



APPLICATION NOTE Food & Beverage

Compressed air measurement in a distribution station

- Measuring standard volume, temperature and pressure using one single measuring device
- Reduced pipeline cross-section with sandwich installation at measuring point
- Simple installation thanks to 2-wire connection technology

1. Background

Compressed air is required in almost all operations producing beverages. Only seldom are the compressed air supplies monitored and adapted to actual consumption. Considerable costs are easily saved when compressor output is controlled based on consumption. To accomplish this, the entire compressed air consumption must be measured so that leaks, for example, and the called for compressed air requirement can be exactly measured.

2. Measurement requirements

A producer of beverages had to measure compressed air with the following process parameters:

Media	Compressed air
Standard volume flow	3000 Nm ³ /h / 1870 SCFM
Operating pressure	6 bar / 87 psi
Operating temperature	20 °C / 68 °F
Room / ambient temperature	>40 °C / 104 °F

Originally, the plant was designed for large flow volumes. That is why the compressed air pipeline narrows at the measuring point in front of the distribution station, allowing even smaller flow volumes to be exactly measured.



Distribution station for compressed air

3. KROHNE solution

For this compressed air application, KROHNE provided the OPTISWIRL 4070 C vortex flowmeter. The device has sandwich connections, making installation easy and keeping investment costs low. The size used is DN 100 / 4" and pressure rating PN 40. The device is equipped with pressure and temperature compensation as well as a flow calculator so that in the event of pressure changes the correct consumption quantity of the standard volume is automatically recorded.



Constricted pipeline for flow measurement

4. Customer benefits

The KROHNE measurement technology installed here provided enormous advantages for the beverage producer in terms of investment and follow-up costs. The integrated pressure and temperature compensation with flow calculation eliminates the need for separate devices. Compressor output can now be adapted to consumption values. Some customers have also carried out comparison measurements with devices from other manufacturers. The best performance came from the KROHNE OPTISWIRL 4070 C due to its robustness, versatility and not least its superior measuring accuracy.

5. Product used

OPTISWIRL 4070 C

- 2-wire vortex flowmeters for gases, liquids and steams, optionally available with integrated pressure and temperature compensation
- Non-wearing, fully-welded stainless steel construction with high resistance to corrosion, pressure and temperature
- Flanged connections and sandwich version
- Optimal application reliability thanks to Intelligent Signal Processing (ISP) – stable readings, free of external perturbations
- Ready to use immediately thanks to plug & play
- Maintenance-free measuring sensor design
- PACTware available at no extra cost
- Pressure and temperature available via HART®
- Hazardous area versions according to ATEX and FM



Contact

Please visit our website for a current list of all KROHNE contacts and addresses.



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