

MDC SERIES 82100E SERIES LASER THICKNESS GAUGE FOR THE PROCESS LINE



Gauge frame with
80-250mm throat shown

Non Contact Laser Gauge

- Measures thicknesses of between 5-100mm *
- Accuracy of 4-8 Micron *
- Air Gap of 80-280mm *
- Lasers isolated from external influence as mounted on stable Invar chassis plate.
- Peltier cooling and heaters isolate Lasers from changing ambient
- Automatic calibration off Certified Standard.
- Narrow frame takes up only 100 mm of line space
- Exceptional fast 1kHz thickness output rate
- Lower cost than X-ray Gauges
- Accuracy independent of alloy content
- Class II Safe Lasers * Dependent on model

General Description

This MD82100-E Gauge is purpose built for determining the thickness of product of upto 25mm thickness on the line to an accuracy of 4 to 8 micron depending on model selected. Gauge frames with air gaps of between 80 mm and 280mm and up to 250 mm throat depth are available. Other Gauges are available with 1100 mm throat depth for determining strip centreline thickness on material of up to 2 mtrs in width.

The compact Gauge frame requires a clearance of only 100 mm in the rolling direction and thus easy to retro fit into existing lines or for replacing existing Gauge systems. The gauge configuration and throat height is similar to that of most common contact Gauges to facilitate straightforward replacement.

This Gauge utilizes Class II Laser Triangulation Meters to determine strip thickness. Thickness is calculated from the difference between the measured distance from lower and upper Lasers. These Lasers measure continuously with fast 1kHz update rate over the complete length of the passing material and hence will also detect the joint between welded coils for later removal. Furthermore, as these are Class II Lasers there is no need for a Safety Officer, nor protective measures against emitted radiation.

Any changes in the C-Frame throat dimensions are automatically compensated by auto-zeroing from a Master on a cantilever inserted into the Gauge throat prior to insertion onto the line. Whilst Isotope and X-Ray Gauges require calibration for varying alloy content in the strip, this Gauge operates independently of material make-up and density. No material parameters need be fed into the system, nor various calibration samples needed. Also, thickness noise due to crystal alignment within the strip is a thing of the past.

The Gauge is provided with built-in-fan providing air wipe to the frame viewing windows or alternatively with a remote blower for securing in a clear air environment.

The measuring rate can be set up to 2kHz, much faster than Radiometry Gauges which typically scan at a rate of 60ms. This enables the recognition of roller eccentricity which is impractical with other Gauges. This Gauge is ideal for fast Gauging control. Thickness is displayed as a numeric value in the CPU and in graphic form with optional PC. Alarm levels for product outside of tolerance limits can be set .

Unique Construction for Dimensional Stability

The Gauge frame is isolated from changes in the ambient temperature and distortions within the Gauge enclosure as the Lasers are mounted on a thermally stable Invar chassis plate secured within the enclosure on anti-vibration mounts. Furthermore, the Gauge incorporates a thermo-couple controlled Peltier cooling and heating to maintain the internal Lasers at a constant temperature regardless of variations in ambient temperature and plant vibration.

MODULOC - Lasers for cost effectiveness thickness measurement

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Model Options

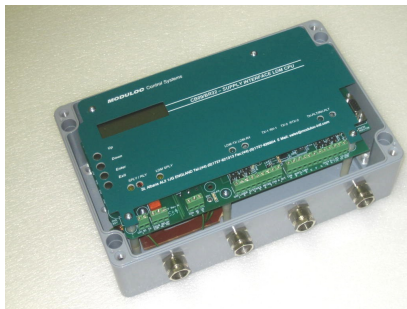
Model	MD82100-90	MD82100-100	MD82100-120	MD82100-140	MD82100-280
Air Gap	80mm	100mm	120mm	140mm	280mm
Thickness Limit	5mm	10mm	25mm	50mm	100mm
Thickness Resolution	4 micron	4 micron	6 micron	6 micron	8 micron
Passline to base	200mm	200mm	200mm	200mm	200mm
Frame Height	410mm	430mm	450mm	470mm	610mm

Controller Interfaces and Functions:

CPU with Keyboard and user friendly menu display providing:

- Lasers measure synchronously
- 24 VDC supply to the Lasers
- Supply RS422, 38400 baud Output to Gauge PLC

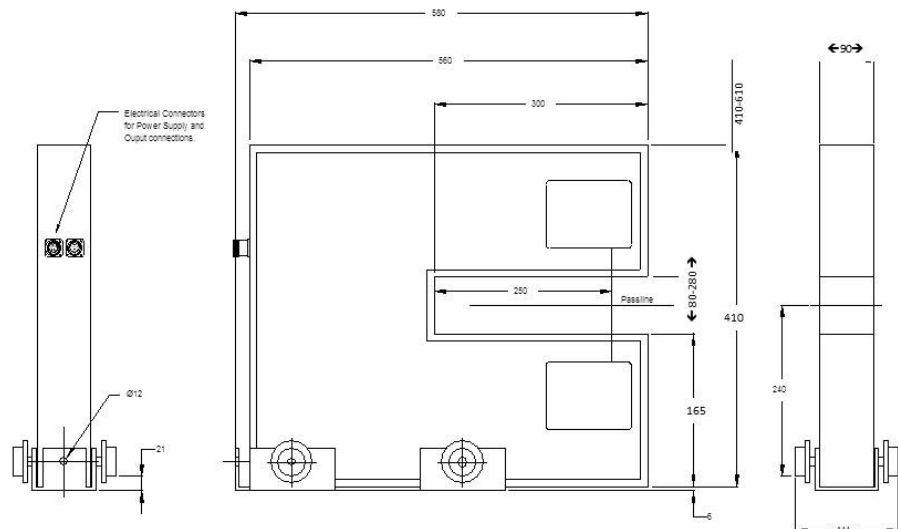
Gauge PLC digital Interface I/Os –
 Input to CPU – Activate / allow measurement
 Output – System healthy/ready for measurement
 Output – CPU measurement valid /OK
 Serial Communication data links – RS 422/485 Com port at 38400 baud rate providing values as a rolling average



Dimensions

The illustration shows the C Frame mounted on running wheels.

The Frame can also be provided mounted on Linear motion rail with Hydraulic or electric motor chain drive.



Auto Zeroing Calibration

All changes in the C-Frame throat dimensions are automatically compensated for. Incorporated Lasers measure off a master plate (to Certified Standard) mounted between the C-Frame and the line, thickness of which is measured each time the gauge moves from ambush position to over the line. This thereby automatically zeros the measured thickness to the master sample

General Specifications -

- C Frame distortion calibrated off Certified Master
- Line insertion width requirement - Width of frame 90 mm excluding wheels
- Optional Traction Control via rear bracket provided with Gauge
- Air wipes provided on Laser windows via internal peltier fan
- C Frame throat depth - up to 250 mm.
- Maintained Frame internal temperature +20° C
- Frame Dimensions - Height 410-610 mm, Length 550 mm, Width 90 mm,
- Frame throat lower face height - 165 mm
- Strip bounce limit accommodated - 5-10mm depending on model
(Dimension exclude Frame running rails/wheels)
- Frame Weight 22-28 kgs according to model

We reserve the right to alter specifications without prior notice. Specifications without tolerances are typical values.

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