

Case Study

Apeldoorn Flexible Packaging BV, Netherlands Uses Honeywell's HC900, Experion HS and MXProLine to Improve Stretch Foil Quality



Introduction

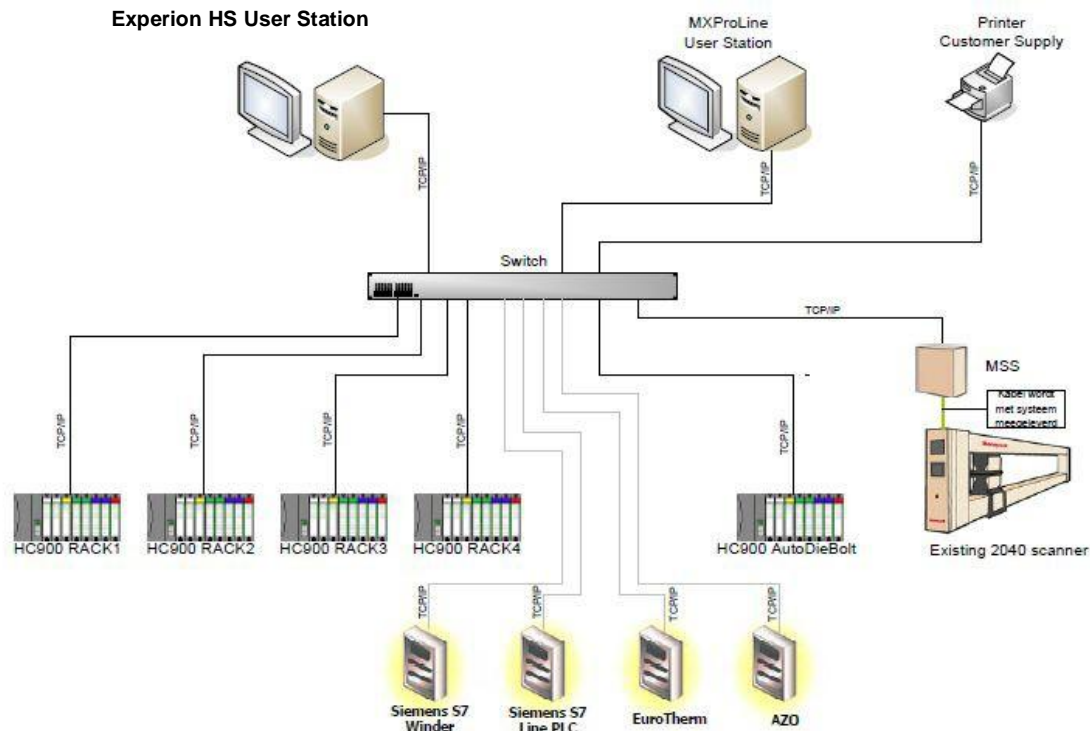
At Apeldoorn Flexible packaging (AFP), Netherlands the existing extruder line has been upgraded to a 5 extruder multilayer line, to produce the highest quality stretch foil. With Honeywell as their supplier of temperature control, QCS and SCADA system, the upgrade was completed at the end of 2008.

AFP, an ISO 9001-2008 company is also one of the first packaging companies to obtain BRC-IOP. Quality awareness is deeply embedded in the organisation and serves as a constant guideline for their operations. The company is the [winner of the 23rd DuPont Award](#) for packaging solutions.

The Honeywell equipment at AFP comprises of three main sections working together as one seamless system:

- HC900 Racks
- Experion HS
- MXProLine QCS

Figure 1: System Overview



HC900 Racks

There are 4x 8-module HC900 racks installed (all with C70 controllers). The configuration of those HC900 racks can be divided into 3 functionalities:

- **Temperature controls:** All temperature zones of the 5 extruders, adapter, die and chillrolls are measured through thermocouple or PT100 units and are connected directly to the HC900. These zones are controlled by digital outputs - some heat-only and some heat-cool. The controls are tuned via the auto-tune function in HC900.
- **Communication with existing equipment:** Linespeed and masterspeed are done in existing Siemens and Eurotherm. All data is transferred via the HC900, using the TCP/IP Modbus protocol, to the SCADA system.
- **Communication with MXProLine QCS:** All temperature recipes reside in MXProLine. Standard communication is done via TCP/IP Modbus protocol.

Experion HS

Experion HS is used as the main operator interface for operating the complete line. All temperature loops, extruder speeds, master speed, and linespeed are operated from this system. This system communicates with the HC900 racks. The system has a main menu, with all important data and from that menu, the operator can select the part of the line to get more detailed data and trends.

The graphic displays with color codes help the operator to read and interpret the information more efficiently.

Figure 2: Main Display

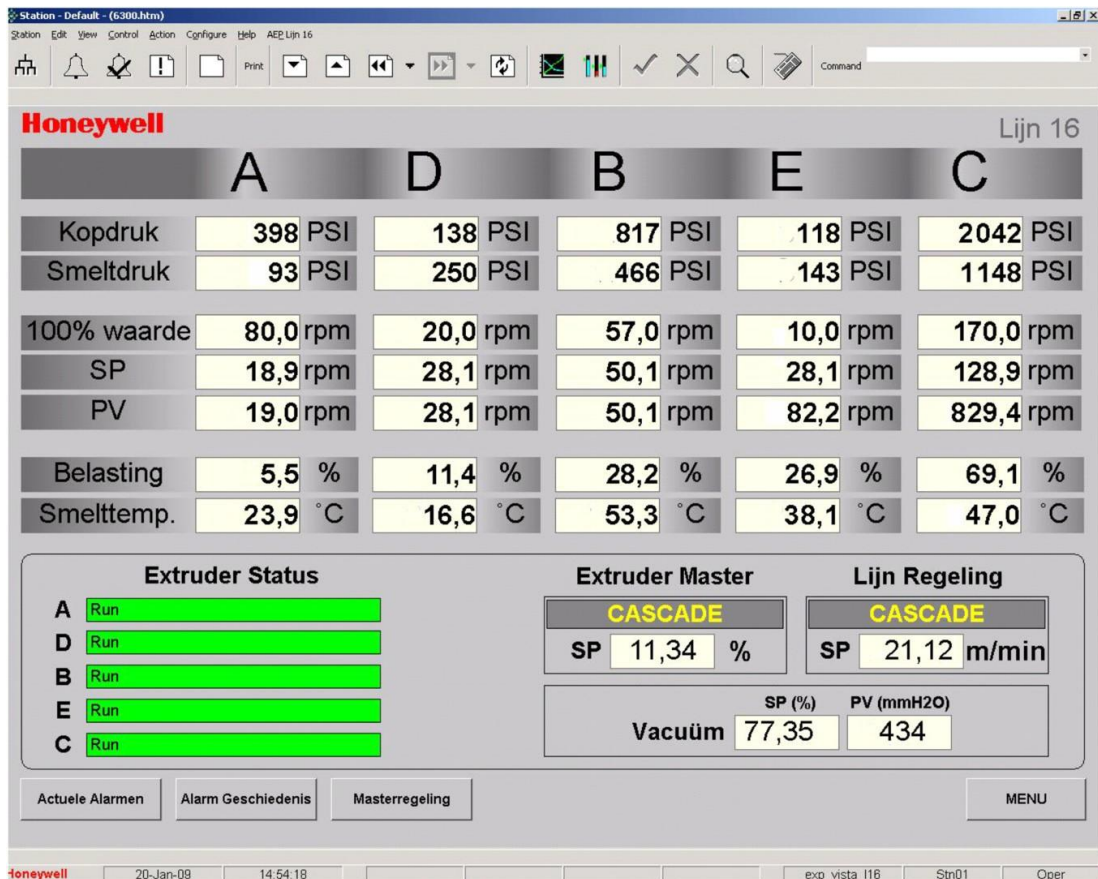


Figure 3: Temperature Zone Overview

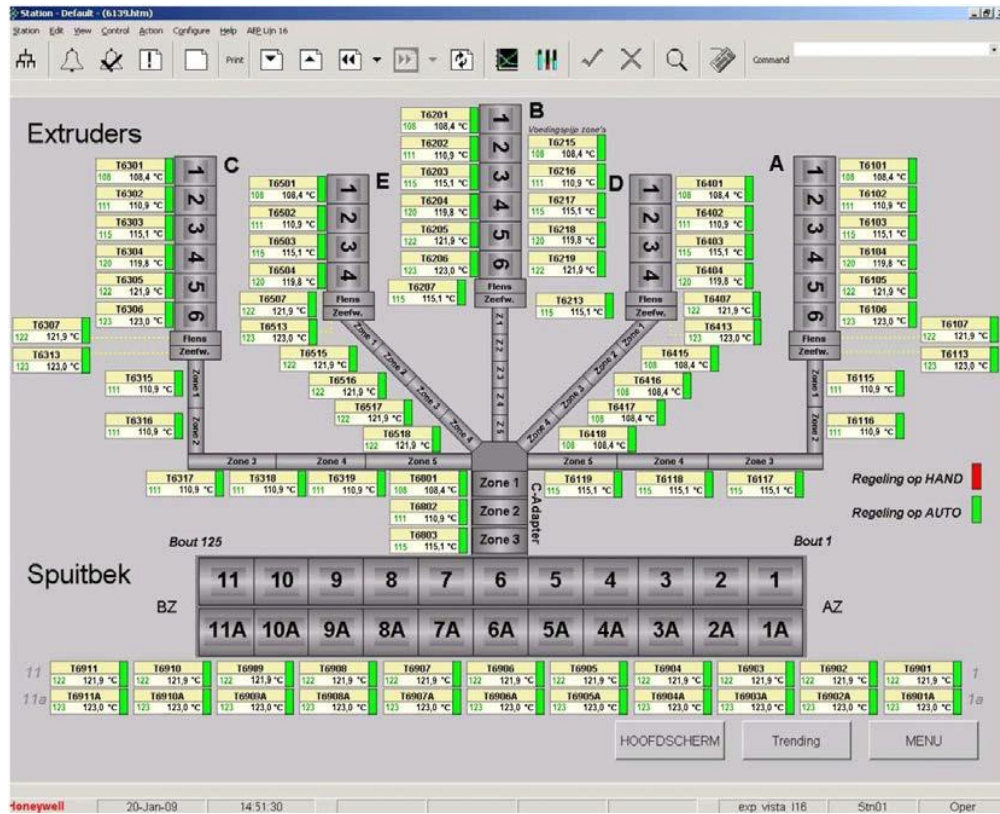


Figure 4: Extruder Speeds

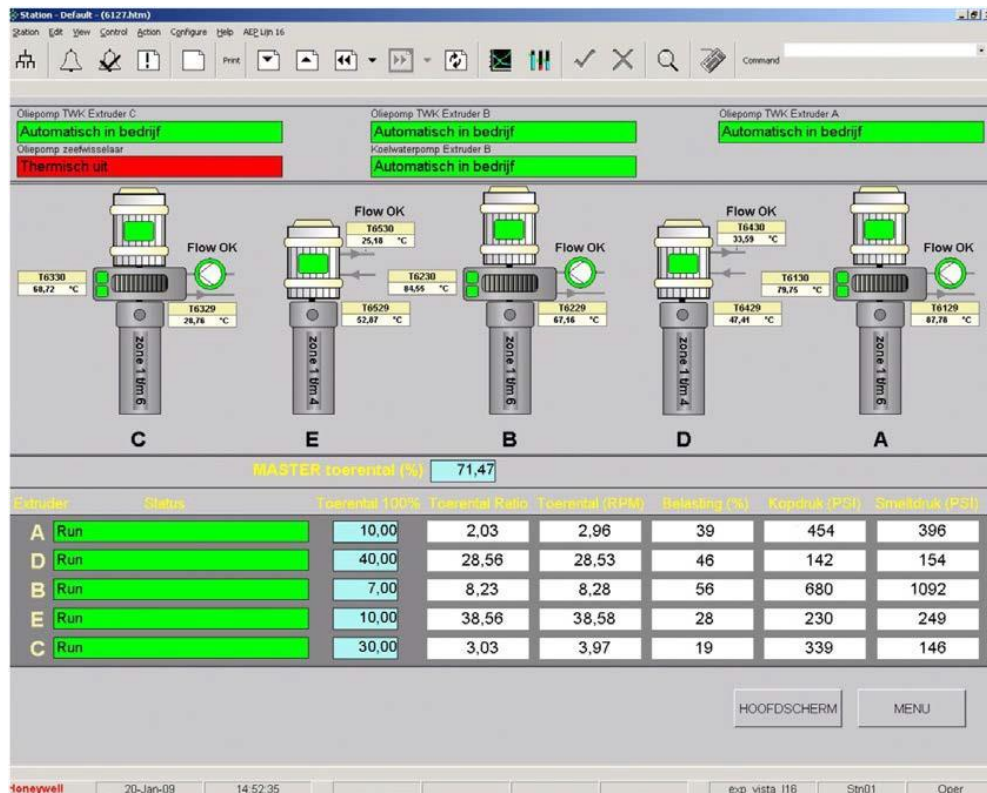


Figure 5: Linespeeds with Draw Entries

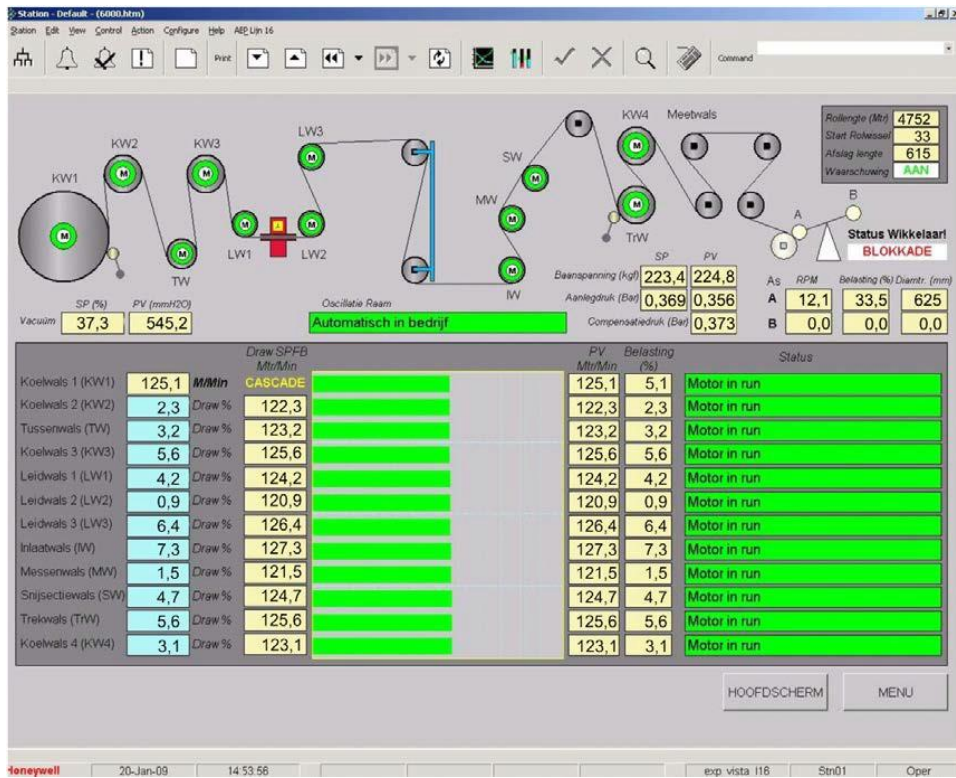
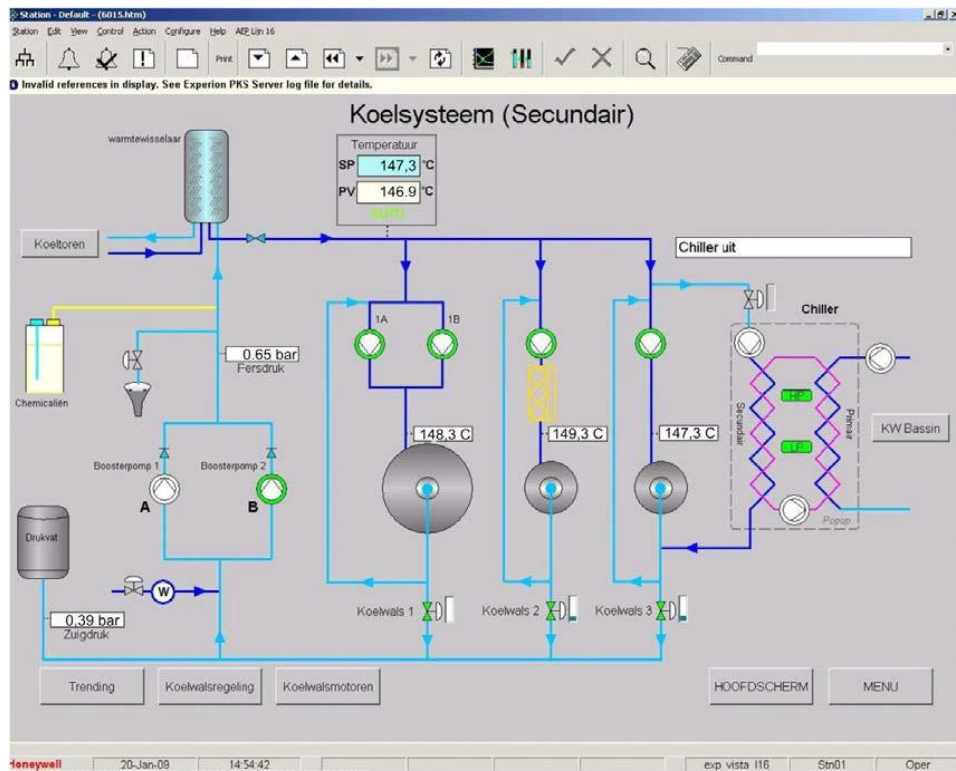


Figure 6: Chiller Control



MXProLine

In the MXProLine QCS system resides all supervisory controls including Gauge Thickness Machine Direction control, Target Adaptive control and Throughput control and it sends a remote set point to the line speed and the master extruder speed. It also controls the 125 die bolts to control the profile. Like the SCADA system, all communications is done with HC900 via TCP/IP modbus. Beside the normal Code recipes, also Temperature and Speed recipes are added in the MXProLine system, which can be loaded individual from the Code recipes. Those Temperature and Speed recipes are downloaded to the HC900.

HC900 Recipe Setting and PV's

For all extruders the recipe setting sent from MXProLine and the actual process value can be checked on the MXProLine system. Operators can check if recipe settings were downloaded successfully to the HC900.

Conclusions

- With the new configuration producing the desired results, AFP is looking to upgrade current lines with the same configuration.
- All communication is done via TCP/IP Modbus. The system and network has proved robust enough to handle the large volume of data.
- HC900 is the key-system in this configuration. All data goes through this fail safe system – the SCADA and QCS can be switched off without any impact on the line.
- All the three systems have been reliable, easy to configure and user friendly.

For More Information

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