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CERTIFICAT D'EXAMEN UE DE LA CONCEPTION

EU DESIGN EXAMINATION CERTIFICATE

N° LNE - 33564 rév. 2 du 07 mars 2018

Modifie le certificat 33564-1

Délivré par : Laboratoire national de métrologie et d'essais
Issued by

En application : Directive 2014/32/UE, Module H1
In accordance with

Directive 2014/32/EU, Module H1

Fabricant : ITRON ITALIA S.p.A. - Strada Valcossera 16
Manufacturer ITALY 14100 ASTI

Mandataire :
Authorized representative

Concernant : compteur d'eau ITRON type TU6
In respect of

water meter ITRON type TU6

Caractéristiques : Les principales caractéristiques de la conception approuvée figurent dans l'annexe ci-jointe qui fait partie intégrante du certificat et comprend 7 page(s). Tous les plans, schémas et notices sont déposés au Laboratoire national de métrologie et d'essais sous la référence de dossier P178978 -1.
Characteristics

The principal characteristics of the approved design are set out in the appendix hereto, which forms part of the approval documents and consists of 7 page(s). All the plans, shematic diagrams and documentations are recorded by Laboratoire national de métrologie et d'essais under reference file P178978 -1.

Valable jusqu'au : 17 octobre 2027
Valid until *October 17th, 2027*

Ce certificat d'examen UE de la conception est établi selon les dispositions de la section 4 du module H1 de la directive 2014/32/UE et n'est valide qu'en complément du certificat d'approbation de système qualité délivré par le LNE conformément aux modalités décrites par le module H1 de la directive 2014/32/UE.

This EU Design-Examination certificate is based on section 4 of module H1 of the directive 2014/32/EU and is only valid in addition to a valid certificate of quality system approval issued by LNE according module H1 of the council directive 2014/32/EU.

Etabli le 07 mars 2018
Issued on March 7th, 2018

Pour le Directeur Général
On behalf of the General Director

LNE
Thomas LOMMATZSCH
Responsable du Pôle Certification
Instrumentation
Measuring Instruments Division Manager

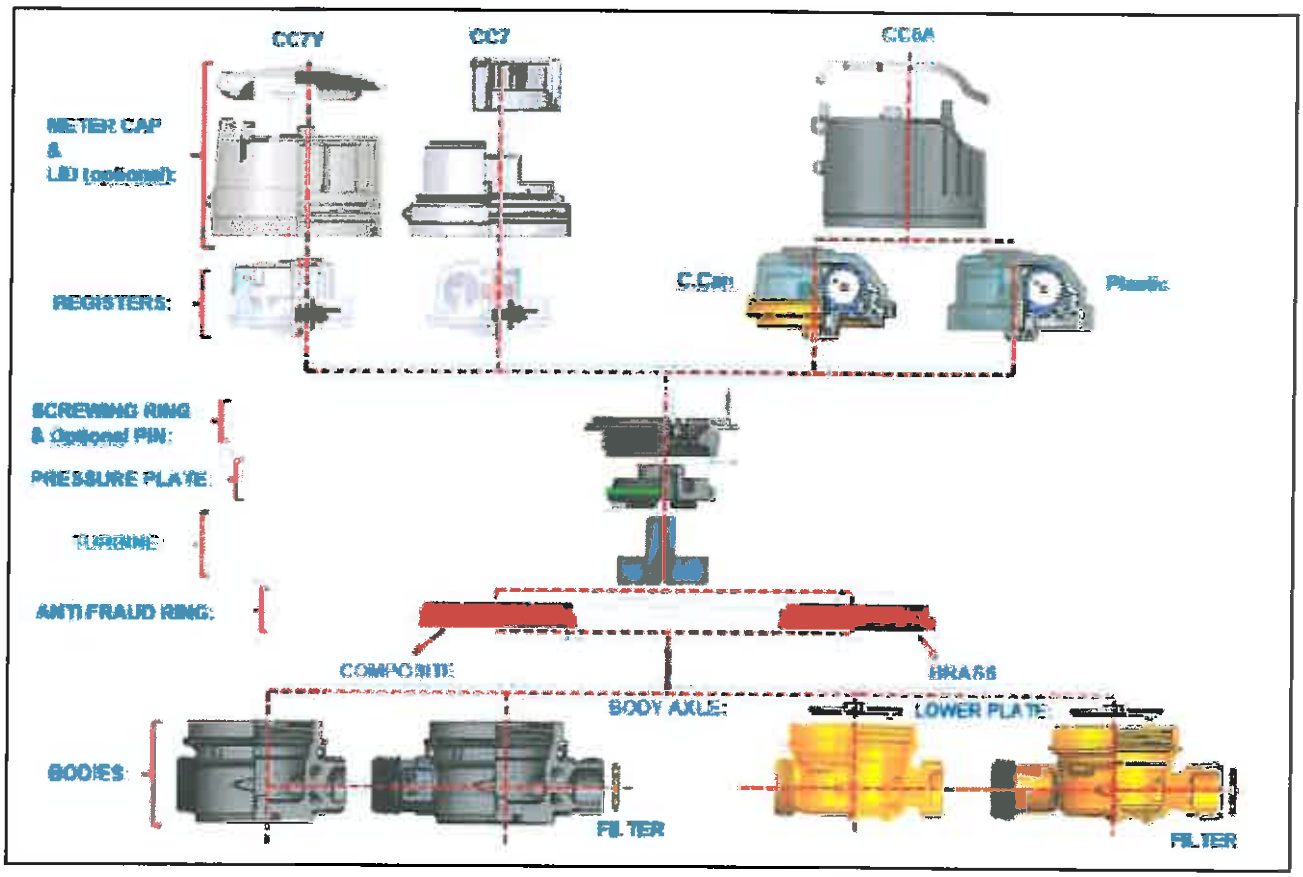
Annex to UE design examination certificate n° LNE-33564 rev2

These instruments can be sold with other commercial names and can be different only by the presentation.
Here are non-exhaustive examples of possible looks and variants.

Description

The water meter TU6 is a single-jet water meter with extra dry register and direct magnetic transmission between turbine and register. It is composed by three main sub-assemblies :

- Hydraulic
- Register
- Cap and lid (optional)



Working Principle

The water goes through the meter from the inlet pipe to the outlet pipe rotating the turbine.
The turbine rotation is transmitted to a dry register with a magnetic coupling, one magnet on top of the turbine and one magnet on the magnet holder or central gear of the register. The gear system allows with a ratio to move rollers and display the volume of water passed inside the water meter.

The meter measures the velocity of water flow and converts it into volume of water flowed through the number of rotation of the turbine. The working principle is the fixed relation between a turbine rotation and the internal volume of the measurement chamber (cyclic volume).

Hydraulic

The hydraulic sub assembly includes a body, a filter to protect the hydraulic, a turbine equipped with a bottom bushing and a top metallic axle, a baffles pressure plate equipped with a stone and a bushing, a gasket to insure the hydraulic water tightness and a closing ring.

Register

The register is the indicating device that displays the cumulative volume of the water flown by the meter. The main components are :

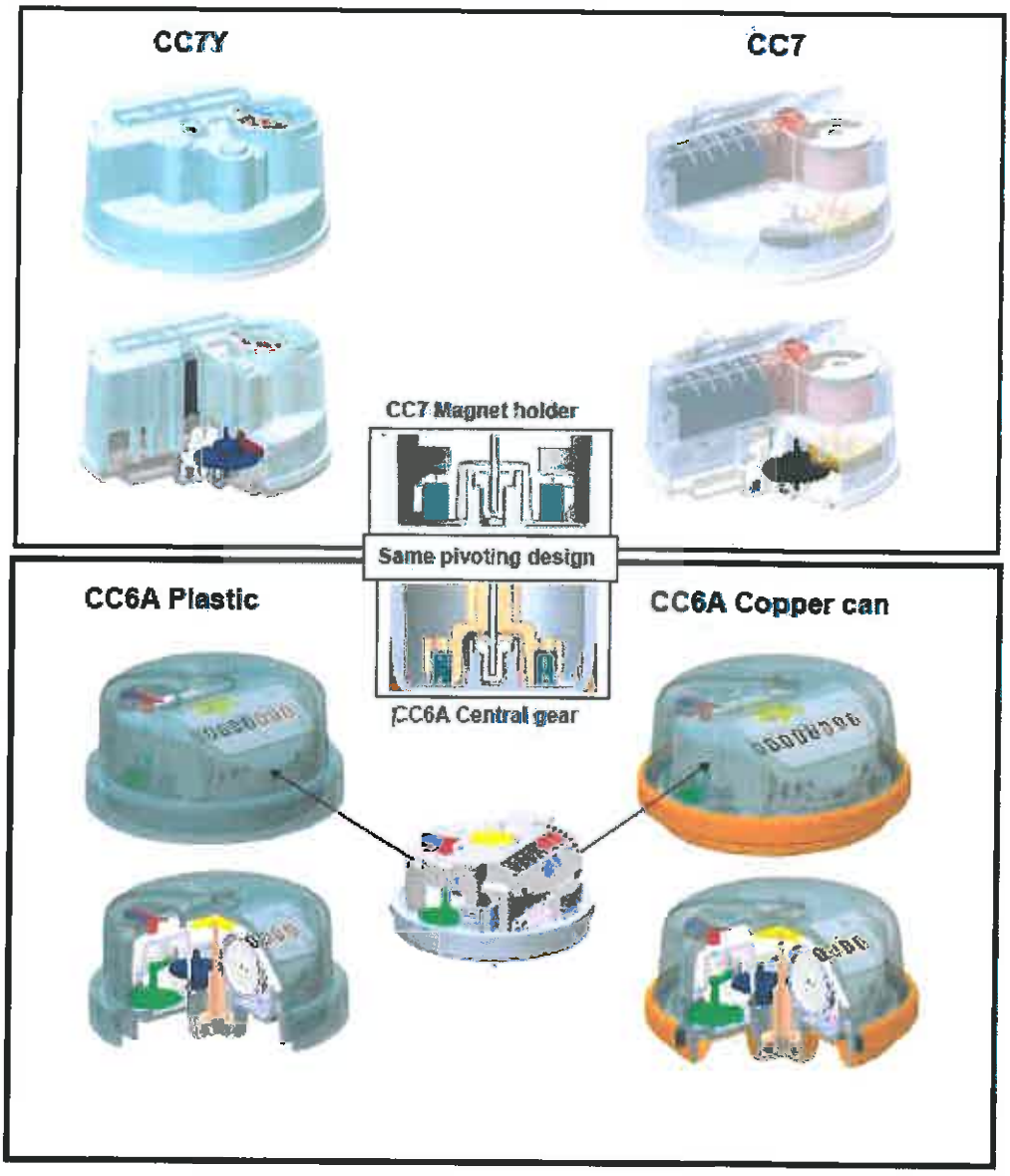
- An external hermetic shell made by two parts welded by ultrasonic process or metal/glass crimped.
- A magnet holder transmits the motion to the wheels. It includes a index with sector for the direct flow rate reading by optical probe.
- A series of geared wheels ensures de-multiplication of speed rotation according with the cyclic volume of the meter. The wheels inside the register have a profile that guarantees high sensitivity and the transmissions of motion to the numbered drum. The last wheel called worm screw includes a never-end screw to transmit the rotation to the first drum numbered roller and has an index for the reading of the decimal points of litres (one complete turn each litre of water flowed).
- Depending by the register version, a target can be fixed on the last wheel in order to interface with an electronic reading module for the automated meter reading.
- A drum composed by 8 numbered rollers (5 black for cubic meters and 3 red for decimals) to collect the totalized measure.

Annex to UE design examination certificate n° LNE-33564 rev2

The meter TU6 can be equipped indifferently with register :

- CC7
- CC7Y
- CC6A (copper or plastic)

The above mentioned registers share the same technology and most of the components are in common as is possible to see in the below images. The functional component that may impact on the metrology are the same, so the registers CC7, CC7Y, CC6A have the same impact on the metrological performances.



A plastic cover is directly clipped in the body and fix the register on hydraulic part. After the water meter has been manufactured, there is no possibility of dismantling or altering the meter or its calibration adjustment device without remove the cover. The cover cannot be removed without destroying it.

All the legal inscriptions, including the pattern approval sign according to European regulations and seal are reported in indelible way on the top face of the cover. It's possible to have an optional lid.

Metrological Characteristics

Nominal diameter DN (mm)	15				20
Indicating device	Plastic or Metal glass				
Body material	Composite and Metal				Metal
Body lengths	From 80 to 130 mm				From 115 to 130
Connections	G3/4" G1" G7/8"– M22 – Specials not threaded				Threads G1"
Indicating device / Materials	Analogical device with numbered drum / Plastic and Metal				
Indicating range	99999,999 m^3				
Verification scale interval	0,05 dm^3 (CC7 & CC7Y) and 0,02 dm^3 (CC6A)				
Cyclic volume (cm^3)	29				44
Permanent flowrate Q_3 (m^3/h)	1,6		2,5		4
Q_3/Q_1	T30 - T50	T30/90 -T90	T30 - T50	T30/90 - T90	T30 - T50 - T30/90 -T90
	R80 (Horizontal) R40(Vertical)	R63 (Horizontal) R40 (Vertical)	R125 (Horizontal) R63 (Vertical) R63 (All Positions)	R100 (Horizontal) R63 (Vertical) R63 (All Positions)	R125 (Horizontal) R63 (Vertical) R63 (All Positions)
Q_2/Q_1 (m^3/h)	1,6				
Maximum admissible pressure (bar)	16				
Maximal pressure loss (bar)	0,25		0,63		
Water temperature class ***	T30 – T50 T30/90 – T90				
Climatic environment	-25°C ...+ 70°C				
Mechanical environment class	M1 (B ***)				
Electromagnetic influence class	N/A				
Flow Profile Sensitivity Class	U0D0 ***				
Designed to measure reverse flow *	no				

** The water meter is not designed to measure reverse flow but can withstand an accidental reverse flow without any deterioration or change in metrological properties.*

*** For a given nominal flowrate (Q3) values of Q3/Q1 lower than those listed in the table above are permitted. However the values of this ratio cannot be below 10.*

**** According to ISO4064-1:2014, EN14154-1:2005+A2:2011 and OIML R49-1:2013*

Interfaces and compatibility conditions

Possible interface with the communication modules for automated meter reading. This feature is not covered by this certificate.

Particular requirements on putting into use

The water meter ITRON type TU6 does not require a straight length at the inlet or at the outlet, neither a straightener.

Particular requirements on use

See measuring range in the table of characteristics

Particular requirements on inspection / verification

The water meter ITRON type TU6 can be verified in horizontal position, at a water temperature within 15 and 25 °C, irrespective of the temperature range. The MPE at Q1, Q2 and Q3 are the following :

TU6 DN15 BRASS

		R100	R80	R63	R50	R40
Q1	MPE - (%)	-2,1	-3,9	-4,1	-4,0	-4,1
	MPE + (%)	4,9	5,4	5,2	5,3	5,1
Q2	MPE - (%)	-2,1	-2,0	-2,1	-2,1	-2,0
	MPE + (%)	3,2	3,3	3,1	3,2	3,2
Q3	MPE - (%)	-3,2				
	MPE + (%)	2,1				

TU6 DN15 COMPOSITE

		R100	R80	R63	R50	R40
Q1	MPE - (%)	-2,5	-3,0	-3,3	-3,7	-3,5
	MPE + (%)	4,4	4,6	4,5	4,8	4,7
Q2	MPE - (%)	-1,3	-1,7	-1,5	-1,7	-2,0
	MPE + (%)	2,5	2,8	2,7	2,6	2,6
Q3	MPE - (%)	-2,8				
	MPE + (%)	2,0				

TU6 DN20 BRASS

		R100	R80	R63	R50	R40
Q1	MPE - (%)	-2,9	-3,9	-3,8	-4,1 -	3,9
	MPE + (%)	5,5	5,4	5,3	5,4	5,3
Q2	MPE - (%)	-1,8	-2,1	-1,9	-1,9	-2,3
	MPE + (%)	3,3	3,4	3,3	3,3	3,2
Q3	MPE - (%)	-3,0				
	MPE + (%)	2,1				

T30 and T50 versions, all ratios :

Q1 : ± 5%,
Q2 : ± 2%
Q3 : ± 2%

Static pressure test

A test shall be performed, the results of which are capable of demonstrating leakproof performance, equivalent to an applied pressure of at least 1,6 time the maximum admissible pressure for one minute.

Error (of indication) measurements

The errors of indication of the water meters in the measurement of actual volume shall be determined for at least the following three flowrates:

between Q1 and 1,1 x Q1 : ± 5% for all water temperature,
between Q2 and 1,1 x Q2 : ± 2% for a water temperature < 30 °C,
between Q2 and 1,1 x Q2 : ± 3% for a water temperature > 30 °C,
between 0,9 x Q3 and Q3 : ± 2% for a water temperature < 30 °C,
between 0,9 x Q3 and Q3 : ± 3% for a water temperature > 30 °C.

The tested flowrates must match the Q3, Q3/Q1 and Q2/Q1 values displayed on the water meter ITRON type TU6.

The testing condition shall meet the clauses described in the harmonized standard EN 14154-1:2005+A2:2011.

If all the errors (of indication) of the water meter have the same sign, at least one of the errors shall not exceed one half of the maximum permissible error.

Security and sealing

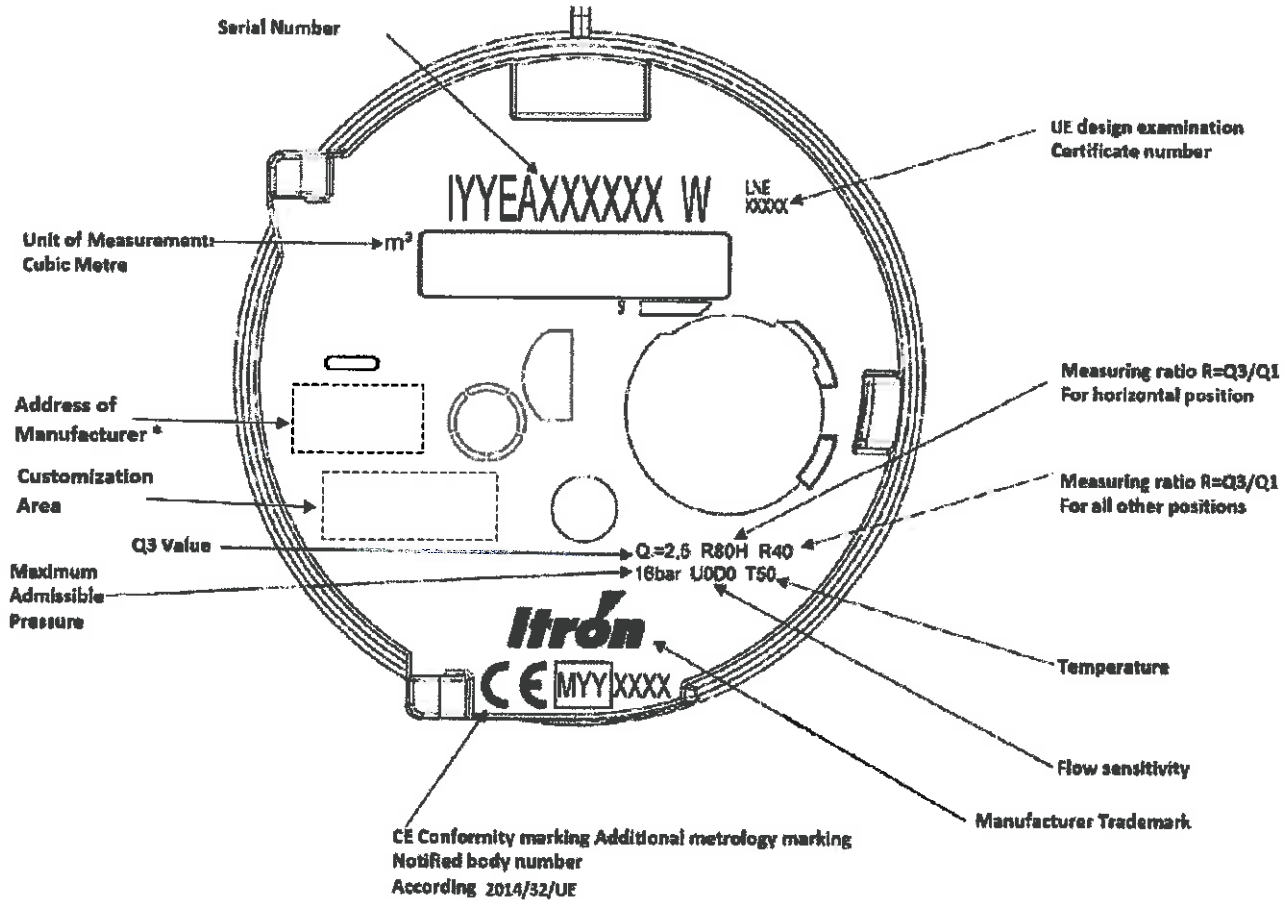
The cover is clipped on the meter's body, preventing from any disassembly. It can not be withdrawn without destruction.
An optional sealing can be done with a lead and a wire.

Markings and inscriptions

The meter will be clearly and indelibly marked with the following information. The position of the markings is not contractual. The arrow that indicates the direction of the flow is located on the meter body.

Note : The "YY" additional metrology marking corresponds to the year of manufacture.

Annex to UE design examination certificate n° LNE-33564 rev2



(*): In some product version marking surface is not sufficient to assure good readability, in this exceptional case the address of the manufacturer may be moved from the product and affixed on the packaging.

Revision history

Revision	Date	Scope
0	17/10/2017	Initial certification
1	08/01/2018	Version DN20 Q3=4
2	07/03/2018	Add of lengths 115 and 130 mm for DN15