Derichs at ICE Europe 2019

"High-Voltage" Development

The ICE Anniversary Award winner in the category "Industry 4.0" is not resting on his laurels from 2017. The measurement tool ED presented in 2017, which sends data in real time via Bluetooth® directly from inside the roller to an appropriate recipient (iPad, iPhone, via PC dongle to the SPS or via Ethernet directly to the server), is a product which is ready for series production today.
The ED 1, with which the temperature inside the roller can be monitored, has now been supplemented with the ED 2, which measures and monitors the working pressure on the inlet and outlet of the roller.
With the free IOS app "DERICHS Monitor", data can be displayed and especially stored for a long period of time. Once it is programmed correctly, the user can detect deviations in target temperature and target pressure at first glance as quickly as the hugely important differential value between inlet and outlet.
The demand for the product is great also across sectors, and already 40% have been sold from the initial batch since September 2018.

Looking ahead: Next innovation is already born
Being innovative like the Krefeld/Germany, ladies, they are already starting a new development. In cooperation with the Technical University of Clausthal/Germany they are developing a contactless inline roller cleaning system. "When our clients ask us for solutions, we feel challenged", Managing Director Stephanie Holzmann says. "When you are always curious and able to look and listen beyond your own nose, this often creates fantastic symbioses".
"Almost any film manufacturer will be familiar with the issue of roller surface cleaning", Managing Director Maria Barthels states. "Many companies have extremely high downtime costs because the process must frequently be stopped and the rollers must be cleaned by hand. Of course there are different cleaning systems, but – as many of our clients report – manual cleaning cannot be avoided and is still used."
Aside from downtime costs for plant shut-downs, occupational safety is also a big problem in many companies.

"Clean" cooperation
The work group around Prof. Dr. Wolfgang Maus-Friedrichs, who works on surfaces and plasma applications at the Institute for Energy Research and Physical Technologies, Technical University of Clausthal, has developed some very special electronics. These electronics control a modern plasma. "We use modern dielectric barrier discharges, in which transient plasma discharges are ignited with very short AC voltage

pulses. This generates a multitude of highly reactive species in these plasmas. With these species, organic contaminants can be broken down with reactions into gaseous components such as CO_2 and H_2O and be emitted into the ambient air in a safe and eco-friendly manner. The cleaning effect is highly efficient and scientifically proven.
For sizes required for roll applications, DBD's are easier and safer to handle than e.g. Corona plasmas. Compared to only point-acting corona plasmas, the DBD plasma also offers a flat and very homogeneous treatment option. Direct treatment in DBD plasma also sediments fewer by-products, especially ozone. The few that can arise is vacuumed in a controlled manner. Thus, the negative influence of ozone to the hard chrome layer of the roll surface is eliminated.
Derichs is now developing a gadget which can be placed as an angular segment on the area of the roller(s) which is not wrapped by the film, and with which this highly technological plasma will clean the roller surface in a controlled manner. The challenge here is to take into account the requirements of production and environmental parameters as well as the requirements that the plasma needs for an ignition. Fitted with different sensors, this gadget later monitors the roller from the outside. "We envisage that, along with our own function control, we can monitor the cleaning effect, the degree of contamination and – as a side benefit, so to speak – the surface temperature of the roller; so the Krefeld ladies mention unison.

First presentation planned
At ICE Europe 2019 in March in Munich, Derichs will be presenting the first results of this development. Interested visitors are invited to convince themselves of the exciting ideas of the two ladies. Stephanie Holzmann predicts: „It will definitely be ‚high-tension'!"

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