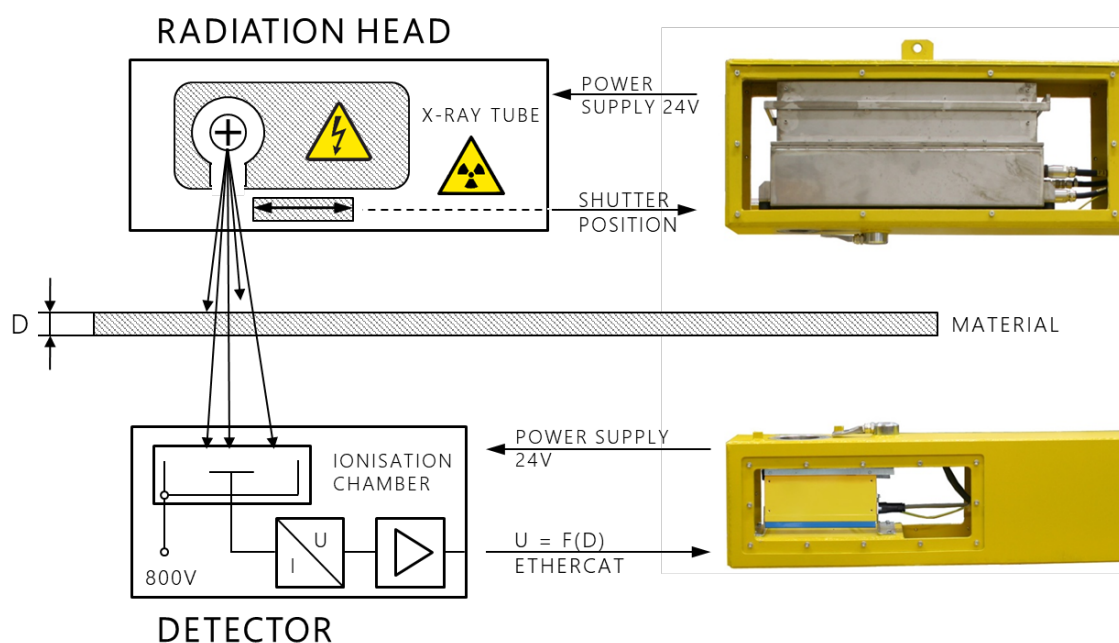


Press release

Thickness measurement EMG iTiM xray: tough, fast and precise

The focus on the various technological solutions for thickness measurement of flat metal strips is a focal point of the current EMG project and ongoing development activities. The first topic at this point is thickness measurement using the X-ray transmission method.

Thickness measurement with X-ray sources is always used when tough ambient conditions (e.g., in hot mills), very high accuracies (e.g., in foil rolling mills) and/or fast controls (such as for controlling cold rolling stands) are involved. As shown in the image, the X-ray source and detector are arranged on opposite sides of the material to be measured. The non-absorbed part of the X-ray radiation provides the basis for a highly precise thickness measurement, where material-related influences are compensated by the software. The EMG iTiM xray measuring system has been developed to ensure protection of the entire system even when used under the most difficult conditions in hot and cold rolling applications.



Set-up principle of an EMG iTiM xray-based thickness measurement system

In the following table the advantages and limitations of thickness measurement with X-ray radiation are summarised as well as some technical data of the EMG iTiM xray solution.

Advantages	Important to know
No temperature influence	Handling of X-ray sources requires official approvals
No surface, dust, fog, vibration influence	Country specific installation and import requirements for X-ray sources
Low pass-line influence	Alloy compensation required

Medium spatial resolution	Higher thickness values require higher generator voltages
Very robust and stable systems	
High radiation safety (can be shuttered or switched-off)	
Basic technical data EMG iTiM xray	
Thickness range	0.002 – 60.00 mm
Operational modus	one or more measuring heads stationary / scanning modus for profile measurement
Measuring gap	up to 2000 mm
Accuracy (according to IEC 61336)	± 0.1 % of measurement value
Integration time	≥ 1ms (selectable)

Overview EMG iTiM xray features and technical data

Due to the wide range of X-ray generators, the EMG iTiM xray measuring system can be used in a large thickness range and on different materials. This leads to highly precise measurement results for the thinnest aluminium foil up to 50 mm thick and 1200 °C hot steel sheets. For use in rolling stand controls, a laser-optical speed measurement is integrated into the measuring frame so that the entire measuring technology, including the sensitive parts of the speed measuring device, are protected.

EMG iTiM xray also provides the ideal basis for documenting material characteristics in quality assurance applications in the automotive industry or even in steel and aluminium service centres. A combination with further EMG quality assurance systems, such as roughness measurement, width measurement, etc. is easily possible.

In summary:

With regard to X-ray based measurement techniques, it can be summarised that this method is well established in the hot and cold rolling sector. The EMG iTiM xray gauge can be used over a wide thickness range due to different generator voltages and provides highly accurate measurement results. One or more measuring heads can be applied in a stationary mode or in scanning mode for high-resolution profile measurement. EMG iTiM xray measuring systems are characterised by a high level of durability and robustness, are largely insensitive to external influences, and deliver highly accurate measurement results in very short sample times. This makes these solutions ideally suited for the inline control of rolling mills in the sense of a closed control loop.

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About EMG Automation

EMG Automation GmbH, a company of the elexis group, belongs to the leading suppliers, due to its technological competence in the core area of regulation systems as well as quality assurance in automated manufacturing processes. Fields of application are fast running continuous production processes in the metal and especially in the steel industry. The product portfolio includes, besides quality assurance systems, strip running regulators. The EMG group runs its own factories as well as sales and service offices in Wenden/Germany, Oschersleben/Germany, Bielefeld/Germany, Gerona/Spain, Verrières Le Buisson/France, Saronno/Italy, Istanbul/Turkey, Elmhurst/USA, Madison/USA, Twinsburg/USA, Belo Horizonte/Brazil, Osaka/Japan, Mumbai/India, Beijing/China, Shanghai/China, Bangkok/Thailand as well as Australia.