

#wegotyourback

## Challenges

The human body is a remarkable piece of engineering and involves many complex processes. We work our bodies hard and are concerned about keeping them healthy. Hence, even if we work out and look after ourselves, we still visit the doctor for regular health check-ups.

The flowmeters used in industrial processes are also complex devices, which perform vital roles. They often operate 24/7. Many plants and processes cannot function effectively without them. Flowmeters ensure optimal batching and dosing rates and provide the data for various balances throughout a plant. However, we often neglect to give our flowmeters a “health check-up.”

Most of the time, users only investigate the health of a flowmeter when it has failed or its measurement accuracy is under question. The reason has often been to avoid a complicated and costly verification process. In the early days, checking a flowmeter required removing it from the process and shipping it to a testing facility. Recently, external verification has become an option.



However, that typically requires skilled personnel and additional equipment, which is often unavailable for purchase by the end-user.

## Solutions

### Flowmeter Verification via Maintenance Manager Functionality

Modern flowmeters feature “Maintenance Manager” functions, which have integrated the verification process into the device, making it quick and simple. The flowmeter’s electronics run a series of onboard tests while the flowmeter is installed in the process piping and provide a “pass” or “fail” result. If a flowmeter fails verification, it will indicate the test that caused the failure, allowing the user to identify the cause or contact the manufacturer for additional support. The time to run a verification depends on the flowmeter and can take from a few minutes to about twelve minutes to complete. As the verification procedure is simple and can be performed while the flowmeter is installed in the process piping, the flowmeter can be verified as frequently as required by each site.

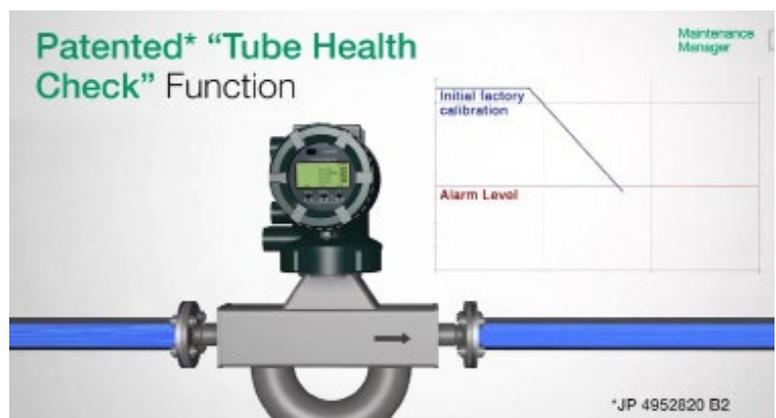
# Do Not Neglect Flowmeter Health

## Magnetic Flowmeters

For a magnetic flowmeter, the verification typically tests the magnetic, excitation, and calculation circuits. It should also run a thorough check of the alarms and alarm history. The latest advanced flowmeters also include cable connection checks to ensure the excitation and signal wiring between a remote flow tube and remote transmitter are correct. A modern magnetic flowmeter featuring built-in verification allows testing internally or via external HART software tools. Using software enables additional verification testing of the analog and pulse outputs, insulation resistance, and electronic amplifier. It can also provide a hard-copy report of the verification results.

## Coriolis Mass Flowmeters

For Coriolis mass flowmeters, verification typically checks the drive, sensor, and temperature circuits, plus the hardware and software. The most advanced Coriolis flowmeters also offer an additional option for tube health checking. The measurement tubes in a Coriolis flowmeter can be damaged over time due to corrosion, erosion, or deposits.



If the condition of the measuring tubes deteriorates, it will impact the accuracy of the flow and density measurements. The tube health check function measures the change in stiffness of the measurement tubes and compares it to an initial reference value. Coriolis flowmeters featuring built-in verification allow these tests to be performed internally or via HART communication to a software package. The external software can also produce reports.

## Summary

Utilizing “Maintenance Manager” functions in the flowmeters can improve process operations. Flowmeter verification provides users greater confidence in the accuracy and performance of their flowmeters. It can also provide data for predictive maintenance planning to optimize timing for cleaning, recalibration, or device replacement.

Flowmeters are vital to plant operations. Please do not neglect them. Using the latest “Maintenance Manager” functions allows users to give them a regular health check-up and ensure they are operating correctly.

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