



Application Case Study

Measuring Roofing Grit

The Application

Most houses built today have asphalt shingles on the roof. They are made by coating fiberglass with liquid asphalt, then adhering fine grit to the back and coarse, colored grit to the top. This is a continuous process with shingles made in a long, unbroken strip. At the end of the process, the strip is cut into individual shingles and packaged for shipment to consumers.

Since it is a continuous process, all of the materials used must be properly monitored and controlled. One of the most difficult and critical materials to monitor is the grit. The grit is added immediately after the asphalt. This allows it to adhere to the asphalt before it cools and dries. If the process runs out of grit, the line will shut down in a gooey mess!



One major shingle manufacturer was using TDR radar devices to monitor their grit bins. These were reliable, but the highly abrasive grit caused many problems with the cable probes. The probes failed every 6 to 12 months, usually resulting in contamination of the process. The grit also caused difficulties keeping the probes straight. Even when anchored at the bottom of the vessel, the probes had a tendency to come loose and corkscrew in the process, causing inaccurate readings. All of this combined to create high maintenance and replacement costs.

The Solution

The manufacturer wanted to use non-contact transmitters, but did not think any were reliable enough for their needs. SOR® presented the echOsonix and explained how the high power and low frequency would penetrate dust in the grit bins. We also showed the adaptive gain allows echOsonix to adjust to changing conditions and provides continuous, reliable level measurement.

The shingle company was impressed but skeptical. They decided to get one trial unit the next time a TDR failed. They installed the trial echOsonix in one bin and started a long-term test. The idea was to gauge its performance against the remaining 15 TDR units until they had experienced several more probe failures; then they would look at both the performance and wear on all units.



The Results

The customer noted that the echOsonix unit read correctly from the beginning. It functioned reliably and met all of their performance criteria. When the time came to check on the wear, that was the deciding factor. Being a non-contact device, the echOsonix exhibited no wear or damage from the grit during the time period that three TDR probes failed.

All 16 of the grit day bins now have echOsonix installed. Maintenance costs on this process have dropped to zero. The customer now has long-term, reliable instrumentation for this critical application.

Ordering Information

Electronics Model **U71-CL7J-ZZ-20**
Integral 110VAC/24VDC Line-powered transmitter
2 x SPDT Relays adjustable over entire range
Divisions 1 & 2 Agency-listed electronics housing

Sensor Model **BCP-4C-ZZ-0-FC**
20kHz Transducer for integral unit
4" 150# Flanged connection
Divisions 1 & 2 Explosion-proof, Agency-listed transducer
Focusing cone option for extremely dusty conditions