

THE ELSTER QUANTOMETER:

40 years old and still going strong !

With the invention of the first axial flow turbine gas meter by ELSTER in the 1930s it became possible for the first time to measure gas on a large industrial scale both accurately and economically. These measurements then enabled the user to calculate the energy used relatively accurately by the standards at the time. After all, energy has always cost money!



Fig. 1: QA/DM Quantometer, a new design

Then, in the sixties, the ELSTER Quantometer was developed for internal, non custody transfer metering. This little brother to the turbine meter was special not only because of the normal advantages ELSTER meters guarantee but because it was particularly short in length. Today, the Quantometer is available in a variety of versions for flow rates up to 25,000 m³/h and with diameters up to 600 mm.

Quantometers are not only used to measure and bill natural gas but are also suitable for measuring process gases such as air, nitrogen, hydrogen and oxygen. Its versatility and unproblematic handling quickly made the Quantometer a very popular device throughout the industrial sector.

The latest innovation in our Quantometers can be found in the **QA/DM** and **QAe/DE** series with a diameter of 25 mm (see Figs. 1 and 2). This device has been completely redesigned. The following is a list of the most important features of the new design:

- ▶ extruded high-strength housing in a modern design
- ▶ the complete series now has a uniform design
- ▶ better long-term stability brought about by larger ball bearings
- ▶ pressure loss up to 50% lower

- ▶ stable pulse output to improve regulating behaviour
- ▶ higher accuracy

The general advantages of Quantometers can be summed up as follows: they are excellent value-for-money, they can register both small and large flow rates, the measuring ranges are larger, the metering data can be transferred to be further processed and archived, the installation in the pipe system is very simple and can be in a variety of positions and, finally, no maintenance is required.

Quantometers in the QAe/DE series (see Fig. 2) are fitted with an electronic index. An M-Bus interface is also available as an option and can be used for remote data transfer.

The following displays are available:

- ▶ total actual volume (V_b, m³)
- ▶ actual flow rate (Q_b, m³/h)
- ▶ key-day volume (V_b, m³)
- ▶ annual volume and key-day volume (V_b, m³)

With the help of this data, the users can easily calculate at any point in time the gas consumption for any particular building or cost centre. By directly displaying the actual flow rate, it is possible to set gas burners without having to read out and convert the data.



Fig. 2: QAe/DE Quantometer with an electronic index

Particularly in industrial gas metering, other systems besides Quantometers are often used to measure gas volume and flow rate. The requirements placed upon the gas meters in this sector vary a great deal. Simply distinguishing between 'good and bad' principles is of no great value. The physical concept must be suitable for the individual application at hand. When looking for the best-suited metering system, the following checklist with the most important selection criteria may be of use:

- ▶ medium
- ▶ Ex-protection
- ▶ measuring range
- ▶ diameter
- ▶ pressure range
- ▶ temperature range of medium
- ▶ ambient temperature range
- ▶ error limits
- ▶ linearity
- ▶ repeatability
- ▶ long-term stability
- ▶ operational life
- ▶ calibration approval
- ▶ safety
- ▶ pressure loss
- ▶ dimensions
- ▶ weight
- ▶ variety of versions
- ▶ price
- ▶ installation costs
- ▶ operating costs
- ▶ maintenance costs
- ▶ impact of media
- ▶ impact of system
- ▶ impact of piping in operating plant
- ▶ bi-directional metering
- ▶ dynamic behaviour
- ▶ pulsation behaviour
- ▶ behaviour in intermittent operation
- ▶ noise development
- ▶ sensitivity to dirt
- ▶ outside installation
- ▶ corrosion protection
- ▶ sensors / interfaces
- ▶ reaction time
- ▶ suitability for regulation processes
- ▶ power supply / battery
- ▶ mechanical index
- ▶ electronic index
- ▶ system compatibility



Fig. 3: QA/DM Quantometer, sandwich version



O₂-special version

Fig. 4: QA/DM Quantometer, stainless steel version

ELSTER Quantometers have a very high 'hit-rate'. They have become a household name throughout the industry. ELSTER devices have proved themselves in industrial gas metering time and time again over the last 40 years and have quite simply become indispensable in their field.

We are highly flexible and are able to react quickly to the varying requirements of our customers. Reliability, friendly service, long-life products with excellent metering behaviour even in difficult operating conditions are top priority for ELSTER. As early as the planning phases, our development engineers also include the varying climatic and operational conditions in the design process. Throughout the world, the use of natural gas and process gases in industrial manufacturing is continuously growing and there is an ever-increasing demand for high-quality and cost-effective metering devices.

With the introduction of the QA series of Quantometers, customers all over the world have been able to make use of the well-established metering technology normally only associated with turbine meters.

Over 130.000 Quantometers from this series are currently in operation around the world.

This is incentive enough for us to continue to recognize the needs of our customers and to incorporate these needs in our new product developments.

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