



Nederlands Meetinstituut

EC type-approval Certificate

Number **E230**, Revision 0
Projectnumber 10097404
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In case of dispute the Dutch text of the EC Type approval is decisive.

Issued by NMI Certin B.V.
Hugo de Grootplein 1
3314 EG Dordrecht
The Netherlands

In accordance with Article 7, first paragraph, of the General EEC Decree

Applicant Schlumberger Measurement Division
1310 Emerald Road
Greenwood
South Carolina 29646-8800
U.S.A.

Submitted measurement transducer for liquefied petroleum gas (LPG)
manufacturer : Schlumberger Measurement Division Europe
model designation : 4D-MT (2" LPG-meter)

Characteristics diameter in- and outlet : 50 mm
cyclic volume : 1.057 liter
p(max) : 24 bar
Qmax [l/min] : 450 l/min
Qmin : 90 l/min
minimum measured quantity measurement sensor : 100 l
intended for the measurement of : Liquefied Petroleum Gas (LPG)

The additional characteristics are given in the description belonging to this Certificate



Carlus C. Cathoart
Minimum measured quantity meter
My Commission Expires
October 14, 2008

The minimum measured quantity of the meter is the largest of the following three values:

- 100 l (the minimum measured quantity of the sensor)
- 100 times the unit of indication
- 100 times the unit of printing, if applicable

Valid until 10 years after date of issue

Nederlands Meetinstituut
Hugo de Grootplein 1
3314 EG Dordrecht (NL)
Telefoon +31 78 6 332 332
Telefax +31 78 6 332 380

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Description and Documentation

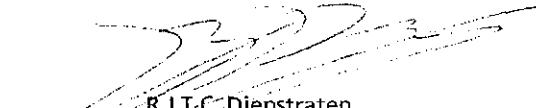
The principal characteristics and approval conditions for this pattern are set out in the description and documentation stated in Documentation Folder E230-1.

Remarks

EC-model approval sign:



Dordrecht, 8 November, 1999.
NMI Certin B.V.



R.J.T.C. Diepstraten
Head Certification Dordrecht



1 General information on the meter

All properties, mentioned or not, of this meter shall not be in conflict with the Weights and Measures Act, 1989.

1.1 Essential parts

1.1.1 Measurement sensor

The measurement sensor is a positive displacement device. It mainly consists of a cylindrical housing onto which the in- and outlet and two circular covers are mounted. Inside the housing an eccentrically mounted cylinder, equipped with 1 vane, is installed. These parts are set in motion by the liquid flowing through the sensor. The rotating movement of the inner parts is transferred to an axis to which other devices can be connected mechanically. For information on the appearance of the meter housing and its inner parts, one is referred to the Documentation Folder E230-1

1.1.2 Adjustment device

The adjustment device is mounted onto the measurement sensor's axis. The adjustment device mainly consists of a housing in which several gears, a disk with holes and a pin are mounted. The device is equipped with an axis to which other devices can be connected mechanically. By altering the place of the pin in the disk the amount of rotation of the output axis can be changed in comparison to the amount of rotation of the axis to which the adjustment device is connected. Typically, the adjustment range for the disk is 4 %; the step size is 0.15 %. For larger changes to the output, a different set of gears is required.

1.1.3 Mechanical indicator

The mechanical indicator is EEC approved and manufactured by: Schlumberger, Veeder Root or Kienzle. The indicating device can be combined with one or more of devices mentioned in paragraph 1.4.

1.2 Essential characteristics

1.2.1 Measurement sensor

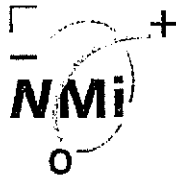
The following characteristics apply:

diameter in- and outlet	:	50 mm
cyclic volume	:	1.057 liter
maximum operating pressure	:	24 bar
Qmax [l/min]	:	450 l/min
Qmin	:	90 l/min
minimum measured quantity measurement sensor	:	100 l

1.2.2 Meter

The minimum measured quantity of the meter equals at least the largest of the following values:

- 100 l (the minimum measured quantity of the sensor)
- 100 times the unit of indication
- 100 times the unit of printing, if applicable



1.3 Essential Shapes

1.3.1 Inscriptions on the measurement sensor

On the measurement sensor at least the following is inscribed:

- manufacturer : Schlumberger
- type : 4D-MT
- the sign of EEC pattern approval : E230

1.3.2 Inscriptions on the indicating device

On the indicating device, in the direct vicinity of the display, at least the following is inscribed:

- the minimum measured quantity of the meter (see 1.2.2)
- the unit of indication

1.3.3 Inscriptions on the printing device

On the printing device, if present, at least the following shall be marked:

- the unit of printing

1.4 Conditional Parts

1.4.1 Mechanical Printing device

The meter may be provided with an EEC approved mechanical printing device, manufactured by: Schlumberger, Veeder Root or Kienzle.

1.4.2 Presetting device

The meter may be provided with an EEC approved mechanical presetting device, manufactured by: Schlumberger, Veeder Root or Kienzle.

1.4.3 Zero-setting device

The meter may be provided with an EEC approved zero setting device, manufactured by: Schlumberger, Veeder Root or Kienzle.

1.4.4 Volume-totalising device

The meter may be provided with an EEC approved volume-totalising device, manufactured by: Schlumberger, Veeder Root or Kienzle.

1.5 Conditional Shapes

1.5.1 Additional inscriptions

Other inscriptions, not leading to confusion, may be added. Examples of such inscriptions are:

- Do not reset during measurement
- Place ticket before printing.

2 Conditions for Approval

2.1 The meter must be constructed according to the description and Documentation Folder belonging to this Type Approval.

2.2 The Approval Mark and the seals must be applied as specified in the description and Documentation Folder belonging to this Type Approval.

3 Approval Mark and seals

- 3.1 A provision, provided with the Approval Mark, secures the dataplate with mandatory inscriptions onto the measurement sensor.
- 3.2 At least the following is sealed:
 - the sensor's housing, against unauthorised opening
 - the adjustment device, against unauthorised opening

Photograph of the pattern

