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Technical Bulletin : Ribbon Gauge Model RG-2013

Theory of operation:

This laser based product is used to measure the cross sectional profile of extruded materials such as plastic, rubber or metal. It utilizes a scanning laser and a rotating reference roller. The extruded material passes over the roller as it exits the extruder. Each time the laser makes a scan it generates hundreds of data points both on the sample material and on the reference roller next to the sample. The software now calculates the imaginary base line of the roller and generates a cross sectional profile of the material. One scan of the laser is nearly instantaneous hence any run out in the reference roller will not appear in the profile.

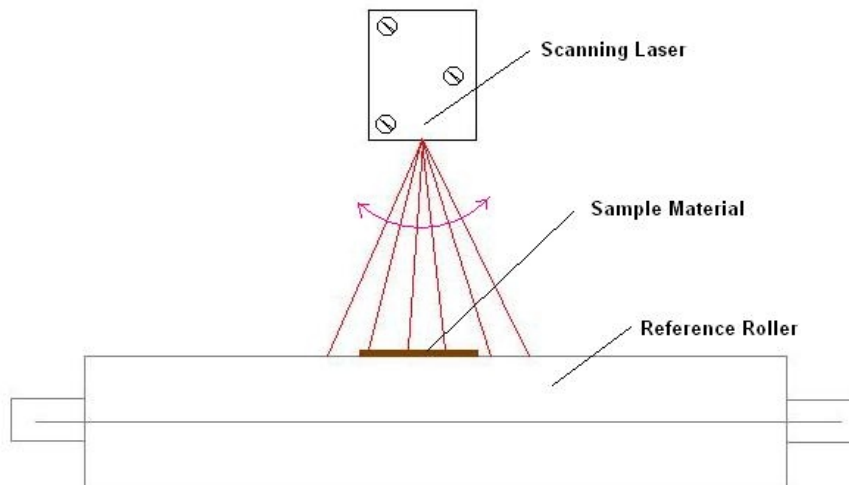


Diagram 1: Theory of Operation

Hardware:

The system consists of a rugged scanning laser that is design to work in most industrial environments. This laser is mounted on a sturdy mounting frame that is custom designed to fit the application. A reference roller can be fabricated or in some applications we can utilize an existing reference roller which allows for little or no modification to the existing production line. This system can be custom designed to meet the requirement of a particular application.

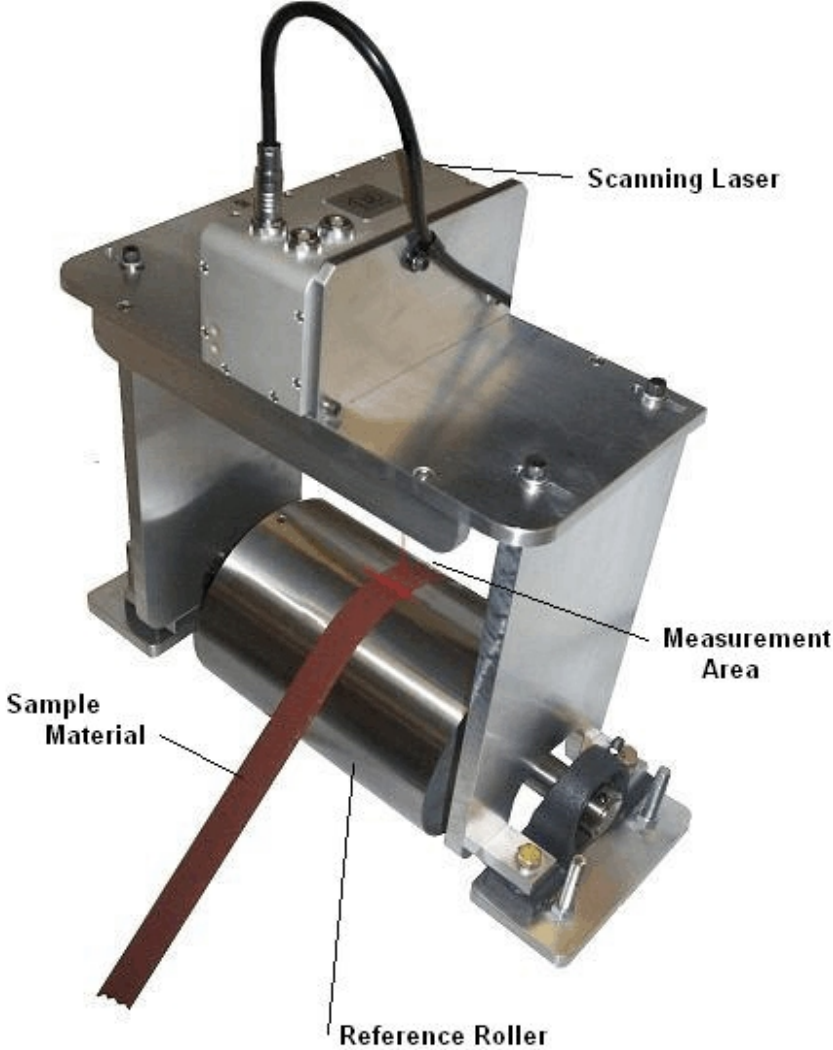


Diagram 2: Typical Custom Application

Software:

The software designed for this system allows the operator to display the cross sectional profile of the sample and also display some statistical data of the sample such as edge thicknesses, minimum, maximum and average thickness along with the location of these measurement parameters. Tolerances can be entered into the system that generated a colored display for varies conditions. In most cases a green plot represents good “in spec” data, yellow indicates marginal condition and red indicates an out of tolerance condition.

The operating parameters of this system can be stored by product type, customer type etc. in the “project menu” area of the application. This allows one to set up the parameters for a particular product and then store it for future use.

Once a product run is complete the data that this system has generated can be stored in a file or exported to other applications such as excel.



Diagram 3: Typical Profile