EU-type examination certificate

Number **T10377** revision 9
Project number 3695056

Issued by

NMi Certin B.V.,
designated and notified by the Netherlands to perform tasks with respect to conformity asssessment procedures mentioned in article 17 of Directive 2014/32/EU, after having established that the measuring instrument meets the applicable requirements of Directive 2014/32/EU, to:

Manufacturer

Zhejiang Cangnan Instrument Group Co., Ltd.
No. 345, Strait Avenue, Lingxi Town, Cangnan County
Wenzhou City, Zhejiang Province
P.R. China 325800

Measuring instrument

A **Rotary Displacement Gas Meter**

Type	:	RM Series
Manufacturer's mark or name	:	Zhejiang Cangnan Instrument Group Co., Ltd.
Destined for the measurement of	:	Gas volume
Accuracy class	:	Class 1,0
Environment classes	:	M1
Temperature range	:	Depending on Q_{min}, see table 1.2.1
Maximum pressure	:	20 bar(g)

Further properties are described in the annexes:
- Description T10377 revision 9;
- Documentation folder T10377-6.

Valid until

7 October 2031

Initially issued

7 October 2011

Remark

This revision replaces the earlier versions, except for its documentation folder.

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Issuing Authority

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Certification Board

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Description

1 General information about the gas meter

All properties of the gas meter, whether mentioned or not, shall not be in conflict with the legislation.

1.1 Essential parts

1.1.1 Measuring part
The dimensions of the rotors are presented in the table below, while also the appertaining volumes are indicated.

Cyclic volume (V) [dm^3]	Rotor height [mm]	Rotor thickness [mm]	Rotor length [mm]
0,22	41	19	75
0,26	67	30	65
0,69	89	41	100
1,11	89	41	160
2,31	131	60	155
2,98	131	60	200
3,88	131	60	130 (Twin)
5,97	131	60	200 (Twin)

Remarks:
- The versions with the indication "Twin" concern a duo rotary type, which are identified on the type plate with an additional "T" in the G-value (for example G400T).
- See the drawings in document no. 10377/9-10 for all the essential dimensions.

1.1.2 Bearings of the rotors
The bearings of the rotors are presented in the exploded view of document no. 10377/9-09 and have the following characteristics:

Cyclic volume V [dm^3]	Front bearing		Rear bearing	
	inner diameter d [mm]	outer diameter D [mm]	inner diameter d [mm]	outer diameter D [mm]
0,22	4	9	4	9
0,26	5	13	4	12
0,69	10	22	6	16
1,11	10	22	6	19
2,31	15	35	12	24
2,98	15	35	12	28
3,88	15	35	12	24
5,97	15	35	12	24

1.2 Essential characteristics

1.2.1 The meter has the characteristics as given in the next table.

volume V [dm^3]	G-value	Q_{max} [m^3/h]	Q_t [m^3/h]	Temperature range [3] Option A -25...+55 °C minimum Q_{min} [m^3/h]	Temperature range [3] Option B -10...+55 °C minimum Q_{min} [m^3/h]	DN-size
0,22	G10	16	1,2	-	0,4	25
0,26	G16	25	1,25	0,5	0,4	40
	G25	40	2	0,5	0,4	40
0,69[2]	G16	25	1,25	0,5	-	50
	G25	40	2	0,5	-	50
	G40	65	3,25	0,5	-	50
	G65	100	5	0,5	-	50
1,11[2]	G100	160	8	1	-	80
2,31[2]	G160	250	12,5	1,6	-	80
2,98[2]	G160	250	12,5	2,5	-	100
	G250	400	20	2,5	-	100
3,88[1, 2]	G400T	650	32,5	4	-	100
5,97[1, 2]	G400T	650	32,5	6,5	-	150
	G650T	1000	50	6,5	-	150

[1] Twin rotor version named "G...T".

[2] These samples can optionally be manufactured as an MPV version (see also section 0).

[3] For individual rotary gas meters a single temperature range (option A or B), combined with the indicated minimum Q_{min}, shall be selected.

The flow rate range shall fulfill the following conditions:

Class	Q_{max} / Q_{min}	Q_{max} / Q_t
1,0	≥ 20	≥ 5

1.2.2 Mounting position

- Gas meters of versions "G..." and "G...T" can only be mounted in two flow directions:
  - Left to right with the tapping's on top;
  - Top to bottom with the tapping's on the side.
- Gas meters of versions "G... MPV" and "G... T MPV" can be mounted in all four flow directions because additional tappings are added to the bottom of the gas meter. The meter covers have additional oil fill and drain plugs and additional sight glasses for checking the oil level.
  MPV stands for Multi Position Version. See documentation number 10620/9-01 for more details on the MPV meters.

1.3 Essential shapes

1.3.1 The nameplate is bearing at least, good legible, the following information:

a) CE marking including the supplementary metrological marking (M + last 2 digits of the year in which the instrument has been put into use);
b) Notified Body identification number, following the supplementary metrological marking;
c) EU-type examination certificate no. T10377;
d) Manufacturer's name, registered trade name or registered trade mark;
e) Manufacturer's postal address;
f) The serial number of the meter and year of manufacture;
g) Accuracy class;
h) Q_{max}, Q_{min} and Q_t in m³/h;
i) p_{max} = ... MPa (or kPa, or Pa, or bar);
j) The nominal value of the cyclic volume: V = ... dm³;
k) The meter temperature class (minimum and maximum working temperature);
l) Pulse values of HF and LF frequency outputs;
m) Indication of the flow direction, e.g. an arrow.

An example of the markings is shown in document no. 10377/9-06.

1.3.2 Seals
See chapter 0.

1.4 Conditional parts

1.4.1 Construction
In addition to the essential parts as mentioned at 1.1, the meter contains at least the following conditional parts:

- Housing.
- Transmission.
- Register.
- Front and rear cover.
- Synchronization wheel.
- Pressure measuring points.

The meter can also be provided with low frequency impulse outputs.

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1.4.2 Housing
The gas meter has a housing, which has sufficient tensile strength. The meter housing is made of aluminium with an anodized exterior. Document no. 10377/3-01 contains sample pictures of the meter. There are two possible flange types: semi circle and a square shape. The essential characteristics of the housing are given in document no. 10377/9-10.

1.4.3 Transmission
The transmission between the measuring part and the register is executed by means of a magnet coupling. Between measuring part and magnetic coupling a set of adjustment wheels is present. A drawing of the gear transmission is presented in document no. 10377/9-11. A table of possible adjusting wheels is given in document no. 10377/9-12.

1.4.4 Register
The measured volume is presented by means of a mechanical register.
See document no. 10377/9-11. The register is built up as given in the table below:

Size	Number of drums		Control-element
	before the comma	behind the comma	[m^3]
G10 – G65	6	2	0,002
G100 – G650	7	1	0,02

1.4.5 Front and rear cover
The entrance to the transmission from the measuring part to the register is shielded by means of a front and a rear cover (see document no. 10377/9-11).

1.4.6 Synchronization wheel
The rotors are coupled together mechanically by means of a synchronization wheel.

1.4.7 Pressure tapping's
The housing contains a pressure tapping to determine the inlet pressure. This pressure tapping is provided with the indication "$p_{m/r}$". A second pressure tapping at the outlet is provided with the indication "p".

1.4.8 Low frequency impulse outputs (optional)
The meter can be provided with low frequency impulse outputs (reed contacts).
The impulse value is stated on the meter.

1.5 Non-essential parts

The meter has toe following non-essential parts:
- Oil filling plug.
- Drain plug and sight glass for lubrication and checking oil level in the meter.
- Temperature points.

2 Seals

The following items of the meter are sealed:

- The nameplate of the meter.
- The entrance to the measuring part and adjustment wheels is sealed with one or more seals.
- The front and back cover of the meter. The back cover contains an extra centre cover plate which is also sealed.
- The entrance to the register is sealed with one or more seals.
- The register is sealed to the measuring part.
- If a separate nameplate is used to show the pulse value this nameplate has to be sealed.

See document no. 10377/9-02, 10377/9-03 & 10377/9-04 for an example of the seals.