# Precise radar measurement technology for fast processes

The motivation to continuously improve is very strong in some companies. The company Progroup, for example, is always interested in optimising its production processes simply because of the very dynamic situation in the packaging market. Although VEGAPULS 64 is only tiny component when compared to the huge paper machines, it was nevertheless decisive in the production optimisation process.

The mail-order business is booming, and along with it the market for corrugated paperboard packaging. Year after year, sales of corrugated paperboard, which is used to protect all kinds of goods for shipment, are increasing. Corrugated paperboard is the number 1 transport packaging material: two thirds of all shipped goods are sent in boxes made from it. Since most of the boxes are later recycled, this type of packaging is also environmentally friendly. Noticeable trend: The paperboard industry supplies increasingly complex corrugated paperboard products that conform closely with the wishes of the customer, such as customised transport packaging.

One company that has taken the partnership between customer and supplier to a new level is Progroup AG. Within the space of 25 years, the company has gone from zero to fourth place in the European corrugated paperboard market, producing corrugated base paper and creating new corrugated paperboard formats.

## VEGAPULS 64 measures reliably even in small vessels

Smoothly functioning technologies are absolutely required to allow Progroup AG to supply its customers just in time. So the company always welcomes new ideas that have the potential to improve and speed up production processes. That is why, this time, the impulse for a special use of the then new VEGAPULS 64 at the Eisenhüttenstadt location came from the company's own engineering team. The advantages of the non-contact radar level transmitter, for example

- its higher dynamics
- and better focussing,

were immediately recognised by the instrument specialists; after all, they knew the high quality of VEGA sensors ever since the plant started production in 2009. A large number of VEGA sensors were already in operation there. One feature in particular attracted the team's attention right away, namely the ability of VEGAPULS 64 to reliably detect the level in very small vessels.


The level of the lubricating oil for the rotary lobe pumps is critical for their operation. Thanks to VEGAPULS 64, this level is now reliably monitored.

The edges of the paper rolls are cut with a high-pressure water jet so that the edges are smooth and cause no problems in the downstream processing machines. This high-pressure (1200 bar) water jet is generated by the rotary lobe pumps, which in turn must be well lubricated. The lubricating oil is held in 50 cm-high containers. Previously, only one tuning fork, i.e. vibrating level switch, was used here to transmit a minimum level signal. If the oil level dropped to this minimum, an immediate emergency shutdown of the paper machine was triggered. Every shutdown and subsequent start-up cost the company an enormous amount of time and money.

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Hydraulic oil station

However, before the VEGAPULS 64 came on the market, there was no other solution for small vessels. In the case of ultrasonic sensors, the blocking distance , i.e. the minimum distance between process fitting and liquid surface, is too large. Although the blocking distance of radar sensors is considerably smaller than that of typical ultrasonic sensors, the sensor dimensions were generally still too large for applications in small vessels. With earlier radar level gauges, it was mainly the size and design of the antennas or the measurement uncertainty at the vessel bottom that caused problems. Since the introduction of VEGAPULS 64, which operates with a measuring frequency of 80 GHz instead of 26 GHz, all of this is a thing of the past. It is now possible to realise a level sensor with small process fittings.

## 80 GHz makes level measurement easier and more precise in small tanks

A 1.5" process fitting was selected for the Progroup oil container. The instrument now focuses with a kind of optical lens, which allows the antenna to be built considerably smaller. The interfering signals in the close range in front of VEGAPULS 64 were also significantly reduced. Due to the significantly shorter wavelength of the 80-GHz signals from VEGAPULS 64, the signals are more strongly attenuated by the medium than is the case with 26-GHz sensors. This makes the reflection from the metallic vessel bottom considerably weaker. As a result, a measurement down to the empty level is much easier than with previous sensors. This now allows level measurement over the entire container volume, even in small tanks, including the two relatively small oil containers holding the lubricating oil of the high-performance pumps.

In August 2018, the Progroup engineering team installed the VEGA sensors themselves and, thanks to the familiar plics® adjustment concept, commissioned them without any problems. As usual, the display and adjustment module PLICSCOM is used for setting up and commissioning the plics® sensors as well as displaying the measured values on site. A PC or a special software is not required. The display and adjustment module can be inserted into the sensor and removed again without having to interrupt the power supply. The new optional Bluetooth feature allows the sensor to be adjusted wirelessly from a distance of approx. 50 meters. Since no additional fittings or special connectors were needed to install the instrument, the installation and commissioning costs were also minimal. The most important advantage, however, is certainly that, thanks to continuous level detection, any leaks can now be detected and remedied in time to avoid shutting down the paper machine.

Notice that these VEGA sensors are not yellow, but the typical Progroup red.

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## More about the paper industry

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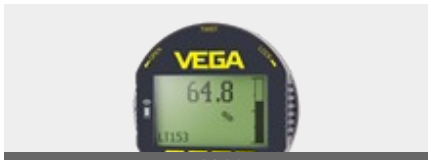
VEGAPULS 64

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