

Air Supply Measurement for Reactors

❑ **Application** : Air supply measurement for chemical reactors

❑ **Products**: [digitalYEWFLO DY_ /MV \(Vortex Flowmeter\)](#)

❑ Introduction

A chemical company used variable area flowmeters to measure air flow as a key component to their reactors. In reviewing the technology, and aging variable area flow meters, the client identified with inaccurate flow measurements due to the fact that the VA meters could fluctuate up to 10% with seasonal air temperature cycles. The quality of the product is impacted significantly when air flow volume is higher or lower than required for process conditions.

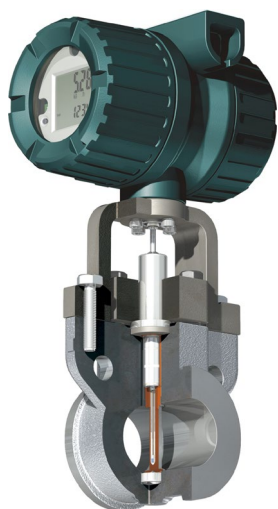


Therefore, the client decided to replace the aged VA flowmeters for further improvement of product quality with vortex flowmeters with temperature compensation function.

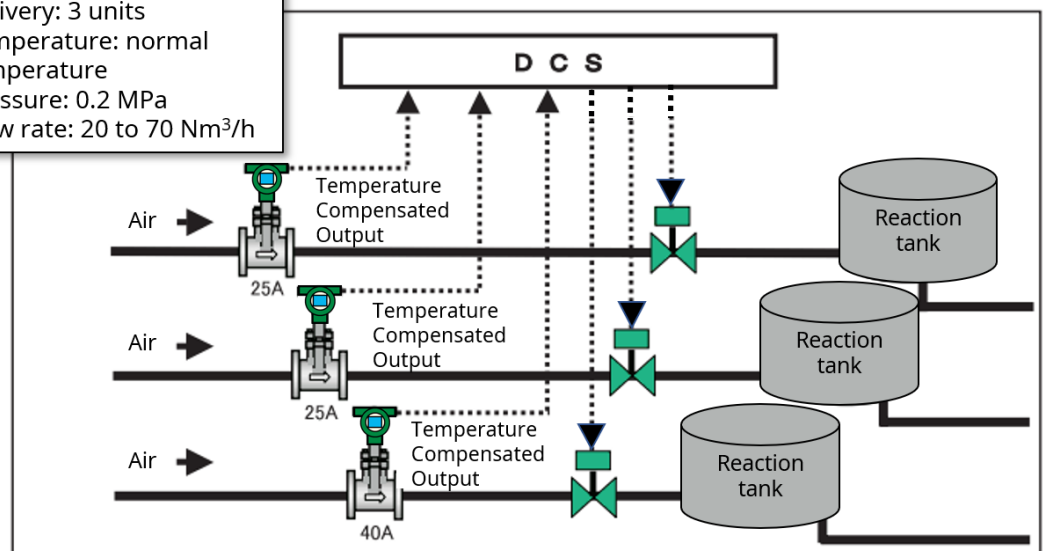
❑ Proposal

The digitalYEWFLO vortex flowmeter multi-variable (MV) type is suitable for this process due to the following reasons.

- ① **Individual thermometer is not necessary** for temperature compensation. A temperature sensor is built into the digitalYEWFLO/MV .
- ② **Temperature compensation function** is running in digitalYEWFLO/MV. Compensated flow process volume is sent to the host control system.
- ③ Existing **2-wire communication** cable can be used. No additional cabling is required.

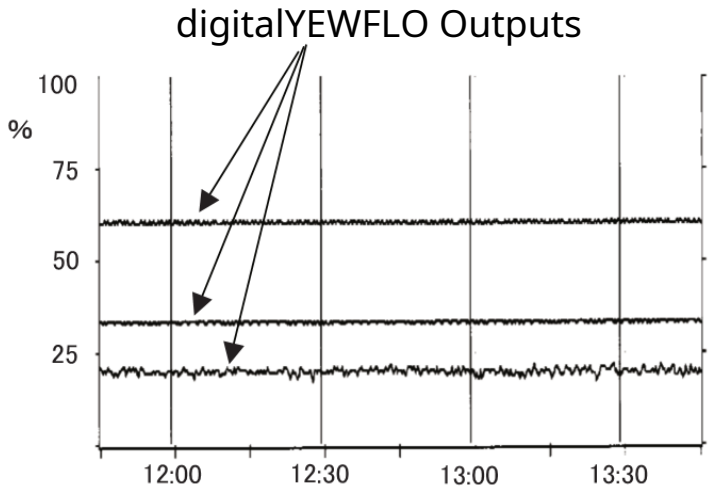


Measurement condition
 Delivery: 3 units
 Temperature: normal temperature
 Pressure: 0.2 MPa
 Flow rate: 20 to 70 Nm³/h



Field data

The digitalYEWFLOW vortex flowmeter MV type enables more accurate control of supplied air volume to the reactors due to built in temperature compensation. Productivity improvement achieved through enhanced flow measurement with digitalYEWFLOW MV technology.

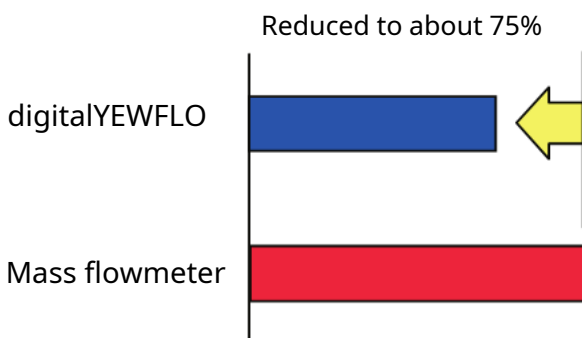


Advantage

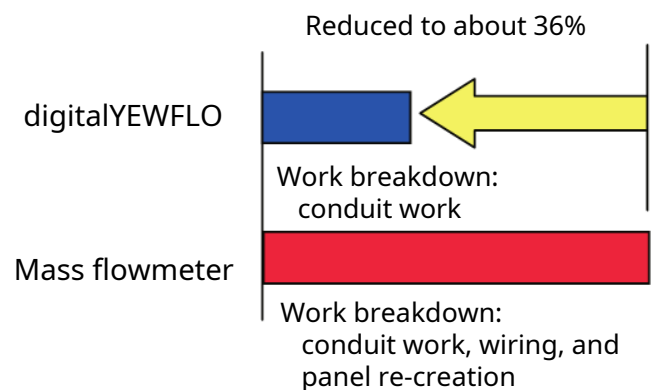
Wiring and Installation : Multi-variable (MV) type digitalYEWFLOW installation is cost effective when replacing the 2-wired flowmeter. Comparative 4-wire mass flowmeters require new installation of wiring. MV type digitalYEWFLOW reduces the installation cost by approx. 25%, compared to other mass flowmeter solutions. It delivers time savings as well.

Below graph reflects typical cost of digitalYEWFLOW vs mass flowmeter installation.

Total cost comparison of flowmeter introduction



Construction cost comparison of flowmeter introduction



*: Scaffolds setting and labor costs are included.

Yokogawa Electric Corporation

YOKOGAWA ELECTRIC CORPORATION
9-32, Nakacho 2-chome, Musashino-shi, Tokyo 180-8750, Japan

YOKOGAWA CORPORATION OF AMERICA
12530 West Airport Blvd, Sugar Land, Texas 77478, USA

YOKOGAWA EUROPE B.V.
Euroweg 2, 3825 HD Amersfoort, The Netherlands

YOKOGAWA ENGINEERING ASIA PTE. LTD.
5 Bedok South Road, Singapore 469270, Singapore

YOKOGAWA MIDDLE EAST & AFRICA B.S.C.(c)
P.O. Box 10070, Manama, Building 577, Road 2516, Busaiteen 225, Muharraq, Kingdom of Bahrain

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