

Faster More Consistent Measurement

VOLUME 22

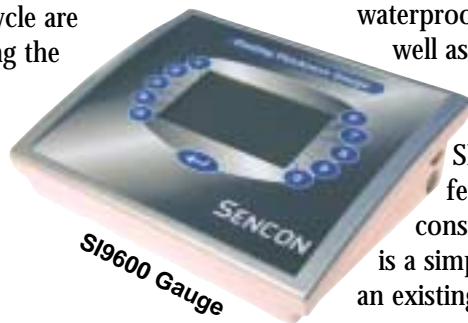
The all new SI9600 Coating Thickness Gauge has been designed for can makers, with speed and ease of use as the top priority.

Constant button pushing and waiting for timers, slows down the task of gathering coating thickness data.

Built-in Intelligence

The new gauge's 'built in intelligence' overcomes these problems. It decides automatically when the measurement has stabilised, takes the reading, stores and displays it. Key presses and timer delays during the batch cycle are eliminated, speeding the entire process.

Also readings are much more consistent as they are taken at a consistent stability level.



Fast and Simple to Operate

Once the simple set-up procedure is complete, the gauge is ready to test. The probe is positioned as prompted by the gauge. Then the test is automatic with the gauge prompting the operator for the next probe test position.

Maintenance Reminders

The gauge also maintains performance at the highest level, by prompting the operator to replace probe tips or recalibrate the gauge. With a heavy duty, one piece moulded case rated to IP65, and recessed protected waterproof ports the SI9600 is rugged as well as intelligent. Suitable even for use in factory floor environments.

With a built-in RS232 port, free SPC software and many other features, the SI9600 gives faster, more consistent film weight measurement and is a simple 'plug and play' replacement for an existing SI9500 gauge.

Tips for Probes for 2-pc and 3-pc Can Coating Measurement

When using the HoverProbe some of our customers have found a simple way to prevent coating damage caused by the earthing crocodile clip.

Instead of connecting the clip directly to the sheet, the crocodile clip goes on to an earthed metal table top, or is clipped onto an uncoated flat sheet on which the coated sheet is placed for testing.

As well as preventing damage, this tip also speeds up the testing procedure as well.



SI9550 HoverProbe

To help operators position the probe at a consistent depth on the can wall, moveable guides are now fitted to the SI9507+ Formed Can Probe (shown by the red arrows below). This helps ensure more consistent readings from the can wall as well as simplifying the process.



Can wall guide marks aid fast accurate positioning

For a free demonstration video CD of the SI9600, tick the 'SI9600 demoCD' box on the reply sheet.

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SENCON

CONTROL DOWN THE LINE

Pressure testing for micro leaks in lids

Part 1

One hundred percent inspection of lids with light on the output from conversion presses has been used successfully for many years. These devices operate on multiple lanes, at speeds up to 800 lids per minute. This method will continue to give excellent advance warning of tooling problems and trends, detecting most normally occurring flaws where light can pass directly through the hole.

Why the need for a supplementary test ?

However, customers are now becoming more demanding about the level of leakage they are willing to accept. This is the first of two articles which set out to show some of the technical background for making the decision on how to supplement light testing, with pressure testing.

As we have said earlier, light testing gives excellent results for most sources of leak, but cannot detect a leak if there is not a direct light path. Technically, a leak is a hole in a lid, which is capable of passing a liquid or a gas from a high pressure side to a low pressure side. Leaks are often thought of as small holes in the lid. In fact, they are specialised flaws caused by pinholes, cracks or material porosity. Some, like rivet cracks and score leaks, can have a very complicated geometry that extends quite a distance from beginning to end. Light cannot travel through these tunnel like cracks, thus leaks that exhibit flow rates to liquids or gases can be invisible to light.

Pressure Testing

Pressure testing requires the measurement of very small flow rates of gas or liquid. The most common way to describe leak flow is to measure it in volume units over time. In can making, the standard unit of measure for leaks is cubic centimetres per ten seconds, commonly referred to as "cc's". This leak flow rate is then correlated to a 'virtual pinhole' to quantify the size of potential defects. For example, a flow rate of 0.06 cc at 10 psi pressure differential corresponds to a virtual pinhole of .0002 inches (5.08 microns).

Some defects such as cracks only open under pressure, so pressure testing is the only reliable means of finding these cracks. However, 100% pressure testing of lids with the degree



Off-Line Single head Micro Leak Tester

of sensitivity required is not practical at normal line speeds. A sampling system, through which a small percentage of lids from each lane are tested will provide the protection you need as long as the leak rate you are monitoring is sufficiently small.

Because samples would be taken randomly from the multiple lanes leaving the conversion press, Sencon's MLT Micro Leak Tester uses statistical methods to ensure that sample times vary so that lids from every belt position are tested.

Why isn't a 1-cc leak rate test adequate ?

A 1-cc leaker corresponds to a fairly large hole. This is too crude a test for customers' requirements. For example, assuming rivet cracks are occurring in every lid made and 1 in 10,000 is large enough to be a 1 cc leaker, but the rest of the leaks are small micro leakers. A 1% sampling system could mean as many as one million lids have been made before the first large leaker is detected. A sampling type pressure test system requires ten times the sensitivity (able to detect 0.1 cc micro leakers) in order that adequate protection will be provided.

Will a combination of light and pressure testing eliminate HFI's ?

Unfortunately, neither technique is a sorting system. But what you can be sure of is that by using both light and pressure testing, you will be able to quickly determine when there is a problem.

In the next issue, we will look at a comparison between air and helium for leak pressure testing and show that there are good technical reasons, as well as commercial ones, for choosing air for a sample pressure testing system.

For more information on the Sencon Micro Leak Tester, tick 'MLT' on the reply form.

Taking cost out of coating application

Minimum coating specifications for 3 piece cans are based on the minimum coating thickness needed to protect the product, plus the excess required for the variation in the process. The nominal film weight is set to be safe, just in case the coating goes light through process variation.

The use of a large safety margin has been accepted practice, but is the coating process capable of being run with a much lower safety margin?

Certainly a well maintained press can run accurately. But can the measurement system do the same? And how long does it take to get feedback to correct the set up?

The faster you have feedback of process information, the faster and more accurately you can adjust the press.

Many methods of coating measurement may appear to be very scientific and accurate, but are they repeatable?

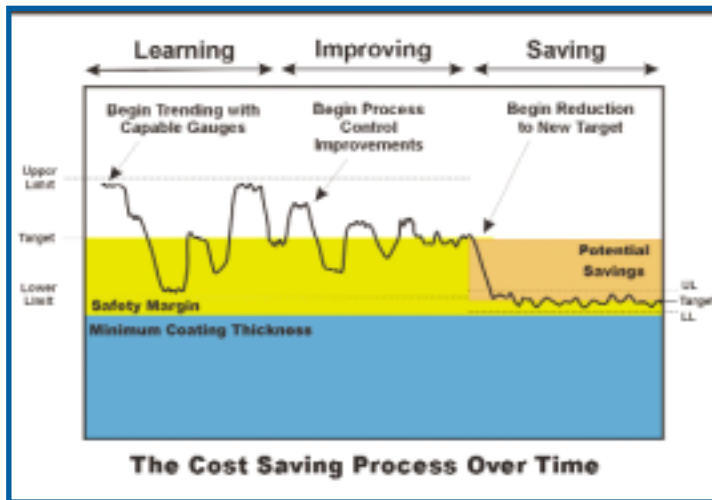
If the next shift's operators get different results, who is right?

Measure Reliably

The first step is to accurately measure the film weight of the coated

plate with a gauge at the end of the process. The HoverProbe, when used with the Coating Thickness Gauge, is designed to eliminate operator influence on test readings. It is moved over the sheet on a bed of air by the operator, and when released, applies exactly the same weight to the integral probe during test. The HoverProbe has been found to give a world class R&R rating of better than

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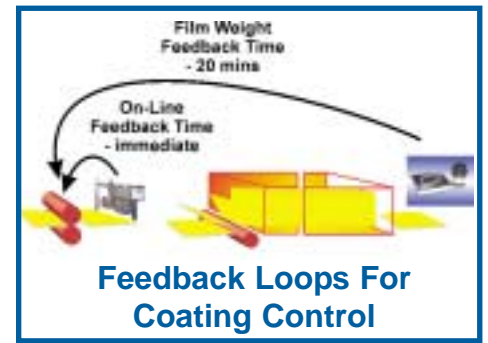


10%, ensuring the accuracy and reliability of the film weight measurement. The test can be made as soon as the sheet leaves the oven, with no need for sample preparation time.

Measure as fast as possible

An On-Line Film Weight Monitor (SC8400 - soon to replace the SC8300) can check the wet film weight immediately after the coating is applied.

'The faster you have feedback of process information, the faster and more accurately you can adjust the press.'



It gives an accurate measurement for the operator of sheets as they leave the coater. The operator is able to adjust film weight precisely to achieve the optimum film weight and see the result of the adjustments immediately. Once set, the SC8400 will monitor the wet film weight and sound a warning alarm when film weight moves away from the optimum setting. This allows the operator to confidently take corrective action as soon as there is a change, avoiding rejects and waste.

Control Process Inputs

Variation in coating solids ratio can have a major effect on the final dry film weight. The SC500 Viscosity Control System controls solids ratio through combined temperature and viscosity measurement, and ensures a consistent solids ratio. This ensures a consistent final coatings thickness.

If all three steps are implemented, total accurate control of the coating process is feasible.

Results

Our recent application experience has shown that the operator's confidence in the accuracy of the Sencon systems has led to cost savings of many tens of thousands of dollars with a positive effect on quality.



For more information on the SI9600 Film Weight Gauge, SI9550 HoverProbe, SC8400 On Line Wet Film Weight Gauge & SC500 Viscosity Control System tick the appropriate boxes on the reply sheet.

Sencon Sales Team in America



Sencon's team based out of Chicago, supporting all the Americas.



Standing: Ed Wojtysiak; Eric Shields; Jackie Gabriel; Greg Mikula; Hope Lee; Doug Heintz; Brad Forsythe
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In Brief

Time to have your say

News & Views has been slowly evolving into its current form since 1990. It has been rated as good to excellent in recent customer surveys, but we want to continue to improve.

A survey form is available at www.sencon.com/nv this is your chance to let us know your views and also the opportunity to win a Palm Pilot.

Come and meet us at AsiaCan, Hong Kong

We will be at AsiaCan in November 2002 and in the past we have found these seminars an excellent opportunity to meet and discuss how Sencon can help with process solutions.



For information please e-mail us on TYeates@sencon.co.uk

We will be pleased to meet you and discuss your needs.

More information about the event can be found at www.cantechonline.com

Enamel Rater Adaptor for Rectangular Ends

We have added a new adaptor for the SI9100 Enamel Rater to allow testing of rectangular ends such as Club, Oblong, Oval, Hansa and Dingley. If you already have an end adaptor for round ends, you will only need the change parts.



Tick Square End Adaptor on the reply sheet for details

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