APPLICATION REPORT

Food & Beverage

Flow measurement of whisky

- Equipping a bottling plant for single malt whisky with flow instrumentation
- Cost-effective measurement with twin-straight tube Coriolis mass flowmeter
- Various measuring tasks – from monitoring tanker offloading to controlling the volumetric amount of spirits transferred to blending and bottling areas.

1. Background

The Glenmorangie Company Ltd is one of the most famous producers of Scottish single malt whisky. Their critically acclaimed products range from the Original Glenmorangie 10-, 18- and 25-year-old whiskies to special cask, extra matured and a range of limited edition whiskies.

All of the Glenmorangie whiskies are produced and matured in casks at the Glenmorangie distillery near Tain, Ross-shire, in the Scottish highlands. After maturation, the whiskies are sent to the company's bottling plant in West Lothian, near Edinburgh.

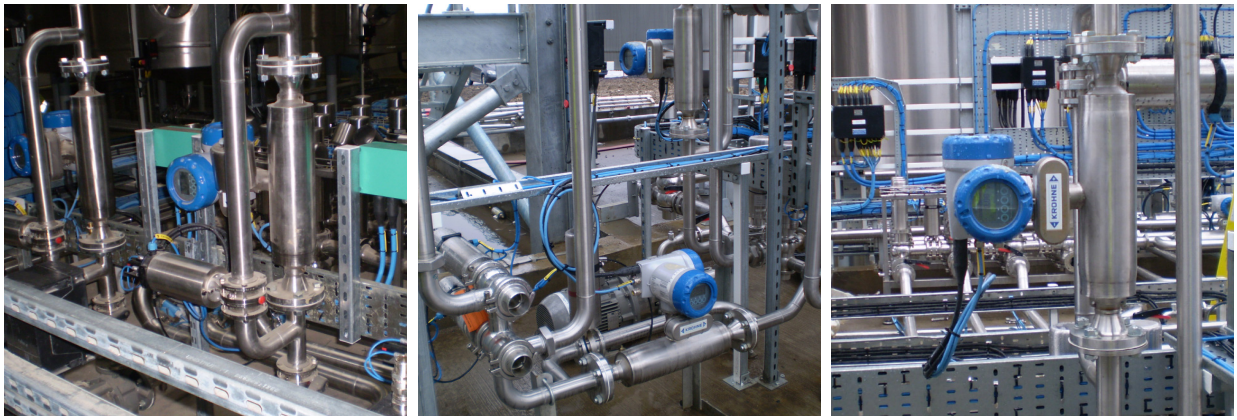
2. Measurement requirements

At the bottling plant, the whisky is offloaded and stored before being taken to the bottling areas. In order to increase efficiency and to continuously monitor the various volumetric flows, Glenmorangie were looking for a flowmeter to perform the various measuring tasks. The customer required the meter to be both cost-effective and accurate.

Medium	Whisky
Flow rates	1,000...60,000 l/h
	264... 15,850 gal (US)
Density	866...914 kg/m³
	7.2...7.6 lb/gal (US)
Viscosity	1.2 cP
Temperature	+15...+25 °C
	+59...+77 °F
Pressure	3...7 barg
	43.5...101.5 psig

3. KROHNE solution

The OPTIMASS 1300 C Coriolis mass flowmeter could fulfil all of Glenmorangie's requirements. A total of thirteen flowmeters were installed in their bottling plant. Two meters (DN 50 / 2") are used for offloading the tankers which come from the distillery. Three meters (DN 40 / 1 ½") measure the spirit taken from the storage to the blending area. The remaining eight meters (DN 25 / 1") are used in the blending process and on the final product for bottling. All mass flowmeters have been provided with stainless steel measuring tube.



OPTIMASS 1300 C measuring single malt whisky

4. Customer benefits

The OPTIMASS 1300 C helps Glenmorangie improve the bottling processes of their plant. Besides the great deal of information provided by the meter to control the various process flows, Glenmorangie stand to gain from numerous other benefits. Compared to other entry level mass flowmeters it has an outstanding price/performance ratio. Its accuracy (±0.15%) is far higher than competitors' lower cost meter ranges, thus meeting exactly what the customer was looking for.
Due to its twin-straight tube design, the OPTIMASS 1300 C is also much easier to install than bent tube meters as it requires a much smaller footprint. There were no installation restrictions for the KROHNE meter, so it fits perfectly with the environment of Glenmorangie's bottling section. A further advantage of the meter design is that it allows self-draining, so there are no additional steps for the customer to take to remove traces of previous product flows through the meter tube.

5. Product used

OPTIMASS 1300 C

- Coriolis mass flowmeter with twin straight tube design for applications with spirits
- Mass, volume and density measurement at blending and bottling areas
- Best price/performance ratio of its class
- With optimised flow divider for low pressure loss
- DN 15...100 / ½...4"; PN100 / ASME Cl 600 lb
- Immunity to crosstalk: resistant to installation and process effects
- On-site verification of flowmeter with USB powered verification tool OPTICHECK
- HART®, FOUNDATION™ fieldbus, PROFIBUS® PA and DP, Modbus etc.

Contact

Would you like further information about these or other applications?
Do you require technical advice for your application?
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