# Operating Instructions
# High pressure diaphragm gas meter
# Type HDBGZ

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|---|---|
| **Sizes:** | **G4 to G6** |
| **Connections:** | **DN 20 to DN 25** |
| **Nominal pressures:** | **up to PN 25** |
| **Temperature ranges:** | **-20 °C to +50 °C** |
| **Case material:** | **Boiler plate H II** |

**For custody transfer measurement of clean and dry**

- **natural gas**
- **town gas**
- **propane**
- **hydrogen**
- **nitrogen**
- **air, and**
- **inert gases**

**Chemical gases according to DVGW spreadsheet G260**

**On request**

- **oxygen**
- **acetylene**

**Installation, wiring and maintenance may be carried out by authorized and trained personnel only. Prior to such activities, these operating instructions must be read! They contain all important information for the installation and operation of the High-Pressure-Diaphragm-Meter Type HDBGZ G4 to G6. They complement the relevant national regulations with respect to the manufacturing and equipment of metering systems as well as to the execution of maintenance services.**

## Declaration of Conformity in Accordance with EN 45014

Elster-Instromet Production GmbH, D-55252 Mainz-Kastel, Germany, herewith declares on its sole responsibility, that Elster-Instromet high-pressure diaphragm gas meters (type HDBGZ; serial numbers 62.000.000, etc.) correspond to the terms and conditions of the directive 97/23/EC on pressurized units as well as to the directive 79/196/EEC on electronic components used in areas exposed to explosions.
In addition, Elster-Instromet GmbH herewith declares that Elster-Instromet high pressure diaphragm gas meters (type HDBGZ; serial numbers 62.000.000, etc.) correspond to the terms and conditions of the directive 71/318/EEC on volume gas meters as well as the measurement conditions requirements and tests of EN 1359.
In oder to ensure the quality, they are manufactured in accordance with a quality management system which has been certified to DIN EN ISO 9001-2000.

Mainz-Kastel, 29 August 2005

Segment Manager

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 Subject to technical modifications 

# 1 Installation, Commissioning and Removal

❶ Prior to the installation, the gas meter shall be checked to ensure that there are no damages caused by transportation. The protective caps must be removed from the inlet and outlet flanges.

❷ The high pressure diaphragm gas meter shall be installed into the piping in accordance with the flow direction, which is indicated on the case. The admissible ambient temperatures shall be observed.

❸ The pressurizing of the gas meter with an operating pressure up to 2,5 bar is realized by carrying out the following steps.

❹ Open slightly the shut-off valves at the inlet and outlet pipes and make sure that the measuring system is working (observe totalizer). Then open the valves completely.

❺ It is highly recommended that the pressurizing of the meter with a operating pressure of more than 2,5 bar be realized by using a ½´´ filling pipe and vent pipe. Follow the steps of item 3 and do not open the shut-off valves until a complete pressure balance has been achieved. If the downstream piping is not under pressure, there is no need of a vent pipe. In that case, you first open slightly the shut-off valve on the outlet side. The filling pipe is connected to the pressure tap in the housing or to the inlet pipe of the meter, the vent pipe on the outlet side of the meter.

❻ In case of new systems, the temporary installation of a cone screen on the inlet side of the gas meter is recommended.

❼ Under no circumstances should you pressurize the meter by using an upstream regulator or a fast-switching valve (e.g.magnetic valve).

❽ To enable the connection of volume correctors, we may equip, on request, the high pressure diaphragm gas meter with a pipe screw connection (6mm pipe) for pressure vent as well as a spigot for the installation of Elster-Instromet thermowell.

❾ The operation of the Elster-Instromet high pressure diaphragm gas meter requires that you care especially about the operating condition of the metering system. Due to the large pressure-exposed surfaces of the measuring chambers and diaphragms, the heavy response forces resulting from rapid alterations of the volume flow on account of the system´s inertia may jeopardize the measuring system. For that reason, all operating conditions of this kind, e.g. rapid bearing load alterations or rapid pressure balancing, must be avoided. If this is not possible, the effects of these conditions on the measuring system must be compensated by structural measures or circuitry modifications. Elster-Instromet service is ready to support you in special cases.

# 2 Lubrication and maintenance

**Maintenance-free**

# 3 Pulse Generator

Elster-Instromet high pressure diaphragm gas meters are equipped regularly with 2 low-frequency (LF) pulse generators and an additional reed switch (PCM) for detection of interferences caused by magnetic fields.

**LF pulser (reed switch)**
$U_{max}$ = 24 V
$I_{max}$ = 50 mA
$P_{max}$ = 0,25 VA
$R_i$ = 100 Ω (protective resistor)

The pin assignments of the pulsers are specified either on the pulsers themselves or on adhesive labels affixed on the meter. The terminal diagrams indicate either the:
a) colors of corresponding wires of the connecting cable or
b) the top view of the pin contacts of the built-in flange connector or view of the connecting terminals to be soldered of the coupler socket.

In addition, the number of pulses per m³ (cp factor) is indicated on the type plate.

**As far as applicable, the relevant regulations with respect to the explosion protection shall be observed when using the pulse generators!**

Installation of the pulse generator IN-S11:

- Both guides of the IN-S11 are inserted into the guiding grooves of the totalizer head.
- Push the unit over the safety clip of the totalizer head until the IN-S11 locks acoustically.

Removal of the pulse generator IN-S11:

- Lift the lower clip of IN-S11 by means of a screwdriver and, by pulling slightly, remove from the guide of the totalizer head.

# 4 Totalizer

The totalizer head can be read at 45°. The totalizer head can be rotated by about 355°.