Empty Pipe and Vessel Detection

Liquiphant M is used for air reduction monitoring in food processing

Liquiphant is used to detect empty pipes or empty vessels to prevent air from being sucked into the process.

Application

Entrained air is a major concern in the food industry. Product quality can be severely affected and the cost of eliminating air from the product can be a costly and slow process.

Company profile

Not available

Disadvantages when air is in the process

Process example: Air in a product will decrease the heat transfer capabilities, reducing the efficiency of heat exchanges which not only waste energy but can also affect the capability to reach pasteurization temperatures. Allowing air into the process can also create foaming, resulting in loss of pumping action as well as severely impacting the accuracy of flow measurement.

Inaccurate flow measurement in turn leads to difficulties in managing recipes, blending or other processes. Deaerator’s and air-eliminators are commonly used but like with many problems, prevention is better than the cure.

Customer benefit

The Liquiphant detects the presence of liquid / air and can easily be installed in process lines or at the bottom of tanks to prevent air from being sucked into the system. The $400 Liquiphant is a cost effective way to improve processes such as:

- Balance tanks
- Raw milk silo changeover
- Low level of deaerators or,
- Switch off agitator when tank level approaches agitator blades.

In the shown application (top left on back page), a Liquiphant is installed for empty vessel detection to make sure that the process tank does not run empty, allowing air to get sucked into the system. In addition, a second Liquiphant is used for maximum detection, and a Cerabar S pressure transmitter is used to monitor continuous level.

Highlights

Reliability / Safety

The Liquiphant is based on the vibrating tuning fork principle which is unaffected by external vibrations, does not give false alarms due to foam, and has an advanced self-checking function with fail-safe output.

Flexibility

Tuning fork technology allows use in different flow rates, temperatures, pressures and media without calibration or adjustment. A wide range of process connections are available for an easy connection of the sensor in pipes or tanks.

Maintenance / Cost of Ownership

No moving parts that can wear out or break, and no need for calibration or other maintenance, resulting in a very cost effective long term solution.

Endress+Hauser
People for Process Automation
Liquiphant Model:
FTL 50H-ATE2AD2E4A
with 2” Tri-clamp®, compact version,
3-wire DC FEL 52 electronics,
plastic housing, NEMA 4X

Alternative version with flush mounted
weld spud connection, stainless steel
housing:
FTL 50H-AEE2AC2E6A with weld-spud
part # 52001047.

For more information contact:

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Typical application where an agitator is used
and foam is present at the top of the fluid.
A Liquiphant is mounted at the bottom for
empty tank detection, and a side mounted
unit for maximum level.