



EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/18 - 5561

Addition 1

This addition replaces all previous versions of this certificate in full wording.

Page 1 from 8 pages

In accordance: with Directive 2014/32/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (implemented in Czech Republic by Government Order No. 120/2016 Coll.).

Manufacturer: COMAC CAL, s.r.o.
č.p. 239
739 53 Třanovice
Czech Republic

For: water meter – inductive
Type: FLOW 38

Accuracy class: 2
Temperature class: T30 and T50

Valid until: 29 April 2028

Document No: 0511-CS-A015-18

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate.

Date of issue: 19 June 2018

Certificate approved by:




RNDr. Pavel Klenovský

1. Characteristics of instrument:

The water meters type FLOW 38 are designed to measure, memorise and display the volume at metering conditions of water passing through the measurement transducer in the sense of the Directive 2014/32/EU of the European Parliament and of the Council of the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (implemented in Czech Republic by Government Order No. 120/2016 Coll.), as amended.

The water meters type FLOW 38 are electromagnetic water meters manufactured in two modifications: compact and remote versions.

The water meters type FLOW 38 consist of flow sensor and an electronic calculating/indicating device. The flow sensor measure based on an induction principle with fluoroplast or rubber lining, with straight inlet (5 times the diameter) and outlet (3 times the diameter) length, without flow conditioner, flanged or threaded. The meter is not designed to measure reverse flow. The water meter does not require any extra-mechanical housing or adjustments.

The water meters type FLOW 38 are equipped with the electronic indicating device. The display is a digital type that show up to 15 digits in two lines, and is serviced by 3 buttons placed under the front cover and 2 buttons placed outside. The display shows the measurements in cubic meter volume (positive, negative, total) and cubic meter per hour flow rate; the outside buttons scroll between the windows. The standard resolution mode is used during normal operation. The water meter displays in the standard resolution mode up to 000000.001 m³/h flow rate and up to 000000.001 m³ volume on the digital display. The water meter displays the volume resolution of up to 000.001 L on the digital display in the high resolution mode which would be used during the calibration process. This mode is set up by buttons. Version of firmware and checksum (CRC32) are shown on display after power up and also can be displayed in SET menu (long press by upper button and scroll to window with identification).

The passwords (specific password for legally relevant data; user and factory level) secure access to the metrological parameters.

The water meters type FLOW 38 shall be installed to operate in horizontal position only with the indicating device positioned at the top and in vertical position with flow from bottom to top.

The water meters type FLOW 38 can be equipped by impulse output which can be used for remote reading.

2. Main characteristics:

Basic technical data of water meters type FLOW 38 DN10 – DN80:

Nominal diameter:		10	15	20	25	32	40	50	65	80
Q_1 [m ³ /h]:		flowrates are shown in Table <i>flowrates</i>								
Q_2 [m ³ /h]:										
Q_3 [m ³ /h]:										
Q_4 [m ³ /h]:										
Q_3/Q_1 :	H↑	50 or 40								
	V↑	40								
Accuracy class:		2								
Maximum permissible error for the lower flowrate zone (MPE _l)		±5%								
Maximum permissible error for the upper flowrate zone (MPE _u)		±2% for water having a temperature ≤ 30°C ±3% for water having a temperature > 30°C								
Temperature class:		T30 and T50								
Pressure loss class:		Δp 10								
Water pressure class:		MAP10			MAP10 and MAP16					
Environmental class:		B								
Electromagnetic environment:		E2								
Software version:		v8.23								
Checksum		7C5A5230								
Orientation limitation:		horizontal position only with the indicating device positioned at the top (H↑) and vertical position with flow from bottom to top (V↑)								
Indicating range [m ³]:		9 999 999				99 999 999				
Resolution of the indicating device [m ³]:		0.001				0.01				
Resolution of the device for rapid testing [m ³] – programmable high resolution:		0.001 (normal mode) 0.000001 (high resolution mode)				0.01 (normal mode) 0.000001 (high resolution mode)				

Low flow cut off:	0.01 x Q_3									
Connection type (flange):	flange									
Connection type (screw thread):	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	-	-	-
Flow profile sensitivity classes:	U5D3									
Length (flange) [mm]:	200									
Length (screw thread) [mm]:	190	190	200	200	230	245	254	-	-	-
Power supply:	230 V AC / 50 Hz									
	24 V DC									

Basic technical data of water meters type FLOW 38 DN100 – DN400:

Nominal diameter:	100	125	150	200	250	300	350	400
Q_1 [m ³ /h]:	flowrates are shown in Table <i>flowrates</i>							
Q_2 [m ³ /h]:								
Q_3 [m ³ /h]:								
Q_4 [m ³ /h]:								
Q_3/Q_1 :	H↑	50 or 40						
	V↑	40						
Accuracy class:	2							
Maximum permissible error for the lower flowrate zone (MPE _l)	±5%							
Maximum permissible error for the upper flowrate zone (MPE _u)	±2% for water having a temperature ≤ 30°C ±3% for water having a temperature > 30°C							
Temperature class:	T30 and T50							
Pressure loss class:	Δp 10							
Water pressure class:	MAP10 and MAP16							
Environmental class:	B							
Electromagnetic environment:	E2							
Software version:	v8.23							
Checksum	7C5A5230							
Orientation limitation:	horizontal position only with the indicating device positioned at the top (H↑) and vertical position with flow from bottom to top (V↑)							
Indicating range [m ³]:	999 999 999							
Resolution of the indicating device [m ³]:	0.1							
Resolution of the device for rapid testing [m ³] – programmable high resolution:	0.1 (normal mode) 0.000001 (high resolution mode)							
Low flow cut off:	0.01 x Q_3							
Connection type (flange):	flange							
Flow profile sensitivity classes:	U5D3							
Length (flange) [mm]:	250	250	300	350	450	500	550	600
Power supply:	230 V AC / 50 Hz							
	24 V DC							

Basic technical data of water meters type FLOW 38 – *flowrates*

Manufacturer:	Comac Cal								
Model number:	FLOW38								
Nominal diameter:	10	15	20	25	32	40	50	65	80
Q_1 [m ³ /h]:	0.04	0.10	0.16	0.25	0.40	0.63	1.00	1.58	2.50
Q_2 [m ³ /h]:	0.06	0.16	0.25	0.40	0.64	1.00	1.60	2.52	4.00
Q_3 [m ³ /h]:	1.6	4.0	6.3	10.0	16.0	25.0	40.0	63.0	100.0
Q_4 [m ³ /h]:	2.0	5.0	7.9	12.5	20.0	31.3	50.0	78.8	125.0
Q_3/Q_1 :	40								

Q_1 [m ³ /h]:	0.03	0.08	0.13	0.20	0.32	0.50	0.80	1.26	2.00
Q_2 [m ³ /h]:	0.05	0.13	0.20	0.32	0.51	0.80	1.28	2.02	3.20
Q_3 [m ³ /h]:	1.6	4.0	6.3	10.0	16.0	25.0	40.0	63.0	100.0
Q_4 [m ³ /h]:	2.0	5.0	7.9	12.5	20.0	31.3	50.0	78.8	125.0
Q_3/Q_1 :	50								

Manufacturer:	Comac Cal								
Model number:	FLOW38								
Nominal diameter:	100	125	150	200	250	300	350	400	-
Q_1 [m ³ /h]:	4.00	6.25	10.00	15.75	25.00	40.00	40.00	40.00	-
Q_2 [m ³ /h]:	6.40	10.00	16.00	25.20	40.00	64.00	64.00	64.00	-
Q_3 [m ³ /h]:	160.0	250.0	400.0	630.0	1000.0	1600.0	1600.0	1600.0	-
Q_4 [m ³ /h]:	200.0	312.5	500.0	787.5	1250.0	2000.0	2000.0	2000.0	-
Q_3/Q_1 :	40								

Q_1 [m ³ /h]:	3.20	5.00	8.00	12.60	20.00	32.00	32.00	32.00	-
Q_2 [m ³ /h]:	5.12	8.00	12.80	20.16	32.00	51.20	51.20	51.20	-
Q_3 [m ³ /h]:	160.0	250.0	400.0	630.0	1000.0	1600.0	1600.0	1600.0	-
Q_4 [m ³ /h]:	200.0	312.5	500.0	787.5	1250.0	2000.0	2000.0	2000.0	-
Q_3/Q_1 :	50								

3. Tests

Technical tests of the water meters type FLOW 38 were performed in compliance with the International Recommendation OIML R 49 Edition 2013 (E) with conformity to ISO 4064, Test Reports No. 6015-PT-P0030-18, No. 8553-PT-S1028-17, No. 8551-PT-E296-17, No. 8551-PT-E297-17, No. 8551-PT-E298-17 and No. 8551-PT-E299-17.

4. Conformity marks and inscription:

The water meters type FLOW 38 shall be clearly and indelibly marked with the following information:

- a) label of flow sensor:
 - Water meter type
 - Numerical value Q_3 in m³/h ($Q_3 \times \times$) and the ratio Q_3 / Q_1 (R40 or R50)
 - EU-type examination certificate number
 - Manufacturer's name, registered trade name or registered trade mark
 - Year of manufacture, two last digits of the year of manufacture, or the month and year of manufacture
 - Serial number (as near as possible to the indicating device)
 - Direction of flow, by means of an arrow (shown on both sides of the body or on one side only provided the direction of flow arrow is easily visible under all circumstances)
 - Maximum admissible pressure (MAP $\times \times$)
 - Letter H \uparrow (horizontal position with the indicating at the top) and/or V \uparrow (vertical position with flow from bottom to top)
 - The temperature class (T $\times \times$)
 - The pressure loss class ($\Delta p \times \times$)
 - The installation sensitivity class (U \times D \times)
 - Climatic and electromagnetic environmental classes (B; E2)
 - For an external power supply: the voltage and frequency;
- b) label of the electronic:
 - Water meter type
 - Unit of measurement (m³)

- Numerical value Q_3 in m^3/h ($Q_3 \times .x$) and the ratio Q_3 / Q_1 (R40 or R50)
- EU-type examination certificate number
- Manufacturer's name, registered trade name or registered trade mark
- Post address of manufacturer
- Year of manufacture, two last digits of the year of manufacture, or the month and year of manufacture
- Serial number (as near as possible to the indicating device)
- For an external power supply: the voltage and frequency
- For an impulse output: output signals and power supply
- Software version
- CE marking and metrology marking in line with the Directive 2014/32/EU

These markings shall be visible without dismantling the water meter after the instrument has been placed on the market or put into use. Compact version would show only one label with all marking. Examples are in Figure 2 and Figure 3.

5. Additional specifications:

The water meters type FLOW 38 shall be put onto the market in line with the procedure of conformity assessment according to the Annex D or F of the Directive 2014/32/EU as well as in compliance with the technical description of this report and shall be tested in accordance with the requirements determined in ISO 4064-1:2017, respectively OIML R 49-1:2013.

A metrological test may only be performed by a producer, or a notified body respectively in line with the conformity assessment procedure by the D or F Annexes of the Directive 2014/32/EU, respectively.

6. Ensuring the integrity of the instruments:

The metrological data is sealed by passwords (specific password for legally relevant data; user and factory levels). One of the screws that hold the front panel with display of the indicating device (under the front cover) has to be sealed. Both sides of threaded have to be sealed each other.

The location of seals is described in Figure 1.

The label have to be sealed by safeguarding sticker. The location of seal is described in Figure 3.

Connection of the cable between the flow sensor and the indicating device in case of remote version and back cover of the indicating device (this point also seals following parts: connection of the flow sensor and the housing of the indicating device in case of compact version; connection of the power supply cable and connection of the impulse output, if equipped), have to be sealed by manufacturer's installation seal or other relevant national authority seal. The location of seals is described in Figure 1.

7. Drawing of the instrument:

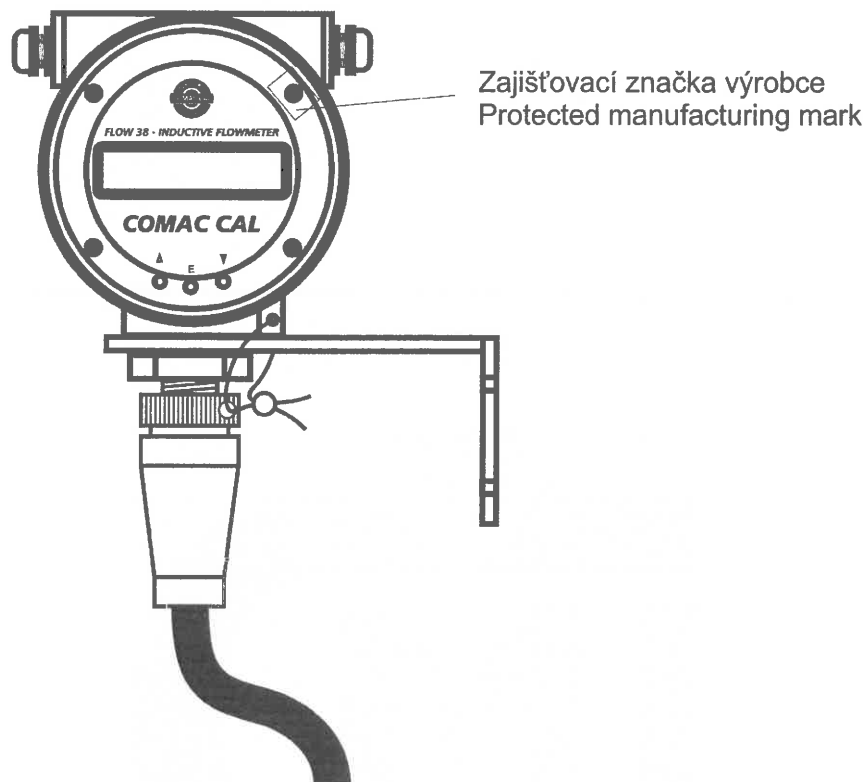
Water meters type FLOW 38 are manufactured according to the technical documentation of manufacturer. Technical documentation contains following drawings:

Document reference	Date	Brief description
SESTAVA 11	7.4.2018	FLOW 38 – Flange Description
SESTAVA 12	7.4.2018	FLOW 38 – Thread Description
SESTAVA 13	7.4.2018	FLOW 38 – Separate Electronic
SESTAVA 15	7.4.2018	FLOW 38 – Thread Compact Sealing
SESTAVA 16	7.4.2018	FLOW 38 – Flange Compact Sealing
SESTAVA 17	7.4.2018	FLOW 38 – Thread + Flange Separate Sealing
SESTAVA 18	7.4.2018	FLOW 38 – exploded view of the electronic
SESTAVA 19	7.4.2018	FLOW 38 – the electronic board
SESTAVA 20	7.4.2018	FLOW 38 – power supply 230 VAC
SESTAVA 21	7.4.2018	FLOW 38 – power supply 24 V
SESTAVA 22	7.4.2018	FLOW 38 – labels

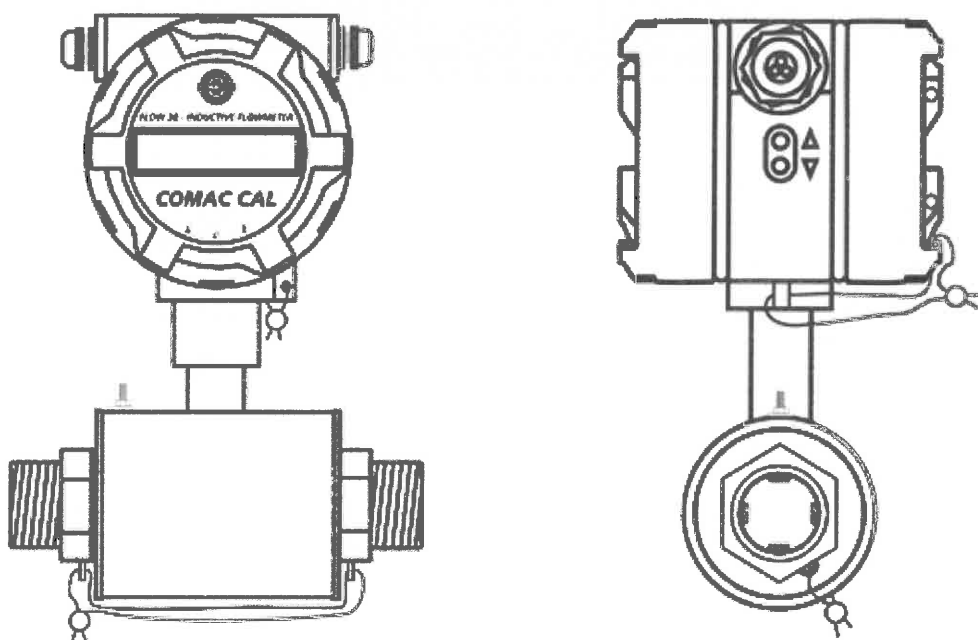
History of additions

Addition No.	Description
Addition 0	Issuing certificate
Addition 1	Change of length (screw thread)

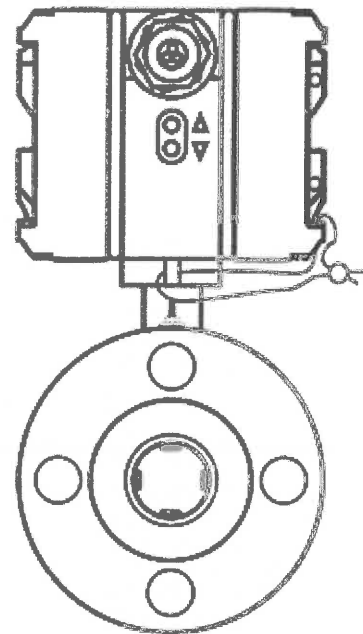
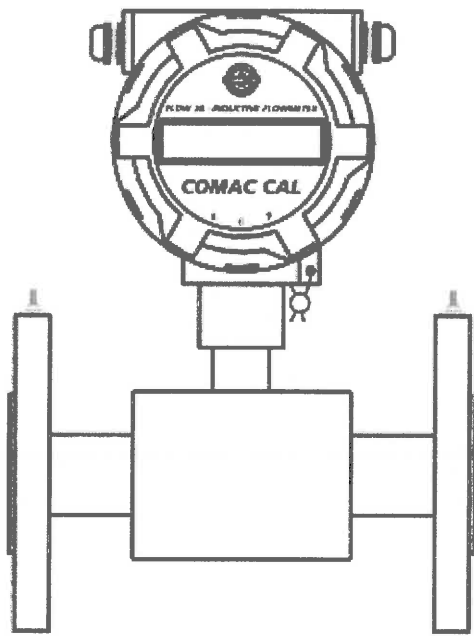
Figure 1: The water meter type FLOW 38 – view and sealing:



Compact version - threaded:



Compact version - flanged:



Separate version:

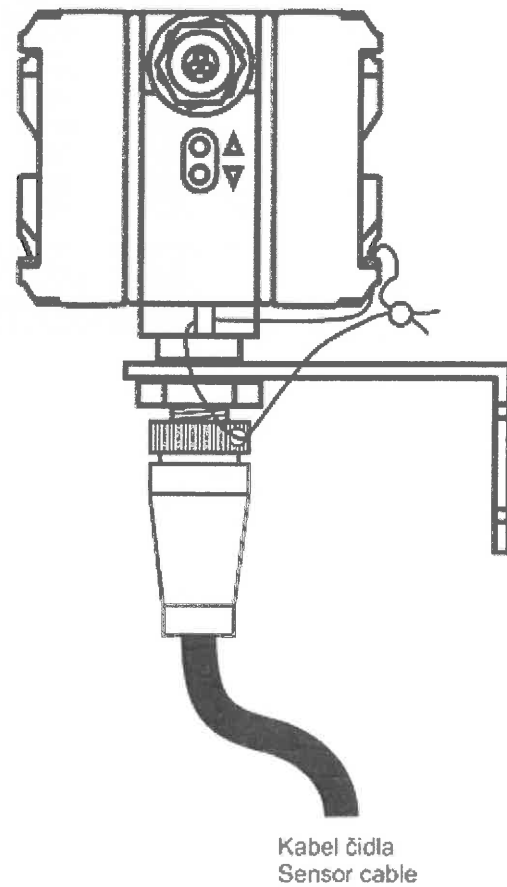
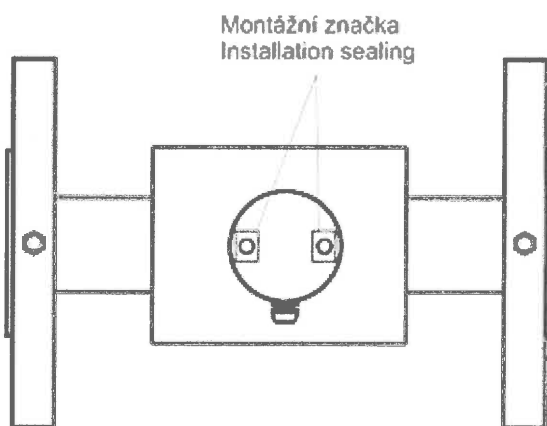
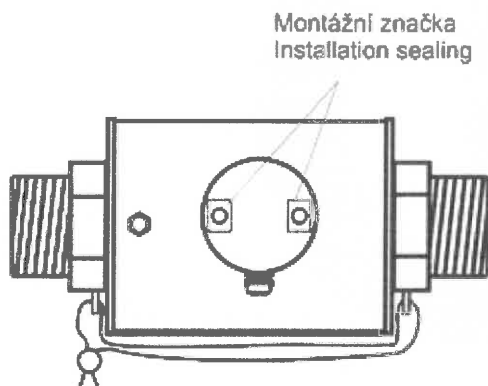


Figure 2: The water meter type FLOW 38 – example of register:

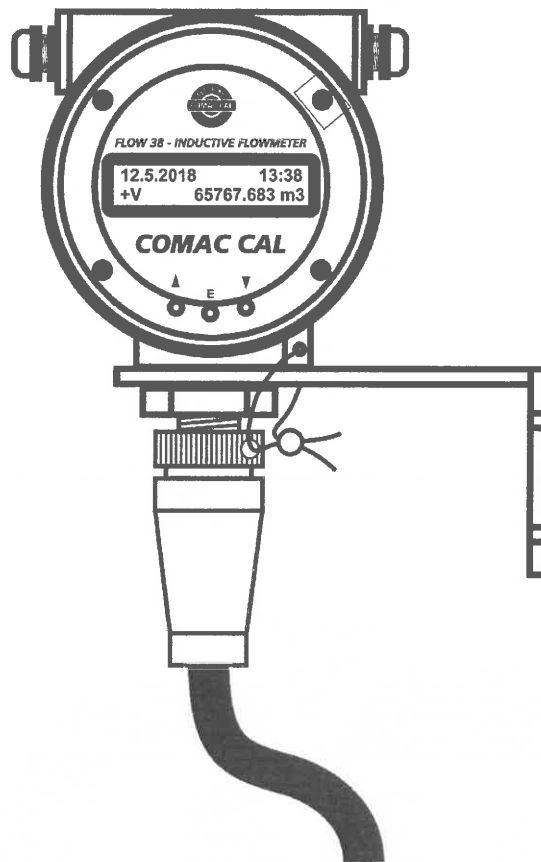


Figure 3: The water meter type FLOW 38 – example of labels:


- label of flow sensor:

- label of the electronic:

COMAC CAL FLOW 38MID

S/N XXXXXXXX Fw v8.23, H↑ V↑
 Q3=10m3/h R50 230 VAC/50 Hz
 MAP16, T50, Δp 10, U5D3, B E2
 Pulse max. 80V/50mA/100mW

TCM 142/18 – xxxx



Made 2018 by COMAC CAL s.r.o.
 Třanovice 239,739 53 Třanovice
 Czech Republic

COMAC CAL FLOW 38MID

S/N XXXXXXXX Fw v8.23
 Q3=10m3/h R50 230 VAC/50 Hz

TCM 142/18 – xxxx **CE** M18₁₃₈₃

Made 2018 by COMAC CAL s.r.o.
 Třanovice 239,739 53 Třanovice
 Czech Republic