

# Endress+Hauser Level Measurement

## Recent NZ installations of radar and guided-radar, time-of-flight instruments

### Dairy Industry: Milk Powder Silos

#### Environment:

Sanitary considerations and dusty

#### Challenge:

Reliable and accurate level measurement instead of weighing. Small silo height and filling to within 1 metre

#### Solution:

**FMR250 Radar** with DN100 horn and modified 6" tri-clamp process connection

#### Benefits:

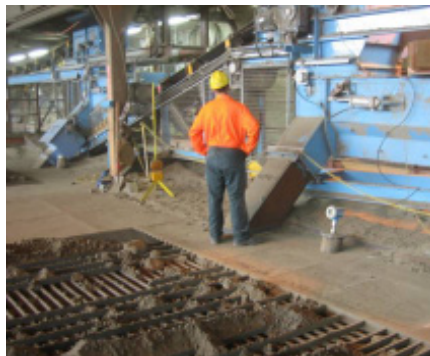
In the past the silos would have been weighed at significantly higher costs. Solids radar provides acceptable accuracy and reliability at much lower cost

#### Additional application information:

- Sanitary process connection required. The 6" tri-clamp adaptation was done locally using the threaded process connection
- Due to sanitary adaptation the alignment device was not suitable. The customer fabricated the nozzle with tri-clamp process connection and welded to the silo with alignment to bottom of silo cone
- Continuous air purge while filling / emptying



FMR250 Radar on Milk Powder Silo



FMR250 Radar on Clinker Silo



FMP45 Guided Radar on Coal Reject Hopper



FMP40 Guided Radars on LPG Bullet Tank

### Cement Industry: Clinker Silos

#### Environment:

Hot (up to 100°C), very dusty, limited mounting space

#### Challenge:

Level measurement of hot clinker from cooler

#### Solution:

**FMR250 Radar** with DN100 horn and alignment device, remote FHX40 display/operation, M12 connection

#### Benefits:

Original capacitive rope probes were quickly worn out. Continuous non contact level measurement needed to change to automated filling by conveyor from manual crane operation

#### Additional application information:

- Hot clinker is conveyed from the cooler to clinker silos
- Particle size from 80mm to fine dust at temperatures up to 400°C
- Very abrasive so non-contact measurement essential
- Extremely dusty, high vibration, limited mounting locations due to possible damage from crane

### Energy Industry: LPG Bullet Tanks

#### Environment:

Standard LPG application

#### Challenge:

Accurate level measurement in LPG bullet tanks with redundancy

#### Solution:

**FMP40 Guided Radar** with coax probe

#### Benefits:

Replacement of mechanical systems provides less maintenance, higher reliability, higher consistency of level accuracy. Redundancy by using two instruments

#### Additional application information:

- Coax probe used due to low dielectric constant and to simplify mounting through bullet tank "turret"
- Redundancy required
- Linearization of tank using TOF Tool software and documentation

### Power Industry: Coal Mill Reject Hoppers

#### Environment:

Hot (up to 250°C), dusty, small measuring range (1m) with requirement to measure maximum range possible

#### Challenge:

Level measurement of reject coal from mill

#### Solution:

**FMP45 Guided Radar** with 16mm rod probe. End of rod fitted into sleeve in hopper

#### Benefits:

Hoppers were previously dumped at regular intervals. Process is automated and more controlled with continuous level measurement. Also shows that the mill is working efficiently

#### Additional application information:

- Hot rejects are collected in the small hoppers for later disposal
- Particle size from 50mm to fine dust at temperatures up to 400°C
- Small hopper and a requirement to measure over the maximum range possible meant a rod probe with grounded end was selected.

## Time-of-Flight Level Measurement Solutions

As illustrated on this page, Endress+Hauser's Radar and Guided Radar, Time-of-Flight (ToF) technologies, provide accurate measurement in all kinds of liquids and solids applications - including the traditionally difficult:

E.g: limestone, cement, sand, grain, sugar, flour, liquified gases, solvents, etc.

EMC's experienced staff can provide you with the best possible level measurement solution for all applications and will be pleased to discuss the many techniques available from Endress+Hauser.

### More ToF information?

Circle Enquiry No: 0802

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