

# Micropilot M FMR250 in Soybean Extraction Plant- Food

Micropilot M FMR250 eliminates abrasion and requires less maintenance



Soybean extraction plant



Micropilot M FMR250



Inspecting soybean field

**Micropilot M FMR250 with 4" horn eliminates abrasion while measuring soybean oil and meal during hexane extraction process, increasing its' life span and sanitation.**

## Company profile

Soybean extraction plant located in Midwest United States.

## Situation

Soybean oil extraction process using hexane. There is difficult instrument access to the silos with dust in the bean silos and dust and condensation in the meal silos. This extraction plant previously used guided radar for bean and meal silo level indication.

## Problem

The guided radar's cables had to be replaced every 3-6 months due to the soybean's abrasiveness. Non-contact level measurement technology alternatives were considered including ultrasonic, laser, and radar.

## Application description

Products: Soybeans  
Tanks: 150 ft Concrete silos (~50 m)  
Temp: -30 ° to +100 °F (~-30 ° to +40 °C)

## Challenges

- The concrete silos are 150 ft tall making access to the tank and instruments difficult
- The environment is very dusty in the soybean silos
- The customer wants to eliminate anything from being in contact with the product because of the abrasive nature of the soybeans, making instruments with cables not durable enough for this application.

## Instrument description

The Micropilot M FMR250 is a 2-wire high frequency non intrusive radar level device for solid applications up to 230 ft.

## Measuring principle

A high frequency electromagnetic wave is launched from an antenna. Some of the signal energy is reflected by the product and received by the antenna. The time it takes for the signal to travel to the level and reflect back to the antenna is measured. This time is then calculated into a level related 4 to 20 mA output signal.

## Results

Initially the FMR250 free-space radar with parabolic antenna was tested, but the Teflon coated bag and air purge were not sufficient to prevent material build up in the meal silo. The parabolic antenna was exchanged for the FMR250 with a 4" horn.

The FMR250 with a 4" horn proved successful in both the bean and meal silos. The Teflon bag is no longer utilized in either application, but an air purge is still active on meal bins. The meal bins also require the manual cleaning every 3-6 months. The bean silo no longer utilizes the air purge and does not require manual cleaning for over six months. The extraction plant has purchased +12ea. FMR250 transmitters.

The Micropilot M FMR250 with 4" horn installation has eliminated abrasion and saved the customer money spent on regular maintenance.

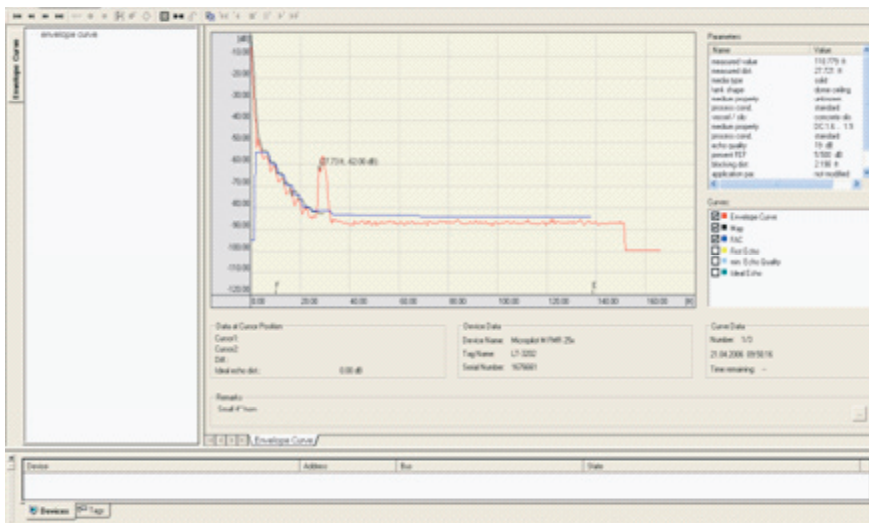
For more information, contact  
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FMR250 with 4" horn installed in soybean extraction plant



Installations in soybean extraction plant



Screen shot of radar detection from tank

ISO 9001:2000 Certified

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