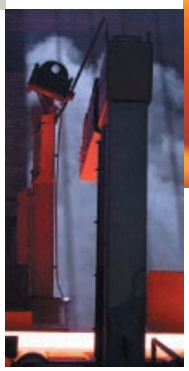
Product Specifications

The Thermo Scientific RM 215 HM hot mill X-ray thickness gauge improves the quality of your products by providing real-time feedback of absolute or deviation-from-target thickness measurements. You benefit from high speed measurement and vital statistical data optimizing your mill control.

Thermo Scientific RM 215 HM

X-ray Strip Thickness Gauge



Benefits

- Improved quality control
- Maximization of on-gauge material
- Reduction in scrap
- Energy savings through mill process optimization
- Certification of quality
- Faster mill setup time

Features

- 0.5 ms measurement speed
- Water-cooled detectors
- Custom-sized armored C-frame
- Real-time diagnostics
- Flexible mill computer interface
- Touch screen operator interface

The Thermo Scientific RM 215 HM gauge demonstrates excellence in non-contact measurement of metal strip thickness with a flexible, robust platform. These measurements can be used for manual, AGC or adaptive control of the mill.

The RM 215 HM C-frame and sensors are specifically designed for the high temperature, invasive humidity and harsh environment of hot rolling mills. Temperature and alloy compensation facilities ensure accurate measurements. The optional profile feature can be utilized in profile and subsequent shape control.

The RM 215 HM communication link interfaces to numerous control systems. The statistical data available for each strip is an invaluable asset for these applications. In a dual configuration on a reversing mill, the control system can benefit from both feedback and feed-forward thickness data.

Alloy and Temperature Compensation

To optimize the accuracy of the RM 215 HM system for stainless steels, HSLA and other alloyed products, the system offers a range of standard alloy compensation functions. Additionally, temperature tables are applied where necessary to compensate for the changing density of the material as its temperature changes. The material temperature can either be input to the system directly from the mill or via an optional pyrometer mounted, for example, within the C-frame.

Additional Optional Compensations

- Strip angle
- Air gap temperature
- Coating compensation
- Passline height

Main Electronics Console

The electronics console, typically located away from the mill environment, contains the main electrical and electronic circuits together with an integrated intelligent workstation.

The Touch Control Screen (TCS) allows technicians to configure the system and to access online diagnostics. All gauge functions, modes of operation, selection of measured parameters and ranges, etc. can be selected and set up through the technician's TCS.

Access to all electrical components is facilitated by the modular construction of the console which permits service access to all major items.

Diagnostic Features

Real-time (i.e., continuously running) diagnostic features are built into the gauge control computer with fault and error messages displayed in the form of a number with a brief description in local language.

Extensive diagnostic facilities are available to the technician through his screen. Additionally, the system can be supplied with modem and remote diagnostics software which enable troubleshooting and software updating (where necessary) from terminals located in our manufacturing facility.

System Control

The RM 215 HM system includes an Ethernet link to permit remote gauge setup from a mill host computer without operator intervention. However, the operator can have overall control of the gauging system via a single color TCS monitor and hard-wired push buttons supplied on a separate panel.

The ergonomic display has been designed to operate within the Windows®-based environment and allows the operator to select from choices presented by simply pointing to the appropriate choice and then lightly touching the screen. These touch targets, or buttons as they appear to the operator, allow easy access to all of the gauge features from a user-friendly control area.

Profile Measurement

Edge-to-edge thickness profiles can be measured and displayed by using either a single scanning system, or two standard RM 215 HM gauging systems working as a pair.

Single Scanning System

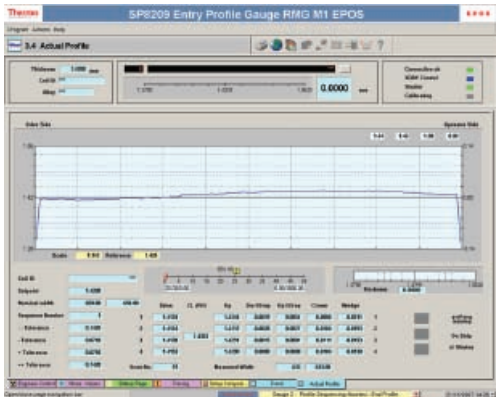
This system configuration consists of a standard RM 215 HM system with a C-frame with a throat of sufficient size to travel the full width of the material. A position transducer and motor controller are used to position the C-frame at any place along the strip.

With this configuration, a profile measurement is generally taken when the strip is stationary to ensure that the thickness variations in the machine direction are not superimposed on the profile.

Profiling Pair Arrangement

The profiling pair arrangement consists of two RM 215 HM systems operating in conjunction with each other. The two C-frames with their source/detector units are mounted close together. The C-frame closest to the mill bite (Gauge No. 1) is configured to measure on the centerline of the strip and the other C-frame (Gauge No. 2) continuously scans from edge to edge of the strip. In this way, all machine direction variations in strip thickness are measured by Gauge No. 1. Then, it is removed from the edge-to-edge measurement provided by Gauge No. 2, resulting in true thickness profile measurement and display.

AGC feedback is provided by Gauge No. 1, while Gauge No. 2 provides calculations of crown, wedge and profile data that are used in clear graphical displays of the last four profile scans. Additional data on average temperature and thickness profiles, as well as expanded displays of the strip edge, can be presented on a large color monitor.



RM 215 HM Operator Screen of Cross Strip Profile

Thermo Scientific RM 215 HM

General Specifications	
X-ray Source Energies	120 kV or 225 kV maximum
Maximum Steel Thickness	73 mm (2.95 in)
Maximum Aluminum Thickness	200 mm (7.87 in)
Detector Sizes	50 mm to 150 mm (1.97 in to 5.91 in) ion chamber or PMT — selected to optimize performance
C-frame Air Gap	Custom to suit application
C-frame Width	200 mm to 400 mm (7.87 in to 15.75 in) — application specific
C-frame Throat Depth	Custom to suit application

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