APPLICATION REPORT

Machinery & Apparatus

Oil level monitoring in a pusher centrifuge

- Oil tank (with objects) for hydraulic pusher function (including bearing lubrication) as major component of a multi-stage pusher centrifuge
- Continuous level measurement with guided radar
- High degree of plant safety and availability

SIEBTECHNIK

1. Background

SIEBTECHNIK GmbH specialises in the processing of mineral bulk materials as well as in the separation of solids and liquids in the chemical and food industry. To this end, the company develops and sells centrifuges in addition to sieving machines, samplers and choppers. This includes pusher centrifuges in different sizes. These continuous filtration centrifuges are designed to efficiently separate solids and are used, among other things, to drain bulk goods or for sugar and salt production.

2. Measurement requirements

SIEBTECHNIK manufactures multistage pusher centrifuges according to customer specification. The oscillating movement of specific rotor parts pushes the separated solid cake across the sieve mechanism. The hydraulic system creates the pushing movement and also ensures that the bearings are lubricated. Siebtechnik recommends continuously monitoring the level of oil in the tank to ensure maximum availability and plant safety.

That is why SIEBTECHNIK made the decision to equip the oil tank not only with simple limit monitoring (Min/Max), but with continuous level measurement as well. It was especially important to take into consideration the objects in the tank when selecting a suitable level transmitter because the objects significantly increase the risk of interfering signals when using a continuous measuring process.

KROHNE

3. KROHNE solution

SIEBTECHNIK chose the OPTIFLEX 2200 C guided radar (TDR) level transmitter. The 2-wire device is particularly well designed for that type of tank and process application. Due to the difficult application conditions, the OPTIFLEX 2200 was used with a robust coaxial probe (Ø22 mm / 0.86 in, length: 630 mm / 24.8 in). This enables level measurement with virtually no dead zone in the upper range and prevents the objects from interfering with the measurement.

The vertical housing position makes it easy to read the measured values from the outside. In addition, it is also possible to transfer the measured value directly to the customer's control room via HART® or a 4...20 mA.

Oil level monitoring in a pusher centrifuge with the OPTIFLEX 2200 C

4. Customer benefits

Continuous level measurement with the OPTIFLEX 2200 C guarantees the continuous monitoring of the oil tank as required by the end customer. Despite the extremely demanding application environment, the device measures reliably without causing incorrect measuring results due to interfering reflections. A sinking oil level can be detected early on and eliminated before there is a lack of oil. The risk of system failure is thus considerably reduced.

5. Product used

OPTIFLEX 2200 C/F

- Guided radar (TDR) level transmitter for storage and process applications
- Universal measurement device for liquids and solids
- Large choice of probes for a vast range of applications
- Measuring range up to 40 m / 131 ft
- With DPR (Dynamic Parasite Rejection): automatically eliminates interfering reflections
- Horizontal and vertical housing position to suit every installation
- Also available as remote version with separate converter (installation up to 100 m / 328 ft from the sensor)
- SIL2-compliant according to IEC 61508 for safety-related systems
- ATEX, IECEx, cFMus, NEPSI etc.
- HART®, FOUNDATION™ fieldbus, PROFIBUS® PA etc.

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