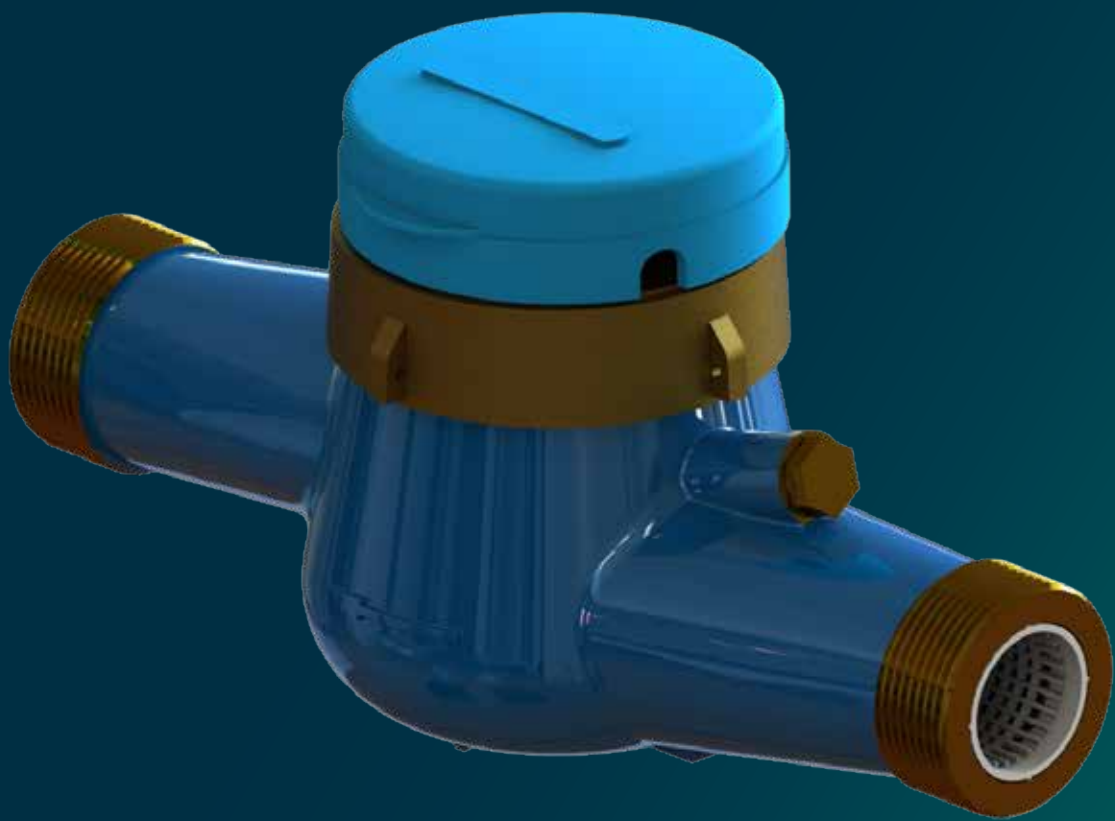


hidroconta
metering technology

WHEN WATER COUNTS



water meter

mfsm - L

Multi-jet
technology

MID
Approval

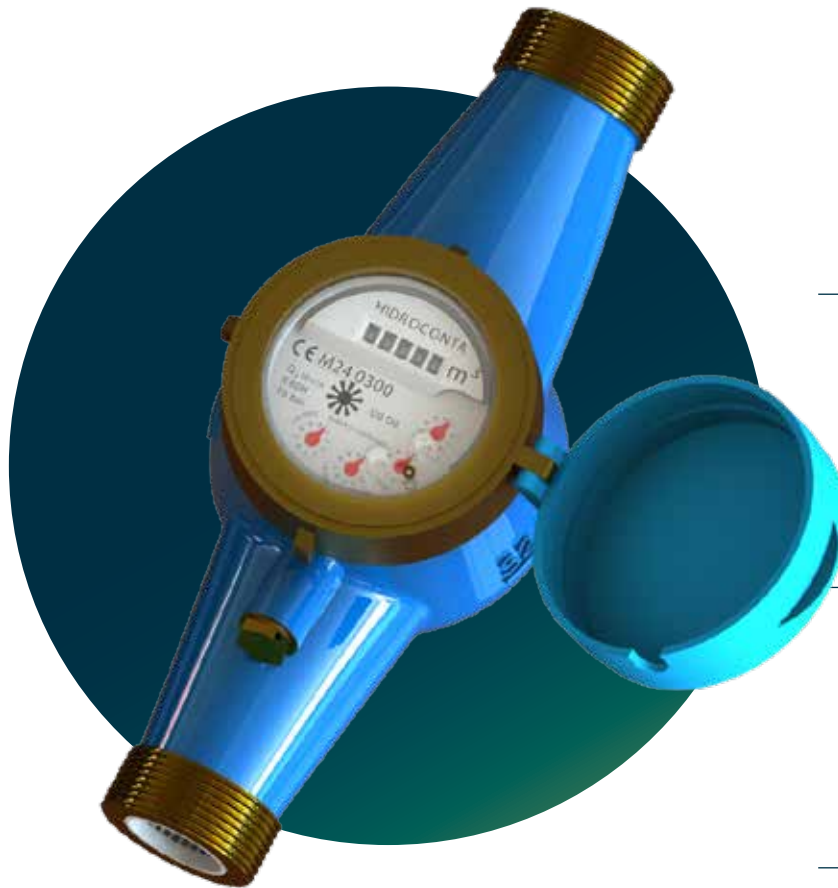
R80H
accuracy

Magnetic
transmission

Convertible into
Smart meter

Made of
brass

Installation
UO/DO



REV.2

Hydrodynamic design

The multi-jet technology ensures uniform load distribution over the turbine thanks to the diffuser located at the water inlet. The movement activates the magnetic transmission which gives the final volume reading.

MID Approval

The Hidroconta m fsm-L water meter exceeds the metrological requirements based on Directive 2014/32/EU so they are normally used for the totalisation and control of domestic water consumption. At Hidroconta we carry out strict tests on the water meters to ensure their quality and accuracy.

Technical specifications

- ✓ Epoxy coated copper alloy body.
- ✓ Turbine and dial in thermoplastic material.
- ✓ Dial assembly in vacuum to prevent water condensation.
- ✓ Magnetic transmission protected against external magnetic fields.
- ✓ Pulse transmitter pre-equipment for remote reading.
- ✓ Quick connection without the need to stop the water meter or dismantle it.
- ✓ High mechanical and wear resistance.
- ✓ MID drinking water approval. MID Directive 2014/32/EU.
- ✓ No need for straight sections at the inlet or outlet of the water meter.

High Protection

Hidroconta's M fsm-L water meters are designed to prevent external manipulation by magnetic fields. They have a special shielding that prevents any possible fraud in the transmission and therefore in the result of the reading.

Pre-equipped

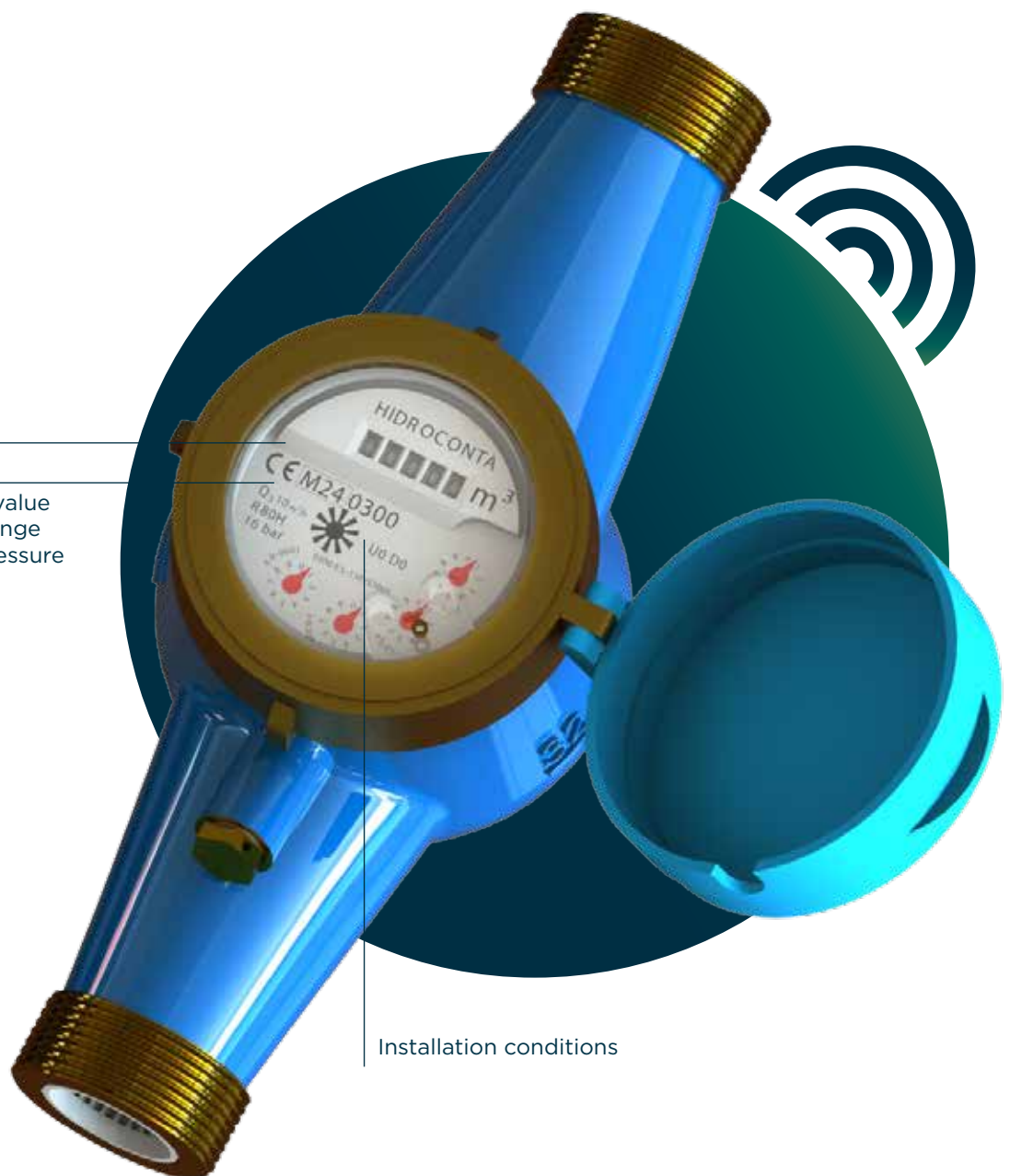
The dial of the water meter has a pre-installation that allows the installation of a pulse emitter, without the need to stop the water meter, this will give information of the reading.

Dial



MID approval
for drinking water

Permanent flow rate value
Horizontal working range
Maximum working pressure



Installation conditions

Disassembly



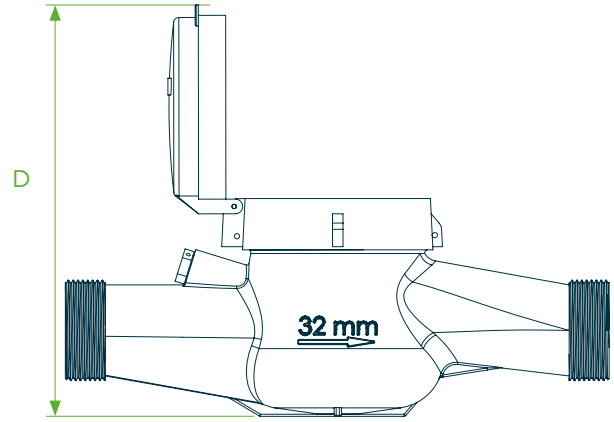
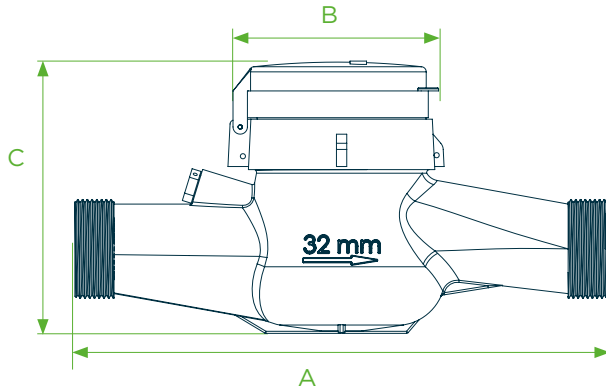
N°	DESCRIPTION	MATERIAL
1	Cover	Plastic
2	Pin	Brass
3	Cover base	Brass
4	Upper gasket dial	Plastic
5	Propeller-dial assembly	Assembly
6	Chamber filter	Plastic
7	Regulating screw	Plastic
8	Regulating screw gasket	Plastic
9	Regulating screw plug	Brass
10	Inlet filter	Plastic
11	Body	Brass



REV2

3

Dimensions



DN		A	A (with fittings)	B	D	C	WEIGHT WITH FITTINGS	WEIGHT WITHOUT FITTINGS	THREADED CONNECTIONS	MATERIAL
mm	in	mm					Kg			
32	1-1/4"	260	381	100	200	135	3,03	2,30	G 1-1/2" BSP	Brass
40	1-1/2"	300	428	125	253	176	4,68	3,67	G 2" BSP	Brass
50	2"	300	439	123	253	174	6,41	4,32	G 2-1/2" BSP	Brass

Packing



DN		PCS. PER BOX	DIMENSIONS PER BOX (CM)			GROSS WEIGHT
mm	in		Length	Width	Height	Kg
32	1-1/4"	1	26,5	11,1	14,2	3,14
		5	56,5	28	16	15,7
40	1-1/2"	1	31	12,5	17	4,8
		2	32	27	18,5	9,7
50	2"	1	31	17,9	18,5	6,3

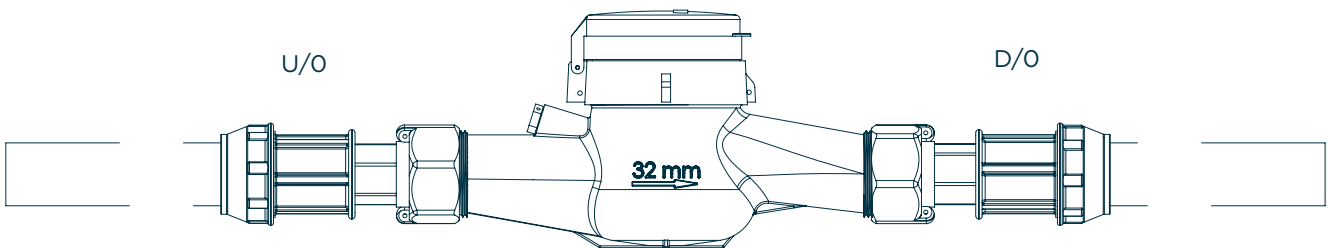
Pulse output



REED SENSOR

Pulse value	1 pulse 100L
Minimum current for contact closure	0mA
Maximum contact closing current	100mA
Contact closed resistance	< 1 Ω
Open contact resistance	~ ∞
Max. withstand voltage	24V
Max. contact stabilisation time	100 us
Contact closed contact duration	40% of cycle
Standard cable length	1,5 m

Installation diagrams



REV.2

Installation instructions

Position the water meter so that the arrow corresponds to the direction of water flow.

The water meters must always be filled with water. A minimum pressure of 0.3 bar is recommended at the outlet of the water meter to ensure that it is completely filled with water. Install at a lower level with respect to the slope of the rest of the pipe, in this way, the formation of air pockets inside the pipe will also be eliminated.

If air is present in the pipe, it is necessary to place release valves to avoid erroneous readings. If the water in the pipe has coarse particles in suspension, it is recommended to install a roughing filter beforehand.

Straight sections are not necessary, neither at the inlet nor at the outlet of the water meter.

Provide a shut-off valve upstream of the water meter to facilitate maintenance and/or repair of the meter.

Before installing a water meter in a new pipe, it is recommended to drain the pipe to remove particles.

Do not force the water meter during installation, avoid tensile and torsion stresses, especially in threaded connections.

The connection of the water meter can be made on a horizontal pipe.

5

Working conditions

WATER TEMPERATURE RANGE

0,1 °C - 30 °C

MAXIMUM PRESSURE

≤ 16 bar

Maximum permissible error

RANGE

ERROR (%)

$Q_1 \leq Q < Q_2$

± 5%

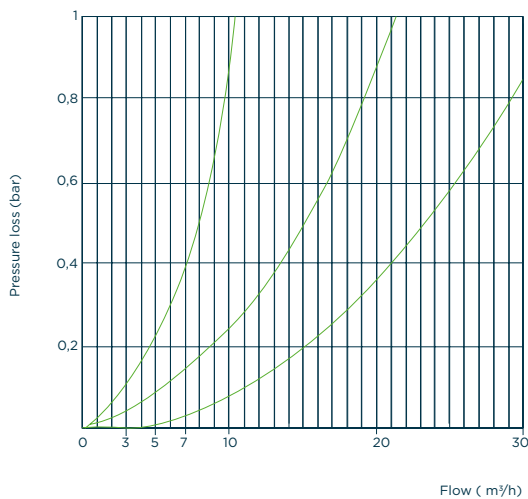
$Q_2 \leq Q \leq Q_4$

± 2%

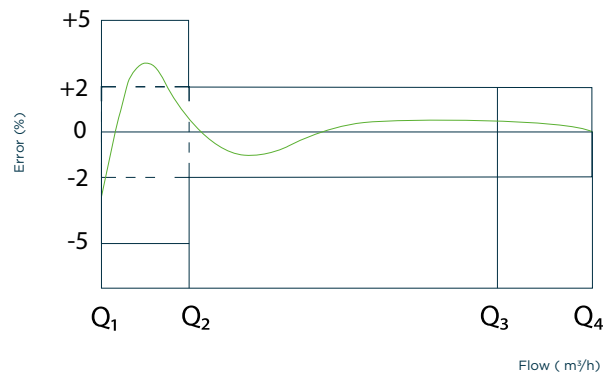
Technical specifications

DN		Q_4	Q_3	Q_2	Q_1	STARTING FLOW RATE	MINIMUM READING	MAXIMUM READING	RATIO	MATERIAL
mm	in	m^3/h				l/h	m^3			
32	1-1/4"	12,5	10	0,2	0,125	20	0,05	99.999	R80H	Brass
40	1-1/2"	20	16	0,32	0,2	50	0,05	99.999	R80H	Brass
50	2"	31,25	25	0,5	0,312	60	0,05	99.999	R80H	Brass

Pressure loss curve



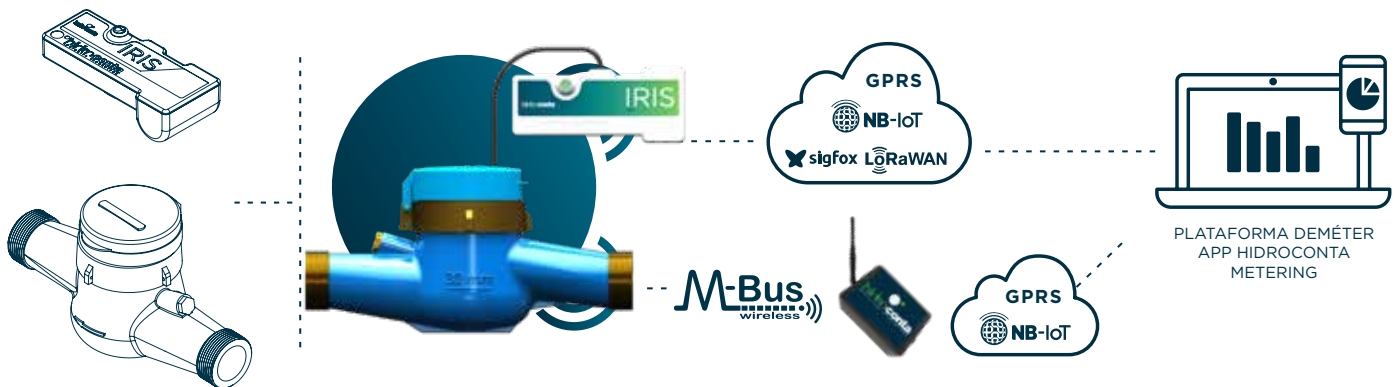
Flow error curve



Automatic meter reading

Adding the IRIS communications module to the water meter will enable automatic remote readings. IRIS devices allow mechanical meters to access the world of IoT communications. Its great versatility allows it to be integrated with a wide range of meters.

The IRIS communications module is integrated with the Demeter system. It supports the integration of a wide range of devices using various communication technologies to suit the needs of the installation.



NB-IoT

Belts	LTE NB2/B1/B2/B3/B3/B4/B5/B8/ B12/B13/ B17/B18/B19/ B20/B25/B28/B66/ B70/B85
Transmission power	23 dBm +/-2dB
Firmware Update	Via FOTA

M-Bus wireless

868 MHz

OMS T1 and C1

GPRS

Frequency	<ul style="list-style-type: none"> - Quad-band: GSM850, ESM900, DCS1800, PCS1900. - The module can search for these frequency bands automatically. - The frequency bands can be configured by AT command. - GSM Phase 2/2+ compliant
Transmission power	Class 4 (2W) on GSM850 and EGSM900 Class 1 (1 W) on DCS 1800 and PCS1900
Bidirectional	Yes/Half-duplex
SIM	MFF2 eSIM and nano SIM card supported

LoRaWAN

Modulation	CSS	CSS
Frequency	EU868* ISM band	ISM band US915, AU915, AS923**/ ***
Power	14 dBm	20 dBm
Sensitivity	168 dBm	168 dBm
Bandwidth	125 kHz	125 kHz
LoRaWAN Configuration	SF12	SF12
Bidirectional	Yes/Half-duplex	Yes/Half-duplex
Encryption	AES128	AES128
Standardisation	LoRa-Alliance	LoRa-Alliance

sigfox

Geographical availability	RC1*	RC2**	RC4***
Modulation	BPSK	BPSK	BPSK
Frequency	Tx Freq : 868.13MHz Rx Freq : 869.525MHz	Tx Freq : 902.2MHz Rx Freq : 905.2MHz	Tx Freq : 920.8MHz Rx Freq : 922.3MHz
Power	14 dBm (max) @600bps	+24dBm (max.) @600bps	+24dBm (max.) @600bps
Sensitivity	-127dBm @600bps	-129dBm(min.) @600bps	-129dBm(min.) @600bps
Bandwidth	100 Hz	100 Hz	100 Hz
Bidirectional	Limited/Half-duplex	Limited/Half-duplex	Limited/Half-duplex



Alarms

🔔 Leakage alarm:

Detection of continuous consumption for a maximum period of time. Configuration adjusted by communications.

🔔 Water meter stopped alarm:

The alarm is activated if no consumption is detected for a maximum period of time. Configuration adjusted by communications.

🔔 Under-dimensioned water meter alarm:

Detection of flow rate higher than the overload flow rate for a maximum period of time. Configuration adjusted by communications.

🔔 Battery status alarm:

Various battery alarm levels are activated depending on the remaining battery life.

REV2

Functionality



Operating profiles based on the recording consumption and communications records requirements:



- Normal-24: Sending data every 24 hours and recording every hour.
- Normal-8: Sending data every 8 hours and recording every hour.
- Medium: Sending data every 12 hours and recording every 30 minutes.
- Extreme: Sending data every 6 hours and recording every 15 minutes.

MODE	AUTONOMY	COMUNICACION	DATA HISTORY RECORD
Normal -24	12 years	24 h	1 h
Normal -8	TBD	8 h	1 h
Medium	TBD	12 h	30 min
Extreme	TBD	6 h	15 min

* TBD (to be determined). 24 maximum storage and sending readings: each sending allows accumulating up to 24 values for each communication interval.

3



1. What is the difference between dry dial, wet dial and semi-dry dial meters?

In meters with dry dial the reading mechanism (dial) is hermetically separated from the wet chamber of the water meter.

In water meters with a wet dial the dial is completely immersed in the fluid.

In water meters with semi-dry dial, the reading mechanism is totally immersed in the fluid but the dial is partially separated and protected by a sealed capsule.

2. What are the measuring ranges and precision?

The measuring range of the water meters is determined by the MID Directive 2014/32/EU, setting the ratio between the permanent flow value (Q3) and the minimum flow value (Q1). The water meter may measure up to the maximum flow rate (Q4) for short periods of time without deterioration of the meter.

The Maximum Allowable Error, positive or negative, in volumes between the transition flow rate (Q2) (included) and the overload flow rate (Q4) would be 2 % at a water temperature ≤ 30 °C.

The Maximum Allowable Error, positive or negative, in volumes between the minimum flow rate (Q1) and the transition flow rate (Q2) (excluded) would be 5%.

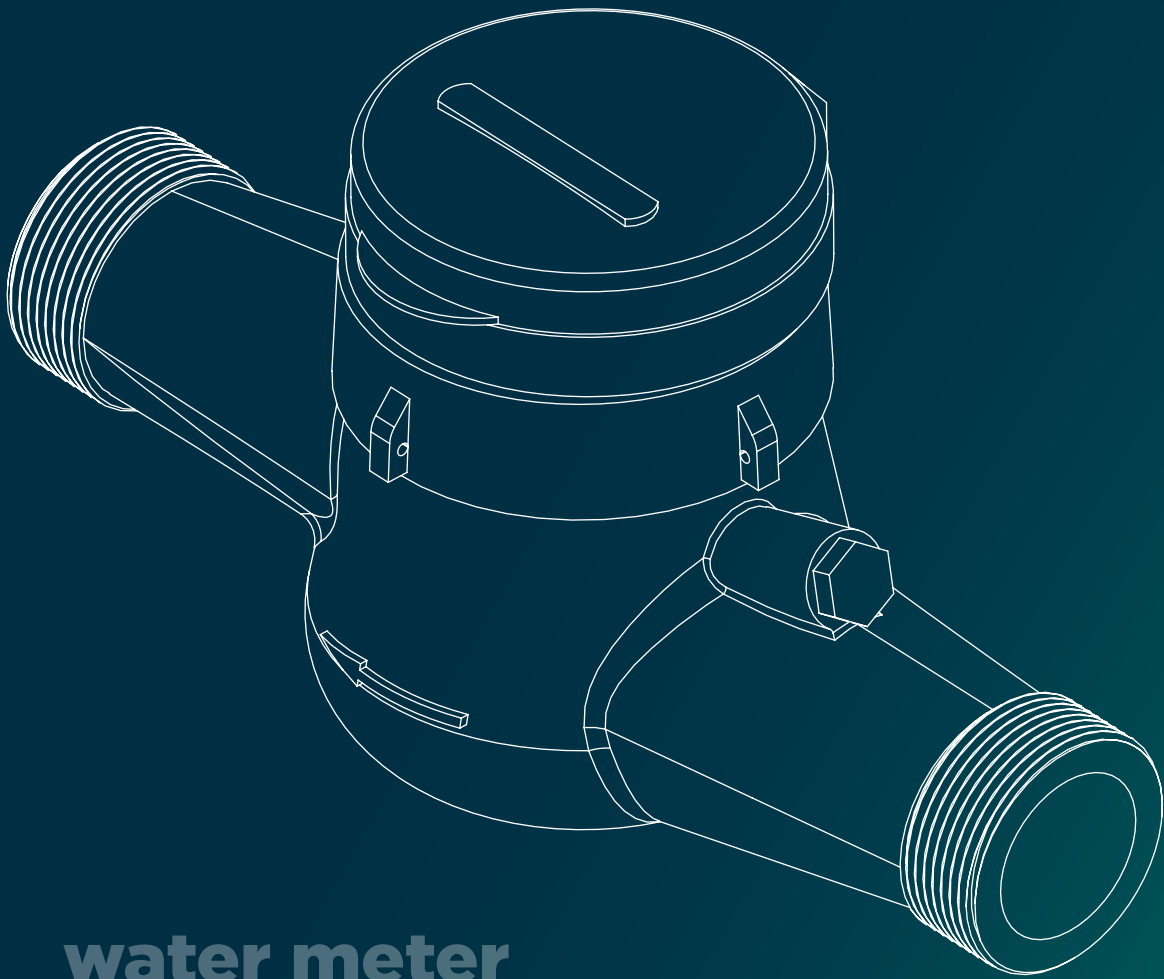
3. The MID directive and its enforcement

The MID Directive (2014/32/EU Measuring Instruments Directive) is a directive of the European Union which aims to harmonise the different aspects of Legal Metrology in the member states.

The most important aspect of this directive is that equipment in possession of a MID certificate can be used in the EU.

hidroconta
metering technology

WHEN WATER COUNTS



water meter

mfsm-L

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