

ELSTER'S RVG G10-G25

A *New Star* in the Metering Program

ELSTER has extended its range of rotary meters for official and non-official metering. The new small meters stand out in terms of functionality and design.

Rotary meters work on the principle of volumetric displacement just like diaphragm gas meters. The measuring accuracy does not depend on the flow profile, but this flow profile is influenced by the pipe system as well as the devices or fittings installed upstream of the meter. As with industrial diaphragm meters starting from a size of G65, rotary meters have a large measuring range, which can be as high as 1:160. In the past, rotary meters have gradually replaced the large industrial diaphragm meters G250 and G160. Today, our small rotary meters are a good alternative to commercial diaphragm meters and, therefore, add to our metering possibilities.

When deciding whether to choose a small rotary meter, the following positive factors should be taken into account:

- ▶ The compact design
- ▶ The light weight
- ▶ The optimised measuring chamber
- ▶ The pressure ranges up to PN 16 or ANSI 150

It is hardly surprising that, also in the field of commercial diaphragm meters from G10 to G25, there is a great deal of interest in even more compact gas meters. A large number of applications cannot be covered by the larger versions with flanged connections where the meters rotate more slowly. What is required is smaller housings, screw connections and the possibility to install the meters both horizontally and vertically. These features are even more important when the devices are to be combined with gas pressure regulators and shut-off valves in compact cabinets.

We can now meet these demands with the traditional ELSTER quality. Our successful RVG series of rotary meters from G16 up to G250, with either GGG 40 or aluminium housings, has been extended to include the new small, aluminium rotary meters G10 to G25 (Fig. 1).



Fig. 1: Complete systems for vertical and horizontal flow. Are they identical? Spot the differences.

Three sizes with the same 0.2 dm³ measuring chamber volume are available. With this optimized measuring chamber volume, the pressure loss is minimal, even at Q_{max}. In figure 2 you can see the excellent results of tests carried out with a number of different flow rates using natural gas at atmospheric pressure.

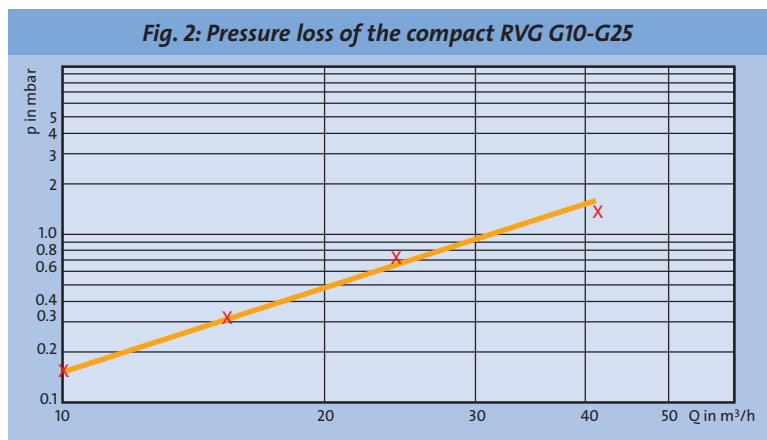


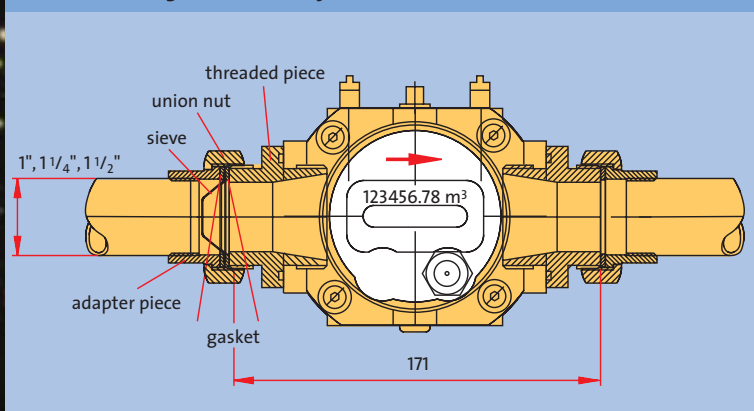
Fig. 2: Just look at the excellent results of tests carried out at a number of different flow rates using natural gas at atmospheric pressure.

The standard measuring range for each meter size is 1:20. This means that any necessary metering tasks can be fulfilled in a satisfactory manner in almost every case. What's more, the measuring range can be extended. With a Q_{\min} of 0.5 m³/h, certified in the national approval documentation, the measuring range for the G10 is 1:30, for the G16 1:50 and for the G25 1:80 – a very good result for meters of these sizes.

The connection possibilities are very important with compact meters. All of the meters have a housing length of 121 mm from inlet to outlet and 1 1/2" internal thread in accordance with DIN ISO 228. They are fitted with a threaded piece and an O-ring gasket at both the inlet and outlet sides, which means the total length of the meters is 171 mm. The external thread of the couplings depends on the diameter of the pipe and is as follows:

1" pipe	G 1 1/2" thread
1 1/4" pipe	G 2" thread
1 1/2" pipe	G 2 1/4" thread

Fig. 3: Dimensions for the meter and connection set



The material required to fit the coupling to the relevant pipe with an external thread of 1", 1 1/4" or 1 1/2" is available in an optional connection set. This includes three flat gaskets, two adapter pieces and two union nuts as well as a sieve to protect the meter at the inlet (Fig. 3). This ensures that the user has all the necessary equipment to make the installation quick and simple.

One detail of the installation is particularly important and must be explained in advance – the flow direction. In principle, the meter can be operated in any direction:

- ▶ From left to right
- ▶ From right to left
- ▶ From top to bottom
- ▶ From bottom to top

Whatever direction is required, the meter is set exworks so that the 8-digit roller counter is in a horizontal position and the oil display glass shows the ideal oil level in the middle of the glass.

The approved temperature range both for the gas and the ambient conditions is -20°C to +60°C. The pressure rate for the use of the small rotary meter is PN16/ANSI 150. Internal tests have shown that the housing is not damaged until the pressure is over 100 bar. This is, of course, in line with our philosophy – "ELSTER stands for quality and the highest safety standards".

Rotary meters are suitable for measuring natural gas, city gas, propane gas and a number of inert gases. In many applications, also where the measurements are not meant for official billing purposes, the standard volume is required as a calculation factor and the standard flow rate as a control factor. What is also important is the fact that, when combining a compact gas metering device and a compact volume corrector, then the combined system should also be as compact as possible. The special system including the RVG G10-G25 and an EK210 is a particularly good example of a complete system. The EK210 is fitted to the rotary meter with the aid of a robust clamp. There are additional boreholes in the housing for a thermowell and the thermowell with the Pt-500 sensor from the volume corrector is fitted at the inlet. The pressure sensor for the volume correction function is also located at the inlet. The low-frequency pulses are transferred via a Binder plug, which has an IP67 protection class (splash proof). The complete system is equally as compact whether it is installed vertically or horizontally. When the RVG G10-G25 is retro-fitted with an EK210 volume corrector, the thermowell should be located upstream of the meter. In any case, this combination ensures user-friendly data collection and further processing with the tried-and-trusted LIS-200 long-term pulse collecting system.

The RVG G10-G25 rotary meters help ELSTER to extend and round off its successful range of high-accuracy displacement meters. When a job has special requirements such as a pressure range over 0.5 bar or extremely small dimensions, it can now be done with ELSTER's seal of quality. The quickest and easiest way to find the data sheet concerning the new rotary meters is to log in to the internet at www.elster.com.

FROM DR. HARALD DORNAUF, ELSTER GERMANY

dornauf@elster.com