

Research & Development

New generation of turbine gas meters SM-RI

Elster-Instromet is highlighting its competence and will be introducing a new development on the basis of the well known and market approved turbine gas meter from nominal size DN 200 mid-2008. The new SM-RI, with its most up-to-date design, enables significantly reduced pressure loss and is the first turbine gas meter in the world with an optional bi-directional mode of operation. Up until now, that was reserved for applications in gas transport, above all for ultrasonic gas meters.

The main focus of this development was to improve the current properties of the mono-directional mode of operation. At the same time, thought was given to integrating a solution for an operation that was not dependent on direction, which is required, for example, for measuring gas volumes for the input and output of gas storage reservoirs. Here, Instromet technical expertise in particular was able to have an influence and you will be convinced when you see the result.

The construction of a very slim gear assembly and the consequently enlarged flow opening enables a reduction in pressure loss, which is particularly important for gas transport. Besides, this slim design allows a greater capacity (additional G-rate per nominal size; e.g., $Q_{\max} = 4000 \text{ m}^3/\text{h}$ for the DN 200), which is identical to ultrasonic gas meters and is therefore ideally suited for their comparison measurements in bigger stations.

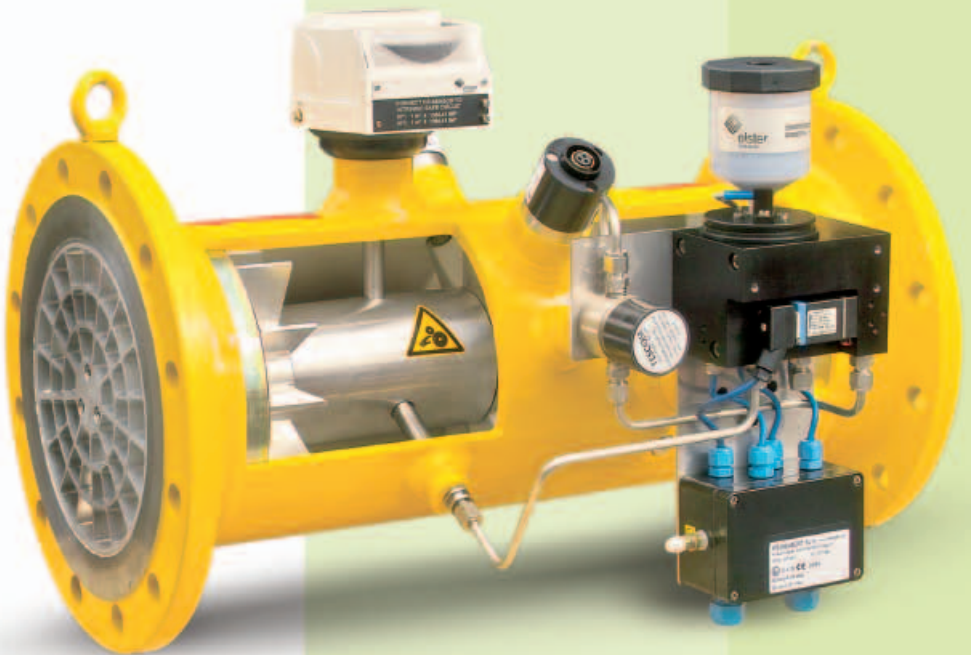


Fig. 1: Bi-directional version (optional)

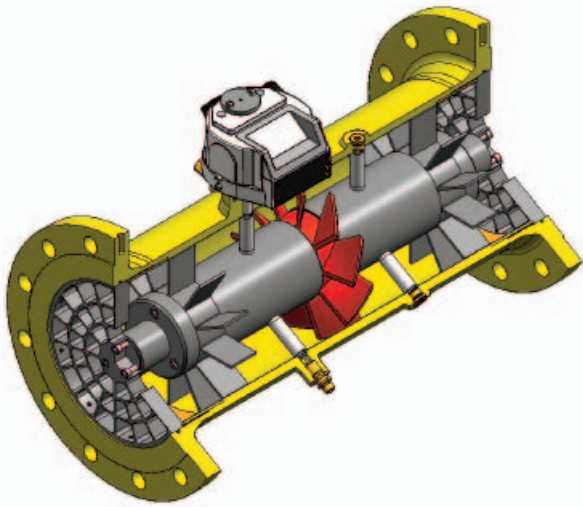
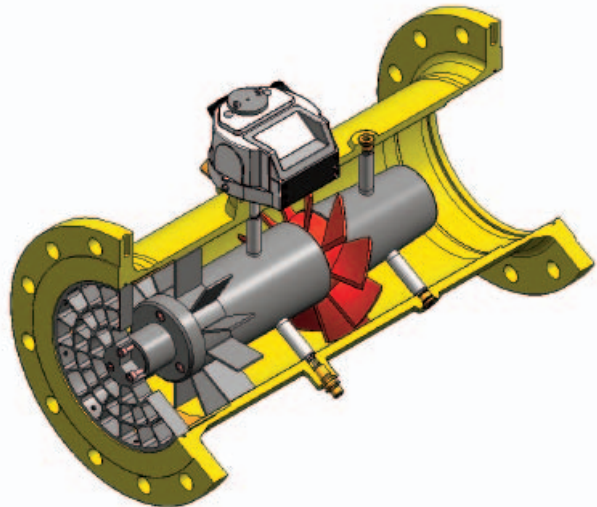
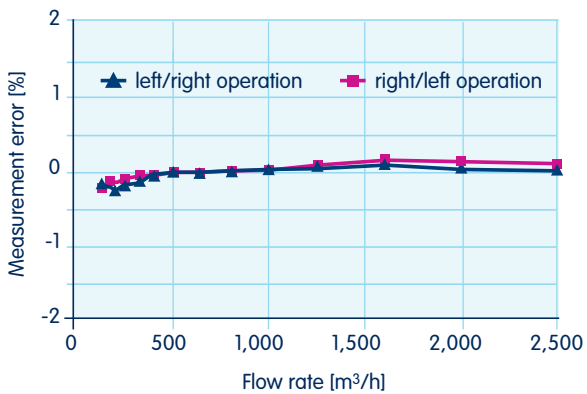


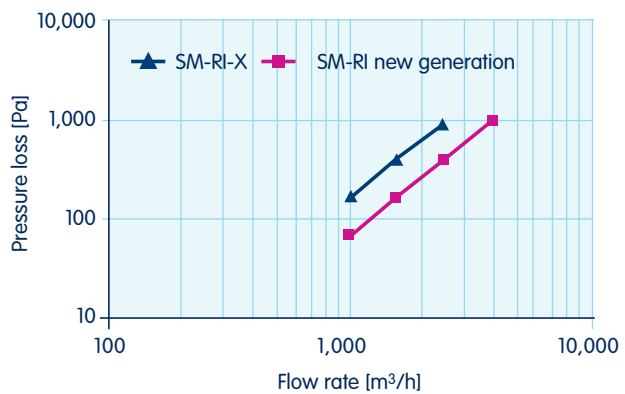
Fig. 2: Mono-directional version (standard)



Bi-directional operation



Pressure loss diagram



Even the housing has been adapted to meet current market requirements and will distinguish itself by being less susceptible to fouling. This supports the accustomed long-term stability of the measurement and is a further improvement in the current housing design.

The flow conditioner is comparable with that in current SM-RI products and is fitted on both sides of the meter with the bi-directional option.

As can be seen in Figure 1, the construction of the bi-directional version resembles a "mirror image" of the mono-directional version (Fig. 2), while using identical components. Of course, in this instance the symmetrical construction of the measuring wheel guarantees the possibility of installing it in any direction.

The gas volume recorded is transferred mechanically in both directions to the double index Multi-Index 2, which allows the reading of the gas volumes measured in both directions at any time. Volume correction is assured by a flow computer that will use the signals of both the required HF sensors on the turbine wheel alongside the usual pulse transmission for identifying the flow direction.

Prototypes for this new development were presented at the trade fairs held in Karlsruhe (GAT) and in Oslo (NSFMW). Away from trade fair centres we can of course gladly offer you information about this new product over the phone or by internet, or we can send you a product flyer. At Elster-Instromet, it's all about innovations for the future!