# EQZ

## Quantometer
## for gas

# EQZ
## Quantometer for gas

## Contents



## Description

EQZ quantometers are reliable instrument for secondary flow measurements. They are very useful to know how much fuel is used in a thermoprocessing plant.

## Features

EQZ is a quantometer with radial design. Advantages of such construction are:
- quantometer measurement is not affected by presence of curves or section change in pipes immediately upward or downward the instrument;
- maintenance is very easy as “metering head” can be dismounted without removing meter body from line.

EQZ is able to satisfy a lot of measuring requests:
- connections from 1”½ to DN100
- metering size G16 (Minimum flow $Q_{min}$ 3 $m^3$) to G400 (Maximum flow $Q_{max}$ 650 $m^3$)
- in case of intermittent operation, an over-run brake can be mounted to stop the measuring wheel as soon as flow stops, avoiding measuring error due to wheel inertia.

Each instrument has a wide measuring range: $Q_{min}$ / $Q_{max}$ is 1:20 for many models.

Main parts of these instruments are made of metals, other parts are made of specific technical polymers suitable for industrial applications.

Index head can be rotated in four positions for easy reading.

It is suitable for air and non-aggressive gases (families 1-2-3 EN437).
Special version for other gases (e.g. biogas) on request.

Each instrument is provided with a low frequency pulse sensor. Additional medium frequency sensor can be provided on request.

Maintenance free because it has permanently lubricated bearings.

The instrument can be mounted in horizontal or vertical position.

All components are designed to withstand mechanical, thermal and chemical stresses present in a typical installation.

**WARNING**

**This device shall be installed in accordance with the laws in force.**

## Functioning

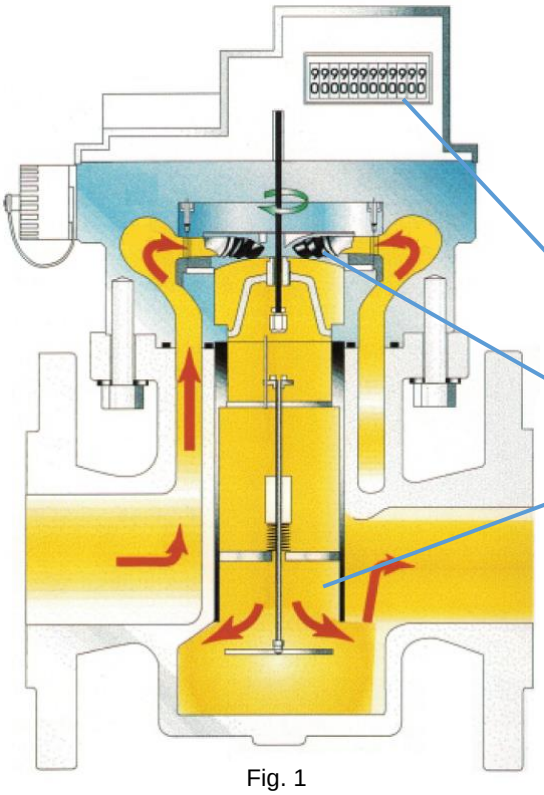


Fig. 1

Fig. 1 shows how a radial turbine gas meter works. The flow of gas inside instrument causes the rotation of turbine rotor. Frequency of rotations is proportional to the actual gas flow. A gear train transmit rotation from rotor to external counter. The counter indicates all the volume of gas which has flown inside the instrument. When flow stops, rotor continues to move for some turns due to its inertia, to avoid this it is possible to install an over-run brake.

**WARNING**

**Location and mode of installation must be in compliance with local rules in force.**

## Technical specifications

Tab. 1

| | |
|---|---|
| **Working pressure** | Max 4 bar (1”½ threaded)<br>Max 6 bar |
| **Test pressure** | Max 6 bar (1”½ threaded)<br>Max 9 bar |
| **Environment and medium temperature** | -10°C / +60°C |
| **Gas type** | Air and non aggressive gases (fam. 1-2-3 EN 437)<br>On request, special versions for aggressive gases |
| **Type of connection** | Threads as EN 10226-1<br>Flanges as ISO 7005 PN16 |
| **Enclosure** | IP65 (EN 60529) and UV-resistant |

**Dimensions**

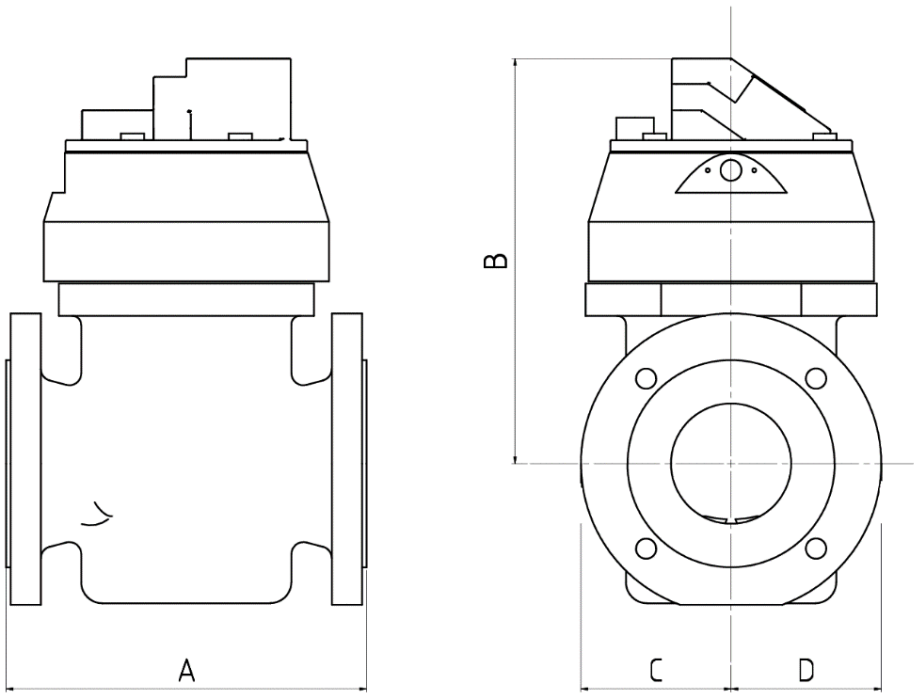


Fig. 2

Tab. 2

| **Connection** | **A** mm | **B** mm | **C** mm | **D** mm | **Weight** Kg |
|---|---|---|---|---|---|
| 1"½ threaded Inlet male Outlet female | 140 | 221 | 82 | 82 | 9 |
| DN 50 flanges | 150 | 221 | 82 | 82 | 13 |
| DN 80 flanges | 240 | 270 | 85 | 85 | 25 |
| DN 100 flanges | 305 | 304 | 113 | 113 | 34 |

**Connections and meter sizes available:**

Tab. 3

| Connection | Meter size | Typical value | | | Pulse generators |
|---|---|---|---|---|---|
| | | Qmin ($m^3/h$) | Qmax ($m^3/h$) | Pressure loss with Qmax * (mbar) | |
| 1"½ threaded<br>DN50 with flanges | G 16 | 3 | 25 | 1 | LF<br>1 pulse = 1 $m^3$<br><br>MF<br>1 pulse = 0.01 $m^3$ |
| | G 25 | 4 | 40 | 2.2 | |
| | G40 | 5 | 65 | 2.2 | |
| | G65 | 6 | 100 | 5.2 | |
| | G100 | 10 | 160 | 10.2 | |
| DN 80 with flanges | G65 | 10 | 100 | 1.2 | |
| | G100 | 12 | 160 | 2.6 | |
| | G160 | 15 | 250 | 5.8 | |
| | G250 | 20 | 400 | 15 | |
| DN 100 with flanges | G100 | 13 | 160 | 3.5 | |
| | G160 | 15 | 250 | 6 | |
| | G250 | 20 | 400 | 9.5 | |
| | G400 | 25 | 650 | 23 | |

***Item without brake, fluid: Natural Gas 0.83 Kg/$m^3$**

## Selection

To select the correct quantometer it is necessary to know: $Q_{min}$ and $Q_{max}$ in operating condition. Generally flows are known in normal conditions ($Q_{minS}$ and $Q_{maxS}$).

To convert flow from normal to operating condition use this formula:

$$Q = \frac{Qs}{(P + 1{,}01)} \cdot \frac{(T + 273)}{288}$$

Q = flow in operating condition ($m^3/h$)
T = operating temperature (°C)
P = relative operating pressure (bar)

Qs = flow in normal condition ($Nm^3/h$)

(Normal condition: 15°C – 1,013bar)

When $Q_{min}$ and $Q_{max}$ are defined, it is possible to select all the quantometers with a suitable measuring range from Tab. 3.
As final step it is necessary to consider other features as:
- pressure drop: the pressure drop in the instrument has to be lower that pressure drop available. Be aware that a smaller quantometer is more accurate but has higher pressure drop;
- possible variation of plant: if the flow can be increased in the future, it is better a larger instrument.

## Ordering information

Tab. 5

| | EQZ | 80 | G65 | . | B |
|---|---|---|---|---|---|
| **Type of item**<br>**EQZ** radial quantometer | | | | | |
| **Connection**<br>**40** (threaded)<br>**50** (flanged)<br>**80** (flanged)<br>**100** (flanged) | | | | | |
| **Size**<br>See tab. 3 for connection-size available<br>**G16**<br>..<br>**G400** | | | | | |
| **Sensors and optional**<br>**A** low frequency sensor (standard)<br>**B** low frequency and medium or high frequency sensors (on request)<br>**F** with over-run brake (on request) | | | | | |

*Example:*
EQZ.80G65.B: quantometer with connection DN80, measuring range 10-100m$^3$/h, with LF and MF outputs

## Standards and approvals

The product complies with the essential requirements of the following European Directives and their amendments:

CE

2014/68/UE (Pressure Equipment Directive)
2014/34/EU (ATEX) when shown upon the product
2014/30/EU (Electromagnetic Compatibility) when applicable.

**Quality Management System is certified according to UNI EN ISO 9001.**

The information in this document contains general descriptions of technical options available and based on current specifications.

The company reserves the right to make changes in specifications and models as design improvements are introduced, without prior notice.

Elektrogas is a brand name of:

Elettromeccanica Delta S.p.A.
Via Trieste 132
31030 Arcade (TV) – ITALY
tel +39 0422 874068

www.delta-elektrogas.com
info@delta-elektrogas.com