Inline measurement of film thickness on cold strip

Lubrivisor uses a pulsed microchip laser as light source and of a photomultiplier as detector to measure mill lubricant or anti-corrosion coatings on strip surfaces. By using laser-induced, time-integrating fluorescence spectroscopy LIF(t) measurement is independent of the substrate material unlike conventional IR based systems.

THE Lubrivisor system will for the first time be used on a coupled pickling line/tandem rolling mill to measure the residual emulsion on strip surfaces. In future, it will be possible to use the signals recorded to control the application of emulsion and so optimise consumption of cooling lubricants in the mill. At the same time, the amount of residual hydrocarbons on the strip surface can be reduced, this providing a positive effect on downstream processes, such as annealing.

Lubrivisor measures the thickness of hydrocarbon-containing films, such as cooling lubricants, on strip surfaces. It can also measure oils, eg hydraulic oils, bearing oils or greases. The systems are already in use in numerous cold rolling and skin passing mills as well as in inspection and coil coating lines.

Its use for in-line control of oil or emulsion will optimises energy consumption at the rolling mill and minimise the amount of residual hydrocarbons on the strip surface after rolling.

In contrast to other – infra-red based – processes, Lubrivisor is capable of measuring the thickness of a fluid film on any substrate.

Also the drop-shape that hot melt anti-corrosion agents exhibit on strip surfaces does not affect measuring accuracy. Therefore, the Lubrivisor system can be located directly behind the oiling machine. Homogenising rolls, as needed by IR systems, are not required.

Due to its high scanning rate of 10kHz, the system can cope with strip speeds of more than 1000m/min.

The measuring head can be traversed across the strip at speeds of up to 1m/s. Therefore, the system delivers not only exact single measurement values but also a graphical display of the film thickness in high spatial resolution across the complete strip width and along its complete length.

A further advantage is that the system can measure ultra-thin films down to just a few mg/m². Such thin films are typical used for anti-corrosion fluids, such as Oxsilan, or anti-fingerprint coatings.

Lubrivisor systems are not only suitable for measuring the thickness of film layers but also for analysing the cleanliness of the strip surface. For example, prior to coil coating, they can detect small amounts of greases and other contaminations on the strip surface.

Battery-powered Lubrimini designed for mobile use

With a diameter of only 30mm, the measuring head is very compact. It contains no active components, only two fibre-optic cables. This makes it perfectly suited for the harsh operating conditions in rolling mills and facilitates integration into existing plant, especially due to the fact that the fibre-optic connection between the measuring head and the evaluation electronics can be up to 30m long. ■

Contact
Kienzle Prozessanalytik GmbH
Karl-Heinz Fröhning, Am Herbeder Sportplatz 14, D-58456 Witten, Germany
Tel +49 (2302) 9732375; Fax +49 (461) 57029 70
e-mail froehning@kienzle-pa.de www.kienzle-prozessanalytik.de

Registration shear for accurate cut-to-length

METAL processors who need extremely accurate registration shearing at high speeds can now use the Spartanics M250 Registration Shear.

Accuracy of registration is +/-0.0508mm at production speeds of up to 1200 cuts per hour. The machine has an automated stacker and uses touch screen controls for rapid job set up and changeovers. The software installed optimises scrap reduction and the PLC electronics and colour cameras provide consistency in registration accuracy.

The machine is equally versatile at cutting stainless steel, aluminium, PVC or polycarbonates.

A full list of the M250 features can be found at: www.spartanics.com/products_detail.cgi?id_num=62&styleid=2. ■

Contact
Spartanics, Rolling Meadows, Illinois, USA.
Tel + (847) 394 5700, Fax + (847) 394 0409
e-mail sales@spartanics.com web www.spartanics.com

Accuracy of registration is +/-0.0508mm at up to 1200 cuts an hour

Shape measurement of hot and cold strip

A NEW optical shapemeter which requires a viewing space of only 200mm has been launched by Vollmer of Hagen, Germany.

The non-contact shape measurement system, VIP 08, records the shape of strip in pickling lines, tension levellers, cut-to-length and slitting lines, and even on hot strip mills and cut plate and sheet.

Measurement is based on projecting a narrow, highly uniform band of diffuse light onto the strip by a standard mercury-vapour lamp and capturing the image using a matrix camera.

It achieves an exceptionally high resolution thanks to up to 200 measuring zones distributed over the width of the product being measured.

VIP 08 measures the true shape of the strip – like a shapemeter roll. It can handle strip speeds of up to 1500m/min and product widths of up to 3000mm. It can cope with strip tensions of up to 70N/mm². Due to its compact design, VIP 08 requires a field of vision of only 200mm in the direction of strip travel.

The system is available in two versions. In the dual version, the light source and the camera are arranged as separate units at an angle above the strip. This has the advantage that the space directly above the strip can be kept clear. In the alternative monoblock version, the optics of the system is compactly accommodated in a cross-beam arranged above the strip.

The individual components are installed in an integrated unit. The Monoblock is supplied fully equipped and adjusted. If required, the system can be easily lifted up by a crane.

VIP 08 proved its worth for high-temperature applications over several months in a trial installation in a hot strip mill. ■

Contact
Friedrich Vollmer Feinmessgeraetebau GmbH, Verbandsstraße 60, D-58093, Hagen, Germany.
Tel +49 2334.507-190, Fax +49 2334.507-199
e-mail roller@vollmergmbh.de web www.vollmergmbh.de

The monoblock version showing separate camera (top left) and beam projector (top right)