Powder mixing with wireless PROFINET – productivity has tripled

The Dutch powder mix provider Huijbregts Groep used the features of 96 VLT® AutomationDrives for a redesigned and highly automated mixing facility in Holland. This tripled the productivity, improved the quality 200 % and made work easier and safer for the employees.

VLT® Solutions

Redesign
Mixing the powders used to take place in manually loaded mixers, which involved moving the individual powders to the mixer and the finished, mixed, powders to a packaging area.

Wireless fieldbus
The new design has 24 mobile mixers of 1500 kg max. capacity running on a common power rail mounted on the factory ceiling. Every mixer has an IP66 7.5 kW VLT® AutomationDrive on board, each connected to a PLC through wireless PROFINET.

Extra power supply
The IP66 housing allows mounting of an extra power supply for the wireless client that is also mounted on every mixer.

Positioning via Smart Logic Controller
Positioning of each mixer is handled by the VLT® Smart Logic Controller as they are moved around on automatic wagons, also connected to a PLC via wireless PROFINET. The wagons are also powered from the common rail in the ceiling.

Software to control logistics
A specially developed software system controls the wagons and the mixers are automatically placed at their correct filling stations, where each is filled automatically.

When filled, it runs automatically towards the packaging department, connects itself and empties the ready mixed powder into the packaging machine. Emptied, the mixer is automatically moved to a dry or wet cleaning facility and waits for its next task.

Customer benefits:

- The new production process lasts 2 - 3 hours which is 1 - 2 hours faster than before.
- Since each powder is filled into the mixer automatically, the recipe will be followed with greater accuracy than before - and this can be documented for quality management purposes.
- Due to the degree of automation, capacity has tripled from 30 orders a day to around 100, and the entire production can be tracked and traced.
- The wireless Ethernet automation has made troubleshooting easier
- The cleaning cycle is reduced from 8 hours to 40 minutes, and the circumstances for the operator are improved.
- There is less transportation on the factory floor, fewer accidents, less damage - and fewer employees are needed.
- Automation of the production was handled by JEKO Tech and the Huijbregts Groep itself was responsible for engineering, building etc..

Quote from JEKO Tech: **"Danfoss has made their promise come true, and the support is good."** The solution was delivered together with distributer Ehrbecker Schiefelbusch.

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VLT® AutomationDrive frequency convertors employed in the project:

45 x 7.5 kW IP66
20 x 4.0 kW
10 x 0.55 kW
8 x 11 kW
7 x 0.22 kW
6 x 0.75 kW

Key selling points

- IP66 enclosures were necessary due to 95 % humidity in the cleaning process
- The possibility to add an extra power supply in the IP66 enclosure
- The PROFINET option and the possibility to have it wireless
- VLT® Smart logic Controller was necessary for the positioning
- The price was much lower than from competitors that could handle a similar solution

De Huijbregts Groep

Much of the food that is consumed in the Netherlands contains colourings, aromatic substances and flavourings produced by the Huijbregts Groep.

De Huijbregts Groep offers service in powder logistics. It takes care of purchase, storage, mixing,and packaging, stock handling and distribution for the food industry.

The high innovative level of the Huijbregts Groep makes it possible to secure and protect both quality, food safety and taste.

JEKO Tech BV

JEKO Tech BV is a small company that develops and implements industrial automation solutions.

The company realizes all kinds of production lines including PLC's, drives, robots, and camera techniques.
Recently the company invented and patented "the robot bag-cutter".

The Huijbregts project fits perfectly within the JEKO mission of creating new high-tech systems.

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