

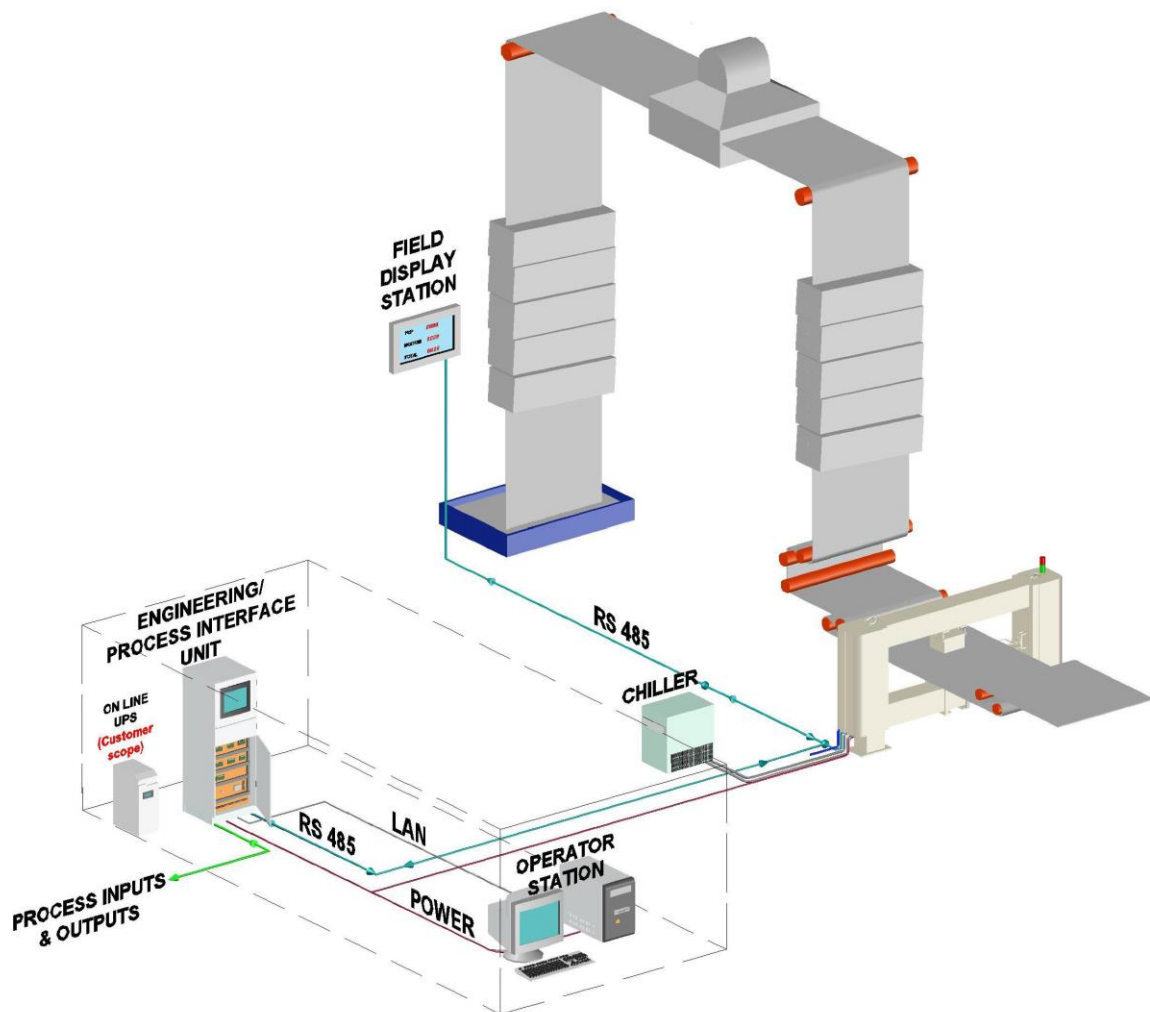
X-RAY COATING WEIGHT GAUGE

MODEL XRF-3000X



TECHNICAL SPECIFICATION

GAUGE CONFIGURATION



Gauge components (scope of supply):

- O-Frame Scanner with sensor(s).

Scanner Frame (Suitable for max strip width of 1250 mm):

- Precision manufactured I-Beam steel scanner
- Sensor carriage on high load rating linear motion guides.
- Scanner top and bottom carriages aligned using Laser to total of 0.25 mm in X, Y & Z directions.
- Power Track cable carriers for reciprocating cables.
- Steel reinforced timing belt drive.
- Variable scan speed through variable frequency inverter drive (max. 16m / min.). Scan speed is reduced at the strip edges for accurate measurement up to 1 mm from the edge.
- Maintenance free AC Motor.
- Automatic edge detection of strip
- Pressurized O-Frame totally enclosed from all sides to shield all mechanical & electronic components. Excellent dirt exclusion.
- Fully Digitised sensor signals in scanner end-bell.
- High Speed two wire Serial RS 485 interface to Control & Display Unit.

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X-Ray Fluorescence Backscatter Sensor(s):

- X-ray Source (28 kV, 3 watts)
 - Ionization Chamber detector with absorption filter
 - Air Gap : 38 mm (each side) for strip thickness 0,16 to 1,6 mm
 - Cooling : Water Jacket
 - Measurement Area : 35 mm diameter
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- Gauge Control Unit, including Enclosure for Computer, Power Supplies, Network and Signal Processing, Engineering Workstation (Dell PC), with latest available configuration, Analog/Digital Input/Output modules.
 - System Software.
 - Display of Scanned Profiles accurately mapped in terms of physical linear scale on the strip from the edge.
 - Several Scanning Modes :
 - (i) Single Spot : Sensor heads positioned at a fixed point on strip at given distance from edge
 - (ii) Triple Spot : Sensor heads positioned in cycles at the edges at selectable distance from the edge and at the strip centre
 - (iii) Continuous Scan : Continuous measurement of coating profile from edge to edge of strip
 - Multicolour charts of the measured profile for easy identification and corrective action.
 - Display of averages after each scan with Maxima, Minima and standard deviation.
 - Microsoft ® Windows 7 Operating System.
 - Product recipe storage for optimization for a specific product.
 - Comprehensive Production Reports (Shift Reports, Time Trend Charts, Zinc consumption, Coil Length)
 - Labview™ based operator interface customizable to user preferences
 - Desktop PC Operator Workstation.
 - Water Chiller
 - Full set of interconnecting cables, up to 50 m maximum.
 - Documentation, including Operation & Maintenance Manual and Mechanical & Electrical Drawings.

Material Data

Material to be Measured	Coated steel (GI, GL, Galvanneal)
Coating weight range	up to 350 GSM per side
Strip Thickness	up to 4 mm
Strip Width	up to 2.000 mm
Line Speed	up to 240 mpm

Source / Measuring Mechanism

Source	X-Ray 28 kV/3 W
C-Frame Air Gap	38 mm (each side)
Operating Temperature	-5 /+60 °C (ambient)
Gauge Time Constant	10 msec

- The sensor is based on a large area, high efficiency Ionisation Chamber, coupled to a low noise temperature compensated electrometer amplifier.
- The X-Ray tubes are cooled by a stand-alone water chiller.
- Digital Conversion circuitry placed inside the Ionisation Chamber enclosure to eliminate noise and drift during transmission through long connecting cables.
- The sensor linked to Control and Display unit through a high speed two wire serial RS485 link.

Computer Control & Display Engg. WorkStation

- Industrial Grade PC
- 17" TFT Touch Screen
- 1GB RAM
- 80GB Hard Disk
- Galvanically Isolated Link with Scanning Unit
- Isolated Analog Outputs : 4 nos.
- Isolated Analog Inputs : 4 nos.
- Digital Outputs : 4 nos. (Potential Free contacts)
- Digital Inputs : 8 Nos.

19" TFT Remote Operator Panel

- Desktop PC with 19" TFT and latest available configuration
- 1GB RAM
- 80GB Hard Disk
- Color Printer

Process Inputs & Outputs

- Isolated Line speed input (0-10V/4-20mA)
- Status and Alarm Outputs (Potential free contacts)
- Two programmable Galvanically Isolated Analog Outputs (0-10V or 4-20mA).
- 8 nos. Isolated Digital Inputs

PERFORMANCE DATA SHEET

Performance specification figures are quoted, and verified, in accordance with IEC 1336 “ Thickness Measurement systems utilizing ionizing radiation – Definitions and test methods”. All errors are expressed as a percentage of measured thickness, under reference conditions and are 2σ values, unless otherwise stated.

Minimum update time	: 10 ms
Sampling Frequency	: 100 kHz
Resolution	: 0.1 GSM
Repeatability	: $\pm 0.25\%$ or ± 0.25 GSM (whichever is greater)
Measuring gap	: 38 mm (each side)
Passline sensitivity	: max. 1% for pass line deviation of ± 2 mm
Measurement area	: 35 mm diameter
Recommended standardization	: Every 8 hours
Standardization time	: 60 seconds

Accuracy (in terms of noise level, 2σ confidence level): (500msec update time)

50 GSM :	± 0.15 GSM
100 GSM :	± 0.25 GSM
150 GSM :	± 0.45 GSM
200 GSM :	± 0.70 GSM
250 GSM :	± 2.00 GSM

*The absolute accuracy of measurement depends on the accuracy of the calibration samples. The certified reference calibration samples are to be provided by buyer. On reference samples the repeatability and noise levels are as per the above figures.
The reference calibration samples can be prepared by Jasch from the mill supplied production samples.*