Safe Screening

At its Burghausen site, WACKER is using Turck's BL ident RFID system for reliable detection in its tumbler screening systems in the dust Ex zone 22

If screed is flowing well and tile adhesive is particularly flexible, it's highly likely that a WACKER product has something to do with it. The globally operating chemical company with around 17,200 employees has 25 production facilities, 20 technical centers of excellence and 53 sales offices worldwide.

The most important production site for WACKER is the plant in Burghausen, idyllically situated on the Austrian border, in the so-called 'Bavarian chemical triangle'. The chemical plant, covering a two kilometer area, employs 10,000 people in around 150 facilities, and produces thousands of different products. These products also include dispersion powders that are added to tile adhesives, plaster, screeds and other building materials so that they are given particular properties. To produce the end product, a liquid is dried in a drying tower at the end of the production process. The resulting powder then has to be vibrated through a screen before it can then be packaged. This ensures that the product concerned has the required grain size.

In order to increase transparency and traceability in the production of dispersion powder, the production plant expressed the wish for the automatic detection

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WACKER has equipped several tumbler screens at the Burghausen site with Turck's RFID solution for the dust Ex zone

of the screen size used in the tumbler screens. "The correct screen size was previously measured manually by colleagues in the plant," Michael Holzapfel, plant engineer responsible for electrical engineering in the Construction Polymers division, explains. "In order to exclude the possibility of human error, the screen used for each batch now has to be measured automatically. This enables us to not only guarantee the 100% quality of the ongoing process, but also to have a retrospective record of the correct screening process."

Quick read

Depending on the application, dispersion powder must be manufactured in different grain sizes. To ensure and document this process, WACKER in Burghausen has for the past year been identifying the mesh width of its tumbler screens with Turck's BL ident RFID system, which is also approved for use in dust hazardous areas. As a result of its good experience with this system, the company is also now equipping the first coupling stations with it.

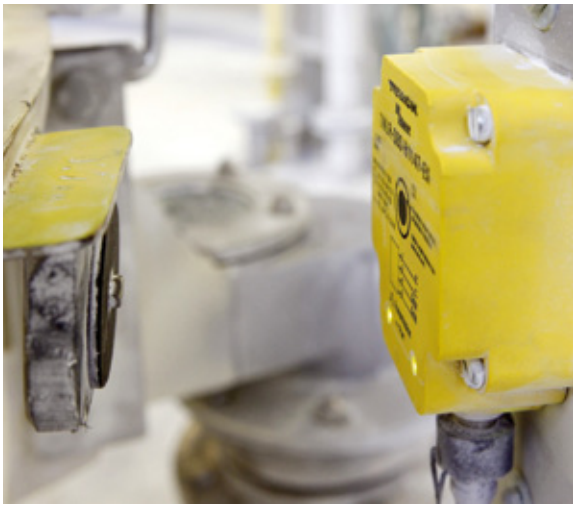
Continuous vibration requires a wireless solution

Holzapfel soon discarded his original idea of using a coding in conjunction with inductive sensors: "The screen is continuously vibrating, over almost the entire year, and so cable-based solutions are not feasible. We already have first-hand experience of this. Every month we have to replace the grounding cables of the screens in order to ensure that they don't break, even though highly flexible cables are used."

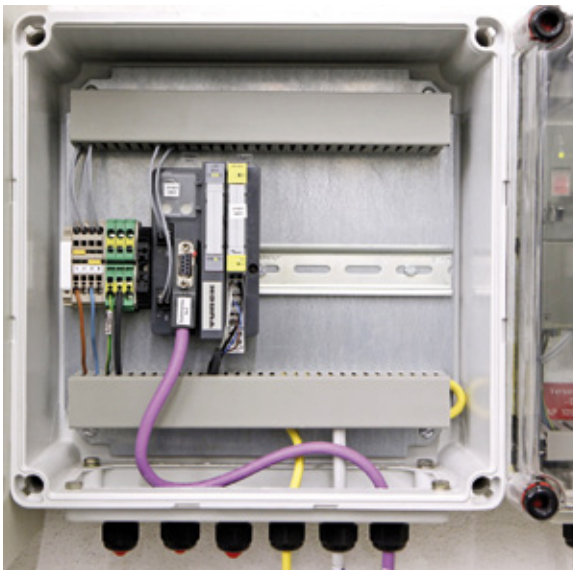
We therefore gradually came to the idea of using an RFID solution. Due to the particular environmental conditions at Burghausen, the solution nevertheless had to be approved for use in the dust Ex zone. "Turck was the only manufacturer that could offer us an RFID system that is Ex-approved for zone 22 dust," Holzapfel describes the original reason for choosing the system of the Mülheim automation specialist.

Up to now WACKER has fitted four tumbler screens with a type TNLR-Q80-H1147-Ex read/write head that is approved for use in Ex zones 2 and 22. All the screens used there were fitted with a TW-R50-B128-Ex tag on which the mesh width is stored. The disk-shaped tag is fitted at the edge of the screen, directly under a strap with the optical marking of the mesh width. The read/write head reads the mesh width and passes on the data to the process control system via Profibus using one of three BL20 I/O stations.

During the course of the installation yet one other hurdle had to be overcome: "The function block supplied with the RFID system is programmed for a Siemens S7 PLC and not for a Siemens PCS7 process control system like we use here," Holzapfel explains. "However, our software specialists worked in close collaboration with Turck Support to quickly adapt the S7 function block so that it can now also run on the PCS7."



An Ex read/write head reads out the mesh width of the screen from the tag on the screen (left)



The screen data reaches the PCS7 process control system via Profibus and Turck's BL20 I/O system

New project: coupling station

The system has been in operation at WACKER for the past year to the customer's complete satisfaction. Due to the good experience he has had with his supplier, Holzapfel has already started to tackle the next project. "The Turck RFID system works so well in the tumbler screens, so that we are now expanding the system for use in our coupling stations, as dust-Ex approval is also required here," the plant engineer describes the next step. Around 20 targets and nine sources are to be recorded via RFID in order to guarantee the transparency of the process.

For this purpose, each of the 20 DN80 hoses will be provided with a tag containing the individual hose number. Each target is fitted with a compact read/write head. When a hose is connected, the system reads the appropriate number and enables operation if it is connected correctly. Via its subsidiary mechatec, Turck is supplying the coupling station project with a ready-to-connect solution which is provided with a customized male connector and is fully encapsulated. ■

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