New application with the DIMF 2.0

Bopp & Reuther Messtechnik GmbH

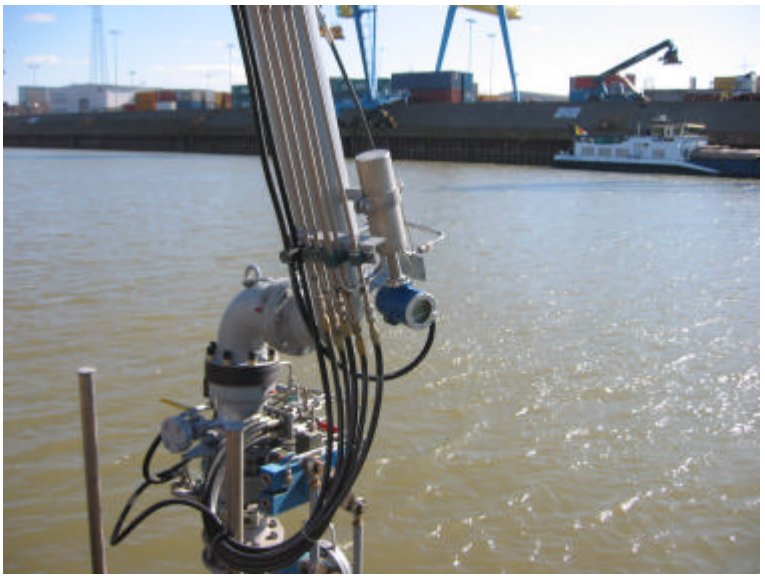
Precise interface detection during ship loading and unloading

The customer

The customer operates a tank farm combined with a ship loading station. The products used in this branch of the industry are expensive and the requirements concerning environment protection are significantly increasing. The customer is looking for a technical solution ensuring that only the desired product will be unloaded and paid for, avoiding the unloading of water residues from the ship tank.

Application

The ships are loaded and unloaded by a DN 100 (4“) loading arm. An automatic security coupling ensures that the loading arm will be disconnected rapidely in the case of a strong drift of the ship position, thus protecting personal as well as environment.
The quality of the product flowing through the loading arm is on-line controlled by a density meter from type DIMF 2.0 with HART Transmitter. The presence of water in the measured fluid generates a short term increasing of the density output. The electronic control system on customer side will recognise this density modification immediately and stop the unloading process. This makes sure the quality of the product pumped into the tank farm is constant and of high level. No water mixture will be unloaded or paid.



Technical data

- Density meter Type DIMF 2.0 TVS in reference density mode.
- Connection Swagelok
- Material Stainless steel 1.4571 (equiv. 316 TI)
- Measured products Oil, motor fuel
- Density range 800-1000 kg/m³
- Accuracy +/- 0,2 kg/m³
- Operating temp. outdoor temperature
- Operating pressure ca. 10 bar

Specific difficulties are mastered

The measuring point...
ist characterised by an especially difficult environment consisting of vibrations, humidity, variable position of the density meter, shocks, pressure spikes, direct sunshine on the meter and electronics etc...

Our technical solution:
a series DIMF 2.0 density meter
could master these difficulties thanks decades of field experience in the industry while offering a cost effective solution and fully satisfying solution to the customer.

Our advantages

- our solution is very cost effective and saves a lot of money for the customer

- SensorPort and an HART-Modem are presented to the customer as an added value service: this software tool allows an easy parametrization of the measuring point and a corresponding documentation of the parameter used for its own quality management system. The trend viewer allows an optimal graphical presentation of the density evolution over time, and precisely displays the moment where product is changing from oil to water.

- the DIMF 2.0 is installed in by-pass to the loading arm. The natural pressure drop of an elbow of the piping is used to generate a probe flow through the density meter. The DIMF is submitted to strong environmental influences and plant vibrations: however the industrial and rugged design allows for a stable and accurate measurement without any particular problems.

- our solution is very easy to install due to the two wire technique, and very compact. No modification is required in the main pipe or in the loading arm.

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