

United Kingdom of Great Britain and Northern Ireland

Certificate of EC type-examination of a measuring instrument

Number: UK/0126/0086

issued by the Secretary of State for Business, Innovation & Skills
Notified Body Number 0126

In accordance with the requirements of the Measuring Instruments (Cold-water Meters) Regulations 2006 (SI 2006/1268) and the Measuring Instruments (Non-Prescribed Instruments) Regulations 2006 which implement, in the United Kingdom, Council Directive 2004/22/EC, this certificate of EC type-examination has been issued to:

**Elster Metering Limited
130 Camford Way
Sundon Park
Luton, Bedfordshire
LU3 3AN**

in respect of a family of cold-water meters utilising a common, volumetric measuring element, with a nominal capacity of 5.5 revs/litre and having a rated permanent flowrate Q3 of 10m³/h.

The necessary data (principal characteristics, alterations, securing, functioning etc) for identification purposes and conditions (when applicable) are set out in the descriptive annex to this certificate.



Signatory: P R Dixon
for Chief Executive
National Weights & Measures Laboratory
(Part of the National Measurement Office)
Department for Business, Innovation & Skills
Stanton Avenue
Teddington
Middlesex TW11 0JZ
United Kingdom

Issue Date: 27th July 2010
Valid Until: 26th July 2020
Reference No: TS02/0003

Descriptive Annex

1 INTRODUCTION

This pattern of liquid measuring instrument is for measuring the volume of cold water which has passed through it. It relates to models of semi-positive displacement cold-water meter having a Q_3 (permanent flowrate) of 10 cubic metres per hour. It is based on a 5.5 revolutions per litre measuring chamber with model variations described in section 2. They are not designed to measure reverse flow.

2 FUNCTIONAL DESCRIPTION

2.1 V100 meter

The V100 meter (Figure 1) incorporates a 5.5 rev/l semi-positive displacement rotary piston measuring chamber and counter assembly mounted in a brass alloy body for connection into the water pipe via two G1½"A or G1¾"A male threaded connectors. The axis of the measuring chamber is positioned in such a way as to be parallel with the axis of the pipe. The rotary piston drives a dog that couples to a roller wheel type register comprising eight wheels each circumferentially printed with the digits 0 - 9. The first five wheels display whole cubic meters the remaining three wheels display the fractional cubic meters to three decimal places. A cross section diagram is shown in Figure 3.

2.2 V200 meter

The V200 meter (Figure 2) has the measuring assembly fitted into a brass alloy body for in-line connection into the water pipe via two British G1¼"A, G1½"A or G1¾"A male pipe threaded connectors. The rotary piston driven magnet couples to a simple, mechanical non-resettable totalising register (Figure 8), a non-resettable totalising display incorporating an absolute encoder model register or an electronic non-resettable totalising register powered by a lithium cell. The electronic register (Figure 10) features either an internal antenna, external antenna or externally wired serial or pulse output. The register is positioned on the top of the measurement chamber housing and secured to the meter by the thermoplastic snap-shut register shroud. A cross section diagram is shown in Figure 4.

3 TECHNICAL DATA

3.1 Flow designation

3.1.1 Meters with $Q_3 = 10 \text{ m}^3/\text{h}$

Table 1 Permitted flow designations by model

Model Name	Q_3/Q_1 (R)				
	250	200	160	100	80
V100, V200	✓	✓	✓	✓	✓

Table 2 Related flowrates according to each Q_3/Q_1 designation

Q_3/Q_1 (R)	250	200	160	100	80
Q_2/Q_1	1.6	1.6	1.6	1.6	1.6
Q1 Minimum flowrate (m3/h)	0.0400	0.0500	0.0625	0.1000	0.1250
Q2 Transitional flowrate (m3/h)	0.0640	0.0800	0.1000	0.1600	0.2000
Q3 Permanent flowrate (m3/h)	10	10	10	10	10
Q4 Overload flowrate (m3/h)	12.5	12.5	12.5	12.5	12.5

3.2 Register elements

Model Name	Register Variant	Volume of one revolution of the first display element (m ³)	Verification Scale Interval (m ³)	Indicating Range (m ³)
V100	5x3 register	0.01	0.0001	99999.9999
V200	Standard	0.001	0.00002	99999.99998
	Encoder	0.001	0.00002	9999.99998
	Electronic 6+5	0.00001	0.00001	999999.99999

3.3 Meter dimensions

Model Name	Register Variant	Overall Meter Diameter (mm)	Overall Meter Height (mm)	Overall Meter Length (mm)	Meter Connection
V100	5x3 Register	120	n/a	199, 260	G1½"A or G1¾"A
V200	Standard	151	145	199, 260	G1¼"A, G1½"A or G1¾"A
	Encoder		155		
	Electronic		155		

3.4 Other designations

Temperature class:	T30 (0.1°C – 30°C)
Orientation requirements:	None
Revs/litre of measuring chamber	5.5
Maximum admissible pressure (MAP)	16 bar
Pressure Loss at Q3	0.63 bar max
Climatic environment:	-10°C to +55°C
Humidity	Condensing / non-condensing.
Mechanical environment:	M1
Electromagnetic environment:	E1 (V200)
Location:	Open/closed, condensing/non-condensing
Reverse Flow:	Permitted but not measured
Software Version	V02xx (V200)

4 PERIPHERAL DEVICES AND INTERFACES

The meters may be permanently or temporarily fitted with a pulse giving sensor, fitted externally to the register. Pulses from this sensor can be used to transfer a repeat of the indicated volume to an ancillary device. Pulses are generated either by a metallic pointer passing an inductive field or a magnet passing a reed switch.

4.1 Reed switch sensor (V100 meter)

The meter register is equipped with a magnet on the first element of the verification scale. The reed switch sensor is fitted in a pocket within the meter housing, in close proximity to the magnet, as shown in Figure 5.

4.2 Inductive pointer and sensor unit (V200 meter)

The meter register is equipped with a metallic plated pointer (Figure 6) on the first element of the verification scale. Two bosses and two holes on the shroud enable the option of an inductive sensor to be fitted to the meter shroud as shown in Figure 8. The manufacturer's name Elster is on the housing of the inductive sensor as well as the dial face.

4.3 Reed switch sensor (V200 meter)

The meter register is equipped with a magnetic pointer on the first element of the verification scale. The reed switch sensor is fitted to the meter shroud, as shown in Figure 9.

5 APPROVAL CONDITIONS

The certificate is issued subject to the following conditions:

5.1 Legends and inscriptions

The instrument bears the following legends:

- 'CE' marking
- Supplementary metrology marking
- Notified body identification number
- Permanent flow rate Q_3
- Flowrate range Q_3/Q_1 (R)
- Serial number
- Manufacturers mark or name
- Certificate number
- Information in respect of conditions of use (where applicable)

6 LOCATION OF VERIFICATION MARKS AND SEALS

6.1 Location of verification markings

6.1.1 V100

The serial number is marked adjacent to the register window of the meter housing and the verification marks are engraved on the central joint face of the meter housing, as shown in Figure 5.

6.1.2 V200

The serial number and verification markings are permanently etched on the top surface of the shroud as shown in Figure 8.

6.2 Sealing arrangement

6.2.1 V100

A sealing wire links the two halves of the body and is secured with a seal as shown in Figure 5.

6.2.2 V200

The meter is secured by means of the snap fit plastic shroud. The shroud has integrally moulded clips and once fitted to the meter body cannot be removed without showing visible signs of unauthorised entry if attempts are made to remove it.

7 ALTERNATIVES

7.1 Inductive Pointer

Having an inductive pointer with a stainless steel insert (Figure 7).

8 ILLUSTRATIONS

- Figure 1 V100 meter
- Figure 2 V200 meter
- Figure 3 Sectional view of V100 meter.
- Figure 4 Sectional view of V200 meter.
- Figure 5 View showing position of V100 reed switch sensor, markings and securing method
- Figure 6 V200 Metallic Plated Inductive Pointer
- Figure 7 V200 Stainless Steel Insert Inductive Pointer
- Figure 8 V200 Dial Face and Inductive Sensor position.
- Figure 9 V200 Dial Face and Reed Switch Sensor position
- Figure 10 V200 Electronic Register.

9 CERTIFICATE HISTORY

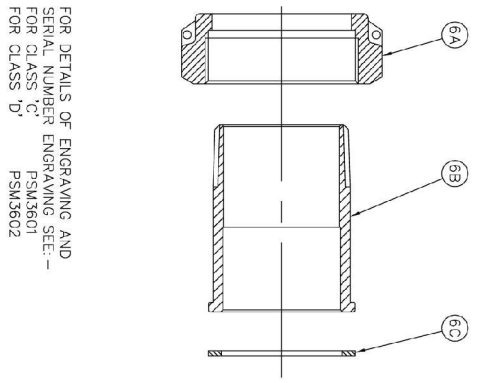
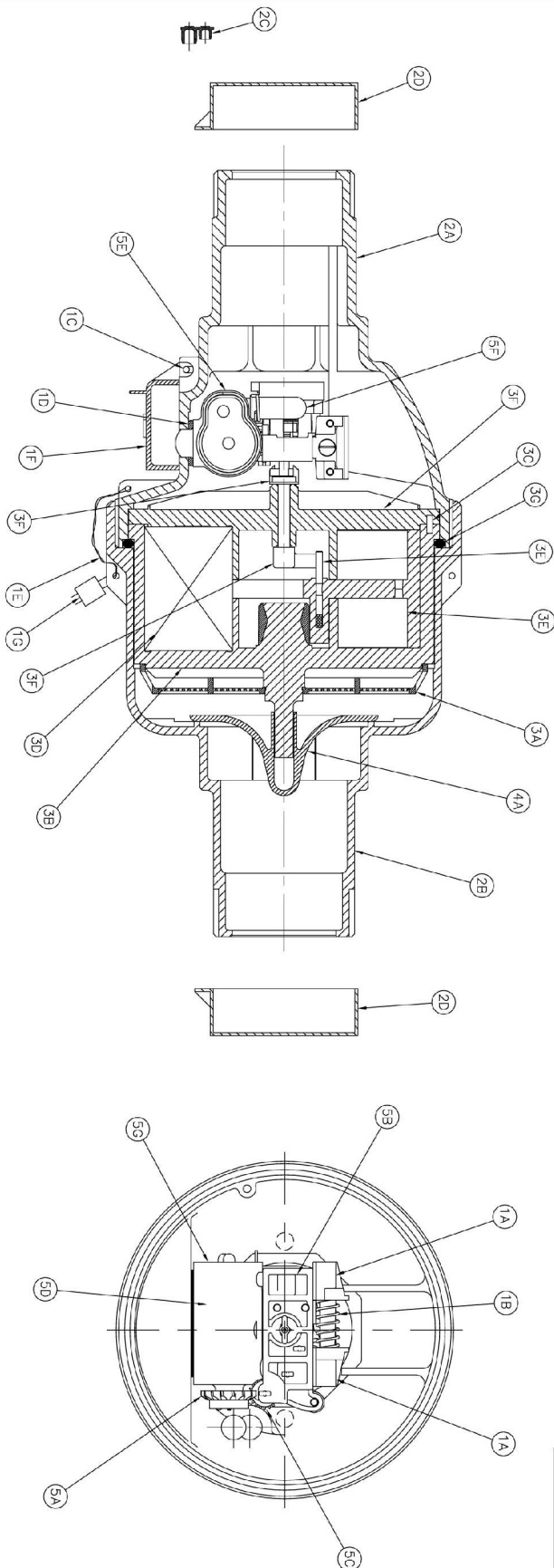
ISSUE NO.	DATE	DESCRIPTION
UK/0126/0086	27 July 2010	Type examination certificate first issued.



Figure 1 V100 meter



Figure 2 V200 meter



FOR DETAILS OF ENGRAVING AND SERIAL NUMBER ENGRAVING SEE:-
FOR CLASS C PSM3601
FOR CLASS D PSM3602

BOM ITEM	DESCRIPTION	BOM ITEM	DESCRIPTION
1	KIT OF COMMON PARTS	4	RETURN FLOW RESTRICTOR
1A	RAMPS	4A	COUNTER ASSEMBLY
1B	SPRING	5A	GLAND GEAR
1C	HINGE PIN 'O' RING	5B	BOTTOM BEARING PLATE KIT
1D	COUNTING 'O' RING	5C	COUNTER GEAR KIT
1E	SEALING WIRE	5D	COUNTER CASE KIT
1F	LEAD SEAL	5E	FILLING LIQUID KIT
1G	LEAD SEAL	5F	COUNTER CASE KIT
1H	INSTRUCTION LEAFLET	5G	COUNTER CASE SLIB / ASSY
2	BRASS BODY KIT	6	CONNECTIONS
2A	COUNTER HOUSING	6A	CAP NUT
2B	CHAMBER HOUSING	6B	LINER
2C	COMBINED PLUG R & W	6C	GASKET
2D	PROTECTIVE END CAP	7	ITEM
3	CHAMBER ASSEMBLY	7A	SPRING (WHEN REQUIRED)
3A	STRAINER	8	ITEM
3B	CHAMBER AND THIMBLE	8A	TEST SPECIFICATION
3C	CHAMBER PIN	9	ITEM
3D	SAULTER	9A	SPRAY PAINT
3E	PISTON	9B	THINNERS
3F	PISTON PIN		
3G	DRIVE BAR		
3H	DRIVE SPINDLE		
3I	TOP PLATE		
3J	'O' RING SEAL		

DO NOT SCALE

Remove all sharp edges

Thick Angle Projection

Sheet Size: A2, 2D

Material: Steel

Part No: PSM3602

Test Pressure

Approved by: LUTON

C.D.S.

Title: V100 - 30MM METER GENERAL ASSEMBLY

Iss. 1

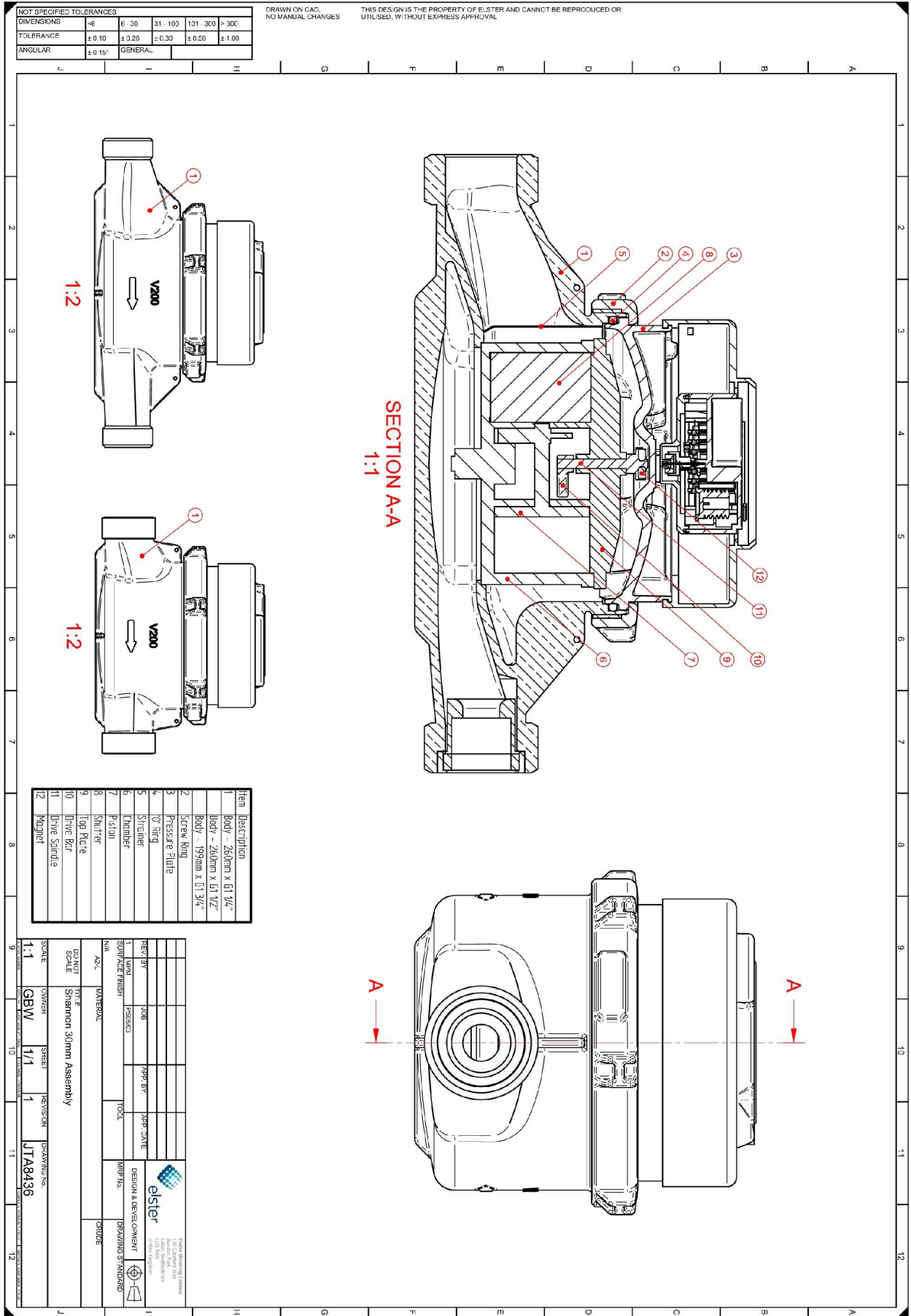
Drawn: C.D.S.

Date: 14/03/2007

Mod: State (By) No.

JTA3046

Figure 3 Sectional view of V100 meter



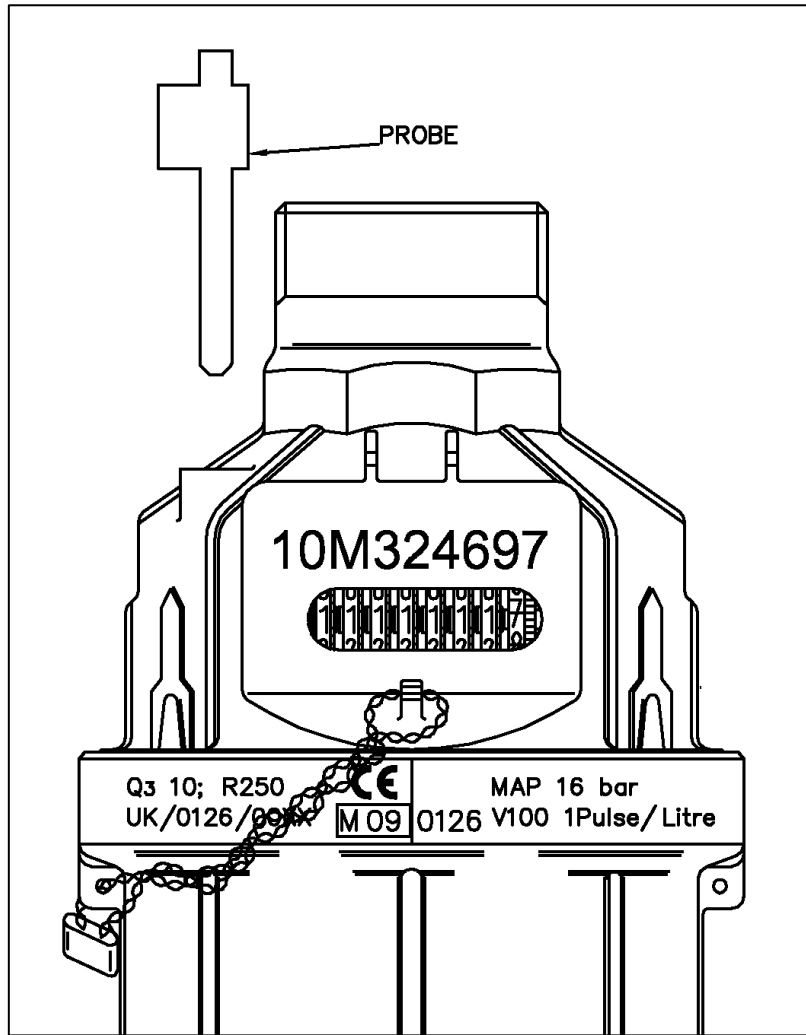


Figure 5 View showing position of V100 reed switch sensor. markings and securing method

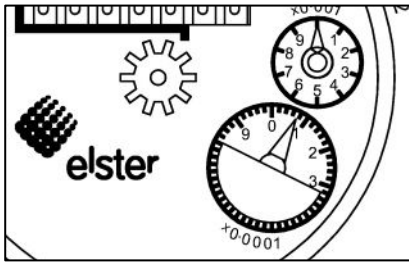


Figure 6 V200 Metallic Plated Inductive Pointer

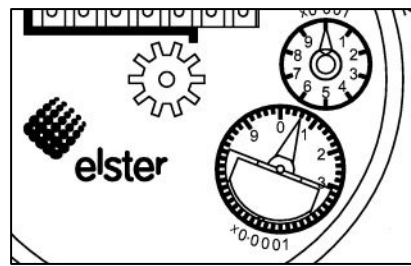


Figure 7 V200 Stainless Steel Insert Inductive Pointer

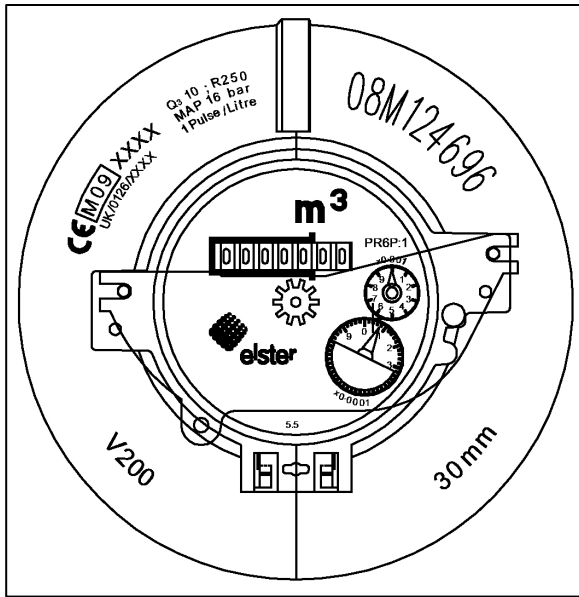


Figure 8 V200 Dial face Inductive Sensor position

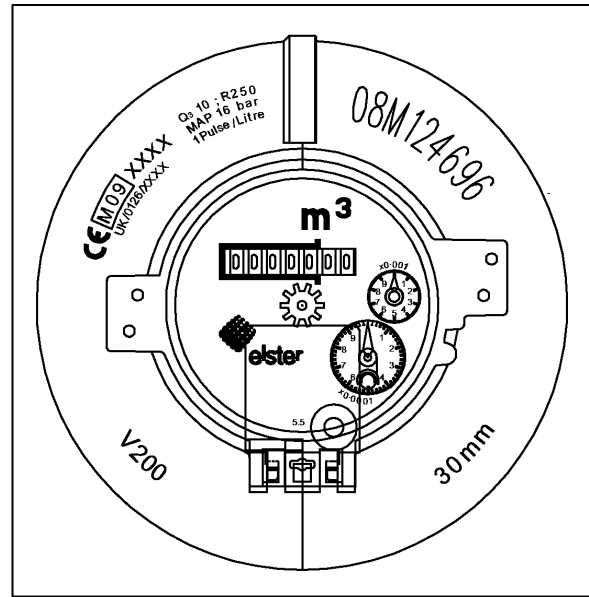


Figure 9 V200 Dial face Reed Switch Sensor Position

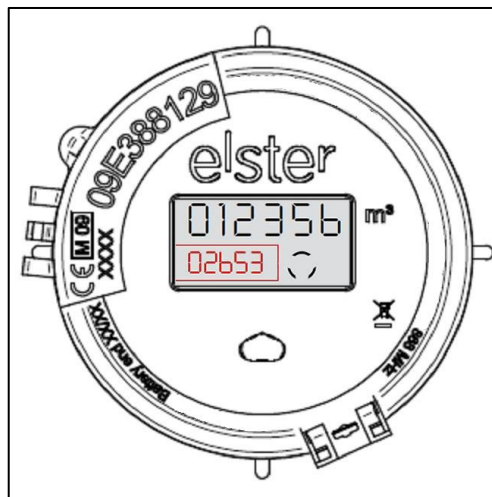


Figure 10 V200 Electronic Register.