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Minimising GWR Probe Build Up with the Magnetrol Eclipse 706

Level measurement applications in natural gas, condensate and crude processing have special requirements which are not always evident except through field experience. The potential for solids or other materials building up on a guided wave radar probe is one example. The experience of Magnetrol - AMETEK field engineers has led to the development of some simple but effective level measurement techniques to address field issues related to build-up that may not be evident in data sheets.

Eclipse 706 GWR Probe Options

Natural gas, condensate and crude processing applications can involve the formation of paraffin, asphaltenes, hydrates, grit and grime. The degree to which any of these can accumulate on guided wave radar (GWR) probes varies by application. Even in applications where build-up isn't immediately evident, it can happen over time, during cold weather periods, or when equilibrating units due to temperature, pressure, and process material fluctuations. Like distillation columns, chambers / cages / bridles may require cleaning from time to time. Below are some good practices that can minimize build-up and reduce maintenance time.

- The use of enlarged coaxial GWR probes with more clearance reduces the chance for build-up to occur.
- Consider using a chamber probe whenever possible. Magnetrol® offers a unique family of chamber probes, which combines the sensitivity and performance associated with coaxial probes with the viscosity immunity of a single rod.
- Insulate the necks of overfill probes to reduce any cooling at the top of the probe inside the vessel, chamber, cage, or bridle.
- Chambers should be insulated even in warm weather locations. The temperature differential between a warm / hot vessel (like a separator) and uninsulated chamber/cages can be significant, resulting in paraffin deposition and/or viscosity increases.
- Insulate chamber flanges to reduce any cooling at the top of the probe.
- Use probes with an integral flushing connection to simplify flushing/dissolving paraffin or grit. Flushing connections are an option available on all Magnetrol® coaxial GWR probes.

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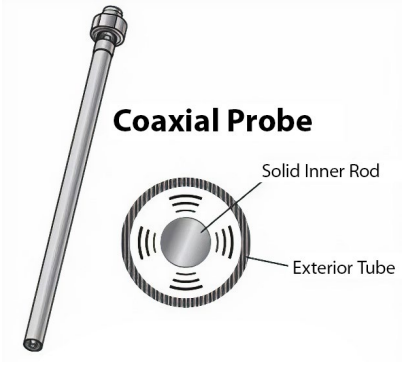


Bottom View Electromagnetic Propagation

Flushing Port

Eclipse 706 Monitoring Buildup

Eclipse Model 706 Build-up Detection Feature

Although GWR technology has many advantages, as a contacting technology, the probe can be subject to build-up from process media, particularly viscous or sticky fluids. However, a GWR transmitter with advanced diagnostics can detect and monitor build-up on the probe, allowing the user to schedule cleaning and maintenance before a problem occurs. Another option is to coat the probe with PFA (or similar) to reduce friction and material build-up or assist in corrosive environments (flushing ports can also be provided for in-situ cleaning). Depending on the application, non-contact measurement technology (although not totally free from potential build-up and coating issues) may be preferable for applications with coating, corrosion, or installation concerns.

In addition to optional PFA-coated probes, Eclipse GWR transmitters have proactive diagnostics able to scan for build-up, so you know when to schedule cleaning and maintenance.

When the Eclipse Model 706 Build-up Detection Feature is enabled, the waveform is scanned every five minutes with up to five build-up locations being monitored.

Check Build-Up Frequently

So that an overnight issue (such as occasional condensation on the seal face of a steam probe) will be noticed.

Interval Rate

The interval between rate checking varies. It depends based upon the speed of the build-up increasement.

Comparison

During a scan, when a build-up is detected, the locations are checked against all of the previously recorded sites.

Output

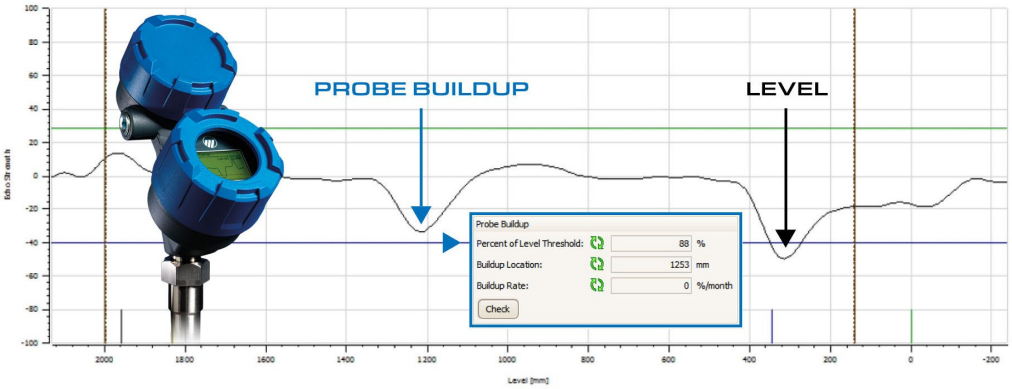
Shown as a % compared to the present threshold value, this feature can be used by the customer as a HART dynamic variable (SV, TV, or QV) for proactive maintenance.

For the build-up percentage reading, the waveform is scanned between the seal face or blocking distance (whichever is lower on the probe) and the start of the level pulse or the end of the probe (whichever is higher on the probe).

Contact Us

For more information on minimizing guided wave radar probe buildup, please contact us: info@able.co.uk

BUILDUP DETECTION EXAMPLE



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