Connecting the Industry 4.0 Dots

It is one of HORN’s strategic drivers to link up all their machines and enable them to communicate with each other. “Companies that want to grow need to be more efficient with human labour,” says Bastian. “But the cutting tool coating process contains so many steps you can only do by hand. Preparing tools, clamping them, cleaning them - the parts we coat are so different in shapes and sizes that no robot is sophisticated enough. What we can save human labour on are things like production planning, monitoring and entering recipes. We want our machines to talk to each other directly, so our valuable operators can do more important work.”
The HORN network uses the OPC UA communication standard, an important worldwide standard for Industry 4.0. The starting goal is upgrading their coating machines to communicate using the OPC UA companion specification for surface technology, before expanding to include the entire production process. “First, we are setting up the infrastructure and OPC UA,” says Bastian. “Then, we will connect all the places where people work, through terminals. This whole process should be completed next year. After that, we can automate the production planning.”

Example of an OPC UA network connection

Horn: “If you’re having visions, you need to go see a doctor.” HORN, it turns out, has more of a philosophy than a vision. Bastian: “We think the future will be almost the same as the past. What was important in the last 50 years will also be important in the next. Customer satisfaction. The best quality. The machines tend to smear easily. “And this is even more important for new materials,” says Bastian. “The aerospace and medical industry use materials such as nickel-chrome alloys and titanium alloys – and these all smear worse than stainless steel. HIPIMS is the technology of choice for these growing industries.”

Connecting the Hauzer Flexicoat
HORN’s new Hauzer Flexicoat® is also set up for HIPIMS, with a next-generation power supply that allows them to program pulse trains with pulse width modulation. The sophisticated pulse train control makes it possible to give the coatings additional properties and even better residual stress profiles. “With other manufacturers,” says Bastian, “you get a machine that is already set. With Hauzer, you can order a machine with all the upgrades and power supplies and flexibility you want. We really appreciate that in this machine. Initially, we will use it for R&D, and later for production as well.” The Hauzer Flexicoat® is the first HORN coating machine set up to communicate with the HORN network. HORN had previously developed the requirements for their Industry 4.0 network in collaboration with system integrator and OPC UA specialists neogramm. Now, neogramm and Hauzer did a deep-dive into the Hauzer Flexicoat machine database interface, to equip Hauzer machines with OPC UA as well. That made it easy to set up HORN’s new Flexicoat machine to communicate seamlessly in the network.

The Next 50 Years
When asked for HORN’s vision for the future, Bastian quotes HORN CEO Lothar Horn: “If you’re having visions, you need to go see a doctor.” HORN, it turns out, has more of a philosophy than a vision. Bastian: “We think the future will be almost the same as the past. What was important in the last 50 years will also be important in the next. Customer satisfaction. The best quality. The fastest delivery time. That’s what made us strong, and that’s what will keep us successful in the future. As long as you keep looking at your customers and what they are doing, you are looking in the right place. Of course, there are some interesting developments going on, such as e-mobility. How will we handle the new materials that come with that? Our industry never gets boring. People are always thinking of new materials to cut.”