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Newsletter Retrofit Coating installation

Retrofit automation coating installation

Filling station

NO DOCUMENTATION AVAILABLE OF THE OLD HMI

The installation is used for the treatment of metal. The material is covered with a protective layer, to make it more resistent to corrossion.

To begin with, an amount of material that needs to be treated, is weighed; Then is gets plunged into a paint bath, afterwards centrifuged and chucked onto a furnace belt.

In the furnace, the protective paint is dried or baked onto the metal.

Depending on the quality, the sequence of the plunging / centrifuging is repeated or adjusted.

FOR START-UP, PRODUCTION COULD ONLY BE SHUT DOWN FOR ONE WEEK

Initially, the intention was simply to convert the existing programme from Step5 to Step7 for the new Siemens S7-416 CPU and to replace the old HMI by a new one, that needed to visualize the installation. Because there was no documenation available of the old HMI and how it was integrated into the programme, this needed to be sorted out thoroughly.

The old control system also had a complete dispensing control in the PLC. With the modern HMI, this can be done from the panel.

Ultimatley, the customer himself will make an operator interface and will take over the structure, to send data from their database through to the PLC via OPC.

The PLC also processed the navigation between the different screens.
In the new HMI, a Siemens MP277, this is not the case anymore, so the part of the HMI control needed to be removed from the programme.

Vibration chute

Scoop that chucks the products on the furnace belt

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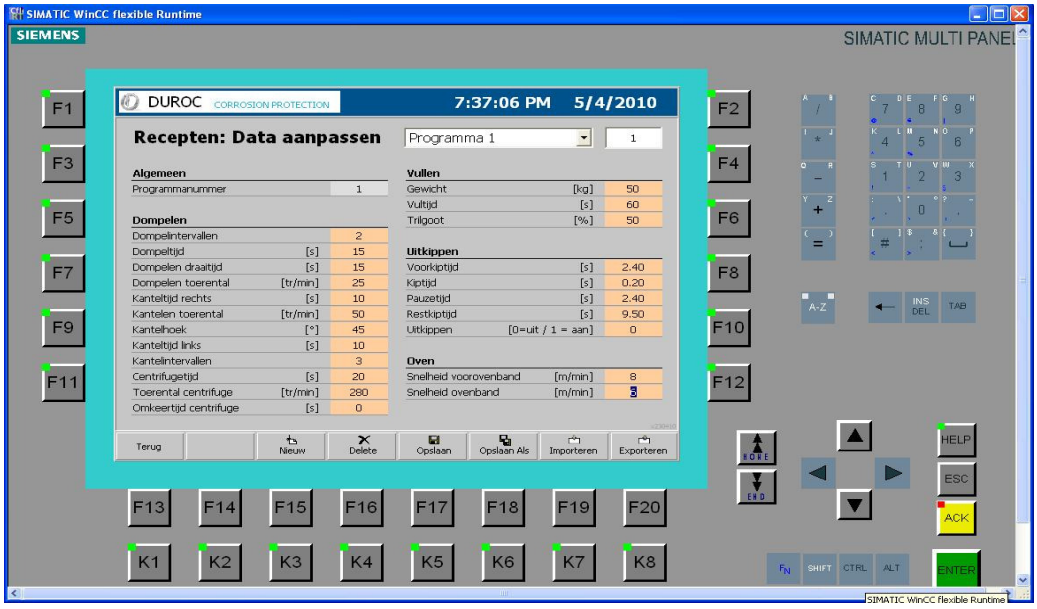
In the installation, there is also a furnace in which the temperature is regulated with a pilot valve. This valve is digitally controlled by two digital outputs.
In the S5 software, a complex algorithm was programmed. Because there were hardly no explanatory comments in this part, we replaced this algorithm with the PI temperature control block, which can be found in the standard S7 library.

In the old S5 program, a lot of data was copied back and forth from markers to data words and vice versa. In Step7, it is possible to copy directly between data blocks; this adjustment was made in the whole programme, getting rid of the unnecessary copying.



In the new programme, all important installation paramters and all timers are made adjustable via the HMI, making it possible for the customer to make adjustments, if necessary. In the old programme, these parameters needed to be changed via PC/PG.

FUTURE-ORIENTED

Furthermore, the future introduction of new products had to be considered. The current system works with 1 active product type for the whole installation.
In a couple of months, they will switch to a flexible product type.
The operator will give specific parameters to every basket filled with product that has to be treated.
These parameters have to be copied through with the product flow, across the whole installation.
This has already been integrated in the new software.