M2R 25: FLEXIBILITY IS TOPS

Tailor-made solutions for every application

Varying philosophies concerning the supply of gas in different world markets are constantly leading to new requirements, which gas pressure regulators for residential use then have to fulfill. This is where the ELSTER two-stage M2R 25 regulator can prove its flexibility once again, namely in a new field of application.

ELSTER M2R 25 L: in-line version

The application

In many regions of Europe, the supply of energy was for many years built up on the basis of decentralized liquid gas networks. In these cases, the liquid gas (LPG) was fed into the residential supply system at a high pressure, which is quite common with LPG.

For several years now, these decentralized networks have undergone a process of conversion and the system is now based on a centralized gas supply system using natural gas. The problem which arises here is how to strengthen the already existing residential installations. In this case, the small-diameter pipes common in residential LPG installations have to be upgraded to cope with natural gas.

In order to solve this problem, first of all a medium-pressure gas regulator is installed at the inlet to the house installation thus reducing the supply pressure of 4 bar to a residential supply pressure of 400 mbar. This makes it possible to transport higher loads through the narrow residential pipes in the old installations. Following this, the pressure is further reduced to a normal 20 mbar consumption pressure with the help of a meter service governor (e.g. J42 from JEAVONS) installed on top of the meters of the individual appartments (Fig. 2).

The solution

ELSTER's two-stage medium-pressure regulator M2R 25 has a modular design which leads to a higher degree of flexibility. As a result, we can now offer a version enabling an outlet pressure of 400 mbar. This can also be combined with a variety of connection possibilities and accessories: in-line or angled version, manual or automatic reset, LPCO/EF and so on.

Technical data and new features

- inlet pressure range up to 5 bar
- outlet pressure range 18 - **100, 300, 400** mbar
- flow capacity 25 m³/h at pe 0.5 to 5 bar
- excess flow cut-off at 2.5; 4; 6; 10; 25 m³/h
- temperature range -20°C to +60 °C
- SSV range 50 – 110, **450** mbar
- accuracy ±10% / lock up +20%
  approved also for accuracy ±5%
  lock up +10%

Design Characteristics

- integrated filter
- low pressure cut-off (LPCO)
  excess flow cut-off (EF)
  manual or automatic reset
- relief valve (RV)
- safety diaphragm (optional)

Characteristics

- modular concept:
  - angled connection
  - in-line
  - wide variety of connections available

Fig. 1: Cabinet installation

In order to deal with the large amount of force caused by the high outlet pressure, the effective surface of the working diaphragm has been reduced compared to the standard version. However, this reduction of the system forces is not enough to ensure an easy release of the LPCO/EF. To achieve this, a special spring mechanism is located in the spring housing above the working diaphragm and this enables a reset involving the lowest possible use of force. When the LPCO is in a closed position, only the relatively weak closing spring (2) impacts on the release mechanism. In this position, the actual regulating spring (1) is not part of the flow of force. The regulating spring only comes into play when the M2R 25 is in operation (Fig. 3). Figure 1 shows a typical, compact outdoor installation of the M2R 25 as a 400 mbar version.

So, as you can see, ELSTER can offer a tailor-made solution based on the M2R regulator and can help to solve this specific problem.

Paul Ladage, ELSTER Germany *ladage@elster.com*

Fig. 2: Installation Sample

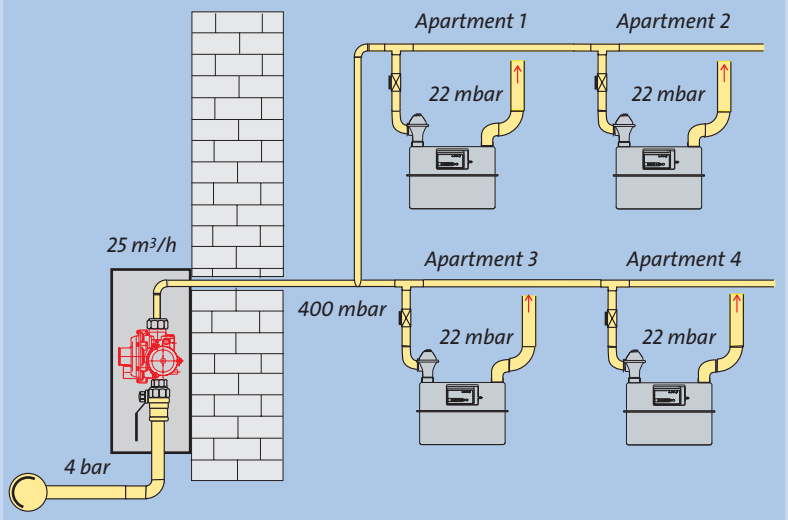

Fig. 3: 3-D cross section of M2R 400