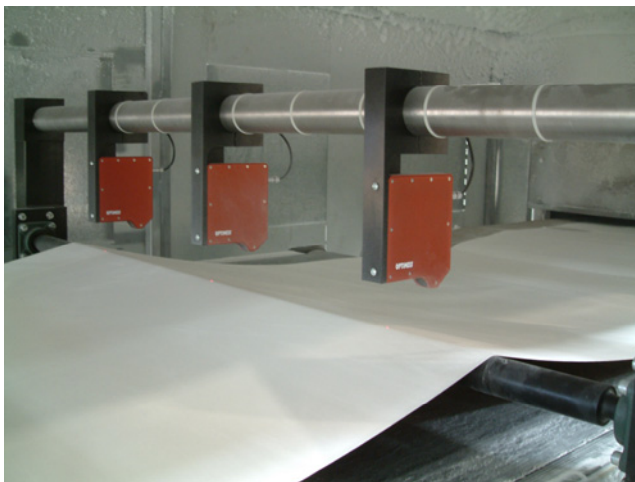


Silicone rubber sheet manufacturer selects Sigmavision's online thickness measurement system

UK silicone sheet manufacturer, Silicone Engineering Ltd, recently selected Sigmavision Ltd to supply a laser sensor system for online thickness measurement of calendered rubber sheet. This is primarily to reduce waste by achieving greater control and consistency of sheet thickness but also to respond to market requirements by providing batch reports and complete traceability for aerospace products. Previously sheet thickness was measured using hand held calliper gauges that suffer significant gauge R&R variation from operator to operator.

The silicone rubber sheet, produced on a three roll calendar at Silicone Engineering's manufacturing site in Blackburn, UK, required a specific solution mainly due to the location of the equipment inside a fume extraction tunnel that is subject to high temperature and airborne dust. Sigmavision was able to provide the solution by configuring its flexible STMS solution according to the client's needs.

The system supplied consists of a mechanical assembly located approximately 20m after the calendar. Three CCD based laser triangulation sensors are fixed mounted and positioned above the sheet to measure thickness along three tracks; on the right edge, centre line and left edge that are accurate to within 0.02mm. A precision ground guide roller is used as a measurement reference. To allow the sensors to measure directly on hot rubber and to cope with an extremely dusty environment, caused by the talc lubricant, compressed air cooling adaptors are required.



1) *Mechanical assembly with 3 x fixed mounted laser sensors*

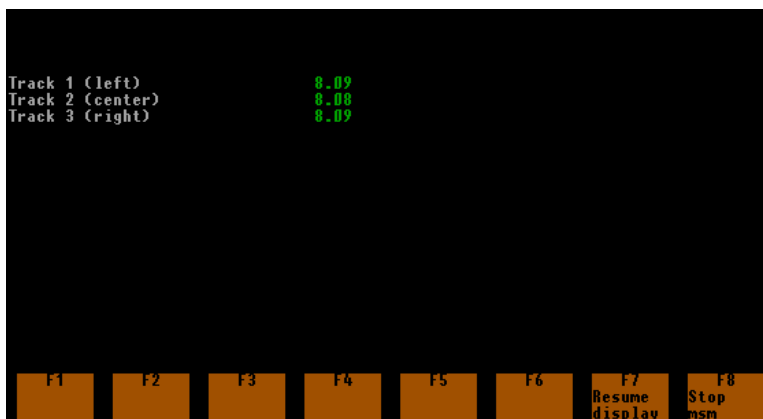


2) *System controller and user interface*

Case study Calendered sheet thickness

The operator station for the system is positioned close to the calender line and houses the power supply, data acquisition hardware and system IPC. Sigmavision's Sheet Thickness Measurement System (STMS) software application runs on the IPC and employs dedicated algorithms to filter and average data, to remove erroneous measurements and improve measurement accuracy and repeatability. Measurement data is acquired at high speed (8kHz) and thickness calculated and compared to predefined tolerance bands. Results are then displayed on the user interface.

The keyboard operated display provides real time measurements to operators on all three tracks in large format that is visible from a long distance. Colour coded warnings and alarms provide operators with instant feedback to adjust calendaring parameters. A data logging facility and trend analysis menus are also provided for production batch reports and data export to other applications for offline analysis.



3) Operator display

Calibration is performed by running a calibration routine from the operator interface and measuring directly onto the roller reference. This is best performed during product changes.

The STMS System from Sigmavision is one in a range of cost saving, online laser systems for rubber and tyre manufacturing including calendered sheet width, thickness and length measurement, extrusion profiling, TBM splice control and green tire runout measurement. For more information please contact Dr Andrew Pryce at:

Sigmavision Ltd
CIE, Begbroke Science Park,
Yarnton, Oxon OX5 1PF, UK

Tel: +44 (0)1865 854820
Email: andy.pryce@sigmavision.com
Web: www.sigmavision.com