



Level



Pressure



Flow



Temperature



Liquid  
Analysis



Registration



Systems  
Components



Services



Solutions

## Alcohol by volume measurement

Save energy and optimise your process

Endress+Hauser 

People for Process Automation

# Achieving reliable ABV measurement

Accurate and reliable measurement is essential in the whisky & spirits industry in order to maintain product quality and achieve a good yield. Alcohol concentration levels are particularly important in order to optimise production, maintain product quality and consistency, and to help reduce overheads such as the cost of utilities.

## Reliable results with Coriolis

The traditional method of monitoring alcohol concentration is a manual measurement using a hydrometer, so the possibility of human error is inevitable. Endress+Hauser's alcohol concentration solution is based on state-of-the-art multivariable Coriolis mass flowmeter technology to provide reliable results, time after time.

## Multivariable measurement

Where processes are automated, densitometers are often employed to measure alcohol concentration levels. Operating on ultrasonic technology using sound velocity measurement to determine ABV values, many such

devices are optimised for measurement at the high and low end of the distillation process and require an external temperature measurement. Our Promass Coriolis flowmeter goes further – it measures across the whole ABV range (0-100%) and has a built-in temperature sensor, offering more measurement for your money!

Endress+Hauser's Promass Coriolis mass flowmeters not only measure mass and volume flow but also density and temperature, offering a truly multivariable measurement - and, using a handy integrated calculation, offer accurate concentration measurement.



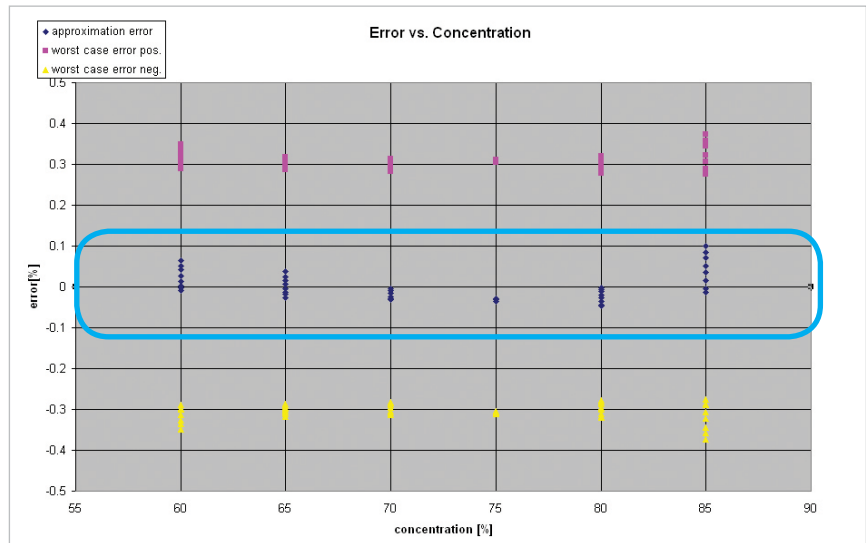


### A solution for large ranges

Endress+Hauser has also developed a software solution for alcohol measurement if the % ABV range is large. In applications with low % ABV ranges, Endress+Hauser's Promass 83F Coriolis meter provides accurate flow, % ABV, density and temperature measurements in one single unit. However, for more complicated applications with large % ABV ranges, there are two options for % ABV in an external control system or PLC:

1. A simple plug-in function block for your PLC. Solutions currently offered include: Siemens, Allen Bradley and Schneider PLCs.
2. A complete solution including a pre-programmed PLC, offering not just ABV measurement, but also tailored for any additional control functions you require.

In the PLC, many different temperature and density ranges can be considered. The software is configured to evaluate what density and temperature range the measured values are in and then an appropriate set of constant coefficients



Typical error calculation shown in blue.

are applied to the calculation. Each type of PLC has its own programming characteristics and requires a different way of applying this percentage alcohol function block.

In IEC61131 programming suites, the ability to add a standard function block to the code and then assign input and output parameters to this is now commonplace. This allows the function block to be used time and time again with different input and output parameters.



# Process solutions from Endress+Hauser UK



All of the solutions offered by Endress+Hauser have been designed to improve the operational efficiency of your plant, streamline logistical processes and have a proven return on investment.

Our range of field and application-based solutions are repeatable, tested and packaged. They are configured to

meet your needs, the demands of your defined project and the requirements of your industry - and they are immediately deliverable. Where there is no packaged solution, we can design tailor-made engineering systems to provide the ideal process automation for your specific requirements.

| Field-based solutions  | Application-based solutions  | Automation-based solutions   |
|--|--|--|
| <p>Field devices and network design, installation and commissioning services including multi-vendor device configuration and asset management.</p> <ul style="list-style-type: none"> <li>■ Plant asset management</li> <li>■ Field network engineering</li> </ul> | <p>Repeatable, configurable, packaged solutions.</p> <ul style="list-style-type: none"> <li>■ Tank farm automation                             <ul style="list-style-type: none"> <li>- Tank contents monitoring</li> <li>- High accuracy tank gauging</li> <li>- Overfill protection</li> <li>- Pump and valve control</li> </ul> </li> <li>■ Energy solutions                             <ul style="list-style-type: none"> <li>- Automatic monitoring and targeting</li> <li>- Energy management</li> </ul> </li> <li>■ Inventory control</li> <li>■ Control panel and analyser solutions</li> </ul> | <p>Programmable PLC/SCADA based automation solutions.</p> <ul style="list-style-type: none"> <li>■ Process automation                             <ul style="list-style-type: none"> <li>- Intelligent automation solutions specifically designed to solve your process automation requirements</li> </ul> </li> </ul> |

## UK

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