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Cutting wire measurement tool increases production efficiency

How often should the cutting line operators change the cutting wires? This is not an easy question and a challenge that many operators are facing. Changing too quickly is wasting resources, however changing too late can lead to wire breakage which can lead to production stops, production capacity loss and product waste. In addition, every wire change task always includes the risk of wrongly installed wires, thereby creating production challenges and waste products. Although changing wires on the cutting line seems a routine job, in practice there is more behind it. Particularly in high-volume factories or panel plants with a high number of product changeovers, the time to change wires is important and the impact of wrongly installed wires or wire breakage is significant. To support plant operators with this challenge, Aircrete recently developed the Aircrete Smart Wire System, a cutting wire measurement tool equipped with unique LED indicators that show the position and measure the condition of each cutting wire on the wire holders.

In this article a sneak preview of the new system is provided. Through a bar with LED lights installed on the wire holder, each wire position has its unique, full-color LED on both sides of the wire holder. Through the LED lights, for each wire position it is automatically indicated if the wire is mounted in the correct position: a permanent green light for a well-positioned wire and a flashing red light for a wrongly-positioned wire. Furthermore, in plants with the Aircrete In-Control 4.0 plant control system, the Aircrete Smart Wire System is fully integrated into the plant control system, therefore allowing upfront prepared recipes to automatically "highlight" the correct wire setting positions. As a result, the operator only needs to follow the recommendations of the LED lights, which significantly increases the speed of installing the wires and reduces the possibilities for human mistakes, as a wrongly-positioned wire will be immediately noticed by a red flashing LED light on the wire holder.

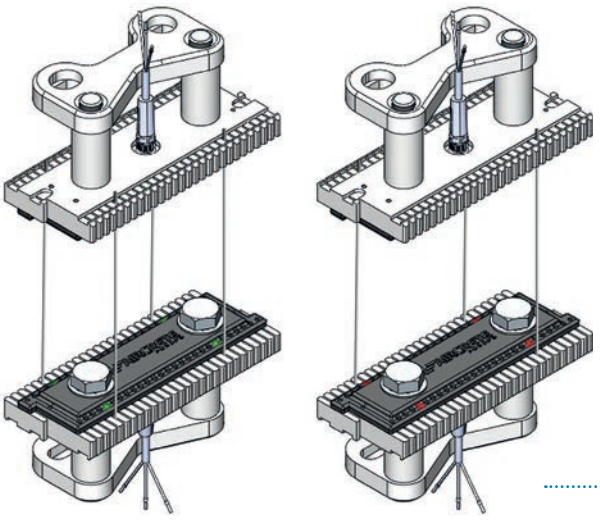

Fig. 1: The LED indication system has up to 256 colors, 3 lighting modes (off, permanent on or flashing) and allows for up to 4000 possible positionsfor programming wire positions.

With the Aircrete Smart Wire System, checking the correct positions of the wires takes significantly less time than checking each position with a ruler or template. The LED indication system has up to 256 colors, 3 lighting modes (off, permanent on or flashing) and allows for up to 4000 possible positions for programming wire positions. In addition, the system is very flexible as for each product size (or recipe) a unique color code can be determined (Fig. 1).

Besides the speed in wire changing and the elimination of human error with changing the wires, a second major advantage of the Aircrete Smart Wire System is the preventive maintenance capability. The system performs a continuous measurement of wire wear in percentage and a wire that needs replacement will be signaled with a different color (e.g. yellow flashing) than a wire that is broken (red flashing). This way the operator always knows the condition of each wire on the cutting line and can perform the replacement in advance and at the right time. Not too early to waste the wire but also not too late to have a wire breakage.

An additional feature of the Aircrete Smart Wire System, in combination with the Aircrete In-Control 4.0, is the collection of information on the number of product changes, the number of cutting wires used and the time of replacing both a single wire and a complete change of all wires in the cutting line. The system is completely moist- and dustproof, water resistant and its performance is unaffected by green waste (Fig. 2).

The Aircrete Smart Wire System operates on the standard power supply of the cutting line and can be easily integrated by Aircrete into any cutting line control system, including current and previous generations of Siemens, Allen-Bradley, etc.. Furthermore, if required, a separate control panel can be delivered with information about cutting recipes, wire conditions and an operator notification system.

The installation of the Aircrete Smart Wire System is possible on any type of wire holder and any type of cutting machine, including all flat-cake cutting technologies and all tilt-cake cutting technologies.

During Bauma Munich in October last year, the Aircrete Smart Wire System was displayed for the first time and received a tremendous amount of interest, both from new and existing customers. As a result, the first orders have already been received from customers that soon will be enjoying a smoother, faster, and smarter cutting process (Fig. 3).

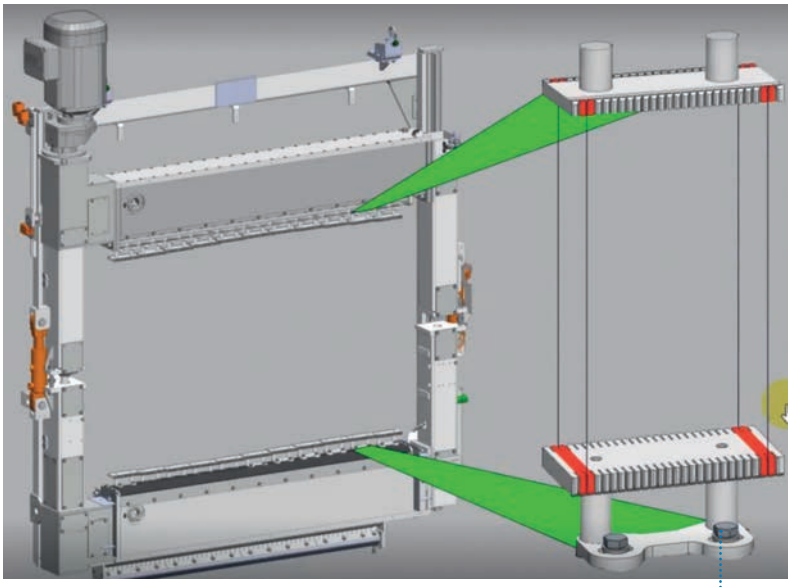

Fig. 2: Position of the Aircrete Smart Wire System on the Aircrete High Speed Cutting Frame.

Fig. 3: Following a successful demonstration of the Aircrete Smart Wire System at Bauma Munich in October 2022, a number of Aircrete customers will soon enjoy this upgrade on their cutting line.

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