability and reduce scrap material and operating costs.

End users and OEM customers benefit from the sophisticated gauge technology in both standard installations and product specific applications.

Strip Thickness



For a Tough Environment

Rayonic X-ray gauges of the RX-40/60 and RX-90/120 series are used worldwide to measure strip thickness in Aluminium hot, cold and foil mills and in cold rolling mills and process lines of the steel and non-ferrous industries.

Several housing versions of the gauge-heads allow a perfect adaption to the space conditions and measurement geometries of the different applications: Mill mount installations or retractable C-frames, static center-line or scanning cross-profile systems. X-ray source and sensor and their operating parameters are selected according to the measured product and the required measurement range.

Every thickness measurement system generally comprises the X-ray source, the detector, measurement mechanics and process electronics and a operator station. Extended versions include a server for connecting several operator stations and for long term data storage. For reversing mills and tandem rolling mills two to five thickness gauges are integrated into a system with common operation.

MATERIALS

- Aluminium and Al-alloys
- Steel and stainless steel
- Copper, brass, zinc, titan and other non-ferrous metals
- Float glass, rock wool, non-wovens etc.



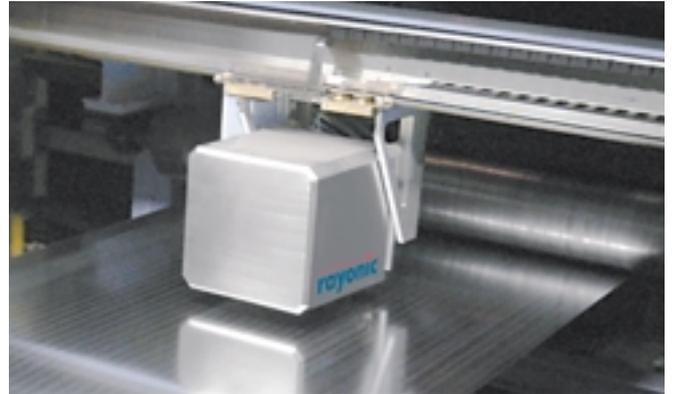
Coating Thickness and Coating Composition

Flexible Installation

The X-ray fluorescence (XRF) effect together with a backscattering geometry allows the non-contact measurement of thickness and composition of coatings. The RS-40 X-ray gauges use this method for the high-precision online measurement of metallic coatings on steel strip in electrolytic and hot-dip coating lines.

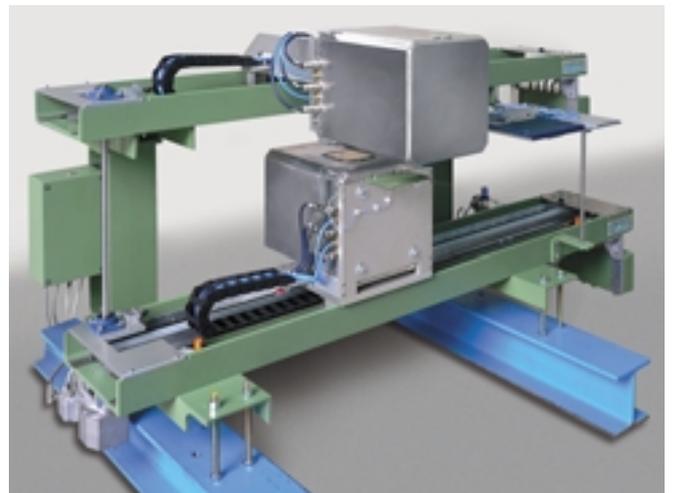
The measurement is performed against the free running strip or against a deflection roller. In the first case the gauge-heads for top and bottom side are mounted together in an O-frame type scanner whereas in the second case individual single-beam scanners are suited best.

Different versions of the gauge-heads and scanners match the specific requirements in the possible measurement locations: cold, warm or hot location. For the hot location the scanners are designed according to the individual line conditions.



Compact and Robust

Like all Rayonic sources and sensors the gauge-heads of the RS-40 series feature a sealed stainless steel housing with water cooling and if necessary thermal insulation. The housing contains the X-ray source with metal-ceramic tube, high voltage generator and emission control, the detector modules with application specific geometry and filters and the IO-modules for digitizing the measurement signals.



COATINGS

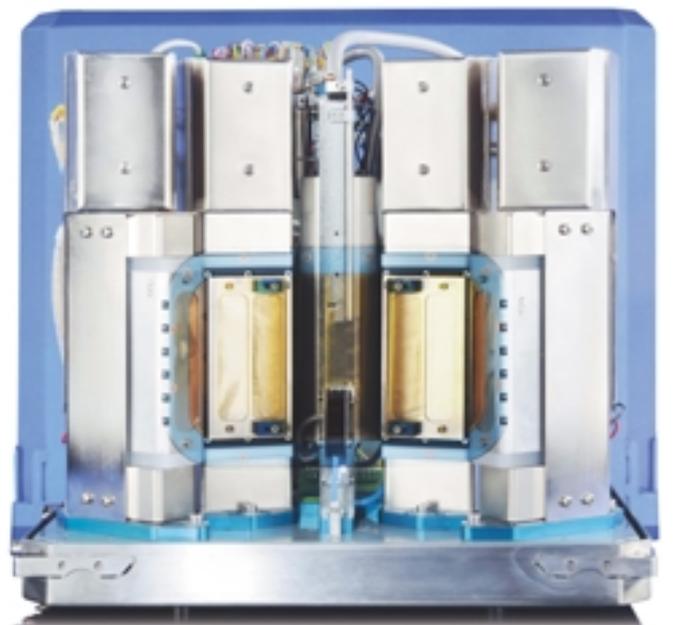
- Zinc and aluminium
- ZnAl alloys (Galvalume®, Galfan®)
- ZnMg and ZnCr alloys
- Nickel, tin, copper, brass, cobalt, chrome
- Galvanneal (Fe-content)

Rayonic Innovation

Up to now the measurement of zinc coatings with the XRF method is not sufficiently accurate for coatings above 275 g/m² and becomes a lottery for coatings thicker than 350 g/m². The new **Rayonic gauge-head RS40i-XT** extends the range for highly-accurate and reproducible measurements to **500 g/m²**.

In Galvanneal lines the newly developed **gauge-head RS40i-GA** with its sophisticated detector array and novel ionization chambers determines the iron content of the coating with a significantly improved accuracy. In the comparison with laboratory results only minor deviations can be observed.

Please ask us for detailed information.



Motivation and Commitment



Rayonic Guidelines

- Best possible system design and availability
- Leading-edge technology with comprehensible pricing
- Open to new measuring techniques, products and applications suiting the needs of markets and customers
- Fast and reliable order processing through flat hierarchies and flexible project structures
- Motivation, commitment and team spirit also in demanding situations
- Competent service with fast response – not only in emergencies



Rayonic Team

Our highly motivated and well-established team ensures the compliance with the Rayonic Guidelines.

The excellence of the Rayonic measurement systems is based on the expertise of our employees and more than two decades of experience in the development of industrial X-ray technology.

The independent and customer oriented working of our team members is based on competence, short communication channels, lean management, and mutual trust. This results again in motivation, responsible actions and the common will to attain the objectives of Rayonic and its customers. This is true for daily routine jobs as well as for unusual tasks and challenging situations.

Rayonic Service

Our qualified personnel provide fast, efficient and unbureaucratic service in case of failures of the measurement system.

Initially the local service point will carry out maintenance and repair if necessary supported by the team at Forchheim through remote diagnosis. The remote access to the measurement system also allows updating the software and optimizing the system configuration.

In very difficult cases troubleshooting is carried out by the mobile service team at Forchheim.

The Rayonic consulting and service network grows steadily – now on three continents.



Our Passion –
Your Success!

rayonic[®]

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