



Improved plant transparency by master PC

Winning the general contractship for a plant also means taking over the responsibility for the availability of this plant. Purchasing components with functions outside one's own key competencies always entails a certain risk. Even when every machine meets the required specifications in itself, weakpoints may emerge in the interaction of all machines. The larger the plant, the more difficult the diagnosis in the event of a fault which precedes its elimination may be. With the availability demands of 95 to 98 percent in many fields, machine manufacturers in the role of plant builder or general contractor see themselves confronted by an immense challenge.

The GTL KNÖDEL GmbH in Leonberg near Stuttgart is prepared to face this challenge. KNÖDEL is the market leader in immersion painting of electronic modules in the automotive industry with high throughputs and is in possession of extensive know-how in heat treatment in productronics. Another market segment in the wide field of surface technology which KNÖDEL specializes in is the coating and heat treatment in belt systems for ready-made sheet metal sections.

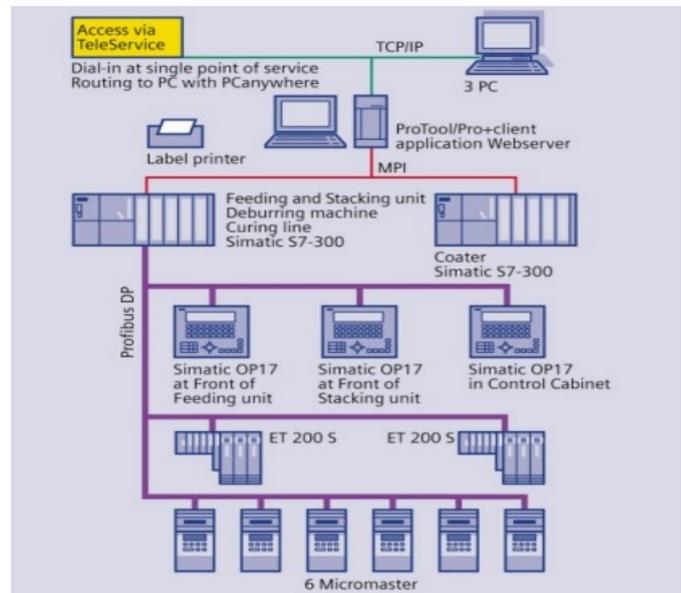
An example of this is the painting of generator panels. 45.000 such sheet segments are typically required for a large generator. The new plant from KNÖDEL coats this amount in two days.

One operator for the entire plant

The process runs fully automatically, no more than one man is required to operate the entire plant. He can even perform other tasks in the sheet production at the same time. The complete process of the coating line includes not only the roller painting machine and paint drier but also the automatic segment placer, the deburring machine, a cooling zone and



Heinrich Bauer, Facility Operator of ALSTOM and Robert Hallgarten, Managing Director of KNÖDEL



Configuration

the automatic segment double placer. In the painting machine, the environmentally friendly, water-soluble paint is applied to both sides of the sheet segments and dried and hardened in the paint drier by hot air convection backed up by infrared radiation. The cooling zone brings the painted segments down to a stackable temperature. The paint drier and cooling zone are thermally decoupled which is why different conveyor systems are needed.

Master PC has proven its value

In earlier plants programmable logic controls were used for every single machine or groups of individual machines with signal exchange between them. One PLC had to take over control of the plant. This guaranteed harmonized plant speed and uniform safety circuits/ EMERGENCY STOP for example. Walter Glass, control specialist at KNÖDEL, explains the current state of affairs: "Simatic visualization systems connected via Profibus or MPI have proven effective in our machines. For the new plant we have decided to enlist experts from SIEMENS Industrial Solutions and Services (I&S) in Stuttgart, to expand the previous KNÖDEL control concept with a master PC."

This enables central data entry and management, order handling and process visualization. ProTool/Pro is installed on this PC, the PC serves as a central diagnosis station from which the whole plant can be routed. Possible errors can be located quickly and reliably in this way.

Klaus Haussmann from SIEMENS I&S on the topic: "The definition of clear interfaces was decisive for the plant transparency. It had to be determined which displays are relevant for the central PC. Every signal exchanged between the stations must be retraceable, for example whether it was sent and whether it really was received." On the basis of this concept it was possible to run up the plant to production speed in the shortest possible time after installation. The TeleService link established with the SIEMENS I&S center turned out to be a precaution which was unnecessary in the end.

The increasing importance of vertical integration

The central PC is designed so that it can be connected to the existing company LAN as a rule. Using a web server, it is possible to access the plant and request production data or the

plant status from any PC with Intranet/Intranet access.

"Even if this possibility is not used much at the moment, we are still glad that we can offer this service. It enables our plants to be integrated easily in central maintenance concepts – and that's the way the trend is heading," Robert Hallgarten, Managing Director at KNÖDEL is convinced.

Haussmann agrees: "Vertical integration is gaining in importance. More and more of our customers are asking for it."

Apart from the technological aspects, easy integration of production islands is fast becoming a competitively crucial factor. As an innovative machine manufacturer KNÖDEL offers technologically convincing solutions which also provide potential for saving in the end user's entire process.



KNÖDEL segment coating line, coating dryer and cooling section

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