

Testing & Measuring

At Interwire, attendees had a wide choice of testing and measuring equipment to consider. *WJI* asked exhibitors to discuss their field, from what attendees were interested in to how they provide added value to customers. The Products section that starts on p. 76 also presents a range of technology to consider, and it is followed by a related tech paper on p. 82.

AESA Cortailod SA Switzerland

At Interwire 2019, AESA Cortailod SA—which showcased the company's ResTest 8130 model for testing aluminum conductors—explained why it is more vital than ever for manufacturers to use the most appropriate equipment.



Denis Milz, senior area sales manager, by his company's ResTest 8130 model at Interwire.

Given the extremely tight profit margins specific to the wire and cable industry, a close monitoring of raw material consumption is of paramount importance for cable manufacturers. Not only it differentiates you from your competitors but it is a must towards intelligent manufacturing in the era of smart factory/Industry 4.0.

The ResTest 8130 “quick-and-easy-to-install” family is the sole solution available on the market for on-the-line measurements. It renders possible the measurement of linear resistance with high accuracy, without the need to cut the conductor, hence, significantly saving time and material. The model is particularly dedicated to aluminum conductors, where the high compaction of the cable using hydraulic jaws is necessary to overcome inter-wire contact resistance due to oxide layer. Deformation of the conductor is avoided, thanks to specifically designed compaction rings.

In terms of providing value to customers, the company notes that metallic conductors are the largest main source of cost in making a cable. Mastering their linear electri-

cal resistance allows for substantial reduction in material consumption.

The high accuracy of the ResTest 8130 series permits the design of conductors with properties close to the standards' requirements while ensuring effective control of conformity of production. This can be directly linked with material savings, as was demonstrated at the company's Interwire 2019 presentation “Electrical linear resistance versus weight measurement of conductors – what benefits can we expect?”

More precisely, for a production plant with a yearly consumption of few thousand tons of copper, a back-of-the-envelope calculation shows savings in the range of couple of hundred thousand dollars by tightening the material safety margin by even just 1%. Further, quicker decision regarding product quality and possible parameter adjustments can be made directly on the production line, allowing for higher productivity.

In conclusion, this unique set of linear resistance equipment is a key asset with very attractive ROI to any cable manufacturers. Also, see p. 76. www.aesa-cortailod.com.

Cersa-MCI France

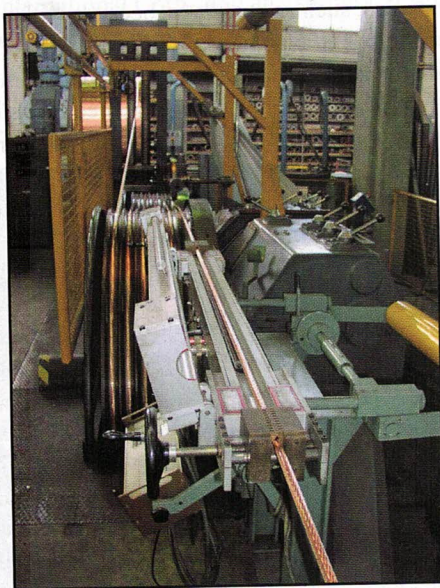
Check your defects at high speed! That was the message at Interwire 2019 from Cersa-MCI, which presented its LPS-3-H solution to monitor diameter and also detect short defects for high speed extrusion lines.

The LPS-3-H model was designed to measure tubes, cables and wires from 0.3 mm to 5 mm. Its measurement principle is based on laser projection (shadow), and its three-axis laser beam measurement ensures a full coverage of the surface. A key competitive advantage is that, compared to the scanning principle that uses rotating mirrors, our measurements are position and vibration-independent, so no “averaging” is required. As a result, LPS-3-H gauges are more reliable than the competition.

With its fast measurement rate: 20 000 Hz (measurements per axis), the LPS-3-H can detect any short evolutions/changes of the diameter but up to—and in some cases more than—10 times faster than other available devices. Thus, a short defect such as a lump or neckdown can be

System can test linear resistance of conductors without making any cuts

At Interwire 2019, AESA Cortailod SA, a Swiss company active in the measurement of electrical properties of telecom and power cables, highlighted its ResTest8130 product family for on-the-line linear resistance measurement of metallic conductors.



Per the company, the ResTest 8130 family provides measurement of the linear resistance of conductors directly in the production line, without the need to cut the conductor. A four-point resistance method (Kelvin Bridge) is used. The temperature measurement allows for correction to standards' requirements. Typical measurement time is five minutes with overall resolution of 0.1% to 0.2% depending on cable design.

The measurement process is as follows. The line is temporarily stopped. The operator positions the device and tightens the current injection jaws. On the ResTest 8135 version, a hydraulic clamping system allows for high pressure necessary to ensure an optimal contact between the conductor wires. Once the voltage taps and temperature sensors are in contacts with the conductor, the cover is closed and the complete system heats up and stabilizes at the conductor temperature, allowing for a fast and precise determination of the DC linear resistance.

Specific clamping tools permit to apply sufficient pressure without permanent deformation of the conductor. Therefore, when the measurement is finished, the production can continue without unnecessary scrap. The measurement can be repeated along the production run for quality control and process adjustment.

A dedicated Windows' based software manages the different conductor specifications. Conductor ID and

measurement results are automatically saved and can be retrieved at any time directly on the device or through available USB or Ethernet connections. A printer can also be plugged-in to output paper reports or stickers for quality tracking.

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Hi-speed model can measure diameter and short defects in extrusion process

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LPS-3-H gauges are more reliable than the competition.

With its fast measurement rate: 20 000 Hz (measurements per axis), the LPS-3-H can detect any short evolutions/changes of the diameter but up to—and in some cases more than—10 times faster than other available devices. Thus, a short defect such as a lump or neckdown can be quickly detected even for a fast-running line. For example: at 300 m/min, the LPS-3-H can detect a lump with a length as small as 250 μ m.

Traditionally, customers have had to buy two gauges: one for diameter control and one for flaw detection. The LPS-3-H can do both, its dual feature of diameter monitoring and defect detection making it an all-in-one product.